

SMART
SENSOR
BUSINESS



PRODUCTS 2016/2017

Switching sensors | Measuring sensors | Products for safety at work
Identification | Data transmission/Control components
Industrial image processing | Accessories





TABLE OF CONTENTS

Online - Find the right sensor quickly and simply	P. 8
Our webshop will convince you	P. 10
We are the sensor people	P. 12
Our promise to you	P. 14

CHAPTER	/ SEGMENT
Switching sensors <p>P. 22</p> 	<p>Optical sensors P. 24</p> <p>Inductive switches P. 115</p> <p>Ultrasonic sensors P. 138</p> <p>Fiber optic sensors P. 146</p> <p>Forked sensors P. 155</p> <p>Light curtains P. 166</p> <p>Special sensors P. 181</p>
Measuring sensors <p>P. 194</p> 	<p>Distance sensors P. 196</p> <p>Sensors for positioning P. 210</p> <p>3D sensors P. 221</p> <p>Light curtains P. 228</p> <p>Measuring forked sensors P. 237</p>

CHAPTER	/ SEGMENT
<div data-bbox="181 188 384 248"> Products for safety at work </div> <div data-bbox="687 188 762 217"> P. 240 </div> <div data-bbox="209 271 746 678">  </div>	<div data-bbox="831 188 1137 217"> Optoelectronic safety sensors </div> <div data-bbox="1337 188 1404 217"> P. 242 </div> <div data-bbox="831 510 1145 571"> Safe locking devices, switches and proximity sensors </div> <div data-bbox="1337 510 1404 539"> P. 301 </div> <div data-bbox="831 779 1091 808"> Safe control components </div> <div data-bbox="1337 779 1404 808"> P. 327 </div> <div data-bbox="831 994 1083 1023"> Machine Safety Services </div> <div data-bbox="1337 994 1404 1023"> P. 343 </div>
<div data-bbox="181 1214 363 1243"> Identification </div> <div data-bbox="691 1214 766 1243"> P. 348 </div> <div data-bbox="220 1276 708 1559">  </div>	<div data-bbox="831 1214 1061 1243"> Bar code identification </div> <div data-bbox="1337 1214 1404 1243"> P. 350 </div> <div data-bbox="831 1346 1058 1375"> 2D-code identification </div> <div data-bbox="1337 1346 1404 1375"> P. 385 </div> <div data-bbox="831 1480 997 1509"> RF identification </div> <div data-bbox="1337 1480 1404 1509"> P. 396 </div>
<div data-bbox="181 1644 467 1704"> Data transmission / Control components </div> <div data-bbox="687 1644 762 1673"> P. 402 </div> <div data-bbox="264 1740 636 1960">  </div>	<div data-bbox="831 1644 1091 1673"> Modular connection units </div> <div data-bbox="1337 1644 1404 1673"> P. 404 </div> <div data-bbox="831 1778 1018 1807"> Data transmission </div> <div data-bbox="1337 1778 1404 1807"> P. 416 </div> <div data-bbox="831 1912 973 1942"> Power supply </div> <div data-bbox="1337 1912 1404 1942"> P. 425 </div>

// CATEGORY		/// SERIES	
Safety light curtains	P. 243	MLC 500, MLC 300	
Multiple light beam safety devices	P. 260	MLD 500 transmitter/receiver, MLD 500 transceiver, MLD 300 transmitter/receiver, MLD 300 transceiver	
Single light beam safety devices	P. 282	SLS 46C, MLD 510, MLD 520, MLD 530, SLS 46C, SLSR 46B, SLSR 25B, SLS 318	
Safety laser scanners	P. 295	RSL 400	
Protective sensor sets	P. 299	MLDSET, MLD-UDC	
Safety switches	P. 302	S20, S200, S300, S400, S410, S420	Switching sensors
Safety locking devices	P. 312	L10, L100, L200, L300	
Safety command devices	P. 320	ERS200, ESB200	
Magnetically coded sensors	P. 323	MC3	Measuring sensors
Safety transponders	P. 325	RD800	
Safety relays	P. 328	MSI-CM, MSI-DT, MSI-SR4, MSI-SR5, MSI-RM2, MSI-2H, MSI-T, MSI-TRM, MSI-MC3x	
Programmable safety controllers	P. 337	MSI 100, MSI 200, MSI-EM, MSI-FB	
AS-Interface Safety at Work	P. 341	ASM1, ASM2	Products for safety at work
Safety inspections	P. 344		
Stopping time measurement	P. 344		
Safety consulting	P. 345		
Seminars and workshops	P. 345		Identification
Stationary bar code readers	P. 351	BCL 8, BCL 21/22, BCL 300i, BCL 500i, BCL 600i, BCL 900i, CR50 / CR55, CR100, MSPi Systems	
Mobile bar code readers	P. 382	General applications, Industrial applications	
Stationary 2D-code readers	P. 386	DCR 200i, LSIS 220, LSIS 422i, DCR 80	
Mobile 2D-code readers	P. 392	General applications, Industrial applications, Directly marked codes (DPM)	
Stationary RFID read/write systems	P. 397	RFI 32, RFM 12 / 32 / 62	Data transmission / Control components
Mobile RFID read/write systems	P. 399	HFM 35xxD	
Transponders	P. 400	TFI, TFM	
		MA 100, MA 2, MA 21, MA 22, MA 31, MA 200i, MA 8, MA 900, MA 4, MA 4.7	
		DDLS 500, DDLS 200	Industrial image processing
		PSU	Accessories

CHAPTER		/ SEGMENT	
Industrial image processing		Smart camera	P. 430
			
Accessories		Connection technology	P. 436
		Mounting systems	P. 447
		Device columns	P. 452
		Deflecting mirrors / Deflecting mirror columns	P. 453
		Protective screens	P. 456
		Signaling devices	P. 457
		Reflectors and reflective tapes	P. 461
		Alignment aids	P. 465
		Bar code tapes	P. 466
		Muting mounting systems	P. 467
Part index by part number			P. 470
Part index by type designation			P. 482
Glossary			P. 511
Sales regions, Germany			Fold-out on P. 3

// CATEGORY	/// SERIES	
	LSIS 412i / LSIS 462i / LSIS 472i	
Connection cables	P. 436	Switching sensors
Interconnection cables	P. 441	
User-configurable connectors	P. 445	Measuring sensors
Distribution boxes	P. 446	
Mounting brackets	P. 447	
Rod mounts	P. 448	
Other mounting systems	P. 450	Products for safety at work
Deflecting mirror columns / continuous	P. 453	
Deflecting mirror columns / individual mirrors	P. 454	
Deflecting mirrors / continuous	P. 455	Identification
Mounting systems	P. 457	
Lenses	P. 458	
Ready-made signaling columns	P. 458	
Multitone + beacon	P. 459	
Panel-mount modules	P. 459	Data transmission / Control components
Muting indicators	P. 460	
Standard reflectors	P. 461	
Micro-triad-type reflectors	P. 462	
Reflectors for the pharmaceutical industry	P. 462	
Heatable reflectors	P. 463	
Reflective tapes for standard applications	P. 463	Industrial image processing
Reflective tapes for laser and clear-glass applications	P. 464	
Reflective tapes for distance sensors	P. 464	
		Accessories

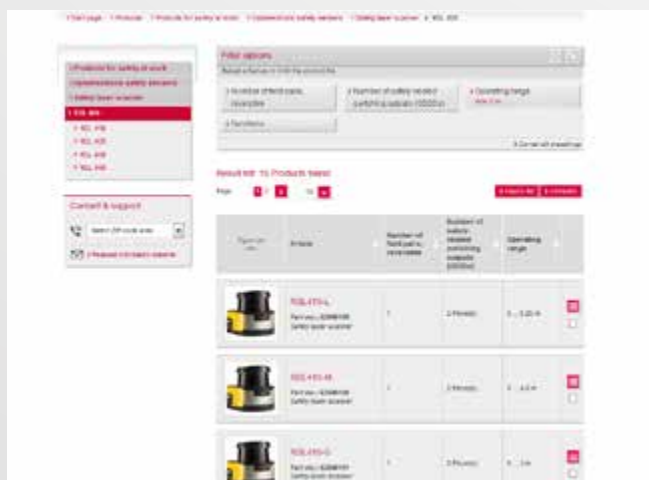
THE BEST FROM PRINTED ONLINE PRODUCT DATA

Many of our customers still use our printed product catalog to get an overview of our product range. But when it comes to comparing technical device details, finding suitable accessories or, for example, downloading 3D CAD models, www.leuze.com is the right address.

There you will find all detailed product information at a glance, just as clearly arranged as in this catalog. With the product selector, you simply select the desired sensor and send a corresponding query directly to our experts. If you already know what you need, enter the

SIMPLY AND QUICKLY TO THE RIGHT SENSOR, SUITABLE ACCESSORIES AND PRODUCT INNOVATIONS

- Product selector with technical feature selection
- Simple product comparison by selecting feature differences
- Submit a product query with a click of the mouse
- Technical features at a glance
- Display of suitable/necessary accessories
- 3D CAD models, data sheets, technical descriptions, software, drivers and much more



Product selector



Product detail page

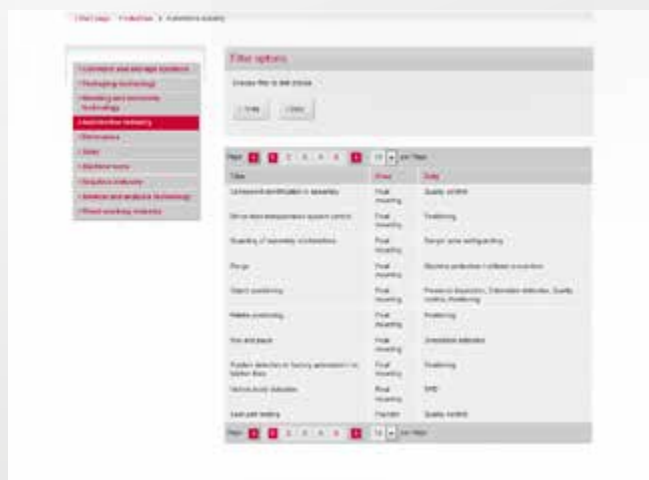
CATALOGS AND BASE

part number at www.leuze.com/en/search to open the product detail page from which you can find the appropriate or required accessories. Alternatively, you have the option of finding the right product via an industry overview or our solution area. In all cases, our selectors guide

you step-by-step to your sensor solution. You can access catalogs, advertising information, release lists, information about legacy products or special software without signing up or revealing personal information in our download area.

- Industry area with applications and suitable products
- Solution area with practical applications and suitable products

- Overview of product catalogs and informative advertising material
- Manufacturer-specific release lists for selection of released products
- Software for efficient safety engineering and for configuring and parameterizing individual products



Industry and solution area



Download area

ORDERING ONLINE IS EASY FINDING THE SUITABLE P

OUR NEW WEBSHOP WILL CONVINCE YOU

Ordering is now even easier and faster. Around the clock, visitors can select the right product from Leuze electronic's entire product line in our new webshop, www.leuze-shop.com, in

just a few clicks. Our convenient online product selector helps you find the optimum product for your application.

Buying sensors has never been easier!



RODUCT NOW IS TOO!



WHAT THE LEUZE ELECTRONIC WEBSHOP **HAS TO OFFER YOU**



Select technical features to find the right product quickly and easily with our convenient product selector



Simple and fast payment by credit card



Clear product comparisons which show the differences between products make the selection easier



Many products are available directly from stock



All technical information and corresponding accessories at the press of one button



The entire product line is available online



Download data sheets, 3D CAD drawings and much more



Benefit from frequent special offers in our webshop

WE ARE THE SENSOR PEOPLE

For more than 50 years, Leuze electronic has stood for innovative and efficient sensor solutions in the area of factory automation worldwide. Our range of products extends from switching and measuring sensors, identification and data transmission systems to intelligent image processing systems and solutions for safety at work. Our devices operate optically, inductively, with ultrasonics or via RFID, depending on which technology is appropriate for your application.

With 18 of our own subsidiaries and 42 sales partners around the world, our customers can reach us quickly and easily everywhere. To accomplish this, we produce our sensors on four continents and can thereby always guarantee product availability.

Regardless of when and where the competence of the sensor people happens to be needed at the moment. We are the right partner for both standard applications as well as for custom,

18 subsidiaries and 42 sales partners ensure global availability.



high-end solutions. Through an expanded sales and service network, our competent consultation and our reliable customer service, you can count on us to be at your side around the world.

Subsidiaries

- Australia
- Belgium
- Brazil
- China
- Denmark / Sweden
- France
- Germany
- Hong Kong
- India
- Italy
- Singapore
- South Korea
- Spain
- Switzerland
- The Netherlands
- The UK
- Turkey
- USA / Canada

You can find other sales partners at
www.leuze.com/en/worldwide

Dr. Albrecht Pfeil,
Head of Product Center
Binary Switching Sensors



Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

OUR **PROMISE** TO YOU

YOUR SENSOR BUSINESS – SIMPLER AND MORE EFFICIENT

Many companies say they are “customer-oriented” –
at Leuze electronic, we go a step further.

We offer specific and measurable added value in the areas of
USABILITY, APPLICATION KNOW-HOW and SERVICE – to
make our customers more successful. These areas are our
yardstick for new product developments, innovative service
offerings and extensive market expertise.



SMARTER PRODUCT USABILITY

With regard to our product developments, we systematically place emphasis on the especially good usability of all devices. To this end, simple mounting and alignment are taken into account – just as the uncomplicated integrability of the sensors in existing fieldbus systems and easy configuration, e.g. via a web browser, are.

SMARTER APPLICATION KNOW-HOW

Whoever can do it all, can do nothing right. Which is why we concentrate on selected target sectors and applications. There, we are specialists and know all aspects inside out. For this purpose, we optimize our solutions and offer a comprehensive product range that makes it possible for our customers to obtain the absolute best solutions from a single source.

SMARTER CUSTOMER SERVICE

The technical and personal proximity to our customers, and a skilled, straightforward handling of queries and problems, are among our strengths – and will remain so. Consequently, we will continue to expand our service offerings and, indeed, also forge ahead in new directions to persistently redefine the utmost in customer service. Whether on the phone, in the Internet or on-site with our customers – regardless of when and where the expertise of the sensor people is needed at any time.

Info at: **www.leuze.com**

Katrin Rieker,
Sales Methods, Processes, Tools



Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

WE CREATE REAL ADDED VALUE

FIVE FEATURES TYPICAL OF LEUZE ELECTRONIC

All Leuze electronic products follow our “smarter product usability” principle – this alone guarantees definite added value for use in your

application. We have split this added value into five concrete areas to give you a quick and clear overview of the benefits.



easyhandling.

We give this designation to products that can convince with intelligent ideas for mounting and alignment or clever solutions for reliable and simple operation. This includes, e.g., technologies such as the intelligent **omni**mount fastening concept, the especially large and bright **bright**vision light spot for simple alignment or active ambient light suppression **A²LS**.



powerreserve.

Of what use is the most powerful sensor if just minimal deviations in distance or dirt prevent the device from properly functioning? We use different technologies depending on the device in order to ensure a maximum function reserve in the devices. This improves your flexibility and your processes run more stable.



availabilitycontrol.

System standstills due to soiled sensors need not happen. Devices with this functionality issue a warning message in good time before, for example, there is a loss in performance and sensors fail due to soiling. As a result, the systems can be cleaned in a timely manner and costly system standstills avoided.



thinkmodular.

Are you looking for a device that is as individually tailored to your requirements as possible? With our **think**modular concept, you can choose various equipment features from select devices and thereby assemble the right function range yourself.



integratedconnectivity.

A sensor, irrespective of how it operates, is always just a small part of a complex control system. For this reason, the maximum compatibility with common fieldbus environments is a basic requirement of all of our developments. Product names that include ***integrated***connectivity or the italic "i" designate all devices that are equipped with extensive, integrated interfaces and which greatly simplify implementation for you.



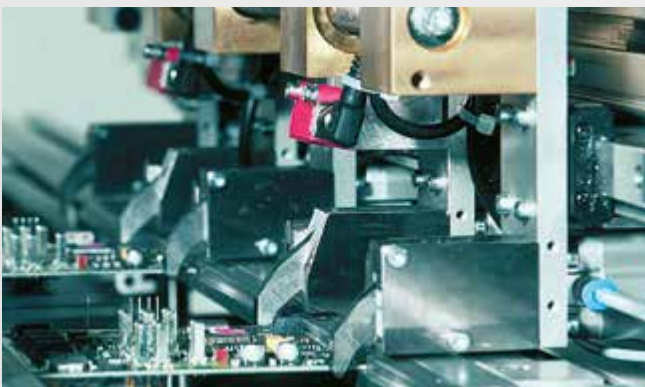
Matthias Göhner,
Product Launches & Sales Coordination

WE CAN'T DO EVERYTHING. WE DO **RIGHT**

TAILOR MADE FOR OUR FOCUS INDUSTRIES

Sensors have become a fixed part of all areas of factory automation. Without these clever helpers, no robot can orient itself, no high-bay warehouse can transport goods and no bottle can be filled. The requirements of the individual applications and industries vary so widely, however, that a great deal of experience is needed in order to develop the most efficient solutions.

During product development, we therefore concentrate on finding solutions to specific tasks from our focus industries. We know the boundary conditions here exactly and, as a result, can develop devices specifically according to our customers' requirements.



BUT WHAT WE DO,

- Conveyor/storage systems
- Automotive industry
- Packaging industry
- Robotics/handling
- Machine tools
- Laboratory analysis



Thomas Merk,
Head of Application Support +
Servicemanagement

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

OUR MOST IMPORTANT PROFESSIONAL CUSTO

WE ARE YOUR SENSOR PEOPLE

It is for good reason that we are known in the industry as the sensor people. We have known for years that a technically demanding endeavor such as the sensor business can only function if we are reliable partners to our customers. Here, it is about much more than technical high performance in the products – it is about a

high level of knowledge about applications and technical interactions and the constant willingness to provide assistance to our customers whenever they need it. Also part of this is a well-versed support department, such as the global presence of competent contact persons and the 24/7 availability of our customer help desk.



PRODUCT IS MER SERVICE

Training & support

- Product and standards training
- Application consulting
- Safety consulting
- Safety engineering

After sales services

- 24h helpline (in selected countries)
- Inspection database
- Repairs and device replacement service
- On-site service

Field services

- Technical field service
- Start-up support
- Safety inspections
- Stopping time measurement

Online services

- Web product selector
- Download services
- Webshop

Simone Fischer,
Customer Care Center



Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

SWITCHING SENSORS

EVERYTHING IN VIEW FOR PROPER SWITCHING

In this area, you will find sensor solutions that detect an object optoelectronically, ultrasonically or inductively and output a robust switching signal. Select here from a large number of different operating principles and designs.



"It is precisely in the area of switching sensors where a purely technical distinction between devices on the market is difficult, that factors such as installation, alignment, commissioning and exchangeability are often decisive efficiency criteria when selecting a provider. Our development objective of "smarter product usability" addresses exactly these points and is clearly demonstrated in many of our technical details."

Oliver Bunz,
Technical Head of Product Center
Binary Switching Sensors



/ Optical sensors	Page 24
/ Inductive switches	Page 115
/ Ultrasonic sensors	Page 138
/ Fiber optic sensors	Page 146
/ Forked sensors	Page 155
/ Light curtains	Page 166
/ Special sensors	Page 181

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories



/ OPTICAL SENSORS

WE USE LIGHT TO PROVIDE SOLUTIONS TO MANY DIFFERENT PROBLEMS

One of our core competencies are sensors that perform their detection tasks with light in a wide range of forms. For all applications that are to be solved in this way, we are able to offer you a reliable and efficient solution from our extensive product line.



Photoelectric sensors/diffuse sensors, cubic housing

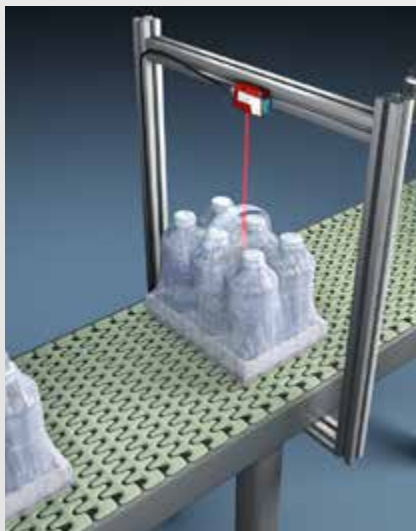
Page 25

Photoelectric sensors/diffuse sensors, cylindrical housing

Page 92

Sensors for potentially explosive areas

Page 108

















//PHOTOELECTRIC SENSORS/ DIFFUSE SENSORS, CUBIC HOUSING

THE ONLY THING STANDARD HERE IS THE HOUSING SHAPE

The products in this area are characterized by their cubic design. With their various mounting options, they cover a wide range of installation situations. Here, you will find reliable sensors with different operating principles for a variety of detection tasks in a wide range of environmental conditions.

SELECTION TABLE – Cubic series

Series	Dimensions in mm (WxHxD)	Housing material		Operating principle	Typ. operating range limit	Light source			Max. switching frequency	Response time	Special object features		
		Plastic	Metal			Infrared light	Red light	Laser			Glossy surface (metallic, shrink-wrapped object)	Transparent object (glass, PET, foils)	Small part
	BR2	8x23x12	●	Throughbeam sensor	0...2 m	●			385 Hz	1.3 ms			●
				Retro-reflective sensor	0.05...3.1 m	●			700 Hz	0.72 ms			●
				Diff. refl. sensor with backgr. suppr.	15/30/50 mm	●			700 Hz	0.72 ms	●		●
	BR3B	11x32x17	●	Throughbeam sensor	0...10 m	●			1000 Hz	0.5 ms			
				Retro-reflective sensor	0...6 m	●	●		1000 Hz	0.5 ms	●	●	●
				Energetic diffuse sensor	0...750 mm	●	●		1000 Hz	0.5 ms			
				Diff. refl. sensor with backgr. suppr.	5...400 mm	●			1000 Hz	0.5 ms	●		●
	BR5	14x33x20	●	Throughbeam sensor	0...15 m	●			500 Hz	1 ms			
				Retro-reflective sensor	0.02...6 m	●			500 Hz	1 ms			
				Energetic diffuse sensor	0...1 m	●			500 Hz	1 ms			
				Diffuse sensor with fading	0...0.28 m	●			500 Hz	1 ms			
	BR10	25x65x55	●										
				Diff. refl. sensor with backgr. suppr.	0.05...8 m		●		40 Hz	< 15 ms	●		
	BR53	14x54x20	●	Retro-reflective sensor	0...5 m	●	●		2000 Hz	0.25 ms		●	●
				Diff. refl. sensor with backgr. suppr.	5...400 mm		●		2000 Hz	0.5 ms	●		
	BR55	14x36x25	●	Throughbeam sensor	0...10 m	●			1000 Hz	0.5 ms			
				Retro-reflective sensor	0.02...6 m	●	●		2000 Hz	0.25 ms		●	●
				Diff. refl. sensor with backgr. suppr.	5...400 mm		●		2000 Hz	0.25 ms	●		●
	BR25B	15x39x29	●	Throughbeam sensor	0...24 m	●			500 Hz	1 ms			
				Retro-reflective sensor	0.05...15 m	●	●		2000 Hz	0.25 ms	●	●	●
				Energetic diffuse sensor	5...800 mm		●		500 Hz	1 ms			
				Diff. refl. sensor with backgr. suppr.	0...1000 mm	●	●		1000 Hz	0.5 ms	●		●
	BR28	15x47x32	●	Throughbeam sensor	0...15 m	●			500 Hz	1 ms			
				Retro-reflective sensor	0.02...6 m	●			500 Hz	1 ms			
				Energetic diffuse sensor	0...0.85 m	●			500 Hz	1 ms			
				Diffuse sensor with fading	0...0.25 m	●			500 Hz	1 ms			
	BR18	15x50x33	●	Retro-reflective sensor	0...7.2 m	●			500 Hz	0.33 ms		●	●
	BR8	15x48x38	●	Throughbeam sensor	0...100 m	●	●		2800 Hz	0.18 ms			●
				Retro-reflective sensor	0...21 m	●	●		2800 Hz	0.18 ms		●	●
				Diffuse sensors	5...800 mm		●		1500 Hz	0.33 ms			
				Diff. refl. sensor with backgr. suppr.	7...400 mm		●	●	2000 Hz	0.25 ms	●		●
	BR95	17x66x35	●	Throughbeam sensor	0...20 m	●	●		1000 Hz	0.5 ms			
				Retro-reflective sensor	0...9 m		●		1000 Hz	0.5 ms		●	●
				Energetic diffuse sensor	10...900 mm	●	●		1000 Hz	0.5 ms			
				Diff. refl. sensor with backgr. suppr.	5...500 mm	●	●		1000 Hz	0.5 ms	●		
	BR46	18x75x43	●	Throughbeam sensor	0...120 m		●		500 Hz	1 ms			
				Retro-reflective sensor	0.05...24 m		●		500 Hz	1 ms	●		
				Diff. refl. sensor with backgr. suppr.	0...3000 mm	●	●	●	1000 Hz	0.5 ms	●		●
	BR49C	31x104x55.5	●	Throughbeam sensor	0...150 m	●	●		150 Hz	3.3 ms			
				Retro-reflective sensor	0.1...30 m	●	●		150 Hz	3.3 ms		●	
				Diff. refl. sensor with backgr. suppr.	0.005...3 m	●	●		150 Hz	3.3 ms	●		●
	BR96	30x90x70	●	Throughbeam sensor	0...150 m	●	●		500 Hz	1 ms			
				Retro-reflective sensor	0...28 m	●	●		1000 Hz	0.5 ms		●	
				Energetic diffuse sensor	20...1200 mm	●	●		1000 Hz	0.5 ms			
				Diff. refl. sensor with backgr. suppr.	10...6500/30000 mm	●	●	●	300 Hz	1.67 ms	●		

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

/// 2 series

With the various miniature sensors of the 2 series – from diffuse sensor to throughbeam sensor – you are fully prepared for a range of different applications. The miniature sensors show their strengths above all in situations with limited installation space, e. g., in the areas of handling technology and robotics.



Direct access to the online product selector at www.leuze.com/en/br2

Throughbeam sensors

With their very small light spot, these classic throughbeam photoelectric sensors are predestined for the reliable detection of small parts. Their miniature format also allows them to be mounted in constrained spaces.

LSR 2

With the LSR 2 throughbeam photoelectric sensor, large operating ranges or high function reserves are possible depending on the application. They feature a PinPoint LED for producing a small, homogeneous and highly visible light spot.

Benefits:

- Large ranges
- High function reserves possible
- PinPoint LED for producing a small, homogeneous and highly visible light spot
- Ideally suited for the detection of small parts

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50112129	► LSSR 2,150-S12	0 ... 1.6 m 0 ... 2 m	LED, red	Cable with connector, 150 mm, M12, 4-pin, plastic	Application: detection of small parts, DC, PinPoint diode
50112132	◄ LSER 2/42,150-S12	0 ... 1.6 m 0 ... 2 m		Cable with connector, 150 mm, M12, 4-pin, plastic	Application: detection of small parts; Switching frequency: 385 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, NPN, light switching, DC
50112135	◄ LSER 2/42D,150-S12	0 ... 1.6 m 0 ... 2 m		Cable with connector, 150 mm, M12, 4-pin, plastic	Application: detection of small parts; Switching frequency: 385 Hz; Digital switching output 1: transistor, PNP, dark switching; Digital switching output 2: transistor, NPN, dark switching, DC
50112128	► LSSR 2,150-S8	0 ... 1.6 m 0 ... 2 m	LED, red	Cable with connector, 150 mm, M8, 4-pin, plastic	Application: detection of small parts, DC, PinPoint diode
50112131	◄ LSER 2/42,150-S8	0 ... 1.6 m 0 ... 2 m		Cable with connector, 150 mm, M8, 4-pin, plastic	Application: detection of small parts; Switching frequency: 385 Hz; Digital switching output 1: transistor, PNP, dark switching; Digital switching output 2: transistor, NPN, dark switching, DC
50112134	◄ LSER 2/42D,150-S8	0 ... 1.6 m 0 ... 2 m		Cable with connector, 150 mm, M8, 4-pin, plastic	Application: detection of small parts; Switching frequency: 385 Hz; Digital switching output 1: transistor, PNP, dark switching; Digital switching output 2: transistor, NPN, dark switching, DC
50116172	► LSSR 2.8,150-S8.3	0 ... 1.6 m 0 ... 2 m	LED, red	Cable with connector, 150 mm, M8, 3-pin, plastic	Application: detection of small parts, DC
50116173	◄ LSER 2/4,150-S8.3	0 ... 1.6 m 0 ... 2 m		Cable with connector, 150 mm, M8, 3-pin, plastic	Application: detection of small parts; Switching frequency: 385 Hz; Digital switching output 1: transistor, PNP, light switching, DC
50112127	► LSSR 2	0 ... 1.6 m 0 ... 2 m	LED, red	Cable, 2,000 mm, 4-wire	Application: detection of small parts, DC, PinPoint diode
50112130	◄ LSER 2/42	0 ... 1.6 m 0 ... 2 m		Cable, 2,000 mm, 4-wire	Application: detection of small parts; Switching frequency: 385 Hz; Digital switching output 1: transistor, PNP, dark switching; Digital switching output 2: transistor, NPN, dark switching, DC
50112133	◄ LSER 2/42D	0 ... 1.6 m 0 ... 2 m		Cable, 2,000 mm, 4-wire	Application: detection of small parts; Switching frequency: 385 Hz; Digital switching output 1: transistor, PNP, dark switching; Digital switching output 2: transistor, NPN, dark switching, DC

► transmitter / ◄ receiver

Retro-reflective sensors

Through the use of polarized light, these photoelectric sensors can even reliably detect objects with glossy surfaces.

PRK 2

With the PRK 2 retro-reflective photoelectric sensor, large operating ranges or high function reserves are possible depending on the application. They feature glass optics and polarized light for reliable switching behavior with glossy surfaces.

Benefits:

- Large ranges
- High function reserves possible
- PinPoint LED for producing a small, homogeneous and highly visible light spot
- Ideally suited for the detection of small parts
- Glass optics and polarized light for reliable switching behavior with glossy surfaces

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50112138	PRK 2/42,150-S12	0.07 ... 3.5 m 0.07 ... 4 m	LED, red	Cable with connector, 150 mm, M12, 4-pin, plastic	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, NPN, light switching, DC, PinPoint diode
50112141	PRK 2/42D,150-S12	0.07 ... 3.5 m 0.07 ... 4 m	LED, red	Cable with connector, 150 mm, M12, 4-pin, plastic	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, dark switching; Digital switching output 2: transistor, NPN, dark switching, DC, PinPoint diode
50112137	PRK 2/42,150-S8	0.07 ... 3.5 m 0.07 ... 4 m	LED, red	Cable with connector, 150 mm, M8, 4-pin, plastic	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, NPN, light switching, DC, PinPoint diode
50112140	PRK 2/42D,150-S8	0.07 ... 3.5 m 0.07 ... 4 m	LED, red	Cable with connector, 150 mm, M8, 4-pin, plastic	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, dark switching; Digital switching output 2: transistor, NPN, dark switching, DC, PinPoint diode
50112136	PRK 2/42	0.07 ... 3.5 m 0.07 ... 4 m	LED, red	Cable, 2,000 mm, 4-wire	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, NPN, light switching, DC, PinPoint diode
50112139	PRK 2/42D	0.07 ... 3.5 m 0.07 ... 4 m	LED, red	Cable, 2,000 mm, 4-wire	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, dark switching; Digital switching output 2: transistor, NPN, dark switching, DC, PinPoint diode

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

Diffuse sensors with background suppression

These sensors score big thanks, in particular, to their small light spot and good background suppression. They thereby detect even the smallest components without being influenced by objects in the background.

HRTR 2

The HRTR 2 miniature diffuse reflection sensor convinces with a very small, homogeneous and laser-like light spot. The background suppression, which is permanently set to various ranges, allows even dark objects to be reliably detected against a light background.

Benefits:

- Miniature diffuse reflection sensors with visible red light
- Homogeneous light beam with very small laser-like light spot
- Very good background suppression

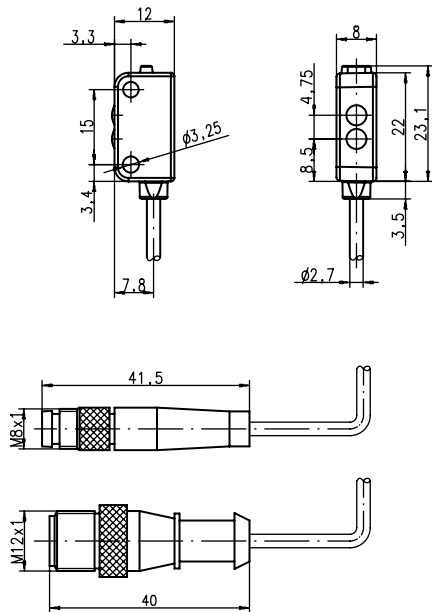
Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50112123	HRTR 2/42-50F,150-S12	0.004 ... 0.046 m 0.001 ... 0.06 m	LED, red	Cable with connector, 150 mm, M12, 4-pin, plastic	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, NPN, light switching, DC, permanently set range, laser-like light spot
50112126	HRTR 2/42D-50F,150-S12	0.004 ... 0.046 m 0.001 ... 0.06 m	LED, red	Cable with connector, 150 mm, M12, 4-pin, plastic	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, dark switching; Digital switching output 2: transistor, NPN, dark switching, DC, permanently set range, laser-like light spot
50112122	HRTR 2/42-50F,150-S8	0.004 ... 0.046 m 0.001 ... 0.06 m	LED, red	Cable with connector, 150 mm, M8, 4-pin, plastic	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, NPN, light switching, DC, permanently set range, laser-like light spot
50112125	HRTR 2/42D-50F,150-S8	0.004 ... 0.046 m 0.001 ... 0.06 m	LED, red	Cable with connector, 150 mm, M8, 4-pin, plastic	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, dark switching; Digital switching output 2: transistor, NPN, dark switching, DC, permanently set range, laser-like light spot
50120855	HRTR 2/2-50F,150-S8.3	0.004 ... 0.046 m 0.001 ... 0.06 m	LED, red	Cable with connector, 150 mm, M8, 3-pin, plastic	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, NPN, light switching, DC, laser-like light spot
50112121	HRTR 2/42-50F	0.004 ... 0.046 m 0.001 ... 0.06 m	LED, red	Cable, 2,000 mm, 4-wire	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, NPN, light switching, DC, permanently set range, laser-like light spot
50112124	HRTR 2/42D-50F	0.004 ... 0.046 m 0.001 ... 0.06 m	LED, red	Cable, 2,000 mm, 4-wire	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, dark switching; Digital switching output 2: transistor, NPN, dark switching, DC, permanently set range, laser-like light spot
50112117	HRTR 2/42-30F,150-S12	0.005 ... 0.028 m 0.001 ... 0.035 m	LED, red	Cable with connector, 150 mm, M12, 4-pin, plastic	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, NPN, light switching, DC, permanently set range, laser-like light spot
50112120	HRTR 2/42D-30F,150-S12	0.005 ... 0.028 m 0.001 ... 0.035 m	LED, red	Cable with connector, 150 mm, M12, 4-pin, plastic	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, dark switching; Digital switching output 2: transistor, NPN, dark switching, DC, permanently set range, laser-like light spot
50112116	HRTR 2/42-30F,150-S8	0.005 ... 0.028 m 0.001 ... 0.035 m	LED, red	Cable with connector, 150 mm, M8, 4-pin, plastic	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, NPN, light switching, DC, permanently set range, laser-like light spot
50112119	HRTR 2/42D-30F,150-S8	0.005 ... 0.028 m 0.001 ... 0.035 m	LED, red	Cable with connector, 150 mm, M8, 4-pin, plastic	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, dark switching; Digital switching output 2: transistor, NPN, dark switching, DC, permanently set range, laser-like light spot
50112115	HRTR 2/42-30F	0.005 ... 0.028 m 0.001 ... 0.035 m	LED, red	Cable, 2,000 mm, 4-wire	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, NPN, light switching, DC, permanently set range, laser-like light spot
50112118	HRTR 2/42D-30F	0.005 ... 0.028 m 0.001 ... 0.035 m	LED, red	Cable, 2,000 mm, 4-wire	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, dark switching; Digital switching output 2: transistor, NPN, dark switching, DC, permanently set range, laser-like light spot
50112111	HRTR 2/42-15F,150-S12	0.004 ... 0.014 m 0.001 ... 0.018 m	LED, red	Cable with connector, 150 mm, M12, 4-pin, plastic	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, NPN, light switching, DC, permanently set range, laser-like light spot
50112114	HRTR 2/42D-15F,150-S12	0.004 ... 0.014 m 0.001 ... 0.018 m	LED, red	Cable with connector, 150 mm, M12, 4-pin, plastic	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, dark switching; Digital switching output 2: transistor, NPN, dark switching, DC, permanently set range, laser-like light spot
50112110	HRTR 2/42-15F,150-S8	0.004 ... 0.014 m 0.001 ... 0.018 m	LED, red	Cable with connector, 150 mm, M8, 4-pin, plastic	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, NPN, light switching, DC, permanently set range, laser-like light spot
50112113	HRTR 2/42D-15F,150-S8	0.004 ... 0.014 m 0.001 ... 0.018 m	LED, red	Cable with connector, 150 mm, M8, 4-pin, plastic	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, dark switching; Digital switching output 2: transistor, NPN, dark switching, DC, permanently set range, laser-like light spot

Measured against a white object with 90 % diffuse reflection

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50112109	HRTR 2/42-15F	0.004 ... 0.014 m 0.001 ... 0.018 m	LED, red	Cable, 2,000 mm, 4-wire	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, NPN, light switching, DC, permanently set range, laser-like light spot
50112112	HRTR 2/42D-15F	0.004 ... 0.014 m 0.001 ... 0.018 m	LED, red	Cable, 2,000 mm, 4-wire	Application: detection of small parts; Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, dark switching; Digital switching output 2: transistor, NPN, dark switching, DC, permanently set range, laser-like light spot

Measured against a white object with 90 % diffuse reflection

Dimensioned drawings: 2 series



2 series

ACCESSORIES: 2 SERIES

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC
50130860	KD U-M8-3W-V1-020	Connector, M8, angled, female	3-pin	2,000 mm	PVC
50130862	KD U-M8-3W-V1-050	Connector, M8, angled, female	3-pin	5,000 mm	PVC
50130869	KD U-M8-4W-V1-020	Connector, M8, angled, female	4-pin	2,000 mm	PVC
50130871	KD U-M8-4W-V1-050	Connector, M8, angled, female	4-pin	5,000 mm	PVC
50104520	K-D M8A-3P-2m-PVC	Connector, M8, axial, female	3-pin	2,000 mm	PVC
50130832	KD U-M8-3A-V1-050	Connector, M8, axial, female	3-pin	5,000 mm	PVC
50130848	KD U-M8-4A-V1-020	Connector, M8, axial, female	4-pin	2,000 mm	PVC
50130850	KD U-M8-4A-V1-050	Connector, M8, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50112206	BT 002M.5	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel

Further mounting brackets can be found on our website

Reflectors and reflective tapes

Standard reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50081283	TKS 20X40	Rectangular	16 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50040820	TKS 40X60	Rectangular	37 mm × 56 mm	Through-hole mounting, adhesive	Plastic
50022816	TKS 100X100	Rectangular	96 mm × 96 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further standard reflectors can be found on our website

Reflective tapes for standard applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50108300	REF 4-A-50x50	Rectangular	50 mm × 50 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

/// 3 series



The versatile range of models in the 3 series enables use in a variety of applications, such as in packaging technology, handling technology and production. In their performance class, these sensors offer the greatest range of features of all competitors and impress with large ranges and improved function reserves. Refined technologies for spurious and extraneous light suppression and for fast alignment and commissioning round out the advantages.



Direct access to the online product selector at www.leuze.com/en/br3

Throughbeam sensors

Reliable, standard photoelectric sensors with large function reserves and simple commissioning.

LSR 3B

The LSR3B throughbeam photoelectric sensor offers reliable object detection independent of the environmental conditions. The transmitter is optionally available with activation input of the receiver with warning output for increased availability.

Benefits:

- High function reserve
- Transmitter with small, homogeneous light spot by means of pin-point LED
- Transmitter optionally with activation input
- Warning output (optional for the receiver) for increased availability

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50108508	► LSSR 3B-S8	0.05 ... 8.5 m 0.05 ... 10 m	LED, red	Connector, M8, 4-pin, metal	DC
50108514	◄ LSER 3B/66-S8	0.05 ... 8.5 m 0.05 ... 10 m		Connector, M8, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50108515	◄ LSER 3B/66.1-S8	0.05 ... 8.5 m 0.05 ... 10 m		Connector, M8, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer
50108509	► LSSR 3B.8-S8	0.05 ... 8.5 m 0.05 ... 10 m	LED, red	Connector, M8, 4-pin, metal	DC, activation input
50108517	◄ ILSER 3B/4-S8	0.05 ... 8.5 m 0.05 ... 10 m		Connector, M8, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, U _e switching, DC, warning output
50108514	◄ LSER 3B/66-S8	0.05 ... 8.5 m 0.05 ... 10 m		Connector, M8, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50111440	► LSSR 3B,200-S12	0.05 ... 8.5 m 0.05 ... 10 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	DC
50111442	◄ LSER 3B/66,200-S12	0.05 ... 8.5 m 0.05 ... 10 m		Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50111441	► LSSR 3B.8,200-S12	0.05 ... 8.5 m 0.05 ... 10 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	DC, activation input
50111442	◄ LSER 3B/66,200-S12	0.05 ... 8.5 m 0.05 ... 10 m		Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC

► transmitter / ◄ receiver

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50108512	► LSSR 3B.8,200-S8	0.05 ... 8.5 m 0.05 ... 10 m	LED, red	Cable with connector, 200 mm, M8, 4-pin, plastic	DC, activation input
50108518	◄ ILSER 3B/4,200-S8	0.05 ... 8.5 m 0.05 ... 10 m		Cable with connector, 200 mm, M8, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, U _B switching, DC, warning output
50108511	► LSSR 3B.8,5000	0.05 ... 8.5 m 0.05 ... 10 m	LED, red	Cable, 5,000 mm, 4-wire	DC, activation input
50111732	◄ LSER 3B/44.1,5000	0.05 ... 8.5 m 0.05 ... 10 m		Cable, 5,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, PNP, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer
50108519	◄ LSER 3B/66,5000	0.05 ... 8.5 m 0.05 ... 10 m		Cable, 5,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50108510	► LSSR 3B.8	0.05 ... 8.5 m 0.05 ... 10 m	LED, red	Cable, 2,000 mm, 4-wire	DC, activation input
50108519	◄ LSER 3B/66,5000	0.05 ... 8.5 m 0.05 ... 10 m		Cable, 5,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50108516	◄ LSER 3B/66	0.05 ... 8.5 m 0.05 ... 10 m		Cable, 2,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC

► transmitter / ◄ receiver

Retro-reflective sensors

In this area you will find a wide range of sensors that function according to the reflection principle including special sensors for the detection of transparent media, sensors for extremely small components or for combination with a polished, metallic surface as reflector.

PRK 3B

Reliable sensor with a high function reserve primarily for small, misaligned reflectors and environments with heavy soiling.

Benefits:

- Reliable object detection with small, mis-adjusted reflectors
- Reliable object detection with large range
- Reliable object detection with heavy soiling

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50104694	PRK 3B/66-S8	0.02 ... 5 m 0.02 ... 6 m	LED, red	Connector, M8, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50106078	PRK 3B/66.1-S8	0.02 ... 5 m 0.02 ... 6 m	LED, red	Connector, M8, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer
50104698	PRK 3B/6.7-S8	0.02 ... 5 m 0.02 ... 6 m	LED, red	Connector, M8, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching, DC
50106865	PRK 3B/6D.7-S8	0.02 ... 5 m 0.02 ... 6 m	LED, red	Connector, M8, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, dark switching, DC
50109581	PRK 3B/6-S8.3	0.02 ... 5 m 0.02 ... 6 m	LED, red	Connector, M8, 3-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching, DC
50104696	PRK 3B/66,200-S12	0.02 ... 5 m 0.02 ... 6 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50104695	PRK 3B/66,200-S8	0.02 ... 5 m 0.02 ... 6 m	LED, red	Cable with connector, 200 mm, M8, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50104697	PRK 3B/6.7	0.02 ... 5 m 0.02 ... 6 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching, DC
50104693	PRK 3B/66	0.02 ... 5 m 0.02 ... 6 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50118016	PRK 3B/66.1	0.02 ... 5 m 0.02 ... 6 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

PRK 3B.22

The specialist for positioning tasks with a high function reserve and simple adjustment by means of lockable teach button or teach input.

Benefits:

- Positioning with high accuracy
- Short range with foil reflectors
- Autocollimation principle for use at zero distance

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50104700	PRK 3B/6.22-S8	0 ... 4 m 0 ... 5 m	LED, red	Connector, M8, 4-pin, metal	Application: positioning, zero distance; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation, teach input
50106418	PRK 3B/6D.22-S8	0 ... 4 m 0 ... 5 m	LED, red	Connector, M8, 4-pin, metal	Application: positioning, zero distance; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation, teach input
50109385	PRK 3B/6.2-S8.3	0 ... 4 m 0 ... 5 m	LED, red	Connector, M8, 3-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button
50105762	PRK 3B/6.22,200-S12	0 ... 4 m 0 ... 5 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Application: positioning, zero distance; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation, teach input
50110775	PRK 3B/4D.22,200-S8	0 ... 4 m 0 ... 5 m	LED, red	Cable with connector, 200 mm, M8, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light/dark reversible, DC, teach input
50104701	PRK 3B/6.22,200-S8	0 ... 4 m 0 ... 5 m	LED, red	Cable with connector, 200 mm, M8, 4-pin, plastic	Application: positioning, zero distance; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation, teach input
50114099	PRK 3B/6.2,200-S8.3	0 ... 4 m 0 ... 5 m	LED, red	Cable with connector, 200 mm, M8, 3-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button
50104699	PRK 3B/6.22	0 ... 4 m 0 ... 5 m	LED, red	Cable, 2,000 mm, 4-wire	Application: positioning, zero distance; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation, teach input

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

PRKL 3B.22

The world's first laser autocollimator in this size, specially designed for the detection of parts as small as 0.1 mm.

Benefits:

- Reliable detection of objects with a diameter ≥ 0.1 mm
- Object detection through slits, holes and gaps with extremely small dimensions
- Especially designed for the detection of fast events and small parts

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50104706	PRKL 3B/6.22-S8	0 ... 2 m 0 ... 3 m	Laser, 1, red	Connector, M8, 4-pin, metal	Application: detection of small parts; Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, autocollimation, teach input
50106475	PRKL 3B/6D.22-S8	0 ... 2 m 0 ... 3 m	Laser, 1, red	Connector, M8, 4-pin, metal	Application: detection of small parts; Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation, teach input
50109484	PRKL 3B/6.2-S8.3	0 ... 2 m 0 ... 3 m	Laser, 1, red	Connector, M8, 3-pin, metal	Application: detection of small parts; Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, autocollimation
50132274	PRKL 3B/6D.2-S8.3	0 ... 2 m 0 ... 3 m	Laser, 1, red	Connector, M8, 3-pin, metal	Application: detection of small parts; Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation
50105764	PRKL 3B/6.22,200-S12	0 ... 2 m 0 ... 3 m	Laser, 1, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Application: detection of small parts; Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, autocollimation, teach input
50104707	PRKL 3B/6.22,200-S8	0 ... 2 m 0 ... 3 m	Laser, 1, red	Cable with connector, 200 mm, M8, 4-pin, plastic	Application: detection of small parts; Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation, teach input
50114872	PRKL 3B/6.2,200-S8.3	0 ... 2 m 0 ... 3 m	Laser, 1, red	Cable with connector, 200 mm, M8, 3-pin, plastic	Application: detection of small parts; Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button
50104705	PRKL 3B/6.22	0 ... 2 m 0 ... 3 m	Laser, 1, red	Cable, 2,000 mm, 4-wire	Application: detection of small parts; Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, autocollimation, teach input
50127637	RKL 3B/6.221	0 ... 2 m 0 ... 3 m	Laser, 1, red	Cable, 2,000 mm, 4-wire	Application: detection of high-gloss or polished surfaces; Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, autocollimation, teach input

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

PRK 3B.42 / RKR 3B.42

Specially designed for the detection of transparent media such as glass, PET (PRK devices) and foils thinner than 20 µm (RKR devices). The lockable teach button and the teach input enable simple adjustment.

Benefits:

- Particularly suited for highly transparent PET and glass bottles as well as foils
- Easy adjustment via lockable teach button or teach input

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50108026	PRK 3B/6D.46	0 ... 4 m 0 ... 5 m	LED, red	Cable, 2,000 mm, 4-wire	Application: detection of highly transparent bottles; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, teach input
50112473	PRK 3B/6.42-S8	0 ... 3 m 0 ... 3.6 m	LED, red	Connector, M8, 4-pin, metal	Application: detection of highly transparent bottles; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation
50112474	PRK 3B/6D.42-S8	0 ... 3 m 0 ... 3.6 m	LED, red	Connector, M8, 4-pin, metal	Application: detection of highly transparent bottles; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation
50113326	PRK 3B/6.42,200-S12	0 ... 3 m 0 ... 3.6 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Application: detection of highly transparent bottles; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation
50113324	PRK 3B/6D.42,200-S12	0 ... 3 m 0 ... 3.6 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Application: detection of highly transparent bottles; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation
50113325	PRK 3B/6.42,200-S8	0 ... 3 m 0 ... 3.6 m	LED, red	Cable with connector, 200 mm, M8, 4-pin, plastic	Application: detection of highly transparent bottles; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation
50114873	PRK 3B/6.42,5000	0 ... 3 m 0 ... 3.6 m	LED, red	Cable, 5,000 mm, 4-wire	Application: detection of highly transparent bottles; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation
50113327	PRK 3B/6.42	0 ... 3 m 0 ... 3.6 m	LED, red	Cable, 2,000 mm, 4-wire	Application: detection of highly transparent bottles; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation
50104703	RKR 3B/6.42-S8	0 ... 1.5 m 0 ... 1.8 m	LED, red	Connector, M8, 4-pin, metal	Application: detection of highly transparent foils and glass panes; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation
50105763	RKR 3B/6.42,200-S12	0 ... 1.5 m 0 ... 1.8 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Application: detection of highly transparent foils and glass panes; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation
50104704	RKR 3B/6.42,200-S8	0 ... 1.5 m 0 ... 1.8 m	LED, red	Cable with connector, 200 mm, M8, 4-pin, plastic	Application: detection of highly transparent foils and glass panes; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation
50104702	RKR 3B/6.42	0 ... 1.5 m 0 ... 1.8 m	LED, red	Cable, 2,000 mm, 4-wire	Application: detection of highly transparent foils and glass panes; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation
50107914	RKR 3B/6D.42	0 ... 1.5 m 0 ... 1.8 m	LED, red	Cable, 2,000 mm, 4-wire	Application: detection of highly transparent bottles; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

PRKL 3B.42

The laser retro-reflective photoelectric sensor for detecting and counting glass bottles – especially in the case of small gaps between the objects.

Benefits:

- For highly transparent full and empty bottles as well as foils
- Detection or counting of highly transparent objects
- Especially in the case of small gaps between the objects

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50115117	PRKL 3B/6.42-S8	0 ... 0.4 m 0 ... 0.5 m	Laser, 1, red	Connector, M8, 4-pin, metal	Application: detection of highly transparent bottles; Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation
50120275	PRKL 3B/6.4-S8.3	0 ... 0.4 m 0 ... 0.5 m	Laser, 1, red	Connector, M8, 3-pin, metal	Application: detection of highly transparent bottles; Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation
50115119	PRKL 3B/6.42,200-S12	0 ... 0.4 m 0 ... 0.5 m	Laser, 1, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Application: detection of highly transparent bottles; Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation
50115118	PRKL 3B/6.42,200-S8	0 ... 0.4 m 0 ... 0.5 m	Laser, 1, red	Cable with connector, 200 mm, M8, 4-pin, plastic	Application: detection of highly transparent bottles; Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation
50115116	PRKL 3B/6.42	0 ... 0.4 m 0 ... 0.5 m	Laser, 1, red	Cable, 2,000 mm, 4-wire	Application: detection of highly transparent bottles; Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light/dark reversible, DC, teach button, autocollimation

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

RKR 3B.x1

For applications in which no reflector can be mounted, this photoelectric sensor is especially well suited for switching on a metallic background as an alternative to a reflector.

Benefits:

- Sensor with unpolarized red light for switching on a polished metal plate as reflector
- Extra large light spot for high angle tolerance

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50122232	RKR 3B/66.11-S8	0.02 ... 6.5 m 0.02 ... 7 m	LED, red	Connector, M8, 4-pin, metal	Application: detection of high-gloss or polished surfaces; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer
50109023	RKR 3B/66.11	0.02 ... 6.5 m 0.02 ... 7 m	LED, red	Cable, 2,000 mm, 4-wire	Application: detection of high-gloss or polished surfaces; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer
50113267	RKR 3B/22D.01,200-S8	0.02 ... 4 m 0.02 ... 5 m	LED, red	Cable with connector, 200 mm, M8, 4-pin, plastic	Application: detection of high-gloss or polished surfaces; Switching frequency: 1,500 Hz; Digital switching output 1: transistor, NPN, dark switching (PNP)/light switching (NPN); Digital switching output 2: transistor, NPN, light switching (PNP)/dark switching (NPN), DC

Energetic diffuse sensor

An economical sensor for standard applications in which there are no special requirements on background suppression.

RTFR 3B

This model is suited for detection distances of up to 400 mm. Fading suppresses objects in the background.

Benefits:

- Fading – object suppression in background
- Potentiometer for range adjustment
- High switching frequency for detection of fast events

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50108495	RTFR 3B/66-S8	0 ... 0.42 m 0 ... 0.45 m	LED, red	Connector, M8, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching; Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer, fading
50108498	RTFR 3B/6-S8.3	0 ... 0.42 m 0 ... 0.45 m	LED, red	Connector, M8, 3-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching, DC, 270 ° potentiometer, fading
50108499	RTFR 3B/6D-S8.3	0 ... 0.42 m 0 ... 0.45 m	LED, red	Connector, M8, 3-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, dark switching, DC, 270 ° potentiometer, fading
50108496	RTFR 3B/66	0 ... 0.42 m 0 ... 0.45 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching; Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer, fading

Detailed information on the typical detection range can be found in the respective data sheet (online)

RTR 3B

If larger ranges are needed for standard applications, this energetic diffuse reflection sensor with range adjustment is the best choice.

Benefits:

- Large ranges up to 750 mm
- Potentiometer for range adjustment
- High switching frequency for detection of fast events

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50108505	RTR 3B/66-S8	0 ... 0.7 m 0 ... 0.75 m	LED, red	Connector, M8, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching; Digital switching output 2: transistor, push-pull, dark switching, DC, 270 ° potentiometer
50108506	RTR 3B/66	0 ... 0.7 m 0 ... 0.75 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching; Digital switching output 2: transistor, push-pull, dark switching, DC, 270 ° potentiometer

Detailed information on the typical detection range can be found in the respective data sheet (online)

Diffuse sensors with background suppression

These sensors are suited for the reliable detection of objects against a background. Available in a variety of special designs, the 3B series offers robust and efficient solutions, even for tricky applications such as the detection of objects with colored structure, objects with openings or highly polished surfaces.

HRT(R) 3B

Sensor with red light or infrared light with very good b/w detection thresholds and reliable switching nearly independent of the background.

Benefits:

- Exact range adjustment through 8-turn potentiometer
- Also available with infrared light (HRT 3B)

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50107239	HRTR 3B/22-S8	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Connector, M8, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, multiturn potentiometer
50107233	HRTR 3B/44-S8	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Connector, M8, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50107229	HRTR 3B/66-S8	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Connector, M8, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50107241	HRTR 3B/6.7-S8	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Connector, M8, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, multiturn potentiometer
50108408	HRTR 3B/6-S8.3	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Connector, M8, 3-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, multiturn potentiometer
50107236	HRTR 3B/44,200-S12	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50107298	HRTR 3B/66,200-S12	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50112465	HRTR 3B/44-95,200-S8	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Cable with connector, 200 mm, M8, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50115262	HRTR 3B/44-350,200-S8	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Cable with connector, 200 mm, M8, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50107230	HRTR 3B/66,200-S8	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Cable with connector, 200 mm, M8, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50107232	HRTR 3B/4,200-S8.3	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Cable with connector, 200 mm, M8, 3-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching, DC, multiturn potentiometer
50109753	HRTR 3B/44,5000	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Cable, 5,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50107918	HRTR 3B/2.7	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, NPN, light switching, DC, multiturn potentiometer
50107240	HRTR 3B/6.7	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, multiturn potentiometer
50107922	HRTR 3B/6D.7	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50107238	HRTR 3B/22	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, multiturn potentiometer
50107235	HRTR 3B/44	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50107228	HRTR 3B/66	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50126066	HRT 3B/44,200-S12	0.005 ... 0.6 m 0.005 ... 0.6 m	LED, infrared	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50110659	HRT 3B/44	0.005 ... 0.6 m 0.005 ... 0.6 m	LED, infrared	Cable, 2,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer

Typ. operating range with a black/white error < 10 %

HRTL 3B

Compact laser sensor for the reliable detection of small parts and highly precise positioning in fast processes. Models are available in laser classes 1 and 2.

Benefits:

- Especially designed for the detection of fast events and small parts
- For applications with high demands on positioning and reproducibility
- Standard design in laser class 1
- Extended detection range with very good b/w behavior in laser class 2

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50114582	HRTL 3B/66.C2-S8	0.015 ... 0.5 m 0.015 ... 0.5 m	Laser, 2, red	Connector, M8, 4-pin, metal	Application: detection of small parts; Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50114765	HRTL 3B/66.C2,200-S12	0.015 ... 0.5 m 0.015 ... 0.5 m	Laser, 2, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Application: detection of small parts; Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50114764	HRTL 3B/66.C2,200-S8	0.015 ... 0.5 m 0.015 ... 0.5 m	Laser, 2, red	Cable with connector, 200 mm, M8, 4-pin, plastic	Application: detection of small parts; Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50114763	HRTL 3B/66.C2	0.015 ... 0.5 m 0.015 ... 0.5 m	Laser, 2, red	Cable, 2,000 mm, 4-wire	Application: detection of small parts; Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50114581	HRTL 3B/66-S8	0.015 ... 0.4 m 0.015 ... 0.4 m	Laser, 1, red	Connector, M8, 4-pin, metal	Application: detection of small parts; Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50114762	HRTL 3B/66,200-S12	0.015 ... 0.4 m 0.015 ... 0.4 m	Laser, 1, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Application: detection of small parts; Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50114761	HRTL 3B/66,200-S8	0.015 ... 0.4 m 0.015 ... 0.4 m	Laser, 1, red	Cable with connector, 200 mm, M8, 4-pin, plastic	Application: detection of small parts; Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50114760	HRTL 3B/66	0.015 ... 0.4 m 0.015 ... 0.4 m	Laser, 1, red	Cable, 2,000 mm, 4-wire	Application: detection of small parts; Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer

Typ. operating range with a black/white error < 10 %

HRTR 3B-(X)L

With its very large light spot, this sensor type is suitable for the detection of objects with openings, holes and grooves.

Benefits:

- Especially designed for the detection of objects with openings, holes and grooves
- Also for detecting transparent foils and bottles

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50107299	HRTR 3B/4-XL-S8	0.005 ... 0.05 m 0.005 ... 0.1 m	LED, red	Connector, M8, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching, DC, multiturn potentiometer, extra long light spot (XL)
50111443	HRTR 3B/44-L-S8	0.005 ... 0.05 m 0.005 ... 0.1 m	LED, red	Connector, M8, 4-pin, metal	Switching frequency: 150 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, long light spot (L)
50107250	HRTR 3B/44-XL-S8	0.005 ... 0.05 m 0.005 ... 0.1 m	LED, red	Connector, M8, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, extra long light spot (XL)
50107247	HRTR 3B/66-XL-S8	0.005 ... 0.05 m 0.005 ... 0.1 m	LED, red	Connector, M8, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, extra long light spot (XL)
50109485	HRTR 3B/6-XL-S8.3	0.005 ... 0.05 m 0.005 ... 0.1 m	LED, red	Connector, M8, 3-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, multiturn potentiometer, extra long light spot (XL)
50111444	HRTR 3B/6D-XL-S8.3	0.005 ... 0.05 m 0.005 ... 0.1 m	LED, red	Connector, M8, 3-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, extra long light spot (XL)
50124155	HRTR 3B/44-L,200-S12	0.005 ... 0.05 m 0.005 ... 0.1 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 150 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, long light spot (L)
50107251	HRTR 3B/44-XL,200-S12	0.005 ... 0.05 m 0.005 ... 0.1 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, extra long light spot (XL)
50107249	HRTR 3B/66-XL,200-S12	0.005 ... 0.05 m 0.005 ... 0.1 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, extra long light spot (XL)
50113317	HRTR 3B/44-L,200-S8	0.005 ... 0.05 m 0.005 ... 0.1 m	LED, red	Cable with connector, 200 mm, M8, 4-pin, plastic	Switching frequency: 150 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, long light spot (L)
50107248	HRTR 3B/66-XL,200-S8	0.005 ... 0.05 m 0.005 ... 0.1 m	LED, red	Cable with connector, 200 mm, M8, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, extra long light spot (XL)
50107246	HRTR 3B/66-XL	0.005 ... 0.05 m 0.005 ... 0.1 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, extra long light spot (XL)

Typ. operating range with a black/white error < 10 %

HRTR 3B-S

Sensor for demanding detection tasks with small, homogeneous light spot, very good background suppression and excellent b/w detection thresholds for reliable switching on glossy objects and objects with colored structure.

Benefits:

- Small, homogeneous light spot by means of pin-point LED
- Exact range adjustment through 8-turn potentiometer

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50107243	HRTR 3B/66-S-S8	0.005 ... 0.2 m 0.005 ... 0.2 m	LED, red	Connector, M8, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, small light spot (S)
50108407	HRTR 3B/6-S-S8.3	0.005 ... 0.2 m 0.005 ... 0.2 m	LED, red	Connector, M8, 3-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, multiturn potentiometer, small light spot (S)
50107245	HRTR 3B/66-S,200-S12	0.005 ... 0.2 m 0.005 ... 0.2 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, small light spot (S)
50107244	HRTR 3B/66-S,200-S8	0.005 ... 0.2 m 0.005 ... 0.2 m	LED, red	Cable with connector, 200 mm, M8, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, small light spot (S)
50109051	HRTR 3B/6-S,200-S8.3	0.005 ... 0.2 m 0.005 ... 0.2 m	LED, red	Cable with connector, 200 mm, M8, 3-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, multiturn potentiometer, small light spot (S)
50110809	HRTR 3B/66-S,5000	0.005 ... 0.2 m 0.005 ... 0.2 m	LED, red	Cable, 5,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, small light spot (S)
50107242	HRTR 3B/66-S	0.005 ... 0.2 m 0.005 ... 0.2 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, small light spot (S)

Typ. operating range with a black/white error < 10 %

HRTR 3B-V

Special sensor with V-optics for the reliable detection of planar, reflecting, highly polished or transparent objects.

Benefits:

- For the reliable detection of flat, reflective or highly glossy surfaces
- Also suited for transparent objects

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50114769	HRTR 3B/66-V-S8	0.015 ... 0.2 m 0.015 ... 0.2 m	LED, red	Connector, M8, 4-pin, metal	Application: detection of high-gloss or polished surfaces, detection of transparent objects; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, V-optics
50114768	HRTR 3B/66-V,200-S12	0.015 ... 0.2 m 0.015 ... 0.2 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Application: detection of high-gloss or polished surfaces, detection of transparent objects; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, V-optics
50114767	HRTR 3B/66-V,200-S8	0.015 ... 0.2 m 0.015 ... 0.2 m	LED, red	Cable with connector, 200 mm, M8, 4-pin, plastic	Application: detection of high-gloss or polished surfaces, detection of transparent objects; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, V-optics
50115641	HRTR 3B/2.7-V	0.015 ... 0.2 m 0.015 ... 0.2 m	LED, red	Cable, 2,000 mm, 4-wire	Application: detection of high-gloss or polished surfaces, detection of transparent objects; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, NPN, light switching, DC, multiturn potentiometer, V-optics
50114766	HRTR 3B/66-V	0.015 ... 0.2 m 0.015 ... 0.2 m	LED, red	Cable, 2,000 mm, 4-wire	Application: detection of high-gloss or polished surfaces, detection of transparent objects; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, V-optics
50128802	HRTR 3B/44-VXL-S8	0.01 ... 0.09 m 0.01 ... 0.09 m	LED, red	Connector, M8, 4-pin, metal	Application: detection of top layers; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, V-optics, extra long light spot (XL)
50122262	HRTR 3B/66-VXL-S8	0.01 ... 0.09 m 0.01 ... 0.09 m	LED, red	Connector, M8, 4-pin, metal	Application: detection of top layers; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, extra long light spot (XL), V-optics
50129517	HRTR 3B/44-VXL,200-M12	0.01 ... 0.09 m 0.01 ... 0.09 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, metal	Application: detection of top layers; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, V-optics, extra long light spot (XL)

Typ. operating range with a black/white error < 10 %

Technical drawing showing two views of a 1/2 inch NPT female adapter. The top view is a side profile showing dimensions: 17.8 (total width), 14.6 (inner width), 32.1 (total height), 22 (inner height), 5.1 (flange thickness), 1.8 (flange radius), 6.1 (thread length), and Ø3.2 (thread diameter). The bottom view is a top-down view showing dimensions: 11.4 (total width), 7.5 (inner width), 16 (thread length), 39.7 (total height), and M8x1 (thread diameter).

3 series

Connection technology

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC
50130860	KD U-M8-3W-V1-020	Connector, M8, angled, female	3-pin	2,000 mm	PVC
50130862	KD U-M8-3W-V1-050	Connector, M8, angled, female	3-pin	5,000 mm	PVC
50130869	KD U-M8-4W-V1-020	Connector, M8, angled, female	4-pin	2,000 mm	PVC
50130871	KD U-M8-4W-V1-050	Connector, M8, angled, female	4-pin	5,000 mm	PVC
50104520	K-D M8A-3P-2m-PVC	Connector, M8, axial, female	3-pin	2,000 mm	PVC
50130832	KD U-M8-3A-V1-050	Connector, M8, axial, female	3-pin	5,000 mm	PVC
50130848	KD U-M8-4A-V1-020	Connector, M8, axial, female	4-pin	2,000 mm	PVC
50130850	KD U-M8-4A-V1-050	Connector, M8, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50105546	BT 3B	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117256	BTU 200M-D10	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50117255	BTU 200M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50117254	BTU 200M-D14	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 14 mm rod, sheet-metal mounting	Metal

Further rod mounts can be found on our website

Reflectors and reflective tapes

Standard reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50024127	TK 82.2	Round	79 mm	Through-hole mounting, adhesive	Plastic
50081283	TKS 20X40	Rectangular	16 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50023525	TKS 30X50	Rectangular	27 mm × 44 mm	Through-hole mounting, adhesive	Plastic
50040820	TKS 40X60	Rectangular	37 mm × 56 mm	Through-hole mounting, adhesive	Plastic
50022816	TKS 100X100	Rectangular	96 mm × 96 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further standard reflectors can be found on our website

Micro-triad-type reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50040894	MTKS 20x30	Rectangular	19 mm × 29 mm	Through-hole mounting, adhesive	Plastic
50117583	MTKS 50x50.1	Rectangular	50 mm × 50 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further micro-triad-type reflectors can be found on our website

Reflective tapes for standard applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50108300	REF 4-A-50x50	Rectangular	50 mm × 50 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

Reflective tapes for laser and clear-glass applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50123899	REF 6-A-9x9	Rectangular	9 mm × 9 mm	Self-adhesive	Plastic
50110191	REF 6-A-25x25	Rectangular	25 mm × 25 mm	Self-adhesive	Plastic
50110192	REF 6-A-50x50	Rectangular	50 mm × 50 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

/// 5 series



The 5 series photoelectric sensors, with their compact cubic design, are always the right choice when powerful and robust standard detection is needed, e. g., in conveyor or packaging technology. The integrated M3 metal threaded sleeves and the cable outlet, which is available either pointing downward or to the rear, open many options, particularly in situations with limited installation space. From a technological perspective as well, the 5 series – with a large range, large brightVision® light spot and active A²LS extraneous light suppression – offers everything one expects in a modern photoelectric sensor.



Direct access to the online product selector at www.leuze.com/en/br5

Throughbeam sensors

Compact, cubic throughbeam photoelectric sensor for constrained spaces with proven technical features.

L5

The throughbeam principle makes possible the reliable detection of even flat objects with a high function reserve and reduces the risk of a system standstill. Deactivation inputs enable testing of the sensor. In addition, optimized beam geometry and the highly visible brightVision® light spot simplify alignment.

Benefits:

- High function reserve
- Simple alignment by means of optimized beam geometry
- Simple detection of flat objects
- Transmitter deactivation for testing and networking

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50117695	► LS5/9D-M8	0 ... 10 m 0 ... 15 m	LED, red	Connector, M8, 4-pin, plastic	DC, deactivation input
50117689	◄ LE5/2N-M8	0 ... 10 m 0 ... 15 m		Connector, M8, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50117692	◄ LE5/4P-M8	0 ... 10 m 0 ... 15 m		Connector, M8, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50117693	► LS5/9D-200-M12	0 ... 10 m 0 ... 15 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	DC, deactivation input
50117683	◄ LE5/2N-200-M12	0 ... 10 m 0 ... 15 m		Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50117690	◄ LE5/4P-200-M12	0 ... 10 m 0 ... 15 m		Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50117694	► LS5/9D	0 ... 10 m 0 ... 15 m	LED, red	Cable, 2,000 mm, 4-wire	DC, deactivation input
50117688	◄ LE5/2N	0 ... 10 m 0 ... 15 m		Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50117691	◄ LE5/4P	0 ... 10 m 0 ... 15 m		Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC

► transmitter / ◄ receiver

Retro-reflective sensors

Compact retro-reflective photoelectric sensors for constrained spaces, on transport systems for example.

PRK5

A polarization filter ensures the reliable suppression of direct reflections and, together with the high function reserve of the sensor, enables reliable detection. In addition, optimized beam geometry and the highly visible brightVision® light spot simplify alignment. Also available in versions with teach button for the detection of containers with semi-transparent packaging.

Benefits:

- Homogeneous light spot for safe switching behavior and easy alignment
- Safe suppression of direct reflection due to polarization filter
- For the detection of containers with semi-transparent packaging with teach function

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50128202	PRK5.M3/2N-M8	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Connector, M8, 4-pin, plastic	Application: detection of bottle container, detection of semi-transparent media; Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button
50128200	PRK5.M3/4P-M8	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Connector, M8, 4-pin, plastic	Application: detection of bottle container, detection of semi-transparent media; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button
50117703	PRK5/2N-M8	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Connector, M8, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50117706	PRK5/4P-M8	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Connector, M8, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50123266	PRK5/4P-800-M12	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Cable with connector, 800 mm, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50123267	PRK5/4P-350-M12	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Cable with connector, 350 mm, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50122066	PRK5/4X-200-M8.1	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Cable with connector, 200 mm, snap-in, M8, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching, DC
50117702	PRK5/2N-200-M12	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50117704	PRK5/4P-200-M12	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50122446	PRK5/4P-200-M8	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Cable with connector, 200 mm, M8, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50122106	PRK5/4-200-M8.3	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Cable with connector, 200 mm, M8, 3-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching, DC
50128203	PRK5.M3/2N	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Cable, 2,000 mm, 4-wire	Application: detection of bottle container, detection of semi-transparent media; Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button
50128201	PRK5.M3/4P	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Cable, 2,000 mm, 4-wire	Application: detection of bottle container, detection of semi-transparent media; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button
50117707	PRK5/2N	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50117705	PRK5/4P	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

Energetic diffuse sensor

Compact cubic diffuse sensor for standard detection tasks. This sensor performs detection directly on an object and requires no reflector.

ET5 / FT5

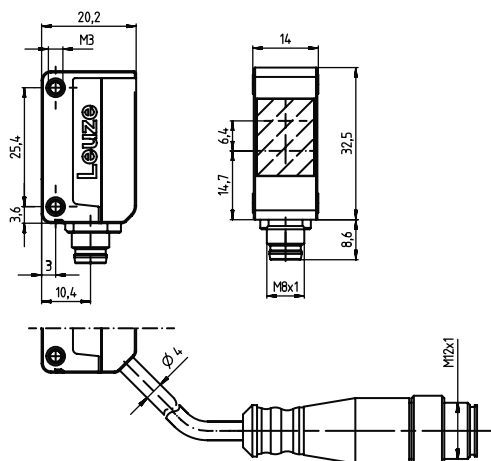
These red light sensors in the compact plastic housing facilitate robust object detection for homogeneous or similar objects. Through the simple sensitivity adjustment with 2-level teach (object/background), they are particularly flexible in use. These sensors feature the A²LS active ambient light suppression and easy alignment through brightly visible brightVision® light spot. For greater color independence of the objects, also available with infrared.

Benefits:

- Energetic diffuse reflection sensor with light/dark switching
- Range adjustment via teach-in
- Simple mounting with integrated M3 metal threaded sleeves
- Compact installation possible due to cable outlet at the rear or bottom
- Full control through green and yellow indicator LEDs and complementary outputs
- Robust plastic housing acc. to IP 67 for industrial application
- Infrared version for higher color independence

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50122575	FT5.3/2N-M8	0.001 ... 0.215 m 0 ... 0.28 m	LED, red	Connector, M8, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, fading
50122572	FT5.3/4P-M8	0.001 ... 0.215 m 0 ... 0.28 m	LED, red	Connector, M8, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, fading
50122577	FT5.3/2N-200-M12	0.001 ... 0.215 m 0 ... 0.28 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, fading
50122574	FT5.3/4P-200-M12	0.001 ... 0.215 m 0 ... 0.28 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, fading
50122576	FT5.3/2N	0.001 ... 0.215 m 0 ... 0.28 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, fading
50122573	FT5.3/4P	0.001 ... 0.215 m 0 ... 0.28 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, fading
50122581	ET5.3/2N-M8	0.001 ... 0.7 m 0 ... 1 m	LED, red	Connector, M8, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button
50122578	ET5.3/4P-M8	0.001 ... 0.7 m 0 ... 1 m	LED, red	Connector, M8, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button
50122583	ET5.3/2N-200-M12	0.001 ... 0.7 m 0 ... 1 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button
50122580	ET5.3/4P-200-M12	0.001 ... 0.7 m 0 ... 1 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button
50122582	ET5.3/2N	0.001 ... 0.7 m 0 ... 1 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button
50122579	ET5.3/4P	0.001 ... 0.7 m 0 ... 1 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button
50131580	FT5I.3/2N-M8	0.001 ... 0.215 m 0.001 ... 0.28 m	LED, infrared	Connector, M8, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, fading
50131572	FT5I.3/4P-M8	0.001 ... 0.215 m 0.001 ... 0.28 m	LED, infrared	Connector, M8, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, fading
50127903	FT5I.3/2N	0.001 ... 0.215 m 0.001 ... 0.28 m	LED, infrared	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, fading
50127904	FT5I.3/4P	0.001 ... 0.215 m 0.001 ... 0.28 m	LED, infrared	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, fading
50130280	FT5I.3/4P-200-M12P1	0.08 ... 0.12 m 0.08 ... 0.15 m	LED, infrared	Cable with connector, 200 mm, M12, 4-pin, plastic	Application: detection of labels on bottles; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, fading
50127901	ET5I.3/2N	0.001 ... 0.7 m 0.001 ... 1 m	LED, infrared	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button
50127902	ET5I.3/4P	0.001 ... 0.7 m 0.001 ... 1 m	LED, infrared	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button

Dimensioned drawings: 5 series



5 series

ACCESSORIES: 5 SERIES

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC
50130860	KD U-M8-3W-V1-020	Connector, M8, angled, female	3-pin	2,000 mm	PVC
50130862	KD U-M8-3W-V1-050	Connector, M8, angled, female	3-pin	5,000 mm	PVC
50130869	KD U-M8-4W-V1-020	Connector, M8, angled, female	4-pin	2,000 mm	PVC
50130871	KD U-M8-4W-V1-050	Connector, M8, angled, female	4-pin	5,000 mm	PVC
50104520	K-D M8A-3P-2m-PVC	Connector, M8, axial, female	3-pin	2,000 mm	PVC
50130832	KD U-M8-3A-V1-050	Connector, M8, axial, female	3-pin	5,000 mm	PVC
50130848	KD U-M8-4A-V1-020	Connector, M8, axial, female	4-pin	2,000 mm	PVC
50130850	KD U-M8-4A-V1-050	Connector, M8, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Fastening at system	Fastening at device	Design	Material
50118542	BT 200M.5	Through-hole mounting	Screw type	Angle, L-shape	Stainless steel
50124651	BT 205M	Through-hole mounting	Screw type	Angle, L-shape	Metal
50118543	BT 300M.5	Through-hole mounting	Screw type	Angle, L-shape	Stainless steel, V2A

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Material	Fastening at device	Fastening at system	Design
50117256	BTU 200M-D10	Metal	Screw type	For 10 mm rod, sheet-metal mounting	Mounting system, clampable, adjustable, turning, 360°
50117255	BTU 200M-D12	Metal	Screw type	For 12 mm rod, sheet-metal mounting	Mounting system, clampable, adjustable, turning, 360°
50117254	BTU 200M-D14	Metal	Screw type	For 14 mm rod, sheet-metal mounting	Mounting system, clampable, adjustable, turning, 360°

Further rod mounts can be found on our website

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

Reflectors and reflective tapes

Standard reflectors

Part no.	Part description	Material	Reflective surface	Fastening	Design
50024127	TK 82.2	Plastic	79 mm	Through-hole mounting, adhesive	Round
50081283	TKS 20X40	Plastic	16 mm × 38 mm	Through-hole mounting, adhesive	Rectangular
50023525	TKS 30X50	Plastic	27 mm × 44 mm	Through-hole mounting, adhesive	Rectangular
50040820	TKS 40X60	Plastic	37 mm × 56 mm	Through-hole mounting, adhesive	Rectangular
50022816	TKS 100X100	Plastic	96 mm × 96 mm	Through-hole mounting, adhesive	Rectangular

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further standard reflectors can be found on our website

Reflective tapes for standard applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50108300	REF 4-A-50x50	Rectangular	50 mm × 50 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

/// 8 series



This extensive series offers a wide variety of operating principles and functions in a sturdy metal housing with very compact dimensions. With degrees of protection of IP 67 and IP 69K, the sensors are well suited for a range of industrial applications with glass pane, e. g., in packaging technology or special-purpose machinery manufacture, particularly in rough conditions. The turning device plug simplifies integration in constrained spaces.



Direct access to the online product selector at www.leuze.com/en/br8

Throughbeam sensors

Reliable throughbeam photoelectric sensors with visible red light for a wide variety of industrial applications.

LS 8

Powerful throughbeam photoelectric sensors with visible red light suitable for applications in packaging systems.

Benefits:

- Push-pull or NPN/PNP outputs immune to interference
- M12 turning connector or cable connection
- With adjustable focal point
- Sensitivity adjustment with potentiometer

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50036358	► LSSRL 8.9-S12	0 ... 60 m 0 ... 100 m	Laser, 2, red	Connector, M12, 5-pin, metal	DC, multiturn potentiometer
50036359	◄ LSERL 8/24.01-S12	0 ... 60 m 0 ... 100 m		Connector, M12, 5-pin, metal	Switching frequency: 2,800 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, NPN, light switching, DC, multiturn potentiometer
50126801	◄ LSERL 8/44.01-S12	0 ... 60 m 0 ... 100 m		Connector, M12, 5-pin, metal	Switching frequency: 2,800 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50126800	► LSSRL 8.98-S12	0 ... 60 m 0 ... 100 m	Laser, 2, red	Connector, M12, 5-pin, metal	DC, multiturn potentiometer, activation input
50036359	◄ LSERL 8/24.01-S12	0 ... 60 m 0 ... 100 m		Connector, M12, 5-pin, metal	Switching frequency: 2,800 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, NPN, light switching, DC, multiturn potentiometer
50126801	◄ LSERL 8/44.01-S12	0 ... 60 m 0 ... 100 m		Connector, M12, 5-pin, metal	Switching frequency: 2,800 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50037083	► LSSRL 8.9	0 ... 60 m 0 ... 100 m	Laser, 2, red	Cable, 2,000 mm, 5-wire	DC, multiturn potentiometer
50037084	◄ LSERL 8/24.01	0 ... 60 m 0 ... 100 m		Cable, 2,000 mm, 5-wire	Switching frequency: 2,800 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, NPN, light switching, DC, multiturn potentiometer

► transmitter / ◄ receiver

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50036354	► LSSR 8-S12	0 ... 12 m 0 ... 20 m	LED, red	Connector, M12, 5-pin, metal	DC
50036356	◄ LSER 8/44-S12	0 ... 12 m 0 ... 20 m		Connector, M12, 5-pin, metal	Switching frequency: 1,500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50036569	◄ LSER 8/66-S12	0 ... 12 m 0 ... 20 m		Connector, M12, 5-pin, metal	Switching frequency: 1,500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50036355	► LSSR 8	0 ... 12 m 0 ... 20 m	LED, red	Cable, 2,000 mm, 5-wire	DC
50036357	◄ LSER 8/44	0 ... 12 m 0 ... 20 m		Cable, 2,000 mm, 5-wire	Switching frequency: 1,500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50036570	◄ LSER 8/66	0 ... 12 m 0 ... 20 m		Cable, 2,000 mm, 5-wire	Switching frequency: 1,500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC

► transmitter / ◄ receiver

Retro-reflective sensors

Compact retro-reflective photoelectric sensors with sensitivity adjustment via potentiometer for integration in constrained spaces.

PRK(L) 8

Retro-reflective photoelectric sensors with visible red light or laser and degree of protection IP 67 and IP 69K.

Benefits:

- Push-pull or NPN/PNP outputs immune to interference
- M12 turning connector or cable connection
- Sensitivity adjustment with potentiometer or teach-in

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50036364	PRKL 8/24.91-S12	0 ... 19 m 0 ... 21 m	Laser, 2, red	Connector, M12, 5-pin, metal	Switching frequency: 2,800 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, multiturn potentiometer, autocollimation
50127932	PRKL 8/44.91-S12	0 ... 19 m 0 ... 21 m	Laser, 2, red	Connector, M12, 5-pin, metal	Switching frequency: 2,800 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, autocollimation
50036365	PRKL 8/24.91	0 ... 19 m 0 ... 21 m	Laser, 2, red	Cable, 2,000 mm, 5-wire	Switching frequency: 2,800 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, NPN, light switching, DC, multiturn potentiometer, autocollimation
50115689	PRKL 8/24.99-S12	0 ... 12 m 0 ... 14 m	Laser, 1, red	Connector, M12, 5-pin, metal	Switching frequency: 2,800 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, NPN, light switching, DC, multiturn potentiometer, autocollimation
50036360	PRK 8/44-S12	0.1 ... 6.4 m 0.1 ... 8 m	LED, red	Connector, M12, 5-pin, metal	Switching frequency: 1,500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50036362	PRK 8/66-S12	0.1 ... 6.4 m 0.1 ... 8 m	LED, red	Connector, M12, 5-pin, metal	Switching frequency: 1,500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50038789	IPRK 8/A-S12	0.1 ... 6.4 m 0.1 ... 8 m	LED, red	Connector, M12, 4-pin, metal	Switching frequency: 1,500 Hz, AS-Interface IO
50036361	PRK 8/44	0.1 ... 6.4 m 0.1 ... 8 m	LED, red	Cable, 2,000 mm, 5-wire	Switching frequency: 1,500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50036363	PRK 8/66	0.1 ... 6.4 m 0.1 ... 8 m	LED, red	Cable, 2,000 mm, 5-wire	Switching frequency: 1,500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50037133	PRK 8/66.11-S12	0 ... 5 m 0 ... 7 m	LED, infrared	Connector, M12, 5-pin, metal	Switching frequency: 1,500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, autocollimation

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

PRK 8.4x

Retro-reflective photoelectric sensor specially designed for single-lane bottle transport and transparent media.

Benefits:

- Autocollimation principle for transparent media
- Tracking function in the event of contamination
- Sensitivity adjustment with potentiometer or teach-in
- Push-pull switching outputs immune to interference
- M12 turning connector or cable connection

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50037134	PRK 8/66.41-S12	0 ... 2 m 0 ... 2.4 m	LED, red	Connector, M12, 5-pin, metal	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, autocollimation
50037135	PRK 8/66.42-S12	0 ... 2 m 0 ... 2.4 m	LED, red	Connector, M12, 5-pin, metal	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, autocollimation, teach input, tracking function

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

Diffuse sensors

Powerful diffuse reflection sensor with visible red light.

(I)RTR 8 / VRTR 8

These diffuse sensors feature a visible red light and are perfectly suited for rough environmental conditions. In addition, models with foreground suppression (VRTR 8) are available.

Benefits:

- Push-pull, PNP outputs or AS-Interface IO
- Range adjustment with potentiometer
- M12 turning connector or cable connection
- Visible red light

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50036374	VRTR 8/66-250-S12	0 ... 0.25 m 0 ... 0.25 m	LED, red	Connector, M12, 5-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50036375	VRTR 8/66-250	0 ... 0.25 m 0 ... 0.25 m	LED, red	Cable, 2,000 mm, 5-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50038790	IRTR 8/A-800-S12	0.01 ... 0.6 m 0.01 ... 0.8 m	LED, red	Connector, M12, 5-pin, metal	Switching frequency: 1,500 Hz, 270 ° potentiometer, AS-Interface IO
50036368	RTR 8/66-800-S12	0.01 ... 0.6 m 0.01 ... 0.8 m	LED, red	Connector, M12, 5-pin, metal	Switching frequency: 1,500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer
50036369	RTR 8/66-800	0.01 ... 0.6 m 0.01 ... 0.8 m	LED, red	Cable, 2,000 mm, 5-wire	Switching frequency: 1,500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer

Diffuse sensors with background suppression

Diffuse reflection sensor with background suppression and visible red light or infrared light.

(I)HRT 8 / HRTL 8 / HRTR 8

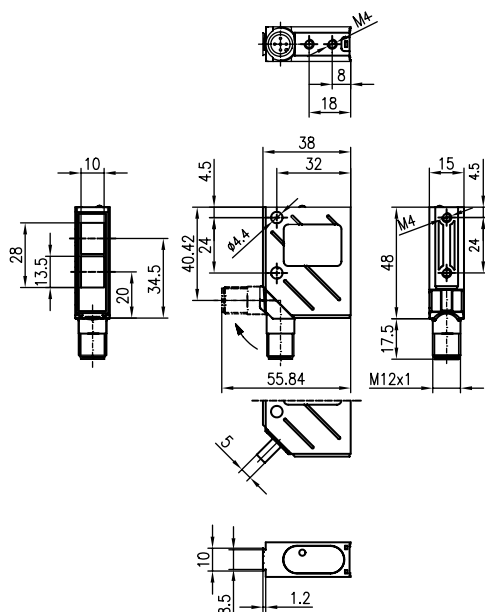
Powerful diffuse reflection sensors with multiturn potentiometer, specially designed for detecting glossy objects.

Benefits:

- Detection of shining objects
- Adjustable background suppression via multiturn potentiometer
- Push-pull or NPN/PNP outputs immune to interference
- M12 turning connector or cable connection
- High switching frequency

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50036370	HRTL 8/24-350-S12	0.007 ... 0.35 m 0.007 ... 0.4 m	Laser, 2, red	Connector, M12, 5-pin, metal	Switching frequency: 2,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, NPN, light switching, DC, multiturn potentiometer
50102705	HRTL 8/66-350-S12	0.007 ... 0.35 m 0.007 ... 0.4 m	Laser, 2, red	Connector, M12, 5-pin, metal	Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50103709	HRTL 8/66-350,5000	0.007 ... 0.35 m 0.007 ... 0.4 m	Laser, 2, red	Cable, 5,000 mm, 5-wire	Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50036371	HRTL 8/24-350	0.007 ... 0.35 m 0.007 ... 0.4 m	Laser, 2, red	Cable, 2,000 mm, 5-wire	Switching frequency: 2,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, NPN, light switching, DC, multiturn potentiometer
50038482	HRTL 8/24-150-S12	0.01 ... 0.15 m 0.01 ... 0.2 m	Laser, 2, red	Connector, M12, 5-pin, metal	Switching frequency: 2,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, NPN, light switching, DC, multiturn potentiometer
50102704	HRTL 8/66-150-S12	0.01 ... 0.15 m 0.01 ... 0.2 m	Laser, 2, red	Connector, M12, 5-pin, metal	Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50038483	HRTL 8/24-150	0.01 ... 0.15 m 0.01 ... 0.2 m	Laser, 2, red	Cable, 2,000 mm, 5-wire	Switching frequency: 2,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, NPN, light switching, DC, multiturn potentiometer
50115688	HRTL 8/66.09-150-S12	0.025 ... 0.15 m 0.025 ... 0.2 m	Laser, 1, red	Connector, M12, 5-pin, metal	Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50036350	HRTR 8/44-350-S12	0.007 ... 0.35 m 0.007 ... 0.4 m	LED, red	Connector, M12, 5-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50036352	HRTR 8/66-350-S12	0.007 ... 0.35 m 0.007 ... 0.4 m	LED, red	Connector, M12, 5-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50108224	HRTR 8/66-350,5000	0.007 ... 0.35 m 0.007 ... 0.4 m	LED, red	Cable, 5,000 mm, 5-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50036351	HRTR 8/44-350	0.007 ... 0.35 m 0.007 ... 0.4 m	LED, red	Cable, 2,000 mm, 5-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50036353	HRTR 8/66-350	0.007 ... 0.35 m 0.007 ... 0.4 m	LED, red	Cable, 2,000 mm, 5-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50103360	IHRT 8/4-100-S12	0.03 ... 0.1 m 0.03 ... 0.1 m	LED, red	Connector, M12, 5-pin, metal	Switching frequency: 200 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, U_B switching, DC, multiturn potentiometer, warning output
50039650	HRT 8/66.6-350-S12	0.007 ... 0.35 m 0.007 ... 0.4 m	LED, infrared	Connector, M12, 5-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50103361	IHRT 8/4-200-S12	0.04 ... 0.2 m 0.04 ... 0.2 m	LED, infrared	Connector, M12, 5-pin, metal	Switching frequency: 200 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, U_B switching, DC, multiturn potentiometer, warning output

Dimensioned drawings: 8 series



8 series

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

ACCESSORIES: 8 SERIES

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104567	K-D M12A-5P-2m-PUR	Connector, M12, axial, female	5-pin	2,000 mm	PUR
50104569	K-D M12A-5P-5m-PUR	Connector, M12, axial, female	5-pin	5,000 mm	PUR
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm	PVC
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm	PVC
50104559	K-D M12A-5P-10m-PVC	Connector, M12, axial, female	5-pin	10,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50036195	BT 8	Angle, L-shape	Screw type	Through-hole mounting	Metal
50118543	BT 300M.5	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel, V2A

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117253	BTU 300M-D10	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50117252	BTU 300M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50117251	BTU 300M-D14	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 14 mm rod, sheet-metal mounting	Metal

Further rod mounts can be found on our website

Reflectors and reflective tapes

Standard reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50081283	TKS 20X40	Rectangular	16 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50023525	TKS 30X50	Rectangular	27 mm × 44 mm	Through-hole mounting, adhesive	Plastic
50022816	TKS 100X100	Rectangular	96 mm × 96 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm
 Further standard reflectors can be found on our website

Micro-triad-type reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50117583	MTKS 50x50.1	Rectangular	50 mm × 50 mm	Through-hole mounting, adhesive	Plastic
50114185	REF 6-S-20x40	Rectangular	16 mm × 38 mm	Screw type	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further micro-triad-type reflectors can be found on our website

Reflective tapes for standard applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50106119	REF 4-A-100x100	Rectangular	100 mm × 100 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

Reflective tapes for laser and clear-glass applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50123899	REF 6-A-9x9	Rectangular	9 mm × 9 mm	Self-adhesive	Plastic
50123861	REF 6-A-14x45	Rectangular	15 mm × 45 mm	Self-adhesive	Plastic
50110192	REF 6-A-50x50	Rectangular	50 mm × 50 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

/// 10 series



The diffuse sensors of series 10 have been specially developed for the reliable and precise detection of different materials under varying conditions. Operation of the sensor is intuitive and, thanks to the large buttons, extremely simple. The maximum range of up to 8,000 mm makes the sensor an ideal solution for many different applications. The series offers a large selection of functions and models.



Direct access to the online product selector at www.leuze.com/en/br10

Diffuse sensors with background suppression

High-performance diffuse sensor with background suppression for different materials and large range.

HT10

The HT10 is a diffuse sensor with background suppression, based on propagation time measurement, with a max. operating range of 8,000 mm. The switching point is virtually material-independent up to 3,500 mm. The sensor allows reliable detection of both glossy and less-reflective objects at extreme angles. The HT10 is optimized for positioning tasks, compartment occupation check, shelf-positioning and feed-through monitoring. Thanks to the high tolerance limit, the sensor also offers high availability in changing environmental conditions or with varying reflective materials.

Benefits:

- Laser class 1 with visible red light
- Optionally, up to 3 switching outputs
- Reliable detection of dark, glossy and colored objects
- Recess for M4 bolts or nuts on both sides
- Space-saving, rotatable M12 connection, cable outlet or pigtail
- Large control buttons
- Status LED visible from above and from front
- Additional configuration options via I/O-Link and Sensor Studio
- Compact housing
- 25 m device model
- Device model with window function
- Device model with external teach input

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50129541	HT10L1-25M.3/L69-M12	0.1 ... 25 m 0.1 ... 25 m	Laser, 1, red	Connector, M12, 5-pin, plastic	Switching frequency: 40 Hz; Digital switching output 1: transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, light switching (PNP)/dark switching (NPN), optimized for use with reflective tape, DC, IO-Link, membrane keyboard, deactivation input
50129552	HT10L1-25M.3/L69,200-M12	0.1 ... 25 m 0.1 ... 25 m	Laser, 1, red	Cable with connector, 200 mm, M12, 5-pin, plastic	Switching frequency: 40 Hz; Digital switching output 1: transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, light switching (PNP)/dark switching (NPN), optimized for use with reflective tape, DC, IO-Link, membrane keyboard, deactivation input
50129547	HT10L1-25M.3/L69	0.1 ... 25 m 0.1 ... 25 m	Laser, 1, red	Cable, 2,000 mm, 5-wire	Switching frequency: 40 Hz; Digital switching output 1: transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, light switching (PNP)/dark switching (NPN), optimized for use with reflective tape, DC, IO-Link, membrane keyboard, deactivation input
50129538	HT10L1.3/L6T-M12	0.05 ... 3.5 m 0.05 ... 8 m	Laser, 1, red	Connector, M12, 5-pin, plastic	Switching frequency: 40 Hz; Digital switching output 1: transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, IO-Link, membrane keyboard, teach input
50129539	HT10L1.3/L6T.P1-M12	0.05 ... 3.5 m 0.05 ... 8 m	Laser, 1, red	Connector, M12, 5-pin, plastic	Switching frequency: 40 Hz; Digital switching output 1: transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, IO-Link, membrane keyboard, teach input, window teach
50128388	HT10L1.3/L6X-M12	0.05 ... 3.5 m 0.05 ... 8 m	Laser, 1, red	Connector, M12, 5-pin, plastic	Switching frequency: 40 Hz; Digital switching output 1: transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, IO-Link, membrane keyboard
50129540	HT10L1.3/L66-M12	0.05 ... 3.5 m 0.05 ... 8 m	Laser, 1, red	Connector, M12, 5-pin, plastic	Switching frequency: 40 Hz; Digital switching output 1: transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 3: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, IO-Link, membrane keyboard
50129537	HT10L1.3/L69-M12	0.05 ... 3.5 m 0.05 ... 8 m	Laser, 1, red	Connector, M12, 5-pin, plastic	Switching frequency: 40 Hz; Digital switching output 1: transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, IO-Link, membrane keyboard, deactivation input
50129550	HT10L1.3/L6T,200-M12	0.05 ... 3.5 m 0.05 ... 8 m	Laser, 1, red	Cable with connector, 200 mm, M12, 5-pin, plastic	Switching frequency: 40 Hz; Digital switching output 1: transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, IO-Link, membrane keyboard, teach input
50129548	HT10L1.3/L6X,200-M12	0.05 ... 3.5 m 0.05 ... 8 m	Laser, 1, red	Cable with connector, 200 mm, M12, 5-pin, plastic	Switching frequency: 40 Hz; Digital switching output 1: transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, IO-Link, membrane keyboard
50129551	HT10L1.3/L66,200-M12	0.05 ... 3.5 m 0.05 ... 8 m	Laser, 1, red	Cable with connector, 200 mm, M12, 5-pin, plastic	Switching frequency: 40 Hz; Digital switching output 1: transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 3: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, IO-Link, membrane keyboard
50129549	HT10L1.3/L69,200-M12	0.05 ... 3.5 m 0.05 ... 8 m	Laser, 1, red	Cable with connector, 200 mm, M12, 5-pin, plastic	Switching frequency: 40 Hz; Digital switching output 1: transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, IO-Link, membrane keyboard, deactivation input
50129545	HT10L1.3/L6T	0.05 ... 3.5 m 0.05 ... 8 m	Laser, 1, red	Cable, 2,000 mm, 5-wire	Switching frequency: 40 Hz; Digital switching output 1: transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, IO-Link, membrane keyboard, teach input
50129543	HT10L1.3/L6X	0.05 ... 3.5 m 0.05 ... 8 m	Laser, 1, red	Cable, 2,000 mm, 5-wire	Switching frequency: 40 Hz; Digital switching output 1: transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, IO-Link, membrane keyboard
50129546	HT10L1.3/L66	0.05 ... 3.5 m 0.05 ... 8 m	Laser, 1, red	Cable, 2,000 mm, 5-wire	Switching frequency: 40 Hz; Digital switching output 1: transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 3: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, IO-Link, membrane keyboard
50129542	HT10L1.3/L69	0.05 ... 3.5 m 0.05 ... 8 m	Laser, 1, red	Cable, 2,000 mm, 5-wire	Switching frequency: 40 Hz; Digital switching output 1: transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, IO-Link, membrane keyboard, deactivation input

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

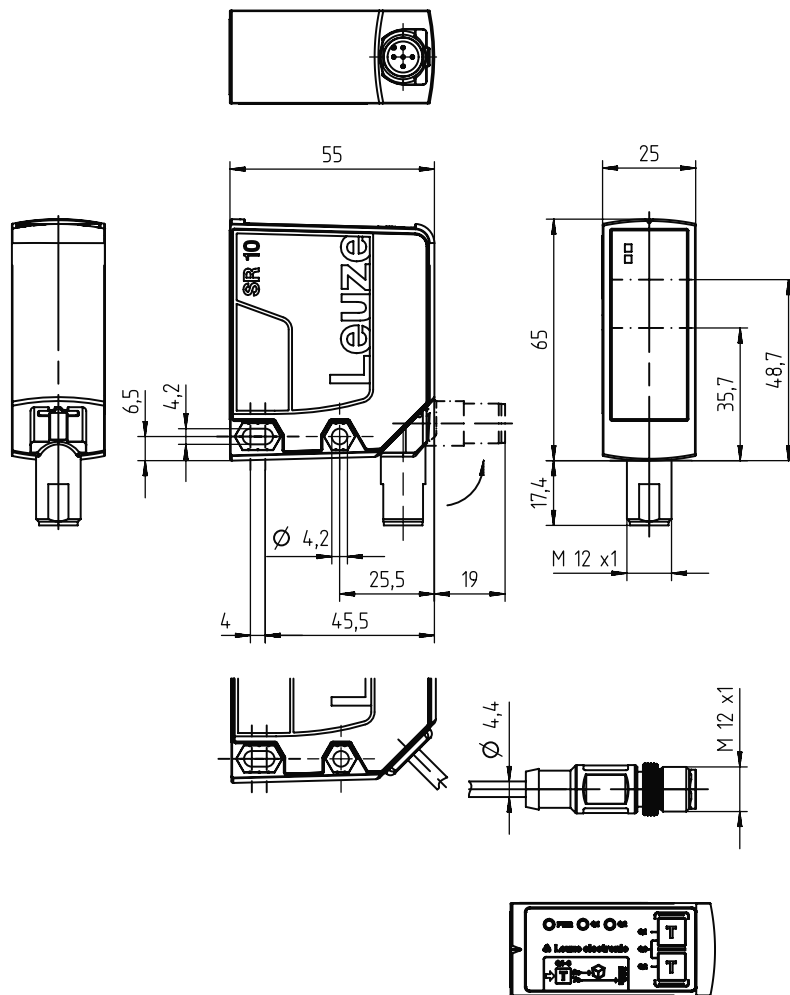
SMARTER CUSTOMER SERVICE



International sales locations –
Everywhere you need us.

Information on our worldwide locations and partners: www.leuze.com/en/worldwide



Dimensioned drawings: 10 series

10 series

ACCESSORIES: 10 SERIES**Connection technology**

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104556	K-D M12W-5P-2m-PVC	Connector, M12, angled, female	5-pin	2,000 mm	PVC
50104558	K-D M12W-5P-5m-PVC	Connector, M12, angled, female	5-pin	5,000 mm	PVC
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm	PVC
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50128379	BTU 460M-D10	Mounting system	Screw type	For 10 mm rod	Metal
50128380	BTU 460M-D12	Mounting system	Screw type	For 12 mm rod	Metal

Further rod mounts can be found on our website

Reflective tapes

Reflective tapes

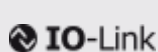
Part no.	Part description	Design	Reflective surface	Fastening	Material
50111527	REF 7-A-100x100	Rectangular	100 mm × 100 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

/// 18 series



These retro-reflective photoelectric sensors in coated metal housing with glass optics were designed specially for detecting transparent PET and glass bottles, plastic foils as well as flat glass. The patented tracking process extends the cleaning interval many times over; short response times and minimal jitter ensure reliable control of fast processes. The versatile fastening options with integrated thread facilitate mounting and the models with aligned abeam optics make alignment unnecessary. The configuration via IO-Link allows a flexible, simple adjustment of the device.



Direct access to the online product selector at www.leuze.com/en/br18

Retro-reflective sensors

Polarized and unpolarized retro-reflective photoelectric sensors with autocollimation optics for the detection of foils and transparent media are available. In line with application requirements, 3 different types of adjustment options (270 ° potentiometer, teach button, 11-turn potentiometer) and IO-Link versions can be ordered.

(P)RK18B / (I)PRK 18

Polarized and unpolarized retro-reflective photoelectric sensors for the reliable detection of highly transparent bottles, foils and glass panes.

Benefits:

- Reliable detection of containers for single bottles
- Precisely adjustable switching point via 270 ° potentiometer, teach button, 11-turn potentiometer
- Coated with chemical nickel
- Models with high optical accuracy available thanks to calibrated optical system
- Large temperature compensation
- Tracking for contamination compensation
- Front and side mounting systems with M4 thread

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50117357	PRK18B.1/2N-M12	0 ... 6 m 0 ... 7.2 m	LED, red	Connector, M12, 4-pin, metal	Application: detection of bottle container; Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, 270 ° potentiometer, autocollimation
50117359	PRK18B.1/4P-M12	0 ... 6 m 0 ... 7.2 m	LED, red	Connector, M12, 4-pin, metal	Application: detection of bottle container; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer, autocollimation
50117373	RK18B.1/2N-M12	0 ... 6 m 0 ... 7.2 m	LED, red	Connector, M12, 4-pin, metal	Application: operation with glass triple reflectors and any reflective tapes; Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, 270 ° potentiometer, autocollimation
50117375	RK18B.1/4P-M12	0 ... 6 m 0 ... 7.2 m	LED, red	Connector, M12, 4-pin, metal	Application: operation with glass triple reflectors and any reflective tapes; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer, autocollimation
50117356	PRK18B.1/2N-6000	0 ... 6 m 0 ... 7.2 m	LED, red	Cable, 6,000 mm, 4-wire	Application: detection of bottle container; Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, 270 ° potentiometer, autocollimation
50117358	PRK18B.1/4P-6000	0 ... 6 m 0 ... 7.2 m	LED, red	Cable, 6,000 mm, 4-wire	Application: detection of bottle container; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer, autocollimation
50117372	RK18B.1/2N-6000	0 ... 6 m 0 ... 7.2 m	LED, red	Cable, 6,000 mm, 4-wire	Application: operation with glass triple reflectors and any reflective tapes; Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, 270 ° potentiometer, autocollimation
50117374	RK18B.1/4P-6000	0 ... 6 m 0 ... 7.2 m	LED, red	Cable, 6,000 mm, 4-wire	Application: operation with glass triple reflectors and any reflective tapes; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer, autocollimation
50117363	PRK18B.T2/4P-M12	0 ... 4 m 0 ... 4.8 m	LED, red	Connector, M12, 4-pin, metal	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multi-turn potentiometer, autocollimation
50117365	PRK18B.T2/4X-M12	0 ... 4 m 0 ... 4.8 m	LED, red	Connector, M12, 4-pin, metal	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,500 Hz; Digital switching output 1: transistor, PNP, light switching, DC, multi-turn potentiometer, autocollimation
50117364	PRK18B.T2/NX-M12	0 ... 4 m 0 ... 4.8 m	LED, red	Connector, M12, 4-pin, metal	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,500 Hz; Digital switching output 1: transistor, NPN, dark switching, DC, multi-turn potentiometer, autocollimation
50117361	PRK18B.T2/PX-M12	0 ... 4 m 0 ... 4.8 m	LED, red	Connector, M12, 4-pin, metal	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,500 Hz; Digital switching output 1: transistor, PNP, dark switching, DC, multi-turn potentiometer, autocollimation

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

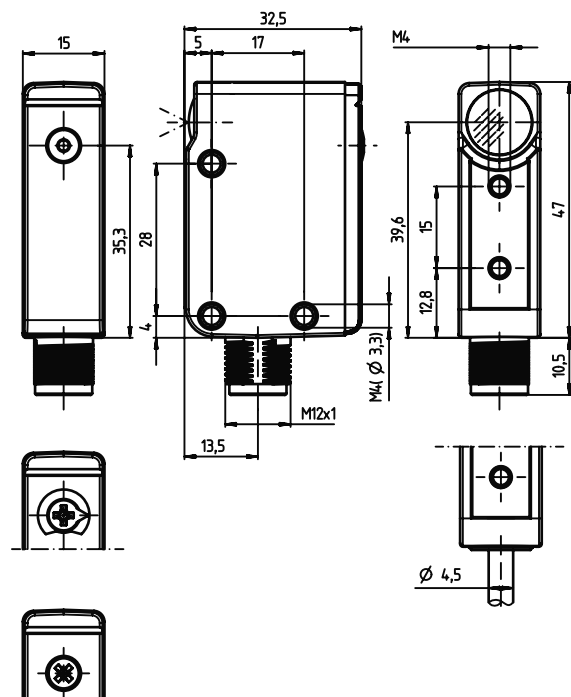
Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50117366	PRK18B.T3/2N-M12	0 ... 4 m 0 ... 4.8 m	LED, red	Connector, M12, 4-pin, metal	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, autocollimation
50117367	PRK18B.T3/4P-M12	0 ... 4 m 0 ... 4.8 m	LED, red	Connector, M12, 4-pin, metal	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, autocollimation
50124945	PRK18B.XT2/4P-M12	0 ... 4 m 0 ... 4.8 m	LED, red	Connector, M12, 4-pin, metal	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, autocollimation
50124944	PRK18B.XT3/4P-M12	0 ... 4 m 0 ... 4.8 m	LED, red	Connector, M12, 4-pin, metal	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, autocollimation
50117377	RK18B.T2/2N-M12	0 ... 4 m 0 ... 4.8 m	LED, red	Connector, M12, 4-pin, metal	Application: detection of highly transparent foils and glass panes, operation with glass triple reflectors and any reflective tapes; Switching frequency: 1,500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, multiturn potentiometer, autocollimation
50117379	RK18B.T2/4P-M12	0 ... 4 m 0 ... 4.8 m	LED, red	Connector, M12, 4-pin, metal	Application: detection of highly transparent foils and glass panes, operation with glass triple reflectors and any reflective tapes; Switching frequency: 1,500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, autocollimation
50117360	PRK18B.T2/2N-6000	0 ... 4 m 0 ... 4.8 m	LED, red	Cable, 6,000 mm, 4-wire	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, multiturn potentiometer, autocollimation
50117362	PRK18B.T2/4P-6000	0 ... 4 m 0 ... 4.8 m	LED, red	Cable, 6,000 mm, 4-wire	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, autocollimation
50033552	IPRK 18/4 DL.41	0 ... 3 m 0 ... 4 m	LED, red	Connector, M12, 5-pin, stainless steel	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, dark switching; Digital switching output 2: transistor, PNP, U _e switching, DC, step switch, autocollimation, tracking function, warning output
50033554	PRK 18/24 DL.42	0 ... 3 m 0 ... 4 m	LED, red	Connector, M12, 5-pin, stainless steel	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, dark switching; Digital switching output 2: transistor, NPN, light switching, DC, step switch, autocollimation, teach input, tracking function
50032798	PRK 18/24 DL.46	0 ... 3 m 0 ... 4 m	LED, red	Connector, M12, 5-pin, stainless steel	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, dark switching; Digital switching output 2: transistor, NPN, light switching, DC, step switch, autocollimation, tracking function
50117369	PRK18B.FXT3/2N-M12	0 ... 3 m 0 ... 3.6 m	LED, red	Connector, M12, 4-pin, metal	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 5,000 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, autocollimation
50117371	PRK18B.FXT3/4P-M12	0 ... 3 m 0 ... 3.6 m	LED, red	Connector, M12, 4-pin, metal	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 5,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, autocollimation
50121228	PRK18B.TT3/2N-M12	0 ... 3 m 0 ... 3.6 m	LED, red	Connector, M12, 4-pin, metal	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, autocollimation, tracking function
50121229	PRK18B.TT3/4P-M12	0 ... 3 m 0 ... 3.6 m	LED, red	Connector, M12, 4-pin, metal	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, autocollimation, tracking function
50121230	PRK18B.TT3/LP-M12	0 ... 3 m 0 ... 3.6 m	LED, red	Connector, M12, 4-pin, metal	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,500 Hz; Digital switching output 1: transistor, PNP, push-pull, IO-Link / light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, PNP, dark switching, DC, IO-Link, teach button, autocollimation, tracking function
50126940	PRK18B.TT3/P4-M12	0 ... 3 m 0 ... 3.6 m	LED, red	Connector, M12, 4-pin, metal	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,500 Hz; Digital switching output 1: transistor, PNP, dark switching; Digital switching output 2: transistor, PNP, light switching, DC, teach button, tracking function, autocollimation
50124943	PRK18B.XTT3/4P-M12	0 ... 3 m 0 ... 3.6 m	LED, red	Connector, M12, 4-pin, metal	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, autocollimation, tracking function
50115193	PRK 18/44 L.43	0 ... 3 m 0 ... 4 m	LED, red	Connector, M12, 4-pin, stainless steel	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, step switch, autocollimation, teach input, tracking function
50117368	PRK18B.FXT3/2N-6000	0 ... 3 m 0 ... 3.6 m	LED, red	Cable, 6,000 mm, 4-wire	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 5,000 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, autocollimation
50121231	PRK18B.FXT3/2T-6000	0 ... 3 m 0 ... 3.6 m	LED, red	Cable, 6,000 mm, 4-wire	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 5,000 Hz; Digital switching output 1: transistor, NPN, light switching, DC, teach button, autocollimation
50121232	PRK18B.FXT3/4P-6000	0 ... 3 m 0 ... 3.6 m	LED, red	Cable, 6,000 mm, 4-wire	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 5,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, autocollimation
50121227	PRK18B.TT3/2N-6000	0 ... 3 m 0 ... 3.6 m	LED, red	Cable, 6,000 mm, 4-wire	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, autocollimation, tracking function
50117370	PRK18B.TT3/4P-6000	0 ... 3 m 0 ... 3.6 m	LED, red	Cable, 6,000 mm, 4-wire	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, autocollimation, tracking function
50040278	IPRK 18/A L.46	0 ... 2.4 m 0 ... 3 m	LED, red	Connector, M12, 5-pin, stainless steel	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,000 Hz, step switch, autocollimation, tracking function, warning output, AS-Interface IO

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

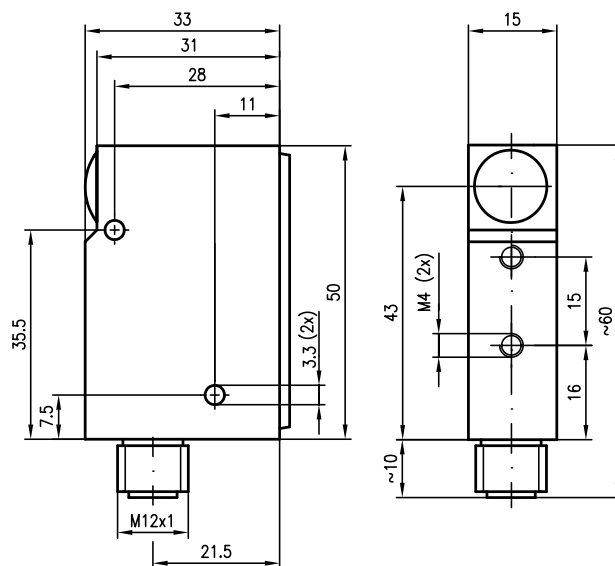
Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50034119	IPRK 18/A.1 L.4	0 ... 2.4 m 0 ... 3 m	LED, red	Connector, M12, 4-pin, stainless steel	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 500 Hz, multiturn potentiometer, autocollimation, warning output, AS-Interface IO
50030077	IPRK 18/A L.4	0 ... 2.4 m 0 ... 3 m	LED, red	Connector, M12, 4-pin, stainless steel	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 500 Hz, multiturn potentiometer, autocollimation, warning output, AS-Interface IO
50106974	IPRK 18/V L.03	0 ... 1 m 0 ... 1.2 m	LED, red	Connector, M12, 5-pin, stainless steel	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching, DC, autocollimation, teach input, warning output

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

Dimensioned drawings: 18 series



18B series



18 series

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

ACCESSORIES: 18 SERIES

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130694	KD U-M12-4W-P1-050	Connector, M12, angled, female	4-pin	5,000 mm	PUR
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50104762	K-D M12W-5P-5m-PUR	Connector, M12, angled, female	5-pin	5,000 mm	PUR
50104556	K-D M12W-5P-2m-PVC	Connector, M12, angled, female	5-pin	2,000 mm	PVC
50104558	K-D M12W-5P-5m-PVC	Connector, M12, angled, female	5-pin	5,000 mm	PVC
50130657	KD U-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC
50104569	K-D M12A-5P-5m-PUR	Connector, M12, axial, female	5-pin	5,000 mm	PUR
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm	PVC
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm	PVC

Further connection cables can be found on our website

Data transmission /
Control components

Industrial image
processing

Accessories

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50020833	BT 95	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117256	BTU 200M-D10	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50117255	BTU 200M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50117254	BTU 200M-D14	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 14 mm rod, sheet-metal mounting	Metal

Further rod mounts can be found on our website

Reflectors and reflective tapes

Standard reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50009374	TG 29	Round	25 mm	M3 threaded pin	Glass
50081283	TKS 20X40	Rectangular	16 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50023525	TKS 30X50	Rectangular	27 mm × 44 mm	Through-hole mounting, adhesive	Plastic
50040820	TKS 40X60	Rectangular	37 mm × 56 mm	Through-hole mounting, adhesive	Plastic
50022816	TKS 100X100	Rectangular	96 mm × 96 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm

Further standard reflectors can be found on our website

Micro-triad-type reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50117583	MTKS 50x50.1	Rectangular	50 mm × 50 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm

Further micro-triad-type reflectors can be found on our website

Reflective tapes for standard applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50106119	REF 4-A-100x100	Rectangular	100 mm × 100 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

Reflective tapes for laser and clear-glass applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50110192	REF 6-A-50x50	Rectangular	50 mm × 50 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

SMARTER PRODUCT USABILITY

It's the accessories that make our range of products complete.

We place great value on, e. g., flexible mounting solutions and simple integration through variable connection technology, alignment aids and innovative mounting systems. Pre-configured and pre-mounted systems also facilitate fast and simple commissioning of, e. g., muting systems for applications in safety at work.



Discover our extensive line of accessories on the web at: www.leuze.com/en/accessories

/// 25 series



This series covers all operating principles – from the throughbeam photoelectric sensor to the scanner with background suppression – and have been optimized for a wide range of different applications, especially in intralogistics and packaging technology. Degree of protection IP 67 and IP 66 as well as the active suppression of extraneous light enable use in a wide range of industrial sectors. A number of different options, such as activation input or warning output, facilitate a high level of process reliability and, thus, system availability.



Direct access to the online product selector at www.leuze.com/en/br25

Throughbeam sensors

The photoelectric sensors of this series offer a high function reserve and are suited for use in rough, industrial environments.

LSR 25B

The standard LSR 25B throughbeam photoelectric sensor convinces with its large range and its versatile options for increasing process reliability (warning, testing).

Benefits:

- Photoelectric sensor with very high function reserve
- Suitable for use in rough, industrial environment
- Various options for increasing the process reliability (warning, test activation)

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50108477	► LSSR 25B-S12	0 ... 20 m 0 ... 24 m	LED, red	Connector, M12, 4-pin, plastic	DC
50108487	◄ ILSER 25B/4-S12	0 ... 20 m 0 ... 24 m		Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, PNP, U_s switching, DC, warning output
50108483	◄ LSR 25B/66-S12	0 ... 20 m 0 ... 24 m		Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50108484	◄ LSR 25B/66.1-S12	0 ... 20 m 0 ... 24 m		Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270° potentiometer
50108478	► LSSR 25B.8-S12	0 ... 20 m 0 ... 24 m	LED, red	Connector, M12, 4-pin, plastic	DC, activation input
50108487	◄ ILSER 25B/4-S12	0 ... 20 m 0 ... 24 m		Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, PNP, U_s switching, DC, warning output
50108483	◄ LSR 25B/66-S12	0 ... 20 m 0 ... 24 m		Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50108479	► LSSR 25B.8-S8	0 ... 20 m 0 ... 24 m	LED, red	Connector, M8, 4-pin, plastic	DC, activation input
50108485	◄ LSR 25B/66-S8	0 ... 20 m 0 ... 24 m		Connector, M8, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50110872	► LSSR 25B,200-S8.1	0 ... 20 m 0 ... 24 m	LED, red	Cable with connector, 200 mm, snap-in, M8, 4-pin, metal	DC
50110873	◄ LSR 25B/4,200-S8.1	0 ... 20 m 0 ... 24 m		Cable with connector, 200 mm, snap-in, M8, 4-pin, metal	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching, DC
50110922	► LSSR 25B,200-S12	0 ... 20 m 0 ... 24 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, metal	DC
50110923	◄ LSR 25B/4,200-S12	0 ... 20 m 0 ... 24 m		Cable with connector, 200 mm, M12, 4-pin, metal	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching, DC
50108480	► LSSR 25B.8	0 ... 20 m 0 ... 24 m	LED, red	Cable, 2,000 mm, 4-wire	DC, activation input
50108486	◄ LSR 25B/66	0 ... 20 m 0 ... 24 m		Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC

► transmitter / ◄ receiver

Retro-reflective sensors

In addition to normal polarized retro-reflective photoelectric sensors, the 25B series with variants is ideally suited for the reliable detection of stretch-wrapped pallets or for very precise positioning.

(I)PRK 25B / PRK 25

The standard (I)PRK 25B retro-reflective photoelectric sensor ensures high system availability, even under extreme environmental conditions. Additional functions, such as warning and activation, further increase process reliability.

Benefits:

- High system availability under extreme environmental conditions
- Additional functions, e. g. warning, activation, for increasing the process reliability

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50104228	IPRK 25B/4-S12	0.05 ... 8 m 0.05 ... 10 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, U _B switching, DC, warning output
50104227	PRK 25B/4.8-S12	0.05 ... 8 m 0.05 ... 10 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching, DC, activation input
50109432	PRK 25B/44-S12	0.05 ... 8 m 0.05 ... 10 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50104223	PRK 25B/66-S12	0.08 ... 8 m 0.05 ... 10 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50104230	PRK 25B/66.1-S12	0.08 ... 8 m 0.05 ... 10 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270° potentiometer
50104224	PRK 25B/66-S8	0.08 ... 8 m 0.05 ... 10 m	LED, red	Connector, M8, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50113771	PRK 25B/4,200-S8.1	0.05 ... 8 m 0.05 ... 10 m	LED, red	Cable with connector, 200 mm, snap-in, M8, 4-pin, metal	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching, DC
50104226	PRK 25B/66,200-S12	0.08 ... 8 m 0.05 ... 10 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, metal	Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50104229	IPRK 25B/4,200-S12	0.08 ... 8 m 0.05 ... 10 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, U _B switching, DC, warning output
50105739	PRK 25B/66,100-S8	0.08 ... 8 m 0.05 ... 10 m	LED, red	Cable with connector, 100 mm, M8, 4-pin, metal	Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50104225	PRK 25B/66	0.08 ... 8 m 0.05 ... 10 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50041395	PRK 25/66.2-S12	0 ... 4.5 m 0 ... 5 m	LED, red	Connector, M12, 4-pin, plastic	Application: positioning, zero distance; Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, autocollimation
50041396	PRK 25/66.2, 150-S12	0 ... 4.5 m 0 ... 5 m	LED, red	Cable with connector, 150 mm, M12, 4-pin, metal	Application: positioning, zero distance; Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, autocollimation
50104202	PRK 25/66.2	0 ... 4.5 m 0 ... 5 m	LED, red	Cable, 2,000 mm, 4-wire	Application: positioning, zero distance; Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, autocollimation
50101457	PRK 25/66.41-S12	0 ... 1.7 m 0 ... 2 m	LED, red	Connector, M12, 4-pin, plastic	Application: detection of highly transparent bottles; Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, autocollimation
50101978	PRK 25/66.41-S8	0 ... 1.7 m 0 ... 2 m	LED, red	Connector, M8, 4-pin, plastic	Application: detection of highly transparent bottles; Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, autocollimation
50108049	PRK 25/66.41,150-S12	0 ... 1.7 m 0 ... 2 m	LED, red	Cable with connector, 150 mm, M12, 4-pin, metal	Application: detection of highly transparent bottles; Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, autocollimation
50101977	PRK 25/66.41	0 ... 1.7 m 0 ... 2 m	LED, red	Cable, 2,000 mm, 4-wire	Application: detection of highly transparent bottles; Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, autocollimation

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

(I)PRK 25B.3

The (I)PRK 25B.3 retro-reflective photoelectric sensor is optimized for use in the areas of material flow, intralogistics and packaging technology. It is particularly well suited for the reliable detection of stretch-wrapped pallets, foil-wrapped objects or laminated surfaces.

Benefits:

- Optimized for use in the areas of material flow/intralogistics and packaging technology
- Reliable function even with stretch-wrapped pallets

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50104246	IPRK 25B/4.3-S12	0.05 ... 6 m 0.05 ... 8 m	LED, red	Connector, M12, 4-pin, plastic	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, U _e switching, DC, warning output
50104247	PRK 25B/4.38-S12	0.05 ... 6 m 0.05 ... 8 m	LED, red	Connector, M12, 4-pin, plastic	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching, DC, activation input
50104242	PRK 25B/4D.3-S12	0.05 ... 6 m 0.05 ... 8 m	LED, red	Connector, M12, 4-pin, plastic	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, dark switching, DC, AS-Interface, connection via coupling module
50117202	PRK 25B/44.3-S12	0.05 ... 6 m 0.05 ... 8 m	LED, red	Connector, M12, 4-pin, plastic	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50104236	PRK 25B/66.3-S12	0.05 ... 6 m 0.05 ... 8 m	LED, red	Connector, M12, 4-pin, plastic	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50104243	PRK 25B/66.31-S12	0.05 ... 6 m 0.05 ... 8 m	LED, red	Connector, M12, 4-pin, plastic	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer
50104241	PRK 25B/4D.3-S8	0.05 ... 6 m 0.05 ... 8 m	LED, red	Connector, M8, 4-pin, plastic	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, dark switching, DC, AS-Interface, connection via coupling module
50104237	PRK 25B/66.3-S8	0.05 ... 6 m 0.05 ... 8 m	LED, red	Connector, M8, 4-pin, plastic	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50104244	PRK 25B/66.31-S8	0.05 ... 6 m 0.05 ... 8 m	LED, red	Connector, M8, 4-pin, plastic	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer
50118424	PRK 25B/4D.3,2000-S12	0.05 ... 6 m 0.05 ... 8 m	LED, red	Cable with connector, 2,000 mm, M12, 4-pin, metal	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, dark switching, DC
50108111	IPRK 25B/4.3,200-S12	0.05 ... 6 m 0.05 ... 8 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, metal	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, U _e switching, DC, warning output
50110924	PRK 25B/4.3,200-S12	0.05 ... 6 m 0.05 ... 8 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, metal	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching, DC, AS-Interface, connection via coupling module
50108549	PRK 25B/4D.3,200-S12	0.05 ... 6 m 0.05 ... 8 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, metal	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, dark switching, DC
50120578	PRK 25B/44.3,200-S12	0.05 ... 6 m 0.05 ... 8 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, metal	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50104240	PRK 25B/66.3,200-S12	0.05 ... 6 m 0.05 ... 8 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, metal	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50106203	PRK 25B/66.30,200-S12	0.05 ... 6 m 0.05 ... 8 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, metal	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50115992	PRK 25B/66.31,200-S12	0.05 ... 6 m 0.05 ... 8 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer
50110874	PRK 25B/4.3,200-S8.1	0.05 ... 6 m 0.05 ... 8 m	LED, red	Cable with connector, 200 mm, M8, 4-pin, metal	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching, DC, AS-Interface, connection via coupling module
50104239	PRK 25B/66.3,200-S8	0.05 ... 6 m 0.05 ... 8 m	LED, red	Cable with connector, 200 mm, M8, 4-pin, metal	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50104238	PRK 25B/66.3	0.05 ... 6 m 0.05 ... 8 m	LED, red	Cable, 2,000 mm, 4-wire	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50104245	PRK 25B/66.31	0.05 ... 6 m 0.05 ... 8 m	LED, red	Cable, 2,000 mm, 4-wire	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

PRKL 25B

The PRKL 25B laser retro-reflective photoelectric sensor offers reliable detection of small parts and objects, even at large ranges. Its optimum light beam propagation predestines it for positioning and counting applications.

Benefits:

- Reliable detection of small parts/objects
- Optimum light beam propagation for positioning and counting applications

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50104232	PRKL 25B/4D.1-S12	0.3 ... 12 m 0.05 ... 15 m	Laser, 2, red	Connector, M12, 4-pin, plastic	Switching frequency: 2,000 Hz; Digital switching output 1: transistor, PNP, dark switching, DC, 270 ° potentiometer, AS-Interface, connection via coupling module
50104233	PRKL 25B/6.81-S12	0.3 ... 12 m 0.05 ... 15 m	Laser, 2, red	Connector, M12, 4-pin, plastic	Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, 270 ° potentiometer, activation input
50104231	PRKL 25B/66.1-S12	0.3 ... 12 m 0.05 ... 15 m	Laser, 2, red	Connector, M12, 4-pin, plastic	Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer
50104234	PRKL 25B/66.1-S8	0.3 ... 12 m 0.05 ... 15 m	Laser, 2, red	Connector, M8, 4-pin, plastic	Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer
50110921	PRKL 25B/4.1,200-S12	0.3 ... 12 m 0.05 ... 15 m	Laser, 2, red	Cable with connector, 200 mm, M12, 4-pin, metal	Switching frequency: 2,000 Hz; Digital switching output 1: transistor, PNP, light switching, DC, 270 ° potentiometer, AS-Interface, connection via coupling module
50104235	PRKL 25B/66.1	0.3 ... 12 m 0.05 ... 15 m	Laser, 2, red	Cable, 2,000 mm, 4-wire	Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer
50126556	PRKL 25B/66.P-S12	0.3 ... 21 m 0.3 ... 26 m	Laser, 1, red	Connector, M12, 4-pin, plastic	Switching frequency: 300 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

Energetic diffuse sensor

An economical sensor for standard applications in which there are no special requirements on background suppression.

RTFR 25B

With its fading function, the RTFR 25B diffuse reflection sensor is able to suppress objects in the background. The range is set electrically by means of a potentiometer.

Benefits:

- Fading – object suppression in background
- Short response behavior for detecting fast events
- Electrical range adjustment via potentiometer

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50108472	RTFR 25B/66-S12	0 ... 0.6 m 0 ... 0.65 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer, fading
50108476	RTR 25B/66-S12	0.01 ... 0.6 m 0.01 ... 0.65 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer
50108474	RTFR 25B/66-S8	0 ... 0.6 m 0 ... 0.65 m	LED, red	Connector, M8, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer, fading
50108475	RTFR 25B/66	0 ... 0.6 m 0 ... 0.65 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer, fading

Diffuse sensors with background suppression

These sensors are suited for the reliable detection of objects against a background. Available in a variety of special designs, the 25B series offers robust and efficient solutions, even for tricky applications such as the detection of extremely dark objects or objects with colored structure or objects with openings. An additional indicator LED signals the switching state, even in covered installation situations.

HRT 25B

The HRT 25B infrared diffuse sensor with background suppression reliably detects even very dark surfaces. It combines large ranges with an above-average function reserve.

Benefits:

- Universal application
- Reliable with materials/surfaces having low reflectance
- Mechanical adjustment of range
- Background suppression
- Additional status LEDs on the front side of the sensor

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50115122	HRT 25B/4D-S12	0 ... 1 m 0 ... 1 m	LED, infrared	Connector, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, dark switching, DC, multiturn potentiometer
50115130	HRT 25B/44-S12	0 ... 1 m 0 ... 1 m	LED, infrared	Connector, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50114874	HRT 25B/66-S12	0 ... 1 m 0 ... 1 m	LED, infrared	Connector, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50115127	HRT 25B/6-S8	0 ... 1 m 0 ... 1 m	LED, infrared	Connector, M8, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, multiturn potentiometer
50115129	HRT 25B/44-S8	0 ... 1 m 0 ... 1 m	LED, infrared	Connector, M8, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50115134	HRT 25B/66-S8	0 ... 1 m 0 ... 1 m	LED, infrared	Connector, M8, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50120272	HRT 25B/4D,200-S12	0 ... 1 m 0 ... 1 m	LED, infrared	Cable with connector, 200 mm, M12, 4-pin, metal	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, dark switching, DC, multiturn potentiometer
50115123	HRT 25B/6,8,200-S12	0 ... 1 m 0 ... 1 m	LED, infrared	Cable with connector, 200 mm, M12, 4-pin, metal	Switching frequency: 250 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, multiturn potentiometer, activation input
50115133	HRT 25B/66,200-S12	0 ... 1 m 0 ... 1 m	LED, infrared	Cable with connector, 200 mm, M12, 4-pin, metal	Switching frequency: 250 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50123982	HRT 25B/44,200-S12	0 ... 1 m 0 ... 1 m	LED, infrared	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50115132	HRT 25B/66,200-S8	0 ... 1 m 0 ... 1 m	LED, infrared	Cable with connector, 200 mm, M8, 4-pin, metal	Switching frequency: 250 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50122100	HRT 25B/2	0 ... 1 m 0 ... 1 m	LED, infrared	Cable, 2,000 mm, 4-wire	Switching frequency: 250 Hz; Digital switching output 1: transistor, NPN, light switching, DC, multiturn potentiometer
50115131	HRT 25B/66	0 ... 1 m 0 ... 1 m	LED, infrared	Cable, 2,000 mm, 4-wire	Switching frequency: 250 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer

HRTR 25B

The HRTR 25B universal red light diffuse sensor with background suppression combines reliable detection and good background suppression with great ease of use.

Benefits:

- Brightly visible brightVision® light spot
- Mechanical adjustment of range
- Background suppression
- Additional status LEDs on the front side of the sensor

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50115144	HRTR 25B/6-S12	0 ... 1 m 0 ... 1 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, multiturn potentiometer
50115147	HRTR 25B/44-S12	0 ... 1 m 0 ... 1 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50114491	HRTR 25B/66-S12	0 ... 1 m 0 ... 1 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50115146	HRTR 25B/44-S8	0 ... 1 m 0 ... 1 m	LED, red	Connector, M8, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50115153	HRTR 25B/66-S8	0 ... 1 m 0 ... 1 m	LED, red	Connector, M8, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50115137	HRTR 25B/4D,200-S12	0 ... 1 m 0 ... 1 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, metal	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, dark switching, DC, multiturn potentiometer
50115152	HRTR 25B/66,200-S12	0 ... 1 m 0 ... 1 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, metal	Switching frequency: 250 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50121903	HRTR 25B/6,200-S12	0 ... 1 m 0 ... 1 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, multiturn potentiometer
50115136	HRTR 25B/4D,200-S8	0 ... 1 m 0 ... 1 m	LED, red	Cable with connector, 200 mm, M8, 4-pin, metal	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, dark switching, DC, multiturn potentiometer
50115151	HRTR 25B/66,200-S8	0 ... 1 m 0 ... 1 m	LED, red	Cable with connector, 200 mm, M8, 4-pin, metal	Switching frequency: 250 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50116721	HRTR 25B/66,5000	0 ... 1 m 0 ... 1 m	LED, red	Cable, 5,000 mm, 4-wire	Switching frequency: 250 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50115140	HRTR 25B/6	0 ... 1 m 0 ... 1 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 250 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, multiturn potentiometer
50115150	HRTR 25B/66	0 ... 1 m 0 ... 1 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 250 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50124299	HRTR 25B/6.01,200-S12	0.005 ... 0.25 m 0.005 ... 0.25 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Application: reliable switching when reflective tape present in background; Switching frequency: 250 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, multiturn potentiometer, reinforced fading

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

HRTR 25B-XL

With its large light spot, the HRTR 25B-XL diffuse reflection sensor with background suppression is well suited for the reliable detection of meshed containers, such as lattice boxes.

Benefits:

- Optimized light spot for reliable detection of meshed containers
- Reliable positioning on glossy, metallic surfaces with openings (e. g. slide bolts)
- Brightly visible brightVision® light spot
- Additional status LEDs on the front side of the sensor

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50115139	HRTR 25B/4D-XL-S12	0 ... 0.6 m 0 ... 0.6 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, dark switching, DC, multiturn potentiometer, extra long light spot (XL)
50114876	HRTR 25B/66-XL-S12	0 ... 0.6 m 0 ... 0.6 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, extra long light spot (XL)
50116808	HRTR 25B/4D-XL,200-S12	0 ... 0.6 m 0 ... 0.6 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, metal	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, dark switching, DC, multiturn potentiometer, extra long light spot (XL)
50115158	HRTR 25B/66-XL,200-S12	0 ... 0.6 m 0 ... 0.6 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, metal	Switching frequency: 250 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, extra long light spot (XL)
50115157	HRTR 25B/66-XL,200-S8	0 ... 0.6 m 0 ... 0.6 m	LED, red	Cable with connector, 200 mm, M8, 4-pin, metal	Switching frequency: 250 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, extra long light spot (XL)
50116532	HRTR 25B/66-XL	0 ... 0.6 m 0 ... 0.6 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 250 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, extra long light spot (XL)

HRTR 25B-S

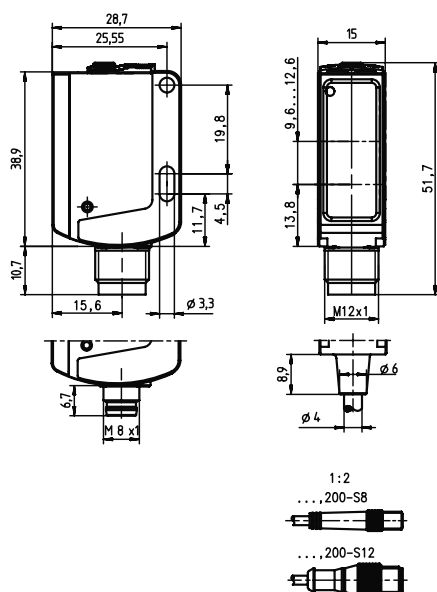
With its focused light spot, the HRTR 25B-S diffuse reflection sensor with background suppression is ideally suited for the reliable detection of objects with glossy surfaces and with surfaces that have colored structure. This makes it the sensor of choice for complex applications, such as in packaging technology.

Benefits:

- Focused light spot for the reliable detection of objects with glossy and inconsistently structured surfaces
- High switching frequency and short response time for detection of fast events
- Additional status LEDs on the front side of the sensor

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50115145	HRTR 25B/6-S-S12	0 ... 0.6 m 0 ... 1 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, multiturn potentiometer, small light spot (S)
50115142	HRTR 25B/6.8-S-S12	0 ... 0.6 m 0 ... 1 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, multiturn potentiometer, activation input, small light spot (S)
50115149	HRTR 25B/44-S-S12	0 ... 0.6 m 0 ... 1 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, small light spot (S)
50114875	HRTR 25B/66-S-S12	0 ... 0.6 m 0 ... 1 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, small light spot (S)
50115156	HRTR 25B/66-S-S8	0 ... 0.6 m 0 ... 1 m	LED, red	Connector, M8, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, small light spot (S)
50115155	HRTR 25B/66-S,200-S12	0 ... 0.6 m 0 ... 1 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, small light spot (S)

Dimensioned drawings: 25 series



25B series

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

ACCESSORIES: 25 SERIES

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130694	KD U-M12-4W-P1-050	Connector, M12, angled, female	4-pin	5,000 mm	PUR
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50130657	KD U-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC
50130875	KD U-M8-4W-P1-050	Connector, M8, angled, female	4-pin	5,000 mm	PUR
50130869	KD U-M8-4W-V1-020	Connector, M8, angled, female	4-pin	2,000 mm	PVC
50130871	KD U-M8-4W-V1-050	Connector, M8, angled, female	4-pin	5,000 mm	PVC
50130856	KD U-M8-4A-P1-050	Connector, M8, axial, female	4-pin	5,000 mm	PUR
50130848	KD U-M8-4A-V1-020	Connector, M8, axial, female	4-pin	2,000 mm	PVC
50130850	KD U-M8-4A-V1-050	Connector, M8, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50040269	BT 25	Angle, L-shape	Screw type	Through-hole mounting	Metal
50124651	BT 205M	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117256	BTU 200M-D10	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50117255	BTU 200M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50117254	BTU 200M-D14	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 14 mm rod, sheet-metal mounting	Metal

Further rod mounts can be found on our website

Reflectors and reflective tapes

Standard reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50024127	TK 82.2	Round	79 mm	Through-hole mounting, adhesive	Plastic
50081283	TKS 20X40	Rectangular	16 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50023525	TKS 30X50	Rectangular	27 mm × 44 mm	Through-hole mounting, adhesive	Plastic
50040820	TKS 40X60	Rectangular	37 mm × 56 mm	Through-hole mounting, adhesive	Plastic
50022816	TKS 100X100	Rectangular	96 mm × 96 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further standard reflectors can be found on our website

Micro-triad-type reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50040895	MTKS 20x20	Rectangular	20 mm × 20 mm	Through-hole mounting, adhesive	Plastic
50117583	MTKS 50x50.1	Rectangular	50 mm × 50 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further micro-triad-type reflectors can be found on our website

Reflective tapes for standard applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50108300	REF 4-A-50x50	Rectangular	50 mm × 50 mm	Self-adhesive	Plastic
50106119	REF 4-A-100x100	Rectangular	100 mm × 100 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

Reflective tapes for laser and clear-glass applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50123899	REF 6-A-9x9	Rectangular	9 mm × 9 mm	Self-adhesive	Plastic
50123861	REF 6-A-14x45	Rectangular	15 mm × 45 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

/// 28 series



The 28 series sensors are reliable, powerful photoelectric sensors that are predestined for many standard detection tasks in materials handling, packaging technology and machines for special applications. They offer large ranges and numerous technical highlights, such as the highly visible brightVision® light spot for simple alignment or the front- and plug-side M18 mounting option, at an absolutely convincing, economical price. Moreover, the fiber-reinforced, cubic plastic housing with rating and the IP 67 A²LS active suppression of extraneous light facilitate especially robust detection, even in rough industrial environments.



Direct access to the online product selector at www.leuze.com/en/br28

Throughbeam sensors

Solid, cubic throughbeam photoelectric sensor for standard detection tasks with transmitter and receiver.

L28

The throughbeam principle makes possible the reliable detection of even flat objects with a high function reserve and reduces the risk of a system standstill. Deactivation inputs enable testing of the sensor. In addition, optimized beam geometry and the highly visible brightVision® light spot simplify alignment.

Benefits:

- High function reserve
- Simple alignment by means of optimized beam geometry
- Simple detection of flat objects
- Transmitter deactivation for testing and networking

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50117928	► LS28/9D-M12	0 ... 10 m 0 ... 15 m	LED, red	Connector, M12, 4-pin, plastic	DC, deactivation input
50117932	◄ LE28/2N-M12			Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50117930	◄ LE28/4P-M12			Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50117929	► LS28/9D	0 ... 10 m 0 ... 15 m	LED, red	Cable, 2,000 mm, 4-wire	DC, deactivation input
50117933	◄ LE28/2N			Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50117931	◄ LE28/4P			Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC

► transmitter / ◄ receiver

Retro-reflective sensors

Solid, cubic, polarized retro-reflective photoelectric sensor for installation situations in which a retro-reflector can be used.

PRK28

A polarization filter ensures the reliable suppression of direct reflections and, together with the high function reserve of the sensor, enables reliable detection. In addition, optimized beam geometry and the highly visible brightVision® light spot simplify alignment.

Benefits:

- Homogeneous light spot for safe switching behavior and easy alignment
- Safe suppression of direct reflection due to polarization filter

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50122587	PRK28.3/2N-M12	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button
50122585	PRK28.3/4P-M12	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button
50117926	PRK28/2N-M12	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50117924	PRK28/4P-M12	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50130049	PRK28.3/2N-200-M12	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button
50130047	PRK28.3/4P-200-M12	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button
50122589	PRK28/2N-200-M12	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50122584	PRK28/4P-200-M12	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50122588	PRK28.3/2N	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button
50122586	PRK28.3/4P	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button
50117927	PRK28/2N	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50117925	PRK28/4P	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

Energetic diffuse sensor

Sturdy cubic diffuse sensor for standard detection tasks. This sensor performs detection directly on an object and requires no reflector.

ET28 / FT28

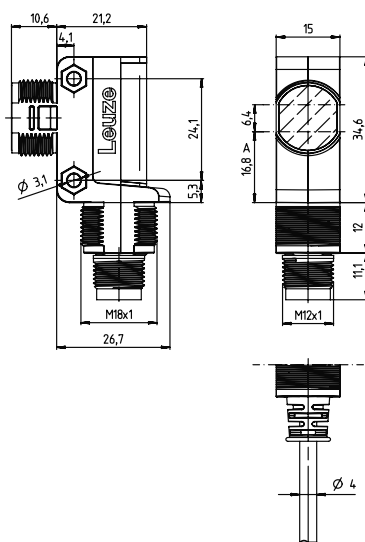
These red light sensors in the solid plastic housing facilitate robust object detection for homogeneous or similar objects. Through the simple sensitivity adjustment with 2-level teach (object/background), they are particularly flexible in use. These sensors feature the A²LS active ambient light suppression and quick and easy alignment through brightly visible brightVision® light spot.

Benefits:

- Energetic diffuse reflection sensor with light/dark switching
- Range adjustment via teach-in
- Universal option for M18 hole mounting at the front and connector side
- Easy through-hole assembly with anti-rotation protection for mounting nuts on the housing
- Full control through green and yellow indicator LEDs and complementary outputs
- Robust plastic housing acc. to IP 67 for industrial application

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50122599	ET28.3/2N-M12	0.001 ... 0.65 m 0.001 ... 0.85 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button
50122596	ET28.3/4P-M12	0.001 ... 0.65 m 0.001 ... 0.85 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button
50122600	ET28.3/2N-200-M12	0.001 ... 0.65 m 0.001 ... 0.85 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button
50122597	ET28.3/4P-200-M12	0.001 ... 0.65 m 0.001 ... 0.85 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button
50122601	ET28.3/2N	0.001 ... 0.65 m 0.001 ... 0.85 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button
50122598	ET28.3/4P	0.001 ... 0.65 m 0.001 ... 0.85 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button
50122593	FT28.3/2N-M12	0.001 ... 0.21 m 0 ... 0.25 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, fading
50122590	FT28.3/4P-M12	0.001 ... 0.21 m 0 ... 0.25 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, fading
50122594	FT28.3/2N-200-M12	0.001 ... 0.21 m 0 ... 0.25 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, fading
50122591	FT28.3/4P-200-M12	0.001 ... 0.21 m 0 ... 0.25 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, fading
50122595	FT28.3/2N	0.001 ... 0.21 m 0 ... 0.25 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, fading
50122592	FT28.3/4P	0.001 ... 0.21 m 0 ... 0.25 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, fading

Dimensioned drawings: 28 series



28 series

ACCESSORIES: 28 SERIES

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130692	KD U-M12-4W-P1-020	Connector, M12, angled, female	4-pin	2,000 mm	PUR
50130694	KD U-M12-4W-P1-050	Connector, M12, angled, female	4-pin	5,000 mm	PUR
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50130654	KD U-M12-4A-P1-020	Connector, M12, axial, female	4-pin	2,000 mm	PUR
50130657	KD U-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50118542	BT 200M.5	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel
50124651	BT 205M	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117256	BTU 200M-D10	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50117255	BTU 200M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50117254	BTU 200M-D14	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 14 mm rod, sheet-metal mounting	Metal

Further rod mounts can be found on our website

Reflectors and reflective tapes

Standard reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50024127	TK 82.2	Round	79 mm	Through-hole mounting, adhesive	Plastic
50081283	TKS 20X40	Rectangular	16 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50023525	TKS 30X50	Rectangular	27 mm × 44 mm	Through-hole mounting, adhesive	Plastic
50040820	TKS 40X60	Rectangular	37 mm × 56 mm	Through-hole mounting, adhesive	Plastic
50022816	TKS 100X100	Rectangular	96 mm × 96 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm

Further standard reflectors can be found on our website

Reflective tapes for standard applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50108300	REF 4-A-50x50	Rectangular	50 mm × 50 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

/// 46 series



With high performance reserves and large ranges, these sensors with plastic housing are ideal for use in conveyor and storage systems, in the wood-processing industry and in special-purpose machinery manufacture. The extended series of sensors, with large lenses, degrees of protection IP 67 and IP 69K, and the patented autocontrol function reserve warning, opens many application fields.



Direct access to the online product selector at www.leuze.com/en/br46

Throughbeam sensors

Reliable photoelectric sensor with large range, optimized beam geometry for simple alignment, robust switching behavior and maximum functional reliability. Available in red light or with infrared light.

LSR 46B

The red light throughbeam sensor features a very high function reserve and a switching state display that is visible over the entire range.

Benefits:

- Switching state display clearly visible up to the max. range
- Robust behavior thanks to optimized beam geometry
- Several range variants can be selected
- Simple alignment and check through SAT 5 alignment aid

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50108529	► LSSR 46B	0 ... 50 m 0 ... 60 m	LED, red	Cable, 2,000 mm, 4-wire	DC
50108535	◄ LSER 46B/66	0 ... 50 m 0 ... 60 m		Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC
50110929	► LSSR 46B-S-S12	0 ... 40 m 0 ... 44 m	LED, red	Connector, M12, 4-pin, plastic	DC, small light spot (S)
50110930	◄ LSER 46B/66-S-S12	0 ... 40 m 0 ... 44 m		Connector, M12, 4-pin, plastic	Switching frequency: 100 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, small light spot (S)

► transmitter / ◄ receiver

L46C

The throughbeam photoelectric sensor with red light/infrared light is characterized by high function reserve.

Benefits:

- Switching state indicator visible from all sides
- Additional display behind the cover pane that is highly visible even at large distances
- High switching frequency for exact switching behavior
- Red light and infrared model
- Model for parallel operation of light axes
- Simple alignment and check through ARH46 + SAT 5 alignment aids

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50127042	► LS46C-M12	0.5 ... 120 m 0 ... 150 m	LED, red	Connector, M12, 4-pin, plastic	DC
50127037	◄ LE46C.1/4P-M12	0.5 ... 120 m 0 ... 150 m		Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer
50127036	◄ LE46C/2N-M12	0.5 ... 120 m 0 ... 150 m		Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50127033	◄ LE46C/4P-M12	0.5 ... 120 m 0 ... 150 m		Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50127038	◄ LE46C/4W-M12	0.5 ... 120 m 0 ... 150 m		Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, U _s switching, DC, warning output
50131556	◄ LE46C.P/2N-M12	0.5 ... 80 m 0 ... 120 m		Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, operation of parallel light axes
50131555	◄ LE46C.P/4P-M12	0.5 ... 80 m 0 ... 120 m		Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, operation of parallel light axes

► transmitter / ◄ receiver

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50127045	► LS46C.8-M12	0.5 ... 120 m 0 ... 150 m	LED, red	Connector, M12, 4-pin, plastic	DC, activation input
50127037	◄ LE46C.1/4P-M12	0.5 ... 120 m 0 ... 150 m		Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer
50127036	◄ LE46C.2N-M12	0.5 ... 120 m 0 ... 150 m		Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50127033	◄ LE46C.4P-M12	0.5 ... 120 m 0 ... 150 m		Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50127038	◄ LE46C.4W-M12	0.5 ... 120 m 0 ... 150 m		Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, U _s switching, DC, warning output
50127044	► LS46C-200-M12	0.5 ... 120 m 0 ... 150 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	DC
50127035	◄ LE46C.4P-200-M12	0.5 ... 120 m 0 ... 150 m		Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, ark switching, DC
50127039	◄ LE46C/PX-200-M12	0.5 ... 120 m 0 ... 150 m		Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, dark switching, DC, AS-Interface, connection via coupling module
50127043	► LS46C	0.5 ... 120 m 0 ... 150 m	LED, red	Cable, 2,000 mm, 4-wire	DC
50127034	◄ LE46C.4P	0.5 ... 120 m 0 ... 150 m		Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50127046	► LS46CI-M12	0.5 ... 120 m 0 ... 150 m	LED, infrared	Connector, M12, 4-pin, plastic	DC
50127040	◄ LE46CI.1/4P-M12	0.5 ... 120 m 0 ... 150 m		Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer

► transmitter / ◄ receiver

Retro-reflective sensors

Due to their extremely wide function reserves in several operating ranges, reliable retro-reflective photoelectric sensors with red light ensure high system availability.

RK46C VarOS

Retro-reflective photoelectric sensor with broad, powerful light-band for the reliable detection of objects with variable shape and openings.

Benefits:

- Wide, homogeneous detection band
- 2 teachable sensitivity levels
- Standard sensor dimensions
- Automatic sensitivity readjustment for max. function reserve
- Easy tune for optimization of sensitivity adjustment (detection of small objects)
- Light/dark switching via teach
- Use as muting sensor (reliable detection of packages or objects wrapped in foil)

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50126764	RK46C.DXL3/2N-M12	0.4 ... 4 m 0.4 ... 5.2 m	LED, red	Connector, M12, 4-pin, plastic	Application: detection of objects with cutouts and openings, detection of stretch-wrapped objects, detection of small parts; Switching frequency: 250 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, extra long light spot (XL)
50125752	RK46C.DXL3/4P-M12	0.4 ... 4 m 0.4 ... 5.2 m	LED, red	Connector, M12, 4-pin, plastic	Application: detection of objects with cutouts and openings, detection of stretch-wrapped objects, detection of small parts; Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, extra long light spot (XL)
50125991	RK46C.DXL3/PX-M12	0.4 ... 4 m 0.4 ... 5.2 m	LED, red	Connector, M12, 4-pin, plastic	Application: detection of objects with cutouts and openings, detection of stretch-wrapped objects, detection of small parts; Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, dark switching, DC, teach button, extra long light spot (XL), AS-Interface, connection via coupling module
50125755	RK46C.DXL3/4P-200-M12	0.4 ... 4 m 0.4 ... 5.2 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Application: detection of objects with cutouts and openings, detection of stretch-wrapped objects, detection of small parts; Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, extra long light spot (XL)
50125754	RK46C.DXL3/4P	0.4 ... 4 m 0.4 ... 5.2 m	LED, red	Cable, 2,000 mm, 4-wire	Application: detection of objects with cutouts and openings, detection of stretch-wrapped objects, detection of small parts; Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, extra long light spot (XL)

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

PRK 46B / PRK 46C

This retro-reflective photoelectric sensor for large operating ranges offers high function reserves for reliable object detection even with small, soiled or misaligned reflectors.

Benefits:

- Maximum function reserve within the operating range
- Reliable object detection with heavily soiled or mis-adjusted reflectors
- Adjustment option via potentiometer
- Large selection of connection variants

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50127015	PRK46C.1/4P-M12	0.1 ... 24 m 0.1 ... 30 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer
50127018	PRK46C/2N-M12	0.1 ... 24 m 0.1 ... 30 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50127012	PRK46C/4P-M12	0.1 ... 24 m 0.1 ... 30 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50127021	PRK46C/4W-M12	0.1 ... 24 m 0.1 ... 30 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, U _s switching, DC, warning output
50127016	PRK46C/48-M12	0.1 ... 24 m 0.1 ... 30 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching, DC, activation input
50127014	PRK46C/4P-200-M12	0.1 ... 24 m 0.1 ... 30 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50127017	PRK46C/PX-200-M12	0.1 ... 24 m 0.1 ... 30 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, dark switching, DC, AS-Interface, connection via coupling module
50127019	PRK46C/2N	0.1 ... 24 m 0.1 ... 30 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50127013	PRK46C/4P	0.1 ... 24 m 0.1 ... 30 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50127032	PRK46C.D/2N-M12	0.1 ... 16 m 0.1 ... 20 m	LED, red	Connector, M12, 4-pin, plastic	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50127024	PRK46C.D/4P-M12	0.1 ... 16 m 0.1 ... 20 m	LED, red	Connector, M12, 4-pin, plastic	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50127030	PRK46C.D/4W-M12	0.1 ... 16 m 0.1 ... 20 m	LED, red	Connector, M12, 4-pin, plastic	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, U _s switching, DC, warning output
50127029	PRK46C.D/48-M12	0.1 ... 16 m 0.1 ... 20 m	LED, red	Connector, M12, 4-pin, plastic	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching, DC, activation input
50127027	PRK46C.D/PX-M12	0.1 ... 16 m 0.1 ... 20 m	LED, red	Connector, M12, 4-pin, plastic	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, dark switching, DC, AS-Interface, connection via coupling module
50129753	PRK46C.D1/4P-M12	0.1 ... 16 m 0.1 ... 20 m	LED, red	Connector, M12, 4-pin, plastic	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer
50127028	PRK46C.D1/PX-M12	0.1 ... 16 m 0.1 ... 20 m	LED, red	Connector, M12, 4-pin, plastic	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, dark switching, DC, 270 ° potentiometer, AS-Interface, connection via coupling module
50127026	PRK46C.D/4P-200-M12	0.1 ... 16 m 0.1 ... 20 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50127031	PRK46C.D/PX-200-M12	0.1 ... 16 m 0.1 ... 20 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, dark switching, DC, AS-Interface, connection via coupling module
50127025	PRK46C.D/4P	0.1 ... 16 m 0.1 ... 20 m	LED, red	Cable, 2,000 mm, 4-wire	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50103080	PRK 46B/7D-S12	0.05 ... 15 m 0.05 ... 18 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 20 Hz; Digital switching output 1: relay, NO, dark switching, DC
50113009	PRK 46B/66D-S12	0.05 ... 15 m 0.05 ... 18 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, dark switching (PNP)/light switching (NPN); Digital switching output 2: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC
50119714	PRK 46B/7D,5000	0.05 ... 15 m 0.5 ... 18 m	LED, red	Cable, 5,000 mm, 4-wire	Switching frequency: 20 Hz; Digital switching output 1: relay, NO, dark switching, DC

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

(I)PRK 46B.2

A special type of the retro-reflective photoelectric sensor of this series is optimized for use on roller conveyors with high functional reliability especially with stretch-wrapped pallets or depolarizing foils.

Benefits:

- Optimized for use on roller conveyors and palletizers
- Reliable function even with stretch-wrapped pallets
- Available with warning output

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50103076	IPRK 46B/4.2-S12	0.1 ... 8 m 0.1 ... 10 m	LED, red	Connector, M12, 4-pin, plastic	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, U _s switching, DC, warning output
50105156	PRK 46B/6.2-S12	0.1 ... 8 m 0.1 ... 10 m	LED, red	Connector, M12, 4-pin, plastic	Application: detection of stretch-wrapped objects; Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

Diffuse sensors with background suppression

Extensive selection of diffuse reflection sensors which utilize background suppression to deliver reliable results even with changing backgrounds. In addition to red light and infrared types, as well as laser photoelectric sensors, solutions are also offered with IO-Link for format changeover, as well as special types.

(I)HRT 46B / HT 46CI

Optimized, infrared diffuse sensor for the reliable detection of dark and glossy objects at large ranges and very small black/white error.

Benefits:

- Very high function reserve
- Very small black/white error
- Optimized for glossy and dark objects
- Several range variants available
- Versions with warning output available

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50129671	HT46CI/2N-M12	0.005 ... 3 m 0.005 ... 3 m	LED, infrared	Connector, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, multiturn potentiometer
50127061	HT46CI/4P-M12	0.005 ... 3 m 0.005 ... 3 m	LED, infrared	Connector, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50127067	HT46CI/4W-M12	0.005 ... 3 m 0.005 ... 3 m	LED, infrared	Connector, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, U_b switching, DC, multiturn potentiometer, warning output
50127063	HT46CI/4X-M12	0.005 ... 3 m 0.005 ... 3 m	LED, infrared	Connector, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching, DC, multiturn potentiometer, AS-Interface, connection via coupling module
50127066	HT46CI/48-M12	0.005 ... 3 m 0.005 ... 3 m	LED, infrared	Connector, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching, DC, multiturn potentiometer, activation input
50127064	HT46CI/PX-M12	0.005 ... 3 m 0.005 ... 3 m	LED, infrared	Connector, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, dark switching, DC, multiturn potentiometer, AS-Interface, connection via coupling module
50129751	HT46CI/4P-200-M12	0.005 ... 3 m 0.005 ... 3 m	LED, infrared	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50127065	HT46CI/PX-200-M12	0.005 ... 3 m 0.005 ... 3 m	LED, infrared	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, dark switching, DC, multiturn potentiometer, AS-Interface, connection via coupling module
50127062	HT46CI/4P	0.005 ... 3 m 0.005 ... 3 m	LED, infrared	Cable, 2,000 mm, 4-wire	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50106562	HRT 46B/7-S12	0 ... 2.5 m 0 ... 2.5 m	LED, infrared	Connector, M12, 4-pin, plastic	Switching frequency: 20 Hz; Digital switching output 1: relay, NO, light switching, DC, multiturn potentiometer
50106551	IHRT 46B/4-S12	0 ... 2.5 m 0 ... 2.5 m	LED, infrared	Connector, M12, 4-pin, plastic	Switching frequency: 200 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, U_b switching, DC, multiturn potentiometer, warning output
50106552	IHRT 46B/4D-S12	0 ... 2.5 m 0 ... 2.5 m	LED, infrared	Connector, M12, 4-pin, plastic	Switching frequency: 200 Hz; Digital switching output 1: transistor, PNP, dark switching; Digital switching output 2: transistor, PNP, U_b switching, DC, multiturn potentiometer, warning output
50109551	HRT 46B/4D,200-S12	0 ... 2.5 m 0 ... 2.5 m	LED, infrared	Cable with connector, 200 mm, M12, 4-pin, metal	Switching frequency: 200 Hz; Digital switching output 1: transistor, PNP, dark switching, DC, multiturn potentiometer
50106554	IHRT 46B/4D,200-S12	0 ... 2.5 m 0 ... 2.5 m	LED, infrared	Cable with connector, 200 mm, M12, 4-pin, metal	Switching frequency: 200 Hz; Digital switching output 1: transistor, PNP, dark switching; Digital switching output 2: transistor, PNP, U_b switching, DC, multiturn potentiometer, warning output
50131549	HT46CI.E/4P-M12	0.005 ... 2 m 0.005 ... 2 m	LED, infrared	Connector, M12, 4-pin, plastic	Application: reliable switching in dusty environments; Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, dust suppression
50131551	HT46CI.SL/4P-M12	0.01 ... 1.2 m 0.01 ... 1.2 m	LED, infrared	Connector, M12, 4-pin, plastic	Application: object detection between the rollers of a roller conveyor; Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, small light spot (S)
50131554	HT46CI.SL/4X-200-M12	0.01 ... 1.2 m 0.01 ... 1.2 m	LED, infrared	Cable with connector, 200 mm, M12, 4-pin, plastic	Application: object detection between the rollers of a roller conveyor; Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching, DC, multiturn potentiometer, AS-Interface, connection via coupling module

Typ. operating range with a black/white error < 10 %

HRTR 46B / HT 46C

Universal, red light sensor, either with mechanical adjustment or teach-in function or teach input. The sensor is equipped with an extra bright light spot for very simple alignment.

Benefits:

- Models with mechanical adjustment or teach button
- Models with remote teach via teach line
- Several operating ranges available
- Very visible, bright light spot
- Designs with protection against manipulation by means of a lockable button

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50129670	HT46C/2N-M12	0.005 ... 3 m 0.005 ... 3 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, multiturn potentiometer
50127048	HT46C/4P-M12	0.005 ... 3 m 0.005 ... 3 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50127055	HT46C/4W-M12	0.005 ... 3 m 0.005 ... 3 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, U_b switching, DC, multiturn potentiometer, warning output

Typ. operating range with a black/white error < 10 %

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50127050	HT46C/4X-M12	0.005 ... 3 m 0.005 ... 3 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching, DC, multiturn potentiometer, AS-Interface, connection via coupling module
50127054	HT46C/48-M12	0.005 ... 3 m 0.005 ... 3 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching, DC, multiturn potentiometer, activation input
50127051	HT46C/PX-M12	0.005 ... 3 m 0.005 ... 3 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, dark switching, DC, multiturn potentiometer, AS-Interface, connection via coupling module
50129752	HT46C/4P-200-M12	0.005 ... 3 m 0.005 ... 3 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50130201	HT46C/4X-200-M12	0.005 ... 3 m 0.005 ... 3 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching, DC, multiturn potentiometer, AS-Interface, connection via coupling module
50127052	HT46C/PX-200-M12	0.005 ... 3 m 0.005 ... 3 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, dark switching, DC, multiturn potentiometer, AS-Interface, connection via coupling module
50127049	HT46C/4P	0.005 ... 3 m 0.005 ... 3 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50131550	HT46C.E/4P-M12	0.005 ... 2 m 0.005 ... 2 m	LED, red	Connector, M12, 4-pin, plastic	Application: reliable switching in dusty environments; Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, dust suppression
50114032	HRTR 46B/6.22-S12	0.02 ... 1.8 m 0.02 ... 1.8 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 200 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, teach input
50128812	HRTR 46B/4,200-S12	0.02 ... 1.8 m 0.02 ... 1.8 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, metal	Switching frequency: 200 Hz; Digital switching output 1: transistor, PNP, light switching, DC, multiturn potentiometer
50114034	HRTR 46B/6.22,200-S12	0.02 ... 1.8 m 0.02 ... 1.8 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, metal	Switching frequency: 200 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, teach input
50131553	HT46C.SL/4P-M12	0.01 ... 1.2 m 0.01 ... 1.2 m	LED, red	Connector, M12, 4-pin, plastic	Application: object detection between the rollers of a roller conveyor; Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, small light spot (S)
50131552	HT46C.SL/4X-200-M12	0.01 ... 1.2 m 0.01 ... 1.2 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, plastic	Application: object detection between the rollers of a roller conveyor; Switching frequency: 250 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer

Typ. operating range with a black/white error < 10 %

HRTR 46B-Teach (2 switching points)

This sensor features two individually adjustable switching points and can be configured via the teach button or the integrated IO-Link interface. The optimum solution for simple, 2-point controls or format changeovers.

Benefits:

- Output of 2 individually adjustable switching points
- Intelligent configuration and diagnostics via IO-Link interface
- Quick format conversions by adjusting the range in millimeters via the interface
- Optimum price/performance ratio for 2-point controls

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50114037	HRTR 46B/L4.23-S12	0.02 ... 1.8 m 0.02 ... 1.8 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 100 Hz; Digital switching output 1: transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, PNP, light switching, DC, IO-Link, teach button, 2 independent switching points
50118554	HRTR 46B/L6.23-S12	0.02 ... 1.8 m 0.02 ... 1.8 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 100 Hz; Digital switching output 1: transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, IO-Link, teach button, 2 independent switching points

Typ. operating range with a black/white error < 10 %

HRTL 46B

Laser sensor for very precise positioning and reliable detection of small parts, available in either laser class 1 or 2.

Benefits:

- Models in laser class 1 and 2 available
- Precise positioning and detection of small parts

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50110806	HRTL 46B/6.8-S12	0.05 ... 1.2 m 0.05 ... 1.2 m	Laser, 2, red	Connector, M12, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, multiturn potentiometer, activation input
50106560	HRTL 46B/66-S12	0.05 ... 1.2 m 0.05 ... 1.2 m	Laser, 2, red	Connector, M12, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50106561	HRTL 46B/66,200-S12	0.05 ... 1.2 m 0.05 ... 1.2 m	Laser, 2, red	Cable with connector, 200 mm, M12, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer
50113308	HRTL 46B/66.1-S12	0.05 ... 0.8 m 0.05 ... 0.8 m	Laser, 1, red	Connector, M12, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer

Typ. operating range with a black/white error < 10 %

HRTR 46B-S

Special solution for the reliable detection of even objects with colored structure against a background. Typical applications are found in the wood and packaging industries.

- Benefits:**
- Small light spot and very good fading
 - Reliable detection of objects with colored structure located in front of a background
 - Optimized for applications in the wood and packaging industries
 - Typical actuation distances: 100 – 300 mm

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50106559	HRTR 46B/66-S-S12	0.01 ... 0.7 m 0.01 ... 0.7 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 200 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, small light spot (S)

Typ. operating range with a black/white error < 10 %

Reference sensor

The reference sensor employs a detection process patented by Leuze. With this process, the sensor is taught against a fixed background – the reference. Like a retro-reflective photoelectric sensor, the sensor returns a switching signal if the reference is no longer detected. The sensor is the optimum solution for demanding detection tasks for which no reflector can be mounted.

HRTR 46B-Teach

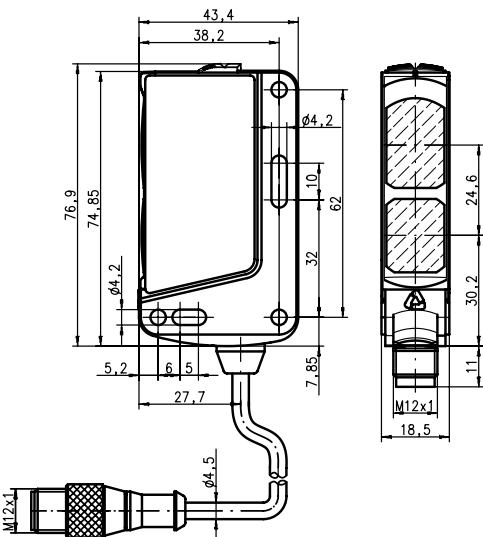
Reliable detection of glossy, dark or partially transparent objects from above over a conveying belt or other fixed background (e. g., machine base). Commissioning via teach-in. The sensor can be optimally adjusted to the application via the IO-Link interface.

- Benefits:**
- Very reliable detection of glossy, dark or partially transparent objects
 - Quick commissioning through teach-in
 - Intelligent configuration and diagnostics via IO-Link interface

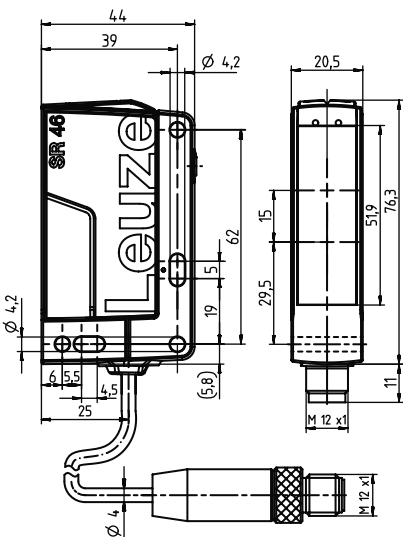
Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50114036	HRTR 46B/L.221-S12	0.2 ... 0.5 m 0.2 ... 0.5 m	LED, red	Connector, M12, 4-pin, plastic	Application: detection of object in front of fixed background; Switching frequency: 100 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, IO-Link, teach button, reference principle, teach input

Distance on fixed background (reference)

Dimensioned drawings: 46 series



46B series



46C series

ACCESSORIES: 46 SERIES

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130692	KD U-M12-4W-P1-020	Connector, M12, angled, female	4-pin	2,000 mm	PUR
50130694	KD U-M12-4W-P1-050	Connector, M12, angled, female	4-pin	5,000 mm	PUR
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50130654	KD U-M12-4A-P1-020	Connector, M12, axial, female	4-pin	2,000 mm	PUR
50130657	KD U-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50105315	BT 46	Angle, L-shape	Screw type	Through-hole mounting	Metal
50118543	BT 300M.5	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel, V2A

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117253	BTU 300M-D10	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50117252	BTU 300M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50117251	BTU 300M-D14	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 14 mm rod, sheet-metal mounting	Metal

Further rod mounts can be found on our website

Reflectors and reflective tapes

Standard reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50024127	TK 82.2	Round	79 mm	Through-hole mounting, adhesive	Plastic
50081283	TKS 20X40	Rectangular	16 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50023525	TKS 30X50	Rectangular	27 mm × 44 mm	Through-hole mounting, adhesive	Plastic
50040820	TKS 40X60	Rectangular	37 mm × 56 mm	Through-hole mounting, adhesive	Plastic
50022814	TKS 50X50	Rectangular	47 mm × 48 mm	Through-hole mounting, adhesive	Plastic
50022816	TKS 100X100	Rectangular	96 mm × 96 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm

Further standard reflectors can be found on our website

Micro-triad-type reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50117583	MTKS 50x50.1	Rectangular	50 mm × 50 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm

Further micro-triad-type reflectors can be found on our website

Reflective tapes for standard applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50108300	REF 4-A-50x50	Rectangular	50 mm × 50 mm	Self-adhesive	Plastic
50106119	REF 4-A-100x100	Rectangular	100 mm × 100 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

/// 49C series



This series in a plastic housing convinces in all operating principles through a particularly rugged design. Main features are: the terminal compartment accessible from the front, the switching contact (Relay/MOSFET with high switching power) and the large voltage range from 20–250 V AC/DC as well as degrees of protection IP 67 and 69K.



Direct access to the online product selector at www.leuze.com/en/br49c

Throughbeam sensors

Throughbeam photoelectric sensors with particularly high function reserve and operating ranges of up to 120 m using visible red light or infrared light and featuring numerous options.

L49C

The L49C was developed for very reliable object detection at large operating ranges and rough environments.

Benefits:

- Very good visibility of the status LED
- Optimized beam geometry for large operating ranges
- Terminal compartment with spring terminals offer time-saving connection
- Simple alignment with SAT 5 alignment aid
- Optics heating for outdoor use or for prevention of fogging

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50127438	▶ LS49C.UC	0 ... 120 m 0 ... 150 m	LED, red	Cable, 2,000 mm, 2-wire	AC/DC
50127442	◀ LE49C.UC/TS			Cable, 2,000 mm, 5-wire	Switching frequency: 25 Hz; Digital switching output 1: relay, NC, light switching; Digital switching output 2: relay, NO, light switching, AC/DC
50127444	◀ LE49C.UC1/M4			Cable, 2,000 mm, 5-wire	Switching frequency: 150 Hz; Digital switching output 1: MOSFET semiconductor, NO (normally open), light/dark reversible, AC/DC, teach button, 270 ° potentiometer
50127437	▶ LS49C.UC-TB	0 ... 120 m 0 ... 150 m	LED, red	Terminal, 2-pin	AC/DC
50127441	◀ LE49C.UC/TS-TB			Terminal, 5-pin	Switching frequency: 25 Hz; Digital switching output 1: relay, NO, light switching; Digital switching output 2: relay, NC, light switching, AC/DC
50127443	◀ LE49C.UC1/M4-TB			Terminal, 5-pin	Switching frequency: 150 Hz; Digital switching output 1: MOSFET semiconductor, NO (normally open), light/dark reversible, AC/DC, teach button, 270 ° potentiometer
50130462	▶ LS49C.UCH/TB	0 ... 120 m 0 ... 150 m	LED, red	Terminal, 2-pin	AC/DC, heating
50130467	◀ LE49C.UCH/TS-TB			Terminal, 5-pin	Switching frequency: 25 Hz; Digital switching output 1: relay, NO, light switching; Digital switching output 2: relay, NC, light switching, AC/DC, heating
50130465	◀ LE49C.UCH1/M4-TB			Terminal, 5-pin	Switching frequency: 150 Hz; Digital switching output 1: MOSFET semiconductor, NO (normally open), light/dark reversible, AC/DC, teach button, 270 ° potentiometer, heating
50127440	▶ LS49CI.UC	0 ... 120 m 0 ... 150 m	LED, infrared	Cable, 2,000 mm, 2-wire	AC/DC
50127446	◀ LE49CI.UC/TS			Cable, 2,000 mm, 5-wire	Switching frequency: 25 Hz; Digital switching output 1: relay, NO, light switching; Digital switching output 2: relay, NC, light switching, AC/DC
50127448	◀ LE49CI.UC1/M4			Cable, 2,000 mm, 5-wire	Switching frequency: 150 Hz; Digital switching output 1: MOSFET semiconductor, NO (normally open), light/dark reversible, AC/DC, teach button, 270 ° potentiometer
50127439	▶ LS49CI.UC-TB	0 ... 120 m 0 ... 150 m	LED, infrared	Terminal, 2-pin	AC/DC
50127445	◀ LE49CI.UC/TS-TB			Terminal, 5-pin	Switching frequency: 25 Hz; Digital switching output 1: relay, NO, light switching; Digital switching output 2: relay, NC, light switching, AC/DC
50127447	◀ LE49CI.UC1/M4-TB			Terminal, 5-pin	Switching frequency: 150 Hz; Digital switching output 1: MOSFET semiconductor, NO (normally open), light/dark reversible, AC/DC, teach button, 270 ° potentiometer
50130463	▶ LS49CI.UCH/TB	0 ... 120 m 0 ... 150 m	LED, infrared	Terminal, 2-pin	AC/DC, heating
50130464	◀ LE49CI.UCH/TS-TB			Terminal, 5-pin	Switching frequency: 25 Hz; Digital switching output 1: relay, NO, light switching; Digital switching output 2: relay, NC, light switching, AC/DC, heating
50130466	◀ LE49CI.UCH1/M4-TB			Terminal, 5-pin	Switching frequency: 150 Hz; Digital switching output 1: MOSFET semiconductor, NO (normally open), light/dark reversible, AC/DC, 270 ° potentiometer, teach button, heating

▶ transmitter / ◀ receiver

Retro-reflective sensors

Polarized retro-reflective photoelectric sensors with visible red light for large operating ranges of 24 m and function reserve with additional functions.

(P)RK49C

Reliable detection of glossy or shrink-wrapped objects with/without polarization filter using red light or infrared light over a large distance.

Benefits:

- Especially high function reserve
- Use of standard reflectors
- Potential-free relay outputs for connection of long cables
- MOSFET-output for high switching frequencies

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50127424	PRK49C.UC1/M4	0.3 ... 24 m 0.1 ... 30 m	LED, red	Cable, 2,000 mm, 5-wire	Switching frequency: 150 Hz; Digital switching output 1: MOSFET semiconductor, NO (normally open), light/dark reversible, AC/DC, teach button, 270 ° potentiometer
50127421	PRK49C.UC1/TS	0.1 ... 24 m 0.1 ... 30 m	LED, red	Cable, 2,000 mm, 5-wire	Switching frequency: 25 Hz; Digital switching output 1: relay, NC, light/dark reversible; Digital switching output 2: relay, NO, light/dark reversible, AC/DC, teach button, 270 ° potentiometer
50127427	PRK49C.UCD1/TS	0.1 ... 24 m 0.1 ... 30 m	LED, red	Cable, 2,000 mm, 5-wire	Switching frequency: 25 Hz; Digital switching output 1: relay, NC, light/dark reversible; Digital switching output 2: relay, NO, light/dark reversible, AC/DC, teach button, 270 ° potentiometer
50131494	PRK49C.DC/TS-TB	0.1 ... 24 m 0.1 ... 30 m	LED, red	Terminal, 5-pin	Switching frequency: 25 Hz; Digital switching output 1: relay, NC, light switching; Digital switching output 2: relay, NO, light switching, DC
50127425	PRK49C.UC/M4-TB	0.3 ... 24 m 0.1 ... 30 m	LED, red	Terminal, 5-pin	Switching frequency: 150 Hz; Digital switching output 1: MOSFET semiconductor, NO (normally open), light switching, AC/DC
50127422	PRK49C.UC/TS-TB	0.1 ... 24 m 0.1 ... 30 m	LED, red	Terminal, 5-pin	Switching frequency: 25 Hz; Digital switching output 1: relay, NC, light switching; Digital switching output 2: relay, NO, light switching, AC/DC
50127423	PRK49C.UC1/M4-TB	0.3 ... 24 m 0.1 ... 30 m	LED, red	Terminal, 5-pin	Switching frequency: 150 Hz; Digital switching output 1: MOSFET semiconductor, NO (normally open), light/dark reversible, AC/DC, teach button, 270 ° potentiometer
50127420	PRK49C.UC1/TS-TB	0.1 ... 24 m 0.1 ... 30 m	LED, red	Terminal, 5-pin	Switching frequency: 25 Hz; Digital switching output 1: relay, NC, light/dark reversible; Digital switching output 2: relay, NO, light/dark reversible, AC/DC, teach button, 270 ° potentiometer
50127426	PRK49C.UCD1/TS-TB	0.1 ... 24 m 0.1 ... 30 m	LED, red	Terminal, 5-pin	Switching frequency: 25 Hz; Digital switching output 1: relay, NC, light/dark reversible; Digital switching output 2: relay, NO, light/dark reversible, AC/DC, teach button, 270 ° potentiometer
50130469	PRK49C.UCH/M4-TB	0.3 ... 24 m 0.1 ... 30 m	LED, red	Terminal, 5-pin	Switching frequency: 150 Hz; Digital switching output 1: MOSFET semiconductor, NO (normally open), light switching, AC/DC, heating
50130468	PRK49C.UCH/TS-TB	0.1 ... 24 m 0.1 ... 30 m	LED, red	Terminal, 5-pin	Switching frequency: 25 Hz; Digital switching output 1: relay, NC, light switching; Digital switching output 2: relay, NO, light switching, AC/DC, heating

Diffuse sensors with background suppression

Very powerful diffuse sensors with background suppression and large range.

HT49C

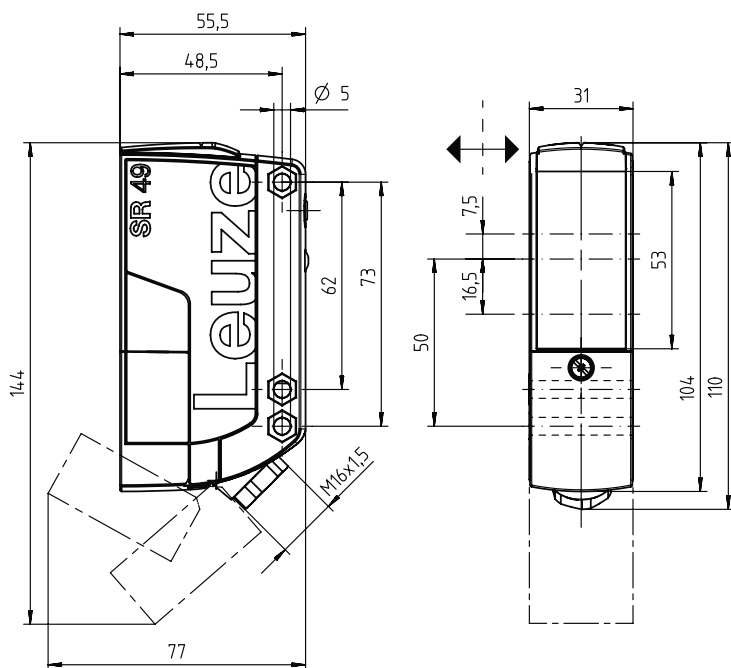
Sensor with background suppression, red light and infrared model, clamp connection, AC/DC supply.

Benefits:

- Large range
- High function reserve
- Exact object detection, independent of surface structure (minimal black-white error)

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50127432	HT49C.UC/M4	0.005 ... 3 m 0.005 ... 3 m	LED, red	Cable, 2,000 mm, 5-wire	Switching frequency: 150 Hz; Digital switching output 1: MOSFET semiconductor, NO (normally open), light/dark reversible, AC/DC, multiturn potentiometer, teach button
50127430	HT49C.UC/TS	0.005 ... 3 m 0.005 ... 3 m	LED, red	Cable, 2,000 mm, 5-wire	Switching frequency: 150 Hz; Digital switching output 1: relay, NC, light/dark reversible; Digital switching output 2: relay, NO, light/dark reversible, AC/DC, multiturn potentiometer, teach button
50127431	HT49C.UC/M4-TB	0.005 ... 3 m 0.005 ... 3 m	LED, red	Terminal, 5-pin	Switching frequency: 150 Hz; Digital switching output 1: MOSFET semiconductor, NO (normally open), light/dark reversible, AC/DC, multiturn potentiometer, teach button
50127193	HT49C.UC/TS-TB	0.005 ... 3 m 0.005 ... 3 m	LED, red	Terminal, 5-pin	Switching frequency: 150 Hz; Digital switching output 1: relay, NC, light/dark reversible; Digital switching output 2: relay, NO, light/dark reversible, AC/DC, multiturn potentiometer, teach button
50130470	HT49C.UCH/TS-TB	0.005 ... 3 m 0.005 ... 3 m	LED, red	Terminal, 5-pin	Switching frequency: 150 Hz; Digital switching output 1: relay, NC, light/dark reversible; Digital switching output 2: relay, NO, light/dark reversible, AC/DC, teach button, multiturn potentiometer, heating
50127436	HT49CI.UC/M4	0.005 ... 3 m 0.005 ... 3 m	LED, infrared	Cable, 2,000 mm, 5-wire	Switching frequency: 150 Hz; Digital switching output 1: MOSFET semiconductor, NO (normally open), light/dark reversible, AC/DC, multiturn potentiometer, teach button
50127434	HT49CI.UC/TS	0.005 ... 3 m 0.005 ... 3 m	LED, infrared	Cable, 2,000 mm, 5-wire	Switching frequency: 150 Hz; Digital switching output 1: relay, NC, light/dark reversible; Digital switching output 2: relay, NO, light/dark reversible, AC/DC, multiturn potentiometer, teach button
50127435	HT49CI.UC/M4-TB	0.005 ... 3 m 0.005 ... 3 m	LED, infrared	Terminal, 5-pin	Switching frequency: 150 Hz; Digital switching output 1: MOSFET semiconductor, NO (normally open), light/dark reversible, AC/DC, multiturn potentiometer, teach button
50127433	HT49CI.UC/TS-TB	0.005 ... 3 m 0.005 ... 3 m	LED, infrared	Terminal, 5-pin	Switching frequency: 150 Hz; Digital switching output 1: relay, NC, light/dark reversible; Digital switching output 2: relay, NO, light/dark reversible, AC/DC, multiturn potentiometer, teach button
50130471	HT49CI.UCH/TS-TB	0.005 ... 3 m 0.005 ... 3 m	LED, infrared	Terminal, 5-pin	Switching frequency: 150 Hz; Digital switching output 1: relay, NC, light/dark reversible; Digital switching output 2: relay, NO, light/dark reversible, AC/DC, multiturn potentiometer, teach button, heating

Dimensioned drawings: 49C series



49 series

ACCESSORIES: 49C SERIES

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50025570	BT 96	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50082084	BT 450.1-96	Mounting system	Screw type	For 10 mm rod	Metal
50128379	BTU 460M-D10	Mounting system	Screw type	For 10 mm rod	Metal
50128380	BTU 460M-D12	Mounting system	Screw type	For 12 mm rod	Metal

Further rod mounts can be found on our website

Reflectors and reflective tapes

Standard reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50024127	TK 82.2	Round	79 mm	Through-hole mounting, adhesive	Plastic
50081283	TKS 20X40	Rectangular	16 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50023525	TKS 30X50	Rectangular	27 mm × 44 mm	Through-hole mounting, adhesive	Plastic
50022816	TKS 100X100	Rectangular	96 mm × 96 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further standard reflectors can be found on our website

Micro-triad-type reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50117583	MTKS 50x50.1	Rectangular	50 mm × 50 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further micro-triad-type reflectors can be found on our website

Reflective tapes for standard applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50108300	REF 4-A-50x50	Rectangular	50 mm × 50 mm	Self-adhesive	Plastic
50106119	REF 4-A-100x100	Rectangular	100 mm × 100 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

/// 53 series

These sensors were specially designed for sensitive hygiene applications, e. g., in pharmaceutical, cosmetic and food industries. Their housing is consistently designed for preventing bacterial carry-overs with its scratch resistant and non-diffusive plastic screen. The unique fastening concept, which consists of a mounting trunnion with 12 mm diameter and G6 fit, ensures a gas-tight connection between sensor and machine.



Direct access to the online product selector at www.leuze.com/en/br53

Throughbeam sensors

These stainless steel throughbeam photoelectric sensors in HYGIENE design are specially suited for use in challenging environments.

LSR 53

These photoelectric sensors have a large operating range and feature a visible red light spot for easy alignment.

Benefits:

- 316L stainless steel housing in HYGIENE-Design
- Enclosed optics design prevents bacterial carry-overs
- ECOLAB and CleanProof+ tested
- A²LS – Active Ambient Light Suppression
- High switching frequency for detection of fast events

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50108736	► LSSR 53.8-S8	0 ... 8.5 m 0 ... 10 m	LED, red	Connector, M8, 4-pin, stainless steel	DC, HYGIENE design
50108742	◄ LSER 53/66-S8	0 ... 8.5 m 0 ... 10 m		Connector, M8, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, HYGIENE design

► transmitter / ◄ receiver

Retro-reflective sensors

Polarized and unpolarized retro-reflective photoelectric sensors for transport systems, for exact positioning as well as models for detection of PET and glass bottles and plastic foils are available. In addition, there is a laser device specially designed for the detection of small parts.

PRK(L) 53.22

Polarized retro-reflective photoelectric sensors with visible red light in stainless steel housing in the HYGIENE design.

Benefits:

- 316L stainless steel housing in HYGIENE-Design
- Enclosed optics design prevents bacterial carry-overs
- ECOLAB and CleanProof+ tested
- High switching frequency for detection of fast events
- Easy adjustment via lockable teach button or teach input

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50107605	PRKL 53/6.22-S8	0 ... 2 m 0 ... 3 m	Laser, 1, red	Connector, M8, 4-pin, stainless steel	Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, teach input, autocollimation, HYGIENE design
50107603	PRK 53/6.22-S8	0 ... 4 m 0 ... 5 m	LED, red	Connector, M8, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, teach input, autocollimation, HYGIENE design
50121898	PRK 53/6.22,5000	0 ... 4 m 0 ... 5 m	LED, red	Cable, 5,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, multiturn potentiometer, autocollimation, teach input, HYGIENE design

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

PRK 53.42 / RKR 53.42

Stainless steel sensors with autocollimation optics and red light with ranges of up to 3 m for transparent objects, both in a polarized design for glass panes (PRK devices) and a non-polarized design for foils (RKR devices).

Benefits:

- 316L stainless steel housing in HYGIENE-Design
- Enclosed optics design prevents bacterial carry-overs
- ECOLAB and CleanProof+ tested
- High switching frequency for detection of fast events
- Easy adjustment via lockable teach button or teach input

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50112475	PRK 53/6.42-S8	0 ... 3 m 0 ... 3.5 m	LED, red	Connector, M8, 4-pin, stainless steel	Application: detection of highly transparent bottles; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, teach input, autocollimation, HYGIENE design
50112476	PRK 53/6D.42-S8	0 ... 3 m 0 ... 3.5 m	LED, red	Connector, M8, 4-pin, stainless steel	Application: detection of highly transparent bottles; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, teach button, teach input, autocollimation, HYGIENE design
50107607	RKR 53/6.42-S8	0 ... 1.5 m 0 ... 1.8 m	LED, red	Connector, M8, 4-pin, stainless steel	Application: detection of highly transparent foils and glass panes; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, teach input, autocollimation, HYGIENE design

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

Diffuse sensors with background suppression

These diffuse sensors with precise adjustment via multiturn potentiometer are designed for particularly reliable switching. With models that work on nearly any background, optimized versions for highly glossy objects and objects with colored structures as well for the detection of gaps and openings are available.

HRTL 53 / HRTR 53

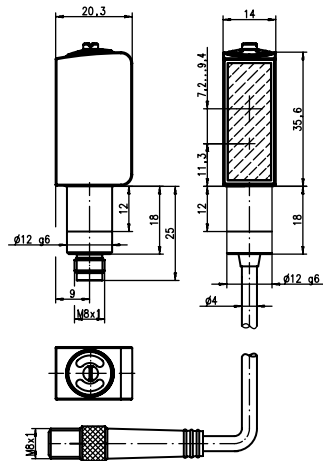
Depending on the design, these sensors offer a large range or small light spots for the reliable detection of glossy, structured objects. A model with elongated light spot specially produced for transparent objects or objects with openings is also available for delivery.

Benefits:

- 316L stainless steel housing in HYGIENE-Design
- Enclosed optics design prevents bacterial carry-overs
- ECOLAB and CleanProof+ tested
- Exact range adjustment via 8-turn potentiometer
- Collimated light beam propagation with small beam diameter permits identical switching behavior within the specified detection range

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50115203	HRTL 53/66-S8	0.015 ... 0.4 m 0.015 ... 0.4 m	Laser, 1, red	Connector, M8, 4-pin, stainless steel	Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, HYGIENE design
50115202	HRTL 53/66,5000	0.015 ... 0.4 m 0.015 ... 0.4 m	Laser, 1, red	Cable, 5,000 mm, 4-wire	Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, HYGIENE design
50107499	HRTR 53/66-S8	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Connector, M8, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, HYGIENE design
50121900	HRTR 53/66,5000	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Cable, 5,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, HYGIENE design
50107503	HRTR 53/66-S-S8	0.005 ... 0.2 m 0.005 ... 0.2 m	LED, red	Connector, M8, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, small light spot (S), HYGIENE design
50121899	HRTR 53/66-S,5000	0.005 ... 0.2 m 0.005 ... 0.2 m	LED, red	Cable, 5,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, small light spot (S), HYGIENE design
50120622	HRTR 53/66-V-S8	0.015 ... 0.1 m 0.015 ... 0.1 m	LED, red	Connector, M8, 4-pin, stainless steel	Application: detection of high-gloss or polished surfaces; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, V-optics, HYGIENE design
50107507	HRTR 53/66-XL-S8	0.005 ... 0.1 m 0.005 ... 0.1 m	LED, red	Connector, M8, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, extra long light spot (XL), HYGIENE design
50122261	HRTR 53/66-VXL-S8	0.01 ... 0.09 m 0.01 ... 0.09 m	LED, red	Connector, M8, 4-pin, stainless steel	Application: detection of top layers; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, V-optics, extra long light spot (XL), HYGIENE design

Dimensioned drawings: 53 series



53 series

ACCESSORIES: 53 SERIES

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50106154	K-D M8W-4P-2m-FAB	Connector, M8, angled, female	4-pin	2,000 mm	FAB
50110273	K-D M8W-4P-10m-FAB	Connector, M8, angled, female	4-pin	10,000 mm	FAB
50106152	K-D M8A-4P-2m-FAB	Connector, M8, axial, female	4-pin	2,000 mm	FAB
50106153	K-D M8A-4P-5m-FAB	Connector, M8, axial, female	4-pin	5,000 mm	FAB
50110274	K-D M8A-4P-10m-FAB	Connector, M8, axial, female	4-pin	10,000 mm	FAB

Further connection cables can be found on our website

Mounting systems

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50116817	BTU 053M.5F-D12-A090	Mounting system	Screw type	For 12 mm rod	Stainless steel

Further rod mounts can be found on our website

Reflectors and reflective tapes

Standard reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50081283	TKS 20X40	Rectangular	16 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50040820	TKS 40X60	Rectangular	37 mm × 56 mm	Through-hole mounting, adhesive	Plastic
50022816	TKS 100X100	Rectangular	96 mm × 96 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm

Further standard reflectors can be found on our website

Micro-triad-type reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50104130	MTKS 20x40.1	Rectangular	17 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50117583	MTKS 50x50.1	Rectangular	50 mm × 50 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm

Further micro-triad-type reflectors can be found on our website

Reflective tapes for standard applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50108300	REF 4-A-50x50	Rectangular	50 mm × 50 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

Reflective tapes for laser and clear-glass applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50123899	REF 6-A-9x9	Rectangular	9 mm × 9 mm	Self-adhesive	Plastic
50123861	REF 6-A-14x45	Rectangular	15 mm × 45 mm	Self-adhesive	Plastic
50110192	REF 6-A-50x50	Rectangular	50 mm × 50 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

Reflectors for the pharmaceutical industry

Part no.	Part description	Design	Reflective surface	Fastening	Material
50106961	MTKS 14x23.P	Rectangular	11 mm × 21 mm	Through-hole mounting, adhesive	Plastic
50106960	TKS 20x40.P	Rectangular	16 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50106957	TKS 40x60.P	Rectangular	37 mm × 56 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm

Further reflectors can be found on our website

/// 55 series



This stainless steel sensor series show their strength particularly in the wet areas of your production line. With the innovative WASH-DOWN design, it is possible to thoroughly clean the entire system with all common cleaning agents and processes. The non-diffusive and chemically-stable materials prevent bacterial carry-overs and ensure the functional capability of the systems for years to come. The fact that their fastening systems are compatible to those of the standard series makes integration easier.



Direct access to the online product selector at www.leuze.com/en/br55

Throughbeam sensors

Stainless steel throughbeam photoelectric sensors in the WASH-DOWN design with standard hole pattern for use in wet areas. Also available as version for the detection of highly transparent media.

LSR 55

Models with 3 different connections specially designed for detection of fast events are available for delivery. The enclosed optics design reliably prevents bacterial carry-overs.

Benefits:

- 316L stainless steel housing in WASH-DOWN-Design
- Enclosed optics design prevents bacterial carry-overs
- ECOLAB and CleanProof+ tested
- Scratch resistant and non-diffusive plastic front cover
- High switching frequency for detection of fast events
- Version available for the detection of highly transparent media

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50108715	► LSSR 55.8-S8	0 ... 8.5 m 0 ... 10 m	LED, red	Connector, M8, 4-pin, stainless steel	DC, activation input, WASH-DOWN design
50108721	◄ LSR 55/66-S8	0 ... 8.5 m 0 ... 10 m		Connector, M8, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, WASH-DOWN design
50108717	► LSSR 55.8,200-S12	0 ... 8.5 m 0 ... 10 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, stainless steel	DC, activation input, WASH-DOWN design
50108723	◄ LSR 55/66,200-S12	0 ... 8.5 m 0 ... 10 m		Cable with connector, 200 mm, M12, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, WASH-DOWN design
50111969	► LSSR 55.8,5000	0 ... 8.5 m 0 ... 10 m	LED, red	Cable, 5,000 mm, 4-wire	DC, activation input, WASH-DOWN design
50111970	◄ LSR 55/66,5000	0 ... 8.5 m 0 ... 10 m		Cable, 5,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, WASH-DOWN design

► transmitter / ◄ receiver

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50127771	► LSS 55.H20,200-S12	0 ... 64 m 0 ... 80 m	LED, infrared	Cable with connector, 200 mm, M12, 4-pin, stainless steel	Application: detection of aqueous liquids (water sensor), DC, WASH-DOWN design
50127772	◄ LSE 55/44.H20,200-S12	0 ... 64 m 0 ... 80 m		Cable with connector, 200 mm, M12, 4-pin, stainless steel	Application: detection of aqueous liquids (water sensor); Switching frequency: 350 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, WASH-DOWN design
50130550	◄ LSE 55/441.H20,200-S12	0 ... 64 m 0 ... 80 m		Cable with connector, 200 mm, M12, 4-pin, stainless steel	Application: fill-level monitoring; Switching frequency: 350 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, WASH-DOWN design

► transmitter / ◄ receiver

Retro-reflective sensors

Polarized and unpolarized retro-reflective photoelectric sensors for transport systems, for object positioning as well as autocollimation models for bottle and foil detection are available for delivery. In addition, there are laser devices with higher switching frequency specially designed for the detection of small parts.

PRK(L) 55

Polarized retro-reflective photoelectric sensors available with red light in V4A/316L and as laser models. The autocollimation function ensures precise detection of even highly-glossy objects.

Benefits:

- Enclosed optics design prevents bacterial carry-overs
- ECOLAB and CleanProof+ tested
- Scratch resistant and non-diffusive plastic front cover
- A²LS – Active Ambient Light Suppression
- High switching frequency for detection of fast events
- Easy adjustment via lockable teach button or teach input

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50105796	PRKL 55/6.22-S8	0 ... 2 m 0 ... 3 m	Laser, 1, red	Connector, M8, 4-pin, stainless steel	Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, autocollimation, teach input, WASH-DOWN design
50105797	PRKL 55/6.22,200-S12	0 ... 2 m 0 ... 3 m	Laser, 1, red	Cable with connector, 200 mm, M12, 4-pin, stainless steel	Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, autocollimation, teach input, WASH-DOWN design
50114072	PRKL 55/6.22,5000	0 ... 2 m 0 ... 3 m	Laser, 1, red	Cable, 5,000 mm, 4-wire	Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, autocollimation, teach input, WASH-DOWN design
50105804	PRK 55/66-S8	0.2 ... 5 m 0 ... 6 m	LED, red	Connector, M8, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, autocollimation, WASH-DOWN design
50105805	PRK 55/66,200-S12	0.2 ... 5 m 0 ... 6 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, autocollimation, WASH-DOWN design
50111966	PRK 55/66,5000	0.2 ... 5 m 0 ... 6 m	LED, red	Cable, 5,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, WASH-DOWN design
50105792	PRK 55/6.22-S8	0 ... 4 m 0 ... 5 m	LED, red	Connector, M8, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, autocollimation, teach input, WASH-DOWN design
50105793	PRK 55/6.22,200-S12	0 ... 4 m 0 ... 5 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, autocollimation, teach input, WASH-DOWN design
50111967	PRK 55/6.22,5000	0 ... 4 m 0 ... 5 m	LED, red	Cable, 5,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, autocollimation, teach input, WASH-DOWN design

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

SMARTER APPLICATION KNOW-HOW



Take a look at our product clips: www.leuze.com/en/product-clips

PRK 55.42 / RKR 55.42

Polarized and unpolarized retro-reflective photoelectric sensors especially for the detection of highly transparent bottles, foils (RKR devices) and glass panes (PRK devices) are available.

Benefits:

- Particularly suited for thin, highly transparent foils with thickness < 20 µm
- Enclosed optics design prevents bacterial carry-overs
- ECOLAB and CleanProof+ tested
- Scratch resistant and non-diffusive plastic front cover
- High switching frequency for detection of fast events
- May also be used with glass reflectors (TG)
- Easy adjustment via lockable teach button or teach input

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50112991	PRK 55/6.42-S8	0 ... 3 m 0 ... 3.5 m	LED, red	Connector, M8, 4-pin, stainless steel	Application: detection of highly transparent bottles; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, autocollimation, teach input, WASH-DOWN design
50112992	PRK 55/6D.42-S8	0 ... 3 m 0 ... 3.5 m	LED, red	Connector, M8, 4-pin, stainless steel	Application: detection of highly transparent bottles; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, teach button, autocollimation, teach input, WASH-DOWN design
50112477	PRK 55/6.42,200-S12	0 ... 3 m 0 ... 3.5 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, stainless steel	Application: detection of highly transparent bottles; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, autocollimation, teach input, WASH-DOWN design
50112478	PRK 55/6D.42,200-S12	0 ... 3 m 0 ... 3.5 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, stainless steel	Application: detection of highly transparent bottles; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, teach button, autocollimation, teach input, WASH-DOWN design
50114071	PRK 55/6.42,5000	0 ... 3 m 0 ... 3.5 m	LED, red	Cable, 5,000 mm, 4-wire	Application: detection of highly transparent bottles; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, autocollimation, teach input, WASH-DOWN design
50105794	RKR 55/6.42-S8	0 ... 1.5 m 0 ... 1.8 m	LED, red	Connector, M8, 4-pin, stainless steel	Application: detection of highly transparent foils and glass panes; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, autocollimation, teach input, WASH-DOWN design
50105795	RKR 55/6.42,200-S12	0 ... 1.5 m 0 ... 1.8 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, stainless steel	Application: detection of highly transparent foils and glass panes; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, autocollimation, teach input, WASH-DOWN design
50114073	RKR 55/6.42,5000	0 ... 1.5 m 0 ... 1.8 m	LED, red	Cable, 5,000 mm, 4-wire	Application: detection of highly transparent foils and glass panes; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, autocollimation, teach input, WASH-DOWN design

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

Diffuse sensors with background suppression

These light scanners with precise adjustment via multiturn potentiometer are designed for particularly reliable switching and can be used on nearly any background. Other models are optimized for highly-glossy and structured objects as well as the detection of grids and gaps.

HRTL 55 / HRTR 55

Depending on the design, these sensors offer a large range or small light spots for the reliable detection of even glossy, structured objects. Models with elongated light spot for transparent objects or objects with openings are also available for delivery. A model with V-optics for polished object surfaces is also available.

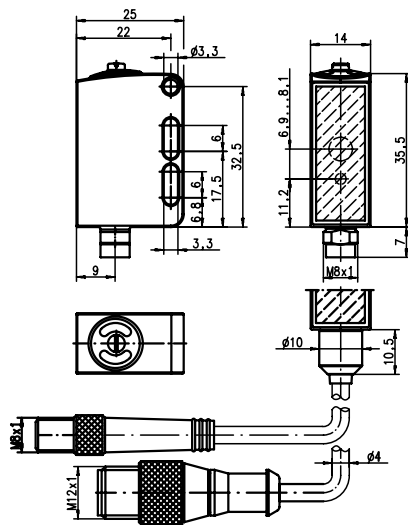
Benefits:

- Enclosed optics design prevents bacterial carry-overs
- ECOLAB and CleanProof+ tested
- Scratch resistant and non-diffusive plastic front cover
- Exact range adjustment via 8-turn potentiometer
- Very good black/white behavior and reliable switching, even on glossy objects and objects with colored structure
- Small, homogeneous light spot for detecting small parts
- A²LS – Active Ambient Light Suppression
- High switching frequency for detection of fast events

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50107496	HRTR 55/66-XL-S8	0.005 ... 0.1 m 0.005 ... 0.1 m	Laser, red	Connector, M8, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, extra long light spot (XL), WASH-DOWN design
50115204	HRTL 55/66,200-S12	0.015 ... 0.4 m 0.015 ... 0.4 m	Laser, 1, red	Connector, M12, 4-pin, stainless steel	Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, WASH-DOWN design
50115206	HRTL 55/66-S8	0.015 ... 0.4 m 0.015 ... 0.4 m	Laser, 1, red	Connector, M8, 4-pin, stainless steel	Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, WASH-DOWN design
50115205	HRTL 55/66,5000	0.015 ... 0.4 m 0.015 ... 0.4 m	Laser, 1, red	Cable, 5,000 mm, 4-wire	Switching frequency: 2,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, WASH-DOWN design
50107484	HRTR 55/66-S8	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Connector, M8, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, WASH-DOWN design

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50107492	HRTR 55/66,200-S12	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, WASH-DOWN design
50111968	HRTR 55/66,5000	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Cable, 5,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, WASH-DOWN design
50107493	HRTR 55/66-S-S8	0.005 ... 0.2 m 0.005 ... 0.2 m	LED, red	Connector, M8, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, small light spot (S), WASH-DOWN design
50107495	HRTR 55/66-S,200-S12	0.005 ... 0.2 m 0.005 ... 0.2 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, small light spot (S), WASH-DOWN design
50114069	HRTR 55/66-S,5000	0.005 ... 0.2 m 0.005 ... 0.2 m	LED, red	Cable, 5,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, WASH-DOWN design
50120623	HRTR 55/66-V,200-S12	0.015 ... 0.1 m 0.015 ... 0.1 m	LED, red	Connector, 200 mm, M12, 4-pin, stainless steel	Application: detection of high-gloss or polished surfaces; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, V-optics, WASH-DOWN design
50107498	HRTR 55/66-XL,200-S12	0.005 ... 0.1 m 0.005 ... 0.1 m	LED, red	Connector, 200 mm, M12, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, extra long light spot (XL), WASH-DOWN design
50117199	HRTR 55/22-XL,5000	0.005 ... 0.1 m 0.005 ... 0.1 m	LED, red	Cable, 5,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, multiturn potentiometer, extra long light spot (XL), WASH-DOWN design
50116828	HRTR 55/44-XL,5000	0.005 ... 0.1 m 0.005 ... 0.1 m	LED, red	Cable, 5,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, extra long light spot (XL), WASH-DOWN design
50114070	HRTR 55/66-XL,5000	0.005 ... 0.1 m 0.005 ... 0.1 m	LED, red	Cable, 5,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, extra long light spot (XL), WASH-DOWN design
50128811	HRT 55/44,200-S12	0.005 ... 0.6 m 0.005 ... 0.6 m	LED, infrared	Cable with connector, 200 mm, M12, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, WASH-DOWN design

Dimensioned drawings: 55 series



55 series

ACCESSORIES: 55 SERIES

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130692	KD U-M12-4W-P1-020	Connector, M12, angled, female	4-pin	2,000 mm	PUR
50130694	KD U-M12-4W-P1-050	Connector, M12, angled, female	4-pin	5,000 mm	PUR
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50130654	KD U-M12-4A-P1-020	Connector, M12, axial, female	4-pin	2,000 mm	PUR
50130657	KD U-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC
50106154	K-D M8W-4P-2m-FAB	Connector, M8, angled, female	4-pin	2,000 mm	FAB
50106155	K-D M8W-4P-5m-FAB	Connector, M8, angled, female	4-pin	5,000 mm	FAB
50106152	K-D M8A-4P-2m-FAB	Connector, M8, axial, female	4-pin	2,000 mm	FAB
50106153	K-D M8A-4P-5m-FAB	Connector, M8, axial, female	4-pin	5,000 mm	FAB

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50040269	BT 25	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117256	BTU 200M-D10	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50117255	BTU 200M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50117254	BTU 200M-D14	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 14 mm rod, sheet-metal mounting	Metal

Further rod mounts can be found on our website

Reflectors and reflective tapes

Standard reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50081283	TKS 20X40	Rectangular	16 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50040820	TKS 40X60	Rectangular	37 mm × 56 mm	Through-hole mounting, adhesive	Plastic
50022816	TKS 100X100	Rectangular	96 mm × 96 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further standard reflectors can be found on our website

Micro-triad-type reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50104130	MTKS 20x40.1	Rectangular	17 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50117583	MTKS 50x50.1	Rectangular	50 mm × 50 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further micro-triad-type reflectors can be found on our website

Reflective tapes for standard applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50108300	REF 4-A-50x50	Rectangular	50 mm × 50 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

Reflective tapes for laser and clear-glass applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50123899	REF 6-A-9x9	Rectangular	9 mm × 9 mm	Self-adhesive	Plastic
50123861	REF 6-A-14x45	Rectangular	15 mm × 45 mm	Self-adhesive	Plastic
50110192	REF 6-A-50x50	Rectangular	50 mm × 50 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

/// 95 series



Series 95 is available as throughbeam photoelectric sensors, retro-reflective photoelectric sensors and diffuse sensors in versions used for PET, foil and glass detection. Moreover, the sturdy housing with degree of protection IP 67 / IP 69K and the A²LS active ambient light suppression facilitate especially reliable detection, even in rough industrial environments.



Direct access to the online product selector at www.leuze.com/en/br95

Throughbeam sensors

Throughbeam photoelectric sensors with glass optics and high function reserve using visible red light or infrared light.

LS 95

Sturdy throughbeam photoelectric sensors with high function reserve using visible red light or infrared light. The series has complementary switching outputs for light/dark switching as a control function.

Benefits:

- Activation input and warning output
- Sensitivity adjustment via multiturn potentiometer
- Complementary switching outputs for light/dark switching or as a control function

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50034509	► LSR 95/2.8 SE-L.1	0 ... 12 m 0 ... 18 m	LED, red	Connector, M12, 4-pin, stainless steel	DC, activation input
50034510	◄ ILSR 95/44 E-L.1	0 ... 12 m 0 ... 18 m		Connector, M12, 5-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching; Digital switching output 3: transistor, PNP, U _B switching, DC, warning output
50026835	► LS 95/2.8 SE-L.1	0 ... 12 m 0 ... 20 m	LED, infrared	Connector, M12, 4-pin, stainless steel	DC, activation input
50026836	◄ ILS 95/44 E-L.1	0 ... 12 m 0 ... 20 m		Connector, M12, 5-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching; Digital switching output 3: transistor, PNP, U _B switching, DC, warning output

► transmitter / ◄ receiver

Retro-reflective sensors

These retro-reflective photoelectric sensors with glass optics are available with visible red light or infrared light.

(I)PRK 95

Reliable retro-reflective photoelectric sensors with function reserves for high system availability. The sensitivity adjustment is performed via multiturn potentiometer.

Benefits:

- With autocollimation principle
- Sensitivity adjustment via multiturn potentiometer
- Activation input and warning output
- Version with focus at 100 mm

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50034512	IPRK 95/44 L.5	0.15 ... 6 m 0.15 ... 9 m	LED, red	Connector, M12, 5-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching; Digital switching output 3: transistor, PNP, U _B switching, DC, multiturn potentiometer, warning output
50034511	PRK 95/44 L	0 ... 6 m 0 ... 6 m	LED, red	Connector, M12, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, autocollimation
50030257	IPRK 95/4.8 L.2	0 ... 4.2 m 0 ... 6 m	LED, red	Connector, M12, 5-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, U _B switching, DC, activation input, autocollimation, warning output
50022680	IPRK 95/44 L.2	0 ... 4.2 m 0 ... 6 m	LED, red	Connector, M12, 5-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching; Digital switching output 3: transistor, PNP, U _B switching, DC, autocollimation, warning output
50102613	IPRK 95/44 L.21	0 ... 4.2 m 0 ... 6 m	LED, red	Connector, M12, 5-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching; Digital switching output 3: transistor, PNP, U _B switching, DC, multiturn potentiometer, autocollimation, warning output
50027993	PRK 95/4 L.2	0 ... 3.4 m 0 ... 5 m	LED, red	Connector, M12, 4-pin, stainless steel	Switching frequency: 200 Hz; Digital switching output 1: transistor, PNP, light switching, DC, autocollimation
50022681	IPRK 95/44 L.3	0 ... 0.3 m 0 ... 0.3 m	LED, red	Connector, M12, 5-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching; Digital switching output 3: transistor, PNP, U _B switching, DC, autocollimation, warning output, small light spot (S)

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

PRK 95.4

Retro-reflective photoelectric sensors for reliable detection of transparent media (e. g. clear glass, PET, foil)

Benefits:

- User controlled sensitivity adjustment for transparent objects
- Autocollimation principle for transparent media
- Activation input and warning output

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50025609	PRK 95/44 L.4	0 ... 1.8 m 0 ... 3 m	LED, red	Connector, M12, 4-pin, stainless steel	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, autocollimation
50027095	PRK 95/A L.4	0 ... 1.8 m 0 ... 3 m	LED, red	Connector, M12, 4-pin, stainless steel	Application: detection of highly transparent bottles, detection of highly transparent foils and glass panes, multiturn potentiometer, autocollimation, AS-Interface IO

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

Energetic diffuse sensor

Diffuse sensors are transmitter and receiver in one and react to the light reflected by the object to be detected, and therefore do not need a separate reflector. The switching distance possible depends on the reflection properties of the object.

IRK(R) 95 / RKR 95

Diffuse sensors using red light or infrared light with operating range adjustable via potentiometer. The exact adjustment is performed via multiturn potentiometer.

Benefits:

- Very good black/white behavior
- Exact adjustment via multiturn potentiometer
- Warning output
- PNP outputs for light/dark switching

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50025612	IRKR 95/44-250 L	0.01 ... 0.25 m 0.01 ... 0.4 m	LED, red	Connector, M12, 5-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching; Digital switching output 3: transistor, PNP, U _s switching, DC, multiturn potentiometer, warning output
50034513	RKR 95/44-600 L	0.02 ... 0.6 m 0.02 ... 0.9 m	LED, red	Connector, M12, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer

Diffuse sensors with background suppression

These sturdy diffuse sensors with adjustable background suppression are available with visible red light or infrared light. They are suited for many applications.

FRK(R) 95

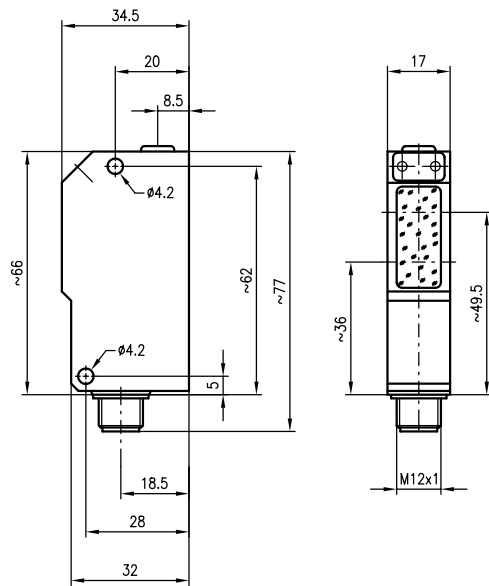
These sensors feature a very good black/white behavior and are particularly well-suited for glossy surfaces.

Benefits:

- Sensor with adjustable background suppression using visible red light or infrared light
- Very good black/white behavior
- Optimized for glossy/inclined surfaces
- Models with focused light beam
- NPN/PNP outputs for light/dark switching

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50034514	FRKR 95/44-350 L	0.005 ... 0.35 m 0.005 ... 0.5 m	LED, red	Connector, M12, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50025610	FRKR 95/44-150 L	0.012 ... 0.15 m 0.012 ... 0.19 m	LED, red	Connector, M12, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50034515	FRK 95/44-350 L	0.005 ... 0.35 m 0.005 ... 0.5 m	LED, infrared	Connector, M12, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50019925	FRK 95/44-150 L	0.012 ... 0.15 m 0.012 ... 0.23 m	LED, infrared	Connector, M12, 4-pin, stainless steel	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer

Dimensioned drawings: 95 series



95 series

ACCESSORIES: 95 SERIES

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130694	KD U-M12-4W-P1-050	Connector, M12, angled, female	4-pin	5,000 mm	PUR
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50104762	K-D M12W-5P-5m-PUR	Connector, M12, angled, female	5-pin	5,000 mm	PUR
50104556	K-D M12W-5P-2m-PVC	Connector, M12, angled, female	5-pin	2,000 mm	PVC
50104558	K-D M12W-5P-5m-PVC	Connector, M12, angled, female	5-pin	5,000 mm	PVC
50130657	KD U-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC
50104569	K-D M12A-5P-5m-PUR	Connector, M12, axial, female	5-pin	5,000 mm	PUR
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm	PVC
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50020833	BT 95	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Reflectors and reflective tapes

Standard reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50081283	TKS 20X40	Rectangular	16 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50023525	TKS 30X50	Rectangular	27 mm × 44 mm	Through-hole mounting, adhesive	Plastic
50022814	TKS 50X50	Rectangular	47 mm × 48 mm	Through-hole mounting, adhesive	Plastic
50022816	TKS 100X100	Rectangular	96 mm × 96 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm

Further standard reflectors can be found on our website

Reflective tapes for standard applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50106119	REF 4-A-100x100	Rectangular	100 mm × 100 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

/// 96 series



Regardless of operating principle, regardless of whether metal or plastic housing, regardless of whether DC or AC supply – the sensors of this series are all-rounders. With their large optical surface, IP 67 or IP 69K safety class and optional optics heating, they will win you over with their reliable detection with high function reserves, large operating ranges and a multitude of options under rough environmental conditions.



Direct access to the online product selector at www.leuze.com/en/br96

Throughbeam sensors

Throughbeam photoelectric sensors with particularly high function reserve using visible red light or infrared light and numerous options.

LS 96

Sturdy throughbeam photoelectric sensors with high function reserve using visible red light or infrared light for standard applications. Models with optics heatings are also available for delivery.

Benefits:

- Complementary outputs for standard applications and a wide range of input and output variants for optimal adaptation to the application
- Versatile options with warning output, activation input and switching delay
- Models with optics heating for use at low temperatures

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50031574	► LSS 96M-120W-43	0 ... 30 m 0 ... 39 m	LED, red	Connector, M12, 4-pin, metal	DC
50031575	◄ LSE 96M/P-181W-41	0 ... 30 m 0 ... 39 m		Connector, M12, 4-pin, metal	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50082040	► LSS 96M-180W-44	0 ... 30 m 0 ... 39 m	LED, red	Connector, M12, 4-pin, metal	AS-Interface IO
50082039	◄ LSE 96M/A-182W-44	0 ... 30 m 0 ... 39 m		Connector, M12, 4-pin, metal	Switching frequency: 500 Hz, AS-Interface IO
50032129	► LSS 96M-1206-43	0 ... 30 m 0 ... 39 m	LED, red	Connector, M12, 4-pin, metal	DC, heating
50025197	◄ LSE 96M/P-1170-42	0 ... 30 m 0 ... 39 m		Connector, M12, 4-pin, metal	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, light switching, DC, 270 ° potentiometer, warning output, time function
50032128	◄ LSE 96M/P-1816-41	0 ... 30 m 0 ... 39 m		Connector, M12, 4-pin, metal	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, heating
50080657	► LSS 96K-1213-24	0 ... 30 m 0 ... 39 m	LED, red	Terminal, 3-pin	DC, activation input
50030269	◄ LSE 96K/P-1140-21	0 ... 30 m 0 ... 39 m		Terminal, 4-pin	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer
50032004	► LSS 96M-175W-26	0 ... 30 m 0 ... 39 m	LED, red	Terminal, 2-pin	AC/DC
50032003	◄ LSE 96M/R-176W-25	0 ... 30 m 0 ... 39 m		Terminal, 5-pin	Switching frequency: 20 Hz; Digital switching output 1: relay, NC/NO, light switching, AC/DC, 270 ° potentiometer
50025217	► LSS 96M-1200-23	0 ... 30 m 0 ... 39 m	LED, red	Terminal, 2-pin	DC
50025195	◄ LSE 96M/P-1170-22	0 ... 30 m 0 ... 39 m		Terminal, 4-pin	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, light switching, DC, 270 ° potentiometer, warning output, time function
50103290	► LSS 96M-1090-43	0 ... 120 m 0 ... 150 m	LED, infrared	Connector, M12, 4-pin, metal	DC, activation input, heating
50103291	◄ LSE 96M/P-3012-41	0 ... 120 m 0 ... 150 m		Connector, M12, 4-pin, metal	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer, heating
50106871	► LSS 96M-1093-24	0 ... 120 m 0 ... 150 m	LED, infrared	Terminal, 3-pin	DC, heating, activation input
50033328	◄ LSE 96M/P-3012-21	0 ... 120 m 0 ... 150 m		Terminal, 4-pin	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer, heating
50025228	► LSS 96M-1070-43		LED, infrared	Connector, M12, 4-pin, metal	DC
50034128	◄ LSE 96M/P-3010-41	0 ... 120 m 0 ... 150 m		Connector, M12, 4-pin, metal	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer
50025205	◄ LSE 96M/P-1040-42	0 ... 50 m 0 ... 65 m		Connector, M12, 4-pin, metal	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, light switching, DC, 270 ° potentiometer, warning output, time function

► transmitter / ◄ receiver

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50025223	► LSS 96M-1090-24		LED, infrared	Terminal, 3-pin	DC, activation input, heating
50033328	◄ LSE 96M/P-3012-21	0 ... 120 m 0 ... 150 m		Terminal, 4-pin	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer, heating
50025201	◄ LSE 96M/P-1130-22	0 ... 50 m 0 ... 65 m		Terminal, 4-pin	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, light switching, DC, 270 ° potentiometer, activation input, warning output, heating, time function
50025225	► LSS 96M-1070-23		LED, infrared	Terminal, 2-pin	DC
50082296	◄ LSE 96M/P-3010-21	0 ... 120 m 0 ... 150 m		Terminal, 4-pin	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer
50031295	◄ LSE 96M/N-1010-27	0 ... 50 m 0 ... 65 m		Terminal, 4-pin	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, 270 ° potentiometer
50080081	► LSS 96M-1350-26		LED, infrared	Terminal, 2-pin	AC/DC
50031651	◄ LSE 96M/R-3310-25	0 ... 120 m 0 ... 150 m		Terminal, 5-pin	Switching frequency: 20 Hz; Digital switching output 1: relay, NC/NO, light switching; Digital switching output 2: relay, dark switching, AC/DC, 270 ° potentiometer
50080080	◄ LSE 96M/R-1310-25	0 ... 50 m 0 ... 65 m		Terminal, 5-pin	Switching frequency: 20 Hz; Digital switching output 1: relay, NC/NO, light switching, AC/DC, 270 ° potentiometer

► transmitter / ◄ receiver

Retro-reflective sensors

Polarized and unpolarized retro-reflective photoelectric sensors with particularly high function reserve using visible red light or infrared light and other options.

(P)RK 96

Polarized and unpolarized retro-reflective photoelectric sensors with large operating range using visible red light. Extensive input/output models for optimal adaptation to the application. The product range also contains sensors for detection of transparent objects (e. g. clear glass, PET, foil).

Benefits:

- Complementary outputs for standard applications and a wide range of input and output variants for optimal adaptation to the application
- Connection via comfortable terminal compartment up to 1.5 mm² or metal M12 connector
- Multiple options with warning output, activation input, switching delays and optics heating for use at low temperatures

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50041042	PRK 96K/P-3368-41	0.3 ... 26 m 0.1 ... 28 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer
50035351	PRK 96K/R-3428-25	0.3 ... 20 m 0.1 ... 24 m	LED, red	Terminal, 5-pin	Switching frequency: 20 Hz; Digital switching output 1: relay, NC/NO, light switching, AC/DC, 270 ° potentiometer
50107216	PRK 96K/R-3428.1-25	0.3 ... 20 m 0.1 ... 24 m	LED, red	Terminal, 5-pin	Switching frequency: 20 Hz; Digital switching output 1: relay, NC/NO, light/dark reversible, AC/DC, 270 ° potentiometer
50082067	PRK 96M/A-3410-44	0.3 ... 15 m 0.1 ... 18 m	LED, red	Connector, M12, 4-pin, metal	Switching frequency: 1,000 Hz, 270 ° potentiometer, AS-Interface IO
50061452	PRK 96M/P-3380-41	0.3 ... 15 m 0.1 ... 18 m	LED, red	Connector, M12, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer, time function
50082066	PRK 96M/R-3420-25	0.3 ... 15 m 0.1 ... 18 m	LED, red	Terminal, 5-pin	Switching frequency: 20 Hz; Digital switching output 1: relay, NC/NO, light switching, AC/DC, 270 ° potentiometer
50061111	PRK 96M/R-3430-25	0.3 ... 15 m 0.1 ... 18 m	LED, red	Terminal, 5-pin	Switching frequency: 20 Hz; Digital switching output 1: relay, NC/NO, light switching, AC/DC, 270 ° potentiometer
50102379	PRK 96M/N-3366-27	0.3 ... 15 m 0.1 ... 18 m	LED, red	Terminal, 4-pin	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, 270 ° potentiometer, heating
50082065	PRK 96M/P-3360-21	0.3 ... 15 m 0.1 ... 18 m	LED, red	Terminal, 4-pin	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer
50081325	PRK 96K/N-1380-46	0 ... 8 m 0.1 ... 10 m	LED, red	Connector, M12, 4-pin, metal	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer, time function
50082092	PRK 96M/P-1361-47	0.3 ... 8 m 0.1 ... 10 m	LED, red	Connector, M12, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer
50104279	PRK 96M/P-1361.1-47	0.3 ... 8 m 0.1 ... 10 m	LED, red	Connector, M12, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light/dark reversible, DC, 270 ° potentiometer
50080477	PRK 96M/P-1362-47	0.3 ... 8 m 0.1 ... 10 m	LED, red	Connector, M12, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer, activation input, heating
50025186	PRK 96M/P-1370-42	0.3 ... 8 m 0.1 ... 10 m	LED, red	Connector, M12, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, light switching, DC, 270 ° potentiometer
50031549	PRK 96M/P-1400-42	0.3 ... 8 m 0.1 ... 10 m	LED, red	Connector, M12, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, 270 ° potentiometer, warning output, heating, time function

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50025165	PRK 96K/P-1360-41	0.3 ... 8 m 0.1 ... 10 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer
50103216	PRK 96K/P-1360.1-41	0.3 ... 8 m 0.1 ... 10 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light/dark reversible, DC, 270 ° potentiometer
50025166	PRK 96K/R-1380-41	0.3 ... 8 m 0.1 ... 10 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer, time function
50025167	PRK 96K/R-1420-25	0.3 ... 8 m 0.1 ... 10 m	LED, red	Terminal, 5-pin	Switching frequency: 20 Hz; Digital switching output 1: relay, NC/NO, light switching, AC/DC, 270 ° potentiometer
50105587	PRK 96K/R-1420.1-25	0.3 ... 8 m 0.1 ... 10 m	LED, red	Terminal, 5-pin	Switching frequency: 20 Hz; Digital switching output 1: relay, NC/NO, light/dark reversible, AC/DC, 270 ° potentiometer
50025168	PRK 96K/R-1430-25	0.3 ... 8 m 0.1 ... 10 m	LED, red	Terminal, 5-pin	Switching frequency: 20 Hz; Digital switching output 1: relay, NC/NO, light switching, AC/DC, 270 ° potentiometer
50025163	PRK 96K/P-1360-21	0.3 ... 8 m 0.1 ... 10 m	LED, red	Terminal, 4-pin	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer
50080476	PRK 96K/P-1361-29	0.3 ... 8 m 0.1 ... 10 m	LED, red	Terminal, 4-pin	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer, activation input
50025182	PRK 96M/P-1370-22	0.3 ... 8 m 0.1 ... 10 m	LED, red	Terminal, 4-pin	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, light switching, DC, multiturn potentiometer, 270 ° potentiometer
50109208	PRK 96M/P-1375-22	0.3 ... 8 m 0.1 ... 10 m	LED, red	Terminal, 4-pin	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer
50025178	PRK 96M/P-1400-22	0.3 ... 8 m 0.1 ... 10 m	LED, red	Terminal, 4-pin	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, 270 ° potentiometer, warning output, heating, time function
50105622	PRK 96M/P-1832-41	0 ... 7 m 0 ... 8.5 m	LED, red	Connector, M12, 4-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50082060	PRK 96M/P-2838-28	0 ... 7 m 0 ... 8.5 m	LED, red	Terminal, 4-pin	Application: detection of stretch-wrapped objects, positioning, zero distance; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer
50030648	RK 96M/P-1440-21	0.3 ... 15 m 0.1 ... 18 m	LED, infrared	Terminal, 4-pin	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

PRK 96-183x / PRK 96-185x

Polarized retro-reflective photoelectric sensors with large operating range and red light especially for the detection of highly transparent foils.

Benefits:

- Autocollimation principle allows use at zero distance and provides a constant function reserve across the entire operating range
- Visible red light
- Complementary outputs, sensitivity adjustment and delay before start-up for optimal adaptation to the application
- Connection via comfortable terminal compartment up to 1.5 mm² or metal M12 connector
- Preset sensitivities for differentiation between brown, green and clear glass

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50080760	PRK 96M/P-1838-41	0 ... 7 m 0 ... 8.5 m	LED, red	Connector, M12, 4-pin, metal	Application: detection of stretch-wrapped objects, detection of highly transparent foils and glass panes, detection of highly transparent bottles; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50029881	PRK 96M/R-1858-25	0 ... 7 m 0 ... 8.5 m	LED, red	Terminal, 5-pin	Application: detection of stretch-wrapped objects, detection of highly transparent foils and glass panes, detection of highly transparent bottles; Switching frequency: 20 Hz; Digital switching output 1: relay, NC contact/NO contact, light switching, AC/DC, multiturn potentiometer, time function
50029880	PRK 96M/P-1838-21	0 ... 7 m 0 ... 8.5 m	LED, red	Terminal, 3-pin	Application: detection of stretch-wrapped objects, detection of highly transparent foils and glass panes, detection of highly transparent bottles; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50080469	PRK 96M/P-1830-41	0 ... 1.5 m 0 ... 1.85 m	LED, red	Connector, M12, 4-pin, metal	Application: detection of stretch-wrapped objects, detection of highly transparent foils and glass panes, detection of highly transparent bottles; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50080470	PRK 96M/R-1850-25	0 ... 1.5 m 0 ... 1.85 m	LED, red	Terminal, 5-pin	Application: detection of stretch-wrapped objects, detection of highly transparent foils and glass panes, detection of highly transparent bottles; Switching frequency: 20 Hz; Digital switching output 1: relay, NC contact/NO contact, light switching, AC/DC, multiturn potentiometer, time function
50028975	PRK 96M/P-1830-21	0 ... 1.5 m 0 ... 1.85 m	LED, red	Terminal, 3-pin	Application: detection of stretch-wrapped objects, detection of highly transparent foils and glass panes, detection of highly transparent bottles; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

Energetic diffuse sensor

Energetic diffuse sensors with large range.

RT 96

Reliable diffuse sensors with potentiometer for range adjustment for the minimal short range.

Benefits:

- Range adjustment via potentiometer
- Complementary switching outputs and delay before start-up for optimal adaptation to the application
- Minimal short range
- Connection via M12 connector or terminal compartment

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50041597	RT 96M/P-1474-800-42	0.02 ... 0.8 m 0.02 ... 1.2 m	LED, infrared	Connector, M12, 5-pin, metal	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer, warning output, time function
50041598	RT 96M/R-1574-800-25	0.02 ... 0.8 m 0.02 ... 1.2 m	LED, infrared	Terminal, 5-pin	Switching frequency: 20 Hz; Digital switching output 1: relay, NC/NO, light switching; Digital switching output 2: relay, dark switching, AC/DC, 270 ° potentiometer, time function

Diffuse sensors with background suppression

Powerful diffuse sensors with background suppression for particularly large operating range.

HRT 96

Diffuse sensors with adjustable background suppression using visible red light and infrared light with versatile options such as switching delays, activation input and optics heating.

Benefits:

- Complementary switching outputs, exact mechanical range adjustment and delay before start-up for optimal adaptation to the application
- Connection via comfortable terminal compartment up to 1.5 mm² or metal M12 connector
- Multiple options with switching delays, activation input and optics heating for use at low temperatures
- Up to 3 teachable programmable switching points
- Arbitrary ranges teachable

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50038471	HRT 96K/P-1631-800-47	0.1 ... 0.8 m 0.1 ... 1.2 m	LED, red	Connector, M12, 4-pin, metal	Switching frequency: 300 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, activation input
50080048	HRT 96M/A-1670-800-44	0.1 ... 0.8 m 0.1 ... 1.2 m	LED, red	Connector, M12, 4-pin, metal	Switching frequency: 300 Hz, multiturn potentiometer, AS-Interface IO
50080047	HRT 96M/P-1630-800-41	0.1 ... 0.8 m 0.1 ... 1.2 m	LED, red	Connector, M12, 4-pin, metal	Switching frequency: 300 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50032127	HRT 96M/P-1636-800-41	0.1 ... 0.8 m 0.1 ... 1.2 m	LED, red	Connector, M12, 4-pin, metal	Switching frequency: 300 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, heating
50025126	HRT 96M/P-1640-800-41	0.1 ... 0.8 m 0.1 ... 1.2 m	LED, red	Connector, M12, 4-pin, metal	Switching frequency: 300 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, time function
50080242	HRT 96K/P-1630-800-41	0.1 ... 0.8 m 0.1 ... 1.2 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 300 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50081464	HRT 96K/P-1640-800-41	0.1 ... 0.8 m 0.1 ... 1.2 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 300 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, time function
50080327	HRT 96K/P-1630-800-21	0.1 ... 0.8 m 0.1 ... 1.2 m	LED, red	Terminal, 4-pin	Switching frequency: 300 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50025124	HRT 96M/P-1640-800-21	0.1 ... 0.8 m 0.1 ... 1.2 m	LED, red	Terminal, 4-pin	Switching frequency: 300 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, time function
50060857	HRT 96M/P-1600-2000-42	0.1 ... 2 m 0.1 ... 2.5 m	LED, infrared	Connector, M12, 4-pin, metal	Switching frequency: 300 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, light switching, DC, multiturn potentiometer, time function
50060858	HRT 96M/P-3604-2000-42	0.1 ... 2 m 0.1 ... 2.5 m	LED, infrared	Connector, M12, 4-pin, metal	Switching frequency: 300 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, light switching, DC, multiturn potentiometer, time function, 2 independent switching points
50113909	HRT 96M/P-1620-1800-41	0.1 ... 1.8 m 0.1 ... 2 m	LED, infrared	Connector, M12, 4-pin, metal	Switching frequency: 100 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, light switching (PNP)/dark switching (NPN), DC, multiturn potentiometer, heating
50105667	HRT 96K/P-1600-1800-41	0.1 ... 1.8 m 0.1 ... 2 m	LED, infrared	Connector, M12, 4-pin, plastic	Switching frequency: 300 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50025112	HRT 96M/A-1660-1200-44	0.1 ... 1.2 m 0.1 ... 1.8 m	LED, infrared	Connector, M12, 4-pin, metal	Switching frequency: 300 Hz, multiturn potentiometer, AS-Interface IO

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50025118	HRT 96M/P-1610-1200-41	0.1 ... 1.2 m 0.1 ... 1.8 m	LED, infrared	Connector, M12, 4-pin, metal	Switching frequency: 300 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, time function
50061102	HRT 96M/P-1620-1200-41	0.1 ... 1.2 m 0.1 ... 1.8 m	LED, infrared	Connector, M12, 4-pin, metal	Switching frequency: 300 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, heating, time function
50025133	HRT 96K/P-1600-1200-41	0.1 ... 1.2 m 0.1 ... 1.8 m	LED, infrared	Connector, M12, 4-pin, plastic	Switching frequency: 300 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50103217	HRT 96K/P-1600.1-1200-41	0.1 ... 1.2 m 0.1 ... 1.8 m	LED, infrared	Connector, M12, 4-pin, plastic	Switching frequency: 300 Hz; Digital switching output 1: transistor, PNP, light/dark reversible, DC, multiturn potentiometer
50103090	HRT 96K/P-1607-1200-49	0.1 ... 1.2 m 0.1 ... 1.8 m	LED, infrared	Connector, M12, 4-pin, plastic	Switching frequency: 300 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50025132	HRT 96K/R-1680-1200-25	0.1 ... 1.2 m 0.1 ... 1.8 m	LED, infrared	Terminal, 5-pin	Switching frequency: 20 Hz; Digital switching output 1: relay, NC/NO, light switching, AC/DC, multiturn potentiometer
50025131	HRT 96K/R-1690-1200-25	0.1 ... 1.2 m 0.1 ... 1.8 m	LED, infrared	Terminal, 5-pin	Switching frequency: 20 Hz; Digital switching output 1: relay, NC/NO, light switching, AC/DC, multiturn potentiometer, time function
50080076	HRT 96M/R-1680-1200-25	0.1 ... 1.2 m 0.1 ... 1.8 m	LED, infrared	Terminal, 5-pin	Switching frequency: 20 Hz; Digital switching output 1: relay, NC/NO, light switching, AC/DC, multiturn potentiometer
50080075	HRT 96M/R-1690-1200-25	0.1 ... 1.2 m 0.1 ... 1.8 m	LED, infrared	Terminal, 5-pin	Switching frequency: 20 Hz; Digital switching output 1: relay, NC/NO, light switching, AC/DC, multiturn potentiometer
50025135	HRT 96K/P-1600-1200-21	0.1 ... 1.2 m 0.1 ... 1.8 m	LED, infrared	Terminal, 4-pin	Switching frequency: 300 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer
50040358	HRT 96M/N-1606-1200-27	0.1 ... 1.2 m 0.1 ... 1.8 m	LED, infrared	Terminal, 4-pin	Switching frequency: 300 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, multiturn potentiometer, heating
50025116	HRT 96M/P-1610-1200-21	0.1 ... 1.2 m 0.1 ... 1.8 m	LED, infrared	Terminal, 4-pin	Switching frequency: 300 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, time function
50025114	HRT 96M/P-1620-1200-21	0.1 ... 1.2 m 0.1 ... 1.8 m	LED, infrared	Terminal, 4-pin	Switching frequency: 300 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, multiturn potentiometer, heating, time function

HRT(I)L 96B

Laser diffuse sensor with large detection range for universal application (visible red light or infrared light). The time lock prevents inadvertent changes to switching points.

Benefits:

- Light propagation time measurement makes use possible under difficult environmental conditions (brightness, light, interfering contours)
- Extremely simple operation, teachable switching points and teach input
- Time lock prevents unintentional changing of the switching points
- Optimized for positioning applications and reliable object detection (e. g. compartment occupation check, shelf positioning, collision protection)
- Diagnostics function
- Sensors in laser class 1 and 2 available

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50115690	HRTL 96B M/66.04S-S12	0.15 ... 25 m 0.1 ... 30 m	Laser, 2, red	Connector, M12, 5-pin, metal	Application: only detects reflective tape; Switching frequency: 10 Hz; Digital switching output 1: transistor, push-pull, dark switching; Digital switching output 2: transistor, push-pull, dark switching, optimized for use with reflective tape, DC, teach button, 2 independent switching points, small light spot (S)
50112862	HRTL 96B M/66.9.03S-S12	0.15 ... 25 m 0.1 ... 30 m	Laser, 2, red	Connector, M12, 5-pin, metal	Switching frequency: 10 Hz; Digital switching output 1: transistor, push-pull, light switching; Digital switching output 2: transistor, push-pull, light switching, DC, teach button, 2 independent switching points, deactivation input, small light spot (S), optimized for large operating ranges
50129077	HRTL 96B M/6.09.06S-S12	0.1 ... 12 m 0.05 ... 12.5 m	Laser, 2, red	Connector, M12, 5-pin, metal	Switching frequency: 10 Hz; Digital switching output 1: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, teach button, small light spot (S), deactivation input
50111815	HRTL 96B M/6.4.02S-S12	0.1 ... 6 m 0.05 ... 6.5 m	Laser, 2, red	Connector, M12, 5-pin, metal	Switching frequency: 10 Hz; Digital switching output 1: transistor, push-pull, light switching, DC, teach button, small light spot (S)
50110990	HRTL 96B M/6.9S-S12	0.1 ... 6 m 0.05 ... 6.5 m	Laser, 2, red	Connector, M12, 5-pin, metal	Switching frequency: 10 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, deactivation input, small light spot (S)
50112803	HRTL 96B M/6.49.02S-S12	0.1 ... 6 m 0.05 ... 6.5 m	Laser, 2, red	Connector, M12, 5-pin, metal	Switching frequency: 10 Hz; Digital switching output 1: transistor, push-pull, light switching, DC, teach button, deactivation input, small light spot (S)
50108889	HRTL 96B M/66.01S-S12	0.1 ... 6 m 0.05 ... 6.5 m	Laser, 2, red	Connector, M12, 5-pin, metal	Switching frequency: 10 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, teach button, 2 independent switching points, small light spot (S)
50113800	HRTL 96B M/66.02S-S12	0.1 ... 6 m 0.05 ... 6.5 m	Laser, 2, red	Connector, M12, 5-pin, metal	Switching frequency: 10 Hz; Digital switching output 1: transistor, push-pull, dark switching; Digital switching output 2: transistor, push-pull, dark switching, DC, teach button, 2 independent switching points, small light spot (S)
50112804	HRTL 96B M/66.01S-S12	0.1 ... 6 m 0.05 ... 6.5 m	Laser, 2, red	Connector, M12, 5-pin, metal	Switching frequency: 10 Hz; Digital switching output 1: transistor, push-pull, light switching; Digital switching output 2: transistor, push-pull, light switching; Digital switching output 3: transistor, push-pull, light switching, DC, teach button, 3 independent switching points, small light spot (S)

Switching sensors

Measuring sensors

Products for safety at work

Identification

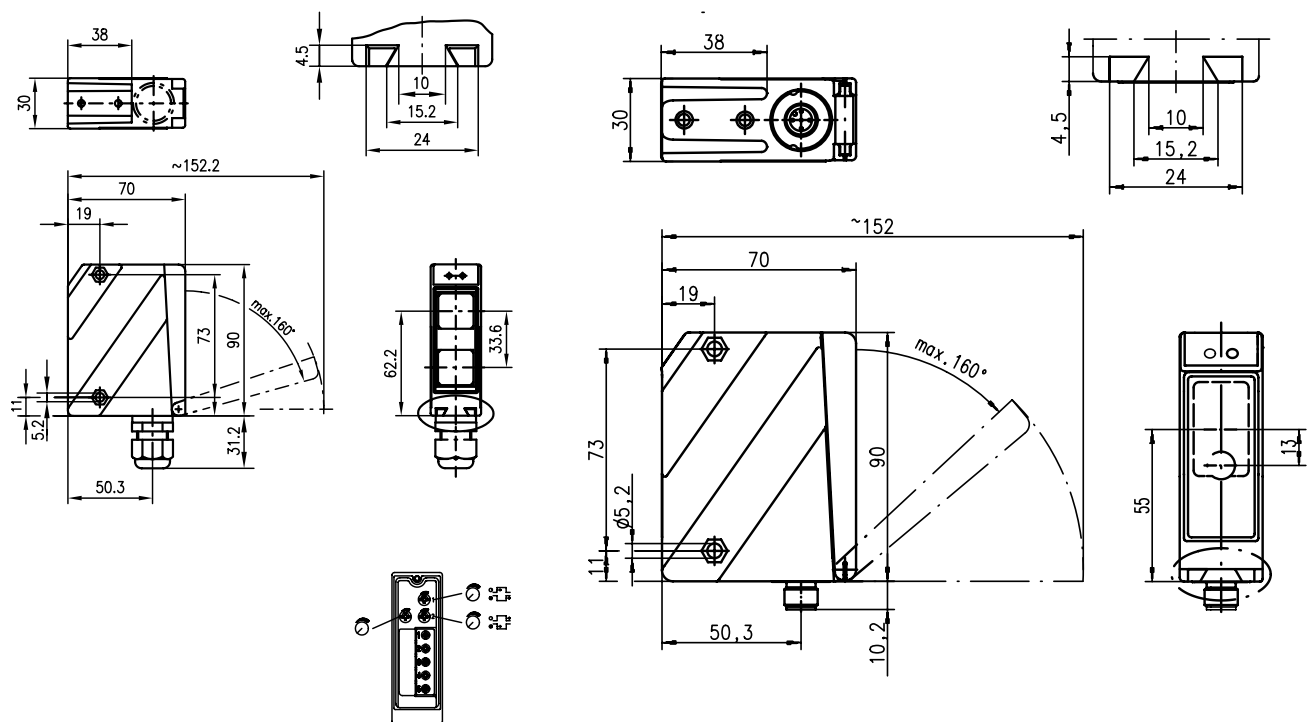
Data transmission / Control components

Industrial image processing

Accessories

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50111208	HRTL 96B M/C66.01S-S12	0.1 ... 6 m 0.05 ... 6.5 m	Laser, 2, red	Connector, M12, 5-pin, metal	Switching frequency: 50 Hz; Digital switching output 1: transistor, push-pull, light switching; Digital switching output 2: transistor, push-pull, light switching, DC, teach button, 2 independent switching points, small light spot (S)
50114306	HRTL 96B M/C66.03S-S12	0.1 ... 6 m 0.05 ... 6.5 m	Laser, 2, red	Connector, M12, 5-pin, metal	Switching frequency: 50 Hz; Digital switching output 1: transistor, push-pull, dark switching; Digital switching output 2: transistor, push-pull, dark switching, DC, teach button, 2 independent switching points, small light spot (S)
50110952	HRTL 96B M/V66.01S-S12	0.1 ... 6 m 0.05 ... 6.5 m	Laser, 2, red	Connector, M12, 5-pin, metal	Switching frequency: 10 Hz; Digital switching output 1: transistor, push-pull, light switching; Digital switching output 2: transistor, push-pull, light switching, DC, teach button, 2 independent switching points, small light spot (S)
50127550	HRTL 96B M/66.01-S12	0.1 ... 1.2 m 0.1 ... 1.2 m	Laser, 2, red	Connector, M12, 5-pin, metal	Switching frequency: 10 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, teach button, extra long light spot (XL), 2 independent switching points
50116678	HRTL 96B M/C66.01.C1S-S12	0.1 ... 6 m 0.05 ... 6.5 m	Laser, 1, red	Connector, M12, 5-pin, metal	Switching frequency: 50 Hz; Digital switching output 1: transistor, push-pull, light switching; Digital switching output 2: transistor, push-pull, light switching, DC, teach button, 2 independent switching points, small light spot (S)
50125111	HRTL 96BM/66.04S-S12	0.15 ... 25 m 0.1 ... 30 m	Laser, 1, infrared	Connector, M12, 5-pin, metal	Application: only detects reflective tape; Switching frequency: 10 Hz; Digital switching output 1: transistor, push-pull, dark switching; Digital switching output 2: transistor, push-pull, dark switching, optimized for use with reflective tape, DC, teach button, 2 independent switching points, small light spot (S)
50115016	HRTL 96B M/66.01S-S12	0.1 ... 6 m 0.05 ... 6.5 m	Laser, 1, infrared	Connector, M12, 5-pin, metal	Switching frequency: 10 Hz; Digital switching output 1: transistor, push-pull, light switching; Digital switching output 2: transistor, push-pull, light switching, DC, teach button, 2 independent switching points, small light spot (S)
50117920	HRTL 96B M/66.03S-S12	0.1 ... 6 m 0.05 ... 6.5 m	Laser, 1, infrared	Connector, M12, 5-pin, metal	Switching frequency: 10 Hz; Digital switching output 1: transistor, push-pull, dark switching; Digital switching output 2: transistor, push-pull, dark switching, DC, teach button, 2 independent switching points, small light spot (S)
50115015	HRTL 96B M/C66.01S-S12	0.1 ... 6 m 0.05 ... 6.5 m	Laser, 1, infrared	Connector, M12, 5-pin, metal	Switching frequency: 10 Hz; Digital switching output 1: transistor, push-pull, light switching; Digital switching output 2: transistor, push-pull, light switching, DC, teach button, 2 independent switching points, small light spot (S)
50126559	HRTL 96BM/C66.02S-S12	0.1 ... 6 m 0.05 ... 6.5 m	Laser, 1, infrared	Connector, M12, 5-pin, metal	Switching frequency: 10 Hz; Digital switching output 1: transistor, push-pull, light switching; Digital switching output 2: transistor, push-pull, dark switching, DC, teach button, small light spot (S), 2 independent switching points

Dimensioned drawings: 96 series



96 series, cable gland

96 series, M12 connector

ACCESSORIES: 96 SERIES

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130694	KD U-M12-4W-P1-050	Connector, M12, angled, female	4-pin	5,000 mm	PUR
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50104762	K-D M12W-5P-5m-PUR	Connector, M12, angled, female	5-pin	5,000 mm	PUR
50104556	K-D M12W-5P-2m-PVC	Connector, M12, angled, female	5-pin	2,000 mm	PVC
50104558	K-D M12W-5P-5m-PVC	Connector, M12, angled, female	5-pin	5,000 mm	PVC
50130657	KD U-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC
50104569	K-D M12A-5P-5m-PUR	Connector, M12, axial, female	5-pin	5,000 mm	PUR
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm	PVC
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50025570	BT 96	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50082084	BT 450.1-96	Mounting system	Screw type	For 10 mm rod	Metal
50026204	UMS 96	Mounting system	Clampable	For 10 mm rod, for 12 mm rod, for 14 mm rod, for 16 mm rod	Metal

Further rod mounts can be found on our website

Reflectors and reflective tapes

Standard reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50081283	TKS 20X40	Rectangular	16 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50023525	TKS 30X50	Rectangular	27 mm × 44 mm	Through-hole mounting, adhesive	Plastic
50022814	TKS 50X50	Rectangular	47 mm × 48 mm	Through-hole mounting, adhesive	Plastic
50022816	TKS 100X100	Rectangular	96 mm × 96 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm

Further standard reflectors can be found on our website

Reflective tapes for standard applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50106119	REF 4-A-100x100	Rectangular	100 mm × 100 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

Reflective tapes for distance sensors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50111527	REF 7-A-100x100	Rectangular	100 mm × 100 mm	Self-adhesive	Plastic





Further reflective tapes can be found on our website

//PHOTOELECTRIC SENSORS/DIFFUSE SENSORS, CYLINDRICAL HOUSING

TO KEEP YOUR PROCESS RUNNING SMOOTHLY

The common characteristic of sensors from this area is their cylindrical design. This facilitates extremely simple and fast mounting in the system.

SELECTION TABLE – Cylindrical series

Series	Dimensions in mm (WxHxD)	Housing material			Operating principle	Typ. operating range limit	Light source			Max. switching frequency	Response time	Special object features			
		Plastic	Metal	Stainless steel			Infrared light	Red light	Laser			Glossy surface (metallic, shrink-wrapped object)	Transparent object (glass, PET, foils)	Small part	
 BR318	M18x50	●	●		Throughbeam sensor	0...120 m		●		5000 Hz	0.1 ms				●
					Retro-reflective sensor	0.02...15 m		●	●	5000 Hz	0.1 ms				●
					Energetic diffuse sensor	0...1000 mm		●		5000 Hz	0.1 ms				●
					Diff. refl. sensor with backgr. suppr.	1...140 mm		●		1000 Hz	0.5 ms				
					Diffuse sensor with fading	0...280 mm		●		500 Hz	1 ms				
 BR328	M18x46			●	Throughbeam sensor	0...15 m		●		500 Hz	1 ms				
					Retro-reflective sensor	0.02...6 m		●		500 Hz	1 ms				
					Energetic diffuse sensor	1...1000 mm		●		500 Hz	1 ms				
					Diffuse sensor with fading	1...280 mm		●		500 Hz	1 ms				
 BR412	M12x55	●			Throughbeam sensor	0...8 m		●		500 Hz	1 ms				
					Retro-reflective sensor	0.05...1.6 m		●		700 Hz	0.7 ms				
					Energetic diffuse sensor	0...400 mm		●		700 Hz	0.7 ms				
 BR618	M18x60	●			Throughbeam sensor	0...12 m	●			500 Hz	1 ms				
					Retro-reflective sensor	0...7 m		●		500 Hz	1 ms				
					Energetic diffuse sensor	0...300 mm	●			500 Hz	1 ms				

/// 318 plastic series



Our 318B series of photoelectric sensors is proof that affordable and functional do not have to be a contradiction in terms. A robust plastic sleeve, reliable detection behavior and the intelligent omni-mount mounting process for M18 hole mounting make these sensors the first choice for standard detection tasks in many areas of application.



Direct access to the online product selector at www.leuze.com/en/br318-k

Throughbeam sensors

The photoelectric sensors of this series offer a high function reserve and are suited for use in rough, industrial environments.

L318B

The L318B throughbeam photoelectric sensor offers simple alignment with its optimized beam geometry. It is also suitable for the simple detection of flat objects. Deactivation inputs enable testing of the sensor. The simple fine adjustment with omni-mount, the embedded mounting option and variants with axial and angled optics round out the portfolio.

Benefits:

- High function reserve
- Simple alignment by means of optimized beam geometry
- Simple detection of flat objects

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50116853	► LS318B/9D-M12	0 ... 10 m 0 ... 15 m	LED, red	Connector, M12, 4-pin, plastic	DC, deactivation input
50116845	◄ LE318B/2N-M12			Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50116847	◄ LE318B/4P-M12			Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50122549	◄ LE318B/PX-M12			Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, dark switching, DC
50116852	► LS318B/9D	0 ... 10 m 0 ... 15 m	LED, red	Cable, 2,000 mm, 4-wire	DC, deactivation input
50116844	◄ LE318B/2N			Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50116846	◄ LE318B/4P			Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50126605	► LS318B.Y1	0 ... 9.4 m 0 ... 14.2 m	LED, red	Connector, M12, 4-pin, plastic	DC, deactivation input, small light spot (S)
50116845	◄ LE318B/2N-M12			Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50116847	◄ LE318B/4P-M12			Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50122549	◄ LE318B/PX-M12			Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, dark switching, DC
50116855	► LS318B.W/9D-M12	0 ... 5.5 m 0 ... 8 m	LED, red	Connector, M12, 4-pin, plastic	DC, deactivation input, 90 ° angular optics
50116849	◄ LE318B.W/2N-M12			Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, 90 ° angular optics
50116851	◄ LE318B.W/4P-M12			Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 90 ° angular optics
50116854	► LS318B.W/9D	0 ... 5.5 m 0 ... 8 m	LED, red	Cable, 2,000 mm, 4-wire	DC, deactivation input, 90 ° angular optics
50116848	◄ LE318B.W/2N			Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, 90 ° angular optics
50116850	◄ LE318B.W/4P			Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 90 ° angular optics
50129507	► LS318B/9D-M12	0 ... 16 m 0 ... 23 m	LED, infrared	Connector, M12, 4-pin, plastic	DC, deactivation input
50116845	◄ LE318B/2N-M12			Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50116847	◄ LE318B/4P-M12			Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50122549	◄ LE318B/PX-M12			Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, dark switching, DC
50116844	◄ LE318B/2N			Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50116846	◄ LE318B/4P			Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC

► transmitter / ◄ receiver

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

Retro-reflective sensors

Through the use of polarized light, these photoelectric sensors can even reliably detect objects with glossy surfaces.

PRK318B

Reliable suppression of direct reflections through polarization filter and optimized beam path for fast commissioning.
The simple fine adjustment with omni-mount, the embedded mounting option and variants with axial and angled optics round out the portfolio.

Benefits:

- High function reserve
- Safe suppression of direct reflection due to polarization filter
- Series connection possible (Daisy Chain)

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50116857	PRK318B/2N-M12	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50116859	PRK318B/4P-M12	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50116856	PRK318B/2N	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50116858	PRK318B/4P	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50116861	PRK318B.W/2N-M12	0.02 ... 4 m 0.02 ... 5 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, 90 ° angular optics
50116863	PRK318B.W/4P-M12	0.02 ... 4 m 0.02 ... 5 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 90 ° angular optics
50116860	PRK318B.W/2N	0.02 ... 4 m 0.02 ... 5 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, 90 ° angular optics
50116862	PRK318B.W/4P	0.02 ... 4 m 0.02 ... 5 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 90 ° angular optics

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

Energetic diffuse sensor

These sensors perform detection directly on an object and require no reflector. Versions are available that have been optimized for various distances.

ET318B / FT318B

These sensors facilitate robust object detection for homogeneous or similar objects. Through the simple sensitivity adjustment with 2-level teach (object/background), they are particularly flexible in use. The sensors with visible red light feature the A²LS active ambient light suppression and easy alignment through brightly visible brightVision® light spot. For greater color independence of the objects, also available with infrared.

Benefits:

- Energetic diffuse reflection sensor with light/dark switching
- Range adjustment via teach-in
- Axial and 90 ° light beam gate for flexible integration
- Simple fine adjustment with omni-mount
- Embedded mounting option
- Full control through green and yellow indicator LEDs and complementary outputs
- Robust plastic housing acc. to IP 67 for industrial application

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50122556	FT318B.3/2N-M12	0.001 ... 0.215 m 0 ... 0.28 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, fading
50122554	FT318B.3/4P-M12	0.001 ... 0.215 m 0 ... 0.28 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, fading
50122557	FT318B.3/2N	0.001 ... 0.215 m 0 ... 0.28 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, fading
50122555	FT318B.3/4P	0.001 ... 0.215 m 0 ... 0.28 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, fading
50122560	ET318B.W3/2N-M12	0.005 ... 0.35 m 0.001 ... 0.45 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, 90 ° angular optics
50122558	ET318B.W3/4P-M12	0.005 ... 0.35 m 0.001 ... 0.45 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, 90 ° angular optics
50122561	ET318B.W3/2N	0.005 ... 0.35 m 0.001 ... 0.45 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, 90 ° angular optics
50122559	ET318B.W3/4P	0.005 ... 0.35 m 0.001 ... 0.45 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, 90 ° angular optics

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50122564	ET318B.3/2N-M12	0.001 ... 0.7 m 0 ... 1 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button
50122562	ET318B.3/4P-M12	0.001 ... 0.7 m 0 ... 1 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button
50122565	ET318B.3/2N	0.001 ... 0.7 m 0 ... 1 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button
50122563	ET318B.3/4P	0.001 ... 0.7 m 0 ... 1 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button
50122552	FT318B.W3/2N-M12	0.002 ... 0.1 m 0 ... 0.12 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, fading, 90 ° angular optics
50122550	FT318B.W3/4P-M12	0.002 ... 0.1 m 0 ... 0.12 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, fading, 90 ° angular optics
50122553	FT318B.W3/2N	0.002 ... 0.1 m 0 ... 0.12 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, fading, 90 ° angular optics
50122551	FT318B.W3/4P	0.002 ... 0.1 m 0 ... 0.12 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, fading, 90 ° angular optics
50127997	FT318BI.3/2N-M12	0.001 ... 0.215 m 0 ... 0.28 m	LED, infrared	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, fading
50126608	FT318BI.3/2N	0.001 ... 0.215 m 0.001 ... 0.28 m	LED, infrared	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, fading
50126609	FT318BI.3/4P	0.001 ... 0.215 m 0.001 ... 0.28 m	LED, infrared	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, fading
50127999	ET318BI.3/2N-M12	0.001 ... 0.7 m 0.001 ... 1 m	LED, infrared	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button
50127998	ET318BI.3/4P-M12	0.001 ... 0.7 m 0.001 ... 1 m	LED, infrared	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button
50127996	FT318BI.3/4P-M12	0.001 ... 0.7 m 0.001 ... 1 m	LED, infrared	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, fading
50126606	ET318BI.3/2N	0.001 ... 0.7 m 0.001 ... 1 m	LED, infrared	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button
50126607	ET318BI.3/4P	0.001 ... 0.7 m 0.001 ... 1 m	LED, infrared	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button
50127929	ET318BI-400F.3/2N	0.001 ... 0.4 m 0.001 ... 0.4 m	LED, infrared	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, permanently set range
50127928	FT318BI-100F.3/2N	0.001 ... 0.1 m 0.001 ... 0.1 m	LED, infrared	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, fading, permanently set range

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Diffuse sensors with background suppression

These diffuse reflection sensors with background suppression and highly visible red light spot are well-suited for detection of fast events thanks to their high switching frequency.

HRTR 318

Diffuse sensors with very short, robust housing with straight optics and active ambient light suppression.

Benefits:

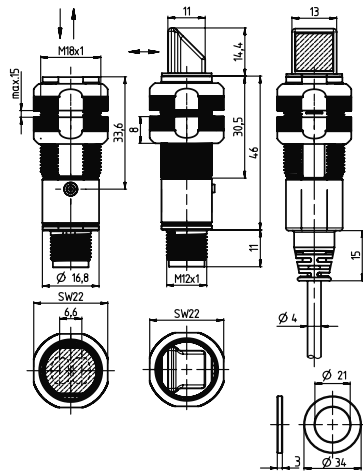
- Exact background suppression, electronically adjustable
- Nearly color-independent object detection
- Clearly visible red light spot
- High switching frequency for detection of fast events
- A²LS – Active Ambient Light Suppression
- Very short, robust cylindrical stainless steel or plastic housing with straight optics

Data transmission /
Control componentsIndustrial image
processing

Accessories

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50106085	HRTR 318K/66-120-S12	0.001 ... 0.12 m 0.001 ... 0.14 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer
50106089	HRTR 318K/66-120	0.001 ... 0.12 m 0.001 ... 0.14 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer

Dimensioned drawings: 318 plastic series



318B series, plastic housing

ACCESSORIES: 318 PLASTIC SERIES

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130692	KD U-M12-4W-P1-020	Connector, M12, angled, female	4-pin	2,000 mm	PUR
50130694	KD U-M12-4W-P1-050	Connector, M12, angled, female	4-pin	5,000 mm	PUR
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50130654	KD U-M12-4A-P1-020	Connector, M12, axial, female	4-pin	2,000 mm	PUR
50130657	KD U-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50113548	BT D18M.5	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel
50117257	BT D21M	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117490	BTU D18M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	Through-hole mounting	Metal

Further rod mounts can be found on our website

Reflectors and reflective tapes

Standard reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50024127	TK 82.2	Round	79 mm	Through-hole mounting, adhesive	Plastic
50081283	TKS 20X40	Rectangular	16 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50023525	TKS 30X50	Rectangular	27 mm × 44 mm	Through-hole mounting, adhesive	Plastic
50040820	TKS 40X60	Rectangular	37 mm × 56 mm	Through-hole mounting, adhesive	Plastic
50022816	TKS 100X100	Rectangular	96 mm × 96 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm

Further standard reflectors can be found on our website

Reflective tapes for standard applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50108300	REF 4-A-50x50	Rectangular	50 mm × 50 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

/// 318 metal series



The stainless steel metal housing and the range of models make these sensors from the 318 series interesting for all customers who are looking for a sensor program with sturdy mounting and metal nuts in challenging applications.



Direct access to the online product selector at www.leuze.com/en/br318-m

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

Throughbeam sensors

Throughbeam photoelectric sensors with long operating range in red laser light and straight optics.

LS(L) 318

Throughbeam photoelectric laser sensors in stainless steel housing in cylindrical M18 design.

Benefits:

- Sensitivity adjustment via potentiometer
- Fixed beam geometry, convergent
- Activation input for testing and interlinking of the sensor
- Complementary switching outputs for light/dark switching or as a control function

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50083172	► LSSL 318M-S12		Laser, 1, red	Connector, M12, 4-pin, plastic	DC, 270 ° potentiometer, deactivation input
50083176	◄ LSEL 318M/P-S12	0 ... 100 m 0 ... 120 m		Connector, M12, 4-pin, plastic	Switching frequency: 5,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50083180	◄ LSEL 318M/P-B5-S12	0 ... 15 m 0 ... 18 m		Connector, M12, 4-pin, plastic	Switching frequency: 5,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50083171	► LSSL 318M		Laser, 1, red	Cable, 2,000 mm, 4-wire	DC, 270 ° potentiometer, deactivation input
50083175	◄ LSEL 318M/P	0 ... 100 m 0 ... 120 m		Cable, 2,000 mm, 4-wire	Switching frequency: 5,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50083179	◄ LSEL 318M/P-B5	0 ... 15 m 0 ... 18 m		Cable, 2,000 mm, 4-wire	Switching frequency: 5,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC

► transmitter / ◄ receiver

Retro-reflective sensors

Polarized retro-reflective photoelectric sensors with straight optics and very short construction for application in limited spaces.

PRKL 318

Polarized and unpolarized laser retro-reflective photoelectric sensors in sturdy stainless steel housing in cylindrical M18 design. LED and laser devices are available.

Benefits:

- Sturdy cylindrical stainless steel housing M18x1, degree of protection IP 67 for industrial application
- Sensitivity adjustment via potentiometer
- Fixed beam geometry, convergent
- Complementary switching outputs for light/dark switching or as a control function

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50083184	PRKL 318M/P-S12	0.15 ... 11 m 0.12 ... 15 m	Laser, 1, red	Connector, M12, 4-pin, plastic	Switching frequency: 5,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer
50083183	PRKL 318M/P	0.15 ... 11 m 0.12 ... 15 m	Laser, 1, red	Cable, 2,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

Energetic diffuse sensor

Energetic diffuse reflection sensor with straight optics for application in limited spaces.

RTL 318

Energetic diffuse sensor in cylindrical M18 design.

Benefits:

- Sensitivity adjustment via potentiometer
- Fixed beam geometry, convergent
- Complementary switching outputs for light/dark switching or as a control function

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50083188	RTL 318M/P-300-S12	0 ... 0.3 m 0 ... 0.35 m	Laser, 2, red	Connector, M12, 4-pin, plastic	Switching frequency: 5,000 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 270 ° potentiometer

Diffuse sensors with background suppression

Diffuse reflection sensors with background suppression and straight optics.

HRTR 318

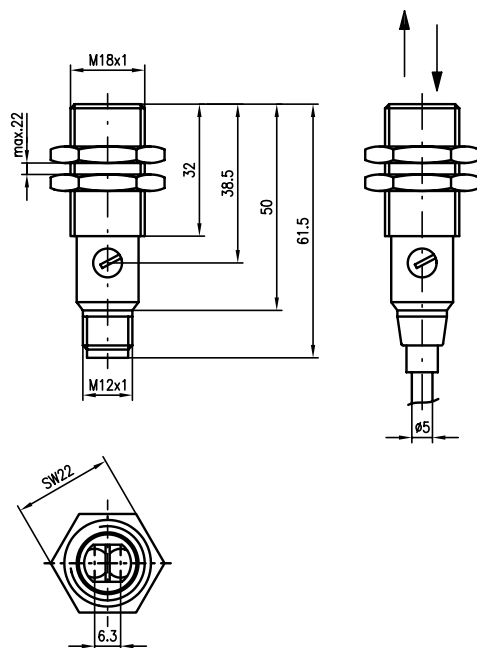
Diffuse sensors with background suppression and highly visible red light spot in cylindrical M18 design for nearly color-independent object detection.

Benefits:

- Exact background suppression, electronically adjustable
- Nearly color-independent object detection
- Clearly visible red light spot
- A²LS – Active Ambient Light Suppression

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50106086	HRTR 318M/66-120-S12	0.001 ... 0.12 m 0.001 ... 0.14 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer
50106090	HRTR 318M/66-120	0.001 ... 0.12 m 0.001 ... 0.14 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer

Dimensioned drawings: 318 metal series



318 series, metal housing

ACCESSORIES: 318 METAL SERIES

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130692	KD U-M12-4W-P1-020	Connector, M12, angled, female	4-pin	2,000 mm	PUR
50130694	KD U-M12-4W-P1-050	Connector, M12, angled, female	4-pin	5,000 mm	PUR
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50130654	KD U-M12-4A-P1-020	Connector, M12, axial, female	4-pin	2,000 mm	PUR
50130657	KD U-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50113548	BT D18M.5	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117490	BTU D18M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	Through-hole mounting	Metal

Further rod mounts can be found on our website

Reflectors and reflective tapes

Standard reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50081283	TKS 20X40	Rectangular	16 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50023525	TKS 30X50	Rectangular	27 mm × 44 mm	Through-hole mounting, adhesive	Plastic
50040820	TKS 40X60	Rectangular	37 mm × 56 mm	Through-hole mounting, adhesive	Plastic
50022816	TKS 100X100	Rectangular	96 mm × 96 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm

Further standard reflectors can be found on our website

Micro-triad-type reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50117583	MTKS 50x50.1	Rectangular	50 mm × 50 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm

Further micro-triad-type reflectors can be found on our website

Reflective tapes for standard applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50106119	REF 4-A-100x100	Rectangular	100 mm × 100 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

Reflective tapes for laser and clear-glass applications

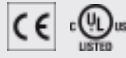
Part no.	Part description	Design	Reflective surface	Fastening	Material
50123899	REF 6-A-9x9	Rectangular	9 mm × 9 mm	Self-adhesive	Plastic
50123861	REF 6-A-14x45	Rectangular	15 mm × 45 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

/// 328 series



The 328 series photoelectric sensor family unifies the sturdiness of a stable stainless steel metal thread in the plastic housing with high functionality, all at a low price. With their reliable detection behavior, the versatile mounting options thanks to extensive accessories and models with axial and angled optics, these sensors are the perfect choice for standard detection tasks in many challenging areas of application.



Direct access to the online product selector at www.leuze.com/en/br328

Throughbeam sensors

The photoelectric sensors of this series offer a high function reserve and are suited for use in industrial environments with their metal thread in the plastic housing.

L328

The L328 throughbeam photoelectric sensor in the sturdy plastic housing with metal thread simplifies alignment thanks to optimized beam geometry. It is also suitable for the simple detection of flat objects. The simple fine adjustment and deactivation inputs for testing the sensor round out the portfolio of these sensors.

Benefits:

- High function reserve
- Simple alignment by means of optimized beam geometry
- Simple detection of flat objects

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50122702	► LS328/9D-M12	0 ... 10 m 0 ... 15 m	LED, red	Connector, M12, 4-pin, plastic	DC, deactivation input
50122711	◄ LE328/2N-M12			Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50122709	◄ LE328/4P-M12			Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50122699	► LS328/XX-M12	0 ... 10 m 0 ... 15 m	LED, red	Connector, M12, 4-pin, plastic	DC
50122708	◄ LE328/4X-M12			Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching, DC
50122703	► LS328/9D	0 ... 10 m 0 ... 15 m	LED, red	Cable, 2,000 mm, 4-wire	DC, deactivation input
50122712	◄ LE328/2N			Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC
50122710	◄ LE328/4P			Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC
50122700	► LS328.W/9D-M12	0 ... 5.5 m 0 ... 8 m	LED, red	Connector, M12, 4-pin, plastic	DC, 90 ° angular optics, deactivation input
50122706	◄ LE328.W/2N-M12			Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, 90 ° angular optics
50122704	◄ LE328.W/4P-M12			Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 90 ° angular optics
50122701	► LS328.W/9D	0 ... 5.5 m 0 ... 8 m	LED, red	Cable, 2,000 mm, 4-wire	DC, 90 ° angular optics, deactivation input
50122707	◄ LE328.W/2N			Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, 90 ° angular optics
50122705	◄ LE328.W/4P			Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, 90 ° angular optics

► transmitter / ◄ receiver

Retro-reflective sensor

These retro-reflective photoelectric sensors with metal thread can reliably detect objects even with glossy surfaces through the use of polarized light.

PRK328

Reliable blanking of direct reflections by the polarization filter, an optimized beam path for quick commissioning and simple fine adjustment (teach) characterize these sensors in the sturdy plastic housings with metal thread.

Benefits:

- High function reserve
- Safe suppression of direct reflection due to polarization filter
- Sensitivity adjustment by means of teach button
- Series connection possible (Daisy Chain)

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50122697	PRK328.3/2N-M12	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button
50122695	PRK328.3/4P-M12	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button
50122698	PRK328.3/2N	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button
50122696	PRK328.3/4P	0.02 ... 4.5 m 0.02 ... 6 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button
50122691	PRK328.W3/2N-M12	0.02 ... 4 m 0.02 ... 5 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, 90 ° angular optics
50122689	PRK328.W3/4P-M12	0.02 ... 4 m 0.02 ... 5 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, 90 ° angular optics
50122694	PRK328.W3/2N	0.02 ... 4 m 0.02 ... 5 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, 90 ° angular optics
50122690	PRK328.W3/4P	0.02 ... 4 m 0.02 ... 5 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, 90 ° angular optics

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

Energetic diffuse sensor

These sturdy sensors with metal thread in the plastic housing perform detection directly on an object and do not require a reflector. Versions are available for various distances as well as specifically for the paper industry. For even easier use, available with preset ranges.

ET328 / FT328

These red light sensors in the sturdy plastic housing with metal thread facilitate robust object detection. The simple adjustment to the object through the teach button with two levels makes installation a piece of cake. These sensors feature the A²LS active ambient light suppression and easy alignment through brightly visible brightVision® light spot. Also available with preset range and infrared light for higher color independence.

Benefits:

- Energetic diffuse reflection sensor with light/dark switching
- Range adjustment via teach-in
- Preset ranges (FT 100 mm/ET 400 mm) for easier use
- Axial and 90 ° light beam gate for flexible integration
- Sturdy plastic housing with stainless steel threaded sleeve with cylindrical M18 design
- Full control through green and yellow indicator LEDs and complementary outputs
- High color independence
- Special model available for paper label detection

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50122719	FT328.3/2N-M12	0.001 ... 0.215 m 0.001 ... 0.28 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, fading
50122717	FT328.3/4P-M12	0.001 ... 0.215 m 0.001 ... 0.28 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, fading, permanently set range
50122720	FT328.3/2N	0.001 ... 0.215 m 0.001 ... 0.28 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, fading
50122718	FT328.3/4P	0.001 ... 0.215 m 0.001 ... 0.28 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, fading
50122724	ET328.W3/2N-M12	0.005 ... 0.35 m 0.001 ... 0.45 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, NPN, light switching; Digital switching output 2: transistor, NPN, dark switching, DC, teach button, 90 ° angular optics
50122721	ET328.W3/4P-M12	0.005 ... 0.35 m 0.001 ... 0.45 m	LED, red	Connector, M12, 4-pin, plastic	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, dark switching, DC, teach button, 90 ° angular optics

Technical drawing of a 1/2 inch NPT female plug. The drawing includes three main views: a front view, a side view, and a top view. Dimensions are provided in millimeters (mm).

- Front View (Left):** Shows the plug with a hexagonal head. The head has a diameter of 11 mm. The plug has a threaded section with a length of 14.5 mm. The total length of the plug is 33.5 mm. The hexagonal head has a width of 19 mm. The plug has a maximum length of 9 mm. The plug has a hexagonal head with a diameter of 11 mm. The plug has a hexagonal head with a diameter of 11 mm. The plug has a hexagonal head with a diameter of 11 mm.
- Side View (Middle):** Shows the plug with a hexagonal head. The head has a diameter of 11 mm. The plug has a threaded section with a length of 14.5 mm. The total length of the plug is 33.5 mm. The hexagonal head has a width of 19 mm. The plug has a maximum length of 9 mm. The plug has a hexagonal head with a diameter of 11 mm. The plug has a hexagonal head with a diameter of 11 mm. The plug has a hexagonal head with a diameter of 11 mm.
- Top View (Right):** Shows the plug with a hexagonal head. The head has a diameter of 11 mm. The plug has a threaded section with a length of 14.5 mm. The total length of the plug is 33.5 mm. The hexagonal head has a width of 19 mm. The plug has a maximum length of 9 mm. The plug has a hexagonal head with a diameter of 11 mm. The plug has a hexagonal head with a diameter of 11 mm. The plug has a hexagonal head with a diameter of 11 mm.

© Leuze electronic GmbH + Co. KG

ACCESSORIES: 328 SERIES

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130692	KD U-M12-4W-P1-020	Connector, M12, angled, female	4-pin	2,000 mm	PUR
50130694	KD U-M12-4W-P1-050	Connector, M12, angled, female	4-pin	5,000 mm	PUR
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50130654	KD U-M12-4A-P1-020	Connector, M12, axial, female	4-pin	2,000 mm	PUR
50130657	KD U-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50113548	BT D18M.5	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel
50117257	BT D21M	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117490	BTU D18M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	Through-hole mounting	Metal

Further rod mounts can be found on our website

Reflectors and reflective tapes

Standard reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50024127	TK 82.2	Round	79 mm	Through-hole mounting, adhesive	Plastic
50081283	TKS 20X40	Rectangular	16 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50023525	TKS 30X50	Rectangular	27 mm × 44 mm	Through-hole mounting, adhesive	Plastic
50040820	TKS 40X60	Rectangular	37 mm × 56 mm	Through-hole mounting, adhesive	Plastic
50022816	TKS 100X100	Rectangular	96 mm × 96 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm

Further standard reflectors can be found on our website

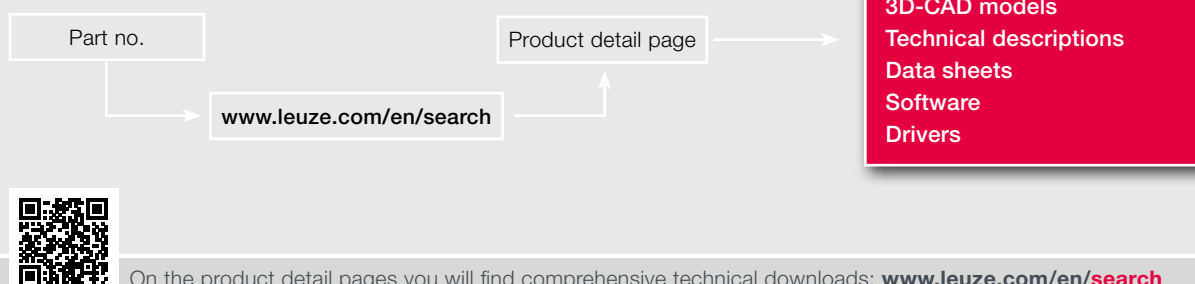
Reflective tapes for standard applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50108300	REF 4-A-50x50	Rectangular	50 mm × 50 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

SMARTER CUSTOMER SERVICE

The quickest way to find matching accessories and technical downloads:



/// 412 series

The extremely compact M12 design of the 412 series opens many interesting applications, e. g., in assembly and handling technology or packaging technology.



Direct access to the online product selector at www.leuze.com/en/br412

Throughbeam sensors

Short and compact throughbeam photoelectric sensors with visible red light.

LS 412

Throughbeam photoelectric sensors with visible red light in cylindrical M12 design.

Benefits:

- Slim and short cylindrical metal housing M12
- Sensitivity adjustment for optimum adaptation to the application
- Light/dark switching via control cable

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50081431	SET LS 412M/P-S12	0 ... 6 m 0 ... 8 m	LED, red	Connector, M12, 4-pin, metal	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light/dark reversible, DC, 270 ° potentiometer, article set
50081432	LS 412M/P	0 ... 6 m 0 ... 8 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light/dark reversible, DC, 270 ° potentiometer

Both products consist of transmitter and receiver

Retro-reflective sensors

Short and compact retro-reflective photoelectric sensors with visible red light and polarization filter.

PRK 412

Retro-reflective photoelectric sensor in slim metal housing is well-suited for detection of fast events thanks to the high switching frequency.

Benefits:

- High switching frequency for detection of fast events
- Slim and short cylindrical metal housing M12
- Light/dark switching via control cable

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50081407	PRK 412M/P-S12	0.15 ... 1.3 m 0.15 ... 1.6 m	LED, red	Connector, M12, 4-pin, metal	Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, light/dark reversible, DC, 270 ° potentiometer
50081408	PRK 412M/P	0.15 ... 1.3 m 0.15 ... 1.6 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, light/dark reversible, DC, 270 ° potentiometer

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

Energetic diffuse sensor

Short and compact energetic diffuse sensors with visible red light.

RT 412

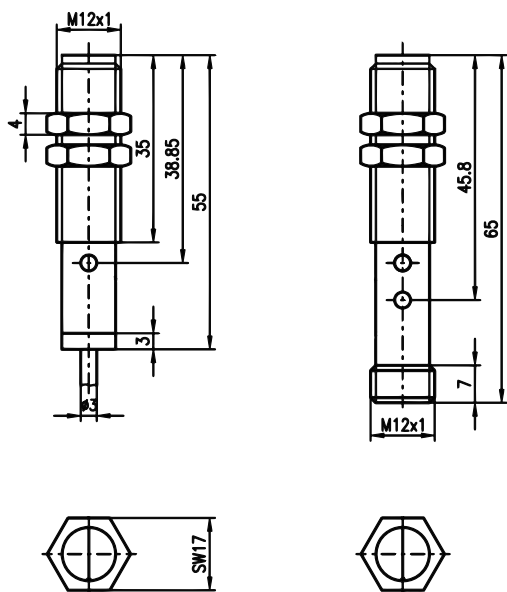
Energetic retro-reflective photoelectric sensor with visible red light in cylindrical M12 design for detection of fast events.

Benefits:

- High switching frequency for detection of fast events
- Slim and short cylindrical metal housing M12
- Light/dark switching via control cable

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50081409	RT 412M/P-200-S12	0 ... 0.2 m 0 ... 0.4 m	LED, red	Connector, M12, 4-pin, metal	Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, light/dark reversible, DC, 270 ° potentiometer
50081410	RT 412M/P-200	0 ... 0.2 m 0 ... 0.4 m	LED, red	Cable, 2,000 mm, 4-wire	Switching frequency: 700 Hz; Digital switching output 1: transistor, PNP, light/dark reversible, DC, 270 ° potentiometer

Dimensioned drawings: 412 series



412 series

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

ACCESSORIES: 412 SERIES

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130692	KD U-M12-4W-P1-020	Connector, M12, angled, female	4-pin	2,000 mm	PUR
50130694	KD U-M12-4W-P1-050	Connector, M12, angled, female	4-pin	5,000 mm	PUR
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50130654	KD U-M12-4A-P1-020	Connector, M12, axial, female	4-pin	2,000 mm	PUR
50130657	KD U-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50113549	BT D12M.5	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel

Further mounting brackets can be found on our website

Reflectors

Standard reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50081283	TKS 20X40	Rectangular	16 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50023525	TKS 30X50	Rectangular	27 mm × 44 mm	Through-hole mounting, adhesive	Plastic
50022816	TKS 100X100	Rectangular	96 mm × 96 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further standard reflectors can be found on our website

/// 618 series

With its full-metal housing, this M18 design makes no compromises in terms of maximum robustness.



Direct access to the online product selector at www.leuze.com/en/br618

Throughbeam sensors

Sturdy throughbeam photoelectric sensors with infrared light.

LS 618

Throughbeam photoelectric sensors with infrared light and light/dark switching via control cable.

Benefits:

- Sturdy metal housing in cylindrical M18 design
- Sensitivity adjustment for optimum adaptation to the application
- Dual LED display for easy commissioning
- M12 connector for fast installation

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50038451	SET LS 618/4-S12	0 ... 10 m 0 ... 12 m	LED, infrared	Connector, M12, 4-pin, metal	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light/dark reversible, DC, 270 ° potentiometer, article set

Set consists of transmitter and receiver

Retro-reflective sensors

Retro-reflective photoelectric sensors with red light in sturdy metal housing.

PRK 618

Retro-reflective photoelectric sensor with light/dark switching via control cable.

Benefits:

- Sturdy metal housing in cylindrical M18 design
- Sensitivity adjustment for optimum adaptation to the application
- Dual LED display for easy commissioning
- M12 connector for fast installation

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50038450	PRK 618/4-S12	0 ... 5 m 0 ... 7 m	LED, red	Connector, M12, 4-pin, metal	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light/dark reversible, DC, 270 ° potentiometer

Detailed information on operating ranges in combination with reflectors can be found in the respective data sheet (online)

Energetic diffuse sensor

Energetic diffuse sensor with infrared light in sturdy metal housing.

RT 618

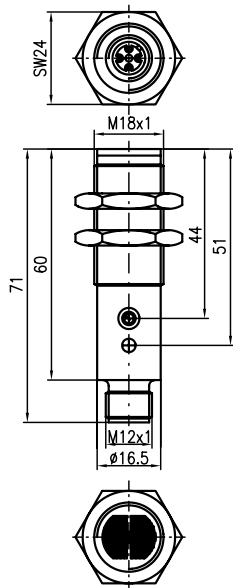
Energetic diffuse reflection sensor with light/dark switching via control cable.

Benefits:

- Sturdy metal housing in cylindrical M18 design
- Sensitivity adjustment for optimum adaptation to the application
- Dual LED display for easy commissioning
- M12 connector for fast installation

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description
50038449	RT 618/4-200-S12	0 ... 0.2 m 0 ... 0.3 m	LED, infrared	Connector, M12, 4-pin, metal	Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light/dark reversible, DC, 270 ° potentiometer

Dimensioned drawings: 618 series



618 series

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

ACCESSORIES: 618 SERIES

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130692	KD U-M12-4W-P1-020	Connector, M12, angled, female	4-pin	2,000 mm	PUR
50130694	KD U-M12-4W-P1-050	Connector, M12, angled, female	4-pin	5,000 mm	PUR
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50130654	KD U-M12-4A-P1-020	Connector, M12, axial, female	4-pin	2,000 mm	PUR
50130657	KD U-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

Reflectors

Standard reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50081283	TKS 20X40	Rectangular	16 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50023525	TKS 30X50	Rectangular	27 mm × 44 mm	Through-hole mounting, adhesive	Plastic
50022816	TKS 100X100	Rectangular	96 mm × 96 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further standard reflectors can be found on our website

//SENSORS FOR POTENTIALLY EXPLOSIVE AREAS

DETECT WITHOUT RISK

The use of optoelectronic sensors in potentially explosive areas requires specially protected devices. Our extensive product line offers powerful sensors in all common technologies.

/// 92 series



The 92 Ex series sensors are available as diffuse reflection sensors, retro-reflective photoelectric sensors or throughbeam photoelectric sensors and reliably detect objects at distances of 300 mm up to 12 m. The intrinsically safe sensors transmit switching signals to the VS 403 isolated switching amplifier by way of the NAMUR interface. The temperature class for explosive gas areas is T6; for explosive dust areas it is 80 °C.



Benefits:

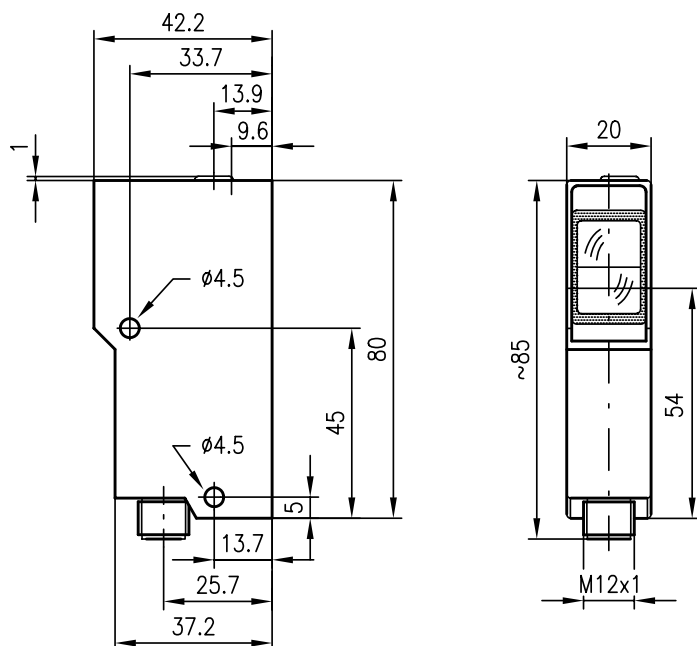
- Compact construction with robust diecast zinc housing and glass optics for protection against environmental influences
- Switching output acc. to IEC 60947-5-6 (NAMUR)
- EU type examination certificate DMT 03 ATEX E 029 for zone 1/21
- Large range from 0.3 to 12 m



Direct access to the online product selector at www.leuze.com/en/br92-ex

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description	Ex device category Ex-zone
50080723	PRK 92/3 L Ex	0.2 ... 5 m 0.2 ... 5 m	LED, red	Connector, M12, 4-pin, metal	Polarized retro-reflective photoelectric sensor; Switching frequency: 60 Hz, DC, Ex-protected, NAMUR	2/1/21
50080724	FRK 92/3-300 L Ex	0.03 ... 0.3 m 0.03 ... 0.3 m	LED, red	Connector, M12, 4-pin, metal	Diffuse sensor with background suppression; Switching frequency: 60 Hz, DC, Ex-protected, NAMUR	2/1/21

Dimensioned drawings: 92 series



92 Ex series

ACCESSORIES: 92 EX SERIES

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50037784	BK7 KB-092-5000-4 Ex	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50037783	BK7 KB-092-5000-4A Ex	Connector, M12, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50018415	BT 92	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Reflectors

Standard reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50003186	TK 60	Round	55 mm	Through-hole mounting	Plastic
50023525	TKS 30X50	Rectangular	27 mm x 44 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further standard reflectors can be found on our website

/// 55 series



The sensors are developed for all category 3G and 3D applications. With their small dimensions, they fit even in constrained spaces. The sensors and the protective housing are made of stainless steel and are also suitable for demanding operating conditions. Currently available are retro-reflective photoelectric sensors and diffuse sensors with background suppression. The temperature class for explosive gas areas is T4; for explosive dust areas it is 70 °C.



Benefits:

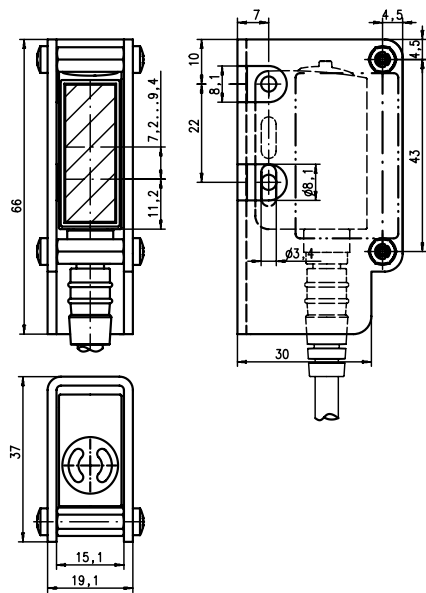
- Diffuse reflection sensor with visible red light and adjustable background suppression
- Stainless steel device housing and protective housing
- Exact range adjustment via 8-turn potentiometer
- Very good black/white behavior and reliable switching nearly independent of the object or background properties
- Fast alignment through brightVision®
- A²LS – Active Ambient Light Suppression



Direct access to the online product selector at www.leuze.com/en/br55-ex

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description	Ex device category Ex-zone
50119364	PRK 55/6.42-S8 Ex	0 ... 3 m 0 ... 3.5 m	LED, red	Connector, M8, 4-pin, stainless steel	Polarized retro-reflective photoelectric sensor; Application: detection of highly transparent bottles; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN), DC, teach button, teach input, Ex-protected	3/2/22
50115207	PRK 55/6D.42-S8.3 Ex	0 ... 3 m 0 ... 3.5 m	LED, red	Connector, M8, 3-pin, stainless steel	Polarized retro-reflective photoelectric sensor; Application: detection of highly transparent bottles; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, teach button, teach input, Ex-protected	3/2/22
50115269	HRTR 55/66-S8 Ex	0.005 ... 0.4 m 0.005 ... 0.4 m	LED, red	Connector, M8, 4-pin, stainless steel	Sensor with background suppression; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer, Ex-protected	3/2/22

Dimensioned drawings: 55 series



55 Ex series

ACCESSORIES: 55 EX SERIES

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130692	KD U-M12-4W-P1-020	Connector, M12, angled, female	4-pin	2,000 mm	PUR
50130694	KD U-M12-4W-P1-050	Connector, M12, angled, female	4-pin	5,000 mm	PUR
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50130654	KD U-M12-4A-P1-020	Connector, M12, axial, female	4-pin	2,000 mm	PUR
50130657	KD U-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC
50130860	KD U-M8-3W-V1-020	Connector, M8, angled, female	3-pin	2,000 mm	PVC
50130862	KD U-M8-3W-V1-050	Connector, M8, angled, female	3-pin	5,000 mm	PVC
50106154	K-D M8W-4P-2m-FAB	Connector, M8, angled, female	4-pin	2,000 mm	FAB
50106155	K-D M8W-4P-5m-FAB	Connector, M8, angled, female	4-pin	5,000 mm	FAB
50104520	K-D M8A-3P-2m-PVC	Connector, M8, axial, female	3-pin	2,000 mm	PVC
50130832	KD U-M8-3A-V1-050	Connector, M8, axial, female	3-pin	5,000 mm	PVC
50106152	K-D M8A-4P-2m-FAB	Connector, M8, axial, female	4-pin	2,000 mm	FAB
50106153	K-D M8A-4P-5m-FAB	Connector, M8, axial, female	4-pin	5,000 mm	FAB

Further connection cables can be found on our website

Mounting systems

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117256	BTU 200M-D10	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50117255	BTU 200M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50117254	BTU 200M-D14	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 14 mm rod, sheet-metal mounting	Metal

Further rod mounts can be found on our website

Reflectors and reflective tapes

Standard reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50081283	TKS 20X40	Rectangular	16 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50040820	TKS 40X60	Rectangular	37 mm × 56 mm	Through-hole mounting, adhesive	Plastic
50022816	TKS 100X100	Rectangular	96 mm × 96 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further standard reflectors can be found on our website

Micro-triad-type reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50104130	MTKS 20x40.1	Rectangular	17 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50117583	MTKS 50x50.1	Rectangular	50 mm × 50 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further micro-triad-type reflectors can be found on our website

Reflective tapes for standard applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50108300	REF 4-A-50x50	Rectangular	50 mm × 50 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

Reflective tapes for laser and clear-glass applications

Part no.	Part description	Design	Reflective surface	Fastening	Material
50123899	REF 6-A-9x9	Rectangular	9 mm × 9 mm	Self-adhesive	Plastic
50123861	REF 6-A-14x45	Rectangular	15 mm × 45 mm	Self-adhesive	Plastic
50110192	REF 6-A-50x50	Rectangular	50 mm × 50 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

/// 46 series



Due to their high function reserve, these devices are used for reliable detection even with heavy soiling in category 3G and 3D applications. The product spectrum encompasses familiar operating principles such as throughbeam photoelectric sensor, retro-reflective photoelectric sensor or diffuse sensor with background suppression. The temperature class for explosive gas areas is T4; for explosive dust areas it is 90 °C.



Benefits:

- Diffuse sensor with adjustable background suppression through multiturn potentiometer
- Reliable detection of light and dark, as well as inclined or sloped surfaces
- Fast connection through Ultra-Lock™ fast locking
- Complementary switching outputs for optimal adaptation to the application
- Warning output for increased availability
- A²LS – Active Ambient Light Suppression



Direct access to the online product selector at www.leuze.com/en/br46-ex

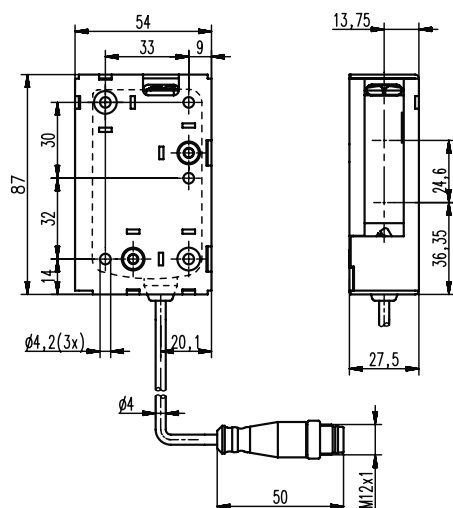
Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description	Ex device category Ex-zone
50114409	HRTL 46B/66,200-S12 S-Ex n	0.05 ... 1.2 m 0.05 ... 1.2 m	Laser, 2, red	Cable with connector, 200 mm, M12, 4-pin, metal	Sensor with background suppression; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, multiturn potentiometer	3/2/22
50111519	► LSSR 46B,200-S12 S-Ex n	0 ... 50 m 0 ... 60 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, metal	Throughbeam sensor transmitter; Switching frequency: 500 Hz, DC, Ex-protected	3/2/22
50111520	◄ LSER 46B/66,200-S12 S-Ex n	0 ... 50 m 0 ... 60 m		Cable with connector, 200 mm, M12, 4-pin, metal	Throughbeam sensor receiver; Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, Ex-protected	3/2/22
50108945	IPRK 46B/4,200-S12 S-Ex n	0.05 ... 15 m 0.05 ... 18 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, metal	Polarized retro-reflective photoelectric sensor; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, U _b switching, DC, warning output, Ex-protected	3/2/22

► transmitter / ◄ receiver

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description	Ex device category Ex-zone
50108591	PRK 46B/66,200-S12 S-Ex n	0.05 ... 15 m 0.05 ... 18 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, metal	Polarized retro-reflective photoelectric sensor; Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/ dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, Ex-protected	3/2/22
50108593	PRK 46B/66.01,200-S12 S-Ex n	0.05 ... 15 m 0.05 ... 18 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, metal	Polarized retro-reflective photoelectric sensor; Switching frequency: 500 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/ dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/light switching (NPN), DC, 270 ° potentiometer, Ex-protected	3/2/22
50108589	HRTR 46B/66,200-S12 S-Ex n	0 ... 1.8 m 0 ... 1.8 m	LED, red	Cable with connector, 200 mm, M12, 4-pin, metal	Sensor with background suppression; Switching frequency: 200 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/ dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/ light switching (NPN), DC, multiturn potentiometer, Ex-protected	3/2/22
50108587	HRT 46B/66,200-S12 S-Ex n	0 ... 2.5 m 0 ... 2.5 m	LED, infrared	Cable with connector, 200 mm, M12, 4-pin, metal	Sensor with background suppression; Switching frequency: 200 Hz; Digital switching output 1: transistor, push-pull, light switching (PNP)/ dark switching (NPN); Digital switching output 2: transistor, push-pull, dark switching (PNP)/ light switching (NPN), DC, multiturn potentiometer, Ex-protected	3/2/22
50108943	IHRT 46B/4,200-S12 S-Ex n	0 ... 2.5 m 0 ... 2.5 m	LED, infrared	Cable with connector, 200 mm, M12, 4-pin, metal	Sensor with background suppression; Switching frequency: 200 Hz; Digital switching output 1: transistor, PNP, light switching; Digital switching output 2: transistor, PNP, U_{p} switching, DC, multiturn potentiometer, warning output, Ex-protected	3/2/22

► transmitter / ◄ receiver

Dimensioned drawings: 46 series



46B Ex series

ACCESSORIES: 46 EX SERIES

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130692	KD U-M12-4W-P1-020	Connector, M12, angled, female	4-pin	2,000 mm	PUR
50130694	KD U-M12-4W-P1-050	Connector, M12, angled, female	4-pin	5,000 mm	PUR
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50130654	KD U-M12-4A-P1-020	Connector, M12, axial, female	4-pin	2,000 mm	PUR
50130657	KD U-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50020833	BT 95	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117253	BTU 300M-D10	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50117252	BTU 300M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50117251	BTU 300M-D14	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 14 mm rod, sheet-metal mounting	Metal

Further rod mounts can be found on our website

Reflectors

Standard reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50024127	TK 82.2	Round	79 mm	Through-hole mounting, adhesive	Plastic
50081283	TKS 20X40	Rectangular	16 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50023525	TKS 30X50	Rectangular	27 mm × 44 mm	Through-hole mounting, adhesive	Plastic
50040820	TKS 40X60	Rectangular	37 mm × 56 mm	Through-hole mounting, adhesive	Plastic
50022814	TKS 50X50	Rectangular	47 mm × 48 mm	Through-hole mounting, adhesive	Plastic
50022816	TKS 100X100	Rectangular	96 mm × 96 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further standard reflectors can be found on our website

/// 96 series



These sensors were specially designed for applications that require large ranges in categories 3G and 3D. The product line covers all operating principles. The temperature class for explosive gas areas is T4; for explosive dust areas it is 70 °C.



Benefits:

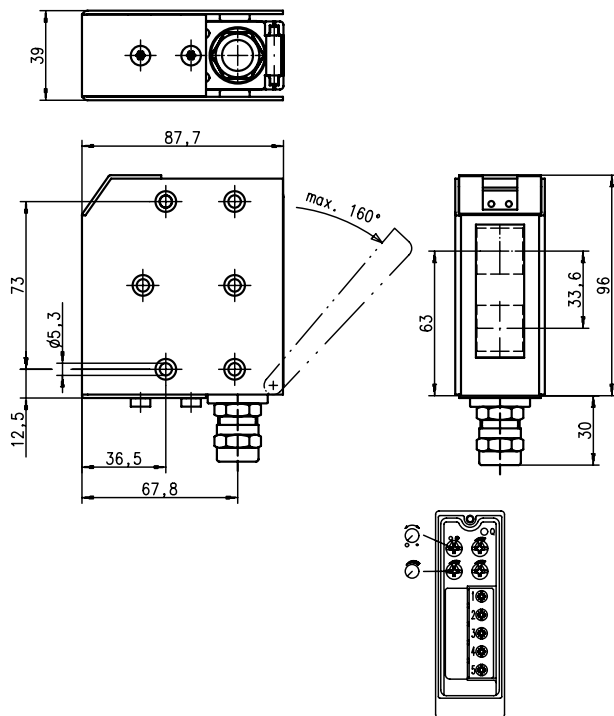
- Diffuse sensor with adjustable background suppression using visible red light
- Robust metal housing with shock-resistant optical window, degree of protection IP 67/ IP 69K for industrial application
- Complementary switching outputs
- Range adjustment and delay before start-up
- Connection via comfortable terminal compartment



Direct access to the online product selector at www.leuze.com/en/br96-ex

Part no.	Part description	Operating range [m] Op. range limit [m]	Light source	Connection	Description	Ex device category Ex-zone
50111088	PRK 96M/P-3369-21 Ex n	0.1 ... 15 m 0.1 ... 18 m	LED, red	Terminal, 3-pin	Polarized retro-reflective photoelectric sensor; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light/dark reversible, DC, 270 ° potentiometer, Ex-protected	3/2/22
50111015	► LSS 96M-1079-23 Ex n	0 ... 120 m 0 ... 150 m	LED, infrared	Terminal, 2-pin	Throughbeam sensor transmitter, DC, Ex-protected	3/2/22
50111016	◄ LSE 96M/P-3019-21 Ex n	0 ... 120 m 0 ... 150 m		Terminal, 3-pin	Throughbeam sensor receiver; Switching frequency: 500 Hz; Digital switching output 1: transistor, PNP, light switching, DC, 270 ° potentiometer, Ex-protected	3/2/22
50109523	PRK 96M/P-2838-28 Ex n	0.1 ... 7 m 0.1 ... 8.5 m	LED, infrared	Terminal, 4-pin	Polarized retro-reflective photoelectric sensor; Switching frequency: 1,000 Hz; Digital switching output 1: transistor, PNP, light/dark reversible, DC, 270 ° potentiometer, Ex-protected	3/2/22
50111087	HRT 96M/P-1639-800-21 Ex n	0.1 ... 0.8 m 0.1 ... 1.2 m	LED, infrared	Terminal, 4-pin	Sensor with background suppression; Switching frequency: 300 Hz; Digital switching output 1: transistor, PNP, light/dark reversible, DC, multiturn potentiometer, Ex-protected	3/2/22
50111089	HRT 96M/P-1649-800-21 Ex n	0.1 ... 0.8 m 0.1 ... 1.2 m	LED, infrared	Terminal, 4-pin	Sensor with background suppression; Switching frequency: 300 Hz; Digital switching output 1: transistor, PNP, light/dark reversible, DC, multiturn potentiometer, time function, Ex-protected	3/2/22

► transmitter / ◄ receiver

Dimensioned drawings: 96 series

96 Ex series

ACCESSORIES: 96 EX SERIES**Mounting systems**

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50025570	BT 96	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50082084	BT 450.1-96	Mounting system	Screw type	For 10 mm rod	Metal
50104897	BT 450.3-96	Mounting system	Screw type	For 12 mm rod	Metal

Further rod mounts can be found on our website

Reflectors

Standard reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50081283	TKS 20X40	Rectangular	16 mm × 38 mm	Through-hole mounting, adhesive	Plastic
50023525	TKS 30X50	Rectangular	27 mm × 44 mm	Through-hole mounting, adhesive	Plastic
50022816	TKS 100X100	Rectangular	96 mm × 96 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm

Further standard reflectors can be found on our website

/ INDUCTIVE SWITCHES

RELIABLE DETECTION OF METALLIC PARTS

In automation technology, not just optical applications, but many other applications are predestined for inductive sensors. An array of designs, short reaction times and large ranges make our inductive sensors the right solutions for practically all fields of application in industrial automation. Depending on the environment or requirement in which they are used, other selection criteria such as AC/DC, reduction factor 1 or all-metal are available.



Standard sensors, cubic housing

Page 117

Standard sensors, cylindrical housing

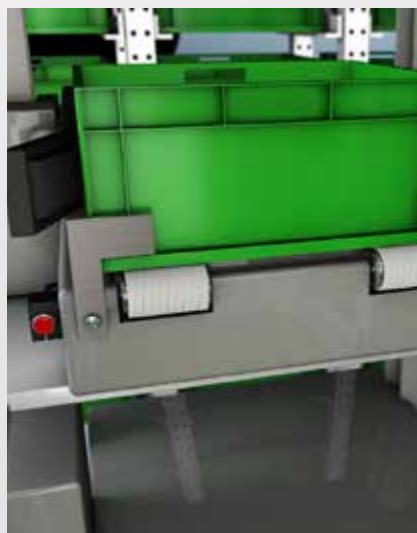
Page 121

All stainless steel sensors

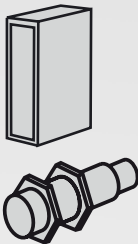











Page 130

Miniature sensors

Page 135



SELECTION TABLE – Cubic/cylindrical series

 Series		Dimensions in mm (HxWxL) / (ØxL)	Typ. range limit S _n	Installation		Switching output/ function					Max. switching frequency	Operating voltage	Connection		Housing material				Degree of protection	
				Embedded	Non-embedded	PNP	NPN	NO - normally open	NC - normally closed	M8 connector			M12 connector	Cable, 2 m, PVC	Chromium-plated brass	Plastic (PA)	Stainless steel	IP 67	IP 69K	
	IS240	40x12x26	4.0 mm	●		●	●	●	●	1400 Hz	10...30 V DC	●		●		●		●		
			8.0 mm		●	●	●	●	●	1400 Hz	10...30 V DC	●		●		●		●		
	IS244	40x40x67 40x40x120	20.0 mm	●		●	●	●	●	150 Hz	10...30 V DC		●	●		●		●		
			40.0 mm		●	●	●	●	●	150 Hz	10...30 V DC		●	●		●		●		
	IS255	5x5x25	1.5 mm	●		●	●	●	○	3000 Hz	10...30 V DC	○		●	●			●		
	IS288	8x8x50	1.5 mm	●		●	●	●	○	5000 Hz	10...30 V DC	●		●	●			●		
			2.0 mm	●		●	○	●	●	3000 Hz	10...30 V DC	●		●	●			●		
			3.0 mm	●		●	○	●	○	1000 Hz	10...30 V DC	●		●	●			●		
	IS204	Ø 4x25	1.5 mm	●		●	○	●	●	3000 Hz	10...30 V DC	○		●			●	●		
	IS205	M5x38	1.5 mm	●		●	○	●	○	3000 Hz	10...30 V DC	●		●			●	●		
	IS206	Ø 6.5x35	2.0 mm	●		●	○	●	○	5000 Hz	10...30 V DC	●		●			●	●		
			3.0 mm	●		●	○	●	○	1000 Hz	10...30 V DC			●			●	●		
	IS208	M8x45	1.5 mm	●		●	○	●		5000 Hz	10...30 V DC	●	●	●			●	●		
			2.0 mm	●		●	●	●	●	5000 Hz	10...30 V DC	●		●			●	●		
			2.5 mm		●	●	○	●		5000 Hz	10...30 V DC	●	●	●			●	●		
			4.0 mm		●	●	○	●	○	3500 Hz	10...30 V DC	●		●			●	●		
	IS212	M12x50	2.0 mm ²⁾	●		●	○	●		3000 Hz	10...30 V DC		●	●	●			●		
			4.0 mm	●		●	●	●	●	2000 Hz	10...30 V DC		●	●	●			●		
			4.0 mm		●	●	○	●		2000 Hz	10...30 V DC		●	●	●			●		
			6.0 mm ¹⁾	●		●	○	●		800 Hz	10...30 V DC		●					●		
			6.0 mm	●		●	●	●	○	600 Hz	10...30 V DC		●	●	●		●	●	●	
			8.0 mm		●	●	●	●	○	1500 Hz	10...30 V DC		●	●	●			●		
			10.0 mm ¹⁾		●	●	○	●		400 Hz	10...30 V DC		●				●	●	●	
			10.0 mm		●	●	○	●	○	400 Hz	10...30 V DC		●	●	●			●		
	IS218	M18x50	5.0 mm ²⁾	●		●	○	●		2000 Hz	10...30 V DC		●	●	●			●		
			8.0 mm	●		●	●	●	●	1500 Hz	10...30 V DC		●	●	●			●		
			8.0 mm		●	●	○	●		2000 Hz	10...30 V DC		●	●	●			●		
			10.0 mm ¹⁾	●		●	○	●		200 Hz	10...30 V DC		●				●	●	●	
			12.0 mm	●		●	●	●	○	500 Hz	10...30 V DC		●	●	●			●		
			20.0 mm ¹⁾		●	●	○	●		200 Hz	10...30 V DC		●				●	●	●	
			20.0 mm		●	●	○	●	○	200 Hz	10...30 V DC		●	●	●			●		
	IS230	M30x60	10.0 mm	●		●	○	●		1200 Hz	10...30 V DC		●	●	●			●		
			15.0 mm ²⁾		●	●	○	●		700 Hz	10...30 V DC		●	●	●			●		
			20.0 mm ¹⁾	●		●	○	●		100 Hz	10...30 V DC		●				●	●	●	
			22.0 mm	●		●	●	●	●	200 Hz	10...30 V DC		●	●	●			●		
			40.0 mm ¹⁾		●	●	○	●		100 Hz	10...30 V DC		●				●	●	●	
			40.0 mm		●	●	●	●	○	90 Hz	10...30 V DC		●	●	●			●		

¹⁾ Food + Beverage design²⁾ AC/DC design (10...320 VAC/DC, relay output function)

○ = on request

//STANDARD SENSORS, CUBIC HOUSING

SMALL DESIGNS FOR BIG REQUIREMENTS

These standard cubic sensors can be universally applied for a wide variety of detection tasks. Cubic designs are available in both plastic and metal housings.

/// IS 288



With a laterally aligned sensor field, space and cost-saving integration is possible. Using our special supports, the sensors can even be mounted in the groove of an ITEM profile.



Benefits:

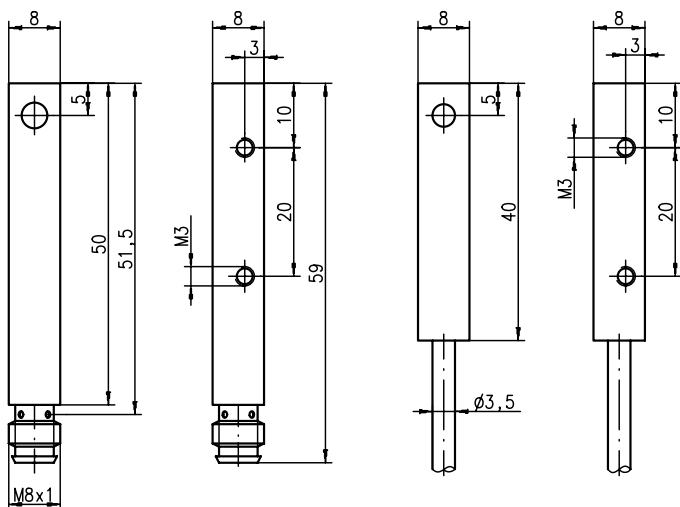
- Laterally aligned sensor field for space and hence cost-saving integration
- Short response times for reliable detection in dynamic processes to increase machine productivity



Direct access to the online product selector at www.leuze.com/en/is288

Part no.	Part description	Operating range Sa Typ. operating range limit Sn	Switching frequency	Type of installation	Switching output 1	Description	Connection	Material
50112890	IS 288MP/4NO-3E0-S8.3	0 ... 2.4 mm 3 mm	1,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M8, 3-pin	Metal
50112889	IS 288MP/4NO-3E0	0 ... 2.4 mm 3 mm	1,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50113783	IS 288MP/4NC-2E0	0 ... 1.6 mm 2 mm	3,000 Hz	Embedded	Transistor, PNP, break-contact (NC)	DC	Cable, 2,000 mm, 3-wire	Metal
50112888	IS 288MP/4NO-2E0-S8.3	0 ... 1.6 mm 2 mm	3,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M8, 3-pin	Metal
50112887	IS 288MP/4NO-2E0	0 ... 1.6 mm 2 mm	3,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50112886	IS 288MP/4NO-1E5-S8.3	0 ... 1.2 mm 1.5 mm	5,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M8, 3-pin	Metal
50112885	IS 288MP/4NO-1E5	0 ... 1.2 mm 1.5 mm	5,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50113208	IS 288MP/2NO-1E5	0 ... 1.2 mm 1.5 mm	5,000 Hz	Embedded	Transistor, NPN, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal

Dimensioned drawings: IS 288



IS 288 series



Part no.	Part description	Operating range Sa Typ. operating range limit Sn	Switching frequency	Type of installation	Switching output 1	Switching output 2	Description	Connection	Material
50114210	IS 240PP/44-8N0-S8.4	0 ... 6.4 mm 8 mm	1,400 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	Transistor, PNP, break-contact (NC)	DC	Connector, M8, 4-pin	Plastic
50114209	IS 240PP/44-8N0	0 ... 6.4 mm 8 mm	1,400 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	Transistor, PNP, break-contact (NC)	DC	Cable, 2,000 mm, 4-wire	Plastic
50114206	IS 240PP/22-8N0-S8.4	0 ... 6.4 mm 8 mm	1,400 Hz	Non-embedded	Transistor, NPN, make-contact (NO)	Transistor, NPN, break-contact (NC)	DC	Connector, M8, 4-pin	Plastic
50114205	IS 240PP/22-8N0	0 ... 6.4 mm 8 mm	1,400 Hz	Non-embedded	Transistor, NPN, make-contact (NO)	Transistor, NPN, break-contact (NC)	DC	Cable, 2,000 mm, 4-wire	Plastic
50114208	IS 240PP/44-4E0-S8.4	0 ... 3.2 mm 4 mm	1,400 Hz	Embedded	Transistor, PNP, make-contact (NO)	Transistor, PNP, break-contact (NC)	DC	Connector, M8, 4-pin	Plastic
50117797	IS 240PP/4N0-4E0-S8.3	0 ... 3.2 mm 4 mm	1,400 Hz	Embedded	Transistor, PNP, make-contact (NO)		DC	Connector, M8, 3-pin	Plastic
50114207	IS 240PP/44-4E0	0 ... 3.2 mm 4 mm	1,400 Hz	Embedded	Transistor, PNP, make-contact (NO)	Transistor, PNP, break-contact (NC)	DC	Cable, 2,000 mm, 4-wire	Plastic
50114204	IS 240PP/22-4E0-S8.4	0 ... 3.2 mm 4 mm	1,400 Hz	Embedded	Transistor, NPN, make-contact (NO)	Transistor, NPN, break-contact (NC)	DC	Connector, M8, 4-pin	Plastic
50114203	IS 240PP/22-4E0	0 ... 3.2 mm 4 mm	1,400 Hz	Embedded	Transistor, NPN, make-contact (NO)	Transistor, NPN, break-contact (NC)	DC	Cable, 2,000 mm, 4-wire	Plastic

© Leuze electronic GmbH + Co. KG

/// IS 244



With a sensor field that can be aligned in five directions, this compact sensor sees almost everything. Versions with M12 connector or convenient terminal compartment leave nothing to be desired.

**Benefits:**

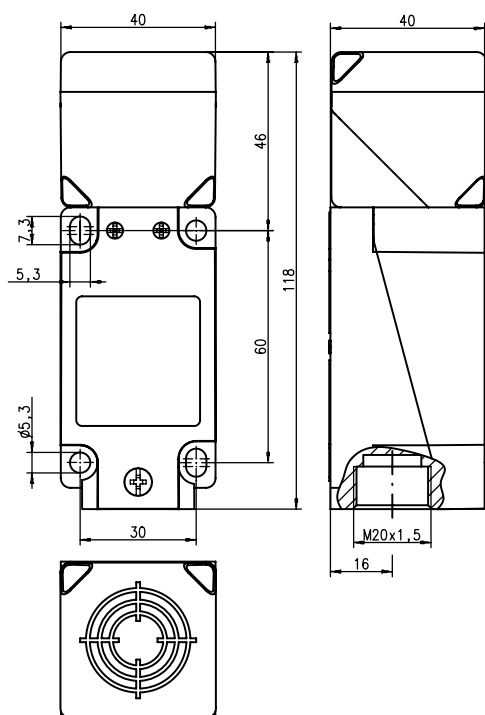
- Sensor field can be oriented in five directions for flexible mounting and simplified machine construction
- Status displays visible from all sides for reliable detection and commissioning
- Models with comfortable terminal compartment or M12 connector



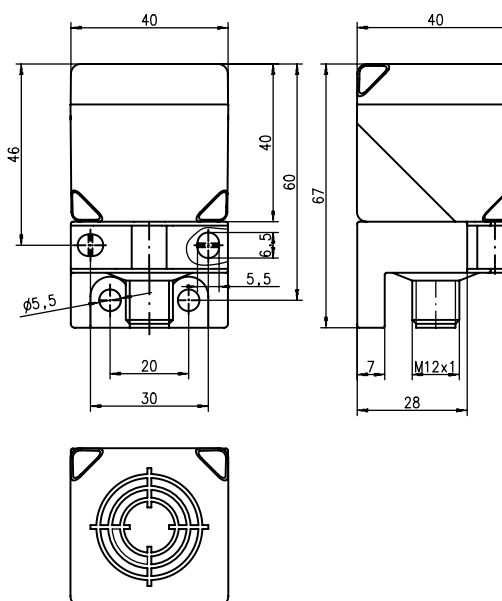
Direct access to the online product selector at www.leuze.com/en/is244

Part no.	Part description	Operating range Sa Typ. operating range limit Sn	Switching frequency	Type of installation	Switching output 1	Switching output 2	Description	Connection	Material
50114218	ISS 244PP/44-40N-S12	0 ... 32.4 mm 40 mm	150 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	Transistor, PNP, break-contact (NC)	DC	Connector, M12, 4-pin	Plastic
50114214	IS 244PP/44-40N-TB.4	0 ... 32.4 mm 40 mm	150 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	Transistor, PNP, break-contact (NC)	DC	Terminal, 4-pin	Plastic
50114216	ISS 244PP/22-40N-S12	0 ... 32.4 mm 40 mm	150 Hz	Non-embedded	Transistor, NPN, make-contact (NO)	Transistor, NPN, break-contact (NC)	DC	Connector, M12, 4-pin	Plastic
50114212	IS 244PP/22-40N-TB.4	0 ... 32.4 mm 40 mm	150 Hz	Non-embedded	Transistor, NPN, make-contact (NO)	Transistor, NPN, break-contact (NC)	DC	Terminal, 4-pin	Plastic
50114217	ISS 244PP/44-20E-S12	0 ... 16.2 mm 20 mm	150 Hz	Embedded	Transistor, PNP, make-contact (NO)	Transistor, PNP, break-contact (NC)	DC	Connector, M12, 4-pin	Plastic
50114213	IS 244PP/44-20E-TB.4	0 ... 16.2 mm 20 mm	150 Hz	Embedded	Transistor, PNP, make-contact (NO)	Transistor, PNP, break-contact (NC)	DC	Terminal, 4-pin	Plastic
50114215	ISS 244PP/22-20E-S12	0 ... 16.2 mm 20 mm	150 Hz	Embedded	Transistor, NPN, make-contact (NO)	Transistor, NPN, break-contact (NC)	DC	Connector, M12, 4-pin	Plastic
50114211	IS 244PP/22-20E-TB.4	0 ... 16.2 mm 20 mm	150 Hz	Embedded	Transistor, NPN, make-contact (NO)	Transistor, NPN, break-contact (NC)	DC	Terminal, 4-pin	Plastic

Dimensioned drawings: IS 244



IS 244 series



ISS 244 series

ACCESSORIES: INDUCTIVE SWITCHES, CUBIC HOUSING

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC
50130871	KD U-M8-4W-V1-050	Connector, M8, angled, female	4-pin	5,000 mm	PVC
50130842	KD U-M8-3A-P1-020	Connector, M8, axial, female	3-pin	2,000 mm	PUR
50104520	K-D M8A-3P-2m-PVC	Connector, M8, axial, female	3-pin	2,000 mm	PVC
50130832	KD U-M8-3A-V1-050	Connector, M8, axial, female	3-pin	5,000 mm	PVC
50130854	KD U-M8-4A-P1-020	Connector, M8, axial, female	4-pin	2,000 mm	PUR
50130848	KD U-M8-4A-V1-020	Connector, M8, axial, female	4-pin	2,000 mm	PVC
50130850	KD U-M8-4A-V1-050	Connector, M8, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

SMARTER **PRODUCT** USABILITY

powerreserve.

Stable processes as a result of the largest possible function reserves



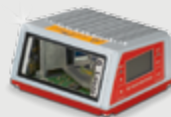
availabilitycontrol.

Early warnings in case of dirty devices prevent costly system downtime



thinkmodular.

Freely selectable function range comprising various equipment features



easyhandling.

Intelligent ideas for installation and alignment and easy operation of the devices

integratedconnectivity.

Integrated interface diversity for simple integration in your fieldbus



Additional usability highlights can be found at: www.leuze.com/en/products

//STANDARD SENSORS, CYLINDRICAL HOUSING

ROBUST SENSORS IN CYLINDRICAL DESIGN

The reliable detection of metal objects in a robust metal housing is the versatile area of application of these sensors. In addition to the design, the range Sn is an important selection criterion. Various switching outputs and connection options are available to suit a wide range of applications.

/// IS 208



With a diameter of just 8 mm, this small standard sensor can be custom-integrated in applications.



Benefits:

- Large ranges allow you to choose a smaller construction and thus save space and costs for the mechanical machine parts
- The sensor can be mounted at a greater distance from moving parts. This helps to avoid damage and ensures the machine availability
- The high sensitivity of the sensors makes them the inexpensive solution for special applications, e.g. for close-range detection of small parts

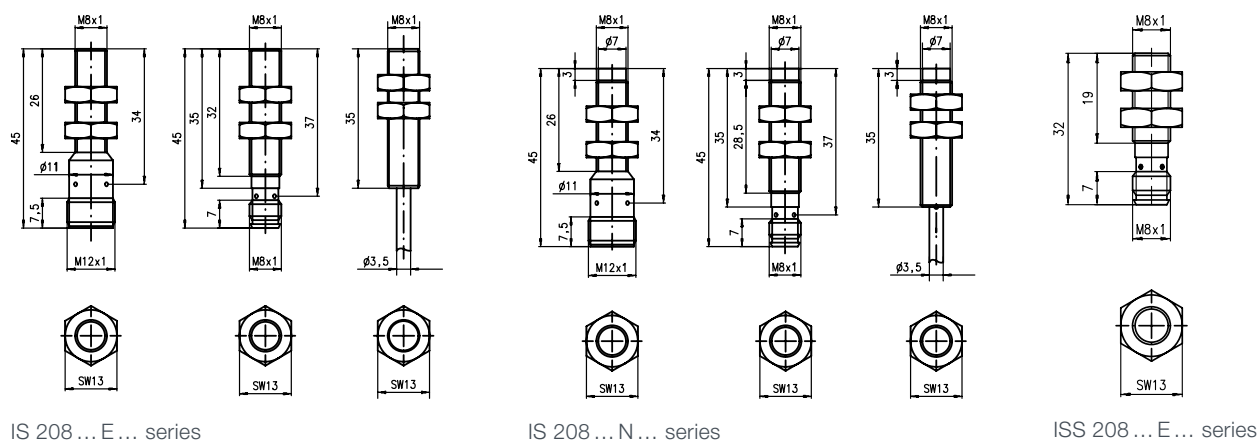


Direct access to the online product selector at www.leuze.com/en/is208

Part no.	Part description	Operating range Sa Typ. operating range limit Sn	Switching frequency	Type of installation	Switching output 1	Description	Connection	Material
50109660	IS 208MM/4NC-4N0-S8.3	0 ... 3.2 mm 4 mm	3,500 Hz	Non-embedded	Transistor, PNP, break-contact (NC)	DC	Connector, M8, 3-pin	Stainless steel
50129349	IS 208MM/4NC-4N0	0 ... 3.2 mm 4 mm	3,500 Hz	Non-embedded	Transistor, PNP, break-contact (NC)	DC	Cable, 2,000 mm, 3-wire	Stainless steel
50109659	IS 208MM/4N0-4N0-S8.3	0 ... 3.2 mm 4 mm	3,500 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M8, 3-pin	Stainless steel
50109658	IS 208MM/4N0-4N0	0 ... 3.2 mm 4 mm	3,500 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Stainless steel
50109663	IS 208MM/2NC-4N0-S8.3	0 ... 3.2 mm 4 mm	3,500 Hz	Non-embedded	Transistor, NPN, break-contact (NC)	DC	Connector, M8, 3-pin	Stainless steel
50109662	IS 208MM/2N0-4N0-S8.3	0 ... 3.2 mm 4 mm	3,500 Hz	Non-embedded	Transistor, NPN, make-contact (NO)	DC	Connector, M8, 3-pin	Stainless steel
50109661	IS 208MM/2N0-4N0	0 ... 3.2 mm 4 mm	3,500 Hz	Non-embedded	Transistor, NPN, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Stainless steel
50129347	IS 208MM/4NC-2N5-S8.3	0 ... 2 mm 2.5 mm	5,000 Hz	Non-embedded	Transistor, PNP, break-contact (NC)	DC	Connector, M8, 3-pin	Stainless steel
50109647	IS 208MM/4N0-2N5-S12	0 ... 2 mm 2.5 mm	5,000 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M12, 4-pin	Stainless steel
50109646	IS 208MM/4N0-2N5-S8.3	0 ... 2 mm 2.5 mm	5,000 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M8, 3-pin	Stainless steel
50114490	ISS 208MM/4N0-2N5-S8.3	0 ... 2 mm 2.5 mm	5,000 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M8, 3-pin	Stainless steel
50109645	IS 208MM/4N0-2N5	0 ... 2 mm 2.5 mm	5,000 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Stainless steel
50109649	IS 208MM/2N0-2N5	0 ... 2 mm 2.5 mm	5,000 Hz	Non-embedded	Transistor, NPN, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Stainless steel
50109654	IS 208MM/4NC-2E0-S8.3	0 ... 1.6 mm 2 mm	5,000 Hz	Embedded	Transistor, PNP, break-contact (NC)	DC	Connector, M8, 3-pin	Stainless steel
50129698	ISS 208MM/4NC-2E0-S8.3	0 ... 1.6 mm 2 mm	5,000 Hz	Embedded	Transistor, PNP, break-contact (NC)	DC	Connector, M8, 3-pin	Stainless steel
50113211	IS 208MM/4NC-2E0	0 ... 1.6 mm 2 mm	5,000 Hz	Embedded	Transistor, PNP, break-contact (NC)	DC	Cable, 2,000 mm, 3-wire	Stainless steel
50109653	IS 208MM/4N0-2E0-S8.3	0 ... 1.6 mm 2 mm	5,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M8, 3-pin	Stainless steel
50117201	ISS 208MM/4N0-2E0-S8.3	0 ... 1.6 mm 2 mm	5,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M8, 3-pin	Stainless steel
50114051	IS 208MM/4N0-2E0,200-S8.3	0 ... 1.6 mm 2 mm	5,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable with connector, 200 mm, M8, 3-pin	Stainless steel
50118369	ISS 208MM/4N0-2E0,200-S8.3	0 ... 1.6 mm 2 mm	5,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable with connector, 200 mm, M8, 3-pin	Stainless steel
50109652	IS 208MM/4N0-2E0	0 ... 1.6 mm 2 mm	5,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Stainless steel
50129348	IS 208MM/2NC-2E0	0 ... 1.6 mm 2 mm	5,000 Hz	Embedded	Transistor, NPN, break-contact (NC)	DC	Cable, 2,000 mm, 3-wire	Stainless steel
50109656	IS 208MM/2N0-2E0-S8.3	0 ... 1.6 mm 2 mm	5,000 Hz	Embedded	Transistor, NPN, make-contact (NO)	DC	Connector, M8, 3-pin	Stainless steel

Part no.	Part description	Operating range Sa Typ. operating range limit Sn	Switching frequency	Type of installation	Switching output 1	Description	Connection	Material
50109655	IS 208MM/2NO-2E0	0 ... 1.6 mm 2 mm	5,000 Hz	Embedded	Transistor, NPN, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Stainless steel
50129346	IS 208MM/4NC-1E5-S12	0 ... 1.2 mm 1.5 mm	5,000 Hz	Embedded	Transistor, PNP, break-contact (NC)	DC	Connector, M12, 4-pin	Stainless steel
50129345	IS 208MM/4NC-1E5-S8.3	0 ... 1.2 mm 1.5 mm	5,000 Hz	Embedded	Transistor, PNP, break-contact (NC)	DC	Connector, M8, 3-pin	Stainless steel
50112444	IS 208MM/4NC-1E5	0 ... 1.2 mm 1.5 mm	5,000 Hz	Embedded	Transistor, PNP, break-contact (NC)	DC	Cable, 2,000 mm, 3-wire	Stainless steel
50109641	IS 208MM/4NO-1E5-S12	0 ... 1.2 mm 1.5 mm	5,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M12, 4-pin	Stainless steel
50109640	IS 208MM/4NO-1E5-S8.3	0 ... 1.2 mm 1.5 mm	5,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M8, 3-pin	Stainless steel
50122455	IS 208MM/4NO-1E5,5000	0 ... 1.2 mm 1.5 mm	5,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 5,000 mm, 3-wire	Stainless steel
50109639	IS 208MM/4NO-1E5	0 ... 1.2 mm 1.5 mm	5,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Stainless steel
50113207	IS 208MM/2NC-1E5	0 ... 1.2 mm 1.5 mm	5,000 Hz	Embedded	Transistor, NPN, break-contact (NC)	DC	Cable, 2,000 mm, 3-wire	Stainless steel
50109642	IS 208MM/2NO-1E5	0 ... 1.2 mm 1.5 mm	5,000 Hz	Embedded	Transistor, NPN, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Stainless steel

Dimensioned drawings: IS 208



/// IS 212



Even this standard design with M12 external thread has its special features: Increased ranges with a small design save space and money.



Benefits:

- Large ranges allow you to choose a smaller construction and thus save space and costs
- The sensor can be mounted at a greater distance from moving parts
- The high sensitivity of the sensors makes them the inexpensive solution for special applications, e. g. for close-range detection of small parts
- Sturdy all-metal housing for permanent operation



Direct access to the online product selector at www.leuze.com/en/is212

Part no.	Part description	Operating range Sa Typ. operating range limit Sn	Switching frequency	Type of installation	Switching output 1	Description	Connection	Material
50114052	IS 212MM/4NC-10N-S12	0 ... 8.1 mm 10 mm	400 Hz	Non-embedded	Transistor, PNP, break-contact (NC)	DC	Connector, M12, 4-pin	Metal
50129355	IS 212MM/4NC-10N	0 ... 8.1 mm 10 mm	400 Hz	Non-embedded	Transistor, PNP, break-contact (NC)	DC	Cable, 2,000 mm, 3-wire	Metal
50109680	ISS 212MM/4NO-10N-S12	0 ... 8.1 mm 10 mm	400 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50109689	IS 212MM/4NO-10N	0 ... 8.1 mm 10 mm	400 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50111952	IS 212MM/2NO-10N	0 ... 8.1 mm 10 mm	400 Hz	Non-embedded	Transistor, NPN, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal

Part no.	Part description	Operating range Sa Typ. operating range limit Sn	Switching frequency	Type of installation	Switching output 1	Description	Connection	Material
50129358	IS 212MM/4NC-8NO-S12	0 ... 6.4 mm 8 mm	1,500 Hz	Non-embedded	Transistor, PNP, break-contact (NC)	DC	Connector, M12, 4-pin	Metal
50129357	IS 212MM/4NC-8NO	0 ... 6.4 mm 8 mm	1,500 Hz	Non-embedded	Transistor, PNP, break-contact (NC)	DC	Cable, 2,000 mm, 3-wire	Metal
50112808	IS 212MM/4NO-8NO-S12	0 ... 6.4 mm 8 mm	1,500 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50112807	IS 212MM/4NO-8NO	0 ... 6.4 mm 8 mm	1,500 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50129356	IS 212MM/2NC-8NO	0 ... 6.4 mm 8 mm	1,500 Hz	Non-embedded	Transistor, NPN, break-contact (NC)	DC	Cable, 2,000 mm, 3-wire	Metal
50120274	IS 212MM/2NO-8NO-S12	0 ... 6.4 mm 8 mm	1,500 Hz	Non-embedded	Transistor, NPN, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50112806	IS 212MM/2NO-8NO	0 ... 6.4 mm 8 mm	1,500 Hz	Non-embedded	Transistor, NPN, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50112914	IS 212MM/4NC-4NO-S12	0 ... 3.2 mm 4 mm	2,000 Hz	Non-embedded	Transistor, PNP, break-contact (NC)	DC	Connector, M12, 4-pin	Metal
50129351	IS 212MM/4NC-4NO	0 ... 3.2 mm 4 mm	1,500 Hz	Non-embedded	Transistor, PNP, break-contact (NC)	DC	Cable, 2,000 mm, 3-wire	Metal
50109669	IS 212MM/4NO-4NO-S12	0 ... 3.2 mm 4 mm	2,000 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50111963	ISS 212MM/4NO-4NO-S12	0 ... 3.2 mm 4 mm	2,000 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50109668	IS 212MM/4NO-4NO	0 ... 3.2 mm 4 mm	2,000 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50121012	IS 212MM/2NC-4NO-S12	0 ... 3.2 mm 4 mm	2,000 Hz	Non-embedded	Transistor, NPN, break-contact (NC)	DC	Connector, M12, 4-pin	Metal
50129352	IS 212MM/2NC-4NO	0 ... 3.2 mm 4 mm	1,500 Hz	Non-embedded	Transistor, NPN, break-contact (NC)	DC	Cable, 2,000 mm, 3-wire	Metal
50109671	IS 212MM/2NO-4NO-S12	0 ... 3.2 mm 4 mm	1,500 Hz	Non-embedded	Transistor, NPN, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50109670	IS 212MM/2NO-4NO	0 ... 3.2 mm 4 mm	1,500 Hz	Non-embedded	Transistor, NPN, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50112209	ISS 212MM/2NO-4NO	0 ... 3.2 mm 4 mm	2,000 Hz	Non-embedded	Transistor, NPN, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50109679	ISS 212MM/4NO-6EO-S12	0 ... 4.8 mm 6 mm	800 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50109678	IS 212MM/4NO-6EO	0 ... 4.8 mm 6 mm	800 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50109688	ISS 212MM/2NO-6EO-S12	0 ... 4.8 mm 6 mm	800 Hz	Embedded	Transistor, NPN, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50109682	IS 212MM/2NO-6EO	0 ... 4.8 mm 6 mm	800 Hz	Embedded	Transistor, NPN, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50127466	IS 218MM/4NC-5EO-S12	0 ... 4 mm 5 mm	2,000 Hz	Embedded	Transistor, PNP, break-contact (NC)	DC	Connector, M12, 4-pin	Metal
50109674	IS 212MM/4NC-4EO-S12	0 ... 3.2 mm 4 mm	2,000 Hz	Embedded	Transistor, PNP, break-contact (NC)	DC	Connector, M12, 4-pin	Metal
50109676	ISS 212MM/4NC-4EO-S12	0 ... 3.2 mm 4 mm	2,000 Hz	Embedded	Transistor, PNP, break-contact (NC)	DC	Connector, M12, 4-pin	Metal
50129353	IS 212MM/4NC-4EO	0 ... 3.2 mm 4 mm	2,000 Hz	Embedded	Transistor, PNP, break-contact (NC)	DC	Cable, 2,000 mm, 3-wire	Metal
50129359	ISS 212MM/4NC-4EO	0 ... 3.2 mm 4 mm	2,000 Hz	Embedded	Transistor, PNP, break-contact (NC)	DC	Cable, 2,000 mm, 3-wire	Metal
50109673	IS 212MM/4NO-4EO-S12	0 ... 3.2 mm 4 mm	2,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50109685	ISS 212MM/4NO-4EO-S12	0 ... 3.2 mm 4 mm	2,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50109672	IS 212MM/4NO-4EO	0 ... 3.2 mm 4 mm	2,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50109684	ISS 212MM/4NO-4EO	0 ... 3.2 mm 4 mm	2,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50109677	IS 212MM/2NC-4EO-S12	0 ... 3.2 mm 4 mm	2,000 Hz	Embedded	Transistor, NPN, break-contact (NC)	DC	Connector, M12, 4-pin	Metal
50111741	ISS 212MM/2NC-4EO-S12	0 ... 3.2 mm 4 mm	2,000 Hz	Embedded	Transistor, NPN, break-contact (NC)	DC	Connector, M12, 4-pin	Metal
50114380	IS 212MM/2NC-4EO	0 ... 3.2 mm 4 mm	2,000 Hz	Embedded	Transistor, NPN, break-contact (NC)	DC	Cable, 2,000 mm, 3-wire	Metal
50129354	IS 212MM/2NO-4EO-S12	0 ... 3.2 mm 4 mm	2,000 Hz	Embedded	Transistor, NPN, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50109687	ISS 212MM/2NO-4EO-S12	0 ... 3.2 mm 4 mm	2,000 Hz	Embedded	Transistor, NPN, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50109675	IS 212MM/2NO-4EO	0 ... 3.2 mm 4 mm	2,000 Hz	Embedded	Transistor, NPN, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50111870	IS 212MM/4NC-2EO-S12	0 ... 1.6 mm 2 mm	3,000 Hz	Embedded	Transistor, PNP, break-contact (NC)	DC	Connector, M12, 4-pin	Metal
50129350	IS 212MM/4NC-2EO	0 ... 1.6 mm 2 mm	3,000 Hz	Embedded	Transistor, PNP, break-contact (NC)	DC	Cable, 2,000 mm, 3-wire	Metal
50109665	IS 212MM/4NO-2EO-S12	0 ... 1.6 mm 2 mm	3,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50109664	IS 212MM/4NO-2EO	0 ... 1.6 mm 2 mm	3,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50129415	IS 212MM/2NC-2EO	0 ... 1.6 mm 2 mm	3,000 Hz	Embedded	Transistor, NPN, break-contact (NC)	DC	Cable, 2,000 mm, 3-wire	Metal
50109666	IS 212MM/2NO-2EO	0 ... 1.6 mm 2 mm	3,000 Hz	Embedded	Transistor, NPN, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal

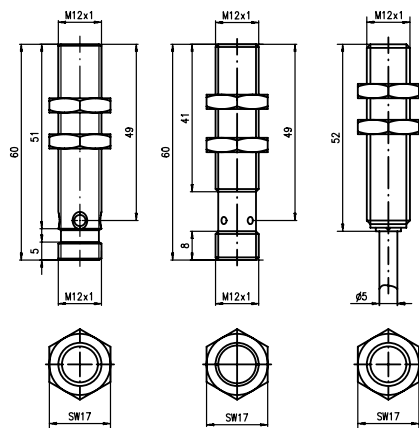
Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

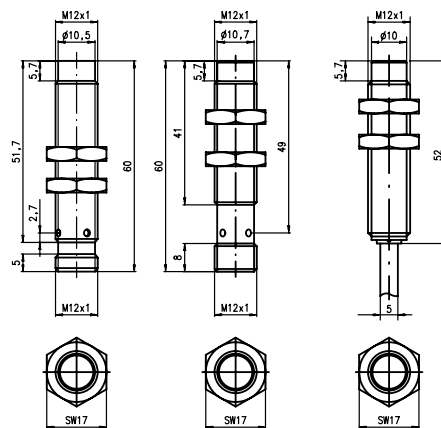
Data transmission /
Control componentsIndustrial image
processing

Accessories

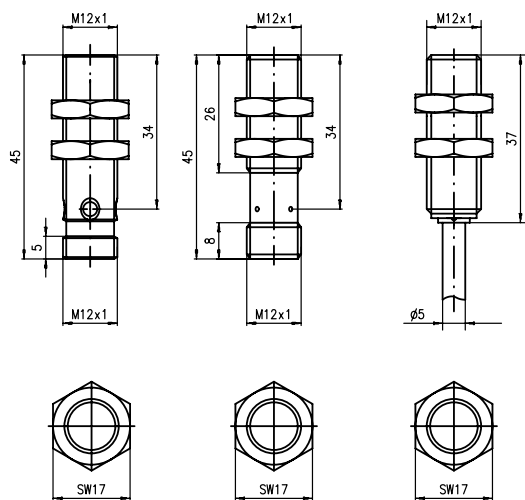
Dimensioned drawings: IS 212



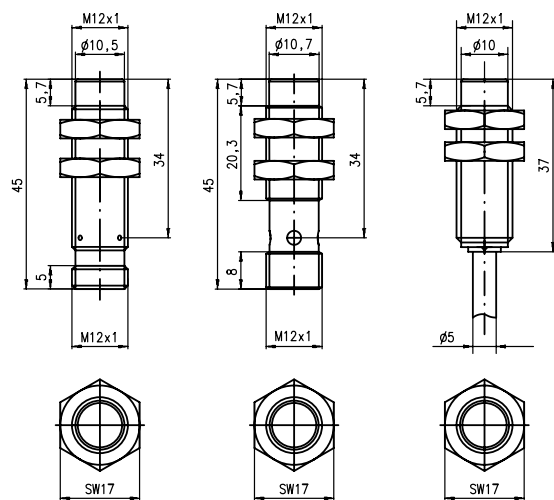
IS 212 ... E ... series



IS 212 ... N ... series



ISS 212 ... E ... series



ISS 212 ... N ... series

/// IS 218



In spite of the compact design in an M18 housing, these sensors don't skimp on power and can be quickly and easily integrated in the machine.



Benefits:

- Wide spectrum of available ranges enables application in limited spaces
- The sensor can be mounted at a greater distance from moving parts
- The high sensitivity of the sensors makes them the inexpensive solution for special applications, e.g. for close-range detection of small parts
- Sturdy all-metal housing for permanent operation



Direct access to the online product selector at www.leuze.com/en/is218

Part no.	Part description	Operating range Sa Typ. operating range limit Sn	Switching frequency	Type of installation	Switching output 1	Description	Connection	Material
50109711	ISS 218MM/4NC-20N-S12	0 ... 16.2 mm 20 mm	200 Hz	Non-embedded	Transistor, PNP, break-contact (NC)	DC	Connector, M12, 4-pin	Metal
50129365	IS 218MM/4NC-20N	0 ... 16.2 mm 20 mm	200 Hz	Non-embedded	Transistor, PNP, break-contact (NC)	DC	Cable, 2,000 mm, 3-wire	Metal
50109710	ISS 218MM/4NO-20N-S12	0 ... 16.2 mm 20 mm	200 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M12, 4-pin	Metal

Part no.	Part description	Operating range Sa Typ. operating range limit Sn	Switching frequency	Type of installation	Switching output 1	Description	Connection	Material
50109709	IS 218MM/4N0-20N	0 ... 16.2 mm 20 mm	200 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50111953	IS 218MM/2N0-20N	0 ... 16.2 mm 20 mm	200 Hz	Non-embedded	Transistor, NPN, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50129361	IS 218MM/4NC-8N0-S12	0 ... 6.4 mm 8 mm	2,000 Hz	Non-embedded	Transistor, PNP, break-contact (NC)	DC	Connector, M12, 4-pin	Metal
50129360	IS 218MM/4NC-8N0	0 ... 6.4 mm 8 mm	2,000 Hz	Non-embedded	Transistor, PNP, break-contact (NC)	DC	Cable, 2,000 mm, 3-wire	Metal
50109697	IS 218MM/4N0-8N0-S12	0 ... 6.4 mm 8 mm	2,000 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50109696	IS 218MM/4N0-8N0	0 ... 6.4 mm 8 mm	2,000 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50129363	IS 218MM/2NC-8N0-S12	0 ... 6.4 mm 8 mm	2,000 Hz	Non-embedded	Transistor, NPN, break-contact (NC)	DC	Connector, M12, 4-pin	Metal
50129362	IS 218MM/2NC-8N0	0 ... 6.4 mm 8 mm	2,000 Hz	Non-embedded	Transistor, NPN, break-contact (NC)	DC	Cable, 2,000 mm, 3-wire	Metal
50109699	IS 218MM/2N0-8N0-S12	0 ... 6.4 mm 8 mm	2,000 Hz	Non-embedded	Transistor, NPN, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50109698	IS 218MM/2N0-8N0	0 ... 6.4 mm 8 mm	2,000 Hz	Non-embedded	Transistor, NPN, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50129366	IS 218 MM/4NC-12E-S12	0 ... 9.7 mm 12 mm	500 Hz	Embedded	Transistor, PNP, break-contact (NC)	DC	Connector, M12, 4-pin	Metal
50120273	ISS 218MM/4NC-12E-S12	0 ... 9.7 mm 12 mm	500 Hz	Embedded	Transistor, PNP, break-contact (NC)	DC	Connector, M12, 4-pin	Metal
50114427	IS 218 MM/4N0-12E-S12	0 ... 9.7 mm 12 mm	500 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50109707	ISS 218MM/4N0-12E-S12	0 ... 9.7 mm 12 mm	500 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50109706	IS 218MM/4N0-12E	0 ... 9.7 mm 12 mm	500 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50109708	ISS 218MM/2N0-12E-S12	0 ... 9.7 mm 12 mm	500 Hz	Embedded	Transistor, NPN, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50111954	IS 218MM/2N0-12E	0 ... 9.7 mm 12 mm	500 Hz	Embedded	Transistor, NPN, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50109702	IS 218MM/4NC-8E0-S12	0 ... 6.4 mm 8 mm	1,500 Hz	Embedded	Transistor, PNP, break-contact (NC)	DC	Connector, M12, 4-pin	Metal
50111744	ISS 218MM/4NC-8E0-S12	0 ... 6.4 mm 8 mm	1,500 Hz	Embedded	Transistor, PNP, break-contact (NC)	DC	Connector, M12, 4-pin	Metal
50129364	IS 218MM/4NC-8E0	0 ... 6.4 mm 8 mm	1,500 Hz	Embedded	Transistor, PNP, break-contact (NC)	DC	Cable, 2,000 mm, 3-wire	Metal
50109701	IS 218MM/4N0-8E0-S12	0 ... 6.4 mm 8 mm	1,500 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50111743	ISS 218MM/4N0-8E0-S12	0 ... 6.4 mm 8 mm	1,500 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50109700	IS 218MM/4N0-8E0	0 ... 6.4 mm 8 mm	1,500 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50109705	IS 218MM/2NC-8E0-S12	0 ... 6.4 mm 8 mm	1,500 Hz	Embedded	Transistor, NPN, break-contact (NC)	DC	Connector, M12, 4-pin	Metal
50111745	ISS 218MM/2NC-8E0-S12	0 ... 6.4 mm 8 mm	1,500 Hz	Embedded	Transistor, NPN, break-contact (NC)	DC	Connector, M12, 4-pin	Metal
50129367	IS 218MM/2NC-8E0	0 ... 6.4 mm 8 mm	1,500 Hz	Embedded	Transistor, NPN, break-contact (NC)	DC	Cable, 2,000 mm, 3-wire	Metal
50109704	IS 218MM/2N0-8E0-S12	0 ... 6.4 mm 8 mm	1,500 Hz	Embedded	Transistor, NPN, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50109703	ISS 218MM/2N0-8E0-S12	0 ... 6.4 mm 8 mm	1,500 Hz	Embedded	Transistor, NPN, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50112104	IS 218MM/2N0-8E0	0 ... 6.4 mm 8 mm	1,500 Hz	Embedded	Transistor, NPN, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50127466	IS 218MM/4NC-5E0-S12	0 ... 4 mm 5 mm	2,000 Hz	Embedded	Transistor, PNP, break-contact (NC)	DC	Connector, M12, 4-pin	Metal
50129368	ISS 218MM/4NC-5E0-S12	0 ... 4 mm 5 mm	2,000 Hz	Embedded	Transistor, PNP, break-contact (NC)	DC	Connector, M12, 4-pin	Metal
50118521	IS 218MM/4NC-5E0	0 ... 4 mm 5 mm	2,000 Hz	Embedded	Transistor, PNP, break-contact (NC)	DC	Cable, 2,000 mm, 3-wire	Metal
50109693	IS 218MM/4N0-5E0-S12	0 ... 4 mm 5 mm	2,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50112293	ISS 218MM/4N0-5E0-S12	0 ... 4 mm 5 mm	2,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50109692	IS 218MM/4N0-5E0	0 ... 4 mm 5 mm	2,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50112915	ISS 218MM/4N0-5E0	0 ... 4 mm 5 mm	2,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50109694	IS 218MM/2N0-5E0	0 ... 4 mm 5 mm	2,000 Hz	Embedded	Transistor, NPN, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

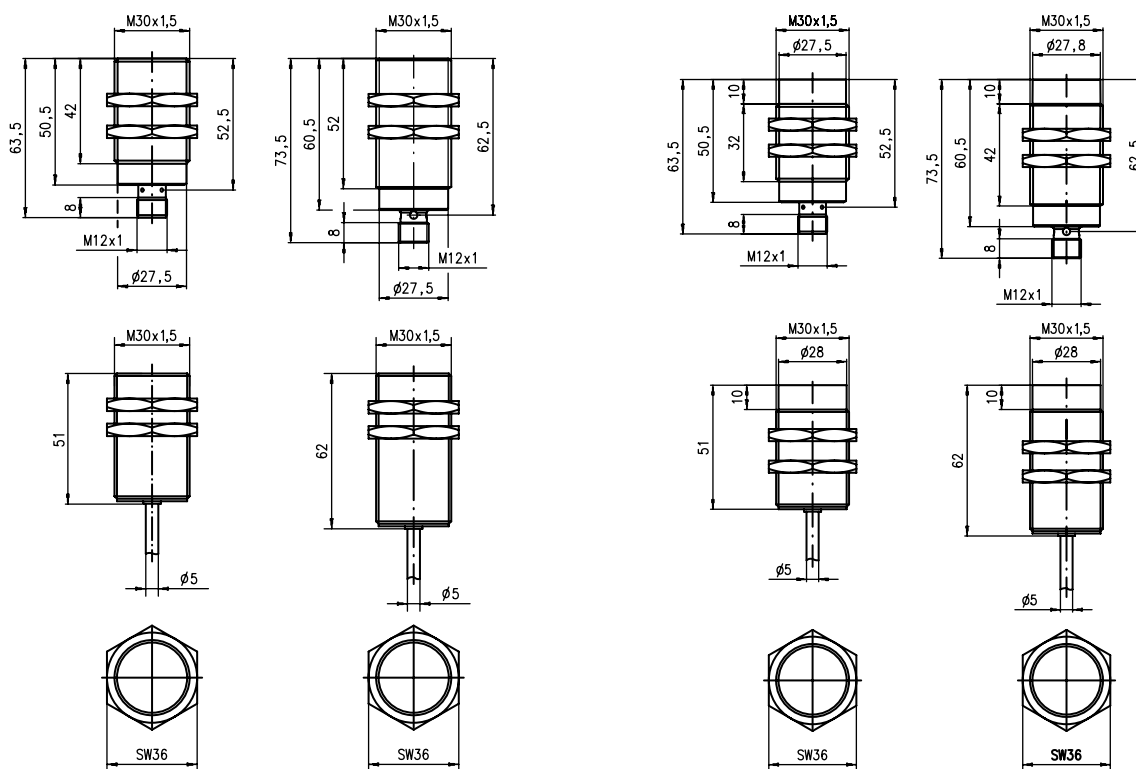
Accessories



Direct access to the online product selector at www.leuze.com/en/is230

Part no.	Part description	Operating range Sa Typ. operating range limit Sn	Switching frequency	Type of installation	Switching output 1	Description	Connection	Material
50109713	IS 230MM/4N0-10E-S12	0 ... 8.1 mm 10 mm	1,200 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M12, 4-pin	Metal
50109712	IS 230MM/4N0-10E	0 ... 8.1 mm 10 mm	1,200 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50109714	IS 230MM/2N0-10E	0 ... 8.1 mm 10 mm	1,200 Hz	Embedded	Transistor, NPN, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50129369	IS 230MM/4NC-10E	0 ... 8 mm 10 mm	1,200 Hz	Embedded	Transistor, PNP, break-contact (NC)	DC	Cable, 2,000 mm, 3-wire	Metal

Dimensioned drawings: IS 230



IS 230 ... E ... series

IS 230 ... N ... series

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

ACCESSORIES: INDUCTIVE SWITCHES, CYLINDRICAL HOUSING

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC
50130842	KD U-M8-3A-P1-020	Connector, M8, axial, female	3-pin	2,000 mm	PUR
50104520	K-D M8A-3P-2m-PVC	Connector, M8, axial, female	3-pin	2,000 mm	PVC
50130832	KD U-M8-3A-V1-050	Connector, M8, axial, female	3-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50113550	BT D08M.5	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel
50113549	BT D12M.5	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel

Further mounting brackets can be found on our website

/// Sensors with reduction factor 1



Sensors with this feature provide a constant scanning range S_n , independent of the material – regardless of whether iron, stainless steel or copper. It can be used with objects made of different materials, or with very thin metal foils.



Benefits:

- Constant material-independent range S_n
- For various metals and thin foils



Direct access to the online product selector at www.leuze.com/en/is-rf1

Part no.	Part description	Operating range S_a Typ. operating range limit S_n	Switching frequency	Type of installation	Switching output 1	Description	Connection	Material
50111436	IS 230FM/4NO.5F-40N-S12	0 ... 32.4 mm 40 mm	90 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50109734	IS 218FM/4NO.5F-20N-S12	0 ... 16.2 mm 20 mm	200 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50109738	IS 212FM/4NO.5F-10N-S12	0 ... 8.1 mm 10 mm	400 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50111435	IS 230FM/4NO.5F-20E-S12	0 ... 16.2 mm 20 mm	100 Hz	Embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50128161	IS 230FM/4NC.5-10E-S12	0 ... 8.1 mm 10 mm	50 Hz	Embedded	Transistor, PNP, break-contact (NC)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50128162	IS 230FM/4NC.5-10E	0 ... 8.1 mm 10 mm	50 Hz	Embedded	Transistor, PNP, break-contact (NC)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel
50109732	IS 218FM/4NO.5F-10E-S12	0 ... 8.1 mm 10 mm	300 Hz	Embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50128163	IS 230FM/4NO.5-10E-S12	0 ... 8.1 mm 10 mm	50 Hz	Embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50128164	IS 230FM/4NO.5-10E	0 ... 8.1 mm 10 mm	50 Hz	Embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel
50128165	IS 230FM/2NO.5-10E-S12	0 ... 8.1 mm 10 mm	50 Hz	Embedded	Transistor, NPN, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50128166	IS 230FM/2NO.5-10E	0 ... 8.1 mm 10 mm	50 Hz	Embedded	Transistor, NPN, make-contact (NO)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel
50109736	IS 212FM/4NO.5F-6E0-S12	0 ... 4.8 mm 6 mm	600 Hz	Embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50128167	IS 218FM/4NC.5-5E0-S12	0 ... 4 mm 5 mm	100 Hz	Embedded	Transistor, PNP, break-contact (NC)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50128168	IS 218FM/4NC.5-5E0	0 ... 4 mm 5 mm	100 Hz	Embedded	Transistor, PNP, break-contact (NC)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel
50128169	IS 218FM/4NO.5-5E0-S12	0 ... 4 mm 5 mm	100 Hz	Embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50128170	IS 218FM/4NO.5-5E0	0 ... 4 mm 5 mm	100 Hz	Embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel
50128171	IS 218FM/2NO.5-5E0-S12	0 ... 4 mm 5 mm	100 Hz	Embedded	Transistor, NPN, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50128172	IS 218FM/2NO.5-5E0	0 ... 4 mm 5 mm	100 Hz	Embedded	Transistor, NPN, make-contact (NO)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel
50128173	IS 212FM/4NC.5-3E0-S12	0 ... 2.4 mm 3 mm	100 Hz	Embedded	Transistor, PNP, break-contact (NC)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50128174	IS 212FM/4NC.5-3E0	0 ... 2.4 mm 3 mm	100 Hz	Embedded	Transistor, PNP, break-contact (NC)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel
50128175	IS 212FM/4NO.5-3E0-S12	0 ... 2.4 mm 3 mm	100 Hz	Embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50128176	IS 212FM/4NO.5-3E0	0 ... 2.4 mm 3 mm	100 Hz	Embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel
50128177	IS 212FM/2NO.5-3E0-S12	0 ... 2.4 mm 3 mm	100 Hz	Embedded	Transistor, NPN, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50128178	IS 212FM/2NO.5-3E0	0 ... 2.4 mm 3 mm	100 Hz	Embedded	Transistor, NPN, make-contact (NO)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel
50128179	IS 208FM/4NC.5-2E0-S8.3	0 ... 1.6 mm 2 mm	100 Hz	Embedded	Transistor, PNP, break-contact (NC)	Reduction factor 1, DC	Connector, M8, 3-pin	Stainless steel
50128180	IS 208FM/4NC.5-2E0	0 ... 1.6 mm 2 mm	100 Hz	Embedded	Transistor, PNP, break-contact (NC)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel
50128181	IS 208FM/4NO.5-2E0-S8.3	0 ... 1.6 mm 2 mm	100 Hz	Embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Connector, M8, 3-pin	Stainless steel
50128182	IS 208FM/4NO.5-2E0	0 ... 1.6 mm 2 mm	100 Hz	Embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel
50128183	IS 208FM/2NO.5-2E0-S8.3	0 ... 1.6 mm 2 mm	100 Hz	Embedded	Transistor, NPN, make-contact (NO)	Reduction factor 1, DC	Connector, M8, 3-pin	Stainless steel
50128184	IS 208FM/2NO.5-2E0	0 ... 1.6 mm 2 mm	100 Hz	Embedded	Transistor, NPN, make-contact (NO)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel

ACCESSORIES: SENSORS WITH REDUCTION FACTOR 1

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC
50130842	KD U-M8-3A-P1-020	Connector, M8, axial, female	3-pin	2,000 mm	PUR
50104520	K-D M8A-3P-2m-PVC	Connector, M8, axial, female	3-pin	2,000 mm	PVC
50130832	KD U-M8-3A-V1-050	Connector, M8, axial, female	3-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50113550	BT D08M.5	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel
50113549	BT D12M.5	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel

Further mounting brackets can be found on our website

/// AC/DC sensors



These 2-wire sensors can be used in a versatile manner within a universal environment due to their large AC/DC voltage range.



Benefits:

- Voltage range 10–230 V AC/DC
- Non-polarized switching contact NC or NO



Direct access to the online product selector at www.leuze.com/en/is-ac_dc

Part no.	Part description	Operating range Sa Typ. operating range limit Sn	Switching frequency	Type of installation	Switching output 1	Description	Connection	Material
50128153	IS 230MM/1NC.3-15N	0 ... 12.1 mm 15 mm	500 Hz	Non-embedded	Relay, NC (normally closed)	AC/DC	Cable, 2,000 mm, 2-wire	Metal
50128154	IS 230MM/1NO.3-15N	0 ... 12.1 mm 15 mm	500 Hz	Non-embedded	Relay, NO (normally open)	AC/DC	Cable, 2,000 mm, 2-wire	Metal
50128151	IS 218MM/1NC.3-5E0	0 ... 4 mm 5 mm	1,500 Hz	Embedded	Relay, NC (normally closed)	AC/DC	Cable, 2,000 mm, 2-wire	Metal
50128152	IS 218MM/1NO.3-5E0	0 ... 4 mm 5 mm	1,500 Hz	Embedded	Relay, NO (normally open)	AC/DC	Cable, 2,000 mm, 2-wire	Metal
50128149	IS 212MM/1NC.3-2E0	0 ... 1.6 mm 2 mm	3,000 Hz	Embedded	Relay, NC (normally closed)	AC/DC	Cable, 2,000 mm, 2-wire	Metal
50128150	IS 212MM/1NO.3-2E0	0 ... 1.6 mm 2 mm	3,000 Hz	Embedded	Relay, NO (normally open)	AC/DC	Cable, 2,000 mm, 2-wire	Metal

ACCESSORIES: AC/DC SENSORS

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50113549	BT D12M.5	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel

Further mounting brackets can be found on our website

//ALL STAINLESS STEEL SENSORS

STAINLESS STEEL V2A / V4A SENSORS

Our inductive sensors made of stainless steel provide an optimal solution for use in environments with higher requirements on the housing material. Variants for the Food & Beverage area (316L) are also available.

/// IS 208



V2A sensor for extreme environmental conditions and material-independent switching distance (reduction factor 1).



Benefits:

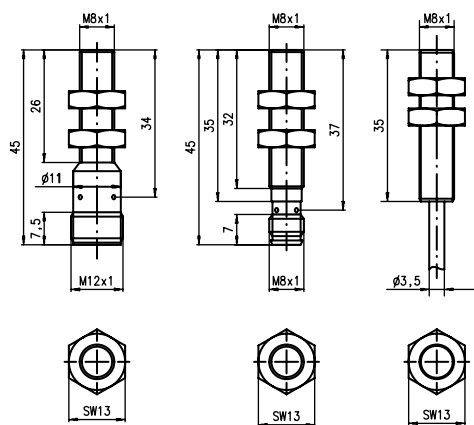
- Sturdy all-metal housing for high, permanent machine availability
- Housing of stainless steel V2A with degrees of protection IP 68 and IP 69K
- Switching distance independent of object property (reduction factor 1)



Direct access to the online product selector at www.leuze.com/en/is208

Part no.	Part description	Operating range Sa Typ. operating range limit Sn	Switching frequency	Type of installation	Switching output 1	Description	Connection	Material
50128179	IS 208FM/4NC.5-2E0-S8.3	0 ... 1.6 mm 2 mm	100 Hz	Embedded	Transistor, PNP, break-contact (NC)	Reduction factor 1, DC	Connector, M8, 3-pin	Stainless steel
50128180	IS 208FM/4NC.5-2E0	0 ... 1.6 mm 2 mm	100 Hz	Embedded	Transistor, PNP, break-contact (NC)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel
50128181	IS 208FM/4NO.5-2E0-S8.3	0 ... 1.6 mm 2 mm	100 Hz	Embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Connector, M8, 3-pin	Stainless steel
50128182	IS 208FM/4NO.5-2E0	0 ... 1.6 mm 2 mm	100 Hz	Embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel
50128183	IS 208FM/2NO.5-2E0-S8.3	0 ... 1.6 mm 2 mm	100 Hz	Embedded	Transistor, NPN, make-contact (NO)	Reduction factor 1, DC	Connector, M8, 3-pin	Stainless steel
50128184	IS 208FM/2NO.5-2E0	0 ... 1.6 mm 2 mm	100 Hz	Embedded	Transistor, NPN, make-contact (NO)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel

Dimensioned drawings: IS 208



IS 208 ... E... series

/// IS 212



With their robust housing made of stainless steel, these sensors withstand even aggressive cleaning processes encountered in food and pharmaceutical production.

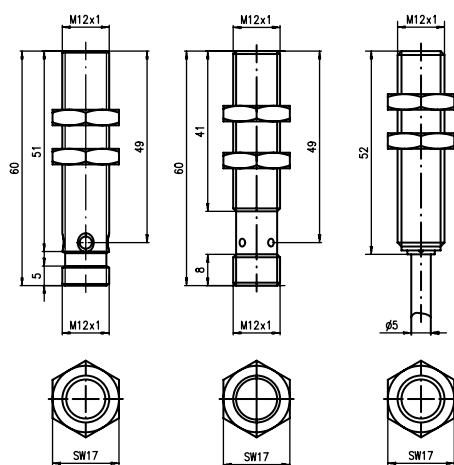
**Benefits:**

- Sturdy stainless steel housing for high, permanent machine availability
- Housing of stainless steel 316L with degree of protection IP 69K for food & beverage applications as well as V2A housing material with degree of protection IP 68/ IP 69K
- Large ranges on stainless steel objects for reliable detection of machine parts, e.g. on packaging machinery in the foodstuffs sector
- Switching distance independent of object property (reduction factor 1)

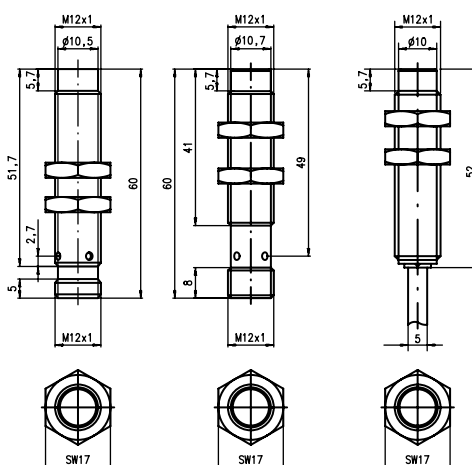


Direct access to the online product selector at www.leuze.com/en/is212

Part no.	Part description	Operating range Sa Typ. operating range limit Sn	Switching frequency	Type of installation	Switching output 1	Description	Connection	Material
50109738	IS 212FM/4N0.5F-10N-S12	0 ... 8.1 mm 10 mm	400 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50109736	IS 212FM/4N0.5F-6E0-S12	0 ... 4.8 mm 6 mm	600 Hz	Embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50117127	IS 212FM/4N0.5W-6E0-S12	0 ... 4.8 mm 6 mm	15 Hz	Embedded	Transistor, PNP, make-contact (NO)	Resistant against welding sparks, DC	Connector, M12, 4-pin	Stainless steel
50128173	IS 212FM/4NC.5-3E0-S12	0 ... 2.4 mm 3 mm	100 Hz	Embedded	Transistor, PNP, break-contact (NC)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50128174	IS 212FM/4NC.5-3E0	0 ... 2.4 mm 3 mm	100 Hz	Embedded	Transistor, PNP, break-contact (NC)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel
50128175	IS 212FM/4N0.5-3E0-S12	0 ... 2.4 mm 3 mm	100 Hz	Embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50128176	IS 212FM/4N0.5-3E0	0 ... 2.4 mm 3 mm	100 Hz	Embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel
50128177	IS 212FM/2N0.5-3E0-S12	0 ... 2.4 mm 3 mm	100 Hz	Embedded	Transistor, NPN, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50128178	IS 212FM/2N0.5-3E0	0 ... 2.4 mm 3 mm	100 Hz	Embedded	Transistor, NPN, make-contact (NO)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel

Dimensioned drawings: IS 212

IS 212 ... E ... series



IS 212 ... N ... series

/// IS 218



Like the IS 212 series, these sensors are likewise robust with V4A housing and, in addition, offer a larger switching distance.

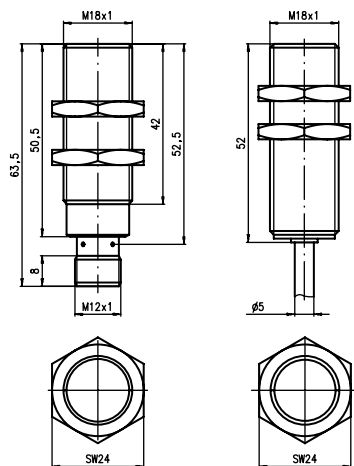
**Benefits:**

- Sturdy all-metal housing for high, permanent machine availability
- Housing of stainless steel 316L with degree of protection IP 69K for food & beverage applications as well as V2A housing material with degree of protection IP 68/ IP 69K
- Large ranges on stainless steel objects for reliable detection of machine parts, e. g. on packaging machinery in the foodstuffs sector
- Switching distance independent of object property (reduction factor 1)

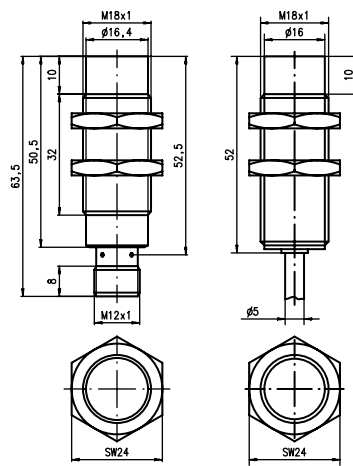


Direct access to the online product selector at www.leuze.com/en/is218

Part no.	Part description	Operating range Sa Typ. operating range limit Sn	Switching frequency	Type of installation	Switching output 1	Description	Connection	Material
50109734	IS 218FM/4NO.5F-20N-S12	0 ... 16.2 mm 20 mm	200 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50109732	IS 218FM/4NO.5F-10E-S12	0 ... 8.1 mm 10 mm	300 Hz	Embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50128167	IS 218FM/4NC.5-5E0-S12	0 ... 4 mm 5 mm	100 Hz	Embedded	Transistor, PNP, break-contact (NC)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50128168	IS 218FM/4NC.5-5E0	0 ... 4 mm 5 mm	100 Hz	Embedded	Transistor, PNP, break-contact (NC)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel
50128169	IS 218FM/4NO.5-5E0-S12	0 ... 4 mm 5 mm	100 Hz	Embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50128170	IS 218FM/4NO.5-5E0	0 ... 4 mm 5 mm	100 Hz	Embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel
50128171	IS 218FM/2NO.5-5E0-S12	0 ... 4 mm 5 mm	100 Hz	Embedded	Transistor, NPN, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50128172	IS 218FM/2NO.5-5E0	0 ... 4 mm 5 mm	100 Hz	Embedded	Transistor, NPN, make-contact (NO)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel

Dimensioned drawings: IS 218

IS 218...E... series



IS 218...N... series

/// IS 230



With a switching distance of up to 40 mm, this series in the M30 stainless steel design offers the greatest possible flexibility during mounting.

**Benefits:**

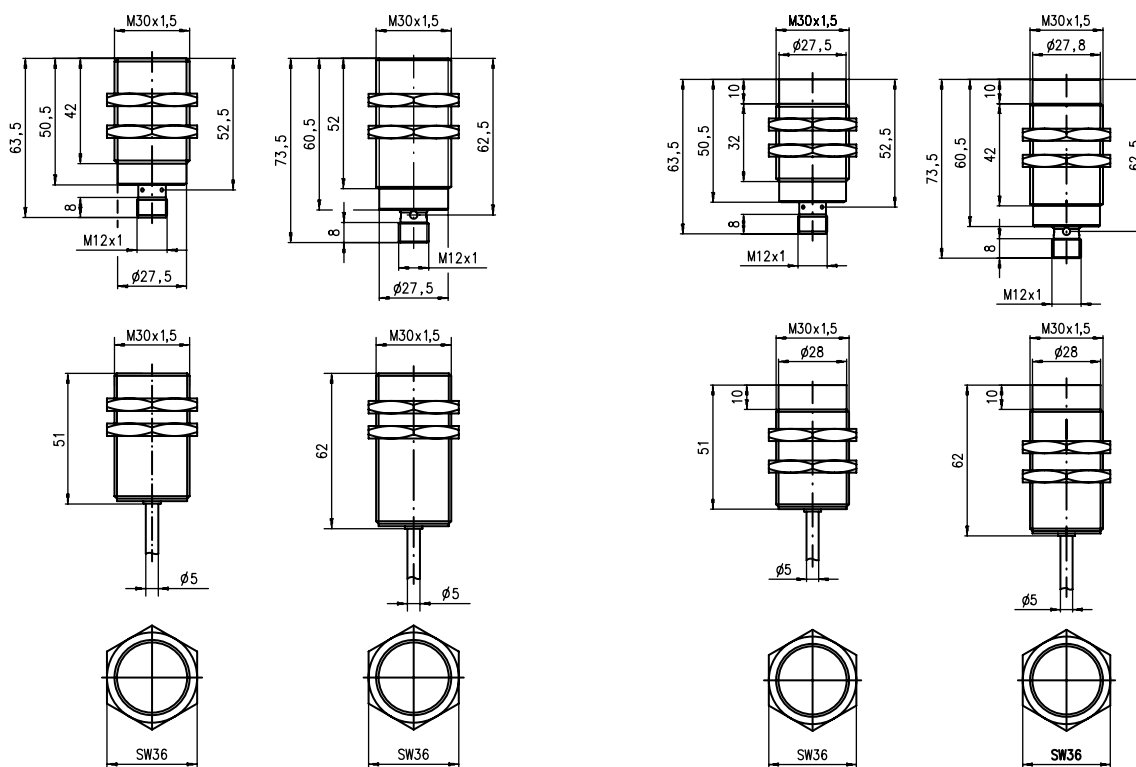
- Sturdy all-metal housing for high, permanent machine availability
- Housing of stainless steel 316L with degree of protection IP 69K for food & beverage applications as well as V2A housing material with degree of protection IP 68/ IP 69K
- Large ranges on stainless steel objects for reliable detection of machine parts, e. g. on packaging machinery in the foodstuffs sector
- Switching distance independent of object property (reduction factor 1)



Direct access to the online product selector at www.leuze.com/en/is230

Part no.	Part description	Operating range Sa Typ. operating range limit Sn	Switching frequency	Type of installation	Switching output 1	Description	Connection	Material
50111436	IS 230FM/4NO.5F-40N-S12	0 ... 32.4 mm 40 mm	90 Hz	Non-embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50111435	IS 230FM/4NO.5F-20E-S12	0 ... 16.2 mm 20 mm	100 Hz	Embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50128161	IS 230FM/4NC.5-10E-S12	0 ... 8.1 mm 10 mm	50 Hz	Embedded	Transistor, PNP, break-contact (NC)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50128162	IS 230FM/4NC.5-10E	0 ... 8.1 mm 10 mm	50 Hz	Embedded	Transistor, PNP, break-contact (NC)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel
50128163	IS 230FM/4NO.5-10E-S12	0 ... 8.1 mm 10 mm	50 Hz	Embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50128164	IS 230FM/4NO.5-10E	0 ... 8.1 mm 10 mm	50 Hz	Embedded	Transistor, PNP, make-contact (NO)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel
50128165	IS 230FM/2NO.5-10E-S12	0 ... 8.1 mm 10 mm	50 Hz	Embedded	Transistor, NPN, make-contact (NO)	Reduction factor 1, DC	Connector, M12, 4-pin	Stainless steel
50128166	IS 230FM/2NO.5-10E	0 ... 8.1 mm 10 mm	50 Hz	Embedded	Transistor, NPN, make-contact (NO)	Reduction factor 1, DC	Cable, 2,000 mm, 3-wire	Stainless steel

Dimensioned drawings: IS 230



IS 230 ... E ... series

IS 230 ... N ... series

ACCESSORIES: ALL STAINLESS STEEL SENSORS

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104571	K-D M12W-4P-2m-FAB	Connector, M12, angled, female	4-pin	2,000 mm	FAB
50104573	K-D M12W-4P-5m-FAB	Connector, M12, angled, female	4-pin	5,000 mm	FAB
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50104570	K-D M12A-4P-2m-FAB	Connector, M12, axial, female	4-pin	2,000 mm	FAB
50104572	K-D M12A-4P-5m-FAB	Connector, M12, axial, female	4-pin	5,000 mm	FAB
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50113550	BT D08M.5	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel
50113549	BT D12M.5	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel

Further mounting brackets can be found on our website

SMARTER APPLICATION KNOW-HOW

We are constantly working on challenges and important issues in our target markets.



Safety at work



Ex-protection



IO-Link



Laser class 1



ID technologies



Connectivity



Find out more in our user knowledge and topic center: www.leuze.com/en/topics

//MINIATURE SENSORS

SPACE IN THE SMALLEST SYSTEM

For constrained spaces and special applications, Leuze electronic offers miniature sensor versions in a wide range of designs.

/// IS 255



This subminiature sensor in a cubic housing measuring just 5x5 mm doesn't need to hide.



Benefits:

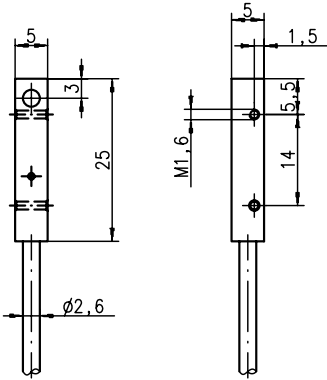
- Laterally aligned sensor field for space and hence cost-saving integration
- Short response times for reliable detection in dynamic processes



Direct access to the online product selector at www.leuze.com/en/is255

Part no.	Part description	Operating range Sa Typ. operating range limit Sn	Switching frequency	Type of installation	Switching output 1	Description	Connection	Material
50117200	IS 255MP/4NO-1E5,200-S8.3	0 ... 1.2 mm 1.5 mm	3,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable with connector, 200 mm, M8, 3-pin	Metal
50113209	IS 255MP/4NO-1E5	0 ... 1.2 mm 1.5 mm	3,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50113210	IS 255MP/2NO-1E5	0 ... 1.2 mm 1.5 mm	3,000 Hz	Embedded	Transistor, NPN, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal

Dimensioned drawings: IS 255



IS 255 series

Switching sensors

Measuring sensors

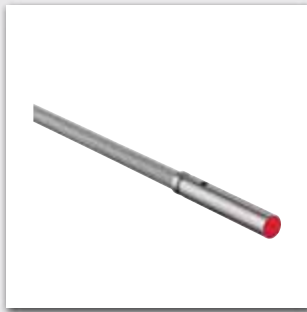
Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

/// IS 204

A cylindrical sensor with a diameter of just 4 mm fits in every system.

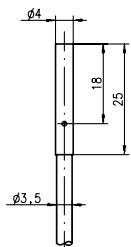
**Benefits:**

- Very small construction for integration in extremely confined spaces
- Large ranges offer broad application flexibility and sufficient function reserves for reliable detection even of different metals
- Short response times for reliable detection in dynamic processes



Direct access to the online product selector at www.leuze.com/en/is204

Part no.	Part description	Operating range Sa Typ. operating range limit Sn	Switching frequency	Type of installation	Switching output 1	Description	Connection	Material
50113478	IS 204MP/4N0-1E5	0 ... 1.2 mm 1.5 mm	3,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Stainless steel

Dimensioned drawings: IS 204

IS 204 series

/// IS 205

With its M5 fine thread, this sensor can be very easily mounted even in constrained spaces.

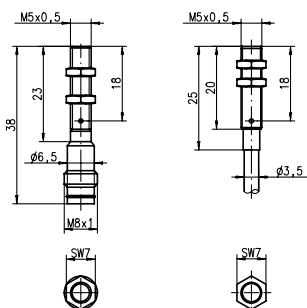
**Benefits:**

- Very small construction for integration in extremely confined spaces
- Clearly visible indicator for precise alignment
- Short response times for reliable detection in dynamic processes



Direct access to the online product selector at www.leuze.com/en/is205

Part no.	Part description	Operating range Sa Typ. operating range limit Sn	Switching frequency	Type of installation	Switching output 1	Description	Connection	Material
50113212	IS 205MM/4N0-1E5-S8.3	0 ... 1.2 mm 1.5 mm	3,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M8, 3-pin	Stainless steel
50113213	IS 205MM/4N0-1E5	0 ... 1.2 mm 1.5 mm	3,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Stainless steel

Dimensioned drawings: IS 205

IS 205 series

/// IS 206



This miniature sensor convinces with ranges of up to 3.0 mm with completely flush mounting.

**Benefits:**

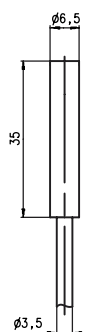
- Very small construction for integration in extremely confined spaces
- Large ranges offer broad application flexibility and sufficient function reserves for reliable detection even of different metals
- Short response times for reliable detection in dynamic processes



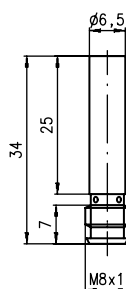
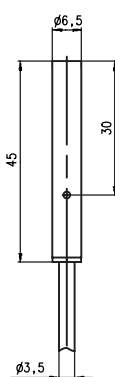
Direct access to the online product selector at www.leuze.com/en/is206

Part no.	Part description	Operating range Sa Typ. operating range limit Sn	Switching frequency	Type of installation	Switching output 1	Description	Connection	Material
50109686	IS 206MP/4NO-3E0	0 ... 2.4 mm 3 mm	1,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Metal
50111438	ISS 206MP/4NO-2E0-S8.3	0 ... 1.6 mm 2 mm	5,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Connector, M8, 3-pin	Stainless steel
50121902	IS 206MP/4NO-2E0,300-S8.3W	0 ... 1.6 mm 2 mm	5,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable with connector, 300 mm, M8, 3-pin	Stainless steel
50121901	IS 206MP/4NO-2E0,150-S8.3W	0 ... 1.6 mm 2 mm	5,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable with connector, 150 mm, M8, 3-pin	Stainless steel
50111437	IS 206MP/4NO-2E0	0 ... 1.6 mm 2 mm	5,000 Hz	Embedded	Transistor, PNP, make-contact (NO)	DC	Cable, 2,000 mm, 3-wire	Stainless steel

Dimensioned drawings: IS 206



IS 206 series



ISS 206 series

ACCESSORIES: MINIATURE SENSORS

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130867	KD U-M8-3W-P1-050	Connector, M8, angled, female	3-pin	5,000 mm	PUR
50130862	KD U-M8-3W-V1-050	Connector, M8, angled, female	3-pin	5,000 mm	PVC
50130842	KD U-M8-3A-P1-020	Connector, M8, axial, female	3-pin	2,000 mm	PUR
50130844	KD U-M8-3A-P1-050	Connector, M8, axial, female	3-pin	5,000 mm	PUR
50104520	K-D M8A-3P-2m-PVC	Connector, M8, axial, female	3-pin	2,000 mm	PVC
50130832	KD U-M8-3A-V1-050	Connector, M8, axial, female	3-pin	5,000 mm	PVC

Further connection cables can be found on our website

/ ULTRASONIC SENSORS

THE ALL-ROUNDERS AMONG THE SENSORS

Ultrasonic sensors are used whenever optical systems reach their limits. Hence, partially and fully transparent or extremely dark objects can be detected just as easily as objects with reflecting surfaces or objects in dusty, vaporous or humid environments.

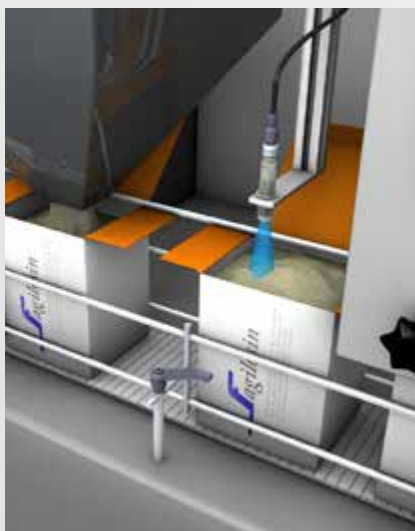


Ultrasonic sensors, cubic housing

Page 139

Ultrasonic sensors, cylindrical housing

Page 142



//ULTRASONIC SENSORS, CUBIC HOUSING

SPECIALISTS FOR REFLECTIVE SURFACES

Our ultrasonic sensors in the cubic design feature a very good background suppression based on the reliable runtime measurement. Due to the largely surface-independent switching behavior, they are particularly well-suited for sound-reflecting materials.

/// 18 series



This ultrasonic sensor features a high sound pressure and is thus suitable even for air transport systems.



Benefits:

- Detection of narrow gaps
- Reliable object detection even in humid and foggy environment
- Metal housing
- Sensitivity adjustment via step switch
- Insensitive to dust



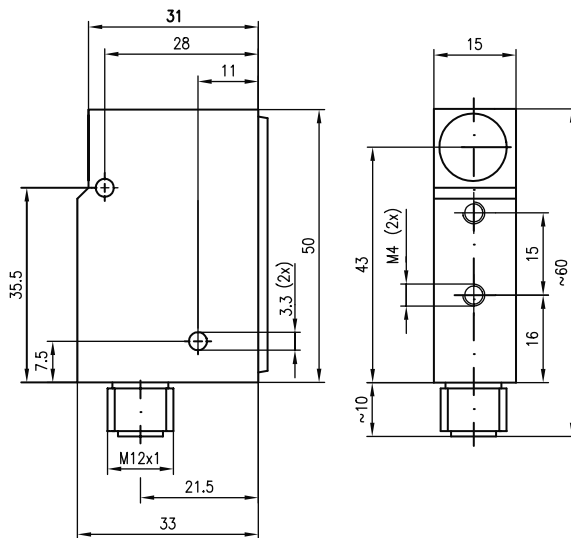
Direct access to the online product selector at www.leuze.com/en/br18u

Part no.	Part description	Operating range	Switching frequency	Switching output 1	Switching output 2	Sound cone Angle of radiation	Description
50103365	► LSSU 18-S12	0 ... 0.65 m	100 Hz			Standard Front	Operational controls: step switch, connector, M12, 5-pin
50103364	◄ LSEU 18/24-S12	0 ... 0.65 m	100 Hz	Transistor, PNP, make-contact (NO)	Transistor, NPN, make-contact (NO)	Standard Front	Operational controls: step switch, connector, M12, 5-pin

► transmitter / ◄ receiver

Operating range: over the whole temperature range, measured object $\geq 20 \times 20$ mm²

Dimensioned drawings: 18 series



18 series

 Switching
sensors

 Measuring
sensors

 Products for
safety at work

Identification

 Data transmission /
Control components

 Industrial image
processing

Accessories

/// 420 series



From narrow to wide, this diffuse reflection ultrasonic sensor offers three different opening angles and sound lobes.

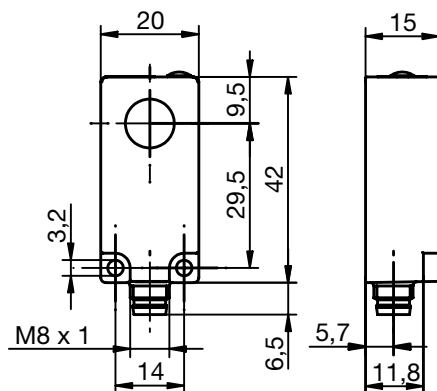
**Benefits:**

- Small ultrasonic sensor in plastic housing with degree of protection IP 67
- Various opening angles and sound cone geometries
- Switching behavior largely independent of surface properties
- Precise switching point adjustment through teach-in on the device and via a cable
- Protection against erroneous operation by automatically locking teach button



Direct access to the online product selector at www.leuze.com/en/br420u

Part no.	Part description	Operating range	Switching frequency	Switching output 1	Sound cone Angle of radiation	Description
50113989	HRTU 420/4NC.2-S-S8	0.01 ... 0.2 m	50 Hz	Transistor, PNP, break-contact (NC)	Narrow Front	Operational controls: teach button, connector, M8, 4-pin
50113992	HRTU 420/4NO.2-S-S8	0.01 ... 0.2 m	50 Hz	Transistor, PNP, make-contact (NO)	Narrow Front	Operational controls: teach button, connector, M8, 4-pin
50113983	HRTU 420/2NC.2-S-S8	0.01 ... 0.2 m	50 Hz	Transistor, NPN, break-contact (NC)	Narrow Front	Operational controls: teach button, connector, M8, 4-pin
50113986	HRTU 420/2NO.2-S-S8	0.01 ... 0.2 m	50 Hz	Transistor, NPN, make-contact (NO)	Narrow Front	Operational controls: teach button, connector, M8, 4-pin
50113988	HRTU 420/4NC.2-S8	0.04 ... 0.4 m	20 Hz	Transistor, PNP, break-contact (NC)	Standard Front	Operational controls: teach button, connector, M8, 4-pin
50113991	HRTU 420/4NO.2-S8	0.04 ... 0.4 m	20 Hz	Transistor, PNP, make-contact (NO)	Standard Front	Operational controls: teach button, connector, M8, 4-pin
50113982	HRTU 420/2NC.2-S8	0.04 ... 0.4 m	20 Hz	Transistor, NPN, break-contact (NC)	Standard Front	Operational controls: teach button, connector, M8, 4-pin
50132082	RKU 420/2NC.2-S8	0 ... 0.4 m	20 Hz	Transistor, NPN, break-contact (NC)	Standard Front	Operational controls: teach button, connector, M8, 4-pin
50113985	HRTU 420/2NO.2-S8	0.04 ... 0.4 m	20 Hz	Transistor, NPN, make-contact (NO)	Standard Front	Operational controls: teach button, connector, M8, 4-pin
50113987	HRTU 420/4NC.2-L-S8	0.1 ... 1 m	10 Hz	Transistor, PNP, break-contact (NC)	Wide Front	Operational controls: teach button, connector, M8, 4-pin
50113990	HRTU 420/4NO.2-L-S8	0.1 ... 1 m	10 Hz	Transistor, PNP, make-contact (NO)	Wide Front	Operational controls: teach button, connector, M8, 4-pin
50113981	HRTU 420/2NC.2-L-S8	0.1 ... 1 m	10 Hz	Transistor, NPN, break-contact (NC)	Wide Front	Operational controls: teach button, connector, M8, 4-pin
50113984	HRTU 420/2NO.2-L-S8	0.1 ... 1 m	10 Hz	Transistor, NPN, make-contact (NO)	Wide Front	Operational controls: teach button, connector, M8, 4-pin

Dimensioned drawings: 420 series

420 series

ACCESSORIES: ULTRASONIC SENSORS, CUBIC HOUSING

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104762	K-D M12W-5P-5m-PUR	Connector, M12, angled, female	5-pin	5,000 mm	PUR
50104556	K-D M12W-5P-2m-PVC	Connector, M12, angled, female	5-pin	2,000 mm	PVC
50104569	K-D M12A-5P-5m-PUR	Connector, M12, axial, female	5-pin	5,000 mm	PUR
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm	PVC
50130869	KD U-M8-4W-V1-020	Connector, M8, angled, female	4-pin	2,000 mm	PVC
50130871	KD U-M8-4W-V1-050	Connector, M8, angled, female	4-pin	5,000 mm	PVC
50130848	KD U-M8-4A-V1-020	Connector, M8, axial, female	4-pin	2,000 mm	PVC
50130850	KD U-M8-4A-V1-050	Connector, M8, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50020833	BT 95	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117255	BTU 200M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Metal

Further rod mounts can be found on our website

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

SMARTER CUSTOMER SERVICE



Product selector

Intuitive web applications for
convenient product selection



*"Our goal is to further focus our
performance and offer our customers
something that they can only
find from the sensor people –
smart sensor business"*

Ann-Kathrin Waldow,
Sales Methods, Processes, Tools

The appropriate product for every application: www.leuze.com/en/products



//ULTRASONIC SENSORS, CYLINDRICAL HOUSING

EXPERTS IN CYLINDRICAL DESIGN

The cylindrical ultrasonic sensors with particularly thin sound cone are specially designed for the detection of small objects or objects in very small openings and for distance, height and dimension measurements of objects in many different areas of application.

/// 412 series



The cylindrical M12 design with two different opening angles ensures high flexibility during installation and use.



Benefits:

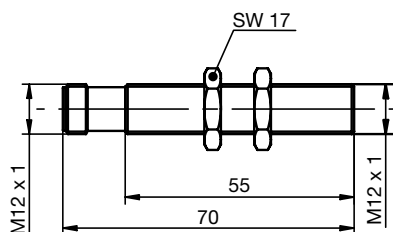
- Metal housing M12
- Precise switching point adjustment via line teach
- Especially narrow sound cone available



Direct access to the online product selector at www.leuze.com/en/br412u

Part no.	Part description	Operating range	Switching frequency	Switching output 1	Sound cone Angle of radiation	Description
50113995	HRTU 412/4NC.2-S-S12	0.01 ... 0.2 m	50 Hz	Transistor, PNP, break-contact (NC)	Narrow Front	Teach input, connector, M12, 4-pin
50113993	HRTU 412/4NO.2-S-S12	0.01 ... 0.2 m	50 Hz	Transistor, PNP, make-contact (NO)	Narrow Front	Teach input, connector, M12, 4-pin
50113999	HRTU 412/2NC.2-S-S12	0.01 ... 0.2 m	50 Hz	Transistor, NPN, break-contact (NC)	Narrow Front	Teach input, connector, M12, 4-pin
50113997	HRTU 412/2NO.2-S-S12	0.01 ... 0.2 m	50 Hz	Transistor, NPN, make-contact (NO)	Narrow Front	Teach input, connector, M12, 4-pin
50113996	HRTU 412/4NC.2-S12	0.04 ... 0.4 m	20 Hz	Transistor, PNP, break-contact (NC)	Narrow Front	Teach input, connector, M12, 4-pin
50113994	HRTU 412/4NO.2-S12	0.04 ... 0.4 m	20 Hz	Transistor, PNP, make-contact (NO)	Narrow Front	Teach input, connector, M12, 4-pin
50114000	HRTU 412/2NC.2-S12	0.04 ... 0.4 m	20 Hz	Transistor, NPN, break-contact (NC)	Narrow Front	Teach input, connector, M12, 4-pin
50113998	HRTU 412/2NO.2-S12	0.04 ... 0.4 m	20 Hz	Transistor, NPN, make-contact (NO)	Narrow Front	Teach input, connector, M12, 4-pin

Dimensioned drawings: 412 series



412 series

/// 418 series



Short design, teachable and up to 2 independent switching outputs are the key features of this series. Also optionally available with angled head, which enables a sound outlet at 90 ° to the longitudinal axis of the M18 sensor. Versions available with temperature compensation and IO-Link.



Benefits:

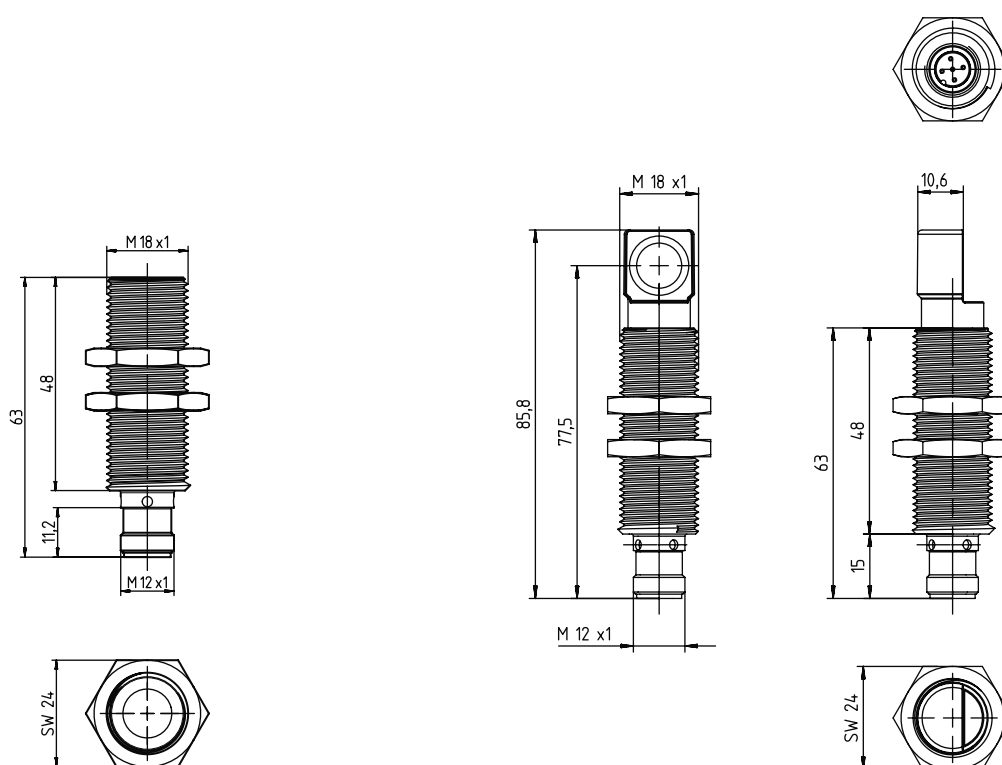
- Precise switching point adjustment through teach or via IO-Link
- One teach button per switching output
- Models with temperature compensation
- Operating mode setting and configuration via IO-Link (multiplex, parallel, throughbeam)
- Small dead zone at long range



Direct access to the online product selector at www.leuze.com/en/br418u

Part no.	Part description	Operating range	Switching frequency	Switching output 1	Switching output 2	Sound cone Angle of radiation	Description
50127764	HTU418B-400/PTX-M12	0.025 ... 0.4 m	7 Hz	Transistor, PNP, break-contact (NC)		Standard Front	Teach input, connector, M12, 5-pin
50129826	HTU418B-400.W/4T4-M12	0.025 ... 0.4 m	7 Hz	Transistor, PNP, make-contact (NO)	Transistor, PNP, break-contact/ make-contact	Standard 90 ° deflection	Teach input, connector, M12, 5-pin, 2 independent switching points
50129824	HTU418B-400.W/4TX-M12	0.025 ... 0.4 m	7 Hz	Transistor, PNP, make-contact (NO)		Standard 90 ° deflection	Teach input, connector, M12, 5-pin
50124268	HTU418B-400/4T4-M12	0.025 ... 0.4 m	7 Hz	Transistor, PNP, make-contact (NO)	Transistor, PNP, break-contact/ make-contact	Standard Front	Teach input, connector, M12, 5-pin, 2 independent switching points
50124269	HTU418B-400/4TX-M12	0.025 ... 0.4 m	7 Hz	Transistor, PNP, make-contact (NO)		Standard Front	Teach input, connector, M12, 5-pin
50124267	HTU418B-400.X3/LT4-M12	0.025 ... 0.4 m	7 Hz	Transistor, push-pull, IO-Link / NC/NO	Transistor, PNP, break-contact/ make-contact	Standard Front	Interface: IO-Link; Operational controls: control buttons, 2 independent switching points, connector, M12, 5-pin
50131020	HTU418B-700/4TX-M12	0.1 ... 0.7 m	8 Hz	Transistor, PNP, make-contact (NO)		Standard Front	Teach input, connector, M12, 5-pin
50129825	HTU418B-1000.W/4TX-M12	0.15 ... 1 m	8 Hz	Transistor, PNP, make-contact (NO)		Standard 90 ° deflection	Teach input, connector, M12, 5-pin
50124270	HTU418B-1000/4TX-M12	0.15 ... 1 m	8 Hz	Transistor, PNP, make-contact (NO)		Standard Front	Teach input, connector, M12, 5-pin
50129827	HTU418B-1300.W/4T4-M12	0.15 ... 1.3 m	8 Hz	Transistor, PNP, make-contact (NO)	Transistor, PNP, break-contact/ make-contact	Standard 90 ° deflection	2 independent switching points, connector, M12, 5-pin, teach input
50124272	HTU418B-1300/4T4-M12	0.15 ... 1.3 m	8 Hz	Transistor, PNP, make-contact (NO)	Transistor, PNP, break-contact/ make-contact	Standard Front	Teach input, connector, M12, 5-pin, 2 independent switching points
50124271	HTU418B-1300.X3/LT4-M12	0.15 ... 1.3 m	8 Hz	Transistor, push-pull, IO-Link / NC/NO	Transistor, PNP, break-contact/ make-contact	Standard Front	Interface: IO-Link; Operational controls: control buttons, 2 independent switching points, connector, M12, 5-pin

Dimensioned drawings: 418 series



418B series

418B...W series

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

/// 430 series



Whenever large ranges are needed, the M30 sensors from the 430 series are the right choice. Two separate switching outputs can be set independently by means of teach button or IO-Link. A total of 10 of these sensors can be easily synchronized with a cable.

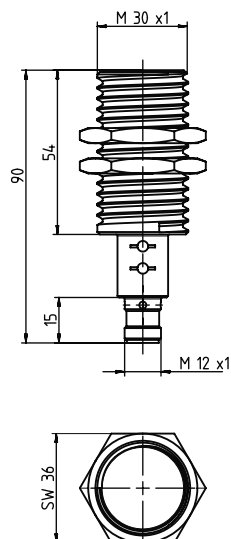
**Benefits:**

- Particularly compact design: M30
- Precise switching point adjustment through teach or via IO-Link
- One teach button per switching output
- Operating mode setting and configuration via IO-Link (multiplex, parallel, throughbeam)
- High accuracy through temperature compensation
- Small dead zone at long range

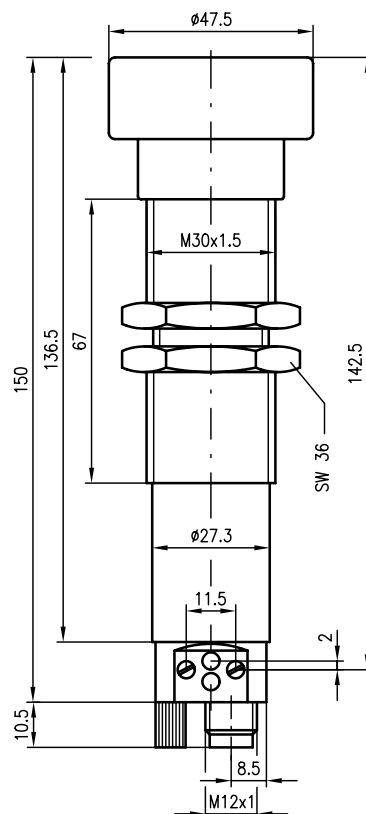


Direct access to the online product selector at www.leuze.com/en/br430u

Part no.	Part description	Operating range	Switching frequency	Switching output 1	Switching output 2	Sound cone Angle of radiation	Description
50124273	HTU430B-3000.X3/LT4-M12	0.3 ... 3 m	4 Hz	Transistor, push-pull, IO-Link / NC/NO	Transistor, PNP, break-contact/ make-contact	Standard Front	Interface: IO-Link; Operational controls: control buttons, 2 independent switching points, connector, M12, 5-pin
50036264	VRTU 430M/P-1110-6000-S12	0.6 ... 6 m	1 Hz	Transistor, PNP, break-contact/ make-contact	Transistor, PNP, break-contact/ make-contact	Standard Front	Operational controls: 270 ° potentiometer, synchronization input, connector, M12, 5-pin

Dimensioned drawings: 430 series

430B series



430 series

ACCESSORIES: ULTRASONIC SENSORS, CYLINDRICAL HOUSING

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130694	KD U-M12-4W-P1-050	Connector, M12, angled, female	4-pin	5,000 mm	PUR
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50104762	K-D M12W-5P-5m-PUR	Connector, M12, angled, female	5-pin	5,000 mm	PUR
50104556	K-D M12W-5P-2m-PVC	Connector, M12, angled, female	5-pin	2,000 mm	PVC
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC
50104569	K-D M12A-5P-5m-PUR	Connector, M12, axial, female	5-pin	5,000 mm	PUR
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50113548	BT D18M.5	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117490	BTU D18M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	Through-hole mounting	Metal

Further rod mounts can be found on our website

Other mounting systems

Part no.	Part description	Suitable for	Fastening at device	Fastening at system	Material
50125860	BTX-D18M-D30	Sensors with M18 design	Screw type	Mounting thread	Stainless steel

Further mounting systems can be found on our website

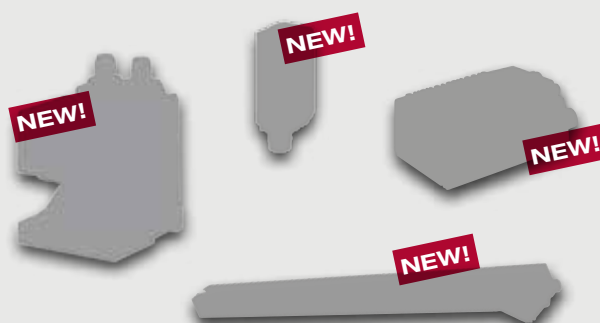
SMARTER **PRODUCT USABILITY**

Optimum handling, very simple mounting and alignment, uncomplicated integration in fieldbus systems and fast configuration.

Discover our product innovations!



Direct access to our product innovations: www.leuze.com/en/innovations



/ FIBER OPTIC SENSORS

HOW TO BEND LIGHT AROUND A CORNER

With the use of fiber optics and appropriate amplifiers, the area of application of optoelectronic sensors is considerably expanded. The flexible fiber optics with various head shapes can be integrated in nearly any system design. The detection range is dependent on the fiber optics and amplifiers used.

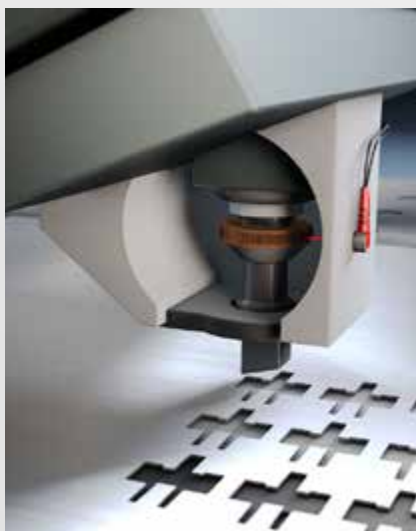


Amplifiers

Page 147

Fiber optics

Page 151



//AMPLIFIERS

SIMPLE SETUP AND CONTROL

The optical fibers are plugged into the amplifier. Depending on the model, the ranges of the fibers and the available functions vary.

/// LV461



The series satisfies all basic requirements: 20-turn potentiometer for high-resolution sensitivity adjustments, 2 switches for light/dark switching and for selecting between larger range or higher switching frequency.



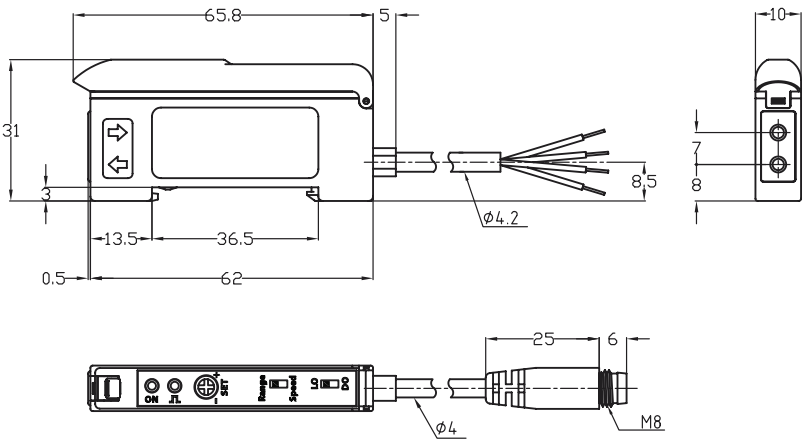
- Benefits:**
- Mode changeover: range / response time
 - Light/dark switching
 - 20-turn potentiometer for sensitivity adjustment



Direct access to the online product selector at www.leuze.com/en/lv461

Part no.	Part description	Light source	Switching output	Input/output	Supply voltage	Switching frequency	Connection	Operational controls
50118399	LV461.1/P2-150-M8	LED, red	Transistor, PNP	Transistor, NPN	DC	500 Hz	Connector, 150 mm, M8, 4-pin	Multiturn potentiometer, control buttons
50118398	LV461.1/P2	LED, red	Transistor, PNP	Transistor, NPN	DC	500 Hz	Cable, 2,000 mm, 4-wire	Multiturn potentiometer, control buttons

Dimensioned drawings: LV461



LV 461 fiber optic amplifier

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

/// LV462



The series has a 4-digit display for displaying the switching threshold. The setting is made with the AutoSet function or manually with the \pm button. A switch for light/dark switching and simple menu functions for setting the range and various timing functions complement the device features.

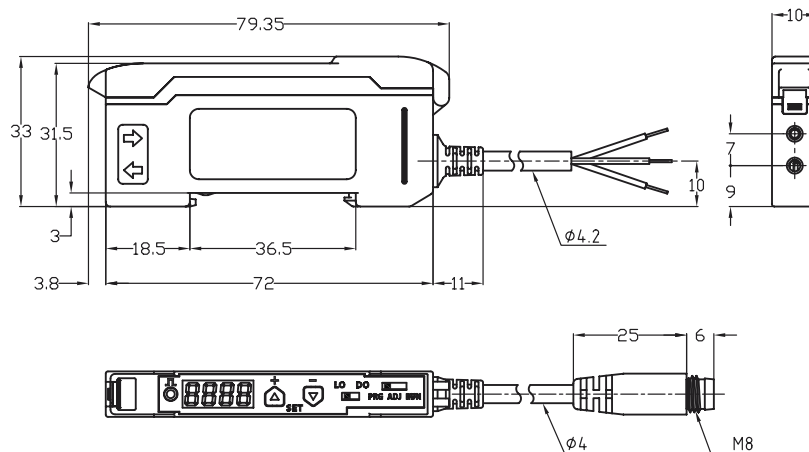
**Benefits:**

- 4-digit display
- High dynamics
- Time functions configurable on the device
- Sensitivity levels configurable on the device
- Light/dark switching
- Easy sensitivity adjustment via AutoSet function



Direct access to the online product selector at www.leuze.com/en/lv462

Part no.	Part description	Light source	Switching output	Supply voltage	Switching frequency	Connection	Operational controls
50118401	LV462.4/4X-150-M8	LED, red	Transistor, PNP	DC	500 Hz	Cable with connector, 150 mm, M8, 4-pin	Control buttons, slide switch
50118400	LV462.4/4	LED, red	Transistor, PNP	DC	500 Hz	Cable, 2,000 mm, 4-wire	Control buttons, slide switch
50118403	LV462.4/2X-150-M8	LED, red	Transistor, NPN	DC	500 Hz	Cable with connector, 1,500 mm, M8, 4-pin	Control buttons, slide switch
50118402	LV462.4/2	LED, red	Transistor, NPN	DC	500 Hz	Cable, 2,000 mm, 4-wire	Control buttons, slide switch

Dimensioned drawings: LV462

LV 462 fiber optic amplifier

/// LV463



The high-performance LV463B fiber optic amplifier convinces with its extensive setting options for operating ranges, sensitivities and time functions. The signal value, and at the same time the switching threshold, are shown on two easy-to-read displays. Three different teach modes considerably simplify configuration. Also available as IO-Link variant.

**Benefits:**

- Double display to show signals and switching thresholds in parallel
- 3 different teach modes for fast sensor setting
- Extensive configuration options, e. g. for operating range, sensitivity or time functions
- Internal multiplex operation of up to six units for preventing mutual interference
- Also available as IO-Link variant



Direct access to the online product selector at www.leuze.com/en/lv463

Part no.	Part description	Light source	Switching output	Input/output	Supply voltage	Switching frequency	Connection	Operational controls
50118405	LV463.7/4T-M8	LED, red	Transistor, PNP	Teach input, activation input, multiplex operation	DC	2,500 Hz	Connector, M8, 4-pin	Slide switch, rocker pressure switch
50126588	LV463B.7/4T-M8	LED, red	Transistor, PNP	Teach input, activation input, multiplex operation	DC	50,000 Hz	Connector, M8, 4-pin	Slide switch, rocker pressure switch
50118407	LV463.7/4T-150-M12	LED, red	Transistor, PNP	Teach input, activation input, multiplex operation	DC	2,500 Hz	Cable with connector, 150 mm, M12, 4-pin	Slide switch, rocker pressure switch
50126589	LV463B.7/4T-150-M12	LED, red	Transistor, PNP	Teach input, activation input, multiplex operation	DC	50,000 Hz	Cable with connector, 150 mm, M12, 4-pin	Slide switch, rocker pressure switch
50118406	LV463.7/4T-150-M8	LED, red	Transistor, PNP	Teach input, activation input, multiplex operation	DC	2,500 Hz	Cable with connector, 150 mm, M8, 4-pin	Slide switch, rocker pressure switch
50119070	LV463.7/4-150-M8.3	LED, red	Transistor, PNP		DC	2,500 Hz	Cable with connector, 150 mm, M8, 3-pin	Slide switch, rocker pressure switch
50118404	LV463.7/4T	LED, red	Transistor, PNP	Teach input, activation input, multiplex operation	DC	2,500 Hz	Cable, 2,000 mm, 4-wire	Slide switch, rocker pressure switch
50126587	LV463B.7/4T	LED, red	Transistor, PNP	Teach input, activation input, multiplex operation	DC	50,000 Hz	Cable, 2,000 mm, 4-wire	Slide switch, rocker pressure switch
50118409	LV463.7/2T-M8	LED, red	Transistor, NPN	Teach input, activation input, multiplex operation	DC	2,500 Hz	Connector, M8, 4-pin	Slide switch, rocker pressure switch
50126591	LV463B.7/2T-M8	LED, red	Transistor, NPN	Teach input, activation input, multiplex operation	DC	50,000 Hz	Connector, M8, 4-pin	Slide switch, rocker pressure switch
50118411	LV463.7/2T-150-M12	LED, red	Transistor, NPN	Teach input, activation input, multiplex operation	DC	2,500 Hz	Cable with connector, 150 mm, M12, 4-pin	Slide switch, rocker pressure switch
50126592	LV463B.7/2T-150-M12	LED, red	Transistor, NPN	Teach input, activation input, multiplex operation	DC	50,000 Hz	Cable with connector, 150 mm, M12, 4-pin	Slide switch, rocker pressure switch
50118410	LV463.7/2T-150-M8	LED, red	Transistor, NPN	Teach input, activation input, multiplex operation	DC	2,500 Hz	Cable with connector, 150 mm, M8, 4-pin	Slide switch, rocker pressure switch
50119071	LV463.7/2-150-M8.3	LED, red	Transistor, NPN		DC	2,500 Hz	Cable with connector, 150 mm, M8, 3-pin	Slide switch, rocker pressure switch
50118408	LV463.7/2T	LED, red	Transistor, NPN	Teach input, activation input, multiplex operation	DC	2,500 Hz	Cable, 2,000 mm, 4-wire	Slide switch, rocker pressure switch
50126590	LV463B.7/2T	LED, red	Transistor, NPN	Teach input, activation input, multiplex operation	DC	50,000 Hz	Cable, 2,000 mm, 4-wire	Slide switch, rocker pressure switch
50122456	LV463.7/L4-M8	LED, red	Transistor, push-pull, IO-Link	Transistor, PNP	DC	2,500 Hz	Connector, M8, 4-pin	Slide switch, rocker pressure switch
50122457	LV463.7/L4-150-M12	LED, red	Transistor, push-pull, IO-Link	Transistor, PNP	DC	2,500 Hz	Cable with connector, 150 mm, M12, 4-pin	Slide switch, rocker pressure switch
50122459	LV463.7/L4-150-M8	LED, red	Transistor, push-pull, IO-Link	Transistor, PNP	DC	2,500 Hz	Cable with connector, 150 mm, M8, 4-pin	Slide switch, rocker pressure switch
50122460	LV463.7/L4	LED, red	Transistor, push-pull, IO-Link	Transistor, PNP	DC	2,500 Hz	Cable, 2,000 mm, 4-wire	Slide switch, rocker pressure switch

Switching sensors

Measuring sensors

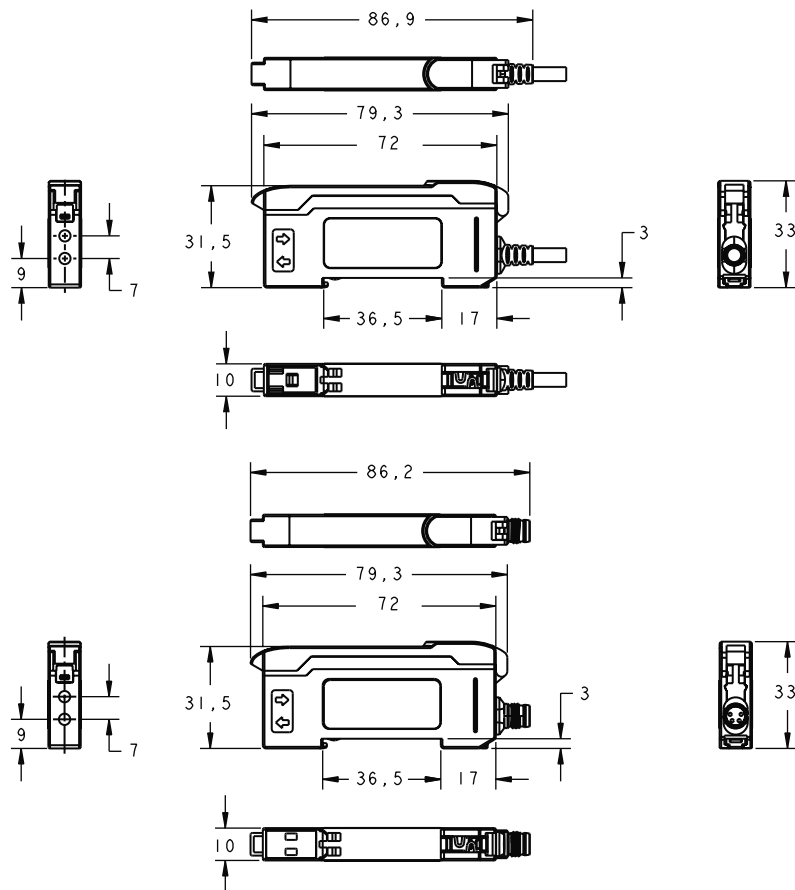
Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

Dimensioned drawings: LV463

LV 463 fiber optic amplifier

ACCESSORIES: AMPLIFIERS**Connection technology**

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC
50130867	KD U-M8-3W-P1-050	Connector, M8, angled, female	3-pin	5,000 mm	PUR
50130869	KD U-M8-4W-V1-020	Connector, M8, angled, female	4-pin	2,000 mm	PVC
50130871	KD U-M8-4W-V1-050	Connector, M8, angled, female	4-pin	5,000 mm	PVC
50130844	KD U-M8-3A-P1-050	Connector, M8, axial, female	3-pin	5,000 mm	PUR
50130848	KD U-M8-4A-V1-020	Connector, M8, axial, female	4-pin	2,000 mm	PVC
50130850	KD U-M8-4A-V1-050	Connector, M8, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

//FIBER OPTICS

PLASTIC OR GLASS – DEPENDING ON THE AREA OF APPLICATION

For simple integration, each is available in a range of different designs and fiber optics cross sections.

/// Plastic fiber optics



Plastic fiber optic cables are available for reflective operation or for the throughbeam principle. The selection is made depending on the design of the fiber head and the functional characteristics of the fibers. A very wide selection of different fiber optics are available, including with bend protection.

Benefits:

- Large selection of fiber optics
- Fiber optics with injection-molded bending protection
- Fiber optics with lateral optics
- Cross-section converter
- Fiber optics with V-optics
- Attachment lens for greater ranges or higher precision



Direct access to the online product selector at www.leuze.com/en/plastic-fo

Part no.	Part description	Operating principle	Design	Fiber length Outer diameter	Light beam exit	Minimum object diameter	Fiber sheathing material	Description
50117739	KF-L-320-D-T14L	Throughbeam principle	Cylindrical	2,000 mm 2.2 mm	Lateral	0.1 mm	PE	Single fiber core
50117741	KF-LD-210-32	Throughbeam principle	Cylindrical	2,000 mm 1.25 mm	Lateral	0.05 mm	PE	Single fiber core
50117738	KF-LE-220	Throughbeam principle	Cylindrical	2,000 mm 1 mm	Front	0.03 mm	PE	Single fiber core
50126967	KF-LH-320-D	Throughbeam principle	Cylindrical	2,000 mm 2.2 mm	Lateral	0.1 mm	PE	Heat resistant, single fiber core
50122328	KF-LP-FU92-520-Q	Throughbeam principle	Cylindrical	2,000 mm 4 mm	Front	0.5 mm	PTFE	Single fiber core
50122327	KF-LP-FU96-520-Q	Throughbeam principle	Cylindrical	2,000 mm 4 mm	Lateral	0.5 mm	PTFE	Single fiber core
50117750	KF-LY-77TZ-20	Throughbeam principle	Cylindrical	2,000 mm 2.2 mm	Lateral	0.5 mm	PE	Single fiber core
50117770	KFX-L-320	Throughbeam principle	Cylindrical	2,000 mm 2.2 mm	Front	0.5 mm	PE	Single fiber core
50117774	KFX-L-320-Q	Throughbeam principle	Cylindrical	2,000 mm 2.2 mm	Front	0.5 mm	PE	Single fiber core
50117766	KFX-L-420	Throughbeam principle	Cylindrical	2,000 mm 2.2 mm	Front	0.5 mm	PE	Single fiber core
50117776	KFX-LA-220	Throughbeam principle	Cylindrical	2,000 mm 1.25 mm	Front	0.03 mm	PE	Single fiber core
50117777	KFX-LD-120	Throughbeam principle	Cylindrical	2,000 mm 1.25 mm	Front	0.05 mm	PE	Single fiber core
50117771	KFX-LD-320	Throughbeam principle	Cylindrical	2,000 mm 1.25 mm	Front	0.05 mm	PE	Single fiber core
50117775	KFX-LD-320-Q	Throughbeam principle	Cylindrical	2,000 mm 1.25 mm	Front	0.05 mm	PE	Single fiber core
50117767	KFX-LD-420	Throughbeam principle	Cylindrical	2,000 mm 1.25 mm	Front	0.05 mm	PE	Single fiber core
50117772	KFX-LH-320	Throughbeam principle	Cylindrical	2,000 mm 2.2 mm	Front	0.5 mm	PE	Heat resistant, single fiber core
50117768	KFX-LH-420	Throughbeam principle	Cylindrical	2,000 mm 2.2 mm	Front	0.5 mm	PE	Heat resistant, single fiber core
50117773	KFX-LY-320	Throughbeam principle	Cylindrical	2,000 mm 2.2 mm	Front	0.5 mm	PE	Single fiber core
50117769	KFX-LY-420	Throughbeam principle	Cylindrical	2,000 mm 2.2 mm	Front	0.5 mm	PE	Single fiber core
50117749	KF-LC32-12	Throughbeam principle	Cylindrical	900 mm 2.8 mm	Bent 90 °	0.1 mm	PE	Multiple fiber core, mixed fiber configuration
50117740	KF-LH-305-D	Throughbeam principle	Cylindrical	500 mm 2.2 mm	Lateral	0.1 mm	PE	Heat resistant, single fiber core
50117737	KF-ETE-220	Diffuse reflection principle	Cylindrical	2,000 mm 1 mm	Front	0.05 mm	PE	Single fiber core
50117752	KFX-ET-620	Diffuse reflection principle	Cylindrical	2,000 mm 2.2 mm	Front	0.2 mm	PE	Single fiber core
50117758	KFX-ETA-320	Diffuse reflection principle	Cylindrical	2,000 mm 1.25 mm	Front	0.05 mm	PE	Single fiber core
50117755	KFX-ETA-420	Diffuse reflection principle	Cylindrical	2,000 mm 1.25 mm	Front	0.05 mm	PE	Single fiber core

A LV4xx series amplifier is required for operation!

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

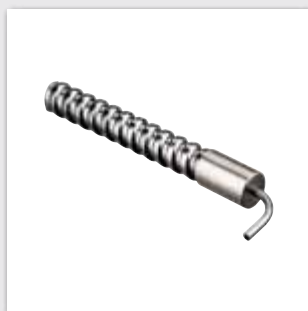
Industrial image
processing

Accessories

Part no.	Part description	Operating principle	Design	Fiber length Outer diameter	Light beam exit	Minimum object diameter	Fiber sheathing material	Description
50117759	KFX-ETC-320	Diffuse reflection principle	Cylindrical	2,000 mm 1.25 mm	Front	0.05 mm	PE	Multiple fiber core, coaxial fiber configuration
50117761	KFX-ETC-320-Q	Diffuse reflection principle	Cylindrical	2,000 mm 1.25 mm	Front	0.05 mm	PE	Multiple fiber core, coaxial fiber configuration
50117756	KFX-ETC-420	Diffuse reflection principle	Cylindrical	2,000 mm 1.25 mm	Front	0.05 mm	PE	Multiple fiber core, coaxial fiber configuration
50117753	KFX-ETC-620	Diffuse reflection principle	Cylindrical	2,000 mm 2.2 mm	Front	0.1 mm	PE	Multiple fiber core, coaxial fiber configuration
50117763	KFX-ETC7-120	Diffuse reflection principle	Cylindrical	2,000 mm 1.25 mm	Front	0.05 mm	PE	Multiple fiber core, coaxial fiber configuration
50117760	KFX-ETD-320	Diffuse reflection principle	Cylindrical	2,000 mm 1.25 mm	Front	0.1 mm	PE	Single fiber core
50117762	KFX-ETD-320-Q	Diffuse reflection principle	Cylindrical	2,000 mm 1.25 mm	Front	0.05 mm	PE	Single fiber core
50117757	KFX-ETD-420	Diffuse reflection principle	Cylindrical	2,000 mm 1.25 mm	Front	0.1 mm	PE	Single fiber core
50117754	KFX-ETH-620	Diffuse reflection principle	Cylindrical	2,000 mm 2.2 mm	Front	0.2 mm	PE	Heat resistant, single fiber core
50117764	KFX-ETY-67TZ-20	Diffuse reflection principle	Cylindrical	2,000 mm 2.2 mm	Lateral	0.2 mm	PE	Single fiber core
50121079	KFX-ET-605	Diffuse reflection principle	Cylindrical	500 mm 2.2 mm	Front	0.2 mm	PE	Single fiber core
50117743	KF-L-10MLD-20	Throughbeam principle	Cubic	2,000 mm 2.2 mm	Lateral	1 mm	PE	Multiple fiber core, mixed fiber configuration
50117744	KF-L-15MLD-10	Throughbeam principle	Cubic	2,000 mm 2.2 mm	Lateral	1 mm	PE	Multiple fiber core, mixed fiber configuration
50117746	KF-L-30ML-20	Throughbeam principle	Cubic	2,000 mm 2.8 mm	Lateral	1 mm	PE	Multiple fiber core, mixed fiber configuration
50117747	KF-L-50ML-20	Throughbeam principle	Cubic	2,000 mm 2.2 mm	Lateral	2 mm	PE	Multiple fiber core, mixed fiber configuration
50117748	KF-LW-FU53-20	Throughbeam principle	Cubic	2,000 mm 1 mm	Lateral	0.1 mm	PE	Single fiber core
50117745	KF-LW-FU57-20	Throughbeam principle	Cubic	2,000 mm 1 mm	Lateral	0.1 mm	PE	Single fiber core
50117751	KF-LY-U09-20	Throughbeam principle	Cubic	2,000 mm 2.2 mm	Lateral		PE	Single fiber core
50117778	KFX-L-20ML-20	Throughbeam principle	Cubic	2,000 mm 2.8 mm	Front	1 mm	PE	Multiple fiber core, mixed fiber configuration
50117742	KF-L-10ML-10	Throughbeam principle	Cubic	1,000 mm 2.2 mm	Front	1 mm	PE	Multiple fiber core, mixed fiber configuration
50117727	KF-ET-10ML-20	Diffuse reflection principle	Cubic	2,000 mm 1.25 mm	Front	1 mm	PE	Multiple fiber core, mixed fiber configuration
50117729	KF-ET-20MLS-20	Diffuse reflection principle	Cubic	2,000 mm 2.2 mm	Front	1 mm	PE	Multiple fiber core, mixed fiber configuration
50117730	KF-ET-30ML-20	Diffuse reflection principle	Cubic	2,000 mm 2.2 mm	Lateral	1 mm	PE	Multiple fiber core, mixed fiber configuration
50117731	KF-ET-50ML-20	Diffuse reflection principle	Cubic	2,000 mm 2.2 mm	Lateral	2 mm	PE	Multiple fiber core, mixed fiber configuration
50117735	KF-ETB-38V-20	Diffuse reflection principle	Cubic	2,000 mm 1.3 mm	Lateral		PE	Single fiber core
50117736	KF-ETH-38H-20	Diffuse reflection principle	Cubic	2,000 mm 2.2 mm	Lateral		PE	Heat resistant, single fiber core
50117733	KF-ETW-FU47-20	Diffuse reflection principle	Cubic	2,000 mm 1 mm	Lateral	0.1 mm	PE	Single fiber core
50117734	KF-ETW-K10-20	Diffuse reflection principle	Cubic	2,000 mm 1 mm	Lateral	0.1 mm	PE	Single fiber core
50117732	KF-ETY-20MLSD-20	Diffuse reflection principle	Cubic	2,000 mm 2.2 mm	Lateral	0.5 mm	PE	Single fiber core
50117765	KFX-ET-20ML-20	Diffuse reflection principle	Cubic	2,000 mm 2.2 mm	Front	1 mm	PE	Multiple fiber core
50117728	KF-ET-15MLD-20	Diffuse reflection principle	Cubic	1,000 mm 1.25 mm	Lateral	1 mm	PE	Multiple fiber core, mixed fiber configuration

A LV4xx series amplifier is required for operation!

/// Glass fiber optics



For applications with high temperature resistance, glass fiber optics are often used. The selection is made depending on the design of the fiber head and the sheathing material.

Benefits:

- Wide variety of types of glass fiber optics
- Mechanically robust metal sheathing designs, partially from corrosion-proof stainless steel
- Use also possible at high temperatures
- Special solutions for vacuum-sealed light feed-throughs



Direct access to the online product selector at www.leuze.com/en/glass-fo

Part no.	Part description	Operating principle	Design	Fiber length Outer diameter	Light beam exit	Fiber sheathing material	Description
50126470	GF-LB-BR-450-IQ	Throughbeam principle	Cylindrical	5,000 mm 4 mm	On face	Nickel-plated brass	Multiple fiber core, mixed fiber configuration
50126462	GF-LB-SI-450-IQ	Throughbeam principle	Cylindrical	5,000 mm 4 mm	On face	Silicone	Multiple fiber core, mixed fiber configuration
50126466	GF-LB-SS-450-IQ	Throughbeam principle	Cylindrical	5,000 mm 4 mm	On face	Stainless steel	Heat resistant, multiple fiber core, mixed fiber configuration
50126469	GF-LB-BR-430-IQ	Throughbeam principle	Cylindrical	3,000 mm 4 mm	On face	Nickel-plated brass	Multiple fiber core, mixed fiber configuration
50126500	GF-LB-BR-630-SD	Throughbeam principle	Cylindrical	3,000 mm 4.5 mm	Lateral without lens	Nickel-plated brass	Multiple fiber core, mixed fiber configuration
50126461	GF-LB-SI-430-IQ	Throughbeam principle	Cylindrical	3,000 mm 4 mm	On face	Silicone	Multiple fiber core, mixed fiber configuration
50126498	GF-LB-SI-630-SD	Throughbeam principle	Cylindrical	3,000 mm 4.5 mm	Lateral without lens	Silicone	Multiple fiber core
50126465	GF-LB-SS-430-IQ	Throughbeam principle	Cylindrical	3,000 mm 4 mm	On face	Stainless steel	Heat resistant, multiple fiber core, mixed fiber configuration
50126499	GF-LB-SS-630-SD	Throughbeam principle	Cylindrical	3,000 mm 4.5 mm	Lateral without lens	Stainless steel	Heat resistant, multiple fiber core, mixed fiber configuration
50127341	GF-LB-SS-830-SM	Throughbeam principle	Cylindrical	3,000 mm 4.5 mm	Front	Stainless steel	Heat resistant, multiple fiber core, mixed fiber configuration
50126468	GF-LB-BR-410-IQ	Throughbeam principle	Cylindrical	1,000 mm 4 mm	On face	Nickel-plated brass	Multiple fiber core, mixed fiber configuration
50126497	GF-LB-BR-610-SD	Throughbeam principle	Cylindrical	1,000 mm 4.5 mm	Lateral without lens	Nickel-plated brass	Multiple fiber core, mixed fiber configuration
50126491	GF-LB-BR-610-SU	Throughbeam principle	Cylindrical	1,000 mm 4.5 mm	Bent 90 °	Nickel-plated brass	Multiple fiber core, mixed fiber configuration
50127340	GF-LB-BR-810-SF	Throughbeam principle	Cylindrical	1,000 mm 4.5 mm	Lateral with lens	Nickel-plated brass	Multiple fiber core, mixed fiber configuration
50126460	GF-LB-SI-410-IQ	Throughbeam principle	Cylindrical	1,000 mm 4 mm	On face	Silicone	Multiple fiber core, mixed fiber configuration
50126495	GF-LB-SI-610-SD	Throughbeam principle	Cylindrical	1,000 mm 4.5 mm	Lateral without lens	Silicone	Multiple fiber core
50126489	GF-LB-SI-610-SU	Throughbeam principle	Cylindrical	1,000 mm 4.5 mm	Bent 90 °	Silicone	Multiple fiber core, mixed fiber configuration
50127338	GF-LB-SI-810-SF	Throughbeam principle	Cylindrical	1,000 mm 4.5 mm	Lateral with lens	Silicone	Multiple fiber core, mixed fiber configuration
50126464	GF-LB-SS-410-IQ	Throughbeam principle	Cylindrical	1,000 mm 4 mm	On face	Stainless steel	Heat resistant, multiple fiber core, mixed fiber configuration
50126496	GF-LB-SS-610-SD	Throughbeam principle	Cylindrical	1,000 mm 4.5 mm	Lateral without lens	Stainless steel	Heat resistant, multiple fiber core, mixed fiber configuration
50126490	GF-LB-SS-610-SU	Throughbeam principle	Cylindrical	1,000 mm 4.5 mm	Bent 90 °	Stainless steel	Heat resistant, multiple fiber core, mixed fiber configuration
50127339	GF-LB-SS-810-SF	Throughbeam principle	Cylindrical	1,000 mm 4.5 mm	Lateral with lens	Stainless steel	Heat resistant, multiple fiber core, mixed fiber configuration
50126467	GF-LB-BR-405-IQ	Throughbeam principle	Cylindrical	500 mm 4 mm	On face	Nickel-plated brass	Multiple fiber core, mixed fiber configuration
50126459	GF-LB-SI-405-IQ	Throughbeam principle	Cylindrical	500 mm 4 mm	On face	Silicone	Multiple fiber core, mixed fiber configuration
50126463	GF-LB-SS-405-IQ	Throughbeam principle	Cylindrical	500 mm 4 mm	On face	Stainless steel	Heat resistant, multiple fiber core, mixed fiber configuration
50126488	GF-ETG-BR-650-IQ	Diffuse reflection principle	Cylindrical	5,000 mm 6 mm	On face	Nickel-plated brass	50% / 50% fiber configuration, multiple fiber core
50126476	GF-ETG-SI-650-IQ	Diffuse reflection principle	Cylindrical	5,000 mm 6 mm	On face	Silicone	50% / 50% fiber configuration, multiple fiber core
50126482	GF-ETG-SS-650-IQ	Diffuse reflection principle	Cylindrical	5,000 mm 6 mm	On face	Stainless steel	Heat resistant, 50% / 50% fiber configuration, multiple fiber core
50126487	GF-ETG-BR-630-IQ	Diffuse reflection principle	Cylindrical	3,000 mm 6 mm	On face	Nickel-plated brass	50% / 50% fiber configuration, multiple fiber core
50126475	GF-ETG-SI-630-IQ	Diffuse reflection principle	Cylindrical	3,000 mm 6 mm	On face	Silicone	50% / 50% fiber configuration, multiple fiber core
50126481	GF-ETG-SS-630-IQ	Diffuse reflection principle	Cylindrical	3,000 mm 6 mm	On face	Stainless steel	Heat resistant, 50% / 50% fiber configuration, multiple fiber core
50126485	GF-ETG-BR-310-IQ	Diffuse reflection principle	Cylindrical	1,000 mm 3 mm	On face	Nickel-plated brass	50% / 50% fiber configuration, multiple fiber core

A LVSR 325 series amplifier is required for operation!

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

Part no.	Part description	Operating principle	Design	Fiber length Outer diameter	Light beam exit	Fiber sheathing material	Description
50126486	GF-ETG-BR-610-IQ	Diffuse reflection principle	Cylindrical	1,000 mm 6 mm	On face	Nickel-plated brass	50% / 50% fiber configuration, multiple fiber core
50126494	GF-ETG-BR-710-SU	Diffuse reflection principle	Cylindrical	1,000 mm 6 mm	Bent 90 °	Nickel-plated brass	Multiple fiber core, mixed fiber configuration
50126473	GF-ETG-SI-310-IQ	Diffuse reflection principle	Cylindrical	1,000 mm 3 mm	On face	Silicone	50% / 50% fiber configuration, multiple fiber core
50126474	GF-ETG-SI-610-IQ	Diffuse reflection principle	Cylindrical	1,000 mm 6 mm	On face	Silicone	50% / 50% fiber configuration, multiple fiber core
50126492	GF-ETG-SI-710-SU	Diffuse reflection principle	Cylindrical	1,000 mm 6 mm	Bent 90 °	Silicone	Multiple fiber core
50126479	GF-ETG-SS-310-IQ	Diffuse reflection principle	Cylindrical	1,000 mm 3 mm	On face	Stainless steel	Heat resistant, 50% / 50% fiber configuration, multiple fiber core
50126480	GF-ETG-SS-610-IQ	Diffuse reflection principle	Cylindrical	1,000 mm 6 mm	On face	Stainless steel	Heat resistant, 50% / 50% fiber configuration, multiple fiber core
50126493	GF-ETG-SS-710-SU	Diffuse reflection principle	Cylindrical	1,000 mm 6 mm	Bent 90 °	Stainless steel	Heat resistant, multiple fiber core
50126483	GF-ETG-BR-305-IQ	Diffuse reflection principle	Cylindrical	500 mm 3 mm	On face	Nickel-plated brass	50% / 50% fiber configuration, multiple fiber core
50126484	GF-ETG-BR-605-IQ	Diffuse reflection principle	Cylindrical	500 mm 6 mm	On face	Nickel-plated brass	50% / 50% fiber configuration, multiple fiber core
50126471	GF-ETG-SI-305-IQ	Diffuse reflection principle	Cylindrical	500 mm 3 mm	On face	Silicone	50% / 50% fiber configuration, multiple fiber core
50126472	GF-ETG-SI-605-IQ	Diffuse reflection principle	Cylindrical	500 mm 6 mm	On face	Silicone	50% / 50% fiber configuration, multiple fiber core
50126477	GF-ETG-SS-305-IQ	Diffuse reflection principle	Cylindrical	500 mm 3 mm	On face	Stainless steel	Heat resistant, 50% / 50% fiber configuration, multiple fiber core
50126478	GF-ETG-SS-605-IQ	Diffuse reflection principle	Cylindrical	500 mm 6 mm	On face	Stainless steel	Heat resistant, 50% / 50% fiber configuration, multiple fiber core
50127342	GF-ETM-BR-402-IM	Diffuse reflection principle	Cylindrical	200 mm 4 mm	Front	Nickel-plated brass	Multiple fiber core, mixed fiber configuration

A LVSR 325 series amplifier is required for operation!

SMARTER APPLICATION KNOW-HOW

You need
application know-how –
we have the required expertise!



Conveyor and
storage systems



Automotive
industry



Packaging industry



Robotics / handling



Machine tools



Laboratory analysis

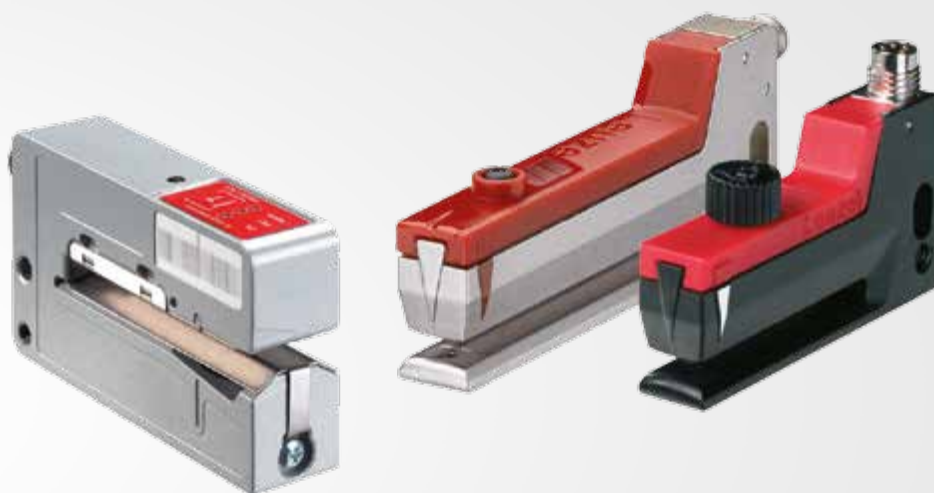


More on our industry-specific knowledge: www.leuze.com/en/industry

/ FORKED SENSORS

NOTHING GETS PAST THESE FORKS

Sensors of this series combine transmitter and receiver into a single device and therefore feature high operational safety. They are characterized by simple mounting without alignment work as well as high sensitivity. The sensors are used for detecting small parts or for detecting labels and print marks, even on transparent foils.

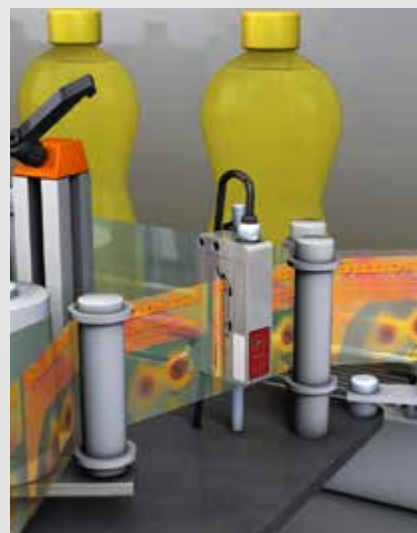
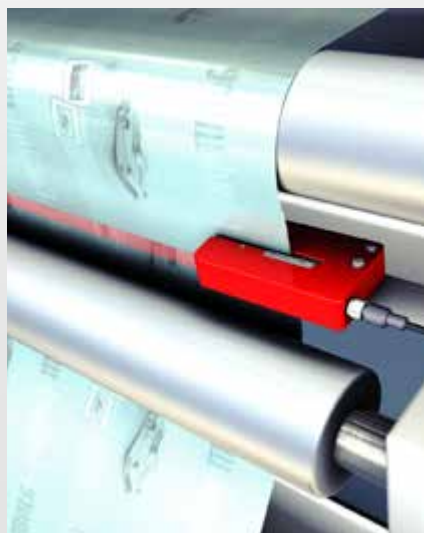


Forked sensors for object detection

Page 156

Forked sensors for label detection

Page 158



Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

//FORKED SENSORS FOR OBJECT DETECTION

MAXIMUM PRECISION FOR THE SMALLEST PARTS

The design of these sensors makes them the ideal choice for the detection of small parts. High sensitivities and fast reaction times facilitate simple and reliable integration of these sensors in fast automation processes.

/// GS 04



This series, with mouth widths from 20 to 220 mm, can be optimally adapted to a given application by means of their sensitivity adjustment and light/dark switching. Laser variants can be used to reliably detect even the smallest parts.



Benefits:

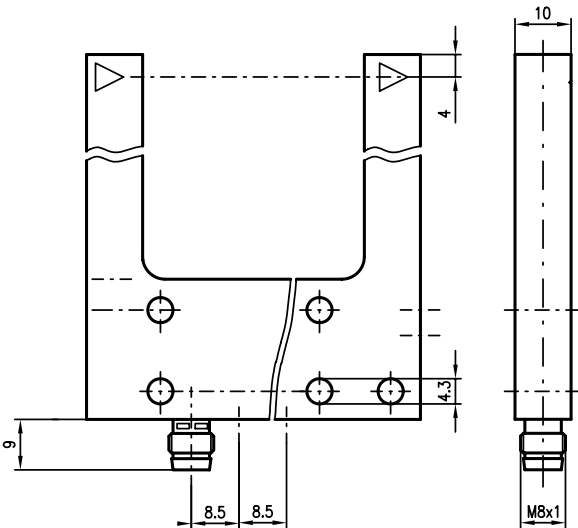
- Sensitivity adjustment and light/dark switching for optimum adaptation to the application
- Sensitivity adjustment on the back of the fork
- Robust metal housing and glass optics for protection against environmental influences
- Transmitter and receiver are installed in the same housing, therefore easy and fast mounting (complex mounting brackets and extensive alignment not necessary)



Direct access to the online product selector at www.leuze.com/en/gs04

Part no.	Part description	Mouth width	Switching frequency	Light source	Switching output	Response time	Description
50110793	GSL 04M/P-30-S8	30 mm	5,000 Hz	Laser, red	Transistor, PNP, light/dark reversible	0.1 ms	Connector, M8, 3-pin, 270 ° potentiometer
50124703	GSL 04M/N-30-S8	30 mm	5,000 Hz	Laser, red	Transistor, NPN, light/dark reversible	0.1 ms	Connector, M8, 3-pin, 270 ° potentiometer
50110794	GSL 04M/P-50-S8	50 mm	5,000 Hz	Laser, red	Transistor, PNP, light/dark reversible	0.1 ms	Connector, M8, 3-pin, 270 ° potentiometer
50110795	GSL 04M/P-80-S8	80 mm	5,000 Hz	Laser, red	Transistor, PNP, light/dark reversible	0.1 ms	Connector, M8, 3-pin, 270 ° potentiometer
50110792	GS 04M/P-20-S8	20 mm	1,500 Hz	LED, red	Transistor, PNP, light/dark reversible	0.33 ms	Connector, M8, 3-pin, 270 ° potentiometer
50110782	GS 04M/P-30-S8	30 mm	1,500 Hz	LED, red	Transistor, PNP, light/dark reversible	0.33 ms	Connector, M8, 3-pin, 270 ° potentiometer
50110791	GS 04M/N-30-S8	30 mm	1,500 Hz	LED, red	Transistor, NPN, light/dark reversible	0.33 ms	Connector, M8, 3-pin, 270 ° potentiometer
50110783	GS 04M/P-50-S8	50 mm	1,500 Hz	LED, red	Transistor, PNP, light/dark reversible	0.33 ms	Connector, M8, 3-pin, 270 ° potentiometer
50110789	GS 04M/N-50-S8	50 mm	1,500 Hz	LED, red	Transistor, NPN, light/dark reversible	0.33 ms	Connector, M8, 3-pin, 270 ° potentiometer
50110784	GS 04M/P-80-S8	80 mm	1,500 Hz	LED, red	Transistor, PNP, light/dark reversible	0.33 ms	Connector, M8, 3-pin, 270 ° potentiometer
50110790	GS 04M/N-80-S8	80 mm	1,500 Hz	LED, red	Transistor, NPN, light/dark reversible	0.33 ms	Connector, M8, 3-pin, 270 ° potentiometer
50110785	GS 04M/P-120-S8	120 mm	1,500 Hz	LED, red	Transistor, PNP, light/dark reversible	0.33 ms	Connector, M8, 3-pin, 270 ° potentiometer
50110787	GS 04M/N-120-S8	120 mm	1,500 Hz	LED, red	Transistor, NPN, light/dark reversible	0.33 ms	Connector, M8, 3-pin, 270 ° potentiometer
50110786	GS 04M/P-220-S8	220 mm	1,500 Hz	LED, red	Transistor, PNP, light/dark reversible	0.33 ms	Connector, M8, 3-pin, 270 ° potentiometer
50110788	GS 04M/N-220-S8	220 mm	1,500 Hz	LED, red	Transistor, NPN, light/dark reversible	0.33 ms	Connector, M8, 3-pin, 270 ° potentiometer

Dimensioned drawings: GS 04



GS 04 forked sensor

ACCESSORIES: FORKED SENSORS FOR OBJECT DETECTION

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130867	KD U-M8-3W-P1-050	Connector, M8, angled, female	3-pin	5,000 mm	PUR
50130860	KD U-M8-3W-V1-020	Connector, M8, angled, female	3-pin	2,000 mm	PVC
50130862	KD U-M8-3W-V1-050	Connector, M8, angled, female	3-pin	5,000 mm	PVC
50130842	KD U-M8-3A-P1-020	Connector, M8, axial, female	3-pin	2,000 mm	PUR
50130844	KD U-M8-3A-P1-050	Connector, M8, axial, female	3-pin	5,000 mm	PUR
50130845	KD U-M8-3A-P1-100	Connector, M8, axial, female	3-pin	10,000 mm	PUR
50104520	K-D M8A-3P-2m-PVC	Connector, M8, axial, female	3-pin	2,000 mm	PVC
50130832	KD U-M8-3A-V1-050	Connector, M8, axial, female	3-pin	5,000 mm	PVC

Further connection cables can be found on our website

SMARTER CUSTOMER SERVICE

Added value made attainable!

We offer specific and measurable added value in the areas of usability, application know-how and service – to make our customers more successful. In the future, these areas will also be our yardstick for new product developments, innovative service offerings and extensive market expertise.



More information on our active customer orientation: www.leuze.com/en/ssb



Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

//FORKED SENSORS FOR LABEL DETECTION

RELIABLE DETECTION IN A WIDE RANGE OF DIFFERENT APPLICATIONS

Precise and fast detection – even at high web speeds – and the reliable detection of a wide range of material combinations and surfaces. These are the demands professional sensors must meet for labeling applications. And here we offer the right solution for every application with our wide line of different designs and operating principles, from light to ultrasonics.

/// GS 61



Optical forked photoelectric sensor in slim-line design with 3 mm mouth width for exact detection of labels on base material.



Benefits:

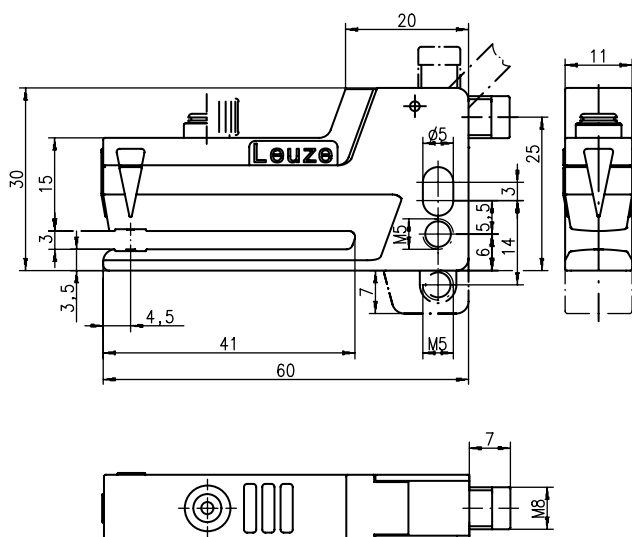
- Simple sensitivity adjustment via multiturn potentiometer or optionally via teach-in function
- Slimline-design (reduced fork height) for installation directly at the dispensing edge
- Removable operating head for comfortable potentiometer adjustment
- Smallest dimensions of all industrial forked photoelectric sensors with an excellent price / performance ratio



Direct access to the online product selector at www.leuze.com/en/gs61

Part no.	Part description	Principle of physics	Mouth width	Switching frequency	Light source	Switching output 1	Response time	Description
50110108	GS 61/6.2-S8	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal in label gap	0.05 ms	Connector, M8, 4-pin, teach button
50110763	GS 61/6.2-S8V	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal in label gap	0.05 ms	Connector, M8, 4-pin, teach button
50110110	GS 61/6-S8	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal in label gap	0.05 ms	Connector, M8, 4-pin, multiturn potentiometer
50110112	GS 61/6-S8V	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal in label gap	0.05 ms	Connector, M8, 4-pin, multiturn potentiometer
50110765	GS 61/6.2-S8.3	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal in label gap	0.05 ms	Connector, M8, 3-pin, teach button
50110761	GS 61/6-S8.3	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal in label gap	0.05 ms	Connector, M8, 3-pin, multiturn potentiometer
50112422	GS 61/6.2,200-S12	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal in label gap	0.05 ms	Cable with connector, M12, 200 mm, 5-pin, teach button
50112424	GS 61/6.3,200-S12	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal in label gap	0.05 ms	Cable with connector, M12, 200 mm, 5-pin, teach button
50112423	GS 61/6,200-S12	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal in label gap	0.05 ms	Cable with connector, M12, 200 mm, 5-pin, multiturn potentiometer
50112425	GS 61/6.3	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal in label gap	0.05 ms	Cable, 2,000 mm, 5-wire, teach button
50110769	GS 61/6	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal in label gap	0.05 ms	Cable, 2,000 mm, 5-wire, multiturn potentiometer
50110109	GS 61/6D.2-S8	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal on label	0.05 ms	Connector, M8, 4-pin, teach button
50110764	GS 61/6D.2-S8V	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal on label	0.05 ms	Connector, M8, 4-pin, teach button
50110111	GS 61/6D-S8	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal on label	0.05 ms	Connector, M8, 4-pin, multiturn potentiometer
50110113	GS 61/6D-S8V	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal on label	0.05 ms	Connector, M8, 4-pin, multiturn potentiometer
50110766	GS 61/6D.2-S8.3	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal on label	0.05 ms	Connector, M8, 3-pin, teach button
50110762	GS 61/6D-S8.3	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal on label	0.05 ms	Connector, M8, 3-pin, multiturn potentiometer
50112426	GS 61/6D.2,200-S12	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal on label	0.05 ms	Cable with connector, M12, 200 mm, 5-pin, teach button
50112427	GS 61/6D,200-S12	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal on label	0.05 ms	Cable with connector, M12, 200 mm, 5-pin, multiturn potentiometer
50110767	GS 61/6.2	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal on label	0.05 ms	Cable, 2,000 mm, 5-wire, teach button
50110768	GS 61/6D.2	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal on label	0.05 ms	Cable, 2,000 mm, 5-wire, teach button
50110770	GS 61/6D	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal on label	0.05 ms	Cable, 2,000 mm, 5-wire, multiturn potentiometer

Dimensioned drawings: GS 61



GS 61 forked sensor

/// GS 63B



The chemically nickel-plated metal housing of this optical forked photoelectric sensor is ideal for applications in the foodstuffs sector where it is critical that no paint chipping occurs. The flat fork enables installation in a groove directly at the dispensing edge to achieve – together with the short response time – a high dispensing accuracy. With a 3 mm mouth width and 60 mm mouth depth, the sensor is also very well suited for wide labels.



Benefits:

- High switching frequency and short response time guarantee very good repeatability
- Easy adjustment via lockable teach button or teach input
- Slimline-design (reduced fork height) for installation directly at the dispensing edge
- ALC (auto level control) function: maximum function reserve via automatic online optimization of the switching threshold
- Warning output for indicating teach or function errors



Direct access to the online product selector at www.leuze.com/en/qs63b

Part no.	Part description	Principle of physics	Mouth width	Switching frequency	Light source	Switching output 1	Response time	Description
50128004	GS 63B/6.3-S8	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal in label gap	0.05 ms	Connector, M8, 4-pin, teach button
50128005	GS 63B/6.3-S8V	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal in label gap	0.05 ms	Connector, M8, 4-pin, teach button
50128011	GS 63B/6-S8	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal in label gap	0.05 ms	Connector, M8, 4-pin, multiturn potentiometer
50128012	GS 63B/6-S8V	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal in label gap	0.05 ms	Connector, M8, 4-pin, multiturn potentiometer
50128014	IGS 63B/6.3,200-S12	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal in label gap	0.05 ms	Cable with connector, M12, 200 mm, 5-pin, teach button, warning output
50128003	GS 63B/6.01,200-S12	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal in label gap	0.05 ms	Cable with connector, M12, 200 mm, 5-pin, multiturn potentiometer, article set
50128002	GS 63B/6,200-S12	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal in label gap	0.05 ms	Cable with connector, M12, 200 mm, 5-pin, multiturn potentiometer
50129248	GS 63B/6.3,200-S8	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal in label gap	0.05 ms	Cable with connector, M8, 200 mm, 4-pin, teach button
50128013	IGS 63B/6.3	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal in label gap	0.05 ms	Cable, 2,000 mm, 5-wire, teach button, warning output
50128001	GS 63B/6	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal in label gap	0.05 ms	Cable, 2,000 mm, 5-wire, multiturn potentiometer
50128008	GS 63B/6D.3-S8	Optical	3 mm	10,000 Hz	LED, infrared	Transistor, push-pull, switching signal on label	0.05 ms	Connector, M8, 4-pin, teach button

[illegible]

/// GK 14



The capacitive forked sensor is particularly well suited for transparent labels without metallic coating.

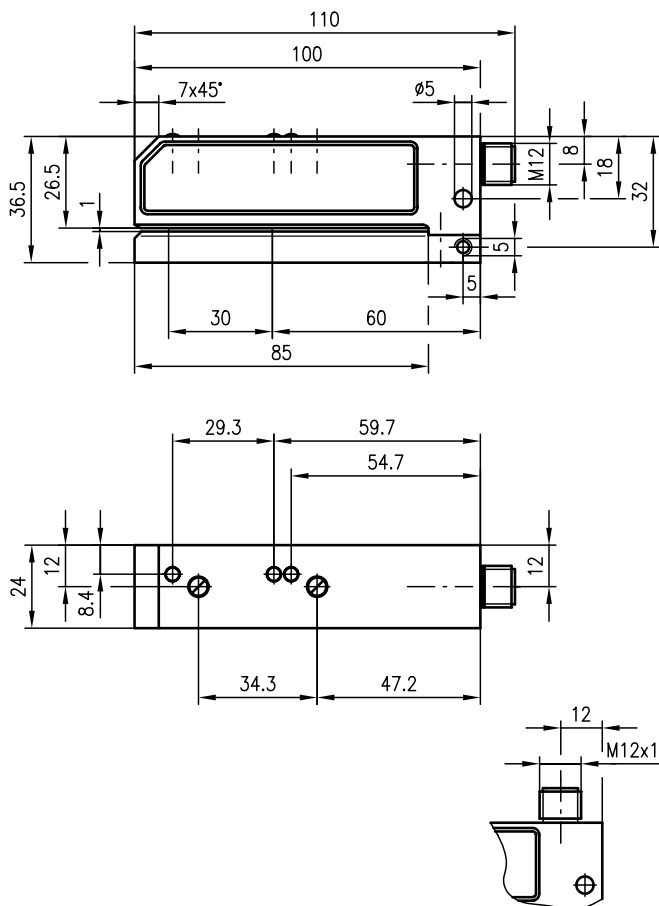
**Benefits:**

- Forked sensor for reliable detection of transparent and opaque labels
- PNP and NPN transistor output for optimum adaptation to the controller
- Robust metal housing with beveled inlet edges
- Inverting input for easy adaptation of the output signal level



Direct access to the online product selector at www.leuze.com/en/gk14

Part no.	Part description	Principle of physics	Mouth width	Switching frequency	Switching output 1	Switching output 2	Response time	Description
50026371	GK 14/24 L	Capacitive	1 mm	5,000 Hz	Transistor, PNP, switching signal in label gap, reversible	Transistor, NPN, switching signal in label gap, reversible	0.1 ms	Connector, M12, 5-pin, multiturn potentiometer
50031714	GK 14/24 L.2	Capacitive	1 mm	5,000 Hz	Transistor, PNP, switching signal in label gap, reversible	Transistor, NPN, switching signal in label gap, reversible	0.1 ms	Connector, M12, 5-pin, multiturn potentiometer

Dimensioned drawings: GK 14

GK 14 capacitive forked sensor

/// GSU 06

This forked sensor with metal housing is very well suited for the detection of foil labels, metallic-coated foil labels and thin metal foils. A special variant for paper tear monitoring is also available.

**Benefits:**

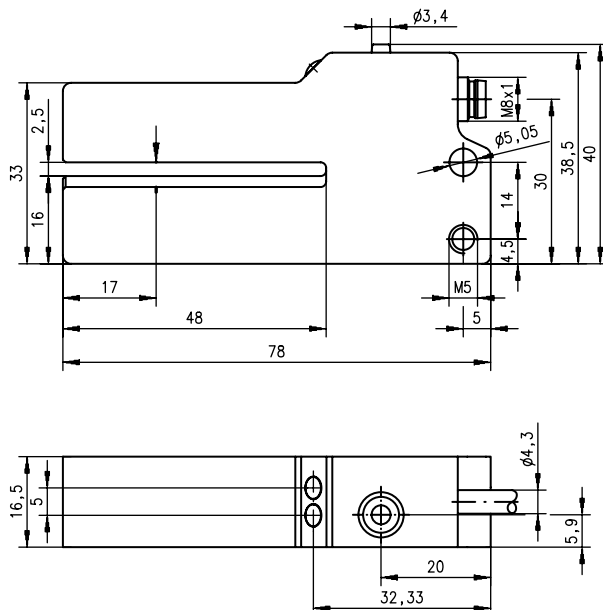
- Reliable detection of foil labels on foil carriers or paper carriers, paper labels on paper carriers, metallic foil labels and thin metal foils
- Simple adjustment via teach-in by pressing a button or remote calibration 1
- Static PNP and NPN transistor outputs for optimum adaptation to the controller
- M8/M12 connector or cable version



Direct access to the online product selector at www.leuze.com/en/gsu06

Part no.	Part description	Principle of physics	Mouth width	Switching output 1	Switching output 2	Response time	Description
50039638	GSU 06/24-2-S8	Ultrasonics	2.5 mm	Transistor, PNP, switching signal in label gap	Transistor, NPN, switching signal in label gap	0.3 ms	Connector, M8, 4-pin, teach button
50040191	GSU 06/24-2	Ultrasonics	2.5 mm	Transistor, PNP, switching signal in label gap	Transistor, NPN, switching signal in label gap	0.3 ms	Cable, 2,000 mm, 5-wire, teach button
50040190	GSU 06/24D-2-S8	Ultrasonics	2.5 mm	Transistor, PNP, switching signal on label	Transistor, NPN, switching signal on label	0.3 ms	Connector, M8, 4-pin, teach button
50108819	GSU 06/24D-2,200-S12	Ultrasonics	2.5 mm	Transistor, PNP, switching signal on label	Transistor, NPN, switching signal on label	0.3 ms	Cable with connector, M12, 200 mm, 5-pin, teach button
50040192	GSU 06/24D-2	Ultrasonics	2.5 mm	Transistor, PNP, switching signal on label	Transistor, NPN, switching signal on label	0.3 ms	Cable, 2,000 mm, 5-wire, teach button

The switching frequency is dependent on the conveyor speed, label length and spacing between labels

Dimensioned drawings: GSU 06

GSU 06 ultrasonic forked sensor

/// GSU 14D



Ultrasonic forked sensor for reliable detection and universal application. With its large mouth width, this ultrasonic forked sensor is also suitable for leaflet and booklet labels.



Benefits:

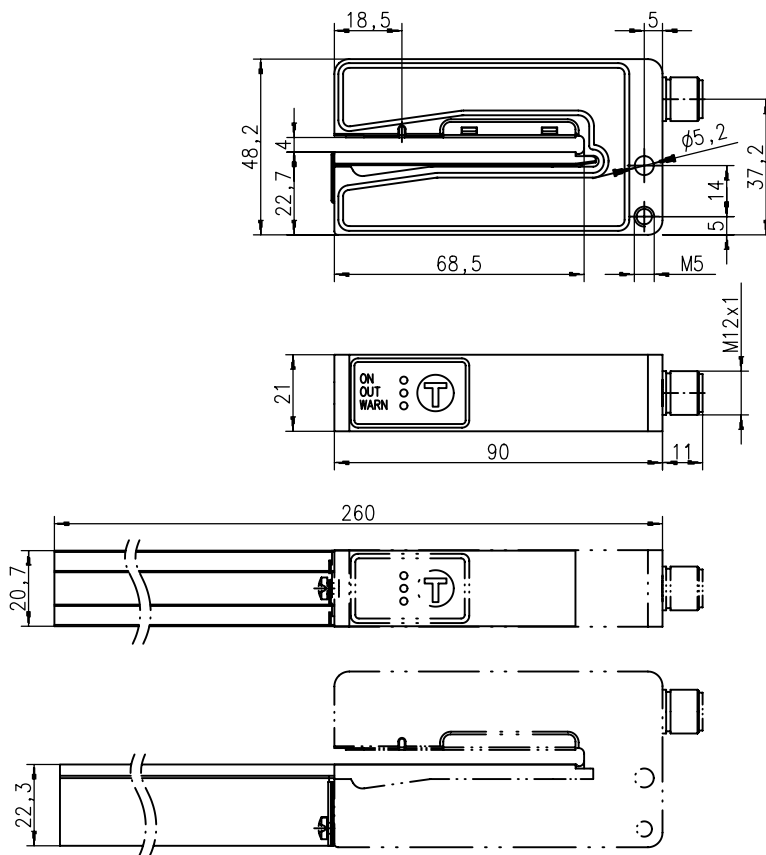
- Reliable detection of foil labels on foil carriers, foil labels on paper carriers, paper labels on paper carriers, metallic foil labels and thin metal foils



Direct access to the online product selector at www.leuze.com/en/gsu14c

Part no.	Part description	Principle of physics	Mouth width	Switching output 1	Switching output 2	Response time	Description
50126781	GSU 14D/66.3-S12	Ultrasonics	4 mm	Transistor, push-pull, switching signal in label gap	Transistor, push-pull, switching signal on label	0.2 ms	Connector, M12, 5-pin, teach button, teach input
50126782	GSU 14D/66D.3-S12	Ultrasonics	4 mm	Transistor, push-pull, switching signal on label	Transistor, push-pull, switching signal in label gap	0.2 ms	Connector, M12, 5-pin, teach button
50126783	GSU 14D/66D.31-S12	Ultrasonics	4 mm	Transistor, push-pull, switching signal on label	Transistor, push-pull, switching signal in label gap	0.2 ms	Connector, M12, 5-pin, teach button

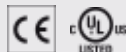
Dimensioned drawings: GSU 14D



GSU 14D ultrasonic forked sensor

/// IGSU 14D

The model with chemically nickel-plated metal housing is ideal for applications in the foodstuffs sector where it is critical that no paint chipping occurs. With Easy Teach (press button, dispense labels, done), static teaching without loss of labels, ALC function for readjustment of the switching threshold, warning output and practical accessories, this forked sensor is always the first choice for universal label detection. And, with its large mouth width, it is also ideal for booklet and leaflet labels.

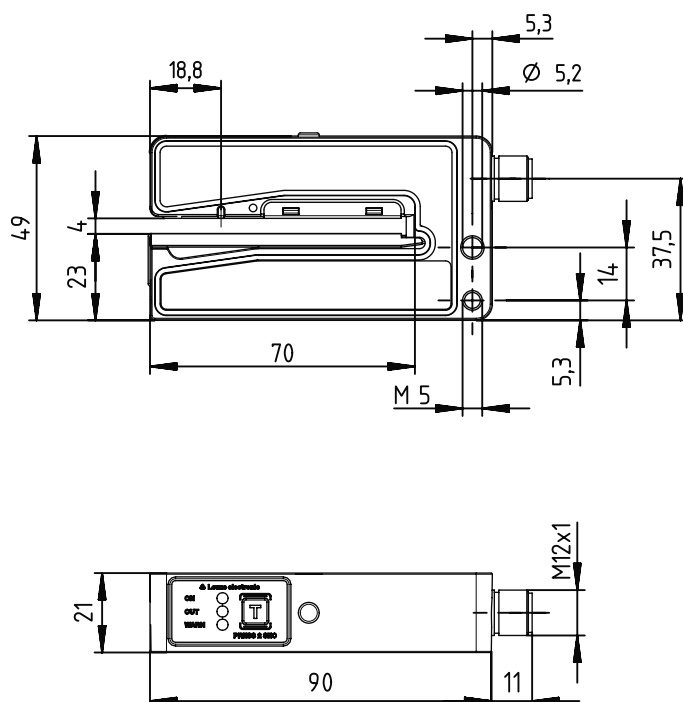
**Benefits:**

- Forked sensor for reliable detection of foil labels on foil carriers or paper carriers, paper labels on paper carriers, metallic foil labels and thin metal foils
- Model for the reliable detection of splice on paper web or plastic web
- easyTeach function: press button – dispense labels – done
- ALC function (auto level control): maximum function reserve via automatic online optimization of the switching threshold



Direct access to the online product selector at www.leuze.com/en/igsu14d

Part no.	Part description	Principle of physics	Mouth width	Switching frequency	Switching output 1	Switching output 2	Response time	Description
50127969	IGSU 14D/6.3G-S12	Ultrasonics	4 mm		Transistor, push-pull, light switching (PNP)/dark switching (NPN)	Transistor, push-pull, 0 V switching	0.2 ms	Connector, M12, 5-pin, teach button, warning output, pre-mounted tape guide
50125790	IGSU 14DN/6.3G-S12	Ultrasonics	4 mm		Transistor, push-pull, light switching (PNP)/dark switching (NPN)	Transistor, push-pull, 0 V switching	0.2 ms	Connector, M12, 5-pin, teach button, warning output, pre-mounted tape guide
50126784	IGSU 14D/6.3-S12	Ultrasonics	4 mm		Transistor, push-pull, light switching (PNP)/dark switching (NPN)	Transistor, push-pull, 0 V switching	0.2 ms	Connector, M12, 5-pin, teach button, warning output
50126786	IGSU 14D/6.31-S12	Ultrasonics	4 mm		Transistor, push-pull, light switching (PNP)/dark switching (NPN)	Transistor, push-pull, 0 V switching	0.2 ms	Connector, M12, 5-pin, teach button, warning output
50126788	IGSU 14DN/6.3-S12	Ultrasonics	4 mm		Transistor, push-pull, light switching (PNP)/dark switching (NPN)	Transistor, push-pull, 0 V switching	0.2 ms	Connector, M12, 5-pin, teach button, warning output
50126785	IGSU 14D/6D.3-S12	Ultrasonics	4 mm		Transistor, push-pull, dark switching (PNP)/light switching (NPN)	Transistor, push-pull, 0 V switching	0.2 ms	Connector, M12, 5-pin, teach button, warning output
50126787	IGSU 14D/6.3SD-S12	Ultrasonics	4 mm	2,000 Hz	Transistor, push-pull, switching signal on splice, reversible		0.25 ms	Connector, M12, 5-pin, teach button, warning output

Dimensioned drawings: IGSU 14D

IGSU 14D ultrasonic forked sensor

ACCESSORIES: FORKED SENSORS FOR LABEL DETECTION

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104575	K-D M12W-5P-2m-FAB	Connector, M12, angled, female	5-pin	2,000 mm	FAB
50104577	K-D M12W-5P-5m-FAB	Connector, M12, angled, female	5-pin	5,000 mm	FAB
50104568	K-D M12W-5P-2m-PUR	Connector, M12, angled, female	5-pin	2,000 mm	PUR
50104762	K-D M12W-5P-5m-PUR	Connector, M12, angled, female	5-pin	5,000 mm	PUR
50104556	K-D M12W-5P-2m-PVC	Connector, M12, angled, female	5-pin	2,000 mm	PVC
50104558	K-D M12W-5P-5m-PVC	Connector, M12, angled, female	5-pin	5,000 mm	PVC
50104574	K-D M12A-5P-2m-FAB	Connector, M12, axial, female	5-pin	2,000 mm	FAB
50104576	K-D M12A-5P-5m-FAB	Connector, M12, axial, female	5-pin	5,000 mm	FAB
50104567	K-D M12A-5P-2m-PUR	Connector, M12, axial, female	5-pin	2,000 mm	PUR
50104569	K-D M12A-5P-5m-PUR	Connector, M12, axial, female	5-pin	5,000 mm	PUR
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm	PVC
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm	PVC
50130860	KD U-M8-3W-V1-020	Connector, M8, angled, female	3-pin	2,000 mm	PVC
50130862	KD U-M8-3W-V1-050	Connector, M8, angled, female	3-pin	5,000 mm	PVC
50130869	KD U-M8-4W-V1-020	Connector, M8, angled, female	4-pin	2,000 mm	PVC
50104520	K-D M8A-3P-2m-PVC	Connector, M8, axial, female	3-pin	2,000 mm	PVC
50130832	KD U-M8-3A-V1-050	Connector, M8, axial, female	3-pin	5,000 mm	PVC
50130848	KD U-M8-4A-V1-020	Connector, M8, axial, female	4-pin	2,000 mm	PVC
50130850	KD U-M8-4A-V1-050	Connector, M8, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

User-configurable connectors

Part no.	Part description	Connection	No. of pins
50020502	KD 095-5	Connector, M12, angled, female	5-pin
50020501	KD 095-5A	Connector, M12, axial, female	5-pin

Further connectors can be found on our website

SMARTER CUSTOMER SERVICE



24 h support

On-Call Service and technical support
all around the clock



"In our Service Center in Owen, we have a lot of expert colleagues who, as sensor people, can reliably handle your questions and problems – and are happy to help you around the clock."

Simone Fischer,
Customer Care Center

You can reach the sensor people around the clock: www.leuze.com/en/support



Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

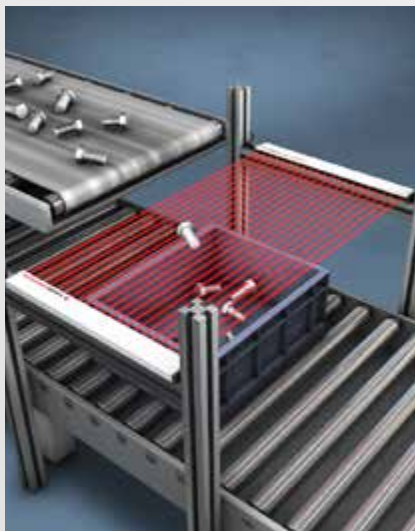
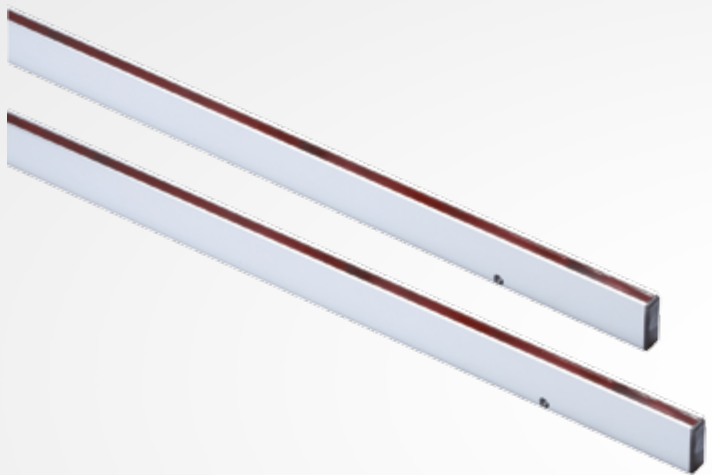
Industrial image
processing

Accessories

/ LIGHT CURTAINS

OBJECT DETECTION MADE EASY

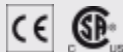
The switching light curtains from Leuze electronic are able to monitor a large measurement field and respond if sensor beams in the field are interrupted. Various resolutions and measurement field lengths enable reliable use in a variety of applications.



/// CSL 505



The cost-optimized, CSL 505 switching light curtain is specially designed for simple applications. With its slim design, integrated evaluation unit and large opening angle for quick and simple alignment, it can be used for projection monitoring, free field monitoring and object detection.

**Benefits:**

- Different measurement field lengths
- Selectable resolution
- M8 connector plug
- Slim housing
- Operating range up to 5 m
- Short cycle time
- Prefailure message (soiling)



Direct access to the online product selector at www.leuze.com/en/csl505

Part no.	Part description	Beam spacing	Measurement field length	Number of beams	Operating range	Switching outputs	Switching output	Connection	Special design
50131365	► CSL505-T05-35-M8	5 mm	35 mm	8x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131308	◄ CSL505-R05-35-M8	5 mm	35 mm	8x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131366	► CSL505-T05-75-M8	5 mm	75 mm	16x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131309	◄ CSL505-R05-75-M8	5 mm	75 mm	16x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131367	► CSL505-T05-115-M8	5 mm	115 mm	24x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131310	◄ CSL505-R05-115-M8	5 mm	115 mm	24x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131368	► CSL505-T05-155-M8	5 mm	155 mm	32x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131311	◄ CSL505-R05-155-M8	5 mm	155 mm	32x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131369	► CSL505-T05-195-M8	5 mm	195 mm	40x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131312	◄ CSL505-R05-195-M8	5 mm	195 mm	40x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131370	► CSL505-T05-235-M8	5 mm	235 mm	48x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131313	◄ CSL505-R05-235-M8	5 mm	235 mm	48x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131371	► CSL505-T05-275-M8	5 mm	275 mm	56x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131314	◄ CSL505-R05-275-M8	5 mm	275 mm	56x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131372	► CSL505-T05-315-M8	5 mm	315 mm	64x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131315	◄ CSL505-R05-315-M8	5 mm	315 mm	64x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131373	► CSL505-T05-355-M8	5 mm	355 mm	72x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131316	◄ CSL505-R05-355-M8	5 mm	355 mm	72x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131374	► CSL505-T05-395-M8	5 mm	355 mm	72x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131317	◄ CSL505-R05-395-M8	5 mm	355 mm	72x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131375	► CSL505-T12.5-88-M8	12.5 mm	88 mm	8x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131318	◄ CSL505-R12.5-88-M8	12.5 mm	88 mm	8x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131376	► CSL505-T12.5-188-M8	12.5 mm	188 mm	16x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131319	◄ CSL505-R12.5-188-M8	12.5 mm	188 mm	16x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131377	► CSL505-T12.5-288-M8	12.5 mm	288 mm	24x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131321	◄ CSL505-R12.5-288-M8	12.5 mm	288 mm	24x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input

► transmitter / ◄ receiver

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

Part no.	Part description	Beam spacing	Measurement field length	Number of beams	Operating range	Switching outputs	Switching output	Connection	Special design
50131378	► CSL505-T12.5-388-M8	12.5 mm	388 mm	32x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131322	◄ CSL505-R12.5-388-M8	12.5 mm	388 mm	32x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131379	► CSL505-T12.5-488-M8	12.5 mm	488 mm	40x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131323	◄ CSL505-R12.5-488-M8	12.5 mm	488 mm	40x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131380	► CSL505-T12.5-588-M8	12.5 mm	588 mm	48x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131324	◄ CSL505-R12.5-588-M8	12.5 mm	588 mm	48x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131381	► CSL505-T12.5-688-M8	12.5 mm	688 mm	56x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131325	◄ CSL505-R12.5-688-M8	12.5 mm	688 mm	56x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131382	► CSL505-T12.5-788-M8	12.5 mm	788 mm	64x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131326	◄ CSL505-R12.5-788-M8	12.5 mm	788 mm	64x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131383	► CSL505-T12.5-888-M8	12.5 mm	887.5 mm	72x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131327	◄ CSL505-R12.5-888-M8	12.5 mm	887.5 mm	72x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131384	► CSL505-T12.5-988-M8	12.5 mm	987.5 mm	80x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131328	◄ CSL505-R12.5-988-M8	12.5 mm	987.5 mm	80x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131385	► CSL505-T25-175-M8	25 mm	175 mm	8x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131329	◄ CSL505-R25-175-M8	25 mm	175 mm	8x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131386	► CSL505-T25-275-M8	25 mm	275 mm	12x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131330	◄ CSL505-R25-275-M8	25 mm	275 mm	12x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131387	► CSL505-T25-375-M8	25 mm	375 mm	16x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131331	◄ CSL505-R25-375-M8	25 mm	375 mm	16x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131388	► CSL505-T25-475-M8	25 mm	475 mm	20x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131332	◄ CSL505-R25-475-M8	25 mm	475 mm	20x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131389	► CSL505-T25-575-M8	25 mm	575 mm	24x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131333	◄ CSL505-R25-575-M8	25 mm	575 mm	24x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131390	► CSL505-T25-675-M8	25 mm	675 mm	28x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131334	◄ CSL505-R25-675-M8	25 mm	675 mm	28x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131391	► CSL505-T25-775-M8	25 mm	775 mm	32x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131335	◄ CSL505-R25-775-M8	25 mm	775 mm	32x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131392	► CSL505-T25-875-M8	25 mm	875 mm	36x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131336	◄ CSL505-R25-875-M8	25 mm	875 mm	36x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131393	► CSL505-T25-975-M8	25 mm	975 mm	40x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131337	◄ CSL505-R25-975-M8	25 mm	975 mm	40x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131394	► CSL505-T25-1075-M8	25 mm	1,075 mm	44x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131338	◄ CSL505-R25-1075-M8	25 mm	1,075 mm	44x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131395	► CSL505-T25-1175-M8	25 mm	1,175 mm	48x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131339	◄ CSL505-R25-1175-M8	25 mm	1,175 mm	48x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input

► transmitter / ◄ receiver

Part no.	Part description	Beam spacing	Measurement field length	Number of beams	Operating range	Switching outputs	Switching output	Connection	Special design
50131396	► CSL505-T25-1275-M8	25 mm	1,275 mm	52x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131340	◄ CSL505-R25-1275-M8	25 mm	1,275 mm	52x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131397	► CSL505-T25-1375-M8	25 mm	1,375 mm	56x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131341	◄ CSL505-R25-1375-M8	25 mm	1,375 mm	56x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131398	► CSL505-T25-1475-M8	25 mm	1,475 mm	60x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131342	◄ CSL505-R25-1475-M8	25 mm	1,475 mm	60x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131399	► CSL505-T25-1575-M8	25 mm	1,575 mm	64x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131343	◄ CSL505-R25-1575-M8	25 mm	1,575 mm	64x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131400	► CSL505-T25-1675-M8	25 mm	1,675 mm	68x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131344	◄ CSL505-R25-1675-M8	25 mm	1,675 mm	68x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131401	► CSL505-T25-1775-M8	25 mm	1,775 mm	72x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131345	◄ CSL505-R25-1775-M8	25 mm	1,775 mm	72x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131402	► CSL505-T25-1875-M8	25 mm	1,875 mm	76x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131346	◄ CSL505-R25-1875-M8	25 mm	1,875 mm	76x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131403	► CSL505-T25-1975-M8	25 mm	1,975 mm	80x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131347	◄ CSL505-R25-1975-M8	25 mm	1,975 mm	80x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131404	► CSL505-T25-2175-M8	25 mm	2,175 mm	88x	0.3 ... 5 m			Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50131348	◄ CSL505-R25-2175-M8	25 mm	2,175 mm	88x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, warning output, teach input, diagonal-beam scanning, crossed-beam scanning
50131405	► CSL505-T25-2375-M8	25 mm	2,375 mm	96x	0.3 ... 5 m			Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50131349	◄ CSL505-R25-2375-M8	25 mm	2,375 mm	96x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, warning output, teach input, diagonal-beam scanning, crossed-beam scanning
50131406	► CSL505-T50-350-M8	50 mm	350 mm	8x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131350	◄ CSL505-R50-350-M8	50 mm	350 mm	8x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131407	► CSL505-T50-750-M8	50 mm	750 mm	16x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131351	◄ CSL505-R50-750-M8	50 mm	750 mm	16x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131408	► CSL505-T50-1150-M8	50 mm	1,150 mm	24x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131352	◄ CSL505-R50-1150-M8	50 mm	1,150 mm	24x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131409	► CSL505-T50-1550-M8	50 mm	1,550 mm	32x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131353	◄ CSL505-R50-1550-M8	50 mm	1,550 mm	32x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131410	► CSL505-T50-1950-M8	50 mm	1,950 mm	40x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131354	◄ CSL505-R50-1950-M8	50 mm	1,950 mm	40x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131411	► CSL505-T50-2350-M8	50 mm	2,350 mm	48x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131355	◄ CSL505-R50-2350-M8	50 mm	2,350 mm	48x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131412	► CSL505-T50-2750-M8	50 mm	2,750 mm	56x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131356	◄ CSL505-R50-2750-M8	50 mm	2,750 mm	56x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131413	► CSL505-T50-3150-M8	50 mm	3,150 mm	64x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131357	◄ CSL505-R50-3150-M8	50 mm	3,150 mm	64x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input

► transmitter / ◄ receiver

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

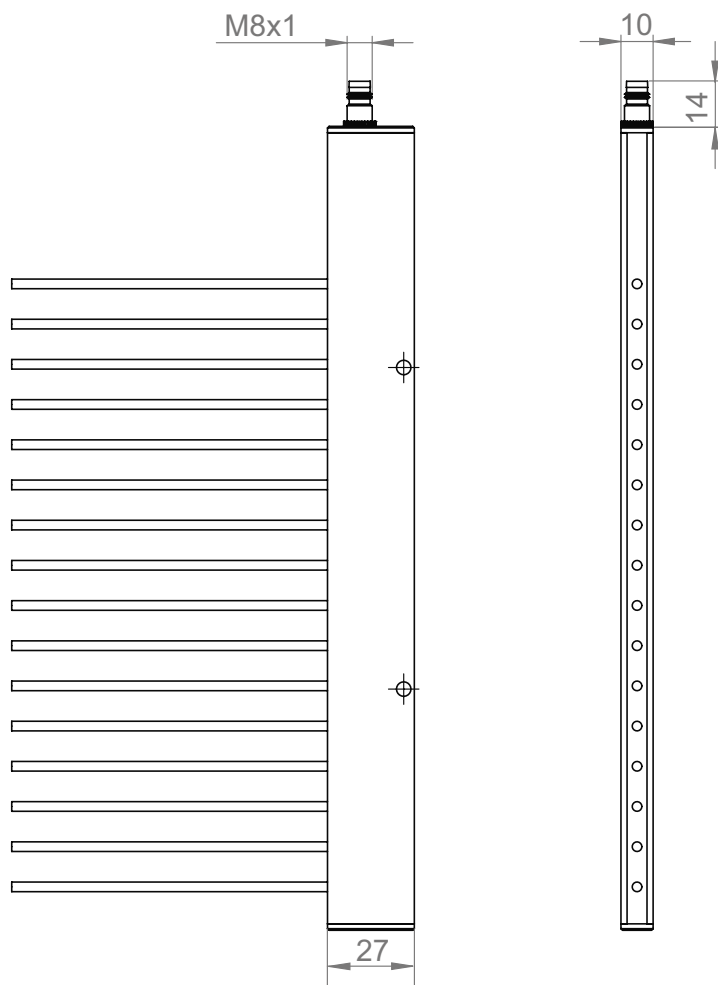
Industrial image processing

Accessories

Part no.	Part description	Beam spacing	Measurement field length	Number of beams	Operating range	Switching outputs	Switching output	Connection	Special design
50131414	► CSL505-T100-700-M8	100 mm	700 mm	8x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131358	◄ CSL505-R100-700-M8	100 mm	700 mm	8x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131415	► CSL505-T100-1100-M8	100 mm	1,100 mm	12x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131359	◄ CSL505-R100-1100-M8	100 mm	1,100 mm	12x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131416	► CSL505-T100-1500-M8	100 mm	1,500 mm	16x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131360	◄ CSL505-R100-1500-M8	100 mm	1,500 mm	16x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131417	► CSL505-T100-1900-M8	100 mm	1,900 mm	20x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131361	◄ CSL505-R100-1900-M8	100 mm	1,900 mm	20x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131418	► CSL505-T100-2300-M8	100 mm	2,300 mm	24x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131362	◄ CSL505-R100-2300-M8	100 mm	2,300 mm	24x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131419	► CSL505-T100-2700-M8	100 mm	2,700 mm	28x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131363	◄ CSL505-R100-2700-M8	100 mm	2,700 mm	28x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input
50131420	► CSL505-T100-3100-M8	100 mm	3,100 mm	32x	0.3 ... 5 m			Connector, M8, 4-pin	Diagonal-beam scanning, crossed-beam scanning, parallel-beam scanning
50131364	◄ CSL505-R100-3100-M8	100 mm	3,100 mm	32x		2x	Transistor, push-pull, light/dark reversible	Connector, M8, 4-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning, warning output, teach input

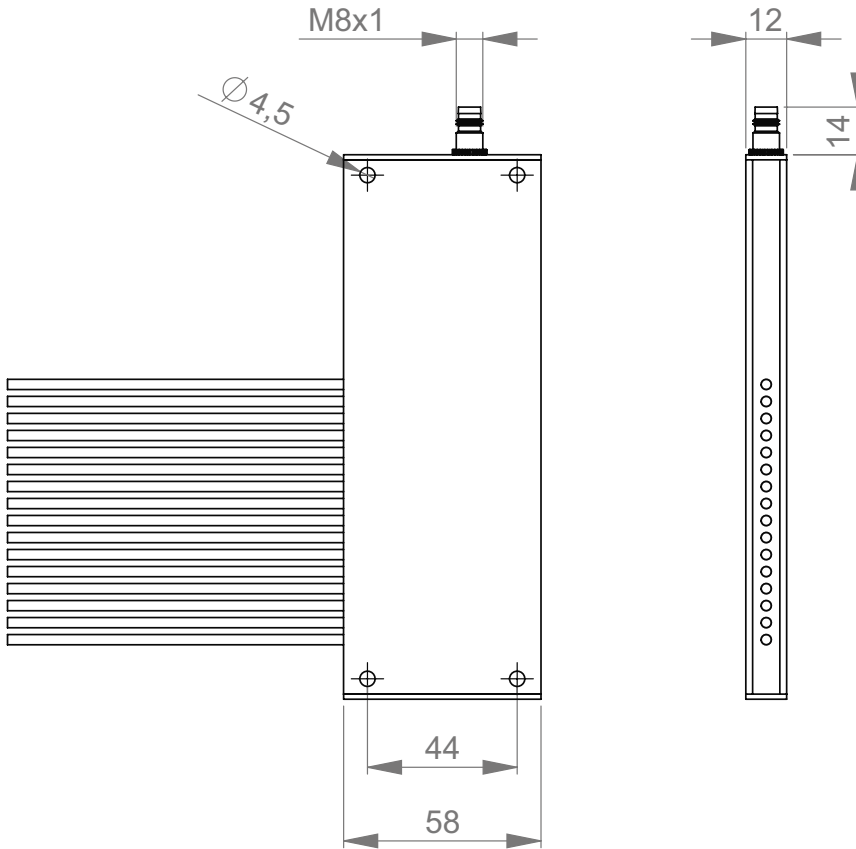
► transmitter / ◄ receiver

Dimensioned drawings: CSL 505



CSL 505 switching light curtain, > 5 mm beam spacing

Dimensioned drawings: CSL 505



CSL 505 switching light curtain, 5 mm beam spacing

ACCESSORIES: CSL 505

Connection technology

Connection cables

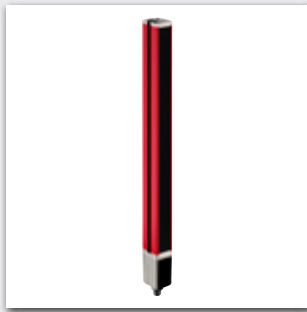
Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130869	KD U-M8-4W-V1-020	Connector, M8, angled, female	4-pin	2,000 mm	PVC
50130871	KD U-M8-4W-V1-050	Connector, M8, angled, female	4-pin	5,000 mm	PVC
50130854	KD U-M8-4A-P1-020	Connector, M8, axial, female	4-pin	2,000 mm	PUR
50130856	KD U-M8-4A-P1-050	Connector, M8, axial, female	4-pin	5,000 mm	PUR
50130857	KD U-M8-4A-P1-100	Connector, M8, axial, female	4-pin	10,000 mm	PUR
50130848	KD U-M8-4A-V1-020	Connector, M8, axial, female	4-pin	2,000 mm	PVC
50130850	KD U-M8-4A-V1-050	Connector, M8, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

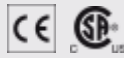
Configuration devices

Part no.	Part description	Connection 1	No. of pins	Connection 2	Function
50132069	CSL505-Interface	Sub-D	9-pin	Terminal	Configuration and test device

/// CSL 710



The CSL 710 is a switching light curtain with selectable resolution, various measurement field lengths and many useful technical details such as, e.g., a display for simple alignment.

**Benefits:**

- Operating range of up to 6 m for larger function reserve
- Response time of 30 µs per beam for the reliable detection of fast processes
- Large, easy-to-read display in 5 languages for easy alignment and configuration
- Maximum measurement field length of nearly 3 m for measurement on large objects
- Sturdy metal housing also for use in rough industrial environments
- Connection via M12 connector for fast installation
- 4 configurable inputs or outputs



Direct access to the online product selector at www.leuze.com/en/csl710

Part no.	Part description	Beam spacing	Measurement field length	No. of beams	Operating range	Switching output	Connection	Special design
50128977	► CSL710-T05-160.A-M12	5 mm	160 mm	32x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128889	◄ CSL710-R05-160.A/L-M12	5 mm	160 mm	32x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128978	► CSL710-T05-240.A-M12	5 mm	240 mm	48x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128890	◄ CSL710-R05-240.A/L-M12	5 mm	240 mm	48x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128979	► CSL710-T05-320.A-M12	5 mm	320 mm	64x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128891	◄ CSL710-R05-320.A/L-M12	5 mm	320 mm	64x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128980	► CSL710-T05-400.A-M12	5 mm	400 mm	80x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128892	◄ CSL710-R05-400.A/L-M12	5 mm	400 mm	80x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128981	► CSL710-T05-480.A-M12	5 mm	480 mm	96x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128893	◄ CSL710-R05-480.A/L-M12	5 mm	480 mm	96x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128982	► CSL710-T05-560.A-M12	5 mm	560 mm	112x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128894	◄ CSL710-R05-560.A/L-M12	5 mm	560 mm	112x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128983	► CSL710-T05-640.A-M12	5 mm	640 mm	128x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128895	◄ CSL710-R05-640.A/L-M12	5 mm	640 mm	128x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128984	► CSL710-T05-720.A-M12	5 mm	720 mm	144x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128896	◄ CSL710-R05-720.A/L-M12	5 mm	720 mm	144x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128985	► CSL710-T05-800.A-M12	5 mm	800 mm	160x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128897	◄ CSL710-R05-800.A/L-M12	5 mm	800 mm	160x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128986	► CSL710-T05-880.A-M12	5 mm	880 mm	176x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128898	◄ CSL710-R05-880.A/L-M12	5 mm	880 mm	176x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning

► transmitter / ◄ receiver

Part no.	Part description	Beam spacing	Measurement field length	No. of beams	Operating range	Switching output	Connection	Special design
50128987	► CSL710-T05-960.A-M12	5 mm	960 mm	192x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128899	◄ CSL710-R05-960.A/L-M12	5 mm	960 mm	192x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128988	► CSL710-T05-1040.A-M12	5 mm	1,040 mm	208x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128900	◄ CSL710-R05-1040.A/L-M12	5 mm	1,040 mm	208x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128989	► CSL710-T05-1120.A-M12	5 mm	1,120 mm	224x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128901	◄ CSL710-R05-1120.A/L-M12	5 mm	1,120 mm	224x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128990	► CSL710-T05-1200.A-M12	5 mm	1,200 mm	240x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128902	◄ CSL710-R05-1200.A/L-M12	5 mm	1,200 mm	240x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128991	► CSL710-T05-1280.A-M12	5 mm	1,280 mm	256x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128903	◄ CSL710-R05-1280.A/L-M12	5 mm	1,280 mm	256x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128992	► CSL710-T05-1360.A-M12	5 mm	1,360 mm	272x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128904	◄ CSL710-R05-1360.A/L-M12	5 mm	1,360 mm	272x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128993	► CSL710-T05-1440.A-M12	5 mm	1,440 mm	288x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128905	◄ CSL710-R05-1440.A/L-M12	5 mm	1,440 mm	288x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128994	► CSL710-T05-1520.A-M12	5 mm	1,520 mm	304x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128906	◄ CSL710-R05-1520.A/L-M12	5 mm	1,520 mm	304x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128995	► CSL710-T05-1600.A-M12	5 mm	1,600 mm	320x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128907	◄ CSL710-R05-1600.A/L-M12	5 mm	1,600 mm	320x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128996	► CSL710-T05-1680.A-M12	5 mm	1,680 mm	336x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128908	◄ CSL710-R05-1680.A/L-M12	5 mm	1,680 mm	336x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128997	► CSL710-T05-1760.A-M12	5 mm	1,760 mm	352x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128909	◄ CSL710-R05-1760.A/L-M12	5 mm	1,760 mm	352x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128998	► CSL710-T05-1840.A-M12	5 mm	1,840 mm	368x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128910	◄ CSL710-R05-1840.A/L-M12	5 mm	1,840 mm	368x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128999	► CSL710-T05-1920.A-M12	5 mm	1,920 mm	384x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128911	◄ CSL710-R05-1920.A/L-M12	5 mm	1,920 mm	384x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129000	► CSL710-T05-2000.A-M12	5 mm	2,000 mm	400x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128912	◄ CSL710-R05-2000.A/L-M12	5 mm	2,000 mm	400x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129001	► CSL710-T05-2080.A-M12	5 mm	2,080 mm	416x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128913	◄ CSL710-R05-2080.A/L-M12	5 mm	2,080 mm	416x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129002	► CSL710-T05-2160.A-M12	5 mm	2,160 mm	432x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128914	◄ CSL710-R05-2160.A/L-M12	5 mm	2,160 mm	432x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning

► transmitter / ◄ receiver

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

Part no.	Part description	Beam spacing	Measurement field length	No. of beams	Operating range	Switching output	Connection	Special design
50129003	► CSL710-T05-2240.A-M12	5 mm	2,240 mm	448x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128915	◄ CSL710-R05-2240.A/L-M12	5 mm	2,240 mm	448x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129004	► CSL710-T05-2320.A-M12	5 mm	2,320 mm	464x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128916	◄ CSL710-R05-2320.A/L-M12	5 mm	2,320 mm	464x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129005	► CSL710-T05-2400.A-M12	5 mm	2,400 mm	480x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128917	◄ CSL710-R05-2400.A/L-M12	5 mm	2,400 mm	480x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129006	► CSL710-T05-2480.A-M12	5 mm	2,480 mm	496x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128918	◄ CSL710-R05-2480.A/L-M12	5 mm	2,480 mm	496x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129007	► CSL710-T05-2560.A-M12	5 mm	2,560 mm	512x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128919	◄ CSL710-R05-2560.A/L-M12	5 mm	2,560 mm	512x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129008	► CSL710-T05-2640.A-M12	5 mm	2,640 mm	528x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128920	◄ CSL710-R05-2640.A/L-M12	5 mm	2,640 mm	528x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129009	► CSL710-T05-2720.A-M12	5 mm	2,720 mm	544x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128921	◄ CSL710-R05-2720.A/L-M12	5 mm	2,720 mm	544x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129010	► CSL710-T05-2800.A-M12	5 mm	2,800 mm	560x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128922	◄ CSL710-R05-2800.A/L-M12	5 mm	2,800 mm	560x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129011	► CSL710-T05-2880.A-M12	5 mm	2,880 mm	576x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128923	◄ CSL710-R05-2880.A/L-M12	5 mm	2,880 mm	576x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129012	► CSL710-T05-2960.A-M12	5 mm	2,960 mm	592x	0.1 ... 3 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128924	◄ CSL710-R05-2960.A/L-M12	5 mm	2,960 mm	592x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129013	► CSL710-T10-160.A-M12	10 mm	160 mm	16x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128929	◄ CSL710-R10-160.A/L-M12	10 mm	160 mm	16x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129014	► CSL710-T10-320.A-M12	10 mm	320 mm	32x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128930	◄ CSL710-R10-320.A/L-M12	10 mm	320 mm	32x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129015	► CSL710-T10-480.A-M12	10 mm	480 mm	48x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128931	◄ CSL710-R10-480.A/L-M12	10 mm	480 mm	48x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129016	► CSL710-T10-640.A-M12	10 mm	640 mm	64x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128932	◄ CSL710-R10-640.A/L-M12	10 mm	640 mm	64x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129017	► CSL710-T10-800.A-M12	10 mm	800 mm	80x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128933	◄ CSL710-R10-800.A/L-M12	10 mm	800 mm	80x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning

► transmitter / ◄ receiver

Part no.	Part description	Beam spacing	Measurement field length	No. of beams	Operating range	Switching output	Connection	Special design
50129018	► CSL710-T10-960.A-M12	10 mm	960 mm	96x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128934	◄ CSL710-R10-960.A/L-M12	10 mm	960 mm	96x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129019	► CSL710-T10-1120.A-M12	10 mm	1,120 mm	112x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128935	◄ CSL710-R10-1120.A/L-M12	10 mm	1,120 mm	112x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129020	► CSL710-T10-1280.A-M12	10 mm	1,280 mm	128x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128936	◄ CSL710-R10-1280.A/L-M12	10 mm	1,280 mm	128x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129021	► CSL710-T10-1440.A-M12	10 mm	1,440 mm	144x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128937	◄ CSL710-R10-1440.A/L-M12	10 mm	1,440 mm	144x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129022	► CSL710-T10-1600.A-M12	10 mm	1,600 mm	160x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128938	◄ CSL710-R10-1600.A/L-M12	10 mm	1,600 mm	160x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129023	► CSL710-T10-1760.A-M12	10 mm	1,760 mm	176x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128939	◄ CSL710-R10-1760.A/L-M12	10 mm	1,760 mm	176x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129024	► CSL710-T10-1920.A-M12	10 mm	1,920 mm	192x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128940	◄ CSL710-R10-1920.A/L-M12	10 mm	1,920 mm	192x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129025	► CSL710-T10-2080.A-M12	10 mm	2,080 mm	208x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128941	◄ CSL710-R10-2080.A/L-M12	10 mm	2,080 mm	208x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129026	► CSL710-T10-2240.A-M12	10 mm	2,240 mm	224x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128942	◄ CSL710-R10-2240.A/L-M12	10 mm	2,240 mm	224x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129027	► CSL710-T10-2400.A-M12	10 mm	2,400 mm	240x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128943	◄ CSL710-R10-2400.A/L-M12	10 mm	2,400 mm	240x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129028	► CSL710-T10-2560.A-M12	10 mm	2,560 mm	256x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128944	◄ CSL710-R10-2560.A/L-M12	10 mm	2,560 mm	256x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129029	► CSL710-T10-2720.A-M12	10 mm	2,720 mm	272x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128945	◄ CSL710-R10-2720.A/L-M12	10 mm	2,720 mm	272x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129030	► CSL710-T10-2880.A-M12	10 mm	2,880 mm	288x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128946	◄ CSL710-R10-2880.A/L-M12	10 mm	2,880 mm	288x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129031	► CSL710-T20-150.A-M12	20 mm	150 mm	8x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128948	◄ CSL710-R20-150.A/L-M12	20 mm	150 mm	8x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129032	► CSL710-T20-310.A-M12	20 mm	310 mm	16x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128949	◄ CSL710-R20-310.A/L-M12	20 mm	310 mm	16x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning

► transmitter / ◄ receiver

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

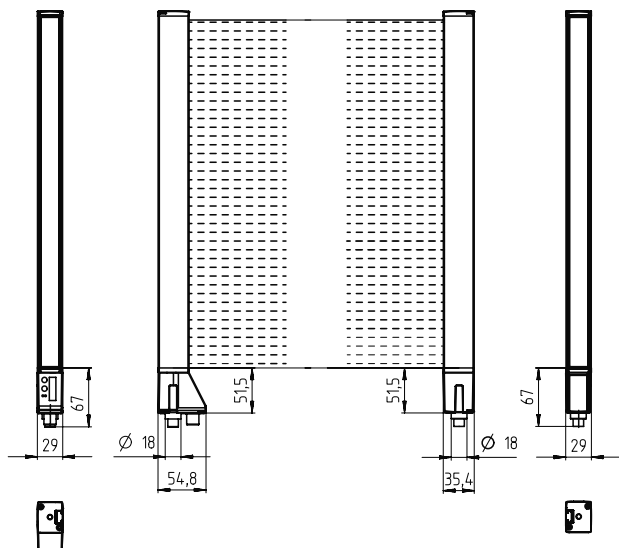
Part no.	Part description	Beam spacing	Measurement field length	No. of beams	Operating range	Switching output	Connection	Special design
50129033	► CSL710-T20-470.A-M12	20 mm	470 mm	24x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128950	◄ CSL710-R20-470.A/L-M12	20 mm	470 mm	24x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129034	► CSL710-T20-630.A-M12	20 mm	630 mm	32x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128951	◄ CSL710-R20-630.A/L-M12	20 mm	630 mm	32x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129035	► CSL710-T20-790.A-M12	20 mm	790 mm	40x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128952	◄ CSL710-R20-790.A/L-M12	20 mm	790 mm	40x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129036	► CSL710-T20-950.A-M12	20 mm	950 mm	48x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128953	◄ CSL710-R20-950.A/L-M12	20 mm	950 mm	48x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129037	► CSL710-T20-1110.A-M12	20 mm	1,110 mm	56x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128954	◄ CSL710-R20-1110.A/L-M12	20 mm	1,110 mm	56x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129038	► CSL710-T20-1270.A-M12	20 mm	1,270 mm	64x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128955	◄ CSL710-R20-1270.A/L-M12	20 mm	1,270 mm	64x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129039	► CSL710-T20-1430.A-M12	20 mm	1,430 mm	72x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128956	◄ CSL710-R20-1430.A/L-M12	20 mm	1,430 mm	72x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129040	► CSL710-T20-1590.A-M12	20 mm	1,590 mm	80x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128957	◄ CSL710-R20-1590.A/L-M12	20 mm	1,590 mm	80x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129041	► CSL710-T20-1750.A-M12	20 mm	1,750 mm	88x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128958	◄ CSL710-R20-1750.A/L-M12	20 mm	1,750 mm	88x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129042	► CSL710-T20-1910.A-M12	20 mm	1,910 mm	96x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128959	◄ CSL710-R20-1910.A/L-M12	20 mm	1,910 mm	96x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129043	► CSL710-T20-2070.A-M12	20 mm	2,070 mm	104x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128960	◄ CSL710-R20-2070.A/L-M12	20 mm	2,070 mm	104x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129044	► CSL710-T20-2230.A-M12	20 mm	2,230 mm	112x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128961	◄ CSL710-R20-2230.A/L-M12	20 mm	2,230 mm	112x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129045	► CSL710-T20-2390.A-M12	20 mm	2,390 mm	120x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128962	◄ CSL710-R20-2390.A/L-M12	20 mm	2,390 mm	120x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129046	► CSL710-T20-2550.A-M12	20 mm	2,550 mm	128x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128963	◄ CSL710-R20-2550.A/L-M12	20 mm	2,550 mm	128x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129047	► CSL710-T20-2710.A-M12	20 mm	2,710 mm	136x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128964	◄ CSL710-R20-2710.A/L-M12	20 mm	2,710 mm	136x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning

► transmitter / ◄ receiver

Part no.	Part description	Beam spacing	Measurement field length	No. of beams	Operating range	Switching output	Connection	Special design
50129048	► CSL710-T20-2870.A-M12	20 mm	2,870 mm	144x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128965	◄ CSL710-R20-2870.A/L-M12	20 mm	2,870 mm	144x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129049	► CSL710-T40-290.A-M12	40 mm	290 mm	8x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128967	◄ CSL710-R40-290.A/L-M12	40 mm	290 mm	8x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129050	► CSL710-T40-610.A-M12	40 mm	610 mm	16x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128968	◄ CSL710-R40-610.A/L-M12	40 mm	610 mm	16x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129051	► CSL710-T40-930.A-M12	40 mm	930 mm	24x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128969	◄ CSL710-R40-930.A/L-M12	40 mm	930 mm	24x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129052	► CSL710-T40-1250.A-M12	40 mm	1,250 mm	32x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128970	◄ CSL710-R40-1250.A/L-M12	40 mm	1,250 mm	32x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129053	► CSL710-T40-1570.A-M12	40 mm	1,570 mm	40x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128971	◄ CSL710-R40-1570.A/L-M12	40 mm	1,570 mm	40x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129054	► CSL710-T40-1890.A-M12	40 mm	1,890 mm	48x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128972	◄ CSL710-R40-1890.A/L-M12	40 mm	1,890 mm	48x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129055	► CSL710-T40-2210.A-M12	40 mm	2,210 mm	56x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128973	◄ CSL710-R40-2210.A/L-M12	40 mm	2,210 mm	56x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129056	► CSL710-T40-2530.A-M12	40 mm	2,530 mm	64x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128974	◄ CSL710-R40-2530.A/L-M12	40 mm	2,530 mm	64x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50129057	► CSL710-T40-2850.A-M12	40 mm	2,850 mm	72x	0.3 ... 6 m		Connector, M12, 5-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning
50128975	◄ CSL710-R40-2850.A/L-M12	40 mm	2,850 mm	72x		Inputs/outputs selectable	Connector, M12, 8-pin	Parallel-beam scanning, diagonal-beam scanning, crossed-beam scanning

► transmitter / ◄ receiver

Dimensioned drawings: CSL 710



CSL 710 switching light curtain, transmitter and receiver

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

ACCESSORIES: CSL 710

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104591	K-D M12A-8P-2m-PUR	Connector, M12, axial, female	8-pin	2,000 mm	PUR
50104590	K-D M12A-8P-5m-PUR	Connector, M12, axial, female	8-pin	5,000 mm	PUR
50106882	K-D M12A-8P-10m-PUR	Connector, M12, axial, female	8-pin	10,000 mm	PUR

Further connection cables can be found on our website

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Interface	Sheathing material
50120999	K-DS M12A-8P-4P-2m-L-PUR	Connector, M12, axial, female	8-pin	Connector, M12, axial, male	4-pin	2,000 mm		PUR
50121000	K-DS M12A-8P-4P-5m-L-PUR	Connector, M12, axial, female	8-pin	Connector, M12, axial, male	4-pin	5,000 mm		PUR
50129779	KDS DN-M12-5A-M12-5A-P3-010	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	1,000 mm	IO-Link, DeviceNet, CANopen	PUR
50129780	KDS DN-M12-5A-M12-5A-P3-020	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	2,000 mm	IO-Link, DeviceNet, CANopen	PUR
50129781	KDS DN-M12-5A-M12-5A-P3-050	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	5,000 mm	IO-Link, DeviceNet, CANopen	PUR
50129782	KDS DN-M12-5A-M12-5A-P3-100	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	10,000 mm	IO-Link, DeviceNet, CANopen	PUR
50129783	KDS DN-M12-5A-M12-5A-P3-200	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	20,000 mm	IO-Link, DeviceNet, CANopen	PUR

Further interconnection cables can be found on our website

User-configurable connectors

Part no.	Part description	Connection	No. of pins
429178	CB-M12-8GF	Connector, M12, axial, female	8-pin

Further connectors can be found on our website

IO-Link USB master

Part no.	Part description
50121098	SET MD12-US2-IL1.1 + acc.

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
429056	BT-2L	Angle, L-shape	Screw type	Through-hole mounting	Metal
429057	BT-2Z	Angle, Z-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Swivel mounts

Part no.	Part description	Fastening at device	Fastening at system	Material
429046	BT-2R1	Clampable	Through-hole mounting	Metal, plastic

Further swivel mounts can be found on our website

Other mounting systems

Part no.	Part description	Description	Fastening at device	Fastening at system	Material	Contains
424417	BT-2P40	Holder set	Groove mounting	Groove mounting	Metal	
425740	BT-10NC60	Sliding block set	Groove mounting	Mounting thread	Metal	10x BT-NC sliding block
425741	BT-10NC64	Sliding block set	Groove mounting	Mounting thread	Metal	10x BT-NC-M4-M6 sliding block
425742	BT-10NC65	Sliding block set	Groove mounting	Mounting thread	Metal	10x BT-NC-M5-M6 sliding block

Further mounting systems can be found on our website

/// CSR 780



The CSR 780 is a switching light curtain that functions according to the reflection principle and has high resolution and fast response time specifically for counting objects on machines or for ejection monitoring.



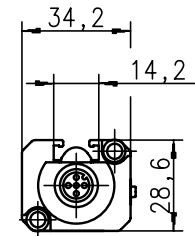
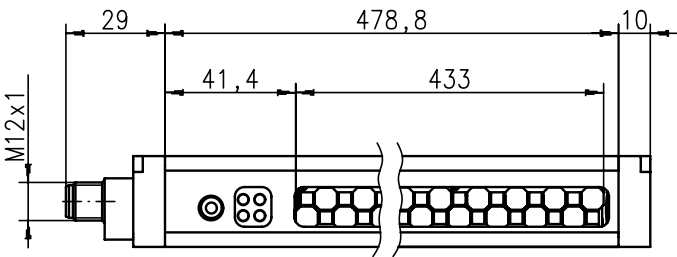
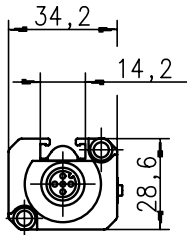
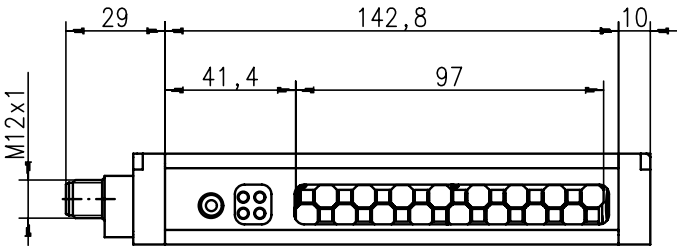
- Benefits:**
- Transmitter and receiver in one housing
 - Reflection principle against a reflector
 - Complete detection of small objects (e. g. 10 mm × 10 mm × 1 mm)
 - Max. object speed 3.5 m/s
 - Readjustment when soiled
 - Warning output for prefailure message
 - Time-saving adjustment by means of teach-in



Direct access to the online product selector at www.leuze.com/en/csr780

Part no.	Part description	Beam spacing	Measurement field length	Switching outputs	Switching output	Connection	Special design
50128287	CSR780-01-96/GWHE-M12	1 mm	96 mm	1x	Transistor, push-pull, light switching (PNP)/dark switching (NPN)	Connector, M12, 5-pin	Warning output
50128288	CSR780-01-96/GWHE-M12	1 mm	96 mm	1x	Transistor, push-pull, dark switching (PNP)/light switching (NPN)	Connector, M12, 5-pin	Warning output
50128289	CSR780-01-432/GWHE-M12	1 mm	432 mm	1x	Transistor, push-pull, light switching (PNP)/dark switching (NPN)	Connector, M12, 5-pin	Warning output
50128290	CSR780-01-432/GWHE-M12	1 mm	432 mm	1x	Transistor, push-pull, dark switching (PNP)/light switching (NPN)	Connector, M12, 5-pin	Warning output

Dimensioned drawings: CSR 780



CSR 780 switching light curtain

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

ACCESSORIES: CSR 780

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104568	K-D M12W-5P-2m-PUR	Connector, M12, angled, female	5-pin	2,000 mm	PUR
50104762	K-D M12W-5P-5m-PUR	Connector, M12, angled, female	5-pin	5,000 mm	PUR
50104556	K-D M12W-5P-2m-PVC	Connector, M12, angled, female	5-pin	2,000 mm	PVC
50104558	K-D M12W-5P-5m-PVC	Connector, M12, angled, female	5-pin	5,000 mm	PVC
50104567	K-D M12A-5P-2m-PUR	Connector, M12, axial, female	5-pin	2,000 mm	PUR
50104569	K-D M12A-5P-5m-PUR	Connector, M12, axial, female	5-pin	5,000 mm	PUR
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm	PVC
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm	PVC

Further connection cables can be found on our website

Reflectors

Standard reflectors

Part no.	Part description	Design	Reflective surface	Material
50111155	OCS 110x80mm-M reflector	Rectangular	120 mm × 85 mm	Plastic
50111154	OCS 450x80mm-M reflector	Rectangular	488 mm × 105 mm	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further standard reflectors can be found on our website

SMARTER APPLICATION KNOW-HOW

Efficiency you can feel!

We have already developed many practical solutions with a focus on increasing efficiency. You can find a selection of application examples on our website which will show you how we work and how our customers benefit from this.



See how our applications work in practice: www.leuze.com/en/practice



/ SPECIAL SENSORS

RELIABLE, EVEN WHEN THINGS GET CHALLENGING

Under this heading are sensor solutions that must perform special detection tasks or which were developed for specific applications. Here you will find contrast and luminescence sensors as well as color sensors and systems for monitoring double sheets and splices as well as for overlap detection.



Contrast sensors

Page 182

Luminescence sensors

Page 189

Color sensors

Page 191



Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

//CONTRAST SENSORS

THE CONTRAST MAKES THE DIFFERENCE

This sensor type can use various light sources – such as white light, laser-generated red light or RGB light – to very precisely detect and compare contrasts and report the results to the process with minimal signal jitter. Through the automatic selection of the right transmitter colors, various color or gray value combinations can be reliably detected.

/// KRT 3B



The contrast sensors of the KRT 3B series distinguish between grayscale values, enabling them to detect minimal contrasts. As a result, a check can be performed for the presence of text or imprints or so-called marks detected.



IO-Link

Benefits:

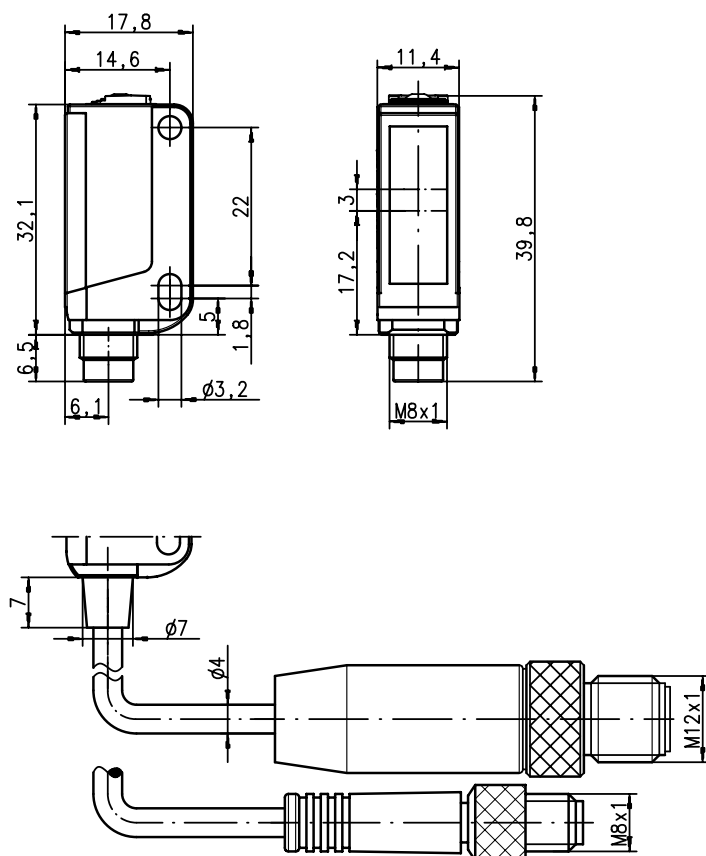
- Range 14.5 mm/ 60 mm (laser)
- Multicolor (RGB), white or laser light
- Various teach-in processes
- Switching-threshold correction via EasyTune
- Min. response time 50 µs
- Switching frequency up to 10 kHz
- Pulse stretching
- IO-Link interface



Direct access to the online product selector at www.leuze.com/en/krt3b

Part no.	Part description	Operating range	Switching frequency	Light source	Digital switching output	Connection	Description
50110592	KRTL 3B/4.3111-S8	0.04 ... 0.08 m	4,000 Hz	Laser, red	Transistor, PNP, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110594	KRTL 3B/4.3111,200-S12	0.04 ... 0.08 m	4,000 Hz	Laser, red	Transistor, PNP, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50110593	KRTL 3B/2.3111-S8	0.04 ... 0.08 m	4,000 Hz	Laser, red	Transistor, NPN, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110595	KRTL 3B/2.3111,200-S12	0.04 ... 0.08 m	4,000 Hz	Laser, red	Transistor, NPN, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50111321	KRTL 3B/6.3111-S8	0.04 ... 0.08 m	4,000 Hz	Laser, red	Transistor, push-pull, IO-Link/light switching (PNP)/dark switching (NPN)	Connector, M8, 4-pin	Interface: IO-Link, teach input, time function
50110572	KRTW 3B/4.1110-S8	0.0125 ... 0.0165 m	6,000 Hz	LED, white	Transistor, PNP, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110576	KRTW 3B/4.1121-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, white	Transistor, PNP, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110580	KRTW 3B/4.1321-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, white	Transistor, PNP, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50111769	KRTW 3B/4.2121-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, white	Transistor, PNP, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110578	KRTW 3B/4.1121,200-S12	0.0125 ... 0.0165 m	10,000 Hz	LED, white	Transistor, PNP, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50110582	KRTW 3B/4.1321,200-S12	0.0125 ... 0.0165 m	10,000 Hz	LED, white	Transistor, PNP, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50110573	KRTW 3B/2.1110-S8	0.0125 ... 0.0165 m	6,000 Hz	LED, white	Transistor, NPN, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110577	KRTW 3B/2.1121-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, white	Transistor, NPN, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110581	KRTW 3B/2.1321-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, white	Transistor, NPN, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110579	KRTW 3B/2.1121,200-S12	0.0125 ... 0.0165 m	10,000 Hz	LED, white	Transistor, NPN, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50110583	KRTW 3B/2.1321,200-S12	0.0125 ... 0.0165 m	10,000 Hz	LED, white	Transistor, NPN, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50111319	KRTW 3B/6.1121-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, white	Transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN)	Connector, M8, 4-pin	Interface: IO-Link, teach input, time function
50111320	KRTW 3B/6.1321-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, white	Transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN)	Connector, M8, 4-pin	Interface: IO-Link, teach input, time function
50110584	KRTM 3B/4.1121-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110588	KRTM 3B/4.1221-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50111768	KRTM 3B/4.2121-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110586	KRTM 3B/4.1121,200-S12	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50110590	KRTM 3B/4.1221,200-S12	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50110585	KRTM 3B/2.1121-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, NPN, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110589	KRTM 3B/2.1221-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, NPN, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110587	KRTM 3B/2.1121,200-S12	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, NPN, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50110591	KRTM 3B/2.1221,200-S12	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, NPN, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50111312	KRTM 3B/6.1121-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, push-pull, IO-Link/light switching (PNP)/dark switching (NPN)	Connector, M8, 4-pin	Interface: IO-Link, teach input, time function
50111313	KRTM 3B/6.1221-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, push-pull, IO-Link/light switching (PNP)/dark switching (NPN)	Connector, M8, 4-pin	Interface: IO-Link, teach input, time function
50118393	KRTM 3B/6.2121-S8	0.0125 ... 0.0165 m	10,000 Hz	LED, RGB	Transistor, push-pull, IO-Link/light switching (PNP)/dark switching (NPN)	Connector, M8, 4-pin	Interface: IO-Link, teach input, time function

Dimensioned drawings: KRT 3B



KRT 3B contrast sensors

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

ACCESSORIES: KRT 3B

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC
50130869	KD U-M8-4W-V1-020	Connector, M8, angled, female	4-pin	2,000 mm	PVC
50130871	KD U-M8-4W-V1-050	Connector, M8, angled, female	4-pin	5,000 mm	PVC
50130848	KD U-M8-4A-V1-020	Connector, M8, axial, female	4-pin	2,000 mm	PVC
50130850	KD U-M8-4A-V1-050	Connector, M8, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50105546	BT 3B	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117256	BTU 200M-D10	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50117255	BTU 200M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50117254	BTU 200M-D14	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 14 mm rod, sheet-metal mounting	Metal

Further rod mounts can be found on our website

/// KRT 55



Wherever food, beverages, pharmaceutical products or even cosmetics are manufactured, processed and packaged, hygienic design has become a central requirement. These contrast sensors in WASH-DOWN design can withstand even more intensive cleaning and disinfection cycles. The IO-Link interface facilitates simple adaptation to complex applications.

**Benefits:**

- Stainless steel housing AISI 316L
- 13 mm range
- RGB or white light
- Various teach-in processes
- Switching-threshold correction via EasyTune
- Response time 50 µs
- Switching frequency 10 kHz
- Pulse stretching
- IO-Link interface



Direct access to the online product selector at www.leuze.com/en/krt55

Part no.	Part description	Operating range	Switching frequency	Light source	Digital switching output	Connection	Description
50111642	KRTW 55/4.1121-S8	0.011 ... 0.015 m	10,000 Hz	LED, white	Transistor, PNP, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110602	KRTW 55/4.1121,200-S12	0.011 ... 0.015 m	10,000 Hz	LED, white	Transistor, PNP, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50114075	KRTW 55/4.1121,5000	0.011 ... 0.015 m	10,000 Hz	LED, white	Transistor, PNP, light/dark reversible	Cable, 5,000 mm, 4-wire	Teach input, time function
50110601	KRTW 55/2.1121-S8	0.011 ... 0.015 m	10,000 Hz	LED, white	Transistor, NPN, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110603	KRTW 55/2.1121,200-S12	0.011 ... 0.015 m	10,000 Hz	LED, white	Transistor, NPN, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50111641	KRTW 55/6.1121-S8	0.011 ... 0.015 m	10,000 Hz	LED, white	Transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN)	Connector, M8, 4-pin	Interface: IO-Link, teach input, time function
50111644	KRTM 55/4.1121-S8	0.011 ... 0.015 m	10,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110613	KRTM 55/4.1221-S8	0.011 ... 0.015 m	10,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110611	KRTM 55/4.1121,200-S12	0.011 ... 0.015 m	10,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50110615	KRTM 55/4.1221,200-S12	0.011 ... 0.015 m	10,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50114074	KRTM 55/4.1121,5000	0.011 ... 0.015 m	10,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible	Cable, 5,000 mm, 4-wire	Teach input, time function
50110610	KRTM 55/2.1121-S8	0.011 ... 0.015 m	10,000 Hz	LED, RGB	Transistor, NPN, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110614	KRTM 55/2.1221-S8	0.011 ... 0.015 m	10,000 Hz	LED, RGB	Transistor, NPN, light/dark reversible	Connector, M8, 4-pin	Teach input, time function
50110612	KRTM 55/2.1121,200-S12	0.011 ... 0.015 m	10,000 Hz	LED, RGB	Transistor, NPN, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50110616	KRTM 55/2.1221,200-S12	0.011 ... 0.015 m	10,000 Hz	LED, RGB	Transistor, NPN, light/dark reversible	Cable with connector, 200 mm, M12, 4-pin	Teach input, time function
50111643	KRTM 55/6.1121-S8	0.011 ... 0.015 m	10,000 Hz	LED, RGB	Transistor, push-pull, IO-Link / light switching (PNP)/dark switching (NPN)	Connector, M8, 4-pin	Interface: IO-Link, teach input, time function

SMARTER CUSTOMER SERVICE

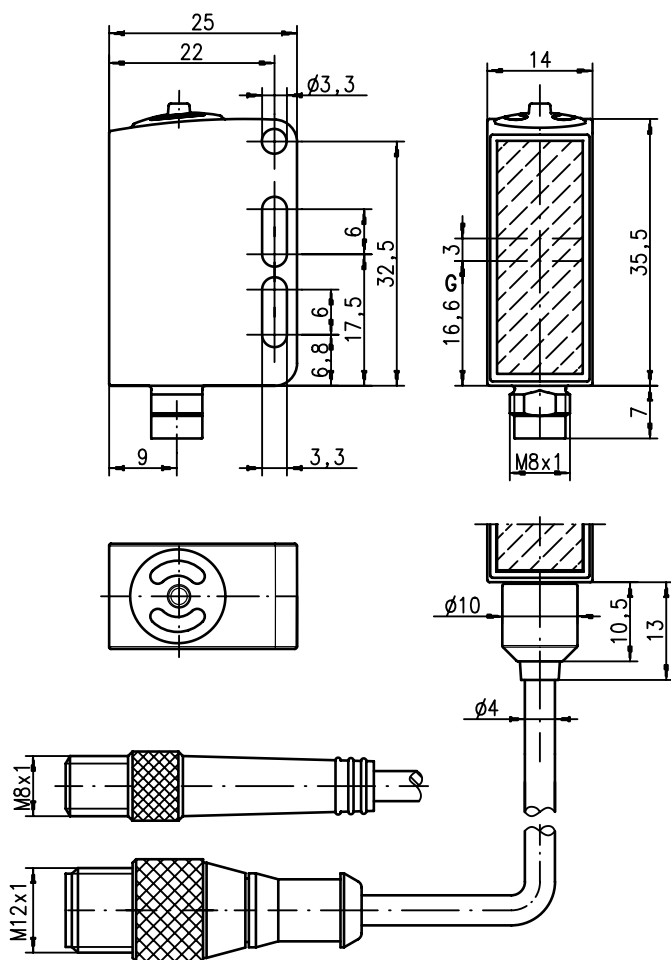


International sales locations –
Everywhere you need us.

Information on our worldwide locations and partners: www.leuze.com/en/worldwide



Dimensioned drawings: KRT 55



KRT 55 contrast sensors

ACCESSORIES: KRT 55

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC
50130869	KD U-M8-4W-V1-020	Connector, M8, angled, female	4-pin	2,000 mm	PVC
50130871	KD U-M8-4W-V1-050	Connector, M8, angled, female	4-pin	5,000 mm	PVC
50130848	KD U-M8-4A-V1-020	Connector, M8, axial, female	4-pin	2,000 mm	PVC
50130850	KD U-M8-4A-V1-050	Connector, M8, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50040269	BT 25	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

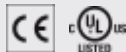
Data transmission /
Control componentsIndustrial image
processing

Accessories

/// KRT 20



With jitter times < 7 µs, with precise, round and small light spots, with memory bank administration and freely programmable interface, with perfect temperature compensation, these devices in a robust metal housing can handle even the fastest processes.

**Benefits:**

- Metal housing with interchangeable lenses
- 12/20 mm and 50 mm range
- Very high resolution
- Response time: 10 ms
- Switching frequency 50 kHz
- Switching and analog output
- Temperature compensation
- Pulse stretching
- Switching-threshold changeover
- Freely programmable
- Rectangular or round light-spot profile

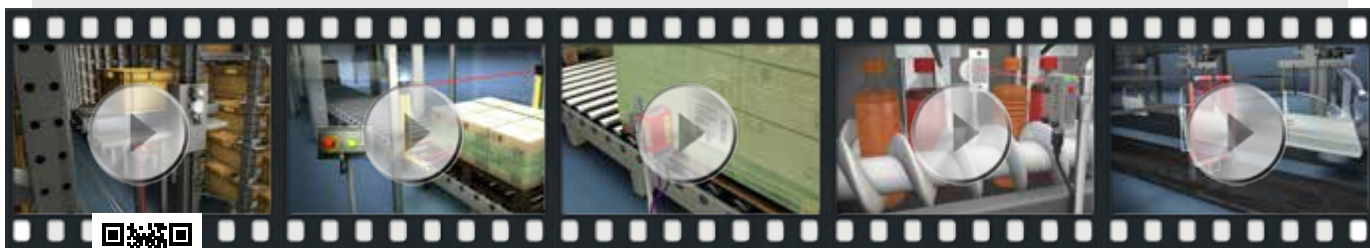


Direct access to the online product selector at www.leuze.com/en/krt20

Part no.	Part description	Operating range	Switching frequency	Light source	Digital switching output	Analog switching output	Connection	Description
50116177	KRTM 20M/P-50-6320-S12	0.045 ... 0.055 m	50,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible		Connector, M12, 5-pin	Autocollimation, synchronization input, time function
50035674	KRTM 20M/V-20-0001-S12	0.018 ... 0.022 m	16,000 Hz	LED, RGB	Transistor, PNP, light switching	Current	Connector, M12, 5-pin	Autocollimation, crop mark system
50041007	KRTM 20M/V-20-0004-S12	0.018 ... 0.022 m	16,000 Hz	LED, RGB	Transistor, PNP, light switching	Current	Connector, M12, 5-pin	Autocollimation, time function, crop mark system
50113438	KRTM 20M/C-20-6526-S12	0.018 ... 0.022 m	50,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible	Current	Connector, M12, 5-pin	Autocollimation, time function
50114202	KRTM 20M/P-20-3320-S12	0.018 ... 0.022 m	50,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible		Connector, M12, 5-pin	Autocollimation, synchronization input, time function
50113435	KRTM 20M/P-20-6320-S12	0.018 ... 0.022 m	50,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible		Connector, M12, 5-pin	Autocollimation, synchronization input, time function
50113437	KRTM 20M/C-20-6626-S12	0.018 ... 0.022 m	50,000 Hz	LED, RGB	Transistor, NPN, light/dark reversible	Current	Connector, M12, 5-pin	Autocollimation, time function
50114201	KRTM 20M/N-20-3320-S12	0.018 ... 0.022 m	50,000 Hz	LED, RGB	Transistor, NPN, light/dark reversible		Connector, M12, 5-pin	Autocollimation, synchronization input, time function
50113436	KRTM 20M/N-20-6320-S12	0.018 ... 0.022 m	50,000 Hz	LED, RGB	Transistor, NPN, light/dark reversible		Connector, M12, 5-pin	Autocollimation, time function
50116474	KRTM 20M/P-12-6420-S12	0.011 ... 0.013 m	50,000 Hz	LED, RGB	Transistor, PNP, light/dark reversible		Connector, M12, 5-pin	Autocollimation, synchronization input, time function

Other scanning ranges of 12 ± 1 mm, 20 ± 2 mm or 50 ± 5 mm are possible by changing the lens

SMARTER APPLICATION KNOW-HOW



Take a look at our product clips: www.leuze.com/en/product-clips

[illegible]

KRT 20 contrast sensors

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104568	K-D M12W-5P-2m-PUR	Connector, M12, angled, female	5-pin	2,000 mm	PUR
50104762	K-D M12W-5P-5m-PUR	Connector, M12, angled, female	5-pin	5,000 mm	PUR
50104556	K-D M12W-5P-2m-PVC	Connector, M12, angled, female	5-pin	2,000 mm	PVC
50104558	K-D M12W-5P-5m-PVC	Connector, M12, angled, female	5-pin	5,000 mm	PVC
50104567	K-D M12A-5P-2m-PUR	Connector, M12, axial, female	5-pin	2,000 mm	PUR
50104569	K-D M12A-5P-5m-PUR	Connector, M12, axial, female	5-pin	5,000 mm	PUR
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm	PVC
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm	PVC

Further connection cables can be found on our website

/// KRT 21

With a response time of 33 μ s, RGB transmitter, interchangeable lenses and other fundamental equipment details, any contrast marks are reliably detected. The simple adjustment to mark and background makes for uncomplicated commissioning.

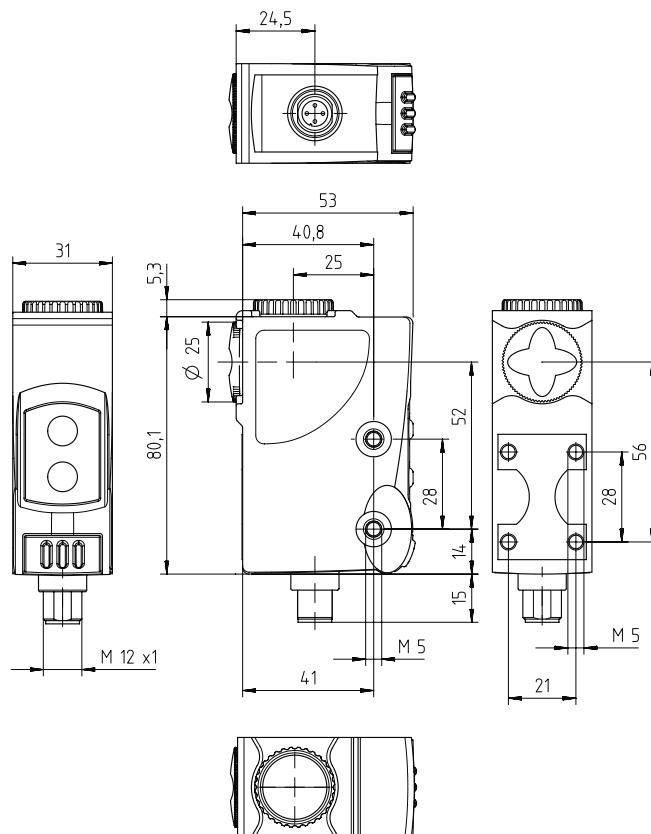
**Benefits:**

- 9 mm or 18 mm range
- Interchangeable lenses made of glass and plastic
- Multicolor (RGB) transmitter
- Static teach-in
- Response time 33 μ s
- Switching frequency 15 kHz
- Pulse stretching



Direct access to the online product selector at www.leuze.com/en/krt21

Part no.	Part description	Operating range	Switching frequency	Light source	Digital switching output	Connection	Description
50127841	KRT21M-09.PL3/42-M12	0.006 ... 0.012 m	15,000 Hz	LED, RGB	Transistor, PNP, switching signal on mark	Connector, M12, 4-pin	Pulse stretching

Dimensioned drawings: KRT 21

KRT 21 contrast sensors

ACCESSORIES: KRT 21**Connection technology**

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130654	KD U-M12-4A-P1-020	Connector, M12, axial, female	4-pin	2,000 mm	PUR
50130657	KD U-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR
50130658	KD U-M12-4A-P1-100	Connector, M12, axial, female	4-pin	10,000 mm	PUR
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC

Further connection cables can be found on our website

//LUMINESCENCE SENSORS

I SEE WHAT YOU DON'T SEE

This sensor detects both visible as well as invisible luminescent markings. It sends the result as switching output or analog value and is used primarily for sorting and inspection tasks in areas in which other detection methods fail to supply reliable results or where the markings should not or must not be visible.

/// LRT 8



With various light spot profiles, filters, transmitter variants and accessories, this compact design includes everything needed for detecting luminescent objects.



Benefits:

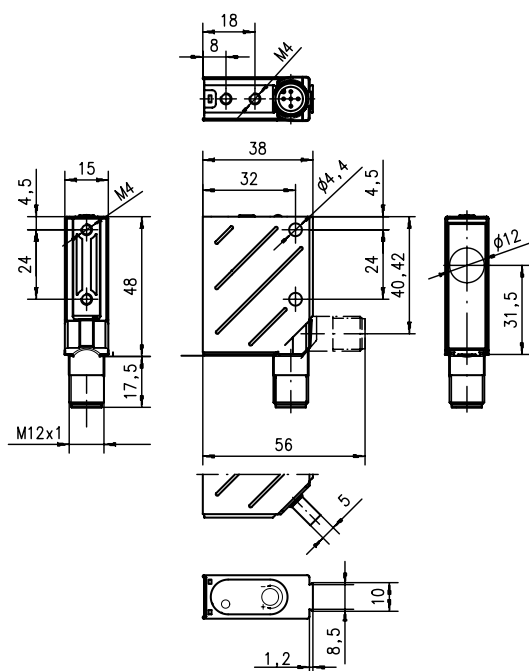
- Ranges up to 200 mm
- Very compact metal construction
- Switching frequency 1.5 kHz
- Sensitivity adjustment via potentiometer
- Turnable M12 connector
- Filter variants



Direct access to the online product selector at www.leuze.com/en/lrt8

Part no.	Part description	Operating range	Light source	Switching frequency	Switching output 1	Switching output 2	Description
50109343	LRT 8/24.04-100-S12	0 ... 0.22 m	LED, UV	1,500 Hz	Transistor, PNP, light switching	Transistor, NPN, light switching	Detection of white paper, detection of any kind of luminescence
50124694	LRT 8/44.04-100-S12	0 ... 0.22 m	LED, UV	1,500 Hz	Transistor, PNP, light switching	Transistor, PNP, dark switching	Detection of white paper, detection of any kind of luminescence
50041840	LRT 8/24.04-50-S12	0 ... 0.15 m	LED, UV	1,500 Hz	Transistor, PNP, light switching	Transistor, NPN, light switching	Detection of any kind of luminescence, detection of white paper
50119033	LRT 8/24.10-150-S12	0 ... 0.5 m	LED, blue	1,500 Hz	Transistor, PNP, light switching	Transistor, NPN, light switching	Detection of red marks on wood
50119032	LRT 8/24.14-150-S12	0 ... 0.4 m	LED, UV	1,500 Hz	Transistor, PNP, light switching	Transistor, NPN, light switching	Detection of any kind of luminescence, detection of white paper
50124693	LRT 8/44.14-150-S12	0 ... 0.4 m	LED, UV	1,500 Hz	Transistor, PNP, light switching	Transistor, PNP, dark switching	Detection of white paper, detection of any kind of luminescence
50125896	LRT 8/44.18-150-S12	0 ... 0.3 m	LED, UV	1,500 Hz	Transistor, PNP, light switching	Transistor, PNP, dark switching	Detection of white paper
50116732	LRT 8/24.16-80-S12	0 ... 0.1 m	LED, UV	1,500 Hz	Transistor, PNP, light switching	Transistor, NPN, light switching	Detection of yellow print marks

Dimensioned drawings: LRT 8



LRT 8 luminescence sensors

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

ACCESSORIES: LRT 8

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104567	K-D M12A-5P-2m-PUR	Connector, M12, axial, female	5-pin	2,000 mm	PUR
50104569	K-D M12A-5P-5m-PUR	Connector, M12, axial, female	5-pin	5,000 mm	PUR
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm	PVC
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm	PVC
50104559	K-D M12A-5P-10m-PVC	Connector, M12, axial, female	5-pin	10,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50036195	BT 8	Angle, L-shape	Screw type	Through-hole mounting	Metal
50118543	BT 300M.5	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel, V2A

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117253	BTU 300M-D10	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50117252	BTU 300M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50117251	BTU 300M-D14	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 14 mm rod, sheet-metal mounting	Metal

Further rod mounts can be found on our website

SMARTER **PRODUCT** USABILITY

BCL 500*i* / BCL 300*i*
Powerful bar code reader with integrated fieldbus networking capability and code reconstruction technology

BPS 34
Bar code positioning system with PROFIBUS interface for complex requirements

AMS 300*i*
High-precision optical laser distance sensor AMS 300i with unique selection of integrated fieldbus interfaces

CML 700*i*
Measuring light curtain with integrated fieldbus interfaces and evaluation unit

PROFIBUS
Our products in the PROFIBUS world

Integrated interfaces complete our range of product solutions!



Discover the integrated interface diversity: www.leuze.com/en/products

//COLOR SENSORS

ALWAYS GOOD WHEN THINGS GET COLORFUL

This sensor type detects colors and compares them to a stored reference value. They are the right solution whenever the color of an object or marking can serve as a sorting or inspection criteria. Depending on the configuration and specified tolerance values of the system, the result is output as a switching signal.

/// CRT 20B



Thanks to extensive configuration options and 1 or 4 color channels with individually adjustable color tolerance, this series can be used for fast processes with short response times.



Benefits:

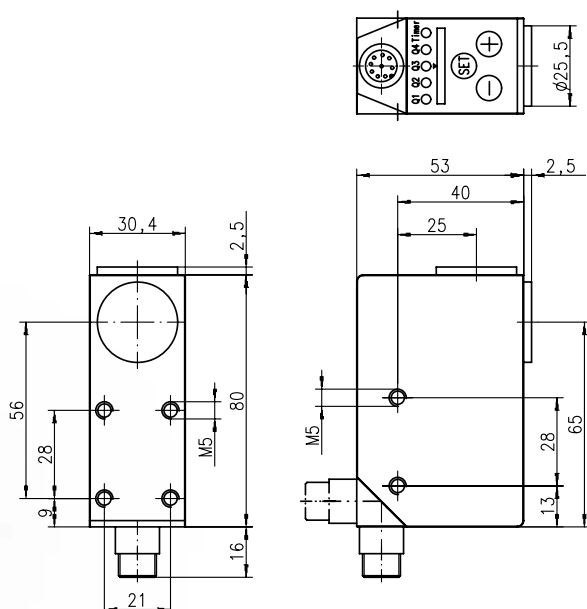
- 12.5 mm or 60 mm range
- Very robust metal construction
- Simple teach-in of up to four reference colors
- Sensitivity adjustment following teach-in
- Color tolerance separately adjustable per color channel
- Switching frequency up to 6 kHz
- Extensive configuration options
- Turnable M12 connector



Direct access to the online product selector at www.leuze.com/en/crt20b

Part no.	Part description	Operating range	Switching frequency	Light source	Switching outputs	Connection	Description
50109595	CRT 20B M/N-60-001-S12	0.051 ... 0.069 m	6,000 Hz	LED, RGB	1x, transistor, NPN, light/dark reversible	Connector, M12, 5-pin	Detection of one color, autocollimation, teach input
50109597	CRT 20B M/P-60-001-S12	0.051 ... 0.069 m	6,000 Hz	LED, RGB	1x, transistor, PNP, light/dark reversible	Connector, M12, 5-pin	Detection of one color, autocollimation, teach input
50109599	CRT 20B M/N-60-004-S12	0.051 ... 0.069 m	3,500 Hz	LED, RGB	4x, transistor, NPN, light/dark reversible	Connector, M12, 8-pin	Detection of four colors, autocollimation, teach input
50109601	CRT 20B M/P-60-004-S12	0.051 ... 0.069 m	3,500 Hz	LED, RGB	4x, transistor, PNP, light/dark reversible	Connector, M12, 8-pin	Detection of four colors, autocollimation, teach input
50109594	CRT 20B M/N-12-001-S12	0.0095 ... 0.0155 m	6,000 Hz	LED, RGB	1x, transistor, NPN, light/dark reversible	Connector, M12, 5-pin	Detection of one color, autocollimation, teach input
50109596	CRT 20B M/P-12-001-S12	0.0095 ... 0.0155 m	6,000 Hz	LED, RGB	1x, transistor, PNP, light/dark reversible	Connector, M12, 5-pin	Detection of one color, autocollimation, teach input
50109598	CRT 20B M/N-12-004-S12	0.0095 ... 0.0155 m	3,500 Hz	LED, RGB	4x, transistor, NPN, light/dark reversible	Connector, M12, 8-pin	Detection of four colors, autocollimation, teach input
50109600	CRT 20B M/P-12-004-S12	0.0095 ... 0.0155 m	3,500 Hz	LED, RGB	4x, transistor, PNP, light/dark reversible	Connector, M12, 8-pin	Detection of four colors, autocollimation, teach input

Dimensioned drawings: CRT 20B



CRT 20B color sensor

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

ACCESSORIES: CRT 20B

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104567	K-D M12A-5P-2m-PUR	Connector, M12, axial, female	5-pin	2,000 mm	PUR
50104569	K-D M12A-5P-5m-PUR	Connector, M12, axial, female	5-pin	5,000 mm	PUR
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm	PVC
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm	PVC
50104559	K-D M12A-5P-10m-PVC	Connector, M12, axial, female	5-pin	10,000 mm	PVC
50104591	K-D M12A-8P-2m-PUR	Connector, M12, axial, female	8-pin	2,000 mm	PUR
50104590	K-D M12A-8P-5m-PUR	Connector, M12, axial, female	8-pin	5,000 mm	PUR
50106882	K-D M12A-8P-10m-PUR	Connector, M12, axial, female	8-pin	10,000 mm	PUR

Further connection cables can be found on our website

/// CRT 448



This series with 3 color channels and the scan function for color gradients can be used flexibly in many areas of applications.



Benefits:

- 22 mm or 32 mm range
- Small plastic construction
- Simple teach-in of three reference colors
- Scan function for color gradients
- Color tolerance separately adjustable per color channel
- 500 Hz switching frequency
- Configuration options
- Turnable M12 connector

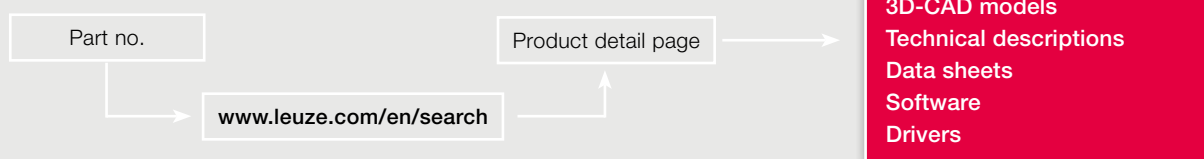


Direct access to the online product selector at www.leuze.com/en/crt448

Part no.	Part description	Operating range	Switching frequency	Light source	Switching outputs	Connection	Description
50121293	CRT 448.S3/222-M12	0.012 ... 0.032 m	500 Hz	LED, white	3x, transistor, NPN	Connector, M12, 8-pin	Detection of three colors, teach input, synchronization input
50121294	CRT 448.S3/444-M12	0.012 ... 0.032 m	500 Hz	LED, white	3x, transistor, PNP	Connector, M12, 8-pin	Detection of three colors, synchronization input
50121291	CRT 448.L3/222-M12	0.018 ... 0.022 m	500 Hz	LED, white	3x, transistor, NPN	Connector, M12, 8-pin	Detection of three colors, teach input, synchronization input
50121292	CRT 448.L3/444-M12	0.018 ... 0.022 m	500 Hz	LED, white	3x, transistor, PNP	Connector, M12, 8-pin	Detection of three colors, synchronization input

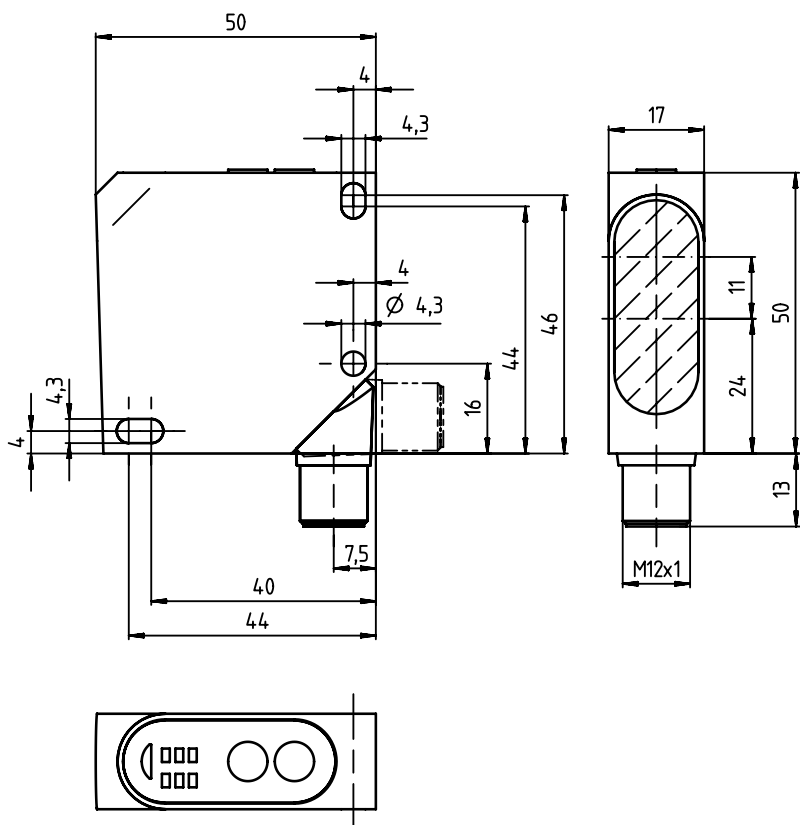
SMARTER CUSTOMER SERVICE

The quickest way to find matching accessories and technical downloads:



On the product detail pages you will find comprehensive technical downloads: www.leuze.com/en/search

Dimensioned drawings: CRT 448



CRT 448 color sensor

ACCESSORIES: CRT 448

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104591	K-D M12A-8P-2m-PUR	Connector, M12, axial, female	8-pin	2,000 mm	PUR
50104590	K-D M12A-8P-5m-PUR	Connector, M12, axial, female	8-pin	5,000 mm	PUR
50106882	K-D M12A-8P-10m-PUR	Connector, M12, axial, female	8-pin	10,000 mm	PUR

Further connection cables can be found on our website

Reflectors

Standard reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50022816	TKS 100X100	Rectangular	96 mm × 96 mm	Through-hole mounting, adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further standard reflectors can be found on our website

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

MEASURING SENSORS

INTELLIGENT MONITORING AND CONTROL THROUGH MEASURING SENSORS

Measuring sensors can actively check distances, position system parts and monitor other parameters in order to intelligently and independently initiate actions and, e. g., intervene in processes for control purposes. Here, you will find a large selection of technologies and designs for as efficient and fault-free system operation as possible.

"Today, a wide variety of complex detection tasks which until recently required extremely expensive systems can be solved using intelligent measuring sensors. Further exploration of these possibilities and the development of devices that, on the one hand, optimally meet the needs of the sector and, on the other, are increasingly simple to install, align and operate. We at Leuze electronic have made this our motto, by which you can measure us and our devices every day."

Ingo Baumgardt,
Head of Product Center
Measuring Sensors



/ Distance sensors	Page 196
/ Sensors for positioning	Page 210
/ 3D sensors	Page 221
/ Light curtains	Page 228
/ Measuring forked sensors	Page 237

Switching
sensors

Measuring
sensors

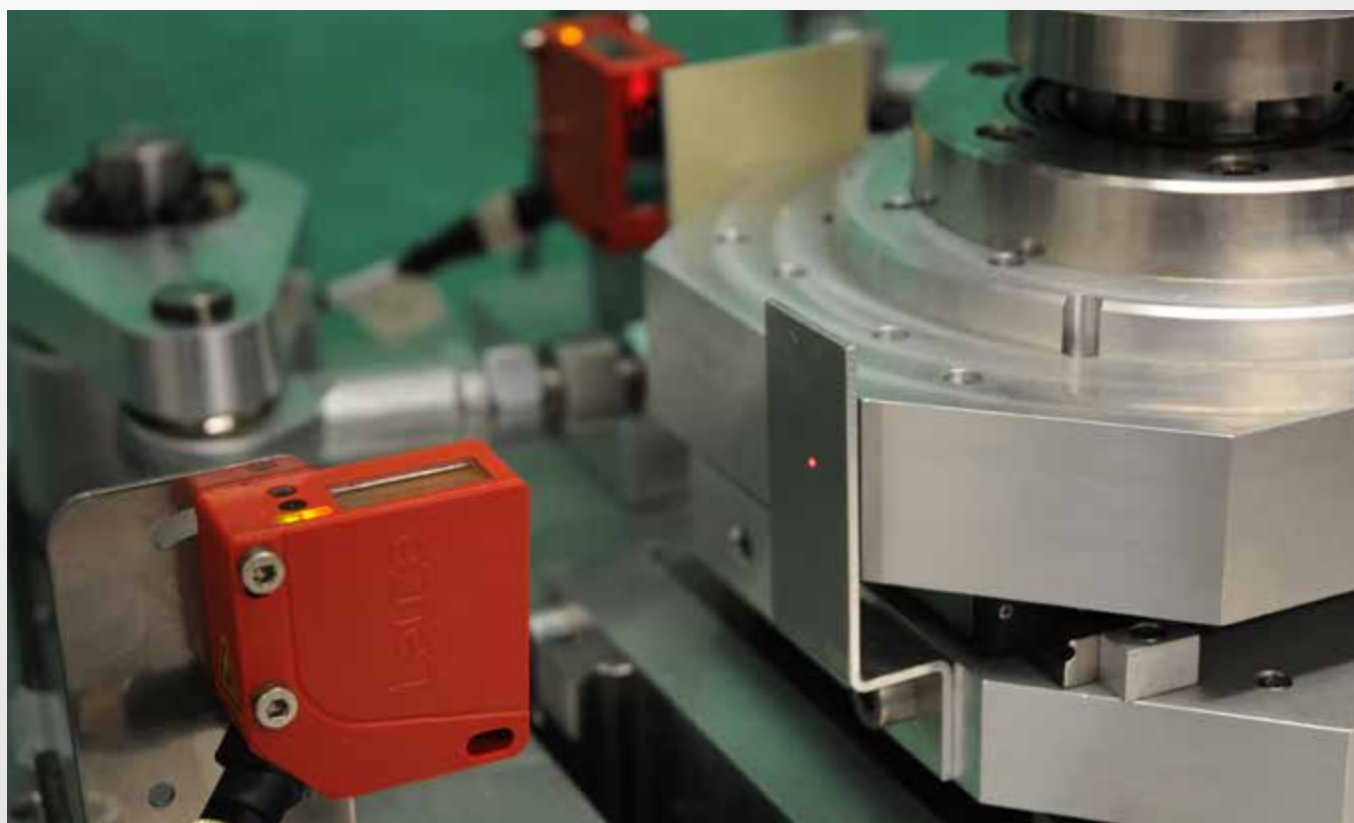
Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories



/ DISTANCE SENSORS

YOUR YARDSTICK

Our distance sensors stand for maximum accuracy - over small as well as large distances. They are used everywhere geometric parameters such as height or width need to be determined. They are characterized by high resolving capacity at high measurement rates. Especially our ultrasonic sensors facilitate reliable measurement results with transparent objects – even under difficult environmental conditions.

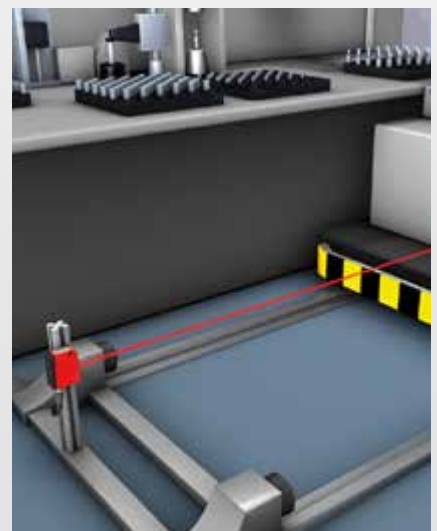
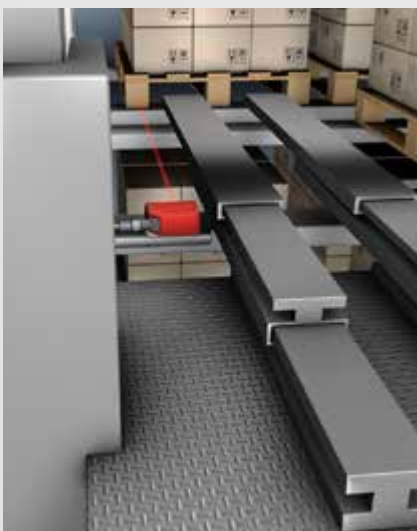


Optical distance sensors

Page 197

Ultrasonic distance sensors

Page 207



ACCESSORIES: ODSL 8

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104568	K-D M12W-5P-2m-PUR	Connector, M12, angled, female	5-pin	2,000 mm	PUR
50104762	K-D M12W-5P-5m-PUR	Connector, M12, angled, female	5-pin	5,000 mm	PUR
50104556	K-D M12W-5P-2m-PVC	Connector, M12, angled, female	5-pin	2,000 mm	PVC
50104558	K-D M12W-5P-5m-PVC	Connector, M12, angled, female	5-pin	5,000 mm	PVC
50104567	K-D M12A-5P-2m-PUR	Connector, M12, axial, female	5-pin	2,000 mm	PUR
50104569	K-D M12A-5P-5m-PUR	Connector, M12, axial, female	5-pin	5,000 mm	PUR
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm	PVC
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50036195	BT 8	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50127177	BTU 008M-D10	Mounting system	Screw type	Sheet-metal mounting, for 10 mm rod	Metal

Further rod mounts can be found on our website

/// ODSL 9



The ODSL 9 optical distance sensors set new standards in precision and ease of use.

The sensor enables accurate measurements even under difficult conditions, e. g., with glossy objects. The integrated display shows the measurement values and facilitates easy adjustment of the sensor. The distance sensors reveal their enormous potential for precision when used in combination with digital interfaces.



Direct access to the online product selector at www.leuze.com/en/ods9

ODSL 9

This series measures very precisely even over longer distances making it suitable for the positioning of actuators and robots.

Benefits:

- High accuracy up to 650 mm
- Reflection-independent distance measurement
- Display for measured value display and configuration
- Analog current/voltage output
- Switching outputs adjustable with millimeter accuracy
- IO-Link, serial interface RS 232/485

Part no.	Part description	Measurement range	Light source Safety class	Light spot dimensions	Analog outputs	Digital switching outputs	Resolution	Measure-ment time	Description
50113583	ODSL 9/C6-650-S12	50 ... 650 mm	Laser, red, 2	1 mm	1x, current	1x	0.1 ... 0.5 mm	2 ms	Connector, M12, plastic, 5-pin
50120000	ODSL 9/D36-650-S12	50 ... 650 mm	Laser, red, 2	1 mm		1x	0.1 ... 0.5 mm	2 ms	Type of interface: RS 485, connector, M12, plastic, 5-pin
50120825	ODSL 9/L-650-S12	50 ... 650 mm	Laser, red, 2	1 mm			0.1 ... 0.5 mm	2 ms	Type of interface: IO-Link, connector, M12, plastic, 5-pin
50114627	ODSL 9/V6-650-S12	50 ... 650 mm	Laser, red, 2	1 mm	1x, voltage	1x	0.1 ... 0.5 mm	2 ms	Connector, M12, plastic, 5-pin
50111157	ODSL 9/C6-450-S12	50 ... 450 mm	Laser, red, 2	1 mm	1x, current	1x	0.1 mm	2 ms	Connector, M12, plastic, 5-pin
50111161	ODSL 9/C66-450-S12	50 ... 450 mm	Laser, red, 2	1 mm	1x, current	2x	0.1 mm	2 ms	Connector, M12, plastic, 5-pin

Part no.	Part description	Measurement range	Light source Safety class	Light spot dimensions	Analog outputs	Digital switching outputs	Resolution	Measurement time	Description
50111159	ODSL 9/D26-450-S12	50 ... 450 mm	Laser, red, 2	1 mm		1x	0.1 mm	2 ms	Type of interface: RS 232, connector, M12, plastic, 5-pin
50111160	ODSL 9/D36-450-S12	50 ... 450 mm	Laser, red, 2	1 mm		1x	0.1 mm	2 ms	Type of interface: RS 485, connector, M12, plastic, 5-pin
50111166	ODSL 9/L-450-S12	50 ... 450 mm	Laser, red, 2	1 mm			0.1 mm	2 ms	Type of interface: IO-Link, connector, M12, plastic, 5-pin
50111158	ODSL 9/V6-450-S12	50 ... 450 mm	Laser, red, 2	1 mm	1x, voltage	1x	0.1 mm	2 ms	Connector, M12, plastic, 5-pin
50111162	ODSL 9/V66-450-S12	50 ... 450 mm	Laser, red, 2	1 mm	1x, voltage	2x	0.1 mm	2 ms	Connector, M12, plastic, 5-pin
50115029	ODSL 9/C6.C1-450-S12	50 ... 450 mm	Laser, red, 1	1 mm	1x, current	1x	0.1 mm	4 ms	Connector, M12, plastic, 5-pin
50115030	ODSL 9/V6.C1-450-S12	50 ... 450 mm	Laser, red, 1	1 mm	1x, voltage	1x	0.1 mm	4 ms	Connector, M12, plastic, 5-pin
50117334	ODSL 9/C6-200-S12	50 ... 200 mm	Laser, red, 2	1 mm	1x, current	1x	0.1 mm	2 ms	Connector, M12, plastic, 5-pin
50113332	ODSL 9/V6-200-S12	50 ... 200 mm	Laser, red, 2	1 mm	1x, voltage	1x	0.1 mm	2 ms	Connector, M12, plastic, 5-pin

ODSL 9 high resolution

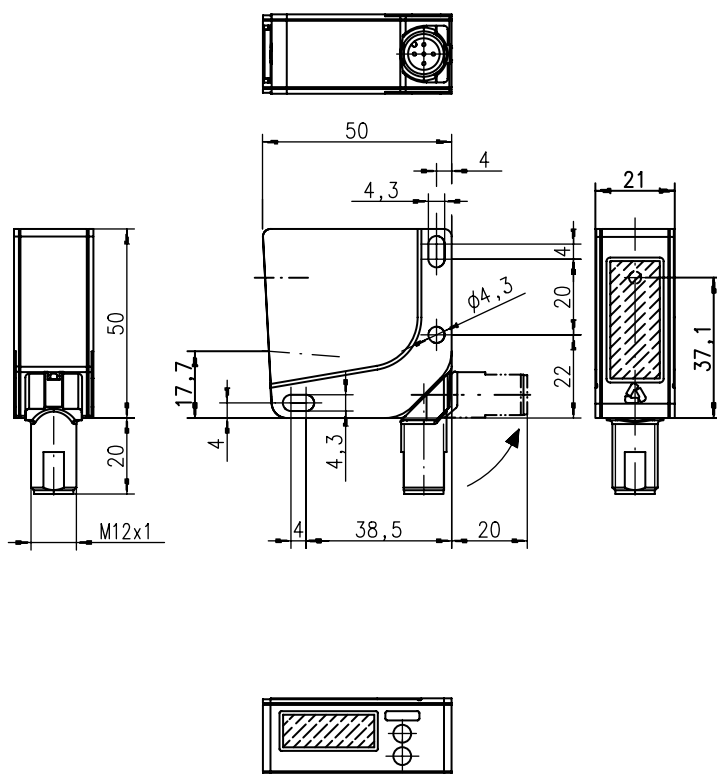
With a resolution of 0.01 mm, the sensors are designed for the contour measurement of small objects and quality control on assembly lines.

Benefits:

- Maximum accuracy in compact design
- Resolution 0.01 mm with a measurement range of 50 mm
- Reflection-independent distance measurement
- Display for measured value display and configuration
- Analog voltage/current output, switching outputs
- IO-Link, serial interface RS 232

Part no.	Part description	Measurement range	Light source Safety class	Light spot dimensions	Analog outputs	Digital switching outputs	Resolution	Measurement time	Description
50111167	ODSL 9/C6-100-S12	50 ... 100 mm	Laser, red, 2	1 mm	1x, current	1x	0.01 mm	2 ms	Connector, M12, plastic, 5-pin
50111171	ODSL 9/C66-100-S12	50 ... 100 mm	Laser, red, 2	1 mm	1x, current	2x	0.01 mm	2 ms	Connector, M12, plastic, 5-pin
50111169	ODSL 9/D26-100-S12	50 ... 100 mm	Laser, red, 2	1 mm		1x	0.01 mm	2 ms	Type of interface: RS 232, connector, M12, plastic, 5-pin
50111170	ODSL 9/D36-100-S12	50 ... 100 mm	Laser, red, 2	1 mm		1x	0.01 mm	2 ms	Type of interface: RS 485, connector, M12, plastic, 5-pin
50111174	ODSL 9/L-100-S12	50 ... 100 mm	Laser, red, 2	1 mm			0.01 mm	2 ms	Type of interface: IO-Link, connector, M12, plastic, 5-pin
50111168	ODSL 9/V6-100-S12	50 ... 100 mm	Laser, red, 2	1 mm	1x, voltage	1x	0.01 mm	2 ms	Connector, M12, plastic, 5-pin
50111172	ODSL 9/V66-100-S12	50 ... 100 mm	Laser, red, 2	1 mm	1x, voltage	2x	0.01 mm	2 ms	Connector, M12, plastic, 5-pin

Dimensioned drawings: ODSL 9



ODSL 9 optical distance sensor

ACCESSORIES: ODSL 9

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104568	K-D M12W-5P-2m-PUR	Connector, M12, angled, female	5-pin	2,000 mm	PUR
50104762	K-D M12W-5P-5m-PUR	Connector, M12, angled, female	5-pin	5,000 mm	PUR
50104556	K-D M12W-5P-2m-PVC	Connector, M12, angled, female	5-pin	2,000 mm	PVC
50104558	K-D M12W-5P-5m-PVC	Connector, M12, angled, female	5-pin	5,000 mm	PVC
50104567	K-D M12A-5P-2m-PUR	Connector, M12, axial, female	5-pin	2,000 mm	PUR
50104569	K-D M12A-5P-5m-PUR	Connector, M12, axial, female	5-pin	5,000 mm	PUR
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm	PVC
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50036195	BT 8	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117253	BTU 300M-D10	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50117252	BTU 300M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50117251	BTU 300M-D14	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 14 mm rod, sheet-metal mounting	Metal

Further rod mounts can be found on our website

/// ODS 10



The ODS 10 is an optical distance sensor that measures distance against a non-cooperating target and makes the information available as a measurement value. The maximum range of the device is 8,000 mm, whereby an accuracy of ± 15 mm is achieved. A range of up to 25,000 mm can be achieved for distance measurements using a reflector. The level of accuracy is almost fully independent of the material.



Benefits:

- Eye-safe laser class 1
- Reliable detection of dark, glossy and colored objects
- Recess for M4 bolts enables the installation of this device using just one tool
- No tools required for locking of nuts and screws
- Rotatable M12 connection, space-saving cable outlet or pigtail
- Large buttons enable finger operation without tools
- Status LED indicators on top and front allow detection of switching state from afar
- Configuration options via I/O-Link and Sensor Studio
- Compact housing

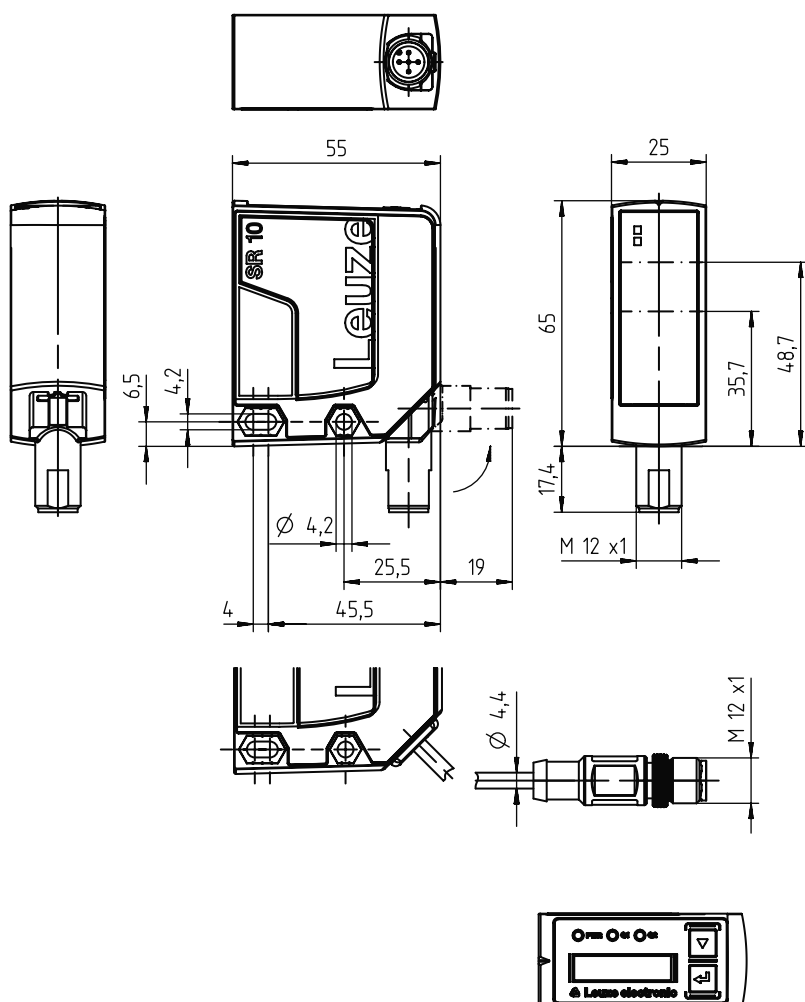


Direct access to the online product selector at www.leuze.com/en/ods10

Part no.	Part description	Measurement range	Light source Safety class	Light spot dimensions	Analog outputs	Digital switching outputs	Resolution	Measurement time	Description
50129533	ODS10L1-25M.8/LAK	100 ... 25,000 mm	Laser, red, 1	25 mm × 25 mm	1x, configurable, factory setting: current	1x	1.0 mm	3.5 ... 50 ms	Type of interface: IO-Link, deactivation input, activation input, teach input, cable, 2,000 mm, 5-wire
50129536	ODS10L1-25M.8/LAK,200-M12	100 ... 25,000 mm	Laser, red, 1	25 mm × 25 mm	1x, configurable, factory setting: current	1x	1.0 mm	3.5 ... 50 ms	Type of interface: IO-Link, deactivation input, activation input, teach input, cable with connector, 200 mm, M12, plastic, 5-pin

Part no.	Part description	Measurement range	Light source Safety class	Light spot dimensions	Analog outputs	Digital switching outputs	Resolution	Measurement time	Description
50129530	ODS10L1-25M.8/LAK-M12	100 ... 25,000 mm	Laser, red, 1	25 mm × 25 mm	1x, configurable, factory setting: current	1x	1.0 mm	3.5 ... 50 ms	Type of interface: IO-Link, deactivation input, activation input, teach input, connector, M12, plastic, 5-pin
50129528	ODS10L1.8/L6X-M12	50 ... 8,000 mm	Laser, red, 1	7 mm × 7 mm		2x	1.0 mm		Type of interface: IO-Link, connector, M12, plastic, 5-pin
50129532	ODS10L1.8/LA6	50 ... 8,000 mm	Laser, red, 1	7 mm × 7 mm	1x, configurable, factory setting: current	2x	1.0 mm		Type of interface: IO-Link, cable, 2,000 mm, 5-wire
50129535	ODS10L1.8/LA6,200-M12	50 ... 8,000 mm	Laser, red, 1	7 mm × 7 mm	1x, configurable, factory setting: current	2x	1.0 mm		Type of interface: IO-Link, cable with connector, 200 mm, M12, plastic, 5-pin
50129529	ODS10L1.8/LA6-M12	50 ... 8,000 mm	Laser, red, 1	7 mm × 7 mm	1x, configurable, factory setting: current	2x	1.0 mm		Type of interface: IO-Link, connector, M12, plastic, 5-pin
50129531	ODS10L1.8/LAK	50 ... 8,000 mm	Laser, red, 1	7 mm × 7 mm	1x, configurable, factory setting: current	1x	1.0 mm		Type of interface: IO-Link, deactivation input, activation input, teach input, cable, 2,000 mm, 5-wire
50129534	ODS10L1.8/LAK,200-M12	50 ... 8,000 mm	Laser, red, 1	7 mm × 7 mm	1x, configurable, factory setting: current	1x	1.0 mm		Type of interface: IO-Link, deactivation input, activation input, teach input, cable with connector, 200 mm, M12, plastic, 5-pin
50127853	ODS10L1.8/LAK-M12	50 ... 8,000 mm	Laser, red, 1	7 mm × 7 mm	1x, configurable, factory setting: current	1x	1.0 mm		Type of interface: IO-Link, deactivation input, activation input, teach input, connector, M12, plastic, 5-pin

Dimensioned drawings: ODS 10



ODS 10 optical distance sensor

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

ACCESSORIES: ODS 10

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104568	K-D M12W-5P-2m-PUR	Connector, M12, angled, female	5-pin	2,000 mm	PUR
50104762	K-D M12W-5P-5m-PUR	Connector, M12, angled, female	5-pin	5,000 mm	PUR
50104556	K-D M12W-5P-2m-PVC	Connector, M12, angled, female	5-pin	2,000 mm	PVC
50104558	K-D M12W-5P-5m-PVC	Connector, M12, angled, female	5-pin	5,000 mm	PVC
50104567	K-D M12A-5P-2m-PUR	Connector, M12, axial, female	5-pin	2,000 mm	PUR
50104569	K-D M12A-5P-5m-PUR	Connector, M12, axial, female	5-pin	5,000 mm	PUR
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm	PVC
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50128379	BTU 460M-D10	Mounting system	Screw type	For 10 mm rod	Metal
50128380	BTU 460M-D12	Mounting system	Screw type	For 12 mm rod	Metal

Further rod mounts can be found on our website

Reflective tapes

Reflective tapes for distance sensors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50111527	REF 7-A-100x100	Rectangular	100 mm × 100 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

/// ODS 96B



Series ODS 96B distance sensors with large measurement ranges of 60 to 25,000 mm are suitable for many different applications and, thanks to the metal housing, are extremely robust. They measure in the ms range. The integrated display shows the measurement values and allows the sensor to be easily adapted to the measurement task. Apart from analog current/voltage interfaces and binary switching outputs, digital interfaces are also available. Digital interfaces prevent conversion losses in the sensor, control and during measurement data transfer.



Direct access to the online product selector at www.leuze.com/en/ods96b

ODS(R) 96B

Measures with either red LED light or infrared light and is suitable for large-area objects, such as bulk material.

Benefits:

- For measurements on objects with large surface area, e. g. bulk material, band materials, plate materials
- Robust metal housing
- High accuracy – reflection-independent distance measurement
- Display for measured value display and configuration

Part no.	Part description	Measurement range	Light source Safety class	Light spot dimensions	Analog outputs	Digital switching outputs	Resolution	Measurement time	Description
50106727	ODS 96B M/C66.01-1400-S12	120 ... 1,400 mm	LED, infrared	15 mm × 15 mm	1x, current	2x	0.1 ... 0.5 mm	1 ... 5 ms	Connector, M12, metal, 5-pin
50110231	ODS 96B M/V6-1400-S12	120 ... 1,400 mm	LED, infrared	15 mm × 15 mm	1x, voltage	1x	0.1 ... 2.0 mm	1 ... 5 ms	Connector, M12, metal, 5-pin
50106730	ODSR 96B M/C6-600-S12	100 ... 600 mm	LED, red	15 mm × 15 mm	1x, current	1x	0.1 ... 0.5 mm	1 ... 5 ms	Connector, M12, metal, 5-pin
50106731	ODSR 96B M/V6-600-S12	100 ... 600 mm	LED, red	15 mm × 15 mm	1x, voltage	1x	0.1 ... 0.5 mm	1 ... 5 ms	Connector, M12, metal, 5-pin
50106720	ODS 96B M/C6-600-S12	100 ... 600 mm	LED, infrared	15 mm × 15 mm	1x, current	1x	0.1 ... 0.5 mm	1 ... 5 ms	Connector, M12, metal, 5-pin
50106721	ODS 96B M/V6-600-S12	100 ... 600 mm	LED, infrared	15 mm × 15 mm	1x, voltage	1x	0.1 ... 0.5 mm	1 ... 5 ms	Connector, M12, metal, 5-pin

ODSL 96B-S

Small laser light spot for the precise measurement of small objects, objects with color structures or for glossy surfaces.

Benefits:

- Small laser light spot
- Precise measurement on small objects and objects with colored structure
- For measurement on metallic surfaces

Part no.	Part description	Measurement range	Light source Safety class	Light spot dimensions	Analog outputs	Digital switching outputs	Resolution	Measurement time	Description
50123687	ODSL 96B M/C6.C1S-1500-S12	150 ... 1,500 mm	Laser, red, 1	1 mm	1x, current	1x	0.1 ... 2.0 mm	12 ... 60 ms	Small light spot (S), connector, M12, metal, 5-pin
50123686	ODSL 96B M/V6.C1S-1500-S12	150 ... 1,500 mm	Laser, red, 1	1 mm	1x, voltage	1x	0.1 ... 2.0 mm	12 ... 60 ms	Small light spot (S), connector, M12, metal, 5-pin
50106728	ODSL 96B M/C6.S-800-S12	150 ... 800 mm	Laser, red, 2	1 mm	1x, current	1x	0.1 ... 0.8 mm	1 ... 5 ms	Small light spot (S), connector, M12, metal, 5-pin
50111035	ODSL 96B M/D26.S-800-S12	150 ... 800 mm	Laser, red, 2	1 mm		1x	0.1 ... 0.8 mm	1 ... 5 ms	Type of interface: RS 232, small light spot (S), connector, M12, metal, 5-pin
50112065	ODSL 96B M/D36.S-800-S12	150 ... 800 mm	Laser, red, 2	1 mm		1x	0.1 ... 0.8 mm	1 ... 5 ms	Type of interface: RS 485, small light spot (S), connector, M12, metal, 5-pin
50106729	ODSL 96B M/V6.S-800-S12	150 ... 800 mm	Laser, red, 2	1 mm	1x, voltage	1x	0.1 ... 0.8 mm	1 ... 5 ms	Small light spot (S), connector, M12, metal, 5-pin

Switching sensors

Measuring sensors

ODSL 96B-XL

Elongated light spot for precise measurements on porous objects and objects with openings (e.g. corrugated cardboard) as well as on objects that are not aligned precisely.

Benefits:

- Elongated light spot for precise measurement

Part no.	Part description	Measurement range	Light source Safety class	Light spot dimensions	Analog outputs	Digital switching outputs	Resolution	Measurement time	Description
50106736	ODSL 96B M/C6.XL-1200-S12	150 ... 1,200 mm	Laser, red, 2	15 mm × 4 mm	1x, current	1x	0.1 ... 1.5 mm (XL)	1 ... 5 ms	Extra long light spot (XL), connector, M12, metal, 5-pin
50106737	ODSL 96B M/V6.XL-1200-S12	150 ... 1,200 mm	Laser, red, 2	15 mm × 4 mm	1x, voltage	1x	0.1 ... 1.5 mm (XL)	1 ... 5 ms	Extra long light spot (XL), connector, M12, metal, 5-pin

Products for safety at work

Identification

ODSL(R) 96B

Even over large ranges of up to 2 m, this sensor measures in the ms range with millimeter precision. High resolving power in compact, robust design.

Benefits:

- For measurements in ms cycle at large ranges
- Stable and precise measurement values, even at varying temperatures and objects
- Robust: IP 67, IP 69K

Part no.	Part description	Measurement range	Light source Safety class	Light spot dimensions	Analog outputs	Digital switching outputs	Resolution	Measurement time	Description
50106732	ODSLR 96B M/C6-2000-S12	60 ... 2,000 mm	Laser, red, 2, LED, red	2 mm × 6 mm	1x, current	1x	1.0 ... 5.0 mm	1 ... 5 ms	Connector, M12, metal, 5-pin
50106733	ODSLR 96B M/V6-2000-S12	60 ... 2,000 mm	Laser, red, 2, LED, red	2 mm × 6 mm	1x, voltage	1x	1.0 ... 5.0 mm	1 ... 5 ms	Connector, M12, metal, 5-pin
50106599	ODSL 96B M/66-2000-S12	150 ... 2,000 mm	Laser, red, 2	2 mm × 6 mm		2x	1.0 ... 3.0 mm	1 ... 5 ms	Connector, M12, metal, 5-pin
50106735	ODSL 96B M/C6-2000 Ex d	150 ... 2,000 mm	Laser, red, 2	2 mm × 6 mm	1x, current	1x	1.0 ... 3.0 mm	1 ... 5 ms	Ex-protected, cable, 15,000 mm, 5-wire
50106593	ODSL 96B M/C6-2000-S12	150 ... 2,000 mm	Laser, red, 2	2 mm × 6 mm	1x, current	1x	1.0 ... 3.0 mm	1 ... 5 ms	Connector, M12, metal, 5-pin
50106597	ODSL 96B M/D26-2000-S12	150 ... 2,000 mm	Laser, red, 2	2 mm × 6 mm		1x	1.0 ... 3.0 mm	1 ... 5 ms	Type of interface: RS 232, connector, M12, metal, 5-pin
50106598	ODSL 96B M/D36-2000-S12	150 ... 2,000 mm	Laser, red, 2	2 mm × 6 mm		1x	1.0 ... 3.0 mm	1 ... 5 ms	Type of interface: RS 485, connector, M12, metal, 5-pin
50111164	ODSL 96B M/L-2000-S12	150 ... 2,000 mm	Laser, red, 2	2 mm × 6 mm			1.0 ... 3.0 mm	1 ... 5 ms	Type of interface: IO-Link, connector, M12, metal, 5-pin
50106594	ODSL 96B M/V6-2000-S12	150 ... 2,000 mm	Laser, red, 2	2 mm × 6 mm	1x, voltage	1x	1.0 ... 3.0 mm	1 ... 5 ms	Connector, M12, metal, 5-pin

Data transmission / Control components

Industrial image processing

Accessories

ODSL 96-Teach

For simple applications, these sensors with plastic housing offer a large measurement range. The sensor can be quickly commissioned through teach-in.

Benefits:

- Reflection-independent distance information
- 2 teachable switching outputs (push-pull)
- Easy alignment through visible red light
- Degree of protection IP 67
- Measurement range / operating range up to 2,300 mm

Part no.	Part description	Measurement range	Light source Safety class	Light spot dimensions	Analog outputs	Digital switching outputs	Resolution	Measurement time	Description
50101882	ODSL 96K/66-2300-S12	150 ... 2,300 mm	Laser, red, 2	3 mm × 8 mm		2x	1.0 ... 5.0 mm	2 ... 7 ms	Connector, M12, plastic, 5-pin
50101881	ODSL 96K/V66-2300-S12	150 ... 2,300 mm	Laser, red, 2	3 mm × 8 mm	1x, voltage	2x	1.0 ... 5.0 mm	2 ... 7 ms	Connector, M12, plastic, 5-pin

ODSL 96B-TOF

Large range also with dark objects. Measurement according to the "time of flight" principle.

Benefits:

- Large range even with dark objects
- Various operating modes for fast or precise measurement
- Robust measurement procedure
- Very high immunity to ambient light
- Display for measured value display and configuration

Part no.	Part description	Measurement range	Light source Safety class	Light spot dimensions	Analog outputs	Digital switching outputs	Resolution	Measurement time	Description
50109290	ODSL 96B M/C6-S12	300 ... 10,000 mm	Laser, red, 2	7 mm × 7 mm	1x, current	1x	3.0 mm	1.4 ... 50 ms	Connector, M12, metal, 5-pin
50109295	ODSL 96B M/C66-S12	300 ... 10,000 mm	Laser, red, 2	7 mm × 7 mm	1x, current	2x	3.0 mm	1.4 ... 50 ms	Connector, M12, metal, 5-pin
50109292	ODSL 96B M/D26-S12	300 ... 10,000 mm	Laser, red, 2	7 mm × 7 mm		1x	3.0 mm	1.4 ... 50 ms	Type of interface: RS 232, connector, M12, metal, 5-pin
50109293	ODSL 96B M/D36-S12	300 ... 10,000 mm	Laser, red, 2	7 mm × 7 mm		1x	3.0 mm	1.4 ... 50 ms	Type of interface: RS 485, connector, M12, metal, 5-pin
50109294	ODSL 96B M/L-S12	300 ... 10,000 mm	Laser, red, 2	7 mm × 7 mm			3.0 mm	1.4 ... 50 ms	Type of interface: IO-Link, connector, M12, metal, 5-pin
50109291	ODSL 96B M/V6-S12	300 ... 10,000 mm	Laser, red, 2	7 mm × 7 mm	1x, voltage	1x	3.0 mm	1.4 ... 50 ms	Connector, M12, metal, 5-pin
50109302	ODSIL 96B M/C6-S12	300 ... 10,000 mm	Laser, infrared, 1	7 mm × 7 mm	1x, current	1x	3.0 mm	2.8 ... 100 ms	Connector, M12, metal, 5-pin
50127488	ODSIL 96B M/L-S12	300 ... 10,000 mm	Laser, infrared, 1	7 mm × 7 mm			3.0 mm	2.8 ... 100 ms	Type of interface: IO-Link, connector, M12, metal, 5-pin
50109303	ODSIL 96B M/V6-S12	300 ... 10,000 mm	Laser, infrared, 1	7 mm × 7 mm	1x, voltage	1x	3.0 mm	2.8 ... 100 ms	Connector, M12, metal, 5-pin

ODKL 96B

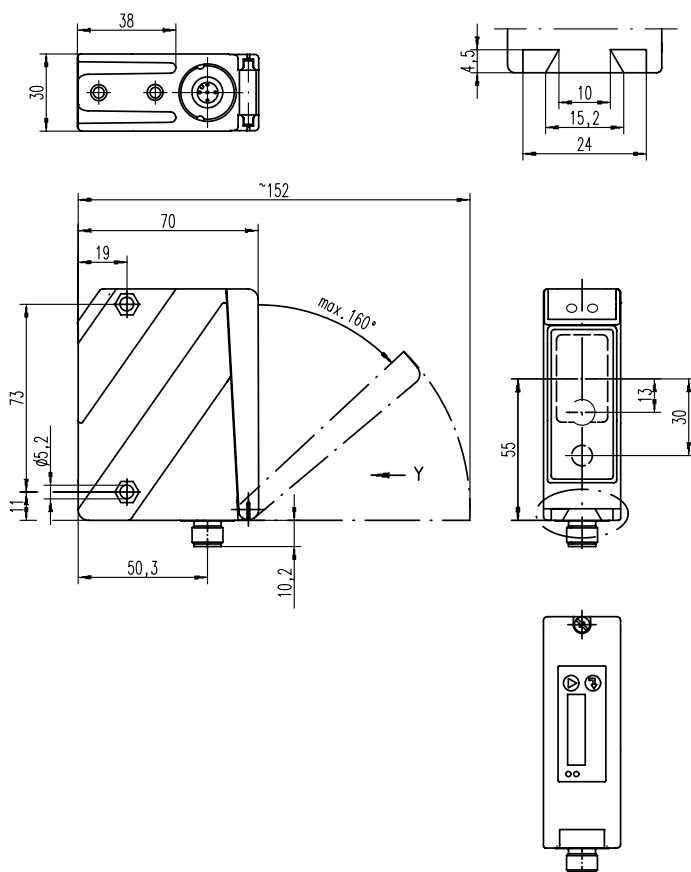
A visible light spot ensures easy alignment. By measuring on reflectors, ranges of up to 25 m are no problem.

Benefits:

- Fast and easy alignment due to highly visible laser light spot
- Very high range by measuring on reflective tape
- Compact design

Part no.	Part description	Measurement range	Light source Safety class	Light spot dimensions	Analog outputs	Digital switching outputs	Resolution	Measurement time	Description
50109297	ODKL 96B M/C6-S12	300 ... 25,000 mm	Laser, red, 2	7 mm × 7 mm	1x, current	1x	3.0 mm	1.4 ... 50 ms	Connector, M12, metal, 5-pin
50109299	ODKL 96B M/D26-S12	300 ... 25,000 mm	Laser, red, 2	7 mm × 7 mm		1x	3.0 mm	1.4 ... 50 ms	Type of interface: RS 232, connector, M12, metal, 5-pin
50109300	ODKL 96B M/D36-S12	300 ... 25,000 mm	Laser, red, 2	7 mm × 7 mm		1x	3.0 mm	1.4 ... 50 ms	Type of interface: RS 485, connector, M12, metal, 5-pin
50109301	ODKL 96B M/L-S12	300 ... 25,000 mm	Laser, red, 2	7 mm × 7 mm			3.0 mm	1.4 ... 50 ms	Type of interface: IO-Link, connector, M12, metal, 5-pin
50109298	ODKL 96B M/V6-S12	300 ... 25,000 mm	Laser, red, 2	7 mm × 7 mm	1x, voltage	1x	3.0 mm	1.4 ... 50 ms	Connector, M12, metal, 5-pin

Dimensioned drawings: ODS 96B



ODS 96B optical distance sensor

ACCESSORIES: ODS 96B

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104556	K-D M12W-5P-2m-PVC	Connector, M12, angled, female	5-pin	2,000 mm	PVC
50104558	K-D M12W-5P-5m-PVC	Connector, M12, angled, female	5-pin	5,000 mm	PVC
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm	PVC
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50025570	BT 96	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50082084	BT 450.1-96	Mounting system	Screw type	For 10 mm rod	Metal
50026204	UMS 96	Mounting system	Clampable	For 10 mm rod, for 12 mm rod, for 14 mm rod, for 16 mm rod	Metal

Further rod mounts can be found on our website

Reflective tapes

Reflective tapes for distance sensors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50111527	REF 7-A-100x100	Rectangular	100 mm × 100 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

ODSL 30



The ODSL 30 measures distances on black objects up to 30 m away and on bright objects as far as 65 m away. The sensor resolution of 1 mm enables highly accurate measurements over the complete measurement range. The integrated display shows the measurement values and allows the sensor to be easily adapted to the measurement task. Apart from analog current/voltage interfaces and binary switching outputs, digital interfaces are also available. The distance sensors reveal their enormous potential for precision when used in combination with digital interfaces.



Benefits:

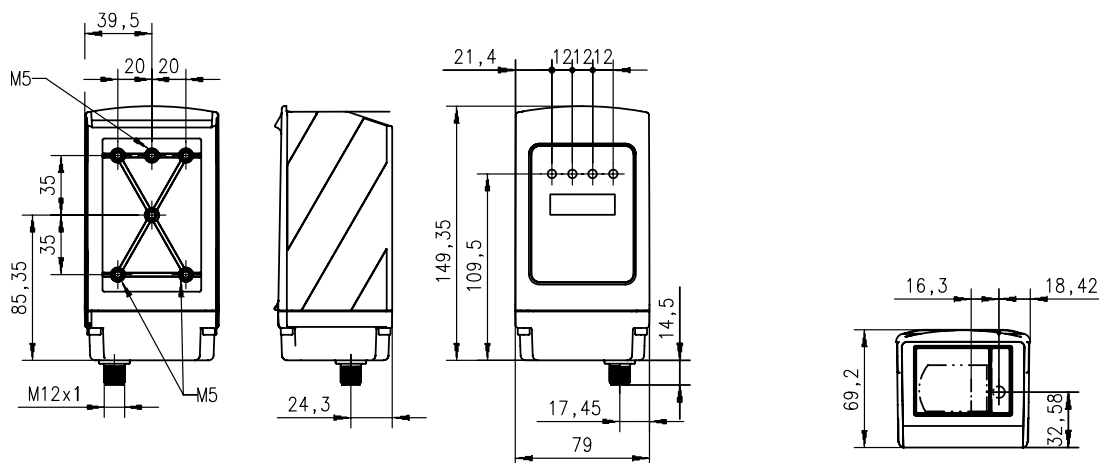
- Absolute measurement accuracy ± 2 mm over the entire measuring range
- Distances of 0.2–30 m on bright and black objects
- Referencing function for preventing fluctuations in measurement values
- Display for measured value display and configuration
- Ex model available



Direct access to the online product selector at www.leuze.com/en/odsl30

Part no.	Part description	Measurement range	Light source Safety class	Light spot dimensions	Analog outputs	Digital switching outputs	Resolution	Measure- ment time	Description
50041203	ODSL 30/D232-30M-S12	0 ... 65,000 mm	Laser, red, 2	6 mm		2x	1.0 mm	30 ... 100 ms	Type of interface: RS 232, connector, M12, plastic, 8-pin
50041204	ODSL 30/D485-30M-S12	0 ... 65,000 mm	Laser, red, 2	6 mm		2x	1.0 mm	30 ... 100 ms	Type of interface: RS 485, connector, M12, plastic, 8-pin
50040720	ODSL 30/24-30M-S12	0 ... 30,000 mm	Laser, red, 2	6 mm		3x	1.0 mm	30 ... 100 ms	Connector, M12, plastic, 8-pin
50039447	ODSL 30/V-30M-S12	0 ... 30,000 mm	Laser, red, 2	6 mm	2x, current, voltage	1x	1.0 mm	30 ... 100 ms	Connector, M12, plastic, 8-pin
50122319	ODSL 30/V-30M Ex d	0 ... 30,000 mm	Laser, red, 2	6 mm	2x, current, voltage	1x	1.0 mm	30 ... 100 ms	Ex-protected, cable, 15,000 mm, 8-wire

Dimensioned drawings: ODSL 30



ODSL 30 optical distance sensor

ACCESSORIES: ODSL 30

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104591	K-D M12A-8P-2m-PUR	Connector, M12, axial, female	8-pin	2,000 mm	PUR
50104590	K-D M12A-8P-5m-PUR	Connector, M12, axial, female	8-pin	5,000 mm	PUR
50106882	K-D M12A-8P-10m-PUR	Connector, M12, axial, female	8-pin	10,000 mm	PUR

Further connection cables can be found on our website

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Cable length	Sheathing material
50115050	K-DS M12A-MA-8P-3m-S-PUR	Connector, M12, axial, female	8-pin	JST ZHR	3,000 mm	PUR

Further interconnection cables can be found on our website

//ULTRASONIC DISTANCE SENSORS

WHEN LIGHT ISN'T ENOUGH

With ultrasonic technology, it is possible to reliably detect even partially or completely transparent objects and to perform reliable distance measurements. In addition, measurements can be performed in dusty, hazy or humid environments.

/// 418 series



With its small, cylindrical design, this ultrasonic distance sensor can be integrated problem-free. The full-metal housing and temperature compensation make use possible under adverse conditions.



Benefits:

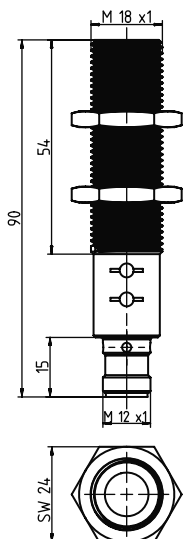
- Color and transmission independent detection of objects
- Current or voltage output configurable via PC software
- To avoid mutual interference, max. 10 sensors may be synchronized via one cable
- Sensitivity, average value calculation, reduction of the response time and outputs configurable via IO-Link
- Teach button



Direct access to the online product selector at www.leuze.com/en/br418mu

Part no.	Part description	Measurement range	Digital switching output	Analog output	Interface	Switching frequency	Resolution	Connection
50124260	DMU418B-400.X3/LTC-M12	25 ... 400 mm	Transistor, push-pull, break-contact/make-contact	Current	IO-Link	7 Hz	1.0 mm	Connector, M12, 5-pin
50124261	DMU418B-400.X3/LTV-M12	25 ... 400 mm	Transistor, push-pull, break-contact/make-contact	Voltage	IO-Link	7 Hz	1.0 mm	Connector, M12, 5-pin
50124263	DMU418B-1300.X3/LTC-M12	150 ... 1,300 mm	Transistor, push-pull, break-contact/make-contact	Current	IO-Link	8 Hz	1.0 mm	Connector, M12, 5-pin
50124264	DMU418B-1300.X3/LTV-M12	150 ... 1,300 mm	Transistor, push-pull, break-contact/make-contact	Voltage	IO-Link	8 Hz	1.0 mm	Connector, M12, 5-pin

Dimensioned drawings: 418 series



DMU 418B ultrasonic distance sensor

ACCESSORIES: 418 SERIES

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104556	K-D M12W-5P-2m-PVC	Connector, M12, angled, female	5-pin	2,000 mm	PVC
50104558	K-D M12W-5P-5m-PVC	Connector, M12, angled, female	5-pin	5,000 mm	PVC
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm	PVC
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50113548	BT D18M.5	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117490	BTU D18M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	Through-hole mounting	Metal

Further rod mounts can be found on our website

/// 430 series



The new M30 models in metal housing are much more compact and ideal for detecting levels of liquids and bulk material. High accuracy through temperature compensation.



Benefits:

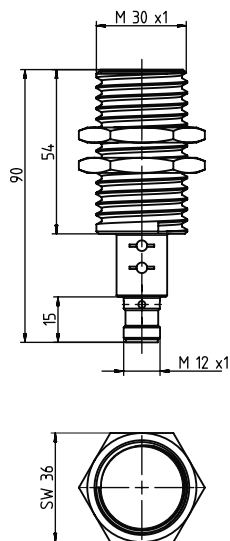
- Ideal for detection of levels of liquids, bulk material, transparent media and highly reflective objects
- Distance information largely independent of surface properties
- Current or voltage output and a switching output configurable via PC software
- To avoid mutual interference, max. 10 sensors may be synchronized via one cable
- Sensitivity, average value calculation, reduction of the response time and outputs configurable via IO-Link
- Teach button



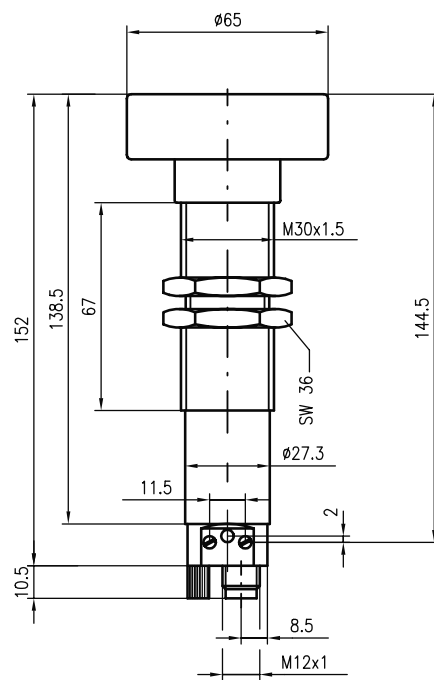
Direct access to the online product selector at www.leuze.com/en/br430mu

Part no.	Part description	Measurement range	Digital switching output	Analog output	Interface	Switching frequency	Resolution	Connection
50124265	DMU430B-3000.X3/LTC-M12	300 ... 3,000 mm	Transistor, push-pull, break-contact/ make-contact	Current	IO-Link	4 Hz	1.0 mm	Connector, M12, 5-pin
50124266	DMU430B-3000.X3/LTV-M12	300 ... 3,000 mm	Transistor, push-pull, break-contact/ make-contact	Voltage	IO-Link	4 Hz	1.0 mm	Connector, M12, 5-pin
50036269	VRTU 430M/V-1710-6000-S12	600 ... 6,000 mm	Transistor	Current		1 Hz	1.0 mm	Connector, M12, 5-pin

Dimensioned drawings: 430 series



DMU 430B ultrasonic distance sensor



VRTU 430 ultrasonic distance sensor

ACCESSORIES: 430 SERIES

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104556	K-D M12W-5P-2m-PVC	Connector, M12, angled, female	5-pin	2,000 mm	PVC
50104558	K-D M12W-5P-5m-PVC	Connector, M12, angled, female	5-pin	5,000 mm	PVC
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm	PVC
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50113510	BT D30M.5	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel

Further mounting brackets can be found on our website

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

/ SENSORS FOR POSITIONING

AT THE RIGHT POSITION WITH MILLIMETER ACCURACY

With moving system parts that need to automatically work together, the positioning of parts or work pieces with millimeter accuracy is of great importance. We offer devices with two operating principles. One is a laser distance measurement device that measures against a reflector and the other is a bar code positioning system that has a red light laser which determines the position and speed relative to a bar code tape.

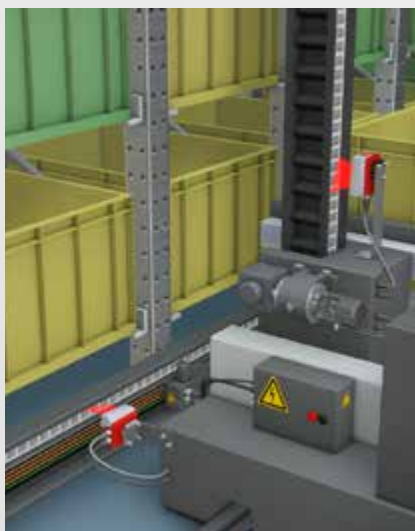


Optical laser measurement systems

Page 211

Bar code positioning systems

Page 215



//OPTICAL LASER MEASUREMENT SYSTEMS

THE POWER OF OPTICAL LASER DISTANCE MEASUREMENT

The AMS 300i sensor calculates distances to moving system parts contact-free, fast and with absolute precision at ranges up to 300 m. In cycles lasting just milliseconds, the laser distance measuring system provides the distances required for dynamic control functions with millimeter accuracy using a unique selection of Industrial Ethernet and fieldbus interfaces.

/// AMS 300i



With the AMS 300i, distances of up to 300 m can be calculated with maximum accuracy and in intervals in the order of milliseconds through the use of the latest signal processors. Borderline situations are detected and indicated with the integrated, extensive functionality catalog.



Benefits:

- Repeatability of 1 mm, with tested absolute measurement accuracy from ± 2 mm to ± 5 mm at a range of 300 m
- Simultaneous calculation and monitoring of position and speed
- Integrated interface diversity for problem-free integration into a large array of control systems
- Red light laser for simple alignment and real-time position measurement
- Integrated intelligent mounting solution for simple alignment and fastening
- Plain-text display in 5 languages for international use
- With the PROFINET and PROFIBUS variants, a parallel SSI interface is available



Direct access to the online product selector at www.leuze.com/en/ams300i

Part no.	Part description	Measurement range	Reproducibility (3 sigma)	Interface	Light source	Description
50113693	AMS 335i 40	200 ... 40,000 mm	0.9 mm	CANopen	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113697	AMS 335i 40 H	200 ... 40,000 mm	0.9 mm	CANopen	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: Heating
50113694	AMS 335i 120	200 ... 120,000 mm	1.5 mm	CANopen	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113698	AMS 335i 120 H	200 ... 120,000 mm	1.5 mm	CANopen	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113695	AMS 335i 200	200 ... 200,000 mm	2.1 mm	CANopen	Laser, red	Absolute measurement accuracy: 3 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113699	AMS 335i 200 H	200 ... 200,000 mm	2.1 mm	CANopen	Laser, red	Absolute measurement accuracy: 3 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: Heating
50113696	AMS 335i 300	200 ... 300,000 mm	3 mm	CANopen	Laser, red	Absolute measurement accuracy: 5 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113700	AMS 335i 300 H	200 ... 300,000 mm	3 mm	CANopen	Laser, red	Absolute measurement accuracy: 5 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: Heating
50113717	AMS 355i 40	200 ... 40,000 mm	0.9 mm	DeviceNet	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113721	AMS 355i 40 H	200 ... 40,000 mm	0.9 mm	DeviceNet	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113718	AMS 355i 120	200 ... 120,000 mm	1.5 mm	DeviceNet	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113722	AMS 355i 120 H	200 ... 120,000 mm	1.5 mm	DeviceNet	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113719	AMS 355i 200	200 ... 200,000 mm	2.1 mm	DeviceNet	Laser, red	Absolute measurement accuracy: 3 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113723	AMS 355i 200 H	200 ... 200,000 mm	2.1 mm	DeviceNet	Laser, red	Absolute measurement accuracy: 3 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113720	AMS 355i 300	200 ... 300,000 mm	3 mm	DeviceNet	Laser, red	Absolute measurement accuracy: 5 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113724	AMS 355i 300 H	200 ... 300,000 mm	3 mm	DeviceNet	Laser, red	Absolute measurement accuracy: 5 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113701	AMS 338i 40	200 ... 40,000 mm	0.9 mm	EtherCAT	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113705	AMS 338i 40 H	200 ... 40,000 mm	0.9 mm	EtherCAT	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113702	AMS 338i 120	200 ... 120,000 mm	1.5 mm	EtherCAT	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

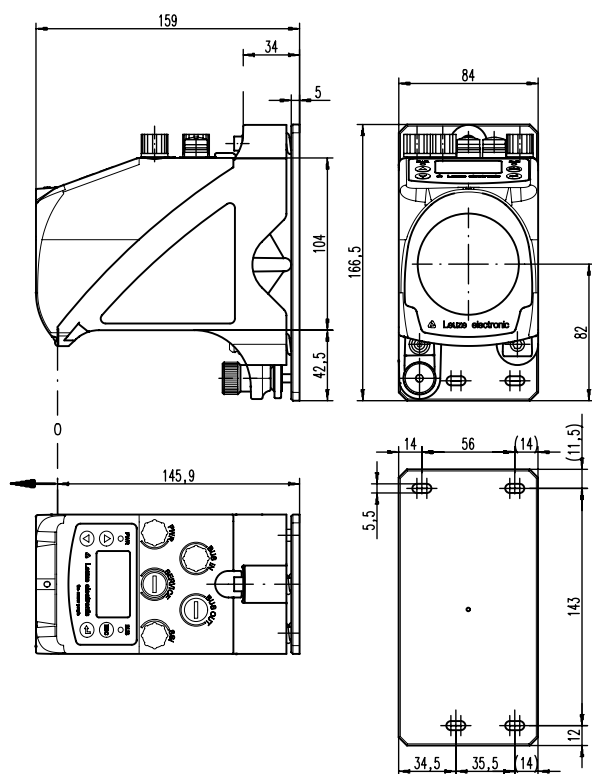
Part no.	Part description	Measurement range	Reproducibility (3 sigma)	Interface	Light source	Description
50113706	AMS 338i 120 H	200 ... 120,000 mm	1.5 mm	EtherCAT	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113703	AMS 338i 200	200 ... 200,000 mm	2.1 mm	EtherCAT	Laser, red	Absolute measurement accuracy: 3 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113707	AMS 338i 200 H	200 ... 200,000 mm	2.1 mm	EtherCAT	Laser, red	Absolute measurement accuracy: 3 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113704	AMS 338i 300	200 ... 300,000 mm	3 mm	EtherCAT	Laser, red	Absolute measurement accuracy: 5 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113708	AMS 338i 300 H	200 ... 300,000 mm	3 mm	EtherCAT	Laser, red	Absolute measurement accuracy: 5 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113725	AMS 358i 40	200 ... 40,000 mm	0.9 mm	EtherNet IP	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113729	AMS 358i 40 H	200 ... 40,000 mm	0.9 mm	EtherNet IP	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113726	AMS 358i 120	200 ... 120,000 mm	1.5 mm	EtherNet IP	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113730	AMS 358i 120 H	200 ... 120,000 mm	1.5 mm	EtherNet IP	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113727	AMS 358i 200	200 ... 200,000 mm	2.1 mm	EtherNet IP	Laser, red	Absolute measurement accuracy: 3 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113731	AMS 358i 200 H	200 ... 200,000 mm	2.1 mm	EtherNet IP	Laser, red	Absolute measurement accuracy: 3 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113728	AMS 358i 300	200 ... 300,000 mm	3 mm	EtherNet IP	Laser, red	Absolute measurement accuracy: 5 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113732	AMS 358i 300 H	200 ... 300,000 mm	3 mm	EtherNet IP	Laser, red	Absolute measurement accuracy: 5 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113685	AMS 308i 40	200 ... 40,000 mm	0.9 mm	Ethernet	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113689	AMS 308i 40 H	200 ... 40,000 mm	0.9 mm	Ethernet	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113686	AMS 308i 120	200 ... 120,000 mm	1.5 mm	Ethernet	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113690	AMS 308i 120 H	200 ... 120,000 mm	1.5 mm	Ethernet	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113687	AMS 308i 200	200 ... 200,000 mm	2.1 mm	Ethernet	Laser, red	Absolute measurement accuracy: 3 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113691	AMS 308i 200 H	200 ... 200,000 mm	2.1 mm	Ethernet	Laser, red	Absolute measurement accuracy: 3 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113688	AMS 308i 300	200 ... 300,000 mm	3 mm	Ethernet	Laser, red	Absolute measurement accuracy: 5 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113692	AMS 308i 300 H	200 ... 300,000 mm	3 mm	Ethernet	Laser, red	Absolute measurement accuracy: 5 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113733	AMS 384i 40	200 ... 40,000 mm	0.9 mm	Interbus-S	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113737	AMS 384i 40 H	200 ... 40,000 mm	0.9 mm	Interbus-S	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113734	AMS 384i 120	200 ... 120,000 mm	1.5 mm	Interbus-S	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113738	AMS 384i 120 H	200 ... 120,000 mm	1.5 mm	Interbus-S	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113735	AMS 384i 200	200 ... 200,000 mm	2.1 mm	Interbus-S	Laser, red	Absolute measurement accuracy: 3 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113739	AMS 384i 200 H	200 ... 200,000 mm	2.1 mm	Interbus-S	Laser, red	Absolute measurement accuracy: 3 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113736	AMS 384i 300	200 ... 300,000 mm	3 mm	Interbus-S	Laser, red	Absolute measurement accuracy: 5 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113740	AMS 384i 300 H	200 ... 300,000 mm	3 mm	Interbus-S	Laser, red	Absolute measurement accuracy: 5 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113677	AMS 304i 40	200 ... 40,000 mm	0.9 mm	PROFIBUS DP, SSI	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113681	AMS 304i 40 H	200 ... 40,000 mm	0.9 mm	PROFIBUS DP, SSI	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113678	AMS 304i 120	200 ... 120,000 mm	1.5 mm	PROFIBUS DP, SSI	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113682	AMS 304i 120 H	200 ... 120,000 mm	1.5 mm	PROFIBUS DP, SSI	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113679	AMS 304i 200	200 ... 200,000 mm	2.1 mm	PROFIBUS DP, SSI	Laser, red	Absolute measurement accuracy: 3 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113683	AMS 304i 200 H	200 ... 200,000 mm	2.1 mm	PROFIBUS DP, SSI	Laser, red	Absolute measurement accuracy: 3 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113680	AMS 304i 300	200 ... 300,000 mm	3 mm	PROFIBUS DP, SSI	Laser, red	Absolute measurement accuracy: 5 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113684	AMS 304i 300 H	200 ... 300,000 mm	3 mm	PROFIBUS DP, SSI	Laser, red	Absolute measurement accuracy: 5 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113709	AMS 348i 40	200 ... 40,000 mm	0.9 mm	PROFINET	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113713	AMS 348i 40 H	200 ... 40,000 mm	0.9 mm	PROFINET	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113710	AMS 348i 120	200 ... 120,000 mm	1.5 mm	PROFINET	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113714	AMS 348i 120 H	200 ... 120,000 mm	1.5 mm	PROFINET	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113711	AMS 348i 200	200 ... 200,000 mm	2.1 mm	PROFINET	Laser, red	Absolute measurement accuracy: 3 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113715	AMS 348i 200 H	200 ... 200,000 mm	2.1 mm	PROFINET	Laser, red	Absolute measurement accuracy: 3 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113712	AMS 348i 300	200 ... 300,000 mm	3 mm	PROFINET	Laser, red	Absolute measurement accuracy: 5 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED

Part no.	Part description	Measurement range	Reproducibility (3 sigma)	Interface	Light source	Description
50113716	AMS 348i 300 H	200 ... 300,000 mm	3 mm	PROFINET	Laser, red	Absolute measurement accuracy: 5 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50127219	AMS 348i 40 SSI	200 ... 40,000 mm	0.9 mm	PROFINET, SSI	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LED, LC Display
50127223	AMS 348i 40 H SSI	200 ... 40,000 mm	0.9 mm	PROFINET, SSI	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LED, LC Display; Functions: Heating
50127220	AMS 348i 120 SSI	200 ... 120,000 mm	1.5 mm	PROFINET, SSI	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LED, LC Display
50127224	AMS 348i 120 H SSI	200 ... 120,000 mm	1.5 mm	PROFINET, SSI	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LED, LC Display; Functions: heating
50127221	AMS 348i 200 SSI	200 ... 200,000 mm	2.1 mm	PROFINET, SSI	Laser, red	Absolute measurement accuracy: 3 mm; Max. traverse rate: 10 m/s; Type of display: LED, LC Display
50127225	AMS 348i 200 H SSI	200 ... 200,000 mm	2.1 mm	PROFINET, SSI	Laser, red	Absolute measurement accuracy: 3 mm; Max. traverse rate: 10 m/s; Type of display: LED, LC Display; Functions: Heating
50127222	AMS 348i 300 SSI	200 ... 300,000 mm	3 mm	PROFINET, SSI	Laser, red	Absolute measurement accuracy: 5 mm; Max. traverse rate: 10 m/s; Type of display: LED, LC Display
50127226	AMS 348i 300 H SSI	200 ... 300,000 mm	3 mm	PROFINET, SSI	Laser, red	Absolute measurement accuracy: 5 mm; Max. traverse rate: 10 m/s; Type of display: LED, LC Display; Functions: Heating
50113661	AMS 300i 40	200 ... 40,000 mm	0.9 mm	RS 232, RS 422	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113665	AMS 300i 40 H	200 ... 40,000 mm	0.9 mm	RS 232, RS 422	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113662	AMS 300i 120	200 ... 120,000 mm	1.5 mm	RS 232, RS 422	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113666	AMS 300i 120 H	200 ... 120,000 mm	1.5 mm	RS 232, RS 422	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113663	AMS 300i 200	200 ... 200,000 mm	2.1 mm	RS 232, RS 422	Laser, red	Absolute measurement accuracy: 3 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113667	AMS 300i 200 H	200 ... 200,000 mm	2.1 mm	RS 232, RS 422	Laser, red	Absolute measurement accuracy: 3 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113664	AMS 300i 300	200 ... 300,000 mm	3 mm	RS 232, RS 422	Laser, red	Absolute measurement accuracy: 5 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113668	AMS 300i 300 H	200 ... 300,000 mm	3 mm	RS 232, RS 422	Laser, red	Absolute measurement accuracy: 5 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113669	AMS 301i 40	200 ... 40,000 mm	0.9 mm	RS 485	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113673	AMS 301i 40 H	200 ... 40,000 mm	0.9 mm	RS 485	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113670	AMS 301i 120	200 ... 120,000 mm	1.5 mm	RS 485	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113674	AMS 301i 120 H	200 ... 120,000 mm	1.5 mm	RS 485	Laser, red	Absolute measurement accuracy: 2 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113671	AMS 301i 200	200 ... 200,000 mm	2.1 mm	RS 485	Laser, red	Absolute measurement accuracy: 3 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113675	AMS 301i 200 H	200 ... 200,000 mm	2.1 mm	RS 485	Laser, red	Absolute measurement accuracy: 3 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating
50113672	AMS 301i 300	200 ... 300,000 mm	3 mm	RS 485	Laser, red	Absolute measurement accuracy: 5 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED
50113676	AMS 301i 300 H	200 ... 300,000 mm	3 mm	RS 485	Laser, red	Absolute measurement accuracy: 5 mm; Max. traverse rate: 10 m/s; Type of display: LC Display, LED; Functions: heating

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Dimensioned drawings: AMS 300i

Data transmission /
Control componentsIndustrial image
processing

Accessories

ACCESSORIES: AMS 300i

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Interface	Sheathing material
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm		PVC
50114696	KB DN/CAN-5000 BA	Connector, M12, axial, female	5-pin	5,000 mm	DeviceNet, CANopen	PUR
50114697	KB DN/CAN-5000 SA	Connector, M12, axial, male	5-pin	5,000 mm	CANopen, DeviceNet	PUR
50106740	KB ET-5000-SA	Connector, M12, axial, male	4-pin	5,000 mm	Ethernet	PUR
50108596	KB IBS-5000-SA	Connector, M12, axial, male	5-pin	5,000 mm	Interbus-S	PUR
50104171	KB SSI/IBS-5000-BA	Connector, M12, axial, female	5-pin	5,000 mm	SSI, Interbus-S	PUR
50104187	KB PB-5000-SA	Connector, M12, axial, male	5-pin	5,000 mm	PROFIBUS DP	PUR
50104180	KB PB-5000-BA	Connector, M12, axial, female	5-pin	5,000 mm	PROFIBUS DP	PUR

Further connection cables can be found on our website

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Interface	Sheathing material
50114698	KB DN/CAN-5000 SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	5,000 mm	DeviceNet, CANopen	PUR
50130631	KSS ET-M12-4A-M12-4A-P7-010	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	1,000 mm	Ethernet	PUR
50130632	KSS ET-M12-4A-RJ45-A-P7-010	Connector, M12, axial, male	4-pin	RJ45		1,000 mm	Ethernet	PUR
50109881	KB ET-5000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45		5,000 mm	Ethernet	PUR
50106900	KB ET-5000-SSA	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	5,000 mm	Ethernet	PUR
50104098	KB PB-5000-SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	5,000 mm	PROFIBUS DP	PUR

Further interconnection cables can be found on our website

User-configurable connectors

Part no.	Part description	Connection	No. of pins	Interface
50040097	KD 01-5-BA	Connector, M12, axial, female	5-pin	
50040098	KD 01-5-SA	Connector, M12, axial, male	5-pin	
50038538	KD 02-5-BA	Connector, M12, axial, female	5-pin	PROFIBUS DP, multiNet Plus
50038537	KD 02-5-SA	Connector, M12, axial, male	5-pin	PROFIBUS DP, multiNet Plus
50020501	KD 095-5A	Connector, M12, axial, female	5-pin	

Further connectors can be found on our website

Reflective tape

Reflective tapes

Part no.	Part description	Design	Reflective surface	Reflector material	Fastening	Base material
50104364	Reflective tape 200x200mm-M	Rectangular	200 mm × 200 mm		Through-hole mounting, mounting plate	Aluminum
50104361	Reflective tape 200x200mm-S	Rectangular	200 mm × 200 mm	PMMA	Adhesive	
50104365	Reflective tape 500x500mm-M	Rectangular	500 mm × 500 mm		Through-hole mounting, mounting plate	Aluminum
50104362	Reflective tape 500x500mm-S	Rectangular	500 mm × 500 mm	PMMA	Adhesive	
50104366	Reflective tape 914x914mm-M	Rectangular	914 mm × 914 mm		Through-hole mounting, mounting plate	Aluminum
50108988	Reflective tape 914x914mm-S	Rectangular	914 mm × 914 mm	PMMA	Adhesive	

Further reflective tapes can be found on our website

//BAR CODE POSITIONING SYSTEMS

POSITION DATA WITHOUT LIMIT – “INFINITE”, CURVE-GOING AND WITH MILLIMETER ACCURACY

The read head of the bar code positioning system is moved along a bar code tape. It calculates the absolute position data in the direction of travel with millimeter accuracy up to a distance of 10,000 m. The bar code tape is extremely simple to use and can be bonded both in straight lines and in curves. Maximum flexibility, simple mounting, transparent diagnosis as well as a large selection of integrated interfaces are the strengths of this system.

/// BPS 300i



The BPS 300i is the second generation of bar code positioning and sets standards both in performance characteristics and in handling. The new “availability control” function allows diagnosis to be performed during operation. The large working range of ± 60 mm makes mechanical installation easier and precise measurements possible even if the distance to the tape varies.



Benefits:

- Availability control: To reliably prevent failures resulting from contamination, the device constantly reports its function reserve, thereby indicating possible problems due to contamination
- Easy handling: Fast, secure mounting and precise positioning of replacement devices through easy-mount mounting technology
- Absolute positioning up to 10,000 m with reproducible accuracy of ± 0.15 mm
- Maximum speed 10 m/s
- Modularity: three selectable connection technologies, heating and display



Direct access to the online product selector at www.leuze.com/en/bps300i

Part no.	Part description	Working range	Reproducibility (3 sigma)	Measurement value output	Interface	Light beam exit	Display element	Description
50125670	BPS 300i SM 100	50 ... 170 mm	0.15 mm	1 ... 30 ms	RS 232, RS 422	Lateral	LED	Light source: laser
50125669	BPS 300i SM 100 D	50 ... 170 mm	0.15 mm	1 ... 30 ms	RS 232, RS 422	Lateral	LED, monochromatic graphical display 128 x 32 pixel	Light source: laser
50125668	BPS 300i SM 100 D H	50 ... 170 mm	0.15 mm	1 ... 30 ms	RS 232, RS 422	Lateral	LED, monochromatic graphical display 128 x 32 pixel	Light source: laser; Functions: heating
50125673	BPS 301i SM 100	50 ... 170 mm	0.15 mm	1 ... 30 ms	RS 485	Lateral	LED	Light source: laser
50125672	BPS 301i SM 100 D	50 ... 170 mm	0.15 mm	1 ... 30 ms	RS 485	Lateral	LED, monochromatic graphical display 128 x 32 pixel	Light source: laser
50125671	BPS 301i SM 100 D H	50 ... 170 mm	0.15 mm	1 ... 30 ms	RS 485	Lateral	LED, monochromatic graphical display 128 x 32 pixel	Light source: laser; Functions: heating
50125676	BPS 304i SM 100	50 ... 170 mm	0.15 mm	2 ms	PROFIBUS DP	Lateral	LED	Light source: laser
50125675	BPS 304i SM 100 D	50 ... 170 mm	0.15 mm	2 ms	PROFIBUS DP	Lateral	LED, monochromatic graphical display 128 x 32 pixel	Light source: laser
50125674	BPS 304i SM 100 D H	50 ... 170 mm	0.15 mm	2 ms	PROFIBUS DP	Lateral	LED, monochromatic graphical display 128 x 32 pixel	Light source: laser; Functions: heating
50125679	BPS 307i SM 100	50 ... 170 mm	0.15 mm	0.05 ... 2 ms	SSI	Lateral	LED	Light source: laser
50125678	BPS 307i SM 100 D	50 ... 170 mm	0.15 mm	0.05 ... 2 ms	SSI	Lateral	LED, monochromatic graphical display 128 x 32 pixel	Light source: laser
50125677	BPS 307i SM 100 D H	50 ... 170 mm	0.15 mm	0.05 ... 2 ms	SSI	Lateral	LED, monochromatic graphical display 128 x 32 pixel	Light source: laser; Functions: heating
50124983	BPS 348i SM 100	50 ... 170 mm	0.15 mm	2 ms	PROFINET	Lateral	LED	Light source: laser
50124982	BPS 348i SM 100 D	50 ... 170 mm	0.15 mm	2 ms	PROFINET	Lateral	LED, monochromatic graphical display 128 x 32 pixel	Light source: laser
50124981	BPS 348i SM 100 D H	50 ... 170 mm	0.15 mm	2 ms	PROFINET	Lateral	LED, monochromatic graphical display 128 x 32 pixel	Light source: laser; Functions: heating

Necessary accessories: A modular connector hood or terminal hood and a bar code tape are required for operation of the BPS 300i!

Switching sensors

Measuring sensors

Products for safety at work

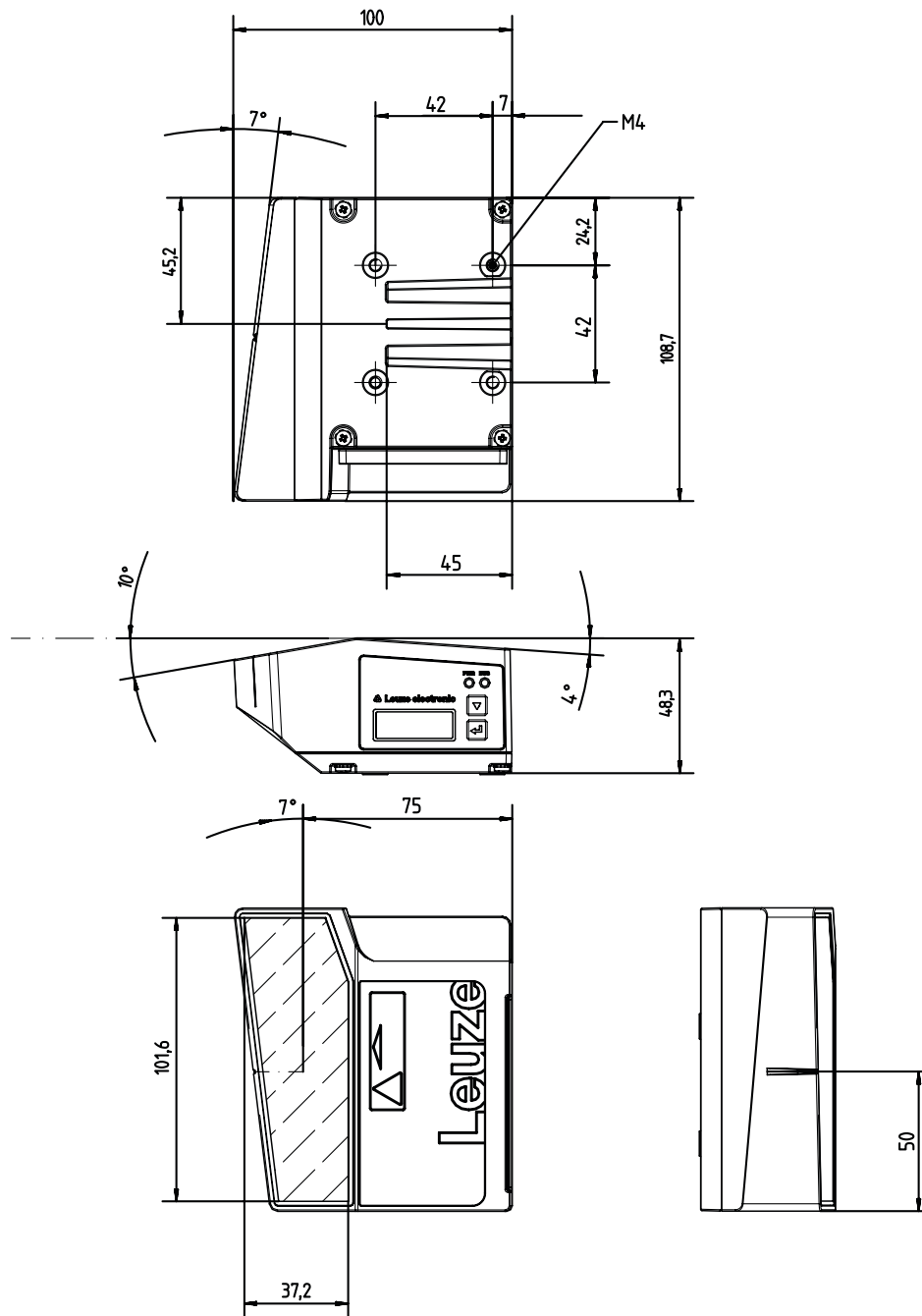
Identification

Data transmission / Control components

Industrial image processing

Accessories

Dimensioned drawings: BPS 300i



Bar code positioning system BPS 300i

ACCESSORIES: BPS 300i

Connection technology

Terminal boxes

Part no.	Part description	Connections	Connection	Suitable for interface
50116465	MK 304	4x	Terminal, M16	PROFIBUS DP
50126131	MK 307	3x	Terminal, M16	SSI
50116467	MK 348	4x	Terminal, M16	PROFINET
50116470	MS 304	4x	Connector, M12	PROFIBUS DP
50126130	MS 307	3x	Connector, M12	SSI
50116471	MS 348	4x	Connector, M12	PROFINET

Further terminal boxes can be found on our website

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Interface	Sheathing material
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm		PVC
50104171	KB SSI/IBS-5000-BA	Connector, M12, axial, female	5-pin	5,000 mm	SSI, Interbus-S	PUR
50104187	KB PB-5000-SA	Connector, M12, axial, male	5-pin	5,000 mm	PROFIBUS DP	PUR
50104180	KB PB-5000-BA	Connector, M12, axial, female	5-pin	5,000 mm	PROFIBUS DP	PUR

Further connection cables can be found on our website

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Interface	Sheathing material
50130631	KSS ET-M12-4A-M12-4A-P7-010	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	1,000 mm	Ethernet	PUR
50130632	KSS ET-M12-4A-RJ45-A-P7-010	Connector, M12, axial, male	4-pin	RJ45		1,000 mm	Ethernet	PUR
50109881	KB ET-5000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45		5,000 mm	Ethernet	PUR
50106900	KB ET-5000-SSA	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	5,000 mm	Ethernet	PUR
50104098	KB PB-5000-SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	5,000 mm	PROFIBUS DP	PUR

Further interconnection cables can be found on our website

User-configurable connectors

Part no.	Part description	Connection	No. of pins	Interface
50040097	KD 01-5-BA	Connector, M12, axial, female	5-pin	
50038538	KD 02-5-BA	Connector, M12, axial, female	5-pin	PROFIBUS DP, multiNet Plus
50038537	KD 02-5-SA	Connector, M12, axial, male	5-pin	PROFIBUS DP, multiNet Plus
50020501	KD 095-5A	Connector, M12, axial, female	5-pin	

Further connectors can be found on our website

Bar code tapes

Bar code tapes

Part no.	Part description	Suitable for	Dimensions	Grid dimension
50040041	BCB 010	Bar code positioning system, BPS 300i series	47 mm × 10,000 mm	40 mm
50037489	BCB 020	Bar code positioning system, BPS 300i series	47 mm × 20,000 mm	40 mm
50038894	BCB 050	Bar code positioning system, BPS 300i series	47 mm × 50,000 mm	40 mm

Further bar code tapes can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50121433	BT 300 W	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50027375	BT 56	Mounting system	Clampable	For 16 mm rod, for 18 mm rod, for 20 mm rod	Metal

Further rod mounts can be found on our website

/// BPS 8

Our BPS 8 compact bar code positioning system convinces with its robust metal housing and turnable M12 connector. The RS 232 or RS 485 interface allows the system to be incorporated in your system architecture. The BPS8 is available with either front beam exit or with a deflecting mirror.

**Benefits:**

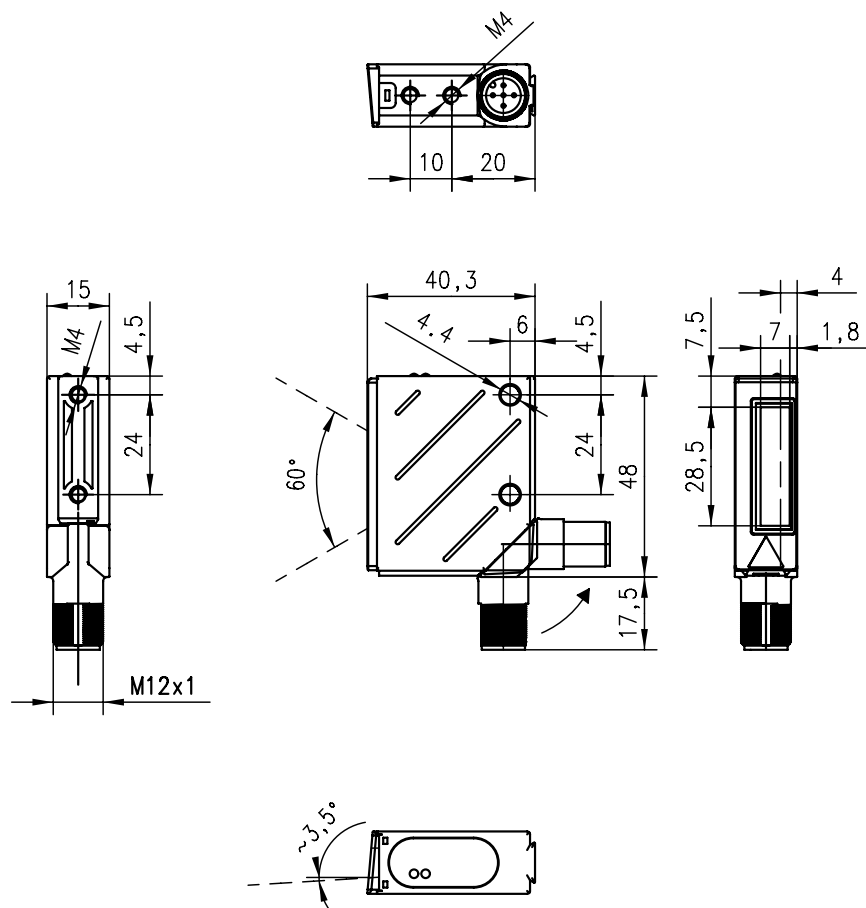
- Absolute position measurement up to 10,000 m
- Curve-going, horizontally and vertically
- Degree of protection: IP 67
- Various protocols on RS 232, RS 485 via MA 8
- Reproducibility: ± 1 mm
- Exact positioning at switches by means of special labels



Direct access to the online product selector at www.leuze.com/en/bps8

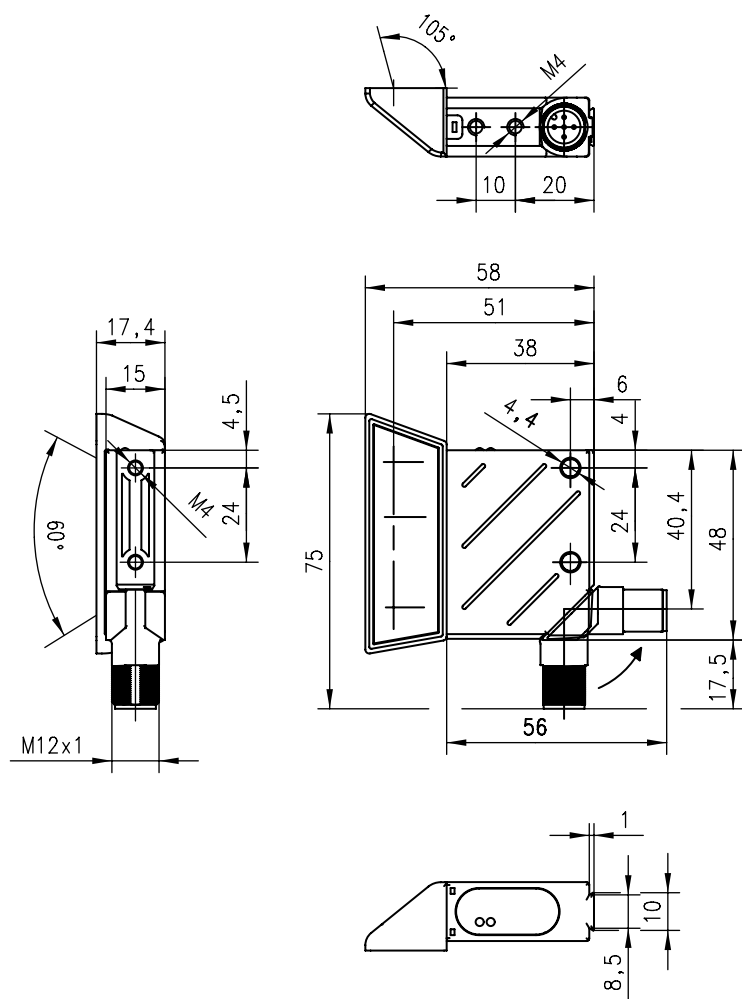
Part no.	Part description	Working range	Reproducibility (3 sigma)	Measurement value output	Interface	Light beam exit	Display element	Description
50104784	BPS 8 SM 100-01	60 ... 120 mm	1 mm	3.3 ms	RS 232	Lateral with deflecting mirror	LED	Light source: laser
50104783	BPS 8 SM 102-01	80 ... 140 mm	1 mm	3.3 ms	RS 232	Front	LED	Light source: laser

Necessary accessories: A bar code tape is required for operation!

Dimensioned drawings: BPS 8

Bar code positioning system BPS 8 SM 102-01 with front beam exit

Dimensioned drawings: BPS 8



Bar code positioning system BPS 8 SM 100-01 with lateral beam exit

ACCESSORIES: BPS 8

Connection technology

Connection unit

Part no.	Part description	Suitable for	Interface	Supply voltage	Degree of protection
50104790	MA 8-01	BCL 8 series bar code readers, BPS 8 series bar code positioning system	RS 485	10 ... 30 V DC	IP 67

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50101941	KB-008-3000 A-S	Connector, M12, axial, male	5-pin	3,000 mm	PUR
50040757	KB 008-3000 A	Connector, M12, axial, female	5-pin	3,000 mm	PUR

Further connection cables can be found on our website

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Sheathing material
50040761	KB-008-3000 AA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	3,000 mm	PUR
50040758	KB-008-3000 AR	Connector, M12, axial, female	5-pin	Connector, M12, angled, male	5-pin	3,000 mm	PUR

Further interconnection cables can be found on our website

User-configurable connectors

Part no.	Part description	Connection	No. of pins
50040097	KD 01-5-BA	Connector, M12, axial, female	5-pin

Further connectors can be found on our website

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

Bar code tapes

Bar code tapes

Part no.	Part description	Suitable for	Dimensions	Grid dimension
50104792	BCB 8 010	BPS 8 series bar code positioning system, BPS 300i series bar code positioning system	47 mm × 10,000 mm	30 mm
50104793	BCB 8 020	BPS 8 series bar code positioning system, BPS 300i series bar code positioning system	47 mm × 20,000 mm	30 mm
50104796	BCB 8 050	BPS 8 series bar code positioning system, BPS 300i series bar code positioning system	47 mm × 50,000 mm	30 mm

Further bar code tapes can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Fastening at device	Fastening at system	Material
50104791	BT 8-01	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50127177	BTU 008M-D10	Mounting system	Screw type	Sheet-metal mounting, for 10 mm rod	Metal

Further rod mounts can be found on our website

SMARTER PRODUCT USABILITY

It's the accessories that make our range of products complete.

We place great value on, e. g., flexible mounting solutions and simple integration through variable connection technology, alignment aids and innovative mounting systems. Pre-configured and pre-mounted systems also facilitate fast and simple commissioning of, e.g., muting systems for applications in safety at work.



Discover our extensive line of accessories on the web at: www.leuze.com/en/accessories

/ 3D SENSORS

WOULD YOU LIKE ANOTHER DIMENSION WITH THAT?

These sensors determine height contours. 3D data can be easily generated for moving objects or by moving the sensor. The measurement data can either be output for external processing or preprocessed in the sensor for convenient object measurement or detection.

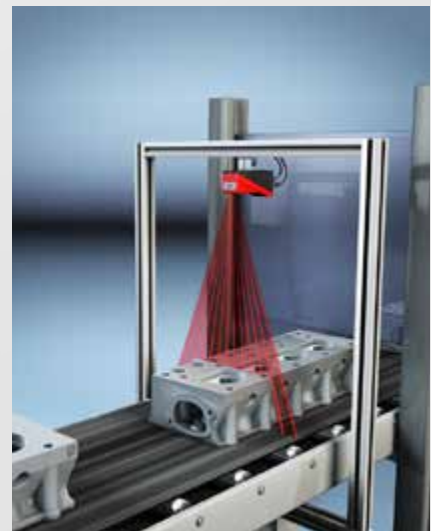
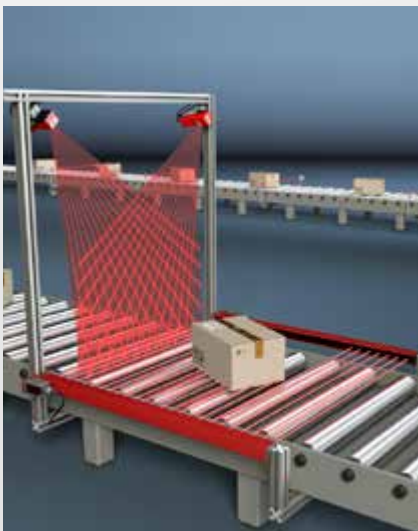


Light section sensors

Page 222

Laser scanners

Page 226



//LIGHT SECTION SENSORS

ALONG THE LINE

Light section sensors measure height profiles along a projected laser line. With these sensors, objects with high resolution can be detected quickly and reliably in 3D. Depending on the model, the function range extends from simply presence monitoring to edge measurement to 3D measurement of objects.

/// LPS 36



The LPS 36 profile camera is used wherever height profiles need to be determined for moving or static objects. An additional encoder port supports the generation of calibrated 3D data. This opens numerous application possibilities, such as robot guidance as well as contour/volume measurements.



Benefits:

- Laser measurement technology with light-section method
- Laser line 600 mm at a distance of 800 mm
- Measurement time: 10 ms
- Measurement range: 200–800 mm
- Compact construction: 160 × 74 × 56 mm
- Interface: Ethernet
- Optional: encoder input

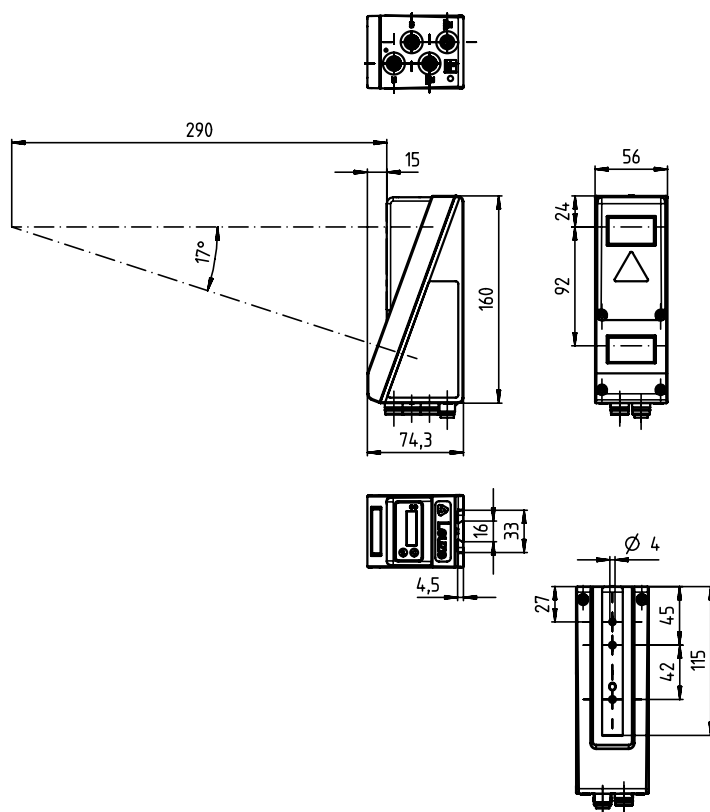


Direct access to the online product selector at www.leuze.com/en/lps36

Part no.	Part description	Application	Measurement range, z-axis	Measurement range, x-axis	Resolution	Light source	Switching inputs Switching outputs	Description
50111325	LPS 36	Contour measurement, object measurement	200 ... 800 mm	150 ... 600 mm	1 ... 3 mm	Laser, 2M, red	2x 2x	Type of interface: Ethernet; Lens cover: glass
50111324	LPS 36/EN	Contour measurement, object measurement	200 ... 800 mm	150 ... 600 mm	1 ... 3 mm	Laser, 2M, red	2x 2x	Type of interface: Ethernet; Lens cover: glass
50111334	LPS 36H/EN	Contour measurement, object measurement	200 ... 600 mm	46 ... 140 mm	0.1 ... 0.9 mm	Laser, 2M, red	2x 2x	Type of interface: Ethernet; Lens cover: glass

Measurement ranges: Luminosity coefficient 6 ... 90 %, entire measurement range, at 20 °C after 30 minutes warmup time, medium range of U_0 Resolution: minimum and maximum value depend on measurement distance

Dimensioned drawings: LPS 36



LPS 36 line profile sensor

/// LES 36



The integrated edge detection of LES sensors determines the dimensions of objects or measures the exterior edges of web material products. The calibrated measurement data can easily be further processed via Ethernet, analog interface or fieldbus. Height, width and position measurements can be quickly and easily realized through configuration.

**Benefits:**

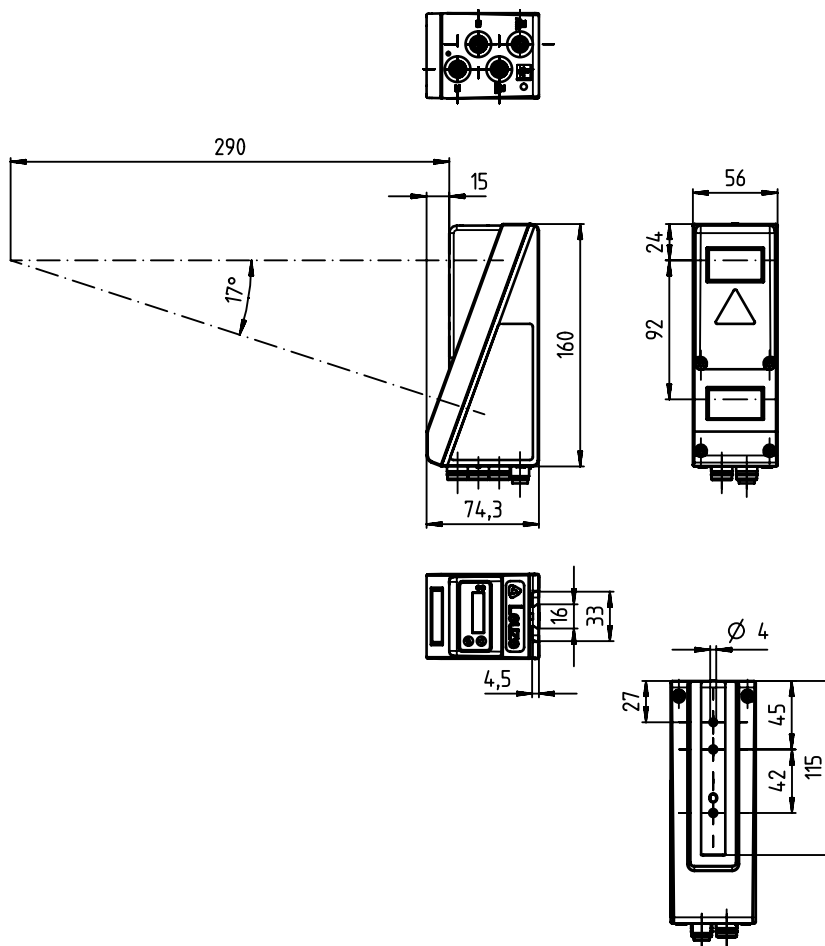
- Laser measurement technology with light-section method
- Up to 4 measurement fields in 16 inspection tasks
- Measurement time: 10 ms
- Measurement range: 200–800 mm
- Data calculation and processing directly inside the sensor
- Compact construction: 160 × 74 × 56 mm
- Interface: Ethernet, analog or fieldbus



Direct access to the online product selector at www.leuze.com/en/les36

Part no.	Part description	Application	Measurement range, z-axis	Measurement range, x-axis	Resolution	Minimum object size	Light source	Analog output	Switching inputs Switching outputs	Description
50111327	LES 36/PB	3D object detection, object measurement	200 ... 800 mm	150 ... 600 mm	1 ... 3 mm	2 ... 6 mm	Laser, 2M, red		2x 2x	Type of interface: PROFIBUS DP, Ethernet; Lens cover: glass
50111333	LES 36/VC6	3D object detection, object measurement	200 ... 800 mm	150 ... 600 mm	1 ... 3 mm	2 ... 6 mm	Laser, 2M, red	Current, voltage	5x 6x	Type of interface: Ethernet; Lens cover: glass
50111331	LES 36HI/PB	Object measurement, 3D object detection	200 ... 600 mm	50 ... 140 mm	0.1 ... 0.9 mm	0.4 ... 3 mm	Laser, 2M, red		2x 2x	Type of interface: PROFIBUS DP, Ethernet; Lens cover: glass
50111329	LES 36HI/VC6	3D object detection, object measurement	200 ... 600 mm	50 ... 140 mm	0.1 ... 0.9 mm	0.4 ... 3 mm	Laser, 2M, red	Current, voltage	5x 6x	Type of interface: Ethernet; Lens cover: glass

Measurement ranges: Luminosity coefficient 6 ... 90 %, entire measurement range, at 20 °C after 30 minutes warmup time, medium range of U_b . Resolution: minimum and maximum value depend on measurement distance

Dimensioned drawings: LES 36

LES 36 line profile sensor

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

/// LRS 36



Line range sensors are designed to perform scanning, two-dimensional object detection along a laser line. Up to 16 objects can be simultaneously detected with one sensor. Through configuration settings, complex detection tasks can be mastered with just one sensor. Results are output via Ethernet, fieldbus interfaces or binary switching outputs. A perfect solution, e. g., for multiple track transport or completeness monitoring.



Benefits:

- Laser scanning using the light section method
- Up to 16 detection fields in 16 inspection tasks
- Measurement time: 10 ms
- Detection range: 200–800 mm
- Data calculation and processing directly inside the sensor
- Compact construction: 160 × 74 × 56 mm
- Interface: Ethernet, I/O or fieldbus

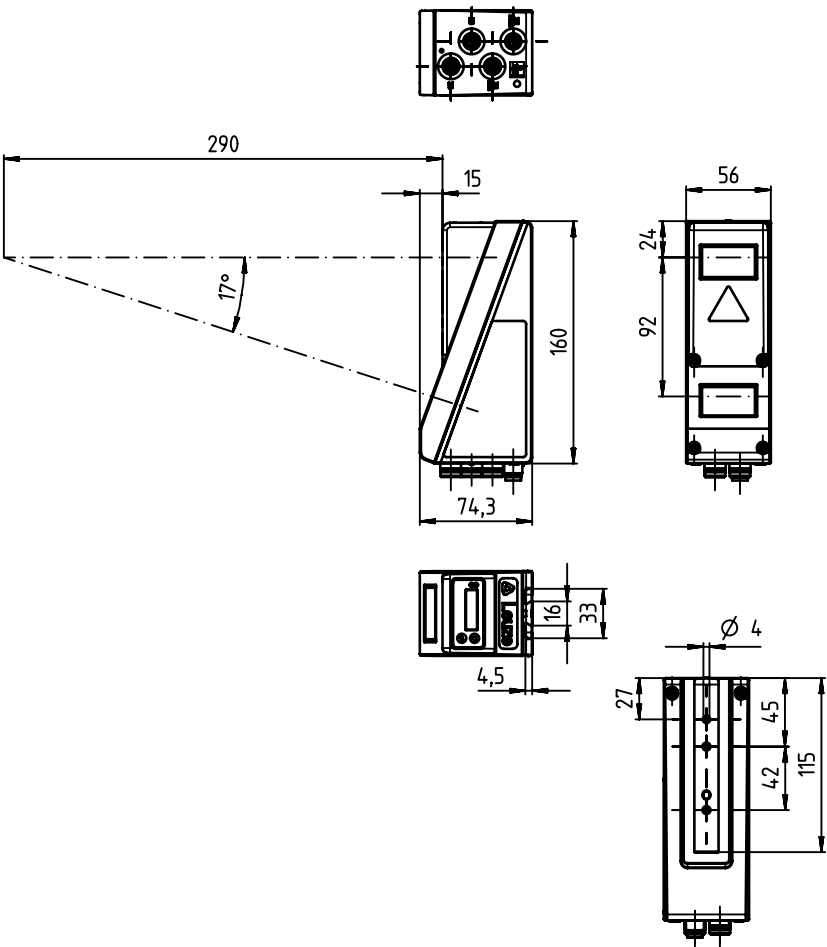


Direct access to the online product selector at www.leuze.com/en/lrs36

Part no.	Part description	Application	Detection range, z-axis	Detection range, x-axis	Minimum object size	Light source	Switching inputs Switching outputs	Description
50111330	LRS 36/6	3D object detection	200 ... 800 mm	150 ... 600 mm	2 ... 6 mm	Laser, 2M, red	5x 6x	Type of interface: Ethernet; Lens cover: glass
50115418	LRS 36/6.10	3D object detection	200 ... 800 mm	150 ... 600 mm	2 ... 6 mm	Laser, 2M, red	5x 6x	Type of interface: Ethernet; Lens cover: plastic
50111332	LRS 36/PB	3D object detection	200 ... 800 mm	150 ... 600 mm	2 ... 6 mm	Laser, 2M, red	2x 2x	Type of interface: PROFIBUS DP, Ethernet; Lens cover: glass

Measurement ranges: Luminosity coefficient 6 ... 90 %, entire measurement range, at 20 °C after 30 minutes warmup time, medium range of U_B . Resolution: minimum and maximum value depend on measurement distance

Dimensioned drawings: LRS 36



LRS 36 line profile sensor

ACCESSORIES: LXS 36

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Interface	Sheathing material
50110180	KB M12/8-5000-SA	Connector, M12, axial, male	8-pin	5,000 mm		PUR
50104590	K-D M12A-8P-5m-PUR	Connector, M12, axial, female	8-pin	5,000 mm		PUR
50104187	KB PB-5000-SA	Connector, M12, axial, male	5-pin	5,000 mm	PROFIBUS DP	PUR
50104180	KB PB-5000-BA	Connector, M12, axial, female	5-pin	5,000 mm	PROFIBUS DP	PUR

Further connection cables can be found on our website

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Interface	Sheathing material	Description
50130632	KSS ET-M12-4A-RJ45-A-P7-010	Connector, M12, axial, male	4-pin	RJ45		1,000 mm	Ethernet	PUR	
50109881	KB ET-5000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45		5,000 mm	Ethernet	PUR	
50125541	K-DS M12A-8P-0,75m-LxS36-CP	Connector, M12, axial, female	8-pin	Connector, M12, axial, male	8-pin	750 mm		PUR	Configuration cable

Further interconnection cables can be found on our website

Mounting systems

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50027375	BT 56	Mounting system	Clampable	For 16 mm rod, for 18 mm rod, for 20 mm rod	Metal

Further rod mounts can be found on our website

SMARTER PRODUCT USABILITY

*power*reserve.

Stable processes as a result of the largest possible function reserves

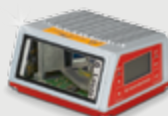


*think*modular.

Freely selectable function range comprising various equipment features

*availability*control.

Early warnings in case of dirty devices prevent costly system downtime



*easy*handling.

Intelligent ideas for installation and alignment and easy operation of the devices

*integrated*connectivity.

Integrated interface diversity for simple integration in your fieldbus



Additional usability highlights can be found at: www.leuze.com/en/products

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

//LASER SCANNERS

HIGH OPERATING RANGES WITH LARGE VIEWING ANGLES

Laser scanners detect their environment using a quickly-rotating laser measurement beam. This allows objects to be detected over large distances with very large viewing angles and also enables contours to be measured.

/// ROD 4



Contactless laser scanners for object detection and contour measurement. A laser measurement beam is deflected by a rotating mirror and covers an area of 190 ° with a radius of up to 65 m. The measurement contour is output via Ethernet or a serial interface. In addition, there are models for object detection in up to 4 simultaneous detection fields.



Benefits:

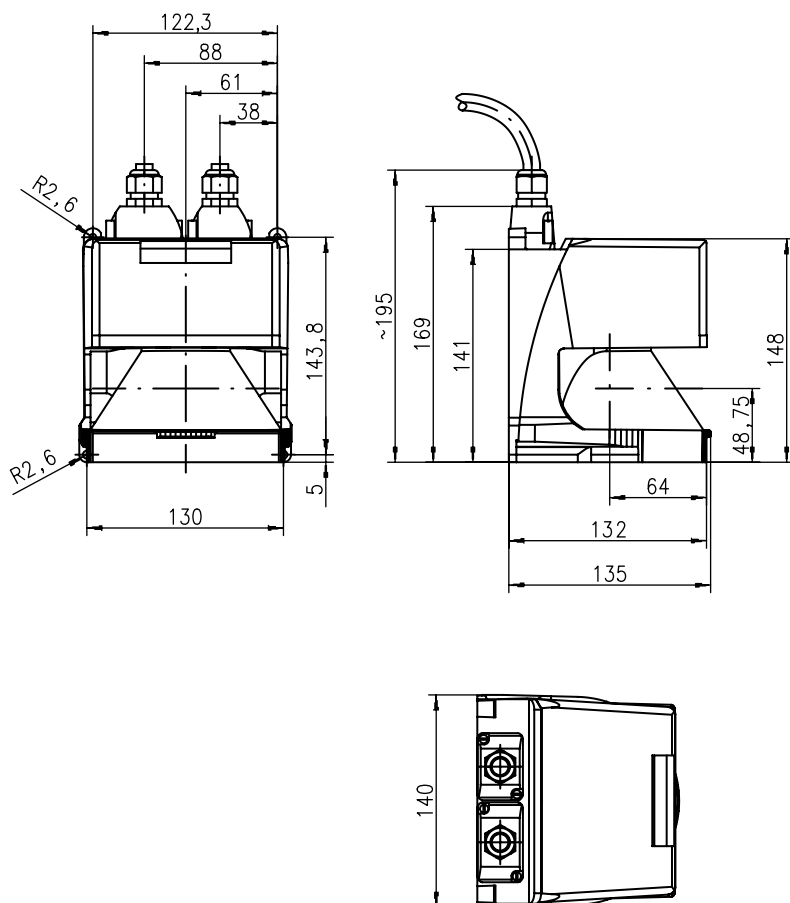
- Measurement range 0 ... 65 m, radius of detection field up to 50 m
- 7 configurable and selectable detection field pairs (near and far) for object detection
- Simple device exchange without PC by means of config. connector
- Reference contour for presence/absence checks of objects
- Independent, simultaneous monitoring of 4 detection fields
- Interference suppression in the event of particles in the air
- ROD 4-36 with heating and ROD 4-38 with heating, dust-insensitive version



Direct access to the online product selector at www.leuze.com/en/rod4

Part no.	Part description	Measurement range	Light source Laser protection class	Scanning rate	Digital switching outputs	Number of connections	Interface	Special design
50106481	ROD4 plus	0 ... 65,000 mm	Laser, infrared, 1	25 scans/s	4x	4x	Ethernet, RS 232, RS 422	Warning output
50110238	ROD4-30	0 ... 65,000 mm	Laser, infrared, 1	25 scans/s	4x	2x	RS 232, RS 422	Warning output
50110666	ROD4-36	0 ... 65,000 mm	Laser, infrared, 1	25 scans/s	4x	2x	RS 232, RS 422	Heating, warning output
50113226	ROD4-50 plus	0 ... 65,000 mm	Laser, infrared, 1	50 scans/s		4x	Ethernet, RS 232, RS 422	Warning output
50106480	ROD4-08 plus	0 ... 25,000 mm	Laser, infrared, 1	25 scans/s	4x	4x	Ethernet, RS 232, RS 422	Dust suppression, heating, warning output
50110667	ROD4-38	0 ... 25,000 mm	Laser, infrared, 1	25 scans/s	4x	2x	RS 232, RS 422	Dust suppression, heating, warning output
50129795	ROD4-56 plus	0 ... 25,000 mm	Laser, infrared, 1	50 scans/s		4x	Ethernet, RS 232, RS 422	Heating, warning output
50113225	ROD4-58 plus	0 ... 25,000 mm	Laser, infrared, 1	50 scans/s		4x	Ethernet, RS 232, RS 422	Dust suppression, heating, warning output

Dimensioned drawings: ROD 4



ROD 4 laser scanner

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

ACCESSORIES: ROD 4

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50108138	KB-ROD4-CP-5000	Sub-D, male, axial	15-pin	5,000 mm	PVC
50106976	KB-014S-5000-14	Connector, M16, angled, female	14-pin	5,000 mm	PVC
50104590	K-D M12A-8P-5m-PUR	Connector, M12, axial, female	8-pin	5,000 mm	PUR

Further connection cables can be found on our website

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Interface	Sheathing material
50038069	KB-ROD4PC-3000	Sub-D, male, axial	9-pin	Sub-D, male, axial		3,000 mm		PVC
50106881	KB-ROD4 plus-5000	Sub-D, male, axial	9-pin	Connector, M12, axial, male	5-pin	5,000 mm		PUR
50130632	KSS ET-M12-4A-RJ45-A-P7-010	Connector, M12, axial, male	4-pin	RJ45		1,000 mm	Ethernet	PUR
50109881	KB ET-5000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45		5,000 mm	Ethernet	PUR
50110677	KB-RS232-USB	Sub-D, male, axial	9-pin	USB		1,000 mm	RS 232, USB	PVC

Further interconnection cables can be found on our website

Mounting systems

Other mounting systems

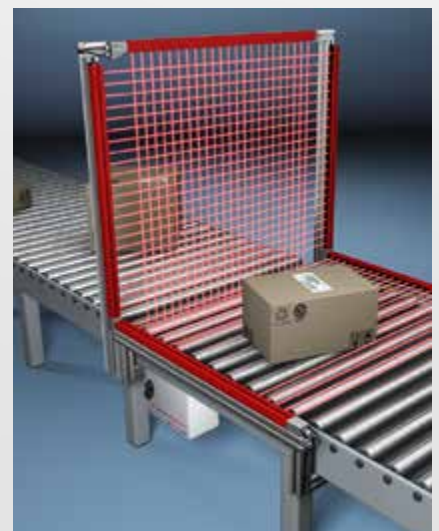
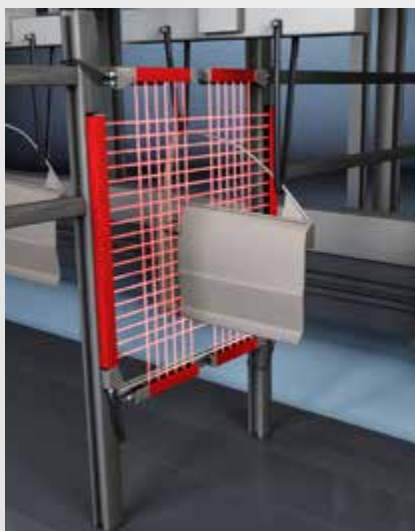
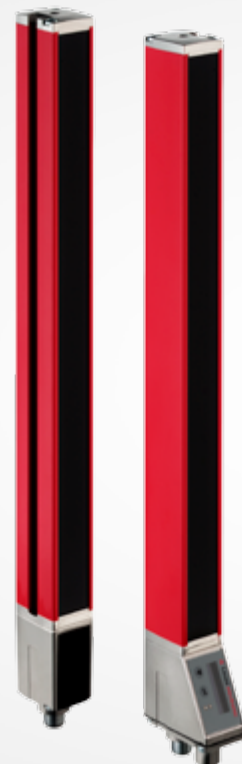
Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50038066	ROD4-MS	Mounting system	Screw type	Through-hole mounting	Metal

Further mounting systems can be found on our website

/ LIGHT CURTAINS

MANY BEAMS SEE MORE THAN ONE

Our measuring light curtains monitor a large measurement field and output measurement information from this field. Depending on the configuration and model, the devices are suitable for a variety of measurement tasks with various resolutions and can be integrated in different fieldbus environments.



/// CML700i



Integrated interfaces enable the quick and easy integration of these measuring light curtains into fieldbus environments without additional gateway boxes and corresponding space requirements and mounting effort. Cascade mounting with a dead zone of just 23 mm between beams, fast response times and the detection of transparent media enable e.g. continuous object tracing on a transport system. Available in this series are variants that are certified for use in potentially explosive areas of group II, category 3, zone 2 (gas) and zone 22 (dust).



Direct access to the online product selector at www.leuze.com/en/cml700i

PART NUMBER CODES – CML 700i measuring light curtains

C M L 7 x 0 i - T 0 5 - 1 9 2 0 . A - M 1 2 - E X

C M L 7 x 0 i - R 0 5 - 1 9 2 0 . A / C N - M 1 2 - E X

Operating principle

CML Measuring light curtain

Series

720i 720i series

730i 730i series

Function

T Transmitter

R Receiver

Beam spacing¹⁾

05 5 mm

10 10 mm

20 20 mm

40 40 mm

Measurement field length

xxxx Measurement field length [mm], depends on beam spacing

Equipment²⁾

A Plug outlet, axial

R Plug outlet rear side

Interface³⁾

L IO-Link

CN CANopen

PB PROFIBUS-DP

CV Analog: current and voltage

D3 RS 485 (Modbus)

Electrical connection

M12 M12 connector

Explosion protection (CML 720i only)

Ex explosion-proof: II 3G Ex nA op is IIB T4 Gc X
 II 3D Ex tc IIIB T85°C Dc IP54 X

¹⁾ For devices with Ex protection: the 5 mm and 40 mm beam spacings can only be ordered following consultation with Leuze electronic

²⁾ For devices with Ex protection: only A, axial plug outlet

³⁾ For devices with Ex protection: only CN, CANopen

CML720i

With 6 m operating range and a response time of 30 microseconds per beam, the light curtains of the CML 720i series are the perfect introduction to easy detection and measurement even of moving objects.

Benefits:

- Operating range of up to 6 m for larger function reserve
- Response time of 30 µs per beam for the reliable detection of fast processes
- Integrated CANopen and IO-Link interfaces for direct configuration via the control
- Large, easy-to-read display in 5 languages with robust membrane keyboard and bar graph display for easy alignment
- Maximum measurement field length of nearly 3 m for measurement on large objects
- Sturdy metal housing also for use in rough industrial environments
- Connection via M12 connector for fast installation

Part no.	Part description	Beam spacing	No. of beams	Measurement field length	Cycle time	Operating range	Interface	Analog outputs	Switching inputs/ outputs	Connection
50119377	► CML720i-T05-800.A-M12	5 mm	160x	800 mm	5.2 ms	0.1 ... 3 m				Connector, M12, axial, 5-pin
50119805	◄ CML720i-R05-800.A/CV-M12	5 mm	160x	800 mm	5.2 ms			Voltage, current	2x	Connector, M12, axial, 8-pin
50119615	◄ CML720i-R05-800.A/CN-M12	5 mm	160x	800 mm	5.2 ms		CANopen		2x	Connector, M12, axial, 8-pin
50119724	◄ CML720i-R05-800.A/L-M12	5 mm	160x	800 mm	5.2 ms		IO-Link		4x	Connector, M12, axial, 8-pin
50122954	◄ CML720i-R05-800.A/PB-M12	5 mm	160x	800 mm	5.2 ms		PROFIBUS DP		2x	Connector, M12, axial, 8-pin
50123449	◄ CML720i-R05-800.A/D3-M12	5 mm	160x	800 mm	5.2 ms		RS 485		2x	Connector, M12, axial, 8-pin
50119458	► CML720i-T05-800.R-M12	5 mm	160x	800 mm	5.2 ms	0.1 ... 3 m				Connector, M12, rear side, 5-pin
50120131	◄ CML720i-R05-800.R/CV-M12	5 mm	160x	800 mm	5.2 ms			Voltage, current	2x	Connector, M12, rear side, 8-pin
50119913	◄ CML720i-R05-800.R/CN-M12	5 mm	160x	800 mm	5.2 ms		CANopen		2x	Connector, M12, rear side, 8-pin
50119994	◄ CML720i-R05-800.R/L-M12	5 mm	160x	800 mm	5.2 ms		IO-Link		4x	Connector, M12, rear side, 8-pin
50122957	◄ CML720i-R05-800.R/PB-M12	5 mm	160x	800 mm	5.2 ms		PROFIBUS DP		2x	Connector, M12, rear side, 8-pin
50123584	◄ CML720i-R05-800.R/D3-M12	5 mm	160x	800 mm	5.2 ms		RS 485		2x	Connector, M12, rear side, 8-pin
50119409	► CML720i-T10-800.A-M12	10 mm	80x	800 mm	2.8 ms	0.3 ... 6 m				Connector, M12, axial, 5-pin
50119837	◄ CML720i-R10-800.A/CV-M12	10 mm	80x	800 mm	2.8 ms			Voltage, current	2x	Connector, M12, axial, 8-pin
50119647	◄ CML720i-R10-800.A/CN-M12	10 mm	80x	800 mm	2.8 ms		CANopen		2x	Connector, M12, axial, 8-pin
50119756	◄ CML720i-R10-800.A/L-M12	10 mm	80x	800 mm	2.8 ms		IO-Link		4x	Connector, M12, axial, 8-pin
50122989	◄ CML720i-R10-800.A/PB-M12	10 mm	80x	800 mm	2.8 ms		PROFIBUS DP		2x	Connector, M12, axial, 8-pin
50123482	◄ CML720i-R10-800.A/D3-M12	10 mm	80x	800 mm	2.8 ms		RS 485		2x	Connector, M12, axial, 8-pin
50119491	► CML720i-T10-800.R-M12	10 mm	80x	800 mm	2.8 ms	0.3 ... 6 m				Connector, M12, rear side, 5-pin
50120164	◄ CML720i-R10-800.R/CV-M12	10 mm	80x	800 mm	2.8 ms			Voltage, current	2x	Connector, M12, rear side, 8-pin
50119945	◄ CML720i-R10-800.R/CN-M12	10 mm	80x	800 mm	2.8 ms		CANopen		2x	Connector, M12, rear side, 8-pin
50120080	◄ CML720i-R10-800.R/L-M12	10 mm	80x	800 mm	2.8 ms		IO-Link		4x	Connector, M12, rear side, 8-pin
50122998	◄ CML720i-R10-800.R/PB-M12	10 mm	80x	800 mm	2.8 ms		PROFIBUS DP		2x	Connector, M12, rear side, 8-pin
50123616	◄ CML720i-R10-800.R/D3-M12	10 mm	80x	800 mm	2.8 ms		RS 485		2x	Connector, M12, rear side, 8-pin
50119427	► CML720i-T20-790.A-M12	20 mm	40x	790 mm	1.6 ms	0.3 ... 6 m				Connector, M12, axial, 5-pin
50119855	◄ CML720i-R20-790.A/CV-M12	20 mm	40x	790 mm	1.6 ms			Voltage, current	2x	Connector, M12, axial, 8-pin
50119665	◄ CML720i-R20-790.A/CN-M12	20 mm	40x	790 mm	1.6 ms		CANopen		2x	Connector, M12, axial, 8-pin
50119774	◄ CML720i-R20-790.A/L-M12	20 mm	40x	790 mm	1.6 ms		IO-Link		4x	Connector, M12, axial, 8-pin
50123046	◄ CML720i-R20-790.A/PB-M12	20 mm	40x	790 mm	1.6 ms		PROFIBUS DP		2x	Connector, M12, axial, 8-pin
50123553	◄ CML720i-R20-790.A/D3-M12	20 mm	40x	790 mm	1.6 ms		RS 485		2x	Connector, M12, axial, 8-pin
50119509	► CML720i-T20-790.R-M12	20 mm	40x	790 mm	1.6 ms	0.3 ... 6 m				Connector, M12, rear side, 5-pin
50120182	◄ CML720i-R20-790.R/CV-M12	20 mm	40x	790 mm	1.6 ms			Voltage, current	2x	Connector, M12, rear side, 8-pin
50119963	◄ CML720i-R20-790.R/CN-M12	20 mm	40x	790 mm	1.6 ms		CANopen		2x	Connector, M12, rear side, 8-pin
50120098	◄ CML720i-R20-790.R/L-M12	20 mm	40x	790 mm	1.6 ms		IO-Link		4x	Connector, M12, rear side, 8-pin
50123037	◄ CML720i-R20-790.R/PB-M12	20 mm	40x	790 mm	1.6 ms		PROFIBUS DP		2x	Connector, M12, rear side, 8-pin
50123634	◄ CML720i-R20-790.R/D3-M12	20 mm	40x	790 mm	1.6 ms		RS 485		2x	Connector, M12, rear side, 8-pin
50119443	► CML720i-T40-930.A-M12	40 mm	24x	930 mm	1.12 ms	0.3 ... 6 m				Connector, M12, axial, 5-pin
50119871	◄ CML720i-R40-930.A/CV-M12	40 mm	23x	930 mm	1.09 ms			Voltage, current	2x	Connector, M12, axial, 8-pin
50119681	◄ CML720i-R40-930.A/CN-M12	40 mm	23x	930 mm	1.09 ms		CANopen		2x	Connector, M12, axial, 8-pin
50119790	◄ CML720i-R40-930.A/L-M12	40 mm	23x	930 mm	1.09 ms		IO-Link		4x	Connector, M12, axial, 8-pin
50123057	◄ CML720i-R40-930.A/PB-M12	40 mm	23x	930 mm	1.09 ms		PROFIBUS DP		2x	Connector, M12, axial, 8-pin
50123569	◄ CML720i-R40-930.A/D3-M12	40 mm	23x	930 mm	1.09 ms		RS 485		2x	Connector, M12, axial, 8-pin

► transmitter / ◄ receiver

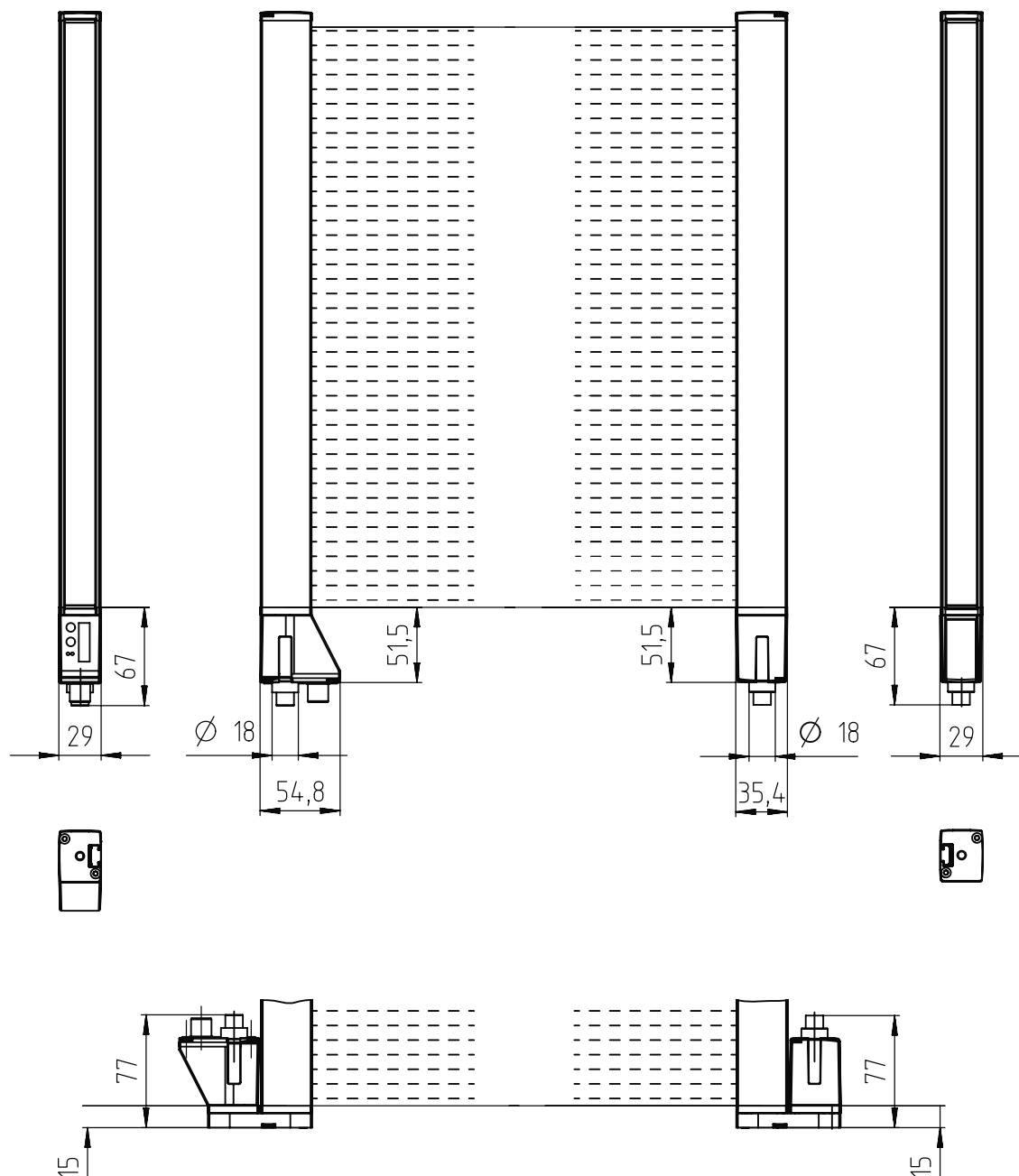
Further products of this series can be found on our website

Part no.	Part description	Beam spacing	No. of beams	Measurement field length	Cycle time	Operating range	Interface	Analog outputs	Switching inputs/ outputs	Connection
50119525	► CML720i-T40-930.R-M12	40 mm	24x	930 mm	1.12 ms	0.3 ... 6 m				Connector, M12, rear side, 5-pin
50120198	◄ CML720i-R40-930.R/CV-M12	40 mm	23x	930 mm	1.09 ms			Voltage, current	2x	Connector, M12, rear side, 8-pin
50119979	◄ CML720i-R40-930.R/CN-M12	40 mm	23x	930 mm	1.09 ms		CANopen		2x	Connector, M12, rear side, 8-pin
50120115	◄ CML720i-R40-930.R/L-M12	40 mm	23x	930 mm	1.09 ms		IO-Link		4x	Connector, M12, rear side, 8-pin
50123062	◄ CML720i-R40-930.R/PB-M12	40 mm	23x	930 mm	1.09 ms		PROFIBUS DP		2x	Connector, M12, rear side, 8-pin
50123652	◄ CML720i-R40-930.R/D3-M12	40 mm	23x	930 mm	1.09 ms		RS 485		2x	Connector, M12, rear side, 8-pin

► transmitter / ◄ receiver

Further products of this series can be found on our website

Dimensioned drawings: CML720i



CML720i measuring light curtain

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

CML720i Ex

Available in this series are variants that are certified for use in potentially explosive areas of group II, category 3, zone 2 (gas) and zone 22 (dust). With 6 m operating range and a response time of 30 µs per beam, the light curtains of the CML720i Ex series are the perfect introduction to easy detection and measurement even of moving objects.

Benefits:

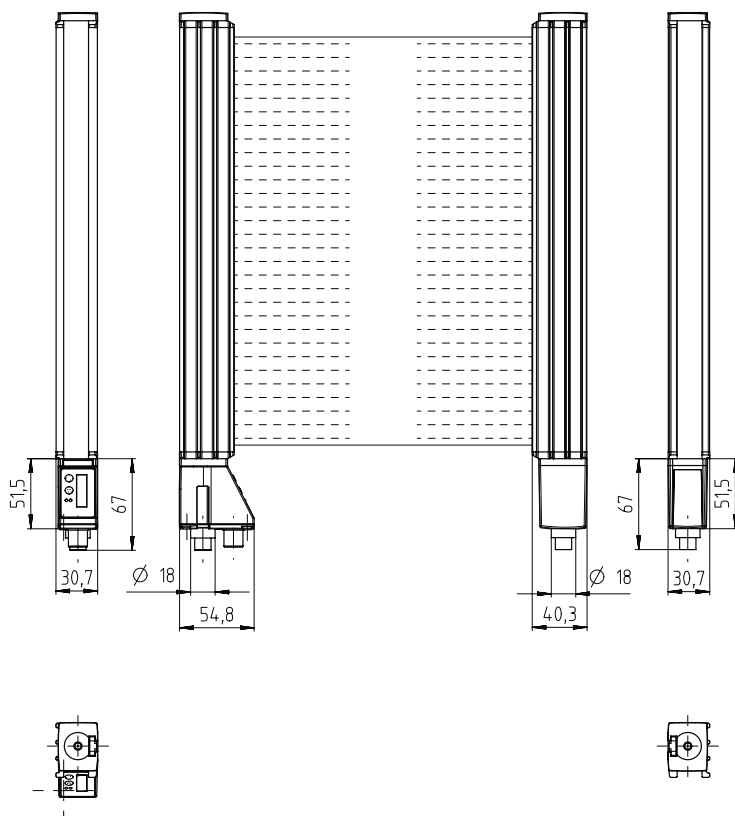
- Operating range of up to 6 m for larger function reserve
- Response time of 30 µs per beam for the reliable detection of fast processes
- Integrated Profibus, CANopen, RS485 and IO-Link interfaces for direct configuration via the control
- Large, easy-to-read display with robust membrane keyboard and bar graph display for easy alignment
- Maximum measurement field length of nearly 3 m for measurement on large objects
- Sturdy metal housing also for use in rough industrial environments
- Connection via M12 connector for fast installation

Part no.	Part description	Beam spacing	No. of beams	Measurement field length	Cycle time	Operating range	Interface	Switching inputs/outputs	Connection
50126391	► CML720i-T10-620.A-M12-EX	10 mm	620x	620 mm	2.32 ms	0.3 ... 6 m			Connector, M12, axial, 5-pin
50126360	◄ CML720i-R10-620.A/CN-M12-EX	10 mm	62x	620 mm	2.32 ms		CANopen, IO-Link	2x	Connector, M12, axial, 8-pin
50126392	► CML720i-T10-780.A-M12-EX	10 mm	780x	780 mm	2.8 ms	0.3 ... 6 m			Connector, M12, axial, 5-pin
50126361	◄ CML720i-R10-780.A/CN-M12-EX	10 mm	78x	780 mm	2.8 ms		CANopen, IO-Link	2x	Connector, M12, axial, 8-pin
50126393	► CML720i-T10-940.A-M12-EX	10 mm	940x	940 mm	3.28 ms	0.3 ... 6 m			Connector, M12, axial, 5-pin
50126362	◄ CML720i-R10-940.A/CN-M12-EX	10 mm	94x	940 mm	3.28 ms		CANopen, IO-Link	2x	Connector, M12, axial, 8-pin
50126405	► CML720i-T20-610.A-M12-EX	20 mm	31x	610 mm	1.36 ms	0.3 ... 6 m			Connector, M12, axial, 5-pin
50126374	◄ CML720i-R20-610.A/CN-M12-EX	20 mm	31x	610 mm	1.36 ms		CANopen, IO-Link	2x	Connector, M12, axial, 8-pin
50126406	► CML720i-T20-770.A-M12-EX	20 mm	39x	770 mm		0.3 ... 6 m			Connector, M12, axial, 5-pin
50126375	◄ CML720i-R20-770.A/CN-M12-EX	20 mm	39x	770 mm			CANopen, IO-Link	2x	Connector, M12, axial, 8-pin
50126407	► CML720i-T20-930.A-M12-EX	20 mm	47x	930 mm	1.84 ms	0.3 ... 6 m			Connector, M12, axial, 5-pin
50126376	◄ CML720i-R20-930.A/CN-M12-EX	20 mm	47x	930 mm	1.84 ms		CANopen, IO-Link	2x	Connector, M12, axial, 8-pin

► transmitter / ◄ receiver

Further products of this series can be found on our website

Dimensioned drawings: CML 720i Ex



CML 720i EX measuring light curtain

CML730i

In addition to its integrated interfaces and the innovative plug outlets for gapless object tracing, the CML730i measuring light curtain stands out in particular due to its range of up to 8 m and a unique measurement cycle of 10 µs per beam. In addition, it reliably detects even transparent objects up to 3.5 m.

Benefits:

- Integrated Profibus, CANopen, RS485 and IO-Link interfaces for direct configuration via the control
- Large, easy-to-read display with robust membrane keyboard and bar graph display for easy alignment
- Reliable detection of even transparent media up to 3.5 m
- Operating range of up to 8 m for larger function reserves
- Extremely short response time of 10 µs per beam for the reliable detection of even fast processes
- Maximum measurement field length of nearly 3 m for measurement on large objects
- Sturdy metal housing also for use in rough industrial environments
- Connection via M12 connector for fast installation

Part no.	Part description	Beam spacing	No. of beams	Measurement field length	Cycle time	Operating range	Interface	Analog outputs	Switching inputs/outputs	Connection
50118585	► CML730i-T05-800.A-M12	5 mm	160x	800 mm	1.8 ms	0.1 ... 4 m				Connector, M12, axial, 5-pin
50118827	◄ CML730i-R05-800.A/CV-M12	5 mm	160x	800 mm	1.75 ms			Voltage, current	2x	Connector, M12, axial, 8-pin
50118664	◄ CML730i-R05-800.A/CN-M12	5 mm	160x	800 mm	1.75 ms		CANopen		2x	Connector, M12, axial, 8-pin
50118746	◄ CML730i-R05-800.A/L-M12	5 mm	160x	800 mm	1.75 ms		IO-Link		4x	Connector, M12, axial, 8-pin
50123130	◄ CML730i-R05-800.A/PB-M12	5 mm	160x	800 mm	1.75 ms		PROFIBUS DP		2x	Connector, M12, axial, 8-pin
50123279	◄ CML730i-R05-800.A/D3-M12	5 mm	160x	800 mm	1.75 ms		RS 485		2x	Connector, M12, axial, 8-pin
50118921	► CML730i-T05-800.R-M12	5 mm	160x	800 mm	1.8 ms	0.1 ... 4 m				Connector, M12, rear side, 5-pin
50119219	◄ CML730i-R05-800.R/CV-M12	5 mm	160x	800 mm	1.75 ms			Voltage, current	2x	Connector, M12, rear side, 8-pin
50119002	◄ CML730i-R05-800.R/CN-M12	5 mm	160x	800 mm	1.75 ms		CANopen		2x	Connector, M12, rear side, 8-pin
50119139	◄ CML730i-R05-800.R/L-M12	5 mm	160x	800 mm	1.75 ms		IO-Link		4x	Connector, M12, rear side, 8-pin
50123137	◄ CML730i-R05-800.R/PB-M12	5 mm	160x	800 mm	1.75 ms		PROFIBUS DP		2x	Connector, M12, rear side, 8-pin
50123362	◄ CML730i-R05-800.R/D3-M12	5 mm	160x	800 mm	1.75 ms		RS 485		2x	Connector, M12, rear side, 8-pin
50118616	► CML730i-T10-800.A-M12	10 mm	80x	800 mm	1 ms	0.3 ... 8 m				Connector, M12, axial, 5-pin
50118872	◄ CML730i-R10-800.A/CV-M12	10 mm	80x	800 mm	1 ms			Voltage, current	2x	Connector, M12, axial, 8-pin
50118697	◄ CML730i-R10-800.A/CN-M12	10 mm	80x	800 mm	1 ms		CANopen		2x	Connector, M12, axial, 8-pin
50118778	◄ CML730i-R10-800.A/L-M12	10 mm	80x	800 mm	1 ms		IO-Link		4x	Connector, M12, axial, 8-pin
50123173	◄ CML730i-R10-800.A/PB-M12	10 mm	80x	800 mm	1 ms		PROFIBUS DP		2x	Connector, M12, axial, 8-pin
50123312	◄ CML730i-R10-800.A/D3-M12	10 mm	80x	800 mm	1 ms		RS 485		2x	Connector, M12, axial, 8-pin
50118953	► CML730i-T10-800.R-M12	10 mm	80x	800 mm	1 ms	0.3 ... 8 m				Connector, M12, rear side, 5-pin
50119251	◄ CML730i-R10-800.R/CV-M12	10 mm	80x	800 mm	1 ms			Voltage, current	2x	Connector, M12, rear side, 8-pin
50119090	◄ CML730i-R10-800.R/CN-M12	10 mm	80x	800 mm	1 ms		CANopen		2x	Connector, M12, rear side, 8-pin
50119171	◄ CML730i-R10-800.R/L-M12	10 mm	80x	800 mm	1 ms		IO-Link		4x	Connector, M12, rear side, 8-pin
50123179	◄ CML730i-R10-800.R/PB-M12	10 mm	80x	800 mm	1 ms		PROFIBUS DP		2x	Connector, M12, rear side, 8-pin
50123394	◄ CML730i-R10-800.R/D3-M12	10 mm	80x	800 mm	1 ms		RS 485		2x	Connector, M12, rear side, 8-pin
50118633	► CML730i-T20-790.A-M12	20 mm	40x	790 mm	1 ms	0.3 ... 8 m				Connector, M12, axial, 5-pin
50118890	◄ CML730i-R20-790.A/CV-M12	20 mm	40x	790 mm	1 ms			Voltage, current	2x	Connector, M12, axial, 8-pin
50118715	◄ CML730i-R20-790.A/CN-M12	20 mm	40x	790 mm	1 ms		CANopen		2x	Connector, M12, axial, 8-pin
50118796	◄ CML730i-R20-790.A/L-M12	20 mm	40x	790 mm	1 ms		IO-Link		4x	Connector, M12, axial, 8-pin
50123206	◄ CML730i-R20-790.A/PB-M12	20 mm	40x	790 mm	1 ms		PROFIBUS DP		2x	Connector, M12, axial, 8-pin
50123330	◄ CML730i-R20-790.A/D3-M12	20 mm	40x	790 mm	1 ms		RS 485		2x	Connector, M12, axial, 8-pin

► transmitter / ◄ receiver

Further products of this series can be found on our website

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

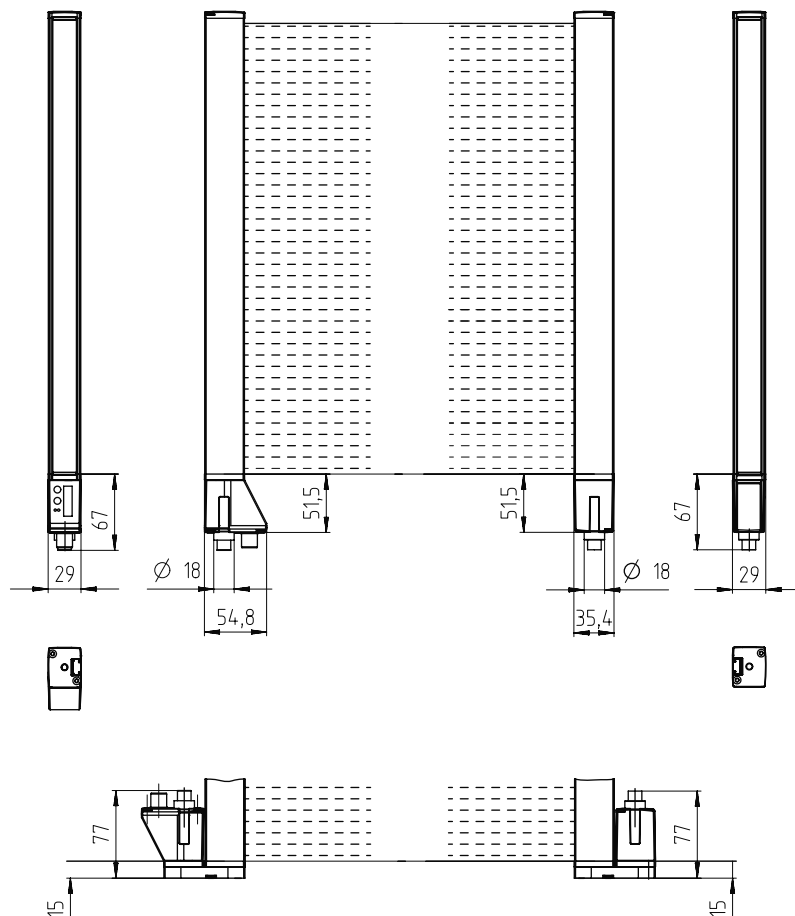
Accessories

Part no.	Part description	Beam spacing	No. of beams	Measurement field length	Cycle time	Operating range	Interface	Analog outputs	Switching inputs/outputs	Connection
50118970	► CML730i-T20-790.R-M12	20 mm	40x	790 mm	1 ms	0.3 ... 8 m				Connector, M12, rear side, 5-pin
50119269	◄ CML730i-R20-790.R/CV-M12	20 mm	40x	790 mm	1 ms			Voltage, current	2x	Connector, M12, rear side, 8-pin
50119108	◄ CML730i-R20-790.R/CN-M12	20 mm	40x	790 mm	1 ms		CANopen		2x	Connector, M12, rear side, 8-pin
50119188	◄ CML730i-R20-790.R/L-M12	20 mm	40x	790 mm	1 ms		IO-Link		4x	Connector, M12, rear side, 8-pin
50123221	◄ CML730i-R20-790.R/PB-M12	20 mm	40x	790 mm	1 ms		PROFIBUS DP		2x	Connector, M12, rear side, 8-pin
50123412	◄ CML730i-R20-790.R/D3-M12	20 mm	40x	790 mm	1 ms		RS 485		2x	Connector, M12, rear side, 8-pin
50118649	► CML730i-T40-930.A-M12	40 mm	24x	930 mm	1 ms	0.3 ... 8 m				Connector, M12, axial, 5-pin
50118906	◄ CML730i-R40-930.A/CV-M12	40 mm	23x	930 mm	1 ms			Voltage, current	2x	Connector, M12, axial, 8-pin
50118731	◄ CML730i-R40-930.A/CN-M12	40 mm	23x	930 mm	1 ms		CANopen		2x	Connector, M12, axial, 8-pin
50118812	◄ CML730i-R40-930.A/L-M12	40 mm	23x	930 mm	1 ms		IO-Link		4x	Connector, M12, axial, 8-pin
50123216	◄ CML730i-R40-930.A/PB-M12	40 mm	23x	930 mm	1 ms		PROFIBUS DP		2x	Connector, M12, axial, 8-pin
50123346	◄ CML730i-R40-930.A/D3-M12	40 mm	23x	930 mm	1 ms		RS 485		2x	Connector, M12, axial, 8-pin
50118986	► CML730i-T40-930.R-M12	40 mm	24x	930 mm	1 ms	0.3 ... 8 m				Connector, M12, rear side, 5-pin
50119285	◄ CML730i-R40-930.R/CV-M12	40 mm	23x	930 mm	1 ms			Voltage, current	2x	Connector, M12, rear side, 8-pin
50119124	◄ CML730i-R40-930.R/CN-M12	40 mm	23x	930 mm	1 ms		CANopen		2x	Connector, M12, rear side, 8-pin
50119204	◄ CML730i-R40-930.R/L-M12	40 mm	23x	930 mm	1 ms		IO-Link		4x	Connector, M12, rear side, 8-pin
50123231	◄ CML730i-R40-930.R/PB-M12	40 mm	23x	930 mm	1 ms		PROFIBUS DP		2x	Connector, M12, rear side, 8-pin
50123432	◄ CML730i-R40-930.R/D3-M12	40 mm	23x	930 mm	1 ms		RS 485		2x	Connector, M12, rear side, 8-pin

► transmitter / ◄ receiver

Further products of this series can be found on our website

Dimensioned drawings: CML730i



CML730i measuring light curtain

ACCESSORIES: CML700i

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Interface	Sheathing material
50104567	K-D M12A-5P-2m-PUR	Connector, M12, axial, female	5-pin	2,000 mm		PUR
50104569	K-D M12A-5P-5m-PUR	Connector, M12, axial, female	5-pin	5,000 mm		PUR
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm		PVC
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm		PVC
50104559	K-D M12A-5P-10m-PVC	Connector, M12, axial, female	5-pin	10,000 mm		PVC
50104591	K-D M12A-8P-2m-PUR	Connector, M12, axial, female	8-pin	2,000 mm		PUR
50104590	K-D M12A-8P-5m-PUR	Connector, M12, axial, female	8-pin	5,000 mm		PUR
50106882	K-D M12A-8P-10m-PUR	Connector, M12, axial, female	8-pin	10,000 mm		PUR
50104188	KB PB-2000-SA	Connector, M12, axial, male	5-pin	2,000 mm	PROFIBUS DP	PUR
50104187	KB PB-5000-SA	Connector, M12, axial, male	5-pin	5,000 mm	PROFIBUS DP	PUR
50104181	KB PB-2000-BA	Connector, M12, axial, female	5-pin	2,000 mm	PROFIBUS DP	PUR
50104180	KB PB-5000-BA	Connector, M12, axial, female	5-pin	5,000 mm	PROFIBUS DP	PUR
50104179	KB PB-10000-BA	Connector, M12, axial, female	5-pin	10,000 mm	PROFIBUS DP	PUR
50104178	KB PB-15000-BA	Connector, M12, axial, female	5-pin	15,000 mm	PROFIBUS DP	PUR

Further connection cables can be found on our website

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Interface	Sheathing material
50120999	K-DS M12A-8P-4P-2m-L-PUR	Connector, M12, axial, female	8-pin	Connector, M12, axial, male	4-pin	2,000 mm		PUR
50121000	K-DS M12A-8P-4P-5m-L-PUR	Connector, M12, axial, female	8-pin	Connector, M12, axial, male	4-pin	5,000 mm		PUR
50129779	KDS DN-M12-5A-M12-5A-P3-010	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	1,000 mm	IO-Link, DeviceNet, CANopen	PUR
50129780	KDS DN-M12-5A-M12-5A-P3-020	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	2,000 mm	IO-Link, DeviceNet, CANopen	PUR
50129781	KDS DN-M12-5A-M12-5A-P3-050	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	5,000 mm	IO-Link, DeviceNet, CANopen	PUR
50129782	KDS DN-M12-5A-M12-5A-P3-100	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	10,000 mm	IO-Link, DeviceNet, CANopen	PUR
50129783	KDS DN-M12-5A-M12-5A-P3-200	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	20,000 mm	IO-Link, DeviceNet, CANopen	PUR
50104096	KB PB-1000-SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	1,000 mm	PROFIBUS DP	PUR
50104097	KB PB-2000-SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	2,000 mm	PROFIBUS DP	PUR
50104098	KB PB-5000-SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	5,000 mm	PROFIBUS DP	PUR
50104099	KB PB-10000-SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	10,000 mm	PROFIBUS DP	PUR

Further interconnection cables can be found on our website

Y-distribution box cables

Part no.	Part description	Suitable for	Connection 1	Connection 2	Connection 3	Cable length fork 1 Cable length fork 2	Sheathing material	Suitable for interface
50118182	K-Y1 M12A-2m-M12A-S-PUR	CML700i light curtains	Connector, M12, 5-pin, axial, female	Connector, M12, 5-pin, axial, male	Connector, M12, 8-pin, axial, female	2,000 mm 150 mm	PUR	
50118183	K-Y1 M12A-5m-M12A-S-PUR	CML700i light curtains	Connector, M12, 5-pin, axial, female	Connector, M12, 5-pin, axial, male	Connector, M12, 8-pin, axial, female	5,000 mm 150 mm	PUR	
50122336	K-Y1 M12A-10m-M12A-S-PUR	CML700i light curtains	Connector, M12, 5-pin, axial, female	Connector, M12, 5-pin, axial, male	Connector, M12, 8-pin, axial, female	10,000 mm 150 mm	PUR	
50122337	K-Y1 M12A-20m-M12A-S-PUR	CML700i light curtains	Connector, M12, 5-pin, axial, female	Connector, M12, 5-pin, axial, male	Connector, M12, 8-pin, axial, female	20,000 mm 150 mm	PUR	
50118184	K-YN M12A-5m-M12A-S-PUR	CML700i light curtains	Connector, M12, 5-pin, axial, male	Connector, M12, 5-pin, axial, female	Connector, M12, 5-pin, axial, male	250 mm 5,000 mm	PUR	CANopen
50118185	K-YN M12A-M12A-S-PUR	CML700i light curtains	Connector, M12, 5-pin, axial, male	Connector, M12, 5-pin, axial, female	Connector, M12, 5-pin, axial, male	250 mm 350 mm	PUR	CANopen
50123265	K-YPB M12A-5m-M12A-S-PUR	CML700i light curtains	Connector, M12, 5-pin, axial, male	Connector, M12, 5-pin, axial, female	Connector, M12, 5-pin, axial, male	5,000 mm 250 mm	PUR	PROFIBUS DP
50123263	K-YPB M12A-M12A-S-PUR	CML700i light curtains	Connector, M12, 5-pin, axial, male	Connector, M12, 5-pin, axial, female	Connector, M12, 5-pin, axial, male	300 mm 250 mm	PUR	PROFIBUS DP

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

User-configurable connectors

Part no.	Part description	Connection	No. of pins	Interface
50038538	KD 02-5-BA	Connector, M12, axial, female	5-pin	PROFIBUS DP, multiNet Plus
429178	CB-M12-8GF	Connector, M12, axial, female	8-pin	

Further connectors can be found on our website

Termination/bus termination

Part no.	Part description	Connection 1	Connection 2	Cable length	Sheathing material	Function	Suitable for interface
50124297	K-SSPB M12A-M12A-2P-0,3m-S-PUR	Connector, M12, axial, male, 4-pin	Connector, M12, axial, male, 2-pin	300 mm	PUR	Bus termination	PROFIBUS DP
50040099	TS 01-5-SA	Connector, M12, axial, male, 5-pin				Bus termination	DeviceNet, CANopen
50038539	TS 02-4-SA	Connector, M12, axial, male				Bus termination	MultiNet Plus, PROFIBUS DP

Further terminator plugs can be found on our website

Adapter

Part no.	Part description	Connection 1	Connection 2	Connection 3	Suitable for interface
50109834	KDS BUS OUT M12-T-5P	Connector, M12, axial, female, 5-pin	Connector, M12, axial, female, 5-pin	Connector, M12, axial, male, 5-pin	MultiNet Plus, PROFIBUS DP

Further adapters can be found on our website

IO-Link USB master

Part no.	Part description	Functions	Suitable for
50121098	SET MD12-US2-IL1.1 + acc.	Configuration and test device	IO-Link

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
429056	BT-2L	Angle, L-shape	Screw type	Through-hole mounting	Metal
429057	BT-2Z	Angle, Z-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Swivel mounts

Part no.	Part description	Type of mounting device	Fastening at device	Fastening at system	Material
429046	BT-2R1	Turning, 360°	Clampable	Through-hole mounting	Metal, plastic

Further swivel mounts can be found on our website

Other mounting systems

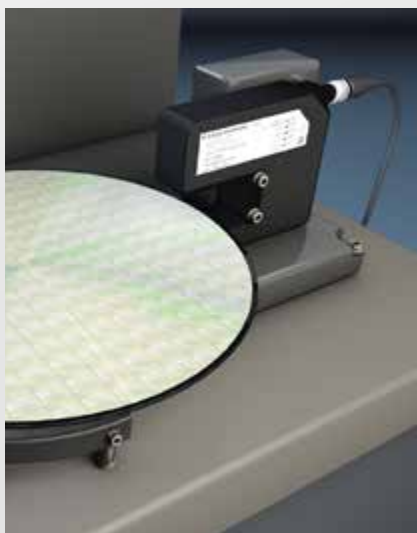
Part no.	Part description	Description	Type of mounting device	Fastening at device	Fastening at system	Material
424417	BT-2P40	Holder set	Clampable	Groove mounting	Groove mounting	Metal
425740	BT-10NC60	Sliding block set		Groove mounting	Mounting thread	Metal
425741	BT-10NC64	Sliding block set		Groove mounting	Mounting thread	Metal
425742	BT-10NC65	Sliding block set		Groove mounting	Mounting thread	Metal

Further mounting systems can be found on our website

/ MEASURING FORKED SENSORS

FORK IS JUST ANOTHER WORD FOR EXACT

The forked shape offers measurement resolutions as great as 0.014 mm with high reproducibility without time-consuming alignment. An infrared light-band illuminates a line-scan camera (CCD line) and returns analog or digital output signals depending on the illuminated pixels and configuration.



Switching
sensors

**Measuring
sensors**

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

/// GS 754B



With mouth widths of 27 or 100 mm, this forked photoelectric sensor delivers accurate measurement results over a 25 mm long measurement range thanks to its CCD line. Depending on the configuration, it is possible to measure transparent edges, the diameters of wires, threads and much more.

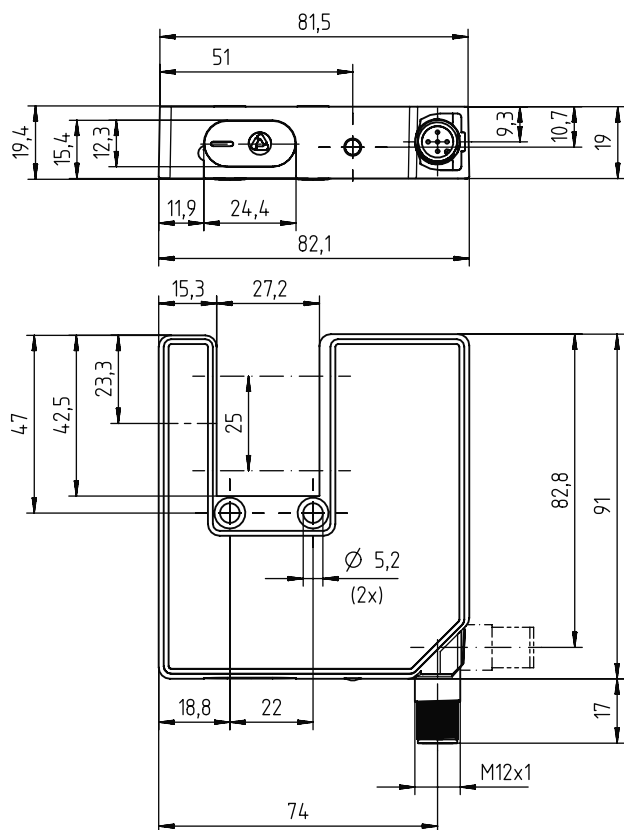
**Benefits:**

- Measurement range 25 mm
- Resolution: 14 µm
- Configurable measurement range and measure mode
- Teach-in function, switching or warning output
- Multiple object detection
- Standard interface (RS 232) for configuration and visualization
- M12 data interface (process interface) with analog or digital data output
- M12 turning connector



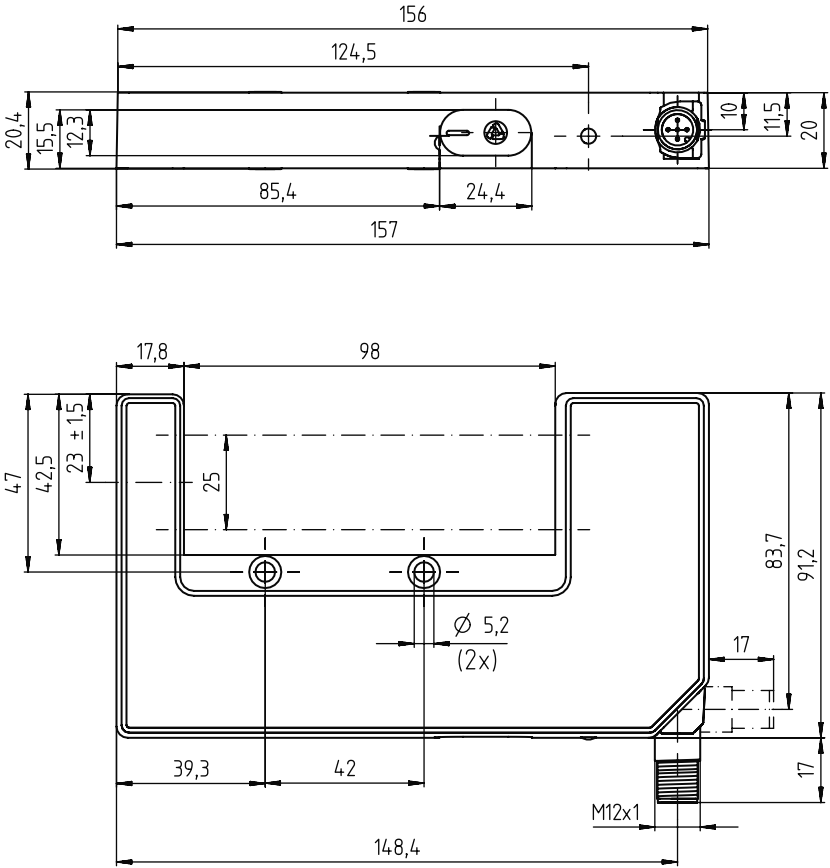
Direct access to the online product selector at www.leuze.com/en/gs754b

Part no.	Part description	Mouth width	Mouth depth	Measurement field length	Light source	Analog output	Switching inputs/outputs	Interface	Connection
50119712	GS 754B/C4-98-S12	98 mm	42 mm	25 mm	LED, infrared	Current	Switching output/switching state, teach input		Connector, M12, metal, 5-pin
50119711	GS 754B/D3-98-S12	98 mm	42 mm	25 mm	LED, infrared			RS 422	Connector, M12, metal, 5-pin
50119710	GS 754B/D24-98-S12	98 mm	42 mm	25 mm	LED, infrared		Switching output/switching state, teach input	RS 232	Connector, M12, metal, 5-pin
50117818	GS 754B/V4-98-S12	98 mm	42 mm	25 mm	LED, infrared	Voltage	Switching output/switching state, teach input		Connector, M12, metal, 5-pin
50115803	GS 754B/C4-27-S12	27 mm	42 mm	25 mm	LED, infrared	Current	Teach input, switching output/switching state		Connector, M12, metal, 5-pin
50115806	GS 754B/D3-27-S12	27 mm	42 mm	25 mm	LED, infrared			RS 422	Connector, M12, metal, 5-pin
50115807	GS 754B/D24-27-S12	27 mm	42 mm	25 mm	LED, infrared		Teach input, switching output/switching state	RS 232	Connector, M12, metal, 5-pin
50115809	GS 754B/V4-27-S12	27 mm	42 mm	25 mm	LED, infrared	Voltage	Teach input, switching output/switching state		Connector, M12, metal, 5-pin

Dimensioned drawings: GS 754B

GS 754B ... -27-S12 measuring forked sensor

Dimensioned drawings: GS 754B



Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

GS 754B...-98-S12 measuring forked sensor

ACCESSORIES: GS 754B

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104556	K-D M12W-5P-2m-PVC	Connector, M12, angled, female	5-pin	2,000 mm	PVC
50104558	K-D M12W-5P-5m-PVC	Connector, M12, angled, female	5-pin	5,000 mm	PVC
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm	PVC
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm	PVC

Further connection cables can be found on our website

PRODUCTS FOR SAFETY AT WORK

INNOVATIVE SOLUTIONS FOR PERSONNEL PROTECTION AT YOUR PRODUCTION SYSTEMS

As one of the technology leaders in the area of optoelectronic safety sensors for industrial automation, we offer effective personnel protection devices in accordance with international safety standards.



"In addition to reliability, the ideally fault-free integration of a solution in the processes is decisive for practical use. This is precisely the focus of our products, service and consultation."

Rolf Brunner,
Technical Head of Product Center Safety



/ Optoelectronic safety sensors

Page 242

/ Safe locking devices, switches and proximity sensors

Page 301

/ Safe control components

Page 327

/ Machine Safety Services

Page 343

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories



/ OPTOELECTRONIC SAFETY SENSORS

EVERYTHING FOR SAFETY

Whether individual devices or optimally matched sets: in our extensive line of safety sensors, you will always find a suitable and efficient safety solution for point-of-operation, danger-zone and access guarding. All devices satisfy the applicable legal regulations and standards.



Safety light curtains

Page 243

Multiple light beam safety devices

Page 260

Single light beam safety devices

Page 282

Safety laser scanners

Page 295

Protective sensor sets

Page 299



//SAFETY LIGHT CURTAINS

CURTAIN FOR EFFICIENT SAFETY

Reliable and interference-immune sensor safety technology ensures high system availability and productivity. Wherever man and machine work "hand in hand", our safety light curtains can be used vertically as hand and finger protection, as access guarding as well as horizontally as area protection. With respect to integration capability, availability and cost effectiveness, they meet the highest requirements.

/// MLC 500



The MLC 500 series includes the newest generation of extremely sturdy type 4 safety light curtains. Three function classes – Basic, Standard and Extended – enable the most efficient use of devices from simple standard applications to complex controlled safeguarding processes. The devices can be used universally, due to the flexible fastening concept and the option of form-locking installation. In addition, the series offers custom solutions for further areas of application. These include AIDA (Automation Initiative of German automobile manufacturers)-compliant pin assignment, integrated AS-i interface, safety classes IP67/69K as well as especially impact-resistant, cascable or EX-certified models.



Direct access to the online product selector at www.leuze.com/en/mlc500

PART NUMBER CODES – MLC 500, MLC 300 safety light curtains

M L C 3 0 0 T 1 4 h h h h H / A - E X 2

Type	
MLC	Safety light curtain
Series	
3	MLC 300
5	MLC 500
Function	
00	Transmitter
01	Transmitter (AIDA)
10	Automatic restart
11	Automatic restart (AIDA)
20	EDM/RES selectable
30	Muting/blinking/linkage (MLC 530 only)
Device type	
T	Transmitter
R	Receiver
Resolution	
14	14 mm / operating range 0–6 m (MLC 500 only)
20	20 mm / operating range 0–14 m
30	30 mm / operating range 0–10 m
40	40 mm / operating range 0–20 m
90	90 mm / operating range 0–20 m
Protective field height	
hhhh	150...3000 mm
Host/Guest	
H	Host
MG	MiddleGuest
G	Guest
Interface (MLC 500 only)	
/A	AS-Interface
Option	
EX2	Explosion protection
/V	Extra shock-resistant

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

MLC 510

This Basic model of the type 4 safety light curtains provides the most important functions. Range reduction on the transmitter, reversible transmission channels, a LED display as well as an automatic start/restart interlock round out the range of service. The type 4 Basic model is suitable for a range of applications and is optionally available with AS-i interface or safety class IP 67/69K.

Benefits:

- Automatic start/restart
- Optimal handling
- Prevention of mutual interference of the sensors by selectable transmission channels and range reduction, if applicable
- Universal application due to standard functions
- Short delivery times and global availability
- QR code on the sensor for quick service information

Part no.	Part description	Protective field height	Resolution	Operating range	Connection	Design
68001101	► MLC510R14-150	150 mm	14 mm		Connector, metal, M12, 5-pin	
68000101	◄ MLC500T14-150	150 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68008101	◄ MLC502T14-150	150 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Test signal input
68007101	► MLC510R14-150/A	150 mm	14 mm		Connector, metal, M12, 5-pin	AS-Interface Safety at Work
68006101	◄ MLC500T14-150/A	150 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	AS-Interface Safety at Work
68001103	► MLC510R14-300	300 mm	14 mm		Connector, metal, M12, 5-pin	
68000103	◄ MLC500T14-300	300 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68008103	◄ MLC502T14-300	300 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Test signal input
68007103	► MLC510R14-300/A	300 mm	14 mm		Connector, metal, M12, 5-pin	AS-Interface Safety at Work
68006103	◄ MLC500T14-300/A	300 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	AS-Interface Safety at Work
68001133	► MLC510R14-300/V	300 mm	14 mm		Connector, metal, M12, 5-pin	Extra shock-resistant
68000133	◄ MLC500T14-300/V	300 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Extra shock-resistant
544007	► MLC510R14-300-IP	300 mm	14 mm		Cable with connector, metal, M12, 5-pin, 15,000 mm	IP 67 / IP 69K
544000	◄ MLC500T14-300-IP	300 mm	14 mm	0 ... 4.8 m	Cable with connector, metal, M12, 5-pin, 15,000 mm	IP 67 / IP 69K
68001104	► MLC510R14-450	450 mm	14 mm		Connector, metal, M12, 5-pin	
68000104	◄ MLC500T14-450	450 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68008104	◄ MLC502T14-450	450 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Test signal input
68007104	► MLC510R14-450/A	450 mm	14 mm		Connector, metal, M12, 5-pin	AS-Interface Safety at Work
68006104	◄ MLC500T14-450/A	450 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	AS-Interface Safety at Work
68001134	► MLC510R14-450/V	450 mm	14 mm		Connector, metal, M12, 5-pin	Extra shock-resistant
68000134	◄ MLC500T14-450/V	450 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Extra shock-resistant
544008	► MLC510R14-450-IP	450 mm	14 mm		Cable with connector, metal, M12, 5-pin, 15,000 mm	IP 67 / IP 69K
544001	◄ MLC500T14-450-IP	450 mm	14 mm	0 ... 4.8 m	Cable with connector, metal, M12, 5-pin, 15,000 mm	IP 67 / IP 69K
68001106	► MLC510R14-600	600 mm	14 mm		Connector, metal, M12, 5-pin	
68000106	◄ MLC500T14-600	600 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68008106	◄ MLC502T14-600	600 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Test signal input
68007106	► MLC510R14-600/A	600 mm	14 mm		Connector, metal, M12, 5-pin	AS-Interface Safety at Work
68006106	◄ MLC500T14-600/A	600 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	AS-Interface Safety at Work
68001136	► MLC510R14-600/V	600 mm	14 mm		Connector, metal, M12, 5-pin	Extra shock-resistant
68000136	◄ MLC500T14-600/V	600 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Extra shock-resistant
544009	► MLC510R14-600-IP	600 mm	14 mm		Cable with connector, metal, M12, 5-pin, 15,000 mm	IP 67 / IP 69K
544002	◄ MLC500T14-600-IP	600 mm	14 mm	0 ... 4.8 m	Cable with connector, metal, M12, 5-pin, 15,000 mm	IP 67 / IP 69K
68001107	► MLC510R14-750	750 mm	14 mm		Connector, metal, M12, 5-pin	
68000107	◄ MLC500T14-750	750 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68008107	◄ MLC502T14-750	750 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Test signal input
68007107	► MLC510R14-750/A	750 mm	14 mm		Connector, metal, M12, 5-pin	AS-Interface Safety at Work
68006107	◄ MLC500T14-750/A	750 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	AS-Interface Safety at Work
68001137	► MLC510R14-750/V	750 mm	14 mm		Connector, metal, M12, 5-pin	Extra shock-resistant
68000137	◄ MLC500T14-750/V	750 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Extra shock-resistant
544010	► MLC510R14-750-IP	750 mm	14 mm		Cable with connector, metal, M12, 5-pin, 15,000 mm	IP 67 / IP 69K
544003	◄ MLC500T14-750-IP	750 mm	14 mm	0 ... 4.8 m	Cable with connector, metal, M12, 5-pin, 15,000 mm	IP 67 / IP 69K
68001109	► MLC510R14-900	900 mm	14 mm		Connector, metal, M12, 5-pin	
68000109	◄ MLC500T14-900	900 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68008109	◄ MLC502T14-900	900 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Test signal input
68007109	► MLC510R14-900/A	900 mm	14 mm		Connector, metal, M12, 5-pin	AS-Interface Safety at Work
68006109	◄ MLC500T14-900/A	900 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	AS-Interface Safety at Work
68001139	► MLC510R14-900/V	900 mm	14 mm		Connector, metal, M12, 5-pin	Extra shock-resistant
68000139	◄ MLC500T14-900/V	900 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Extra shock-resistant

► receiver / ◄ transmitter

Included in delivery: sliding blocks. For MLC...-IP: mounting bracket.

Further products of this series can be found on our website.

Available resolutions: 14 mm, 20 mm, 30 mm, 40 mm, 90 mm.

Part no.	Part description	Protective field height	Resolution	Operating range	Connection	Design
544011	► MLC510R14-900-IP	900 mm	14 mm		Cable with connector, metal, M12, 5-pin, 15,000 mm	IP 67 / IP 69K
544004	◄ MLC500T14-900-IP	900 mm	14 mm	0 ... 4.8 m	Cable with connector, metal, M12, 5-pin, 15,000 mm	IP 67 / IP 69K
68001110	► MLC510R14-1050	1,050 mm	14 mm		Connector, metal, M12, 5-pin	
68000110	◄ MLC500T14-1050	1,050 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68008110	◄ MLC502T14-1050	1,050 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Test signal input
68007110	► MLC510R14-1050/A	1,050 mm	14 mm		Connector, metal, M12, 5-pin	AS-Interface Safety at Work
68006110	◄ MLC500T14-1050/A	1,050 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	AS-Interface Safety at Work
544012	► MLC510R14-1050-IP	1,050 mm	14 mm		Cable with connector, metal, M12, 5-pin, 15,000 mm	IP 67 / IP 69K
544005	◄ MLC500T14-1050-IP	1,050 mm	14 mm	0 ... 4.8 m	Cable with connector, metal, M12, 5-pin, 15,000 mm	IP 67 / IP 69K
68001112	► MLC510R14-1200	1,200 mm	14 mm		Connector, metal, M12, 5-pin	
68000112	◄ MLC500T14-1200	1,200 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68008112	◄ MLC502T14-1200	1,200 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Test signal input
68007112	► MLC510R14-1200/A	1,200 mm	14 mm		Connector, metal, M12, 5-pin	AS-Interface Safety at Work
68006112	◄ MLC500T14-1200/A	1,200 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	AS-Interface Safety at Work
544013	► MLC510R14-1200-IP	1,200 mm	14 mm		Cable with connector, metal, M12, 5-pin, 15,000 mm	IP 67 / IP 69K
544006	◄ MLC500T14-1200-IP	1,200 mm	14 mm	0 ... 4.8 m	Cable with connector, metal, M12, 5-pin, 15,000 mm	IP 67 / IP 69K
68001113	► MLC510R14-1350	1,350 mm	14 mm		Connector, metal, M12, 5-pin	
68000113	◄ MLC500T14-1350	1,350 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68008113	◄ MLC502T14-1350	1,350 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Test signal input
68007113	► MLC510R14-1350/A	1,350 mm	14 mm		Connector, metal, M12, 5-pin	AS-Interface Safety at Work
68006113	◄ MLC500T14-1350/A	1,350 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	AS-Interface Safety at Work
68001115	► MLC510R14-1500	1,500 mm	14 mm		Connector, metal, M12, 5-pin	
68000115	◄ MLC500T14-1500	1,500 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68008115	◄ MLC502T14-1500	1,500 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Test signal input
68007115	► MLC510R14-1500/A	1,500 mm	14 mm		Connector, metal, M12, 5-pin	AS-Interface Safety at Work
68006115	◄ MLC500T14-1500/A	1,500 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	AS-Interface Safety at Work
68001116	► MLC510R14-1650	1,650 mm	14 mm		Connector, metal, M12, 5-pin	
68000116	◄ MLC500T14-1650	1,650 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68008116	◄ MLC502T14-1650	1,650 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Test signal input
68007116	► MLC510R14-1650/A	1,650 mm	14 mm		Connector, metal, M12, 5-pin	AS-Interface Safety at Work
68006116	◄ MLC500T14-1650/A	1,650 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	AS-Interface Safety at Work
68001118	► MLC510R14-1800	1,800 mm	14 mm		Connector, metal, M12, 5-pin	
68000118	◄ MLC500T14-1800	1,800 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68008118	◄ MLC502T14-1800	1,800 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Test signal input
68007118	► MLC510R14-1800/A	1,800 mm	14 mm		Connector, metal, M12, 5-pin	AS-Interface Safety at Work
68006118	◄ MLC500T14-1800/A	1,800 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	AS-Interface Safety at Work
68001119	► MLC510R14-1950	1,950 mm	14 mm		Connector, metal, M12, 5-pin	
68000119	◄ MLC500T14-1950	1,950 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68001121	► MLC510R14-2100	2,100 mm	14 mm		Connector, metal, M12, 5-pin	
68000121	◄ MLC500T14-2100	2,100 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68001122	► MLC510R14-2250	2,250 mm	14 mm		Connector, metal, M12, 5-pin	
68000122	◄ MLC500T14-2250	2,250 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68001124	► MLC510R14-2400	2,400 mm	14 mm		Connector, metal, M12, 5-pin	
68000124	◄ MLC500T14-2400	2,400 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68001125	► MLC510R14-2550	2,550 mm	14 mm		Connector, metal, M12, 5-pin	
68000125	◄ MLC500T14-2550	2,550 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68001127	► MLC510R14-2700	2,700 mm	14 mm		Connector, metal, M12, 5-pin	
68000127	◄ MLC500T14-2700	2,700 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68001128	► MLC510R14-2850	2,850 mm	14 mm		Connector, metal, M12, 5-pin	
68000128	◄ MLC500T14-2850	2,850 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68001130	► MLC510R14-3000	3,000 mm	14 mm		Connector, metal, M12, 5-pin	
68000130	◄ MLC500T14-3000	3,000 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	

► receiver / ◄ transmitter

Included in delivery: sliding blocks. For MLC...-IP: mounting bracket.

Further products of this series can be found on our website.

Available resolutions: 14 mm, 20 mm, 30 mm, 40 mm, 90 mm.

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

MLC 511

The devices have a plug connection with AIDA-compliant M12 pin assignment (Automatisierungs-Initiative deutscher Automobilisten (AIDA) = Automation Initiative of German automobile manufacturers).

Benefits:

- Automatic start/restart
- Optimal handling
- Range reduction on demand
- Universal application due to standard functions
- Short delivery times and global availability
- QR code on the sensor for quick service information

Part no.	Part description	Protective field height	Resolution	Operating range	Connection	Design
68005103	► MLC511R14-300	300 mm	14 mm		Connector, metal, M12, 4-pin	AIDA-compliant
68004103	◄ MLC501T14-300	300 mm	14 mm	0 ... 6 m	Connector, metal, M12, 4-pin	AIDA-compliant
68005104	► MLC511R14-450	450 mm	14 mm		Connector, metal, M12, 4-pin	AIDA-compliant
68004104	◄ MLC501T14-450	450 mm	14 mm	0 ... 6 m	Connector, metal, M12, 4-pin	AIDA-compliant
68005106	► MLC511R14-600	600 mm	14 mm		Connector, metal, M12, 4-pin	AIDA-compliant
68004106	◄ MLC501T14-600	600 mm	14 mm	0 ... 6 m	Connector, metal, M12, 4-pin	AIDA-compliant
68005107	► MLC511R14-750	750 mm	14 mm		Connector, metal, M12, 4-pin	AIDA-compliant
68004107	◄ MLC501T14-750	750 mm	14 mm	0 ... 6 m	Connector, metal, M12, 4-pin	AIDA-compliant
68005109	► MLC511R14-900	900 mm	14 mm		Connector, metal, M12, 4-pin	AIDA-compliant
68004109	◄ MLC501T14-900	900 mm	14 mm	0 ... 6 m	Connector, metal, M12, 4-pin	AIDA-compliant
68005110	► MLC511R14-1050	1,050 mm	14 mm		Connector, metal, M12, 4-pin	AIDA-compliant
68004110	◄ MLC501T14-1050	1,050 mm	14 mm	0 ... 6 m	Connector, metal, M12, 4-pin	AIDA-compliant
68005112	► MLC511R14-1200	1,200 mm	14 mm		Connector, metal, M12, 4-pin	AIDA-compliant
68004112	◄ MLC501T14-1200	1,200 mm	14 mm	0 ... 6 m	Connector, metal, M12, 4-pin	AIDA-compliant
68005113	► MLC511R14-1350	1,350 mm	14 mm		Connector, metal, M12, 4-pin	AIDA-compliant
68004113	◄ MLC501T14-1350	1,350 mm	14 mm	0 ... 6 m	Connector, metal, M12, 4-pin	AIDA-compliant
68005115	► MLC511R14-1500	1,500 mm	14 mm		Connector, metal, M12, 4-pin	AIDA-compliant
68004115	◄ MLC501T14-1500	1,500 mm	14 mm	0 ... 6 m	Connector, metal, M12, 4-pin	AIDA-compliant
68005116	► MLC511R14-1650	1,650 mm	14 mm		Connector, metal, M12, 4-pin	AIDA-compliant
68004116	◄ MLC501T14-1650	1,650 mm	14 mm	0 ... 6 m	Connector, metal, M12, 4-pin	AIDA-compliant
68005118	► MLC511R14-1800	1,800 mm	14 mm		Connector, metal, M12, 4-pin	AIDA-compliant
68004118	◄ MLC501T14-1800	1,800 mm	14 mm	0 ... 6 m	Connector, metal, M12, 4-pin	AIDA-compliant

► receiver / ◄ transmitter

Included in delivery: sliding blocks.

Further products of this series can be found on our website.

Available resolutions: 14 mm, 30 mm.

MLC 520

The Standard version of these type 4 safety light curtains features a start/restart interlock (RES) and contactor monitoring (EDM) for increased performance – and it is simple to handle and integrate into your systems.

Benefits:

- Basic functions such as automatic start/restart, start/restart interlock (RES), contactor monitoring (EDM)
- Optimal handling due to function selection without PC as well as LED and 7-segment display with integrated 3-zone alignment aid
- Prevention of mutual interference of the sensors by selectable transmission channels and range reduction, if applicable
- Short delivery times and global availability
- QR code on the sensor for quick service information

Part no.	Part description	Protective field height	Resolution	Operating range	Connection	Design
68002101	► MLC520R14-150	150 mm	14 mm		Connector, metal, M12, 8-pin	
68000101	◄ MLC500T14-150	150 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68002131	► MLC520R14-150/V	150 mm	14 mm		Connector, metal, M12, 8-pin	Extra shock-resistant
68000131	◄ MLC500T14-150/V	150 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Extra shock-resistant
68002103	► MLC520R14-300	300 mm	14 mm		Connector, metal, M12, 8-pin	
68000103	◄ MLC500T14-300	300 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68002133	► MLC520R14-300/V	300 mm	14 mm		Connector, metal, M12, 8-pin	Extra shock-resistant
68000133	◄ MLC500T14-300/V	300 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Extra shock-resistant

► receiver / ◄ transmitter

Included in delivery: sliding blocks.

Further products of this series can be found on our website.

Available resolutions: 14 mm, 20 mm, 30 mm, 40 mm, 90 mm.

Part no.	Part description	Protective field height	Resolution	Operating range	Connection	Design
68002104	► MLC520R14-450	450 mm	14 mm		Connector, metal, M12, 8-pin	
68000104	◄ MLC500T14-450	450 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68002134	► MLC520R14-450/V	450 mm	14 mm		Connector, metal, M12, 8-pin	Extra shock-resistant
68000134	◄ MLC500T14-450/V	450 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Extra shock-resistant
68002106	► MLC520R14-600	600 mm	14 mm		Connector, metal, M12, 8-pin	
68000106	◄ MLC500T14-600	600 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68002136	► MLC520R14-600/V	600 mm	14 mm		Connector, metal, M12, 8-pin	Extra shock-resistant
68000136	◄ MLC500T14-600/V	600 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Extra shock-resistant
68002107	► MLC520R14-750	750 mm	14 mm		Connector, metal, M12, 8-pin	
68000107	◄ MLC500T14-750	750 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68002137	► MLC520R14-750/V	750 mm	14 mm		Connector, metal, M12, 8-pin	Extra shock-resistant
68000137	◄ MLC500T14-750/V	750 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Extra shock-resistant
68002109	► MLC520R14-900	900 mm	14 mm		Connector, metal, M12, 8-pin	
68000109	◄ MLC500T14-900	900 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68002139	► MLC520R14-900/V	900 mm	14 mm		Connector, metal, M12, 8-pin	Extra shock-resistant
68000139	◄ MLC500T14-900/V	900 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Extra shock-resistant
68002110	► MLC520R14-1050	1,050 mm	14 mm		Connector, metal, M12, 8-pin	
68000110	◄ MLC500T14-1050	1,050 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68002112	► MLC520R14-1200	1,200 mm	14 mm		Connector, metal, M12, 8-pin	
68000112	◄ MLC500T14-1200	1,200 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68002113	► MLC520R14-1350	1,350 mm	14 mm		Connector, metal, M12, 8-pin	
68000113	◄ MLC500T14-1350	1,350 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68002115	► MLC520R14-1500	1,500 mm	14 mm		Connector, metal, M12, 8-pin	
68000115	◄ MLC500T14-1500	1,500 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68002116	► MLC520R14-1650	1,650 mm	14 mm		Connector, metal, M12, 8-pin	
68000116	◄ MLC500T14-1650	1,650 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68002118	► MLC520R14-1800	1,800 mm	14 mm		Connector, metal, M12, 8-pin	
68000118	◄ MLC500T14-1800	1,800 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68002119	► MLC520R14-1950	1,950 mm	14 mm		Connector, metal, M12, 8-pin	
68000119	◄ MLC500T14-1950	1,950 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68002121	► MLC520R14-2100	2,100 mm	14 mm		Connector, metal, M12, 8-pin	
68000121	◄ MLC500T14-2100	2,100 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68002122	► MLC520R14-2250	2,250 mm	14 mm		Connector, metal, M12, 8-pin	
68000122	◄ MLC500T14-2250	2,250 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68002124	► MLC520R14-2400	2,400 mm	14 mm		Connector, metal, M12, 8-pin	
68000124	◄ MLC500T14-2400	2,400 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68002125	► MLC520R14-2550	2,550 mm	14 mm		Connector, metal, M12, 8-pin	
68000125	◄ MLC500T14-2550	2,550 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68002127	► MLC520R14-2700	2,700 mm	14 mm		Connector, metal, M12, 8-pin	
68000127	◄ MLC500T14-2700	2,700 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68002128	► MLC520R14-2850	2,850 mm	14 mm		Connector, metal, M12, 8-pin	
68000128	◄ MLC500T14-2850	2,850 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68002130	► MLC520R14-3000	3,000 mm	14 mm		Connector, metal, M12, 8-pin	
68000130	◄ MLC500T14-3000	3,000 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	

► receiver / ◄ transmitter

Included in delivery: sliding blocks.

Further products of this series can be found on our website.

Available resolutions: 14 mm, 20 mm, 30 mm, 40 mm, 90 mm.

SMARTER CUSTOMER SERVICE

User knowledge about machine safety topics

The online adviser, Safety know-how, provides a selection of European directives and important standards relating to machine safety and offers assistance with the selection and application of protective devices.

- 1. Introduction
- 2. Machine safety in the EU
- 3. Machine safety in the USA
- 4. Protective devices
- Videos
- Calculation wizards



Detailed information regarding machine safety: www.leuze.com/en/safetyknow-how



Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

MLC 530

Whenever you need additional control functions, the MLC 530 Extended version is the perfect choice. With its 5 different operating modes, the integrated muting function and 3 different scan modes, the sensor leaves almost nothing to be desired. Device linking enables the construction of 2-channel, contact-based safety circuits as well as serial connections of several devices with safety-related switching outputs (OSSD).

Benefits:

- Integrated function for timing controlled muting for temporary proper bridging of the protective function, e. g. when transporting materials through the protective field
- Fixed or floating beam blanking, reduced resolution: necessary whenever objects must be in the protective field for operational reasons
- Different scan modes: to adjust availability, select SingleScan, DoubleScan or MaxiScan
- Teaching without PC: configuration and teaching, e. g. of floating beam blanking, is quick and easy

Part no.	Part description	Protective field height	Resolution	Operating range	Connection	Design
68003101	► MLC530R14-150	150 mm	14 mm		Connector, metal, M12, 8-pin	
68000101	◄ MLC500T14-150	150 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68003103	► MLC530R14-300	300 mm	14 mm		Connector, metal, M12, 8-pin	
68000103	◄ MLC500T14-300	300 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68003133	► MLC530R14-300/V	300 mm	14 mm		Connector, metal, M12, 8-pin	Extra shock-resistant
68000133	◄ MLC500T14-300/V	300 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Extra shock-resistant
68003104	► MLC530R14-450	450 mm	14 mm		Connector, metal, M12, 8-pin	
68000104	◄ MLC500T14-450	450 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68003134	► MLC530R14-450/V	450 mm	14 mm		Connector, metal, M12, 8-pin	Extra shock-resistant
68000134	◄ MLC500T14-450/V	450 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Extra shock-resistant
68003106	► MLC530R14-600	600 mm	14 mm		Connector, metal, M12, 8-pin	
68000106	◄ MLC500T14-600	600 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68003136	► MLC530R14-600/V	600 mm	14 mm		Connector, metal, M12, 8-pin	Extra shock-resistant
68000136	◄ MLC500T14-600/V	600 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Extra shock-resistant
68003107	► MLC530R14-750	750 mm	14 mm		Connector, metal, M12, 8-pin	
68000107	◄ MLC500T14-750	750 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68003137	► MLC530R14-750/V	750 mm	14 mm		Connector, metal, M12, 8-pin	Extra shock-resistant
68000137	◄ MLC500T14-750/V	750 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Extra shock-resistant
68003109	► MLC530R14-900	900 mm	14 mm		Connector, metal, M12, 8-pin	
68000109	◄ MLC500T14-900	900 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68003139	► MLC530R14-900/V	900 mm	14 mm		Connector, metal, M12, 8-pin	Extra shock-resistant
68000139	◄ MLC500T14-900/V	900 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Extra shock-resistant
68003110	► MLC530R14-1050	1,050 mm	14 mm		Connector, metal, M12, 8-pin	
68000110	◄ MLC500T14-1050	1,050 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68003112	► MLC530R14-1200	1,200 mm	14 mm		Connector, metal, M12, 8-pin	
68000112	◄ MLC500T14-1200	1,200 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68003113	► MLC530R14-1350	1,350 mm	14 mm		Connector, metal, M12, 8-pin	
68000113	◄ MLC500T14-1350	1,350 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68003115	► MLC530R14-1500	1,500 mm	14 mm		Connector, metal, M12, 8-pin	
68000115	◄ MLC500T14-1500	1,500 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68003116	► MLC530R14-1650	1,650 mm	14 mm		Connector, metal, M12, 8-pin	
68000116	◄ MLC500T14-1650	1,650 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68003118	► MLC530R14-1800	1,800 mm	14 mm		Connector, metal, M12, 8-pin	
68000118	◄ MLC500T14-1800	1,800 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68003119	► MLC530R14-1950	1,950 mm	14 mm		Connector, metal, M12, 8-pin	
68000119	◄ MLC500T14-1950	1,950 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68003121	► MLC530R14-2100	2,100 mm	14 mm		Connector, metal, M12, 8-pin	
68000121	◄ MLC500T14-2100	2,100 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68003122	► MLC530R14-2250	2,250 mm	14 mm		Connector, metal, M12, 8-pin	
68000122	◄ MLC500T14-2250	2,250 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68003124	► MLC530R14-2400	2,400 mm	14 mm		Connector, metal, M12, 8-pin	
68000124	◄ MLC500T14-2400	2,400 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68003125	► MLC530R14-2550	2,550 mm	14 mm		Connector, metal, M12, 8-pin	
68000125	◄ MLC500T14-2550	2,550 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68003127	► MLC530R14-2700	2,700 mm	14 mm		Connector, metal, M12, 8-pin	
68000127	◄ MLC500T14-2700	2,700 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68003128	► MLC530R14-2850	2,850 mm	14 mm		Connector, metal, M12, 8-pin	
68000128	◄ MLC500T14-2850	2,850 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	
68003130	► MLC530R14-3000	3,000 mm	14 mm		Connector, metal, M12, 8-pin	
68000130	◄ MLC500T14-3000	3,000 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	

► receiver / ◄ transmitter

Included in delivery: sliding blocks.

Further products of this series can be found on our website.

Available resolutions: 14 mm, 20 mm, 30 mm, 40 mm, 90 mm.

MLC 530 SPG

The MLC 530 SPG Smart Process Gating variant is the specialist for access guarding with material transport. It allows for a particularly compact system design as it works without the use of muting sensors. Process control takes place here in combination with the system controller. This provides a high level of protection against tampering and at the same time a high degree of availability.

Benefits:

- Integrated Smart Process Gating function for process control together with the system controller, no muting sensors necessary
- Allows the system to be very compact and thus saves valuable space
- Optimal handling due to function selection without PC as well as LED and 7-segment display with integrated 3-zone alignment aid
- Reduced risk of tampering and increased reliability for a high degree of system availability

Part no.	Part description	Protective field height	Resolution	Operating range	Connection	Design
68009301	► MLC530R30-150-SPG	150 mm	30 mm		Connector, metal, M12, 8-pin	Smart Process Gating
68000301	◄ MLC500T30-150	150 mm	30 mm	0 ... 10 m	Connector, metal, M12, 5-pin	
68009302	► MLC530R30-225-SPG	225 mm	30 mm		Connector, metal, M12, 8-pin	Smart Process Gating
68000302	◄ MLC500T30-225	225 mm	30 mm	0 ... 10 m	Connector, metal, M12, 5-pin	
68009303	► MLC530R30-300-SPG	300 mm	30 mm		Connector, metal, M12, 8-pin	Smart Process Gating
68000303	◄ MLC500T30-300	300 mm	30 mm	0 ... 10 m	Connector, metal, M12, 5-pin	
68009304	► MLC530R30-450-SPG	450 mm	30 mm		Connector, metal, M12, 8-pin	Smart Process Gating
68000304	◄ MLC500T30-450	450 mm	30 mm	0 ... 10 m	Connector, metal, M12, 5-pin	
68009306	► MLC530R30-600-SPG	600 mm	30 mm		Connector, metal, M12, 8-pin	Smart Process Gating
68000306	◄ MLC500T30-600	600 mm	30 mm	0 ... 10 m	Connector, metal, M12, 5-pin	
68009307	► MLC530R30-750-SPG	750 mm	30 mm		Connector, metal, M12, 8-pin	Smart Process Gating
68000307	◄ MLC500T30-750	750 mm	30 mm	0 ... 10 m	Connector, metal, M12, 5-pin	
68009309	► MLC530R30-900-SPG	900 mm	30 mm		Connector, metal, M12, 8-pin	Smart Process Gating
68000309	◄ MLC500T30-900	900 mm	30 mm	0 ... 10 m	Connector, metal, M12, 5-pin	
68009310	► MLC530R30-1050-SPG	1,050 mm	30 mm		Connector, metal, M12, 8-pin	Smart Process Gating
68000310	◄ MLC500T30-1050	1,050 mm	30 mm	0 ... 10 m	Connector, metal, M12, 5-pin	
68009312	► MLC530R30-1200-SPG	1,200 mm	30 mm		Connector, metal, M12, 8-pin	Smart Process Gating
68000312	◄ MLC500T30-1200	1,200 mm	30 mm	0 ... 10 m	Connector, metal, M12, 5-pin	
68009313	► MLC530R30-1350-SPG	1,350 mm	30 mm		Connector, metal, M12, 8-pin	Smart Process Gating
68000313	◄ MLC500T30-1350	1,350 mm	30 mm	0 ... 10 m	Connector, metal, M12, 5-pin	
68009315	► MLC530R30-1500-SPG	1,500 mm	30 mm		Connector, metal, M12, 8-pin	Smart Process Gating
68000315	◄ MLC500T30-1500	1,500 mm	30 mm	0 ... 10 m	Connector, metal, M12, 5-pin	
68009316	► MLC530R30-1650-SPG	1,650 mm	30 mm		Connector, metal, M12, 8-pin	Smart Process Gating
68000316	◄ MLC500T30-1650	1,650 mm	30 mm	0 ... 10 m	Connector, metal, M12, 5-pin	
68009318	► MLC530R30-1800-SPG	1,800 mm	30 mm		Connector, metal, M12, 8-pin	Smart Process Gating
68000318	◄ MLC500T30-1800	1,800 mm	30 mm	0 ... 10 m	Connector, metal, M12, 5-pin	
68009319	► MLC530R30-1950-SPG	1,950 mm	30 mm		Connector, metal, M12, 8-pin	Smart Process Gating
68000319	◄ MLC500T30-1950	1,950 mm	30 mm	0 ... 10 m	Connector, metal, M12, 5-pin	
68009321	► MLC530R30-2100-SPG	2,100 mm	30 mm		Connector, metal, M12, 8-pin	Smart Process Gating
68000321	◄ MLC500T30-2100	2,100 mm	30 mm	0 ... 10 m	Connector, metal, M12, 5-pin	
68009322	► MLC530R30-2250-SPG	2,250 mm	30 mm		Connector, metal, M12, 8-pin	Smart Process Gating
68000322	◄ MLC500T30-2250	2,250 mm	30 mm	0 ... 10 m	Connector, metal, M12, 5-pin	
68009324	► MLC530R30-2400-SPG	2,400 mm	30 mm		Connector, metal, M12, 8-pin	Smart Process Gating
68000324	◄ MLC500T30-2400	2,400 mm	30 mm	0 ... 10 m	Connector, metal, M12, 5-pin	
68009325	► MLC530R30-2550-SPG	2,550 mm	30 mm		Connector, metal, M12, 8-pin	Smart Process Gating
68000325	◄ MLC500T30-2550	2,550 mm	30 mm	0 ... 10 m	Connector, metal, M12, 5-pin	
68009327	► MLC530R30-2700-SPG	2,700 mm	30 mm		Connector, metal, M12, 8-pin	Smart Process Gating
68000327	◄ MLC500T30-2700	2,700 mm	30 mm	0 ... 10 m	Connector, metal, M12, 5-pin	
68009328	► MLC530R30-2850-SPG	2,850 mm	30 mm		Connector, metal, M12, 8-pin	Smart Process Gating
68000328	◄ MLC500T30-2850	2,850 mm	30 mm	0 ... 10 m	Connector, metal, M12, 5-pin	
68009330	► MLC530R30-3000-SPG	3,000 mm	30 mm		Connector, metal, M12, 8-pin	Smart Process Gating
68000330	◄ MLC500T30-3000	3,000 mm	30 mm	0 ... 10 m	Connector, metal, M12, 5-pin	

► receiver / ◄ transmitter

Included in delivery: sliding blocks.

Further products of this series can be found on our website.

Available resolutions: 30 mm, 40 mm, 90 mm.

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

MLC 520 Host

The so-called Host-Guest devices enable the combination of access guarding or point of operation guarding with area protection. In this way, it is possible, for example, to eliminate additional measures such as guards to protect against stepping behind machines. The variants with AS-i interface facilitate the direct and economical integration in an AS-Interface network. Furthermore, the MLC HG devices offer all of the advantages of the MLC 500 series.

Benefits:

- Point of operation guarding with area protection
- Multi-side guarding thanks to optimized cable routing

Part no.	Part description	Protective field height	Resolution	Operating range	Connection	Connection 2	Design
68017103	► MLC510R14-300H/A	300 mm	14 mm		Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	AS-Interface Safety at Work, host
68016103	◄ MLC500T14-300H/A	300 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	AS-Interface Safety at Work, host
68012103	► MLC520R14-300H	300 mm	14 mm		Connector, metal, M12, 8-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	Host
68010103	◄ MLC500T14-300H	300 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	Host
68017104	► MLC510R14-450H/A	450 mm	14 mm		Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	AS-Interface Safety at Work, host
68016104	◄ MLC500T14-450H/A	450 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	AS-Interface Safety at Work, host
68012104	► MLC520R14-450H	450 mm	14 mm		Connector, metal, M12, 8-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	Host
68010104	◄ MLC500T14-450H	450 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	Host
68017106	► MLC510R14-600H/A	600 mm	14 mm		Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	AS-Interface Safety at Work, host
68016106	◄ MLC500T14-600H/A	600 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	AS-Interface Safety at Work, host
68012106	► MLC520R14-600H	600 mm	14 mm		Connector, metal, M12, 8-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	Host
68010106	◄ MLC500T14-600H	600 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	Host
68017107	► MLC510R14-750H/A	750 mm	14 mm		Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	AS-Interface Safety at Work, host
68016107	◄ MLC500T14-750H/A	750 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	AS-Interface Safety at Work, host
68012107	► MLC520R14-750H	750 mm	14 mm		Connector, metal, M12, 8-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	Host
68010107	◄ MLC500T14-750H	750 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	Host
68017109	► MLC510R14-900H/A	900 mm	14 mm		Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	AS-Interface Safety at Work, host
68016109	◄ MLC500T14-900H/A	900 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	AS-Interface Safety at Work, host
68012109	► MLC520R14-900H	900 mm	14 mm		Connector, metal, M12, 8-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	Host
68010109	◄ MLC500T14-900H	900 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	Host
68017110	► MLC510R14-1050H/A	1,050 mm	14 mm		Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	AS-Interface Safety at Work, host
68016110	◄ MLC500T14-1050H/A	1,050 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	AS-Interface Safety at Work, host
68012110	► MLC520R14-1050H	1,050 mm	14 mm		Connector, metal, M12, 8-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	Host
68010110	◄ MLC500T14-1050H	1,050 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	Host
68017112	► MLC510R14-1200H/A	1,200 mm	14 mm		Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	AS-Interface Safety at Work, host
68016112	◄ MLC500T14-1200H/A	1,200 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	AS-Interface Safety at Work, host
68012112	► MLC520R14-1200H	1,200 mm	14 mm		Connector, metal, M12, 8-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	Host
68010112	◄ MLC500T14-1200H	1,200 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	Host
68017113	► MLC510R14-1350H/A	1,350 mm	14 mm		Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	AS-Interface Safety at Work, host
68016113	◄ MLC500T14-1350H/A	1,350 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	AS-Interface Safety at Work, host
68012113	► MLC520R14-1350H	1,350 mm	14 mm		Connector, metal, M12, 8-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	Host
68010113	◄ MLC500T14-1350H	1,350 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	Host
68017115	► MLC510R14-1500H/A	1,500 mm	14 mm		Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	AS-Interface Safety at Work, host
68016115	◄ MLC500T14-1500H/A	1,500 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	AS-Interface Safety at Work, host

► receiver / ◄ transmitter

Included in delivery: sliding blocks.

Further products of this series can be found on our website.

Available resolutions: 14 mm, 20 mm, 30 mm, 40 mm, 90 mm.

Part no.	Part description	Protective field height	Resolution	Operating range	Connection	Connection 2	Design
68012115	► MLC520R14-1500H	1,500 mm	14 mm		Connector, metal, M12, 8-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	Host
68010115	◄ MLC500T14-1500H	1,500 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	Host
68017116	► MLC510R14-1650H/A	1,650 mm	14 mm		Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	AS-Interface Safety at Work, host
68016116	◄ MLC500T14-1650H/A	1,650 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	AS-Interface Safety at Work, host
68012116	► MLC520R14-1650H	1,650 mm	14 mm		Connector, metal, M12, 8-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	Host
68010116	◄ MLC500T14-1650H	1,650 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	Host
68017118	► MLC510R14-1800H/A	1,800 mm	14 mm		Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	AS-Interface Safety at Work, host
68016118	◄ MLC500T14-1800H/A	1,800 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	AS-Interface Safety at Work, host
68012118	► MLC520R14-1800H	1,800 mm	14 mm		Connector, metal, M12, 8-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	Host
68010118	◄ MLC500T14-1800H	1,800 mm	14 mm	0 ... 6 m	Connector, metal, M12, 5-pin	Cable with connector, plastic, M12, 8-pin, 330 mm	Host

► receiver / ◄ transmitter

Included in delivery: sliding blocks.

Further products of this series can be found on our website.

Available resolutions: 14 mm, 20 mm, 30 mm, 40 mm, 90 mm.

MLC 520 MiddleGuest

The so-called Host-Guest devices enable the combination of access guarding or point of operation guarding with area protection. In this way, it is possible, for example, to eliminate additional measures such as guards to protect against stepping behind machines. The MiddleGuest devices can be used as the middle segment of a three-link chain.

Benefits:

- Point of operation guarding with area protection
- Multi-side guarding thanks to optimized cable routing

Part no.	Part description	Protective field height	Resolution	Operating range	Connection	Connection 2	Design
68023103	► MLC520R14-300MG	300 mm	14 mm		Cable with connector, plastic, M12, 8-pin, 330 mm	Cable with connector, plastic, M12, 8-pin, 330 mm	Middle Guest
68022103	◄ MLC500T14-300MG	300 mm	14 mm	0 ... 6 m	Cable with connector, plastic, M12, 8-pin, 330 mm	Cable with connector, plastic, M12, 8-pin, 330 mm	Middle Guest
68023104	► MLC520R14-450MG	450 mm	14 mm		Cable with connector, plastic, M12, 8-pin, 330 mm	Cable with connector, plastic, M12, 8-pin, 330 mm	Middle Guest
68022104	◄ MLC500T14-450MG	450 mm	14 mm	0 ... 6 m	Cable with connector, plastic, M12, 8-pin, 330 mm	Cable with connector, plastic, M12, 8-pin, 330 mm	Middle Guest
68023106	► MLC520R14-600MG	600 mm	14 mm		Cable with connector, plastic, M12, 8-pin, 330 mm	Cable with connector, plastic, M12, 8-pin, 330 mm	Middle Guest
68022106	◄ MLC500T14-600MG	600 mm	14 mm	0 ... 6 m	Cable with connector, plastic, M12, 8-pin, 330 mm	Cable with connector, plastic, M12, 8-pin, 330 mm	Middle Guest
68023107	► MLC520R14-750MG	750 mm	14 mm		Cable with connector, plastic, M12, 8-pin, 330 mm	Cable with connector, plastic, M12, 8-pin, 330 mm	Middle Guest
68022107	◄ MLC500T14-750MG	750 mm	14 mm	0 ... 6 m	Cable with connector, plastic, M12, 8-pin, 330 mm	Cable with connector, plastic, M12, 8-pin, 330 mm	Middle Guest
68023109	► MLC520R14-900MG	900 mm	14 mm		Cable with connector, plastic, M12, 8-pin, 330 mm	Cable with connector, plastic, M12, 8-pin, 330 mm	Middle Guest
68022109	◄ MLC500T14-900MG	900 mm	14 mm	0 ... 6 m	Cable with connector, plastic, M12, 8-pin, 330 mm	Cable with connector, plastic, M12, 8-pin, 330 mm	Middle Guest
68023110	► MLC520R14-1050MG	1,050 mm	14 mm		Cable with connector, plastic, M12, 8-pin, 330 mm	Cable with connector, plastic, M12, 8-pin, 330 mm	Middle Guest
68022110	◄ MLC500T14-1050MG	1,050 mm	14 mm	0 ... 6 m	Cable with connector, plastic, M12, 8-pin, 330 mm	Cable with connector, plastic, M12, 8-pin, 330 mm	Middle Guest
68023112	► MLC520R14-1200MG	1,200 mm	14 mm		Cable with connector, plastic, M12, 8-pin, 330 mm	Cable with connector, plastic, M12, 8-pin, 330 mm	Middle Guest
68022112	◄ MLC500T14-1200MG	1,200 mm	14 mm	0 ... 6 m	Cable with connector, plastic, M12, 8-pin, 330 mm	Cable with connector, plastic, M12, 8-pin, 330 mm	Middle Guest
68023113	► MLC520R14-1350MG	1,350 mm	14 mm		Cable with connector, plastic, M12, 8-pin, 330 mm	Cable with connector, plastic, M12, 8-pin, 330 mm	Middle Guest
68022113	◄ MLC500T14-1350MG	1,350 mm	14 mm	0 ... 6 m	Cable with connector, plastic, M12, 8-pin, 330 mm	Cable with connector, plastic, M12, 8-pin, 330 mm	Middle Guest
68023115	► MLC520R14-1500MG	1,500 mm	14 mm		Cable with connector, plastic, M12, 8-pin, 330 mm	Cable with connector, plastic, M12, 8-pin, 330 mm	Middle Guest
68022115	◄ MLC500T14-1500MG	1,500 mm	14 mm	0 ... 6 m	Cable with connector, plastic, M12, 8-pin, 330 mm	Cable with connector, plastic, M12, 8-pin, 330 mm	Middle Guest
68023116	► MLC520R14-1650MG	1,650 mm	14 mm		Cable with connector, plastic, M12, 8-pin, 330 mm	Cable with connector, plastic, M12, 8-pin, 330 mm	Middle Guest
68022116	◄ MLC500T14-1650MG	1,650 mm	14 mm	0 ... 6 m	Cable with connector, plastic, M12, 8-pin, 330 mm	Cable with connector, plastic, M12, 8-pin, 330 mm	Middle Guest
68023118	► MLC520R14-1800MG	1,800 mm	14 mm		Cable with connector, plastic, M12, 8-pin, 330 mm	Cable with connector, plastic, M12, 8-pin, 330 mm	Middle Guest
68022118	◄ MLC500T14-1800MG	1,800 mm	14 mm	0 ... 6 m	Cable with connector, plastic, M12, 8-pin, 330 mm	Cable with connector, plastic, M12, 8-pin, 330 mm	Middle Guest

► receiver / ◄ transmitter

Included in delivery: sliding blocks.

Further products of this series can be found on our website.

Available resolutions: 14 mm, 20 mm, 30 mm, 40 mm, 90 mm.

MLC 520 Guest

The so-called Host-Guest devices enable the combination of access guarding or point of operation guarding with area protection. In this way, it is possible, for example, to eliminate additional measures such as guards to protect against stepping behind machines. The Guest devices are always the final device in a 2 to 3-link chain.

Benefits:

- Point of operation guarding with area protection
- Multi-side guarding thanks to optimized cable routing

Part no.	Part description	Protective field height	Resolution	Operating range	Connection	Design
68021101	► MLC520R14-150G	150 mm	14 mm		Cable with connector, plastic, M12, 8-pin, 330 mm	Guest
68020101	◄ MLC500T14-150G	150 mm	14 mm	0 ... 6 m	Cable with connector, plastic, M12, 8-pin, 330 mm	Guest
68021103	► MLC520R14-300G	300 mm	14 mm		Cable with connector, plastic, M12, 8-pin, 330 mm	Guest
68020103	◄ MLC500T14-300G	300 mm	14 mm	0 ... 6 m	Cable with connector, plastic, M12, 8-pin, 330 mm	Guest
68021104	► MLC520R14-450G	450 mm	14 mm		Cable with connector, plastic, M12, 8-pin, 330 mm	Guest
68020104	◄ MLC500T14-450G	450 mm	14 mm	0 ... 6 m	Cable with connector, plastic, M12, 8-pin, 330 mm	Guest
68021106	► MLC520R14-600G	600 mm	14 mm		Cable with connector, plastic, M12, 8-pin, 330 mm	Guest
68020106	◄ MLC500T14-600G	600 mm	14 mm	0 ... 6 m	Cable with connector, plastic, M12, 8-pin, 330 mm	Guest
68021107	► MLC520R14-750G	750 mm	14 mm		Cable with connector, plastic, M12, 8-pin, 330 mm	Guest
68020107	◄ MLC500T14-750G	750 mm	14 mm	0 ... 6 m	Cable with connector, plastic, M12, 8-pin, 330 mm	Guest
68021109	► MLC520R14-900G	900 mm	14 mm		Cable with connector, plastic, M12, 8-pin, 330 mm	Guest
68020109	◄ MLC500T14-900G	900 mm	14 mm	0 ... 6 m	Cable with connector, plastic, M12, 8-pin, 330 mm	Guest
68021110	► MLC520R14-1050G	1,050 mm	14 mm		Cable with connector, plastic, M12, 8-pin, 330 mm	Guest
68020110	◄ MLC500T14-1050G	1,050 mm	14 mm	0 ... 6 m	Cable with connector, plastic, M12, 8-pin, 330 mm	Guest
68021112	► MLC520R14-1200G	1,200 mm	14 mm		Cable with connector, plastic, M12, 8-pin, 330 mm	Guest
68020112	◄ MLC500T14-1200G	1,200 mm	14 mm	0 ... 6 m	Cable with connector, plastic, M12, 8-pin, 330 mm	Guest
68021113	► MLC520R14-1350G	1,350 mm	14 mm		Cable with connector, plastic, M12, 8-pin, 330 mm	Guest
68020113	◄ MLC500T14-1350G	1,350 mm	14 mm	0 ... 6 m	Cable with connector, plastic, M12, 8-pin, 330 mm	Guest
68021115	► MLC520R14-1500G	1,500 mm	14 mm		Cable with connector, plastic, M12, 8-pin, 330 mm	Guest
68020115	◄ MLC500T14-1500G	1,500 mm	14 mm	0 ... 6 m	Cable with connector, plastic, M12, 8-pin, 330 mm	Guest
68021116	► MLC520R14-1650G	1,650 mm	14 mm		Cable with connector, plastic, M12, 8-pin, 330 mm	Guest
68020116	◄ MLC500T14-1650G	1,650 mm	14 mm	0 ... 6 m	Cable with connector, plastic, M12, 8-pin, 330 mm	Guest
68021118	► MLC520R14-1800G	1,800 mm	14 mm		Cable with connector, plastic, M12, 8-pin, 330 mm	Guest
68020118	◄ MLC500T14-1800G	1,800 mm	14 mm	0 ... 6 m	Cable with connector, plastic, M12, 8-pin, 330 mm	Guest

► receiver / ◄ transmitter

Included in delivery: sliding blocks.

Further products of this series can be found on our website.

Available resolutions: 14 mm, 20 mm, 30 mm, 40 mm, 90 mm.

MLC 520 EX

The MLC 520 EX2 series is certified for use in potentially explosive areas of group II, category 3, zone 2 (gas) and zone 22 (dust). The function range of these type 4 safety light curtains corresponds to the MLC 520 standard version and thus also offers a start/restart interlock (RES) and contactor monitoring (EDM) for increased performance – with very simple handling and integration.

Benefits:

- Basic functions such as automatic start/restart, start/restart interlock (RES), contactor monitoring (EDM)
- Optimal handling due to function selection without PC as well as LED and 7-segment display with integrated 3-zone alignment aid
- Prevention of mutual interference of the sensors by selectable transmission channels and range reduction, if applicable
- Short delivery times and global availability
- QR code on the sensor for quick service information
- Approved for use in potentially explosive areas of group II, category 3, zone 2 (gas) and zone 22 (dust)

Part no.	Part description	Protective field height	Resolution	Operating range	Connection	Design
68042206	► MLC520R20-600-EX2	600 mm	20 mm		Connector, metal, M12, 8-pin	Ex-protection
68040206	◄ MLC500T20-600-EX2	600 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin	Ex-protection
68042207	► MLC520R20-750-EX2	750 mm	20 mm		Connector, metal, M12, 8-pin	Ex-protection
68040207	◄ MLC500T20-750-EX2	750 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin	Ex-protection
68042209	► MLC520R20-900-EX2	900 mm	20 mm		Connector, metal, M12, 8-pin	Ex-protection
68040209	◄ MLC500T20-900-EX2	900 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin	Ex-protection
68042210	► MLC520R20-1050-EX2	1,050 mm	20 mm		Connector, metal, M12, 8-pin	Ex-protection
68040210	◄ MLC500T20-1050-EX2	1,050 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin	Ex-protection
68042212	► MLC520R20-1200-EX2	1,200 mm	20 mm		Connector, metal, M12, 8-pin	Ex-protection
68040212	◄ MLC500T20-1200-EX2	1,200 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin	Ex-protection

► receiver / ◄ transmitter

Included in delivery: sliding blocks.

Further products of this series can be found on our website.

Available resolutions: 20 mm, 30 mm.

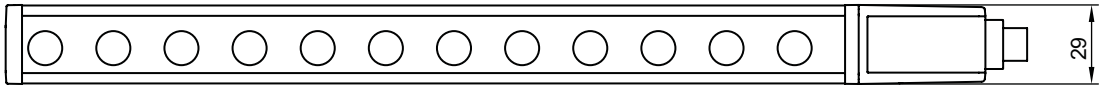
Part no.	Part description	Protective field height	Resolution	Operating range	Connection	Design
68042213	► MLC520R20-1350-EX2	1,350 mm	20 mm		Connector, metal, M12, 8-pin	Ex-protection
68040213	◄ MLC500T20-1350-EX2	1,350 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin	Ex-protection
68042215	► MLC520R20-1500-EX2	1,500 mm	20 mm		Connector, metal, M12, 8-pin	Ex-protection
68040215	◄ MLC500T20-1500-EX2	1,500 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin	Ex-protection

► receiver / ◄ transmitter
Included in delivery: sliding blocks.
Further products of this series can be found on our website.
Available resolutions: 20 mm, 30 mm.

Dimensioned drawings: MLC 500

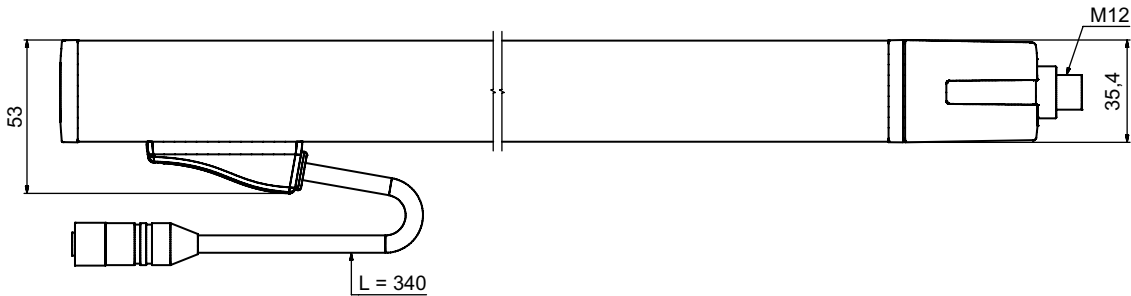


Switching
sensors



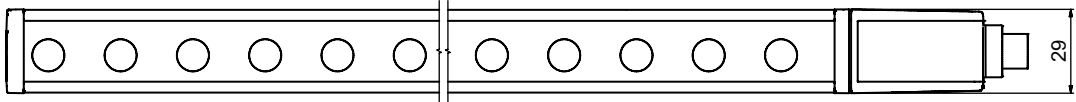
Measuring
sensors

MLC 500 safety light curtain

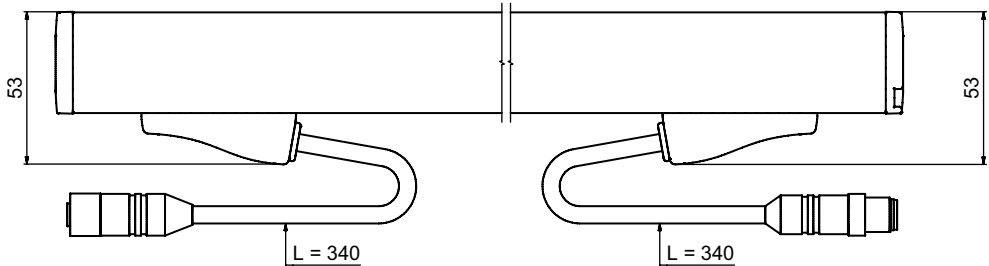


Products for
safety at work

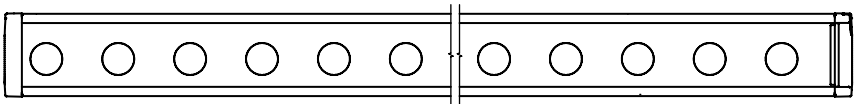
Identification



MLC 500 safety light curtain, Host



Data transmission /
Control components

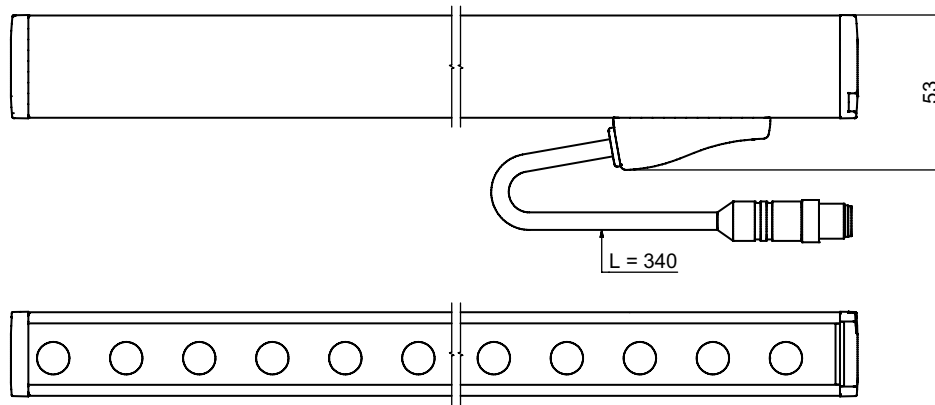


MLC 500 safety light curtain, MiddleGuest

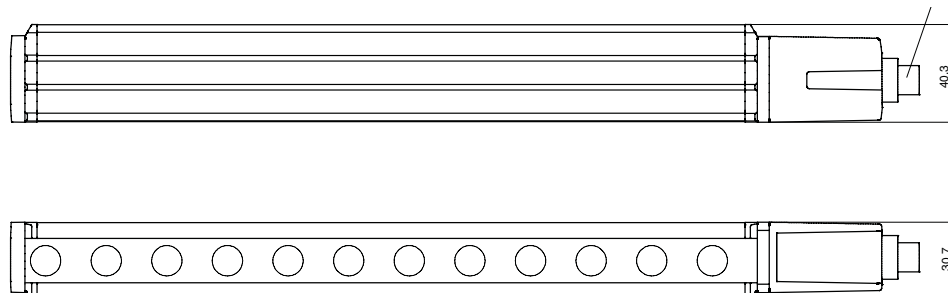
Industrial image
processing

Accessories

Dimensioned drawings: MLC 500



MLC 500 safety light curtain, Guest



MLC 520 EX safety light curtain

SMARTER APPLICATION KNOW-HOW

**Our many years of experience –
Your extensive knowledge about
safety at work**

- Safety seminars
- Standards workshops
- Product training courses

*"In our seminars you will acquire
compact knowledge about safety
at work. A day that is well worth
your while!"*

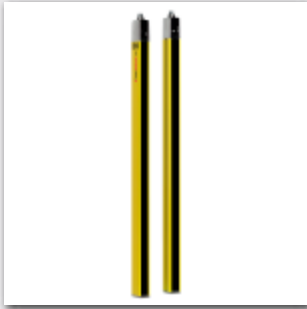
Markus Erdorf,
Safety Consultant and Trainer



Select the seminar you need and register directly at www.leuze.com/en/seminars



/// MLC 300



The 300 series MLC safety light curtains are the latest generation of extremely slim and robust type 2 devices with slightly set back front screen and reinforced side walls. The devices are available in the Basic and Standard versions, thereby fulfilling various requirements. They can be used universally, due to metal end caps, a flexible fastening concept and the option of form-locking installation. There are also variants which have an AIDA-compliant pin assignment.



Direct access to the online product selector at www.leuze.com/en/mlc300

PART NUMBER CODES – MLC 500, MLC 300 safety light curtains

MLC 3 0 0 T 1 4 h h h h H / A - E X 2

Type	
MLC	Safety light curtain
Series	
3	MLC 300
5	MLC 500
Function	
00	Transmitter
01	Transmitter (AIDA)
10	Automatic restart
11	Automatic restart (AIDA)
20	EDM/RES selectable
30	Muting/blanking/linkage (MLC 530 only)
Device type	
T	Transmitter
R	Receiver
Resolution	
14	14 mm / operating range 0–6 m (MLC 500 only)
20	20 mm / operating range 0–14 m
30	30 mm / operating range 0–10 m
40	40 mm / operating range 0–20 m
90	90 mm / operating range 0–20 m
Protective field height	
hhhh	150...3000 mm
Host/Guest	
H	Host
MG	MiddleGuest
G	Guest
Interface (MLC 500 only)	
/A	AS-Interface
Option	
EX2	Explosion protection
/V	Extra shock-resistant

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

MLC 310

This type 2 Basic model provides the most important functions: Range reduction on the transmitter, reversible transmission channels, a LED display as well as an automatic start/restart interlock round out the range of service.

Benefits:

- Automatic start/restart
- Optimal handling
- Prevention of mutual interference of the sensors by selectable transmission channels and range reduction, if applicable
- Universal application due to standard functions
- Short delivery times and global availability
- QR code on the sensor for quick service information

Part no.	Part description	Protective field height	Resolution	Operating range	Connection
68091201	► MLC310R20-150	150 mm	20 mm		Connector, metal, M12, 5-pin
68090201	◄ MLC300T20-150	150 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68091202	► MLC310R20-225	225 mm	20 mm		Connector, metal, M12, 5-pin
68090202	◄ MLC300T20-225	225 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68091203	► MLC310R20-300	300 mm	20 mm		Connector, metal, M12, 5-pin
68090203	◄ MLC300T20-300	300 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68091204	► MLC310R20-450	450 mm	20 mm		Connector, metal, M12, 5-pin
68090204	◄ MLC300T20-450	450 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68091206	► MLC310R20-600	600 mm	20 mm		Connector, metal, M12, 5-pin
68090206	◄ MLC300T20-600	600 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68091207	► MLC310R20-750	750 mm	20 mm		Connector, metal, M12, 5-pin
68090207	◄ MLC300T20-750	750 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68091209	► MLC310R20-900	900 mm	20 mm		Connector, metal, M12, 5-pin
68090209	◄ MLC300T20-900	900 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68091210	► MLC310R20-1050	1,050 mm	20 mm		Connector, metal, M12, 5-pin
68090210	◄ MLC300T20-1050	1,050 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68091212	► MLC310R20-1200	1,200 mm	20 mm		Connector, metal, M12, 5-pin
68090212	◄ MLC300T20-1200	1,200 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68091213	► MLC310R20-1350	1,350 mm	20 mm		Connector, metal, M12, 5-pin
68090213	◄ MLC300T20-1350	1,350 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68091215	► MLC310R20-1500	1,500 mm	20 mm		Connector, metal, M12, 5-pin
68090215	◄ MLC300T20-1500	1,500 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68091216	► MLC310R20-1650	1,650 mm	20 mm		Connector, metal, M12, 5-pin
68090216	◄ MLC300T20-1650	1,650 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68091218	► MLC310R20-1800	1,800 mm	20 mm		Connector, metal, M12, 5-pin
68090218	◄ MLC300T20-1800	1,800 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin

► receiver / ◄ transmitter

Included in delivery: sliding blocks.

Further products of this series can be found on our website.

Available resolutions: 20 mm, 30 mm, 40 mm, 90 mm.

MLC 311

The devices have a plug connection with AIDA-compliant M12 pin assignment (Automatisierungs-Initiative deutscher Automobilisten (AIDA) = Automation Initiative of German automobile manufacturers).

Benefits:

- Automatic start/restart
- Optimal handling
- Range reduction on demand
- Universal application due to standard functions
- Short delivery times and global availability
- QR code on the sensor for quick service information

Part no.	Part description	Protective field height	Resolution	Operating range	Connection	Design
68095403	► MLC311R40-300	300 mm	40 mm		Connector, metal, M12, 4-pin	AIDA-compliant
68094403	◄ MLC301T40-300	300 mm	40 mm	0 ... 20 m	Connector, metal, M12, 4-pin	AIDA-compliant
68095404	► MLC311R40-450	450 mm	40 mm		Connector, metal, M12, 4-pin	AIDA-compliant
68094404	◄ MLC301T40-450	450 mm	40 mm	0 ... 20 m	Connector, metal, M12, 4-pin	AIDA-compliant
68095406	► MLC311R40-600	600 mm	40 mm		Connector, metal, M12, 4-pin	AIDA-compliant
68094406	◄ MLC301T40-600	600 mm	40 mm	0 ... 20 m	Connector, metal, M12, 4-pin	AIDA-compliant
68095407	► MLC311R40-750	750 mm	40 mm		Connector, metal, M12, 4-pin	AIDA-compliant
68094407	◄ MLC301T40-750	750 mm	40 mm	0 ... 20 m	Connector, metal, M12, 4-pin	AIDA-compliant
68095409	► MLC311R40-900	900 mm	40 mm		Connector, metal, M12, 4-pin	AIDA-compliant
68094409	◄ MLC301T40-900	900 mm	40 mm	0 ... 20 m	Connector, metal, M12, 4-pin	AIDA-compliant
68095410	► MLC311R40-1050	1,050 mm	40 mm		Connector, metal, M12, 4-pin	AIDA-compliant
68094410	◄ MLC301T40-1050	1,050 mm	40 mm	0 ... 20 m	Connector, metal, M12, 4-pin	AIDA-compliant
68095412	► MLC311R40-1200	1,200 mm	40 mm		Connector, metal, M12, 4-pin	AIDA-compliant
68094412	◄ MLC301T40-1200	1,200 mm	40 mm	0 ... 20 m	Connector, metal, M12, 4-pin	AIDA-compliant

► receiver / ◄ transmitter

Included in delivery: sliding blocks.

Further products of this series can be found on our website.

Available resolutions: 40 mm.

MLC 320

The Standard version of this type 2 safety light curtain, with a start/restart interlock (RES) and contactor monitoring (EDM), also features practical function extensions for increased performance – still being simple to handle and integrate into your systems.

Benefits:

- Basic functions such as automatic start/restart, start/restart interlock (RES), contactor monitoring (EDM)
- Optimal handling due to function selection without PC as well as LED and 7-segment display with integrated 3-zone alignment aid
- Prevention of mutual interference of the sensors by selectable transmission channels and range reduction, if applicable
- Universal application due to standard functions
- Short delivery times and global availability
- QR code on the sensor for quick service information

Part no.	Part description	Protective field height	Resolution	Operating range	Connection
68092201	► MLC320R20-150	150 mm	20 mm		Connector, metal, M12, 8-pin
68090201	◄ MLC300T20-150	150 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68092202	► MLC320R20-225	225 mm	20 mm		Connector, metal, M12, 8-pin
68090202	◄ MLC300T20-225	225 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68092203	► MLC320R20-300	300 mm	20 mm		Connector, metal, M12, 8-pin
68090203	◄ MLC300T20-300	300 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68092204	► MLC320R20-450	450 mm	20 mm		Connector, metal, M12, 8-pin
68090204	◄ MLC300T20-450	450 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68092206	► MLC320R20-600	600 mm	20 mm		Connector, metal, M12, 8-pin
68090206	◄ MLC300T20-600	600 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68092207	► MLC320R20-750	750 mm	20 mm		Connector, metal, M12, 8-pin
68090207	◄ MLC300T20-750	750 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68092209	► MLC320R20-900	900 mm	20 mm		Connector, metal, M12, 8-pin
68090209	◄ MLC300T20-900	900 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68092210	► MLC320R20-1050	1,050 mm	20 mm		Connector, metal, M12, 8-pin
68090210	◄ MLC300T20-1050	1,050 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68092212	► MLC320R20-1200	1,200 mm	20 mm		Connector, metal, M12, 8-pin
68090212	◄ MLC300T20-1200	1,200 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68092213	► MLC320R20-1350	1,350 mm	20 mm		Connector, metal, M12, 8-pin
68090213	◄ MLC300T20-1350	1,350 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68092215	► MLC320R20-1500	1,500 mm	20 mm		Connector, metal, M12, 8-pin
68090215	◄ MLC300T20-1500	1,500 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68092216	► MLC320R20-1650	1,650 mm	20 mm		Connector, metal, M12, 8-pin
68090216	◄ MLC300T20-1650	1,650 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin
68092218	► MLC320R20-1800	1,800 mm	20 mm		Connector, metal, M12, 8-pin
68090218	◄ MLC300T20-1800	1,800 mm	20 mm	0 ... 15 m	Connector, metal, M12, 5-pin

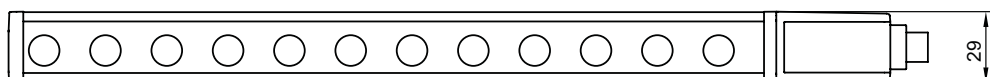
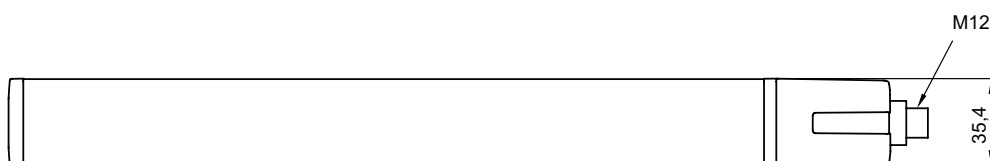
► receiver / ◄ transmitter

Included in delivery: sliding blocks.

Further products of this series can be found on our website.

Available resolutions: 20 mm, 30 mm, 40 mm, 90 mm.

Dimensioned drawings: MLC 300



MLC 300 safety light curtain

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

ACCESSORIES: MLC 300, MLC 500

Connection technology

Connection cables for MLC 300, MLC 500 transmitter, MLC 510receiver

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
678055	CB-M12-5000E-5GF	Connector, M12, axial, female	5-pin	5,000 mm	PUR
678056	CB-M12-10000E-5GF	Connector, M12, axial, female	5-pin	10,000 mm	PUR
678057	CB-M12-15000E-5GF	Connector, M12, axial, female	5-pin	15,000 mm	PUR
678058	CB-M12-25000E-5GF	Connector, M12, axial, female	5-pin	25,000 mm	PUR
678059	CB-M12-50000E-5GF	Connector, M12, axial, female	5-pin	50,000 mm	PUR

Further connection cables can be found on our website

Connection cables for MLC 520, MLC 530receiver

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
678060	CB-M12-5000E-8GF	Connector, M12, axial, female	8-pin	5,000 mm	PUR
678061	CB-M12-10000E-8GF	Connector, M12, axial, female	8-pin	10,000 mm	PUR
678062	CB-M12-15000E-8GF	Connector, M12, axial, female	8-pin	15,000 mm	PUR
678063	CB-M12-25000E-8GF	Connector, M12, axial, female	8-pin	25,000 mm	PUR
678064	CB-M12-50000E-8GF	Connector, M12, axial, female	8-pin	50,000 mm	PUR

Further connection cables can be found on our website

Connection cables for MLC 301, MLC 501 transmitter, MLC 311, MLC 511receiver

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130726	KD S-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR
50130727	KD S-M12-4A-P1-100	Connector, M12, axial, female	4-pin	10,000 mm	PUR
50123846	CB-M12-25000E-4GF-PUR	Connector, M12, axial, female	4-pin	25,000 mm	PUR

Further connection cables can be found on our website

Interconnection cables for Host/MiddleGuest/Guest

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Sheathing material
429278	CB-M12-2000E-8TP	Connector, M12, axial, female	8-pin	Connector, M12, axial, male	8-pin	2,000 mm	PUR
429279	CB-M12-5000E-8TP	Connector, M12, axial, female	8-pin	Connector, M12, axial, male	8-pin	5,000 mm	PUR

Further interconnection cables can be found on our website

User-configurable connectors

Part no.	Part description	Connection	No. of pins
429175	CB-M12-5GF	Connector, M12, axial, female	5-pin
429178	CB-M12-8GF	Connector, M12, axial, female	8-pin

Further connectors can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
429006	BT-2L-HG	Host/Guest connection bracket	Screw type		Metal
429005	BT-L-HG	Host/Guest connection bracket	Screw type		Metal
429056	BT-2L	Angle, L-shape	Screw type	Through-hole mounting	Metal
429057	BT-2Z	Angle, Z-shape	Screw type	Through-hole mounting	Metal

Swivel mounts

Part no.	Part description	Suitable for	Fastening at device	Fastening at system	Material	Shock absorber
429393	BT-2HF		Clampable	Through-hole mounting	Metal, plastic	No
429394	BT-2HF-S		Clampable	Through-hole mounting	Metal, plastic	Yes
429395	BT-2HF-G	MLC MiddleGuest and Guest	Clampable	Through-hole mounting	Metal, plastic	No
429396	BT-2HF-GS	MLC MiddleGuest and Guest	Clampable	Through-hole mounting	Metal, plastic	Yes

Other mounting systems

Part no.	Part description	Design	Fastening at device	Fastening at system	Material	Swivel range	Shock absorber
424417	BT-2P40	Mounting clamp	Groove mounting	Groove mounting	Metal		
424422	BT-2SB10	Mounting clamp	Clampable	Through-hole mounting	Metal	-8 ... 8 °	No
424423	BT-2SB10-S	Mounting clamp	Clampable	Through-hole mounting	Metal	-8 ... 8 °	Yes
425740	BT-10NC60	Sliding block	Groove mounting	Mounting thread	Metal		
425741	BT-10NC64	Sliding block	Groove mounting	Mounting thread	Metal		
425742	BT-10NC65	Sliding block	Groove mounting	Mounting thread	Metal		

Muting

Sensor connection boxes for MLC 530receiver

Part no.	Part description	Connection	Connections	Fastening
520160	AC-SCM8U	Cable with connector, 500 mm, M12, 8-pin	6x	Through-hole mounting, groove mounting
520162	AC-SCM8U-BT-L	Cable with connector, 500 mm, M12, 8-pin	6x	Mounting plate with L-angle, groove mounting

Test rods

Part no.	Part description	Diameter 1	Diameter 2
349945	AC-TR14/30	14 mm	30 mm
349939	AC-TR20/40	20 mm	40 mm

Alignment aids

Part no.	Part description	Receiver operating range	Display	Voltage supply
520101	AC-ALM-M	30 m	5 multi-color LEDs	2 AA batteries, replaceable, 2 x 1.5 V

SMARTER APPLICATION KNOW-HOW

We are constantly working on challenges and important issues in our target markets.



Safety at work



Ex-protection



IO-Link



Laser class 1



ID technologies



Connectivity



Find out more in our user knowledge and topic center: www.leuze.com/en/topics

//MULTIPLE LIGHT BEAM SAFETY DEVICES

WHEN FUNCTIONALITY BECOMES ECONOMICAL

Multiple light beam safety devices with muting function ensure constant personnel protection (access guarding) with unobstructed material infeed, e. g., in conveyor systems. Options such as the integrated laser alignment aid, an integrated muting indicator and the patented swivel mount for easy fastening and alignment round out the program.

/// MLD 500 transmitter/receiver



This type 4 series can be used both for access guarding as well as for applications with muting. Through various function classes (MLD 510, 520, 530, 535), the optimum design can always be selected. Configuration via PC or DIP switch is not necessary.



Direct access to the online product selector at www.leuze.com/en/mld500

PART NUMBER CODES – MLD 500, MLD 300 multiple light beam safety devices

M L D 3 0 0 T 2 L -

Type

MLD Multiple light beam safety device

Series

3 MLD 300
5 MLD 500

Function

00 Transmitter
10 Automatic restart
12 External testing (MLD 300 only)
20 Start/restart interlock selectable, contactor monitoring selectable
30 2-sensor muting (timing controlled, sequence controlled)
35 4-sensor muting (timing controlled)

Device type

T Transmitter
R Receiver
RT Transceiver
xT Transmitter for high range
xR Receiver for high range

No. of beams

2 2-beam
3 3-beam
4 4-beam

Option

L Integrated laser alignment aid
M Integrated indicator
E Connection socket for external muting indicator (AS-i models only)

Safety-related switching outputs (OSSD), connection system

- Transistor output, M12 plug
A Integrated AS-i interface, M12 plug, (safety bus system)

MLD 510

These multiple light beam safety devices are equipped with an automatic restart.

Benefits:

- The configuration is simply performed by means of wiring, i.e. no software, PC or DIP switch are necessary
- Use at ambient temperatures as low as -30 °C is possible
- Options: integrated laser alignment aid, integrated muting indicator

Part no.	Part description	Beam spacing	Number of beams	Operating range	Connection	Design
66533100	► MLD510-R2	500 mm	2x		Connector, M12, 5-pin, metal	
66501100	◄ MLD500-T2	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66533500	► MLD510-XR2	500 mm	2x		Connector, M12, 5-pin, metal	
66501500	◄ MLD500-XT2	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	
66533101	► MLD510-R2/A	500 mm	2x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work
66501101	◄ MLD500-T2/A	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work
66533501	► MLD510-XR2/A	500 mm	2x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work
66501501	◄ MLD500-XT2/A	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work
66533102	► MLD510-R2E/A	500 mm	2x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, connection socket for external muting indicator
66501101	◄ MLD500-T2/A	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work
66533502	► MLD510-XR2E/A	500 mm	2x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, connection socket for external muting indicator
66501501	◄ MLD500-XT2/A	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work
66534101	► MLD510-R2M/A	500 mm	2x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated muting indicator, integrated status indicator
66501101	◄ MLD500-T2/A	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work
66535101	► MLD510-R2LM/A	500 mm	2x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated muting indicator, integrated status indicator, reflective element for laser alignment aid
66502101	◄ MLD500-T2L/A	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated laser alignment aid
66536101	► MLD510-R2L/A	500 mm	2x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, reflective element for laser alignment aid
66502101	◄ MLD500-T2L/A	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated laser alignment aid
66536501	► MLD510-XR2L/A	500 mm	2x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, reflective element for laser alignment aid
66502501	◄ MLD500-XT2L/A	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated laser alignment aid
66536102	► MLD510-R2LE/A	500 mm	2x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, reflective element for laser alignment aid, connection socket for external muting indicator
66502101	◄ MLD500-T2L/A	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated laser alignment aid
66536502	► MLD510-XR2LE/A	500 mm	2x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, reflective element for laser alignment aid, connection socket for external muting indicator
66502501	◄ MLD500-XT2L/A	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated laser alignment aid
66536100	► MLD510-R2L	500 mm	2x		Connector, M12, 5-pin, metal	Reflective element for laser alignment aid
66502100	◄ MLD500-T2L	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66536500	► MLD510-XR2L	500 mm	2x		Connector, M12, 5-pin, metal	Reflective element for laser alignment aid
66502500	◄ MLD500-XT2L	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66533200	► MLD510-R3	400 mm	3x		Connector, M12, 5-pin, metal	
66501200	◄ MLD500-T3	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66533600	► MLD510-XR3	400 mm	3x		Connector, M12, 5-pin, metal	
66501600	◄ MLD500-XT3	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	
66533201	► MLD510-R3/A	400 mm	3x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work
66501201	◄ MLD500-T3/A	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work
66533601	► MLD510-XR3/A	400 mm	3x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work
66501601	◄ MLD500-XT3/A	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work
66533202	► MLD510-R3E/A	400 mm	3x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, connection socket for external muting indicator
66501201	◄ MLD500-T3/A	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work
66533602	► MLD510-XR3E/A	400 mm	3x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, connection socket for external muting indicator
66501601	◄ MLD500-XT3/A	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work
66534201	► MLD510-R3M/A	400 mm	3x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated muting indicator, integrated status indicator
66501201	◄ MLD500-T3/A	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work
66535201	► MLD510-R3LM/A	400 mm	3x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated muting indicator, integrated status indicator, reflective element for laser alignment aid
66502201	◄ MLD500-T3L/A	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated laser alignment aid

► receiver / ◄ transmitter
Included in delivery: sliding blocks

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

Part no.	Part description	Beam spacing	Number of beams	Operating range	Connection	Design
66536201	► MLD510-R3L/A	400 mm	3x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, reflective element for laser alignment aid
66502201	◄ MLD500-T3L/A	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated laser alignment aid
66536601	► MLD510-XR3L/A	400 mm	3x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, reflective element for laser alignment aid
66502601	◄ MLD500-XT3L/A	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated laser alignment aid
66536202	► MLD510-R3LE/A	400 mm	3x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, reflective element for laser alignment aid, connection socket for external muting indicator
66502201	◄ MLD500-T3L/A	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated laser alignment aid
66536602	► MLD510-XR3LE/A	400 mm	3x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, reflective element for laser alignment aid, connection socket for external muting indicator
66502601	◄ MLD500-XT3L/A	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated laser alignment aid
66536200	► MLD510-R3L	400 mm	3x		Connector, M12, 5-pin, metal	Reflective element for laser alignment aid
66502200	◄ MLD500-T3L	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66536600	► MLD510-XR3L	400 mm	3x		Connector, M12, 5-pin, metal	Reflective element for laser alignment aid
66502600	◄ MLD500-XT3L	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66533300	► MLD510-R4	300 mm	4x		Connector, M12, 5-pin, metal	
66501300	◄ MLD500-T4	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66533700	► MLD510-XR4	300 mm	4x		Connector, M12, 5-pin, metal	
66501700	◄ MLD500-XT4	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	
66533301	► MLD510-R4/A	300 mm	4x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work
66501301	◄ MLD500-T4/A	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work
66533701	► MLD510-XR4/A	300 mm	4x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work
66501701	◄ MLD500-XT4/A	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work
66533302	► MLD510-R4E/A	300 mm	4x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, connection socket for external muting indicator
66501301	◄ MLD500-T4/A	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work
66533702	► MLD510-XR4E/A	300 mm	4x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, connection socket for external muting indicator
66501701	◄ MLD500-XT4/A	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work
66534301	► MLD510-R4M/A	300 mm	4x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated muting indicator, integrated status indicator
66501301	◄ MLD500-T4/A	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work
66535301	► MLD510-R4LM/A	300 mm	4x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated muting indicator, integrated status indicator, reflective element for laser alignment aid
66502301	◄ MLD500-T4L/A	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated laser alignment aid
66536301	► MLD510-R4L/A	300 mm	4x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, reflective element for laser alignment aid
66502301	◄ MLD500-T4L/A	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated laser alignment aid
66536701	► MLD510-XR4L/A	300 mm	4x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, reflective element for laser alignment aid
66502701	◄ MLD500-XT4L/A	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated laser alignment aid
66536302	► MLD510-R4LE/A	300 mm	4x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, reflective element for laser alignment aid, connection socket for external muting indicator
66502301	◄ MLD500-T4L/A	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated laser alignment aid
66536702	► MLD510-XR4LE/A	300 mm	4x		Connector, M12, 5-pin, metal	AS-Interface Safety at Work, reflective element for laser alignment aid, connection socket for external muting indicator
66502701	◄ MLD500-XT4L/A	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated laser alignment aid
66536300	► MLD510-R4L	300 mm	4x		Connector, M12, 5-pin, metal	Reflective element for laser alignment aid
66502300	◄ MLD500-T4L	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66536700	► MLD510-XR4L	300 mm	4x		Connector, M12, 5-pin, metal	Reflective element for laser alignment aid
66502700	◄ MLD500-XT4L	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid

► receiver / ◄ transmitter
Included in delivery: sliding blocks

MLD 520

These multiple light beam safety devices offer a selectable start/restart interlock (RES) and contactor monitoring (EDM).

Benefits:

- The configuration is simply performed by means of wiring, i.e. no software, PC or DIP switch are necessary
- Use at ambient temperatures as low as –30 °C is possible
- Start/restart interlock (RES), selectable
- Contactor monitoring (EDM), selectable
- Options: integrated laser alignment aid, integrated muting indicator

Part no.	Part description	Beam spacing	Number of beams	Operating range	Connection	Design
66553100	► MLD520-R2	500 mm	2x		Connector, M12, 8-pin, metal	
66501100	◄ MLD500-T2	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66553500	► MLD520-XR2	500 mm	2x		Connector, M12, 8-pin, metal	
66501500	◄ MLD500-XT2	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	
66554100	► MLD520-R2M	500 mm	2x		Connector, M12, 8-pin, metal	Integrated status indicator
66501100	◄ MLD500-T2	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66554500	► MLD520-XR2M	500 mm	2x		Connector, M12, 8-pin, metal	Integrated status indicator
66501500	◄ MLD500-XT2	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	
66556100	► MLD520-R2L	500 mm	2x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66502100	◄ MLD500-T2L	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66555100	► MLD520-R2LM	500 mm	2x		Connector, M12, 8-pin, metal	Integrated status indicator, reflective element for laser alignment aid
66502100	◄ MLD500-T2L	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66556500	► MLD520-XR2L	500 mm	2x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66502500	◄ MLD500-XT2L	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66555500	► MLD520-XR2LM	500 mm	2x		Connector, M12, 8-pin, metal	Integrated status indicator, reflective element for laser alignment aid
66502500	◄ MLD500-XT2L	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66553200	► MLD520-R3	400 mm	3x		Connector, M12, 8-pin, metal	
66501200	◄ MLD500-T3	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66553600	► MLD520-XR3	400 mm	3x		Connector, M12, 8-pin, metal	
66501600	◄ MLD500-XT3	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	
66554200	► MLD520-R3M	400 mm	3x		Connector, M12, 8-pin, metal	Integrated status indicator
66501200	◄ MLD500-T3	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66554600	► MLD520-XR3M	400 mm	3x		Connector, M12, 8-pin, metal	Integrated status indicator
66501600	◄ MLD500-XT3	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	
66556200	► MLD520-R3L	400 mm	3x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66502200	◄ MLD500-T3L	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66555200	► MLD520-R3LM	400 mm	3x		Connector, M12, 8-pin, metal	Integrated status indicator, reflective element for laser alignment aid
66502200	◄ MLD500-T3L	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66556600	► MLD520-XR3L	400 mm	3x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66502600	◄ MLD500-XT3L	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66555600	► MLD520-XR3LM	400 mm	3x		Connector, M12, 8-pin, metal	Integrated status indicator, reflective element for laser alignment aid
66502600	◄ MLD500-XT3L	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66553300	► MLD520-R4	300 mm	4x		Connector, M12, 8-pin, metal	
66501300	◄ MLD500-T4	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66553700	► MLD520-XR4	300 mm	4x		Connector, M12, 8-pin, metal	
66501700	◄ MLD500-XT4	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	
66554300	► MLD520-R4M	300 mm	4x		Connector, M12, 8-pin, metal	Integrated status indicator
66501300	◄ MLD500-T4	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66554700	► MLD520-XR4M	300 mm	4x		Connector, M12, 8-pin, metal	Integrated status indicator
66501700	◄ MLD500-XT4	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	
66556300	► MLD520-R4L	300 mm	4x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66502300	◄ MLD500-T4L	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66555300	► MLD520-R4LM	300 mm	4x		Connector, M12, 8-pin, metal	Integrated status indicator, reflective element for laser alignment aid
66502300	◄ MLD500-T4L	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66556700	► MLD520-XR4L	300 mm	4x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66502700	◄ MLD500-XT4L	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66555700	► MLD520-XR4LM	300 mm	4x		Connector, M12, 8-pin, metal	Integrated status indicator, reflective element for laser alignment aid
66502700	◄ MLD500-XT4L	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid

► receiver / ◄ transmitter
Included in delivery: sliding blocks

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

MLD 530

Many functions, such as start/restart interlock, contactor monitoring, timing controlled 2-sensor muting and sequence controlled 2-sensor muting, ensure great flexibility.

Benefits:

- The configuration is simply performed by means of wiring, i.e. no software, PC or DIP switch are necessary
- Use at ambient temperatures as low as -30°C is possible
- Start/restart interlock (RES), selectable
- Contactor monitoring (EDM), selectable
- Configurable operating modes
- Integrated muting function, no additional muting module is necessary
- 2-sensor muting, (timing controlled, sequence controlled)
- Options: integrated laser alignment aid, integrated muting indicator, 7-segment display

Part no.	Part description	Beam spacing	Number of beams	Operating range	Connection	Design
66563100	► MLD530-R2	500 mm	2x		Connector, M12, 8-pin, metal	
66501100	◄ MLD500-T2	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66563500	► MLD530-XR2	500 mm	2x		Connector, M12, 8-pin, metal	
66501500	◄ MLD500-XT2	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	
66564100	► MLD530-R2M	500 mm	2x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator
66501100	◄ MLD500-T2	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66566100	► MLD530-R2L	500 mm	2x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66502100	◄ MLD500-T2L	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66565100	► MLD530-R2LM	500 mm	2x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator, reflective element for laser alignment aid
66502100	◄ MLD500-T2L	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66566500	► MLD530-XR2L	500 mm	2x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66502500	◄ MLD500-XT2L	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66563200	► MLD530-R3	400 mm	3x		Connector, M12, 8-pin, metal	
66501200	◄ MLD500-T3	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66563600	► MLD530-XR3	400 mm	3x		Connector, M12, 8-pin, metal	
66501600	◄ MLD500-XT3	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	
66564200	► MLD530-R3M	400 mm	3x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator
66501200	◄ MLD500-T3	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66566200	► MLD530-R3L	400 mm	3x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66502200	◄ MLD500-T3L	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66565200	► MLD530-R3LM	400 mm	3x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator, reflective element for laser alignment aid
66502200	◄ MLD500-T3L	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66566600	► MLD530-XR3L	400 mm	3x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66502600	◄ MLD500-XT3L	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66563300	► MLD530-R4	300 mm	4x		Connector, M12, 8-pin, metal	
66501300	◄ MLD500-T4	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66563700	► MLD530-XR4	300 mm	4x		Connector, M12, 8-pin, metal	
66501700	◄ MLD500-XT4	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	
66564300	► MLD530-R4M	300 mm	4x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator
66501300	◄ MLD500-T4	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66566300	► MLD530-R4L	300 mm	4x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66502300	◄ MLD500-T4L	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66565300	► MLD530-R4LM	300 mm	4x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator, reflective element for laser alignment aid
66502300	◄ MLD500-T4L	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66566700	► MLD530-XR4L	300 mm	4x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66502700	◄ MLD500-XT4L	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid

► receiver / ◄ transmitter
Included in delivery: sliding blocks

MLD 535

Through extensive functions, such as start/restart interlock, contactor monitoring, timing controlled 2-sensor muting, sequence controlled 2-sensor muting and timing controlled 4-sensor muting, these multiple light beam safety devices can be used in different areas.

Benefits:

- The configuration is simply performed by means of wiring, i.e. no software, PC or DIP switch are necessary
- Use at ambient temperatures as low as -30 °C is possible
- Start/restart interlock (RES), selectable
- Contactor monitoring (EDM), selectable
- Configurable operating modes
- Integrated muting function, no additional muting module is necessary
- 2-sensor muting, (timing controlled, sequence controlled)
- Timing controlled 4-sensor muting
- Options: integrated muting indicator, 7-segment display

Part no.	Part description	Beam spacing	Number of beams	Operating range	Connection	Design
66573100	► MLD535-R2	500 mm	2x		Connector, M12, 8-pin, metal	
66501100	◄ MLD500-T2	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66573500	► MLD535-XR2	500 mm	2x		Connector, M12, 8-pin, metal	
66501500	◄ MLD500-XT2	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	
66574100	► MLD535-R2M	500 mm	2x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator
66501100	◄ MLD500-T2	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66576100	► MLD535-R2L	500 mm	2x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66502100	◄ MLD500-T2L	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66575100	► MLD535-R2LM	500 mm	2x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator, reflective element for laser alignment aid
66502100	◄ MLD500-T2L	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66576500	► MLD535-XR2L	500 mm	2x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66502500	◄ MLD500-XT2L	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66573200	► MLD535-R3	400 mm	3x		Connector, M12, 8-pin, metal	
66501200	◄ MLD500-T3	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66573600	► MLD535-XR3	400 mm	3x		Connector, M12, 8-pin, metal	
66501600	◄ MLD500-XT3	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	
66574200	► MLD535-R3M	400 mm	3x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator
66501200	◄ MLD500-T3	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66576200	► MLD535-R3L	400 mm	3x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66502200	◄ MLD500-T3L	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66575200	► MLD535-R3LM	400 mm	3x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator, reflective element for laser alignment aid
66502200	◄ MLD500-T3L	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66576600	► MLD535-XR3L	400 mm	3x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66502600	◄ MLD500-XT3L	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66573300	► MLD535-R4	300 mm	4x		Connector, M12, 8-pin, metal	
66501300	◄ MLD500-T4	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66573700	► MLD535-XR4	300 mm	4x		Connector, M12, 8-pin, metal	
66501700	◄ MLD500-XT4	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	
66574300	► MLD535-R4M	300 mm	4x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator
66501300	◄ MLD500-T4	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66576300	► MLD535-R4L	300 mm	4x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66502300	◄ MLD500-T4L	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66575300	► MLD535-R4LM	300 mm	4x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator, reflective element for laser alignment aid
66502300	◄ MLD500-T4L	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66576700	► MLD535-XR4L	300 mm	4x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66502700	◄ MLD500-XT4L	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid

► receiver / ◄ transmitter
Included in delivery: sliding blocks

Switching
sensors

Measuring
sensors

Products for
safety at work

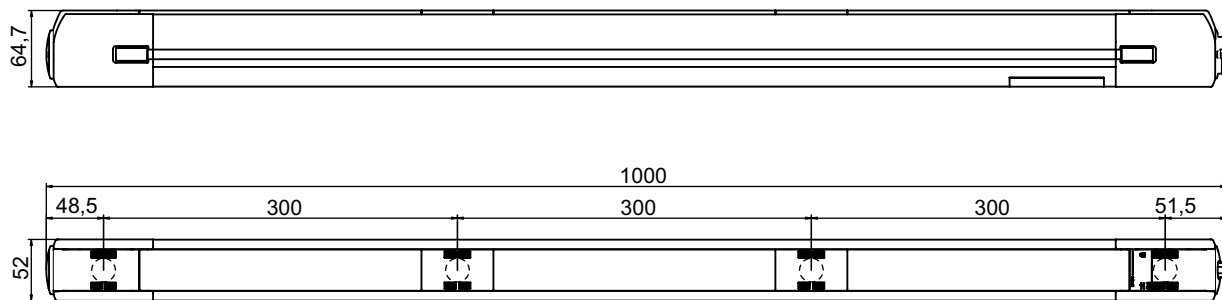
Identification

Data transmission /
Control components

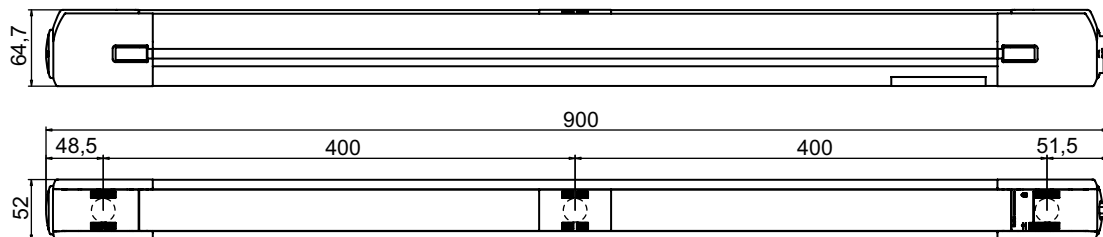
Industrial image
processing

Accessories

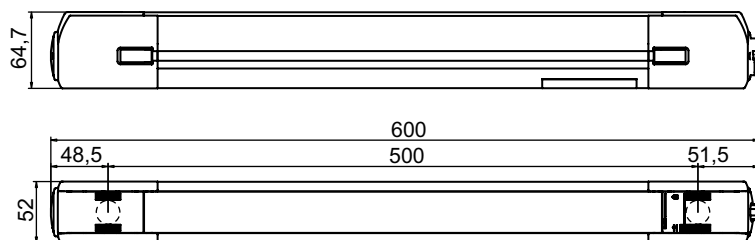
Dimensioned drawings: MLD 500



MLD 500 multiple light beam safety device, 4-beam, transmitter,receiver



MLD 500 multiple light beam safety device, 3-beam, transmitter,receiver



MLD 500 multiple light beam safety device, 2-beam, transmitter,receiver

SMARTER CUSTOMER SERVICE

Added value made attainable!

We offer specific and measurable added value in the areas of usability, application know-how and service – to make our customers more successful. In the future, these areas will also be our yardstick for new product developments, innovative service offerings and extensive market expertise.



More information on our active customer orientation: www.leuze.com/en/ssb



/// MLD 500Transceiver



With this type 4 design, all active components, such as transmitter, receiver and the integrated evaluation unit, are contained in a common housing. This reduces wiring considerably.



Direct access to the online product selector at www.leuze.com/en/mld500-t

PART NUMBER CODES – MLD 500, MLD 300 multiple light beam safety devices

M L D 3 0 0 T 2 L -

Type

MLD Multiple light beam safety device

Series

3 MLD 300
5 MLD 500

Function

00 Transmitter
10 Automatic restart
12 External testing (MLD 300 only)
20 Start/restart interlock selectable, contactor monitoring selectable
30 2-sensor muting (timing controlled, sequence controlled)
35 4-sensor muting (timing controlled)

Device type

T Transmitter
R Receiver
RT Transceiver
xT Transmitter for high range
xR Receiver for high range

No. of beams

2 2-beam
3 3-beam
4 4-beam

Option

L Integrated laser alignment aid
M Integrated indicator
E Connection socket for external muting indicator (AS-i models only)

Safety-related switching outputs (OSSD), connection system

- Transistor output, M12 plug
A Integrated AS-i interface, M12 plug, (safety bus system)

MLD 510

These multiple light beam safety devices are equipped with an automatic restart.

Benefits:

- The configuration is simply performed by means of wiring, i.e. no software, PC or DIP switch are necessary
- Use at ambient temperatures as low as -30°C is possible
- Options: integrated muting indicator

Part no.	Part description	Beam spacing	Number of beams	Operating range	Connection	Design
66537100	► MLD510-RT2	500 mm	2x	0.5 ... 8 m	Connector, M12, 5-pin, metal	
66500100	◄ MLD-M002	500 mm	2x			
66537101	► MLD510-RT2/A	500 mm	2x	0.5 ... 8 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work
66500100	◄ MLD-M002	500 mm	2x			

► Transceiver / ◄ Deflect. mirror
Included in delivery: sliding blocks

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

Part no.	Part description	Beam spacing	Number of beams	Operating range	Connection	Design
66537102	► MLD510-RT2E/A	500 mm	2x	0.5 ... 8 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work, connection socket for external muting indicator
66500100	◄ MLD-M002	500 mm	2x			
66538101	► MLD510-RT2M/A	500 mm	2x	0.5 ... 8 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated muting indicator, integrated status indicator
66500100	◄ MLD-M002	500 mm	2x			
66538102	► MLD510-RT2ME/A	500 mm	2x	0.5 ... 8 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated muting indicator, integrated status indicator, connection socket for external muting indicator
66500100	◄ MLD-M002	500 mm	2x			
66537200	► MLD510-RT3	400 mm	3x	0.5 ... 6 m	Connector, M12, 5-pin, metal	
66500200	◄ MLD-M003	400 mm	3x	0.5 ... 6 m		
66500201	◄ MLD-XM03	400 mm	3x	0.5 ... 8 m		
66537201	► MLD510-RT3/A	400 mm	3x	0.5 ... 6 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work
66500200	◄ MLD-M003	400 mm	3x	0.5 ... 6 m		
66500201	◄ MLD-XM03	400 mm	3x	0.5 ... 8 m		
66537202	► MLD510-RT3E/A	400 mm	3x	0.5 ... 6 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work, connection socket for external muting indicator
66500200	◄ MLD-M003	400 mm	3x	0.5 ... 6 m		
66500201	◄ MLD-XM03	400 mm	3x	0.5 ... 8 m		
66538201	► MLD510-RT3M/A	400 mm	3x	0.5 ... 6 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated muting indicator, integrated status indicator
66500200	◄ MLD-M003	400 mm	3x	0.5 ... 6 m		
66500201	◄ MLD-XM03	400 mm	3x	0.5 ... 8 m		
66538202	► MLD510-RT3ME/A	400 mm	3x	0.5 ... 6 m	Connector, M12, 5-pin, metal	AS-Interface Safety at Work, integrated muting indicator, integrated status indicator, connection socket for external muting indicator
66500200	◄ MLD-M003	400 mm	3x	0.5 ... 6 m		
66500201	◄ MLD-XM03	400 mm	3x	0.5 ... 8 m		

► Transceiver / ◄ Deflect. mirror
Included in delivery: sliding blocks

MLD 520

These multiple light beam safety devices offer a selectable start/restart interlock (RES) and contactor monitoring (EDM).

Benefits:

- The configuration is simply performed by means of wiring, i.e. no software, PC or DIP switch are necessary
- Use at ambient temperatures as low as -30 °C is possible
- Start/restart interlock (RES), selectable
- Contactor monitoring (EDM), selectable
- Options: integrated status indicator

Part no.	Part description	Beam spacing	Number of beams	Operating range	Connection	Design
66557100	► MLD520-RT2	500 mm	2x	0.5 ... 8 m	Connector, M12, 8-pin, metal	
66500100	◄ MLD-M002	500 mm	2x			
66558100	► MLD520-RT2M	500 mm	2x	0.5 ... 8 m	Connector, M12, 8-pin, metal	Integrated status indicator
66500100	◄ MLD-M002	500 mm	2x	0.5 ... 8 m		
66557200	► MLD520-RT3	400 mm	3x	0.5 ... 6 m	Connector, M12, 8-pin, metal	
66500200	◄ MLD-M003	400 mm	3x	0.5 ... 6 m		
66500201	◄ MLD-XM03	400 mm	3x	0.5 ... 8 m		
66558200	► MLD520-RT3M	400 mm	3x	0.5 ... 6 m	Connector, M12, 8-pin, metal	Integrated status indicator
66500200	◄ MLD-M003	400 mm	3x	0.5 ... 6 m		
66500201	◄ MLD-XM03	400 mm	3x	0.5 ... 8 m		

► Transceiver / ◄ Deflect. mirror
Included in delivery: sliding blocks

MLD 530

Many functions, such as start/restart interlock, contactor monitoring, timing controlled 2-sensor muting and sequence controlled 2-sensor muting, ensure great flexibility.

Benefits:

- The configuration is simply performed by means of wiring, i.e. no software, PC or DIP switch are necessary
- Use at ambient temperatures as low as -30°C is possible
- Start/restart interlock (RES), selectable
- Contactor monitoring (EDM), selectable
- Configurable operating modes
- Integrated muting function, no additional muting module is necessary
- 2-sensor muting, (timing controlled, sequence controlled)
- Options: integrated muting indicator, 7-segment display

Part no.	Part description	Beam spacing	Number of beams	Operating range	Connection	Design
66567100	► MLD530-RT2	500 mm	2x	0.5 ... 8 m	Connector, M12, 8-pin, metal	
66500100	◄ MLD-M002	500 mm	2x			
66568100	► MLD530-RT2M	500 mm	2x	0.5 ... 8 m	Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator
66500100	◄ MLD-M002	500 mm	2x			
66567200	► MLD530-RT3	400 mm	3x	0.5 ... 6 m	Connector, M12, 8-pin, metal	
66500200	◄ MLD-M003	400 mm	3x	0.5 ... 6 m		
66500201	◄ MLD-XM03	400 mm	3x	0.5 ... 8 m		
66568200	► MLD530-RT3M	400 mm	3x	0.5 ... 6 m	Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator
66500200	◄ MLD-M003	400 mm	3x	0.5 ... 6 m		
66500201	◄ MLD-XM03	400 mm	3x	0.5 ... 8 m		

► Transceiver / ◄ Deflect. mirror
Included in delivery: sliding blocks

MLD 535

Through extensive functions, such as start/restart interlock, contactor monitoring, timing controlled 2-sensor muting, sequence controlled 2-sensor muting and timing controlled 4-sensor muting, these multiple light beam safety devices can be used in different areas.

Benefits:

- The configuration is simply performed by means of wiring, i.e. no software, PC or DIP switch are necessary
- Use at ambient temperatures as low as -30°C is possible
- Start/restart interlock (RES), selectable
- Contactor monitoring (EDM), selectable
- Configurable operating modes
- Integrated muting function, no additional muting module is necessary
- 2-sensor muting, (timing controlled, sequence controlled)
- Timing controlled 4-sensor muting
- Options: integrated muting indicator, 7-segment display

Part no.	Part description	Beam spacing	Number of beams	Operating range	Connection	Design
66577100	► MLD535-RT2	500 mm	2x	0.5 ... 8 m	Connector, M12, 8-pin, metal	
66500100	◄ MLD-M002	500 mm	2x			
66578100	► MLD535-RT2M	500 mm	2x	0.5 ... 8 m	Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator
66500100	◄ MLD-M002	500 mm	2x			
66577200	► MLD535-RT3	400 mm	3x	0.5 ... 6 m	Connector, M12, 8-pin, metal	
66500200	◄ MLD-M003	400 mm	3x	0.5 ... 6 m		
66500201	◄ MLD-XM03	400 mm	3x	0.5 ... 8 m		
66578200	► MLD535-RT3M	400 mm	3x	0.5 ... 6 m	Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator
66500200	◄ MLD-M003	400 mm	3x	0.5 ... 6 m		
66500201	◄ MLD-XM03	400 mm	3x	0.5 ... 8 m		

► Transceiver / ◄ Deflect. mirror
Included in delivery: sliding blocks

Switching
sensors

Measuring
sensors

Products for
safety at work

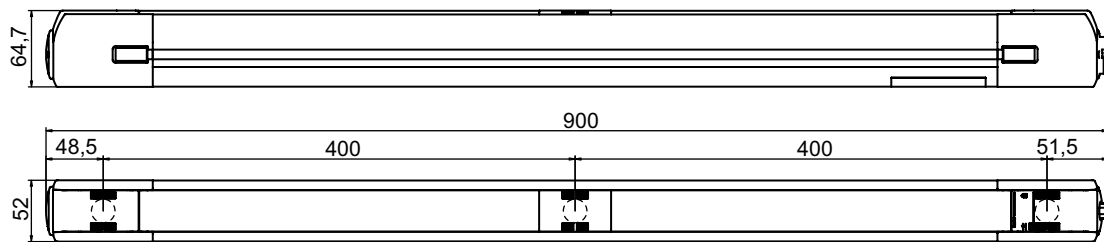
Identification

Data transmission /
Control components

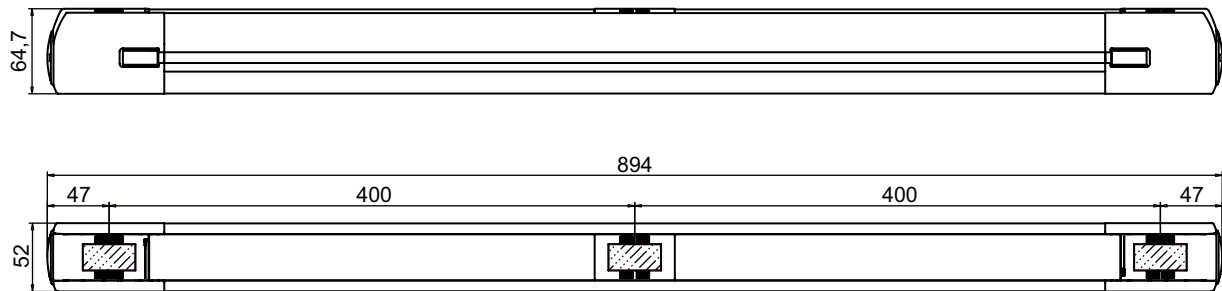
Industrial image
processing

Accessories

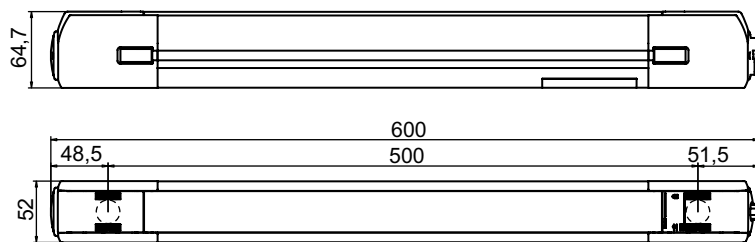
Dimensioned drawings: MLD 500Transceiver



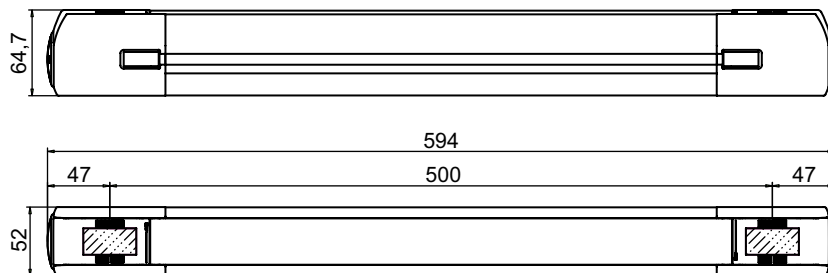
MLD 500 multiple light beam safety device, 3-beam, Transceiver



MLD-M multiple light beam safety device, 3-beam, deflecting mirror



MLD 500 multiple light beam safety device, 2-beam, Transceiver



MLD-M multiple light beam safety device, 2-beam, deflecting mirror

/// MLD 300 transmitter/receiver



Like the protective sensors of the MLD 500 series (type 4), these type 2 multiple light beam safety devices are also available in various function classes (MLD 310, 312, 320, 330, 335). Configuration via PC or DIP switch is not necessary.



Direct access to the online product selector at www.leuze.com/en/mld300-se

PART NUMBER CODES – MLD 500, MLD 300 multiple light beam safety devices

M L D 3 0 0 T 2 L -

Type

MLD Multiple light beam safety device

Series

3 MLD 300
5 MLD 500

Function

00 Transmitter
10 Automatic restart
12 External testing (MLD 300 only)
20 Start/restart interlock selectable, contactor monitoring selectable
30 2-sensor muting (timing controlled, sequence controlled)
35 4-sensor muting (timing controlled)

Device type

T Transmitter
R Receiver
RT Transceiver
xT Transmitter for high range
xR Receiver for high range

No. of beams

2 2-beam
3 3-beam
4 4-beam

Option

L Integrated laser alignment aid
M Integrated indicator
E Connection socket for external muting indicator (AS-i models only)

Safety-related switching outputs (OSSD), connection system

- Transistor output, M12 plug
A Integrated AS-i interface, M12 plug, (safety bus system)

MLD 310

These multiple light beam safety devices are equipped with an automatic restart.

Benefits:

- The configuration is simply performed by means of wiring, i.e. no software, PC or DIP switch are necessary
- Use at ambient temperatures as low as -30°C is possible
- Options: integrated muting indicator

Part no.	Part description	Beam spacing	Number of beams	Operating range	Connection	Design
66033100	► MLD310-R2	500 mm	2x		Connector, M12, 5-pin, metal	
66001100	◄ MLD300-T2	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66033500	► MLD310-XR2	500 mm	2x		Connector, M12, 5-pin, metal	
66001500	◄ MLD300-XT2	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	

► receiver / ◄ transmitter
Included in delivery: sliding blocks

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

Part no.	Part description	Beam spacing	Number of beams	Operating range	Connection	Design
66036100	► MLD310-R2L	500 mm	2x		Connector, M12, 5-pin, metal	Reflective element for laser alignment aid
66002100	◄ MLD300-T2L	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66036500	► MLD310-XR2L	500 mm	2x		Connector, M12, 5-pin, metal	Reflective element for laser alignment aid
66002500	◄ MLD300-XT2L	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66033200	► MLD310-R3	400 mm	3x		Connector, M12, 5-pin, metal	
66001200	◄ MLD300-T3	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66033600	► MLD310-XR3	400 mm	3x		Connector, M12, 5-pin, metal	
66001600	◄ MLD300-XT3	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	
66036200	► MLD310-R3L	400 mm	3x		Connector, M12, 5-pin, metal	Reflective element for laser alignment aid
66002200	◄ MLD300-T3L	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66036600	► MLD310-XR3L	400 mm	3x		Connector, M12, 5-pin, metal	Reflective element for laser alignment aid
66002600	◄ MLD300-XT3L	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66033300	► MLD310-R4	300 mm	4x		Connector, M12, 5-pin, metal	
66001300	◄ MLD300-T4	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66033700	► MLD310-XR4	300 mm	4x		Connector, M12, 5-pin, metal	
66001700	◄ MLD300-XT4	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	
66036300	► MLD310-R4L	300 mm	4x		Connector, M12, 5-pin, metal	Reflective element for laser alignment aid
66002300	◄ MLD300-T4L	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66036700	► MLD310-XR4L	300 mm	4x		Connector, M12, 5-pin, metal	Reflective element for laser alignment aid
66002700	◄ MLD300-XT4L	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid

► receiver / ◄ transmitter
Included in delivery: sliding blocks

MLD 312

These multiple light beam safety devices are equipped with an automatic restart. The receivers are equipped with a test input for the periodic function test by means of an external safety monitoring device.

Benefits:

- The configuration is simply performed by means of wiring, i.e. no software, PC or DIP switch are necessary
- Use at ambient temperatures as low as -30 °C is possible
- Test input for periodic function test
- Options: integrated muting indicator

Part no.	Part description	Beam spacing	Number of beams	Operating range	Connection	Design
66043100	► MLD312-R2	500 mm	2x		Connector, M12, 5-pin, metal	
66001100	◄ MLD300-T2	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66043500	► MLD312-XR2	500 mm	2x		Connector, M12, 5-pin, metal	
66001500	◄ MLD300-XT2	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	
66046100	► MLD312-R2L	500 mm	2x		Connector, M12, 5-pin, metal	Reflective element for laser alignment aid
66002100	◄ MLD300-T2L	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66046500	► MLD312-XR2L	500 mm	2x		Connector, M12, 5-pin, metal	Reflective element for laser alignment aid
66002500	◄ MLD300-XT2L	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66043200	► MLD312-R3	400 mm	3x		Connector, M12, 5-pin, metal	
66001200	◄ MLD300-T3	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66043600	► MLD312-XR3	400 mm	3x		Connector, M12, 5-pin, metal	
66001600	◄ MLD300-XT3	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	
66046200	► MLD312-R3L	400 mm	3x		Connector, M12, 5-pin, metal	Reflective element for laser alignment aid
66002200	◄ MLD300-T3L	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66046600	► MLD312-XR3L	400 mm	3x		Connector, M12, 5-pin, metal	Reflective element for laser alignment aid
66002600	◄ MLD300-XT3L	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66043300	► MLD312-R4	300 mm	4x		Connector, M12, 5-pin, metal	
66001300	◄ MLD300-T4	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66043700	► MLD312-XR4	300 mm	4x		Connector, M12, 5-pin, metal	
66001700	◄ MLD300-XT4	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	
66046300	► MLD312-R4L	300 mm	4x		Connector, M12, 5-pin, metal	Reflective element for laser alignment aid
66002300	◄ MLD300-T4L	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66046700	► MLD312-XR4L	300 mm	4x		Connector, M12, 5-pin, metal	Reflective element for laser alignment aid
66002700	◄ MLD300-XT4L	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid

► receiver / ◄ transmitter
Included in delivery: sliding blocks

MLD 320

These multiple light beam safety devices offer a selectable start/restart interlock (RES) and contactor monitoring (EDM).

Benefits:

- The configuration is simply performed by means of wiring, i.e. no software, PC or DIP switch are necessary
- Use at ambient temperatures as low as -30 °C is possible
- Start/restart interlock (RES), selectable
- Contactor monitoring (EDM), selectable
- Options: integrated laser alignment aid, integrated status indicator

Part no.	Part description	Beam spacing	Number of beams	Operating range	Connection	Design
66053100	► MLD320-R2	500 mm	2x		Connector, M12, 8-pin, metal	
66001100	◄ MLD300-T2	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66053500	► MLD320-XR2	500 mm	2x		Connector, M12, 8-pin, metal	
66001500	◄ MLD300-XT2	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	
66054100	► MLD320-R2M	500 mm	2x		Connector, M12, 8-pin, metal	Integrated status indicator
66001100	◄ MLD300-T2	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66054500	► MLD320-XR2M	500 mm	2x		Connector, M12, 8-pin, metal	Integrated status indicator
66001500	◄ MLD300-XT2	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	
66056100	► MLD320-R2L	500 mm	2x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66002100	◄ MLD300-T2L	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66055100	► MLD320-R2LM	500 mm	2x		Connector, M12, 8-pin, metal	Integrated status indicator, reflective element for laser alignment aid
66002100	◄ MLD300-T2L	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66056500	► MLD320-XR2L	500 mm	2x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66002500	◄ MLD300-XT2L	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66055500	► MLD320-XR2LM	500 mm	2x		Connector, M12, 8-pin, metal	Integrated status indicator, reflective element for laser alignment aid
66002500	◄ MLD300-XT2L	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66053200	► MLD320-R3	400 mm	3x		Connector, M12, 8-pin, metal	
66001200	◄ MLD300-T3	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66053600	► MLD320-XR3	400 mm	3x		Connector, M12, 8-pin, metal	
66001600	◄ MLD300-XT3	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	
66054200	► MLD320-R3M	400 mm	3x		Connector, M12, 8-pin, metal	Integrated status indicator
66001200	◄ MLD300-T3	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66054600	► MLD320-XR3M	400 mm	3x		Connector, M12, 8-pin, metal	Integrated status indicator
66001600	◄ MLD300-XT3	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	
66056200	► MLD320-R3L	400 mm	3x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66002200	◄ MLD300-T3L	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66055200	► MLD320-R3LM	400 mm	3x		Connector, M12, 8-pin, metal	Integrated status indicator, reflective element for laser alignment aid
66002200	◄ MLD300-T3L	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66056600	► MLD320-XR3L	400 mm	3x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66002600	◄ MLD300-XT3L	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66055600	► MLD320-XR3LM	400 mm	3x		Connector, M12, 8-pin, metal	Integrated status indicator, reflective element for laser alignment aid
66002600	◄ MLD300-XT3L	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66053300	► MLD320-R4	300 mm	4x		Connector, M12, 8-pin, metal	
66001300	◄ MLD300-T4	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66053700	► MLD320-XR4	300 mm	4x		Connector, M12, 8-pin, metal	
66001700	◄ MLD300-XT4	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	
66054300	► MLD320-R4M	300 mm	4x		Connector, M12, 8-pin, metal	Integrated status indicator
66001300	◄ MLD300-T4	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66054700	► MLD320-XR4M	300 mm	4x		Connector, M12, 8-pin, metal	Integrated status indicator
66001700	◄ MLD300-XT4	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	
66056300	► MLD320-R4L	300 mm	4x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66002300	◄ MLD300-T4L	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66055300	► MLD320-R4LM	300 mm	4x		Connector, M12, 8-pin, metal	Integrated status indicator, reflective element for laser alignment aid
66002300	◄ MLD300-T4L	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66056700	► MLD320-XR4L	300 mm	4x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66002700	◄ MLD300-XT4L	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66055700	► MLD320-XR4LM	300 mm	4x		Connector, M12, 8-pin, metal	Integrated status indicator, reflective element for laser alignment aid
66002700	◄ MLD300-XT4L	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid

► receiver / ◄ transmitter
Included in delivery: sliding blocks

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

MLD 330

Many functions, such as start/restart interlock, contactor monitoring, timing controlled 2-sensor muting, sequence controlled 2-sensor muting, ensure great flexibility.

Benefits:

- The configuration is simply performed by means of wiring, i.e. no software, PC or DIP switch are necessary
- Use at ambient temperatures as low as -30°C is possible
- Start/restart interlock (RES), selectable
- Contactor monitoring (EDM), selectable
- Configurable operating modes
- Integrated muting function, no additional muting module is necessary
- 2-sensor muting, (timing controlled, sequence controlled)
- Options: integrated laser alignment aid, integrated muting indicator, 7-segment display

Part no.	Part description	Beam spacing	Number of beams	Operating range	Connection	Design
66063100	► MLD330-R2	500 mm	2x		Connector, M12, 8-pin, metal	
66001100	◄ MLD300-T2	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66063500	► MLD330-XR2	500 mm	2x		Connector, M12, 8-pin, metal	
66001500	◄ MLD300-XT2	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	
66064100	► MLD330-R2M	500 mm	2x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator
66001100	◄ MLD300-T2	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66066100	► MLD330-R2L	500 mm	2x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66002100	◄ MLD300-T2L	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66065100	► MLD330-R2LM	500 mm	2x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator, reflective element for laser alignment aid
66002100	◄ MLD300-T2L	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66066500	► MLD330-XR2L	500 mm	2x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66002500	◄ MLD300-XT2L	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66063200	► MLD330-R3	400 mm	3x		Connector, M12, 8-pin, metal	
66001200	◄ MLD300-T3	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66063600	► MLD330-XR3	400 mm	3x		Connector, M12, 8-pin, metal	
66001600	◄ MLD300-XT3	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	
66064200	► MLD330-R3M	400 mm	3x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator
66001200	◄ MLD300-T3	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66066200	► MLD330-R3L	400 mm	3x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66002200	◄ MLD300-T3L	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66065200	► MLD330-R3LM	400 mm	3x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator, reflective element for laser alignment aid
66002200	◄ MLD300-T3L	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66066600	► MLD330-XR3L	400 mm	3x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66002600	◄ MLD300-XT3L	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66063300	► MLD330-R4	300 mm	4x		Connector, M12, 8-pin, metal	
66001300	◄ MLD300-T4	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66063700	► MLD330-XR4	300 mm	4x		Connector, M12, 8-pin, metal	
66001700	◄ MLD300-XT4	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	
66064300	► MLD330-R4M	300 mm	4x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator
66001300	◄ MLD300-T4	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66066300	► MLD330-R4L	300 mm	4x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66002300	◄ MLD300-T4L	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66065300	► MLD330-R4LM	300 mm	4x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator, reflective element for laser alignment aid
66002300	◄ MLD300-T4L	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66066700	► MLD330-XR4L	300 mm	4x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66002700	◄ MLD300-XT4L	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid

► receiver / ◄ transmitter
Included in delivery: sliding blocks

MLD 335

Through extensive functions, such as start/restart interlock, contactor monitoring, timing controlled 2-sensor muting, sequence controlled 2-sensor muting and timing controlled 4-sensor muting, these multiple light beam safety devices can be used in different areas.

Benefits:

- The configuration is simply performed by means of wiring, i.e. no software, PC or DIP switch are necessary
- Use at ambient temperatures as low as -30°C is possible
- Start/restart interlock (RES), selectable
- Contactor monitoring (EDM), selectable
- Configurable operating modes
- Integrated muting function, no additional muting module is necessary
- 2-sensor muting, (timing controlled, sequence controlled)
- Timing controlled 4-sensor muting
- Options: integrated muting indicator, 7-segment display

Part no.	Part description	Beam spacing	Number of beams	Operating range	Connection	Design
66073100	► MLD335-R2	500 mm	2x		Connector, M12, 8-pin, metal	
66001100	◄ MLD300-T2	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66073500	► MLD335-XR2	500 mm	2x		Connector, M12, 8-pin, metal	
66001500	◄ MLD300-XT2	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	
66074100	► MLD335-R2M	500 mm	2x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator
66001100	◄ MLD300-T2	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66076100	► MLD335-R2L	500 mm	2x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66002100	◄ MLD300-T2L	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66075100	► MLD335-R2LM	500 mm	2x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator, reflective element for laser alignment aid
66002100	◄ MLD300-T2L	500 mm	2x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66076500	► MLD335-XR2L	500 mm	2x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66002500	◄ MLD300-XT2L	500 mm	2x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66073200	► MLD335-R3	400 mm	3x		Connector, M12, 8-pin, metal	
66001200	◄ MLD300-T3	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66073600	► MLD335-XR3	400 mm	3x		Connector, M12, 8-pin, metal	
66001600	◄ MLD300-XT3	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	
66074200	► MLD335-R3M	400 mm	3x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator
66001200	◄ MLD300-T3	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66076200	► MLD335-R3L	400 mm	3x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66002200	◄ MLD300-T3L	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66075200	► MLD335-R3LM	400 mm	3x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator, reflective element for laser alignment aid
66002200	◄ MLD300-T3L	400 mm	3x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66076600	► MLD335-XR3L	400 mm	3x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66002600	◄ MLD300-XT3L	400 mm	3x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66073300	► MLD335-R4	300 mm	4x		Connector, M12, 8-pin, metal	
66001300	◄ MLD300-T4	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66073700	► MLD335-XR4	300 mm	4x		Connector, M12, 8-pin, metal	
66001700	◄ MLD300-XT4	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	
66074300	► MLD335-R4M	300 mm	4x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator
66001300	◄ MLD300-T4	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	
66076300	► MLD335-R4L	300 mm	4x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66002300	◄ MLD300-T4L	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66075300	► MLD335-R4LM	300 mm	4x		Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator, reflective element for laser alignment aid
66002300	◄ MLD300-T4L	300 mm	4x	0.5 ... 50 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid
66076700	► MLD335-XR4L	300 mm	4x		Connector, M12, 8-pin, metal	Reflective element for laser alignment aid
66002700	◄ MLD300-XT4L	300 mm	4x	20 ... 70 m	Connector, M12, 5-pin, metal	Integrated laser alignment aid

► receiver / ◄ transmitter
Included in delivery: sliding blocks

Switching
sensors

Measuring
sensors

Products for
safety at work

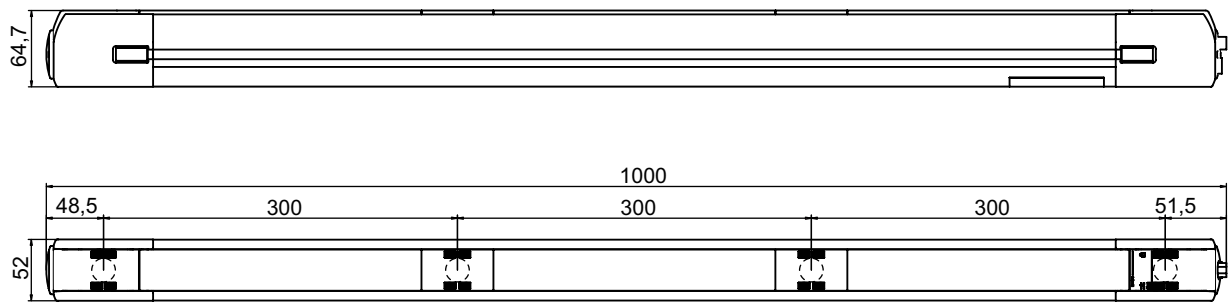
Identification

Data transmission /
Control components

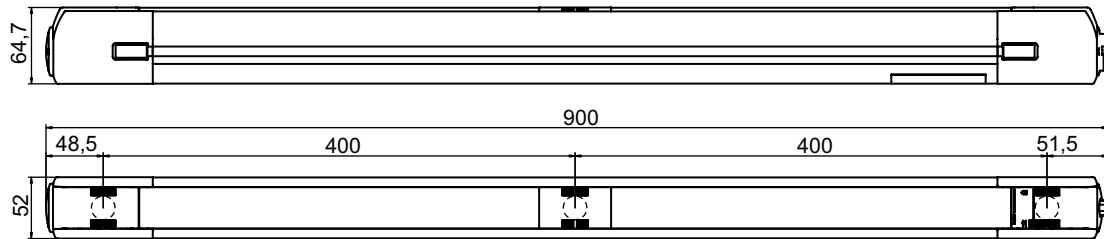
Industrial image
processing

Accessories

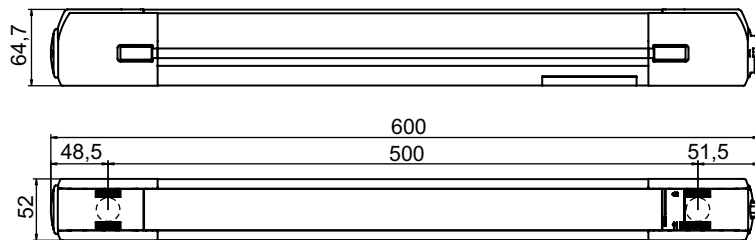
Dimensioned drawings: MLD 300



MLD 300 multiple light beam safety device, 4-beam, transmitter,receiver



MLD 300 multiple light beam safety device, 3-beam, transmitter,receiver



MLD 300 multiple light beam safety device, 2-beam, transmitter,receiver

SMARTER APPLICATION KNOW-HOW

You need
application know-how –
we have the required expertise!



Conveyor and
storage systems



Automotive
industry



Packaging industry



Robotics / handling



Machine tools



Laboratory analysis



More on our industry-specific knowledge: www.leuze.com/en/industry

/// MLD 300Transceiver



With this type 2 design, all active components, such as transmitter, receiver and the integrated evaluation unit, are contained in a common housing. This reduces wiring considerably.



Direct access to the online product selector at www.leuze.com/en/mld300-t

PART NUMBER CODES – MLD 500, MLD 300 multiple light beam safety devices

M L D 3 0 0 T 2 L -

Type

MLD Multiple light beam safety device

Series

3 MLD 300
5 MLD 500

Function

00 Transmitter
10 Automatic restart
12 External testing (MLD 300 only)
20 Start/restart interlock selectable, contactor monitoring selectable
30 2-sensor muting (timing controlled, sequence controlled)
35 4-sensor muting (timing controlled)

Device type

T Transmitter
R Receiver
RT Transceiver
xT Transmitter for high range
xR Receiver for high range

No. of beams

2 2-beam
3 3-beam
4 4-beam

Option

L Integrated laser alignment aid
M Integrated indicator
E Connection socket for external muting indicator (AS-i models only)

Safety-related switching outputs (OSSD), connection system

- Transistor output, M12 plug
A Integrated AS-i interface, M12 plug, (safety bus system)

MLD 310

These multiple light beam safety devices are equipped with an automatic restart.

Benefits:

- The configuration is simply performed by means of wiring, i.e. no software, PC or DIP switch are necessary
- Use at ambient temperatures as low as -30 °C is possible
- Options: integrated muting indicator

Part no.	Part description	Beam spacing	Number of beams	Operating range	Connection
66037100	► MLD310-RT2	500 mm	2x	0.5 ... 8 m	Connector, M12, 5-pin, metal
66500100	◄ MLD-M002	500 mm	2x		
66037200	► MLD310-RT3	400 mm	3x	0.5 ... 6 m	Connector, M12, 5-pin, metal
66500200	◄ MLD-M003	400 mm	3x	0.5 ... 6 m	
66500201	◄ MLD-XM03	400 mm	3x	0.5 ... 8 m	

► Transceiver / ◄ Deflect. mirror
Included in delivery: sliding blocks

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

MLD 312

These multiple light beam safety devices are equipped with an automatic restart. The Transceivers are equipped with a test input for the periodic function test by means of an external safety monitoring device.

Benefits:

- The configuration is simply performed by means of wiring, i.e. no software, PC or DIP switch are necessary
- Use at ambient temperatures as low as –30 °C is possible
- Test input for periodic function test
- Options: integrated muting indicator

Part no.	Part description	Beam spacing	Number of beams	Operating range	Connection
66047100	► MLD312-RT2	500 mm	2x	0.5 ... 8 m	Connector, M12, 5-pin, metal
66500100	◄ MLD-M002	500 mm	2x		
66047200	► MLD312-RT3	400 mm	3x	0.5 ... 6 m	Connector, M12, 5-pin, metal
66500200	◄ MLD-M003	400 mm	3x	0.5 ... 6 m	
66500201	◄ MLD-XM03	400 mm	3x	0.5 ... 8 m	

► Transceiver / ◄ Deflect. mirror
Included in delivery: sliding blocks

MLD 320

These multiple light beam safety devices offer a selectable start/restart interlock (RES) and contactor monitoring (EDM).

Benefits:

- The configuration is simply performed by means of wiring, i.e. no software, PC or DIP switch are necessary
- Use at ambient temperatures as low as –30 °C is possible
- Start/restart interlock (RES), selectable
- Contactor monitoring (EDM), selectable
- Options: integrated status indicator

Part no.	Part description	Beam spacing	Number of beams	Operating range	Connection	Design
66057100	► MLD320-RT2	500 mm	2x	0.5 ... 8 m	Connector, M12, 8-pin, metal	
66500100	◄ MLD-M002	500 mm	2x			
66058100	► MLD320-RT2M	500 mm	2x	0.5 ... 8 m	Connector, M12, 8-pin, metal	Integrated status indicator
66500100	◄ MLD-M002	500 mm	2x			
66057200	► MLD320-RT3	400 mm	3x	0.5 ... 6 m	Connector, M12, 8-pin, metal	
66500200	◄ MLD-M003	400 mm	3x	0.5 ... 6 m		
66500201	◄ MLD-XM03	400 mm	3x	0.5 ... 8 m		
66058200	► MLD320-RT3M	400 mm	3x	0.5 ... 6 m	Connector, M12, 8-pin, metal	Integrated status indicator
66500200	◄ MLD-M003	400 mm	3x	0.5 ... 6 m		
66500201	◄ MLD-XM03	400 mm	3x	0.5 ... 8 m		

► Transceiver / ◄ Deflect. mirror
Included in delivery: sliding blocks

MLD 330

Many functions, such as start/restart interlock, contactor monitoring, timing controlled 2-sensor muting, sequence controlled 2-sensor muting, ensure great flexibility.

Benefits:

- The configuration is simply performed by means of wiring, i.e. no software, PC or DIP switch are necessary
- Use at ambient temperatures as low as –30 °C is possible
- Start/restart interlock (RES), selectable
- Contactor monitoring (EDM), selectable
- Configurable operating modes
- Integrated muting function, no additional muting module is necessary
- 2-sensor muting, (timing controlled, sequence controlled)
- Options: integrated muting indicator, 7-segment display

Part no.	Part description	Beam spacing	Number of beams	Operating range	Connection	Design
66067100	► MLD330-RT2	500 mm	2x	0.5 ... 8 m	Connector, M12, 8-pin, metal	
66500100	◄ MLD-M002	500 mm	2x			
66068100	► MLD330-RT2M	500 mm	2x	0.5 ... 8 m	Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator
66500100	◄ MLD-M002	500 mm	2x			
66067200	► MLD330-RT3	400 mm	3x	0.5 ... 6 m	Connector, M12, 8-pin, metal	
66500200	◄ MLD-M003	400 mm	3x	0.5 ... 6 m		
66500201	◄ MLD-XM03	400 mm	3x	0.5 ... 8 m		

► Transceiver / ◄ Deflect. mirror
Included in delivery: sliding blocks

Part no.	Part description	Beam spacing	Number of beams	Operating range	Connection	Design
66068200	► MLD330-RT3M	400 mm	3x	0.5 ... 6 m	Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator
66500200	◄ MLD-M003	400 mm	3x	0.5 ... 6 m		
66500201	◄ MLD-XM03	400 mm	3x	0.5 ... 8 m		

► Transceiver / ◄ Deflect. mirror
Included in delivery: sliding blocks

MLD 335

Through extensive functions, such as start/restart interlock, contactor monitoring, timing controlled 2-sensor muting, sequence controlled 2-sensor muting and timing controlled 4-sensor muting, these multiple light beam safety devices can be used in different areas.

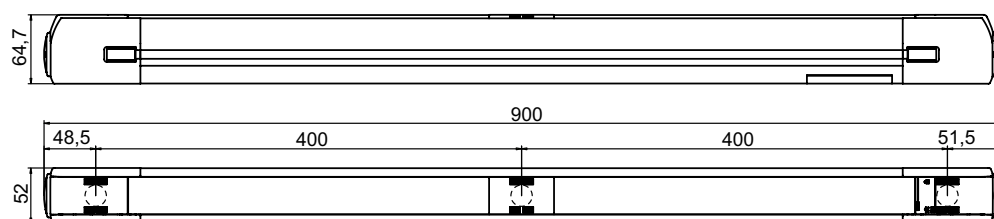
Benefits:

- The configuration is simply performed by means of wiring, i.e. no software, PC or DIP switch are necessary
- Use at ambient temperatures as low as -30°C is possible
- Start/restart interlock (RES), selectable
- Contactor monitoring (EDM), selectable
- Configurable operating modes
- Integrated muting function, no additional muting module is necessary
- 2-sensor muting, (timing controlled, sequence controlled)
- Timing controlled 4-sensor muting
- Options: integrated muting indicator, 7-segment display

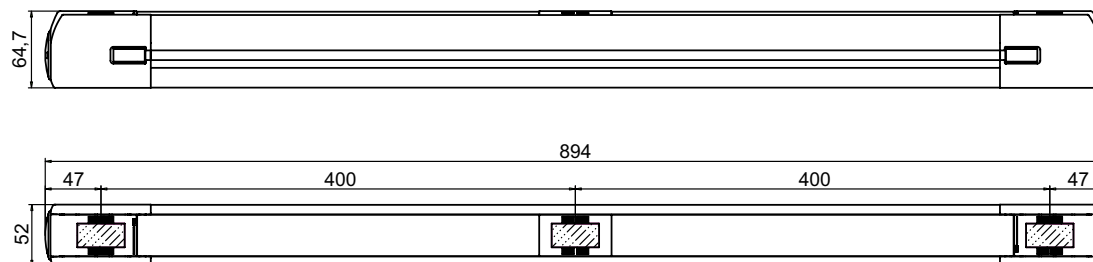
Part no.	Part description	Beam spacing	Number of beams	Operating range	Connection	Design
66077100	► MLD335-RT2	500 mm	2x	0.5 ... 8 m	Connector, M12, 8-pin, metal	
66500100	◄ MLD-M002	500 mm	2x			
66078100	► MLD335-RT2M	500 mm	2x	0.5 ... 8 m	Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator
66500100	◄ MLD-M002	500 mm	2x			
66077200	► MLD335-RT3	400 mm	3x	0.5 ... 6 m	Connector, M12, 8-pin, metal	
66500200	◄ MLD-M003	400 mm	3x	0.5 ... 6 m		
66500201	◄ MLD-XM03	400 mm	3x	0.5 ... 8 m		
66078200	► MLD335-RT3M	400 mm	3x	0.5 ... 6 m	Connector, M12, 8-pin, metal	Integrated muting indicator, integrated status indicator
66500200	◄ MLD-M003	400 mm	3x	0.5 ... 6 m		
66500201	◄ MLD-XM03	400 mm	3x	0.5 ... 8 m		

► Transceiver / ◄ Deflect. mirror
Included in delivery: sliding blocks

Dimensioned drawings: MLD 300 Transceiver



MLD 300 multiple light beam safety device, 3-beam, Transceiver



MLD-M multiple light beam safety device, 3-beam, deflecting mirror

Switching
sensors

Measuring
sensors

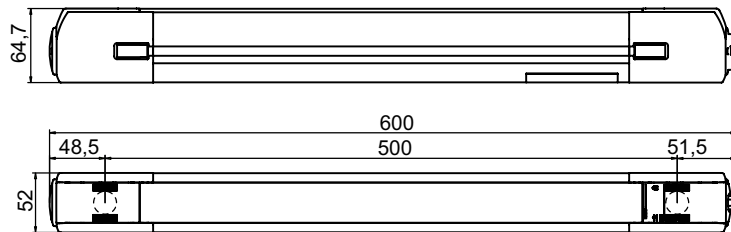
Products for
safety at work

Identification

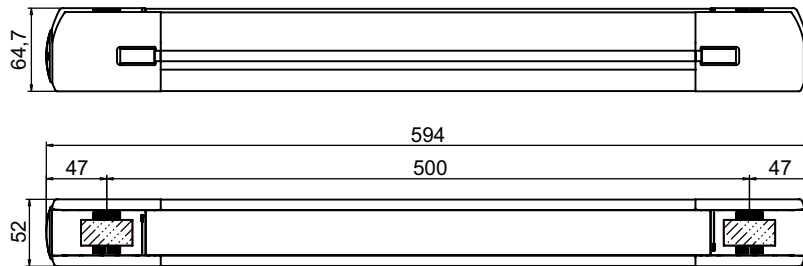
Data transmission /
Control components

Industrial image
processing

Accessories

Dimensioned drawings: MLD 300Transceiver

MLD 300 multiple light beam safety device, 2-beam, Transceiver



MLD-M multiple light beam safety device, 2-beam, deflecting mirror

ACCESSORIES: MLD 300, MLD 500**Connection technology**

Connection cables for MLD 300, MLD 500 transmitter, MLD 310, MLD 312, MLD 510receiver

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
678055	CB-M12-5000E-5GF	Connector, M12, axial, female	5-pin	5,000 mm	PUR
678056	CB-M12-10000E-5GF	Connector, M12, axial, female	5-pin	10,000 mm	PUR
678057	CB-M12-15000E-5GF	Connector, M12, axial, female	5-pin	15,000 mm	PUR
678058	CB-M12-25000E-5GF	Connector, M12, axial, female	5-pin	25,000 mm	PUR
678059	CB-M12-50000E-5GF	Connector, M12, axial, female	5-pin	50,000 mm	PUR

Further connection cables can be found on our website

Connection cables for MLD 320, MLD 330, MLD 335, MLD 520, MLD 530, MLD 535receiver

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
678060	CB-M12-5000E-8GF	Connector, M12, axial, female	8-pin	5,000 mm	PUR
678061	CB-M12-10000E-8GF	Connector, M12, axial, female	8-pin	10,000 mm	PUR
678062	CB-M12-15000E-8GF	Connector, M12, axial, female	8-pin	15,000 mm	PUR
678063	CB-M12-25000E-8GF	Connector, M12, axial, female	8-pin	25,000 mm	PUR
678064	CB-M12-50000E-8GF	Connector, M12, axial, female	8-pin	50,000 mm	PUR

Further connection cables can be found on our website

Connection cables for MLD 330, MLD 530 (local interface)receiver

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
678050	CB-M12-5000E-5GM	Connector, M12, axial, male	5-pin	5,000 mm	PUR
678051	CB-M12-10000E-5GM	Connector, M12, axial, male	5-pin	10,000 mm	PUR
678052	CB-M12-15000E-5GM	Connector, M12, axial, male	5-pin	15,000 mm	PUR
678053	CB-M12-25000E-5GM	Connector, M12, axial, male	5-pin	25,000 mm	PUR

Further connection cables can be found on our website

Connection cables for MLD 335, MLD 535 (local interface)receiver

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50110180	KB M12/8-5000-SA	Connector, M12, axial, male	8-pin	5,000 mm	PUR
50110181	KB M12/8-10000-SA	Connector, M12, axial, male	8-pin	10,000 mm	PUR
50110186	KB M12/8-15000-SA	Connector, M12, axial, male	8-pin	15,000 mm	PUR
50110189	KB M12/8-30000-SA	Connector, M12, axial, male	8-pin	30,000 mm	PUR

Further connection cables can be found on our website

User-configurable connectors

Part no.	Part description	Connection	No. of pins
429175	CB-M12-5GF	Connector, M12, axial, female	5-pin
429178	CB-M12-8GF	Connector, M12, axial, female	8-pin

Further connectors can be found on our website

Mounting systems

Swivel mounts

Part no.	Part description	Fastening at device	Fastening at system	Type of mounting device	Material	Suitable for
560340	BT-SET-240BC	Clampable	Through-hole mounting	Turning, 240°	Metal	MLD 500, MLD 300 multiple light beam safety devices
560342	BT-SET-240BCS	Clampable	Through-hole mounting	Turning, 240 °, shock absorber	Metal	MLD 500, MLD 300 multiple light beam safety devices
560341	BT-SET-240CC	Clampable	Through-hole mounting	Turning, 240°	Metal	MLD-M002, MLD-M003 deflecting mirror
560343	BT-SET-240CCS	Clampable	Through-hole mounting	Turning, 240 °, shock absorber	Metal	MLD-M002, MLD-M003 deflecting mirror

Other mounting systems

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
424417	BT-2P40	Mounting clamp	Groove mounting	Groove mounting	Metal

Muting

Mounting systems for MLD 330, MLD 530receiver

Part no.	Part description	Number of muting sensors	Type of muting sensors	Number of reflectors
426490	Set-AC-ML-2SA	2x	Retro-reflective photoelectric sensors PRK 3B	2x
426491	Set-AC-ML-2SB	2x	Retro-reflective photoelectric sensors PRK 3B	2x
426520	Set-AC-MLX-2SA	2x	PRK 25B retro-reflective photoelectric sensors	2x
426521	Set-AC-MLX-2SB	2x	PRK 25B retro-reflective photoelectric sensors	2x

Mounting systems for MLD 335, MLD 535receiver

Part no.	Part description	Number of muting sensors	Type of muting sensors	Number of reflectors
426492	Set-AC-MT-4S	4x	Retro-reflective photoelectric sensors PRK 3B	4x
426522	Set-AC-MTX-4S	4x	PRK 25B retro-reflective photoelectric sensors	4x

Sensor connection boxes for MLD 330, MLD 530receiver

Part no.	Part description	Number of connections	Type of fastening
520150	AC-SCM5U	5x	Through-hole mounting
520151	AC-SCM5U-BT	5x	Mounting plate, groove mounting
520152	AC-SCM5U-BT-L	5x	Mounting plate with L-angle, groove mounting

Sensor connection boxes for MLD 335, MLD 535receiver

Part no.	Part description	Number of connections	Type of fastening
520140	AC-SCM6U	7x	Through-hole mounting, groove mounting
520141	AC-SCM6U-BT	7x	Mounting plate, groove mounting
520142	AC-SCM6U-BT-L	7x	Mounting plate with L-angle, groove mounting

Display/operating elements

Part no.	Part description	LED indicator	Reset button
426296	AC-ABF70	Yes	Yes

Alignment aids

Part no.	Part description	Description	Function
520071	AC-MK1	Adapter	Activation of the laser alignment aid

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

//SINGLE LIGHT BEAM SAFETY DEVICES

SAFETY CAN ALSO BE FLEXIBLE

Due to their compact dimensions, single beam safety devices are able to make full use of their advantages in constrained spaces or where no flat planar areas exist. They can be very flexibly integrated in various installation heights as well as in existing machine designs and very reliably perform a wide range of detection, identification and protection tasks here.

Type 4 single light beam safety devices

The single beam safety devices of the MLD series are self-monitoring and have operating ranges of up to 100 m. They can, thus, be used very flexibly in a wide range of applications. Configuration is simply performed without a PC via the wiring. The single beam safety devices of the SLS series are operated in combination with a suitable test unit. Together with it, they form type 4 electro-sensitive protective equipment. They are a cost-optimized alternative if shorter ranges are needed. With their compact housing dimensions, they can be easily integrated.

/// SLS 46C



These single beam safety devices are operated in combination with the MSI-TRM monitoring device. Together with this, they form type 4 electro-sensitive protective equipment for applications that require PL d or PL e. With their compact housing dimensions, the SLS 46C can be easily integrated.



Benefits:

- Red light and infrared light models with operating ranges of up to 40 m or up to 70 m
- Solid plastic housing, degree of protection IP 67 / IP 69K
- Use at temperatures as low as -30 °C is possible
- Status LEDs visible from all sides
- brightVision®: quick alignment due to an especially bright light spot
- Clearly visible alignment indicator in the front screen of the receiver
- Integration via M12 plug or cable

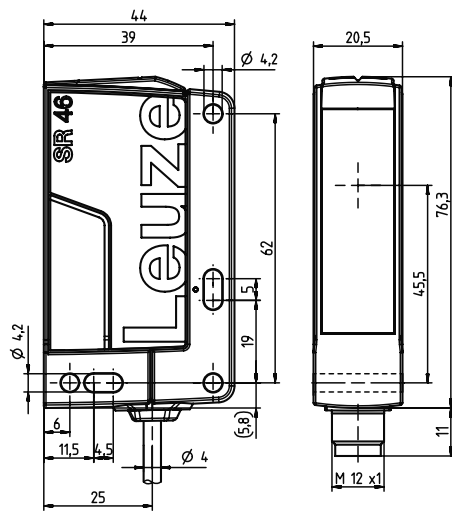


Direct access to the online product selector at www.leuze.com/en/sls46c

Part no.	Part description	Operating range	Connection	Light source
50126549	► SLS46CI-40.K48	0.5 ... 40 m	Cable, 4-wire, 2,000 mm, PUR	LED, infrared
50126331	◄ SLE46CI-40.K4/4P		Cable, 4-wire, 2,000 mm, PUR	
50126545	► SLS46C-40.K48	0.5 ... 40 m	Cable, 4-wire, 2,000 mm, PUR	LED, red
50126327	◄ SLE46C-40.K4/4P		Cable, 4-wire, 2,000 mm, PUR	
50126550	► SLS46CI-40.K48-M12	0.5 ... 40 m	Connector, M12, 4-pin, plastic	LED, infrared
50126332	◄ SLE46CI-40.K4/4P-M12		Connector, M12, 4-pin, plastic	
50126546	► SLS46C-40.K48-M12	0.5 ... 40 m	Connector, M12, 4-pin, plastic	LED, red
50126328	◄ SLE46C-40.K4/4P-M12		Connector, M12, 4-pin, plastic	
50126551	► SLS46CI-70.K48	5 ... 70 m	Cable, 4-wire, 2,000 mm, PUR	LED, infrared
50126333	◄ SLE46CI-70.K4/4P		Cable, 4-wire, 2,000 mm, PUR	
50126547	► SLS46C-70.K48	5 ... 70 m	Cable, 4-wire, 2,000 mm, PUR	LED, red
50126329	◄ SLE46C-70.K4/4P		Cable, 4-wire, 2,000 mm, PUR	
50126552	► SLS46CI-70.K48-M12	5 ... 70 m	Connector, M12, 4-pin, plastic	LED, infrared
50126334	◄ SLE46CI-70.K4/4P-M12		Connector, M12, 4-pin, plastic	
50126548	► SLS46C-70.K48-M12	5 ... 70 m	Connector, M12, 4-pin, plastic	LED, red
50126330	◄ SLE46C-70.K4/4P-M12		Connector, M12, 4-pin, plastic	

► transmitter / ◄ receiver

Dimensioned drawings: SLS 46C



SLS 46C single light beam safety device

ACCESSORIES: SLS 46C

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130654	KD U-M12-4A-P1-020	Connector, M12, axial, female	4-pin	2,000 mm	PUR
50130657	KD U-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR
50130658	KD U-M12-4A-P1-100	Connector, M12, axial, female	4-pin	10,000 mm	PUR

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50105315	BT 46	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117253	BTU 300M-D10	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50117252	BTU 300M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50117251	BTU 300M-D14	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 14 mm rod, sheet-metal mounting	Metal
50120425	BTU 300M.5-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Stainless steel
50119332	BTU 900M-D10	Mounting system, clampable, turning, 360 °, swiveling	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50119331	BTU 900M-D12	Mounting system, clampable, turning, 360 °, swiveling	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50119330	BTU 900M-D14	Mounting system, clampable, turning, 360 °, swiveling	Screw type	For 14 mm rod, sheet-metal mounting	Metal

Further rod mounts can be found on our website

Alignment aids

Part no.	Part description
50109545	SAT 5

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

/// MLD 510

These single light beam safety devices are equipped with an automatic restart.

**Benefits:**

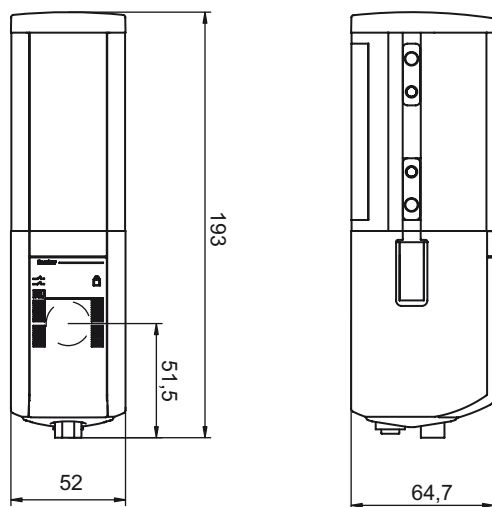
- The configuration is simply performed by means of wiring, i.e. no software, PC or DIP switch are necessary
- Use at ambient temperatures as low as -30 °C is possible
- Options: integrated laser alignment aid



Direct access to the online product selector at www.leuze.com/en/mld510

Part no.	Part description	Operating range	Connection	Light source	Design
66533000	► MLD510-R1		Connector, M12, 5-pin, metal		
66501000	◄ MLD500-T1	0.5 ... 70 m	Connector, M12, 5-pin, metal	LED, infrared	
66533400	► MLD510-XR1		Connector, M12, 5-pin, metal		
66501400	◄ MLD500-XT1	20 ... 100 m	Connector, M12, 5-pin, metal	LED, infrared	
66533001	► MLD510-R1/A		Connector, M12, 5-pin, metal		AS-Interface Safety at Work
66501001	◄ MLD500-T1/A	0.5 ... 70 m	Connector, M12, 5-pin, metal	LED, infrared	AS-Interface Safety at Work
66533401	► MLD510-XR1/A		Connector, M12, 5-pin, metal		AS-Interface Safety at Work
66501401	◄ MLD500-XT1/A	20 ... 100 m	Connector, M12, 5-pin, metal	LED, infrared	AS-Interface Safety at Work
66533002	► MLD510-R1E/A		Connector, M12, 5-pin, metal		AS-Interface Safety at Work, connection socket for external muting indicator
66501001	◄ MLD500-T1/A	0.5 ... 70 m	Connector, M12, 5-pin, metal	LED, infrared	AS-Interface Safety at Work
66533402	► MLD510-XR1E/A		Connector, M12, 5-pin, metal		AS-Interface Safety at Work, connection socket for external muting indicator
66501401	◄ MLD500-XT1/A	20 ... 100 m	Connector, M12, 5-pin, metal	LED, infrared	AS-Interface Safety at Work
66536001	► MLD510-R1L/A		Connector, M12, 5-pin, metal		AS-Interface Safety at Work, reflective element for laser alignment aid
66502001	◄ MLD500-T1L/A	0.5 ... 70 m	Connector, M12, 5-pin, metal	LED, infrared	AS-Interface Safety at Work, integrated laser alignment aid
66536002	► MLD510-R1LE/A		Connector, M12, 5-pin, metal		AS-Interface Safety at Work, reflective element for laser alignment aid, connection socket for external muting indicator
66502001	◄ MLD500-T1L/A	0.5 ... 70 m	Connector, M12, 5-pin, metal	LED, infrared	AS-Interface Safety at Work, integrated laser alignment aid
66536000	► MLD510-R1L		Connector, M12, 5-pin, metal		Reflective element for laser alignment aid
66502000	◄ MLD500-T1L	0.5 ... 70 m	Connector, M12, 5-pin, metal	LED, infrared	Integrated laser alignment aid

► receiver / ◄ transmitter
Included in delivery: sliding blocks

Dimensioned drawings: MLD 510

MLD 510 single light beam safety device

/// MLD 520



These single light beam safety devices offer a selectable start/restart interlock (RES) and contactor monitoring (EDM)



Benefits:

- The configuration is simply performed by means of wiring, i.e. no software, PC or DIP switch are necessary
- Use at ambient temperatures as low as -30 °C is possible
- Start/restart interlock (RES), selectable
- Contactor monitoring (EDM), selectable
- Options: integrated laser alignment aid

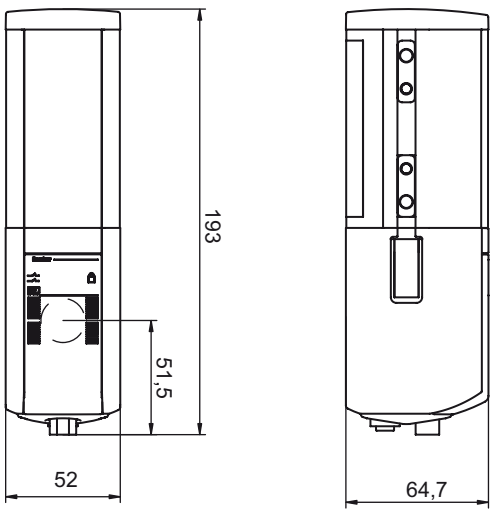


Direct access to the online product selector at www.leuze.com/en/mld520

Part no.	Part description	Operating range	Connection	Light source	Design
66553000	► MLD520-R1		Connector, M12, 8-pin, metal		
66501000	◄ MLD500-T1	0.5 ... 70 m	Connector, M12, 5-pin, metal	LED, infrared	
66556000	► MLD520-R1L		Connector, M12, 8-pin, metal		Reflective element for laser alignment aid
66502000	◄ MLD500-T1L	0.5 ... 70 m	Connector, M12, 5-pin, metal	LED, infrared	Integrated laser alignment aid
66553400	► MLD520-XR1		Connector, M12, 8-pin, metal		
66501400	◄ MLD500-XT1	20 ... 100 m	Connector, M12, 5-pin, metal	LED, infrared	

► receiver / ◄ transmitter
Included in delivery: sliding blocks

Dimensioned drawings: MLD 520



MLD 520 single light beam safety device

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

/// MLD 530



Many functions, such as start/restart interlock, contactor monitoring, timing controlled 2-sensor muting and sequence controlled 2-sensor muting, ensure great flexibility.



Benefits:

- The configuration is simply performed by means of wiring, i.e. no software, PC or DIP switch are necessary
- Use at ambient temperatures as low as -30 °C is possible
- Start/restart interlock (RES), selectable
- Contactor monitoring (EDM), selectable
- Configurable operating modes
- Integrated muting function, no additional muting module is necessary
- 2-sensor muting, (timing controlled, sequence controlled)
- Options: integrated laser alignment aid, 7-segment display

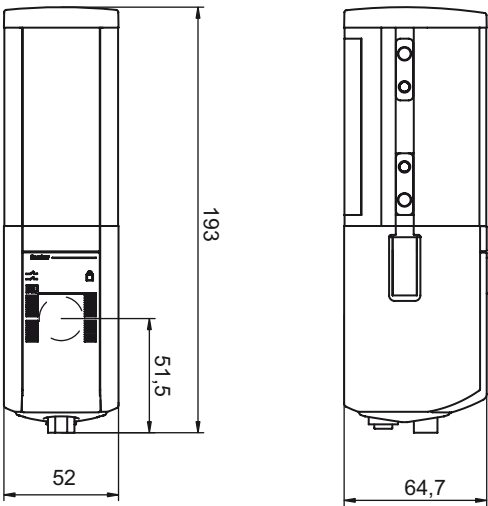


Direct access to the online product selector at www.leuze.com/en/mld530

Part no.	Part description	Operating range	Connection	Light source	Design
66563000	► MLD530-R1		Connector, M12, 8-pin, metal		
66501000	◄ MLD500-T1	0.5 ... 70 m	Connector, M12, 5-pin, metal	LED, infrared	
66566000	► MLD530-R1L		Connector, M12, 8-pin, metal		Reflective element for laser alignment aid
66502000	◄ MLD500-T1L	0.5 ... 70 m	Connector, M12, 5-pin, metal	LED, infrared	Integrated laser alignment aid
66563400	► MLD530-XR1		Connector, M12, 8-pin, metal		
66501400	◄ MLD500-XT1	20 ... 100 m	Connector, M12, 5-pin, metal	LED, infrared	

► receiver / ◄ transmitter
Included in delivery: sliding blocks

Dimensioned drawings: MLD 530



MLD 530 single light beam safety device

ACCESSORIES: MLD 500

Connection technology

Connection cables for MLD 500 transmitter, MLD 510receiver

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
678055	CB-M12-5000E-5GF	Connector, M12, axial, female	5-pin	5,000 mm	PUR
678056	CB-M12-10000E-5GF	Connector, M12, axial, female	5-pin	10,000 mm	PUR
678057	CB-M12-15000E-5GF	Connector, M12, axial, female	5-pin	15,000 mm	PUR
678058	CB-M12-25000E-5GF	Connector, M12, axial, female	5-pin	25,000 mm	PUR
678059	CB-M12-50000E-5GF	Connector, M12, axial, female	5-pin	50,000 mm	PUR

Further connection cables can be found on our website

Connection cables for MLD 520, MLD 530receiver

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
678060	CB-M12-5000E-8GF	Connector, M12, axial, female	8-pin	5,000 mm	PUR
678061	CB-M12-10000E-8GF	Connector, M12, axial, female	8-pin	10,000 mm	PUR
678062	CB-M12-15000E-8GF	Connector, M12, axial, female	8-pin	15,000 mm	PUR
678063	CB-M12-25000E-8GF	Connector, M12, axial, female	8-pin	25,000 mm	PUR
678064	CB-M12-50000E-8GF	Connector, M12, axial, female	8-pin	50,000 mm	PUR

Further connection cables can be found on our website

Connection cables for MLD 530 (local interface)receiver

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
678050	CB-M12-5000E-5GM	Connector, M12, axial, male	5-pin	5,000 mm	PUR
678051	CB-M12-10000E-5GM	Connector, M12, axial, male	5-pin	10,000 mm	PUR
678052	CB-M12-15000E-5GM	Connector, M12, axial, male	5-pin	15,000 mm	PUR
678053	CB-M12-25000E-5GM	Connector, M12, axial, male	5-pin	25,000 mm	PUR

Further connection cables can be found on our website

User-configurable connectors

Part no.	Part description	Connection	No. of pins
429175	CB-M12-5GF	Connector, M12, axial, female	5-pin
429178	CB-M12-8GF	Connector, M12, axial, female	8-pin

Further connectors can be found on our website

Mounting systems

Swivel mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
560344	BT-SET-240C	Turning, 240°	Clampable	Through-hole mounting	Metal
560345	BT-SET-240CS	Turning, 240 °, shock absorber	Clampable	Through-hole mounting	Metal

Alignment aids

Part no.	Part description	Function
520071	AC-MK1	Activation of the laser alignment aid

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

Type 2 single light beam safety devices

These single beam safety devices are operated in combination with a suitable test unit. Together with these, they form type 2 electro-sensitive protective equipment. They are a cost-optimized alternative if shorter ranges are needed. With their compact housing dimensions, they can be easily integrated.

/// SLS 46C



The SLS 46C protective sensor can be optimally integrated thanks to its modular design and operating ranges of up to 70 m. Alignment aids and status LEDs visible from all sides support simple handling.



Benefits:

- Red light and infrared light models with operating ranges of up to 40 m or up to 70 m
- Solid plastic housing, degree of protection IP 67 / IP 69K
- Temperature range from -30 to +60 °C
- Status LEDs visible from all sides
- brightVision®: quick alignment due to an especially bright light spot
- Clearly visible alignment indicator in the front screen of the receiver
- Integration via M12 plug or cable

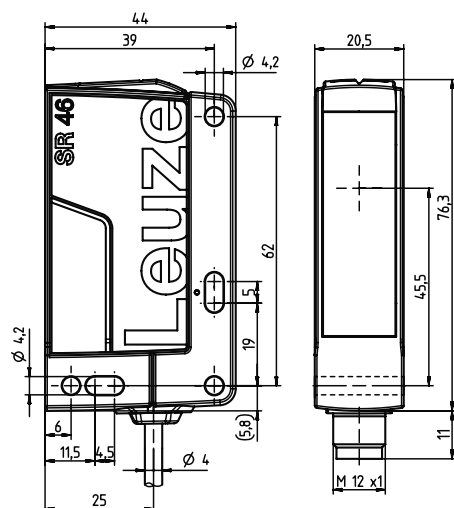


Direct access to the online product selector at www.leuze.com/en/sls46c

Part no.	Part description	Operating range	Connection	Light source
50121914	► SLS46CI-40.K28	0.5 ... 40 m	Cable, 4-wire, 2,000 mm, PUR	LED, infrared
50121922	◄ SLE46CI-40.K2/4P		Cable, 4-wire, 2,000 mm, PUR	
50121910	► SLS46C-40.K28	0.5 ... 40 m	Cable, 4-wire, 2,000 mm, PUR	LED, red
50121918	◄ SLE46C-40.K2/4P		Cable, 4-wire, 2,000 mm, PUR	
50121913	► SLS46CI-40.K28-M12	0.5 ... 40 m	Connector, M12, 4-pin, plastic	LED, infrared
50121921	◄ SLE46CI-40.K2/4P-M12		Connector, M12, 4-pin, plastic	
50121909	► SLS46C-40.K28-M12	0.5 ... 40 m	Connector, M12, 4-pin, plastic	LED, red
50121917	◄ SLE46C-40.K2/4P-M12		Connector, M12, 4-pin, plastic	
50121912	► SLS46CI-70.K28	5 ... 70 m	Cable, 4-wire, 2,000 mm, PUR	LED, infrared
50121920	◄ SLE46CI-70.K2/4P		Cable, 4-wire, 2,000 mm, PUR	
50121908	► SLS46C-70.K28	5 ... 70 m	Cable, 4-wire, 2,000 mm, PUR	LED, red
50121916	◄ SLE46C-70.K2/4P		Cable, 4-wire, 2,000 mm, PUR	
50121911	► SLS46CI-70.K28-M12	5 ... 70 m	Connector, M12, 4-pin, plastic	LED, infrared
50121919	◄ SLE46CI-70.K2/4P-M12		Connector, M12, 4-pin, plastic	
50121907	► SLS46C-70.K28-M12	5 ... 70 m	Connector, M12, 4-pin, plastic	LED, red
50121915	◄ SLE46C-70.K2/4P-M12		Connector, M12, 4-pin, plastic	

► transmitter / ◄ receiver

Dimensioned drawings: SLS 46C



SLS 46C single light beam safety device

ACCESSORIES: SLS 46C

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130654	KD U-M12-4A-P1-020	Connector, M12, axial, female	4-pin	2,000 mm	PUR
50130657	KD U-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR
50130658	KD U-M12-4A-P1-100	Connector, M12, axial, female	4-pin	10,000 mm	PUR
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC
50104753	K-D M12A-4P-20m-PVC	Connector, M12, axial, female	4-pin	20,000 mm	PVC
50123532	K-D M12A-4P-30m-PVC	Connector, M12, axial, female	4-pin	30,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50105315	BT 46	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117253	BTU 300M-D10	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50117252	BTU 300M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50117251	BTU 300M-D14	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 14 mm rod, sheet-metal mounting	Metal
50120425	BTU 300M.5-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Stainless steel
50119332	BTU 900M-D10	Mounting system, clampable, turning, 360 °, swiveling	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50119331	BTU 900M-D12	Mounting system, clampable, turning, 360 °, swiveling	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50119330	BTU 900M-D14	Mounting system, clampable, turning, 360 °, swiveling	Screw type	For 14 mm rod, sheet-metal mounting	Metal

Further rod mounts can be found on our website

Alignment aids

Part no.	Part description
50109545	SAT 5

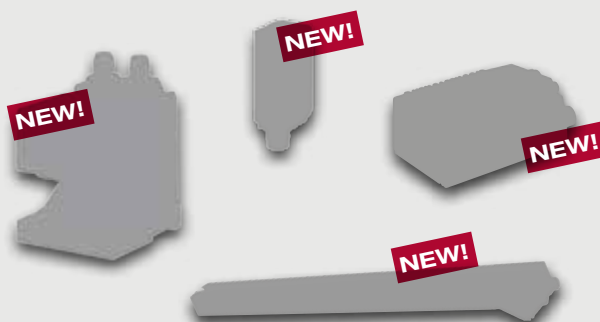
SMARTER PRODUCT USABILITY

Optimum handling, very simple mounting and alignment, uncomplicated integration in fieldbus systems and fast configuration.

Discover our product innovations!



Direct access to our product innovations: www.leuze.com/en/innovations



Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

/// SLSR 46B

The SLSR 46B protective sensor convinces with ranges of up to 40 m at an attractive price. With the aid of the LED on the receiver, it can very easily be aligned and adjusted. Its status display is highly visible over the entire range for reliable operation.

**Benefits:**

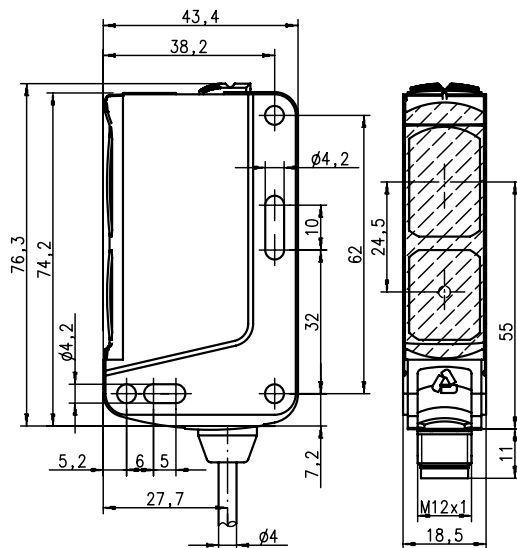
- Single light beam safety device with visible red light and high function reserve
- Solid plastic housing, degree of protection IP 67 for industrial application
- Wide voltage range from 10 to 30 V with pnp transistor output for PLC applications
- Clearly visible alignment indicator in the front screen



Direct access to the online product selector at www.leuze.com/en/slsr46b

Part no.	Part description	Operating range	Connection	Light source	Design
50108539	► SLSSR 46B.8	0 ... 40 m	Cable, 4-wire, 2,000 mm, PUR	LED, red	Activation input
50108541	◄ SLSSR 46B/66		Cable, 4-wire, 2,000 mm, PUR		
50108538	► SLSSR 46B.8-S12	0 ... 40 m	Connector, M12, 4-pin, plastic	LED, red	Activation input
50108540	◄ SLSSR 46B/66-S12		Connector, M12, 4-pin, plastic		

► transmitter / ◄ receiver

Dimensioned drawings: SLSR 46B

SLSR 46B single light beam safety device

ACCESSORIES: SLSR 46B**Connection technology**

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130654	KD U-M12-4A-P1-020	Connector, M12, axial, female	4-pin	2,000 mm	PUR
50130657	KD U-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR
50130658	KD U-M12-4A-P1-100	Connector, M12, axial, female	4-pin	10,000 mm	PUR
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC
50104753	K-D M12A-4P-20m-PVC	Connector, M12, axial, female	4-pin	20,000 mm	PVC
50123532	K-D M12A-4P-30m-PVC	Connector, M12, axial, female	4-pin	30,000 mm	PVC

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50105315	BT 46	Angle, L-shape	Screw type	Through-hole mounting	Metal
50118543	BT 300M.5	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel, V2A

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117827	BTP 300M-D10	Protection hood, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod	Metal
50117826	BTP 300M-D12	Protection hood, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod	Metal
50117825	BTP 300M-D14	Protection hood, clampable, adjustable, turning, 360 °	Screw type	For 14 mm rod	Metal
50117253	BTU 300M-D10	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50117252	BTU 300M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50117251	BTU 300M-D14	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 14 mm rod, sheet-metal mounting	Metal
50122797	BTU 346M-D12	Mounting system, turning, 360 °, clampable, adjustable	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50122798	BTU 346M.5-D12	Mounting system, turning, 360 °, clampable, adjustable	Screw type	For 12 mm rod, sheet-metal mounting	Stainless steel
50129149	BTU 346M.6-D12	Mounting system, turning, 360 °, adjustable, clampable	Screw type	For 12 mm rod, sheet-metal mounting	Stainless steel

Further rod mounts can be found on our website

Alignment aids

Part no.	Part description
50109545	SAT 5

/// SLSR 25B



The SLSR 25B protective sensor scores with its optimized light beam propagation (opening angle) with time-saving alignment. In combination with a safety-relevant control system (testing according to EN IEC 61496-1), it forms a category 2 contactless protective device and works with a range of up to 22 m.



Benefits:

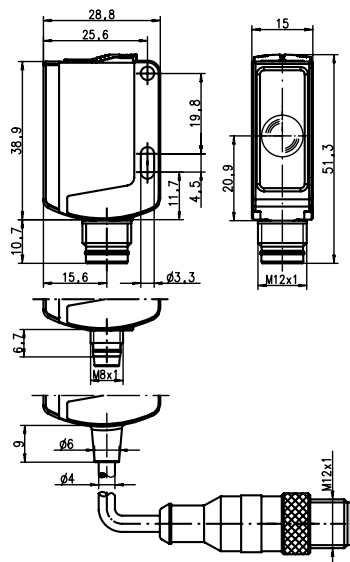
- Single light beam safety device with visible red light and high function reserve
- Solid plastic housing, degree of protection IP 67 for industrial application
- Wide voltage range from 10 to 30 V with pnp transistor output for PLC applications
- All common connection variants



Direct access to the online product selector at www.leuze.com/en/slsr25b

Part no.	Part description	Operating range	Connection	Light source	Design
50108491	► SLSR 25B.8	0 ... 20 m	Cable, 4-wire, 2,000 mm, PUR	LED, red	Activation input
50108494	◄ SLSR 25B/66		Cable, 4-wire, 2,000 mm, PUR		
50110151	► SLSR 25B.8,200-S12	0 ... 20 m	Cable with connector, M12, 4-pin, metal, 200 mm, PUR	LED, red	Activation input
50110152	◄ SLSR 25B/66,200-S12		Cable with connector, M12, 4-pin, metal, 200 mm, PUR		
50108490	► SLSR 25B.8-S8	0 ... 20 m	Connector, M8, 4-pin, plastic	LED, red	Activation input
50108493	◄ SLSR 25B/66-S8		Connector, M8, 4-pin, plastic		
50108489	► SLSR 25B.8-S12	0 ... 20 m	Connector, M12, 4-pin, plastic	LED, red	Activation input
50108492	◄ SLSR 25B/66-S12		Connector, M12, 4-pin, plastic		

► transmitter / ◄ receiver

Dimensioned drawings: SLSR 25B

SLSR 25B single light beam safety device

ACCESSORIES: SLSR 25B**Connection technology**

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130654	KD U-M12-4A-P1-020	Connector, M12, axial, female	4-pin	2,000 mm	PUR
50130657	KD U-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR
50130658	KD U-M12-4A-P1-100	Connector, M12, axial, female	4-pin	10,000 mm	PUR
50130854	KD U-M8-4A-P1-020	Connector, M8, axial, female	4-pin	2,000 mm	PUR
50130856	KD U-M8-4A-P1-050	Connector, M8, axial, female	4-pin	5,000 mm	PUR
50130857	KD U-M8-4A-P1-100	Connector, M8, axial, female	4-pin	10,000 mm	PUR

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50040269	BT 25	Angle, L-shape	Screw type	Through-hole mounting	Metal
50124651	BT 205M	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117830	BTP 200M-D10	Protection hood, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod	Metal
50117829	BTP 200M-D12	Protection hood, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod	Metal
50117828	BTP 200M-D14	Protection hood, clampable, adjustable, turning, 360 °	Screw type	For 14 mm rod	Metal
50117256	BTU 200M-D10	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50117255	BTU 200M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50117254	BTU 200M-D14	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 14 mm rod, sheet-metal mounting	Metal
50122797	BTU 346M-D12	Mounting system, turning, 360 °, clampable, adjustable	Screw type	For 12 mm rod, sheet-metal mounting	Metal

Further rod mounts can be found on our website

Alignment aids

Part no.	Part description
50109545	SAT 5

/// SLS 318



It is common that single beam safety devices have to be integrated into very tight installation areas. In this instance, SLS 318 protective sensors are the preferred choice. Because of their slender cylindrical construction they can be mounted quickly and easily, even in areas where space is restricted.



Benefits:

- Protective throughbeam photoelectric sensors with high function reserve in visible red light and straight optics
- Sturdy stainless steel or plastic housing with cylindrical M18 design
- Degree of protection IP 67 for industrial application
- Activation input for testing and interlinking of the sensor
- Complementary switching outputs for light/dark switching or as a control function
- Very short construction for application in limited spaces
- LED display in transmitter and receiver

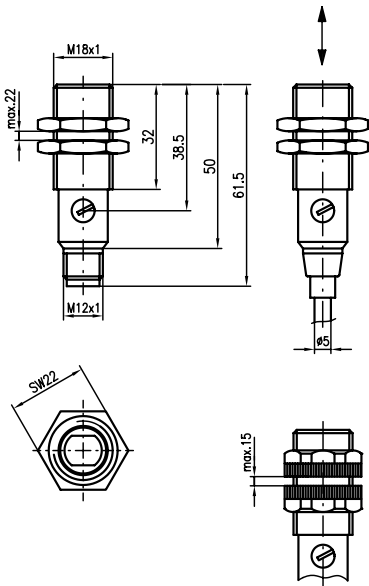


Direct access to the online product selector at www.leuze.com/en/sls318

Part no.	Part description	Operating range	Connection	Light source	Housing material	Design
50083132	► SLSS 318K	0 ... 10 m	Cable, 4-wire, 2,000 mm, PVC	LED, red	Plastic	Activation input
50083133	◄ SLSE 318K/P		Cable, 4-wire, 2,000 mm, PVC		Plastic	
50083116	► SLSS 318K-S12	0 ... 10 m	Connector, M12, 4-pin, plastic	LED, red	Plastic	Activation input
50083117	◄ SLSE 318K/P-S12		Connector, M12, 4-pin, plastic		Plastic	
50082199	► SLSS 318M-S12	0 ... 10 m	Connector, M12, 4-pin, plastic	LED, red	Stainless steel	Activation input
50082200	◄ SLSE 318M/P-S12		Connector, M12, 4-pin, plastic		Stainless steel	

► transmitter / ◄ receiver

Dimensioned drawings: SLS 318



SLS 318 single light beam safety device

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

ACCESSORIES: SLS 318

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130654	KD U-M12-4A-P1-020	Connector, M12, axial, female	4-pin	2,000 mm	PUR
50130657	KD U-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR
50130658	KD U-M12-4A-P1-100	Connector, M12, axial, female	4-pin	10,000 mm	PUR

Further connection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50113548	BT D18M.5	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117490	BTU D18M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	Through-hole mounting	Metal

Further rod mounts can be found on our website

Other mounting systems

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50083189	BT 318-ARH	Mounting plate	Screw type	Through-hole mounting	Metal
50117258	BT 318P-LS	Mounting clamp	Clampable	Through-hole mounting	Plastic

Further mounting brackets can be found on our website

SMARTER APPLICATION KNOW-HOW

Efficiency you can feel!

We have already developed many practical solutions with a focus on increasing efficiency. You can find a selection of application examples on our website which will show you how we work and how our customers benefit from this.



See how our applications work in practice: www.leuze.com/en/practice



//SAFETY LASER SCANNERS

UNIVERSAL ALL-ROUNDER FOR YOUR SAFETY TASKS

Danger zone guarding, access guarding or point of operation guarding: you can use safety laser scanners in all areas of personnel protection effectively and for a range of applications. With their freely definable and individual protective fields and their compact design, they enable a very flexible installation position as well as use in mobile applications.

/// RSL 400



The RSL 400 family of safety laser scanners comprises 16 device types in four staggered operating ranges and function variants. As a result, you can always select the best scanner at the best price performance ratio – if necessary, with a scanning range of 160 square meters thanks to a scanning angle of 270° and operating range of 8.25 meters. Whether mobile or stationary – the RSL 400 family covers all conceivable applications.



Direct access to the online product selector at www.leuze.com/en/rsl400

RSL 410

For safeguarding large areas of up to 160 m², the RSL 410 safety laser scanners convince with very simple integration in the machine control thanks to an 8-pin, M12 connection.

Benefits:

- Any type of protective/warning field contours (1 field pair/quad)
- Basic functions such as automatic start/restart, start/restart interlock (RES) and selectable contactor monitoring (EDM)
- Optimum handling by means of separate intelligent connection unit and large, plain-text display with integrated electronic spirit level
- Ethernet TCP/IP and Bluetooth interface for simple and convenient configuration and diagnosis

Part no.	Part description	Number of field pairs	Operating range	Connection	Safety-related switching outputs	Design
53800201	RSL410-S/CU408-M12	1	0 ... 3 m	Connector, M12, 8-pin	2x, transistor, PNP	
53800202	RSL410-M/CU408-M12	1	0 ... 4.5 m	Connector, M12, 8-pin	2x, transistor, PNP	
53800203	RSL410-L/CU408-M12	1	0 ... 6.25 m	Connector, M12, 8-pin	2x, transistor, PNP	
53800204	RSL410-XL/CU408-M12	1	0 ... 8.25 m	Connector, M12, 8-pin	2x, transistor, PNP	
53800205	RSL410-S/CU405-2M12	1	0 ... 3 m	Connector, M12, 4-pin	2x, transistor, PNP	AIDA-compliant
53800206	RSL410-M/CU405-2M12	1	0 ... 4.5 m	Connector, M12, 4-pin	2x, transistor, PNP	AIDA-compliant
53800207	RSL410-L/CU405-2M12	1	0 ... 6.25 m	Connector, M12, 4-pin	2x, transistor, PNP	AIDA-compliant
53800208	RSL410-XL/CU405-2M12	1	0 ... 8.25 m	Connector, M12, 4-pin	2x, transistor, PNP	AIDA-compliant
53800245	RSL410-S/CU411-RS4	1	0 ... 3 m	Cable with Sub-D, 450 mm	2x, transistor, PNP	RS4 substitute
53800246	RSL410-M/CU411-RS4	1	0 ... 4.5 m	Cable with Sub-D, 450 mm	2x, transistor, PNP	RS4 substitute
53800247	RSL410-L/CU411-RS4	1	0 ... 6.25 m	Cable with Sub-D, 450 mm	2x, transistor, PNP	RS4 substitute

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

RSL 420

The RSL 420 safety laser scanners expand the monitoring function to include flexible safety requirements adapted to the automation process.

Benefits:

- Monitored changeover of 10 field pairs/quads
- Basic functions such as automatic start/restart, start/restart interlock (RES) and selectable contactor monitoring (EDM)
- Optimum handling by means of separate intelligent connection unit and large, plain-text display with integrated electronic spirit level
- Ethernet TCP/IP and Bluetooth interface for simple and convenient configuration and diagnosis
- 4 configurable signal outputs
- E-Stop linkage

Part no.	Part description	Number of field pairs	Operating range	Connection	Safety-related switching outputs	Design
53800209	RSL420-S/CU416-5	10	0 ... 3 m	Cable, 16-wire, 5,000 mm	2x, transistor, PNP	
53800213	RSL420-S/CU416-10	10	0 ... 3 m	Cable, 16-wire, 10,000 mm	2x, transistor, PNP	
53800217	RSL420-S/CU416-25	10	0 ... 3 m	Cable, 16-wire, 25,000 mm	2x, transistor, PNP	
53800210	RSL420-M/CU416-5	10	0 ... 4.5 m	Cable, 16-wire, 5,000 mm	2x, transistor, PNP	
53800214	RSL420-M/CU416-10	10	0 ... 4.5 m	Cable, 16-wire, 10,000 mm	2x, transistor, PNP	
53800218	RSL420-M/CU416-25	10	0 ... 4.5 m	Cable, 16-wire, 25,000 mm	2x, transistor, PNP	
53800211	RSL420-L/CU416-5	10	0 ... 6.25 m	Cable, 16-wire, 5,000 mm	2x, transistor, PNP	
53800215	RSL420-L/CU416-10	10	0 ... 6.25 m	Cable, 16-wire, 10,000 mm	2x, transistor, PNP	
53800219	RSL420-L/CU416-25	10	0 ... 6.25 m	Cable, 16-wire, 25,000 mm	2x, transistor, PNP	
53800212	RSL420-XL/CU416-5	10	0 ... 8.25 m	Cable, 16-wire, 5,000 mm	2x, transistor, PNP	
53800216	RSL420-XL/CU416-10	10	0 ... 8.25 m	Cable, 16-wire, 10,000 mm	2x, transistor, PNP	
53800220	RSL420-XL/CU416-25	10	0 ... 8.25 m	Cable, 16-wire, 25,000 mm	2x, transistor, PNP	
53800248	RSL420-S/CU411-RS4	10	0 ... 3 m	Cable with Sub-D, 450 mm	2x, transistor, PNP	RS4 substitute
53800249	RSL420-M/CU411-RS4	10	0 ... 4.5 m	Cable with Sub-D, 450 mm	2x, transistor, PNP	RS4 substitute
53800250	RSL420-L/CU411-RS4	10	0 ... 6.25 m	Cable with Sub-D, 450 mm	2x, transistor, PNP	RS4 substitute

RSL 430

Two independent protective functions and OSSD pairs with individual response time make the RSL 430 safety laser scanner interesting for many area safeguarding and access guarding applications with separate machine parts.

Benefits:

- Two independent protective functions and OSSD pairs with monitored changeover of 10 field pairs/quads each
- Optimum handling by means of separate intelligent connection unit and large, plain-text display with integrated electronic spirit level
- Ethernet TCP/IP and Bluetooth interface for simple and convenient configuration and diagnosis
- Automatic start/restart, start/restart interlock (RES) and selectable contactor monitoring (EDM)
- 9 configurable signal outputs
- E-Stop linkage
- Safe, internal switch-off delay (Stop 1)
- Configurable data output with UDP

Part no.	Part description	Number of field pairs	Operating range	Connection	Safety-related switching outputs
53800221	RSL430-S/CU429-5	10+10	0 ... 3 m	Cable, 29-wire, 5,000 mm	4x, transistor, PNP
53800225	RSL430-S/CU429-10	10+10	0 ... 3 m	Cable, 29-wire, 10,000 mm	4x, transistor, PNP
53800229	RSL430-S/CU429-25	10+10	0 ... 3 m	Cable, 29-wire, 25,000 mm	4x, transistor, PNP
53800222	RSL430-M/CU429-5	10+10	0 ... 4.5 m	Cable, 29-wire, 5,000 mm	4x, transistor, PNP
53800226	RSL430-M/CU429-10	10+10	0 ... 4.5 m	Cable, 29-wire, 10,000 mm	4x, transistor, PNP
53800230	RSL430-M/CU429-25	10+10	0 ... 4.5 m	Cable, 29-wire, 25,000 mm	4x, transistor, PNP
53800223	RSL430-L/CU429-5	10+10	0 ... 6.25 m	Cable, 29-wire, 5,000 mm	4x, transistor, PNP
53800227	RSL430-L/CU429-10	10+10	0 ... 6.25 m	Cable, 29-wire, 10,000 mm	4x, transistor, PNP
53800231	RSL430-L/CU429-25	10+10	0 ... 6.25 m	Cable, 29-wire, 25,000 mm	4x, transistor, PNP
53800224	RSL430-XL/CU429-5	10+10	0 ... 8.25 m	Cable, 29-wire, 5,000 mm	4x, transistor, PNP
53800228	RSL430-XL/CU429-10	10+10	0 ... 8.25 m	Cable, 29-wire, 10,000 mm	4x, transistor, PNP
53800232	RSL430-XL/CU429-25	10+10	0 ... 8.25 m	Cable, 29-wire, 25,000 mm	4x, transistor, PNP

RSL 440

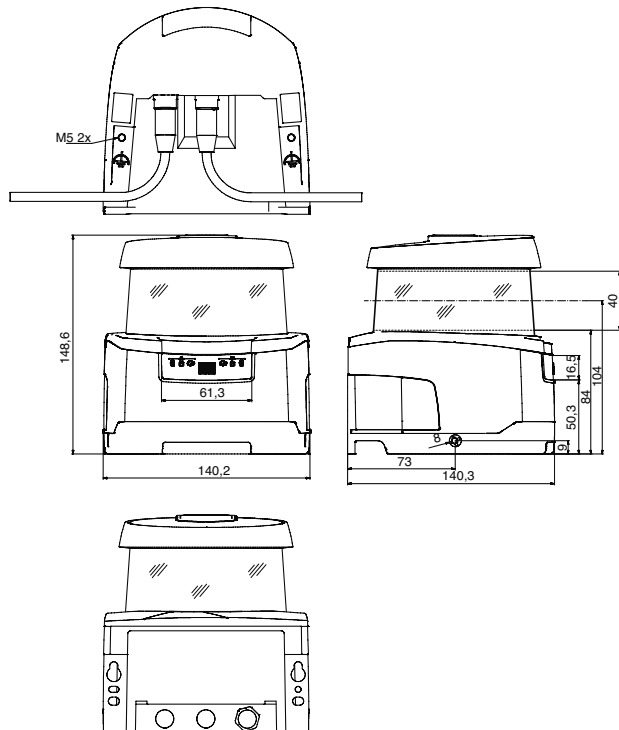
With two independent protective functions, up to 100 field pairs or 10 independent safety configurations, the RSL 440 safety laser scanners offer a solution for the most demanding safety tasks.

Benefits:

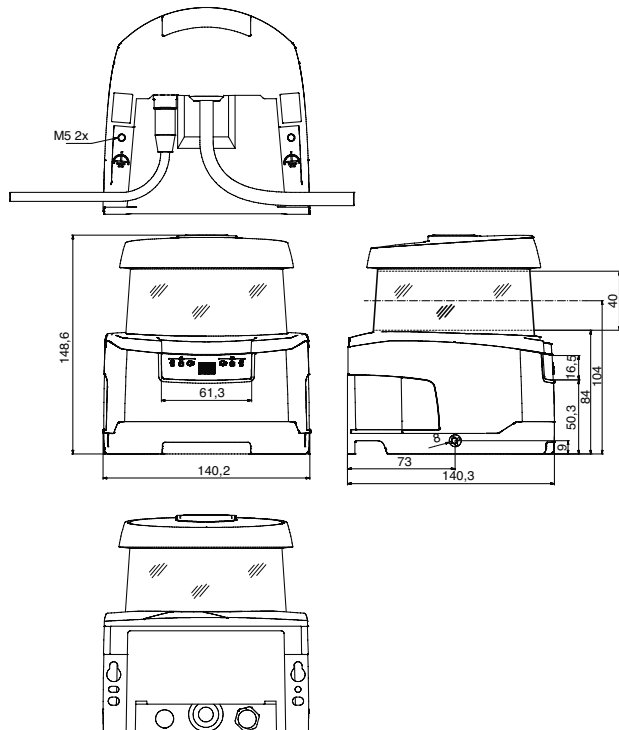
- Two independent protective functions and OSSD pairs with monitored changeover of 100 field pairs / 50 quads
- 10 independent safety configurations for monitoring with different operating modes
- Optimum handling by means of separate intelligent connection unit and large, plain-text display with integrated electronic spirit level
- Ethernet TCP/IP and Bluetooth interface for simple and convenient configuration and diagnosis
- 9 configurable signal outputs
- E-Stop linkage
- Safe, internal switch-off delay (Stop 1)
- Configurable data output with UDP

Part no.	Part description	Number of field pairs	Operating range	Connection	Safety-related switching outputs
53800233	RSL440-S/CU429-5	Up to 100	0 ... 3 m	Cable, 29-wire, 5,000 mm	4x, transistor, PNP
53800237	RSL440-S/CU429-10	Up to 100	0 ... 3 m	Cable, 29-wire, 10,000 mm	4x, transistor, PNP
53800241	RSL440-S/CU429-25	Up to 100	0 ... 3 m	Cable, 29-wire, 25,000 mm	4x, transistor, PNP
53800234	RSL440-M/CU429-5	Up to 100	0 ... 4.5 m	Cable, 29-wire, 5,000 mm	4x, transistor, PNP
53800238	RSL440-M/CU429-10	Up to 100	0 ... 4.5 m	Cable, 29-wire, 10,000 mm	4x, transistor, PNP
53800242	RSL440-M/CU429-25	Up to 100	0 ... 4.5 m	Cable, 29-wire, 25,000 mm	4x, transistor, PNP
53800235	RSL440-L/CU429-5	Up to 100	0 ... 6.25 m	Cable, 29-wire, 5,000 mm	4x, transistor, PNP
53800239	RSL440-L/CU429-10	Up to 100	0 ... 6.25 m	Cable, 29-wire, 10,000 mm	4x, transistor, PNP
53800243	RSL440-L/CU429-25	Up to 100	0 ... 6.25 m	Cable, 29-wire, 25,000 mm	4x, transistor, PNP
53800236	RSL440-XL/CU429-5	Up to 100	0 ... 8.25 m	Cable, 29-wire, 5,000 mm	4x, transistor, PNP
53800240	RSL440-XL/CU429-10	Up to 100	0 ... 8.25 m	Cable, 29-wire, 10,000 mm	4x, transistor, PNP
53800244	RSL440-XL/CU429-25	Up to 100	0 ... 8.25 m	Cable, 29-wire, 25,000 mm	4x, transistor, PNP

Dimensioned drawings: RSL 400



RSL 410 safety laser scanner



RSL 420 / RSL 430 / RSL 440 safety laser scanner

ACCESSORIES: RSL 400

Connection technology

Connection cables for RSL 410

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50123848	CB-M12-5000E-4GF-PUR	Connector, M12, axial, female	4-pin	5,000 mm	PUR
50123849	CB-M12-10000E-4GF-PUR	Connector, M12, axial, female	4-pin	10,000 mm	PUR
50123846	CB-M12-25000E-4GF-PUR	Connector, M12, axial, female	4-pin	25,000 mm	PUR
678060	CB-M12-5000E-8GF	Connector, M12, axial, female	8-pin	5,000 mm	PUR
678061	CB-M12-10000E-8GF	Connector, M12, axial, female	8-pin	10,000 mm	PUR
678062	CB-M12-15000E-8GF	Connector, M12, axial, female	8-pin	15,000 mm	PUR
678063	CB-M12-25000E-8GF	Connector, M12, axial, female	8-pin	25,000 mm	PUR

Further connection cables can be found on our website

Ethernet interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Cable length	Interface	Sheathing material
50130632	KSS ET-M12-4A-RJ45-A-P7-010	Connector, M12, axial, male	4-pin	RJ45	1,000 mm	Ethernet	PUR
50109880	KB ET-2000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45	2,000 mm	Ethernet	PUR
50109881	KB ET-5000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45	5,000 mm	Ethernet	PUR
50109882	KB ET-10000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45	10,000 mm	Ethernet	PUR
50109883	KB ET-15000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45	15,000 mm	Ethernet	PUR
50109886	KB ET-30000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45	30,000 mm	Ethernet	PUR

Further interconnection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Description	Fastening at device	Fastening at system	Material
53800134	BT840M	Mounting bracket, for corner mounting on chamfered corner	Screw type	Through-hole mounting	Metal
53800135	BT856M	Mounting bracket, corner mounting	Screw type	Through-hole mounting	Metal
53800132	BTf815M	Mounting bracket, floor assembly, height 186 mm	Screw type	Through-hole mounting	Metal
53800133	BTf830M	Mounting bracket, floor assembly, height 275 mm	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Other mounting systems

Part no.	Part description	Description	Suitable for	Fastening at device	Fastening at system	Material
53800130	BTU800M	Mounting system, swivel range horizontally and vertically $\pm 10^\circ$	RSL 400 safety laser scanner	Screw type	Through-hole mounting	Metal
53800137	BT800MA	Adapter plate, RS4 BT800MA drilling template	RSL 400 safety laser scanner, BTU804MA mounting plate	Screw type	Through-hole mounting	Metal
53800136	BTU804MA	Mounting system, compatible with RS4 mounting system	RSL 400 safety laser scanner	Screw type	Through-hole mounting	Metal

Further rod mounts can be found on our website

Mounting

Part no.	Part description	Description	Suitable for	Material
53800131	BTP800M	Loop guard	BTf830M mounting bracket, BTf815M mounting bracket	Metal

General

Part no.	Part description	Number of cleaning cloths	Content of cleaning fluid
430400	RS4-clean-Set1	40x	150 ml
430410	RS4-clean-Set2	120x	1,000 ml

//PROTECTIVE SENSOR SETS

PLUG & PLAY FOR EFFICIENT ACCESS GUARDING

If you would like to more easily and more quickly implement access guarding with reduced logistical work, protective sensor sets are an attractive solution. Components that are electronically and mechanically optimized to one another and which are equipped with connectors ensure fast start-up of the Plug & Play complete solutions.

/// MLDSET



These are muting systems for access guarding with 2- and 3-beam MLDTransceiver devices, pre-mounted in Leuze electronic device columns.

Benefits:

- Pre-mounted and aligned muting sensors with complete wiring
- Configuration without PC via wiring in the switch cabinet
- Various muting modes (parallel, sequential, partial)
- Also for low-temperature applications down to -30°C

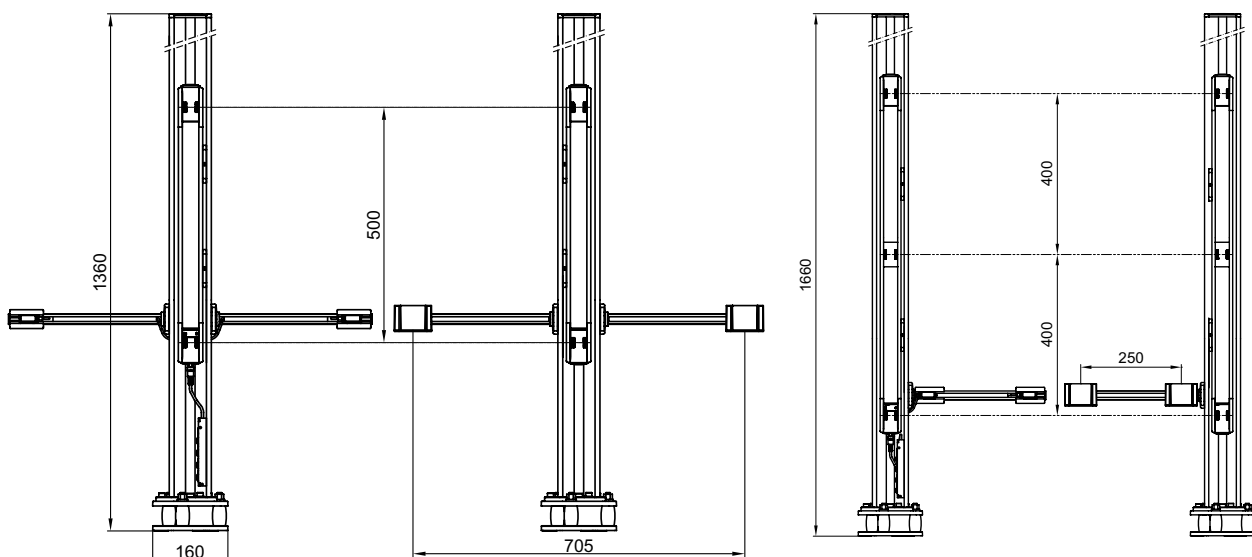


Direct access to the online product selector at www.leuze.com/en/mldset

Part no.	Part description	Beam spacing	Number of beams	Operating range	Muting sensors	Column height without foot	Muting type	Design
66900022	MLDSET-M1-1300L	500 mm	2x	0 ... 8 m	2x PRK 25B retro-reflective photoelectric sensors	1,300 mm	Sequence controlled 2-sensor muting	Integrated muting indicator
66900021	MLDSET-M1-1300T	500 mm	2x	0 ... 8 m	2x PRK 25B retro-reflective photoelectric sensors	1,300 mm	Timing controlled 2-sensor muting	Integrated muting indicator
66900026	MLDSET-M2-1300L	400 mm	3x	0 ... 6 m	2x PRK 25B retro-reflective photoelectric sensors	1,300 mm	Sequence controlled 2-sensor muting	Integrated muting indicator
66900025	MLDSET-M2-1300T	400 mm	3x	0 ... 6 m	2x PRK 25B retro-reflective photoelectric sensors	1,300 mm	Timing controlled 2-sensor muting	Integrated muting indicator
66900024	MLDSET-M1-1600L	500 mm	2x	0 ... 8 m	2x PRK 25B retro-reflective photoelectric sensors	1,600 mm	Sequence controlled 2-sensor muting	Integrated muting indicator
66900023	MLDSET-M1-1600T	500 mm	2x	0 ... 8 m	2x PRK 25B retro-reflective photoelectric sensors	1,600 mm	Timing controlled 2-sensor muting	Integrated muting indicator
66900012	MLDSET-M1-1600T4	500 mm	2x	0 ... 8 m	4x PRK 25B retro-reflective photoelectric sensors	1,600 mm	Timing controlled 4-sensor muting	Integrated muting indicator
66900028	MLDSET-M2-1600L	400 mm	3x	0 ... 6 m	2x PRK 25B retro-reflective photoelectric sensors	1,600 mm	Sequence controlled 2-sensor muting	Integrated muting indicator
66900027	MLDSET-M2-1600T	400 mm	3x	0 ... 6 m	2x PRK 25B retro-reflective photoelectric sensors	1,600 mm	Timing controlled 2-sensor muting	Integrated muting indicator
66900013	MLDSET-M2-1600T4	400 mm	3x	0.5 ... 6 m	4x PRK 25B retro-reflective photoelectric sensors	1,600 mm	Timing controlled 4-sensor muting	Integrated muting indicator

Included in delivery: mounting kit for floor assembly.

Dimensioned drawings: MLDSET



MLDSET-M1-1300T protective sensor set

MLDSET-M2-1600L protective sensor set

Switching
sensors

Measuring
sensors

Products for
safety at work

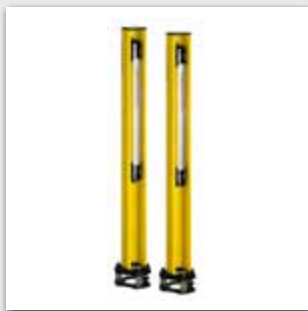
Identification

Data transmission /
Control components

Industrial image
processing

Accessories

/// MLD-UDC



MLD 500Transceiver or transmitter-receiver systems with different numbers of beams and ranges which are pre-mounted in device columns facilitate the installation of the most diverse constructional systems even in combination with deflecting mirror columns. They are suitable for single- and multiple-sided access guarding.

Benefits:

- Pre-mounted safety sensors in sturdy device columns
- Configuration without PC via wiring in the switch cabinet
- Extremely diverse access guarding systems with the addition of deflecting mirror columns
- All columns with automatic resetting after mechanical impacts
- Also for low-temperature applications down to -30 °C

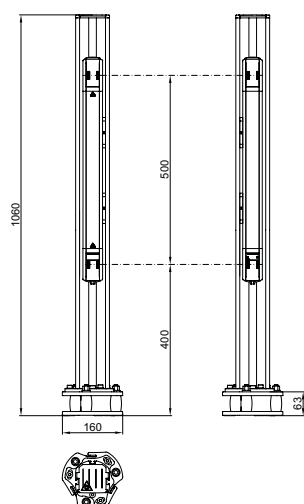


Direct access to the online product selector at www.leuze.com/en/ml-d-udc

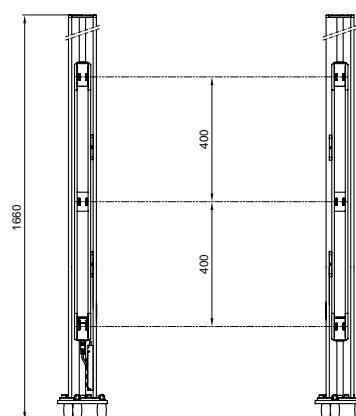
Part no.	Part description	Beam spacing	Number of beams	Operating range	Column height without foot	Design
426379	► MLD510-R2-UDC-1000-S2-P	500 mm	2x		1,000 mm	Protective screen
426345	◄ MLD500-T2-UDC-1000-S2-P	500 mm	2x	0.5 ... 50 m	1,000 mm	Protective screen
426415	► MLD510-R2L-UDC-1000-S2	500 mm	2x		1,000 mm	Reflective element for laser alignment aid
426306	◄ MLD500-T2L-UDC-1000-S2	500 mm	2x	0.5 ... 50 m	1,000 mm	Integrated laser alignment aid
426308	► MLD520-R2L-UDC-1000-S2	500 mm	2x		1,000 mm	Reflective element for laser alignment aid
426306	◄ MLD500-T2L-UDC-1000-S2	500 mm	2x	0.5 ... 50 m	1,000 mm	Integrated laser alignment aid
426307	► MLD530-R2LM-UDC-1000-S2	500 mm	2x		1,000 mm	Integrated muting indicator, reflective element for laser alignment aid
426306	◄ MLD500-T2L-UDC-1000-S2	500 mm	2x	0.5 ... 50 m	1,000 mm	Integrated laser alignment aid
426535	► MLD530-RT2M-UDC-1000-S2	500 mm	2x	0.5 ... 8 m	1,000 mm	Integrated muting indicator
426305	◄ MLD-M002-UDC-1000-S2	500 mm	2x		1,000 mm	
426599	► MLD510-XR3L-UDC-1140-S2	400 mm	3x		1,140 mm	Reflective element for laser alignment aid
426598	◄ MLD500-XT3L-UDC-1140-S2	400 mm	3x	20 ... 70 m	1,140 mm	Integrated laser alignment aid
426542	► MLD520-RT3-UDC-1300-S2	400 mm	3x	0.5 ... 6 m	1,300 mm	
905067	◄ MLD-M003-UDC-1300-S2	400 mm	3x		1,300 mm	
426549	► MLD530-RT3M-UDC-1300-S2	400 mm	3x	0.5 ... 6 m	1,300 mm	Integrated muting indicator Integrated status indicator
905067	◄ MLD-M003-UDC-1300-S2	400 mm	3x		1,300 mm	
426536	► MLD520-RT3-UDC-1600-S2	400 mm	3x	0.5 ... 6 m	1,600 mm	
905068	◄ MLD-M003-UDC-1600-S2	400 mm	3x		1,600 mm	
426537	► MLD535-RT3M-UDC-1600-S2	400 mm	3x	0.5 ... 6 m	1,600 mm	Integrated muting indicator
905068	◄ MLD-M003-UDC-1600-S2	400 mm	3x		1,600 mm	
426544	► MLD535-RT3M-UDC-1900-S2	400 mm	3x	0.5 ... 6 m	1,900 mm	Integrated muting indicator Integrated status indicator
426508	◄ MLD-M003-UDC-1900-S2	400 mm	3x		1,900 mm	

► receiver or Transceiver / ◄ transmitter or mirror
Included in delivery: mounting kit for floor assembly.
Further products of this series can be found on our website or on request.

Dimensioned drawings: MLD-UDC



MLD500-T2L-UDC1000-S2 protective sensor set (transmitter) /
MLD520R2L-UDC1000-S2 (receiver)



MLD535-RT3M-UDC-1600-S2 protective sensor set (transceiver) /
MLD-M003-UDC-1600-S2 (deflecting mirror)

/ SAFE LOCKING DEVICES, SWITCHES AND PROXIMITY SENSORS

FROM EXTREMELY ECONOMICAL TO EXTREMELY TOUGH

Safety switches and magnetically coded safety systems are used for monitoring movable safety guards, such as safety doors, sliding grilles or flaps. Opening the protective devices triggers an E-STOP command. Safety locking devices keep the protective doors locked, thereby preventing the inadmissible access of people until the guarded machine no longer poses a danger.



Safety switches

Page 302

Safety locking devices

Page 312

Safety command devices

Page 320

Magnetically coded sensors

Page 323

Safety transponders

Page 325



Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

//SAFETY SWITCHES

OPEN IS OFF

For doors, flaps and covers that must be closed during the operation of machines, safety switches for position monitoring and for the protection of personnel and systems are required. In addition to standard designs for universal use, safety hinge switches and safety position switches are available as alternatives to hinge switches on flaps.

Safety switches with separate actuator

Standard designs with separate actuators allow different approach directions and thereby facilitate universal use.

/// S20



The S20 is a safety switch without locking device that can be used, e.g., on machines and systems where the operator is protected from the point of operation by grid doors or sliding gates.



Benefits:

- Housing made of glass fiber reinforced plastic – degree of protection IP 67
- Suited for normal duty applications
- Easy mounting with standard construction
- Universal use with 5 actuator approach directions
- Self-centering through funnel-shaped insertion opening

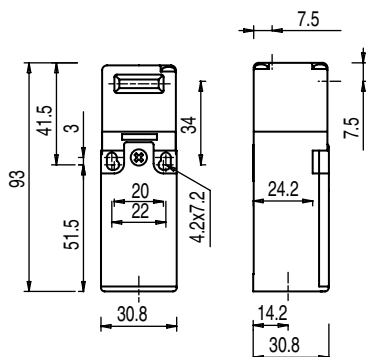


Direct access to the online product selector at www.leuze.com/en/s20

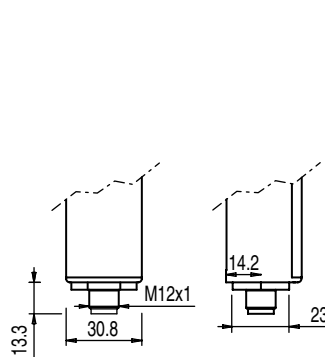
Part no.	Part description	Contact allocation	Housing material	Connection	Cable entry	Approach actuation directions	Actuation force (pull-out)
63000101	S20-P1C1-M20-FH	1NC + 1NO, slow-action contact	Plastic	Terminal, 4-pin	1x, M20 × 1.5	4 x lateral (90 °), 1 × top	10 N
63000102	S20-P1C3-M20-LH	1NC + 1NO, slow-action contact	Plastic	Terminal, 4-pin	3x, M20 × 1.5	4 x lateral (90 °), 1 × top	10 N
63000103	S20-P4C1-M20-FH	2NC + 1NO, slow-action contact	Plastic	Terminal, 6-pin	1x, M20 × 1.5	4 x lateral (90 °), 1 × top	10 N
63000105	S20-P4C1-M20-FH30	2NC + 1NO, slow-action contact	Plastic	Terminal, 6-pin	1x, M20 × 1.5	1 × top, 4 × lateral (90 °)	30 N
63000104	S20-P4C3-M20-LH	2NC + 1NO, slow-action contact	Plastic	Terminal, 6-pin	3x, M20 × 1.5	4 x lateral (90 °), 1 × top	10 N
63000106	S20-P4C1-M12-FH	2NC + 1NO, slow-action contact	Plastic	Connector, M12, 8-pin, plastic		1 × top, 4 × lateral (90 °)	10 N
63000100	S20-P3C1-M20-FH	2NC, slow-action contact	Plastic	Terminal, 4-pin	1x, M20 × 1.5	4 x lateral (90 °), 1 × top	10 N

Note: Actuators must be ordered separately!

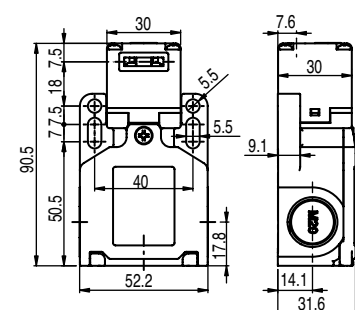
Dimensioned drawings: S20



S20-P3C1-M20-FH / S20-P1C1-M20-FH /
S20-P4C1-M20-FH30 safety switches



S20-P4C1-M12-FH safety switch
(dimensions of M12 connector)



S20-P1C3-M20-LH / S20-P4C3-M20-LH
safety switches

ACCESSORIES: S20

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
678060	CB-M12-5000E-8GF	Connector, M12, axial, female	8-pin	5,000 mm	PUR
678061	CB-M12-10000E-8GF	Connector, M12, axial, female	8-pin	10,000 mm	PUR
678062	CB-M12-15000E-8GF	Connector, M12, axial, female	8-pin	15,000 mm	PUR
678063	CB-M12-25000E-8GF	Connector, M12, axial, female	8-pin	25,000 mm	PUR

Further connection cables can be found on our website

User-configurable connectors

Part no.	Part description	Connection	No. of pins
63000844	AC-PLP-8	Connector, M12, axial, male	8-pin

Adapter

Part no.	Part description	Design
63000843	AC-A-M20-12NPT	M20 × 1,5 on 1/2 NPT

Actuator

Part no.	Part description	Design	Mounting bore holes	Material	Type of fastening	Description
63000706	AC-AN-F1J2	Straight	In key direction	Plastic, stainless steel	Through-hole mounting	Functions: flexible, 1 direction, adjustable, 2 directions
63000703	AC-AN-F2J2	Straight	90° to key direction	Plastic, stainless steel	Through-hole mounting	Functions: flexible, 2 directions, adjustable, 2 directions
63000702	AC-AN-F4	Straight	90° to key direction	Plastic, stainless steel	Through-hole mounting	Functions: flexible, 4 directions
63000700	AC-AN-S	Straight	90° to key direction	Stainless steel	Through-hole mounting	
63000704	AC-AN-SL	Straight	90° to key direction	Stainless steel	Through-hole mounting	
63000701	AC-AN-A	Angled	In key direction	Stainless steel	Through-hole mounting	
63000705	AC-AN-AL	Angled	In key direction	Stainless steel	Through-hole mounting	
63000707	AC-AN-ASH	Angled	In key direction	Stainless steel	Through-hole mounting	

/// S200



This safety switch is used, e. g., for heavy doors or rolling gates in rough environments, i.e., it is preferred for heavy duty applications.



Benefits:

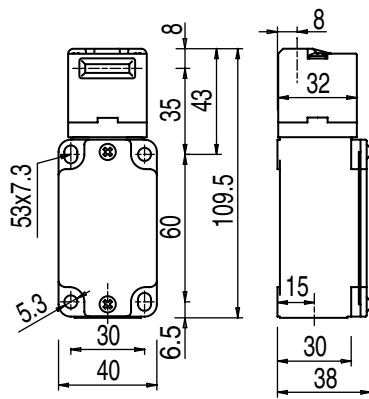
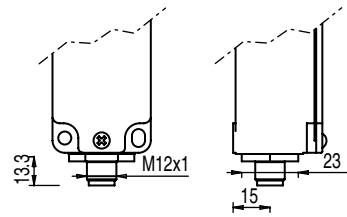
- Housing made of metal – degree of protection IP 67
- Suited for heavy duty applications
- Easy mounting with standard construction
- Universal use with 5 actuator approach directions
- Self-centering through funnel-shaped insertion opening



Direct access to the online product selector at www.leuze.com/en/s200

Part no.	Part description	Contact allocation	Housing material	Connection	Cable entry	Approach actuation directions	Actuation force (pull-out)
63000201	S200-M1C1-M20	1NC + 1NO, slow-action contact	Metal	Terminal, 4-pin	1x, M20 × 1.5	4 x lateral (90 °), 1 × top	10 N
63000202	S200-M4C1-M20	2NC + 1NO, slow-action contact	Metal	Terminal, 6-pin	1x, M20 × 1.5	4 x lateral (90 °), 1 × top	10 N
63000203	S200-M4C1-M12	2NC + 1NO, slow-action contact	Metal	Connector, M12, 8-pin, metal		4 x lateral (90 °), 1 × top	10 N
63000200	S200-M3C1-M20	2NC, slow-action contact	Metal	Terminal, 4-pin	1x, M20 × 1.5	4 x lateral (90 °), 1 × top	10 N

Note: Actuators must be ordered separately!

Dimensioned drawings: S200S200-M1C1-M20 / S200-M3C1-M20 / S200-M4C1-M20
safety switches

S200-M4C1-M12 safety switch (dimensions of M12 connector)

ACCESSORIES: S200**Connection technology**

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
678060	CB-M12-5000E-8GF	Connector, M12, axial, female	8-pin	5,000 mm	PUR
678061	CB-M12-10000E-8GF	Connector, M12, axial, female	8-pin	10,000 mm	PUR
678062	CB-M12-15000E-8GF	Connector, M12, axial, female	8-pin	15,000 mm	PUR
678063	CB-M12-25000E-8GF	Connector, M12, axial, female	8-pin	25,000 mm	PUR

Further connection cables can be found on our website

User-configurable connectors

Part no.	Part description	Connection	No. of pins
63000845	AC-PLM-8	Connector, M12, axial, male	8-pin

Adapter

Part no.	Part description	Design
63000843	AC-A-M20-12NPT	M20 × 1,5 on 1/2 NPT

Actuator

Part no.	Part description	Design	Mounting bore holes	Material	Type of fastening	Description
63000846	AC-KL-AH			Metal		Actuator interlock
63000724	AC-AH-F1J2	Straight	In key direction	Plastic, stainless steel	Through-hole mounting	Functions: flexible, 1 direction, adjustable, 2 directions
63000723	AC-AH-F2J2	Straight	90° to key direction	Plastic, stainless steel	Through-hole mounting	Functions: flexible, 2 directions, adjustable, 2 directions
63000722	AC-AH-F4	Straight	90° to key direction	Plastic, stainless steel	Through-hole mounting	Functions: flexible, 4 directions
63000725	AC-AH-F4J2-TK	Straight	In key direction, 90° to key direction	Stainless steel	Through-hole mounting	Functions: flexible, 4 directions, rotatable head, key, adjustable, 4 directions
63000720	AC-AH-S	Straight	90° to key direction	Stainless steel	Through-hole mounting	
63000721	AC-AH-A	Angled	In key direction	Stainless steel	Through-hole mounting	

Safety position switches

Because of their construction design, these switches are used for the position monitoring of machines or as an alternative to hinge switches – always with the prerequisite that appropriate actuation tappets or notches can actuate the switch when friction closed.

/// S300



The S300 safety position switches have a metal housing in accordance with degree of protection IP 67. The models equipped with various contact sets enable integration in control circuits up to category 4 in accordance with EN ISO 13849. In addition, models are available with different actuators and supports and connection options.



Benefits:

- Metal housing for heavy duty applications
- Switching direction selectable
- Universal use with individually set actuator approach directions and angles
- Stable lever fastening in 10° raster
- Models with plunger and roller actuator, extremely long-life and robust

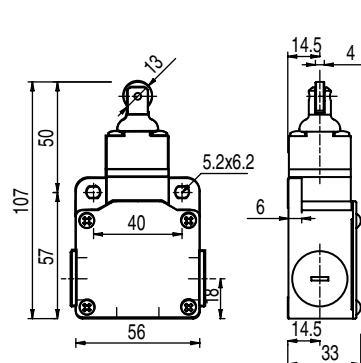


Direct access to the online product selector at www.leuze.com/en/s300

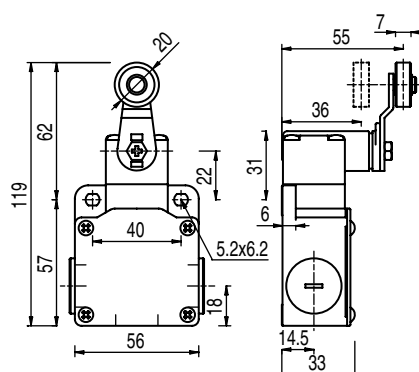
Part no.	Part description	Contact allocation	Housing material	Connection	Cable entry	Approach actuation directions	Switching direction
63000310	S300-P0C1-M20-CB	1NC + 1NO, snap-action contact	Plastic	Terminal, 4-pin	1x, M20 × 1.5	4 x lateral (90 °), 360 °	One side, both sides
63000300	S300-M0C3-M20-15	1NC + 1NO, snap-action contact	Metal	Terminal, 4-pin	3x, M20 × 1.5	4 x lateral (90 °), 1 × top	Both sides
63000302	S300-M0C3-M20-31	1NC + 1NO, snap-action contact	Metal	Terminal, 4-pin	3x, M20 × 1.5	4 x lateral (90 °), 360 °	Both sides, one side
63000306	S300-P13C1-M20-CB	2NC + 1NO, slow-action contact	Plastic	Terminal, 6-pin	1x, M20 × 1.5	4 x lateral (90 °), 360 °	One side, both sides
63000308	S300-P13C1-M20-SB	2NC + 1NO, slow-action contact	Plastic	Terminal, 6-pin	1x, M20 × 1.5	4 x lateral (90 °), 360 °	One side, both sides
63000301	S300-M13C3-M20-15	2NC + 1NO, slow-action contact	Metal	Terminal, 6-pin	3x, M20 × 1.5	4 x lateral (90 °), 1 × top	Both sides
63000303	S300-M13C3-M20-31	2NC + 1NO, slow-action contact	Metal	Terminal, 6-pin	3x, M20 × 1.5	4 x lateral (90 °), 360 °	Both sides, one side
63000304	S300-M13C3-M20-CB	2NC + 1NO, slow-action contact	Metal	Terminal, 6-pin	3x, M20 × 1.5	4 x lateral (90 °), 360 °	One side, both sides
63000305	S300-M13C3-M20-SB	2NC + 1NO, slow-action contact	Metal	Terminal, 6-pin	3x, M20 × 1.5	4 x lateral (90 °), 360 °	One side, both sides
63000307	S300-P13C1-M12-CB	2NC + 1NO, slow-action contact	Plastic	Connector, M12, 8-pin, plastic		4 x lateral (90 °), 360 °	One side, both sides
63000309	S300-P13C1-M12-SB	2NC + 1NO, slow-action contact	Plastic	Connector, M12, 8-pin, plastic		4 x lateral (90 °), 360 °	One side, both sides

Note: Actuators must be ordered separately!

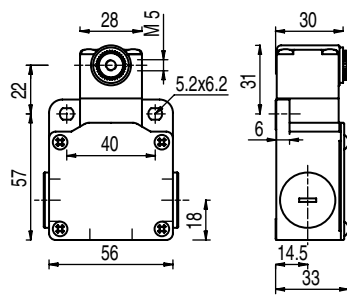
Dimensioned drawings: S300



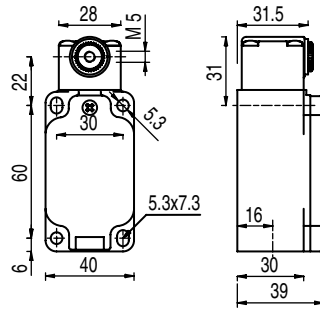
S300-M0C3-M20-15 /
S300-M13C3-M20-15
safety position switches



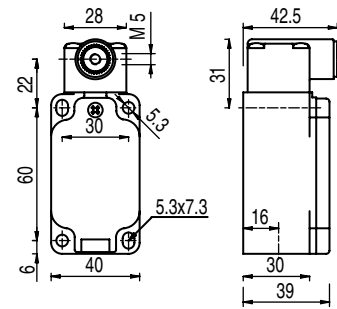
S300-M0C3-M20-31 and S300-M13C3-M20-31
safety position switches

Dimensioned drawings: S300

S300-M13C3-M20-CB
safety position switch



S300-P13C1-M20-CB /
S300-P13C1-M12-CB
safety position switches



S300-P13C1-M20-SB /
S300-P13C1-M12-SB
safety position switches

ACCESSORIES: S300**Connection technology**

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
678060	CB-M12-5000E-8GF	Connector, M12, axial, female	8-pin	5,000 mm	PUR
678061	CB-M12-10000E-8GF	Connector, M12, axial, female	8-pin	10,000 mm	PUR
678062	CB-M12-15000E-8GF	Connector, M12, axial, female	8-pin	15,000 mm	PUR
678063	CB-M12-25000E-8GF	Connector, M12, axial, female	8-pin	25,000 mm	PUR

Further connection cables can be found on our website

User-configurable connectors

Part no.	Part description	Connection	No. of pins
63000845	AC-PLM-8	Connector, M12, axial, male	8-pin

Adapter

Part no.	Part description	Design
63000843	AC-A-M20-12NPT	M20 × 1,5 on 1/2 NPT

Actuator

Part no.	Part description	Design	Mounting bore holes	Material	Type of fastening	Description
63000882	AC-LL-R	Straight	90° to key direction	Steel, galvanized, plastic	Through-hole mounting	Length: 34 mm ... 93 mm; Functions: easy installation, quick vertical and axial alignment in just a few steps, linkage via roller
63000884	AC-LL-R40	Straight	90° to key direction	Steel, galvanized, rubber	Through-hole mounting	Length: 50 mm ... 103 mm; Functions: easy installation, quick vertical and axial alignment in just a few steps, linkage via roller
63000883	AC-PL	Straight	90° to key direction	Steel, porcelain	Through-hole mounting	Functions: easy installation, quick vertical and axial alignment in just a few steps, linkage via sleeve
63000880	AC-SL-R	Straight	90° to key direction	Steel, galvanized, plastic	Through-hole mounting	Functions: easy installation, quick vertical and axial alignment in just a few steps, linkage via roller
63000881	AC-AL-R	Angled	90° to key direction	Steel, galvanized, plastic	Through-hole mounting	Functions: easy installation, quick vertical and axial alignment in just a few steps, linkage via roller

Safety hinge switches

Safety hinge switches are used for the position monitoring of hard guards that can rotate (e. g. protective hoods) by means of a monitoring switch (without guard interlocking) integrated into the hinge.

/// S400



The S400 safety hinge switches unite the safety switch and door hinge functions in one component. Because external actuators are not required with this switch, it can also be used problem-free in environments with high dust concentration levels or with heavy particle loads (degrees of protection IP 67). By means of a repeatable setting (switching angle alignment), fault-free function is ensured even with warped or misaligned doors.



Benefits:

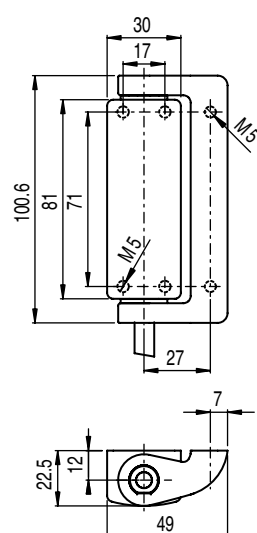
- 180 ° maximum opening angle of the protective device
- Repeatable setting (switching angle alignment) with skewed or misaligned doors
- Compact, rounded-off construction design in robust metal version, degree of protection IP 67
- Encapsulated, internal actuator guarantees proper functioning, even under difficult conditions
- Highly tamper proof due to covered screws
- Cable or M12 connection



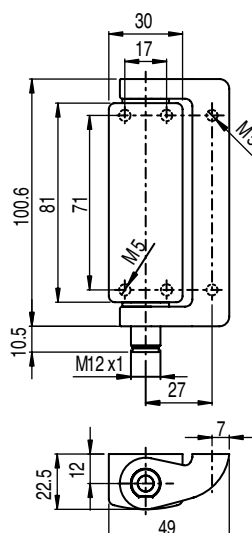
Direct access to the online product selector at www.leuze.com/en/s400

Part no.	Part description	Contact allocation	Housing material	Connection	Side of cable entry
63000411	S400-M4-CB2PUR-W	2NC + 1NO, slow-action contact	Metal	Cable, 7-wire, 2,000 mm, PUR	Wall side
63000402	S400-M4CB2-T	2NC + 1NO, slow-action contact	Metal	Cable, 7-wire, 2,000 mm, PVC	From above (with left installation)
63000400	S400-M4CB2-B	2NC + 1NO, slow-action contact	Metal	Cable, 7-wire, 2,000 mm, PVC	From below (with left installation)
63000406	S400-M4-CB02M12-W	2NC + 1NO, slow-action contact	Metal	Cable with connector, M12, 8-pin, metal, 200 mm, PVC	Wall side
63000403	S400-M4M12-T	2NC + 1NO, slow-action contact	Metal	Connector, M12, 8-pin, metal	From above (with left installation)
63000401	S400-M4M12-B	2NC + 1NO, slow-action contact	Metal	Connector, M12, 8-pin, metal	From below (with left installation)
63000407	S400-M1-CB02M12-W	2NC + 1NO, snap-action contact	Metal	Cable with connector, M12, 8-pin, metal, 200 mm, PVC	Wall side

Dimensioned drawings: S400



S400-M4CB2-B safety hinge switches



S400-M4M12-B safety hinge switches

Switching
sensors

Measuring
sensors

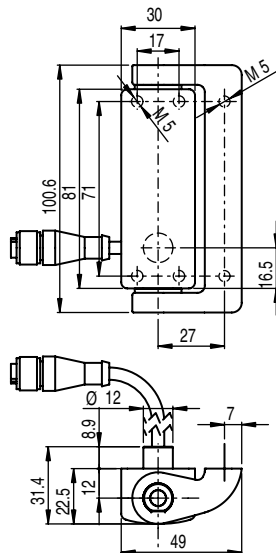
Products for
safety at work

Identification

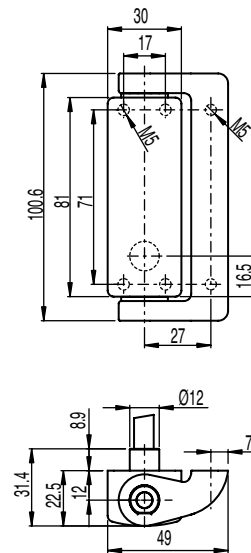
Data transmission /
Control components

Industrial image
processing

Accessories

Dimensioned drawings: S400

S400-Mx-CB02M12-W safety hinge switches



S400-M4-CB2PUR-W safety hinge switches

ACCESSORIES: S400**Connection technology**

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
678060	CB-M12-5000E-8GF	Connector, M12, axial, female	8-pin	5,000 mm	PUR
678061	CB-M12-10000E-8GF	Connector, M12, axial, female	8-pin	10,000 mm	PUR
678062	CB-M12-15000E-8GF	Connector, M12, axial, female	8-pin	15,000 mm	PUR
678063	CB-M12-25000E-8GF	Connector, M12, axial, female	8-pin	25,000 mm	PUR

Further connection cables can be found on our website

Mounting

Part no.	Part description	Description	Material	Design	Type of fastening	Dimensions
63000770	AC-H-S400	Additional hinge	Metal, ZAMAK		Mounting thread	49 mm × 22.5 mm × 100.6 mm
63000775	AC-H-S400-S	Additional hinge	Metal, ZAMAK		Mounting thread	44.5 mm × 22.5 mm × 65 mm
63000772	AC-MP1-S400	Mounting plate set	Metal	Mounting plate with L-angle		
63000771	AC-MP3-S400	Mounting plate set	Metal	Mounting plate		
63000774	AC-SEPL-S4xx	Safety plug				

/// S410



With its wider mounting fork, this safety hinge switch is suitable above all for use with glass or plastic parts, as larger support surfaces are needed for stability in these cases.



Benefits:

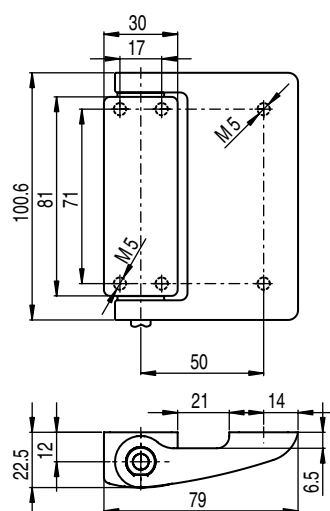
- Wide fork dimensions for stability on glass and plastic
- 180 ° maximum opening angle of the protective device
- Repeatable setting (switching angle alignment) with skewed or misaligned doors
- Degree of protection IP 67
- Compact, rounded-off construction design in robust metal version
- Encapsulated, internal actuator guarantees proper functioning, even under difficult conditions
- Highly tamper proof due to covered screws
- Cable or M12 connection



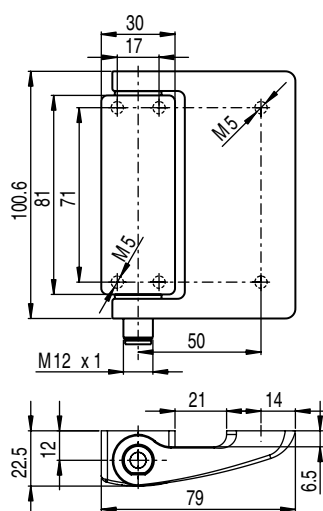
Direct access to the online product selector at www.leuze.com/en/s410

Part no.	Part description	Contact allocation	Housing material	Connection	Side of cable entry
63000412	S410-M4-CB2PUR-W	2NC + 1NO, slow-action contact	Metal	Cable, 7-wire, 2,000 mm, PVC	Wall side
63000410	S410-M4-CB02M12-W	2NC + 1NO, slow-action contact	Metal	Cable with connector, M12, 8-pin, metal, 200 mm, PVC	Wall side
63000408	S410-M1CB2-T	2NC + 1NO, snap-action contact	Metal	Cable, 7-wire, 2,000 mm, PVC	From above (with left installation)
63000404	S410-M1CB2-B	2NC + 1NO, snap-action contact	Metal	Cable, 7-wire, 2,000 mm, PVC	From below (with left installation)
63000409	S410-M1M12-T	2NC + 1NO, snap-action contact	Metal	Connector, M12, 8-pin, metal	From above (with left installation)
63000405	S410-M1M12-B	2NC + 1NO, snap-action contact	Metal	Connector, M12, 8-pin, metal	From below (with left installation)

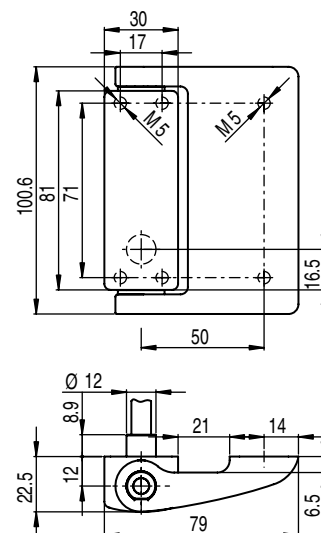
Dimensioned drawings: S410



S410-M1CB2-B
safety hinge switches



S410-M1M12-B
safety hinge switches



S410-M4-CB02M12-W /
S410-M4-CB2PUR-W
safety hinge switches

ACCESSORIES: S410

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
678060	CB-M12-5000E-8GF	Connector, M12, axial, female	8-pin	5,000 mm	PUR
678061	CB-M12-10000E-8GF	Connector, M12, axial, female	8-pin	10,000 mm	PUR
678062	CB-M12-15000E-8GF	Connector, M12, axial, female	8-pin	15,000 mm	PUR
678063	CB-M12-25000E-8GF	Connector, M12, axial, female	8-pin	25,000 mm	PUR

Further connection cables can be found on our website

Mounting

Part no.	Part description	Description	Material	Type of fastening	Dimensions
63000773	AC-H-S410	Additional hinge	Metal, ZAMAK	Mounting thread	79 mm × 22.5 mm × 100.6 mm
63000774	AC-SEPL-S4xx	Safety plug			

/// S420



Owing to their highly tempered stainless steel housing and the degree of protection IP 69K, the series S420 safety hinge switches are particularly suited to tasks which have extremely high requirements with regard to hygiene. From a technical viewpoint, the unique switch impresses with its sensor-based OSSD, four multicolor LEDs for on-site diagnosis and its high safety level (SIL 3, PL e).



Benefits:

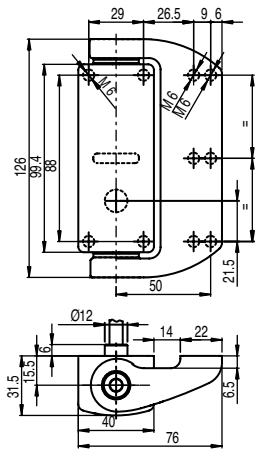
- Hinge switch in a conventional variant with contact allocation (S420-9x) or in a variant with on-site diagnosis and OSSDs (S420-OSx)
- Series connection of devices with SIL3 and PLe (S420-OSx) allows low-cost interconnection with an extremely high safety level
- Long mission time even with heavy doors or difficult materials (e. g. acrylic glass) owing to the robust housing and 6 screwed connections along its arm
- High-grade standard-compliant surfaces (< 0.8 µm) which can be cleaned easily even under hygienically difficult conditions
- Degrees of protection IP 67 and IP 69K ensure reliable operation even in the case of intensive cleaning and dust accumulation
- Optical information about the hinge status is provided on site by four multicolor LEDs
- Concealed screwed connections to protect against tampering and to enable easier cleaning
- Long-term identifiability owing to the robust laser print
- Reduced installation requirements and fast connection due to integrated cable or M12 connector with 0,2 m cable
- Additional signal output used to actuate signal lamps or for signaling status to control units
- High level of investment protection owing to simple and extensive adjustability to almost 0° e. g. in the case of door wear



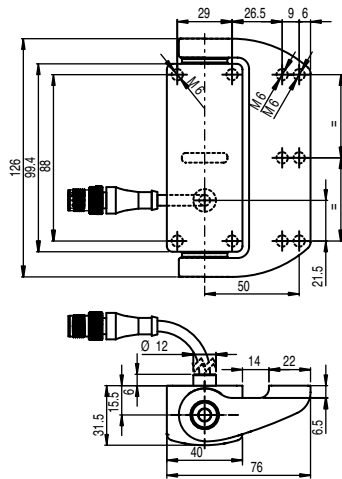
Direct access to the online product selector at www.leuze.com/en/s420

Part no.	Part description	Contact allocation	Housing material	Connection	Side of cable entry
63000420	S420-9CB2-LW	2NC + 2NO, slow-action contact	Stainless steel	Cable, 8-wire, 2,000 mm, PVC	Wall side
63000422	S420-9-CB02M12-LW	2NC + 2NO, slow-action contact	Stainless steel	Cable with connector, M12, 8-pin, metal, 200 mm, PVC	Wall side
63000421	S420-OS-CB2-LW	OSSD, slow-action contact	Stainless steel	Cable, 8-wire, 2,000 mm, PVC	Wall side
63000423	S420-OS-CB02M12-LW	OSSD, slow-action contact	Stainless steel	Cable with connector, M12, 8-pin, metal, 200 mm, PVC	Wall side

Dimensioned drawings: S420



S420-9CB2-LW / S420-OS-CB2-LW
safety hinge switches



S420-9-CB02M12-LW / S420-OS-CB02M12-LW
safety hinge switches

ACCESSORIES: S420

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
678060	CB-M12-5000E-8GF	Connector, M12, axial, female	8-pin	5,000 mm	PUR
678061	CB-M12-10000E-8GF	Connector, M12, axial, female	8-pin	10,000 mm	PUR
678062	CB-M12-15000E-8GF	Connector, M12, axial, female	8-pin	15,000 mm	PUR
678063	CB-M12-25000E-8GF	Connector, M12, axial, female	8-pin	25,000 mm	PUR

Further connection cables can be found on our website

Mounting

Part no.	Part description	Description	Material	Type of fastening	Dimensions
63000778	AC-H-S420	Additional hinge	Stainless steel, AISI 316L	Mounting thread	76 mm × 31.5 mm × 126 mm
63000779	AC-S-S420	Seal set	Plastic		
63000774	AC-SEPL-S4xx	Safety plug			

SMARTER APPLICATION KNOW-HOW



Trade shows

Reliable systems for 2D- and 3D-measurement of distances and objects



Positioning
Sensor technology for quick positioning accurate down to the millimeter



Safeguarding
Economical solutions in all areas of safety at work



Identification
Innovative code readers and RFID systems

Additional application highlights can be found under: www.leuze.com/en/practice

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

//SAFETY LOCKING DEVICES

THE DOOR STAYS CLOSED!

Safety locking devices keep protective doors securely locked and thereby prevent the inadmissible access of people until the guarded machine no longer poses a danger. Not until there is no longer a danger to the machine or to the workers is access released by an electric signal. With their robust design, all Leuze electronic safety switches and locking devices are designed for rough industrial applications.

/// L10



The compact and economical L10 safety locking device reduces wiring through manual locking and releasing.



Benefits:

- Particularly economical locking solution for rarely-used maintenance doors and applications without electrical control signals
- Hardly any wiring and cabling costs due to manual locking and unlocking
- 6 different heavy duty actuators for the most diverse installation conditions

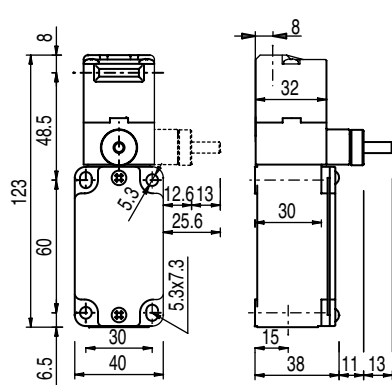


Direct access to the online product selector at www.leuze.com/en/l10

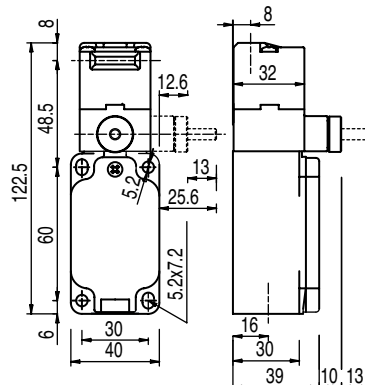
Part no.	Part description	Contact allocation	Housing material	Connection	Cable entry	Approach actuation directions	Locking actuation	Locking type
63000558	L10-P3C1-M20-K0	2NC + 1NO, slow-action contact	Plastic	Terminal, screw terminal, 6-pin	1x, M20 × 1.5	4 x lateral (90 °), 1 × top	Manual unlocking by means of key	Mechanical
63000554	L10-P3C1-M20-LB10	2NC + 1NO, slow-action contact	Plastic	Terminal, screw terminal, 6-pin	1x, M20 × 1.5	4 x lateral (90 °), 1 × top	Manual unlocking by means of knurled nut	Mechanical
63000555	L10-P3C1-M20-LB20	2NC + 1NO, slow-action contact	Plastic	Terminal, screw terminal, 6-pin	1x, M20 × 1.5	4 x lateral (90 °), 1 × top	Manual unlocking by means of knurled nut	Mechanical
63000552	L10-P3C1-M20-SB20	2NC + 1NO, slow-action contact	Plastic	Terminal, screw terminal, 6-pin	1x, M20 × 1.5	1 × top, 4 × lateral (90 °)	Manual unlocking by means of knurled nut	Mechanical
63000559	L10-M3C1-M20-K0	2NC + 1NO, slow-action contact	Metal	Terminal, screw terminal, 6-pin	1x, M20 × 1.5	4 x lateral (90 °), 1 × top	Manual unlocking by means of key	Mechanical
63000553	L10-M3C1-M20-SB20	2NC + 1NO, slow-action contact	Metal	Terminal, screw terminal, 6-pin	1x, M20 × 1.5	1 × top, 4 × lateral (90 °)	Manual unlocking by means of knurled nut	Mechanical
63000550	L10-P2C1-M20-SB20	2NC, slow-action contact	Plastic	Terminal, screw terminal, 4-pin	1x, M20 × 1.5	1 × top, 4 × lateral (90 °)	Manual unlocking by means of knurled nut	Mechanical
63000551	L10-M2C1-M20-SB20	2NC, slow-action contact	Metal	Terminal, screw terminal, 4-pin	1x, M20 × 1.5	1 × top, 4 × lateral (90 °)	Manual unlocking by means of knurled nut	Mechanical

Note: Actuators must be ordered separately!

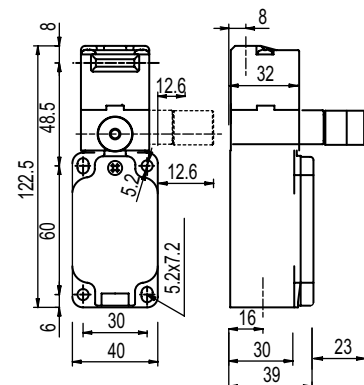
Dimensioned drawings: L10



L10-P2C1-M20-SB20 /
L10-P3C1-M20-SB20
safety locking device

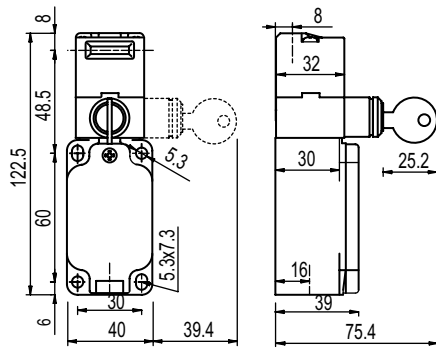


L10-M2C1-M20-SB20 /
L10-M3C1-M20-SB20
safety locking device

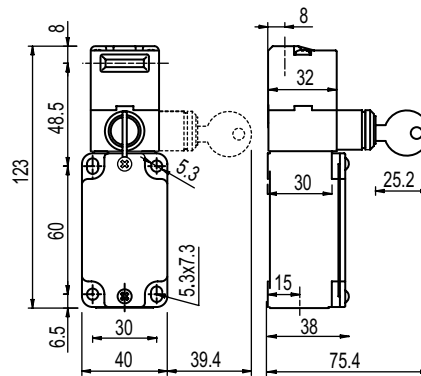


L10-P3C1-M20-LB10 /
L10-P3C1-M20-LB20
safety locking device

Dimensioned drawings: L10



L10-P3C1-M20-KO safety locking device



L10-M3C1-M20-KO safety locking device

ACCESSORIES: L10

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
678060	CB-M12-5000E-8GF	Connector, M12, axial, female	8-pin	5,000 mm	PUR
678061	CB-M12-10000E-8GF	Connector, M12, axial, female	8-pin	10,000 mm	PUR
678062	CB-M12-15000E-8GF	Connector, M12, axial, female	8-pin	15,000 mm	PUR
678063	CB-M12-25000E-8GF	Connector, M12, axial, female	8-pin	25,000 mm	PUR

Further connection cables can be found on our website

User-configurable connectors

Part no.	Part description	Connection	No. of pins
63000845	AC-PLM-8	Connector, M12, axial, male	8-pin
63000844	AC-PLP-8	Connector, M12, axial, male	8-pin

Adapter

Part no.	Part description	Design
63000843	AC-A-M20-12NPT	M20 x 1,5 on 1/2 NPT

Actuator

Part no.	Part description	Design	Mounting bore holes	Material	Type of fastening	Description
63000721	AC-AH-A	Angled	In key direction	Stainless steel	Through-hole mounting	
63000724	AC-AH-F1J2	Straight	In key direction	Plastic, stainless steel	Through-hole mounting	Functions: flexible, 1 direction, adjustable, 2 directions
63000723	AC-AH-F2J2	Straight	90° to key direction	Plastic, stainless steel	Through-hole mounting	Functions: flexible, 2 directions, adjustable, 2 directions
63000722	AC-AH-F4	Straight	90° to key direction	Plastic, stainless steel	Through-hole mounting	Functions: flexible, 4 directions
63000725	AC-AH-F4J2-TK	Straight	In key direction, 90° to key direction	Stainless steel	Through-hole mounting	Functions: flexible, 4 directions, rotatable head, key, adjustable, 4 directions
63000720	AC-AH-S	Straight	90° to key direction	Stainless steel	Through-hole mounting	
63000846	AC-KL-AH			Metal		Actuator interlock

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

/// L100

The versatile safety locking device is used both for personnel safety as well as for machine protection and is used to guard machines and systems that have stopping times.

**Benefits:**

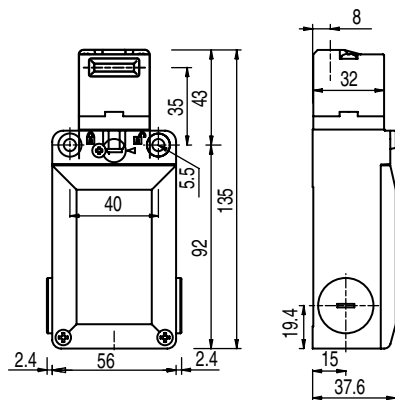
- 6 different heavy duty actuators for the most diverse installation conditions
- Standard construction in models with electromagnetic or spring force-actuated interlocking type and auxiliary release function
- Adjustable switch-on current reduction



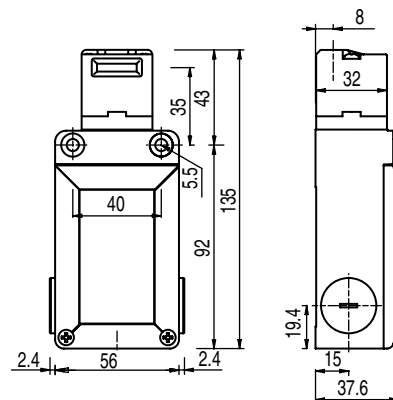
Direct access to the online product selector at www.leuze.com/en/l100

Part no.	Part description	Contact allocation	Housing material	Connection	Cable entry	Approach actuation directions	Locking actuation	Locking type
63000600	L100-P3C3-M20-SLM24	1NC, 1NC + 1NO, slow-action contact	Plastic	Terminal, screw terminal, 8-pin	3x, M20 × 1.5	1 × top, 4 × lateral (90 °)	Spring	Spring force
63000601	L100-P3C3-M20-MLM24	1NC, 1NC + 1NO, slow-action contact	Plastic	Terminal, screw terminal, 8-pin	3x, M20 × 1.5	1 × top, 4 × lateral (90 °)	Magnet	Electromagnetic
63000602	L100-P4C3-M20-SLM24	1NC, 2NC, slow-action contact	Plastic	Terminal, screw terminal, 8-pin	3x, M20 × 1.5	1 × top, 4 × lateral (90 °)	Spring	Spring force

Note: Actuators must be ordered separately!

Dimensioned drawings: L100

L100-P3C3-M20-SLM24 /
L100-P4C3-M20-SLM24 safety locking device



L100-P3C3-M20-MLM24 safety locking device

ACCESSORIES: L100**Connection technology**

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
678060	CB-M12-5000E-8GF	Connector, M12, axial, female	8-pin	5,000 mm	PUR
678061	CB-M12-10000E-8GF	Connector, M12, axial, female	8-pin	10,000 mm	PUR
678062	CB-M12-15000E-8GF	Connector, M12, axial, female	8-pin	15,000 mm	PUR
678063	CB-M12-25000E-8GF	Connector, M12, axial, female	8-pin	25,000 mm	PUR

Further connection cables can be found on our website

User-configurable connectors

Part no.	Part description	Connection	No. of pins
63000844	AC-PLP-8	Connector, M12, axial, male	8-pin

Adapter

Part no.	Part description	Design
63000843	AC-A-M20-12NPT	M20 × 1,5 on 1/2 NPT

Actuator

Part no.	Part description	Design	Mounting bore holes	Material	Type of fastening	Description
63000721	AC-AH-A	Angled	In key direction	Stainless steel	Through-hole mounting	
63000724	AC-AH-F1J2	Straight	In key direction	Plastic, stainless steel	Through-hole mounting	Functions: flexible, 1 direction, adjustable, 2 directions
63000723	AC-AH-F2J2	Straight	90° to key direction	Plastic, stainless steel	Through-hole mounting	Functions: flexible, 2 directions, adjustable, 2 directions
63000722	AC-AH-F4	Straight	90° to key direction	Plastic, stainless steel	Through-hole mounting	Functions: flexible, 4 directions
63000725	AC-AH-F4J2-TK	Straight	In key direction, 90° to key direction	Stainless steel	Through-hole mounting	Functions: flexible, 4 directions, rotatable head, key, adjustable, 4 directions
63000720	AC-AH-S	Straight	90° to key direction	Stainless steel	Through-hole mounting	
63000846	AC-KL-AH			Metal		Actuator interlock

/// L200



The L200 safety locking device designed for highly demanding applications is predestined for guarding large protective doors and sliding gates, in logistics operations, for example, or with very big machinery, and under harsh conditions.



Benefits:

- Heavy duty access guarding on big machinery and systems in harsh ambient conditions
- Emergency unlock function (ergonomically optimized panic button) for manually opening the protective devices in the event of an emergency
- Suitable for extreme mechanical loads
- Auxiliary unlocking (for spring locking)
- LED status indicators

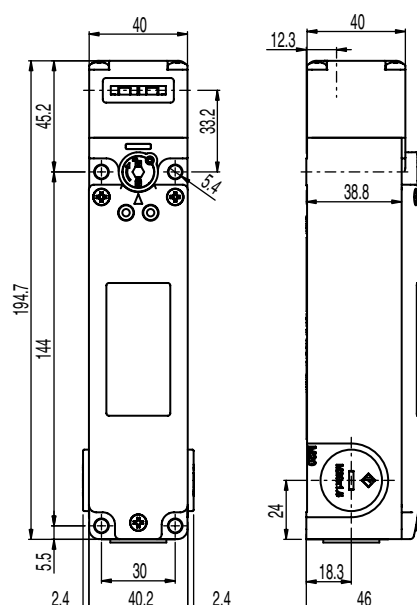


Direct access to the online product selector at www.leuze.com/en/I200

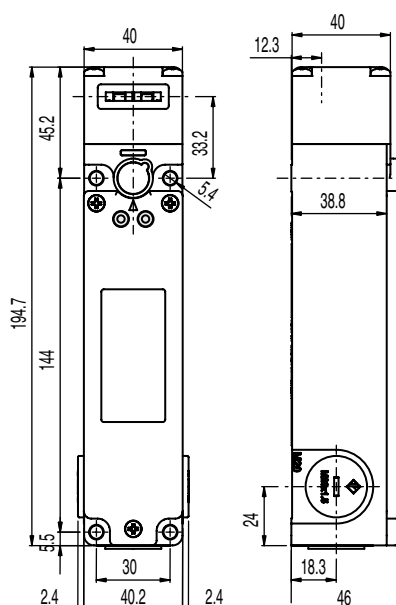
Part no.	Part description	Contact allocation	Housing material	Connection	Cable entry	Approach actuation directions	Locking actuation	Locking type
63000653	L200-M0C3-SLM24-L2G	1NC + 1NO, 1NC + 1NO, slow-action contact	Metal	Terminal, screw terminal, 10-pin	3x, M20 × 1.5	4 x lateral (90 °), 1 x top	Spring	Spring force
63000650	L200-M1C3-SLM24-L2G	1NC + 1NO, 2NC, slow-action contact	Metal	Terminal, screw terminal, 10-pin	3x, M20 × 1.5	1 x top, 4 x lateral (90 °)	Spring	Spring force
63000652	L200-M1C3-SLM24-PB-L2G	1NC + 1NO, 2NC, slow-action contact	Metal	Terminal, screw terminal, 10-pin	3x, M20 × 1.5	1 x top, 4 x lateral (90 °)	Spring	Spring force
63000651	L200-M1C3-MLM24-L2G	1NC + 1NO, 2NC, slow-action contact	Metal	Terminal, screw terminal, 10-pin	3x, M20 × 1.5	1 x top, 4 x lateral (90 °)	Magnet	Electromagnetic

Note: Actuators must be ordered separately!

Dimensioned drawings: L200



L200-M1C3-SLM24-L2G safety locking device



L200-M1C3-MLM24-L2G safety locking device

Switching sensors

Measuring sensors

Products for safety at work

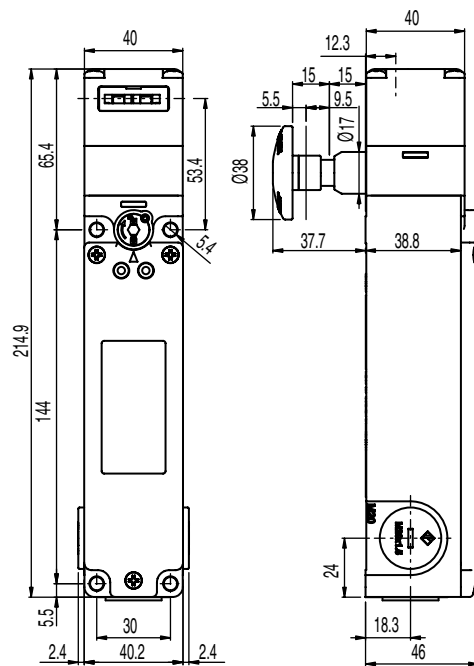
Identification

Data transmission / Control components

Industrial image processing

Accessories

Dimensioned drawings: L200



L200-M1C3-SLM24-PB-L2G safety locking device

ACCESSORIES: L200

Connection technology

Adapter

Part no.	Part description	Design
63000843	AC-A-M20-12NPT	M20 × 1,5 on 1/2 NPT

Actuator

Part no.	Part description	Design	Mounting bore holes	Material	Type of fastening	Description
63000741	AC-AHL-A	Angled	In key direction	Stainless steel	Through-hole mounting	
63000743	AC-AHL-F4J2-TK	Straight	90° to key direction	Stainless steel	Through-hole mounting	Functions: flexible, 4 directions, rotatable head, key, adjustable, 4 directions
63000742	AC-AHL-RM	Straight	90° to key direction	Stainless steel	Through-hole mounting	Functions: rubber-mounted fastening
63000740	AC-AHL-S	Straight	90° to key direction	Stainless steel	Through-hole mounting	
63000847	AC-KL-AHL			Metal		Actuator interlock

Mounting

Part no.	Part description	Description	Dimension
63000749	AC-Exit-PB	Stick-on label; labeled: "PUSH TO EXIT"	300 mm
63000750	AC-PB15-L200	Extension	17 mm × 15 mm
63000751	AC-PB30-L200	Extension	17 mm × 30 mm
63000752	AC-PB40-L200	Extension	17 mm × 40 mm
63000753	AC-PB60-L200	Extension	17 mm × 60 mm
63000754	AC-PB500-L200	Extension; length: 60 mm ... 500 mm	

/// L300



The robust L300 safety locking devices for safety applications up to SIL 3 / PL e are used to guard large safety doors or sliding gates as well as very large machines that have stopping times. The actuator is detected electronically by means of RFID technology. Through millions of different encodings, the actuators achieve a high encoding level acc. to EN ISO 14119 and thereby reliably prevent possible attempts at tampering. The L300 series is designed for use under rough environmental conditions.

**Benefits:**

- RFID actuator for maximum protection against tampering
- Robust design with 7,500 N locking force and degree of protection IP 67 / IP 69K for use under rough environmental conditions and under extreme stress
- 5-LED display for simple status overview
- Emergency unlock function (ergonomically optimized panic button) for manually opening the protective devices in the event of an emergency



Direct access to the online product selector at www.leuze.com/en/I300

Part no.	Part description	Contact allocation	Housing material	Connection	Cable entry	Encoding level	Teach input for actuator	Release device
50132040	L300-M41C3-SLM24-UCA	OSSDs	Metal	Terminal, spring-cage terminal, 16-pin	3x, M20 × 1.5	High	Yes	
50132048	L300-M41C3-SLM24-KYPB-UCA	OSSDs	Metal	Terminal, spring-cage terminal, 16-pin	3x, M20 × 1.5	High	Yes	Auxiliary release with lock, escape release button
50132057	L300-M41C3-SLM24-PB-UCA	OSSDs	Metal	Terminal, spring-cage terminal, 16-pin	3x, M20 × 1.5	High	Yes	Escape release button
50132041	L300-M41M12B8-SLM24-UCA	OSSDs	Metal	Connector, M12, 8-pin, metal	From below	High	Yes	
50132043	L300-M41M12L8-SLM24-UCA	OSSDs	Metal	Connector, M12, 8-pin, metal	On left side	High	Yes	
50132042	L300-M41M12R8-SLM24-UCA	OSSDs	Metal	Connector, M12, 8-pin, metal	On right side	High	Yes	
50132049	L300-M41M12B8-SLM24-KYPB-UCA	OSSDs	Metal	Connector, M12, 8-pin, metal	From below	High	Yes	Auxiliary release with lock, escape release button
50132058	L300-M41M12B8-SLM24-PB-UCA	OSSDs	Metal	Connector, M12, 8-pin, metal	From below	High	Yes	Escape release button
50132051	L300-M41M12L8-SLM24-KYPB-UCA	OSSDs	Metal	Connector, M12, 8-pin, metal	On left side	High	Yes	Auxiliary release with lock, escape release button
50132060	L300-M41M12L8-SLM24-PB-UCA	OSSDs	Metal	Connector, M12, 8-pin, metal	On left side	High	Yes	Escape release button
50132050	L300-M41M12R8-SLM24-KYPB-UCA	OSSDs	Metal	Connector, M12, 8-pin, metal	On right side	High	Yes	Auxiliary release with lock, escape release button
50132059	L300-M41M12R8-SLM24-PB-UCA	OSSDs	Metal	Connector, M12, 8-pin, metal	On right side	High	Yes	Escape release button
50132201	L300-M31C3-SLM24-UCA	OSSDs	Metal	Terminal, spring-cage terminal, 16-pin	3x, M20 × 1.5	High	No	
50132210	L300-M31C3-SLM24-KYPB-UCA	OSSDs	Metal	Terminal, spring-cage terminal, 16-pin	3x, M20 × 1.5	High	No	Auxiliary release with lock, escape release button
50132216	L300-M31C3-SLM24-PB-UCA	OSSDs	Metal	Terminal, spring-cage terminal, 16-pin	3x, M20 × 1.5	High	No	Escape release button
50132202	L300-M31M12B8-SLM24-UCA	OSSDs	Metal	Connector, M12, 8-pin, metal	From below	High	No	
50132204	L300-M31M12L8-SLM24-UCA	OSSDs	Metal	Connector, M12, 8-pin, metal	On left side	High	No	
50132203	L300-M31M12R8-SLM24-UCA	OSSDs	Metal	Connector, M12, 8-pin, metal	On right side	High	No	
50132213	L300-M31M12B8-SLM24-KYPB-UCA	OSSDs	Metal	Connector, M12, 8-pin, metal	From below	High	No	Auxiliary release with lock, escape release button
50132217	L300-M31M12B8-SLM24-PB-UCA	OSSDs	Metal	Connector, M12, 8-pin, metal	From below	High	No	Escape release button
50132215	L300-M31M12L8-SLM24-KYPB-UCA	OSSDs	Metal	Connector, M12, 8-pin, metal	On left side	High	No	Auxiliary release with lock, escape release button
50132219	L300-M31M12L8-SLM24-PB-UCA	OSSDs	Metal	Connector, M12, 8-pin, metal	On left side	High	No	Escape release button
50132214	L300-M31M12R8-SLM24-KYPB-UCA	OSSDs	Metal	Connector, M12, 8-pin, metal	On right side	High	No	Auxiliary release with lock, escape release button
50132218	L300-M31M12R8-SLM24-PB-UCA	OSSDs	Metal	Connector, M12, 8-pin, metal	On right side	High	No	Escape release button
50132036	L300-M31C3-SLM24-SCA	OSSDs	Metal	Terminal, spring-cage terminal, 16-pin	3x, M20 × 1.5	Low	No	
50132044	L300-M31C3-SLM24-KYPB-SCA	OSSDs	Metal	Terminal, spring-cage terminal, 16-pin	3x, M20 × 1.5	Low	No	Auxiliary release with lock, escape release button
50132052	L300-M31C3-SLM24-PB-SCA	OSSDs	Metal	Terminal, spring-cage terminal, 16-pin	3x, M20 × 1.5	Low	No	Escape release button
50132037	L300-M31M12B8-SLM24-SCA	OSSDs	Metal	Connector, M12, 8-pin, metal	From below	Low	No	
50132039	L300-M31M12L8-SLM24-SCA	OSSDs	Metal	Connector, M12, 8-pin, metal	On left side	Low	No	

Note: Actuators are included in delivery!

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

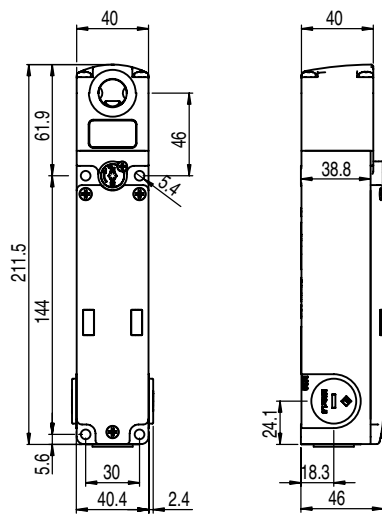
Data transmission /
Control componentsIndustrial image
processing

Accessories

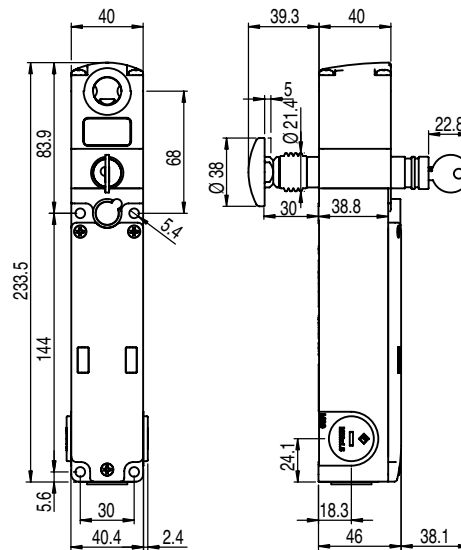
Part no.	Part description	Contact allocation	Housing material	Connection	Cable entry	Encoding level	Teach input for actuator	Release device
50132038	L300-M31M12R8-SLM24-SCA	OSSDs	Metal	Connector, M12, 8-pin, metal	On right side	Low	No	
50132045	L300-M31M12B8-SLM24-KYPB-SCA	OSSDs	Metal	Connector, M12, 8-pin, metal	From below	Low	No	Auxiliary release with lock, escape release button
50132053	L300-M31M12B8-SLM24-PB-SCA	OSSDs	Metal	Connector, M12, 8-pin, metal	From below	Low	No	Escape release button
50132047	L300-M31M12L8-SLM24-KYPB-SCA	OSSDs	Metal	Connector, M12, 8-pin, metal	On left side	Low	No	Auxiliary release with lock, escape release button
50132056	L300-M31M12L8-SLM24-PB-SCA	OSSDs	Metal	Connector, M12, 8-pin, metal	On left side	Low	No	Escape release button
50132046	L300-M31M12R8-SLM24-KYPB-SCA	OSSDs	Metal	Connector, M12, 8-pin, metal	On right side	Low	No	Auxiliary release with lock, escape release button
50132054	L300-M31M12R8-SLM24-PB-SCA	OSSDs	Metal	Connector, M12, 8-pin, metal	On right side	Low	No	Escape release button

Note: Actuators are included in delivery!

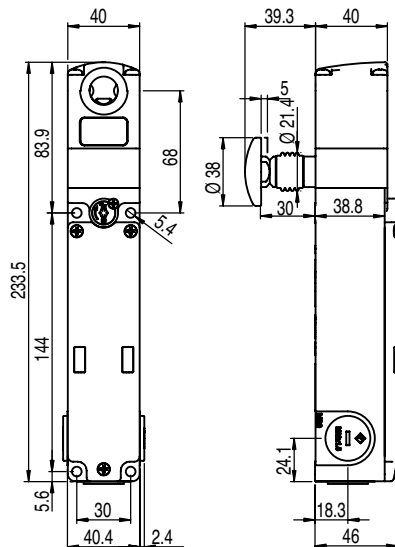
Dimensioned drawings: L300



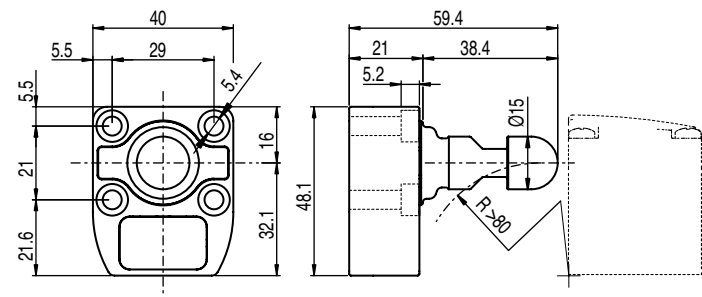
L300-MxxC3-xxxxx safety locking device



L300-MxxC3-xxxxx-KYPB safety locking device



L300-MxxC3-xxxxx-PB safety locking device



AC-L300-xCA actuator

ACCESSORIES: L300

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
678060	CB-M12-5000E-8GF	Connector, M12, axial, female	8-pin	5,000 mm	PUR
678061	CB-M12-10000E-8GF	Connector, M12, axial, female	8-pin	10,000 mm	PUR
678062	CB-M12-15000E-8GF	Connector, M12, axial, female	8-pin	15,000 mm	PUR
678063	CB-M12-25000E-8GF	Connector, M12, axial, female	8-pin	25,000 mm	PUR

Further connection cables can be found on our website

Actuator

Part no.	Part description	Type of fastening	Code type	Encoding level
50132061	AC-L300-SCA	Through-hole mounting	Standard code	Low
50132062	AC-L300-UCA	Through-hole mounting	Unique code	High

Mounting

Part no.	Part description	Description	Dimension
50132063	AC-L300-PB30	Extension	13 mm × 30 mm
50132064	AC-L300-PB40	Extension	13 mm × 40 mm
50132065	AC-L300-PB50	Extension	13 mm × 50 mm
50132066	AC-L300-PB60	Extension	13 mm × 60 mm

SMARTER APPLICATION KNOW-HOW

**Our many years of experience –
Your extensive knowledge about
safety at work**

- Safety seminars
- Standards workshops
- Product training courses

*"In our seminars you will
acquire compact knowledge
about safety at work.
A day that is well worth your while!"*

Markus Erdorf,
Safety Consultant and Trainer



Select the seminar you need and register directly at www.leuze.com/en/seminars



Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

//SAFETY COMMAND DEVICES

AND OFF!

For stopping in emergencies, EN ISO 12100-1 stipulates protective devices and supplementary measures such as E-Stop buttons or emergency rope switches. Leuze electronic offers solutions that are optimized with respect to safety and ergonomics.

/// ERS200



The ERS200 E-Stop rope switch is a safety command device in accordance with EN ISO 13850 and EN 60947-5-5 and is used with preference with expansive points of operation. The rope-pull activation guarantees that it is easy to reach all along the point of operation.



Benefits:

- Pulling the rope or rope fracture safely stops the machine
- Clicks in on both sides with friction-locking contacts
- Easy alignment with switching point indicator
- Easy integration with 3 cable approach directions
- Compact metal housing, degree of protection IP 67
- Reset button with status display
- Temperature compensation for longer rope lengths

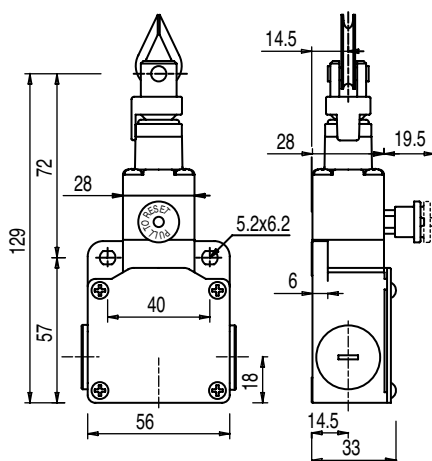


Direct access to the online product selector at www.leuze.com/en/ers200

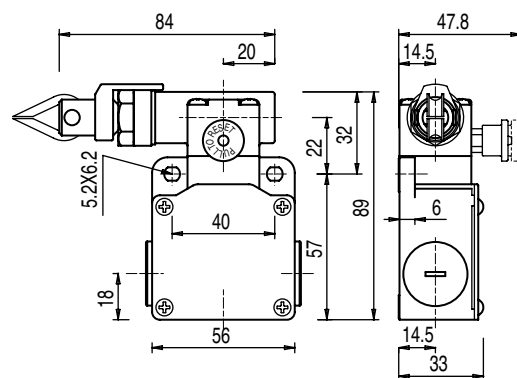
Part no.	Part description	Contact allocation	Housing material	Connection	Cable entry	Actuation directions	Actuation force (pull-out)	Actuating path with forced separation	Rope length, max.
63000500	ERS200-M0C3-M20-HLR	1NC + 1NO	Metal	Terminal, 4-pin	3x, M20 × 1.5	On longitudinal axis	83 N	8 mm	24 m
63000524	ERS200-M0C3-M20-HAL	1NC + 1NO	Metal	Terminal, 4-pin	3x, M20 × 1.5	To left	235 N	14 mm	70 m
63000522	ERS200-M0C3-M20-HAR	1NC + 1NO	Metal	Terminal, 4-pin	3x, M20 × 1.5	To right	235 N	14 mm	70 m
63000501	ERS200-M1C3-M20-HLR	2NC	Metal	Terminal, 4-pin	3x, M20 × 1.5	On longitudinal axis	83 N	8 mm	24 m
63000525	ERS200-M1C1-M20-HAL	2NC	Metal	Terminal, 4-pin	1x, M20 × 1.5	To left	235 N	14 mm	70 m
63000523	ERS200-M1C1-M20-HAR	2NC	Metal	Terminal, 4-pin	1x, M20 × 1.5	To right	235 N	14 mm	70 m
63000502	ERS200-M4C3-M20-HLR	2NC + 1NO	Metal	Terminal, 6-pin	3x, M20 × 1.5	On longitudinal axis	83 N	8 mm	24 m
63000503	ERS200-M4C1-M20-HLR	2NC + 1NO	Metal	Connector, 6-pin	1x, M20 × 1.5	On longitudinal axis	83 N	8 mm	24 m
63000504	ERS200-M4C1-M12-HLR	2NC + 1NO	Metal	Connector, 8-pin	1x, M20 × 1.5	On longitudinal axis	83 N	8 mm	24 m
63000521	ERS200-M4C3-M20-HAL	2NC + 1NO	Metal	Terminal, 6-pin	3x, M20 × 1.5	To left	235 N	14 mm	70 m
63000520	ERS200-M4C3-M20-HAR	2NC + 1NO	Metal	Terminal, 6-pin	3x, M20 × 1.5	To right	235 N	14 mm	70 m

Note: Steel rope, rope clamps and other accessories must be ordered separately

Dimensioned drawings: ERS200

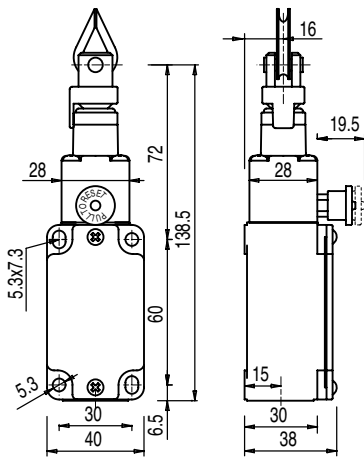


ERS-MxC3x-HLR safety command device

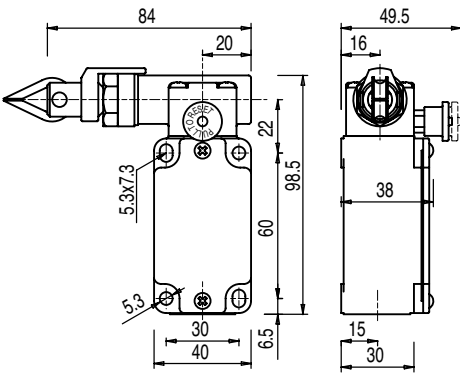


Safety command device ERS200-MxC3x-HAR
(ERS200-MxC3x-HAL mirror-image)

Dimensioned drawings: ERS200



ERS200-MxC1x-HLR safety command device



Safety command device ERS200-MxC1x-HAR
(ERS200-MxC1x-HAL mirror-image)

ACCESSORIES: ERS200

Mounting

Part no.	Part description	Description	Consisting of	Diameter	Rope length	Material	Functions	Label
63000800	AC-P-ERS	Corner pulley, straight mounting		35 mm		Stainless steel, plastic		
63000793	AC-AP-ERS	Corner pulley, angled mounting		35 mm		Plastic, stainless steel		
63000797	AC-SB0-ERS	Stud bolts		16 mm		Steel, galvanized, plastic	Adjustable with lock nut, rope quick fastener, red protective cap	
63000798	AC-ENCLF-ERS	End ring		16 mm		Steel, galvanized, plastic	Rope quick fastener, red protective cap	
63000799	AC-SA-ERS	Safety spiral spring, suitable for safety command device ERS200-...-HAR, safety command device ERS200-...-HAL				Stainless steel		
63000792	AC-SL-ERS	Safety spiral spring, suitable for safety command device ERS200-...-HLR				Stainless steel		
63000795	AC-STRO-35-ERS	Steel rope		5 mm	35 m	Steel, zinc, plated, red plastic coated		
63000796	AC-STRO-100-ERS	Steel rope		5 mm	100 m	Steel, zinc, plated, red plastic coated		
63000794	AC-STOP-ERS	Cable labeling		25 mm		Plastic		"Stop" with reference no.:5638 IEC 60417
63000790	AC-KT10-ERS	Accessories set	Rope clamps, 10 m steel rope					
63000791	AC-KT20-ERS	Accessories set	Rope clamps, 20 m steel rope					

/// ESB200

E-Stop buttons of the ESB200 series are used at points of operation where it makes sense to be able to enter a stop command at a specific location. The diversity of the series allows the devices to be installed, for example, on profiles as well as in control panels, etc.

**Benefits:**

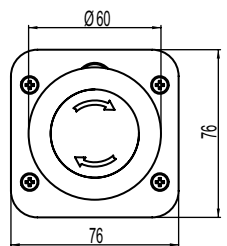
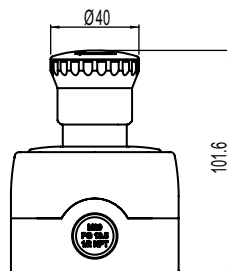
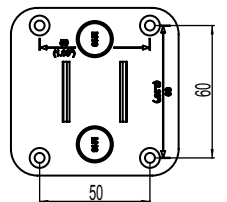
- Contact sets for integration up to cat. 4 in accordance with EN ISO 13849
- 2 safety circuits, 1 signal circuit
- Either screw terminals or M12 connection
- Ergonomically optimized
- Degree of protection IP 67 and IP 69K



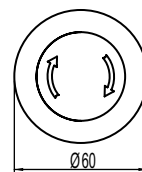
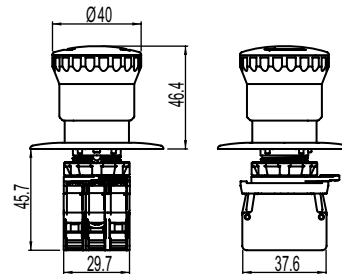
Direct access to the online product selector at www.leuze.com/en/esb200

Part no.	Part description	Contact allocation	Housing material	Connection	Cable entry	Button actuation force	Release device
63000000	ESB200-4TR-C	2NC + 1NO	Plastic	Terminal, 6-pin	5x, M16 × 1.5	25 N	
63000002	ESB200-4KR-C	2NC + 1NO	Plastic	Terminal, 6-pin	5x, M16 × 1.5	25 N	Key
63000004	ESB200-4TR-M12p	2NC + 1NO	Plastic	Connector, 8-pin	M12	25 N	
63000006	ESB200-4KR-M12p	2NC + 1NO	Plastic	Connector, 8-pin	M12	25 N	Key

Included in delivery: mounting screws, 1 "STOP" ring, 2 keys (depending on variant)

Dimensioned drawings: ESB200

ESB200-4TR-M12p / ESB200-4KR-M12p E-Stop buttons



ESB200-4TR-C / ESB200-4KR-C E-Stop buttons

//MAGNETICALLY CODED SENSORS

ACTIVE WITHOUT CONTACT

The magnetically coded safety system is predestined for use under critical environmental conditions, i.e. wherever stress due to dust and humidity is high. Easy start-up, compact housing and extremely low costs characterize this robust series.

/// MC3



The MC3x magnetically coded sensor contains specially combined reed contacts that are contactlessly activated by the coded magnetic field of the actuator. With their cast housing, the extremely tamper proof switches are suitable for demanding applications in dusty or humid environments.



Benefits:

- Monitoring of moving guards on machines with sufficiently short stopping times for demanding applications
- For dusty or humid environments
- High-strength plastic housing
- Highly tamper proof
- Designs for many different types of applications
- PVC or PUR cable, M8 plug



Direct access to the online product selector at www.leuze.com/en/mc3

Part no.	Part description	Contact allocation	Connection	Sao, max.	Off, min.	Sar, min.	Dimensions
63001030	MC388-S2C2-AL	2NO + 1NO (signaling)	Cable with wire-end sleeves, 6-wire, 2,000 mm, PVC	9 mm	19 mm	22 mm	25 mm × 13 mm × 88 mm
63001020	MC388-S2C2-A	2NO	Cable with wire-end sleeves, 4-wire, 2,000 mm, PVC	9 mm	19 mm	22 mm	25 mm × 13 mm × 88 mm
63001021	MC388-S2C5-A	2NO	Cable with wire-end sleeves, 4-wire, 5,000 mm, PVC	9 mm	19 mm	22 mm	25 mm × 13 mm × 88 mm
63001025	MC388-S2R10-A	2NO	Cable with wire-end sleeves, 4-wire, 10,000 mm, PUR	9 mm	19 mm	22 mm	25 mm × 13 mm × 88 mm
63001027	MC388-S2-C02M12-A	2NO	Cable with connector, M12, 4-pin, metal, 200 mm, PVC	9 mm	19 mm	22 mm	25 mm × 13 mm × 88 mm
63001026	MC388-S2M8-A	2NO	Connector, M8, 4-pin, metal	9 mm	19 mm	22 mm	25 mm × 13 mm × 88 mm
63001003	MC388-S1R2-A	1NC + 1NO	Cable with wire-end sleeves, 4-wire, 2,000 mm, PUR	6 mm	13 mm	30 mm	25 mm × 13 mm × 88 mm
63001000	MC388-S1C2-A	1NC + 1NO	Cable with wire-end sleeves, 4-wire, 2,000 mm, PVC	6 mm	13 mm	30 mm	25 mm × 13 mm × 88 mm
63001004	MC388-S1R5-A	1NC + 1NO	Cable with wire-end sleeves, 4-wire, 5,000 mm, PUR	6 mm	13 mm	30 mm	25 mm × 13 mm × 88 mm
63001001	MC388-S1C5-A	1NC + 1NO	Cable with wire-end sleeves, 4-wire, 5,000 mm, PVC	6 mm	13 mm	30 mm	25 mm × 13 mm × 88 mm
63001005	MC388-S1R10-A	1NC + 1NO	Cable with wire-end sleeves, 4-wire, 10,000 mm, PUR	6 mm	13 mm	30 mm	25 mm × 13 mm × 88 mm
63001002	MC388-S1C10-A	1NC + 1NO	Cable with wire-end sleeves, 4-wire, 10,000 mm, PVC	6 mm	13 mm	30 mm	25 mm × 13 mm × 88 mm
63001007	MC388-S1-C02M12-A	1NC + 1NO	Cable with connector, M12, 4-pin, metal, 200 mm, PVC	6 mm	13 mm	30 mm	25 mm × 13 mm × 88 mm
63001006	MC388-S1M8-A	1NC + 1NO	Connector, M8, 4-pin, metal	6 mm	13 mm	30 mm	25 mm × 13 mm × 88 mm
63001070	MC336-S2C2-A	2NO	Cable with wire-end sleeves, 4-wire, 2,000 mm, PVC	7 mm	17 mm	20 mm	26.2 mm × 13 mm × 36 mm
63001071	MC336-S2C5-A	2NO	Cable with wire-end sleeves, 4-wire, 5,000 mm, PVC	7 mm	17 mm	20 mm	26.2 mm × 13 mm × 36 mm
63001077	MC336-S2-C02M12-A	2NO	Cable with connector, M12, 4-pin, metal, 200 mm, PVC	7 mm	17 mm	20 mm	26.2 mm × 13 mm × 36 mm
63001076	MC336-S2M8-A	2NO	Connector, M8, 4-pin, metal	7 mm	17 mm	20 mm	26.2 mm × 13 mm × 36 mm
63001053	MC336-S1R2-A	1NC + 1NO	Cable with wire-end sleeves, 4-wire, 2,000 mm, PUR	3 mm	8 mm	11 mm	26.2 mm × 13 mm × 36 mm
63001050	MC336-S1C2-A	1NC + 1NO	Cable with wire-end sleeves, 4-wire, 2,000 mm, PVC	3 mm	8 mm	11 mm	26.2 mm × 13 mm × 36 mm
63001054	MC336-S1R5-A	1NC + 1NO	Cable with wire-end sleeves, 4-wire, 5,000 mm, PUR	3 mm	8 mm	11 mm	26.2 mm × 13 mm × 36 mm
63001051	MC336-S1C5-A	1NC + 1NO	Cable with wire-end sleeves, 4-wire, 5,000 mm, PVC	3 mm	8 mm	11 mm	26.2 mm × 13 mm × 36 mm
63001055	MC336-S1R10-A	1NC + 1NO	Cable with wire-end sleeves, 4-wire, 10,000 mm, PUR	3 mm	8 mm	11 mm	26.2 mm × 13 mm × 36 mm
63001052	MC336-S1C10-A	1NC + 1NO	Cable with wire-end sleeves, 4-wire, 10,000 mm, PVC	3 mm	8 mm	11 mm	26.2 mm × 13 mm × 36 mm
63001057	MC336-S1-C02M12-A	1NC + 1NO	Cable with connector, M12, 4-pin, metal, 200 mm, PVC	3 mm	8 mm	11 mm	26.2 mm × 13 mm × 36 mm
63001056	MC336-S1M8-A	1NC + 1NO	Connector, M8, 4-pin, metal	3 mm	8 mm	11 mm	26.2 mm × 13 mm × 36 mm
63001120	MC330-S2C2-A	2NO	Cable with wire-end sleeves, 4-wire, 2,000 mm, PVC	6 mm	15 mm	18 mm	M30 × 36 mm
63001121	MC330-S2C5-A	2NO	Cable with wire-end sleeves, 4-wire, 5,000 mm, PVC	6 mm	15 mm	18 mm	M30 × 36 mm
63001127	MC330-S2-C02M12-A	2NO	Cable with connector, M12, 4-pin, metal, 200 mm, PVC	6 mm	15 mm	18 mm	M30 × 36 mm
63001126	MC330-S2M8-A	2NO	Connector, M8, 4-pin, metal	6 mm	15 mm	18 mm	M30 × 36 mm
63001103	MC330-S1R2-A	1NC + 1NO	Cable with wire-end sleeves, 4-wire, 2,000 mm, PUR	6 mm	12 mm	14 mm	M30 × 36 mm
63001100	MC330-S1C2-A	1NC + 1NO	Cable with wire-end sleeves, 4-wire, 2,000 mm, PVC	6 mm	12 mm	14 mm	M30 × 36 mm
63001104	MC330-S1R5-A	1NC + 1NO	Cable with wire-end sleeves, 4-wire, 5,000 mm, PUR	6 mm	12 mm	14 mm	M30 × 36 mm
63001101	MC330-S1C5-A	1NC + 1NO	Cable with wire-end sleeves, 4-wire, 5,000 mm, PVC	6 mm	12 mm	14 mm	M30 × 36 mm
63001105	MC330-S1R10-A	1NC + 1NO	Cable with wire-end sleeves, 4-wire, 10,000 mm, PUR	6 mm	12 mm	14 mm	M30 × 36 mm
63001102	MC330-S1C10-A	1NC + 1NO	Cable with wire-end sleeves, 4-wire, 10,000 mm, PVC	6 mm	12 mm	14 mm	M30 × 36 mm
63001107	MC330-S1-C02M12-A	1NC + 1NO	Cable with connector, M12, 4-pin, metal, 200 mm, PVC	6 mm	12 mm	14 mm	M30 × 36 mm
63001106	MC330-S1M8-A	1NC + 1NO	Connector, M8, 4-pin, metal	6 mm	12 mm	14 mm	M30 × 36 mm

Included in delivery: 1 actuator, mounting material

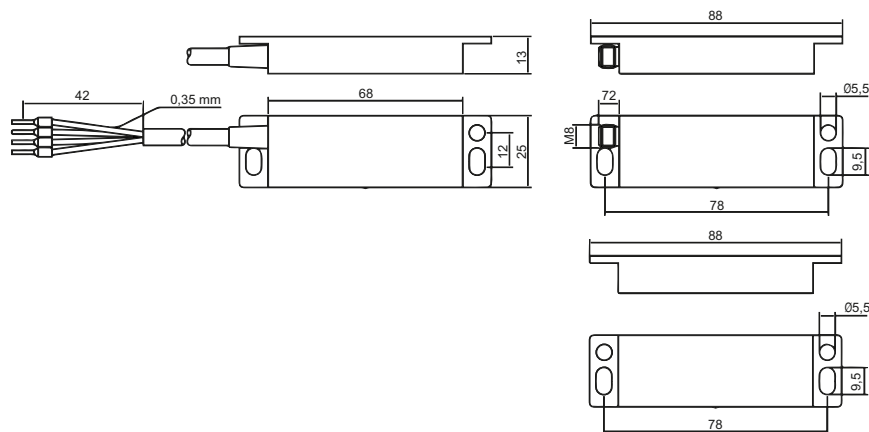
Notice: An MSI-MC3x safety relay is required for certified application! This must be ordered separately.

Switching
sensorsMeasuring
sensorsProducts for
safety at work

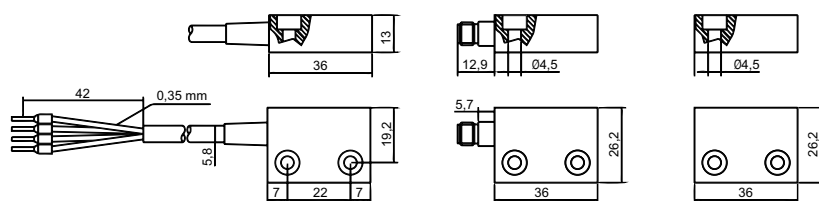
Identification

Data transmission /
Control componentsIndustrial image
processing

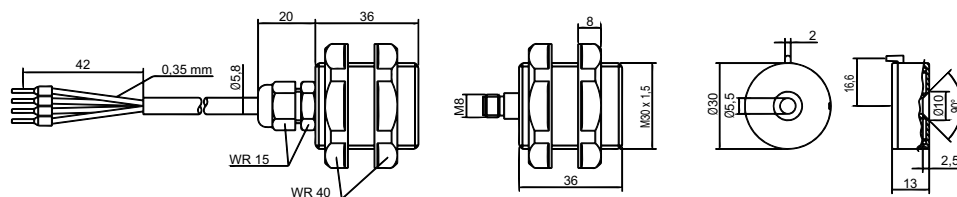
Accessories

Dimensioned drawings: MC3

MC388x magnetically coded sensor with actuator



MC336x magnetically coded sensor with actuator



MC330x magnetically coded sensor with actuator

ACCESSORIES: MC3**Connection technology**

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50130854	KD U-M8-4A-P1-020	Connector, M8, axial, female	4-pin	2,000 mm	PUR
50130856	KD U-M8-4A-P1-050	Connector, M8, axial, female	4-pin	5,000 mm	PUR
50130857	KD U-M8-4A-P1-100	Connector, M8, axial, female	4-pin	10,000 mm	PUR

Further connection cables can be found on our website

Actuator

Part no.	Part description	Dimensions	Housing design
63001152	MC330-S1-A	30 mm × 13 mm	Cylindrical
63001157	MC330-S2-A	30 mm × 13 mm	Cylindrical
63001151	MC336-S1-A	26 mm × 13 mm × 36 mm	Cubic
63001156	MC336-S2-A	26 mm × 13 mm × 36 mm	Cubic
63001150	MC388-S1-A	25 mm × 13 mm × 88 mm	Cubic
63001155	MC388-S2-A	25 mm × 13 mm × 88 mm	Cubic

Mounting

Part no.	Part description	Description	Suitable for	Dimensions
63001154	MC336-SP-8	Spacer	MC336 housing	26 mm × 8 mm × 36 mm
63001153	MC388-SP-8	Spacer	MC388 housing	25 mm × 8 mm × 88 mm

//SAFETY TRANSPONDERS

PURE FLEXIBILITY!

Safety transponders are well-suited for applications in which a very high level of safety and the highest protection against manipulation are necessary. Their high-strength plastic housings offer reliable protection against contamination and humidity in rough environmental conditions.

/// RD800



No matter if you require the RD800-S for single connections or the RD800-M for multiple applications – depending on the degree of risk, you can select ready-configured systems with standard or unique code detection (S- or U-variants). Teachable P-variants are a good choice if, for example, increased flexibility on-site is necessary.



Benefits:

- Standard code, unique code or flexibly programmable code
- M12 connection on the left or right for the most possible freedom during assembly
- Three-sided actuator mounting for quick and easy attachment
- 4 multicolored LEDs for detailed diagnostics and effective installation and testing routines
- Degree of protection IP 67 and IP 69K with smooth, stable plastic housing for easy cleaning
- Permanent laser print for the long-term readability of product data



Direct access to the online product selector at www.leuze.com/en/rd800

Part no.	Part description	Application	Code type	Connection	Plug outlet	Sao, max.	Sar, min.
63002052	RD800-SSCA-CB2-L	Individual use	Standard code	Cable		10 mm	16 mm
63002050	RD800-SSCA-CB2-R	Individual use	Standard code	Cable		10 mm	16 mm
63002002	RD800-SSCA-M12L	Individual use	Standard code	Connector, M12, 5-pin, metal	On left side	10 mm	16 mm
63002000	RD800-SSCA-M12R	Individual use	Standard code	Connector, M12, 5-pin, metal	On right side	10 mm	16 mm
63002053	RD800-SUCA-CB2-L	Individual use	Unique code	Cable		10 mm	16 mm
63002051	RD800-SUCA-CB2-R	Individual use	Unique code	Cable		10 mm	16 mm
63002003	RD800-SUCA-M12L	Individual use	Unique code	Connector, M12, 5-pin, metal	On left side	10 mm	16 mm
63002001	RD800-SUCA-M12R	Individual use	Unique code	Connector, M12, 5-pin, metal	On right side	10 mm	16 mm
63002062	RD800-MSCA-CB2-L	Individual use, series use	Standard code	Cable		10 mm	16 mm
63002060	RD800-MSCA-CB2-R	Individual use, series use	Standard code	Cable		10 mm	16 mm
63002012	RD800-MSCA-M12L	Individual use, series use	Standard code	Connector, M12, 8-pin, metal	On left side	10 mm	16 mm
63002010	RD800-MSCA-M12R	Individual use, series use	Standard code	Connector, M12, 8-pin, metal	On right side	10 mm	16 mm
63002063	RD800-MUCA-CB2-L	Individual use, series use	Unique code	Cable		10 mm	16 mm
63002061	RD800-MUCA-CB2-R	Individual use, series use	Unique code	Cable		10 mm	16 mm
63002013	RD800-MUCA-M12L	Individual use, series use	Unique code	Connector, M12, 8-pin, metal	On left side	10 mm	16 mm
63002011	RD800-MUCA-M12R	Individual use, series use	Unique code	Connector, M12, 8-pin, metal	On right side	10 mm	16 mm
63002021	RD800-MP-M12L	Individual use, series use	Flexible programming	Connector, M12, 8-pin, metal	On left side	10 mm	16 mm
63002020	RD800-MP-M12R	Individual use, series use	Flexible programming	Connector, M12, 8-pin, metal	On right side	10 mm	16 mm

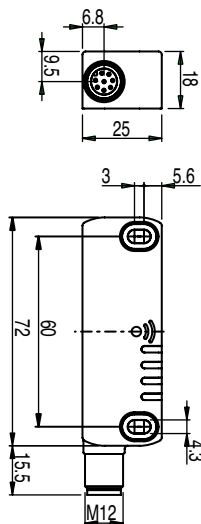
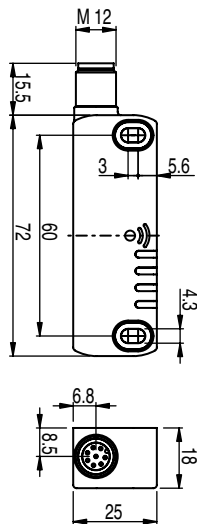
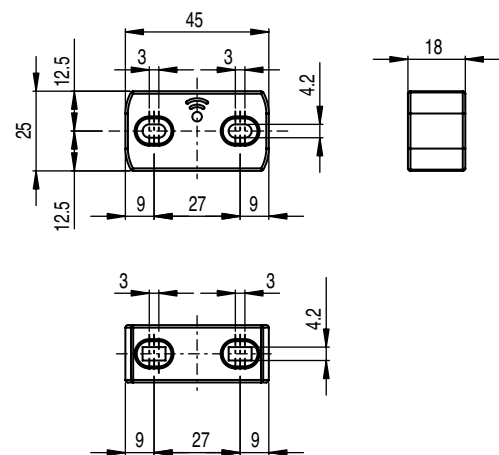
Included in delivery: 1 actuator, washers (stainless steel), caps

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

Dimensioned drawings: RD800RD800-...-M12L
safety transpondersRD800-...-M12R
safety transponders

Actuator for RD800

ACCESSORIES: RD800**Connection technology**

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
678055	CB-M12-5000E-5GF	Connector, M12, axial, female	5-pin	5,000 mm	PUR
678056	CB-M12-10000E-5GF	Connector, M12, axial, female	5-pin	10,000 mm	PUR
678057	CB-M12-15000E-5GF	Connector, M12, axial, female	5-pin	15,000 mm	PUR
678058	CB-M12-25000E-5GF	Connector, M12, axial, female	5-pin	25,000 mm	PUR
678060	CB-M12-5000E-8GF	Connector, M12, axial, female	8-pin	5,000 mm	PUR
678061	CB-M12-10000E-8GF	Connector, M12, axial, female	8-pin	10,000 mm	PUR
678062	CB-M12-15000E-8GF	Connector, M12, axial, female	8-pin	15,000 mm	PUR
678063	CB-M12-25000E-8GF	Connector, M12, axial, female	8-pin	25,000 mm	PUR

Further connection cables can be found on our website

Actuator

Part no.	Part description	Application	Code type
63002100	RD800-x-SCA	Individual use, series use	Standard code
63002101	RD800-x-UCA	Individual use, series use	Unique code

SMARTER CUSTOMER SERVICEInternational sales locations –
Everywhere you need us.Information on our worldwide locations and partners: www.leuze.com/en/worldwide

/ SAFE CONTROL COMPONENTS

A SENSOR ALONE DOES NOT MAKE A SAFE WORKPLACE

Not until the safety sensors are efficiently and reliably integrated in the machine safety circuit can the topic of safety at work be implemented in such a way that the sensors do not interfere with the machine processes and yet still offer the best-possible protection. Our safety relays and AS-Interface solutions open all possibilities to you here.



Safety relays

Page 328

Programmable safety controllers

Page 337

AS-Interface Safety at Work

Page 341



Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

//SAFETY RELAYS

MORE SPACE IN THE CABINET

With a width of just 17.5 mm and 22.5 mm, these safety relays are characterized by very narrow housings. As a result, you can realize the one- or two-channel connection of safety-related sensors in a space-saving and simple manner over up to 3 switch-off circuits. The devices have interchangeable connection terminals.

/// MSI-CM



The MSI-CM safety relay is used as a contact extension module in accordance with DIN EN 60204-1/VDE 0113 Part 1 for contact extension for E-Stop relays and two-hand control units. Depending on the wiring and proper integration of the feedback path, a Performance Level PL e in accordance with EN ISO 13849-1 is achieved.



Benefits:

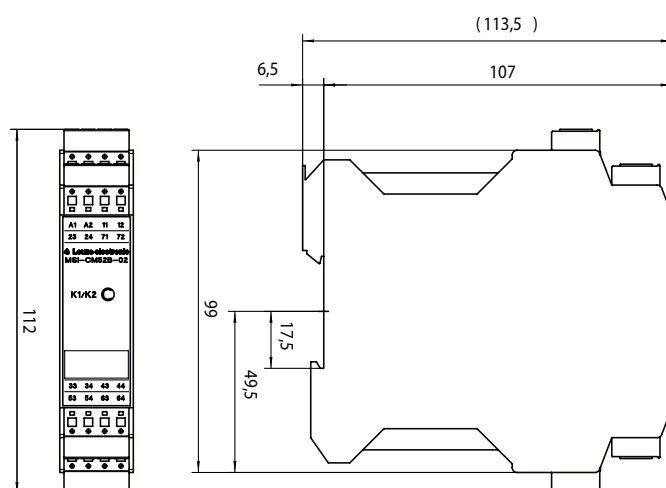
- Contact extension module with extension block in accordance with DIN EN 60204-1/VDE 0113 Part 1
- Contact extension for E-Stop relays and two-hand control units
- 1- or 2-channel wiring
- Designs with screw terminals as well as with spring-cage terminals
- 5 release contacts, 1 signal contact, 1 feedback contact
- Detachable connection terminals for simple device swap-out



Direct access to the online product selector at www.leuze.com/en/msi-cm

Part no.	Part description	Connection	PL	Category	STOP category
547933	MSI-CM52B-01	Screw terminal	e	4	0
547934	MSI-CM52B-02	Spring-cage terminal	e	4	0

Dimensioned drawings: MSI-CM



MSI-CM52B-02 safety relay, spring-cage terminal

/// MSI-DT



This safety relay with adjustable delay time is equipped with two release current paths which release undelayed in accordance with stop category 0. Two additional release current paths release in accordance with stop category 1 with adjustable delay time.



Benefits:

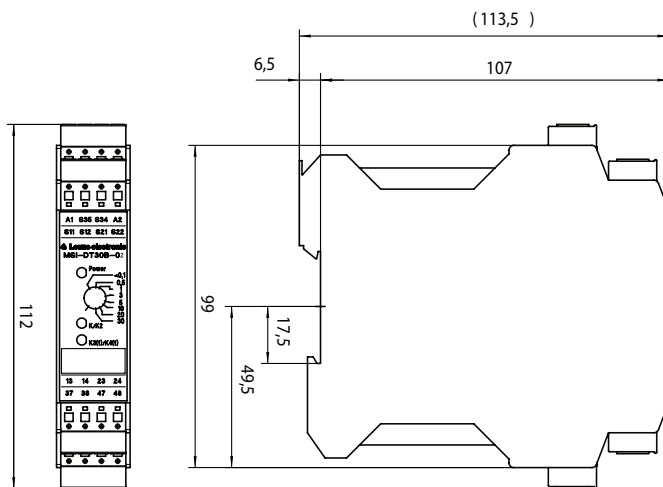
- Adjustable delay time (can be steplessly preset from 0.1 ... 30 s)
- Monitoring of E-Stop buttons, safety doors, AOPDs
- Monitoring of safety circuits in accordance with DIN EN 60204-1/VDE 0113-1
- 1- or 2-channel wiring with cross-circuit detection
- Designs with screw terminals as well as with spring-cage terminals
- Two undelayed and two slow-release contacts
- Automatic and manual start circuit
- Detachable connection terminals for simple device swap-out



Direct access to the online product selector at www.leuze.com/en/msi-dt

Part no.	Part description	Connection	PL	Category	STOP category
547935	MSI-DT30B-01	Screw terminal	e	4	0
547936	MSI-DT30B-02	Spring-cage terminal	e	4	0

Dimensioned drawings: MSI-DT



MSI-DT30B-02 safety relay, spring-cage terminal

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

/// MSI-SR4



The MSI-SR4 is used for evaluating safety-sensor input signals. Light curtains, E-Stop buttons and safety switches, for example, can thereby be integrated in the machine process in a safety-oriented manner.



Benefits:

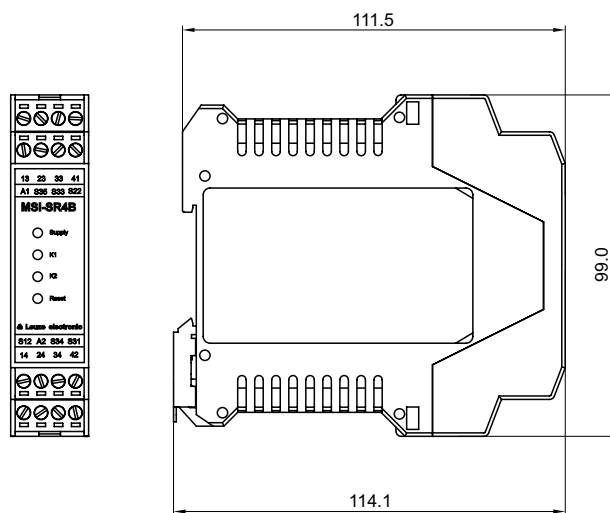
- Standard link between machine control and optoelectronic protective devices as well as safety switches
- Flexibly covers a wide range of applications
- Monitored start/restart button,
- Automatic start/restart
- Short reaction time of just 10 ms, easy connection and time-saving mounting
- Detachable connection terminals for simple device swap-out
- Designs with screw terminals as well as with spring-cage terminals



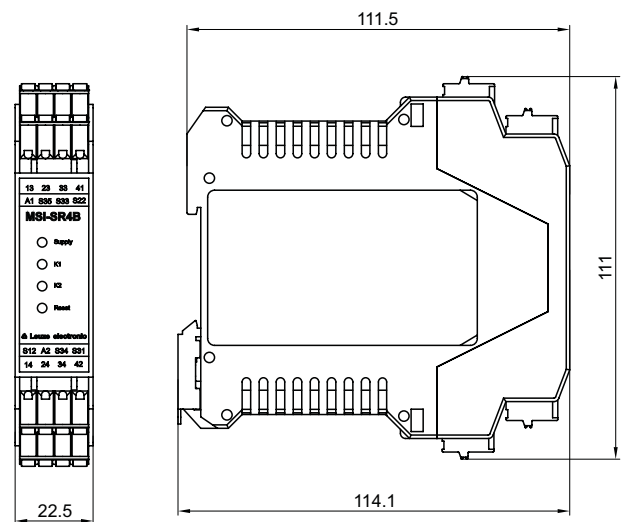
Direct access to the online product selector at www.leuze.com/en/msi-sr4

Part no.	Part description	Connection	PL	Category	STOP category	Number of safety-related switching outputs (OSSDs)	Switching element
547950	MSI-SR4B-01	Screw terminal	e	4	0	3x	Relay, make-contact
547951	MSI-SR4B-02	Spring-cage terminal	e	4	0	3x	Relay, make-contact

Dimensioned drawings: MSI-SR4



MSI-SR4B-01 safety relay, screw terminal



MSI-SR4B-02 safety relay, spring-cage terminal

/// MSI-SR5



Two devices can be connected to the MSI-SR5 safety relay, either with two transistor OSSDs or by designing as a two-channel contact circuit. As a result, two sensors can be connected to a common switch-off circuit – for applications up to Performance Level PLe acc. to EN ISO 13849-1.

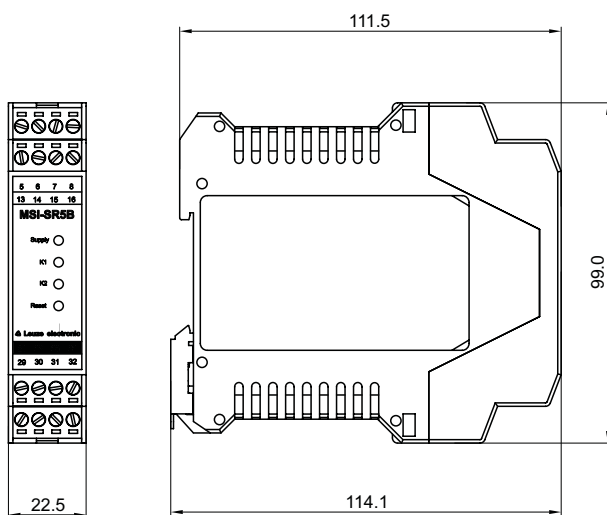
**Benefits:**

- Very short response time
- Monitored reset button
- Dual evaluation of different sensor technologies
- LED displays, K1 and K2, supply voltage
- Housing width 22.5 mm
- Potential-free safety-related switching outputs
- Detachable connection terminals for simple device swap-out
- Designs with screw terminals as well as with spring-cage terminals

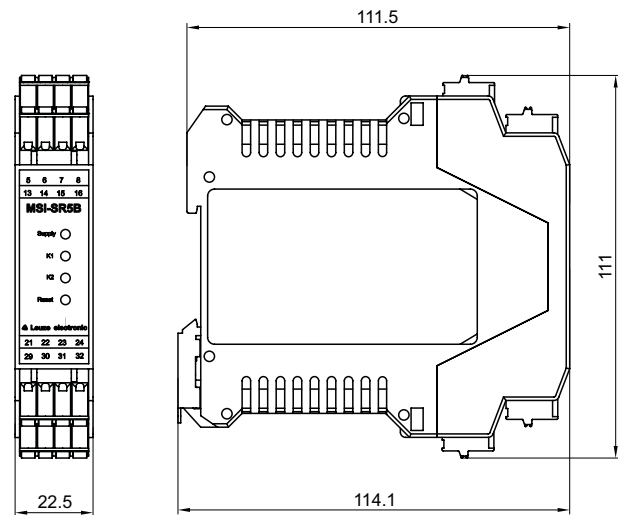


Direct access to the online product selector at www.leuze.com/en/msi-sr5

Part no.	Part description	Connection	PL	Category	STOP category	Number of safety-related switching outputs (OSSDs)	Switching element
547952	MSI-SR5B-01	Screw terminal	e	4	0	2x	Relay, make-contact
547953	MSI-SR5B-02	Spring-cage terminal	e	4	0	2x	Relay, make-contact

Dimensioned drawings: MSI-SR5

MSI-SR5B-01 safety relay, screw terminal



MSI-SR5B-02 safety relay, spring-cage terminal

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

/// MSI-RM2



With the MSI-RM2 relay module, a compact and – at the same time – economical solution is available in combination with safety sensors for applications up to Performance Level PL_e. The relay module, only 17.5 mm wide, has two potential-free make contact circuits with a response time of only 10 ms.

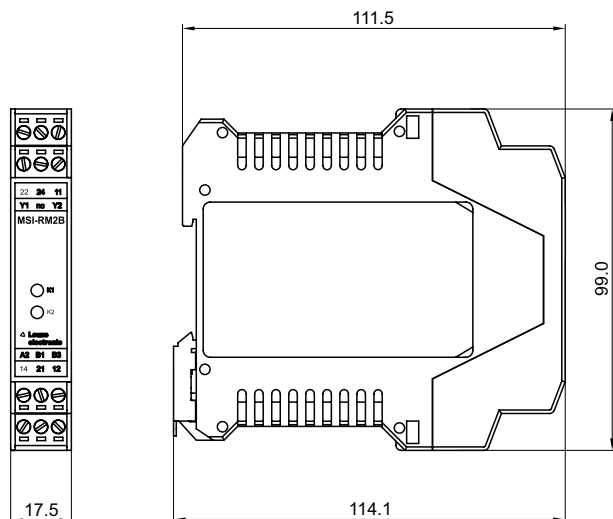
**Benefits:**

- For converting electronic switch-off signals from safety sensors to potential-free, contact-based signals
- Detachable connection terminals for simple device swap-out
- Designs with screw terminals as well as with spring-cage terminals

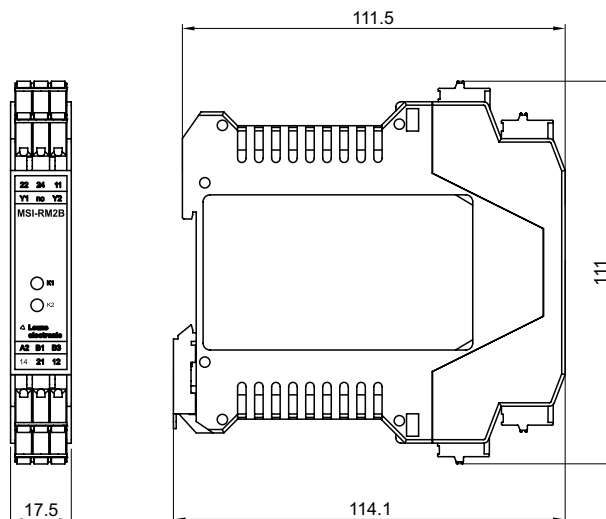


Direct access to the online product selector at www.leuze.com/en/msi-rm2

Part no.	Part description	Connection	Category	Number of safety-related switching outputs (OSSDs)	Switching element
547954	MSI-RM2B-01	Screw terminal	Up to 4 (depending on the category of the upstream protective device)	2x	Relay, make-contact
547955	MSI-RM2B-02	Spring-cage terminal	Up to 4 (depending on the category of the upstream protective device)	2x	Relay, make-contact

Dimensioned drawings: MSI-RM2

MSI-RM2B-01 safety relay, screw terminal



MSI-RM2B-02 safety relay, spring-cage terminal

SMARTER CUSTOMER SERVICE**User knowledge about machine safety topics**

The online adviser, Safety know-how, provides a selection of European directives and important standards relating to machine safety and offers assistance with the selection and application of protective devices.

- 1. Introduction
- 2. Machine safety in the EU
- 3. Machine safety in the USA
- 4. Protective devices
- Videos
- Calculation wizards



Detailed information regarding machine safety: www.leuze.com/en/safetyknow-how



/// MSI-2H



The MSI-2H is the link between two-hand command devices and the machine control. The device checks the simultaneous activation of the two, 2-channel buttons and ensures a controlled process start. The module is used everywhere that feeding-in is not automatic, but rather has to be performed manually by people.



Benefits:

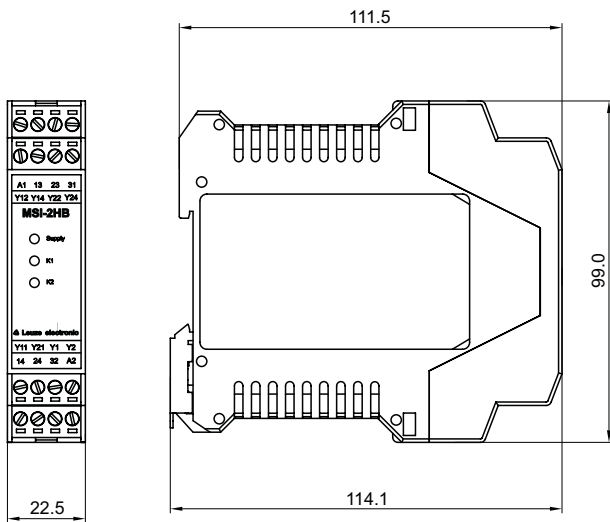
- Two-hand control unit for presses, punching machines and other machines that are manually loaded
- Extended simultaneity monitoring for an increased level of acceptance of the safeguards
- Can also be used as a protective door monitor acc. to EN 60204-1 STOP-0
- Detachable connection terminals for simple device swap-out
- Designs with screw terminals as well as with spring-cage terminals



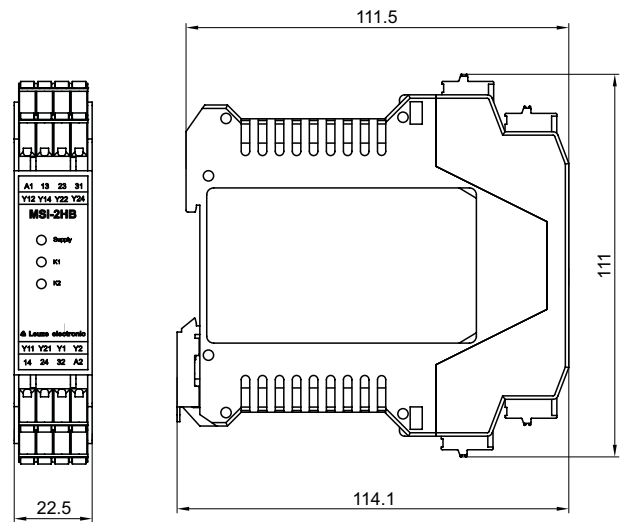
Direct access to the online product selector at www.leuze.com/en/msi-2h

Part no.	Part description	Connection	PL	Category	STOP category	Number of safety-related switching outputs (OSSDs)	Switching element
547956	MSI-2HB-01	Screw terminal	e	4	0	2x	Relay, make-contact
547957	MSI-2HB-02	Spring-cage terminal	e	4	0	2x	Relay, make-contact

Dimensioned drawings: MSI-2H



MSI-2HB-01 safety relay, screw terminal



MSI-2HB-02 safety relay, spring-cage terminal

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

/// MSI-T



MSI-T is a safety monitoring device for the periodic testing of one-channel testable opto-electronic protective devices of type 2 acc. to EN IEC 61496. Up to six type 2 sensors can be connected to the device in daisy chain.

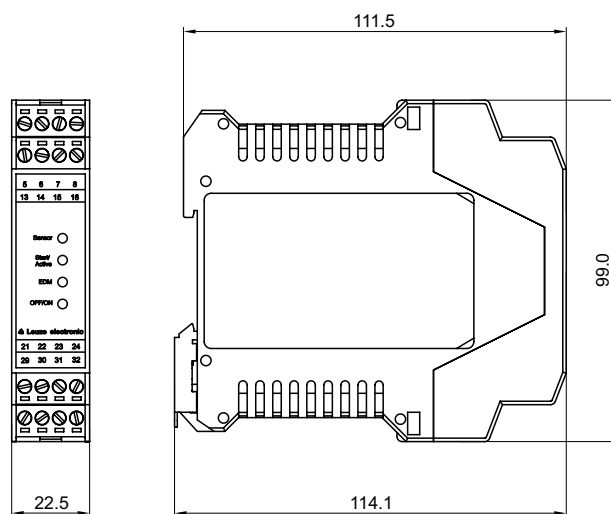
**Benefits:**

- 2 safety relay outputs with internal monitoring
- Filter time 130 ms
- STOP 1 function
- LED indicators
- Low space requirements
- Detachable connection terminals for simple device swap-out
- Designs with screw terminals as well as with spring-cage terminals

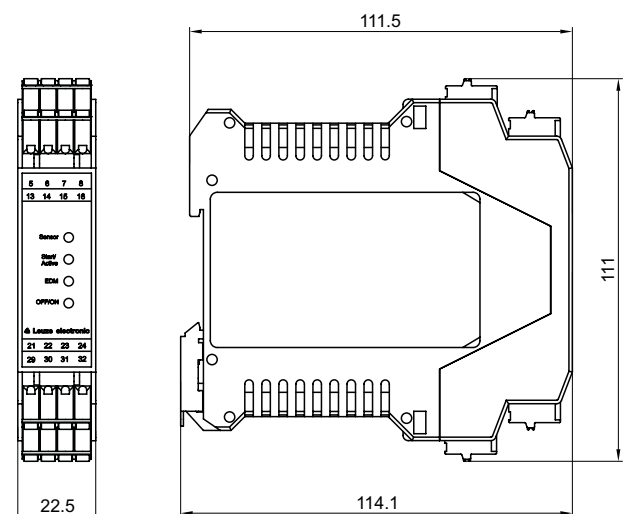


Direct access to the online product selector at www.leuze.com/en/msi-t

Part no.	Part description	Connection	PL	Category	Number of safety-related switching outputs (OSSDs)	Switching element	Number of digital switching outputs	Number of digital switching inputs	Filter time	Time delay
547958	MSI-TR1B-01	Screw terminal	Up to c	2	2x	Relay, make-contact	3x	4x		
547960	MSI-TR2B-01	Screw terminal	Up to c	2	2x	Relay, make-contact	3x	4x	130 ms	
547962	MSI-TSB-01	Screw terminal	Up to c	2	2x	Relay, make-contact	3x	4x		600 ms
547959	MSI-TR1B-02	Spring-cage terminal	Up to c	2	2x	Relay, make-contact	3x	4x		
547961	MSI-TR2B-02	Spring-cage terminal	Up to c	2	2x	Relay, make-contact	3x	4x	130 ms	
547963	MSI-TSB-02	Spring-cage terminal	Up to c	2	2x	Relay, make-contact	3x	4x		600 ms

Dimensioned drawings: MSI-T

MSI-T ... B safety relay, screw terminal



MSI-T ... B safety relay, spring-cage terminal

/// MSI-TRM



MSI-TRM is a safety monitoring device for the evaluation of one-channel testable opto-electronic protective devices of type 4 acc. to EN IEC 61496. Up to six type 4 sensors can be connected to the device.

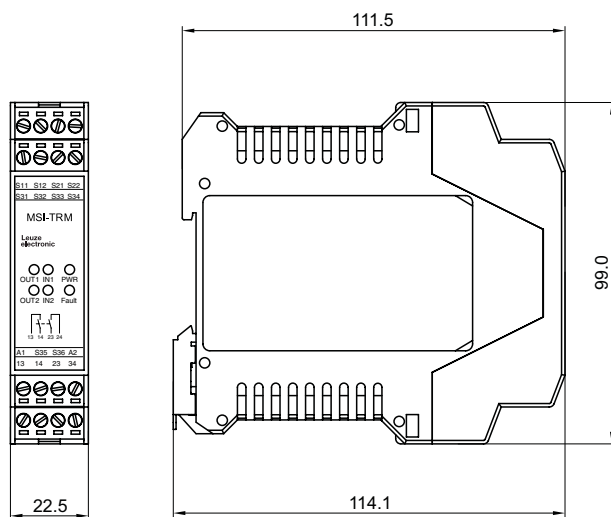
**Benefits:**

- Evaluation of up to 6 type 4 sensors
- E-stop switch connectable
- Low space requirements
- Designs with screw or spring-cage terminals

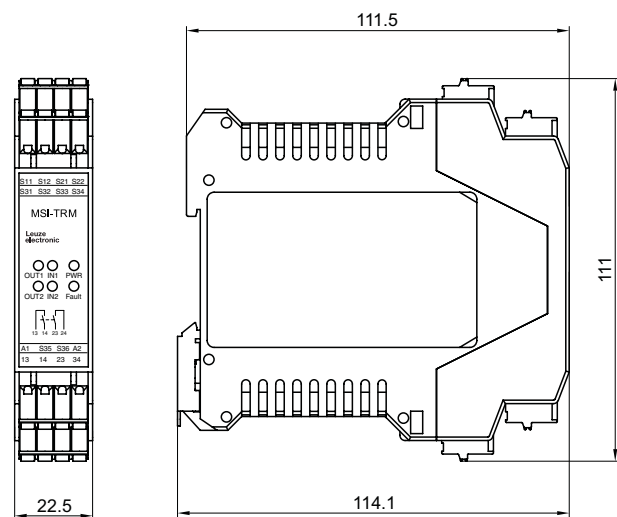


Direct access to the online product selector at www.leuze.com/en/msi-trm

Part no.	Part description	Connection	PL	Category	Number of safety-related switching outputs (OSSDs)	Switching element	Number of safety-related switching inputs	Number of digital switching outputs	Number of digital switching inputs
547931	MSI-TRMB-01	Screw terminal	Up to and including e	4	2x	Relay, make-contact	2x	3x	2x
547932	MSI-TRMB-02	Spring-cage terminal	Up to and including e	4	2x	Relay, make-contact	2x	3x	2x

Dimensioned drawings: MSI-TRM

MSI-TRMB-01 safety relay, screw terminal



MSI-TRMB-02 safety relay, spring-cage terminal

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

/// MSI-MC3x



MSI-MC300 safety relays are suitable for integration of MC3x magnetically coded sensors in control circuits up to category 4 and Performance Level PL_e in accordance with EN ISO 13849-1. These kinds of magnetically coded safety systems are used, for example, to monitor movable guards such as protective doors, sliding grids or flaps.

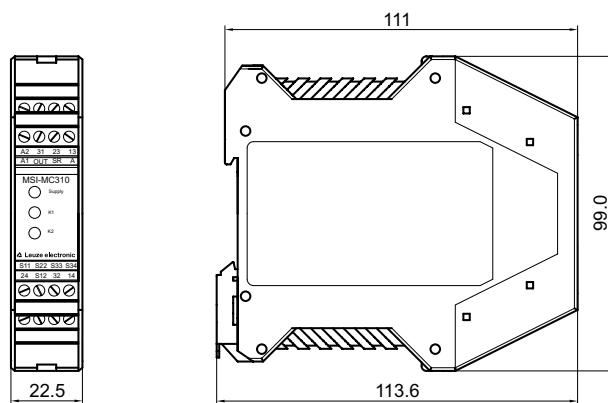
**Benefits:**

- Compact controller with long mechanical life time (10 million switching cycles)
- All magnetically coded sensors (1NC/1NO) from Leuze electronic are connectable
- Automatic and start/restart operation

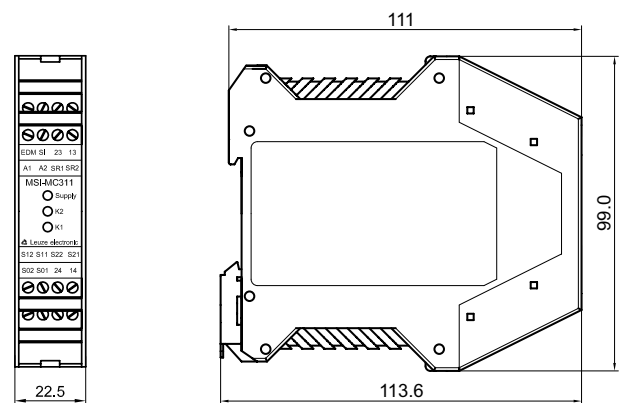


Direct access to the online product selector at www.leuze.com/en/msi-mc3x

Part no.	Part description	Connection	PL	Category	STOP category	Number of safety-related switching outputs (OSSDs)	Switching element	Number of digital switching outputs	Pickup delay, automatic start	Pickup delay, manual start
549941	MSI-MC310	Screw terminal	Up to and including e	Up to and including 4: 1 sensor connected	0	2x	Relay, make-contact	1x	400 ms	600 ms
549942	MSI-MC311	Screw terminal	Up to and including e	Up to and including 4: 1 sensor connected	0	2x	Relay, make-contact	1x	30 ms	150 ms

Dimensioned drawings: MSI-MC3x

MSI-MC310 safety relay, screw terminal



MSI-MC311 safety relay, screw terminal

SMARTER APPLICATION KNOW-HOW

Take a look at our product clips: www.leuze.com/en/product-clips

//PROGRAMMABLE SAFETY CONTROLLERS

PROGRAMMED FOR SAFETY

With the MSI 100 and MSI 200 programmable safety controllers, you obtain a system solution for small- to medium-size machines with maximum flexibility. Extension with I/O and communication modules possible. Configuration and start-up is simple and fast with the convenient MSIsafesoft programming software and its function modules.

/// MSI 100



The relay monitors E-Stop buttons, two-hand controls, safety doors or safety sensors with 2 transistor outputs in machines and systems. With an overall width of just 67.5 mm, the device makes available 20 safe inputs, 4 signal outputs for diagnostics and 4 safe outputs (OSSDs).



Benefits:

- Freely configurable safety base module
- Monitoring of all safe functions in machines and systems
- Transfers diagnostic data to the PLC via MSI-FB fieldbus modules (option)
- Free choice of connection system: screw terminal blocks or spring-cage terminal blocks; both can be pulled off and interchanged as desired

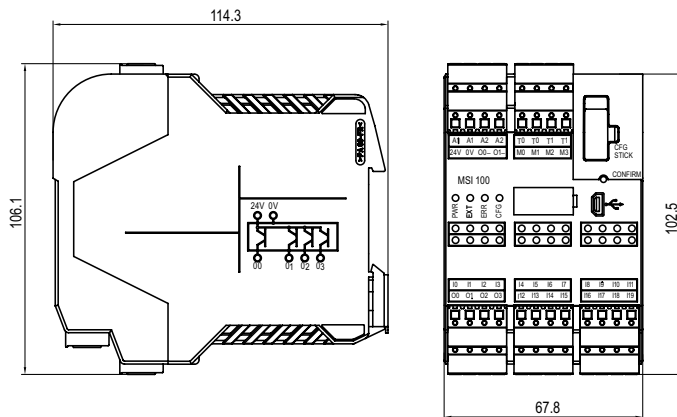


Direct access to the online product selector at www.leuze.com/en/msi100

Part no.	Part description	Connection	Number of safe inputs	Number of safe semiconductor outputs	Number of ground-switching outputs	Number of signal outputs	Number of cycle outputs
547802	MSI101	Screw terminal	20x (up to SIL 3 / IEC 62061)	4x	2x	4x	2x
547812	MSI102	Spring-cage terminal	20x (up to SIL 3 / IEC 62061)	4x	2x	4x	2x

Included in delivery: 1 terminal set, 1 data memory module, 1 TBUS safety connection plug
Note: Commissioning set must be ordered separately

Dimensioned drawings: MSI 100



MSI 100 programmable safety controller

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

/// MSI 200



The relay features the same functionality as the MSI 100. In addition, it can be expanded with dockable extension modules to up to 140 safe inputs or 100 inputs and 44 safe outputs – quickly and easily with the TBUS DIN rail connection system.



Benefits:

- Up to 10 safe MSI-EM I/O extension modules can be connected, i. e., up to a maximum of 140 inputs or 100 inputs and 44 outputs are feasible
- Convenient and fast extension or modular exchange of the components via the TBUS connection system

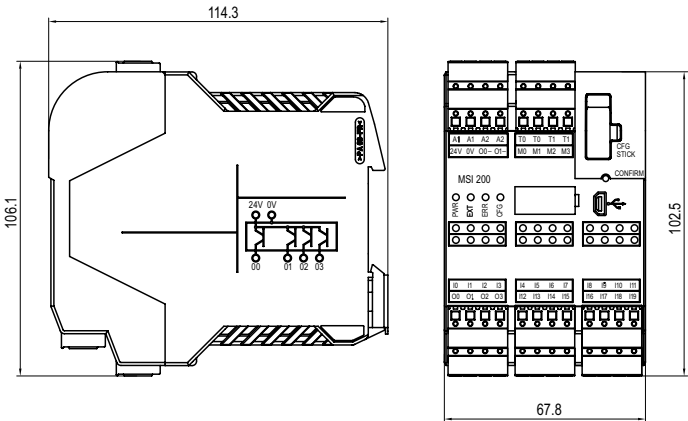


Direct access to the online product selector at www.leuze.com/en/msi200

Part no.	Part description	Connection	Number of possible safe extension modules	Number of safe inputs	Number of safe semiconductor outputs	Number of ground-switching outputs	Number of signal outputs	Number of cycle outputs
547803	MSI201	Screw terminal	10x	20x (up to SIL 3 / IEC 62061)	4x	2x	4x	2x
547813	MSI202	Spring-cage terminal	10x	20x (up to SIL 3 / IEC 62061)	4x	2x	4x	2x

Included in delivery: 1 terminal set, 1 data memory module, 2 TBUS safety connection plugs
Note: Commissioning set must be ordered separately

Dimensioned drawings: MSI 200



MSI 200 programmable safety controller

/// MSI-EM



The MSI-EM extension module expands the MSI 200 programmable safety controller with 8 safe inputs and 4 freely configurable channels. These may be either safe inputs or outputs (OSSDs).

**Benefits:**

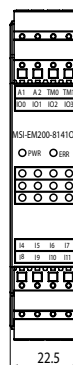
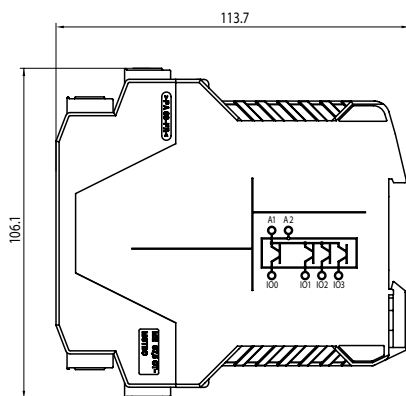
- 4 freely configurable channels-either safety outputs (OSSDs) of safe inputs
- Connect up to 10 MSI-EM and realize up to 140 inputs or 100 inputs and 44 outputs
- Designs with screw terminals as well as with spring-cage terminals – both types of terminal blocks can be freely interchanged
- Simple connection via TBUS DIN rail connector
- Compact housing width 22 mm



Direct access to the online product selector at www.leuze.com/en/msi-em

Part no.	Part description	Connection	Number of safe inputs	Number of safe semiconductor outputs	Number of signal outputs	Number of clock/signal outputs
547815	MSI-EM202-4R0	Spring-cage terminal			4x	
547814	MSI-EM202-8I4IO	Spring-cage terminal	12x (up to SIL 3 / IEC 62061) of which 4 are configurable as input or output	4x		2x
547805	MSI-EM201-4R0	Screw terminal			4x	
547804	MSI-EM201-8I4IO	Screw terminal	12x (up to SIL 3 / IEC 62061)	4x		2x

Included in delivery: 1 TBUS safety connection plug

Dimensioned drawings: MSI-EM

MSI-EM20x-8I4IO extension module

Switching sensors

Measuring sensors

Products for safety at work

Identification

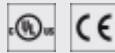
Data transmission / Control components

Industrial image processing

Accessories

/// MSI-FB

This is a fieldbus module for the MSI 100 and MSI 200 programmable safety controllers for connecting to PROFIBUS.

**Benefits:**

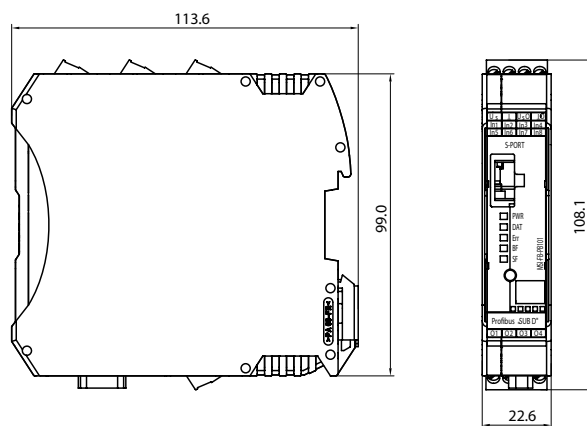
- Transfers diagnostic data (not safety-oriented)
- 4 additional inputs and 4 additional outputs for communication of the PLC with field devices (sensor/actuator systems)
- Certified in accordance with DPV1 specification (EN 50170)
- Simple connection via TBUS DIN rail connector
- Compact housing width 22 mm



Direct access to the online product selector at www.leuze.com/en/msi-fb

Part no.	Part description	Connection	Interface
547806	MSI-FB-PB101	Screw terminal	PROFIBUS DP

Included in delivery: 1 TBUS safety connection plug

Dimensioned drawings: MSI-FB

MSI-FB-PB101 fieldbus module

ACCESSORIES: MSI 100, MSI 200**Connection technology****Interconnection cables**

Part no.	Part description	Connection 1	Connection 2	Cable length
547822	AC-MSI-USB	USB 2.0 Standard-A	USB 2.0 Mini-A	3,000 mm

General

Part no.	Part description	Description
547820	AC-MSI-CFG1	10x plug-in data memory module
547823	AC-MSI-TC	10x MSI TBUS standard connection plug (for fieldbus gateways)
547821	AC-MSI-TCS	10x MSI TBUS safety connection plug
547825	MSI-SWC1	Configuration software MSIsafesoft, USB cable, quick start guide

//AS-INTERFACE SAFETY AT WORK

LEADER FOR A GOOD REASON

Compared to conventional point-to-point wiring, AS-Interface (AS-i) excels with its low installation, wiring and connection costs. The very simple retrofitability of the safety technology with larger AS-i systems can further greatly reduce installation costs.

Safety monitor

The ASM1 AS-i safety monitor is the core component of the AS-Interface safety at work system. Using configuration software, it monitors the safety-related network devices that are assigned to it, e. g., command devices, multiple light beam safety devices and safety switches.

/// ASM1



The ASM1 AS-i safety monitor is the core component of the AS-Interface safety at work system. Using configuration software, it monitors the safety-related network devices that are assigned to it, e. g., command devices, multiple light beam safety devices and safety switches.



Benefits:

- Housing width 45 mm
- Height/installation depth: 102/120 mm
- Degree of protection IP 20
- Performance Level PL e and category 4 acc. to EN ISO 13849-1, SIL 3 acc. to IEC 61508 as well as SILCL 3 acc. to EN IEC 62061
- Up to 31 safe AS-i slaves can be connected
- 48 system components can be configured (e. g. E-Stop monitoring devices, OR, AND, turn on/off delays)
- RS 232 interface for PC-supported system configuration and system diagnostics as well as configuration data transfer to replacement device
- SERVICE button for automatic system integration (teach-in) of AS-i sensors on sensor exchange
- Immediate switch-off STOP 0 and delayed switch-off STOP 1 of the release circuits can be configured

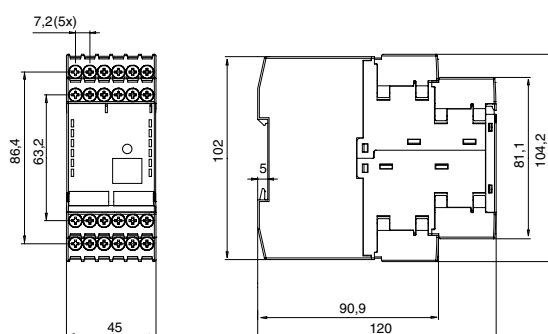


Direct access to the online product selector at www.leuze.com/en/asm1

Part no.	Part description	Number of safety-related switching outputs (OSSDs)	Number of configurable function modules	Number of OR and AND inputs	Muting function
580020	ASM1/1	1x	32x	2x	No
580055	ASM1E-m/1	1x	48x	6x	Yes
580024	ASM1E/1	1x	48x	6x	No
580021	ASM1/2	2x	32x	2x	No
580056	ASM1E-m/2	2x	48x	6x	Yes
580025	ASM1E/2	2x	48x	6x	No

Included in delivery: device front cover for protection and sealing

Dimensioned drawings: ASM1



AS-i safety monitor ASM1 / ASM1E

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

/// ASM2



In addition to the functions of the ASM 1, this safety monitor offers higher-level start and E-Stop functions through safe coupling of adjacent AS-i networks. Moreover, safe activation of decentrally distributed AS-i actuators with the same AS-i address is possible.

**Benefits:**

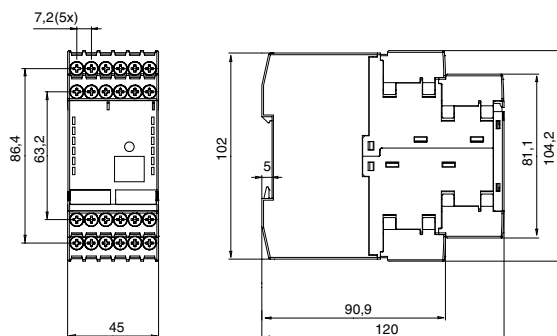
- Housing width 45 mm
- Height/installation depth: 102/120 mm
- Degree of protection IP 20
- Performance Level PL e and category 4 acc. to EN ISO 13849-1, SIL 3 acc. to IEC 61508 as well as SILCL 3 acc. to EN IEC 62061
- Up to 31 safe AS-i slaves can be connected
- 48 system components can be configured (e. g. E-Stop monitoring devices, OR, AND, turn on/off delays)
- RS 232 interface for PC-supported system configuration and system diagnostics as well as configuration data transfer to replacement device
- SERVICE button for automatic system integration (teach-in) of AS-i sensors on sensor exchange
- Immediate switch-off STOP 0 and delayed switch-off STOP 1 of the release circuits can be configured



Direct access to the online product selector at www.leuze.com/en/asm2

Part no.	Part description	Number of safety-related switching outputs (OSSDs)	Number of configurable function modules	Number of OR and AND inputs	Muting function
580057	ASM2E-m/1	1x	48x	6x	Yes
580028	ASM2E/1	1x	48x	6x	No
580058	ASM2E-m/2	2x	48x	6x	Yes
580029	ASM2E/2	2x	48x	6x	No

Included in delivery: device front cover for protection and sealing

Dimensioned drawings: ASM2

AS-i safety monitor ASM2E

ACCESSORIES: ASM1, ASM2**Start-up/diagnosis**

Part no.	Part description	Connection 1	Connection 2	Cable length	Contains
580032	ASM-SWC				Configuration and diagnostic software asimon, connecting and operating instructions (PDF file on CD-ROM), user's guide, software (PDF file on CD-ROM), programming cable, device exchange data line
50104079	CB-ASM-DK1	RJ45	RJ45	300 mm	
50104078	CB-ASM-PK1	Sub-D, 9-pin, axial, female	RJ45	2,500 mm	

/ MACHINE SAFETY SERVICES

SYSTEM SAFETY IS PLANNING AND MAINTENANCE

Sustainable safety at work begins with professional planning and doesn't end with the start-up of the corresponding systems. With our engineering tools, you can efficiently plan safety at work right from the start. During operation, periodic inspections and trainings are necessary and prescribed in order to ensure proper function and operation of the systems. We offer you an extensive and convenient package of all of these services for all of your safety at work measures.

Safety inspections

Page 344

Stopping time measurement

Page 344

Safety consulting

Page 345

Seminars and workshops

Page 345



Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

/// Safety inspections



Safety at work is a management issue – this applies in principle around the world. In Germany, periodic testing of the machine is required by law. Safety inspections ensure compliance with safety and quality standards and serve as preventive maintenance measures.

Benefits:

- EU conformity and legal certainty with proof of safety and quality standards
- Solution proposals for the rapid removal of safety deficiencies
- Comprehensible and well-documented test results in accordance with DIN ISO 9001:2000
- Standards-specific test protocol
- Accident risk and machine downtime minimization
- High availability of the machine due to regular inspections

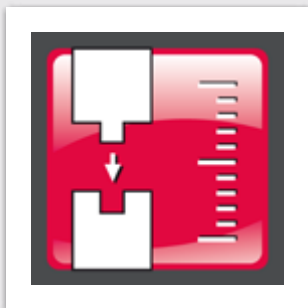


Direct access to the online product selector at www.leuze.com/en/inspections

Part no.	Part description	Description
S991005	CS-SCP/FR	Start-up support for a simple device from Leuze electronic without using PC.
S991016	CS-SIF/FR	Initial safety inspection for a third-party device
S991015	CS-SIL/FR	Initial safety inspection for a Leuze device
S991004	CS-SIN/FR	Follow-up safety inspection for a Leuze device
S991019	CS-SIO/FR	Follow-up safety inspection for a third-party device
S991002	CS-SRS/FR	Start-up support for a programmable device from Leuze electronic.
S991017	CS-SSF/FR	Start-up support / service deployment for components from Leuze electronic, full-day flat-rate per person.
S991018	CS-SSH/FR	Start-up support / service deployment for components from Leuze electronic, half-day flat-rate per person.

For work abroad: travel costs and accommodation extra, according to expenditure

/// Stopping time measurement



Only with a sufficiently dimensioned safety distance that corresponds with the stopping time of the machine it can be guaranteed that the dangerous movement will stop before the person reaches the point of operation. Stopping time measurements are therefore an important part of a properly carried out safety inspection.

Benefits:

- Standards-compliant performance of 10 measurements per dangerous movement
- Graphic evaluation of the brake behavior on request
- Stop activation with "Autohand" without electrical intervention in the machine control system
- Use of appropriate measurement transducers for the respective machine type: Rotary encoder for rotation movements (e. g. rotary indexing table) and rope length transmitter for linear movements
- State-of-the-art calibrated measurement devices; documented test results in accordance with DIN ISO 9001:2000



Direct access to the online product selector at www.leuze.com/en/nlzm

Part no.	Part description	Description
S991007	CS-SMS/FR	"Standard" stopping time measurement on an ESPE unit
S991008	CS-SMX/FR	"Extended" stopping time measurement on an ESPE unit
S991009	CS-WT1/FR	Hour flat-rate for waiting times per person

For work abroad: travel costs and accommodation extra, according to expenditure

/// Safety consulting



Our experts are always up-to-date on the latest technology and standards. You can therefore be certain that our safety consulting offers you legal security. Pass the responsibility on to us – we find safety risks in good time and provide you with qualified assistance in initiating the necessary measures.

Benefits:

- Safety consulting helps prevent safety-related errors and also saves time and money while improving machine safety and giving the system operator legal certainty
- Responsibility is transferred to our experts for risk assessment as well as SISTEMA calculations and tests
- All Machinery Directive and CE requirements are upheld and all documents are also checked for completeness and fulfillment of legal requirements
- Our experts are independent, experienced and always up-to-date concerning standards and directives; they work effectively because they know systems both within and across sectors as well as their associated hazards and methods of resolution



Direct access to the online product selector at www.leuze.com/en/consulting

Part no.	Part description	Description
S991022	CS-SC1/FR	Safety-related consulting
S991023	CS-SC2/FR	Risk assessment of existing machines (small)
S991024	CS-SC3/FR	Risk assessment of existing machines (large)
S991025	CS-SC4/FR	Additional day for consulting
S991026	CS-SC5/FR	Conformity assessment of table machine
S991027	CS-SC6/FR	Conformity assessment of machine on vehicle
S991028	CS-SC7/FR	Conformity assessment of industrial machine
S991020	CS-SCF/FR	In house consulting, full-day flat-rate per person
S991021	CS-SCH/FR	In house consulting, full-day flat-rate per person

For work abroad: travel costs and accommodation extra, according to expenditure

/// Seminars and workshops



In addition to product training courses, our training program also includes seminars on the basics of machinery directives, CE certification and practical safety technology. We will also gladly provide instruction on-site at your facilities or in English.

Benefits:

- Compact knowledge of everything to do with safety at work
- Safety seminars cover all key points concerning retrofitting and operation of machines
- After standards workshops, the participant is always up-to-date when it comes to the current standards situation
- Product trainings guarantee optimal knowledge of a product, meaning you can detect application problems and prevent production downtimes
- Direct dialog between our specialists and participants for exchanges of experiences, application tips and problem-solving
- A certificate confirms participation in our seminars



Direct access to the online product selector at www.leuze.com/en/seminars

Part no.	Part description	Description
S991030	CS-KRS/AS	"Leuze product" product training, full-day flat-rate per person
S991031	CS-KRS/NM	Machine safety workshop
S991033	CS-KRS/PS	Product training
S991038	CS-KRS/SE	"Machine safety" training, full-day flat-rate per person
S991032	CS-KRS/SS	Safety seminar

For work abroad: travel costs and accommodation extra, according to expenditure

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

ALWAYS THE RIGHT SERVICE FOR YOUR PROCESS

Legal security and efficient safety at work are successfully combined quickly and easily with our range of services.



For many people, complex planning or engineering tasks or the management of functional safety make the set of issues related to safety at work a closed book. In the area of legal security in particular, information gaps often exist. With our extensive, qualified offer on safety at work, you are on the safe side legally and can fulfill all of your legal guidelines easily.

We support your service department and, in the event of limited resources, make available the appropriately qualified team. We work with our experts to ensure the safety of your machines and systems. Your production and service team is free to perform its actual tasks. Our offerings are accompanied by an extensive range of training courses tailored to your needs.

OUR SERVICE OFFERINGS INCLUDE



Status check
Safety technology
(MSSC)



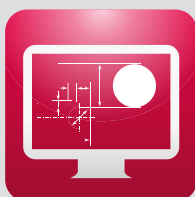
Status check
CE
(MCSC)



Risk analysis /
assessment
(MRAS)



Conformity
assessment of
machines (MCMS)



Development
support for
machine safety
(MSEN)



Safety inspection
(MSIN)

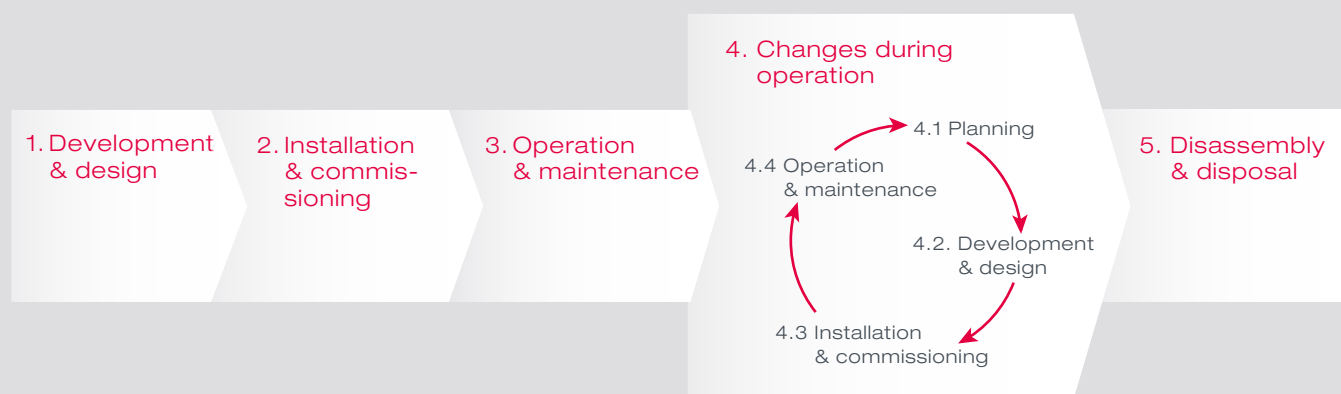


Functionality
of protective
devices (MSPT)



Validation and
verification of
safety functions
(MSVV)

STAGES OF A MACHINE LIFE CYCLE



THE RIGHT SERVICES AT A GLANCE

Services	1. Development & design	2. Installation & commissioning	3. Operation & maintenance	4.1. Planning	4.2. Development & design	4.3. Installation & commissioning	4.4. Operation & maintenance	5. Disassembly & disposal
Status check Safety technology		●	●				●	
Status check CE	●		●		●	●	●	
Risk analysis / assessment	●		●	●	●		●	●
Conformity assessment of machines	●			●	●			
Development support Machine safety	●				●			
Safety inspections		●	●			●	●	
Functionality of protective devices		●	●			●	●	●
Validation and verification of safety functions		●				●		

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

IDENTIFICATION

CODES SIMPLIFY COMMUNICATION IN AUTOMATION

The identification of bar codes, 2D-codes and RFID transponders is among our core competencies. Our broad product spectrum of IDENT technologies opens up maximum flexibility to our customers. These products ensure absolute reliability and maximum system availability. Discover our world of IDENT products.

"Only a reliable sensor is a good sensor – after all, what's the point of a sophisticated sensor system if the device stops the entire system at the slightest deviation. We therefore equip our sensors with a multitude of technical solutions in order to provide the largest possible function reserves."

Armin Claus,
Product Center Ident + Vision



/ Bar code identification

Page 350

/ 2D-code identification

Page 385

/ RF identification

Page 396

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories



/ BAR CODE IDENTIFICATION

BAR CODE READING MADE EASY

In production and logistics, the identification of goods and materials through universally usable bar codes controls many processes. The area of application of readers is correspondingly broad – from mobile hand-held operation to high-speed scanners for industrial applications.

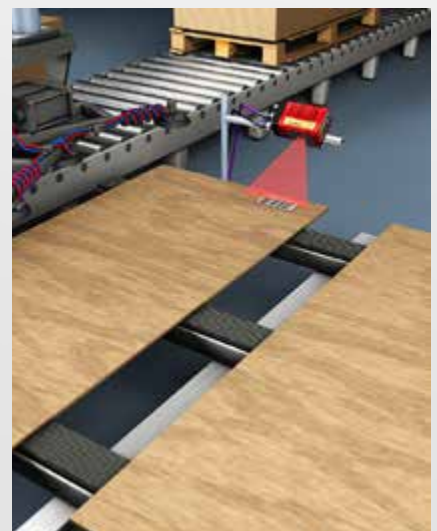
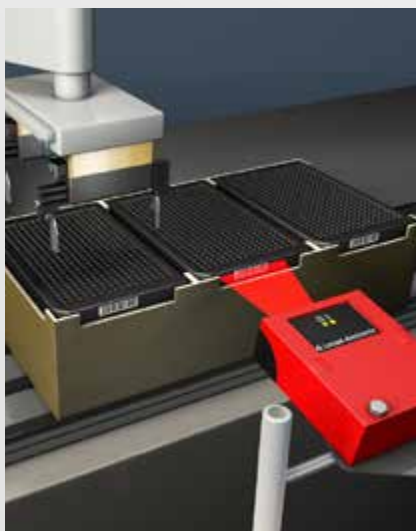
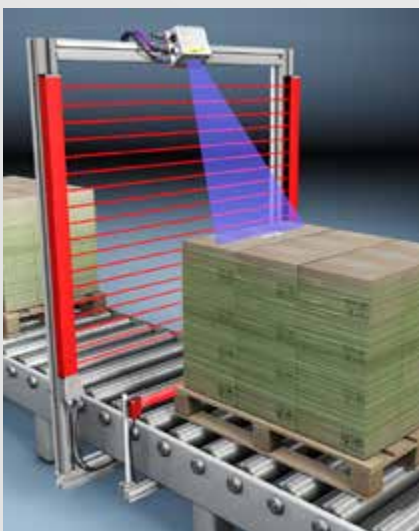


Stationary bar code readers

Page 351

Mobile bar code readers

Page 382



//STATIONARY BAR CODE READERS

FAST AND EXACT SOLUTIONS

Select the right line and raster scanner from various sizes, designs and performance levels. Scanning rates of up to 1,000 scans/s, the smallest installation dimensions, robust housings and integrated heating for use in deep-freeze areas meet the individual requirements of your application.

/// BCL 8



The BCL 8 bar code reader is a bar code reader with integrated decoder for all common bar codes including Pharmacode. Available as a robust industrial version in a metal housing.



Benefits:

- Compact construction for confined space conditions, e. g. in printers or packaging systems
- Large reading field with great depth of field for variable modulus sizes
- autoConfig automatically detects the code type that is to be read
- autoRefIAct enables automatic triggering without additional photoelectric sensor
- M12 connection technology and ready-made cables
- Numerous connection units from the MA 8 / MA 200i series for all well-known bus systems (PROFIBUS, PROFINET, DeviceNet, EtherNet TCP/IP, Ethernet/IP, Ethercat or CANopen).
- RS 232 interface (with option of changing to the integrated daisy chain)



Direct access to the online product selector at www.leuze.com/en/bcl8

Part no.	Part description	Reading method Light beam exit	Interface	Reading distance	Module size	Scanning rate	Special design Type of display
50105417	BCL 8 SN 100	Line scanner Lateral with deflecting mirror	RS 232	35 ... 95 mm	0.12 ... 0.4 mm	500 scans/s	LED
50105419	BCL 8 SN 550	Line scanner Lateral with deflecting mirror	RS 232	35 ... 95 mm	0.12 ... 0.4 mm	500 scans/s	LED
50105418	BCL 8 SN 102	Line scanner Front	RS 232	50 ... 110 mm	0.12 ... 0.4 mm	500 scans/s	LED
50105420	BCL 8 SN 552	Line scanner Front	RS 232	50 ... 110 mm	0.12 ... 0.4 mm	500 scans/s	LED
50040229	BCL 8 SM 100	Line scanner Lateral with deflecting mirror	RS 232	25 ... 145 mm	0.15 ... 0.5 mm	600 scans/s	LED
50040230	BCL 8 SM 550	Line scanner Lateral with deflecting mirror	RS 232	25 ... 145 mm	0.15 ... 0.5 mm	600 scans/s	LED
50038949	BCL 8 SM 102	Line scanner Front	RS 232	40 ... 160 mm	0.15 ... 0.5 mm	600 scans/s	LED
50038948	BCL 8 SM 552	Line scanner Front	RS 232	40 ... 160 mm	0.15 ... 0.5 mm	600 scans/s	LED

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories



/// BCL 21/22



These stationary high-speed scanners offer a space-saving solution for industrial environments and are equipped with a fail-safe parameter memory.

**Benefits:**

- Various optics models for optimum use of the installation space
- Depending on the code alignment, single-line or raster scanners offer optimized reading capacity
- Large depth of field and wide opening angle
- autoConfig automatically detects the code type that is to be read
- The BCL Config Tool simplifies all configuration tasks



Direct access to the online product selector at www.leuze.com/en/bcl21_22

PART NUMBER CODES – BCL 21/22 stationary bar code readers

B C L 2 1 S N 2 1 0

Type

BCL Bar code reader

Host interface

21 RS 485

22 RS 232

Reading characteristics

S Single line scanner

R1 Raster scanner

Resolution/range

N High Density up to 95 mm

B Medium Density up to 220 mm

M Medium Density up to 260 mm

F Low Density up to 450 mm

Connector

2 LP (circuit board connector for MA 2/MA 4...)

3 SUB-D 15-pin

Connection cable length

0 0.8m

1 3.0m

Beam exit

0 Perpendicular

2 At the front

Part no.	Part description	Reading method Light beam exit	Interface	Reading distance	Module size	Scanning rate	Special design Type of display
50030987	BCL 21 S N 202	Line scanner Front	RS 485	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50032030	BCL 21 S N 212	Line scanner Front	RS 485	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50031072	BCL 21 S N 302	Line scanner Front	RS 485	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50032034	BCL 21 S N 312	Line scanner Front	RS 485	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50117070	BCL 21 S B 202	Line scanner Front	RS 485	50 ... 220 mm	0.165 ... 0.5 mm	800 scans/s	LED
50114707	BCL 21 S B 302	Line scanner Front	RS 485	50 ... 220 mm	0.165 ... 0.5 mm	800 scans/s	LED
50030989	BCL 21 S M 202	Line scanner Front	RS 485	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50031720	BCL 21 S M 212	Line scanner Front	RS 485	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50031078	BCL 21 S M 302	Line scanner Front	RS 485	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50032049	BCL 21 S M 312	Line scanner Front	RS 485	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50031082	BCL 21 S F 202	Line scanner Front	RS 485	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

Part no.	Part description	Reading method Light beam exit	Interface	Reading distance	Module size	Scanning rate	Special design Type of display
50032061	BCL 21 S F 212	Line scanner Front	RS 485	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50031086	BCL 21 S F 302	Line scanner Front	RS 485	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50032065	BCL 21 S F 312	Line scanner Front	RS 485	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50030986	BCL 21 S N 200	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 485	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50032028	BCL 21 S N 210	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 485	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50031070	BCL 21 S N 300	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 485	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50032032	BCL 21 S N 310	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 485	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50117069	BCL 21 S B 200	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 485	50 ... 220 mm	0.165 ... 0.5 mm	800 scans/s	LED
50114706	BCL 21 S B 300	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 485	50 ... 220 mm	0.165 ... 0.5 mm	800 scans/s	LED
50030988	BCL 21 S M 200	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 485	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50032044	BCL 21 S M 210	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 485	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50031076	BCL 21 S M 300	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 485	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50032047	BCL 21 S M 310	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 485	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50031080	BCL 21 S F 200	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 485	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50032059	BCL 21 S F 210	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 485	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50031084	BCL 21 S F 300	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 485	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50032063	BCL 21 S F 310	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 485	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50061283	BCL 21 R1 N 202	Raster scanner Front	RS 485	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50032038	BCL 21 R1 N 212	Raster scanner Front	RS 485	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50061287	BCL 21 R1 N 302	Raster scanner Front	RS 485	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50032042	BCL 21 R1 N 312	Raster scanner Front	RS 485	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50061291	BCL 21 R1 M 202	Raster scanner Front	RS 485	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50032053	BCL 21 R1 M 212	Raster scanner Front	RS 485	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50061295	BCL 21 R1 M 302	Raster scanner Front	RS 485	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50032057	BCL 21 R1 M 312	Raster scanner Front	RS 485	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50061299	BCL 21 R1 F 202	Raster scanner Front	RS 485	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50032069	BCL 21 R1 F 212	Raster scanner Front	RS 485	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50061303	BCL 21 R1 F 302	Raster scanner Front	RS 485	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50032073	BCL 21 R1 F 312	Raster scanner Front	RS 485	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50061281	BCL 21 R1 N 200	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 485	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50032036	BCL 21 R1 N 210	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 485	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50061285	BCL 21 R1 N 300	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 485	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50032040	BCL 21 R1 N 310	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 485	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50061289	BCL 21 R1 M 200	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 485	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50032051	BCL 21 R1 M 210	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 485	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50061293	BCL 21 R1 M 300	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 485	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50032055	BCL 21 R1 M 310	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 485	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50061297	BCL 21 R1 F 200	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 485	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50032067	BCL 21 R1 F 210	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 485	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50061301	BCL 21 R1 F 300	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 485	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50032071	BCL 21 R1 F 310	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 485	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50031090	BCL 22 S N 202	Line scanner Front	RS 232	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50061451	BCL 22 S N 212	Line scanner Front	RS 232	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED

Part no.	Part description	Reading method Light beam exit	Interface	Reading distance	Module size	Scanning rate	Special design Type of display
50030991	BCL 22 S N 302	Line scanner Front	RS 232	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50032080	BCL 22 S N 312	Line scanner Front	RS 232	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50117072	BCL 22 S B 202	Line scanner Front	RS 232	50 ... 220 mm	0.165 ... 0.5 mm	800 scans/s	LED
50114715	BCL 22 S B 302	Line scanner Front	RS 232	50 ... 220 mm	0.165 ... 0.5 mm	800 scans/s	LED
50031096	BCL 22 S M 202	Line scanner Front	RS 232	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50032093	BCL 22 S M 212	Line scanner Front	RS 232	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50030993	BCL 22 S M 302	Line scanner Front	RS 232	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50032097	BCL 22 S M 312	Line scanner Front	RS 232	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50031102	BCL 22 S F 202	Line scanner Front	RS 232	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50032108	BCL 22 S F 212	Line scanner Front	RS 232	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50031106	BCL 22 S F 302	Line scanner Front	RS 232	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50032112	BCL 22 S F 312	Line scanner Front	RS 232	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50031088	BCL 22 S N 200	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50032075	BCL 22 S N 210	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50030990	BCL 22 S N 300	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50032078	BCL 22 S N 310	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50117071	BCL 22 S B 200	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232	50 ... 220 mm	0.165 ... 0.5 mm	800 scans/s	LED
50114714	BCL 22 S B 300	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232	50 ... 220 mm	0.165 ... 0.5 mm	800 scans/s	LED
50031094	BCL 22 S M 200	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50032091	BCL 22 S M 210	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50030992	BCL 22 S M 300	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50032095	BCL 22 S M 310	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50031100	BCL 22 S F 200	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50032106	BCL 22 S F 210	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50031104	BCL 22 S F 300	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50032110	BCL 22 S F 310	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50061307	BCL 22 R1 N 202	Raster scanner Front	RS 232	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50032084	BCL 22 R1 N 212	Raster scanner Front	RS 232	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50061311	BCL 22 R1 N 302	Raster scanner Front	RS 232	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50032089	BCL 22 R1 N 312	Raster scanner Front	RS 232	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50061315	BCL 22 R1 M 202	Raster scanner Front	RS 232	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50032101	BCL 22 R1 M 212	Raster scanner Front	RS 232	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50061319	BCL 22 R1 M 302	Raster scanner Front	RS 232	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50032104	BCL 22 R1 M 312	Raster scanner Front	RS 232	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED
50061323	BCL 22 R1 F 202	Raster scanner Front	RS 232	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50032116	BCL 22 R1 F 212	Raster scanner Front	RS 232	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50061327	BCL 22 R1 F 302	Raster scanner Front	RS 232	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50032120	BCL 22 R1 F 312	Raster scanner Front	RS 232	80 ... 450 mm	0.5 ... 1 mm	800 scans/s	LED
50061305	BCL 22 R1 N 200	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 232	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50032082	BCL 22 R1 N 210	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 232	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50061309	BCL 22 R1 N 300	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 232	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50032087	BCL 22 R1 N 310	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 232	50 ... 95 mm	0.15 ... 0.5 mm	800 scans/s	LED
50061313	BCL 22 R1 M 200	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 232	50 ... 260 mm	0.2 ... 0.8 mm	1,000 scans/s	LED

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

ACCESSORIES: BCL 21/22

Rod mounts

Further rod mounts can be found on our website

/// BCL 300i



These modular, stationary bar code readers feature code fragment technology and numerous equipment features. Also unique is the modular connection technology.

**Benefits:**

- Integrated fieldbus connectivity (PROFIBUS, PROFINET, EtherNet, EtherNet/IP, TCP/IP, multiNet RS 232/422/485) with Ethernet switch function (for linear topology)
- Full CRT (code reconstruction technology) also detects heavily damaged or soiled codes
- webConfig - an operating-system independent, browser-based configuration tool
- High-quality optics with great depth of field and large opening angle
- Compact housing design for problem-free placement directly at the conveyor line
- Modular connector hood, terminal hood and terminal box and graphical display
- All optics models are also available with optional heating



Direct access to the online product selector at www.leuze.com/en/bcl300i

PART NUMBER CODES – BCL 300i stationary bar code readers

B C L 3 0 0 i S N 1 0 0 H

Type

BCL Bar code reader

Interface (integrated fieldbus technology)

300i RS 232 / RS 422 (stand-alone)
 301i RS 485 (multiNet slave)
 304i PROFIBUS DP
 308i EtherNet TCP/IP, UDP
 348i PROFINET RT
 358i EtherNet/IP

Scanning principle

S Line scanner (single line)
 R1 Line scanner (raster)
 O Oscillating-mirror scanner

Optics

N High Density (close)
 M Medium Density (medium distance)
 F Low Density (far)
 L Long Range
 J Ink-jet (depends on application)

Beam exit

100 Lateral
 102 At the front

Option

D With display
 H With heating
 DH With display and heating

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

Part no.	Part description	Reading method Light beam exit	Interface	Reading distance	Module size	Scanning rate	Special design Type of display
RS 232, RS 422 interface							
50116224	BCL 300i SN 102 D H	Line scanner Front	RS 232 RS 422	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116226	BCL 300i SN 102	Line scanner Front	RS 232 RS 422	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED
50116225	BCL 300i SN 102 D	Line scanner Front	RS 232 RS 422	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116218	BCL 300i SM 102 D H	Line scanner Front	RS 232 RS 422	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116220	BCL 300i SM 102	Line scanner Front	RS 232 RS 422	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50116219	BCL 300i SM 102 D	Line scanner Front	RS 232 RS 422	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116206	BCL 300i SF 102 D H	Line scanner Front	RS 232 RS 422	100 ... 470 mm	0.3 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116208	BCL 300i SF 102	Line scanner Front	RS 232 RS 422	100 ... 470 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116207	BCL 300i SF 102 D	Line scanner Front	RS 232 RS 422	100 ... 470 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116212	BCL 300i SL 102 D H	Line scanner Front	RS 232 RS 422	100 ... 700 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116214	BCL 300i SL 102	Line scanner Front	RS 232 RS 422	100 ... 700 mm	0.35 ... 0.8 mm	1,000 scans/s	LED
50116213	BCL 300i SL 102 D	Line scanner Front	RS 232 RS 422	100 ... 700 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116221	BCL 300i SN 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232 RS 422	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116223	BCL 300i SN 100	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232 RS 422	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED
50116222	BCL 300i SN 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232 RS 422	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116215	BCL 300i SM 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232 RS 422	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116217	BCL 300i SM 100	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232 RS 422	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50116216	BCL 300i SM 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232 RS 422	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116203	BCL 300i SF 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232 RS 422	70 ... 445 mm	0.3 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116205	BCL 300i SF 100	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232 RS 422	70 ... 445 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116204	BCL 300i SF 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232 RS 422	70 ... 445 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116209	BCL 300i SL 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232 RS 422	70 ... 670 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116211	BCL 300i SL 100	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232 RS 422	70 ... 670 mm	0.35 ... 0.8 mm	1,000 scans/s	LED
50116210	BCL 300i SL 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 232 RS 422	70 ... 670 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116202	BCL 300i R1 N 102	Raster scanner Front	RS 232 RS 422	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED
50116201	BCL 300i R1 N 102 D	Raster scanner Front	RS 232 RS 422	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116198	BCL 300i R1 M 102	Raster scanner Front	RS 232 RS 422	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50116197	BCL 300i R1 M 102 D	Raster scanner Front	RS 232 RS 422	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116194	BCL 300i R1 F 102	Raster scanner Front	RS 232 RS 422	100 ... 470 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116193	BCL 300i R1 F 102 D	Raster scanner Front	RS 232 RS 422	100 ... 470 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116200	BCL 300i R1 N 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 232 RS 422	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED
50116199	BCL 300i R1 N 100 D	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 232 RS 422	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116196	BCL 300i R1 M 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 232 RS 422	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50116195	BCL 300i R1 M 100 D	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 232 RS 422	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116192	BCL 300i R1 F 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 232 RS 422	70 ... 440 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116191	BCL 300i R1 F 100 D	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 232 RS 422	70 ... 440 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50123508	BCL 300i R1 J 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	RS 232 RS 422	100 ... 600 mm	0.5 ... 0.8 mm	1,000 scans/s	LED

Necessary accessories: A modular connector hood and terminal hood are required for operation!

Part no.	Part description	Reading method Light beam exit	Interface	Reading distance	Module size	Scanning rate	Special design Type of display
50116187	BCL 300i OM 100 D H	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 232 RS 422	40 ... 300 mm	0.2 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116185	BCL 300i OM 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 232 RS 422	40 ... 300 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50116186	BCL 300i OM 100 D	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 232 RS 422	40 ... 300 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116181	BCL 300i OF 100 D H	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 232 RS 422	80 ... 455 mm	0.3 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116179	BCL 300i OF 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 232 RS 422	80 ... 455 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116180	BCL 300i OF 100 D	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 232 RS 422	80 ... 455 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116184	BCL 300i OL 100 D H	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 232 RS 422	80 ... 680 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116182	BCL 300i OL 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 232 RS 422	80 ... 680 mm	0.35 ... 0.8 mm	1,000 scans/s	LED
50116183	BCL 300i OL 100 D	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 232 RS 422	80 ... 680 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel

PROFINET interface

50116460	BCL 348i SN 102 D H	Line scanner Front	PROFINET	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116462	BCL 348i SN 102	Line scanner Front	PROFINET	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED
50116461	BCL 348i SN 102 D	Line scanner Front	PROFINET	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116454	BCL 348i SM 102 D H	Line scanner Front	PROFINET	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116456	BCL 348i SM 102	Line scanner Front	PROFINET	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50116455	BCL 348i SM 102 D	Line scanner Front	PROFINET	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116442	BCL 348i SF 102 D H	Line scanner Front	PROFINET	100 ... 475 mm	0.3 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116444	BCL 348i SF 102	Line scanner Front	PROFINET	100 ... 475 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116443	BCL 348i SF 102 D	Line scanner Front	PROFINET	100 ... 475 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116448	BCL 348i SL 102 D H	Line scanner Front	PROFINET	100 ... 700 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116450	BCL 348i SL 102	Line scanner Front	PROFINET	100 ... 700 mm	0.35 ... 0.8 mm	1,000 scans/s	LED
50116449	BCL 348i SL 102 D	Line scanner Front	PROFINET	100 ... 700 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116457	BCL 348i SN 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFINET	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116459	BCL 348i SN 100	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFINET	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED
50116458	BCL 348i SN 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFINET	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116452	BCL 348i SM 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFINET	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116451	BCL 348i SM 100	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFINET	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50116453	BCL 348i SM 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFINET	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116439	BCL 348i SF 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFINET	70 ... 445 mm	0.3 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116441	BCL 348i SF 100	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFINET	70 ... 445 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116440	BCL 348i SF 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFINET	70 ... 445 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116445	BCL 348i SL 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFINET	70 ... 670 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116447	BCL 348i SL 100	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFINET	70 ... 670 mm	0.35 ... 0.8 mm	1,000 scans/s	LED
50116446	BCL 348i SL 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFINET	70 ... 670 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116438	BCL 348i R1 N 102	Raster scanner Front	PROFINET	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED

Necessary accessories: A modular connector hood and terminal hood are required for operation!

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

Part no.	Part description	Reading method Light beam exit	Interface	Reading distance	Module size	Scanning rate	Special design Type of display
50116437	BCL 348i R1 N 102 D	Raster scanner Front	PROFINET	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116434	BCL 348i R1 M 102	Raster scanner Front	PROFINET	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50116433	BCL 348i R1 M 102 D	Raster scanner Front	PROFINET	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116430	BCL 348i R1 F 102	Raster scanner Front	PROFINET	100 ... 475 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116429	BCL 348i R1 F 102 D	Raster scanner Front	PROFINET	100 ... 475 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116436	BCL 348i R1 N 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	PROFINET	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED
50116435	BCL 348i R1 N 100 D	Raster scanner with deflecting mirror Lateral with deflecting mirror	PROFINET	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116432	BCL 348i R1 M 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	PROFINET	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50116431	BCL 348i R1 M 100 D	Raster scanner with deflecting mirror Lateral with deflecting mirror	PROFINET	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116428	BCL 348i R1 F 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	PROFINET	70 ... 445 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116427	BCL 348i R1 F 100 D	Raster scanner with deflecting mirror Lateral with deflecting mirror	PROFINET	70 ... 445 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50123504	BCL 348i R1 J 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	PROFINET	100 ... 600 mm	0.5 ... 0.8 mm	1,000 scans/s	LED
50116423	BCL 348i OM 100 D H	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFINET	40 ... 300 mm	0.2 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116421	BCL 348i OM 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFINET	40 ... 300 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50116422	BCL 348i OM 100 D	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFINET	40 ... 300 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116417	BCL 348i OF 100 D H	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFINET	80 ... 455 mm	0.3 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116415	BCL 348i OF 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFINET	80 ... 455 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116416	BCL 348i OF 100 D	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFINET	80 ... 455 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116420	BCL 348i OL 100 D H	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFINET	80 ... 680 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116418	BCL 348i OL 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFINET	80 ... 680 mm	0.35 ... 0.8 mm	1,000 scans/s	LED
50116419	BCL 348i OL 100 D	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFINET	80 ... 680 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel

PROFIBUS DP interface

50116365	BCL 304i SN 102 D H	Line scanner Front	PROFIBUS DP	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116367	BCL 304i SN 102	Line scanner Front	PROFIBUS DP	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED
50116366	BCL 304i SN 102 D	Line scanner Front	PROFIBUS DP	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116359	BCL 304i SM 102 D H	Line scanner Front	PROFIBUS DP	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116361	BCL 304i SM 102	Line scanner Front	PROFIBUS DP	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50116360	BCL 304i SM 102 D	Line scanner Front	PROFIBUS DP	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116347	BCL 304i SF 102 D H	Line scanner Front	PROFIBUS DP	100 ... 470 mm	0.3 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116349	BCL 304i SF 102	Line scanner Front	PROFIBUS DP	100 ... 470 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116348	BCL 304i SF 102 D	Line scanner Front	PROFIBUS DP	100 ... 470 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116353	BCL 304i SL 102 D H	Line scanner Front	PROFIBUS DP	100 ... 700 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116355	BCL 304i SL 102	Line scanner Front	PROFIBUS DP	100 ... 700 mm	0.35 ... 0.8 mm	1,000 scans/s	LED
50116354	BCL 304i SL 102 D	Line scanner Front	PROFIBUS DP	100 ... 700 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116362	BCL 304i SN 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFIBUS DP	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel

Necessary accessories: A modular connector hood and terminal hood are required for operation!

Part no.	Part description	Reading method Light beam exit	Interface	Reading distance	Module size	Scanning rate	Special design Type of display
50116364	BCL 304i SN 100	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFIBUS DP	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED
50116363	BCL 304i SN 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFIBUS DP	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116356	BCL 304i SM 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFIBUS DP	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116358	BCL 304i SM 100	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFIBUS DP	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50116357	BCL 304i SM 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFIBUS DP	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116344	BCL 304i SF 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFIBUS DP	70 ... 445 mm	0.3 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116346	BCL 304i SF 100	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFIBUS DP	70 ... 445 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116345	BCL 304i SF 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFIBUS DP	70 ... 445 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116350	BCL 304i SL 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFIBUS DP	70 ... 670 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116352	BCL 304i SL 100	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFIBUS DP	70 ... 670 mm	0.35 ... 0.8 mm	1,000 scans/s	LED
50116351	BCL 304i SL 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	PROFIBUS DP	70 ... 670 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116343	BCL 304i R1 N 102	Raster scanner Front	PROFIBUS DP	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED
50116342	BCL 304i R1 N 102 D	Raster scanner Front	PROFIBUS DP	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116339	BCL 304i R1 M 102	Raster scanner Front	PROFIBUS DP	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50116338	BCL 304i R1 M 102 D	Raster scanner Front	PROFIBUS DP	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116335	BCL 304i R1 F 102	Raster scanner Front	PROFIBUS DP	100 ... 470 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116334	BCL 304i R1 F 102 D	Raster scanner Front	PROFIBUS DP	100 ... 470 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116341	BCL 304i R1 N 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	PROFIBUS DP	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED
50116340	BCL 304i R1 N 100 D	Raster scanner with deflecting mirror Lateral with deflecting mirror	PROFIBUS DP	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116337	BCL 304i R1 M 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	PROFIBUS DP	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50116336	BCL 304i R1 M 100 D	Raster scanner with deflecting mirror Lateral with deflecting mirror	PROFIBUS DP	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116333	BCL 304i R1 F 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	PROFIBUS DP	70 ... 440 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116332	BCL 304i R1 F 100 D	Raster scanner with deflecting mirror Lateral with deflecting mirror	PROFIBUS DP	70 ... 440 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50123506	BCL 304i R1 J 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	PROFIBUS DP	100 ... 600 mm	0.5 ... 0.8 mm	1,000 scans/s	LED
50116328	BCL 304i OM 100 D H	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFIBUS DP	40 ... 300 mm	0.2 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116326	BCL 304i OM 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFIBUS DP	40 ... 300 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50116327	BCL 304i OM 100 D	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFIBUS DP	40 ... 300 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116322	BCL 304i OF 100 D H	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFIBUS DP	80 ... 455 mm	0.3 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116320	BCL 304i OF 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFIBUS DP	80 ... 455 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116321	BCL 304i OF 100 D	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFIBUS DP	80 ... 455 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116325	BCL 304i OL 100 D H	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFIBUS DP	80 ... 680 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116323	BCL 304i OL 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFIBUS DP	80 ... 680 mm	0.35 ... 0.8 mm	1,000 scans/s	LED
50116324	BCL 304i OL 100 D	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFIBUS DP	80 ... 680 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
MultiNet Plus, RS 485 interface							
50116317	BCL 301i SN 102 D H	Line scanner Front	MultiNet Plus, RS 485	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116319	BCL 301i SN 102	Line scanner Front	MultiNet Plus, RS 485	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED

Necessary accessories: A modular connector hood and terminal hood are required for operation!

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

Part no.	Part description	Reading method Light beam exit	Interface	Reading distance	Module size	Scanning rate	Special design Type of display
50116318	BCL 301i SN 102 D	Line scanner Front	MultiNet Plus, RS 485	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116311	BCL 301i SM 102 D H	Line scanner Front	MultiNet Plus, RS 485	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116313	BCL 301i SM 102	Line scanner Front	MultiNet Plus, RS 485	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50116312	BCL 301i SM 102 D	Line scanner Front	MultiNet Plus, RS 485	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116299	BCL 301i SF 102 D H	Line scanner Front	MultiNet Plus, RS 485	100 ... 470 mm	0.3 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116301	BCL 301i SF 102	Line scanner Front	MultiNet Plus, RS 485	100 ... 470 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116300	BCL 301i SF 102 D	Line scanner Front	MultiNet Plus, RS 485	100 ... 470 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116305	BCL 301i SL 102 D H	Line scanner Front	MultiNet Plus, RS 485	100 ... 700 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116307	BCL 301i SL 102	Line scanner Front	MultiNet Plus, RS 485	100 ... 700 mm	0.35 ... 0.8 mm	1,000 scans/s	LED
50116306	BCL 301i SL 102 D	Line scanner Front	MultiNet Plus, RS 485	100 ... 700 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116314	BCL 301i SN 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	MultiNet Plus, RS 485	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116316	BCL 301i SN 100	Line scanner with deflecting mirror Lateral with deflecting mirror	MultiNet Plus, RS 485	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED
50116315	BCL 301i SN 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	MultiNet Plus, RS 485	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116309	BCL 301i SM 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	MultiNet Plus, RS 485	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116308	BCL 301i SM 100	Line scanner with deflecting mirror Lateral with deflecting mirror	MultiNet Plus, RS 485	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50116310	BCL 301i SM 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	MultiNet Plus, RS 485	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116296	BCL 301i SF 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	MultiNet Plus, RS 485	70 ... 445 mm	0.3 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116298	BCL 301i SF 100	Line scanner with deflecting mirror Lateral with deflecting mirror	MultiNet Plus, RS 485	70 ... 445 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116297	BCL 301i SF 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	MultiNet Plus, RS 485	70 ... 445 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116302	BCL 301i SL 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	MultiNet Plus, RS 485	70 ... 670 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116304	BCL 301i SL 100	Line scanner with deflecting mirror Lateral with deflecting mirror	MultiNet Plus, RS 485	70 ... 670 mm	0.35 ... 0.8 mm	1,000 scans/s	LED
50116303	BCL 301i SL 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	MultiNet Plus, RS 485	70 ... 670 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116295	BCL 301i R1 N 102	Raster scanner Front	MultiNet Plus, RS 485	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED
50116294	BCL 301i R1 N 102 D	Raster scanner Front	MultiNet Plus, RS 485	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116291	BCL 301i R1 M 102	Raster scanner Front	MultiNet Plus, RS 485	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50116290	BCL 301i R1 M 102 D	Raster scanner Front	MultiNet Plus, RS 485	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116287	BCL 301i R1 F 102	Raster scanner Front	MultiNet Plus, RS 485	100 ... 470 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116286	BCL 301i R1 F 102 D	Raster scanner Front	MultiNet Plus, RS 485	100 ... 470 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116293	BCL 301i R1 N 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	MultiNet Plus, RS 485	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED
50116292	BCL 301i R1 N 100 D	Raster scanner with deflecting mirror Lateral with deflecting mirror	MultiNet Plus, RS 485	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116289	BCL 301i R1 M 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	MultiNet Plus, RS 485	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50116288	BCL 301i R1 M 100 D	Raster scanner with deflecting mirror Lateral with deflecting mirror	MultiNet Plus, RS 485	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116285	BCL 301i R1 F 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	MultiNet Plus, RS 485	40 ... 440 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116284	BCL 301i R1 F 100 D	Raster scanner with deflecting mirror Lateral with deflecting mirror	MultiNet Plus, RS 485	70 ... 440 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50123507	BCL 301i R1 J 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	MultiNet Plus, RS 485	100 ... 600 mm	0.5 ... 0.8 mm	1,000 scans/s	LED
50116280	BCL 301i OM 100 D H	Oscillating-mirror scanner Zero position at side at angle less than 90°	MultiNet Plus, RS 485	40 ... 300 mm	0.2 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116278	BCL 301i OM 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	MultiNet Plus, RS 485	40 ... 300 mm	0.2 ... 0.5 mm	1,000 scans/s	LED

Necessary accessories: A modular connector hood and terminal hood are required for operation!

Part no.	Part description	Reading method Light beam exit	Interface	Reading distance	Module size	Scanning rate	Special design Type of display
50116279	BCL 301i OM 100 D	Oscillating-mirror scanner Zero position at side at angle less than 90°	MultiNet Plus, RS 485	40 ... 300 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116274	BCL 301i OF 100 D H	Oscillating-mirror scanner Zero position at side at angle less than 90°	MultiNet Plus, RS 485	80 ... 455 mm	0.3 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116272	BCL 301i OF 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	MultiNet Plus, RS 485	80 ... 455 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116273	BCL 301i OF 100 D	Oscillating-mirror scanner Zero position at side at angle less than 90°	MultiNet Plus, RS 485	80 ... 455 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116277	BCL 301i OL 100 D H	Oscillating-mirror scanner Zero position at side at angle less than 90°	MultiNet Plus, RS 485	80 ... 680 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116275	BCL 301i OL 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	MultiNet Plus, RS 485	80 ... 680 mm	0.35 ... 0.8 mm	1,000 scans/s	LED
50116276	BCL 301i OL 100 D	Oscillating-mirror scanner Zero position at side at angle less than 90°	MultiNet Plus, RS 485	80 ... 680 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel

Switching
sensors

Ethernet interface

50116412	BCL 308i SN 102 D H	Line scanner Front	Ethernet	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116414	BCL 308i SN 102	Line scanner Front	Ethernet	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED
50116413	BCL 308i SN 102 D	Line scanner Front	Ethernet	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116406	BCL 308i SM 102 D H	Line scanner Front	Ethernet	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116408	BCL 308i SM 102	Line scanner Front	Ethernet	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50116407	BCL 308i SM 102 D	Line scanner Front	Ethernet	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116395	BCL 308i SF 102 D H	Line scanner Front	Ethernet	100 ... 470 mm	0.3 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116396	BCL 308i SF 102	Line scanner Front	Ethernet	100 ... 470 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50114822	BCL 308i SF 102 D	Line scanner Front	Ethernet	100 ... 470 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116400	BCL 308i SL 102 D H	Line scanner Front	Ethernet	100 ... 700 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116402	BCL 308i SL 102	Line scanner Front	Ethernet	100 ... 700 mm	0.35 ... 0.8 mm	1,000 scans/s	LED
50116401	BCL 308i SL 102 D	Line scanner Front	Ethernet	100 ... 700 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116409	BCL 308i SN 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	Ethernet	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116411	BCL 308i SN 100	Line scanner with deflecting mirror Lateral with deflecting mirror	Ethernet	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED
50116410	BCL 308i SN 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	Ethernet	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116403	BCL 308i SM 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	Ethernet	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116405	BCL 308i SM 100	Line scanner with deflecting mirror Lateral with deflecting mirror	Ethernet	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50116404	BCL 308i SM 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	Ethernet	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116392	BCL 308i SF 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	Ethernet	70 ... 445 mm	0.3 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116394	BCL 308i SF 100	Line scanner with deflecting mirror Lateral with deflecting mirror	Ethernet	70 ... 445 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116393	BCL 308i SF 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	Ethernet	70 ... 445 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116397	BCL 308i SL 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	Ethernet	70 ... 670 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116399	BCL 308i SL 100	Line scanner with deflecting mirror Lateral with deflecting mirror	Ethernet	70 ... 670 mm	0.35 ... 0.8 mm	1,000 scans/s	LED
50116398	BCL 308i SL 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	Ethernet	70 ... 670 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116391	BCL 308i R1 N 102	Raster scanner Front	Ethernet	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED
50116390	BCL 308i R1 N 102 D	Raster scanner Front	Ethernet	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116387	BCL 308i R1 M 102	Raster scanner Front	Ethernet	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED

Measuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

Necessary accessories: A modular connector hood and terminal hood are required for operation!

Part no.	Part description	Reading method Light beam exit	Interface	Reading distance	Module size	Scanning rate	Special design Type of display
50116386	BCL 308i R1 M 102 D	Raster scanner Front	Ethernet	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116383	BCL 308i R1 F 102	Raster scanner Front	Ethernet	100 ... 470 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116382	BCL 308i R1 F 102 D	Raster scanner Front	Ethernet	100 ... 470 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116389	BCL 308i R1 N 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	Ethernet	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED
50116388	BCL 308i R1 N 100 D	Raster scanner with deflecting mirror Lateral with deflecting mirror	Ethernet	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116385	BCL 308i R1 M 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	Ethernet	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50116384	BCL 308i R1 M 100 D	Raster scanner with deflecting mirror Lateral with deflecting mirror	Ethernet	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116381	BCL 308i R1 F 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	Ethernet	70 ... 440 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116380	BCL 308i R1 F 100 D	Raster scanner with deflecting mirror Lateral with deflecting mirror	Ethernet	70 ... 440 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50123505	BCL 308i R1 J 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	Ethernet	100 ... 600 mm	0.5 ... 0.8 mm	1,000 scans/s	LED
50116376	BCL 308i OM 100 D H	Oscillating-mirror scanner Zero position at side at angle less than 90°	Ethernet	40 ... 300 mm	0.2 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116374	BCL 308i OM 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	Ethernet	40 ... 300 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50116375	BCL 308i OM 100 D	Oscillating-mirror scanner Zero position at side at angle less than 90°	Ethernet	40 ... 300 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116370	BCL 308i OF 100 D H	Oscillating-mirror scanner Zero position at side at angle less than 90°	Ethernet	80 ... 455 mm	0.3 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116368	BCL 308i OF 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	Ethernet	80 ... 455 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50116369	BCL 308i OF 100 D	Oscillating-mirror scanner Zero position at side at angle less than 90°	Ethernet	80 ... 455 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50116373	BCL 308i OL 100 D H	Oscillating-mirror scanner Zero position at side at angle less than 90°	Ethernet	80 ... 680 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50116371	BCL 308i OL 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	Ethernet	80 ... 680 mm	0.35 ... 0.8 mm	1,000 scans/s	LED
50116372	BCL 308i OL 100 D	Oscillating-mirror scanner Zero position at side at angle less than 90°	Ethernet	80 ... 680 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel

EtherNet IP interface

50120795	BCL 358i SN 102 D H	Line scanner Front	EtherNet IP	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50120793	BCL 358i SN 102	Line scanner Front	EtherNet IP	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED
50120794	BCL 358i SN 102 D	Line scanner Front	EtherNet IP	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50120789	BCL 358i SM 102 D H	Line scanner Front	EtherNet IP	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50120787	BCL 358i SM 102	Line scanner Front	EtherNet IP	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50120788	BCL 358i SM 102 D	Line scanner Front	EtherNet IP	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50120777	BCL 358i SF 102 D H	Line scanner Front	EtherNet IP	100 ... 475 mm	0.3 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50120775	BCL 358i SF 102	Line scanner Front	EtherNet IP	100 ... 475 mm	0.3 ... 0.8 mm	1,000 scans/s	LED
50120776	BCL 358i SF 102 D	Line scanner Front	EtherNet IP	100 ... 475 mm	0.3 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50120783	BCL 358i SL 102 D H	Line scanner Front	EtherNet IP	100 ... 700 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50120781	BCL 358i SL 102	Line scanner Front	EtherNet IP	100 ... 700 mm	0.35 ... 0.8 mm	1,000 scans/s	LED
50120782	BCL 358i SL 102 D	Line scanner Front	EtherNet IP	100 ... 700 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50120792	BCL 358i SN 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	EtherNet IP	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50120790	BCL 358i SN 100	Line scanner with deflecting mirror Lateral with deflecting mirror	EtherNet IP	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED
50120791	BCL 358i SN 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	EtherNet IP	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50120786	BCL 358i SM 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	EtherNet IP	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel

Necessary accessories: A modular connector hood and terminal hood are required for operation!

Part no.	Part description	Reading method Light beam exit	Interface	Reading distance	Module size	Scanning rate	Special design Type of display
50120784	BCL 358i SM 100	Line scanner with deflecting mirror Lateral with deflecting mirror	EtherNet IP	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50120785	BCL 358i SM 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	EtherNet IP	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50120774	BCL 358i SF 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	EtherNet IP	70 ... 445 mm	0.3 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50120772	BCL 358i SF 100	Line scanner with deflecting mirror Lateral with deflecting mirror	EtherNet IP	70 ... 445 mm	0.3 ... 0.8 mm	1,000 scans/s	LED
50120773	BCL 358i SF 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	EtherNet IP	70 ... 445 mm	0.3 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50120780	BCL 358i SL 100 D H	Line scanner with deflecting mirror Lateral with deflecting mirror	EtherNet IP	70 ... 670 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50120778	BCL 358i SL 100	Line scanner with deflecting mirror Lateral with deflecting mirror	EtherNet IP	70 ... 670 mm	0.35 ... 0.8 mm	1,000 scans/s	LED
50120779	BCL 358i SL 100 D	Line scanner with deflecting mirror Lateral with deflecting mirror	EtherNet IP	70 ... 670 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50120770	BCL 358i R1 N 102	Raster scanner Front	EtherNet IP	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED
50120771	BCL 358i R1 N 102 D	Raster scanner Front	EtherNet IP	50 ... 160 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50120766	BCL 358i R1 M 102	Raster scanner Front	EtherNet IP	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50120767	BCL 358i R1 M 102 D	Raster scanner Front	EtherNet IP	60 ... 320 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50120762	BCL 358i R1 F 102	Raster scanner Front	EtherNet IP	100 ... 475 mm	0.3 ... 0.8 mm	1,000 scans/s	LED
50120763	BCL 358i R1 F 102 D	Raster scanner Front	EtherNet IP	100 ... 475 mm	0.3 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50120768	BCL 358i R1 N 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	EtherNet IP	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED
50120769	BCL 358i R1 N 100 D	Raster scanner with deflecting mirror Lateral with deflecting mirror	EtherNet IP	20 ... 130 mm	0.127 ... 0.2 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50120764	BCL 358i R1 M 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	EtherNet IP	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50120765	BCL 358i R1 M 100 D	Raster scanner with deflecting mirror Lateral with deflecting mirror	EtherNet IP	30 ... 290 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50120760	BCL 358i R1 F 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	EtherNet IP	70 ... 445 mm	0.3 ... 0.8 mm	1,000 scans/s	LED
50120761	BCL 358i R1 F 100 D	Raster scanner with deflecting mirror Lateral with deflecting mirror	EtherNet IP	70 ... 445 mm	0.3 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50123503	BCL 358i R1 J 100	Raster scanner with deflecting mirror Lateral with deflecting mirror	EtherNet IP	100 ... 600 mm	0.5 ... 0.8 mm	1,000 scans/s	LED
50120756	BCL 358i OM 100 D H	Oscillating-mirror scanner Zero position at side at angle less than 90°	EtherNet IP	40 ... 300 mm	0.2 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50120754	BCL 358i OM 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	EtherNet IP	40 ... 300 mm	0.2 ... 0.5 mm	1,000 scans/s	LED
50120755	BCL 358i OM 100 D	Oscillating-mirror scanner Zero position at side at angle less than 90°	EtherNet IP	40 ... 300 mm	0.2 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50120750	BCL 358i OF 100 D H	Oscillating-mirror scanner Zero position at side at angle less than 90°	EtherNet IP	80 ... 455 mm	0.3 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50120748	BCL 358i OF 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	EtherNet IP	80 ... 455 mm	0.3 ... 0.5 mm	1,000 scans/s	LED
50120749	BCL 358i OF 100 D	Oscillating-mirror scanner Zero position at side at angle less than 90°	EtherNet IP	80 ... 455 mm	0.3 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel
50120753	BCL 358i OL 100 D H	Oscillating-mirror scanner Zero position at side at angle less than 90°	EtherNet IP	80 ... 680 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display 128 x 32 pixel
50120751	BCL 358i OL 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	EtherNet IP	80 ... 680 mm	0.35 ... 0.8 mm	1,000 scans/s	LED
50120752	BCL 358i OL 100 D	Oscillating-mirror scanner Zero position at side at angle less than 90°	EtherNet IP	80 ... 680 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display 128 x 32 pixel

Necessary accessories: A modular connector hood and terminal hood are required for operation!

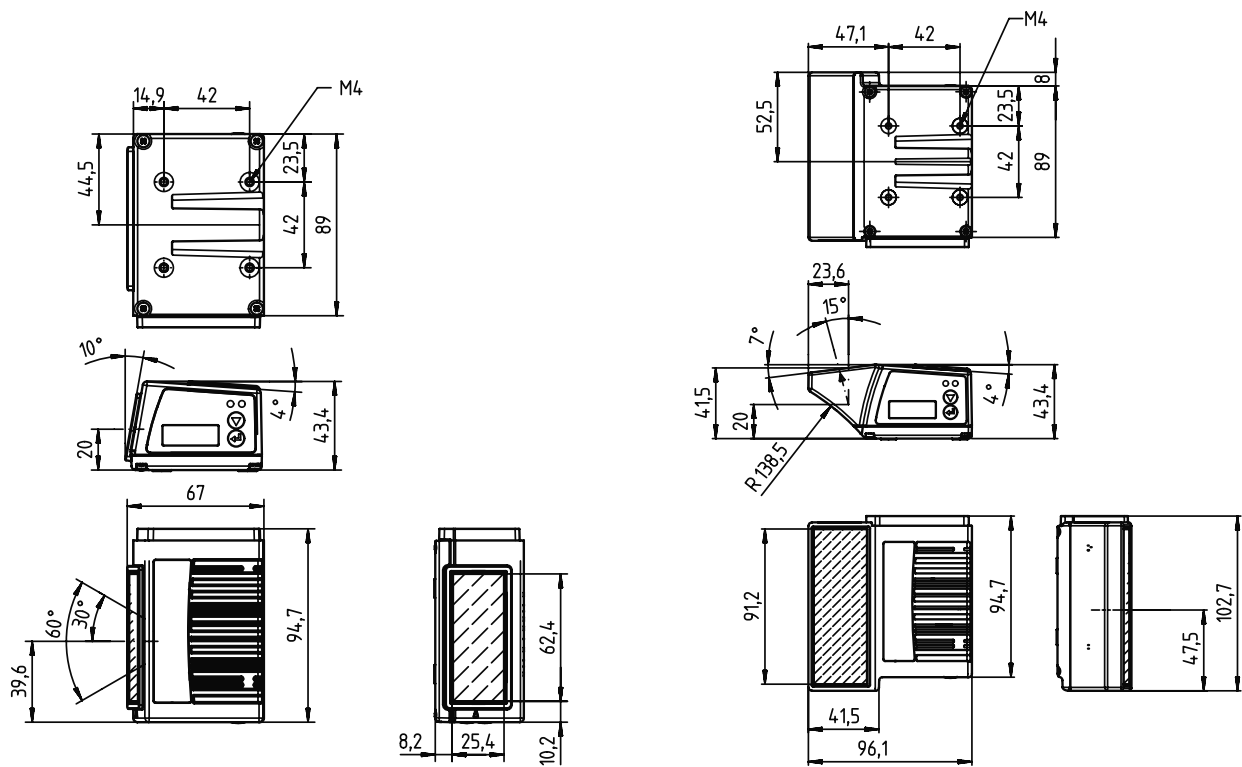
Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

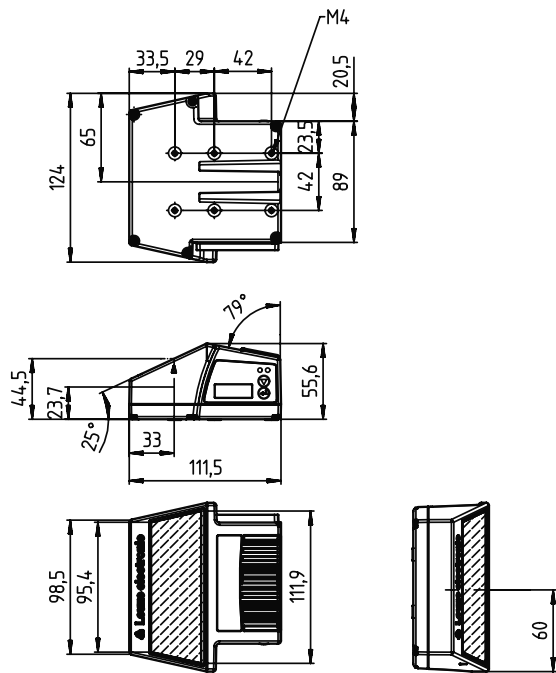
Accessories

Dimensioned drawings: BCL 300i



BCL 300i bar code readers with front beam exit

BCL 300i bar code readers with deflecting mirror



BCL 300i bar code readers with oscillating mirror

ACCESSORIES: BCL 300i

Connection technology

Terminal boxes

Part no.	Part description	Connections	Connection	Suitable for interface
50116463	MK 300	3x	Terminal, M16	RS 232
50116464	MK 301	4x	Terminal, M16	MultiNet Plus

Further terminal boxes can be found on our website

Part no.	Part description	Connections	Connection	Suitable for interface
50116465	MK 304	4x	Terminal, M16	PROFIBUS DP
50116466	MK 308	4x	Terminal, M16	Ethernet
50116467	MK 348	4x	Terminal, M16	PROFINET
50120796	MK 358	4x	Terminal, M16	EtherNet IP
50116468	MS 300	3x	Connector, M12	RS 232
50116469	MS 301	5x	Connector, M12	MultiNet Plus
50116470	MS 304	4x	Connector, M12	PROFIBUS DP
50114823	MS 308	4x	Connector, M12	Ethernet
50116471	MS 348	4x	Connector, M12	PROFINET
50120797	MS 358	4x	Connector, M12	EtherNet IP

Further terminal boxes can be found on our website

Connection units

Part no.	Part description	Suitable for	Interface	Degree of protection
50114369	MA 100	BCL 300i, BCL 301i	RS 232 RS 485	IP 54

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Interface	Sheathing material
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm		PVC
50104171	KB SSI/IBS-5000-BA	Connector, M12, axial, female	5-pin	5,000 mm	SSI, Interbus-S	PUR
50104187	KB PB-5000-SA	Connector, M12, axial, male	5-pin	5,000 mm	PROFIBUS DP	PUR
50104180	KB PB-5000-BA	Connector, M12, axial, female	5-pin	5,000 mm	PROFIBUS DP	PUR

Further connection cables can be found on our website

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Interface	Sheathing material
50130631	KSS ET-M12-4A-M12-4A-P7-010	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	1,000 mm	Ethernet	PUR
50130632	KSS ET-M12-4A-RJ45-A-P7-010	Connector, M12, axial, male	4-pin	RJ45		1,000 mm	Ethernet	PUR
50109881	KB ET-5000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45		5,000 mm	Ethernet	PUR
50106900	KB ET-5000-SSA	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	5,000 mm	Ethernet	PUR
50104098	KB PB-5000-SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	5,000 mm	PROFIBUS DP	PUR
50114571	KB 301-3000	Socket connector		JST ZHR		3,000 mm	RS 232	PVC

Further interconnection cables can be found on our website

User-configurable connectors

Part no.	Part description	Connection	No. of pins	Interface
50108991	D-ET1	RJ45		Ethernet
50112155	S-M12A-ET	Connector, M12, axial, male	4-pin	Ethernet
50038538	KD 02-5-BA	Connector, M12, axial, female	5-pin	PROFIBUS DP, multiNet Plus
50038537	KD 02-5-SA	Connector, M12, axial, male	5-pin	PROFIBUS DP, multiNet Plus
50020501	KD 095-5A	Connector, M12, axial, female	5-pin	

Further connectors can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50121433	BT 300 W	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50027375	BT 56	Mounting system	Clampable	For 16 mm rod, for 18 mm rod, for 20 mm rod	Metal
50121435	BT 56 - 1	Mounting system	Clampable	For 12 mm rod, for 14 mm rod, for 16 mm rod	Metal
50121434	BT 300 - 1	Mounting system	Screw type	For 12 mm rod, for 14 mm rod, for 16 mm rod	Metal

Further rod mounts can be found on our website

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

/// BCL 500i



Integrated fieldbus networking is one of the key features of this series of trend setting bar code readers. Configuration is performed via a web technology-based graphic user interface.



Benefits:

- Integrated fieldbus and Industrial Ethernet connectivity (PROFIBUS, PROFINET, EtherNet, EtherNet/IP and MULTINET)
- Full CRT (code reconstruction technology) also detects heavily damaged or soiled codes
- High-quality optics with great depth of field and large opening angle, also with heating for use at temperatures down to -35°C
- Simple commissioning and connection using M12-Ultra-Lock™ connection technology and intelligent fastening concept
- Intuitive, multi-language display with menu navigation
- webConfig – an operating-system independent, browser-based configuration tool



Direct access to the online product selector at www.leuze.com/en/bcl500i

PART NUMBER CODES – BCL 500i stationary bar code readers

B C L 5 0 0 i S N 1 0 0 H

Type

BCL Bar code reader

Interface (integrated fieldbus technology)

500i RS 232 / RS 422 / RS 485 (multiNet master)
501i RS 485 (multiNet slave)
504i PROFIBUS DP
508i EtherNet TCP/IP, UDP
548i PROFINET RT
558i EtherNet/IP

Scanning principle

S Line scanner (single line)
O Oscillating-mirror scanner

Optics

N High Density (close)
M Medium Density (medium distance)
F Low Density (far)
L Long Range

Beam exit

100 Lateral
102 At the front

Heating

H With heating

Part no.	Part description	Reading method Light beam exit	Interface	Reading distance	Module size	Scanning rate	Special design Type of display	
RS 485 interface								
50105475	BCL 501i SN 102 H	Line scanner Front	RS 485	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting	Switching sensors
50105472	BCL 501i SN 102	Line scanner Front	RS 485	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting	
50105481	BCL 501i SM 102 H	Line scanner Front	RS 485	300 ... 1,000 mm	0.35 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting	
50105478	BCL 501i SM 102	Line scanner Front	RS 485	300 ... 1,000 mm	0.35 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting	
50105487	BCL 501i SF 102 H	Line scanner Front	RS 485	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting	Measuring sensors
50105484	BCL 501i SF 102	Line scanner Front	RS 485	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting	
50109893	BCL 501i SL 102 H	Line scanner Front	RS 485	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting	
50109890	BCL 501i SL 102	Line scanner Front	RS 485	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting	
50105474	BCL 501i SN 100 H	Line scanner with deflecting mirror Zero position at side at angle of 90 °	RS 485	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting	Products for safety at work
50105471	BCL 501i SN 100	Line scanner with deflecting mirror Zero position at side at angle of 90 °	RS 485	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting	
50105480	BCL 501i SM 100 H	Line scanner with deflecting mirror Lateral with deflecting mirror	RS 485	300 ... 1,000 mm	0.35 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting	
50105477	BCL 501i SM 100	Line scanner with deflecting mirror Zero position at side at angle of 90 °	RS 485	300 ... 1,000 mm	0.35 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting	
50105486	BCL 501i SF 100 H	Line scanner with deflecting mirror Zero position at side at angle of 90 °	RS 485	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting	Identification
50105483	BCL 501i SF 100	Line scanner with deflecting mirror Zero position at side at angle of 90 °	RS 485	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting	
50105476	BCL 501i ON 100 H	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 485	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting	
50105473	BCL 501i ON 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 485	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting	
50105482	BCL 501i OM 100 H	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 485	300 ... 1,000 mm	0.35 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting	Data transmission / Control components
50105479	BCL 501i OM 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 485	300 ... 1,000 mm	0.35 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting	
50105488	BCL 501i OF 100 H	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 485	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting	
50105485	BCL 501i OF 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 485	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting	
50109894	BCL 501i OL 100 H	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 485	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting	Industrial image processing
50109891	BCL 501i OL 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 485	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting	
RS 232, RS 422, RS 485 interface								
50105457	BCL 500i SN 102 H	Line scanner Front	RS 232 RS 422 RS 485	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting	Accessories
50105454	BCL 500i SN 102	Line scanner Front	RS 232 RS 422 RS 485	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting	
50105463	BCL 500i SM 102 H	Line scanner Front	RS 232 RS 422 RS 485	300 ... 1,000 mm	0.35 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting	
50105460	BCL 500i SM 102	Line scanner Front	RS 232 RS 422 RS 485	300 ... 1,000 mm	0.35 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting	

Part no.	Part description	Reading method Light beam exit	Interface	Reading distance	Module size	Scanning rate	Special design Type of display
50105469	BCL 500i SF 102 H	Line scanner Front	RS 232 RS 422 RS 485	500 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105466	BCL 500i SF 102	Line scanner Front	RS 232 RS 422 RS 485	500 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50109914	BCL 500i SL 102 H	Line scanner Front	RS 232 RS 422 RS 485	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50109911	BCL 500i SL 102	Line scanner Front	RS 232 RS 422 RS 485	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105456	BCL 500i SN 100 H	Line scanner with deflecting mirror Zero position at side at angle of 90 °	RS 232 RS 422 RS 485	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105453	BCL 500i SN 100	Line scanner with deflecting mirror Zero position at side at angle of 90 °	RS 232 RS 422 RS 485	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105462	BCL 500i SM 100 H	Line scanner with deflecting mirror Zero position at side at angle of 90 °	RS 232 RS 422 RS 485	300 ... 1,000 mm	0.35 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105459	BCL 500i SM 100	Line scanner with deflecting mirror Zero position at side at angle of 90 °	RS 232 RS 422 RS 485	300 ... 1,000 mm	0.35 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105468	BCL 500i SF 100 H	Line scanner with deflecting mirror Zero position at side at angle of 90 °	RS 232 RS 422 RS 485	500 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105465	BCL 500i SF 100	Line scanner with deflecting mirror Zero position at side at angle of 90 °	RS 232 RS 422 RS 485	500 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105458	BCL 500i ON 100 H	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 232 RS 422 RS 485	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105455	BCL 500i ON 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 232 RS 422 RS 485	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105464	BCL 500i OM 100 H	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 232 RS 422 RS 485	300 ... 1,000 mm	0.35 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105461	BCL 500i OM 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 232 RS 422 RS 485	300 ... 1,000 mm	0.35 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105470	BCL 500i OF 100 H	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 232 RS 422 RS 485	500 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105467	BCL 500i OF 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 232 RS 422 RS 485	500 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50109915	BCL 500i OL 100 H	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 232 RS 422 RS 485	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50109912	BCL 500i OL 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	RS 232 RS 422 RS 485	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting

PROFINET interface

50113184	BCL 548i SN 102 H	Line scanner Front	PROFINET	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50113183	BCL 548i SN 102	Line scanner Front	PROFINET	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50113188	BCL 548i SM 102 H	Line scanner Front	PROFINET	300 ... 1,000 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50113187	BCL 548i SM 102	Line scanner Front	PROFINET	300 ... 1,000 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50113196	BCL 548i SF 102 H	Line scanner Front	PROFINET	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50113195	BCL 548i SF 102	Line scanner Front	PROFINET	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50113192	BCL 548i SL 102 H	Line scanner Front	PROFINET	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50113191	BCL 548i SL 102	Line scanner Front	PROFINET	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting

Part no.	Part description	Reading method Light beam exit	Interface	Reading distance	Module size	Scanning rate	Special design Type of display
50113186	BCL 548i SN 100 H	Line scanner with deflecting mirror Zero position at side at angle of 90 °	PROFINET	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50113185	BCL 548i SN 100	Line scanner with deflecting mirror Zero position at side at angle of 90 °	PROFINET	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50113190	BCL 548i SM 100 H	Line scanner with deflecting mirror Zero position at side at angle of 90 °	PROFINET	300 ... 1,000 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50113189	BCL 548i SM 100	Line scanner with deflecting mirror Zero position at side at angle of 90 °	PROFINET	300 ... 1,000 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50113198	BCL 548i SF 100 H	Line scanner with deflecting mirror Zero position at side at angle of 90 °	PROFINET	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50113197	BCL 548i SF 100	Line scanner with deflecting mirror Zero position at side at angle of 90 °	PROFINET	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50113200	BCL 548i ON 100 H	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFINET	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50113199	BCL 548i ON 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFINET	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50113202	BCL 548i OM 100 H	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFINET	300 ... 1,000 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50113201	BCL 548i OM 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFINET	300 ... 1,000 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50113206	BCL 548i OF 100 H	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFINET	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50113205	BCL 548i OF 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFINET	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50113204	BCL 548i OL 100 H	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFINET	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50113203	BCL 548i OL 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFINET	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting

Switching
sensorsMeasuring
sensorsProducts for
safety at work

PROFIBUS DP interface

50105493	BCL 504i SN 102 H	Line scanner Front	PROFIBUS DP	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105490	BCL 504i SN 102	Line scanner Front	PROFIBUS DP	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105499	BCL 504i SM 102 H	Line scanner Front	PROFIBUS DP	300 ... 1,000 mm	0.35 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105496	BCL 504i SM 102	Line scanner Front	PROFIBUS DP	300 ... 1,000 mm	0.35 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105505	BCL 504i SF 102 H	Line scanner Front	PROFIBUS DP	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105502	BCL 504i SF 102	Line scanner Front	PROFIBUS DP	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50109899	BCL 504i SL 102 H	Line scanner Front	PROFIBUS DP	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50109896	BCL 504i SL 102	Line scanner Front	PROFIBUS DP	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105492	BCL 504i SN 100 H	Line scanner with deflecting mirror Zero position at side at angle of 90 °	PROFIBUS DP	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105489	BCL 504i SN 100	Line scanner with deflecting mirror Zero position at side at angle of 90 °	PROFIBUS DP	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105498	BCL 504i SM 100 H	Line scanner with deflecting mirror Zero position at side at angle of 90 °	PROFIBUS DP	300 ... 1,000 mm	0.35 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105495	BCL 504i SM 100	Line scanner with deflecting mirror Zero position at side at angle of 90 °	PROFIBUS DP	300 ... 1,000 mm	0.35 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

Part no.	Part description	Reading method Light beam exit	Interface	Reading distance	Module size	Scanning rate	Special design Type of display
50105504	BCL 504i SF 100 H	Line scanner with deflecting mirror Zero position at side at angle of 90 °	PROFIBUS DP	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105501	BCL 504i SF 100	Line scanner with deflecting mirror Zero position at side at angle of 90 °	PROFIBUS DP	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105494	BCL 504i ON 100 H	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFIBUS DP	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105491	BCL 504i ON 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFIBUS DP	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105500	BCL 504i OM 100 H	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFIBUS DP	300 ... 1,000 mm	0.35 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105497	BCL 504i OM 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFIBUS DP	300 ... 1,000 mm	0.35 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105506	BCL 504i OF 100 H	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFIBUS DP	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105503	BCL 504i OF 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFIBUS DP	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50109900	BCL 504i OL 100 H	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFIBUS DP	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50109897	BCL 504i OL 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFIBUS DP	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting

Ethernet interface

50105511	BCL 508i SN 102 H	Line scanner Front	Ethernet	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105508	BCL 508i SN 102	Line scanner Front	Ethernet	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105517	BCL 508i SM 102 H	Line scanner Front	Ethernet	300 ... 1,000 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105514	BCL 508i SM 102	Line scanner Front	Ethernet	300 ... 1,000 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105523	BCL 508i SF 102 H	Line scanner Front	Ethernet	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105520	BCL 508i SF 102	Line scanner Front	Ethernet	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50109908	BCL 508i SL 102 H	Line scanner Front	Ethernet	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50109905	BCL 508i SL 102	Line scanner Front	Ethernet	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105510	BCL 508i SN 100 H	Line scanner with deflecting mirror Zero position at side at angle of 90 °	Ethernet	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105507	BCL 508i SN 100	Line scanner with deflecting mirror Zero position at side at angle of 90 °	Ethernet	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105516	BCL 508i SM 100 H	Line scanner with deflecting mirror Zero position at side at angle of 90 °	Ethernet	300 ... 1,000 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105513	BCL 508i SM 100	Line scanner with deflecting mirror Zero position at side at angle of 90 °	Ethernet	300 ... 1,000 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105522	BCL 508i SF 100 H	Line scanner with deflecting mirror Zero position at side at angle of 90 °	Ethernet	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105519	BCL 508i SF 100	Line scanner with deflecting mirror Zero position at side at angle of 90 °	Ethernet	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105512	BCL 508i ON 100 H	Oscillating-mirror scanner Zero position at side at angle less than 90°	Ethernet	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting

Part no.	Part description	Reading method Light beam exit	Interface	Reading distance	Module size	Scanning rate	Special design Type of display
50105509	BCL 508i ON 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	Ethernet	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105518	BCL 508i OM 100 H	Oscillating-mirror scanner Zero position at side at angle less than 90°	Ethernet	300 ... 1,000 mm	0.35 ... 0.8 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105515	BCL 508i OM 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	Ethernet	300 ... 1,000 mm	0.35 ... 0.8 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105524	BCL 508i OF 100 H	Oscillating-mirror scanner Zero position at side at angle less than 90°	Ethernet	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50105521	BCL 508i OF 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	Ethernet	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50109909	BCL 508i OL 100 H	Oscillating-mirror scanner Zero position at side at angle less than 90°	Ethernet	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50109906	BCL 508i OL 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	Ethernet	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting

Switching
sensors

EtherNet IP interface

50122788	BCL 558i SN 102 H	Line scanner Front	EtherNet IP	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50122787	BCL 558i SN 102	Line scanner Front	EtherNet IP	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50122786	BCL 558i SM 102 H	Line scanner Front	EtherNet IP	300 ... 1,000 mm	0.35 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50122785	BCL 558i SM 102	Line scanner Front	EtherNet IP	300 ... 1,000 mm	0.35 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50122782	BCL 558i SF 102 H	Line scanner Front	EtherNet IP	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50122781	BCL 558i SF 102	Line scanner Front	EtherNet IP	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50122784	BCL 558i SL 102 H	Line scanner Front	EtherNet IP	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50122783	BCL 558i SL 102	Line scanner Front	EtherNet IP	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50122780	BCL 558i ON 100 H	Line scanner with deflecting mirror Zero position at side at angle of 90°	EtherNet IP	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50122776	BCL 558i ON 100	Line scanner with deflecting mirror Zero position at side at angle of 90°	EtherNet IP	200 ... 650 mm	0.25 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50122775	BCL 558i OM 100 H	Line scanner with deflecting mirror Zero position at side at angle of 90°	EtherNet IP	300 ... 1,000 mm	0.35 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50122773	BCL 558i OM 100	Line scanner with deflecting mirror Zero position at side at angle of 90°	EtherNet IP	300 ... 1,000 mm	0.35 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50122770	BCL 558i OF 100 H	Line scanner with deflecting mirror Zero position at side at angle of 90°	EtherNet IP	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50122769	BCL 558i OF 100	Line scanner with deflecting mirror Zero position at side at angle of 90°	EtherNet IP	400 ... 1,600 mm	0.5 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50122772	BCL 558i OL 100 H	Line scanner with deflecting mirror Zero position at side at angle of 90°	EtherNet IP	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50122771	BCL 558i OL 100	Line scanner with deflecting mirror Zero position at side at angle of 90°	EtherNet IP	1,000 ... 2,400 mm	0.7 ... 1 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting

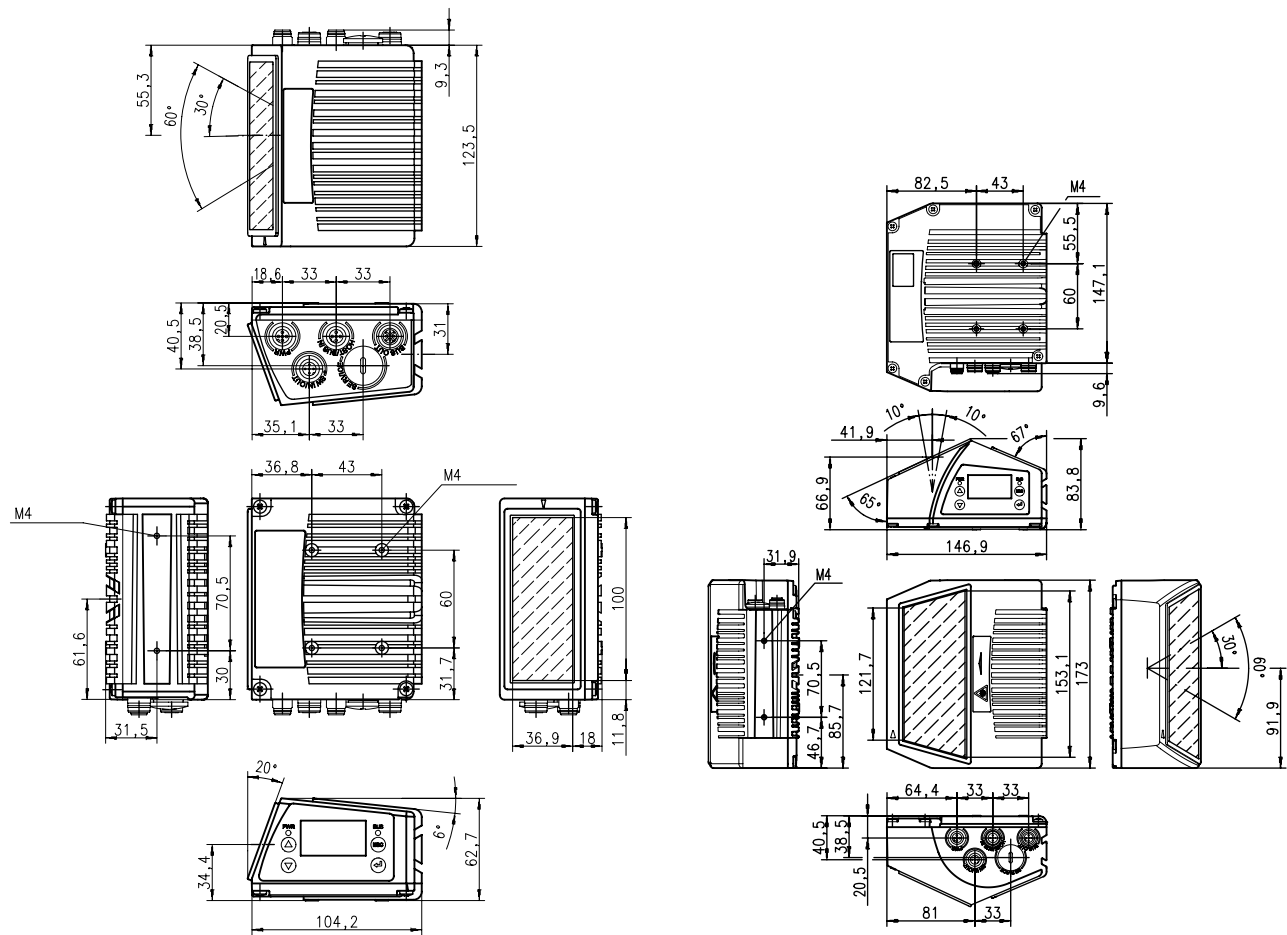
Measuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

Dimensioned drawings: BCL 500i



BCL 500i bar code readers with front beam exit

BCL 500i bar code readers with deflecting mirror / oscillating mirror

ACCESSORIES: BCL 500i

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Interface	Sheathing material
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm		PVC
50104187	KB PB-5000-SA	Connector, M12, axial, male	5-pin	5,000 mm	PROFIBUS DP	PUR
50104180	KB PB-5000-BA	Connector, M12, axial, female	5-pin	5,000 mm	PROFIBUS DP	PUR

Further connection cables can be found on our website

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Interface	Sheathing material
50130631	KSS ET-M12-4A-M12-4A-P7-010	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	1,000 mm	Ethernet	PUR
50130632	KSS ET-M12-4A-RJ45-A-P7-010	Connector, M12, axial, male	4-pin	RJ45		1,000 mm	Ethernet	PUR
50109881	KB ET-5000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45		5,000 mm	Ethernet	PUR
50106900	KB ET-5000-SSA	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	5,000 mm	Ethernet	PUR
50104098	KB PB-5000-SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	5,000 mm	PROFIBUS DP	PUR

Further interconnection cables can be found on our website

User-configurable connectors

Part no.	Part description	Connection	No. of pins	Interface
50108991	D-ET1	RJ45		Ethernet
50040155	KS 095-4A	Connector, M12, axial, male	4-pin	
50112155	S-M12A-ET	Connector, M12, axial, male	4-pin	Ethernet
50038538	KD 02-5-BA	Connector, M12, axial, female	5-pin	PROFIBUS DP, multiNet Plus
50038537	KD 02-5-SA	Connector, M12, axial, male	5-pin	PROFIBUS DP, multiNet Plus
50020501	KD 095-5A	Connector, M12, axial, female	5-pin	

Further connectors can be found on our website

Mounting systems

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50027375	BT 56	Mounting system	Clampable	For 16 mm rod, for 18 mm rod, for 20 mm rod	Metal
50111224	BT 59		Clampable	Groove mounting	Metal

Further rod mounts can be found on our website

/// BCL 600i



The new BCL 600i device family operates with blue laser light and thereby attains a depth of field up to 50 % greater with small modulus widths and eliminates the need for expensive focus adjustment. Furthermore, the integrated fieldbus technology simplifies integration in the control.



Benefits:

- Large reading field with small modulus widths
- No focus adjustment necessary
- Integrated interfaces: PROFIBUS, PROFINET and Ethernet TCP/IP
- Configure via GSDML file or webConfig
- multiScan over PROFINET or Ethernet TCP/IP



Direct access to the online product selector at www.leuze.com/en/bcl600i

Part no.	Part description	Reading method Light beam exit	Interface	Reading distance	Module size	Scanning rate	Special design Type of display
----------	------------------	-----------------------------------	-----------	------------------	-------------	---------------	-----------------------------------

PROFINET interface

50126973	BCL 648i SM 102	Line scanner Front	PROFINET	300 ... 1,150 mm	0.25 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50126975	BCL 648i SF 102	Line scanner Front	PROFINET	450 ... 1,450 mm	0.3 ... 0.5 mm	800 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50131499	BCL 648i OM 100 H	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFINET	300 ... 1,150 mm	0.25 ... 0.5 mm	1,000 scans/s	Heating Monochromatic graphical display, 128x64 pixel, with background lighting LED
50126974	BCL 648i OM 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFINET	300 ... 1,150 mm	0.25 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50131498	BCL 648i OF 100 H	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFINET	450 ... 1,450 mm	0.3 ... 0.5 mm	800 scans/s	Heating LED Monochromatic graphical display, 128x64 pixel, with background lighting
50126976	BCL 648i OF 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFINET	450 ... 1,450 mm	0.3 ... 0.5 mm	800 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting

PROFIBUS DP interface

50129093	BCL 604i SM 102	Line scanner Front	PROFIBUS DP	300 ... 1,150 mm	0.25 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50129095	BCL 604i SF 102	Line scanner Front	PROFIBUS DP	450 ... 1,450 mm	0.3 ... 0.5 mm	800 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50129094	BCL 604i OM 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFIBUS DP	300 ... 1,150 mm	0.25 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50129096	BCL 604i OF 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	PROFIBUS DP	450 ... 1,450 mm	0.3 ... 0.5 mm	800 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting

Switching sensors

Measuring sensors

Products for safety at work

Identification

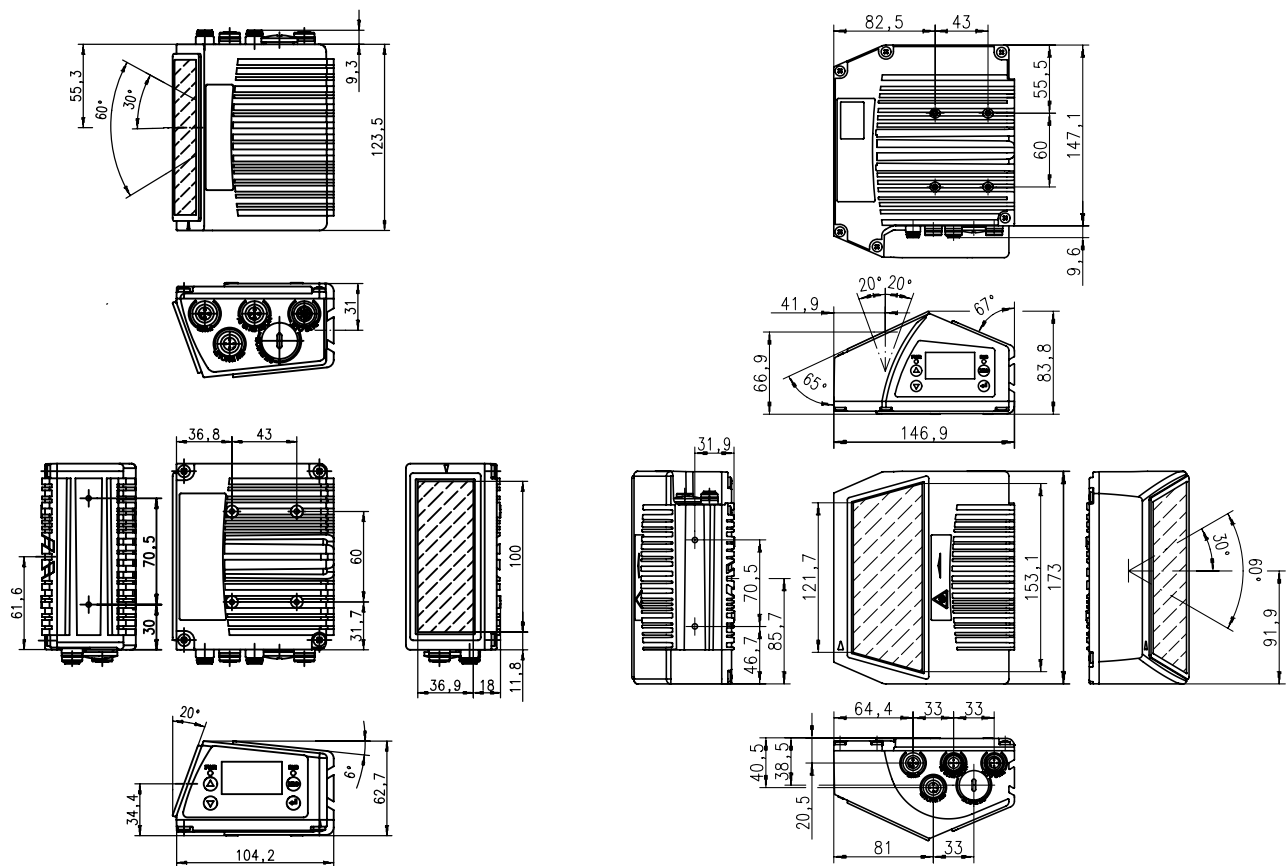
Data transmission / Control components

Industrial image processing

Accessories

Part no.	Part description	Reading method Light beam exit	Interface	Reading distance	Module size	Scanning rate	Special design Type of display
Ethernet interface							
50126969	BCL 608i SM 102	Line scanner Front	Ethernet	300 ... 1,150 mm	0.25 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50126971	BCL 608i SF 102	Line scanner Front	Ethernet	450 ... 1,450 mm	0.3 ... 0.5 mm	800 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50126970	BCL 608i OM 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	Ethernet	300 ... 1,150 mm	0.25 ... 0.5 mm	1,000 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting
50126972	BCL 608i OF 100	Oscillating-mirror scanner Zero position at side at angle less than 90°	Ethernet	450 ... 1,450 mm	0.3 ... 0.5 mm	800 scans/s	LED Monochromatic graphical display, 128x64 pixel, with background lighting

Dimensioned drawings: BCL 600i



BCL 600i bar code readers with front beam exit

BCL 600i bar code readers with oscillating mirror

ACCESSORIES: BCL 600i

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Interface	Sheathing material
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm		PVC
50104187	KB PB-5000-SA	Connector, M12, axial, male	5-pin	5,000 mm	PROFIBUS DP	PUR
50104180	KB PB-5000-BA	Connector, M12, axial, female	5-pin	5,000 mm	PROFIBUS DP	PUR

Further connection cables can be found on our website

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Interface	Sheathing material
50130631	KSS ET-M12-4A-M12-4A-P7-010	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	1,000 mm	Ethernet	PUR
50130632	KSS ET-M12-4A-RJ45-A-P7-010	Connector, M12, axial, male	4-pin	RJ45		1,000 mm	Ethernet	PUR
50109881	KB ET-5000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45		5,000 mm	Ethernet	PUR
50106900	KB ET-5000-SSA	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	5,000 mm	Ethernet	PUR
50104098	KB PB-5000-SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	5,000 mm	PROFIBUS DP	PUR

Further interconnection cables can be found on our website

User-configurable connectors

Part no.	Part description	Connection	No. of pins	Interface
50108991	D-ET1	RJ45		Ethernet
50112155	S-M12A-ET	Connector, M12, axial, male	4-pin	Ethernet
50038538	KD 02-5-BA	Connector, M12, axial, female	5-pin	PROFIBUS DP, multiNet Plus
50038537	KD 02-5-SA	Connector, M12, axial, male	5-pin	PROFIBUS DP, multiNet Plus
50020501	KD 095-5A	Connector, M12, axial, female	5-pin	

Further connectors can be found on our website

Mounting systems

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50027375	BT 56	Mounting system	Clampable	For 16 mm rod, for 18 mm rod, for 20 mm rod	Metal
50111224	BT 59		Clampable	Groove mounting	Metal

Further rod mounts can be found on our website

SMARTER CUSTOMER SERVICE



Product selector

Intuitive web applications for convenient product selection



"Our goal is to further focus our performance and offer our customers something that they can only find from the sensor people – smart sensor business"

Ann-Kathrin Waldow,
Sales Methods, Processes, Tools

The appropriate product for every application: www.leuze.com/en/products



/// BCL 900i

High-end bar code readers with 1,000 scans/s, an opening angle of 60 ° and a max. reading range of 1,700 mm for reading 1D-codes with small modulus widths.

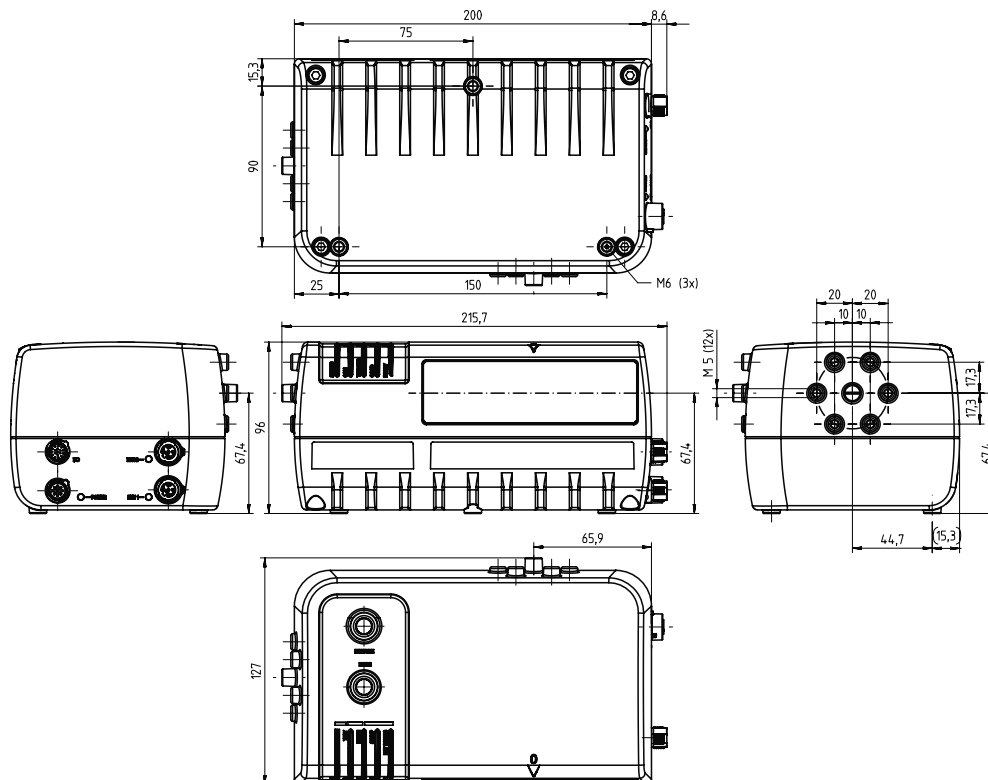
**Benefits:**

- Integrated interfaces: Ethernet IP, Ethernet TCP/IP, RS 232, RS 422
- No focus switchover
- Configuration and diagnostics via webConfig
- Integrated switch
- Simple teaching-in of codes using a button



Direct access to the online product selector at www.leuze.com/en/bcl900i

Part no.	Part description	Reading method Light beam exit	Interface	Reading distance	Module size	Scanning rate	Special design Type of display
50129661	BCL 900i SN 102	Line scanner Front	EtherNet IP, Ethernet RS 232 RS 422	525 ... 1,500 mm	0.25 ... 0.38 mm	1,000 scans/s	LED
50129662	BCL 900i SM 102	Line scanner Front	EtherNet IP, Ethernet RS 232 RS 422	450 ... 1,700 mm	0.33 ... 0.5 mm	1,000 scans/s	LED

Dimensioned drawings: BCL 900i

BCL 900i bar code readers

ACCESSORIES: BCL 900i**Connection technology**

Connection units

Part no.	Part description	Connection	Interface
50129663	MA 900	Sub-D, 25-polig, female	RS 232, RS 422

Further connection units can be found on our website

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length
50131531	KB 900-1000	Connector, M12, axial, female	17-pin	Sub-HD, male, axial	25-pin	1,000 mm
50131529	KB 900-3000	Connector, M12, axial, female	17-pin	Sub-HD, male, axial	25-pin	3,000 mm
50131532	KB 900-5000	Connector, M12, axial, female	17-pin	Sub-HD, male, axial	25-pin	5,000 mm

Further interconnection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50131534	BT 900	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

/// CR50 / CR55



As a module for integration or in light aluminum housing. The scanner is very easily configured by means of PC software.



Benefits:

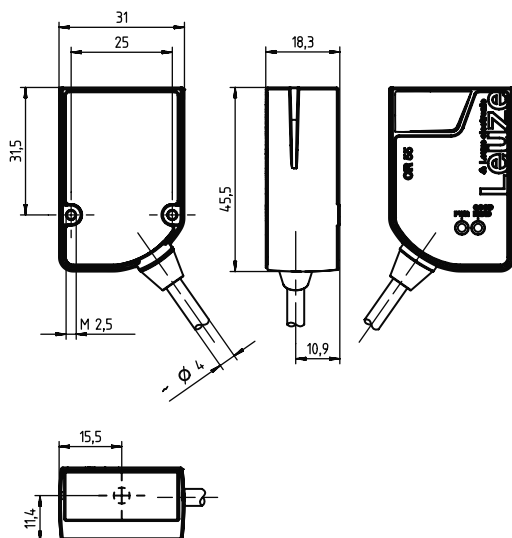
- Available as a module for direct integration or in aluminum housing with a small and light construction
- Ready to read all common codes
- RS 232 and/or USB interface
- Simple configuration with the Sensor Studio PC software tool



Direct access to the online product selector at www.leuze.com/en/cr50_cr55

Part no.	Part description	Reading method Light beam exit	Interface	Reading distance	Module size	Scanning rate	Special design Type of display
50126081	CR50-Starterkit	Line scanner Front	USB RS 232	40 ... 250 mm	0.1 ... 0.5 mm	330 scans/s	Scan engine module buzzer
50126082	CR50M2/R2-S5	Line scanner Front	USB RS 232	40 ... 250 mm	0.1 ... 0.5 mm	330 scans/s	Scan engine module buzzer
50127723	CR55M2/UB-1800-S6	Line scanner Front	USB	40 ... 250 mm	0.1 ... 0.5 mm	330 scans/s	LED
50126080	CR55M2/R2	Line scanner Front	RS 232	40 ... 250 mm	0.1 ... 0.5 mm	330 scans/s	LED

Dimensioned drawings: CR50 / CR55



CR 55 bar code readers

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

/// CR100



With a reading field height of 80 mm and more at short distances, the CR100 is predestined for readings in analysis automation.

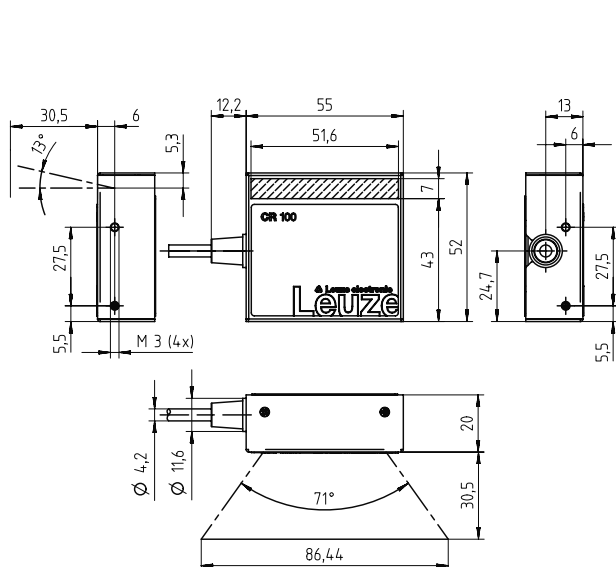
**Benefits:**

- High-performance CCD scanner with front or lateral beam exit
- Compact design for simple integration, even in constrained spaces
- Scanning rate of 700 scans/s facilitates reliable reading, even while in motion
- Reading of all common codes of modulus sizes 150 – 500 µm at a reading field height of ≥ 80 mm
- Robust metal housing with cable connection
- RS 232 interface, 1 input, 1 switching output
- Desired configuration can be easily configured via online commands

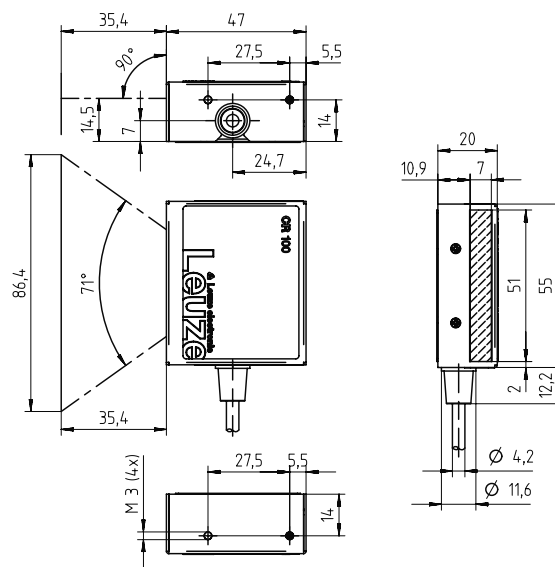


Direct access to the online product selector at www.leuze.com/en/cr100

Part no.	Part description	Reading method Light beam exit	Interface	Reading distance	Module size	Scanning rate	Special design Type of display
50127450	CR100M2/R2	Line scanner Front	RS 232	20 ... 72 mm	0.15 ... 0.5 mm	700 scans/s	LED
50127451	CR100M0/R2	Line scanner with deflecting mirror Lateral	RS 232	15 ... 67 mm	0.15 ... 0.5 mm	700 scans/s	LED

Dimensioned drawings: CR100

CR 100 bar code readers with lateral beam exit

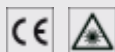


CR 100 bar code readers with front beam exit

/// MSPi systems



Reading unaligned bar code labels generally requires two or more bar code scanners that are aligned with respect to one another. The new MSP systems from Leuze electronic are modularly structured and mechanically premounted scanner portals that can read codes omnidirectionally.

**Benefits:**

- Modular scanner portal for the integration of up to 32 bar code readers of models BCL 500i and BCL 501i for omnidirectional reading
- Object tracking capability based on the BCL 900i
- Full CRT (code reconstruction technology) also detects heavily damaged or soiled codes
- webConfig is an operating-system independent, browser-based configuration tool
- Fast and simple RS 232, RS 422 and Ethernet interface connection to the primary host system
- High-quality optics with great depth of field and opening angle, also with heating for use at temperatures down to -35 °C
- Set parameters are stored fail-safe
- Simple commissioning and connection through M12-Ultra-Lock™ connection technology



Direct access to the online product selector at www.leuze.com/en/mspi

Part no.	Part description	Interface	Number of bar code readers	Type of bar code reader	Other components
50111412	MSP 290i - 511 F 00	RS 232 RS 422	2x	BCL 500i S F 102, BCL 500i O F 100	
50112415	MSP 290i - 511 L 00	RS 232 RS 422	2x	BCL 500i S L 102, BCL 500i O L 100	
50112416	MSP 290i - 511 M 00	RS 232 RS 422	2x	BCL 500i S M 102, BCL 500i O M 100	
50112417	MSP 290i - 511 N 00	RS 232 RS 422	2x	BCL 500i S N 102, BCL 500i O N 100	
50111413	MSP 290i - 520 F 00	RS 232 RS 422	2x	BCL 500i S F 102	
50132724	MSP 290i - 520 F 88	Ethernet	2x	BCL 508i S F 102	
50132725	MSP 290i - 520 F 4848	PROFINET	2x	BCL 548i S F 102	
50112418	MSP 290i - 520 L 00	RS 232 RS 422	2x	BCL 500i S L 102	
50112419	MSP 290i - 520 M 00	RS 232 RS 422	2x	BCL 500i S M 102	
50130024	MSP 290i - 520 M 88	Ethernet	2x	BCL 508i S M 102	
50112420	MSP 290i - 520 N 00	RS 232 RS 422	2x	BCL 500i S N 102	
50130232	MSP 290i - 620 F 88	Ethernet	2x	BCL 608i S F 102	
50132726	MSP 290i - 620 F 4848	PROFINET	2x	BCL 648i S F 102	
50130821	MSP 290i - 620 M 88	Ethernet	2x	BCL 608i S M 102	
50132799	MSP 290i - 920 M 88	Ethernet, EtherNet IP, PROFIBUS DP, PROFINET RS 232 RS 422	2x	BCL 900i S M 102	
50132900	MSP 290i - 920 M 88 MSC	Ethernet, EtherNet IP, PROFIBUS DP, PROFINET RS 232 RS 422	2x	BCL 900i S M 102	1 × MSC 900 – 1000 (connection unit)
50132800	MSP 290i - 920 N 88	Ethernet, EtherNet IP, PROFIBUS DP, PROFINET RS 232 RS 422	2x	BCL 900i S N 102	
50132899	MSP 290i - 920 N 88 MSC	Ethernet, EtherNet IP, PROFIBUS DP, PROFINET RS 232 RS 422	2x	BCL 900i S N 102	1 × MSC 900 – 1000 (connection unit)
50121388	MSP 360i - 530 F 01	RS 232 RS 422	3x	BCL 500i S F 102, BCL 501i S F 102	
50121387	MSP 490i - 540 M 01	RS 232 RS 422	4x	BCL 500i S M 102, BCL 501i S M 102	

Including all mechanical components and interconnection cables, integrated decoder

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

//MOBILE BAR CODE READERS

YOU HAVE IT IN YOUR HANDS

Mobile bar code readers can read all common bar codes at various positions in warehousing and logistics omnidirectionally. Depending on the area of application, models with wireless transmission or even combi devices, which can handle 2D-codes as well as RFID, can be chosen.

/// General applications



Mobile bar code readers can read all common bar codes at various positions in warehousing and logistics omnidirectionally. Versions with RF transmission and different reading technologies can be selected according to the specific area of application.



Benefits:

- Various optics models for optimum reading range
- Cable-connected or with Bluetooth for RS 232 or USB interface
- Devices for universal use
- Degree of protection up to IP 42
- Temperature range from 0 to +50 °C



Direct access to the online product selector at www.leuze.com/en/bar-code-reader_aa

Part no.	Part description	Reading distance	Bluetooth	Interface	Drop height	Degree of protection	Connection	Ambient temperature, operation
50116864	IT 1300g-2	10 ... 460 mm		USB RS 232	1.5 m	IP 41	RJ41	0 ... 50 °C
50130504	IT 1450g 1D-2	37 ... 370 mm		USB RS 232	1.5 m	IP 40	RJ41	0 ... 40 °C
50130501	IT 1452g 1D-2	37 ... 360 mm	Class 2	PS/2, USB RS 232	1.5 m	IP 42	Bluetooth	0 ... 50 °C
50118358	Z-3110 + KB-USB	0 ... 20 mm		PS/2, USB RS 232		IP 20	USB	0 ... 50 °C

ACCESSORIES: IT 1300G

Connection technology

Interconnection cables

Part no.	Part description	Connection 1	Connection 2	Cable length	Interface	Sheathing material
50113397	KB JST-HS-300	JST ZHR	Sub-D, male, axial	300 mm	RS 232	PUR
50114521	KB USB-1 IT190x	USB	RJ41	3,000 mm	USB	PVC
50114523	KB USB-2 IT190x	USB	RJ41	5,000 mm	USB	PVC

Further interconnection cables can be found on our website

Power supply units

Part no.	Part description	Type of power supply unit	Output
50114525	NT f. IT 1900+Base-EU	Plug-in power supply unit	5 V DC, 1 A

Further power supply units can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50109534	BT Cover IT1300g	Protection hood	Insertable	Suspended (rope)	Plastic
50115358	BT Desktop IT1300g	Table foot	Insertable	Self-supporting	Plastic
50107039	BT Flex Neck IT1300g	Table foot	Insertable	Self-supporting	Plastic
50120444	BT Wallholder HS65x8	Wall mounting	Insertable	Through-hole mounting	Plastic

Further holders can be found on our website

ACCESSORIES: IT 145XG

Connection technology

Interconnection cables

Part no.	Part description	Connection 1	Connection 2	Cable length	Interface	Sheathing material
50113397	KB JST-HS-300	JST ZHR	Sub-D, male, axial	300 mm	RS 232	PUR
50114521	KB USB-1 IT190x	USB	RJ41	3,000 mm	USB	PVC
50114523	KB USB-2 IT190x	USB	RJ41	5,000 mm	USB	PVC

Further interconnection cables can be found on our website

Base stations

Part no.	Part description	Interface	Connection 1	Connection 2	Connection 3
50130499	Base IT 1452g	PS/2 RS 232, USB	RJ41	Jack socket	Bluetooth

Further base stations can be found on our website

Power supply units

Part no.	Part description	Type of power supply unit	Output
50114525	NT f. IT 1900+Base-EU	Plug-in power supply unit	5 V DC, 1 A

Further power supply units can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50120444	BT Wallholder HS65x8	Wall mounting	Insertable	Through-hole mounting	Plastic

Further holders can be found on our website

ACCESSORIES: Z SERIES

Connection technology

Interconnection cables

Part no.	Part description	Connection 1	Connection 2	Cable length	Interface	Sheathing material
50113397	KB JST-HS-300	JST ZHR	Sub-D, male, axial	300 mm	RS 232	PUR

Further interconnection cables can be found on our website

/// Industrial applications



In the case of devices from this series which read 1D-codes, special attention is paid to the sturdy housing design. Depending on the desired application, you select the suitable range and equipment, e. g. RF transmission and battery operation.



Benefits:

- Various optics models for optimum reading range
- Cable-connected or with Bluetooth for RS 232 or USB interface
- Devices for robust or rough areas of application
- Degree of protection up to IP 65
- Temperature range from -30 to +50 °C



Direct access to the online product selector at www.leuze.com/en/bar-code-reader_ia

Part no.	Part description	Reading distance	Bluetooth	Interface	Drop height	Degree of protection	Connection	Ambient temperature, operation
50127898	IT 1280i FR-3	100 ... 4,460 mm		PS/2, USB RS 232	2 m	IP 65	RJ41	-30 ... 50 °C
50106238	IT 3800 i SR030E	17 ... 2,080 mm		RS 232	2 m	IP 54	RJ41	-30 ... 50 °C
50106240	IT 3800 i SR050E	17 ... 2,080 mm		PS/2, USB RS 232	2 m	IP 54	RJ41	-30 ... 50 °C
50106242	IT 3820 SR0C0BE	25 ... 914 mm	Class 2	PS/2, USB RS 232	1.8 m	IP 41	Bluetooth	0 ... 50 °C
50110471	IT 3820i SRE	25 ... 914 mm	Class 2	PS/2, USB RS 232	2 m	IP 54	Bluetooth	-10 ... 50 °C

ACCESSORIES: IT 128XI

Connection technology

Interconnection cables

Part no.	Part description	Connection 1	Connection 2	Cable length	Interface	Sheathing material
50114521	KB USB-1 IT190x	USB	RJ41	3,000 mm	USB	PVC
50114523	KB USB-2 IT190x	USB	RJ41	5,000 mm	USB	PVC

Further interconnection cables can be found on our website

Power supply units

Part no.	Part description	Type of power supply unit	Output
50114525	NT f. IT 1900+Base-EU	Plug-in power supply unit	5V DC, 1 A

Further power supply units can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50107034	BT Rope IT		Insertable	Suspended (rope)	Plastic
50120444	BT Wallholder HS65x8	Wall mounting	Insertable	Through-hole mounting	Plastic

Further holders can be found on our website

ACCESSORIES: IT 38XX

Connection technology

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Cable length	Interface	Sheathing material
50103412	KB RS232/PIN9 IT4xxx	Sub-D, male, axial	9-pin	RJ41	2,300 mm	RS 232	PVC
50113397	KB JST-HS-300	JST ZHR		Sub-D, male, axial	300 mm	RS 232	PUR
50104586	KB TTL-RS232/PIN9 IT4xxx	Sub-D, male, axial	9-pin	RJ41	2,300 mm	RS 232, TTL	PVC
50103404	KB USB IT4xxx	USB		RJ41	2,600 mm	USB	PVC

Further interconnection cables can be found on our website

Base stations

Part no.	Part description	Interface	Connection 1	Connection 2	Connection 3	Drop height
50115738	Access Point f. IT	PS/2, USB RS 232	Bluetooth	RJ41		
50110663	ST 2020-5BE	RS 232, USB, PS/2	Jack socket	RJ41	Bluetooth	1 m

Further base stations can be found on our website

Power supply units

Part no.	Part description	Type of power supply unit	Output
50103989	NT IT4x2x/ST2020	Desktop power supply unit	9V DC, 2 A
50103403	NT ITxx0x	Desktop power supply unit	5V DC, 1 A

Further power supply units can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50103402	BT Flex Neck IT 4xxx	Table foot	Insertable	Self-supporting	Plastic
50120444	BT Wallholder HS65x8	Wall mounting	Insertable	Through-hole mounting	Plastic

Further holders can be found on our website

/ 2D-CODE IDENTIFICATION

RELIABLE SOLUTIONS FOR READING CODES

Two-dimensional codes mostly consist of square-shaped groups of data cells (matrix) with a typical orientation symbol from which the code type can be recognized. Thus, 2D-identification is ideally suited for additional applications, such as parts tracking, in which codes are directly affixed to the work piece.

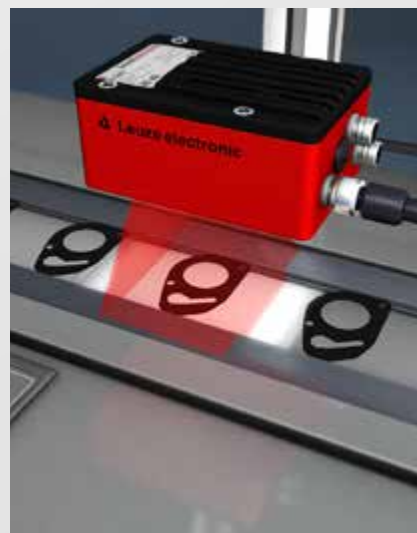


Stationary 2D-code readers

Page 386

Mobile 2D-code readers

Page 392



Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

//STATIONARY 2D-CODE READERS

FOR STATIONARY USE – BUT STILL HIGHLY DYNAMIC READERS

Our code readers capture 1D- and 2D-codes without fail; depending on the type, printed to directly marked, omnidirectional, static or in fast motion, inverse or mirrored codes. The reference code comparison function is an additional benefit. With us, you'll find the optimum solution: whether small and robust, extremely fast and fully equipped for direct integration into a machine.

/// DCR 200i



An integrated setup wizard simplifies commissioning of the camera-based code reader for fast and easy 1D- and 2D-code reading. Thanks to its modular design it offers an attractive price/performance ratio and guarantees a high reading performance even with demanding detection tasks.



Benefits:

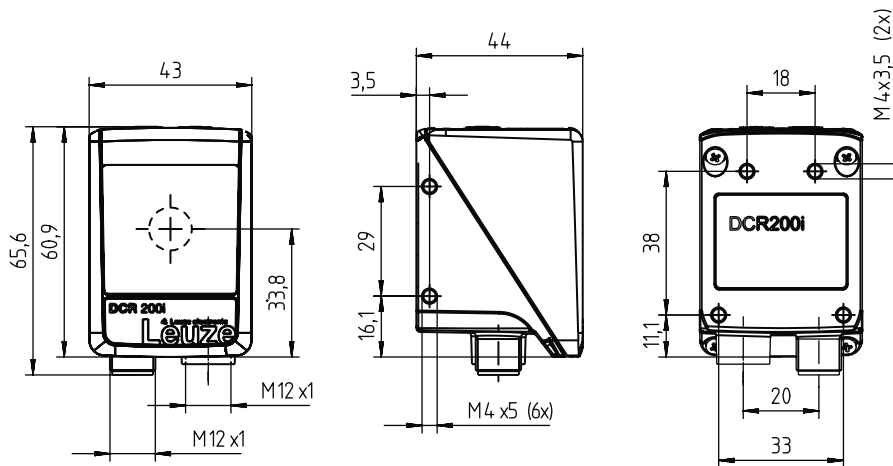
- Setup wizard intuitively guides you through the basic settings to speed up commissioning and avoid errors
- Teach-in function via buttons on the device for simple applications (90 % of all applications can be configured without a PC)
- Configuration via a smartphone app
- Integrated interfaces: Ethernet, RS 232/422
- High reading performance through powerful LED illumination
- Three optics models cover reading distances from approx. 40–360 mm
- With its modular design, the DCR 200i can be flexibly adapted to the respective requirements
- Changeable polarization filter and diffusor foils help reduce interfering reflections



Direct access to the online product selector at www.leuze.com/en/dcr200i

Part no.	Part description	Reading distance	Resolution, horizontal Resolution, vertical	Module size	Optics cover	Light source	Interface	Degree of protection	Special design Type of display
50128784	DCR 202i FIX-F-102-R3	70 ... 360 mm	1,280 px 960 px	0.19 ... 0.5 mm	Plastic	LED, red	Ethernet, RS 232, RS 422	IP 65	LED
50128787	DCR 202i FIX-F-102-R3-G	70 ... 360 mm	1,280 px 960 px	0.19 ... 0.5 mm	Glass	LED, red	Ethernet, RS 232, RS 422	IP 65	LED
50128790	DCR 202i FIX-F-102-R3-P	70 ... 360 mm	1,280 px 960 px	0.19 ... 0.5 mm	Glass with polarization filter	LED, red	Ethernet, RS 232, RS 422	IP 65	Polarization filter LED
50128783	DCR 202i FIX-M-102-R3	50 ... 220 mm	1,280 px 960 px	0.19 ... 0.5 mm	Plastic	LED, red	Ethernet, RS 232, RS 422	IP 65	LED
50128786	DCR 202i FIX-M-102-R3-G	50 ... 220 mm	1,280 px 960 px	0.19 ... 0.5 mm	Glass	LED, red	Ethernet, RS 232, RS 422	IP 65	LED
50128789	DCR 202i FIX-M-102-R3-P	50 ... 220 mm	1,280 px 960 px	0.19 ... 0.5 mm	Glass with polarization filter	LED, red	Ethernet, RS 232, RS 422	IP 65	Polarization filter LED
50128782	DCR 202i FIX-N-102-R3	40 ... 120 mm	1,280 px 960 px	0.127 ... 0.5 mm	Plastic	LED, red	Ethernet, RS 232, RS 422	IP 65	LED
50128785	DCR 202i FIX-N-102-R3-G	40 ... 120 mm	1,280 px 960 px	0.127 ... 0.5 mm	Glass	LED, red	Ethernet, RS 232, RS 422	IP 65	LED
50128788	DCR 202i FIX-N-102-R3-P	40 ... 120 mm	1,280 px 960 px	0.127 ... 0.5 mm	Glass with polarization filter	LED, red	Ethernet, RS 232, RS 422	IP 65	Polarization filter LED

Dimensioned drawings: DCR 200i



DCR 202i stationary 2D-code reader

ACCESSORIES: DCR 200i

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Interface	Sheathing material
50130281	KD S-M12-CA-P1-020	Connector, M12, axial, female	12-pin	2,000 mm		PUR
50130282	KD S-M12-CA-P1-050	Connector, M12, axial, female	12-pin	5,000 mm		PUR
50106739	KB ET-2000-SA	Connector, M12, axial, male	4-pin	2,000 mm	Ethernet	PUR
50106740	KB ET-5000-SA	Connector, M12, axial, male	4-pin	5,000 mm	Ethernet	PUR

Further connection cables can be found on our website

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Interface	Sheathing material
50130284	KDS S-M12-CA-M12-CA-P1-020	Connector, M12, axial, female	12-pin	Connector, M12, axial, male	12-pin	2,000 mm		PUR
50130285	KDS S-M12-CA-M12-CA-P1-050	Connector, M12, axial, female	12-pin	Connector, M12, axial, male	12-pin	5,000 mm		PUR
50109880	KB ET-2000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45		2,000 mm	Ethernet	PUR
50106899	KB ET-2000-SSA	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	2,000 mm	Ethernet	PUR
50109881	KB ET-5000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45		5,000 mm	Ethernet	PUR
50106900	KB ET-5000-SSA	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	5,000 mm	Ethernet	PUR

Further interconnection cables can be found on our website

Mounting systems

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50132150	BTU 320M-D12	Mounting system	Screw type	For 12 mm rod	Metal

Further rod mounts can be found on our website

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50132151	BT 320M	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

/// LSIS 220

The LSIS 220, with its optimized optics and resolution, offers large function reserves for reliable code reading, even while in motion. It quickly and reliably detects bar codes, stacked codes and 2D-codes.

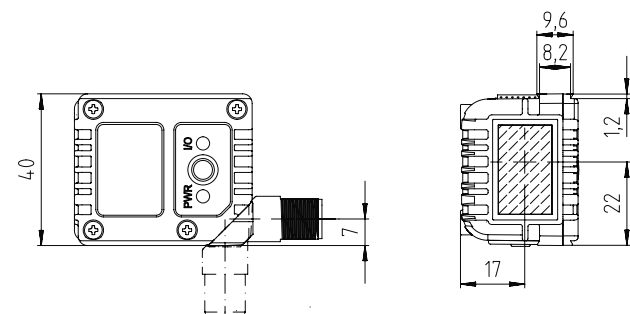
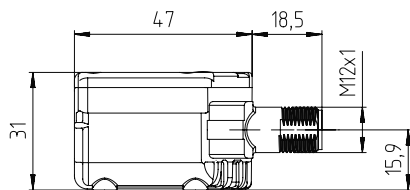
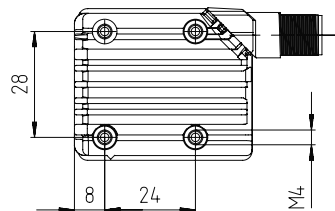
**Benefits:**

- Improved optics for larger read field and in-focus detection all the way to the edge areas, optimized resolution of 844 × 640 pixels for fast code reading
- Detection of 2D-codes, stacked codes and bar codes
- RS 232 or USB interface
- Switching input (trigger)
- Trigger button for manual activation and configuration
- Construction without mechanically moved parts, robust metal housing with glass window and degree of protection IP 65 make the devices very well suited for industrial use
- Extremely small construction size, also for installation under difficult conditions



Direct access to the online product selector at www.leuze.com/en/Isis220

Part no.	Part description	Reading distance	Resolution, horizontal Resolution, vertical	Module size	Optics cover	Interface	Degree of protection	Special design Type of display
50117536	LSIS 222 M5M-R1	50 ... 330 mm	844 px 640 px	0.127 ... 1 mm	Glass	RS 232	IP 65	LED
50117534	LSIS 223 M5M-R1	50 ... 330 mm	844 px 640 px	0.127 ... 1 mm	Glass	USB	IP 65	LED

Dimensioned drawings: LSIS 220

LSIS 22x stationary 2D-code reader

ACCESSORIES: LSIS 22X

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material
50104591	K-D M12A-8P-2m-PUR	Connector, M12, axial, female	8-pin	2,000 mm	PUR
50104590	K-D M12A-8P-5m-PUR	Connector, M12, axial, female	8-pin	5,000 mm	PUR

Further connection cables can be found on our website

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Interface	Sheathing material
50037543	KB 034-2000	Connector, M12, axial, female	8-pin	Connector, M12, axial, male	8-pin	2,000 mm		PVC
50111225	KB JST-M12A-8P-3000	Connector, M12, axial, female	8-pin	JST ZHR		3,000 mm	RS 232	PUR
50111227	KB M12A-8P-USB-3000	Connector, M12, axial, female	8-pin	USB		3,000 mm	USB	PUR

Further interconnection cables can be found on our website

Mounting systems

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50117253	BTU 300M-D10	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50117252	BTU 300M-D12	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50117251	BTU 300M-D14	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 14 mm rod, sheet-metal mounting	Metal

Further rod mounts can be found on our website

/// LSIS 422i



This device combines innovative camera technology and decades of know-how from 1D-code reading. It functions omnidirectionally, with fast motion and even with low contrast.



Benefits:

- Optimized camera resolution of 752 x 480 pixels for fast identification, even of low-contrast codes
- CMOS code reader for 1D- and 2D-codes with high resolution
- External triggering
- Multiple code reading
- Omnidirectional reading
- Motor-driven focus adjustment
- Construction with integrated illumination for industrial use
- Indicator for completed read operations



Direct access to the online product selector at www.leuze.com/en/Isis422i

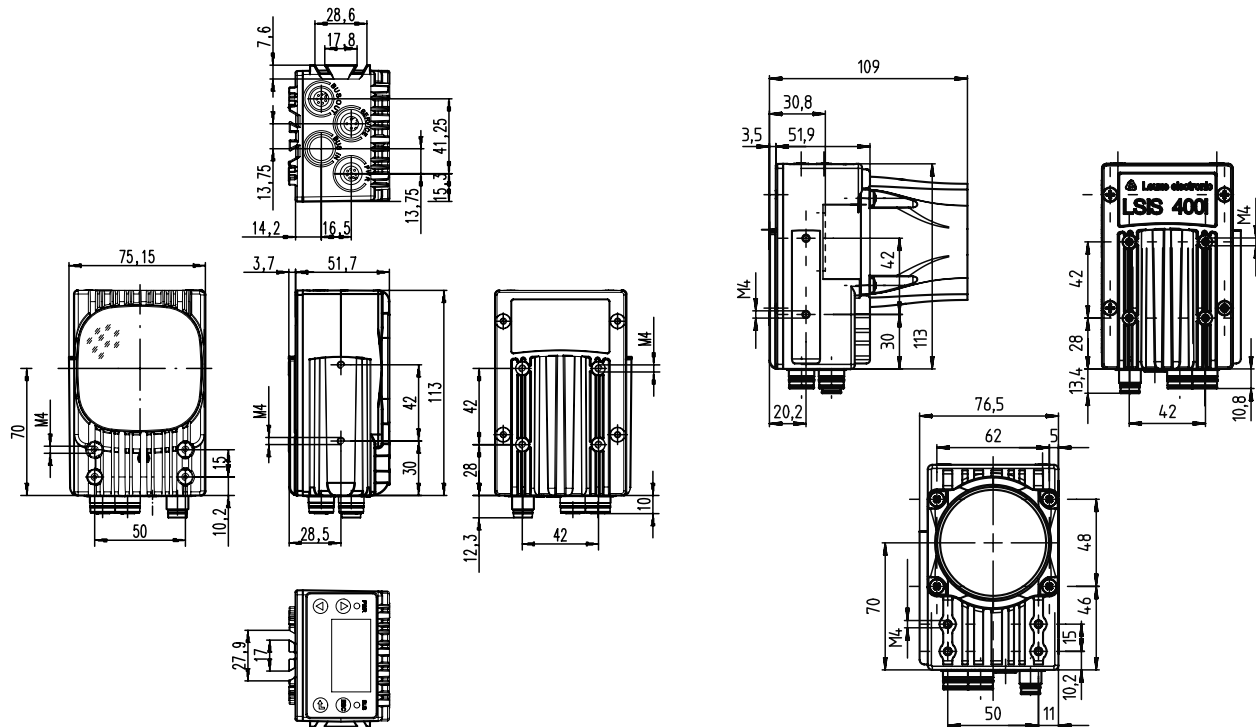
Part no.	Part description	Focal length	Resolution, horizontal Resolution, vertical	Optics cover	Light source	Interface	Degree of protection	Special design Type of display
50116978	LSIS 422i M43-I1	8 mm	752 px 480 px	Glass	LED, infrared	Ethernet, RS 232	IP 65, IP 67	LED, monochromatic graphical display, 128x64 pixel
50116977	LSIS 422i M43-I1-01	8 mm	752 px 480 px	Plastic	LED, infrared	Ethernet, RS 232	IP 65, IP 67	LED, monochromatic graphical display, 128x64 pixel
50116980	LSIS 422i M43-M1	8 mm	752 px 480 px	Glass	LED, RGB	Ethernet, RS 232	IP 65, IP 67	LED, monochromatic graphical display, 128x64 pixel
50116979	LSIS 422i M43-M1-01	8 mm	752 px 480 px	Plastic	LED, RGB	Ethernet, RS 232	IP 65, IP 67	LED, monochromatic graphical display, 128x64 pixel
50108178	LSIS 422i M43-W1	8 mm	752 px 480 px	Glass	LED, white	Ethernet, RS 232	IP 65, IP 67	LED, monochromatic graphical display, 128x64 pixel
50113055	LSIS 422i M43-W1-01	8 mm	752 px 480 px	Plastic	LED, white	Ethernet, RS 232	IP 65, IP 67	LED, monochromatic graphical display, 128x64 pixel
50116982	LSIS 422i M45-I1	16 mm	752 px 480 px	Glass	LED, infrared	Ethernet, RS 232	IP 65, IP 67	LED, monochromatic graphical display, 128x64 pixel

With the LSIS 4xxi...X9, the focal length depends on the used lens
Detailed information can be found online on www.leuze.com/en/Isis422i

Part no.	Part description	Focal length	Resolution, horizontal Resolution, vertical	Optics cover	Light source	Interface	Degree of protection	Special design Type of display
50116981	LSIS 422i M45-I1-01	16 mm	752 px 480 px	Plastic	LED, infrared	Ethernet, RS 232	IP 65, IP 67	LED, monochromatic graphical display, 128x64 pixel
50116984	LSIS 422i M45-M1	16 mm	752 px 480 px	Glass	LED, RGB	Ethernet, RS 232	IP 65, IP 67	LED, monochromatic graphical display, 128x64 pixel
50116983	LSIS 422i M45-M1-01	16 mm	752 px 480 px	Plastic	LED, RGB	Ethernet, RS 232	IP 65, IP 67	LED, monochromatic graphical display, 128x64 pixel
50109829	LSIS 422i M45-W1	16 mm	752 px 480 px	Glass	LED, white	Ethernet, RS 232	IP 65, IP 67	LED, monochromatic graphical display, 128x64 pixel
50113054	LSIS 422i M45-W1-01	16 mm	752 px 480 px	Plastic	LED, white	Ethernet, RS 232	IP 65, IP 67	LED, monochromatic graphical display, 128x64 pixel
50117093	LSIS 422i M49-X9		752 px 480 px	Glass		Ethernet, RS 232	IP 65, IP 67	LED, monochromatic graphical display, 128x64 pixel

With the LSIS 4xxi...X9, the focal length depends on the used lens
Detailed information can be found online on www.leuze.com/en/lsis422i

Dimensioned drawings: LSIS 422i



LSIS 422 stationary 2D-code reader

LSIS 422 stationary 2D-code reader, C-Mount

ACCESSORIES: LSIS 422i

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Interface	Sheathing material
50106740	KB ET-5000-SA	Connector, M12, axial, male	4-pin	5,000 mm	Ethernet	PUR
50110180	KB M12/8-5000-SA	Connector, M12, axial, male	8-pin	5,000 mm		PUR
50110172	KB M12/8-5000-BA	Connector, M12, axial, female	8-pin	5,000 mm		PUR

Further connection cables can be found on our website

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Interface	Sheathing material
50130631	KSS ET-M12-4A-M12-4A-P7-010	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	1,000 mm	Ethernet	PUR
50130632	KSS ET-M12-4A-RJ45-A-P7-010	Connector, M12, axial, male	4-pin	RJ45		1,000 mm	Ethernet	PUR
50109881	KB ET-5000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45		5,000 mm	Ethernet	PUR
50106900	KB ET-5000-SSA	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	5,000 mm	Ethernet	PUR

Further interconnection cables can be found on our website

Mounting systems

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50027375	BT 56	Mounting system	Clampable	For 16 mm rod, for 18 mm rod, for 20 mm rod	Metal

Further rod mounts can be found on our website

/// DCR 80



Imager module with integrated decoder for the reading of 1D and 2D-codes. Data transmission via a configurable RS 232 interface.



Benefits:

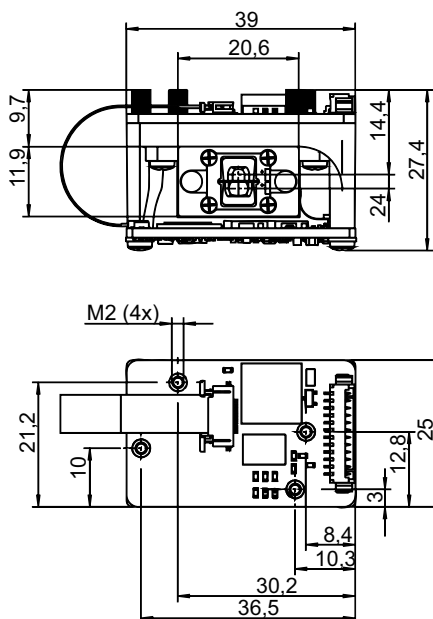
- Very small construction
- Ready to read all common codes
- RS 232 interface
- Simple configuration with the Sensor Studio PC software



Direct access to the online product selector at www.leuze.com/en/dcr80

Part no.	Part description	Reading distance	Resolution, horizontal Resolution, vertical	Module size	Interface	Special design Type of display
50129208	DCR80M2/R2-S5	20 ... 300 mm	1,280 px 960 px	0.076 ... 0.5 mm	RS 232	Scan engine module buzzer

Dimensioned drawings: DCR 80



DCR 80 stationary 2D-code reader

//MOBILE 2D-CODE READERS

SCANNING MADE EASY

Weighing between 147 and 380 g, the hand-held scanners of this series are also ideally suited for continuous use.

/// General applications



In addition to 2D-codes, all mobile code readers from Leuze electronic also read bar codes (1D-codes) and are therefore extremely flexible and versatile. Typical interfaces are RS 232 or USB, and Bluetooth as the wireless interface.



Benefits:

- Various optics models for optimum reading range
- Cable-connected or with Bluetooth for RS 232 or USB interface
- Devices for universal use
- Degree of protection up to IP 41
- Temperature range from 0 to +50 °C



Direct access to the online product selector at www.leuze.com/en/2D-code-reader_aa

Part no.	Part description	Reading distance	Bluetooth	Interface	Drop height	Degree of protection	Connection	Ambient temperature, operation
50114504	IT 1900g ER-2	25 ... 596 mm		PS/2, USB, RS 232	1.8 m	IP 41	RJ41	0 ... 50 °C
50114507	IT 1900g HD-2	0 ... 233 mm		PS/2, USB, RS 232	1.8 m	IP 41	RJ41	0 ... 50 °C
50114509	IT 1900g SR-2	10 ... 584 mm		PS/2, USB, RS 232	1.8 m	IP 41	RJ41	0 ... 50 °C
50114511	IT 1902g ER-2	25 ... 596 mm	Class 2	PS/2, USB, RS 232	1.8 m	IP 41	Bluetooth	0 ... 50 °C
50114513	IT 1902g HD-2	0 ... 233 mm	Class 2	PS/2, USB, RS 232	1.8 m	IP 41	Bluetooth	0 ... 50 °C
50114515	IT 1902g SR-2	10 ... 584 mm	Class 2	PS/2, USB, RS 232	1.8 m	IP 41	Bluetooth	0 ... 50 °C

ACCESSORIES: IT 190X

Connection technology

Interconnection cables

Part no.	Part description	Connection 1	Connection 2	Cable length	Interface	Sheathing material
50113397	KB JST-HS-300	JST ZHR	Sub-D, male, axial	300 mm	RS 232	PUR
50114521	KB USB-1 IT190x	USB	RJ41	3,000 mm	USB	PVC
50114523	KB USB-2 IT190x	USB	RJ41	5,000 mm	USB	PVC

Further interconnection cables can be found on our website

Base station for IT 1902

Part no.	Part description	Connection 1	Connection 2	Connection 3
50115738	Access Point f. IT	Bluetooth	RJ41	
50114492	Base f. IT 1902	RJ41	Jack socket	Bluetooth

Further base stations can be found on our website

Power supply units

Part no.	Part description	Type of power supply unit	Output
50114525	NT f. IT 1900+Base-EU	Plug-in power supply unit	5 V DC, 1 A

Further power supply units can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50114498	BT Holder IT 190x	Table foot	Insertable	Self-supporting	Plastic
50115739	BT Wallholder IT190x	Wall mounting	Insertable	Mounting thread	Plastic

Further holders can be found on our website

/// Industrial applications



Even with low contrast and on surfaces such as metal or plastic, the high-quality reading technology functions absolutely reliably. Due to their enormous depth of field, the autofocus versions in particular provide an extremely high degree of flexibility with regard to their application.



Benefits:

- Various optics models for optimum reading range
- Cable-connected or with Bluetooth for RS 232 or USB interface
- Devices for robust or rough areas of application
- Degree of protection up to IP 65
- Temperature range from -30 to +50 °C



Direct access to the online product selector at www.leuze.com/en/2D-code-reader_ia

Part no.	Part description	Reading distance	Bluetooth	Interface	Drop height	Degree of protection	Connection	Ambient temperature, operation
50122436	IT 1910i ER-3	25 ... 596 mm		PS/2, USB, RS 232	2 m	IP 65	RJ41	-30 ... 50 °C
50122434	IT 1911i ER-3	25 ... 596 mm	Class 1	PS/2, USB, RS 232	2 m	IP 65	Bluetooth	-20 ... 50 °C
50130497	IT 1980i FR-3	10 ... 16,000 mm		PS/2, USB, RS 232	2 m	IP 65	RJ41	-30 ... 50 °C
50130495	IT 1981i FR-3	100 ... 16,000 mm	Class 1	PS/2, USB, RS 232	2 m	IP 65	Bluetooth	-20 ... 50 °C

ACCESSORIES: IT 19XX

Connection technology

Interconnection cables

Part no.	Part description	Connection 1	Connection 2	Cable length	Interface	Sheathing material
50113397	KB JST-HS-300	JST ZHR	Sub-D, male, axial	300 mm	RS 232	PUR
50114521	KB USB-1 IT190x	USB	RJ41	3,000 mm	USB	PVC
50114523	KB USB-2 IT190x	USB	RJ41	5,000 mm	USB	PVC

Further interconnection cables can be found on our website

Base station for IT 19x1

Part no.	Part description	Connection 1	Connection 2	Connection 3	Drop height
50115738	Access Point f. IT	Bluetooth	RJ41		
50122431	Base f. IT 1911	RJ41	Jack socket	Bluetooth	1.2 m

Further base stations can be found on our website

Power supply units

Part no.	Part description	Type of power supply unit	Output
50123862	NT Base IT1911-EU	Plug-in power supply unit	5V DC, 1 A
50114525	NT f. IT 1900+Base-EU	Plug-in power supply unit	5V DC, 1 A

Further power supply units can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50107034	BT Rope IT		Insertable	Suspended (rope)	Plastic
50120444	BT Wallholder HS65x8	Wall mounting	Insertable	Through-hole mounting	Plastic

Further holders can be found on our website

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

/// Directly marked codes (DPM)

Codes that are engraved, dot-peened or lasered directly on the object pose a real challenge because such codes usually have only a low contrast. The special industrial hand-held scanners in this category are able to perform even the most difficult of detection tasks.

**Benefits:**

- Various types of optics and illumination for optimum read results
- Cable-connected or with Bluetooth for RS 232 or USB interface
- Devices for robust or rough areas of application also available
- Degree of protection up to IP 65
- Temperature range from -30 to +50 °C



Direct access to the online product selector at www.leuze.com/en/2D-code-reader_dpm

Part no.	Part description	Reading distance	Bluetooth	Interface	Drop height	Degree of protection	Connection	Ambient temperature, operation
50115068	FIS 6170	0 ... 51 mm		USB, RS 232	1.8 m	IP 41	Connector	0 ... 50 °C
50130487	HCR 6200 DPM	0 ... 200 mm		USB, RS 232	1.8 m	IP 54	RJ41	-20 ... 55 °C
50120442	HS 6508 DPM	0 ... 233 mm		PS/2, USB, RS 232	2 m	IP 65	RJ41	-20 ... 50 °C
50120440	HS 6578 DPM	0 ... 233 mm	Class 2	PS/2, USB, RS 232	2 m	IP 65	Bluetooth	-20 ... 50 °C

ACCESSORIES: HCR 6200**Connection technology**

Interconnection cables

Part no.	Part description	Connection 1	Connection 2	Cable length	Interface	Sheathing material
50130489	KSS CR-USB-AA-RJ41-A-T0-018	USB	RJ41	1.8 mm	USB	PVC

Further interconnection cables can be found on our website

Power supply units

Part no.	Part description	Type of power supply unit	Output
50130490	NT HCR 6200	Plug-in power supply unit	5 V DC, 1 A

Further power supply units can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50130491	BT Holder HCR 6200	Table foot	Insertable	Self-supporting	Plastic

Further holders can be found on our website

ACCESSORIES: FIS 6170**Connection technology**

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Interface	Sheathing material
50115069	KB 232-1 f. FIS 6170	Sub-D, male, axial	9-pin	Connector, pluggable, axial, male	8-pin	2,000 mm	RS 232	PVC
50113397	KB JST-HS-300	JST ZHR		Sub-D, male, axial		300 mm	RS 232	PUR

Further interconnection cables can be found on our website

Mounting systems

Mounting brackets

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50120444	BT Wallholder HS65x8	Wall mounting	Insertable	Through-hole mounting	Plastic

Further holders can be found on our website

ACCESSORIES: HS 65X8

Connection technology

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Cable length	Interface	Sheathing material
50120436	KB RS232-1 HS 65x8	Sub-D, male, axial	9-pin	RJ41	2,800 mm	RS 232	TPE
50113397	KB JST-HS-300	JST ZHR		Sub-D, male, axial	300 mm	RS 232	PUR
50120432	KB USB-1 HS 65x8	USB		RJ41	2,800 mm	USB	TPU

Further interconnection cables can be found on our website

Base stations

Part no.	Part description	Interface	Connection 1	Connection 2	Connection 3
50120446	Base f. HS 6578	PS/2	RJ41	Jack socket	Bluetooth

Further base stations can be found on our website

Power supply units

Part no.	Part description	Type of power supply unit	Output
50120430	NT f. Base HS 6578	Desktop power supply unit	9V DC, 2 A
50120428	NT f. HS 6508	Plug-in power supply unit	5V DC, 1 A

Further power supply units can be found on our website


Mounting systems

Mounting brackets


Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50120444	BT Wallholder HS65x8	Wall mounting	Insertable	Through-hole mounting	Plastic

Further holders can be found on our website


SMARTER PRODUCT USABILITY




BCL 500*i* / BCL 300*i*
Powerful bar code reader with integrated fieldbus networking capability and code reconstruction technology




BPS 34
Bar code positioning system with PROFIBUS interface for complex requirements



AMS 300*i*
High-precision optical laser distance sensor AMS 300i with unique selection of integrated fieldbus interfaces
















CML 700*i*
Measuring light curtain with integrated fieldbus interfaces and evaluation unit



PROFIBUS
Our products in the PROFIBUS world

Integrated interfaces complete our range of product solutions!



Discover the integrated interface diversity: www.leuze.com/en/products

/ RF IDENTIFICATION

EVERYTHING CLEAR EVEN WITH POOR VISIBILITY

With RFID, no direct "visual contact" between the read-write unit and transponder is necessary. Information from the transponder is received by means of electromagnetic waves. As a result, these systems can be used practically and reliably under even the most adverse conditions.



Stationary RFID read/write systems

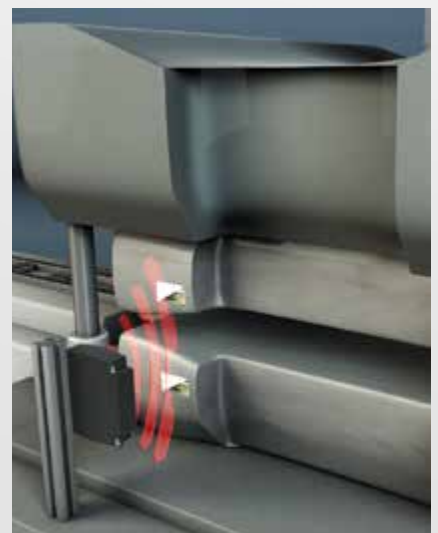
Page 397

Mobile RFID read/write systems

Page 399

Transponders

Page 400



//STATIONARY RFID READ/WRITE SYSTEMS

NEARLY INVISIBLE INTEGRATION

With stationary systems, proximity to the reader suffices for the detection of objects. As a result, readers can be integrated at nearly any location in the system. Our RFID solutions offer various operating ranges and simplify integration in existing systems through maximum connectivity.

/// RFI 32



This stationary reader for fixcode transponders can be used for universal reading tasks, even at high ambient temperatures.



Benefits:

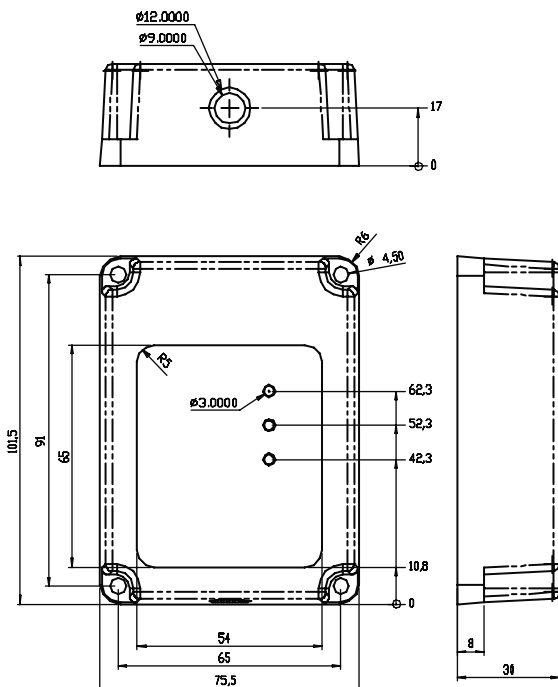
- Max. reading speed up to 0.6 m/s
- Reliable detection in adverse environments to 200 °C
- Max. reading distance up to 80 mm
- Highly visible status LEDs, PCB connectors
- Industrial transponder selection
- RS 232 with trigger input and switching output



Direct access to the online product selector at www.leuze.com/en/rfi32

Part no.	Part description	Design	Reading distance	Working frequency	Interface	Connection	Functions
50040500	RFI 32 L 120	Cubic	80 mm	0.125 MHz	RS 232	Cable with socket connector, 1,000 mm	I/O reading-gate control, LED indicators, configurable operating modes
50108915	RFI 32 L 120-L10	Cubic	80 mm	0.125 MHz	RS 232	Cable with socket connector, 10,000 mm	LED indicators, configurable operating modes, reading gate control, I/O

Dimensioned drawings: RFI 32



RFID read device RFI 32

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

/// RFM 12 / 32 / 62



For ISO15693 transponders, Leuze electronic offers three read/write devices that support the right range for typical applications. One of the devices is also available in Ex-design.

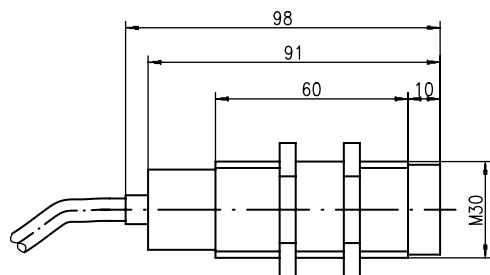
**Benefits:**

- Max. reading speed of 2.0 ... 6.0 m/s
- Max. reading distance 50 ... 500 mm
- Reliable detection with database updating in adverse environments to 220 °C
- Highly visible status LEDs, PCB connectors
- Large selection of industrial transponders with up to 1024 bytes
- RS 232 with trigger input and switching output
- Configuration via Leuze RF Config

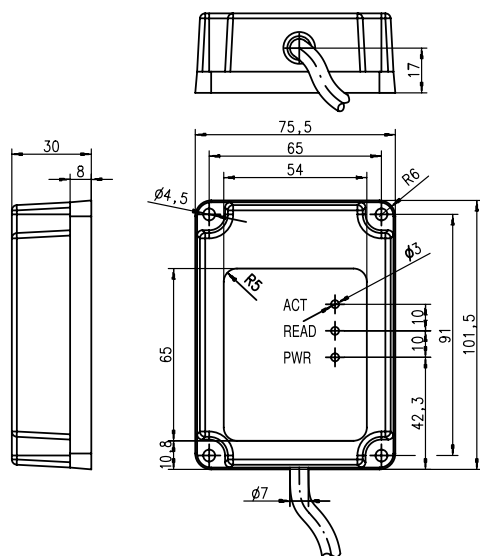


Direct access to the online product selector at www.leuze.com/en/rfm12_32_62

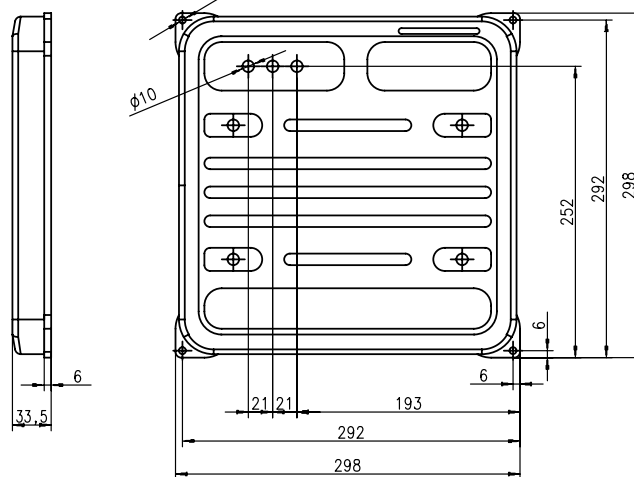
Part no.	Part description	Design	Reading/ writing distance	Working frequency	Interface	Ex device group	Connection	Functions
50040497	RFM 12 SL 200	Cylindrical, M30	45 mm	13.56 MHz	RS 232		Cable with socket connector, 1,000 mm	Configurable operating modes, reading gate control, I/O
50040498	RFM 32 SL 200	Cubic	110 mm	13.56 MHz	RS 232		Cable with socket connector, 1,000 mm	I/O, configurable operating modes, reading gate control, LED indicators, multiple read / multiScan
50103087	RFM 32 SL 200 Ex-n	Cubic	110 mm	13.56 MHz	RS 232	II	Cable with socket connector, 10,000 mm	LED indicators, reading gate control, I/O, configurable operating modes, multiple read / multiScan
50040499	RFM 62 SL 200	Cubic	400 mm	13.56 MHz	RS 232		Cable with socket connector, 1,000 mm	I/O, LED indicators, reading gate control, configurable operating modes, multiple read / multiScan

Dimensioned drawings: RFM 12 / 32 / 62

RFID read device RFM 12



RFID read device RFM 32



RFID read device RFM 62

//MOBILE RFID READ/WRITE SYSTEMS

FUNCTIONS IN MANY AREAS

RFID is also ideally suited for mobile use. One favorite area of application is, for example, in freight traffic at logistics hubs. But mobile devices are often advantageous in warehousing as well and guarantee smooth and fast identification. Moreover, our RFID solutions also read bar codes and 2D-codes.

/// HFM 35xxD



Mobile combi device for RFID transponders (RF 13.56 MHz) and bar codes, specially designed for reading bar code information and then writing this information on a transponder.



Benefits:

- Mobile read/write device with pistol handle for short operating ranges combined with bar codes
- With a stable trigger button, it is suitable for industrial use
- RS 232 interface or USB COM port emulation, Bluetooth optional
- Selectable display and data output (hex/ASCII)
- Function selection by means of keyboard or PLC and simple feedback on the display



Direct access to the online product selector at www.leuze.com/en/hfm35xxd

Part no.	Part description	RFID reading/ writing distance	Bar code reading distance	Working frequency	Interface	Connection	Degree of protection
50110552	HFM 3500 D	25 mm	450 mm	13.56 MHz	RS 232	Sub-D	IP 54
50110551	HFM 3520 D	25 mm	450 mm	13.56 MHz	USB, RS 232	Bluetooth	IP 54

ACCESSORIES: HFM 35XXD

Connection technology

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Cable length	Interface	Sheathing material
50110675	KB-RS232-Base Hx520	Sub-D, male, axial	9-pin	RJ41	2,000 mm	RS 232	PVC
50110677	KB-RS232-USB	Sub-D, male, axial	9-pin	USB	1,000 mm	RS 232, USB	PVC

Further interconnection cables can be found on our website

Power supply units

Part no.	Part description	Type of power supply unit	Output
50110676	NT Hx5x0	Plug-in power supply unit	5V DC, 1A

Further power supply units can be found on our website

Base stations

Part no.	Part description	Connection	Bluetooth, version	Bluetooth, range	Voltage type
50110672	Base Hx520	RJ41	1.2	Class 2	DC

Further base stations can be found on our website

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

//TRANSPONDERS

FROM FLAT TO ROBUST, EVERYTHING IS POSSIBLE

The areas of application for RFID are as broad as the requirements placed on transponders. Leuze electronic offers an extensive and high-quality product segment for all conceivable applications. It includes transponders for fault-free use on metal, high-temperature transponders, self-adhesive SmartLabels or chip cards.

/// TFI



This transponder with EM4002 chip is suitable for readers of the RFI series.



Benefits:

- Fixcode transponder with EM4002 chip (8 bytes), suitable for write/read units of the RFI series
- Industry transponder for temperatures up to 200 °C available as disk



Direct access to the online product selector at www.leuze.com/en/tfi

Part no.	Part description	Design	Dimensions	Working frequency	Memory size	Degree of protection	Ambient temperature, operation
50032396	TFI 03 1101.120	Disc	30 mm × 2.1 mm	0.125 MHz	8 B	IP 65	-20 ... 70 °C
50039070	TFI 03 1601.120	Disc	30 mm × 2.5 mm	0.125 MHz	8 B	IP 67	-20 ... 85 °C
50032395	TFI 05 1101.120	Disc	50 mm × 2.1 mm	0.125 MHz	8 B	IP 65	-20 ... 70 °C
50039069	TFI 05 1601.120	Disc	50 mm × 2.5 mm	0.125 MHz	8 B	IP 67	-20 ... 85 °C

Dimensional tolerances for all specified dimensions: ± 0.5 mm

/// TFM



The HF transponder with various memory sizes is suitable for the RFM / HFM readers as a self-adhesive/disc/card or high-temperature transponder, with Ex certification if necessary.



Benefits:

- ISO15693 transponder with 112 to 1024 bytes (I-CodeSLI/HFI or MyD) suitable for write/read units of the RFM.../HFM... series
- Industry transponder for temperatures up to 220 °C, available as disk, stickers and cards
- Special transponders on request



Direct access to the online product selector at www.leuze.com/en/tfm

Part no.	Part description	Design	Dimensions	Working frequency	Memory size	Degree of protection	Ex device group	Ambient temperature, operation
50107790	TFM 02 2210.210	Label	18 mm × 0.3 mm × 36 mm	13.56 MHz	112 B	IP 54		-20 ... 50 °C
50109232	TFM 05 2210.210	Label	50 mm × 0.3 mm × 50 mm	13.56 MHz	112 B	IP 54		-20 ... 50 °C
50102956	TFM 03 5125.220	Card	28 mm × 1 mm × 50 mm	13.56 MHz	256 B	IP 54		-20 ... 70 °C
50109233	TFM 08 2125.220	Card	54 mm × 1 mm × 86 mm	13.56 MHz	256 B	IP 68		-20 ... 70 °C
50102915	TFM 02 1125.220	Disc	22 mm × 3 mm	13.56 MHz	256 B	IP 68		-25 ... 85 °C
50102917	TFM 03 1110.210	Disc	30 mm × 2.5 mm	13.56 MHz	112 B	IP 66		-20 ... 70 °C
50106412	TFM 03 1510.210	Disc	30 mm × 2.5 mm	13.56 MHz	112 B	IP 68		-25 ... 85 °C
50108290	TFM 04 1190.230	Disc	40 mm × 2.5 mm	13.56 MHz	1,024 B	IP 66		-20 ... 70 °C
50102916	TFM 05 1110.210	Disc	50 mm × 2.5 mm	13.56 MHz	112 B	IP 66		-20 ... 85 °C

Dimensional tolerances for all specified dimensions: ± 0.5 mm

Part no.	Part description	Design	Dimensions	Working frequency	Memory size	Degree of protection	Ex device group	Ambient temperature, operation
50108070	TFM 05 1110.Ex	Disc	54 mm × 15 mm	13.56 MHz	112 B	IP 67	II	-25 ... 60 °C
50106413	TFM 05 1510.210	Disc	50 mm × 2.5 mm	13.56 MHz	112 B	IP 68		-25 ... 85 °C
50127101	TFM 06 1110.210	Disc	56 mm × 10 mm	13.56 MHz	112 B	IP 65, IP 67		-25 ... 70 °C
50117412	TFM 08 1110.210	Disc	85 mm × 3 mm	13.56 MHz	112 B	IP 67, IP 65		-20 ... 70 °C
50114962	TFM 08 1610.210	Disc	85 mm × 13.5 mm	13.56 MHz	112 B	IP 68		-25 ... 100 °C

Dimensional tolerances for all specified dimensions: ± 0.5 mm

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

DATA TRANSMISSION / CONTROL COMPONENTS

ACCESS DATA QUICKLY AND SIMPLY

In addition to the actual device technology, the transfer of data and the connection of devices in a wide range of fieldbus environments are also given high priority and decisively influence the user friendliness and flexibility of your system. Discover innovative connection concepts and universal configuration solutions that also reveal unexpected efficiency potentials.



"We recognized early on that our sensors are only useful in practice if they can be integrated as simply as possible in the control systems of our customers. This is why we place great importance to directly integrating as many relevant fieldbus interfaces as possible in the devices so that they can fulfill their tasks quickly and in an uncomplicated manner without additional gateways and expense."

Tilo Wolf,
Technical Head of Product Center
Measuring Sensors



/ Modular connection units

Page 404

/ Data transmission

Page 416

/ Power supply

Page 425

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

**Data transmission /
Control components**

Industrial image
processing

Accessories



/ MODULAR CONNECTION UNITS

PUTTING IT ALL TOGETHER

All peripheral devices – such as sensors, protective switches and cameras – are not worth much without networking to the fieldbus or a control unit. Depending on device type and area of application, our modular connection units offer variable interfaces that enable simple connection of the identification devices directly to the fieldbus and thus ensure simple integration of new devices in the system.



/// MA 100



Terminal box for BCL 300i/301i with KB301.



Benefits:

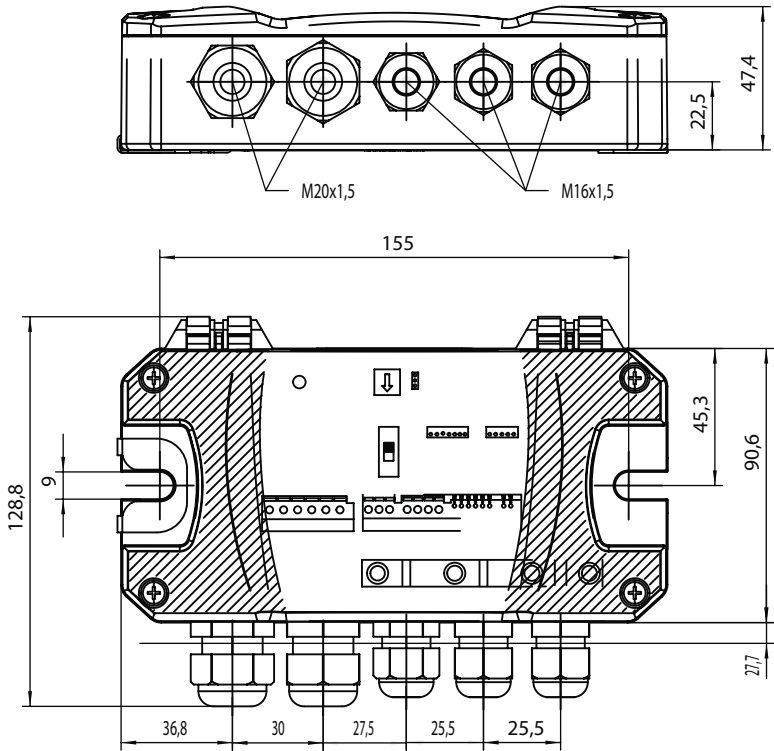
- External terminal box for BCL 300/301i with cable hood and address switch



Direct access to the online product selector at www.leuze.com/en/ma100

Part no.	Part description	Suitable for	Interface	Degree of protection
50114369	MA 100	BCL 300i, BCL 301i	RS 232, RS 485	IP 54

Dimensioned drawings: MA 100



MA 100 modular connection unit

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

/// MA 2



Connection unit with separate RS 232 service interface for BCL 21/22, RFID systems, RFI and RFM.



Benefits:

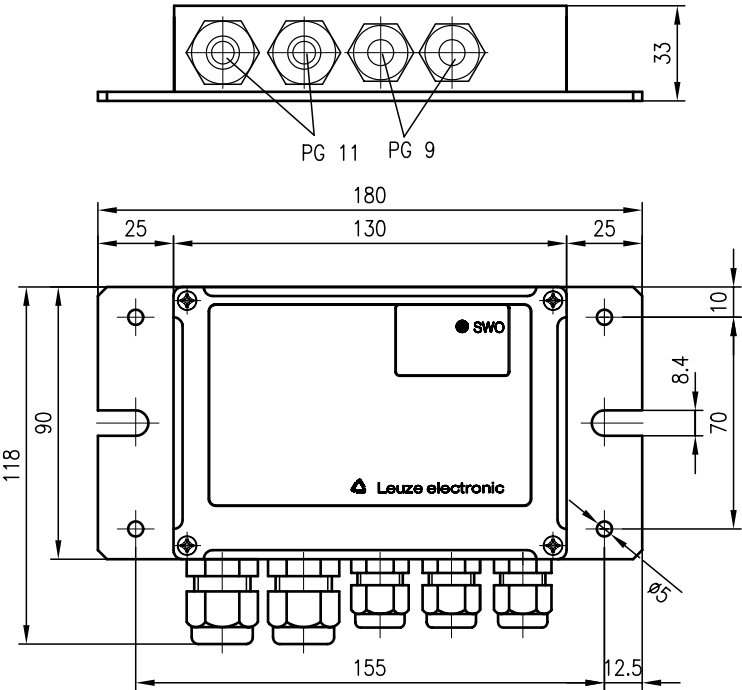
- Robust terminal box for connection of the devices with JST (RS 232 or RS 485)
- Rotary switch for addressing
- Double terminals enable wiring through (PWR, RS 485)
- With PG screw fittings on mounting plate
- Degree of protection IP 65



Direct access to the online product selector at www.leuze.com/en/ma2

Part no.	Part description	Suitable for	Interface	Degree of protection
50031256	MA 2	BCL 2x series bar code readers, LSIS 222 series stationary 2D-code readers	RS 232, RS 485	IP 54

Dimensioned drawings: MA 2



MA 2 modular connection unit

/// MA 21



The MA 21 modular connection unit is used to connect Leuze electronic identification systems (IDS) to an RS 232 interface.



Benefits:

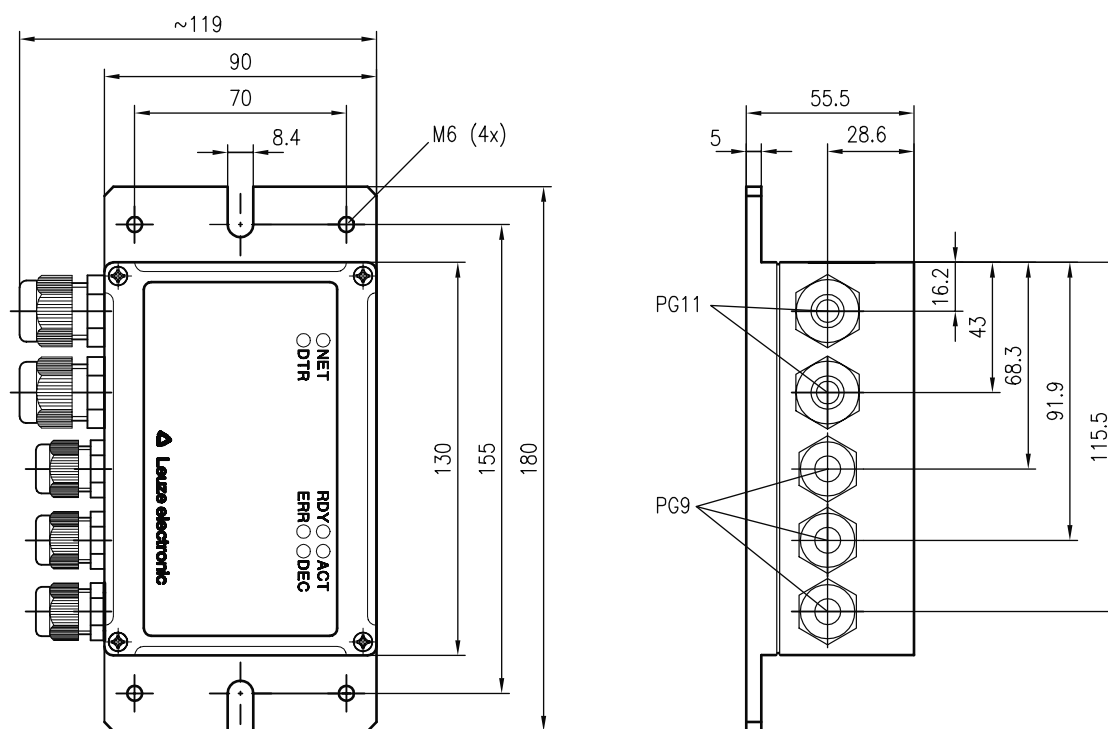
- Universal interface and protocol converter for RS 232/RS 485 devices with clamp connection
- With separate service interface, 9 pin SubD
- PG screw fittings on mounting plate
- Degree of protection IP 65



Direct access to the online product selector at www.leuze.com/en/ma21

Part no.	Part description	Suitable for	Interface	Supply voltage	Degree of protection
50030481	MA 21 100	BCL 8 series bar code readers, BCL 2x series bar code readers, HFxx series mobile RFID read/write systems, IT 1900 series mobile 2D-code readers	RS 232, RS 485	18 ... 36 V DC	IP 65
50103125	MA 21 100.2	BCL 2x series bar code readers, BCL 8 series bar code readers, RFM 12 / 32 / 62, HFxx series mobile RFID read/write systems, RFI 32, LSIS 222 series stationary 2D-code readers	RS 232, RS 485	18 ... 36 V DC	IP 65
50030482	MA 21 110	BCL 2x series bar code readers, BCL 8 series bar code readers, IT 1900 series mobile 2D-code readers, HFxx series mobile RFID read/write systems	RS 232	18 ... 36 V DC	IP 65
50030483	MA 21 120	BCL 2x series bar code readers, BCL 8 series bar code readers, IT 1900 series mobile 2D-code readers, HFxx series mobile RFID read/write systems	TTY, RS 232	18 ... 36 V DC	IP 65
50030484	MA 21 130	BCL 2x series bar code readers, BCL 8 series bar code readers, IT 1900 series mobile 2D-code readers, HFxx series mobile RFID read/write systems	RS 232, RS 422	18 ... 36 V DC	IP 65

Dimensioned drawings: MA 21



MA 21 modular connection unit

/// MA 22



Connection unit for daisy chain connections.



Benefits:

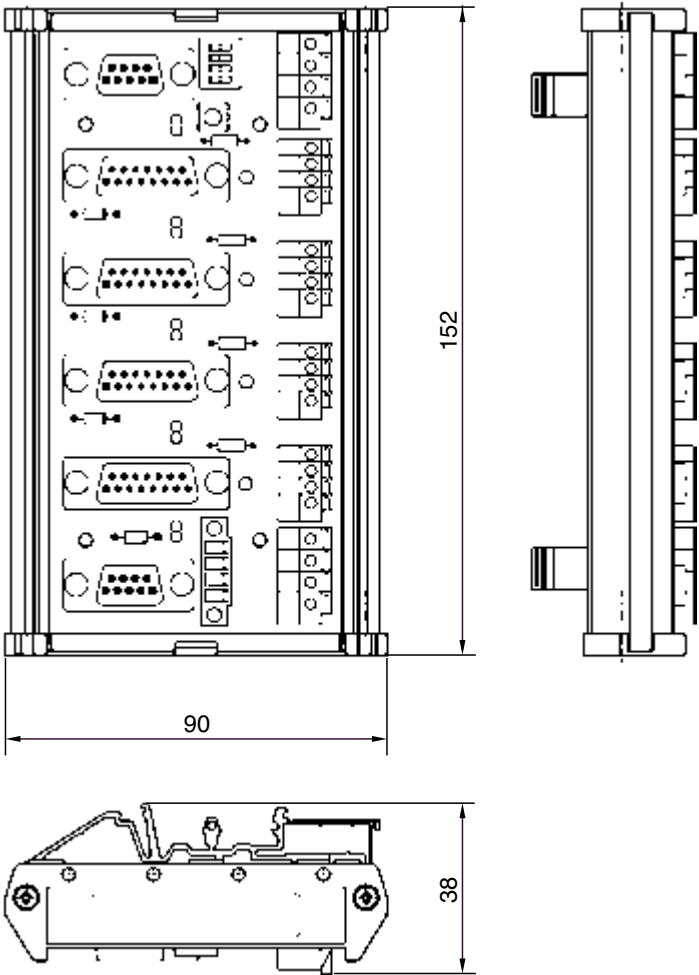
- Connection unit for up to 4 BCL 22 devices in Daisy Chain
- Separate service interface for installation in cabinet
- Suitable for DIN rail mounting



Direct access to the online product selector at www.leuze.com/en/ma22

Part no.	Part description	Suitable for	Interface	Supply voltage	Degree of protection
50031496	MA 22 DC	BCL 2x series bar code reader	RS 232	18 ... 30 V DC	IP 20

Dimensioned drawings: MA 22



MA 22 modular connection unit

/// MA 31



Network master for Leuze electronic multiNet plus.



Benefits:

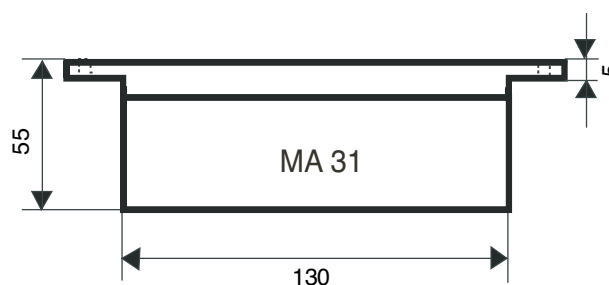
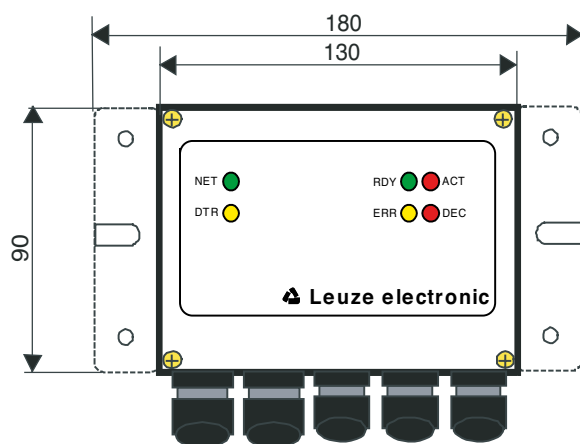
- Networking of multiple BCL 301i and BCL 501i devices via RS 485 in multiNet plus
- Address setting using rotary and slide switches
- Separate connection for switching inputs and switching outputs
- Degree of protection IP 65



Direct access to the online product selector at www.leuze.com/en/ma31

Part no.	Part description	Interface	Supply voltage	Degree of protection
50030835	MA 31 100	RS 485	18 ... 36 V DC	IP 65
50030836	MA 31 110	RS 232, RS 485	18 ... 36 V DC	IP 65
50030837	MA 31 120	TTY, RS 485	18 ... 36 V DC	IP 65
50030838	MA 31 130	RS 422, RS 485	18 ... 36 V DC	IP 65

Dimensioned drawings: MA 31



MA 31 modular connection unit

SMARTER CUSTOMER SERVICE

The quickest way to find matching accessories and technical downloads:

Part no.

Product detail page

www.leuze.com/en/search

Matching accessories
Necessary accessories
3D-CAD models
Technical descriptions
Data sheets
Software
Drivers



On the product detail pages you will find comprehensive technical downloads: www.leuze.com/en/search

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

/// MA 200i

Fieldbus gateways for field use for connecting bar code readers and identification systems.

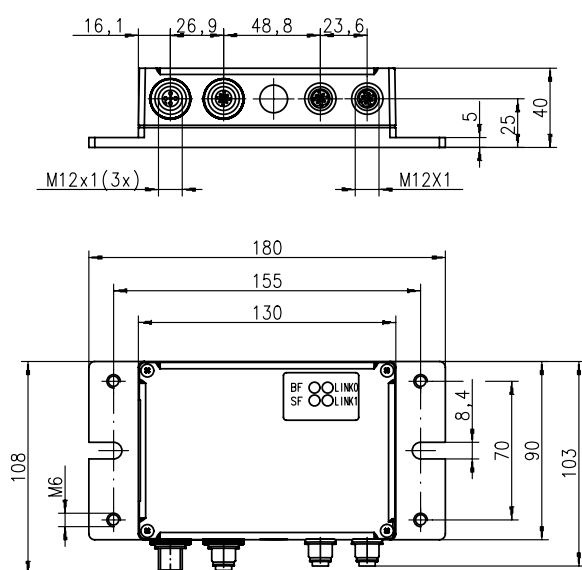
**Benefits:**

- Fieldbus gateway for RS 232 devices with pre-configuration for Leuze electronic Ident devices and sensors
- With service interface, 9 pin SubD
- Degree of protection IP 65



Direct access to the online product selector at www.leuze.com/en/ma200i

Part no.	Part description	Suitable for	Interface	Supply voltage	Degree of protection
50112893	MA 204i Profibus gateway	BCL 2x series bar code readers, BCL 8 series bar code readers, BPS 8 series bar code positioning system, HFxx series mobile RFID read/write systems, RFM 12 / 32 / 62, RFI 32, IT 1900 series mobile 2D-code readers, IT 1902 series mobile 2D-code readers, IT 1910 series mobile 2D-code readers, IT 1911 series mobile 2D-code readers, FIS series mobile 2D-code readers, HS 65x8, LSIS 222 series stationary 2D-code readers, DCR 200i series stationary 2D-code readers	PROFIBUS DP, RS 232	18 ... 30 V DC	IP 65
50112892	MA 208i Ethernet gateway	BCL 2x series bar code readers, BCL 8 series bar code readers, BPS 8 series bar code positioning system, HFxx series mobile RFID read/write systems, RFM 12 / 32 / 62, RFI 32, IT 1900 series mobile 2D-code readers, IT 1902 series mobile 2D-code readers, IT 1910 series mobile 2D-code readers, IT 1911 series mobile 2D-code readers, FIS series mobile 2D-code readers, HS 65x8, LSIS 222 series stationary 2D-code readers	Ethernet, RS 232, TCP/IP, UDP	18 ... 30 V DC	IP 65
50114154	MA 235i CANopen gateway	BCL 2x series bar code readers, BCL 8 series bar code readers, BPS 8 series bar code positioning system, HFxx series mobile RFID read/write systems, RFI 32, RFM 12 / 32 / 62, IT 1900 series mobile 2D-code readers, IT 1902 series mobile 2D-code readers, IT 1910 series mobile 2D-code readers, IT 1911 series mobile 2D-code readers, FIS series mobile 2D-code readers, HS 65x8, LSIS 222 series stationary 2D-code readers, DCR 200i series stationary 2D-code readers	CANopen, RS 232	18 ... 30 V DC	IP 65
50114155	MA 238i EtherCAT gateway	BCL 2x series bar code readers, BCL 8 series bar code readers, BPS 8 series bar code positioning system, HFxx series mobile RFID read/write systems, RFI 32, RFM 12 / 32 / 62, IT 1900 series mobile 2D-code readers, IT 1902 series mobile 2D-code readers, IT 1910 series mobile 2D-code readers, IT 1911 series mobile 2D-code readers, FIS series mobile 2D-code readers, HS 65x8, LSIS 222 series stationary 2D-code readers, DCR 200i series stationary 2D-code readers	EtherCAT, RS 232	18 ... 30 V DC	IP 65
50112891	MA 248i PROFINET gateway	BCL 2x series bar code readers, BCL 8 series bar code readers, HFxx series mobile RFID read/write systems, BPS 8 series bar code positioning system, RFM 12 / 32 / 62, RFI 32, IT 1900 series mobile 2D-code readers, IT 1902 series mobile 2D-code readers, IT 1910 series mobile 2D-code readers, IT 1911 series mobile 2D-code readers, FIS series mobile 2D-code readers, HS 65x8, LSIS 222 series stationary 2D-code readers, DCR 200i series stationary 2D-code readers	PROFINET, RS 232	18 ... 30 V DC	IP 65
50114156	MA 255i DeviceNet gateway	BCL 2x series bar code reader, BCL 8 series bar code readers, BPS 8 series bar code positioning system, HFxx series mobile RFID read/write systems, RFM 12 / 32 / 62, RFI 32, Optical distance sensors (ODS/L with RS232), IT 1900 series mobile 2D-code readers, IT 1902 series mobile 2D-code readers, IT 1910 series mobile 2D-code readers, IT 1911 series mobile 2D-code readers, FIS series mobile 2D-code readers, HS 65x8, LSIS 222 series stationary 2D-code readers, DCR 200i series stationary 2D-code readers	RS 232, DeviceNet	18 ... 30 V DC	IP 67
50114157	MA 258i EtherNet/IP gateway	BCL 2x series bar code readers, BCL 8 series bar code readers, BPS 8 series bar code positioning system, HFxx series mobile RFID read/write systems, RFM 12 / 32 / 62, RFI 32, IT 1900 series mobile 2D-code readers, IT 1902 series mobile 2D-code readers, IT 1910 series mobile 2D-code readers, IT 1911 series mobile 2D-code readers, FIS series mobile 2D-code readers, HS 65x8, LSIS 222 series stationary 2D-code readers, DCR 200i series stationary 2D-code readers	EtherNet IP, RS 232	18 ... 30 V DC	IP 65

Dimensioned drawings: MA 200i

MA 2xxi modular connection unit

ACCESSORIES: MA 200i

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Interface	Sheathing material
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm		PVC
50114696	KB DN/CAN-5000 BA	Connector, M12, axial, female	5-pin	5,000 mm	DeviceNet, CANopen	PUR
50114697	KB DN/CAN-5000 SA	Connector, M12, axial, male	5-pin	5,000 mm	CANopen, DeviceNet	PUR
50104187	KB PB-5000-SA	Connector, M12, axial, male	5-pin	5,000 mm	PROFIBUS DP	PUR
50104180	KB PB-5000-BA	Connector, M12, axial, female	5-pin	5,000 mm	PROFIBUS DP	PUR
50115044	KB JST-3000	JST ZHR		3,000 mm	RS 232	PUR

Further connection cables can be found on our website

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Interface	Sheathing material
50115049	K-DS M12A-MA-5P-3m-S-PUR	Connector, M12, axial, female	5-pin	JST ZHR		3,000 mm		PUR
50115050	K-DS M12A-MA-8P-3m-S-PUR	Connector, M12, axial, female	8-pin	JST ZHR		3,000 mm		PUR
50114698	KB DN/CAN-5000 SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	5,000 mm	DeviceNet, CANopen	PUR
50130631	KSS ET-M12-4A-M12-4A-P7-010	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	1,000 mm	Ethernet	PUR
50130632	KSS ET-M12-4A-RJ45-A-P7-010	Connector, M12, axial, male	4-pin	RJ45		1,000 mm	Ethernet	PUR
50109881	KB ET-5000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45		5,000 mm	Ethernet	PUR
50106900	KB ET-5000-SSA	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	5,000 mm	Ethernet	PUR
50104098	KB PB-5000-SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	5,000 mm	PROFIBUS DP	PUR
50113468	KB JST-M12A-8P-Y-3000	Connector, M12, axial, male	8-pin	JST ZHR		3,000 mm	RS 232	PUR
50113467	KB JST-M12A-5P-3000	Connector, M12, axial, female	5-pin	JST ZHR		3,000 mm	RS 232	PUR
50113397	KB JST-HS-300	JST ZHR		Sub-D, male, axial		300 mm	RS 232	PUR

Further interconnection cables can be found on our website

User-configurable connectors

Part no.	Part description	Connection	No. of pins	Interface
50038538	KD 02-5-BA	Connector, M12, axial, female	5-pin	PROFIBUS DP, multiNet Plus
50038537	KD 02-5-SA	Connector, M12, axial, male	5-pin	PROFIBUS DP, multiNet Plus

Further connectors can be found on our website

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

/// MA 8



Connection unit for simple connection of the BCL 8 or BPS 8.



Benefits:

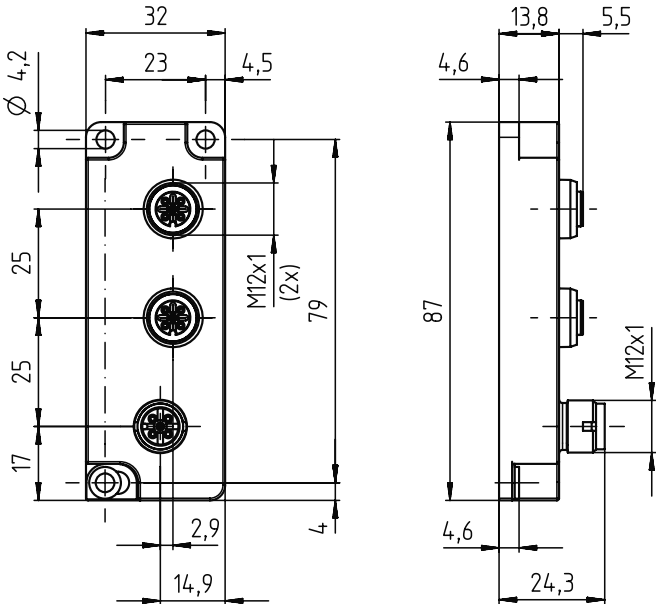
- Connection unit for BCL 8/BPS 8 with RS 232 or RS 485
- M12 connection
- Degree of protection IP 65



Direct access to the online product selector at www.leuze.com/en/ma8

Part no.	Part description	Suitable for	Interface	Supply voltage	Degree of protection
50104790	MA 8-01	BCL 8 series bar code readers, BPS 8 series bar code positioning system	RS 485	10 ... 30 V DC	IP 67
50101699	MA 8.1	BCL 8 series bar code readers	RS 232	10 ... 30 V DC	IP 67

Dimensioned drawings: MA 8



MA 8 modular connection unit

/// MA 900



Connection unit with clamp connection for BCL 900i.



Benefits:

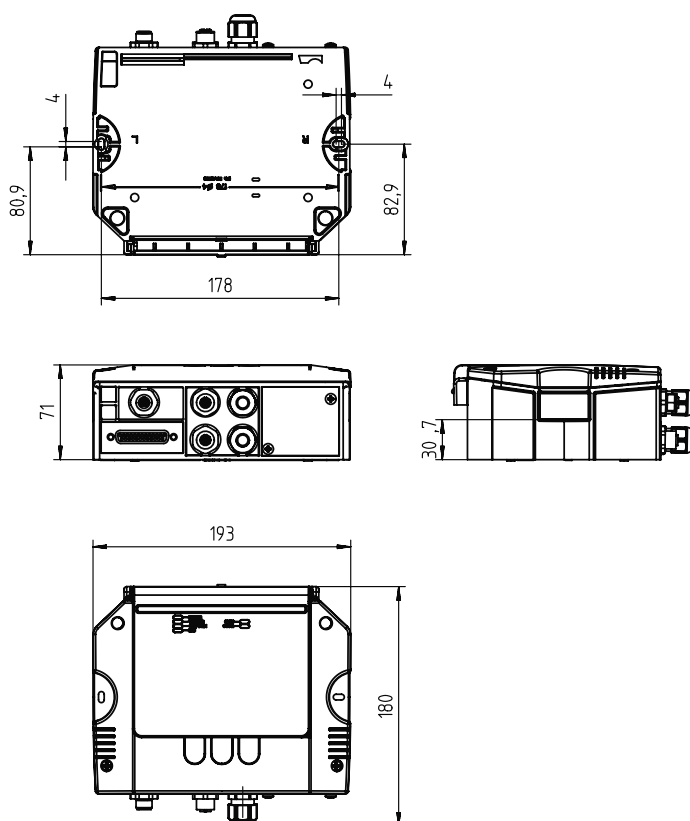
- Easy wiring and configuration
- RS 232 service interface
- Voltage supply terminals dual-installed for wiring through
- 4 LEDs for visualization at the device
- Hardware reset
- Large wiring terminal compartment



Direct access to the online product selector at www.leuze.com/en/ma900

Part no.	Part description	Suitable for	Interface	Degree of protection
50129663	MA 900	BCL 900i series bar code readers	RS 232, RS 422	IP 65

Dimensioned drawings: MA 900



MA 900 modular connection unit

ACCESSORIES: MA 900

Connection technology

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length
50131531	KB 900-1000	Connector, M12, axial, female	17-pin	Sub-HD, male, axial	25-pin	1,000 mm
50131529	KB 900-3000	Connector, M12, axial, female	17-pin	Sub-HD, male, axial	25-pin	3,000 mm
50131532	KB 900-5000	Connector, M12, axial, female	17-pin	Sub-HD, male, axial	25-pin	5,000 mm

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

/// MA 4

Connection unit with clamp connections for BCL 21/22 and BCL 32 with parameter memory.

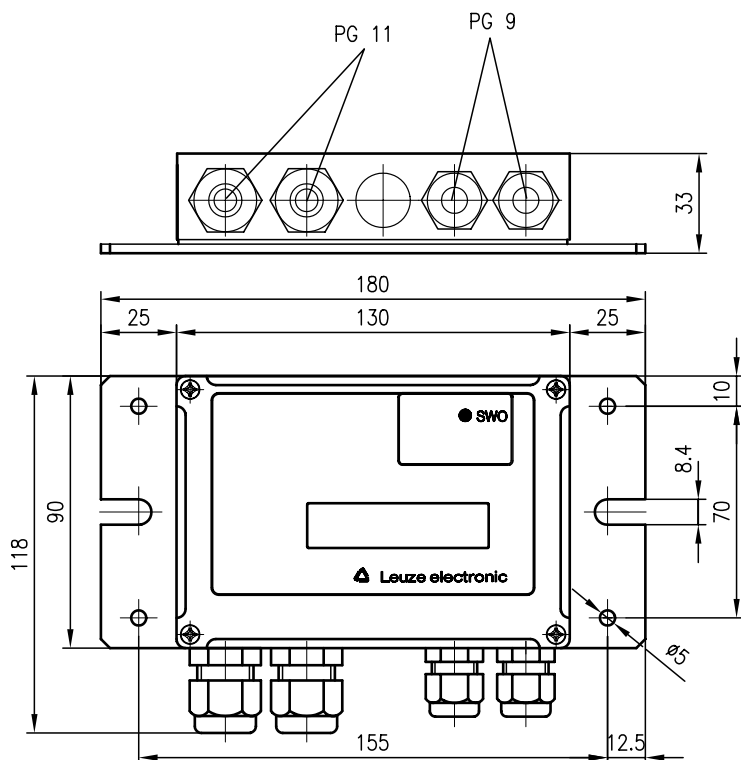
**Benefits:**

- Parameters of the BCL 21/22 are saved in a fail-safe manner on an EEPROM
- Rotary switch for setting the address for networking via Leuze multiNet plus
- Additional RS 232 service interface (9-pin Sub-D plug)
- Integrated two-line display with 16 characters each (MA 4D only)
- PG screw fittings on mounting plate
- Terminals for connecting the switching inputs/outputs, the voltage supply and the communication interface



Direct access to the online product selector at www.leuze.com/en/ma4

Part no.	Part description	Suitable for	Interface	Supply voltage	Degree of protection
50031537	MA 4	BCL 2x series bar code reader, BCL 3x series bar code reader	RS 232, RS 485	10 ... 30 V DC	IP 54
50102024	MA 4 100	BCL 2x series bar code reader, BCL 3x series bar code reader	RS 232, RS 485	10 ... 30 V DC	IP 54
50039659	MA 4 110	BCL 2x series bar code reader, BCL 3x series bar code reader	RS 232	10 ... 30 V DC	IP 54
50039660	MA 4 120	BCL 2x series bar code reader, BCL 3x series bar code reader	TTY, RS 232	10 ... 30 V DC	IP 54
50039661	MA 4 130	BCL 2x series bar code reader, BCL 3x series bar code reader	RS 232, RS 422	10 ... 30 V DC	IP 54
50031536	MA 4 D	BCL 2x series bar code reader, BCL 3x series bar code reader	RS 232, RS 485	10 ... 30 V DC	IP 54
50102023	MA 4 D 100	BCL 2x series bar code reader, BCL 3x series bar code reader	RS 232, RS 485	10 ... 30 V DC	IP 54
50039662	MA 4 D 110	BCL 2x series bar code reader, BCL 3x series bar code reader	RS 232	10 ... 30 V DC	IP 54
50039663	MA 4 D 120	BCL 2x series bar code reader, BCL 3x series bar code reader	TTY, RS 232	10 ... 30 V DC	IP 54
50039664	MA 4 D 130	BCL 2x series bar code reader, BCL 3x series bar code reader	RS 232, RS 422	10 ... 30 V DC	IP 54

Dimensioned drawings: MA 4

MA 4 modular connection unit

/// MA 4.7



Connection unit with clamp connections for BPS 37.



Benefits:

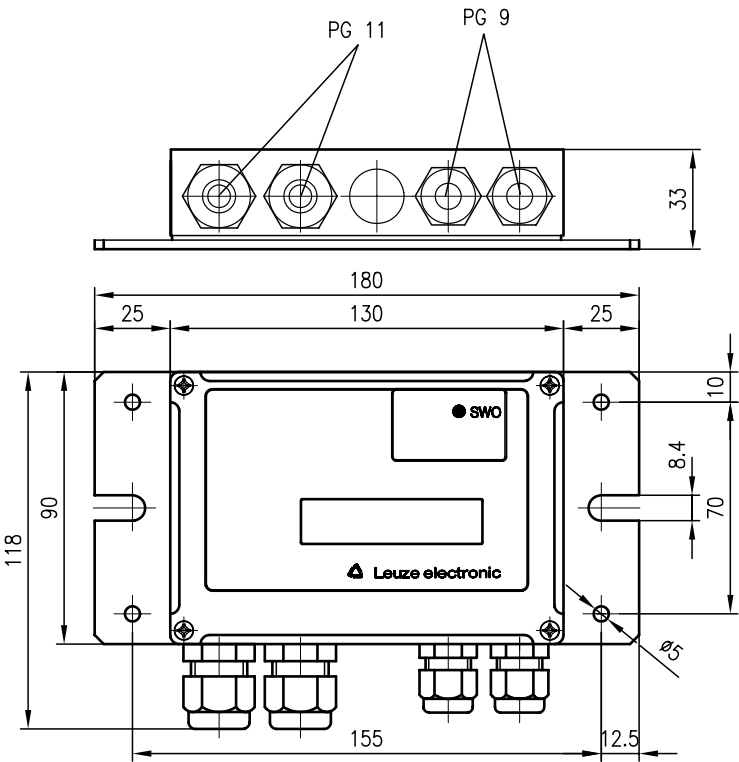
- Parameters of the BPS 37 are saved in a fail-safe manner on an EEPROM
- Rotary switch for adjusting the resolution / speed and jumper for Gray/binary selection
- Additional RS 232 service interface (9-pin sub-D connector)
- PG screw fittings on mounting plate
- Integrated two-line display with 16 characters each (MA 4D.7 only)
- Terminals for connecting the switching input/output, the voltage supply and the communication interface



Direct access to the online product selector at www.leuze.com/en/ma4_7

Part no.	Part description	Suitable for	Supply voltage	Degree of protection
50037325	MA 4 D.7	BPS 3x series bar code positioning system	10 ... 30V DC	IP 54
50037324	MA 4.7	BPS 3x series bar code positioning system	10 ... 30V DC	IP 54

Dimensioned drawings: MA 4.7



MA 4.7 modular connection unit

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

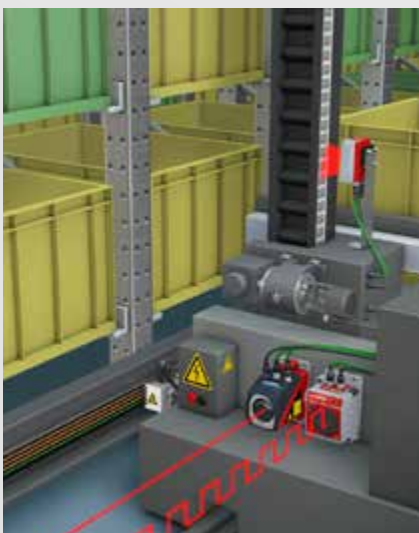
Industrial image processing

Accessories

/ DATA TRANSMISSION

CONTACT-FREE TRANSMISSION OF INFORMATION BY MEANS OF INFRARED LIGHT

Whenever data needs to be communicated without contact, optical devices for data transmission are the right choice. The optical data transceivers are used primarily in plant engineering, especially in applications where industrial networks such as PROFIBUS, DeviceNet or Ethernet etc. are connected to system components which are moved.



/// DDLS 500



The DDLS 500 is a data transmission photo-electric sensor that, in addition to a high transmission rate of 100 Mbit/s, sets new standards – above all with respect to usability.

**Benefits:**

- 100 Mbit/s transparent data transmission of all Ethernet protocols such as PROFINET, EtherNet IP, EtherCat, etc.
- Laser alignment aid
- Monitoring of availability
- Interference-free parallel operation with AMS 300i
- Integrated "one-man" alignment device
- Optionally with heating (down to -30°C)



Direct access to the online product selector at www.leuze.com/en/ddls500

Part no.	Part description	Operating range	Interface	Opening angle	Transmission speed	Connection 1 Connection 2	Description
50131024	► DDLS 508 40.0	100 ... 40,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	
50131024	◄ DDLS 508 40.0	100 ... 40,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	
50131032	► DDLS 508 40.0 H	100 ... 40,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Heating
50131032	◄ DDLS 508 40.0 H	100 ... 40,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Heating
50131029	► DDLS 508 40.0 L	100 ... 40,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Integrated laser alignment aid
50131029	◄ DDLS 508 40.0 L	100 ... 40,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Integrated laser alignment aid
50131035	► DDLS 508 40.0 L H	100 ... 40,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Integrated laser alignment aid, heating
50131035	◄ DDLS 508 40.0 L H	100 ... 40,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Integrated laser alignment aid, heating
50132913	► DDLS 508 40.3	100 ... 40,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Operation of parallel light axes, not influenced by reflective surfaces
50132914	◄ DDLS 508 40.4	100 ... 40,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Not influenced by reflective surfaces, operation of parallel light axes
50132919	► DDLS 508 40.3 H	100 ... 40,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Operation of parallel light axes, not influenced by reflective surfaces, heating
50132920	◄ DDLS 508 40.4 H	100 ... 40,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Not influenced by reflective surfaces, heating, operation of parallel light axes
50132925	► DDLS 508 40.3 L	100 ... 40,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Integrated laser alignment aid, not influenced by reflective surfaces, operation of parallel light axes
50132926	◄ DDLS 508 40.4 L	100 ... 40,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Operation of parallel light axes, integrated laser alignment aid, not influenced by reflective surfaces
50132931	► DDLS 508 40.3 L H	100 ... 40,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Operation of parallel light axes, integrated laser alignment aid, not influenced by reflective surfaces, heating
50132932	◄ DDLS 508 40.4 L H	100 ... 40,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Not influenced by reflective surfaces, operation of parallel light axes, integrated laser alignment aid, heating
50131027	► DDLS 508 120.0	100 ... 120,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	
50131027	◄ DDLS 508 120.0	100 ... 120,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	
50131033	► DDLS 508 120.0 H	100 ... 120,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Heating
50131033	◄ DDLS 508 120.0 H	100 ... 120,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Heating
50131030	► DDLS 508 120.0 L	100 ... 120,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Integrated laser alignment aid
50131030	◄ DDLS 508 120.0 L	100 ... 120,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Integrated laser alignment aid
50131036	► DDLS 508 120.0 L H	100 ... 120,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Integrated laser alignment aid, heating
50131036	◄ DDLS 508 120.0 L H	100 ... 120,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Integrated laser alignment aid, heating
50132915	► DDLS 508 120.3	100 ... 120,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Not influenced by reflective surfaces, operation of parallel light axes
50132916	◄ DDLS 508 120.4	100 ... 120,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Operation of parallel light axes, not influenced by reflective surfaces
50132921	► DDLS 508 120.3 H	100 ... 120,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Operation of parallel light axes, not influenced by reflective surfaces, heating
50132922	◄ DDLS 508 120.4 H	100 ... 120,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Heating, not influenced by reflective surfaces, operation of parallel light axes
50132927	► DDLS 508 120.3 L	100 ... 120,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Integrated laser alignment aid, Operation of parallel light axes, not influenced by reflective surfaces
50132928	◄ DDLS 508 120.4 L	100 ... 120,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Operation of parallel light axes, integrated laser alignment aid, not influenced by reflective surfaces

► transmitter / ◄ receiver

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

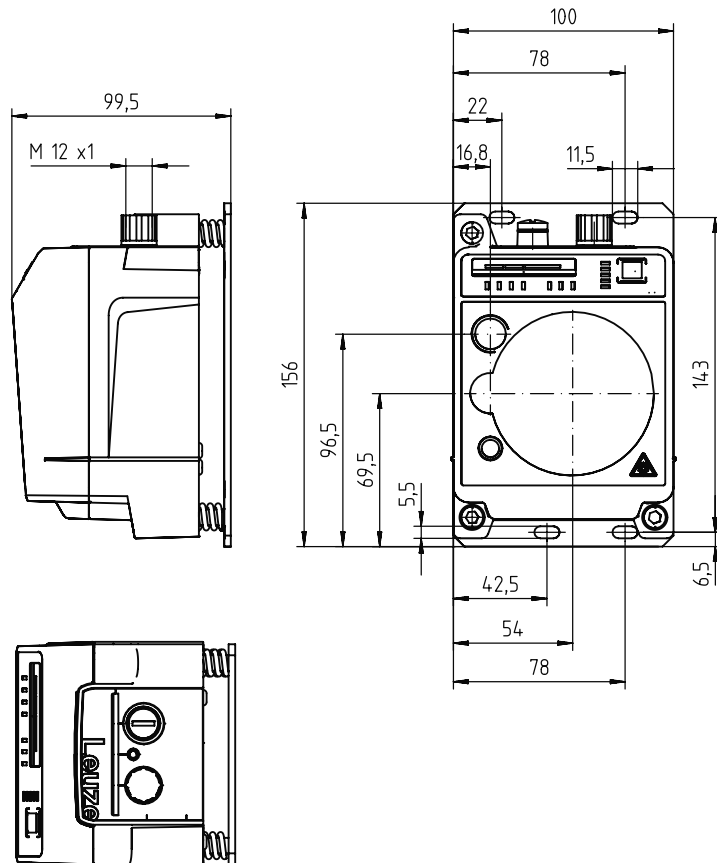
Industrial image processing

Accessories

Part no.	Part description	Operating range	Interface	Opening angle	Transmission speed	Connection 1 Connection 2	Description
50132933	► DDLS 508 120.3 L H	100 ... 120,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Not influenced by reflective surfaces, heating, integrated laser alignment aid, operation of parallel light axes
50132934	◄ DDLS 508 120.4 L H	100 ... 120,000 mm	Ethernet	0.5 °	100 Mbit/s	Connector, M12, 5-pin Connector, M12, 4-pin	Integrated laser alignment aid, heating, not influenced by reflective surfaces, operation of parallel light axes

► transmitter / ◄ receiver

Dimensioned drawings: DDLS 500



DDLS 500 data transmission photoelectric sensor

ACCESSORIES: DDLS 500

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Interface	Sheathing material
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm		PVC
50104559	K-D M12A-5P-10m-PVC	Connector, M12, axial, female	5-pin	10,000 mm		PVC
50106739	KB ET-2000-SA	Connector, M12, axial, male	4-pin	2,000 mm	Ethernet	PUR
50106740	KB ET-5000-SA	Connector, M12, axial, male	4-pin	5,000 mm	Ethernet	PUR
50106741	KB ET-10000-SA	Connector, M12, axial, male	4-pin	10,000 mm	Ethernet	PUR
50106742	KB ET-15000-SA	Connector, M12, axial, male	4-pin	15,000 mm	Ethernet	PUR
50106746	KB ET-30000-SA	Connector, M12, axial, male	4-pin	30,000 mm	Ethernet	PUR

Further connection cables can be found on our website

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Cable length	Interface	Sheathing material
50130632	KSS ET-M12-4A-RJ45-A-P7-010	Connector, M12, axial, male	4-pin	RJ45	1,000 mm	Ethernet	PUR
50109880	KB ET-2000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45	2,000 mm	Ethernet	PUR
50109881	KB ET-5000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45	5,000 mm	Ethernet	PUR
50109882	KB ET-10000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45	10,000 mm	Ethernet	PUR
50109883	KB ET-15000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45	15,000 mm	Ethernet	PUR
50109886	KB ET-30000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45	30,000 mm	Ethernet	PUR
50126132	KB 307-3000	Socket connector		Socket connector	3,000 mm	SSI	PVC

Further interconnection cables can be found on our website

User-configurable connectors

Part no.	Part description	Connection	No. of pins	Interface
50108991	D-ET1	RJ45		Ethernet
50112155	S-M12A-ET	Connector, M12, axial, male	4-pin	Ethernet
50020501	KD 095-5A	Connector, M12, axial, female	5-pin	

Further connectors can be found on our website

Adapter

Part no.	Part description	Connection 1	No. of pins	Connection 2
50109832	KDS ET-M12 / RJ45 W-4P	Connector, M12, angled, female, D-coded	4-pin	RJ45

/// DDLs 200



Infrared data transmission protects this series from interference. Systems are available for all common industrial interfaces. The ranges are stepped and reach a maximum transmission distance of 500 m.



Benefits:

- Ranges up to 500 m possible
- Transmission rates up to 2 Mbit/s
- Network interfaces with integrated repeater function
- Low ambient light sensitivity through special FSK method
- Interfaces: PROFIBUS, Interbus and CAN/DeviceNet



Direct access to the online product selector at www.leuze.com/en/ddls200

Part no.	Part description	Operating range	Interface	Opening angle	Transmission speed	Connection 1 Connection 2	Description
50122268	► DDLs 200/80.2-50-W-M12	200 ... 80,000 mm	CANopen, DeviceNet	2 °	10 ... 1,000 / 125 ... 500 kBit/s	Connector, M12, 5-pin Connector, M12, 5-pin	Wide angle version, Operation of parallel light axes, not influenced by reflective surfaces
50122267	◄ DDLs 200/80.1-50-W-M12	200 ... 80,000 mm	CANopen, DeviceNet	2 °	10 ... 1,000 / 125 ... 500 kBit/s	Connector, M12, 5-pin Connector, M12, 5-pin	Wide angle version, Operation of parallel light axes, not influenced by reflective surfaces
50039937	► DDLs 200/120.1-50	200 ... 120,000 mm	CANopen, DeviceNet	1 °	10 ... 1,000 / 125 ... 500 kBit/s	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50039938	◄ DDLs 200/120.2-50	200 ... 120,000 mm	CANopen, DeviceNet	1 °	10 ... 1,000 / 125 ... 500 kBit/s	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50039943	► DDLs 200/120.1-50-H	200 ... 120,000 mm	CANopen, DeviceNet	1 °	10 ... 1,000 / 125 ... 500 kBit/s	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50039944	◄ DDLs 200/120.2-50-H	200 ... 120,000 mm	CANopen, DeviceNet	1 °	10 ... 1,000 / 125 ... 500 kBit/s	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces

► transmitter / ◄ receiver

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

Part no.	Part description	Operating range	Interface	Opening angle	Transmission speed	Connection 1 Connection 2	Description
50113046	► DDLS 200/120.1-50-M12	200 ... 120,000 mm	CANopen, DeviceNet	1 °	10 ... 1,000 / 125 ... 500 kBit/s	Connector, M12, 5-pin Connector, M12, 5-pin	Operation of parallel light axes, not influenced by reflective surfaces
50113045	◄ DDLS 200/120.2-50-M12	200 ... 120,000 mm	CANopen, DeviceNet	1 °	10 ... 1,000 / 125 ... 500 kBit/s	Connector, M12, 5-pin Connector, M12, 5-pin	Operation of parallel light axes, not influenced by reflective surfaces
50039939	► DDLS 200/200.1-50	200 ... 200,000 mm	CANopen, DeviceNet	1 °	10 ... 1,000 / 125 ... 500 kBit/s	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50039940	◄ DDLS 200/200.2-50	200 ... 200,000 mm	CANopen, DeviceNet	1 °	10 ... 1,000 / 125 ... 500 kBit/s	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50039945	► DDLS 200/200.1-50-H	200 ... 200,000 mm	CANopen, DeviceNet	1 °	10 ... 1,000 / 125 ... 500 kBit/s	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50039946	◄ DDLS 200/200.2-50-H	200 ... 200,000 mm	CANopen, DeviceNet	1 °	10 ... 1,000 / 125 ... 500 kBit/s	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50125767	► DDLS 200/200.1-50-M12	200 ... 200,000 mm	CANopen, DeviceNet	1 °	10 ... 1,000 / 125 ... 500 kBit/s	Connector, M12, 5-pin Connector, M12, 5-pin	Operation of parallel light axes, not influenced by reflective surfaces
50125768	◄ DDLS 200/200.2-50-M12	200 ... 200,000 mm	CANopen, DeviceNet	1 °	10 ... 1,000 / 125 ... 500 kBit/s	Connector, M12, 5-pin Connector, M12, 5-pin	Operation of parallel light axes, not influenced by reflective surfaces
50039941	► DDLS 200/300.1-50	200 ... 300,000 mm	CANopen, DeviceNet	1 °	10 ... 1,000 / 125 ... 500 kBit/s	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50039942	◄ DDLS 200/300.2-50	200 ... 300,000 mm	CANopen, DeviceNet	1 °	10 ... 1,000 / 125 ... 500 kBit/s	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50039947	► DDLS 200/300.1-50-H	200 ... 300,000 mm	CANopen, DeviceNet	1 °	10 ... 1,000 / 125 ... 500 kBit/s	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50039948	◄ DDLS 200/300.2-50-H	200 ... 300,000 mm	CANopen, DeviceNet	1 °	10 ... 1,000 / 125 ... 500 kBit/s	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces

PROFIBUS DP, RS 485 interface

50039704	► DDLS 200/30.1-10-W	200 ... 30,000 mm	PROFIBUS DP, RS 485	3 °	0.0096 ... 1.5 Mbps	Terminal, M16 Terminal, M16	Wide angle version, Operation of parallel light axes, not influenced by reflective surfaces
50039705	◄ DDLS 200/30.2-10-W	200 ... 30,000 mm	PROFIBUS DP, RS 485	3 °	0.0096 ... 1.5 Mbps	Terminal, M16 Terminal, M16	Wide angle version, Operation of parallel light axes, not influenced by reflective surfaces
50102312	► DDLS 200/80.1-10-W	200 ... 80,000 mm	PROFIBUS DP, RS 485	2 °	0.0096 ... 1.5 Mbps	Terminal, M16 Terminal, M16	Wide angle version, Operation of parallel light axes, not influenced by reflective surfaces
50102313	◄ DDLS 200/80.2-10-W	200 ... 80,000 mm	PROFIBUS DP, RS 485	2 °	0.0096 ... 1.5 Mbps	Terminal, M16 Terminal, M16	Wide angle version, Operation of parallel light axes, not influenced by reflective surfaces
50102494	► DDLS 200/80.1-10-W-H	200 ... 80,000 mm	PROFIBUS DP, RS 485	2 °	0.0096 ... 1.5 Mbps	Terminal, M16 Terminal, M16	Heating, wide angle version, Operation of parallel light axes, not influenced by reflective surfaces
50102495	◄ DDLS 200/80.2-10-W-H	200 ... 80,000 mm	PROFIBUS DP, RS 485	2 °	0.0096 ... 1.5 Mbps	Terminal, M16 Terminal, M16	Heating, wide angle version, Operation of parallel light axes, not influenced by reflective surfaces
50036282	► DDLS 200/120.1-10	200 ... 120,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50036283	◄ DDLS 200/120.2-10	200 ... 120,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50036286	► DDLS 200/120.1-10-H	200 ... 120,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50036287	◄ DDLS 200/120.2-10-H	200 ... 120,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50106029	► DDLS 200/120.1-10-H-M12	200 ... 120,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Connector, M12, 5-pin Connector, M12, 5-pin	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50106030	◄ DDLS 200/120.2-10-H-M12	200 ... 120,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Connector, M12, 5-pin Connector, M12, 5-pin	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50106023	► DDLS 200/120.1-10-M12	200 ... 120,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Connector, M12, 5-pin Connector, M12, 5-pin	Operation of parallel light axes, not influenced by reflective surfaces
50106024	◄ DDLS 200/120.2-10-M12	200 ... 120,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Connector, M12, 5-pin Connector, M12, 5-pin	Operation of parallel light axes, not influenced by reflective surfaces
50036280	► DDLS 200/200.1-10	200 ... 200,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50036281	◄ DDLS 200/200.2-10	200 ... 200,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50036284	► DDLS 200/200.1-10-H	200 ... 200,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50036285	◄ DDLS 200/200.2-10-H	200 ... 200,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces

► transmitter / ◄ receiver

Part no.	Part description	Operating range	Interface	Opening angle	Transmission speed	Connection 1 Connection 2	Description
50106031	► DDLS 200/200.1-10-H-M12	200 ... 200,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Connector, M12, 5-pin Connector, M12, 5-pin	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50106032	◄ DDLS 200/200.2-10-H-M12	200 ... 200,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Connector, M12, 5-pin Connector, M12, 5-pin	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50106025	► DDLS 200/200.1-10-M12	200 ... 200,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Connector, M12, 5-pin Connector, M12, 5-pin	Operation of parallel light axes, not influenced by reflective surfaces
50106026	◄ DDLS 200/200.2-10-M12	200 ... 200,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Connector, M12, 5-pin Connector, M12, 5-pin	Operation of parallel light axes, not influenced by reflective surfaces
50038284	► DDLS 200/300.1-10	200 ... 300,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50038285	◄ DDLS 200/300.2-10	200 ... 300,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50038286	► DDLS 200/300.1-10-H	200 ... 300,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50038287	◄ DDLS 200/300.2-10-H	200 ... 300,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50106033	► DDLS 200/300.1-10-H-M12	200 ... 300,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Connector, M12, 5-pin Connector, M12, 5-pin	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50106034	◄ DDLS 200/300.2-10-H-M12	200 ... 300,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Connector, M12, 5-pin Connector, M12, 5-pin	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50106027	► DDLS 200/300.1-10-M12	200 ... 300,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Connector, M12, 5-pin Connector, M12, 5-pin	Operation of parallel light axes, not influenced by reflective surfaces
50106028	◄ DDLS 200/300.2-10-M12	200 ... 300,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 1.5 Mbps	Connector, M12, 5-pin Connector, M12, 5-pin	Operation of parallel light axes, not influenced by reflective surfaces
50040131	► DDLS 200/500.1-10	200 ... 500,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 0.09375 Mbps	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50040132	◄ DDLS 200/500.2-10	200 ... 500,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 0.09375 Mbps	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50040133	► DDLS 200/500.1-10-H	200 ... 500,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 0.09375 Mbps	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50040134	◄ DDLS 200/500.2-10-H	200 ... 500,000 mm	PROFIBUS DP, RS 485	1 °	0.0096 ... 0.09375 Mbps	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces

RS 422, Interbus-S interface

50041339	► DDLS 200/30.1-20-W	200 ... 30,000 mm	RS 422, Interbus-S	3 °	2 Mbit/s	Terminal, M16 Terminal, M16	Wide angle version, Operation of parallel light axes, not influenced by reflective surfaces
50041338	◄ DDLS 200/30.2-20-W	200 ... 30,000 mm	RS 422, Interbus-S	3 °	2 Mbit/s	Terminal, M16 Terminal, M16	Wide angle version, Operation of parallel light axes, not influenced by reflective surfaces
50106252	► DDLS 200/80.1-20-W	200 ... 80,000 mm	RS 422, Interbus-S	2 °	2 Mbit/s	Terminal, M16 Terminal, M16	Wide angle version, Operation of parallel light axes, not influenced by reflective surfaces
50106253	◄ DDLS 200/80.2-20-W	200 ... 80,000 mm	RS 422, Interbus-S	2 °	2 Mbit/s	Terminal, M16 Terminal, M16	Wide angle version, Operation of parallel light axes, not influenced by reflective surfaces
50036290	► DDLS 200/120.1-20	200 ... 120,000 mm	RS 422, Interbus-S	1 °	2 Mbit/s	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50036291	◄ DDLS 200/120.2-20	200 ... 120,000 mm	RS 422, Interbus-S	1 °	2 Mbit/s	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50036294	► DDLS 200/120.1-20-H	200 ... 120,000 mm	RS 422, Interbus-S	1 °	2 Mbit/s	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50036295	◄ DDLS 200/120.2-20-H	200 ... 120,000 mm	RS 422, Interbus-S	1 °	2 Mbit/s	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50036288	► DDLS 200/200.1-20	200 ... 200,000 mm	RS 422, Interbus-S	1 °	2 Mbit/s	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50036289	◄ DDLS 200/200.2-20	200 ... 200,000 mm	RS 422, Interbus-S	1 °	2 Mbit/s	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50036292	► DDLS 200/200.1-20-H	200 ... 200,000 mm	RS 422, Interbus-S	1 °	2 Mbit/s	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50036293	◄ DDLS 200/200.2-20-H	200 ... 200,000 mm	RS 422, Interbus-S	1 °	2 Mbit/s	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50038288	► DDLS 200/300.1-20	200 ... 300,000 mm	RS 422, Interbus-S	1 °	2 Mbit/s	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50038289	◄ DDLS 200/300.2-20	200 ... 300,000 mm	RS 422, Interbus-S	1 °	2 Mbit/s	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces

► transmitter / ◄ receiver

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

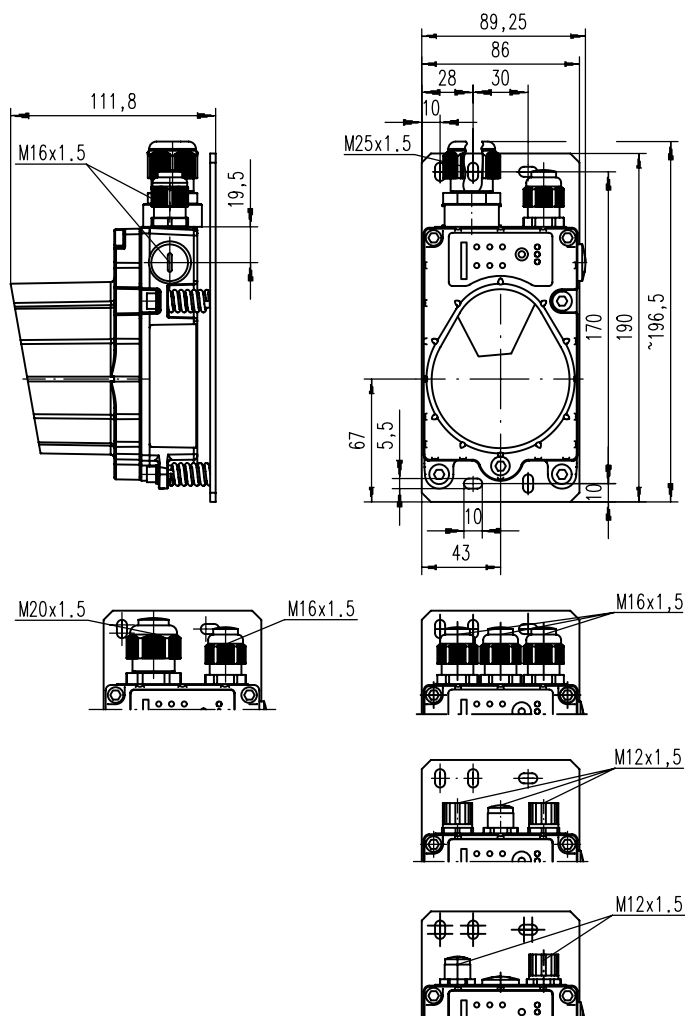
Part no.	Part description	Operating range	Interface	Opening angle	Transmission speed	Connection 1 Connection 2	Description
50038290	► DDLS 200/300.1-20-H	200 ... 300,000 mm	RS 422, Interbus-S	1 °	2 Mbit/s	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50038291	◄ DDLS 200/300.2-20-H	200 ... 300,000 mm	RS 422, Interbus-S	1 °	2 Mbit/s	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50040135	► DDLS 200/500.1-20	200 ... 500,000 mm	RS 422, Interbus-S	1 °	2 Mbit/s	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50040136	◄ DDLS 200/500.2-20	200 ... 500,000 mm	RS 422, Interbus-S	1 °	2 Mbit/s	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50040137	► DDLS 200/500.1-20-H	200 ... 500,000 mm	RS 422, Interbus-S	1 °	2 Mbit/s	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50040138	◄ DDLS 200/500.2-20-H	200 ... 500,000 mm	RS 422, Interbus-S	1 °	2 Mbit/s	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces

Rockwell DH+/RIO interface

50038300	► DDLS 200/120.1-40	200 ... 120,000 mm	Rockwell DH+/RIO	1 °	57.6 ... 230.4 Kbit/s	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50038301	◄ DDLS 200/120.2-40	200 ... 120,000 mm	Rockwell DH+/RIO	1 °	57.6 ... 230.4 Kbit/s	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50038302	► DDLS 200/120.1-40-H	200 ... 120,000 mm	Rockwell DH+/RIO	1 °	57.6 ... 230.4 Kbit/s	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50038303	◄ DDLS 200/120.2-40-H	200 ... 120,000 mm	Rockwell DH+/RIO	1 °	57.6 ... 230.4 Kbit/s	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50036300	► DDLS 200/200.1-40	200 ... 200,000 mm	Rockwell DH+/RIO	1 °	57.6 ... 230.4 Kbit/s	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50036301	◄ DDLS 200/200.2-40	200 ... 200,000 mm	Rockwell DH+/RIO	1 °	57.6 ... 230.4 Kbit/s	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50036302	► DDLS 200/200.1-40-H	200 ... 200,000 mm	Rockwell DH+/RIO	1 °	57.6 ... 230.4 Kbit/s	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50036303	◄ DDLS 200/200.2-40-H	200 ... 200,000 mm	Rockwell DH+/RIO	1 °	57.6 ... 230.4 Kbit/s	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50038296	► DDLS 200/300.1-40	200 ... 300,000 mm	Rockwell DH+/RIO	1 °	57.6 ... 230.4 Kbit/s	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50038297	◄ DDLS 200/300.2-40	200 ... 300,000 mm	Rockwell DH+/RIO	1 °	57.6 ... 230.4 Kbit/s	Terminal, M16 Terminal, M16	Operation of parallel light axes, not influenced by reflective surfaces
50038298	► DDLS 200/300.1-40-H	200 ... 300,000 mm	Rockwell DH+/RIO	1 °	57.6 ... 230.4 Kbit/s	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces
50038299	◄ DDLS 200/300.2-40-H	200 ... 300,000 mm	Rockwell DH+/RIO	1 °	57.6 ... 230.4 Kbit/s	Terminal, M16 Terminal, M16	Heating, Operation of parallel light axes, not influenced by reflective surfaces

► transmitter / ◄ receiver

Dimensioned drawings: DDLS 200



DDLS 200 data transmission photoelectric sensor

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

ACCESSORIES: DDLS 200

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Interface	Sheathing material
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm		PVC
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm		PVC
50104559	K-D M12A-5P-10m-PVC	Connector, M12, axial, female	5-pin	10,000 mm		PVC
50106739	KB ET-2000-SA	Connector, M12, axial, male	4-pin	2,000 mm	Ethernet	PUR
50106740	KB ET-5000-SA	Connector, M12, axial, male	4-pin	5,000 mm	Ethernet	PUR
50106741	KB ET-10000-SA	Connector, M12, axial, male	4-pin	10,000 mm	Ethernet	PUR
50106742	KB ET-15000-SA	Connector, M12, axial, male	4-pin	15,000 mm	Ethernet	PUR
50106746	KB ET-30000-SA	Connector, M12, axial, male	4-pin	30,000 mm	Ethernet	PUR
50104188	KB PB-2000-SA	Connector, M12, axial, male	5-pin	2,000 mm	PROFIBUS DP	PUR
50104187	KB PB-5000-SA	Connector, M12, axial, male	5-pin	5,000 mm	PROFIBUS DP	PUR
50104186	KB PB-10000-SA	Connector, M12, axial, male	5-pin	10,000 mm	PROFIBUS DP	PUR
50104185	KB PB-15000-SA	Connector, M12, axial, male	5-pin	15,000 mm	PROFIBUS DP	PUR
50104182	KB PB-30000-SA	Connector, M12, axial, male	5-pin	30,000 mm	PROFIBUS DP	PUR
50104181	KB PB-2000-BA	Connector, M12, axial, female	5-pin	2,000 mm	PROFIBUS DP	PUR
50104180	KB PB-5000-BA	Connector, M12, axial, female	5-pin	5,000 mm	PROFIBUS DP	PUR
50104179	KB PB-10000-BA	Connector, M12, axial, female	5-pin	10,000 mm	PROFIBUS DP	PUR
50104178	KB PB-15000-BA	Connector, M12, axial, female	5-pin	15,000 mm	PROFIBUS DP	PUR
50104175	KB PB-30000-BA	Connector, M12, axial, female	5-pin	30,000 mm	PROFIBUS DP	PUR

Further connection cables can be found on our website

Data transmission /
Control componentsIndustrial image
processing

Accessories

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Interface	Sheathing material
50104096	KB PB-1000-SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	1,000 mm	PROFIBUS DP	PUR
50104097	KB PB-2000-SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	2,000 mm	PROFIBUS DP	PUR
50104098	KB PB-5000-SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	5,000 mm	PROFIBUS DP	PUR
50104099	KB PB-10000-SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	10,000 mm	PROFIBUS DP	PUR
50104100	KB PB-15000-SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	15,000 mm	PROFIBUS DP	PUR
50104173	KB PB-30000-SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	30,000 mm	PROFIBUS DP	PUR

Further interconnection cables can be found on our website

Termination/bus termination

Part no.	Part description	Connection 1	No. of pins	Function
50038539	TS 02-4-SA	Connector, M12, axial, male	4-pin	Bus termination

Further terminator plugs can be found on our website

SMARTER CUSTOMER SERVICE



24 h support

On-Call Service and technical support
all around the clock



"In our Service Center in Owen, we have a lot of expert colleagues who, as sensor people, can reliably handle your questions and problems – and are happy to help you around the clock."

Simone Fischer,
Customer Care Center

You can reach the sensor people around the clock: www.leuze.com/en/support



/ POWER SUPPLY

INDUSTRIAL POWER SUPPLIES AND MODULES FOR LOAD CIRCUIT MONITORING AND LOAD DISTRIBUTION

A reliable and machine-independent power supply is part of an efficient sensor system. PSU switching power supply units have a maximum efficiency of up to 95 % with minimum power loss. The combination of the power boost function and current limiter enables the starting of loads with high inrush currents. The power supply units are suitable for use all around the world due to the wide input voltage range.

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

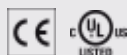
Data transmission /
Control componentsIndustrial image
processing

Accessories

/// PSU



Controlled 1 and 3 phase power supply units with alarm contact in diverse performance levels for installation in cabinet provide the basis for reliable sensor systems.

**Benefits:**

- Efficiency up to 95 %
- 150 % power boost for at least four seconds
- Derating happens only at 60 °C
- Metal housing with narrow overall width and optimal EMC characteristics
- High power-failure bridging
- Alarm contact for overvoltage, short-circuit and temperature for PSU 210 / 230
- Parallel mode: performance increase of up to 5 switching power supply units
- With push-in terminals (no tool required), LED-status display



Direct access to the online product selector at www.leuze.com/en/psu

Part no.	Part description	Number of phases	Output voltage Output current	Input voltage Input current	Power boost	Efficiency
50132582	PSU-02A-1P-24V-S	1x	22.5 ... 28 V DC adjustable; 2.5 A	95 ... 265 V AC / 110 ... 300 V DC 1.04 A (110 V AC) / 0.63 A (230 V AC)	No	87 % (230 V AC)
50132583	PSU-05A-1P-24V-S	1x	22.5 ... 28 V DC adjustable; 5 A	100 ... 265 V AC 2 A (110 V AC) / 1.16 A (230 V AC)	No	84 % (230 V AC)
50132584	PSU-10A-1P-24V-S	1x	22.5 ... 28 V DC adjustable; 10 A	100 ... 265 V AC 3.4 A (115 V AC) / 2.2 A (230 V AC)	No	87 % (230 V AC)
50132585	PSU-05A-1P-24V-H	1x	24 ... 28 V DC adjustable; 5 A	85 ... 265 V AC / 90 ... 250 V DC 1.3 A (100 V AC) / 0.61 A (240 V AC)	I out N × 150 % (min. 4 s)	94.5 % (230 V AC)
50132586	PSU-10A-1P-24V-H	1x	24 ... 28 V DC adjustable; 10 A	85 ... 265 V AC / 90 ... 250 V DC 2.6 A (100 V AC) / 1.1 A (240 V AC)	I out N × 150 % (min. 4 s)	94.3 % (230 V AC)
50132587	PSU-20A-1P-24V-H	1x	24 ... 28 V DC adjustable; 20 A	90 ... 265 V AC / 90 ... 250 V DC 5.2 A (100 V AC) / 2.2 A (240 V AC)	I out N × 150 % (min. 4 s)	94.1 % (230 V AC)
50132588	PSU-05A-3P-24V-H	3x	24 ... 28 V DC adjustable; 5 A	3 × 324 ... 572 V AC / 450 ... 750 V DC 0.45 A (3 × 360 V AC)	I out N × 150 % (min. 5 s)	92.5 % (3 × 400 V AC)
50132589	PSU-10A-3P-24V-H	3x	24 ... 28 V DC adjustable; 10 A	3 × 324 ... 572 V AC / 450 ... 745 V DC 0.75 A (3 × 360 V AC) / 0.45 A (3 × 500 V AC)	I out N × 150 % (min. 5 s)	93.7 % (3 × 400 V AC)
50132590	PSU-20A-3P-24V-H	3x	24 ... 28 V DC adjustable; 20 A	3 × 324 ... 572 V AC / 450 ... 745 V DC 1.3 A (3 × 360 V AC) / 1.0 A (3 × 500 V AC)	I out N × 150 % (min. 5 s)	94.1 % (230 V AC)
50132591	PSU-40A-3P-24V-H	3x	24 ... 28 V DC adjustable; 40 A	3 × 324 ... 572 V AC / 450 ... 745 V DC 2.3 A (3 × 360 V AC) / 1.6 A (3 × 500 V AC)	I out N × 150 % (min. 5 s)	93.7 % (3 × 400 V AC)

Switching sensors

Measuring sensors

Products for safety at work

Identification

**Data transmission /
Control components**

Industrial image processing

Accessories

INDUSTRIAL IMAGE PROCESSING

BECAUSE SEEING IS SOMETIMES BETTER

In the automated industrial landscape, the use of industrial image processing will increasingly become standard. Our modern camera systems are already used for many tasks, thereby significantly increasing the reliability and availability of your plant systems.

"Always knowing which product is the right one for the task in question requires a great deal of experience as well as a good portion of creativity. Experience because this prevents mistakes in positioning or designing a system being made twice. Creativity because the specific circumstances on site sometimes do not permit a standard installation, making skill and the right ideas necessary to solve the tasks at hand. And knowing this enables us to be extremely helpful to our customers."

Sven-Philipp Abraham,
Product Management –
Product Center Ident + Vision





Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

/ SMART CAMERA

THE INTELLIGENT EYE FOR AUTOMATION

LSIS 400i smart cameras for industrial image processing can be integrated quickly and at low cost. They are used in quality assurance, object detection and position determination, for identification and for production process monitoring. With their sophisticated range of features, LSIS 400i cameras can also reliably handle complex tasks.



/// LSIS 412i / LSIS 462i / LSIS 472i



High-performance smart camera for reliable and convenient quality control, code reading and measurement tasks. For checking for presence, completeness, type, position and orientation. The device offers omnidirectional reading of the most important 1D-/2D-codes with reference code comparison. As an additional function, the device can also be used for compartment fine positioning in the X and Y direction.

**Benefits:**

- Degree of protection IP 65/67
- Operation via webConfig with any standard browser or display
- The integrated, very homogeneous illumination makes possible working distances of up to 1,900 mm
- All interfaces (Ethernet, RS 232, 8x digital I/O) are integrated, no connection units are necessary
- Simple mounting with dovetail or threaded holes



Direct access to the online product selector at www.leuze.com/en/Isis4xxi

Part no.	Part description	Focal length	Optics cover	Light source	Interface	Software functions	Degree of protection
50116970	LSIS 412i M43-I1	8 mm	Glass	LED, infrared	Ethernet, RS 232	Completeness monitoring, dimension monitoring, presence monitoring, position determination, focus adjustment	IP 65, IP 67
50116969	LSIS 412i M43-I1-01	8 mm	Plastic	LED, infrared	Ethernet, RS 232	Completeness monitoring, dimension monitoring, presence monitoring, position determination, focus adjustment	IP 65, IP 67
50116972	LSIS 412i M43-M1	8 mm	Glass	LED, RGBW	Ethernet, RS 232	Completeness monitoring, dimension monitoring, presence monitoring, position determination, focus adjustment	IP 65, IP 67
50116971	LSIS 412i M43-M1-01	8 mm	Plastic	LED, RGBW	Ethernet, RS 232	Completeness monitoring, dimension monitoring, presence monitoring, position determination, focus adjustment	IP 65, IP 67
50108177	LSIS 412i M43-W1	8 mm	Glass	LED, white	Ethernet, RS 232	Presence monitoring, dimension monitoring, position determination, completeness monitoring, focus adjustment	IP 65, IP 67
50112928	LSIS 412i M43-W1-01	8 mm	Plastic	LED, white	Ethernet, RS 232	Presence monitoring, dimension monitoring, position determination, completeness monitoring, focus adjustment	IP 65, IP 67
50116974	LSIS 412i M45-I1	16 mm	Glass	LED, infrared	Ethernet, RS 232	Completeness monitoring, dimension monitoring, presence monitoring, position determination, focus adjustment	IP 65, IP 67
50116973	LSIS 412i M45-I1-01	16 mm	Plastic	LED, infrared	Ethernet, RS 232	Completeness monitoring, dimension monitoring, presence monitoring, position determination, focus adjustment	IP 65, IP 67
50116976	LSIS 412i M45-M1	16 mm	Glass	LED, RGBW	Ethernet, RS 232	Completeness monitoring, dimension monitoring, presence monitoring, position determination, focus adjustment	IP 65, IP 67
50116975	LSIS 412i M45-M1-01	16 mm	Plastic	LED, RGBW	Ethernet, RS 232	Completeness monitoring, dimension monitoring, presence monitoring, position determination, focus adjustment	IP 65, IP 67
50108990	LSIS 412i M45-W1	16 mm	Glass	LED, white	Ethernet, RS 232	Presence monitoring, dimension monitoring, position determination, completeness monitoring, focus adjustment	IP 65, IP 67
50112929	LSIS 412i M45-W1-01	16 mm	Plastic	LED, white	Ethernet, RS 232	Presence monitoring, dimension monitoring, position determination, completeness monitoring, focus adjustment	IP 65, IP 67
50117094	LSIS 412i M49-X9		Glass		Ethernet, RS 232	Completeness monitoring, dimension monitoring, presence monitoring, position determination, focus adjustment	IP 65, IP 67
50121148	LSIS 412i M49-X9-01		Plastic		Ethernet, RS 232	Dimension monitoring, completeness monitoring, presence monitoring, position determination, focus adjustment	IP 65, IP 67
50116986	LSIS 462i M43-I1	8 mm	Glass	LED, infrared	Ethernet, RS 232	Position determination, presence monitoring, completeness monitoring, reading of 1D codes, dimension monitoring, reading of 2D codes, measuring tool, focus adjustment	IP 65, IP 67
50116985	LSIS 462i M43-I1-01	8 mm	Plastic	LED, infrared	Ethernet, RS 232	Position determination, presence monitoring, completeness monitoring, reading of 1D codes, dimension monitoring, reading of 2D codes, measuring tool, focus adjustment	IP 65, IP 67
50116988	LSIS 462i M43-M1	8 mm	Glass	LED, RGBW	Ethernet, RS 232	Position determination, presence monitoring, completeness monitoring, reading of 1D codes, dimension monitoring, reading of 2D codes, measuring tool, focus adjustment	IP 65, IP 67
50116987	LSIS 462i M43-M1-01	8 mm	Plastic	LED, RGBW	Ethernet, RS 232	Position determination, presence monitoring, completeness monitoring, reading of 1D codes, dimension monitoring, reading of 2D codes, measuring tool, focus adjustment	IP 65, IP 67
50113053	LSIS 462i M43-W1	8 mm	Glass	LED, white	Ethernet, RS 232	Presence monitoring, dimension monitoring, reading of 1D codes, reading of 2D codes, position determination, completeness monitoring, measuring tool, focus adjustment	IP 65, IP 67

With the LSIS 4xxi...X9, the focal length depends on the used lens
Detailed information can be found online on www.leuze.com/en/Isis412i_462i

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

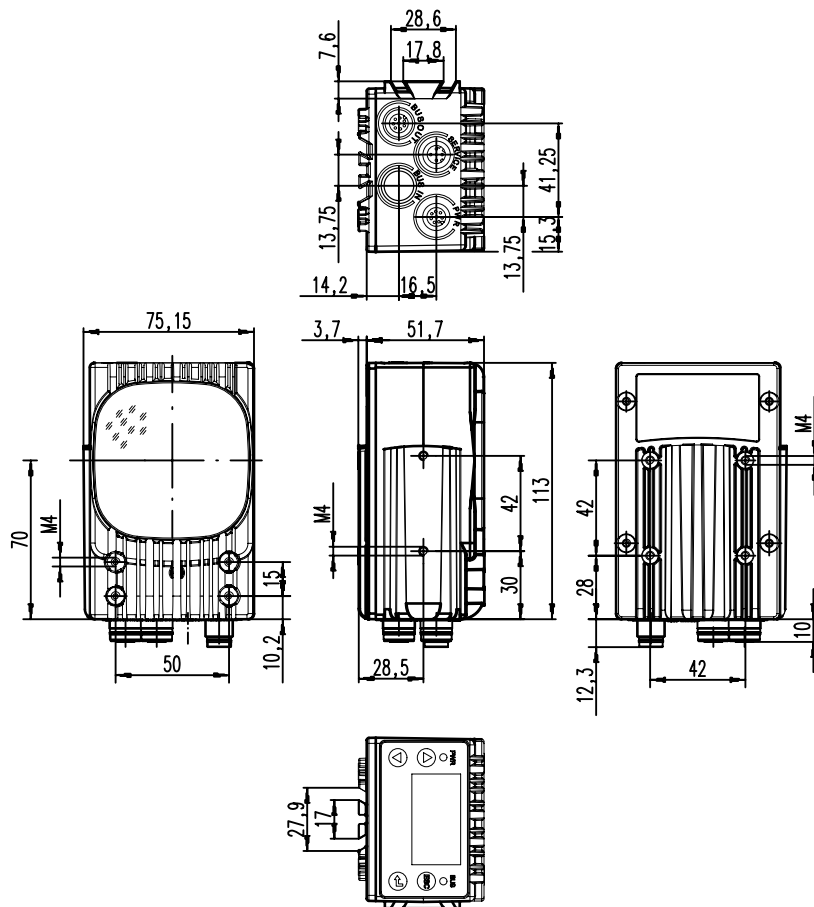
Data transmission /
Control componentsIndustrial image
processing

Accessories

Part no.	Part description	Focal length	Optics cover	Light source	Interface	Software functions	Degree of protection
50113052	LSIS 462i M43-W1-01	8 mm	Plastic	LED, white	Ethernet, RS 232	Presence monitoring, dimension monitoring, reading of 1D codes, reading of 2D codes, position determination, completeness monitoring, measuring tool, focus adjustment	IP 65, IP 67
50116990	LSIS 462i M45-I1	16 mm	Glass	LED, infrared	Ethernet, RS 232	Position determination, presence monitoring, completeness monitoring, reading of 1D codes, dimension monitoring, reading of 2D codes, measuring tool, focus adjustment	IP 65, IP 67
50116989	LSIS 462i M45-I1-01	16 mm	Plastic	LED, infrared	Ethernet, RS 232	Position determination, presence monitoring, completeness monitoring, reading of 1D codes, dimension monitoring, reading of 2D codes, measuring tool, focus adjustment	IP 65, IP 67
50116992	LSIS 462i M45-M1	16 mm	Glass	LED, RGBW	Ethernet, RS 232	Position determination, presence monitoring, completeness monitoring, reading of 1D codes, dimension monitoring, reading of 2D codes, measuring tool, focus adjustment	IP 65, IP 67
50116991	LSIS 462i M45-M1-01	16 mm	Plastic	LED, RGBW	Ethernet, RS 232	Position determination, presence monitoring, completeness monitoring, reading of 1D codes, dimension monitoring, reading of 2D codes, measuring tool, focus adjustment	IP 65, IP 67
50113051	LSIS 462i M45-W1	16 mm	Glass	LED, white	Ethernet, RS 232	Presence monitoring, dimension monitoring, reading of 1D codes, reading of 2D codes, position determination, completeness monitoring, measuring tool, focus adjustment	IP 65, IP 67
50113037	LSIS 462i M45-W1-01	16 mm	Plastic	LED, white	Ethernet, RS 232	Presence monitoring, dimension monitoring, reading of 1D codes, reading of 2D codes, position determination, completeness monitoring, measuring tool, focus adjustment	IP 65, IP 67
50117091	LSIS 462i M49-X9		Glass		Ethernet, RS 232	Position determination, presence monitoring, completeness monitoring, reading of 1D codes, dimension monitoring, reading of 2D codes, measuring tool, focus adjustment	IP 65, IP 67
50131438	LSIS 472i M43-I1	8 mm	Glass	LED, infrared	Ethernet, RS 232	Compartment fine positioning, focal adjustment	IP 67, IP 65
50131439	LSIS 472i M43-I1-H	8 mm	Glass	LED, infrared	Ethernet, RS 232	Compartment fine positioning, focal adjustment	IP 67, IP 65
50128424	LSIS 472i M45-I1	16 mm	Glass	LED, infrared	Ethernet, RS 232	Compartment fine positioning, focal adjustment	IP 67, IP 65
50128425	LSIS 472i M45-I1-H	16 mm	Glass	LED, infrared	Ethernet, RS 232	Compartment fine positioning, focal adjustment	IP 67, IP 65

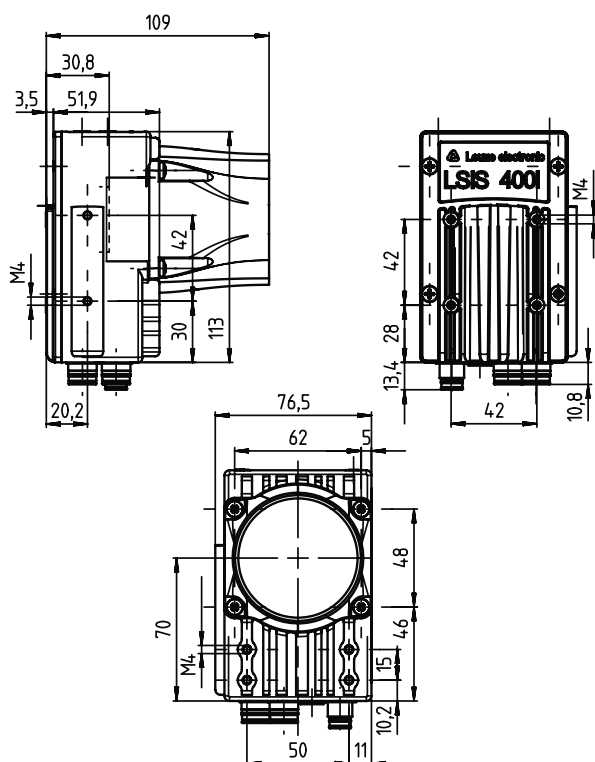
With the LSIS 4xxi...X9, the focal length depends on the used lens
Detailed information can be found online on www.leuze.com/en/sis412i_462i

Dimensioned drawings: LSIS 412i / LSIS 462i / LSIS 472i



LSIS 4xx stationary 2D-code reader

Dimensioned drawings: LSIS 412i / LSIS 462i / LSIS 472i



LSIS 4xx stationary 2D-code reader, C-Mount

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

ACCESSORIES: LSIS 412i / LSIS 462i / LSIS 472i

Connection technology

Connection cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Interface	Sheathing material
50110180	KB M12/8-5000-SA	Connector, M12, axial, male	8-pin	5,000 mm		PUR
50110172	KB M12/8-5000-BA	Connector, M12, axial, female	8-pin	5,000 mm		PUR
50106740	KB ET-5000-SA	Connector, M12, axial, male	4-pin	5,000 mm	Ethernet	PUR

Further connection cables can be found on our website

Interconnection cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Interface	Sheathing material
50130631	KSS ET-M12-4A-M12-4A-P7-010	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	1,000 mm	Ethernet	PUR
50130632	KSS ET-M12-4A-RJ45-A-P7-010	Connector, M12, axial, male	4-pin	RJ45		1,000 mm	Ethernet	PUR
50109881	KB ET-5000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45		5,000 mm	Ethernet	PUR
50106900	KB ET-5000-SSA	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	5,000 mm	Ethernet	PUR

Further interconnection cables can be found on our website

Mounting systems

Rod mounts

Part no.	Part description	Design	Fastening at device	Fastening at system	Material
50027375	BT 56	Mounting system	Clampable	For 16 mm rod, for 18 mm rod, for 20 mm rod	Metal

Further rod mounts can be found on our website

Reflectors for LSIS 472i

Micro-triad-type reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material
50129092	MTKZ 15-30 SET	Round	15 mm	Clip	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm
 Further micro-triad-type reflectors can be found on our website

ACCESSORIES

THE DIVERSITY KNOWS NO LIMITS

For all of our devices, we offer an extensive selection of accessory parts to help you benefit even more in your specific application area. Familiarize yourself with our offerings or let us advise you.

"Find the right accessories for every product. Features that have already become standard when shopping on the Internet are still often missing on industry websites. With our product selector at www.leuze.com, this is different. Here, you not only find exactly the right product but also all suitable accessories – sensor business can be this smart."

Gerd Eschenbächer,
Product Management –
Product Center Supplementary Products and Accessories



/ Connection technology	Page 436
/ Mounting systems	Page 447
/ Device columns	Page 452
/ Deflecting mirrors / Deflecting mirror columns	Page 453
/ Protective screens	Page 456
/ Signaling devices	Page 457
/ Reflectors and reflective tapes	Page 461
/ Alignment aids	Page 465
/ Bar code tapes	Page 466
/ Muting mounting systems	Page 467

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories



/ CONNECTION TECHNOLOGY

YOUR CONNECTION TO THE WORLD

Sensors are only as good as the options for integrating them in your controls. For this reason, we offer you an extensive selection of accessories, including everything from the cables, to the plugs to the optional connection box. You can easily find the right parts for your application.



/// Connection cables



Cables with open end, unshielded and shielded with various numbers of wires and various lengths for voltage supply and networks.



Direct access to the online product selector at www.leuze.com/en/a-cables

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material	Shielded	Number of LEDs
150677	CB-M12-10000-5WM	Connector, M12, angled, male	5-pin	10,000 mm	PUR	No	
150704	CB-M12-3000-8WM	Connector, M12, angled, male	8-pin	3,000 mm	PUR	No	
150699	CB-M12-10000-8WM	Connector, M12, angled, male	8-pin	10,000 mm	PUR	No	
50130683	KD U-M12-3W-P1-020	Connector, M12, angled, female	3-pin	2,000 mm	PUR	No	
50130701	KD U-M12-3W-P1-020-DP	Connector, M12, angled, female	3-pin	2,000 mm	PUR	No	1x
50130677	KD U-M12-3W-V1-020	Connector, M12, angled, female	3-pin	2,000 mm	PVC	No	
50130696	KD U-M12-3W-V1-020-DP	Connector, M12, angled, female	3-pin	2,000 mm	PVC	No	1x
50130684	KD U-M12-3W-P1-030	Connector, M12, angled, female	3-pin	3,000 mm	PUR	No	
50130702	KD U-M12-3W-P1-030-DP	Connector, M12, angled, female	3-pin	3,000 mm	PUR	No	1x
50130678	KD U-M12-3W-V1-030	Connector, M12, angled, female	3-pin	3,000 mm	PVC	No	
50130697	KD U-M12-3W-V1-030-DP	Connector, M12, angled, female	3-pin	3,000 mm	PVC	No	1x
50130685	KD U-M12-3W-P1-050	Connector, M12, angled, female	3-pin	5,000 mm	PUR	No	
50130703	KD U-M12-3W-P1-050-DP	Connector, M12, angled, female	3-pin	5,000 mm	PUR	No	1x
50130679	KD U-M12-3W-V1-050	Connector, M12, angled, female	3-pin	5,000 mm	PVC	No	
50130698	KD U-M12-3W-V1-050-DP	Connector, M12, angled, female	3-pin	5,000 mm	PVC	No	1x
50130687	KD U-M12-3W-P1-100	Connector, M12, angled, female	3-pin	10,000 mm	PUR	No	
50130704	KD U-M12-3W-P1-100-DP	Connector, M12, angled, female	3-pin	10,000 mm	PUR	No	1x
50130681	KD U-M12-3W-V1-100	Connector, M12, angled, female	3-pin	10,000 mm	PVC	No	
50130699	KD U-M12-3W-V1-100-DP	Connector, M12, angled, female	3-pin	10,000 mm	PVC	No	1x
50130705	KD U-M12-3W-P1-150-DP	Connector, M12, angled, female	3-pin	15,000 mm	PUR	No	1x
50130700	KD U-M12-3W-V1-150-DP	Connector, M12, angled, female	3-pin	15,000 mm	PVC	No	1x
50104571	K-D M12W-4P-2m-FAB	Connector, M12, angled, female	4-pin	2,000 mm	FAB	No	
50130728	KD S-M12-4W-P1-020	Connector, M12, angled, female	4-pin	2,000 mm	PUR	Yes	

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material	Shielded	Number of LEDs
50130692	KD U-M12-4W-P1-020	Connector, M12, angled, female	4-pin	2,000 mm	PUR	No	
50130936	KD U-M12-4W-P1-020-3DP	Connector, M12, angled, female	4-pin	2,000 mm	PUR	No	3x
50130718	KD U-M12-4W-P1-020-DP	Connector, M12, angled, female	4-pin	2,000 mm	PUR	No	1x
50130688	KD U-M12-4W-V1-020	Connector, M12, angled, female	4-pin	2,000 mm	PVC	No	
50130933	KD U-M12-4W-V1-020-3DP	Connector, M12, angled, female	4-pin	2,000 mm	PVC	No	3x
50130706	KD U-M12-4W-V1-020-DP	Connector, M12, angled, female	4-pin	2,000 mm	PVC	No	1x
50130693	KD U-M12-4W-P1-030	Connector, M12, angled, female	4-pin	3,000 mm	PUR	No	
50130937	KD U-M12-4W-P1-030-3DP	Connector, M12, angled, female	4-pin	3,000 mm	PUR	No	3x
50130719	KD U-M12-4W-P1-030-DP	Connector, M12, angled, female	4-pin	3,000 mm	PUR	No	1x
50130689	KD U-M12-4W-V1-030	Connector, M12, angled, female	4-pin	3,000 mm	PVC	No	
50130708	KD U-M12-4W-V1-030-DP	Connector, M12, angled, female	4-pin	3,000 mm	PVC	No	1x
50104573	K-D M12W-4P-5m-FAB	Connector, M12, angled, female	4-pin	5,000 mm	FAB	No	
50130729	KD S-M12-4W-P1-050	Connector, M12, angled, female	4-pin	5,000 mm	PUR	Yes	
50130694	KD U-M12-4W-P1-050	Connector, M12, angled, female	4-pin	5,000 mm	PUR	No	
50130938	KD U-M12-4W-P1-050-3DP	Connector, M12, angled, female	4-pin	5,000 mm	PUR	No	3x
50130720	KD U-M12-4W-P1-050-DP	Connector, M12, angled, female	4-pin	5,000 mm	PUR	No	1x
50130690	KD U-M12-4W-V1-050	Connector, M12, angled, female	4-pin	5,000 mm	PVC	No	
50130934	KD U-M12-4W-V1-050-3DP	Connector, M12, angled, female	4-pin	5,000 mm	PVC	No	3x
50130709	KD U-M12-4W-V1-050-DP	Connector, M12, angled, female	4-pin	5,000 mm	PVC	No	1x
50112961	K-D M12W-4P-10m-FAB	Connector, M12, angled, female	4-pin	10,000 mm	FAB	No	
50130730	KD S-M12-4W-P1-100	Connector, M12, angled, female	4-pin	10,000 mm	PUR	Yes	
50130695	KD U-M12-4W-P1-100	Connector, M12, angled, female	4-pin	10,000 mm	PUR	No	
50130939	KD U-M12-4W-P1-100-3DP	Connector, M12, angled, female	4-pin	10,000 mm	PUR	No	3x
50130721	KD U-M12-4W-P1-100-DP	Connector, M12, angled, female	4-pin	10,000 mm	PUR	No	1x
50130691	KD U-M12-4W-V1-100	Connector, M12, angled, female	4-pin	10,000 mm	PVC	No	
50130935	KD U-M12-4W-V1-100-3DP	Connector, M12, angled, female	4-pin	10,000 mm	PVC	No	3x
50130710	KD U-M12-4W-V1-100-DP	Connector, M12, angled, female	4-pin	10,000 mm	PVC	No	1x
50130731	KD S-M12-4W-P1-150	Connector, M12, angled, female	4-pin	15,000 mm	PUR	Yes	
50130940	KD U-M12-4W-P1-150-3DP	Connector, M12, angled, female	4-pin	15,000 mm	PUR	No	3x
50113473	K-D M12W-4P-20M-PVC	Connector, M12, angled, female	4-pin	20,000 mm	PVC	No	
50104575	K-D M12W-5P-2m-FAB	Connector, M12, angled, female	5-pin	2,000 mm	FAB	No	
50104568	K-D M12W-5P-2m-PUR	Connector, M12, angled, female	5-pin	2,000 mm	PUR	No	
50104556	K-D M12W-5P-2m-PVC	Connector, M12, angled, female	5-pin	2,000 mm	PVC	No	
50104577	K-D M12W-5P-5m-FAB	Connector, M12, angled, female	5-pin	5,000 mm	FAB	No	
50104762	K-D M12W-5P-5m-PUR	Connector, M12, angled, female	5-pin	5,000 mm	PUR	No	
50104558	K-D M12W-5P-5m-PVC	Connector, M12, angled, female	5-pin	5,000 mm	PVC	No	
429074	CB-M12-10000S-5WF	Connector, M12, angled, female	5-pin	10,000 mm	PUR	Yes	
50104560	K-D M12W-5P-10m-PVC	Connector, M12, angled, female	5-pin	10,000 mm	PVC	No	
429076	CB-M12-15000S-5WF	Connector, M12, angled, female	5-pin	15,000 mm	PUR	Yes	
429172	CB-M12-25000S-5WF	Connector, M12, angled, female	5-pin	25,000 mm	PUR	Yes	
429082	CB-M12-5000S-8WF	Connector, M12, angled, female	8-pin	5,000 mm	PUR	Yes	
429084	CB-M12-10000S-8WF	Connector, M12, angled, female	8-pin	10,000 mm	PUR	Yes	
429086	CB-M12-15000S-8WF	Connector, M12, angled, female	8-pin	15,000 mm	PUR	Yes	
429182	CB-M12-25000S-8WF	Connector, M12, angled, female	8-pin	25,000 mm	PUR	Yes	
150717	CB-M12-2000-5GM	Connector, M12, axial, male	5-pin	2,000 mm	PUR	No	
50101941	KB-008-3000 A-S	Connector, M12, axial, male	5-pin	3,000 mm	PUR	Yes	
150718	CB-M12-5000-5GM	Connector, M12, axial, male	5-pin	5,000 mm	PUR	No	
678050	CB-M12-5000E-5GM	Connector, M12, axial, male	5-pin	5,000 mm	PUR	No	
678051	CB-M12-10000E-5GM	Connector, M12, axial, male	5-pin	10,000 mm	PUR	Yes	
50102971	KB 008-10000 A-S	Connector, M12, axial, male	5-pin	10,000 mm	PUR	Yes	
678052	CB-M12-15000E-5GM	Connector, M12, axial, male	5-pin	15,000 mm	PUR	Yes	
678053	CB-M12-25000E-5GM	Connector, M12, axial, male	5-pin	25,000 mm	PUR	Yes	
50110178	KB M12/8-1000-SA	Connector, M12, axial, male	8-pin	1,000 mm	PUR	No	
50110179	KB M12/8-2000-SA	Connector, M12, axial, male	8-pin	2,000 mm	PUR	No	
50110180	KB M12/8-5000-SA	Connector, M12, axial, male	8-pin	5,000 mm	PUR	No	
50110181	KB M12/8-10000-SA	Connector, M12, axial, male	8-pin	10,000 mm	PUR	No	
50110186	KB M12/8-15000-SA	Connector, M12, axial, male	8-pin	15,000 mm	PUR	No	
50110189	KB M12/8-30000-SA	Connector, M12, axial, male	8-pin	30,000 mm	PUR	No	
50130643	KD U-M12-3A-P1-020	Connector, M12, axial, female	3-pin	2,000 mm	PUR	No	
50130664	KD U-M12-3A-P1-020-DP	Connector, M12, axial, female	3-pin	2,000 mm	PUR	No	1x
50130636	KD U-M12-3A-V1-020	Connector, M12, axial, female	3-pin	2,000 mm	PVC	No	
50130659	KD U-M12-3A-V1-020-DP	Connector, M12, axial, female	3-pin	2,000 mm	PVC	No	1x
50130644	KD U-M12-3A-P1-030	Connector, M12, axial, female	3-pin	3,000 mm	PUR	No	
50130665	KD U-M12-3A-P1-030-DP	Connector, M12, axial, female	3-pin	3,000 mm	PUR	No	1x
50130637	KD U-M12-3A-V1-030	Connector, M12, axial, female	3-pin	3,000 mm	PVC	No	
50130660	KD U-M12-3A-V1-030-DP	Connector, M12, axial, female	3-pin	3,000 mm	PVC	No	1x

Switching
sensorsMeasuring
sensorsProducts for
safety at work

Identification

Data transmission /
Control componentsIndustrial image
processing

Accessories

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material	Shielded	Number of LEDs
50130645	KD U-M12-3A-P1-050	Connector, M12, axial, female	3-pin	5,000 mm	PUR	No	
50130666	KD U-M12-3A-P1-050-DP	Connector, M12, axial, female	3-pin	5,000 mm	PUR	No	1x
50130638	KD U-M12-3A-V1-050	Connector, M12, axial, female	3-pin	5,000 mm	PVC	No	
50130661	KD U-M12-3A-V1-050-DP	Connector, M12, axial, female	3-pin	5,000 mm	PVC	No	1x
50130646	KD U-M12-3A-P1-100	Connector, M12, axial, female	3-pin	10,000 mm	PUR	No	
50130667	KD U-M12-3A-P1-100-DP	Connector, M12, axial, female	3-pin	10,000 mm	PUR	No	1x
50130639	KD U-M12-3A-V1-100	Connector, M12, axial, female	3-pin	10,000 mm	PVC	No	
50130663	KD U-M12-3A-V1-100-DP	Connector, M12, axial, female	3-pin	10,000 mm	PVC	No	1x
50104570	K-D M12A-4P-2m-FAB	Connector, M12, axial, female	4-pin	2,000 mm	FAB	No	
50130725	KD S-M12-4A-P1-020	Connector, M12, axial, female	4-pin	2,000 mm	PUR	Yes	
50130654	KD U-M12-4A-P1-020	Connector, M12, axial, female	4-pin	2,000 mm	PUR	No	
50130672	KD U-M12-4A-P1-020-DP	Connector, M12, axial, female	4-pin	2,000 mm	PUR	No	1x
50130722	KD S-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC	Yes	
50130648	KD U-M12-4A-V1-020	Connector, M12, axial, female	4-pin	2,000 mm	PVC	No	
50130668	KD U-M12-4A-V1-020-DP	Connector, M12, axial, female	4-pin	2,000 mm	PVC	No	1x
50130656	KD U-M12-4A-P1-030	Connector, M12, axial, female	4-pin	3,000 mm	PUR	No	
50130674	KD U-M12-4A-P1-030-DP	Connector, M12, axial, female	4-pin	3,000 mm	PUR	No	1x
50130651	KD U-M12-4A-V1-030	Connector, M12, axial, female	4-pin	3,000 mm	PVC	No	
50131063	KD U-M12-4A-V1-030-DP	Connector, M12, axial, female	4-pin	3,000 mm	PVC	No	1x
50104572	K-D M12A-4P-5m-FAB	Connector, M12, axial, female	4-pin	5,000 mm	FAB	No	
50130726	KD S-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR	Yes	
50130657	KD U-M12-4A-P1-050	Connector, M12, axial, female	4-pin	5,000 mm	PUR	No	
50130675	KD U-M12-4A-P1-050-DP	Connector, M12, axial, female	4-pin	5,000 mm	PUR	No	1x
50130723	KD S-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC	Yes	
50130652	KD U-M12-4A-V1-050	Connector, M12, axial, female	4-pin	5,000 mm	PVC	No	
50130670	KD U-M12-4A-V1-050-DP	Connector, M12, axial, female	4-pin	5,000 mm	PVC	No	1x
50112960	K-D M12A-4P-10m-FAB	Connector, M12, axial, female	4-pin	10,000 mm	FAB	No	
50130727	KD S-M12-4A-P1-100	Connector, M12, axial, female	4-pin	10,000 mm	PUR	Yes	
50130658	KD U-M12-4A-P1-100	Connector, M12, axial, female	4-pin	10,000 mm	PUR	No	
50130676	KD U-M12-4A-P1-100-DP	Connector, M12, axial, female	4-pin	10,000 mm	PUR	No	1x
50130724	KD S-M12-4A-V1-100	Connector, M12, axial, female	4-pin	10,000 mm	PVC	Yes	
50130653	KD U-M12-4A-V1-100	Connector, M12, axial, female	4-pin	10,000 mm	PVC	No	
50130671	KD U-M12-4A-V1-100-DP	Connector, M12, axial, female	4-pin	10,000 mm	PVC	No	1x
50104753	K-D M12A-4P-20m-PVC	Connector, M12, axial, female	4-pin	20,000 mm	PVC	No	
50123846	CB-M12-25000E-4GF-PUR	Connector, M12, axial, female	4-pin	25,000 mm	PUR	Yes	
50123532	K-D M12A-4P-30m-PVC	Connector, M12, axial, female	4-pin	30,000 mm	PVC	No	
50104574	K-D M12A-5P-2m-FAB	Connector, M12, axial, female	5-pin	2,000 mm	FAB	No	
50104567	K-D M12A-5P-2m-PUR	Connector, M12, axial, female	5-pin	2,000 mm	PUR	No	
50104555	K-D M12A-5P-2m-PVC	Connector, M12, axial, female	5-pin	2,000 mm	PVC	No	
50040757	KB 008-3000 A	Connector, M12, axial, female	5-pin	3,000 mm	PUR	Yes	
50104576	K-D M12A-5P-5m-FAB	Connector, M12, axial, female	5-pin	5,000 mm	FAB	No	
678055	CB-M12-5000E-5GF	Connector, M12, axial, female	5-pin	5,000 mm	PUR	Yes	
50104569	K-D M12A-5P-5m-PUR	Connector, M12, axial, female	5-pin	5,000 mm	PUR	No	
50104557	K-D M12A-5P-5m-PVC	Connector, M12, axial, female	5-pin	5,000 mm	PVC	No	
429280	CB-M12-10000-5GF	Connector, M12, axial, female	5-pin	10,000 mm	PUR	No	
678056	CB-M12-10000E-5GF	Connector, M12, axial, female	5-pin	10,000 mm	PUR	Yes	
50102975	KB 008-10000 A	Connector, M12, axial, female	5-pin	10,000 mm	PUR	Yes	
50104559	K-D M12A-5P-10m-PVC	Connector, M12, axial, female	5-pin	10,000 mm	PVC	No	
678057	CB-M12-15000E-5GF	Connector, M12, axial, female	5-pin	15,000 mm	PUR	Yes	
678058	CB-M12-25000E-5GF	Connector, M12, axial, female	5-pin	25,000 mm	PUR	Yes	
50129553	CB-M12-30000E-5GF	Connector, M12, axial, female	5-pin	30,000 mm	PUR	Yes	
50120949	K-D M12A-5P-30m-PVC	Connector, M12, axial, female	5-pin	30,000 mm	PVC	No	
429281	CB-M12-50000-5GF	Connector, M12, axial, female	5-pin	50,000 mm	PUR	No	
678059	CB-M12-50000E-5GF	Connector, M12, axial, female	5-pin	50,000 mm	PUR	No	
50110170	KB M12/8-1000-BA	Connector, M12, axial, female	8-pin	1,000 mm	PUR	No	
50104591	K-D M12A-8P-2m-PUR	Connector, M12, axial, female	8-pin	2,000 mm	PUR	No	
50110171	KB M12/8-2000-BA	Connector, M12, axial, female	8-pin	2,000 mm	PUR	No	
429285	CB-M12-5000-8GF	Connector, M12, axial, female	8-pin	5,000 mm	PUR	No	
678060	CB-M12-5000E-8GF	Connector, M12, axial, female	8-pin	5,000 mm	PUR	Yes	
50104590	K-D M12A-8P-5m-PUR	Connector, M12, axial, female	8-pin	5,000 mm	PUR	No	
50110172	KB M12/8-5000-BA	Connector, M12, axial, female	8-pin	5,000 mm	PUR	No	
429286	CB-M12-10000-8GF	Connector, M12, axial, female	8-pin	10,000 mm	PUR	No	
678061	CB-M12-10000E-8GF	Connector, M12, axial, female	8-pin	10,000 mm	PUR	Yes	
50106882	K-D M12A-8P-10m-PUR	Connector, M12, axial, female	8-pin	10,000 mm	PUR	No	
50110173	KB M12/8-10000-BA	Connector, M12, axial, female	8-pin	10,000 mm	PUR	No	
429287	CB-M12-15000-8GF	Connector, M12, axial, female	8-pin	15,000 mm	PUR	No	
678062	CB-M12-15000E-8GF	Connector, M12, axial, female	8-pin	15,000 mm	PUR	Yes	
429288	CB-M12-25000-8GF	Connector, M12, axial, female	8-pin	25,000 mm	PUR	No	

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material	Shielded	Number of LEDs
678063	CB-M12-25000E-8GF	Connector, M12, axial, female	8-pin	25,000 mm	PUR	Yes	
50110177	KB M12/8-30000-BA	Connector, M12, axial, female	8-pin	30,000 mm	PUR	No	
429289	CB-M12-50000-8GF	Connector, M12, axial, female	8-pin	50,000 mm	PUR	No	
678064	CB-M12-50000E-8GF	Connector, M12, axial, female	8-pin	50,000 mm	PUR	Yes	
50130281	KD S-M12-CA-P1-020	Connector, M12, axial, female	12-pin	2,000 mm	PUR	Yes	
50130282	KD S-M12-CA-P1-050	Connector, M12, axial, female	12-pin	5,000 mm	PUR	Yes	
50130283	KD S-M12-CA-P1-100	Connector, M12, axial, female	12-pin	10,000 mm	PUR	Yes	
50130865	KD U-M8-3W-P1-020	Connector, M8, angled, female	3-pin	2,000 mm	PUR	No	
50130893	KD U-M8-3W-P1-020-DP	Connector, M8, angled, female	3-pin	2,000 mm	PUR	No	1x
50130860	KD U-M8-3W-V1-020	Connector, M8, angled, female	3-pin	2,000 mm	PVC	No	
50130889	KD U-M8-3W-V1-020-DP	Connector, M8, angled, female	3-pin	2,000 mm	PVC	No	1x
50130866	KD U-M8-3W-P1-030	Connector, M8, angled, female	3-pin	3,000 mm	PUR	No	
50130894	KD U-M8-3W-P1-030-DP	Connector, M8, angled, female	3-pin	3,000 mm	PUR	No	1x
50130861	KD U-M8-3W-V1-030	Connector, M8, angled, female	3-pin	3,000 mm	PVC	No	
50130890	KD U-M8-3W-V1-030-DP	Connector, M8, angled, female	3-pin	3,000 mm	PVC	No	1x
50130867	KD U-M8-3W-P1-050	Connector, M8, angled, female	3-pin	5,000 mm	PUR	No	
50130895	KD U-M8-3W-P1-050-DP	Connector, M8, angled, female	3-pin	5,000 mm	PUR	No	1x
50130862	KD U-M8-3W-V1-050	Connector, M8, angled, female	3-pin	5,000 mm	PVC	No	
50130891	KD U-M8-3W-V1-050-DP	Connector, M8, angled, female	3-pin	5,000 mm	PVC	No	1x
50130868	KD U-M8-3W-P1-100	Connector, M8, angled, female	3-pin	10,000 mm	PUR	No	
50130896	KD U-M8-3W-P1-100-DP	Connector, M8, angled, female	3-pin	10,000 mm	PUR	No	1x
50110559	K-D M8W-3P-10M-PVC	Connector, M8, angled, female	3-pin	10,000 mm	PVC	No	
50130863	KD U-M8-3W-V1-100	Connector, M8, angled, female	3-pin	10,000 mm	PVC	No	
50130892	KD U-M8-3W-V1-100-DP	Connector, M8, angled, female	3-pin	10,000 mm	PVC	No	1x
50130998	KD U-M8-3W-P1-200	Connector, M8, angled, female	3-pin	20,000 mm	PUR	No	
50130864	KD U-M8-3W-V1-200	Connector, M8, angled, female	3-pin	20,000 mm	PVC	No	
50106154	K-D M8W-4P-2m-FAB	Connector, M8, angled, female	4-pin	2,000 mm	FAB	No	
50130873	KD U-M8-4W-P1-020	Connector, M8, angled, female	4-pin	2,000 mm	PUR	No	
50130880	KD U-M8-4W-P1-020-DP	Connector, M8, angled, female	4-pin	2,000 mm	PUR	No	1x
50130869	KD U-M8-4W-V1-020	Connector, M8, angled, female	4-pin	2,000 mm	PVC	No	
50130877	KD U-M8-4W-V1-020-DP	Connector, M8, angled, female	4-pin	2,000 mm	PVC	No	1x
50130874	KD U-M8-4W-P1-030	Connector, M8, angled, female	4-pin	3,000 mm	PUR	No	
50130870	KD U-M8-4W-V1-030	Connector, M8, angled, female	4-pin	3,000 mm	PVC	No	
50106155	K-D M8W-4P-5m-FAB	Connector, M8, angled, female	4-pin	5,000 mm	FAB	No	
50130875	KD U-M8-4W-P1-050	Connector, M8, angled, female	4-pin	5,000 mm	PUR	No	
50130881	KD U-M8-4W-P1-050-DP	Connector, M8, angled, female	4-pin	5,000 mm	PUR	No	1x
50130871	KD U-M8-4W-V1-050	Connector, M8, angled, female	4-pin	5,000 mm	PVC	No	
50130878	KD U-M8-4W-V1-050-DP	Connector, M8, angled, female	4-pin	5,000 mm	PVC	No	1x
50110273	K-D M8W-4P-10m-FAB	Connector, M8, angled, female	4-pin	10,000 mm	FAB	No	
50130876	KD U-M8-4W-P1-100	Connector, M8, angled, female	4-pin	10,000 mm	PUR	No	
50130882	KD U-M8-4W-P1-100-DP	Connector, M8, angled, female	4-pin	10,000 mm	PUR	No	1x
50130872	KD U-M8-4W-V1-100	Connector, M8, angled, female	4-pin	10,000 mm	PVC	No	
50130879	KD U-M8-4W-V1-100-DP	Connector, M8, angled, female	4-pin	10,000 mm	PVC	No	1x
50130829	KS U-M8-3A-P1-020	Connector, M8, axial, male	3-pin	2,000 mm	PUR	No	
50130831	KS U-M8-3A-P1-050	Connector, M8, axial, male	3-pin	5,000 mm	PUR	No	
50130833	KS U-M8-3A-P1-100	Connector, M8, axial, male	3-pin	10,000 mm	PUR	No	
50130834	KS U-M8-4A-P1-020	Connector, M8, axial, male	4-pin	2,000 mm	PUR	No	
50130835	KS U-M8-4A-P1-050	Connector, M8, axial, male	4-pin	5,000 mm	PUR	No	
50130836	KS U-M8-4A-P1-100	Connector, M8, axial, male	4-pin	10,000 mm	PUR	No	
50130842	KD U-M8-3A-P1-020	Connector, M8, axial, female	3-pin	2,000 mm	PUR	No	
50130886	KD U-M8-3A-P1-020-DP	Connector, M8, axial, female	3-pin	2,000 mm	PUR	No	1x
50104520	K-D M8A-3P-2m-PVC	Connector, M8, axial, female	3-pin	2,000 mm	PVC	No	
50130837	KD U-M8-3A-V1-020	Connector, M8, axial, female	3-pin	2,000 mm	PVC	No	
50130883	KD U-M8-3A-V1-020-DP	Connector, M8, axial, female	3-pin	2,000 mm	PVC	No	1x
50130843	KD U-M8-3A-P1-030	Connector, M8, axial, female	3-pin	3,000 mm	PUR	No	
50130838	KD U-M8-3A-V1-030	Connector, M8, axial, female	3-pin	3,000 mm	PVC	No	
50130844	KD U-M8-3A-P1-050	Connector, M8, axial, female	3-pin	5,000 mm	PUR	No	
50130832	KD U-M8-3A-V1-050	Connector, M8, axial, female	3-pin	5,000 mm	PVC	No	
50130845	KD U-M8-3A-P1-100	Connector, M8, axial, female	3-pin	10,000 mm	PUR	No	
50110556	K-D M8A-3P-10M-PVC	Connector, M8, axial, female	3-pin	10,000 mm	PVC	No	
50130839	KD U-M8-3A-V1-100	Connector, M8, axial, female	3-pin	10,000 mm	PVC	No	
50130846	KD U-M8-3A-P1-150	Connector, M8, axial, female	3-pin	15,000 mm	PUR	No	
50130840	KD U-M8-3A-V1-150	Connector, M8, axial, female	3-pin	15,000 mm	PVC	No	
50130847	KD U-M8-3A-P1-200	Connector, M8, axial, female	3-pin	20,000 mm	PUR	No	
50130841	KD U-M8-3A-V1-200	Connector, M8, axial, female	3-pin	20,000 mm	PVC	No	

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

Part no.	Part description	Connection 1	No. of pins	Cable length	Sheathing material	Shielded	Number of LEDs
50106152	K-D M8A-4P-2m-FAB	Connector, M8, axial, female	4-pin	2,000 mm	FAB	No	
50130854	KD U-M8-4A-P1-020	Connector, M8, axial, female	4-pin	2,000 mm	PUR	No	
50130848	KD U-M8-4A-V1-020	Connector, M8, axial, female	4-pin	2,000 mm	PVC	No	
50130855	KD U-M8-4A-P1-030	Connector, M8, axial, female	4-pin	3,000 mm	PUR	No	
50130849	KD U-M8-4A-V1-030	Connector, M8, axial, female	4-pin	3,000 mm	PVC	No	
50106153	K-D M8A-4P-5m-FAB	Connector, M8, axial, female	4-pin	5,000 mm	FAB	No	
50130887	KD U-M8-3A-P1-050-DP	Connector, M8, axial, female	4-pin	5,000 mm	PUR	No	1x
50130856	KD U-M8-4A-P1-050	Connector, M8, axial, female	4-pin	5,000 mm	PUR	No	
50130884	KD U-M8-3A-V1-050-DP	Connector, M8, axial, female	4-pin	5,000 mm	PVC	No	1x
50130850	KD U-M8-4A-V1-050	Connector, M8, axial, female	4-pin	5,000 mm	PVC	No	
50110274	K-D M8A-4P-10m-FAB	Connector, M8, axial, female	4-pin	10,000 mm	FAB	No	
50130888	KD U-M8-3A-P1-100-DP	Connector, M8, axial, female	4-pin	10,000 mm	PUR	No	1x
50130857	KD U-M8-4A-P1-100	Connector, M8, axial, female	4-pin	10,000 mm	PUR	No	
50130885	KD U-M8-3A-V1-100-DP	Connector, M8, axial, female	4-pin	10,000 mm	PVC	No	1x
50130851	KD U-M8-4A-V1-100	Connector, M8, axial, female	4-pin	10,000 mm	PVC	No	
50130858	KD U-M8-4A-P1-150	Connector, M8, axial, female	4-pin	15,000 mm	PUR	No	
50130852	KD U-M8-4A-V1-150	Connector, M8, axial, female	4-pin	15,000 mm	PVC	No	
50130859	KD U-M8-4A-P1-200	Connector, M8, axial, female	4-pin	20,000 mm	PUR	No	
50115424	K-D M8A-4P-20m-PVC	Connector, M8, axial, female	4-pin	20,000 mm	PVC	No	
50130853	KD U-M8-4A-V1-200	Connector, M8, axial, female	4-pin	20,000 mm	PVC	No	

CANopen / DeviceNet

Part no.	Part description	Connection 1	No. of pins	Cable length	Interface	Sheathing material
50114693	KB DN/CAN-2000 SA	Connector, M12, axial, male	5-pin	2,000 mm	CANopen, DeviceNet	PUR
50114697	KB DN/CAN-5000 SA	Connector, M12, axial, male	5-pin	5,000 mm	CANopen, DeviceNet	PUR
50114700	KB DN/CAN-10000 SA	Connector, M12, axial, male	5-pin	10,000 mm	CANopen, DeviceNet	PUR
50114702	KB DN/CAN-30000 SA	Connector, M12, axial, male	5-pin	30,000 mm	CANopen, DeviceNet	PUR
50114692	KB DN/CAN-2000 BA	Connector, M12, axial, female	5-pin	2,000 mm	CANopen, DeviceNet	PUR
50114696	KB DN/CAN-5000 BA	Connector, M12, axial, female	5-pin	5,000 mm	CANopen, DeviceNet	PUR
50114699	KB DN/CAN-10000 BA	Connector, M12, axial, female	5-pin	10,000 mm	CANopen, DeviceNet	PUR
50114701	KB DN/CAN-30000 BA	Connector, M12, axial, female	5-pin	30,000 mm	CANopen, DeviceNet	PUR

Ethernet

Part no.	Part description	Connection 1	No. of pins	Cable length	Interface	Sheathing material
50106739	KB ET-2000-SA	Connector, M12, axial, male	4-pin	2,000 mm	Ethernet	PUR
50106740	KB ET-5000-SA	Connector, M12, axial, male	4-pin	5,000 mm	Ethernet	PUR
50106741	KB ET-10000-SA	Connector, M12, axial, male	4-pin	10,000 mm	Ethernet	PUR
50106742	KB ET-15000-SA	Connector, M12, axial, male	4-pin	15,000 mm	Ethernet	PUR
50106746	KB ET-30000-SA	Connector, M12, axial, male	4-pin	30,000 mm	Ethernet	PUR

Interbus-S

Part no.	Part description	Connection 1	No. of pins	Cable length	Interface	Sheathing material
50108595	KB IBS-2000-SA	Connector, M12, axial, male	5-pin	2,000 mm	Interbus-S	PUR
50108596	KB IBS-5000-SA	Connector, M12, axial, male	5-pin	5,000 mm	Interbus-S	PUR
50108597	KB IBS-10000-SA	Connector, M12, axial, male	5-pin	10,000 mm	Interbus-S	PUR
50108598	KB IBS-15000-SA	Connector, M12, axial, male	5-pin	15,000 mm	Interbus-S	PUR
50108601	KB IBS-30000-SA	Connector, M12, axial, male	5-pin	30,000 mm	Interbus-S	PUR
50104172	KB SSI/IBS-2000-BA	Connector, M12, axial, female	5-pin	2,000 mm	SSI, Interbus-S	PUR
50104171	KB SSI/IBS-5000-BA	Connector, M12, axial, female	5-pin	5,000 mm	SSI, Interbus-S	PUR
50104170	KB SSI/IBS-10000-BA	Connector, M12, axial, female	5-pin	10,000 mm	SSI, Interbus-S	PUR
50104169	KB SSI/IBS-15000-BA	Connector, M12, axial, female	5-pin	15,000 mm	SSI, Interbus-S	PUR
50108446	KB SSI/IBS-30000-BA	Connector, M12, axial, female	5-pin	30,000 mm	SSI, Interbus-S	PUR

PROFIBUS DP

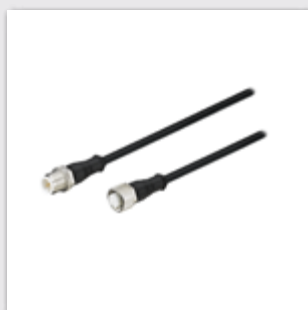
Part no.	Part description	Connection 1	No. of pins	Cable length	Interface	Sheathing material
50104188	KB PB-2000-SA	Connector, M12, axial, male	5-pin	2,000 mm	PROFIBUS DP	PUR
50104187	KB PB-5000-SA	Connector, M12, axial, male	5-pin	5,000 mm	PROFIBUS DP	PUR
50104186	KB PB-10000-SA	Connector, M12, axial, male	5-pin	10,000 mm	PROFIBUS DP	PUR

Part no.	Part description	Connection 1	No. of pins	Cable length	Interface	Sheathing material
50104185	KB PB-15000-SA	Connector, M12, axial, male	5-pin	15,000 mm	PROFIBUS DP	PUR
50104182	KB PB-30000-SA	Connector, M12, axial, male	5-pin	30,000 mm	PROFIBUS DP	PUR
50104181	KB PB-2000-BA	Connector, M12, axial, female	5-pin	2,000 mm	PROFIBUS DP	PUR
50104180	KB PB-5000-BA	Connector, M12, axial, female	5-pin	5,000 mm	PROFIBUS DP	PUR
50104179	KB PB-10000-BA	Connector, M12, axial, female	5-pin	10,000 mm	PROFIBUS DP	PUR
50104178	KB PB-15000-BA	Connector, M12, axial, female	5-pin	15,000 mm	PROFIBUS DP	PUR
50104175	KB PB-30000-BA	Connector, M12, axial, female	5-pin	30,000 mm	PROFIBUS DP	PUR

SSI

Part no.	Part description	Connection 1	No. of pins	Cable length	Interface	Sheathing material
50104172	KB SSI/BS-2000-BA	Connector, M12, axial, female	5-pin	2,000 mm	SSI, Interbus-S	PUR
50104171	KB SSI/BS-5000-BA	Connector, M12, axial, female	5-pin	5,000 mm	SSI, Interbus-S	PUR
50104170	KB SSI/BS-10000-BA	Connector, M12, axial, female	5-pin	10,000 mm	SSI, Interbus-S	PUR
50104169	KB SSI/BS-15000-BA	Connector, M12, axial, female	5-pin	15,000 mm	SSI, Interbus-S	PUR
50108446	KB SSI/BS-30000-BA	Connector, M12, axial, female	5-pin	30,000 mm	SSI, Interbus-S	PUR

/// Interconnection cables



Cables with connectors on both ends, unshielded and shielded with various numbers of wires and various lengths as well as service cables for networks.



Direct access to the online product selector at www.leuze.com/en/c-cables

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Sheathing material	Shielded
50130745	KDS U-M12-3W-M12-3A-P1-006	Connector, M12, angled, female	3-pin	Connector, M12, axial, male	3-pin	600 mm	PUR	No
50130768	KDS U-M12-3W-M12-3A-P1-006-DP	Connector, M12, angled, female	3-pin	Connector, M12, axial, male	3-pin	600 mm	PUR	No
50130746	KDS U-M12-3W-M12-3A-P1-010	Connector, M12, angled, female	3-pin	Connector, M12, axial, male	3-pin	1,000 mm	PUR	No
50130769	KDS U-M12-3W-M12-3A-P1-010-DP	Connector, M12, angled, female	3-pin	Connector, M12, axial, male	3-pin	1,000 mm	PUR	No
50130747	KDS U-M12-3W-M12-3A-P1-020	Connector, M12, angled, female	3-pin	Connector, M12, axial, male	3-pin	2,000 mm	PUR	No
50130770	KDS U-M12-3W-M12-3A-P1-020-DP	Connector, M12, angled, female	3-pin	Connector, M12, axial, male	3-pin	2,000 mm	PUR	No
50130748	KDS U-M12-3W-M12-3A-P1-030	Connector, M12, angled, female	3-pin	Connector, M12, axial, male	3-pin	3,000 mm	PUR	No
50130771	KDS U-M12-3W-M12-3A-P1-030-DP	Connector, M12, angled, female	3-pin	Connector, M12, axial, male	3-pin	3,000 mm	PUR	No
50130749	KDS U-M12-3W-M12-3A-P1-050	Connector, M12, angled, female	3-pin	Connector, M12, axial, male	3-pin	5,000 mm	PUR	No
50130772	KDS U-M12-3W-M12-3A-P1-050-DP	Connector, M12, angled, female	3-pin	Connector, M12, axial, male	3-pin	5,000 mm	PUR	No
50130941	KDS U-M12-4W-M12-4A-P1-006-3DP	Connector, M12, angled, female	4-pin	Connector, M12, axial, male	4-pin	600 mm	PUR	No
50130942	KDS U-M12-4W-M12-4A-P1-010-3DP	Connector, M12, angled, female	4-pin	Connector, M12, axial, male	4-pin	1,000 mm	PUR	No
50130943	KDS U-M12-4W-M12-4A-P1-015-3DP	Connector, M12, angled, female	4-pin	Connector, M12, axial, male	4-pin	1,500 mm	PUR	No
50130944	KDS U-M12-4W-M12-4A-P1-020-3DP	Connector, M12, angled, female	4-pin	Connector, M12, axial, male	4-pin	2,000 mm	PUR	No
50130945	KDS U-M12-4W-M12-4A-P1-030-3DP	Connector, M12, angled, female	4-pin	Connector, M12, axial, male	4-pin	3,000 mm	PUR	No
50130946	KDS U-M12-4W-M12-4A-P1-050-3DP	Connector, M12, angled, female	4-pin	Connector, M12, axial, male	4-pin	5,000 mm	PUR	No
50107276	K-DS M8A-M12A-4P-0,3m-PVC	Connector, M12, axial, male	4-pin	Connector, M8, axial, female	4-pin	300 mm	PVC	No
50130927	KDS U-M8-3A-M12-3A-P1-003	Connector, M12, axial, female	3-pin	Connector, M8, axial, male	3-pin	300 mm	PUR	No
50130928	KDS U-M8-3A-M12-3A-P1-006	Connector, M12, axial, female	3-pin	Connector, M8, axial, male	3-pin	600 mm	PUR	No
50130732	KDS U-M12-3A-M12-3A-P1-006	Connector, M12, axial, female	3-pin	Connector, M12, axial, male	3-pin	600 mm	PUR	No
50130733	KDS U-M12-3A-M12-3A-P1-010	Connector, M12, axial, female	3-pin	Connector, M12, axial, male	3-pin	1,000 mm	PUR	No
150680	CB-M12-1500-3GF/GM	Connector, M12, axial, female	3-pin	Connector, M12, axial, male	3-pin	1,500 mm	PUR	No
150681	CB-M12-1500-3GF/MM	Connector, M12, axial, female	3-pin	Connector, M12, angled, male	3-pin	1,500 mm	PUR	No
50130930	KDS U-M8-3A-M12-3A-P1-015	Connector, M12, axial, female	3-pin	Connector, M8, axial, male	3-pin	1,500 mm	PUR	No
50130931	KDS U-M8-3A-M12-3A-P1-020	Connector, M12, axial, female	3-pin	Connector, M8, axial, male	3-pin	2,000 mm	PUR	No
50130734	KDS U-M12-3A-M12-3A-P1-020	Connector, M12, axial, female	3-pin	Connector, M12, axial, male	3-pin	2,000 mm	PUR	No
50130735	KDS U-M12-3A-M12-3A-P1-030	Connector, M12, axial, female	3-pin	Connector, M12, axial, male	3-pin	3,000 mm	PUR	No
150682	CB-M12-5000-3GF/GM	Connector, M12, axial, female	3-pin	Connector, M12, axial, male	3-pin	5,000 mm	PUR	No

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Sheathing material	Shielded
150683	CB-M12-5000-3GF/WM	Connector, M12, axial, female	3-pin	Connector, M12, angled, male	3-pin	5,000 mm	PUR	No
50130932	KDS U-M8-3A-M8-3A-P1-050	Connector, M12, axial, female	3-pin	Connector, M8, axial, male	3-pin	5,000 mm	PUR	No
50130736	KDS U-M12-3A-M12-3A-P1-050	Connector, M12, axial, female	3-pin	Connector, M12, axial, male	3-pin	5,000 mm	PUR	No
150684	CB-M12-15000-3GF/GM	Connector, M12, axial, female	3-pin	Connector, M12, axial, male	3-pin	15,000 mm	PUR	No
150685	CB-M12-15000-3GF/WM	Connector, M12, axial, female	3-pin	Connector, M12, angled, male	3-pin	15,000 mm	PUR	No
50130737	KDS U-M12-4A-M12-4A-P1-003	Connector, M12, axial, female	4-pin	Connector, M12, axial, male	4-pin	300 mm	PUR	No
50130762	KDS U-M12-4A-M12-4A-P1-003-DP	Connector, M12, axial, female	4-pin	Connector, M12, axial, male	4-pin	300 mm	PUR	No
50130756	KDS U-M12-4A-M12-4W-P1-003	Connector, M12, axial, female	4-pin	Connector, M12, angled, male	4-pin	300 mm	PUR	No
50116738	K-DS M12A-M8A-4P-0,3m-PVC	Connector, M12, axial, female	4-pin	Connector, M8, axial, male	4-pin	300 mm	PVC	No
50130750	KDS U-M12-4A-M12-4W-V1-003	Connector, M12, axial, female	4-pin	Connector, M12, angled, male	4-pin	300 mm	PVC	No
50130738	KDS U-M12-4A-M12-4A-P1-006	Connector, M12, axial, female	4-pin	Connector, M12, axial, male	4-pin	600 mm	PUR	No
50130763	KDS U-M12-4A-M12-4A-P1-006-DP	Connector, M12, axial, female	4-pin	Connector, M12, axial, male	4-pin	600 mm	PUR	No
50130757	KDS U-M12-4A-M12-4W-P1-006	Connector, M12, axial, female	4-pin	Connector, M12, angled, male	4-pin	600 mm	PUR	No
50130751	KDS U-M12-4A-M12-4W-V1-006	Connector, M12, axial, female	4-pin	Connector, M12, angled, male	4-pin	600 mm	PVC	No
50130739	KDS U-M12-4A-M12-4A-P1-010	Connector, M12, axial, female	4-pin	Connector, M12, axial, male	4-pin	1,000 mm	PUR	No
50130764	KDS U-M12-4A-M12-4A-P1-010-DP	Connector, M12, axial, female	4-pin	Connector, M12, axial, male	4-pin	1,000 mm	PUR	No
50130758	KDS U-M12-4A-M12-4W-P1-010	Connector, M12, axial, female	4-pin	Connector, M12, angled, male	4-pin	1,000 mm	PUR	No
50130752	KDS U-M12-4A-M12-4W-V1-010	Connector, M12, axial, female	4-pin	Connector, M12, angled, male	4-pin	1,000 mm	PVC	No
50130740	KDS U-M12-4A-M12-4A-P1-015	Connector, M12, axial, female	4-pin	Connector, M12, axial, male	4-pin	1,500 mm	PUR	No
50130741	KDS U-M12-4A-M12-4A-P1-020	Connector, M12, axial, female	4-pin	Connector, M12, axial, male	4-pin	2,000 mm	PUR	No
50130765	KDS U-M12-4A-M12-4A-P1-020-DP	Connector, M12, axial, female	4-pin	Connector, M12, axial, male	4-pin	2,000 mm	PUR	No
50130759	KDS U-M12-4A-M12-4W-P1-020	Connector, M12, axial, female	4-pin	Connector, M12, angled, male	4-pin	2,000 mm	PUR	No
50130753	KDS U-M12-4A-M12-4W-V1-020	Connector, M12, axial, female	4-pin	Connector, M12, angled, male	4-pin	2,000 mm	PVC	No
50130742	KDS U-M12-4A-M12-4A-P1-030	Connector, M12, axial, female	4-pin	Connector, M12, axial, male	4-pin	3,000 mm	PUR	No
50130766	KDS U-M12-4A-M12-4A-P1-030-DP	Connector, M12, axial, female	4-pin	Connector, M12, axial, male	4-pin	3,000 mm	PUR	No
50130760	KDS U-M12-4A-M12-4W-P1-030	Connector, M12, axial, female	4-pin	Connector, M12, angled, male	4-pin	3,000 mm	PUR	No
50130754	KDS U-M12-4A-M12-4W-V1-030	Connector, M12, axial, female	4-pin	Connector, M12, angled, male	4-pin	3,000 mm	PVC	No
50130743	KDS U-M12-4A-M12-4A-P1-050	Connector, M12, axial, female	4-pin	Connector, M12, axial, male	4-pin	5,000 mm	PUR	No
50130767	KDS U-M12-4A-M12-4A-P1-050-DP	Connector, M12, axial, female	4-pin	Connector, M12, axial, male	4-pin	5,000 mm	PUR	No
50130761	KDS U-M12-4A-M12-4W-P1-050	Connector, M12, axial, female	4-pin	Connector, M12, angled, male	4-pin	5,000 mm	PUR	No
50130755	KDS U-M12-4A-M12-4W-V1-050	Connector, M12, axial, female	4-pin	Connector, M12, angled, male	4-pin	5,000 mm	PVC	No
50130744	KDS U-M12-4A-M12-4A-P1-100	Connector, M12, axial, female	4-pin	Connector, M12, axial, male	4-pin	10,000 mm	PUR	No
548100	CB-M12-25000S-4GF/GM	Connector, M12, axial, female	4-pin	Connector, M12, axial, male	4-pin	25,000 mm	PUR	No
548361	CB-M12-1000-5GF/GM	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	1,000 mm	PUR	No
50040763	KB-008-1000 AA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	1,000 mm	PUR	Yes
50040760	KB-008-1000 AR	Connector, M12, axial, female	5-pin	Connector, M12, angled, male	5-pin	1,000 mm	PUR	Yes
548362	CB-M12-2000-5GF/GM	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	2,000 mm	PUR	No
50040759	KB-008-2000 AR	Connector, M12, axial, female	5-pin	Connector, M12, angled, male	5-pin	2,000 mm	PUR	Yes
50115049	K-DS M12A-MA-5P-3m-S-PUR	Connector, M12, axial, female	5-pin	JST ZHR		3,000 mm	PUR	No
50040761	KB-008-3000 AA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	3,000 mm	PUR	Yes
50120999	K-DS M12A-8P-4P-2m-L-PUR	Connector, M12, axial, female	8-pin	Connector, M12, axial, male	4-pin	2,000 mm	PUR	No
50037543	KB 034-2000	Connector, M12, axial, female	8-pin	Connector, M12, axial, male	8-pin	2,000 mm	PVC	Yes
50115050	K-DS M12A-MA-8P-3m-S-PUR	Connector, M12, axial, female	8-pin	JST ZHR		3,000 mm	PUR	No
50121000	K-DS M12A-8P-4P-5m-L-PUR	Connector, M12, axial, female	8-pin	Connector, M12, axial, male	4-pin	5,000 mm	PUR	No
50130284	KDS S-M12-CA-M12-CA-P1-020	Connector, M12, axial, female	12-pin	Connector, M12, axial, male	12-pin	2,000 mm	PUR	Yes
50130285	KDS S-M12-CA-M12-CA-P1-050	Connector, M12, axial, female	12-pin	Connector, M12, axial, male	12-pin	5,000 mm	PUR	Yes
50130286	KDS S-M12-CA-M12-CA-P1-100	Connector, M12, axial, female	12-pin	Connector, M12, axial, male	12-pin	10,000 mm	PUR	Yes
50130917	KDS U-M8-3W-M8-3A-P1-003	Connector, M8, angled, female	3-pin	Connector, M8, axial, male	3-pin	300 mm	PUR	No
50130921	KDS U-M8-3W-M8-3A-P1-003-DP	Connector, M8, angled, female	3-pin	Connector, M8, axial, male	3-pin	300 mm	PUR	No
50130918	KDS U-M8-3W-M8-3A-P1-006	Connector, M8, angled, female	3-pin	Connector, M8, axial, male	3-pin	600 mm	PUR	No
50130922	KDS U-M8-3W-M8-3A-P1-006-DP	Connector, M8, angled, female	3-pin	Connector, M8, axial, male	3-pin	600 mm	PUR	No
50130919	KDS U-M8-3W-M8-3A-P1-010	Connector, M8, angled, female	3-pin	Connector, M8, axial, male	3-pin	1,000 mm	PUR	No
50130923	KDS U-M8-3W-M8-3A-P1-010-DP	Connector, M8, angled, female	3-pin	Connector, M8, axial, male	3-pin	1,000 mm	PUR	No
50130925	KDS U-M8-3W-M8-3A-P1-015-DP	Connector, M8, angled, female	3-pin	Connector, M8, axial, male	3-pin	1,500 mm	PUR	No
50130920	KDS U-M8-3W-M8-3A-P1-020	Connector, M8, angled, female	3-pin	Connector, M8, axial, male	3-pin	2,000 mm	PUR	No
50130926	KDS U-M8-3W-M8-3A-P1-020-DP	Connector, M8, angled, female	3-pin	Connector, M8, axial, male	3-pin	2,000 mm	PUR	No
50130901	KDS U-M8-3A-M8-3A-P1-003	Connector, M8, axial, female	3-pin	Connector, M8, axial, male	3-pin	300 mm	PUR	No
50130908	KDS U-M8-3A-M8-3A-P1-003-DP	Connector, M8, axial, female	3-pin	Connector, M8, axial, male	3-pin	300 mm	PUR	No
50130897	KDS U-M8-3A-M8-3A-V1-003	Connector, M8, axial, female	3-pin	Connector, M8, axial, male	3-pin	300 mm	PVC	No
50130902	KDS U-M8-3A-M8-3A-P1-006	Connector, M8, axial, female	3-pin	Connector, M8, axial, male	3-pin	600 mm	PUR	No
50130909	KDS U-M8-3A-M8-3A-P1-006-DP	Connector, M8, axial, female	3-pin	Connector, M8, axial, male	3-pin	600 mm	PUR	No
50130898	KDS U-M8-3A-M8-3A-V1-006	Connector, M8, axial, female	3-pin	Connector, M8, axial, male	3-pin	600 mm	PVC	No
50130903	KDS U-M8-3A-M8-3A-P1-010	Connector, M8, axial, female	3-pin	Connector, M8, axial, male	3-pin	1,000 mm	PUR	No
50130910	KDS U-M8-3A-M8-3A-P1-010-DP	Connector, M8, axial, female	3-pin	Connector, M8, axial, male	3-pin	1,000 mm	PUR	No

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Sheathing material	Shielded
50130929	KDS U-M8-3A-M12-3A-P1-010	Connector, M8, axial, female	3-pin	Connector, M12, axial, male	3-pin	1,000 mm	PUR	No
50130899	KDS U-M8-3A-M8-3A-V1-010	Connector, M8, axial, female	3-pin	Connector, M8, axial, male	3-pin	1,000 mm	PVC	No
50130904	KDS U-M8-3A-M8-3A-P1-015	Connector, M8, axial, female	3-pin	Connector, M8, axial, male	3-pin	1,500 mm	PUR	No
50130911	KDS U-M8-3A-M8-3A-P1-015-DP	Connector, M8, axial, female	3-pin	Connector, M8, axial, male	3-pin	1,500 mm	PUR	No
50130905	KDS U-M8-3A-M8-3A-P1-020	Connector, M8, axial, female	3-pin	Connector, M8, axial, male	3-pin	2,000 mm	PUR	No
50130912	KDS U-M8-3A-M8-3A-P1-020-DP	Connector, M8, axial, female	3-pin	Connector, M8, axial, male	3-pin	2,000 mm	PUR	No
50130900	KDS U-M8-3A-M8-3A-V1-020	Connector, M8, axial, female	3-pin	Connector, M8, axial, male	3-pin	2,000 mm	PVC	No
50130906	KDS U-M8-3A-M8-3A-P1-030	Connector, M8, axial, female	3-pin	Connector, M8, axial, male	3-pin	3,000 mm	PUR	No
50130907	KDS U-M8-3A-M8-3A-P1-050	Connector, M8, axial, female	3-pin	Connector, M8, axial, male	3-pin	5,000 mm	PUR	No
50130913	KDS U-M8-4A-M8-4A-P1-003	Connector, M8, axial, female	4-pin	Connector, M8, axial, male	4-pin	300 mm	PUR	No
50130914	KDS U-M8-4A-M8-4A-P1-006	Connector, M8, axial, female	4-pin	Connector, M8, axial, male	4-pin	600 mm	PUR	No
50130915	KDS U-M8-4A-M8-4A-P1-010	Connector, M8, axial, female	4-pin	Connector, M8, axial, male	4-pin	1,000 mm	PUR	No
50130916	KDS U-M8-4A-M8-4A-P1-020	Connector, M8, axial, female	4-pin	Connector, M8, axial, male	4-pin	2,000 mm	PUR	No

Switching
sensors

CANopen / DeviceNet

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Interface	Sheathing material
50114691	KB DN/CAN-1000 SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	1,000 mm	DeviceNet, CANopen	PUR
50129779	KDS DN-M12-5A-M12-5A-P3-010	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	1,000 mm	IO-Link, DeviceNet, CANopen	PUR
50114694	KB DN/CAN-2000 SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	2,000 mm	DeviceNet, CANopen	PUR
50129780	KDS DN-M12-5A-M12-5A-P3-020	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	2,000 mm	IO-Link, DeviceNet, CANopen	PUR
50114698	KB DN/CAN-5000 SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	5,000 mm	DeviceNet, CANopen	PUR
50129781	KDS DN-M12-5A-M12-5A-P3-050	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	5,000 mm	IO-Link, DeviceNet, CANopen	PUR
50122338	KB DN/CAN-10000 SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	10,000 mm	DeviceNet, CANopen	PUR
50129782	KDS DN-M12-5A-M12-5A-P3-100	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	10,000 mm	IO-Link, DeviceNet, CANopen	PUR
50122339	KB DN/CAN-20000 SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	20,000 mm	CANopen, DeviceNet	PUR
50129783	KDS DN-M12-5A-M12-5A-P3-200	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	20,000 mm	IO-Link, DeviceNet, CANopen	PUR

Measuring
sensorsProducts for
safety at work

Identification

Ethernet

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Interface	Sheathing material
50130631	KSS ET-M12-4A-M12-4A-P7-010	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	1,000 mm	Ethernet	PUR
50130632	KSS ET-M12-4A-RJ45-A-P7-010	Connector, M12, axial, male	4-pin	RJ45		1,000 mm	Ethernet	PUR
50109880	KB ET-2000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45		2,000 mm	Ethernet	PUR
50106899	KB ET-2000-SSA	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	2,000 mm	Ethernet	PUR
50109881	KB ET-5000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45		5,000 mm	Ethernet	PUR
50106900	KB ET-5000-SSA	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	5,000 mm	Ethernet	PUR
50109882	KB ET-10000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45		10,000 mm	Ethernet	PUR
50106901	KB ET-10000-SSA	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	10,000 mm	Ethernet	PUR
50109883	KB ET-15000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45		15,000 mm	Ethernet	PUR
50106902	KB ET-15000-SSA	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	15,000 mm	Ethernet	PUR
50109886	KB ET-30000-SA-RJ45	Connector, M12, axial, male	4-pin	RJ45		30,000 mm	Ethernet	PUR
50106905	KB ET-30000-SSA	Connector, M12, axial, male	4-pin	Connector, M12, axial, male	4-pin	30,000 mm	Ethernet	PUR

Data transmission /
Control componentsIndustrial image
processing

Accessories

IO-Link

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2,	Cable length	Interface	Sheathing material
50129779	KDS DN-M12-5A-M12-5A-P3-010	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	1,000 mm	IO-Link, DeviceNet, CANopen	PUR
50129780	KDS DN-M12-5A-M12-5A-P3-020	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	2,000 mm	IO-Link, DeviceNet, CANopen	PUR
50129781	KDS DN-M12-5A-M12-5A-P3-050	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	5,000 mm	IO-Link, DeviceNet, CANopen	PUR
50129782	KDS DN-M12-5A-M12-5A-P3-100	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	10,000 mm	IO-Link, DeviceNet, CANopen	PUR
50129783	KDS DN-M12-5A-M12-5A-P3-200	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	20,000 mm	IO-Link, DeviceNet, CANopen	PUR

Interbus-S

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Cable length	Interface	Sheathing material
50104172	KB SSI/IBS-2000-BA	Connector, M12, axial, female	5-pin	Open end	2,000 mm	SSI, Interbus-S	PUR

PROFIBUS DP

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Connection 2, no. of pins	Cable length	Interface	Sheathing material
50104096	KB PB-1000-SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	1,000 mm	PROFIBUS DP	PUR
50104097	KB PB-2000-SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	2,000 mm	PROFIBUS DP	PUR
50104098	KB PB-5000-SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	5,000 mm	PROFIBUS DP	PUR
50104099	KB PB-10000-SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	10,000 mm	PROFIBUS DP	PUR
50104100	KB PB-15000-SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	15,000 mm	PROFIBUS DP	PUR
50104173	KB PB-30000-SBA	Connector, M12, axial, female	5-pin	Connector, M12, axial, male	5-pin	30,000 mm	PROFIBUS DP	PUR

RS 232

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Cable length	Interface	Sheathing material
50113396	KB DSub-9P-3000	Sub-D, male, axial	9-pin	Sub-D, male, axial	3,000 mm	RS 232	PVC
50113467	KB JST-M12A-5P-3000	Connector, M12, axial, female	5-pin	JST ZHR	3,000 mm	RS 232	PUR
50114571	KB 301-3000	Socket connector		JST ZHR	3,000 mm	RS 232	PVC
50120463	KB 301-3000-MA200	Socket connector		JST ZHR	3,000 mm	RS 232	PVC
50128318	KB 301-10000	Socket connector		JST ZHR	10,000 mm	RS 232	PVC

SSI

Part no.	Part description	Connection 1	Connection 1, no. of pins	Connection 2	Cable length	Interface	Sheathing material
50104172	KB SSI/IBS-2000-BA	Connector, M12, axial, female	5-pin	Open end	2,000 mm	SSI, Interbus-S	PUR
50126132	KB 307-3000	Socket connector		Socket connector	3,000 mm	SSI	PVC

USB

Part no.	Part description	Connection 1	Connection 2	Cable length	Interface	Sheathing material
50117011	KB USB A - USB miniB	USB	USB	1,500 mm	USB	PVC
50107726	KB USB A - USB A	USB	USB	1,800 mm	USB	PVC

/// User-configurable connectors



User-configurable connectors as plugs (male) or sockets (female) for configuration at the system.



Direct access to the online product selector at www.leuze.com/en/connectors

Part no.	Part description	Connection	No. of pins	Interface
50108991	D-ET1	RJ45		Ethernet
50104582	D M8A-3P-SK	Connector, M8, axial, female	3-pin	
50104583	D M8A-4P-SK	Connector, M8, axial, female	4-pin	
50031323	KD 095-4A	Connector, M12, axial, female	4-pin	
429175	CB-M12-5GF	Connector, M12, axial, female	5-pin	
50040097	KD 01-5-BA	Connector, M12, axial, female	5-pin	
50020501	KD 095-5A	Connector, M12, axial, female	5-pin	
50081461	KD 095-5A-PG9	Connector, M12, axial, female	5-pin	
50038538	KD 02-5-BA	Connector, M12, axial, female	5-pin	PROFIBUS DP, multiNet Plus
429178	CB-M12-8GF	Connector, M12, axial, female	8-pin	
50112157	KD 01-8-BA	Connector, M12, axial, female	8-pin	
50040155	KS 095-4A	Connector, M12, axial, male	4-pin	
50112155	S-M12A-ET	Connector, M12, axial, male	4-pin	Ethernet
50040098	KD 01-5-SA	Connector, M12, axial, male	5-pin	
50114223	KS 095-5A	Connector, M12, axial, male	5-pin	
50038537	KD 02-5-SA	Connector, M12, axial, male	5-pin	PROFIBUS DP, multiNet Plus
50112156	KD 01-8-SA	Connector, M12, axial, male	8-pin	
50031324	KD 095-4	Connector, M12, angled, female	4-pin	
50020502	KD 095-5	Connector, M12, angled, female	5-pin	
50101943	KD 01-5-SR	Connector, M12, angled, male	5-pin	
426046	AC-LDH-12GF	Connector, M26, axial, female	12-pin	
426045	AC-LDH-12WF	Connector, M26, angled, female	12-pin	
520083	AC-D15E-GF	Sub-D, male, axial	15-pin	

Further connectors can be found on our website

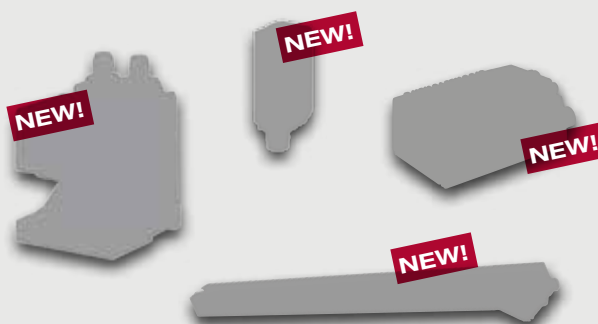
SMARTER PRODUCT USABILITY

Optimum handling, very simple mounting and alignment, uncomplicated integration in fieldbus systems and fast configuration.

Discover our product innovations!



Direct access to our product innovations: www.leuze.com/en/innovations



Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

/// Distribution boxes



Sensor distribution box for smart infrastructure for voltage supply and signal collection with M8 and M12 ports.



Direct access to the online product selector at www.leuze.com/en/distrib-boxes

Part no.	Part description	Distribution box connections	Distribution box	Master connection	Switching element	Degree of protection
50130610	MD 7XXP-11-42I05-12	4x	M12, 5-pin, A-coded, female	Connector, M12, 12-pin, A-coded, male	PNP	IP 67, IP 65
50130606	MD 7XXP-11-42I05-13	4x	M12, 5-pin, A-coded, female	Connector, M23, 12-pin, A-coded, male	PNP	IP 67, IP 65
50130994	MD 7XXP-11-82I05-FK	8x	M12, 5-pin, A-coded, female	Terminal, 21-pin	PNP	IP 67, IP 65
50130603	MD 7XXP-11-82I05-K030	8x	M12, 5-pin, A-coded, female	Cable, 3,000 mm, 19-wire, PUR / PVC	PNP	IP 67, IP 65
50130604	MD 7XXP-11-82I05-K050	8x	M12, 5-pin, A-coded, female	Cable, 5,000 mm, 19-wire, PUR / PVC	PNP	IP 67, IP 65
50130605	MD 7XXP-11-82I05-K100	8x	M12, 5-pin, A-coded, female	Cable, 10,000 mm, 19-wire, PUR / PVC	PNP	IP 67, IP 65
50130608	MD 7XXP-11-82I05-13	8x	M12, 5-pin, A-coded, female	Connector, M23, 19-pin, A-coded, male	PNP	IP 67, IP 65
50130600	MD 7XXP-11-82I04-K030	8x	M12, 4-pin, A-coded, female	Cable, 3,000 mm, 11-wire, PUR / PVC	PNP	IP 67, IP 65
50130601	MD 7XXP-11-82I04-K050	8x	M12, 4-pin, A-coded, female	Cable, 5,000 mm, 11-wire, PUR / PVC	PNP	IP 67, IP 65
50130602	MD 7XXP-11-82I04-K100	8x	M12, 4-pin, A-coded, female	Cable, 10,000 mm, 11-wire, PUR / PVC	PNP	IP 67, IP 65
50130611	MD 7XXP-11-82I04-12	8x	M12, 4-pin, A-coded, female	Connector, M12, 12-pin, A-coded, male	PNP	IP 67, IP 65
50130607	MD 7XXP-11-82I04-13	8x	M12, 4-pin, A-coded, female	Connector, M23, 12-pin, A-coded, male	PNP	IP 67, IP 65
50130594	MD 7XXP-11-48I03-K030	4x	M8, 3-pin, A-coded, female	Cable, 3,000 mm, 6-wire, PUR / PVC	PNP	IP 67, IP 65
50130595	MD 7XXP-11-48I03-K050	4x	M8, 3-pin, A-coded, female	Cable, 5,000 mm, 6-wire, PUR / PVC	PNP	IP 67, IP 65
50130596	MD 7XXP-11-48I03-K100	4x	M8, 3-pin, A-coded, female	Cable, 10,000 mm, 6-wire, PUR / PVC	PNP	IP 67, IP 65
50130592	MD 7XXP-11-48I03-12	4x	M8, 3-pin, A-coded, female	Connector, M12, 12-pin, A-coded, male	PNP	IP 67, IP 65
50130593	MD 7XXP-11-68I03-12	6x	M8, 3-pin, A-coded, female	Connector, M12, 12-pin, A-coded, male	PNP	IP 67, IP 65
50130597	MD 7XXP-11-88I03-K030	8x	M8, 3-pin, A-coded, female	Cable, 3,000 mm, 10-wire, PUR / PVC	PNP	IP 67, IP 65
50130598	MD 7XXP-11-88I03-K050	8x	M8, 3-pin, A-coded, female	Cable, 5,000 mm, 10-wire, PUR / PVC	PNP	IP 67, IP 65
50130599	MD 7XXP-11-88I03-K100	8x	M8, 3-pin, A-coded, female	Cable, 10,000 mm, 10-wire, PUR / PVC	PNP	IP 67, IP 65
50130990	MD 7XXP-11-88I03-12	8x	M8, 3-pin, A-coded, female	Connector, M12, 12-pin, A-coded, male	PNP	IP 67, IP 65
50130993	MD 7XXP-11-108I03-12	10x	M8, 3-pin, A-coded, female	Connector, M12, 12-pin, A-coded, male	PNP	IP 67, IP 65

SMARTER PRODUCT USABILITY

It's the accessories that make our range of products complete.

We place great value on, e.g., flexible mounting solutions and simple integration through variable connection technology, alignment aids and innovative mounting systems. Pre-configured and pre-mounted systems also facilitate fast and simple commissioning of, e.g., muting systems for applications in safety at work.



Discover our extensive line of accessories on the web at: www.leuze.com/en/accessories

/ MOUNTING SYSTEMS

OPTIMUM SUPPORT AT ALL TIMES

For sensor mounting, we offer a large selection of standard mounting materials to help you reliably mount and – if necessary – easily align the devices.



Switching sensors

Measuring sensors

/// Mounting brackets



Selection of mounting brackets for the simple and fast mounting of a sensor on the machine or system. Versions in galvanized material or stainless steel in different sizes for various sensors.



Direct access to the online product selector at www.leuze.com/en/m-brackets

Products for safety at work

Identification

Part no.	Part description	Suitable for	Design	Fastening at device	Fastening at system	Material
50105585	BT 3.1	3B series sensors	Retaining clip	Screw type	Through-hole mounting	Metal
50111830	BT 3.5	3B series sensors	Retaining clip	Screw type	Through-hole mounting	Metal
50103844	BT 3.2	3B series sensors	Mounting plate	Screw type	Mounting thread	Metal
429056	BT-2L	MLD 500, MLD 300 multiple light beam safety devices, CML700i light curtains, MLC 500, MLC 300 safety light curtains	Angle, L-shape	Screw type	Through-hole mounting	Metal
560120	BT-2S	MLD 500, MLD 300 multiple light beam safety devices, CML700i light curtains, MLC 500, MLC 300 safety light curtains	Angle, L-shape	Screw type	Through-hole mounting	Metal
430105	BT-2UM60	UM60 deflecting mirror	Angle, L-shape	Screw type	Through-hole mounting	Metal
50112206	BT 002M.5	2 series sensors	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel
50115197	BT 003M.1	3B series sensors	Angle, L-shape	Screw type	Through-hole mounting	Metal
50060511	BT 3	3B series sensors	Angle, L-shape	Screw type	Through-hole mounting	Metal
50105546	BT 3B	3B series sensors	Angle, L-shape	Screw type	Through-hole mounting	Metal
50036195	BT 8	8 series sensors, QDSL 30	Angle, L-shape	Screw type	Through-hole mounting	Metal
50006902	BT 16	78 series sensors	Angle, L-shape	Screw type	Through-hole mounting	Metal
50011791	BT 24	VS 24	Angle, L-shape	Screw type	Through-hole mounting	Metal
50040269	BT 25	25 series sensors, 55 series sensors	Angle, L-shape	Screw type	Through-hole mounting	Metal
50105315	BT 46	46B series sensors	Angle, L-shape	Screw type	Through-hole mounting	Metal
50080152	BT 64	LS 64	Angle, L-shape	Screw type	Through-hole mounting	Metal
50016515	BT 66	LS 66, 713 series sensors	Angle, L-shape	Screw type	Through-hole mounting	Metal
50003374	BT 78	78 series sensors	Angle, L-shape	Screw type	Through-hole mounting	Metal
50003376	BT 85	85 series sensors	Angle, L-shape	Screw type	Through-hole mounting	Metal
50018415	BT 92	92 series sensors, 97 series sensors	Angle, L-shape	Screw type	Through-hole mounting	Metal
50020833	BT 95	95 series sensors, 18 series sensors	Angle, L-shape	Screw type	Through-hole mounting	Metal
50025570	BT 96	96B series sensors	Angle, L-shape	Screw type	Through-hole mounting	Metal
50080614	BT 96.1	96B series sensors, 49C series sensors	Angle, L-shape	Screw type	Through-hole mounting	Metal
50032319	BT 96.4	96B series sensors, 49C series sensors	Angle, L-shape	Screw type	Through-hole mounting	Metal
50118542	BT 200M.5	3B series sensors, 25B series sensors, 5 series sensors, 18 series sensors, 28 series sensors	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel
50124651	BT 205M	5 series sensors, 3B series sensors, 25B series sensors, 28 series sensors	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

Data transmission / Control components

Industrial image processing

Accessories

Part no.	Part description	Suitable for	Design	Fastening at device	Fastening at system	Material
50121433	BT 300 W	BCL 3xxi series bar code readers, BCL 3xxi series bar code readers with deflecting mirror	Angle, L-shape	Screw type	Through-hole mounting	Metal
50118543	BT 300M.5	46B series sensors, 8 series sensors, ODSL 9	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel, V2A
50132151	BT 320M	DCR 200i series stationary 2D-code readers	Angle, L-shape	Screw type	Through-hole mounting	Metal
50080776	BT 713	713 series sensors	Angle, L-shape	Screw type	Through-hole mounting	Metal
50131534	BT 900	BCL 900i series bar code readers	Angle, L-shape	Screw type	Through-hole mounting	Metal
50009419	BT 910M	TK 100x100 reflector	Angle, L-shape	Screw type	Through-hole mounting	Metal
50113550	BT D08M.5	208 series sensors	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel
50113549	BT D12M.5	212 series sensors	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel
50113548	BT D18M.5	218 series sensors, 318 series sensors	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel
50117257	BT D21M	318 series sensors	Angle, L-shape	Screw type	Through-hole mounting	Metal
50113510	BT D30M.5	230 series sensors, 430 series sensors	Angle, L-shape	Screw type	Through-hole mounting	Stainless steel
429057	BT-2Z	MLD 500, MLD 300 multiple light beam safety devices, CML700i light curtains, MLC 500, MLC 300 safety light curtains	Angle, Z-shape	Screw type	Through-hole mounting	Metal

Further mounting brackets can be found on our website

/// Rod mounts



Various mounting systems for comfortable mounting and alignment of a sensor on a rod. Versions in galvanized material or stainless steel for different diameters of 10 to 20 mm.



Direct access to the online product selector at www.leuze.com/en/r-fastening

Part no.	Part description	Suitable for	Design	Fastening at device	Fastening at system	Material
50111391	BT 20-D10	BCL 2x series bar code readers, 25 series sensors	Mounting system	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50060503	BT 20-D12	BCL 2x series bar code readers, 25 series sensors	Mounting system	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50027375	BT 56	BCL 3x series bar code readers, BCL 5xxi series bar code readers, BPS 3x series bar code positioning system, LSIS 4xxi series stationary 2D-code readers, BCL 3xxi series bar code readers, BCL 3xxi series bar code readers with deflecting mirror, BPS 300i series bar code positioning system, LxS light section sensors	Mounting system	Clampable	For 16 mm rod, for 18 mm rod, for 20 mm rod	Metal
50121435	BT 56 - 1	BCL 3xxi series bar code readers, BCL 5xxi series bar code readers, LSIS 4xxi series stationary 2D-code readers, BPS 300i series bar code positioning system, LxS light section sensors	Mounting system	Clampable	For 12 mm rod, for 14 mm rod, for 16 mm rod	Metal
50126007	BT 56 - V	LxS light section sensors	Mounting system	Clampable	For 16 mm rod, for 14 mm rod, for 12 mm rod	Metal
50121434	BT 300 - 1	BCL 3xxi series bar code readers, BCL 3xxi series bar code readers with deflecting mirror	Mounting system	Screw type	For 12 mm rod, for 14 mm rod, for 16 mm rod	Metal
50082084	BT 450.1-96	96B series sensors	Mounting system	Screw type	For 10 mm rod	Metal
50104897	BT 450.3-96	96B series sensors	Mounting system	Screw type	For 12 mm rod	Metal
50127177	BTU 008M-D10	8 series sensors	Mounting system	Screw type	Sheet-metal mounting, for 10 mm rod	Metal
50116817	BTU 053M.5F-D12-A090	53 series sensors	Mounting system	Screw type	For 12 mm rod	Stainless steel
50116816	BTU 053M.5F-D12-A180	53 series sensors	Mounting system	Screw type	For 12 mm rod	Stainless steel
50116820	BTU 053M.5F-D12-N	53 series sensors	Mounting system	Screw type	For 12 mm rod	Stainless steel
50116819	BTU 053M.5F-D12-SS	53 series sensors	Mounting system	Screw type	For 12 mm rod	Stainless steel
50116815	BTU 053M.5F-D20-N	53 series sensors	Mounting system	Screw type	For 20 mm rod	Stainless steel
50116814	BTU 053M.5F-D20-SS	53 series sensors	Mounting system	Screw type	For 20 mm rod	Stainless steel
50120426	BTU 200M.5-D12	18 series sensors, 5 series sensors, 25B series sensors, 3B series sensors, 55 series sensors, 28 series sensors	Mounting system	Screw type	For 12 mm rod	Stainless steel
50132150	BTU 320M-D12	DCR 200i series stationary 2D-code readers	Mounting system	Screw type	For 12 mm rod	Metal
50128379	BTU 460M-D10	49C series sensors, BCL 3xxi series bar code readers, BPS 300i series bar code positioning systems, 10 series sensors	Mounting system	Screw type	For 10 mm rod	Metal
50128380	BTU 460M-D12	49C series sensors, BCL 3xxi series bar code readers, BPS 300i series bar code positioning systems, 10 series sensors	Mounting system	Screw type	For 12 mm rod	Metal

Further rod mounts can be found on our website

Part no.	Part description	Suitable for	Design	Fastening at device	Fastening at system	Material
50120011	BTU 934M-D10-90	PRK retro-reflective photoelectric sensors	Mounting system	Adhesive	For 10 mm rod, sheet-metal mounting	Metal
50120019	BTU 934M-D12-90	PRK retro-reflective photoelectric sensors	Mounting system	Adhesive	For 12 mm rod, sheet-metal mounting	Metal
50120010	BTU 934M-D14-90	PRK retro-reflective photoelectric sensors	Mounting system	Adhesive	Sheet-metal mounting, for 14 mm rod	Metal
50119334	BTU D12M-D12-A090	12mm rod	Mounting system	Clampable	For 12 mm rod, through-hole mounting	Metal
50119333	BTU D12M-D12-B090	12mm rod	Mounting system	Clampable	For 12 mm rod, through-hole mounting	Metal
50132567	BTU D12M-VKT-90	12mm rod	Mounting system	Clampable	Through-hole mounting, for 12 mm rod	Metal
430305	MMS-A-2N55	PRK retro-reflective photoelectric sensor, HRT diffuse reflection sensor	Mounting system	Groove mounting	Through-hole mounting	Metal
430306	MMS-AP-N60	PRK retro-reflective photoelectric sensor, HRT diffuse reflection sensor	Mounting system	Groove mounting	Through-hole mounting	Metal
50026204	UMS 96	96B series sensors	Mounting system	Clampable	For 10 mm rod, for 12 mm rod, for 14 mm rod, for 16 mm rod	Metal
50027191	UMS 96-82	96B series sensors	Mounting system	Clampable	For 10 mm rod, for 12 mm rod, for 14 mm rod, for 16 mm rod	Metal
50080334	UMS 96-95	96B series sensors	Mounting system	Clampable	For 10 mm rod, for 12 mm rod, for 14 mm rod, for 16 mm rod	Metal
50129149	BTU 346M.6-D12	(M)TKS 30x50 reflector, TKS 20x40 reflector, 46B series sensors, TKS 50x50 reflector	Mounting system, turning, 360 °, adjustable, clampable	Screw type	For 12 mm rod, sheet-metal mounting	Metal, stainless steel
50122797	BTU 346M-D12	46B series sensors, (M)TKS 30x50 reflector, TKS 50x50 reflector, 3B series sensors, 25B series sensors, TKS 20x40 reflector	Mounting system, turning, 360 °, clampable, adjustable	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50122798	BTU 346M.5-D12	46B series sensors, (M)TKS 30x50 reflector, TKS 50x50 reflector, TKS 20x40 reflector	Mounting system, turning, 360 °, clampable, adjustable	Screw type	For 12 mm rod, sheet-metal mounting	Stainless steel
50119332	BTU 900M-D10	(M)TKS 30x50 reflector, TKS 50x50 reflector, (M)TKS 40x60 reflector	Mounting system, clampable, turning, 360 °, swiveling	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50119331	BTU 900M-D12	(M)TKS 30x50 reflector, TKS 50x50 reflector, (M)TKS 40x60 reflector	Mounting system, clampable, turning, 360 °, swiveling	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50119330	BTU 900M-D14	(M)TKS 30x50 reflector, TKS 50x50 reflector, (M)TKS 40x60 reflector	Mounting system, clampable, turning, 360 °, swiveling	Screw type	For 14 mm rod, sheet-metal mounting	Metal
50117256	BTU 200M-D10	3B series sensors, 25B series sensors, 18 series sensors, 5 series sensors, 55 series sensors, 28 series sensors	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50117255	BTU 200M-D12	3B series sensors, 25B series sensors, 18 series sensors, 5 series sensors, 55 series sensors, 28 series sensors	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50117254	BTU 200M-D14	3B series sensors, 25B series sensors, 18 series sensors, 5 series sensors, 55 series sensors, 28 series sensors	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 14 mm rod, sheet-metal mounting	Metal
50117253	BTU 300M-D10	46B series sensors, 8 series sensors, ODSL 9	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod, sheet-metal mounting	Metal
50117252	BTU 300M-D12	46B series sensors, 8 series sensors, ODSL 9	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Metal
50117251	BTU 300M-D14	46B series sensors, 8 series sensors, ODSL 9	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 14 mm rod, sheet-metal mounting	Metal
50120425	BTU 300M.5-D12	46B series sensors, 8 series sensors, ODSL 9	Mounting system, clampable, adjustable, turning, 360 °	Screw type	For 12 mm rod, sheet-metal mounting	Stainless steel
50117490	BTU D18M-D12	318 series sensors, 28 series sensors, 218 series sensors	Mounting system, clampable, adjustable, turning, 360 °	Screw type	Through-hole mounting	Metal
50119325	BTU D12M.5-045-M8	BTU D12M-D12-B090, BTU D12M-D12-A090	12mm rod	Clampable	Mounting thread	Stainless steel
424900	BTU D12M.5-100	BTU D12M-D12-A090, BTU D12M-D12-B090	12mm rod	Clampable	Clampable	Stainless steel
50119323	BTU D12M.5-150	BTU D12M-D12-B090, BTU D12M-D12-A090	12mm rod	Clampable	Clampable	Stainless steel
50119324	BTU D12M.5-250	BTU D12M-D12-B090, BTU D12M-D12-A090	12mm rod	Clampable	Clampable	Stainless steel
50132565	BTU D12M-Z-230	BTU D12M-D12-A090, BTU D12M-D12-B090, BTU D12M-VKT-90	Z-shaped rod, 12 mm	Clampable	Clampable	Metal
50132564	BTU D12M.5-Z-230	BTU D12M-D12-A090, BTU D12M-D12-B090, BTU D12M-VKT-90	Z-shaped rod, 12 mm	Clampable	Clampable	Stainless steel
50117830	BTP 200M-D10	3B series sensors, 25B series sensors, 18 series sensors, 5 series sensors	Protection hood, clampable, adjustable, turning, 360 °	Screw type	For 10 mm rod	Metal

Further rod mounts can be found on our website

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

Part no.	Part description	Suitable for	Design	Fastening at device	Fastening at system	Material
50117829	BTP 200M-D12	3B series sensors, 25B series sensors, 18 series sensors, 5 series sensors	Protection hood, clampable, adjustable, turning, 360°	Screw type	For 12 mm rod	Metal
50117828	BTP 200M-D14	3B series sensors, 18 series sensors, 5 series sensors	Protection hood, clampable, adjustable, turning, 360°	Screw type	For 14 mm rod	Metal
50117827	BTP 300M-D10	46B series sensors, 8 series sensors, ODSL 9	Protection hood, clampable, adjustable, turning, 360°	Screw type	For 10 mm rod	Metal
50117826	BTP 300M-D12	46B series sensors, 8 series sensors, ODSL 9	Protection hood, clampable, adjustable, turning, 360°	Screw type	For 12 mm rod	Metal
50117825	BTP 300M-D14	46B series sensors, 8 series sensors, ODSL 9	Protection hood, clampable, adjustable, turning, 360°	Screw type	For 14 mm rod	Metal

Further rod mounts can be found on our website

/// Other mounting systems



Various mounting devices such as mounting clamps, sliding blocks, swiveling mounting brackets, adjustable mounting brackets, cylindrical mounting systems, table and wall mounting brackets, rope, quick-change mounting brackets and much more.



Direct access to the online product selector at www.leuze.com/en/s-fastening

Part no.	Part description	Suitable for	Design	Fastening at device	Fastening at system	Material
50104791	BT 8-01	BPS 8 series bar code positioning system		Screw type	Through-hole mounting	Metal
50037473	BT 21	BCL 2x series bar code reader		Insertable	Mounting thread	Metal
50111224	BT 59	BCL 5xxi series bar code readers, LSIS 4xxi series stationary 2D-code readers, LxS light section sensors		Clampable	Groove mounting	Metal
50107034	BT Rope IT	IT 3800i series mobile bar code readers, FIS series mobile 2D-code readers, IT 1910 series mobile 2D-code readers, IT 1911 series mobile 2D-code readers, IT 1280i series mobile bar code readers, IT 198xi series mobile 2D-code readers		Insertable	Suspended (rope)	Plastic
50124941	BTU 0300M-W	Bar code positioning system, BPS 300i series		Clampable, groove mounting	Through-hole mounting	Metal
50125860	BTX-D18M-D30	Sensors with M18 design		Screw type	Mounting thread	Stainless steel
50132727	AC D08M-CS	Sensors with M8 design	Mounting clamp	Insertable, clampable with limit stop	Screw type, through-hole mounting	Metal
50132728	AC D12M-CS	Sensors with M12 design	Mounting clamp	Insertable, clampable with limit stop	Screw type, through-hole mounting	Metal
50132729	AC D18M-CS	Sensors with M18 design	Mounting clamp	Insertable, clampable with limit stop	Screw type, through-hole mounting	Metal
50132730	AC D30M-CS	Sensors with M30 design	Mounting clamp	Insertable, clampable with limit stop	Screw type, through-hole mounting	Metal
424417	BT-2P40	CML700i light curtains, UDC-S2, DC-S2 device columns, MLC 500, MLC 300 safety light curtains	Mounting clamp	Groove mounting	Groove mounting	Metal
50128583	BT-GS6X.DT	61/63 series sensors	Mounting clamp	Screw type	Groove mounting	Metal
50036196	BT 8-0	8 series sensors	Mounting clamp	Clampable	Mounting thread	Metal
50121904	BT318B-OM	318 series sensors	Mounting clamp	Screw type	Through-hole mounting	Plastic
50117258	BT 318P-LS	318 series sensors	Mounting clamp	Clampable	Through-hole mounting	Plastic
50126631	BT 328M	328 series sensors, sensors with M18 design	Mounting clamp	Screw type	For 18 mm rod, through-hole mounting	Stainless steel
50115600	BTC 088M-I40	288 series sensors	Mounting clamp	Clampable	Groove mounting	Metal
50111496	MC 006K	206 series sensors	Mounting clamp	Clampable	Through-hole mounting	Plastic
50111497	MC 008K	208 series sensors	Mounting clamp	Clampable	Through-hole mounting	Plastic
50111498	MC 008K-LS	208 series sensors	Mounting clamp	Clampable with limit stop	Through-hole mounting	Plastic
50111499	MC 012K	212 series sensors, 412 series sensors	Mounting clamp	Clampable	Through-hole mounting	Plastic
50111500	MC 012K-LS	212 series sensors, 412 series sensors	Mounting clamp	Clampable with limit stop	Through-hole mounting	Plastic

Further mounting systems can be found on our website

Part no.	Part description	Suitable for	Design	Fastening at device	Fastening at system	Material
50111501	MC 018K	218 series sensors, 418 series sensors	Mounting clamp	Clampable	Through-hole mounting	Plastic
50111502	MC 018K-LS	218 series sensors, 418 series sensors	Mounting clamp	Clampable with limit stop	Through-hole mounting	Plastic
50111503	MC 030K	230 series sensors, 430 series sensors	Mounting clamp	Clampable	Through-hole mounting	Plastic
50111504	MC 030K-LS	230 series sensors	Mounting clamp	Clampable with limit stop	Through-hole mounting	Plastic
50123869	BT-GS6X.H	61/63 series sensors	Mounting plate	Groove mounting	Through-hole mounting	Metal
50112215	BT-GS6X.L	61/63 series sensors	Mounting plate	Groove mounting	Through-hole mounting	Metal
50035030	BT 8-ARH	8 series sensors	Mounting plate	Screw type	Through-hole mounting	Metal
50118539	BT 25-ARH	25 series sensors	Mounting plate	Screw type	Through-hole mounting	Metal
50083189	BT 318-ARH	318 series sensors, 418 series sensors	Mounting plate	Screw type	Through-hole mounting	Metal
50126757	BTX 0500 M	DDL 500 series data transmission systems	Mounting plate	Screw type	Through-hole mounting	Metal
50027167	BT 57	MA 21, MA 31	Mounting system	Screw type	Through-hole mounting	Metal
425740	BT-10NC60	MLC 500, MLC 300 safety light curtains, MLD 300, MLD 500 multiple light beam safety devices	Sliding block	Groove mounting	Mounting thread	Metal
425741	BT-10NC64	MLC 500, MLC 300 safety light curtains, MLD 300, MLD 500 multiple light beam safety devices	Sliding block	Groove mounting	Mounting thread	Metal
425742	BT-10NC65	MLC 500, MLC 300 safety light curtains, MLD 300, MLD 500 multiple light beam safety devices	Sliding block	Groove mounting	Mounting thread	Metal
50128797	BT 1900gCover	IT 1900 series mobile 2D-code readers	Protection hood	Insertable	Suspended (rope)	Plastic
50106109	BT Cover IT4xxx	IT 3820 series mobile bar code readers, IT 3800i series mobile bar code readers	Protection hood	Insertable	Suspended (rope)	Plastic
50109534	BT Cover IT1300g	IT 1300 series mobile bar code readers	Protection hood	Insertable	Suspended (rope)	Plastic
50115358	BT Desktop IT1300g	IT 1300 series mobile bar code readers	Table foot	Insertable	Self-supporting	Plastic
50103402	BT Flex Neck IT 4xxx	IT 3820 series mobile bar code readers, IT 3800i series mobile bar code readers	Table foot	Insertable	Self-supporting	Plastic
50107039	BT Flex Neck IT1300g	IT 1300 series mobile bar code readers	Table foot	Insertable	Self-supporting	Plastic
50130491	BT Holder HCR 6200	HCR 6200 series mobile 2D-code readers	Table foot	Insertable	Self-supporting	Plastic
50114498	BT Holder IT 190x	IT 1900 series mobile 2D-code readers, IT 1902 series mobile 2D-code readers	Table foot	Insertable	Self-supporting	Plastic
50114501	BT Stand 8 IT 190x	IT 1900 series mobile 2D-code readers, IT 1902 series mobile 2D-code readers	Table foot	Insertable	Self-supporting	Plastic
50128795	BT Stand 30 IT 191x	IT 1910 series mobile 2D-code readers, IT 1911 series mobile 2D-code readers	Table foot	Insertable	Self-supporting	Plastic
50034617	Holder for Z-3010	Z-3xxx series mobile bar code readers	Table foot	Insertable	Through-hole mounting	Plastic
50106314	BT VMHolder	FIS series mobile 2D-code readers, IT 1900 series mobile 2D-code readers, IT 1902 series mobile 2D-code readers, IT 3800g series mobile bar code readers, IT 3820 series mobile bar code readers	Wall mounting	Insertable	Mounting thread	Metal
50120444	BT Wallholder HS65x8	HS 65x8, IT 1910 series mobile 2D-code readers, IT 1911 series mobile 2D-code readers	Wall mounting	Insertable	Through-hole mounting	Plastic
50115739	BT Wallholder IT190x	IT 1900 series mobile 2D-code readers, IT 1902 series mobile 2D-code readers	Wall mounting	Insertable	Mounting thread	Plastic
50128793	BT Wallholder IT 191x	IT 1910 series mobile 2D-code readers, IT 1911 series mobile 2D-code readers	Wall mounting	Insertable	Mounting thread	Plastic
520021	BT-LA-78M	LA-78M laser alignment aids	Angle, L-shape	Screw type	Groove mounting	Metal
520022	BT-LA-78M-UDC	LA-78M laser alignment aids	Angle, L-shape	Screw type		Metal
50107255	MW OMS/AMS 01	AMS 300	Angle, L-shape	Screw type	Through-hole mounting	Metal

Further mounting systems can be found on our website

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

SMARTER PRODUCT USABILITY

*power*reserve.

Stable processes as a result of the largest possible function reserves

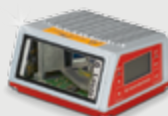


*think*modular.

Freely selectable function range comprising various equipment features

*availability*control.

Early warnings in case of dirty devices prevent costly system downtime



*easy*handling.

Intelligent ideas for installation and alignment and easy operation of the devices



*integrated*connectivity.

Integrated interface diversity for simple integration in your fieldbus



Additional usability highlights can be found at: www.leuze.com/en/products

Data transmission /
Control components

Industrial image
processing

Accessories

/ DEVICE COLUMNS

ROCK SOLID MOUNTING

Owing to their different designs and heights, our robust device columns offer flexible options for freestanding mounting of our safety light curtains and multiple light beam safety devices. Muting mounting systems can be attached extremely easily on the outside.



Direct access to the online product selector at www.leuze.com/en/device-columns

Part no.	Part description	Height	Column height without foot	Mechanical reset function
549620	DC-900-S2	900 mm	900 mm	No
549855	UDC-900-S2	960 mm	900 mm	Yes
549621	DC-1000-S2	1,000 mm	1,000 mm	No
549856	UDC-1000-S2	1,060 mm	1,000 mm	Yes
549627	DC-1070-S2	1,070 mm	1,070 mm	No
549626	DC-1140-S2	1,140 mm	1,140 mm	No
549879	UDC-1140-S2	1,200 mm	1,140 mm	Yes
549622	DC-1300-S2	1,300 mm	1,300 mm	No
549852	UDC-1300-S2	1,360 mm	1,300 mm	Yes
549623	DC-1600-S2	1,600 mm	1,600 mm	No
549853	UDC-1600-S2	1,660 mm	1,600 mm	Yes
549624	DC-1900-S2	1,900 mm	1,900 mm	No
549854	UDC-1900-S2	1,960 mm	1,900 mm	Yes

Included in delivery: mounting kit for floor assembly (UDC device columns only)
Further device columns can be found on our website

SMARTER CUSTOMER SERVICE

User knowledge about machine safety topics

The online adviser, Safety know-how, provides a selection of European directives and important standards relating to machine safety and offers assistance with the selection and application of protective devices.

- 1. Introduction
- 2. Machine safety in the EU
- 3. Machine safety in the USA
- 4. Protective devices
- Videos
- Calculation wizards



Detailed information regarding machine safety: www.leuze.com/en/safetyknow-how



/ DEFLECTING MIRRORS / DEFLECTING MIRROR COLUMNS

LETTING LIGHT SHINE - EVEN AROUND CORNERS

It is sometimes necessary for safety at work, to deflect sensor beams on account of structural circumstances. Our deflecting mirrors and columns enable inexpensive solutions for multi-side guarding of danger zones.



Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

/// Deflecting mirror columns / continuous



The continuous mirror surface is suitable for the beam deflection of safety light curtains such as the MLC series. Special spring elements offer an automatic resetting after mechanical impacts. For easy alignment, the mirror column can be adjusted in 3 directions.

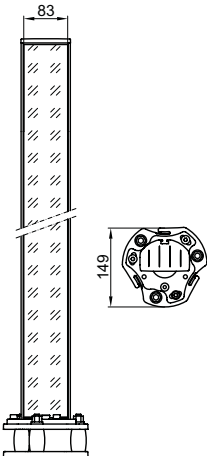


Direct access to the online product selector at www.leuze.com/en/uss-d

Part no.	Part description	Mirror length	Height	Mechanical reset function
549780	UMC-1000-S2	970 mm	1,060 mm	Yes
549781	UMC-1300-S2	1,270 mm	1,360 mm	Yes
549782	UMC-1600-S2	1,570 mm	1,660 mm	Yes
549783	UMC-1900-S2	1,870 mm	1,960 mm	Yes

Included in delivery: mounting kit for floor assembly

Dimensioned drawings: Deflecting mirror columns / continuous



Deflecting mirror column UMC-S2, continuous mirror

/// Deflecting mirror columns / individual mirrors



The deflecting mirror columns with individual mirrors are suitable for the beam deflection of multiple light beam safety devices such as the MLD series. Special spring elements offer an automatic resetting after mechanical impacts. For exact alignment, each mirror can be adjusted in 3 axes.

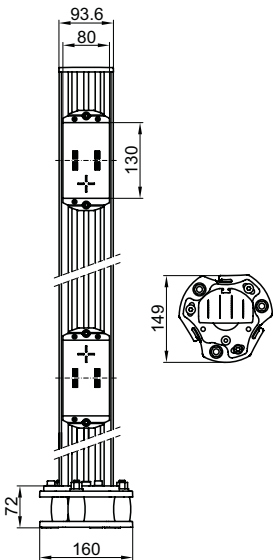


Direct access to the online product selector at www.leuze.com/en/uss-e

Part no.	Part description	Column height without foot	Height	Number of individual mirrors	Center-to-center spacing of individual mirrors
549790	UMC-902-S2	900 mm	960 mm	2x	500 mm
549791	UMC-1002-S2	1,000 mm	1,060 mm	2x	500 mm
549797	UMC-1143-S2	1,140 mm	1,200 mm	3x	400 mm
549792	UMC-1303-S2	1,300 mm	1,360 mm	3x	400 mm
549793	UMC-1304-S2	1,300 mm	1,360 mm	4x	300 mm
549796	UMC-1603-S2	1,600 mm	1,660 mm	3x	400 mm

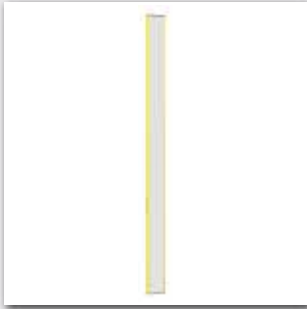
Included in delivery: mounting kit for floor assembly

Dimensioned drawings: Deflecting mirror columns / individual mirrors



UMC-S2 deflecting mirror columns, individual mirrors

/// Deflecting mirrors / continuous



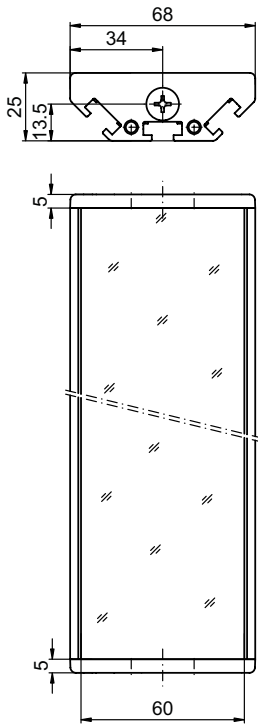
The continuous mirror surface is suitable for the beam deflection of safety light curtains such as the MLC series. The narrow and robust aluminum housing is easy to mount with sliding blocks or swiveling mounting brackets.



Direct access to the online product selector at www.leuze.com/en/usp-d

Part no.	Part description	Mirror length	Protected field height up to
529601	UM60-150	210 mm	150 mm
529602	UM60-225	285 mm	225 mm
529603	UM60-300	360 mm	300 mm
529604	UM60-450	510 mm	450 mm
529606	UM60-600	660 mm	600 mm
529607	UM60-750	810 mm	750 mm
529609	UM60-900	960 mm	900 mm
529610	UM60-1050	1,110 mm	1,050 mm
529612	UM60-1200	1,260 mm	1,200 mm
529613	UM60-1350	1,410 mm	1,350 mm
529615	UM60-1500	1,560 mm	1,500 mm
529616	UM60-1650	1,710 mm	1,650 mm
529618	UM60-1800	1,860 mm	1,800 mm

Dimensioned drawings: Deflecting mirrors / continuous



UM60 deflecting mirror

Switching
sensors

Measuring
sensors

Products for
safety at work

Identification

Data transmission /
Control components

Industrial image
processing

Accessories

/ PROTECTIVE SCREENS

PROTECTION FOR YOUR SENSORS

Protective screens in different lengths reliably prevent damage to the device window, e.g. caused by scratching and welding sparks.



Direct access to the online product selector at www.leuze.com/en/protective-screens

Part no.	Part description	Height	Protective field height	Protective screen material	Suitable for
426185	PSC-900-S2	820 mm		PMMA, gray	UDC-S2, DC-S2 device columns
426186	PSC-1000-S2	980 mm		PMMA, gray	UDC-S2, DC-S2 device columns
426187	PSC-1300-S2	1,280 mm		PMMA, gray	UDC-S2, DC-S2 device columns
426188	PSC-1600-S2	1,580 mm		PMMA, gray	UDC-S2, DC-S2 device columns
426189	PSC-1900-S2	1,880 mm		PMMA, gray	UDC-S2, DC-S2 device columns
426190	PSC-2500-S2	2,480 mm		PMMA, gray	UDC-S2, DC-S2 device columns
347070	MLC-PS150	148 mm	150 mm	PMMA, clear	MLC 500, MLC 300 safety light curtains
347071	MLC-PS225	223 mm	225 mm	PMMA, clear	MLC 500, MLC 300 safety light curtains
347072	MLC-PS300	298 mm	300 mm	PMMA, clear	MLC 500, MLC 300 safety light curtains
347073	MLC-PS450	448 mm	450 mm	PMMA, clear	MLC 500, MLC 300 safety light curtains
347074	MLC-PS600	598 mm	600 mm	PMMA, clear	MLC 500, MLC 300 safety light curtains
347075	MLC-PS750	748 mm	750 mm	PMMA, clear	MLC 500, MLC 300 safety light curtains
347076	MLC-PS900	898 mm	900 mm	PMMA, clear	MLC 500, MLC 300 safety light curtains
347077	MLC-PS1050	1,048 mm	1,050 mm	PMMA, clear	MLC 500, MLC 300 safety light curtains
347078	MLC-PS1200	1,198 mm	1,200 mm	PMMA, clear	MLC 500, MLC 300 safety light curtains
347079	MLC-PS1350	1,348 mm	1,350 mm	PMMA, clear	MLC 500, MLC 300 safety light curtains
347080	MLC-PS1500	1,498 mm	1,500 mm	PMMA, clear	MLC 500, MLC 300 safety light curtains
347081	MLC-PS1650	1,648 mm	1,650 mm	PMMA, clear	MLC 500, MLC 300 safety light curtains
347082	MLC-PS1800	1,798 mm	1,800 mm	PMMA, clear	MLC 500, MLC 300 safety light curtains

Notice: If protective screens are used, the range of the safety sensor is reduced by approx. 10 % per screen!

SMARTER CUSTOMER SERVICE

Added value made attainable!

We offer specific and measurable added value in the areas of usability, application know-how and service – to make our customers more successful. In the future, these areas will also be our yardstick for new product developments, innovative service offerings and extensive market expertise.



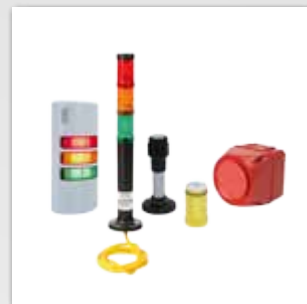
More information on our active customer orientation: www.leuze.com/en/ssb



/ SIGNALING DEVICES

CLEAR SIGNALS FOR AUTOMATION

At many critical points in automated systems and installations, the signaling of status information helps to keep productivity and efficiency at a high level. For this purpose, we offer an extensive range of signal columns, single-color and multicolor signal lamps and acoustic signalers – preassembled and individually combinable.

Switching
sensorsMeasuring
sensors

/// Mounting systems



The configurable signaling columns can be mounted horizontally and vertically for 40 mm (E4) and 70 mm (E7).

Products for
safety at work

Identification

Direct access to the online product selector at www.leuze.com/en/mon-sys



Part no.	Part description	Design	Diameter	Length	Module holder	Lens modules	Connection
50130455	E4-MH1	Horizontal mounting	40 mm	43 mm	One side	Max. 5 pieces	Terminal
50130458	E4-MP1-100	Base mounting	40 mm	134 mm	One side	Max. 5 pieces	Terminal
50130459	E4-MP1-250	Base mounting	40 mm	284 mm	One side	Max. 5 pieces	Terminal
50130460	E4-MP1-400	Base mounting	40 mm	434 mm	One side	Max. 5 pieces	Terminal
50130456	E4-MW1	Bracket mounting	40 mm	56 mm	One side	Max. 5 pieces	Terminal
50130457	E4-MW2	Bracket mounting	40 mm	56 mm	Two-sided	Max. 10 pieces	Terminal
50130436	E7-MH1	Horizontal mounting	70 mm	46 mm	One side	Max. 5 pieces	Terminal
50130440	E7-MP1-100	Base mounting	70 mm	136 mm	One side	Max. 5 pieces	Terminal
50130439	E7-MP1-250	Base mounting	70 mm	286 mm	One side	Max. 5 pieces	Terminal
50130441	E7-MP1-400	Base mounting	70 mm	436 mm	One side	Max. 5 pieces	Terminal
50130437	E7-MW1	Bracket mounting	70 mm	81 mm	One side	Max. 5 pieces	Terminal
50130438	E7-MW2	Bracket mounting	70 mm	81 mm	Two-sided	Max. 10 pieces	Terminal

Data transmission /
Control componentsIndustrial image
processing

Accessories

/// Lenses



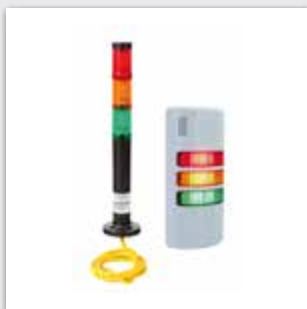
Extensive range of colors (6 colors) for the configurable Leuze electronic E4 (40 mm) and E7 (70 mm) signaling columns suitable for the respective mounting system.



Direct access to the online product selector at www.leuze.com/en/lenses

Part no.	Part description	Signaling	Signal image	Diameter	Lens color	Degree of protection
50130454	E4-V1-BZ1	Acoustic		40 mm		IP 66
50130451	E4-V1-DB-B	Optical	Flashing light	40 mm	Blue	IP 66
50130450	E4-V1-DB-C	Optical	Flashing light	40 mm	Clear	IP 66
50130452	E4-V1-DB-G	Optical	Flashing light	40 mm	Green	IP 66
50130448	E4-V1-DB-O	Optical	Flashing light	40 mm	Orange	IP 66
50130449	E4-V1-DB-R	Optical	Flashing light	40 mm	Red	IP 66
50130453	E4-V1-DB-Y	Optical	Flashing light	40 mm	Yellow	IP 66
50130445	E4-V1-DS-B	Optical	Continuous light	40 mm	Blue	IP 66
50130444	E4-V1-DS-C	Optical	Continuous light	40 mm	Clear	IP 66
50130446	E4-V1-DS-G	Optical	Continuous light	40 mm	Green	IP 66
50130442	E4-V1-DS-O	Optical	Continuous light	40 mm	Orange	IP 66
50130443	E4-V1-DS-R	Optical	Continuous light	40 mm	Red	IP 66
50130447	E4-V1-DS-Y	Optical	Continuous light	40 mm	Yellow	IP 66
50130435	E7-V1-BZ1	Acoustic		70 mm		IP 66
50130432	E7-V1-DB-B	Optical	Flashing light	70 mm	Blue	IP 66
50130431	E7-V1-DB-C	Optical	Flashing light	70 mm	Clear	IP 66
50130433	E7-V1-DB-G	Optical	Flashing light	70 mm	Green	IP 66
50130429	E7-V1-DB-O	Optical	Flashing light	70 mm	Orange	IP 66
50130430	E7-V1-DB-R	Optical	Flashing light	70 mm	Red	IP 66
50130434	E7-V1-DB-Y	Optical	Flashing light	70 mm	Yellow	IP 66
50130426	E7-V1-DS-B	Optical	Continuous light	70 mm	Blue	IP 66
50130424	E7-V1-DS-C	Optical	Continuous light	70 mm	Clear	IP 66
50130427	E7-V1-DS-G	Optical	Continuous light	70 mm	Green	IP 66
50130422	E7-V1-DS-O	Optical	Continuous light	70 mm	Orange	IP 66
50130423	E7-V1-DS-R	Optical	Continuous light	70 mm	Red	IP 66
50130428	E7-V1-DS-Y	Optical	Continuous light	70 mm	Yellow	IP 66

/// Ready-made signaling columns



Preassembled, multicolor signaling devices with 3 colors as signaling columns or wall-mounted devices for signaling with minimum effort.



Direct access to the online product selector at www.leuze.com/en/preass-sc

Part no.	Part description	Signaling	Lens modules	Connection	Fastening	Degree of protection
50130472	C3-V1-B-P0-SGS0SR-K1	Optical	3 pieces, ready-made, green, orange, red	Cable	Screw type / horizontal	IP 65
50130473	D9-V1-G-SGS0SRBZ2	Optical and acoustic	3 pieces, ready-made, green, orange, red	Terminal	Screw type / vertical	IP 65

/// Multitone + beacon



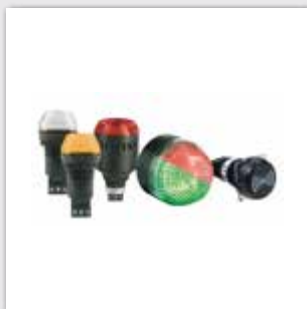
In factory buildings or outdoors, a siren continues to be an important signaling element in addition to visual signals, especially in the case of alarm signals. Here, we offer a selection of stand-alone devices or siren/lamp combinations with a particularly high degree of protection IP 66.



Direct access to the online product selector at www.leuze.com/en/multi_bea

Part no.	Part description	Signaling	Lens color	Tone type	Supply voltage	Degree of protection
50130519	FBA-V1-Q94-O	Optical	Orange		24 V, AC/DC	IP 66
50130521	FBA-V3-Q94-O	Optical	Orange		230 V, AC/DC	IP 66
50130520	FBA-V1-Q94-R	Optical	Red		24 V, AC/DC	IP 66
50130522	FBA-V3-Q94-R	Optical	Red		230 V, AC/DC	IP 66
50130517	EMS-V1-Q94-A32	Acoustic		Multi-tone	24 V, AC/DC	IP 66
50130518	EMS-V3-Q94-A32	Acoustic		Multi-tone	230 V, AC/DC	IP 66

/// Panel-mount modules



Single-color and multicolor transducers in an impact-resistant housing, also combined (lamp and sound module) for installation with M22 in 30, 45 and 65 mm diameter.



Direct access to the online product selector at www.leuze.com/en/panel-mod

Part no.	Part description	Signaling	Signal image	Lens color	Illumination type	Diameter	Length in installed state	Degree of protection
50130526	P45-V1-B-DS-O-BZ-098	Optical and acoustic	Continuous or flashing light	Orange	Full	45 mm	48 mm	IP 65
50130531	P45-V1-B-DS-R-BZ-098	Optical and acoustic	Continuous or flashing light	Red	Full	45 mm	48 mm	IP 65
50130524	P65-V1-B-DS-O-BZ-103	Optical and acoustic	Continuous or flashing light	Orange	Full	65 mm	58 mm	IP 65
50130525	P65-V1-B-DS-R-BZ-103	Optical and acoustic	Continuous or flashing light	Red	Full	65 mm	58 mm	IP 65
50130510	P30-V1-B-DS-B	Optical	Continuous or flashing light	Blue	Full	30 mm	18 mm	IP 65
50130512	P30-V1-B-DS-Y	Optical	Continuous or flashing light	Yellow	Full	30 mm	18 mm	IP 65
50130511	P30-V1-B-DS-G	Optical	Continuous or flashing light	Green	Full	30 mm	18 mm	IP 65
50130509	P30-V1-B-DS-C	Optical	Continuous or flashing light	Clear	Full	30 mm	18 mm	IP 65
50130507	P30-V1-B-DS-O	Optical	Continuous or flashing light	Orange	Full	30 mm	18 mm	IP 65
50130508	P30-V1-B-DS-R	Optical	Continuous or flashing light	Red	Full	30 mm	18 mm	IP 65
50130515	P30-V1-B-DV	Optical	Continuous light	Red, green	Half	30 mm	18 mm	IP 65
50130483	P45-V1-B-DS-B	Optical	Continuous or flashing light	Blue	Full	45 mm	42 mm	IP 65
50130506	P45-V1-B-DS-Y	Optical	Continuous or flashing light	Yellow	Full	45 mm	42 mm	IP 65
50130502	P45-V1-B-DS-G	Optical	Continuous or flashing light	Green	Full	45 mm	42 mm	IP 65
50130482	P45-V1-B-DS-C	Optical	Continuous or flashing light	Clear	Full	45 mm	42 mm	IP 65
50130480	P45-V1-B-DS-O	Optical	Continuous or flashing light	Orange	Full	45 mm	42 mm	IP 65
50130481	P45-V1-B-DS-R	Optical	Continuous or flashing light	Red	Full	45 mm	42 mm	IP 65
50130514	P45-V1-B-DV	Optical	Continuous light	Red, green	Half	45 mm	42 mm	IP 65
50130477	P65-V1-B-DS-B	Optical	Continuous or flashing light	Blue	Full	65 mm	56 mm	IP 65
50130479	P65-V1-B-DS-Y	Optical	Continuous or flashing light	Yellow	Full	65 mm	56 mm	IP 65
50130478	P65-V1-B-DS-G	Optical	Continuous or flashing light	Green	Full	65 mm	56 mm	IP 65
50130476	P65-V1-B-DS-C	Optical	Continuous or flashing light	Clear	Full	65 mm	56 mm	IP 65
50130474	P65-V1-B-DS-O	Optical	Continuous or flashing light	Orange	Full	65 mm	56 mm	IP 65
50130475	P65-V1-B-DS-R	Optical	Continuous or flashing light	Red	Full	65 mm	56 mm	IP 65
50130516	P65-V1-B-DW	Optical	Continuous light	Red, yellow, green	Full	65 mm	56 mm	IP 65
50130513	P65-V1-B-DV	Optical	Continuous light	Red, green	Half	65 mm	56 mm	IP 65
50130532	PBZ-V1-065	Acoustic				30 mm	12 mm	IP 65
50130533	PBZ-V1-085	Acoustic				30 mm	12 mm	IP 65

Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

/// Muting indicators



A wide range of indicators for displaying possible dangers is what makes a safety-at-work system complete.



Direct access to the online product selector at www.leuze.com/en/muting-indicators

Part no.	Part description	Illuminant	Type of fastening	Degree of protection	Certifications
660600	MS70/2	Incandescent lamp BA15d/24 V, clear	Through-hole mounting at side	IP 65	CE, UL, CSA
660610	MS70/LED	LED/24 V, yellow	Through-hole mounting	IP 65	CE, UL, CSA
660611	MS70/LED-M12-2000-4GM	LED/24 V, yellow	Through-hole mounting at side	IP 65	CSA, CE, UL
548000	MS851	Incandescent lamp E14, 4W/24 V, clear	Through-hole mounting at side	IP 54	CE, UL, CSA

SMARTER APPLICATION KNOW-HOW

We are constantly working on challenges and important issues in our target markets.



Safety at work



Ex-protection



IO-Link



Laser class 1



ID technologies



Connectivity



Find out more in our user knowledge and topic center: www.leuze.com/en/topics

/ REFLECTORS AND REFLECTIVE TAPES

REFLECTORS TO RETURN THE LIGHT

Sensors that operate according to the reflection principle need high-quality reflectors in order to function. The reflector quality directly influences the reliability of the sensor solution. We offer reflectors for all conceivable applications and environmental conditions to ensure an optimum detection result at all times.



Switching sensors

Measuring sensors

/// Standard reflectors



Different reflectors in various designs with triad-type reflector sizes from 2.3 mm to 4 mm for sensors with medium to large light spot.



Direct access to the online product selector at www.leuze.com/en/stand-refl

Products for safety at work

Identification

Part no.	Part description	Design	Reflective surface	Triple reflector size	Fastening	Material	Special design
50110282	TKS 10x32	Rectangular	10 mm × 32 mm	2.3 mm	Through-hole mounting, adhesive	Plastic	
50003188	TK 20x75	Rectangular	15 mm × 70 mm	2.6 mm	Adhesive	Plastic	
50081283	TKS 20X40	Rectangular	16 mm × 38 mm	2.3 mm	Through-hole mounting, adhesive	Plastic	
50117584	TKS 20x20	Rectangular	18 mm × 20 mm	2.3 mm	Through-hole mounting, adhesive	Plastic	
50108215	TKA 30X60	Rectangular	26 mm × 53 mm	4 mm	Self-adhesive	Plastic	
50023525	TKS 30X50	Rectangular	27 mm × 44 mm	3 mm	Through-hole mounting, adhesive	Plastic	
50030433	TKS 30X60	Rectangular	27 mm × 56 mm	4 mm	Through-hole mounting, adhesive	Plastic	
50108216	TKA 30X46	Rectangular	27 mm × 43 mm	4 mm	Self-adhesive	Plastic	
50114617	TKS 30x45	Rectangular	29 mm × 44 mm	4 mm	Adhesive, through-hole mounting	Plastic	
50003189	TK 30x50	Rectangular	29 mm × 45 mm	4 mm	Adhesive	Plastic	
50027097	TKS 30X500	Rectangular	30 mm × 500 mm	2.6 mm	Through-hole mounting	Plastic	
50003190	TK 40x180	Rectangular	36 mm × 176 mm	3 mm	Through-hole mounting	Plastic	
50130291	TK 40 x180.1-Set	Rectangular	36 mm × 176 mm	3 mm	Adhesive	Plastic	
50040820	TKS 40X60	Rectangular	37 mm × 56 mm	4 mm	Through-hole mounting, adhesive	Plastic	
50120538	TKS 40x60.1.AF	Rectangular	37 mm × 56 mm	2.3 mm	Through-hole mounting, adhesive	Plastic	Anti-fog coating
50130289	TK 50 x100-Set	Rectangular	46 mm × 96 mm	4 mm	Adhesive	Plastic	
50003191	TK 50x100	Rectangular	46 mm × 96 mm	4 mm	Supplied mounting bracket, adhesive	Plastic	
50022815	TKS 50X100	Rectangular	46 mm × 96 mm	4 mm	Through-hole mounting, adhesive	Plastic	
50022814	TKS 50X50	Rectangular	47 mm × 48 mm	4 mm	Through-hole mounting, adhesive	Plastic	
50105153	TKS 50X50.1	Rectangular	47 mm × 48 mm	4 mm	Through-hole mounting, adhesive	Plastic	
50113309	TKS 50x50.1.HT	Rectangular	47 mm × 48 mm	4 mm	Through-hole mounting, adhesive	Plastic	Heat resistant
50116725	TKS 85x85	Rectangular	77 mm × 77 mm	4 mm	Through-hole mounting, adhesive	Plastic	
50130290	TK 100 x100-Set	Rectangular	96 mm × 96 mm	4 mm	Adhesive	Plastic	
50003192	TK 100x100	Rectangular	96 mm × 96 mm	4 mm	Supplied mounting bracket, adhesive	Plastic	
50022816	TKS 100X100	Rectangular	96 mm × 96 mm	4 mm	Through-hole mounting, adhesive	Plastic	
50003177	TG 15	Round	14 mm		M3 threaded pin	Glass	Heat resistant
50041471	TK 20.1	Round	17 mm	2.3 mm	Adhesive	Plastic	

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further standard reflectors can be found on our website

Data transmission / Control components

Industrial image processing

Accessories

Part no.	Part description	Design	Reflective surface	Triple reflector size	Fastening	Material	Special design
50027696	TKS 25	Round	23 mm	2.3 mm	M4 threaded pin	Plastic	
50041355	TK 25.1	Round	23 mm	2.3 mm	Adhesive	Plastic	
50009374	TG 29	Round	25 mm		M3 threaded pin	Glass	Heat resistant
50101867	TK 35.1	Round	29 mm	2.3 mm	Adhesive	Plastic	
50105990	TK 45.1	Round	37 mm	2.3 mm	Adhesive	Plastic	
50003186	TK 60	Round	55 mm	3 mm	Through-hole mounting	Plastic	
50024127	TK 82.2	Round	79 mm	4 mm	Through-hole mounting, adhesive	Plastic	
50111375	TK 82.AF	Round	79 mm	4 mm	Through-hole mounting, adhesive	Plastic	Anti-fog coating

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further standard reflectors can be found on our website

/// Micro-triad-type reflectors



Different reflectors in various designs with triad-type reflector sizes from 0.3 mm to 1.2 mm for sensors with small light spot and laser.



Direct access to the online product selector at www.leuze.com/en/microtr-refl

Part no.	Part description	Design	Reflective surface	Triple reflector size	Fastening	Material
50106209	MTKS 14x23	Rectangular	11 mm × 21 mm	1.2 mm	Through-hole mounting, adhesive	Plastic
50114185	REF 6-S-20x40	Rectangular	16 mm × 38 mm	0.3 mm	Screw type	Plastic
50104130	MTKS 20x40.1	Rectangular	17 mm × 38 mm	1.2 mm	Through-hole mounting, adhesive	Plastic
50040894	MTKS 20x30	Rectangular	19 mm × 29 mm		Through-hole mounting, adhesive	Plastic
50040895	MTKS 20x20	Rectangular	20 mm × 20 mm		Through-hole mounting, adhesive	Plastic
50124004	REF 6-S-26x280	Rectangular	22 mm × 276 mm	0.3 mm	M4 threaded pin	Plastic
50104132	MTKS 30x50.1	Rectangular	27 mm × 44 mm	1.2 mm	Through-hole mounting, adhesive	Plastic
50104131	MTKS 40x60.1	Rectangular	37 mm × 56 mm	1.2 mm	Through-hole mounting, adhesive	Plastic
50117583	MTKS 50x50.1	Rectangular	50 mm × 50 mm		Through-hole mounting, adhesive	Plastic
50109828	MTK 20	Round	17 mm	1.2 mm	Adhesive	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further micro-triad-type reflectors can be found on our website

/// Reflectors for the pharmaceutical industry



Reflectors in different constructions for applications in which alcohol or H_2O_2 are used intensively for cleaning.



Direct access to the online product selector at www.leuze.com/en/refl-pharma

Part no.	Part description	Design	Reflective surface	Triple reflector size	Fastening	Material
50106961	MTKS 14x23.P	Rectangular	11 mm × 21 mm	1.2 mm	Through-hole mounting, adhesive	Plastic
50106960	TKS 20x40.P	Rectangular	16 mm × 38 mm	2.3 mm	Through-hole mounting, adhesive	Plastic
50112142	TK BR 53	Rectangular	29 mm × 10 mm		Housing fit	Plastic
50106957	TKS 40x60.P	Rectangular	37 mm × 56 mm	4 mm	Through-hole mounting, adhesive	Plastic
50116939	TK 10.P	Round	8.5 mm	1.5 mm	Adhesive	Plastic
50106958	TKS 20.P	Round	17 mm	2.3 mm	M4 threaded pin	Plastic

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further standard reflectors can be found on our website

/// Heatable reflectors



Reflectors equipped with integrated heating for outdoor use or deep-freeze warehouses.

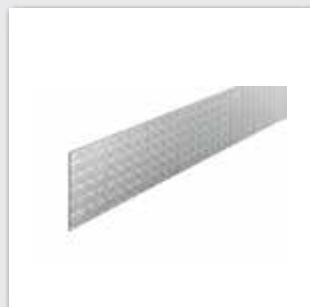


Direct access to the online product selector at www.leuze.com/en/heatable-reflectors

Part no.	Part description	Design	Reflective surface	Fastening	Material	Special design
50000068	HTK 82	Round	78 mm	Through-hole mounting	Plastic	Heating
50000071	HTK 82-24V	Round	78 mm	Through-hole mounting	Plastic	Heating

Dimensional tolerances for all specified dimensions: ± 0.2 mm
Further standard reflectors can be found on our website

/// Reflective tapes for standard applications



Reflective foils in various dimensions for sensors with medium to large light spot.



Direct access to the online product selector at www.leuze.com/en/refl-fo-stand

Part no.	Part description	Design	Reflective surface	Fastening	Material
50107057	REF 4-A-20x20	Rectangular	20 mm × 20 mm	Self-adhesive	Plastic
50102604	REF 4-A-25X1000	Rectangular	25 mm × 1,000 mm	Self-adhesive	Plastic
50041876	REF 4-A-25x45700	Rectangular	25 mm × 45,700 mm	Self-adhesive	Plastic
50038060	REF 4-A-50X1000	Rectangular	50 mm × 1,000 mm	Self-adhesive	Plastic
50108300	REF 4-A-50x50	Rectangular	50 mm × 50 mm	Self-adhesive	Plastic
50111772	REF 4-A-50x45700	Rectangular	50 mm × 45,700 mm	Self-adhesive	Plastic
50106119	REF 4-A-100x100	Rectangular	100 mm × 100 mm	Self-adhesive	Plastic
50104657	REF 4-A-100x45700	Rectangular	100 mm × 45,700 mm	Self-adhesive	Plastic
50038117	REF 4-A-920x749	Rectangular	920 mm × 749 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

Switching sensors

Measuring sensors

Products for safety at work

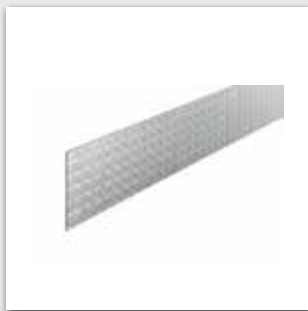
Identification

Data transmission / Control components

Industrial image processing

Accessories

/// Reflective tapes for laser and clear-glass applications



Reflective foils in various dimensions for sensors with small light spot and laser as well as for clear glass applications.

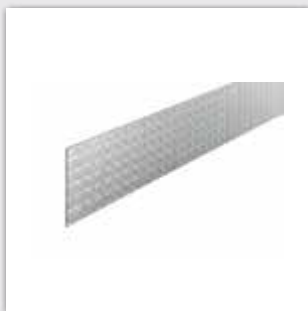


Direct access to the online product selector at www.leuze.com/en/refl-fo-laser

Part no.	Part description	Design	Reflective surface	Fastening	Material
50123899	REF 6-A-9x9	Rectangular	9 mm × 9 mm	Self-adhesive	Plastic
50123861	REF 6-A-14x45	Rectangular	15 mm × 45 mm	Self-adhesive	Plastic
50110191	REF 6-A-25x25	Rectangular	25 mm × 25 mm	Self-adhesive	Plastic
50110192	REF 6-A-50x50	Rectangular	50 mm × 50 mm	Self-adhesive	Plastic
50111829	REF 6-A-77x77	Rectangular	77 mm × 77 mm	Self-adhesive	Plastic

Further reflective tapes can be found on our website

/// Reflective tapes for distance sensors



Reflective foils in various dimensions for distance sensors, various models as foil, mounted on mounting plate or even with heating.



Direct access to the online product selector at www.leuze.com/en/refl-fo-distance

Part no.	Part description	Design	Reflective surface	Fastening	Special design
50111527	REF 7-A-100x100	Rectangular	100 mm × 100 mm	Self-adhesive	
50115020	Reflective tape 200x200mm-H	Rectangular	200 mm × 200 mm	Mounting plate, through-hole mounting	Heating
50104364	Reflective tape 200x200mm-M	Rectangular	200 mm × 200 mm	Through-hole mounting, mounting plate	
50104361	Reflective tape 200x200mm-S	Rectangular	200 mm × 200 mm	Adhesive	
50116687	REF 7-A-200x300	Rectangular	300 mm × 200 mm	Self-adhesive	
50115021	Reflective tape 500x500mm-H	Rectangular	500 mm × 500 mm	Mounting plate, through-hole mounting	Heating
50104365	Reflective tape 500x500mm-M	Rectangular	500 mm × 500 mm	Through-hole mounting, mounting plate	
50104362	Reflective tape 500x500mm-S	Rectangular	500 mm × 500 mm	Adhesive	
50104363	Reflective tape 749x914mm-S	Rectangular	749 mm × 914 mm	Adhesive	
50115022	Reflective tape 914x914mm-H	Rectangular	914 mm × 914 mm	Mounting plate, through-hole mounting	Heating
50104366	Reflective tape 914x914mm-M	Rectangular	914 mm × 914 mm	Through-hole mounting, mounting plate	
50108988	Reflective tape 914x914mm-S	Rectangular	914 mm × 914 mm	Adhesive	
50115444	REF 7-A-1000x600	Rectangular	1,000 mm × 600 mm	Self-adhesive	

Further reflective tapes can be found on our website

/ ALIGNMENT AIDS

KEEPING SIGHT OF THE TARGET

Sensor alignment is generally very unproblematic and can even easily be performed without additional tools. For some devices and application cases, it can still sometimes be helpful to make use of one of our alignment aids.



Direct access to the online product selector at www.leuze.com/en/alignment-aids

Part no.	Part description	Light source	Housing material
520101	AC-ALM-M		Plastic
50080537	ARRH 10	Laser, red	Metal
50040739	ARRH 46	Laser, red	Metal
50129659	ARRH 46C	Laser, red	Metal
50129660	ARRH 49C	Laser, red	Metal
50080502	ARRH 96	Laser, red	Metal
549000	LA-78	Laser, red	Metal
520023	LA-78M	Laser, red	Metal
520024	LA-78M-UDC	Laser, red	Metal
560020	LA-78U	Laser, red	Metal
520004	LA-78UDC	Laser, red	Metal
50109545	SAT 5		Metal

SMARTER CUSTOMER SERVICE



Product selector

Intuitive web applications for convenient product selection



The appropriate product for every application: www.leuze.com/en/products

"Our goal is to further focus our performance and offer our customers something that they can only find from the sensor people – smart sensor business"

Ann-Kathrin Waldow,
Sales Methods, Processes, Tools



Switching sensors

Measuring sensors

Products for safety at work

Identification

Data transmission / Control components

Industrial image processing

Accessories

/ BAR CODE TAPES

BAR FOR BAR, FOR MORE PRECISION

Bar code positioning systems use bar code tapes to determine positions with millimeter accuracy. For our systems, we offer such tapes in standard lengths from 30 mm to 200 m. In addition, special lengths of up to 10 km are possible. The self-adhesive plastic tape is UV resistant, extremely resilient and mechanically durable.



Direct access to the online product selector at www.leuze.com/en/bar-code-tapes

Part no.	Part description	Suitable for	Dimensions	Grid dimension
50040041	BCB 010	Bar code positioning system, BPS 300i series	47 mm × 10,000 mm	40 mm
50037489	BCB 020	Bar code positioning system, BPS 300i series	47 mm × 20,000 mm	40 mm
50038894	BCB 050	Bar code positioning system, BPS 300i series	47 mm × 50,000 mm	40 mm
50104792	BCB 8 010	BPS 8 series bar code positioning system, BPS 300i series bar code positioning system	47 mm × 10,000 mm	30 mm
50104793	BCB 8 020	BPS 8 series bar code positioning system, BPS 300i series bar code positioning system	47 mm × 20,000 mm	30 mm
50104796	BCB 8 050	BPS 8 series bar code positioning system, BPS 300i series bar code positioning system	47 mm × 50,000 mm	30 mm
50104803	BCB 8 120	BPS 8 series bar code positioning system, BPS 300i series bar code positioning system	47 mm × 120,000 mm	30 mm

Further bar code tapes can be found on our website

SMARTER APPLICATION KNOW-HOW



Positioning

Sensor technology for quick positioning accurate down to the millimeter



Trade shows

Reliable systems for 2D- and 3D-measurement of distances and objects



Safeguarding

Economical solutions in all areas of safety at work



Identification

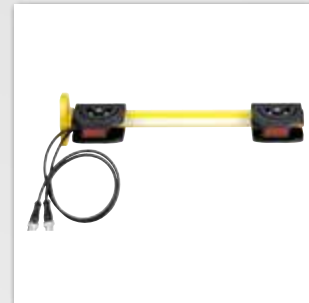
Innovative code readers and RFID systems

Additional application highlights can be found under: www.leuze.com/en/practice

/ MUTING MOUNTING SYSTEMS

SAFETY RIGHT OFF THE SHELF

These preassembled systems simplify the creation of your own muting solutions. They can be easily attached to columns and safety sensors.

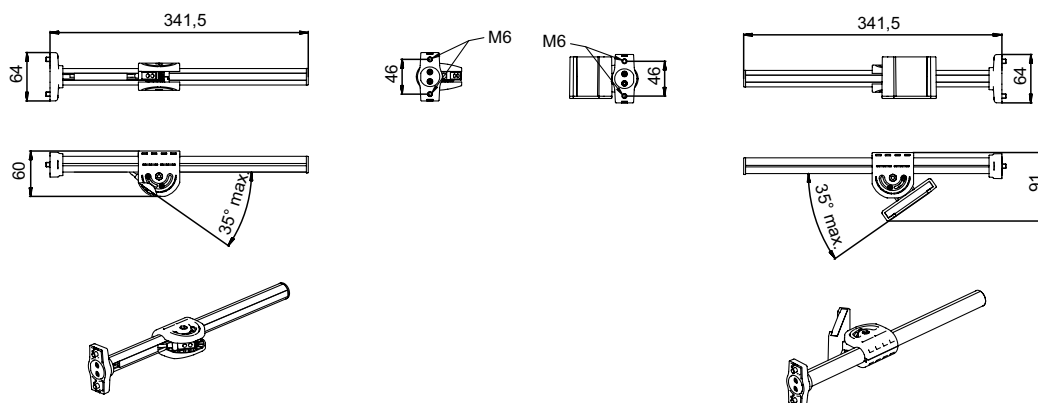


Direct access to the online product selector at www.leuze.com/en/muting-mounting

Part no.	Part description	Operating range	Number of muting sensors	Type of muting sensors	Cable length of muting sensors	Number of reflectors	Muting type
426506	Set-AC-MTX.2-1S	0 ... 8 m	1x	PRK 25B retro-reflective photoelectric sensors	2,000 mm	1x	
426490	Set-AC-ML-2SA	0 ... 4 m	2x	Retro-reflective photoelectric sensors PRK 3B	300 mm	2x	Sequence controlled 2-sensor muting
426491	Set-AC-ML-2SB	0 ... 4 m	2x	Retro-reflective photoelectric sensors PRK 3B	300 mm	2x	Sequence controlled 2-sensor muting
426494	Set-AC-MT-2S	0 ... 4 m	2x	Retro-reflective photoelectric sensors PRK 3B	300 mm	2x	Timing controlled 2-sensor muting
426524	Set-AC-MTX-2S	0 ... 8 m	2x	PRK 25B retro-reflective photoelectric sensors	300 mm	2x	Timing controlled 2-sensor muting
426520	Set-AC-MLX-2SA	0 ... 8 m	2x	PRK 25B retro-reflective photoelectric sensors	700 mm	2x	Sequence controlled 2-sensor muting
426521	Set-AC-MLX-2SB	0 ... 8 m	2x	PRK 25B retro-reflective photoelectric sensors	700 mm	2x	Sequence controlled 2-sensor muting
426526	Set-AC-MLX.2-2SA	0 ... 8 m	2x	PRK 25B retro-reflective photoelectric sensors	2,000 mm	2x	Sequence controlled 2-sensor muting
426527	Set-AC-MLX.2-2SB	0 ... 8 m	2x	PRK 25B retro-reflective photoelectric sensors	2,000 mm	2x	Sequence controlled 2-sensor muting
426529	Set-AC-MTX.2-2S	0 ... 8 m	2x	PRK 25B retro-reflective photoelectric sensors	2,000 mm	2x	Timing controlled 2-sensor muting
426492	Set-AC-MT-4S	0 ... 4 m	4x	Retro-reflective photoelectric sensors PRK 3B	300 mm	4x	Timing controlled 4-sensor muting
426522	Set-AC-MTX-4S	0 ... 8 m	4x	PRK 25B retro-reflective photoelectric sensors	300 mm	4x	Timing controlled 4-sensor muting

Further muting mounting systems can be found on our website

Dimensioned drawings: Muting mounting systems



Muting sensor set for timing controlled 2-sensor muting

Switching
sensors

Measuring
sensors

Products for
safety at work

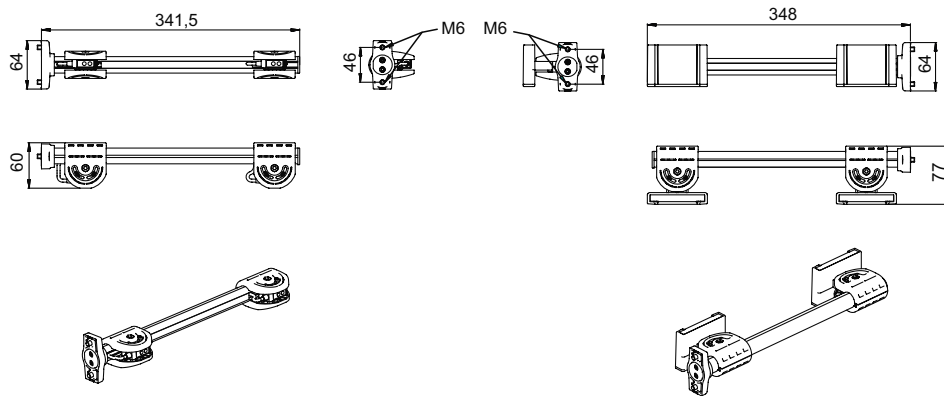
Identification

Data transmission /
Control components

Industrial image
processing

Accessories

Dimensioned drawings: Muting mounting systems



Muting sensor set for timing controlled 4-sensor muting

SMARTER APPLICATION KNOW-HOW

Our many years of experience –
Your extensive knowledge about
safety at work

- Safety seminars
- Standards workshops
- Product training courses

*"In our seminars you will acquire
compact knowledge about safety
at work. A day that is well worth
your while!"*

Markus Erdorf,
Safety Consultant and Trainer



Select the seminar you need and register directly at www.leuze.com/en/seminars



[illegible]

PART INDEX

BY PART NUMBER

150677....436	426491....467	430305....449	547935....329	660611....460	678062....258	50020502...165
150680....441	426492....281	430306....449	547936....329	678050....280	678062....280	50020502...445
150681....441	426492....467	430400....298	547950....330	678050....287	678062....287	50020833...52
150682....441	426494....467	430410....298	547951....330	678050....437	678062....298	50020833...84
150683....442	426506....467	520004....465	547952....331	678051....280	678062....303	50020833...113
150684....442	426508....300	520021....451	547953....331	678051....287	678062....304	50020833...141
150685....442	426520....281	520022....451	547954....332	678051....437	678062....306	50020833...447
150699....436	426520....467	520023....465	547955....332	678052....280	678062....308	50022680...82
150704....436	426521....281	520024....465	547956....333	678052....287	678062....310	50022681...82
150717....437	426521....467	520071....281	547957....333	678052....437	678062....311	50022814...70
150718....437	426522....281	520071....287	547958....334	678053....280	678062....313	50022814...84
347070....456	426522....467	520083....445	547959....334	678053....287	678062....314	50022814...91
347071....456	426524....467	520101....259	547960....334	678053....437	678062....319	50022814...113
347072....456	426526....467	520101....465	547961....334	678055....258	678062....326	50022814...461
347073....456	426527....467	520140....281	547962....334	678055....280	678062....438	50022815...461
347074....456	426529....467	520141....281	547963....334	678055....287	678063....258	50022816...29
347075....456	426535....300	520142....281	548000....460	678055....326	678063....280	50022816...38
347076....456	426536....300	520150....281	548100....442	678055....438	678063....287	50022816...42
347077....456	426537....300	520151....281	548361....442	678056....258	678063....298	50022816...45
347078....456	426542....300	520152....281	548362....442	678056....280	678063....303	50022816...52
347079....456	426544....300	520160....259	549000....465	678056....287	678063....304	50022816...60
347080....456	426549....300	520162....259	549620....452	678056....326	678063....306	50022816...63
347081....456	426598....300	529601....455	549621....452	678056....438	678063....308	50022816...70
347082....456	426599....300	529602....455	549622....452	678057....258	678063....310	50022816...73
349939....259	429005....258	529603....455	549623....452	678057....280	678063....311	50022816...76
349945....259	429006....258	529604....455	549624....452	678057....287	678063....313	50022816...81
424417....178	429046....178	529606....455	549626....452	678057....326	678063....314	50022816...84
424417....236	429046....236	529607....455	549627....452	678057....438	678063....319	50022816...91
424417....259	429056....178	529609....455	549780....453	678058....258	678063....326	50022816...96
424417....281	429056....236	529610....455	549781....453	678058....280	678063....439	50022816...99
424417....450	429056....258	529612....455	549782....453	678058....287	678064....258	50022816...103
424422....259	429056....447	529613....455	549783....453	678058....326	678064....280	50022816...105
424423....259	429057....178	529615....455	549790....454	678058....438	678064....287	50022816...107
424900....449	429057....236	529616....455	549791....454	678059....258	678064....439	50022816...111
425740....178	429057....258	529618....455	549792....454	678059....280	905067....300	50022816...113
425740....236	429057....448	544000....244	549793....454	678059....287	905067....300	50022816...114
425740....259	429074....437	544001....244	549796....454	678059....438	905068....300	50022816...193
425740....451	429076....437	544002....244	549797....454	678060....258	905068....300	50022816...461
425741....178	429082....437	544003....244	549852....452	678060....280	50000068...463	50023525...38
425741....236	429084....437	544004....245	549853....452	678060....287	50000071...463	50023525...42
425741....259	429086....437	544005....245	549854....452	678060....298	50003177...461	50023525...45
425741....451	429172....437	544006....245	549855....452	678060....303	50003186...109	50023525...52
425742....178	429175....258	544007....244	549856....452	678060....304	50003186...462	50023525...60
425742....236	429175....281	544008....244	549879....452	678060....306	50003188...461	50023525...63
425742....259	429175....287	544009....244	549941....336	678060....308	50003189...461	50023525...70
425742....451	429175....445	544010....244	549942....336	678060....310	50003190...461	50023525...73
426045....445	429178....178	544011....245	560020....465	678060....311	50003191...461	50023525...84
426046....445	429178....236	544012....245	560120....447	678060....313	50003192...461	50023525...91
426185....456	429178....258	544013....245	560340....281	678060....314	50003374...447	50023525...96
426186....456	429178....281	547802....337	560341....281	678060....319	50003376...447	50023525...99
426187....456	429178....287	547803....338	560342....281	678060....326	50006902...447	50023525...103
426188....456	429178....445	547804....339	560343....281	678060....438	50009374...52	50023525...105
426189....456	429182....437	547805....339	560344....287	678061....258	50009374...462	50023525...107
426190....456	429278....258	547806....340	560345....287	678061....280	50009419...448	50023525...109
426296....281	429279....258	547812....337	580020....341	678061....287	50011791...447	50023525...113
426305....300	429280....438	547813....338	580021....341	678061....298	50016515...447	50023525...114
426306....300	429281....438	547814....339	580024....341	678061....303	50018415...109	50023525...461
426306....300	429285....438	547815....339	580025....341	678061....304	50018415...447	50024127...38
426306....300	429286....438	547820....340	580028....342	678061....306	50019925...83	50024127...42
426307....300	429287....438	547821....340	580029....342	678061....308	50020501...165	50024127...60
426308....300	429288....438	547822....340	580032....342	678061....310	50020501...214	50024127...63
426345....300	429289....439	547823....340	580055....341	678061....311	50020501...217	50024127...70
426379....300	429393....258	547825....340	580056....341	678061....313	50020501...367	50024127...73
426415....300	429394....258	547931....335	580025....342	678061....314	50020501...375	50024127...96
426490....281	429395....258	547932....335	580058....342	678061....319	50020501...377	50024127...103
426490....467	429396....258	547933....328	660600....460	678061....326	50020501...419	50024127...113
426491....281	430105....447	547934....328	660610....460	678061....438	50020501...445	50024127...462

50025112...88	50030993...355	50032120...355	50036570...43	50039705...420	50040894...462	50081283...60
50025114...89	50031070...354	50032127...88	50037083...42	50039937...419	50040895...60	50081283...63
50025116...89	50031072...353	50032128...85	50037084...42	50039938...419	50040895...462	50081283...70
50025118...89	50031076...354	50032129...85	50037133...43	50039939...420	50041007...186	50081283...73
50025124...88	50031078...353	50032319...447	50037134...43	50039940...420	50041042...86	50081283...76
50025126...88	50031080...354	50032395...400	50037135...43	50039941...420	50041203...206	50081283...81
50025131...89	50031082...353	50032396...400	50037324...415	50039942...420	50041204...206	50081283...84
50025132...89	50031084...354	50032798...50	50037325...415	50039943...419	50041338...421	50081283...91
50025133...89	50031086...354	50033328...85	50037473...450	50039944...419	50041339...421	50081283...96
50025135...89	50031088...355	50033328...86	50037489...217	50039945...420	50041355...462	50081283...99
50025163...87	50031090...354	50033552...50	50037489...466	50039946...420	50041395...54	50081283...103
50025165...87	50031094...355	50033554...50	50037543...389	50039947...420	50041396...54	50081283...105
50025166...87	50031096...355	50034119...51	50037543...442	50039948...420	50041471...461	50081283...107
50025167...87	50031100...355	50034128...85	50037783...109	50040041...217	50041597...88	50081283...111
50025168...87	50031102...355	50034509...82	50037784...109	50040041...466	50041598...88	50081283...113
50025178...87	50031104...355	50034510...82	50038060...463	50040097...214	50041840...189	50081283...114
50025182...87	50031106...355	50034511...82	50038066...227	50040097...217	50041876...463	50081283...461
50025186...86	50031256...406	50034512...82	50038069...227	50040097...219	50060503...356	50081325...86
50025195...85	50031295...86	50034513...83	50038117...463	50040097...352	50060503...448	50081407...104
50025197...85	50031323...445	50034514...83	50038284...421	50040097...445	50060511...447	50081408...104
50025201...86	50031324...445	50034515...83	50038285...421	50040098...214	50060857...88	50081409...104
50025205...86	50031496...408	50034617...451	50038286...421	50040098...445	50060858...88	50081410...104
50025217...85	50031536...414	50035030...451	50038287...421	50040099...236	50061102...89	50081431...104
50025223...86	50031537...414	50035351...86	50038288...421	50040131...421	50061111...86	50081432...104
50025225...86	50031549...86	50035674...186	50038289...421	50040132...421	50061281...354	50081461...445
50025228...85	50031574...85	50036195...45	50038290...422	50040133...421	50061283...354	50081464...88
50025570...73	50031575...85	50036195...190	50038291...422	50040134...421	50061285...354	50082039...85
50025570...91	50031651...86	50036195...198	50038296...422	50040135...422	50061287...354	50082040...85
50025570...114	50031704...356	50036195...200	50038297...422	50040136...422	50061289...354	50082060...87
50025570...205	50031714...161	50036195...447	50038298...422	50040137...422	50061291...354	50082065...86
50025570...447	50031720...353	50036196...450	50038299...422	50040138...422	50061293...354	50082066...86
50025609...83	50032003...85	50036264...144	50038300...422	50040155...375	50061295...354	50082067...86
50025610...83	50032004...85	50036269...208	50038301...422	50040155...445	50061297...354	50082084...73
50025612...83	50032028...354	50036280...420	50038302...422	50040190...162	50061299...354	50082084...91
50026204...91	50032030...353	50036281...420	50038303...422	50040191...162	50061301...354	50082084...114
50026204...205	50032032...354	50036282...420	50038449...106	50040192...162	50061303...354	50082084...205
50026204...449	50032034...353	50036283...420	50038450...106	50040229...351	50061305...355	50082084...448
50026371...161	50032036...354	50036284...420	50038451...106	50040230...351	50061307...355	50082092...86
50026835...82	50032038...354	50036285...420	50038471...88	50040269...59	50061309...355	50082199...293
50026836...82	50032040...354	50036286...420	50038482...44	50040269...81	50061311...355	50082200...293
50027095...83	50032042...354	50036287...420	50038483...44	50040269...185	50061313...355	50082296...86
50027097...461	50032044...354	50036288...421	50038537...214	50040269...292	50061315...355	50083116...293
50027167...451	50032047...354	50036289...421	50038537...217	50040269...447	50061317...356	50083117...293
50027191...449	50032049...353	50036290...421	50038537...367	50040278...50	50061319...355	50083132...293
50027375...217	50032051...354	50036291...421	50038537...375	50040358...89	50061321...356	50083133...293
50027375...225	50032053...354	50036292...421	50038537...377	50040497...398	50061323...355	50083171...97
50027375...367	50032055...354	50036293...421	50038537...411	50040498...398	50061325...356	50083172...97
50027375...375	50032057...354	50036294...421	50038537...445	50040499...398	50061327...355	50083175...97
50027375...377	50032059...354	50036295...421	50038538...214	50040500...397	50061451...354	50083176...97
50027375...391	50032061...354	50036300...422	50038538...217	50040720...206	50061452...86	50083179...97
50027375...433	50032063...354	50036301...422	50038538...236	50040739...465	50080047...88	50083180...97
50027375...448	50032065...354	50036302...422	50038538...352	50040757...219	50080048...88	50083183...97
50027696...462	50032067...354	50036303...422	50038538...367	50040757...438	50080075...89	50083184...97
50027993...82	50032069...354	50036350...44	50038538...375	50040758...219	50080076...89	50083188...98
50028975...87	50032071...354	50036351...44	50038538...377	50040758...352	50080080...86	50083189...294
50029880...87	50032073...354	50036352...44	50038538...411	50040759...442	50080081...86	50083189...451
50029881...87	50032075...355	50036353...44	50038538...445	50040760...442	50080152...447	50101457...54
50030077...51	50032078...355	50036354...43	50038539...236	50040761...219	50080242...88	50101699...352
50030257...82	50032080...355	50036355...43	50038539...424	50040761...352	50080327...88	50101699...412
50030269...85	50032082...355	50036356...43	50038789...43	50040761...442	50080334...449	50101867...462
50030433...461	50032084...355	50036357...43	50038790...44	50040763...442	50080469...87	50101879...197
50030481...407	50032087...355	50036358...42	50038894...217	50040820...29	50080470...87	50101880...197
50030482...407	50032089...355	50036359...42	50038894...466	50040820...38	50080476...87	50101881...204
50030483...407	50032091...355	50036359...42	50038948...351	50040820...42	50080477...86	50101882...204
50030484...407	50032093...355	50036360...43	50038949...351	50040820...52	50080502...465	50101941...219
50030648...87	50032095...355	50036361...43	50039069...400	50040820...60	50080537...465	50101941...352
50030835...409	50032097...355	50036362...43	50039070...400	50040820...63	50080614...447	50101941...437
50030836...409	50032099...356	50036363...43	50039447...206	50040820...70	50080657...85	50101943...445
50030837...409	50032101...355	50036364...43	50039638...162	50040820...76	50080723...108	50101977...54
50030838...409	50032104...355	50036365...43	50039650...44	50040820...81	50080724...108	50101978...54
50030986...354	50032106...355	50036368...44	50039659...414	50040820...96	50080760...87	50102023...414
50030987...353	50032108...355	50036369...44	50039660...414	50040820...99	50080776...448	50102024...414
50030988...354	50032110...355	50036370...44	50039661...414	50040820...103	50081283...29	50102312...420
50030989...353	50032112...355	50036371...44	50039662...414	50040820...111	50081283...38	50102313...420
50030990...355	50032114...356	50036374...44	50039663...414	50040820...113	50081283...42	50102379...86
50030991...355	50032116...355	50036375...44	50039664...414	50040820...461	50081283...45	50102494...420
50030992...355	50032118...356	50036569...43	50039704...420	50040894...38	50081283...52	50102495...420

50102604...463	50104178...235	50104520...37	50104558...51	50104590...193	50105458...370	50105763...32
50102613...82	50104178...423	50104520...41	50104558...84	50104590...206	50105459...370	50105764...31
50102704...44	50104178...441	50104520...110	50104558...91	50104590...225	50105460...369	50105792...78
50102705...44	50104179...235	50104520...120	50104558...165	50104590...227	50105461...370	50105793...78
50102915...400	50104179...423	50104520...127	50104558...180	50104590...235	50105462...370	50105794...79
50102916...400	50104179...441	50104520...129	50104558...187	50104590...389	50105463...369	50105795...79
50102917...400	50104180...214	50104520...137	50104558...198	50104590...438	50105464...370	50105796...78
50102956...400	50104180...217	50104520...157	50104558...200	50104591...178	50105465...370	50105797...78
50102971...352	50104180...225	50104520...165	50104558...202	50104591...192	50105466...370	50105804...78
50102971...437	50104180...235	50104520...439	50104558...205	50104591...193	50105467...370	50105805...78
50102975...438	50104180...367	50104555...45	50104558...208	50104591...206	50105468...370	50105990...462
50103076...66	50104180...374	50104555...48	50104558...209	50104591...235	50105469...370	50106023...420
50103080...66	50104180...377	50104555...51	50104558...239	50104591...389	50105470...370	50106024...420
50103087...398	50104180...411	50104555...84	50104558...437	50104591...438	50105471...369	50106025...421
50103090...89	50104180...423	50104555...91	50104559...45	50104657...463	50105472...369	50106026...421
50103125...407	50104180...441	50104555...141	50104559...190	50104693...30	50105473...369	50106027...421
50103216...87	50104181...235	50104555...145	50104559...192	50104694...30	50105474...369	50106028...421
50103217...89	50104181...423	50104555...165	50104559...235	50104695...30	50105475...369	50106029...420
50103290...85	50104181...441	50104555...180	50104559...418	50104696...30	50105476...369	50106030...420
50103291...85	50104182...423	50104555...187	50104559...423	50104697...30	50105477...369	50106031...421
50103360...44	50104182...441	50104555...190	50104559...438	50104698...30	50105478...369	50106032...421
50103361...44	50104185...423	50104555...192	50104560...437	50104699...31	50105479...369	50106033...421
50103364...139	50104185...441	50104555...198	50104567...45	50104700...31	50105480...369	50106034...421
50103365...139	50104186...423	50104555...200	50104567...165	50104701...31	50105481...369	50106078...30
50103402...384	50104186...440	50104555...202	50104567...180	50104702...32	50105482...369	50106085...95
50103402...451	50104187...214	50104555...205	50104567...187	50104703...32	50105483...369	50106086...98
50103403...384	50104187...217	50104555...208	50104567...190	50104704...32	50105484...369	50106089...95
50103404...384	50104187...225	50104555...209	50104567...192	50104705...31	50105485...369	50106090...98
50103412...384	50104187...235	50104555...235	50104567...198	50104706...31	50105486...369	50106109...451
50103709...44	50104187...367	50104555...239	50104567...200	50104707...31	50105487...369	50106119...46
50103844...447	50104187...374	50104555...423	50104567...202	50104753...289	50105488...369	50106119...52
50103989...384	50104187...377	50104555...438	50104567...235	50104753...290	50105489...371	50106119...60
50104078...342	50104187...411	50104556...48	50104567...438	50104753...438	50105490...371	50106119...70
50104079...342	50104187...423	50104556...51	50104568...165	50104762...51	50105491...372	50106119...73
50104096...235	50104187...440	50104556...84	50104568...180	50104762...84	50105492...371	50106119...84
50104096...424	50104188...235	50104556...91	50104568...187	50104762...91	50105493...371	50106119...91
50104096...444	50104188...423	50104556...141	50104568...198	50104762...141	50105494...372	50106119...99
50104097...235	50104188...440	50104556...145	50104568...200	50104762...145	50105495...371	50106119...463
50104097...424	50104202...54	50104556...165	50104568...202	50104762...165	50105496...371	50106152...76
50104097...444	50104223...54	50104556...180	50104568...437	50104762...180	50105497...372	50106152...81
50104098...214	50104224...54	50104556...187	50104569...45	50104762...187	50105498...371	50106152...110
50104098...217	50104225...54	50104556...198	50104569...51	50104762...198	50105499...371	50106152...440
50104098...235	50104226...54	50104556...200	50104569...84	50104762...200	50105500...372	50106153...76
50104098...367	50104227...54	50104556...202	50104569...91	50104762...202	50105501...372	50106153...81
50104098...374	50104228...54	50104556...205	50104569...141	50104762...437	50105502...371	50106153...110
50104098...377	50104229...54	50104556...208	50104569...145	50104783...218	50105503...372	50106153...440
50104098...411	50104230...54	50104556...209	50104569...165	50104784...218	50105504...372	50106154...76
50104098...424	50104231...56	50104556...239	50104569...180	50104790...219	50105505...371	50106154...81
50104098...444	50104232...56	50104556...437	50104569...187	50104790...352	50105506...372	50106154...110
50104099...235	50104233...56	50104557...45	50104569...190	50104790...412	50105507...372	50106154...439
50104099...424	50104234...56	50104557...48	50104569...192	50104791...220	50105508...372	50106155...81
50104099...444	50104235...56	50104557...51	50104569...198	50104791...450	50105509...373	50106155...110
50104100...424	50104236...55	50104557...84	50104569...200	50104792...220	50105510...372	50106155...439
50104100...444	50104237...55	50104557...91	50104569...202	50104792...466	50105511...372	50106203...55
50104130...76	50104238...55	50104557...165	50104569...235	50104793...220	50105512...372	50106209...462
50104130...81	50104239...55	50104557...180	50104569...438	50104793...466	50105513...372	50106238...383
50104130...111	50104240...55	50104557...187	50104570...134	50104796...220	50105514...372	50106240...383
50104130...462	50104241...55	50104557...190	50104570...438	50104796...466	50105515...373	50106242...383
50104131...462	50104242...55	50104557...192	50104571...134	50104803...466	50105516...372	50106252...421
50104132...462	50104243...55	50104557...198	50104571...436	50104897...114	50105517...372	50106253...421
50104169...440	50104244...55	50104557...200	50104572...134	50104897...448	50105518...373	50106314...451
50104169...441	50104245...55	50104557...202	50104572...438	50105153...461	50105519...372	50106412...400
50104170...440	50104246...55	50104557...205	50104573...134	50105156...66	50105520...372	50106413...401
50104170...441	50104247...55	50104557...208	50104573...437	50105315...70	50105521...373	50106418...31
50104171...214	50104279...86	50104557...209	50104574...165	50105315...283	50105522...372	50106475...31
50104171...217	50104361...214	50104557...214	50104574...438	50105315...289	50105523...372	50106480...226
50104171...367	50104361...464	50104557...217	50104575...165	50105315...291	50105524...373	50106481...226
50104171...440	50104362...214	50104557...235	50104575...437	50105315...447	50105546...37	50106551...67
50104171...441	50104362...464	50104557...239	50104576...165	50105417...351	50105546...183	50106552...67
50104172...440	50104363...464	50104557...367	50104576...438	50105418...351	50105546...447	50106554...67
50104172...441	50104364...214	50104557...374	50104577...165	50105419...351	50105585...447	50106559...69
50104172...444	50104364...464	50104557...377	50104577...437	50105420...351	50105587...87	50106560...68
50104172...444	50104365...214	50104557...411	50104582...445	50105453...370	50105622...87	50106561...68
50104173...424	50104365...464	50104557...418	50104583...445	50105454...369	50105667...88	50106562...67
50104173...444	50104366...214	50104557...423	50104586...384	50105455...370	50105739...54	50106593...203
50104175...423	50104366...464	50104557...438	50104590...178	50105456...370	50105761...197	50106594...203
50104175...441	50104520...28	50104558...48	50104590...192	50105457...369	50105762...31	50106597...203

50106598...203	50107232...34	50108479...53	50109292...204	50109693...125	50109897...372	50110591...182
50106599...203	50107233...34	50108480...53	50109293...204	50109694...125	50109899...371	50110592...182
50106720...202	50107235...34	50108483...53	50109294...204	50109696...125	50109900...372	50110593...182
50106721...202	50107236...34	50108483...53	50109295...204	50109697...125	50109905...372	50110594...182
50106727...202	50107238...34	50108484...53	50109297...204	50109698...125	50109906...373	50110595...182
50106728...203	50107239...34	50108485...53	50109298...204	50109699...125	50109908...372	50110601...184
50106729...203	50107240...34	50108486...53	50109299...204	50109700...125	50109909...373	50110602...184
50106730...202	50107241...34	50108487...53	50109300...204	50109701...125	50109911...370	50110603...184
50106731...202	50107242...36	50108487...53	50109301...204	50109702...125	50109912...370	50110610...184
50106732...203	50107243...36	50108489...291	50109302...204	50109703...125	50109914...370	50110611...184
50106733...203	50107244...36	50108490...291	50109303...204	50109704...125	50109915...370	50110612...184
50106735...203	50107245...36	50108491...291	50109343...189	50109705...125	50110108...158	50110613...184
50106736...203	50107246...35	50108492...291	50109385...31	50109706...125	50110109...158	50110614...184
50106737...203	50107247...35	50108493...291	50109432...54	50109707...125	50110110...158	50110615...184
50106739...387	50107248...35	50108494...291	50109484...31	50109708...125	50110111...158	50110616...184
50106739...418	50107249...35	50108495...33	50109485...35	50109709...125	50110112...158	50110659...34
50106739...423	50107250...35	50108496...33	50109523...113	50109710...124	50110113...158	50110663...384
50106739...440	50107251...35	50108498...33	50109534...382	50109711...124	50110151...291	50110666...226
50106740...214	50107255...451	50108499...33	50109534...451	50109712...127	50110152...291	50110667...226
50106740...387	50107276...441	50108505...33	50109545...283	50109713...127	50110170...438	50110672...399
50106740...390	50107298...34	50108506...33	50109545...289	50109714...127	50110171...438	50110675...399
50106740...418	50107299...35	50108508...29	50109545...291	50109716...126	50110172...390	50110676...399
50106740...423	50107484...79	50108509...29	50109545...292	50109717...126	50110172...433	50110677...227
50106740...433	50107492...80	50108510...30	50109545...465	50109718...126	50110172...438	50110677...399
50106740...440	50107493...80	50108511...30	50109551...67	50109719...126	50110173...438	50110761...158
50106741...418	50107495...80	50108512...30	50109581...30	50109720...126	50110177...439	50110762...158
50106741...423	50107496...79	50108514...29	50109594...191	50109721...126	50110178...437	50110763...158
50106741...440	50107498...80	50108514...29	50109595...191	50109722...126	50110179...437	50110764...158
50106742...418	50107499...75	50108515...29	50109596...191	50109723...126	50110180...225	50110765...158
50106742...423	50107503...75	50108516...30	50109597...191	50109726...126	50110180...280	50110766...158
50106742...440	50107507...75	50108517...29	50109598...191	50109727...126	50110180...390	50110767...158
50106746...418	50107603...74	50108518...30	50109599...191	50109728...126	50110180...433	50110768...158
50106746...423	50107605...74	50108519...30	50109600...191	50109732...128	50110180...437	50110769...158
50106746...440	50107607...75	50108519...30	50109601...191	50109732...132	50110181...280	50110770...158
50106865...30	50107726...444	50108529...64	50109639...122	50109734...128	50110181...437	50110775...31
50106871...85	50107790...400	50108535...64	50109640...122	50109734...132	50110186...280	50110782...156
50106881...227	50107914...32	50108538...290	50109641...122	50109736...128	50110186...437	50110783...156
50106882...178	50107918...34	50108539...290	50109642...122	50109736...131	50110189...280	50110784...156
50106882...192	50107922...34	50108540...290	50109645...121	50109738...128	50110189...437	50110785...156
50106882...193	50108026...32	50108541...290	50109646...121	50109738...131	50110191...38	50110786...156
50106882...206	50108049...54	50108549...55	50109647...121	50109753...34	50110191...464	50110787...156
50106882...235	50108070...401	50108587...112	50109649...121	50109828...462	50110192...38	50110788...156
50106882...438	50108111...55	50108589...112	50109652...121	50109829...390	50110192...46	50110789...156
50106899...387	50108138...227	50108591...112	50109653...121	50109832...419	50110192...52	50110790...156
50106899...443	50108177...431	50108593...112	50109654...121	50109834...236	50110192...77	50110791...156
50106900...214	50108178...389	50108595...440	50109655...122	50109880...298	50110192...81	50110792...156
50106900...217	50108215...461	50108596...214	50109656...121	50109880...387	50110192...111	50110793...156
50106900...367	50108216...461	50108596...440	50109658...121	50109880...419	50110192...464	50110794...156
50106900...374	50108224...44	50108597...440	50109659...121	50109880...443	50110231...202	50110795...156
50106900...377	50108290...400	50108598...440	50109660...121	50109881...214	50110238...226	50110806...68
50106900...387	50108300...29	50108601...440	50109661...121	50109881...217	50110273...76	50110809...36
50106900...391	50108300...38	50108715...77	50109662...121	50109881...225	50110273...439	50110872...53
50106900...411	50108300...42	50108717...77	50109663...121	50109881...227	50110274...76	50110873...53
50106900...433	50108300...60	50108721...77	50109664...123	50109881...298	50110274...440	50110874...55
50106900...443	50108300...63	50108723...77	50109665...123	50109881...367	50110282...461	50110921...56
50106901...443	50108300...70	50108736...74	50109666...123	50109881...374	50110471...383	50110922...53
50106902...443	50108300...73	50108742...74	50109668...123	50109881...377	50110551...399	50110923...53
50106905...443	50108300...76	50108819...162	50109669...123	50109881...387	50110552...399	50110924...55
50106957...77	50108300...81	50108889...89	50109670...123	50109881...391	50110556...439	50110929...64
50106957...462	50108300...96	50108915...397	50109671...123	50109881...411	50110559...439	50110930...64
50106958...462	50108300...103	50108943...112	50109672...123	50109881...419	50110572...182	50110952...90
50106960...77	50108300...111	50108945...111	50109673...123	50109881...433	50110573...182	50110990...89
50106960...462	50108300...463	50108988...214	50109674...123	50109881...443	50110576...182	50111015...113
50106961...77	50108361...197	50108988...464	50109675...123	50109882...298	50110577...182	50111016...113
50106961...462	50108362...197	50108990...431	50109676...123	50109882...419	50110578...182	50111035...203
50106974...51	50108363...197	50108991...367	50109677...123	50109882...443	50110579...182	50111087...113
50106976...227	50108364...197	50108991...375	50109678...123	50109883...298	50110580...182	50111088...113
50107034...384	50108407...36	50108991...377	50109679...123	50109883...419	50110581...182	50111089...113
50107034...393	50108408...34	50108991...419	50109680...122	50109883...443	50110582...182	50111154...180
50107034...450	50108446...440	50108991...445	50109682...123	50109886...298	50110583...182	50111155...180
50107039...382	50108446...441	50109023...33	50109684...123	50109886...419	50110584...182	50111157...198
50107039...451	50108472...56	50109051...36	50109685...123	50109886...443	50110585...182	50111158...199
50107057...463	50108474...56	50109208...87	50109686...137	50109890...369	50110586...182	50111159...199
50107216...86	50108475...56	50109232...400	50109687...123	50109891...369	50110587...182	50111160...199
50107228...34	50108476...56	50109233...400	50109688...123	50109893...369	50110588...182	50111161...198
50107229...34	50108477...53	50109290...204	50109689...122	50109894...369	50110589...182	50111162...199
50107230...34	50108478...53	50109291...204	50109692...125	50109896...371	50110590...182	50111164...203

50111166...199	50111870...123	50112477...79	50113397...383	50113702...211	50114154...410	50114699...440
50111167...199	50111871...126	50112478...79	50113397...384	50113703...212	50114155...410	50114700...440
50111168...199	50111952...122	50112803...89	50113397...392	50113704...212	50114156...410	50114701...440
50111169...199	50111953...125	50112804...89	50113397...393	50113705...211	50114157...410	50114702...440
50111170...199	50111954...125	50112806...123	50113397...394	50113706...212	50114185...46	50114706...354
50111171...199	50111963...123	50112807...123	50113397...395	50113707...212	50114185...462	50114707...353
50111172...199	50111966...78	50112808...123	50113397...411	50113708...212	50114201...186	50114714...355
50111174...199	50111967...78	50112862...89	50113435...186	50113709...212	50114202...186	50114715...355
50111175...197	50111968...80	50112885...117	50113436...186	50113710...212	50114203...118	50114760...35
50111208...90	50111969...77	50112886...117	50113437...186	50113711...212	50114204...118	50114761...35
50111224...375	50111970...77	50112887...117	50113438...186	50113712...212	50114205...118	50114762...35
50111224...377	50112065...203	50112888...117	50113467...411	50113713...212	50114206...118	50114763...35
50111224...450	50112104...125	50112889...117	50113467...444	50113714...212	50114207...118	50114769...35
50111225...389	50112109...28	50112890...117	50113468...411	50113715...212	50114208...118	50114765...35
50111227...389	50112110...27	50112891...410	50113473...437	50113716...213	50114209...118	50114766...36
50111312...182	50112111...27	50112892...410	50113478...136	50113717...211	50114210...118	50114767...36
50111313...182	50112112...28	50112893...410	50113510...209	50113718...211	50114211...119	50114768...36
50111319...182	50112113...27	50112914...123	50113510...448	50113719...211	50114212...119	50114769...36
50111320...182	50112114...27	50112915...125	50113548...96	50113720...211	50114213...119	50114822...363
50111321...182	50112115...27	50112928...431	50113548...99	50113721...211	50114214...119	50114823...367
50111324...222	50112116...27	50112929...431	50113548...103	50113722...211	50114215...119	50114872...31
50111325...222	50112117...27	50112960...438	50113548...145	50113723...211	50114216...119	50114873...32
50111327...223	50112118...27	50112961...437	50113548...208	50113724...211	50114217...119	50114874...57
50111329...223	50112119...27	50112991...79	50113548...294	50113725...212	50114218...119	50114875...58
50111330...224	50112120...27	50112992...79	50113548...448	50113726...212	50114223...445	50114876...58
50111331...223	50112121...27	50113009...66	50113549...105	50113727...212	50114306...90	50114962...401
50111332...224	50112122...27	50113037...432	50113549...127	50113728...212	50114369...367	50115015...90
50111333...223	50112123...27	50113045...420	50113549...129	50113729...212	50114369...405	50115016...90
50111334...222	50112124...27	50113046...420	50113549...129	50113730...212	50114380...123	50115020...464
50111375...462	50112125...27	50113051...432	50113549...134	50113731...212	50114409...111	50115021...464
50111391...356	50112126...27	50113052...432	50113549...448	50113732...212	50114427...125	50115022...464
50111391...448	50112127...26	50113053...431	50113550...127	50113733...212	50114490...121	50115029...199
50111412...381	50112128...26	50113054...390	50113550...129	50113734...212	50114491...57	50115030...199
50111413...381	50112129...26	50113055...389	50113550...134	50113735...212	50114492...392	50115044...411
50111435...128	50112130...26	50113183...370	50113550...448	50113736...212	50114498...392	50115049...411
50111435...133	50112131...26	50113184...370	50113583...198	50113737...212	50114498...451	50115049...442
50111436...128	50112132...26	50113185...371	50113661...213	50113738...212	50114501...451	50115050...206
50111436...133	50112133...26	50113186...371	50113662...213	50113739...212	50114504...392	50115050...411
50111437...137	50112134...26	50113187...370	50113663...213	50113740...212	50114507...392	50115050...442
50111438...137	50112135...26	50113188...370	50113664...213	50113771...54	50114509...392	50115068...394
50111440...29	50112136...27	50113189...371	50113665...213	50113783...117	50114511...392	50115069...394
50111441...29	50112137...27	50113190...371	50113666...213	50113800...89	50114513...392	50115116...32
50111442...29	50112138...27	50113191...370	50113667...213	50113909...88	50114515...392	50115117...32
50111442...29	50112139...27	50113192...370	50113668...213	50113981...140	50114521...382	50115118...32
50111443...35	50112140...27	50113195...370	50113669...213	50113982...140	50114521...383	50115119...32
50111444...35	50112141...27	50113196...370	50113670...213	50113983...140	50114521...384	50115122...57
50111496...450	50112142...462	50113197...371	50113671...213	50113984...140	50114521...392	50115123...57
50111497...450	50112155...367	50113198...371	50113672...213	50113985...140	50114521...393	50115127...57
50111498...450	50112155...375	50113199...371	50113673...213	50113986...140	50114523...382	50115129...57
50111499...450	50112155...377	50113200...371	50113674...213	50113987...140	50114523...383	50115130...57
50111500...450	50112155...419	50113201...371	50113675...213	50113988...140	50114523...384	50115131...57
50111501...451	50112155...445	50113202...371	50113676...213	50113989...140	50114523...392	50115132...57
50111502...451	50112156...445	50113203...371	50113677...212	50113990...140	50114523...393	50115133...57
50111503...451	50112157...445	50113204...371	50113678...212	50113991...140	50114525...382	50115134...57
50111504...451	50112206...28	50113205...371	50113679...212	50113992...140	50114525...383	50115136...57
50111519...111	50112206...447	50113206...371	50113680...212	50113993...142	50114525...384	50115137...57
50111520...111	50112209...123	50113207...122	50113681...212	50113994...142	50114525...392	50115139...58
50111527...48	50112215...451	50113208...117	50113682...212	50113995...142	50114525...393	50115140...57
50111527...91	50112293...125	50113209...135	50113683...212	50113996...142	50114571...367	50115142...58
50111527...202	50112415...381	50113210...135	50113684...212	50113997...142	50114571...444	50115144...57
50111527...205	50112416...381	50113211...121	50113685...212	50113998...142	50114581...35	50115145...58
50111527...464	50112417...381	50113212...136	50113686...212	50113999...142	50114582...35	50115146...57
50111641...184	50112418...381	50113213...136	50113687...212	50114000...142	50114617...461	50115147...57
50111642...184	50112419...381	50113225...226	50113688...212	50114032...68	50114627...198	50115149...58
50111643...184	50112420...381	50113226...226	50113689...212	50114034...68	50114691...443	50115150...57
50111644...184	50112422...158	50113267...33	50113690...212	50114036...69	50114692...440	50115151...57
50111732...30	50112423...158	50113308...68	50113691...212	50114037...68	50114693...440	50115152...57
50111741...123	50112424...158	50113309...461	50113692...212	50114051...121	50114694...443	50115153...57
50111743...125	50112425...158	50113317...35	50113693...211	50114052...122	50114696...214	50115155...58
50111744...125	50112426...158	50113324...32	50113694...211	50114069...80	50114696...411	50115156...58
50111745...125	50112427...158	50113325...32	50113695...211	50114070...80	50114696...440	50115157...58
50111768...182	50112444...122	50113326...32	50113696...211	50114071...79	50114697...214	50115158...58
50111769...182	50112465...34	50113327...32	50113697...211	50114072...78	50114697...411	50115193...50
50111772...463	50112473...32	50113332...199	50113698...211	50114073...79	50114697...440	50115197...447
50111815...89	50112474...32	50113396...444	50113699...211	50114074...184	50114698...214	50115202...75
50111829...464	50112475...75	50113397...382	50113700...211	50114075...184	50114698...411	50115203...75
50111830...447	50112476...75	50113397...383	50113701...211	50114099...31	50114698...443	50115204...79

50115205... 79	50116276... 363	50116359... 360	50116442... 359	50116864... 382	50117254... 292	50117691... 39
50115206... 79	50116277... 363	50116360... 360	50116443... 359	50116939... 462	50117254... 449	50117692... 39
50115207... 109	50116278... 362	50116361... 360	50116444... 359	50116969... 431	50117255... 37	50117693... 39
50115262... 34	50116279... 363	50116362... 360	50116445... 359	50116970... 431	50117255... 41	50117694... 39
50115269... 109	50116280... 362	50116363... 361	50116446... 359	50116971... 431	50117255... 52	50117695... 39
50115358... 382	50116284... 362	50116364... 361	50116447... 359	50116972... 431	50117255... 59	50117702... 39
50115358... 451	50116285... 362	50116365... 360	50116448... 359	50116973... 431	50117255... 63	50117703... 39
50115418... 224	50116286... 362	50116366... 360	50116449... 359	50116974... 431	50117255... 81	50117704... 39
50115424... 440	50116287... 362	50116367... 360	50116450... 359	50116975... 431	50117255... 110	50117705... 39
50115444... 464	50116288... 362	50116368... 364	50116451... 359	50116976... 431	50117255... 141	50117706... 39
50115600... 450	50116289... 362	50116369... 364	50116452... 359	50116977... 389	50117255... 183	50117707... 39
50115641... 36	50116290... 362	50116370... 364	50116453... 359	50116978... 389	50117255... 292	50117727... 152
50115688... 44	50116291... 362	50116371... 364	50116454... 359	50116979... 389	50117255... 449	50117728... 152
50115689... 43	50116292... 362	50116372... 364	50116455... 359	50116980... 389	50117256... 37	50117729... 152
50115690... 89	50116293... 362	50116373... 364	50116456... 359	50116981... 390	50117256... 41	50117730... 152
50115738... 384	50116294... 362	50116374... 364	50116457... 359	50116982... 389	50117256... 52	50117731... 152
50115738... 392	50116295... 362	50116375... 364	50116458... 359	50116983... 390	50117256... 59	50117732... 152
50115738... 393	50116296... 362	50116376... 364	50116459... 359	50116984... 390	50117256... 63	50117733... 152
50115739... 392	50116297... 362	50116380... 364	50116460... 359	50116985... 431	50117256... 81	50117734... 152
50115739... 451	50116298... 362	50116381... 364	50116461... 359	50116986... 431	50117256... 110	50117735... 152
50115803... 238	50116299... 362	50116382... 364	50116462... 359	50116987... 431	50117256... 183	50117736... 152
50115806... 238	50116300... 362	50116383... 364	50116463... 366	50116988... 431	50117256... 292	50117737... 151
50115807... 238	50116301... 362	50116384... 364	50116464... 366	50116989... 432	50117256... 449	50117738... 151
50115809... 238	50116302... 362	50116385... 364	50116465... 217	50116990... 432	50117257... 96	50117739... 151
50115992... 55	50116303... 362	50116386... 364	50116465... 367	50116991... 432	50117257... 103	50117740... 151
50116172... 26	50116304... 362	50116387... 363	50116466... 367	50116992... 432	50117257... 448	50117741... 151
50116173... 26	50116305... 362	50116388... 364	50116467... 217	50117011... 444	50117258... 294	50117742... 152
50116177... 186	50116306... 362	50116389... 364	50116467... 367	50117069... 354	50117258... 450	50117743... 152
50116179... 359	50116307... 362	50116390... 363	50116468... 367	50117070... 353	50117334... 199	50117744... 152
50116180... 359	50116308... 362	50116391... 363	50116469... 367	50117071... 355	50117356... 49	50117745... 152
50116181... 359	50116309... 362	50116392... 363	50116470... 217	50117072... 355	50117357... 49	50117746... 152
50116182... 359	50116310... 362	50116393... 363	50116470... 367	50117091... 432	50117358... 49	50117747... 152
50116183... 359	50116311... 362	50116394... 363	50116471... 217	50117093... 390	50117359... 49	50117748... 152
50116184... 359	50116312... 362	50116395... 363	50116471... 367	50117094... 431	50117359... 50	50117749... 151
50116185... 359	50116313... 362	50116396... 363	50116474... 186	50117127... 131	50117361... 49	50117750... 151
50116186... 359	50116314... 362	50116397... 363	50116532... 58	50117199... 80	50117362... 50	50117751... 152
50116187... 359	50116315... 362	50116398... 363	50116678... 90	50117200... 135	50117363... 49	50117752... 151
50116191... 358	50116316... 362	50116399... 363	50116687... 464	50117201... 121	50117364... 49	50117753... 152
50116192... 358	50116317... 361	50116400... 363	50116721... 57	50117202... 55	50117365... 49	50117754... 152
50116193... 358	50116318... 362	50116401... 363	50116725... 461	50117251... 45	50117366... 50	50117755... 151
50116194... 358	50116319... 361	50116402... 363	50116732... 189	50117251... 70	50117367... 50	50117756... 152
50116195... 358	50116320... 361	50116403... 363	50116738... 442	50117251... 113	50117368... 50	50117757... 152
50116196... 358	50116321... 361	50116404... 363	50116808... 58	50117251... 190	50117369... 50	50117758... 151
50116197... 358	50116322... 361	50116405... 363	50116814... 448	50117251... 200	50117370... 50	50117759... 152
50116198... 358	50116323... 361	50116406... 363	50116815... 448	50117251... 283	50117371... 50	50117760... 152
50116199... 358	50116324... 361	50116407... 363	50116816... 448	50117251... 289	50117372... 49	50117761... 152
50116200... 358	50116325... 361	50116408... 363	50116817... 76	50117251... 291	50117373... 49	50117762... 152
50116201... 358	50116326... 361	50116409... 363	50116817... 448	50117251... 389	50117374... 49	50117763... 152
50116202... 358	50116327... 361	50116410... 363	50116819... 448	50117251... 449	50117375... 49	50117764... 152
50116203... 358	50116328... 361	50116411... 363	50116820... 448	50117252... 45	50117377... 50	50117765... 152
50116204... 358	50116412... 361	50116412... 363	50116828... 80	50117252... 70	50117379... 50	50117766... 151
50116205... 358	50116333... 361	50116413... 363	50116844... 93	50117252... 113	50117412... 401	50117767... 151
50116206... 358	50116334... 361	50116414... 363	50116844... 93	50117252... 190	50117490... 96	50117768... 151
50116207... 358	50116335... 361	50116415... 360	50116845... 93	50117252... 200	50117490... 99	50117769... 151
50116208... 358	50116336... 361	50116416... 360	50116845... 93	50117252... 283	50117490... 103	50117770... 151
50116209... 358	50116417... 361	50116417... 360	50116845... 93	50117252... 289	50117490... 145	50117771... 151
50116210... 358	50116338... 361	50116418... 360	50116846... 93	50117252... 291	50117490... 208	50117772... 151
50116211... 358	50116339... 361	50116419... 360	50116846... 93	50117252... 389	50117490... 294	50117773... 151
50116212... 358	50116340... 361	50116420... 360	50116847... 93	50117252... 449	50117490... 449	50117774... 151
50116213... 358	50116341... 361	50116421... 360	50116847... 93	50117253... 45	50117534... 388	50117775... 151
50116214... 358	50116342... 361	50116422... 360	50116847... 93	50117253... 70	50117536... 388	50117776... 151
50116215... 358	50116343... 361	50116423... 360	50116848... 93	50117253... 113	50117583... 38	50117777... 151
50116216... 358	50116344... 361	50116427... 360	50116849... 93	50117253... 190	50117583... 46	50117778... 152
50116217... 358	50116345... 361	50116428... 360	50116850... 93	50117253... 200	50117583... 52	50117797... 118
50116218... 358	50116346... 361	50116429... 360	50116851... 93	50117253... 283	50117583... 60	50117818... 238
50116219... 358	50116347... 360	50116430... 360	50116852... 93	50117253... 289	50117583... 70	50117825... 291
50116220... 358	50116348... 360	50116431... 360	50116853... 93	50117253... 291	50117583... 73	50117825... 450
50116221... 358	50116349... 360	50116432... 360	50116854... 93	50117253... 389	50117583... 76	50117826... 291
50116222... 358	50116350... 361	50116433... 360	50116855... 93	50117253... 449	50117583... 81	50117826... 450
50116223... 358	50116351... 361	50116434... 360	50116856... 94	50117254... 37	50117583... 99	50117827... 291
50116224... 358	50116352... 361	50116435... 360	50116857... 94	50117254... 41	50117583... 111	50117827... 450
50116225... 358	50116353... 360	50116436... 360	50116858... 94	50117254... 52	50117583... 462	50117828... 292
50116226... 358	50116354... 360	50116437... 360	50116859... 94	50117254... 59	50117584... 461	50117828... 450
50116272... 363	50116355... 360	50116438... 359	50116860... 94	50117254... 63	50117683... 39	50117829... 292
50116273... 363	50116356... 361	50116439... 359	50116861... 94	50117254... 81	50117688... 39	50117829... 450
50116274... 363	50116357... 361	50116440... 359	50116862... 94	50117254... 110	50117689... 39	50117830... 292
50116275... 363	50116358... 361	50116441... 359	50116863... 94	50117254... 183	50117690... 39	50117830... 449

50117920... 90	50119204... 234	50120444... 384	50121232... 50	50122563... 95	50122776... 373	50123899... 46
50117924... 61	50119219... 233	50120444... 393	50121291... 192	50122564... 95	50122780... 373	50123899... 60
50117925... 61	50119251... 233	50120444... 394	50121292... 192	50122565... 95	50122781... 373	50123899... 77
50117926... 61	50119269... 234	50120444... 395	50121293... 192	50122572... 40	50122782... 373	50123899... 81
50117927... 61	50119285... 234	50120444... 451	50121294... 192	50122573... 40	50122783... 373	50123899... 99
50117928... 61	50119323... 449	50120446... 395	50121387... 381	50122574... 40	50122784... 373	50123899... 111
50117929... 61	50119324... 449	50120463... 444	50121388... 381	50122575... 40	50122785... 373	50123899... 464
50117930... 61	50119325... 449	50120538... 461	50121433... 217	50122576... 40	50122786... 373	50123982... 57
50117931... 61	50119330... 283	50120578... 55	50121433... 367	50122577... 40	50122787... 373	50124004... 462
50117932... 61	50119330... 289	50120622... 75	50121433... 448	50122578... 40	50122788... 373	50124155... 35
50117933... 61	50119330... 449	50120623... 80	50121434... 367	50122579... 40	50122797... 291	50124260... 207
50118016... 30	50119331... 283	50120748... 365	50121434... 448	50122580... 40	50122797... 292	50124261... 207
50118182... 235	50119331... 289	50120749... 365	50121435... 367	50122581... 40	50122797... 449	50124263... 207
50118183... 235	50119331... 449	50120750... 365	50121435... 448	50122582... 40	50122798... 291	50124264... 207
50118184... 235	50119332... 283	50120751... 365	50121898... 74	50122583... 40	50122798... 449	50124265... 208
50118185... 235	50119332... 289	50120752... 365	50121899... 75	50122584... 61	50122954... 230	50124266... 208
50118358... 382	50119332... 449	50120753... 365	50121900... 75	50122585... 61	50122957... 230	50124267... 143
50118369... 121	50119332... 449	50120754... 365	50121901... 137	50122586... 61	50122989... 230	50124268... 143
50118393... 182	50119334... 449	50120755... 365	50121902... 137	50122587... 61	50122998... 230	50124269... 143
50118398... 147	50119364... 109	50120756... 365	50121903... 57	50122588... 61	50123037... 230	50124270... 143
50118399... 147	50119377... 230	50120760... 365	50121904... 450	50122589... 61	50123046... 230	50124271... 143
50118400... 148	50119409... 230	50120761... 365	50121907... 288	50122590... 62	50123057... 230	50124272... 143
50118401... 148	50119427... 230	50120762... 365	50121908... 288	50122591... 62	50123062... 231	50124273... 144
50118402... 148	50119443... 230	50120763... 365	50121909... 288	50122592... 62	50123130... 233	50124297... 236
50118403... 148	50119458... 230	50120764... 365	50121910... 288	50122593... 62	50123137... 233	50124299... 57
50118404... 149	50119491... 230	50120765... 365	50121911... 288	50122594... 62	50123173... 233	50124651... 41
50118405... 149	50119509... 230	50120766... 365	50121912... 288	50122595... 62	50123179... 233	50124651... 59
50118406... 149	50119525... 231	50120767... 365	50121913... 288	50122596... 62	50123206... 233	50124651... 63
50118407... 149	50119615... 230	50120768... 365	50121914... 288	50122597... 62	50123216... 234	50124651... 292
50118408... 149	50119647... 230	50120769... 365	50121915... 288	50122598... 62	50123221... 234	50124651... 447
50118409... 149	50119665... 230	50120770... 365	50121916... 288	50122599... 62	50123231... 234	50124693... 189
50118410... 149	50119681... 230	50120771... 365	50121917... 288	50122600... 62	50123263... 235	50124694... 189
50118411... 149	50119710... 238	50120772... 365	50121918... 288	50122601... 62	50123265... 235	50124703... 156
50118424... 55	50119711... 238	50120773... 365	50121919... 288	50122689... 101	50123266... 39	50124941... 450
50118521... 125	50119712... 238	50120774... 365	50121920... 288	50122690... 101	50123267... 39	50124943... 50
50118539... 451	50119714... 66	50120775... 364	50121921... 288	50122691... 101	50123279... 233	50124944... 50
50118542... 41	50119724... 230	50120776... 364	50121922... 288	50122694... 101	50123312... 233	50124945... 50
50118542... 63	50119756... 230	50120777... 364	50122066... 39	50122695... 101	50123330... 233	50124981... 215
50118542... 447	50119774... 230	50120778... 365	50122100... 57	50122696... 101	50123346... 234	50124982... 215
50118543... 41	50119790... 230	50120779... 365	50122106... 39	50122697... 101	50123362... 233	50124983... 215
50118543... 45	50119805... 230	50120780... 365	50122232... 33	50122698... 101	50123394... 233	50125111... 90
50118543... 70	50119837... 230	50120781... 364	50122261... 75	50122699... 100	50123412... 234	50125541... 225
50118543... 190	50119855... 230	50120782... 364	50122262... 36	50122700... 100	50123432... 234	50125668... 215
50118543... 291	50119871... 230	50120783... 364	50122267... 419	50122701... 100	50123449... 230	50125669... 215
50118543... 448	50119913... 230	50120784... 365	50122268... 419	50122702... 100	50123482... 230	50125670... 215
50118554... 68	50119945... 230	50120785... 365	50122319... 206	50122703... 100	50123503... 365	50125671... 215
50118585... 233	50119963... 230	50120786... 364	50122327... 151	50122704... 100	50123504... 360	50125672... 215
50118616... 233	50119979... 231	50120787... 364	50122328... 151	50122705... 100	50123505... 364	50125673... 215
50118633... 233	50119994... 230	50120788... 364	50122336... 235	50122706... 100	50123506... 361	50125674... 215
50118649... 234	50120000... 198	50120789... 364	50122337... 235	50122707... 100	50123507... 362	50125675... 215
50118664... 233	50120010... 449	50120790... 364	50122338... 443	50122708... 100	50123508... 358	50125676... 215
50118697... 233	50120011... 449	50120791... 364	50122339... 443	50122709... 100	50123532... 289	50125677... 215
50118715... 233	50120019... 449	50120792... 364	50122431... 393	50122710... 100	50123532... 290	50125678... 215
50118731... 234	50120080... 230	50120793... 364	50122434... 393	50122711... 100	50123532... 438	50125679... 215
50118746... 233	50120098... 230	50120794... 364	50122436... 393	50122712... 100	50123553... 230	50125752... 65
50118778... 233	50120115... 231	50120795... 364	50122446... 39	50122713... 102	50123569... 230	50125754... 65
50118796... 233	50120131... 230	50120796... 367	50122455... 122	50122714... 102	50123584... 230	50125755... 65
50118812... 234	50120164... 230	50120797... 367	50122456... 149	50122715... 102	50123616... 230	50125767... 420
50118827... 233	50120182... 230	50120825... 198	50122457... 149	50122716... 102	50123634... 230	50125768... 420
50118872... 233	50120198... 231	50120855... 27	50122459... 149	50122717... 101	50123652... 231	50125790... 164
50118890... 233	50120272... 57	50120949... 438	50122460... 149	50122718... 101	50123686... 203	50125860... 145
50118906... 234	50120273... 125	50120999... 178	50122549... 93	50122719... 101	50123687... 203	50125860... 450
50118921... 233	50120274... 123	50120999... 235	50122549... 93	50122720... 101	50123846... 258	50125896... 189
50118953... 233	50120275... 32	50120999... 442	50122549... 93	50122721... 101	50123846... 298	50125991... 65
50118970... 234	50120425... 283	50121000... 178	50122550... 95	50122722... 102	50123846... 438	50126007... 448
50118986... 234	50120425... 289	50121000... 235	50122551... 95	50122724... 101	50123848... 298	50126066... 34
50119002... 233	50120425... 449	50121000... 442	50122552... 95	50122725... 102	50123849... 298	50126080... 379
50119032... 189	50120426... 448	50121012... 123	50122553... 95	50122726... 102	50123861... 46	50126081... 379
50119033... 189	50120428... 395	50121079... 152	50122554... 94	50122727... 102	50123861... 60	50126082... 379
50119070... 149	50120430... 395	50121098... 178	50122555... 94	50122728... 102	50123861... 77	50126130... 217
50119071... 149	50120432... 395	50121098... 236	50122556... 94	50122729... 102	50123861... 81	50126131... 217
50119090... 233	50120436... 395	50121148... 431	50122557... 94	50122769... 373	50123861... 99	50126132... 419
50119108... 234	50120440... 394	50121227... 50	50122558... 94	50122770... 373	50123861... 111	50126132... 444
50119124... 234	50120442... 394	50121228... 50	50122559... 94	50122771... 373	50123861... 464	50126327... 282
50119139... 233	50120444... 382	50121229... 50	50122560... 94	50122772... 373	50123862... 393	50126328... 282
50119171... 233	50120444... 383	50121230... 50	50122561... 94	50122773... 373	50123869... 451	50126329... 282
50119188... 234	50120444... 384	50121231... 50	50122562... 95	50122775... 373	50123899... 38	50126330... 282

50126331...282	50126608...95	50127177...198	50128006...160	50128379...48	50128942...175	50129022...175
50126332...282	50126609...95	50127177...220	50128007...160	50128379...73	50128943...175	50129023...175
50126333...282	50126631...450	50127177...352	50128008...159	50128379...202	50128944...175	50129024...175
50126334...282	50126757...451	50127177...448	50128009...160	50128379...448	50128945...175	50129025...175
50126360...232	50126764...65	50127193...72	50128010...160	50128380...48	50128946...175	50129026...175
50126361...232	50126781...163	50127219...213	50128011...159	50128380...73	50128948...175	50129027...175
50126362...232	50126782...163	50127220...213	50128012...159	50128380...202	50128949...175	50129028...175
50126374...232	50126783...163	50127221...213	50128013...159	50128380...448	50128950...176	50129029...175
50126375...232	50126784...164	50127222...213	50128014...159	50128388...47	50128951...176	50129030...175
50126376...232	50126785...164	50127223...213	50128015...160	50128424...432	50128952...176	50129031...175
50126391...232	50126786...164	50127224...213	50128149...129	50128425...432	50128953...176	50129032...175
50126392...232	50126787...164	50127225...213	50128150...129	50128583...450	50128954...176	50129033...176
50126393...232	50126788...164	50127226...213	50128151...129	50128782...386	50128955...176	50129034...176
50126405...232	50126800...42	50127338...153	50128152...129	50128783...386	50128956...176	50129035...176
50126406...232	50126801...42	50127339...153	50128153...129	50128784...386	50128957...176	50129036...176
50126407...232	50126801...42	50127340...153	50128154...129	50128785...386	50128958...176	50129037...176
50126459...153	50126940...50	50127341...153	50128161...128	50128786...386	50128959...176	50129038...176
50126460...153	50126967...151	50127342...154	50128162...133	50128787...386	50128960...176	50129039...176
50126461...153	50126968...121	50127420...72	50128162...128	50128788...386	50128961...176	50129040...176
50126462...153	50126969...376	50127421...72	50128162...133	50128789...386	50128962...176	50129041...176
50126463...153	50126970...376	50127422...72	50128163...128	50128790...386	50128963...176	50129042...176
50126464...153	50126971...376	50127423...72	50128163...133	50128793...451	50128964...176	50129043...176
50126465...153	50126972...376	50127424...72	50128164...128	50128795...451	50128965...177	50129044...176
50126466...153	50126973...375	50127425...72	50128164...133	50128797...451	50128967...177	50129045...176
50126467...153	50126974...375	50127426...72	50128165...128	50128802...36	50128968...177	50129046...176
50126468...153	50126975...375	50127427...72	50128165...133	50128811...80	50128969...177	50129047...176
50126469...153	50126976...375	50127430...72	50128166...128	50128812...68	50128970...177	50129048...177
50126470...153	50127012...66	50127431...72	50128166...133	50128813...126	50128971...177	50129049...177
50126471...154	50127432...66	50127432...72	50128167...128	50128889...172	50128972...177	50129050...177
50126472...154	50127014...66	50127433...72	50128167...132	50128890...172	50128973...177	50129051...177
50126473...154	50127015...66	50127434...72	50128168...128	50128891...172	50128974...177	50129052...177
50126474...154	50127016...66	50127435...72	50128168...132	50128892...172	50128975...177	50129053...177
50126475...153	50127017...66	50127436...72	50128169...128	50128893...172	50128977...172	50129054...177
50126476...153	50127018...66	50127437...71	50128169...132	50128894...172	50128978...172	50129055...177
50126477...154	50127019...66	50127438...71	50128170...128	50128895...172	50128979...172	50129056...177
50126478...154	50127021...66	50127439...71	50128170...132	50128896...172	50128980...172	50129057...177
50126479...154	50127024...66	50127440...71	50128171...128	50128897...172	50128981...172	50129077...89
50126480...154	50127025...66	50127441...71	50128171...132	50128898...172	50128982...172	50129092...433
50126481...153	50127026...66	50127442...71	50128172...128	50128899...173	50128983...172	50129093...375
50126482...153	50127027...66	50127443...71	50128172...132	50128900...173	50128984...172	50129094...375
50126483...154	50127028...66	50127444...71	50128173...128	50128901...173	50128985...172	50129095...375
50126484...154	50127029...66	50127445...71	50128173...131	50128902...173	50128986...172	50129096...375
50126485...153	50127030...66	50127446...71	50128174...128	50128903...173	50128987...173	50129139...102
50126486...154	50127031...66	50127447...71	50128174...131	50128904...173	50128988...173	50129140...102
50126487...153	50127032...66	50127448...71	50128175...128	50128905...173	50128989...173	50129149...291
50126488...153	50127033...64	50127450...380	50128175...131	50128906...173	50128990...173	50129149...449
50126489...153	50127033...65	50127451...380	50128176...128	50128907...173	50128991...173	50129208...391
50126490...153	50127034...65	50127466...123	50128176...131	50128908...173	50128992...173	50129248...159
50126491...153	50127035...65	50127466...125	50128177...128	50128909...173	50128993...173	50129345...122
50126492...154	50127036...64	50127488...204	50128177...131	50128910...173	50128994...173	50129346...122
50126493...154	50127036...65	50127550...90	50128178...128	50128911...173	50128995...173	50129347...121
50126494...154	50127037...64	50127637...31	50128178...131	50128912...173	50128996...173	50129348...121
50126495...153	50127037...65	50127723...379	50128179...128	50128913...173	50128997...173	50129349...121
50126496...153	50127038...64	50127764...143	50128179...130	50128914...173	50128998...173	50129350...123
50126497...153	50127038...65	50127771...78	50128180...128	50128915...174	50128999...173	50129351...123
50126498...153	50127039...65	50127772...78	50128180...130	50128916...174	50129000...173	50129352...123
50126499...153	50127040...65	50127773...102	50128181...128	50128917...174	50129001...173	50129353...123
50126500...153	50127042...64	50127841...188	50128181...130	50128918...174	50129002...173	50129354...123
50126545...282	50127043...65	50127853...201	50128182...128	50128919...174	50129003...174	50129355...122
50126546...282	50127044...65	50127898...383	50128182...130	50128920...174	50129004...174	50129356...123
50126547...282	50127045...65	50127901...40	50128183...128	50128921...174	50129005...174	50129357...123
50126548...282	50127046...65	50127902...40	50128183...130	50128922...174	50129006...174	50129358...123
50126549...282	50127048...67	50127903...40	50128184...128	50128923...174	50129007...174	50129359...123
50126550...282	50127049...68	50127904...40	50128184...130	50128924...174	50129008...174	50129360...125
50126551...282	50127050...68	50127928...95	50128196...102	50128929...174	50129009...174	50129361...125
50126552...282	50127051...68	50127929...95	50128197...102	50128930...174	50129010...174	50129362...125
50126556...56	50127052...68	50127932...43	50128198...102	50128931...174	50129011...174	50129363...125
50126559...90	50127054...68	50127969...164	50128199...102	50128932...174	50129012...174	50129364...125
50126587...149	50127055...67	50127996...95	50128200...39	50128933...174	50129013...174	50129365...124
50126588...149	50127061...67	50127997...95	50128201...39	50128934...175	50129014...174	50129366...125
50126589...149	50127062...67	50127998...95	50128202...39	50128935...175	50129015...174	50129367...125
50126590...149	50127063...67	50127999...95	50128203...39	50128936...175	50129016...174	50129368...125
50126591...149	50127064...67	50128001...159	50128287...179	50128937...175	50129017...174	50129369...127
50126592...149	50127065...67	50128002...159	50128288...179	50128938...175	50129018...175	50129370...126
50126605...93	50127066...67	50128003...159	50128289...179	50128939...175	50129019...175	50129371...126
50126606...95	50127067...67	50128004...159	50128290...179	50128940...175	50129020...175	50129415...123
50126607...95	50127101...401	50128005...159	50128318...444	50128941...175	50129021...175	50129507...93

50129517...36	50130286...442	50130508...459	50130648...70	50130657...84	50130692...81	50130752...442
50129528...201	50130289...461	50130509...459	50130648...81	50130657...91	50130692...96	50130753...442
50129529...201	50130290...461	50130510...459	50130648...84	50130657...96	50130692...99	50130754...442
50129530...201	50130291...461	50130511...459	50130648...91	50130657...99	50130692...103	50130755...442
50129531...201	50130422...458	50130512...459	50130648...96	50130657...103	50130692...105	50130756...442
50129532...201	50130423...458	50130513...459	50130648...99	50130657...105	50130692...107	50130757...442
50129533...200	50130424...458	50130514...459	50130648...103	50130657...107	50130692...110	50130758...442
50129534...201	50130426...458	50130515...459	50130648...105	50130657...110	50130692...112	50130759...442
50129535...201	50130427...458	50130516...459	50130648...107	50130657...112	50130692...437	50130760...442
50129536...200	50130428...458	50130517...459	50130648...110	50130657...188	50130693...437	50130761...442
50129537...47	50130429...458	50130518...459	50130648...112	50130657...283	50130694...51	50130762...442
50129538...47	50130430...458	50130519...459	50130648...120	50130657...289	50130694...59	50130763...442
50129539...47	50130431...458	50130520...459	50130648...127	50130657...290	50130694...63	50130764...442
50129540...47	50130432...458	50130521...459	50130648...129	50130657...292	50130694...70	50130765...442
50129541...47	50130433...458	50130522...459	50130648...134	50130657...294	50130694...81	50130766...442
50129542...47	50130434...458	50130524...459	50130648...145	50130657...438	50130694...84	50130767...442
50129543...47	50130435...458	50130525...459	50130648...150	50130658...188	50130694...91	50130768...441
50129545...47	50130436...457	50130526...459	50130648...183	50130658...283	50130694...96	50130769...441
50129546...47	50130437...457	50130531...459	50130648...185	50130658...289	50130694...99	50130770...441
50129547...47	50130438...457	50130532...459	50130648...188	50130658...290	50130694...103	50130771...441
50129548...47	50130439...457	50130533...459	50130648...289	50130658...292	50130694...105	50130772...441
50129549...47	50130440...457	50130550...78	50130648...290	50130658...294	50130694...107	50130821...381
50129550...47	50130441...457	50130592...446	50130648...438	50130658...438	50130694...110	50130829...439
50129551...47	50130442...458	50130593...446	50130651...438	50130659...437	50130694...112	50130831...439
50129552...47	50130443...458	50130594...446	50130652...28	50130660...437	50130694...145	50130832...28
50129553...438	50130444...458	50130595...446	50130652...37	50130661...438	50130694...437	50130832...37
50129659...465	50130445...458	50130596...446	50130652...41	50130663...438	50130695...437	50130832...41
50129660...465	50130446...458	50130597...446	50130652...51	50130664...437	50130696...436	50130832...110
50129661...378	50130447...458	50130598...446	50130652...59	50130665...437	50130697...436	50130832...120
50129662...378	50130448...458	50130599...446	50130652...63	50130666...438	50130698...436	50130832...127
50129663...378	50130449...458	50130600...446	50130652...70	50130667...438	50130699...436	50130832...129
50129663...413	50130450...458	50130601...446	50130652...81	50130668...438	50130700...436	50130832...137
50129670...67	50130451...458	50130602...446	50130652...84	50130670...438	50130701...436	50130832...157
50129671...67	50130452...458	50130603...446	50130652...91	50130671...438	50130702...436	50130832...165
50129751...67	50130453...458	50130604...446	50130652...96	50130672...438	50130703...436	50130832...439
50129752...68	50130454...458	50130605...446	50130652...99	50130674...438	50130704...436	50130833...439
50129753...66	50130455...457	50130606...446	50130652...103	50130675...438	50130705...436	50130834...439
50129779...178	50130456...457	50130607...446	50130652...105	50130676...438	50130706...437	50130835...439
50129779...235	50130457...457	50130608...446	50130652...107	50130677...436	50130708...437	50130836...439
50129779...443	50130458...457	50130610...446	50130652...110	50130678...436	50130709...437	50130837...439
50129779...444	50130459...457	50130611...446	50130652...112	50130679...436	50130710...437	50130838...439
50129780...178	50130460...457	50130631...214	50130652...120	50130681...436	50130718...437	50130839...439
50129780...235	50130462...71	50130631...217	50130652...127	50130683...436	50130719...437	50130840...439
50129780...443	50130463...71	50130631...367	50130652...129	50130684...436	50130720...437	50130841...439
50129780...444	50130464...71	50130631...374	50130652...134	50130685...436	50130721...437	50130842...120
50129781...178	50130465...71	50130631...377	50130652...145	50130687...436	50130722...438	50130842...127
50129781...235	50130466...71	50130631...391	50130652...150	50130688...437	50130723...438	50130842...129
50129781...443	50130467...71	50130631...411	50130652...183	50130689...437	50130724...438	50130842...137
50129781...444	50130468...72	50130631...433	50130652...185	50130690...28	50130725...438	50130842...157
50129782...178	50130469...72	50130631...443	50130652...188	50130690...37	50130726...258	50130842...439
50129782...235	50130470...72	50130632...214	50130652...289	50130690...41	50130726...438	50130843...439
50129782...443	50130471...72	50130632...217	50130652...290	50130690...51	50130727...258	50130844...137
50129782...444	50130472...458	50130632...225	50130652...438	50130690...59	50130727...438	50130844...150
50129783...178	50130473...458	50130632...227	50130653...438	50130690...63	50130728...436	50130844...157
50129783...235	50130474...459	50130632...298	50130654...63	50130690...70	50130729...437	50130844...439
50129783...443	50130475...459	50130632...367	50130654...70	50130690...81	50130730...437	50130845...157
50129783...444	50130476...459	50130632...374	50130654...81	50130690...84	50130731...437	50130845...439
50129795...226	50130477...459	50130632...377	50130654...96	50130690...91	50130732...441	50130846...439
50129824...143	50130478...459	50130632...391	50130654...99	50130690...96	50130733...441	50130847...439
50129825...143	50130479...459	50130632...411	50130654...103	50130690...99	50130734...441	50130848...28
50129826...143	50130480...459	50130632...419	50130654...105	50130690...103	50130735...441	50130848...37
50129827...143	50130481...459	50130632...433	50130654...107	50130690...105	50130736...442	50130848...41
50130024...381	50130482...459	50130632...443	50130654...110	50130690...107	50130737...442	50130848...59
50130047...61	50130483...459	50130636...437	50130654...112	50130690...110	50130738...442	50130848...120
50130049...61	50130487...394	50130637...437	50130654...188	50130690...112	50130739...442	50130848...141
50130201...68	50130489...394	50130638...438	50130654...283	50130690...120	50130740...442	50130848...150
50130232...381	50130490...394	50130639...438	50130654...289	50130690...127	50130741...442	50130848...165
50130280...40	50130491...394	50130643...437	50130654...290	50130690...129	50130742...442	50130848...171
50130281...387	50130491...451	50130644...437	50130654...292	50130690...134	50130743...442	50130848...183
50130281...439	50130495...393	50130645...438	50130654...294	50130690...145	50130744...442	50130848...185
50130282...387	50130497...393	50130646...438	50130654...438	50130690...150	50130745...441	50130848...440
50130282...439	50130499...383	50130648...28	50130656...438	50130690...183	50130746...441	50130849...440
50130283...439	50130501...382	50130648...37	50130657...51	50130690...185	50130747...441	50130850...28
50130284...387	50130502...459	50130648...41	50130657...59	50130690...437	50130748...441	50130850...37
50130284...442	50130504...382	50130648...51	50130657...63	50130691...437	50130749...441	50130850...41
50130285...387	50130506...459	50130648...59	50130657...70	50130692...63	50130750...442	50130850...59
50130285...442	50130507...459	50130648...63	50130657...81	50130692...70	50130751...442	50130850...120

50130850... 141	50130874... 439	50131020... 143	50131368... 167	50132036... 317	50132919... 417	63000103... 302
50130850... 150	50130875... 59	50131024... 417	50131369... 167	50132037... 317	50132920... 417	63000104... 302
50130850... 165	50130875... 439	50131024... 417	50131370... 167	50132038... 318	50132921... 417	63000105... 302
50130850... 171	50130876... 439	50131027... 417	50131371... 167	50132039... 317	50132922... 417	63000106... 302
50130850... 183	50130877... 439	50131027... 417	50131372... 167	50132040... 317	50132925... 417	63000200... 303
50130850... 185	50130878... 439	50131029... 417	50131373... 167	50132041... 317	50132926... 417	63000201... 303
50130850... 440	50130879... 439	50131029... 417	50131374... 167	50132042... 317	50132927... 417	63000202... 303
50130851... 440	50130880... 439	50131030... 417	50131375... 167	50132043... 317	50132928... 417	63000203... 303
50130852... 440	50130881... 439	50131030... 417	50131376... 167	50132044... 317	50132931... 417	63000300... 305
50130853... 440	50130882... 439	50131032... 417	50131377... 167	50132045... 318	50132932... 417	63000301... 305
50130854... 120	50130883... 439	50131032... 417	50131378... 168	50132046... 318	50132933... 418	63000302... 305
50130854... 171	50130884... 440	50131033... 417	50131379... 168	50132047... 318	50132934... 418	63000303... 305
50130854... 292	50130885... 440	50131033... 417	50131380... 168	50132048... 317	53800130... 298	63000304... 305
50130854... 324	50130886... 439	50131035... 417	50131381... 168	50132049... 317	53800131... 298	63000305... 305
50130854... 440	50130887... 440	50131035... 417	50131382... 168	50132050... 317	53800132... 298	63000306... 305
50130855... 440	50130888... 440	50131036... 417	50131383... 168	50132051... 317	53800133... 298	63000307... 305
50130856... 59	50130889... 439	50131036... 417	50131384... 168	50132052... 317	53800134... 298	63000308... 305
50130856... 171	50130890... 439	50131063... 438	50131385... 168	50132053... 318	53800135... 298	63000309... 305
50130856... 292	50130891... 439	50131308... 167	50131386... 168	50132054... 318	53800136... 298	63000310... 305
50130856... 324	50130892... 439	50131309... 167	50131387... 168	50132056... 318	53800137... 298	63000400... 307
50130856... 440	50130893... 439	50131310... 167	50131388... 168	50132057... 317	53800201... 295	63000401... 307
50130857... 171	50130894... 439	50131311... 167	50131389... 168	50132058... 317	53800202... 295	63000402... 307
50130857... 292	50130895... 439	50131312... 167	50131390... 168	50132059... 317	53800203... 295	63000403... 307
50130857... 324	50130896... 439	50131313... 167	50131391... 168	50132060... 317	53800204... 295	63000404... 309
50130857... 440	50130897... 442	50131314... 167	50131392... 168	50132061... 319	53800205... 295	63000405... 309
50130858... 440	50130898... 442	50131315... 167	50131393... 168	50132062... 319	53800206... 295	63000406... 307
50130859... 440	50130899... 443	50131316... 167	50131394... 168	50132063... 319	53800207... 295	63000407... 307
50130860... 28	50130900... 443	50131317... 167	50131395... 168	50132064... 319	53800208... 295	63000408... 309
50130860... 37	50130901... 442	50131318... 167	50131396... 169	50132065... 319	53800209... 296	63000409... 309
50130860... 41	50130902... 442	50131319... 167	50131397... 169	50132066... 319	53800210... 296	63000410... 309
50130860... 110	50130903... 442	50131321... 167	50131398... 169	50132069... 171	53800211... 296	63000411... 307
50130860... 157	50130904... 443	50131322... 168	50131399... 169	50132082... 140	53800212... 296	63000412... 309
50130860... 165	50130905... 443	50131323... 168	50131400... 169	50132150... 387	53800213... 296	63000420... 310
50130860... 439	50130906... 443	50131324... 168	50131401... 169	50132150... 448	53800214... 296	63000421... 310
50130861... 439	50130907... 443	50131325... 168	50131402... 169	50132151... 387	53800215... 296	63000422... 310
50130862... 28	50130908... 442	50131326... 168	50131403... 169	50132151... 448	53800216... 296	63000423... 310
50130862... 37	50130909... 442	50131327... 168	50131404... 169	50132201... 317	53800217... 296	63000500... 320
50130862... 41	50130910... 442	50131328... 168	50131405... 169	50132202... 317	53800218... 296	63000501... 320
50130862... 110	50130911... 443	50131329... 168	50131406... 169	50132203... 317	53800219... 296	63000502... 320
50130862... 137	50130912... 443	50131330... 168	50131407... 169	50132204... 317	53800220... 296	63000503... 320
50130862... 157	50130913... 443	50131331... 168	50131408... 169	50132210... 317	53800221... 296	63000504... 320
50130862... 165	50130914... 443	50131332... 168	50131409... 169	50132213... 317	53800222... 296	63000520... 320
50130862... 439	50130915... 443	50131333... 168	50131410... 169	50132214... 317	53800223... 296	63000521... 320
50130863... 439	50130916... 443	50131334... 168	50131411... 169	50132215... 317	53800224... 296	63000522... 320
50130864... 439	50130917... 442	50131335... 168	50131412... 169	50132216... 317	53800225... 296	63000523... 320
50130865... 439	50130918... 442	50131336... 168	50131413... 169	50132217... 317	53800226... 296	63000524... 320
50130866... 439	50130919... 442	50131337... 168	50131414... 170	50132218... 317	53800227... 296	63000525... 320
50130867... 137	50130920... 442	50131338... 168	50131415... 170	50132219... 317	53800228... 296	63000550... 312
50130867... 150	50130921... 442	50131339... 168	50131416... 170	50132274... 31	53800229... 296	63000551... 312
50130867... 157	50130922... 442	50131340... 169	50131417... 170	50132564... 449	53800230... 296	63000552... 312
50130867... 439	50130923... 442	50131341... 169	50131418... 170	50132565... 449	53800231... 296	63000553... 312
50130868... 439	50130925... 442	50131342... 169	50131419... 170	50132567... 449	53800232... 296	63000554... 312
50130869... 28	50130926... 442	50131343... 169	50131420... 170	50132582... 426	53800233... 297	63000555... 312
50130869... 37	50130927... 441	50131344... 169	50131438... 432	50132583... 426	53800234... 297	63000558... 312
50130869... 41	50130928... 441	50131345... 169	50131439... 432	50132584... 426	53800235... 297	63000559... 312
50130869... 59	50130929... 443	50131346... 169	50131494... 72	50132585... 426	53800236... 297	63000600... 314
50130869... 141	50130930... 441	50131347... 169	50131498... 375	50132586... 426	53800237... 297	63000601... 314
50130869... 150	50130931... 441	50131348... 169	50131499... 375	50132587... 426	53800238... 297	63000602... 314
50130869... 165	50130932... 442	50131349... 169	50131529... 379	50132588... 426	53800239... 297	63000650... 315
50130869... 171	50130933... 437	50131350... 169	50131529... 413	50132589... 426	53800240... 297	63000651... 315
50130869... 183	50130934... 437	50131351... 169	50131531... 379	50132590... 426	53800241... 297	63000652... 315
50130869... 185	50130935... 437	50131352... 169	50131531... 413	50132591... 426	53800242... 297	63000653... 315
50130869... 439	50130936... 437	50131353... 169	50131532... 379	50132724... 381	53800243... 297	63000700... 303
50130870... 439	50130937... 437	50131354... 169	50131532... 413	50132725... 381	53800244... 297	63000701... 303
50130871... 28	50130938... 437	50131355... 169	50131534... 379	50132726... 381	53800245... 295	63000702... 303
50130871... 37	50130939... 437	50131356... 169	50131534... 448	50132727... 450	53800246... 295	63000703... 303
50130871... 41	50130940... 437	50131357... 169	50131549... 67	50132728... 450	53800247... 295	63000704... 303
50130871... 59	50130941... 441	50131358... 170	50131550... 68	50132729... 450	53800248... 296	63000705... 303
50130871... 120	50130942... 441	50131359... 170	50131551... 67	50132730... 450	53800249... 296	63000706... 303
50130871... 141	50130943... 441	50131360... 170	50131552... 68	50132799... 381	53800250... 296	63000707... 303
50130871... 150	50130944... 441	50131361... 170	50131553... 68	50132800... 381	63000000... 322	63000720... 304
50130871... 171	50130945... 441	50131362... 170	50131554... 67	50132899... 381	63000002... 322	63000720... 313
50130871... 183	50130946... 441	50131363... 170	50131555... 64	50132900... 381	63000004... 322	63000720... 315
50130871... 185	50130990... 446	50131364... 170	50131556... 64	50132913... 417	63000006... 322	63000721... 304
50130871... 439	50130993... 446	50131365... 167	50131572... 40	50132914... 417	63000100... 302	63000721... 313
50130872... 439	50130994... 446	50131366... 167	50131580... 40	50132915... 417	63000101... 302	63000721... 315
50130873... 439	50130998... 439	50131367... 167	50131604... 160	50132916... 417	63000102... 302	63000722... 304

63000722...313	63001050...323	66001500...272	66043600...272	66076700...275	66501200...261	66502300...265
63000722...315	63001051...323	66001500...273	66043700...272	66077100...279	66501200...263	66502301...262
63000723...304	63001052...323	66001500...273	66046100...272	66077200...279	66501200...263	66502301...262
63000723...313	63001053...323	66001500...274	66046200...272	66078100...279	66501200...264	66502301...262
63000723...315	63001054...323	66001500...275	66046300...272	66078200...279	66501200...264	66502500...261
63000724...304	63001055...323	66001600...272	66046500...272	66500100...267	66501200...265	66502500...263
63000724...313	63001056...323	66001600...272	66046600...272	66500100...267	66501200...265	66502500...263
63000724...315	63001057...323	66001600...273	66046700...272	66500100...268	66501201...261	66502500...264
63000725...304	63001070...323	66001600...273	66047100...278	66500100...268	66501201...261	66502500...265
63000725...313	63001071...323	66001600...274	66047200...278	66500100...268	66501201...261	66502501...261
63000725...315	63001076...323	66001600...275	66053100...273	66500100...268	66501300...262	66502501...261
63000740...316	63001077...323	66001700...272	66053200...273	66500100...268	66501300...263	66502600...262
63000741...316	63001100...323	66001700...272	66053300...273	66500100...269	66501300...263	66502600...263
63000742...316	63001101...323	66001700...273	66053500...273	66500100...269	66501300...264	66502600...263
63000743...316	63001102...323	66001700...273	66053600...273	66500100...269	66501300...264	66502600...264
63000749...316	63001103...323	66001700...274	66053700...273	66500100...269	66501300...265	66502600...265
63000750...316	63001104...323	66001700...275	66054100...273	66500100...277	66501300...265	66502601...262
63000751...316	63001105...323	66002100...272	66054200...273	66500100...278	66501301...262	66502601...262
63000752...316	63001106...323	66002100...272	66054300...273	66500100...278	66501301...262	66502700...262
63000753...316	63001107...323	66002100...273	66054500...273	66500100...278	66501301...262	66502700...263
63000754...316	63001120...323	66002100...273	66054600...273	66500100...278	66501400...284	66502700...263
63000770...308	63001121...323	66002100...274	66054700...273	66500100...278	66501400...285	66502700...264
63000771...308	63001126...323	66002100...274	66055100...273	66500100...279	66501400...286	66502700...265
63000772...308	63001127...323	66002100...275	66055200...273	66500100...279	66501401...284	66502701...262
63000773...310	63001150...324	66002100...275	66055300...273	66500200...268	66501401...284	66502701...262
63000774...308	63001151...324	66002200...272	66055500...273	66500200...268	66501500...261	66533000...284
63000774...310	63001152...324	66002200...272	66055600...273	66500200...268	66501500...263	66533001...284
63000774...311	63001153...324	66002200...273	66055700...273	66500200...268	66501500...263	66533002...284
63000775...308	63001154...324	66002200...273	66056100...273	66500200...268	66501500...264	66533100...261
63000778...311	63001155...324	66002200...274	66056200...273	66500200...268	66501500...265	66533101...261
63000779...311	63001156...324	66002200...274	66056300...273	66500200...268	66501501...261	66533102...261
63000790...321	63001157...324	66002200...275	66056500...273	66500200...269	66501501...261	66533200...261
63000791...321	63002000...325	66002200...275	66056600...273	66500200...269	66501600...261	66533201...261
63000792...321	63002001...325	66002300...272	66056700...273	66500200...269	66501600...263	66533202...261
63000793...321	63002002...325	66002300...272	66057100...278	66500200...269	66501600...263	66533300...262
63000794...321	63002003...325	66002300...273	66057200...278	66500200...277	66501600...264	66533301...262
63000795...321	63002010...325	66002300...273	66058100...278	66500200...278	66501600...265	66533302...262
63000796...321	63002011...325	66002300...274	66058200...278	66500200...278	66501601...261	66533400...284
63000797...321	63002012...325	66002300...274	66063100...274	66500200...278	66501601...261	66533401...284
63000798...321	63002013...325	66002300...275	66063200...274	66500200...278	66501700...262	66533402...284
63000799...321	63002020...325	66002300...275	66063300...274	66500200...279	66501700...263	66533500...261
63000800...321	63002021...325	66002500...272	66063500...274	66500200...279	66501700...263	66533501...261
63000843...303	63002050...325	66002500...272	66063600...274	66500200...279	66501700...264	66533502...261
63000843...304	63002051...325	66002500...273	66063700...274	66500201...268	66501700...265	66533600...261
63000843...306	63002052...325	66002500...273	66064100...274	66500201...268	66501701...262	66533601...261
63000843...313	63002053...325	66002500...274	66064200...274	66500201...268	66501701...262	66533602...261
63000843...314	63002060...325	66002500...275	66064300...274	66500201...268	66502000...284	66533700...262
63000843...316	63002061...325	66002600...272	66065100...274	66500201...268	66502000...285	66533701...262
63000844...303	63002062...325	66002600...272	66065200...274	66500201...268	66502000...286	66533702...262
63000844...313	63002063...325	66002600...273	66065300...274	66500201...268	66502001...284	66534101...261
63000844...314	63002100...326	66002600...273	66066100...274	66500201...269	66502001...284	66534201...261
63000845...304	63002101...326	66002600...274	66066200...274	66500201...269	66502100...261	66534301...262
63000845...306	66001100...271	66002600...275	66066300...274	66500201...269	66502100...263	66535101...261
63000845...313	66001100...272	66002700...272	66066500...274	66500201...269	66502100...263	66535201...261
63000846...304	66001100...273	66002700...272	66066600...274	66500201...277	66502100...264	66535301...262
63000846...313	66001100...273	66002700...273	66066700...274	66500201...278	66502100...264	66536000...284
63000846...315	66001100...274	66002700...273	66067100...278	66500201...278	66502100...265	66536001...284
63000847...316	66001100...274	66002700...274	66067200...278	66500201...278	66502100...265	66536002...284
63000880...306	66001100...275	66002700...275	66068100...278	66500201...278	66502101...261	66536100...261
63000881...306	66001100...275	66033100...271	66068200...279	66500201...279	66502101...261	66536101...261
63000882...306	66001200...272	66033200...272	66073100...275	66500201...279	66502101...261	66536102...261
63000883...306	66001200...272	66033300...272	66073200...275	66500201...279	66502200...262	66536200...262
63000884...306	66001200...273	66033500...271	66073300...275	66501000...284	66502200...263	66536201...262
63001000...323	66001200...273	66033600...272	66073500...275	66501000...285	66502200...263	66536202...262
63001001...323	66001200...274	66033700...272	66073600...275	66501000...286	66502200...264	66536300...262
63001002...323	66001200...274	66036100...272	66073700...275	66501001...284	66502200...264	66536301...262
63001003...323	66001200...275	66036200...272	66074100...275	66501001...284	66502200...265	66536302...262
63001004...323	66001200...275	66036300...272	66074200...275	66501100...261	66502200...265	66536500...261
63001005...323	66001300...272	66036500...272	66074300...275	66501100...263	66502201...261	66536501...261
63001006...323	66001300...272	66036600...272	66075100...275	66501100...263	66502201...262	66536502...261
63001007...323	66001300...273	66036700...272	66075200...275	66501100...264	66502201...262	66536600...262
63001020...323	66001300...273	66037100...277	66075300...275	66501100...264	66502300...262	66536601...262
63001021...323	66001300...274	66037200...277	66076100...275	66501100...265	66502300...263	66536602...262
63001025...323	66001300...274	66043100...272	66076200...275	66501100...265	66502300...263	66536700...262
63001026...323	66001300...275	66043200...272	66076300...275	66501101...261	66502300...264	66536701...262
63001027...323	66001300...275	66043300...272	66076500...275	66501101...261	66502300...264	66536702...262
63001030...323	66001500...271	66043500...272	66076600...275	66501101...261	66502300...265	66537100...267

66537101...267	66576200...265	68000130...248	68002124...247	68007113...245	68017115...250	68090210...257
66537102...268	66576300...265	68000131...246	68002125...247	68007115...245	68017116...251	68090212...256
66537200...268	66576500...265	68000133...244	68002127...247	68007116...245	68017118...251	68090212...257
66537201...268	66576600...265	68000133...246	68002128...247	68007118...245	68020101...252	68090213...256
66537202...268	66576700...265	68000133...248	68002130...247	68008101...244	68020103...252	68090213...257
66538101...268	66577100...269	68000134...244	68002131...246	68008103...244	68020104...252	68090215...256
66538102...268	66577200...269	68000134...247	68002133...246	68008104...244	68020106...252	68090215...257
66538201...268	66578100...269	68000134...248	68002134...247	68008106...244	68020107...252	68090216...256
66538202...268	66578200...269	68000136...244	68002136...247	68008107...244	68020109...252	68090216...257
66553000...285	66900012...299	68000136...247	68002137...247	68008109...244	68020110...252	68090218...256
66553100...263	66900013...299	68000136...248	68002139...247	68008110...245	68020112...252	68090218...257
66553200...263	66900021...299	68000137...244	68003101...248	68008112...245	68020113...252	68091201...256
66553300...263	66900022...299	68000137...247	68003103...248	68008113...245	68020115...252	68091202...256
66553400...285	66900023...299	68000137...248	68003104...248	68008115...245	68020116...252	68091203...256
66553500...263	66900024...299	68000139...244	68003106...248	68008116...245	68020118...252	68091204...256
66553600...263	66900025...299	68000139...247	68003107...248	68008118...245	68021101...252	68091206...256
66553700...263	66900026...299	68000139...248	68003109...248	68009301...249	68021103...252	68091207...256
66554100...263	66900027...299	68000301...249	68003110...248	68009302...249	68021104...252	68091209...256
66554200...263	66900028...299	68000302...249	68003112...248	68009303...249	68021106...252	68091210...256
66554300...263	68000101...244	68000303...249	68003113...248	68009304...249	68021107...252	68091212...256
66554500...263	68000101...246	68000304...249	68003115...248	68009306...249	68021109...252	68091213...256
66554600...263	68000101...248	68000306...249	68003116...248	68009307...249	68021110...252	68091215...256
66554700...263	68000103...244	68000307...249	68003118...248	68009309...249	68021112...252	68091216...256
66555100...263	68000103...246	68000309...249	68003119...248	68009310...249	68021113...252	68091218...256
66555200...263	68000103...248	68000310...249	68003121...248	68009312...249	68021115...252	68092201...257
66555300...263	68000104...244	68000312...249	68003122...248	68009313...249	68021116...252	68092202...257
66555500...263	68000104...247	68000313...249	68003124...248	68009315...249	68021118...252	68092203...257
66555600...263	68000104...248	68000315...249	68003125...248	68009316...249	68022103...251	68092204...257
66555700...263	68000316...244	68000316...249	68003127...248	68009318...249	68022104...251	68092206...257
66556000...285	68000106...247	68000318...249	68003128...248	68009319...249	68022106...251	68092207...257
66556100...263	68000106...248	68000319...249	68003130...248	68009321...249	68022107...251	68092209...257
66556200...263	68000107...244	68000321...249	68003133...248	68009322...249	68022109...251	68092210...257
66556300...263	68000107...247	68000322...249	68003134...248	68009324...249	68022110...251	68092212...257
66556500...263	68000107...248	68000324...249	68003136...248	68009325...249	68022112...251	68092213...257
66556600...263	68000109...244	68000325...249	68003137...248	68009327...249	68022113...251	68092215...257
66556700...263	68000109...247	68000327...249	68003139...248	68009328...249	68022115...251	68092216...257
66557100...268	68000109...248	68000328...249	68004103...246	68009330...249	68022116...251	68092218...257
66557200...268	68000110...245	68000330...249	68004104...246	68010103...250	68022118...251	68094403...256
66558100...268	68000110...247	68001101...244	68004106...246	68010104...250	68023103...251	68094404...256
66558200...268	68000110...248	68001103...244	68004107...246	68010106...250	68023104...251	68094406...256
66563000...286	68000112...245	68001104...244	68004109...246	68010107...250	68023106...251	68094407...256
66563100...264	68000112...247	68001106...244	68004110...246	68010109...250	68023107...251	68094409...256
66563200...264	68000112...248	68001107...244	68004112...246	68010110...250	68023109...251	68094410...256
66563300...264	68000113...245	68001109...244	68004113...246	68010112...250	68023110...251	68094412...256
66563400...286	68000113...247	68001110...245	68004115...246	68010113...250	68023112...251	68095403...256
66563500...264	68000113...248	68001112...245	68004116...246	68010115...251	68023113...251	68095404...256
66563600...264	68000115...245	68001113...245	68004118...246	68010116...251	68023115...251	68095406...256
66563700...264	68000115...247	68001115...245	68005103...246	68010118...251	68023116...251	68095407...256
66564100...264	68000115...248	68001116...245	68005104...246	68012103...250	68023118...251	68095409...256
66564200...264	68000116...245	68001118...245	68005106...246	68012104...250	68040207...252	68095410...256
66564300...264	68000116...247	68001119...245	68005107...246	68012106...250	68040208...252	68095412...256
66565100...264	68000116...248	68001121...245	68005109...246	68012107...250	68040209...252	S991002...344
66565200...264	68000118...245	68001122...245	68005110...246	68012109...250	68040210...252	S991004...344
66565300...264	68000118...247	68001124...245	68005112...246	68012110...250	68040212...252	S991005...344
66566000...286	68000118...248	68001125...245	68005113...246	68012112...250	68040213...253	S991007...344
66566100...264	68000119...245	68001127...245	68005115...246	68012113...250	68040215...253	S991008...344
66566200...264	68000119...247	68001128...245	68005116...246	68012115...251	68042206...252	S991009...344
66566300...264	68000119...248	68001130...245	68005118...246	68012116...251	68042207...252	S991015...344
66566500...264	68000121...245	68001133...244	68006101...244	68012118...251	68042209...252	S991016...344
66566600...264	68000121...247	68001134...244	68006103...244	68016103...250	68042210...252	S991017...344
66566700...264	68000121...248	68001136...244	68006104...244	68016104...250	68042212...252	S991018...344
66567100...269	68000122...245	68001137...244	68006106...244	68016106...250	68042213...253	S991019...344
66567200...269	68000122...247	68001139...244	68006107...244	68016107...250	68042215...253	S991020...345
66568100...269	68000122...248	68002101...246	68006109...244	68016109...250	68090201...256	S991021...345
66568200...269	68000124...245	68002103...246	68006110...245	68016110...250	68090201...257	S991022...345
66573100...265	68000124...247	68002104...247	68006112...245	68016112...250	68090202...256	S991023...345
66573200...265	68000124...248	68002106...247	68006113...245	68016113...250	68090202...257	S991024...345
66573300...265	68000125...245	68002107...247	68006115...245	68016115...250	68090203...256	S991025...345
66573500...265	68000125...247	68002109...247	68006116...245	68016116...251	68090203...257	S991026...345
66573600...265	68000125...248	68002110...247	68006118...245	68016118...251	68090204...256	S991027...345
66573700...265	68000127...245	68002112...247	68007101...244	68017103...250	68090204...257	S991028...345
66574100...265	68000127...247	68002113...247	68007103...244	68017104...250	68090206...256	S991030...345
66574200...265	68000127...248	68002115...247	68007104...244	68017106...250	68090206...257	S991031...345
66574300...265	68000128...245	68002116...247	68007106...244	68017107...250	68090207...256	S991032...345
66575100...265	68000128...247	68002118...247	68007107...244	68017109...250	68090207...257	S991033...345
66575200...265	68000128...248	68002119...247	68007109...244	68017110...250	68090209...256	S991038...345
66575300...265	68000130...245	68002121...247	68007110...245	68017112...250	68090209...257	RS 485
66576100...265	68000130...247	68002122...247	68007112...245	68017113...250	68090210...256	interface...369

PART INDEX BY TYPE DESIGNATION

AC-ABF70	281	AC-LDH-12WF	445	AMS 304i 300 H	212
AC-AH-A	304	AC-LL-R	306	AMS 308i 40	212
AC-AH-A	313	AC-LL-R40	306	AMS 308i 40 H	212
AC-AH-A	315	AC-MK1	281	AMS 308i 120	212
AC-AH-F1J2	304	AC-MK1	287	AMS 308i 120 H	212
AC-AH-F1J2	313	AC-MP1-S400	308	AMS 308i 200	212
AC-AH-F1J2	315	AC-MP3-S400	308	AMS 308i 200 H	212
AC-AH-F2J2	304	AC-MSI-CFG1	340	AMS 308i 300	212
AC-AH-F2J2	313	AC-MSI-TC	340	AMS 308i 300 H	212
AC-AH-F2J2	315	AC-MSI-TCS	340	AMS 335i 40	211
AC-AH-F4	304	AC-MSI-USB	340	AMS 335i 40 H	211
AC-AH-F4	313	AC-PB15-L200	316	AMS 335i 120	211
AC-AH-F4	315	AC-PB30-L200	316	AMS 335i 120 H	211
AC-AH-F4J2-TK	304	AC-PB40-L200	316	AMS 335i 200	211
AC-AH-F4J2-TK	313	AC-PB60-L200	316	AMS 335i 200 H	211
AC-AH-F4J2-TK	315	AC-PB500-L200	316	AMS 335i 300	211
AC-AHL-A	316	AC-P-ERS	321	AMS 335i 300 H	211
AC-AHL-F4J2-TK	316	AC-PL	306	AMS 338i 40	211
AC-AHL-RM	316	AC-PLM-8	304	AMS 338i 40 H	211
AC-AHL-S	316	AC-PLM-8	306	AMS 338i 120	211
AC-AH-S	304	AC-PLM-8	313	AMS 338i 120 H	212
AC-AH-S	313	AC-PLP-8	303	AMS 338i 200	212
AC-AH-S	315	AC-PLP-8	313	AMS 338i 200 H	212
AC-ALM-M	259	AC-PLP-8	314	AMS 338i 300	212
AC-ALM-M	465	AC-SA-ERS	321	AMS 338i 300 H	212
AC-AL-R	306	AC-SBO-ERS	321	AMS 348i 40	212
AC-A-M20-12NPT	303	AC-SCM5U	281	AMS 348i 40 H	212
AC-A-M20-12NPT	304	AC-SCM5U-BT	281	AMS 348i 40 H SSI	213
AC-A-M20-12NPT	306	AC-SCM5U-BT-L	281	AMS 348i 40 SSI	213
AC-A-M20-12NPT	313	AC-SCM6U	281	AMS 348i 120	212
AC-A-M20-12NPT	314	AC-SCM6U-BT	281	AMS 348i 120 H	212
AC-A-M20-12NPT	316	AC-SCM6U-BT-L	281	AMS 348i 120 H SSI	213
AC-AN-A	303	AC-SCM8U	259	AMS 348i 120 SSI	213
AC-AN-AL	303	AC-SCM8U-BT-L	259	AMS 348i 200	212
AC-AN-ASH	303	AC-SEPL-S4xx	308	AMS 348i 200 H	212
AC-AN-F1J2	303	AC-SEPL-S4xx	310	AMS 348i 200 H SSI	213
AC-AN-F2J2	303	AC-SEPL-S4xx	311	AMS 348i 200 SSI	213
AC-AN-F4	303	AC-SL-ERS	321	AMS 348i 300	212
AC-AN-S	303	AC-SL-R	306	AMS 348i 300 H	213
AC-AN-SL	303	AC-S-S420	311	AMS 348i 300 H SSI	213
AC-AP-ERS	321	AC-STOP-ERS	321	AMS 348i 300 SSI	213
Access Point f. IT	384	AC-STRO-35-ERS	321	AMS 355i 40	211
Access Point f. IT	392	AC-STRO-100-ERS	321	AMS 355i 40 H	211
Access Point f. IT	393	AC-TR14/30	259	AMS 355i 120	211
AC D08M-CS	450	AC-TR20/40	259	AMS 355i 120 H	211
AC D12M-CS	450	AMS 300i 40	213	AMS 355i 200	211
AC-D15E-GF	445	AMS 300i 40 H	213	AMS 355i 200 H	211
AC D18M-CS	450	AMS 300i 120	213	AMS 355i 300	211
AC D30M-CS	450	AMS 300i 120 H	213	AMS 355i 300 H	211
AC-ENCLF-ERS	321	AMS 300i 200	213	AMS 358i 40	212
AC-Exit-PB	316	AMS 300i 200 H	213	AMS 358i 40 H	212
AC-H-S400	308	AMS 300i 300	213	AMS 358i 120	212
AC-H-S400-S	308	AMS 300i 300 H	213	AMS 358i 120 H	212
AC-H-S410	310	AMS 301i 40	213	AMS 358i 200	212
AC-H-S420	311	AMS 301i 40 H	213	AMS 358i 200 H	212
AC-KL-AH	304	AMS 301i 120	213	AMS 358i 300	212
AC-KL-AH	313	AMS 301i 120 H	213	AMS 358i 300 H	212
AC-KL-AH	315	AMS 301i 200	213	AMS 384i 40	212
AC-KL-AHL	316	AMS 301i 200 H	213	AMS 384i 40 H	212
AC-KT10-ERS	321	AMS 301i 300	213	AMS 384i 120	212
AC-KT20-ERS	321	AMS 301i 300 H	213	AMS 384i 120 H	212
AC-L300-PB30	319	AMS 304i 40	212	AMS 384i 200	212
AC-L300-PB40	319	AMS 304i 40 H	212	AMS 384i 200 H	212
AC-L300-PB50	319	AMS 304i 120	212	AMS 384i 300	212
AC-L300-PB60	319	AMS 304i 120 H	212	AMS 384i 300 H	212
AC-L300-SCA	319	AMS 304i 200	212	ARH 10	465
AC-L300-UCA	319	AMS 304i 200 H	212	ARH 46	465
AC-LDH-12GF	445	AMS 304i 300	212	ARH 46C	465

ARH 49C	465	BCL 21 S M 210	354	BCL 300i R1 F 102	358
ARH 96	465	BCL 21 S M 212	353	BCL 300i R1 F 102 D	358
ASM1/1	341	BCL 21 S M 300	354	BCL 300i R1 J 100	358
ASM1/2	341	BCL 21 S M 302	353	BCL 300i R1 M 100	358
ASM1E/1	341	BCL 21 S M 310	354	BCL 300i R1 M 100 D	358
ASM1E/2	341	BCL 21 S M 312	353	BCL 300i R1 M 102	358
ASM1E-m/1	341	BCL 21 S N 200	354	BCL 300i R1 M 102 D	358
ASM1E-m/2	341	BCL 21 S N 202	353	BCL 300i R1 N 100	358
ASM2E/1	342	BCL 21 S N 210	354	BCL 300i R1 N 100 D	358
ASM2E/2	342	BCL 21 S N 212	353	BCL 300i R1 N 102	358
ASM2E-m/1	342	BCL 21 S N 300	354	BCL 300i R1 N 102 D	358
ASM2E-m/2	342	BCL 21 S N 302	353	BCL 300i SF 100	358
ASM-SWC	342	BCL 21 S N 310	354	BCL 300i SF 100 D	358
Base f. HS 6578	395	BCL 21 S N 312	353	BCL 300i SF 100 D H	358
Base f. IT 1902	392	BCL 22 R1 F 200	356	BCL 300i SF 102	358
Base f. IT 1911	393	BCL 22 R1 F 202	355	BCL 300i SF 102 D	358
Base Hx520	399	BCL 22 R1 F 210	356	BCL 300i SF 102 D H	358
Base IT 1452g	383	BCL 22 R1 F 212	355	BCL 300i SL 100	358
BCB 8 010	220	BCL 22 R1 F 300	356	BCL 300i SL 100 D	358
BCB 8 010	466	BCL 22 R1 F 302	355	BCL 300i SL 100 D H	358
BCB 8 020	220	BCL 22 R1 F 310	356	BCL 300i SL 102	358
BCB 8 020	466	BCL 22 R1 F 312	355	BCL 300i SL 102 D	358
BCB 8 050	220	BCL 22 R1 M 200	355	BCL 300i SL 102 D H	358
BCB 8 050	466	BCL 22 R1 M 202	355	BCL 300i SM 100	358
BCB 8 120	466	BCL 22 R1 M 210	356	BCL 300i SM 100 D	358
BCB 010	217	BCL 22 R1 M 212	355	BCL 300i SM 100 D H	358
BCB 010	466	BCL 22 R1 M 300	356	BCL 300i SM 102	358
BCB 020	217	BCL 22 R1 M 302	355	BCL 300i SM 102 D	358
BCB 020	466	BCL 22 R1 M 310	356	BCL 300i SM 102 D H	358
BCB 050	217	BCL 22 R1 M 312	355	BCL 300i SN 100	358
BCB 050	466	BCL 22 R1 N 200	355	BCL 300i SN 100 D	358
BCL 8 SM 100	351	BCL 22 R1 N 202	355	BCL 300i SN 100 D H	358
BCL 8 SM 102	351	BCL 22 R1 N 210	355	BCL 300i SN 102	358
BCL 8 SM 550	351	BCL 22 R1 N 212	355	BCL 300i SN 102 D	358
BCL 8 SM 552	351	BCL 22 R1 N 300	355	BCL 300i SN 102 D H	358
BCL 8 SN 100	351	BCL 22 R1 N 302	355	BCL 301i OF 100	363
BCL 8 SN 102	351	BCL 22 R1 N 310	355	BCL 301i OF 100 D	363
BCL 8 SN 550	351	BCL 22 R1 N 312	355	BCL 301i OF 100 D H	363
BCL 8 SN 552	351	BCL 22 S B 200	355	BCL 301i OL 100	363
BCL 21 R1 F 200	354	BCL 22 S B 202	355	BCL 301i OL 100 D	363
BCL 21 R1 F 202	354	BCL 22 S B 300	355	BCL 301i OL 100 D H	363
BCL 21 R1 F 210	354	BCL 22 S B 302	355	BCL 301i OM 100	362
BCL 21 R1 F 212	354	BCL 22 S F 200	355	BCL 301i OM 100 D	363
BCL 21 R1 F 300	354	BCL 22 S F 202	355	BCL 301i OM 100 D H	362
BCL 21 R1 F 302	354	BCL 22 S F 210	355	BCL 301i R1 F 100	362
BCL 21 R1 F 310	354	BCL 22 S F 212	355	BCL 301i R1 F 100 D	362
BCL 21 R1 F 312	354	BCL 22 S F 300	355	BCL 301i R1 F 102	362
BCL 21 R1 M 200	354	BCL 22 S F 302	355	BCL 301i R1 F 102 D	362
BCL 21 R1 M 202	354	BCL 22 S F 310	355	BCL 301i R1 J 100	362
BCL 21 R1 M 210	354	BCL 22 S F 312	355	BCL 301i R1 M 100	362
BCL 21 R1 M 212	354	BCL 22 S M 200	355	BCL 301i R1 M 100 D	362
BCL 21 R1 M 300	354	BCL 22 S M 202	355	BCL 301i R1 M 102	362
BCL 21 R1 M 302	354	BCL 22 S M 210	355	BCL 301i R1 M 102 D	362
BCL 21 R1 M 310	354	BCL 22 S M 212	355	BCL 301i R1 N 100	362
BCL 21 R1 M 312	354	BCL 22 S M 300	355	BCL 301i R1 N 100 D	362
BCL 21 R1 M 200	354	BCL 22 S M 302	355	BCL 301i R1 N 102	362
BCL 21 R1 N 202	354	BCL 22 S M 310	355	BCL 301i R1 N 102 D	362
BCL 21 R1 N 210	354	BCL 22 S M 312	355	BCL 301i SF 100	362
BCL 21 R1 N 212	354	BCL 22 S N 200	355	BCL 301i SF 100 D	362
BCL 21 R1 N 300	354	BCL 22 S N 202	354	BCL 301i SF 100 D H	362
BCL 21 R1 N 302	354	BCL 22 S N 210	355	BCL 301i SF 102	362
BCL 21 R1 N 310	354	BCL 22 S N 212	354	BCL 301i SF 102 D	362
BCL 21 R1 N 312	354	BCL 22 S N 300	355	BCL 301i SF 102 D H	362
BCL 21 S B 200	354	BCL 22 S N 302	355	BCL 301i SL 100	362
BCL 21 S B 202	353	BCL 22 S N 310	355	BCL 301i SL 100 D	362
BCL 21 S B 300	354	BCL 22 S N 312	355	BCL 301i SL 100 D H	362
BCL 21 S B 302	353	BCL 300i OF 100	359	BCL 301i SL 102	362
BCL 21 S F 200	354	BCL 300i OF 100 D	359	BCL 301i SL 102 D	362
BCL 21 S F 202	353	BCL 300i OF 100 D H	359	BCL 301i SL 102 D H	362
BCL 21 S F 210	354	BCL 300i OL 100	359	BCL 301i SM 100	362
BCL 21 S F 212	354	BCL 300i OL 100 D	359	BCL 301i SM 100 D	362
BCL 21 S F 300	354	BCL 300i OL 100 D H	359	BCL 301i SM 100 D H	362
BCL 21 S F 302	354	BCL 300i OM 100	359	BCL 301i SM 102	362
BCL 21 S F 310	354	BCL 300i OM 100 D	359	BCL 301i SM 102 D	362
BCL 21 S F 312	354	BCL 300i OM 100 D H	359	BCL 301i SM 102 D H	362
BCL 21 S M 200	354	BCL 300i R1 F 100	358	BCL 301i SN 100	362
BCL 21 S M 202	353	BCL 300i R1 F 100 D	358	BCL 301i SN 100 D	362

BCL 301i SN 100 D H	362	BCL 308i SF 102 D H	363	BCL 358i R1 F 102 D	365
BCL 301i SN 102	361	BCL 308i SL 100	363	BCL 358i R1 J 100	365
BCL 301i SN 102 D	362	BCL 308i SL 100 D	363	BCL 358i R1 M 100	365
BCL 301i SN 102 D H	361	BCL 308i SL 100 D H	363	BCL 358i R1 M 100 D	365
BCL 304i OF 100	361	BCL 308i SL 102	363	BCL 358i R1 M 102	365
BCL 304i OF 100 D	361	BCL 308i SL 102 D	363	BCL 358i R1 M 102 D	365
BCL 304i OF 100 D H	361	BCL 308i SL 102 D H	363	BCL 358i R1 N 100	365
BCL 304i OL 100	361	BCL 308i SM 100	363	BCL 358i R1 N 100 D	365
BCL 304i OL 100 D	361	BCL 308i SM 100 D	363	BCL 358i R1 N 102	365
BCL 304i OL 100 D H	361	BCL 308i SM 100 D H	363	BCL 358i R1 N 102 D	365
BCL 304i OM 100	361	BCL 308i SM 102	363	BCL 358i SF 100	365
BCL 304i OM 100 D	361	BCL 308i SM 102 D	363	BCL 358i SF 100 D	365
BCL 304i OM 100 D H	361	BCL 308i SM 102 D H	363	BCL 358i SF 100 D H	365
BCL 304i R1 F 100	361	BCL 308i SN 100	363	BCL 358i SF 102	364
BCL 304i R1 F 100 D	361	BCL 308i SN 100 D	363	BCL 358i SF 102 D	364
BCL 304i R1 F 102	361	BCL 308i SN 100 D H	363	BCL 358i SF 102 D H	364
BCL 304i R1 F 102 D	361	BCL 308i SN 102	363	BCL 358i SL 100	365
BCL 304i R1 J 100	361	BCL 308i SN 102 D	363	BCL 358i SL 100 D	365
BCL 304i R1 M 100	361	BCL 308i SN 102 D H	363	BCL 358i SL 100 D H	365
BCL 304i R1 M 100 D	361	BCL 348i OF 100	360	BCL 358i SL 102	364
BCL 304i R1 M 102	361	BCL 348i OF 100 D	360	BCL 358i SL 102 D	364
BCL 304i R1 M 102 D	361	BCL 348i OF 100 D H	360	BCL 358i SL 102 D H	364
BCL 304i R1 N 100	361	BCL 348i OL 100	360	BCL 358i SM 100	365
BCL 304i R1 N 100 D	361	BCL 348i OL 100 D	360	BCL 358i SM 100 D	365
BCL 304i R1 N 102	361	BCL 348i OL 100 D H	360	BCL 358i SM 100 D H	364
BCL 304i R1 N 102 D	361	BCL 348i OM 100	360	BCL 358i SM 102	364
BCL 304i SF 100	361	BCL 348i OM 100 D	360	BCL 358i SM 102 D	364
BCL 304i SF 100 D	361	BCL 348i OM 100 D H	360	BCL 358i SM 102 D H	364
BCL 304i SF 100 D H	361	BCL 348i R1 F 100	360	BCL 358i SN 100	364
BCL 304i SF 102	360	BCL 348i R1 F 100 D	360	BCL 358i SN 100 D	364
BCL 304i SF 102 D	360	BCL 348i R1 F 102	360	BCL 358i SN 100 D H	364
BCL 304i SF 102 D H	360	BCL 348i R1 F 102 D	360	BCL 358i SN 102	364
BCL 304i SL 100	361	BCL 348i R1 J 100	360	BCL 358i SN 102 D	364
BCL 304i SL 100 D	361	BCL 348i R1 M 100	360	BCL 358i SN 102 D H	364
BCL 304i SL 100 D H	361	BCL 348i R1 M 100 D	360	BCL 500i OF 100	370
BCL 304i SL 102	360	BCL 348i R1 M 102	360	BCL 500i OF 100 H	370
BCL 304i SL 102 D	360	BCL 348i R1 M 102 D	360	BCL 500i OL 100	370
BCL 304i SL 102 D H	360	BCL 348i R1 N 100	360	BCL 500i OL 100 H	370
BCL 304i SM 100	361	BCL 348i R1 N 100 D	360	BCL 500i OM 100	370
BCL 304i SM 100 D	361	BCL 348i R1 N 102	359	BCL 500i OM 100 H	370
BCL 304i SM 100 D H	361	BCL 348i R1 N 102 D	360	BCL 500i ON 100	370
BCL 304i SM 102	360	BCL 348i SF 100	359	BCL 500i ON 100 H	370
BCL 304i SM 102 D	360	BCL 348i SF 100 D	359	BCL 500i SF 100	370
BCL 304i SM 102 D H	360	BCL 348i SF 100 D H	359	BCL 500i SF 100 H	370
BCL 304i SN 100	361	BCL 348i SF 102	359	BCL 500i SF 102	370
BCL 304i SN 100 D	361	BCL 348i SF 102 D	359	BCL 500i SF 102 H	370
BCL 304i SN 100 D H	360	BCL 348i SF 102 D H	359	BCL 500i SL 102	370
BCL 304i SN 102	360	BCL 348i SL 100	359	BCL 500i SL 102 H	370
BCL 304i SN 102 D	360	BCL 348i SL 100 D	359	BCL 500i SM 100	370
BCL 304i SN 102 D H	360	BCL 348i SL 100 D H	359	BCL 500i SM 100 H	370
BCL 308i OF 100	364	BCL 348i SL 102	359	BCL 500i SM 102	369
BCL 308i OF 100 D	364	BCL 348i SL 102 D	359	BCL 500i SM 102 H	369
BCL 308i OF 100 D H	364	BCL 348i SL 102 D H	359	BCL 500i SN 100	370
BCL 308i OL 100	364	BCL 348i SM 100	359	BCL 500i SN 100 H	370
BCL 308i OL 100 D	364	BCL 348i SM 100 D	359	BCL 500i SN 102	369
BCL 308i OL 100 D H	364	BCL 348i SM 100 D H	359	BCL 500i SN 102 H	369
BCL 308i OM 100	364	BCL 348i SM 102	359	BCL 501i OF 100	369
BCL 308i OM 100 D	364	BCL 348i SM 102 D	359	BCL 501i OF 100 H	369
BCL 308i OM 100 D H	364	BCL 348i SM 102 D H	359	BCL 501i OL 100	369
BCL 308i R1 F 100	364	BCL 348i SN 100	359	BCL 501i OL 100 H	369
BCL 308i R1 F 100 D	364	BCL 348i SN 100 D	359	BCL 501i OM 100	369
BCL 308i R1 F 102	364	BCL 348i SN 100 D H	359	BCL 501i OM 100 H	369
BCL 308i R1 F 102 D	364	BCL 348i SN 102	359	BCL 501i ON 100	369
BCL 308i R1 J 100	364	BCL 348i SN 102 D	359	BCL 501i ON 100 H	369
BCL 308i R1 M 100	364	BCL 348i SN 102 D H	359	BCL 501i SF 100	369
BCL 308i R1 M 100 D	364	BCL 358i OF 100	365	BCL 501i SF 100 H	369
BCL 308i R1 M 102	363	BCL 358i OF 100 D	365	BCL 501i SF 102	369
BCL 308i R1 M 102 D	364	BCL 358i OF 100 D H	365	BCL 501i SF 102 H	369
BCL 308i R1 N 100	364	BCL 358i OL 100	365	BCL 501i SL 102	369
BCL 308i R1 N 100 D	364	BCL 358i OL 100 D	365	BCL 501i SL 102 H	369
BCL 308i R1 N 102	363	BCL 358i OL 100 D H	365	BCL 501i SM 100	369
BCL 308i R1 N 102 D	363	BCL 358i OM 100	365	BCL 501i SM 100 H	369
BCL 308i SF 100	363	BCL 358i OM 100 D	365	BCL 501i SM 102	369
BCL 308i SF 100 D	363	BCL 358i OM 100 D H	365	BCL 501i SM 102 H	369
BCL 308i SF 100 D H	363	BCL 358i R1 F 100	365	BCL 501i SN 100	369
BCL 308i SF 102	363	BCL 358i R1 F 100 D	365	BCL 501i SN 100 H	369
BCL 308i SF 102 D	363	BCL 358i R1 F 102	365	BCL 501i SN 102	369

BCL 501i SN 102 H.	369	BCL 558i SL 102.	373	BT 8.	198
BCL 504i OF 100.	372	BCL 558i SL 102 H.	373	BT 8.	200
BCL 504i OF 100 H.	372	BCL 558i SM 102.	373	BT 8.	447
BCL 504i OL 100.	372	BCL 558i SM 102 H.	373	BT 8-0.	450
BCL 504i OL 100 H.	372	BCL 558i SN 102.	373	BT 8-01.	220
BCL 504i OM 100.	372	BCL 558i SN 102 H.	373	BT 8-01.	450
BCL 504i OM 100 H.	372	BCL 604i OF 100.	375	BT 8-ARH.	451
BCL 504i ON 100.	372	BCL 604i OM 100.	375	BT-10NC60.	178
BCL 504i ON 100 H.	372	BCL 604i SF 102.	375	BT-10NC60.	236
BCL 504i SF 100.	372	BCL 604i SM 102.	375	BT-10NC60.	259
BCL 504i SF 100 H.	372	BCL 608i OF 100.	376	BT-10NC60.	451
BCL 504i SF 102.	371	BCL 608i OM 100.	376	BT-10NC64.	178
BCL 504i SF 102 H.	371	BCL 608i SF 102.	376	BT-10NC64.	236
BCL 504i SL 102.	371	BCL 608i SM 102.	376	BT-10NC64.	259
BCL 504i SL 102 H.	371	BCL 648i OF 100.	375	BT-10NC64.	451
BCL 504i SM 100.	371	BCL 648i OF 100 H.	375	BT-10NC65.	178
BCL 504i SM 100 H.	371	BCL 648i OM 100.	375	BT-10NC65.	236
BCL 504i SM 102.	371	BCL 648i OM 100 H.	375	BT-10NC65.	259
BCL 504i SM 102 H.	371	BCL 648i SF 102.	375	BT-10NC65.	451
BCL 504i SN 100.	371	BCL 648i SM 102.	375	BT 16.	447
BCL 504i SN 100 H.	371	BCL 900i SM 102.	378	BT 20-D10.	356
BCL 504i SN 102.	371	BCL 900i SN 102.	378	BT 20-D10.	448
BCL 504i SN 102 H.	371	BK7 KB-092-5000-4A Ex.	109	BT 20-D12.	356
BCL 508i OF 100.	373	BK7 KB-092-5000-4 Ex.	109	BT 20-D12.	448
BCL 508i OF 100 H.	373	BPS 8 SM 100-01.	218	BT 21.	450
BCL 508i OL 100.	373	BPS 8 SM 102-01.	218	BT 24.	447
BCL 508i OL 100 H.	373	BPS 300i SM 100.	215	BT 25.	59
BCL 508i OM 100.	373	BPS 300i SM 100 D.	215	BT 25.	81
BCL 508i OM 100 H.	373	BPS 300i SM 100 D H.	215	BT 25.	185
BCL 508i ON 100.	373	BPS 301i SM 100.	215	BT 25.	292
BCL 508i ON 100 H.	372	BPS 301i SM 100 D.	215	BT 25.	447
BCL 508i SF 100.	372	BPS 301i SM 100 D H.	215	BT 25-ARH.	451
BCL 508i SF 100 H.	372	BPS 304i SM 100.	215	BT 46.	70
BCL 508i SF 102.	372	BPS 304i SM 100 D.	215	BT 46.	283
BCL 508i SF 102 H.	372	BPS 304i SM 100 D H.	215	BT 46.	289
BCL 508i SL 102.	372	BPS 307i SM 100.	215	BT 46.	291
BCL 508i SL 102 H.	372	BPS 307i SM 100 D.	215	BT 46.	447
BCL 508i SM 100.	372	BPS 307i SM 100 D H.	215	BT 56.	217
BCL 508i SM 100 H.	372	BPS 348i SM 100.	215	BT 56.	225
BCL 508i SM 102.	372	BPS 348i SM 100 D.	215	BT 56.	367
BCL 508i SM 102 H.	372	BPS 348i SM 100 D H.	215	BT 56.	375
BCL 508i SN 100.	372	BT-2HF.	258	BT 56.	377
BCL 508i SN 100 H.	372	BT-2HF-G.	258	BT 56.	391
BCL 508i SN 102.	372	BT-2HF-GS.	258	BT 56.	433
BCL 508i SN 102 H.	372	BT-2HF-S.	258	BT 56.	448
BCL 548i OF 100.	371	BT-2L.	178	BT 56 - 1.	367
BCL 548i OF 100 H.	371	BT-2L.	236	BT 56 - 1.	448
BCL 548i OL 100.	371	BT-2L.	258	BT 56 - V.	448
BCL 548i OL 100 H.	371	BT-2L.	447	BT 57.	451
BCL 548i OM 100.	371	BT-2L-HG.	258	BT 59.	375
BCL 548i OM 100 H.	371	BT 002M.5.	28	BT 59.	377
BCL 548i ON 100.	371	BT 002M.5.	447	BT 59.	450
BCL 548i ON 100 H.	371	BT-2P40.	178	BT 64.	447
BCL 548i SF 100.	371	BT-2P40.	236	BT 66.	447
BCL 548i SF 100 H.	371	BT-2P40.	259	BT 78.	447
BCL 548i SF 102.	370	BT-2P40.	281	BT 85.	447
BCL 548i SF 102 H.	370	BT-2P40.	450	BT 92.	109
BCL 548i SL 102.	370	BT-2R1.	178	BT 92.	447
BCL 548i SL 102 H.	370	BT-2R1.	236	BT 95.	52
BCL 548i SM 100.	371	BT-2S.	447	BT 95.	84
BCL 548i SM 100 H.	371	BT-2SB10.	259	BT 95.	113
BCL 548i SM 102.	370	BT-2SB10-S.	259	BT 95.	141
BCL 548i SM 102 H.	370	BT-2UM60.	447	BT 95.	447
BCL 548i SN 100.	371	BT-2Z.	178	BT 96.	73
BCL 548i SN 100 H.	371	BT-2Z.	236	BT 96.	91
BCL 548i SN 102.	370	BT-2Z.	258	BT 96.	114
BCL 548i SN 102 H.	370	BT-2Z.	448	BT 96.	205
BCL 558i OF 100.	373	BT 3.	447	BT 96.	447
BCL 558i OF 100 H.	373	BT 3.1.	447	BT 96.1.	447
BCL 558i OL 100.	373	BT 3.2.	447	BT 96.4.	447
BCL 558i OL 100 H.	373	BT 3.5.	447	BT 200M.5.	41
BCL 558i OM 100.	373	BT 3B.	37	BT 200M.5.	63
BCL 558i OM 100 H.	373	BT 3B.	183	BT 200M.5.	447
BCL 558i ON 100.	373	BT 3B.	447	BT 205M.	41
BCL 558i ON 100 H.	373	BT 003M.1.	447	BT 205M.	59
BCL 558i SF 102.	373	BT 8.	45	BT 205M.	63
BCL 558i SF 102 H.	373	BT 8.	190	BT 205M.	292

BT 205M.	447	BT-LA-78M-UDC.	451	BTU 300M-D10.	283
BT 300 - 1	367	BT-L-HG.	258	BTU 300M-D10.	289
BT 300 - 1	448	BTP 200M-D10.	292	BTU 300M-D10.	291
BT 300M.5	41	BTP 200M-D10.	449	BTU 300M-D10.	389
BT 300M.5	45	BTP 200M-D12.	292	BTU 300M-D10.	449
BT 300M.5	70	BTP 200M-D12.	450	BTU 300M-D12.	45
BT 300M.5	190	BTP 200M-D14.	292	BTU 300M-D12.	70
BT 300M.5	291	BTP 200M-D14.	450	BTU 300M-D12.	113
BT 300M.5	448	BTP 300M-D10.	291	BTU 300M-D12.	190
BT 300 W	217	BTP 300M-D10.	450	BTU 300M-D12.	200
BT 300 W	367	BTP 300M-D12.	291	BTU 300M-D12.	283
BT 300 W	448	BTP 300M-D12.	450	BTU 300M-D12.	289
BT 318-ARH.	294	BTP 300M-D14.	291	BTU 300M-D12.	291
BT 318-ARH.	451	BTP 300M-D14.	450	BTU 300M-D12.	389
BT318B-OM.	450	BTP800M.	298	BTU 300M-D12.	449
BT 318P-LS.	294	BT Rope IT.	384	BTU 300M-D14.	45
BT 318P-LS.	450	BT Rope IT.	393	BTU 300M-D14.	70
BT 320M.	387	BT Rope IT.	450	BTU 300M-D14.	113
BT 320M.	448	BT-SET-240BC.	281	BTU 300M-D14.	190
BT 328M.	450	BT-SET-240BCS.	281	BTU 300M-D14.	200
BT 450.1-96.	73	BT-SET-240C.	287	BTU 300M-D14.	283
BT 450.1-96.	91	BT-SET-240CC.	281	BTU 300M-D14.	289
BT 450.1-96.	114	BT-SET-240CCS.	281	BTU 300M-D14.	291
BT 450.1-96.	205	BT-SET-240CS.	287	BTU 300M-D14.	389
BT 450.1-96.	448	BT Stand 8 IT 190x.	451	BTU 300M-D14.	449
BT 450.3-96.	114	BT Stand 30 IT 191x.	451	BTU 0300M-W.	450
BT 450.3-96.	448	BTU 008M-D10.	198	BTU 320M-D12.	387
BT 713.	448	BTU 008M-D10.	220	BTU 320M-D12.	448
BT800MA.	298	BTU 008M-D10.	352	BTU 346M.5-D12.	291
BT840M.	298	BTU 008M-D10.	448	BTU 346M.5-D12.	449
BT856M.	298	BTU 053M.5F-D12-A090.	76	BTU 346M.6-D12.	291
BT 900.	379	BTU 053M.5F-D12-A090.	448	BTU 346M.6-D12.	449
BT 900.	448	BTU 053M.5F-D12-A180.	448	BTU 346M-D12.	291
BT 910M.	448	BTU 053M.5F-D12-N.	448	BTU 346M-D12.	292
BT 1900gCover.	451	BTU 053M.5F-D12-SS.	448	BTU 346M-D12.	449
BTC 088M-I40.	450	BTU 053M.5F-D20-N.	448	BTU 460M-D10.	48
BT Cover IT4xxx.	451	BTU 053M.5F-D20-SS.	448	BTU 460M-D10.	73
BT Cover IT1300g.	382	BTU 200M.5-D12.	448	BTU 460M-D10.	202
BT Cover IT1300g.	451	BTU 200M-D10.	37	BTU 460M-D10.	448
BT D08M.5.	127	BTU 200M-D10.	41	BTU 460M-D12.	48
BT D08M.5.	129	BTU 200M-D10.	52	BTU 460M-D12.	73
BT D08M.5.	134	BTU 200M-D10.	59	BTU 460M-D12.	202
BT D08M.5.	448	BTU 200M-D10.	63	BTU 460M-D12.	448
BT D12M.5.	105	BTU 200M-D10.	81	BTU800M.	298
BT D12M.5.	127	BTU 200M-D10.	110	BTU804MA.	298
BT D12M.5.	129	BTU 200M-D10.	183	BTU 900M-D10.	283
BT D12M.5.	129	BTU 200M-D10.	292	BTU 900M-D10.	289
BT D12M.5.	134	BTU 200M-D10.	449	BTU 900M-D10.	449
BT D12M.5.	448	BTU 200M-D12.	37	BTU 900M-D12.	283
BT D18M.5.	96	BTU 200M-D12.	41	BTU 900M-D12.	289
BT D18M.5.	99	BTU 200M-D12.	52	BTU 900M-D12.	449
BT D18M.5.	103	BTU 200M-D12.	59	BTU 900M-D14.	283
BT D18M.5.	145	BTU 200M-D12.	63	BTU 900M-D14.	289
BT D18M.5.	208	BTU 200M-D12.	81	BTU 900M-D14.	449
BT D18M.5.	294	BTU 200M-D12.	110	BTU 934M-D10-90.	449
BT D18M.5.	448	BTU 200M-D12.	141	BTU 934M-D12-90.	449
BT D21M.	96	BTU 200M-D12.	183	BTU 934M-D14-90.	449
BT D21M.	103	BTU 200M-D12.	292	BTU D12M.5-045-M8.	449
BT D21M.	448	BTU 200M-D12.	449	BTU D12M.5-100.	449
BT D30M.5.	209	BTU 200M-D14.	37	BTU D12M.5-150.	449
BT D30M.5.	448	BTU 200M-D14.	41	BTU D12M.5-Z-230.	449
BT Desktop IT1300g.	382	BTU 200M-D14.	52	BTU D12M.5-Z-230.	449
BT Desktop IT1300g.	451	BTU 200M-D14.	59	BTU D12M-D12-A090.	449
BTF815M.	298	BTU 200M-D14.	63	BTU D12M-D12-B090.	449
BTF830M.	298	BTU 200M-D14.	81	BTU D12M-VKT-90.	449
BT Flex Neck IT 4xxx.	384	BTU 200M-D14.	110	BTU D12M-Z-230.	449
BT Flex Neck IT 4xxx.	451	BTU 200M-D14.	183	BTU D18M-D12.	96
BT Flex Neck IT1300g.	382	BTU 200M-D14.	292	BTU D18M-D12.	99
BT Flex Neck IT1300g.	451	BTU 200M-D14.	449	BTU D18M-D12.	103
BT-GS6X.DT.	450	BTU 300M.5-D12.	283	BTU D18M-D12.	145
BT-GS6X.H.	451	BTU 300M.5-D12.	289	BTU D18M-D12.	208
BT-GS6X.L.	451	BTU 300M.5-D12.	449	BTU D18M-D12.	294
BT Holder HCR 6200.	394	BTU 300M-D10.	45	BTU D18M-D12.	449
BT Holder HCR 6200.	451	BTU 300M-D10.	70	BT VMHolder.	451
BT Holder IT 190x.	392	BTU 300M-D10.	113	BT Wallholder HS65x8.	382
BT Holder IT 190x.	451	BTU 300M-D10.	190	BT Wallholder HS65x8.	383
BT-LA-78M.	451	BTU 300M-D10.	200	BT Wallholder HS65x8.	384

BT Wallholder HS65x8.	384	CB-M12-10000E-8GF.	298	CB-M12-50000E-5GF.	287
BT Wallholder HS65x8.	393	CB-M12-10000E-8GF.	303	CB-M12-50000E-5GF.	438
BT Wallholder HS65x8.	394	CB-M12-10000E-8GF.	304	CB-M12-50000E-8GF.	258
BT Wallholder HS65x8.	395	CB-M12-10000E-8GF.	306	CB-M12-50000E-8GF.	280
BT Wallholder HS65x8.	451	CB-M12-10000E-8GF.	308	CB-M12-50000E-8GF.	287
BT Wallholder IT190x.	392	CB-M12-10000E-8GF.	310	CB-M12-50000E-8GF.	439
BT Wallholder IT190x.	451	CB-M12-10000E-8GF.	311	CML720i-R05-800.A/CN-M12.	230
BT Wallholder IT 191x.	451	CB-M12-10000E-8GF.	313	CML720i-R05-800.A/CV-M12.	230
BTX 0500 M.	451	CB-M12-10000E-8GF.	314	CML720i-R05-800.A/D3-M12.	230
BTX-D18M-D30.	145	CB-M12-10000E-8GF.	319	CML720i-R05-800.A/L-M12.	230
BTX-D18M-D30.	450	CB-M12-10000E-8GF.	326	CML720i-R05-800.A/PB-M12.	230
C3-V1-B-P0-SGSOSR-K1.	458	CB-M12-10000E-8GF.	438	CML720i-R05-800.R/CN-M12.	230
CB-ASM-DK1.	342	CB-M12-10000S-5WF.	437	CML720i-R05-800.R/CV-M12.	230
CB-ASM-PK1.	342	CB-M12-10000S-8WF.	437	CML720i-R05-800.R/D3-M12.	230
CB-M12-5GF.	258	CB-M12-15000-3GF/GM.	442	CML720i-R05-800.R/L-M12.	230
CB-M12-5GF.	281	CB-M12-15000-3GF/WM.	442	CML720i-R05-800.R/PB-M12.	230
CB-M12-5GF.	287	CB-M12-15000-8GF.	438	CML720i-R10-620.A/CN-M12-EX.	232
CB-M12-5GF.	445	CB-M12-15000E-5GF.	258	CML720i-R10-620.A/CN-M12-EX.	232
CB-M12-8GF.	178	CB-M12-15000E-5GF.	280	CML720i-R10-800.A/CN-M12.	230
CB-M12-8GF.	236	CB-M12-15000E-5GF.	287	CML720i-R10-800.A/CV-M12.	230
CB-M12-8GF.	258	CB-M12-15000E-5GF.	326	CML720i-R10-800.A/D3-M12.	230
CB-M12-8GF.	281	CB-M12-15000E-5GF.	438	CML720i-R10-800.A/L-M12.	230
CB-M12-8GF.	287	CB-M12-15000E-5GM.	280	CML720i-R10-800.A/PB-M12.	230
CB-M12-8GF.	445	CB-M12-15000E-5GM.	287	CML720i-R10-800.R/CN-M12.	230
CB-M12-1000-5GF/GM.	442	CB-M12-15000E-5GM.	437	CML720i-R10-800.R/CV-M12.	230
CB-M12-1500-3GF/GM.	441	CB-M12-15000E-8GF.	258	CML720i-R10-800.R/D3-M12.	230
CB-M12-1500-3GF/WM.	441	CB-M12-15000E-8GF.	280	CML720i-R10-800.R/L-M12.	230
CB-M12-2000-5GF/GM.	442	CB-M12-15000E-8GF.	287	CML720i-R10-800.R/PB-M12.	230
CB-M12-2000-5GM.	437	CB-M12-15000E-8GF.	298	CML720i-R10-800.R/PB-M12.	230
CB-M12-2000E-8TP.	258	CB-M12-15000E-8GF.	303	CML720i-R10-940.A/CN-M12-EX.	232
CB-M12-3000-8WM.	436	CB-M12-15000E-8GF.	304	CML720i-R20-610.A/CN-M12-EX.	232
CB-M12-5000-3GF/GM.	441	CB-M12-15000E-8GF.	306	CML720i-R20-770.A/CN-M12-EX.	232
CB-M12-5000-3GF/WM.	442	CB-M12-15000E-8GF.	308	CML720i-R20-790.A/CN-M12.	230
CB-M12-5000-5GM.	437	CB-M12-15000E-8GF.	310	CML720i-R20-790.A/CV-M12.	230
CB-M12-5000-8GF.	438	CB-M12-15000E-8GF.	311	CML720i-R20-790.A/D3-M12.	230
CB-M12-5000E-4GF-PUR.	298	CB-M12-15000E-8GF.	313	CML720i-R20-790.A/L-M12.	230
CB-M12-5000E-5GF.	258	CB-M12-15000E-8GF.	314	CML720i-R20-790.A/PB-M12.	230
CB-M12-5000E-5GF.	280	CB-M12-15000E-8GF.	319	CML720i-R20-790.R/CN-M12.	230
CB-M12-5000E-5GF.	287	CB-M12-15000E-8GF.	326	CML720i-R20-790.R/CV-M12.	230
CB-M12-5000E-5GF.	326	CB-M12-15000E-8GF.	438	CML720i-R20-790.R/D3-M12.	230
CB-M12-5000E-5GF.	438	CB-M12-15000S-5WF.	437	CML720i-R20-790.R/L-M12.	230
CB-M12-5000E-5GM.	280	CB-M12-15000S-8WF.	437	CML720i-R20-790.R/PB-M12.	230
CB-M12-5000E-5GM.	287	CB-M12-25000-8GF.	438	CML720i-R20-930.A/CN-M12-EX.	232
CB-M12-5000E-5GM.	437	CB-M12-25000E-8GF.	438	CML720i-R40-930.A/CN-M12.	230
CB-M12-5000E-8GF.	258	CB-M12-25000E-4GF-PUR.	258	CML720i-R40-930.A/CV-M12.	230
CB-M12-5000E-8GF.	280	CB-M12-25000E-4GF-PUR.	298	CML720i-R40-930.A/D3-M12.	230
CB-M12-5000E-8GF.	287	CB-M12-25000E-4GF-PUR.	438	CML720i-R40-930.A/L-M12.	230
CB-M12-5000E-8GF.	298	CB-M12-25000E-5GF.	258	CML720i-R40-930.A/PB-M12.	230
CB-M12-5000E-8GF.	303	CB-M12-25000E-5GF.	280	CML720i-R40-930.R/CN-M12.	231
CB-M12-5000E-8GF.	304	CB-M12-25000E-5GF.	287	CML720i-R40-930.R/CV-M12.	231
CB-M12-5000E-8GF.	306	CB-M12-25000E-5GF.	326	CML720i-R40-930.R/D3-M12.	231
CB-M12-5000E-8GF.	308	CB-M12-25000E-5GF.	438	CML720i-R40-930.R/L-M12.	231
CB-M12-5000E-8GF.	310	CB-M12-25000E-5GM.	280	CML720i-R40-930.R/PB-M12.	231
CB-M12-5000E-8GF.	311	CB-M12-25000E-5GM.	287	CML720i-T05-800.A-M12.	230
CB-M12-5000E-8GF.	313	CB-M12-25000E-5GM.	437	CML720i-T05-800.R-M12.	230
CB-M12-5000E-8GF.	314	CB-M12-25000E-8GF.	258	CML720i-T10-620.A-M12-EX.	232
CB-M12-5000E-8GF.	319	CB-M12-25000E-8GF.	280	CML720i-T10-780.A-M12-EX.	232
CB-M12-5000E-8GF.	326	CB-M12-25000E-8GF.	287	CML720i-T10-800.A-M12.	230
CB-M12-5000E-8GF.	438	CB-M12-25000E-8GF.	298	CML720i-T10-800.R-M12.	230
CB-M12-5000E-8GF.	438	CB-M12-25000E-8GF.	303	CML720i-T10-940.A-M12-EX.	232
CB-M12-5000E-8TP.	258	CB-M12-25000E-8GF.	304	CML720i-T20-610.A-M12-EX.	232
CB-M12-5000S-8WF.	437	CB-M12-25000E-8GF.	306	CML720i-T20-770.A-M12-EX.	232
CB-M12-10000-5GF.	438	CB-M12-25000E-8GF.	308	CML720i-T20-790.A-M12.	230
CB-M12-10000-5WM.	436	CB-M12-25000E-8GF.	310	CML720i-T20-790.R-M12.	230
CB-M12-10000-8GF.	438	CB-M12-25000E-8GF.	311	CML720i-T20-930.A-M12-EX.	232
CB-M12-10000-8WM.	436	CB-M12-25000E-8GF.	313	CML720i-T40-930.A-M12.	230
CB-M12-10000E-4GF-PUR.	298	CB-M12-25000E-8GF.	314	CML720i-T40-930.R-M12.	231
CB-M12-10000E-5GF.	258	CB-M12-25000E-8GF.	319	CML730i-R05-800.A/CN-M12.	233
CB-M12-10000E-5GF.	280	CB-M12-25000E-8GF.	326	CML730i-R05-800.A/CV-M12.	233
CB-M12-10000E-5GF.	287	CB-M12-25000E-8GF.	439	CML730i-R05-800.A/D3-M12.	233
CB-M12-10000E-5GF.	326	CB-M12-25000S-4GF/GM.	442	CML730i-R05-800.A/L-M12.	233
CB-M12-10000E-5GF.	438	CB-M12-25000S-5WF.	437	CML730i-R05-800.A/PB-M12.	233
CB-M12-10000E-5GM.	280	CB-M12-25000S-8WF.	437	CML730i-R05-800.R/CN-M12.	233
CB-M12-10000E-5GM.	287	CB-M12-30000E-5GF.	438	CML730i-R05-800.R/CV-M12.	233
CB-M12-10000E-5GM.	437	CB-M12-50000-5GF.	438	CML730i-R05-800.R/D3-M12.	233
CB-M12-10000E-8GF.	258	CB-M12-50000-8GF.	439	CML730i-R05-800.R/L-M12.	233
CB-M12-10000E-8GF.	280	CB-M12-50000E-5GF.	258	CML730i-R05-800.R/PB-M12.	233
CB-M12-10000E-8GF.	287	CB-M12-50000E-5GF.	280	CML730i-R10-800.A/CN-M12.	233

CML730i-R10-800.A/CV-M12	233	CSL505-R12.5-688-M8	168	CSL505-T25-1875-M8	169
CML730i-R10-800.A/D3-M12	233	CSL505-R12.5-788-M8	168	CSL505-T25-1975-M8	169
CML730i-R10-800.A/L-M12	233	CSL505-R12.5-888-M8	168	CSL505-T25-2175-M8	169
CML730i-R10-800.A/PB-M12	233	CSL505-R12.5-988-M8	168	CSL505-T25-2375-M8	169
CML730i-R10-800.R/CN-M12	233	CSL505-R25-175-M8	168	CSL505-T50-350-M8	169
CML730i-R10-800.R/CV-M12	233	CSL505-R25-275-M8	168	CSL505-T50-750-M8	169
CML730i-R10-800.R/D3-M12	233	CSL505-R25-375-M8	168	CSL505-T50-1150-M8	169
CML730i-R10-800.R/L-M12	233	CSL505-R25-475-M8	168	CSL505-T50-1550-M8	169
CML730i-R10-800.R/PB-M12	233	CSL505-R25-575-M8	168	CSL505-T50-1950-M8	169
CML730i-R20-790.A/CN-M12	233	CSL505-R25-675-M8	168	CSL505-T50-2350-M8	169
CML730i-R20-790.A/CV-M12	233	CSL505-R25-775-M8	168	CSL505-T50-2750-M8	169
CML730i-R20-790.A/D3-M12	233	CSL505-R25-875-M8	168	CSL505-T50-3150-M8	169
CML730i-R20-790.A/L-M12	233	CSL505-R25-975-M8	168	CSL505-T100-700-M8	170
CML730i-R20-790.A/PB-M12	233	CSL505-R25-1075-M8	168	CSL505-T100-1100-M8	170
CML730i-R20-790.R/CN-M12	234	CSL505-R25-1175-M8	168	CSL505-T100-1500-M8	170
CML730i-R20-790.R/CV-M12	234	CSL505-R25-1275-M8	169	CSL505-T100-1900-M8	170
CML730i-R20-790.R/D3-M12	234	CSL505-R25-1375-M8	169	CSL505-T100-2300-M8	170
CML730i-R20-790.R/L-M12	234	CSL505-R25-1475-M8	169	CSL505-T100-2700-M8	170
CML730i-R20-790.R/PB-M12	234	CSL505-R25-1575-M8	169	CSL505-T100-3100-M8	170
CML730i-R40-930.A/CN-M12	234	CSL505-R25-1675-M8	169	CSL710-R05-160.A/L-M12	172
CML730i-R40-930.A/CV-M12	234	CSL505-R25-1775-M8	169	CSL710-R05-240.A/L-M12	172
CML730i-R40-930.A/D3-M12	234	CSL505-R25-1875-M8	169	CSL710-R05-320.A/L-M12	172
CML730i-R40-930.A/L-M12	234	CSL505-R25-1975-M8	169	CSL710-R05-400.A/L-M12	172
CML730i-R40-930.A/PB-M12	234	CSL505-R25-2175-M8	169	CSL710-R05-480.A/L-M12	172
CML730i-R40-930.R/CN-M12	234	CSL505-R25-2375-M8	169	CSL710-R05-560.A/L-M12	172
CML730i-R40-930.R/CV-M12	234	CSL505-R50-350-M8	169	CSL710-R05-640.A/L-M12	172
CML730i-R40-930.R/D3-M12	234	CSL505-R50-750-M8	169	CSL710-R05-720.A/L-M12	172
CML730i-R40-930.R/L-M12	234	CSL505-R50-1150-M8	169	CSL710-R05-800.A/L-M12	172
CML730i-R40-930.R/PB-M12	234	CSL505-R50-1550-M8	169	CSL710-R05-880.A/L-M12	172
CML730i-T05-800.A-M12	233	CSL505-R50-1950-M8	169	CSL710-R05-960.A/L-M12	173
CML730i-T05-800.R-M12	233	CSL505-R50-2350-M8	169	CSL710-R05-1040.A/L-M12	173
CML730i-T10-800.A-M12	233	CSL505-R50-2750-M8	169	CSL710-R05-1120.A/L-M12	173
CML730i-T10-800.R-M12	233	CSL505-R50-3150-M8	169	CSL710-R05-1200.A/L-M12	173
CML730i-T20-790.A-M12	233	CSL505-R100-700-M8	170	CSL710-R05-1280.A/L-M12	173
CML730i-T20-790.R-M12	234	CSL505-R100-1100-M8	170	CSL710-R05-1360.A/L-M12	173
CML730i-T40-930.A-M12	234	CSL505-R100-1500-M8	170	CSL710-R05-1440.A/L-M12	173
CML730i-T40-930.R-M12	234	CSL505-R100-1900-M8	170	CSL710-R05-1520.A/L-M12	173
CR50M2/R2-S5	379	CSL505-R100-2300-M8	170	CSL710-R05-1600.A/L-M12	173
CR50-Starterkit	379	CSL505-R100-2700-M8	170	CSL710-R05-1680.A/L-M12	173
CR55M2/R2	379	CSL505-R100-3100-M8	170	CSL710-R05-1760.A/L-M12	173
CR55M2/UB-1800-S6	379	CSL505-T05-35-M8	167	CSL710-R05-1840.A/L-M12	173
CR100M0/R2	380	CSL505-T05-75-M8	167	CSL710-R05-1920.A/L-M12	173
CR100M2/R2	380	CSL505-T05-115-M8	167	CSL710-R05-2000.A/L-M12	173
CRT 20B M/N-12-001-S12	191	CSL505-T05-155-M8	167	CSL710-R05-2080.A/L-M12	173
CRT 20B M/N-12-004-S12	191	CSL505-T05-195-M8	167	CSL710-R05-2160.A/L-M12	173
CRT 20B M/N-60-001-S12	191	CSL505-T05-235-M8	167	CSL710-R05-2240.A/L-M12	174
CRT 20B M/N-60-004-S12	191	CSL505-T05-275-M8	167	CSL710-R05-2320.A/L-M12	174
CRT 20B M/P-12-001-S12	191	CSL505-T05-315-M8	167	CSL710-R05-2400.A/L-M12	174
CRT 20B M/P-12-004-S12	191	CSL505-T05-355-M8	167	CSL710-R05-2480.A/L-M12	174
CRT 20B M/P-60-001-S12	191	CSL505-T05-395-M8	167	CSL710-R05-2560.A/L-M12	174
CRT 20B M/P-60-004-S12	191	CSL505-T12.5-88-M8	167	CSL710-R05-2640.A/L-M12	174
CRT 448.L3/222-M12	192	CSL505-T12.5-188-M8	167	CSL710-R05-2720.A/L-M12	174
CRT 448.L3/444-M12	192	CSL505-T12.5-288-M8	167	CSL710-R05-2800.A/L-M12	174
CRT 448.S3/222-M12	192	CSL505-T12.5-388-M8	168	CSL710-R05-2880.A/L-M12	174
CRT 448.S3/444-M12	192	CSL505-T12.5-488-M8	168	CSL710-R05-2960.A/L-M12	174
CS-KRS/AS	345	CSL505-T12.5-588-M8	168	CSL710-R10-160.A/L-M12	174
CS-KRS/NM	345	CSL505-T12.5-688-M8	168	CSL710-R10-320.A/L-M12	174
CS-KRS/PS	345	CSL505-T12.5-788-M8	168	CSL710-R10-480.A/L-M12	174
CS-KRS/SE	345	CSL505-T12.5-888-M8	168	CSL710-R10-640.A/L-M12	174
CS-KRS/SS	345	CSL505-T12.5-988-M8	168	CSL710-R10-800.A/L-M12	174
CSL505-Interface	171	CSL505-T25-175-M8	168	CSL710-R10-960.A/L-M12	175
CSL505-R05-35-M8	167	CSL505-T25-275-M8	168	CSL710-R10-1120.A/L-M12	175
CSL505-R05-75-M8	167	CSL505-T25-375-M8	168	CSL710-R10-1280.A/L-M12	175
CSL505-R05-115-M8	167	CSL505-T25-475-M8	168	CSL710-R10-1440.A/L-M12	175
CSL505-R05-155-M8	167	CSL505-T25-575-M8	168	CSL710-R10-1600.A/L-M12	175
CSL505-R05-195-M8	167	CSL505-T25-675-M8	168	CSL710-R10-1760.A/L-M12	175
CSL505-R05-235-M8	167	CSL505-T25-775-M8	168	CSL710-R10-1920.A/L-M12	175
CSL505-R05-275-M8	167	CSL505-T25-875-M8	168	CSL710-R10-2080.A/L-M12	175
CSL505-R05-315-M8	167	CSL505-T25-975-M8	168	CSL710-R10-2240.A/L-M12	175
CSL505-R05-355-M8	167	CSL505-T25-1075-M8	168	CSL710-R10-2400.A/L-M12	175
CSL505-R05-395-M8	167	CSL505-T25-1175-M8	168	CSL710-R10-2560.A/L-M12	175
CSL505-R12.5-88-M8	167	CSL505-T25-1275-M8	169	CSL710-R10-2720.A/L-M12	175
CSL505-R12.5-188-M8	167	CSL505-T25-1375-M8	169	CSL710-R10-2880.A/L-M12	175
CSL505-R12.5-288-M8	167	CSL505-T25-1475-M8	169	CSL710-R20-150.A/L-M12	175
CSL505-R12.5-388-M8	168	CSL505-T25-1575-M8	169	CSL710-R20-310.A/L-M12	175
CSL505-R12.5-488-M8	168	CSL505-T25-1675-M8	169	CSL710-R20-470.A/L-M12	176
CSL505-R12.5-588-M8	168	CSL505-T25-1775-M8	169	CSL710-R20-630.A/L-M12	176

CSL710-R20-790.A/L-M12	176	CSL710-T20-150.A-M12	175	DDLS 200/80.2-10-W	420
CSL710-R20-950.A/L-M12	176	CSL710-T20-310.A-M12	175	DDLS 200/80.2-10-W-H	420
CSL710-R20-1110.A/L-M12	176	CSL710-T20-470.A-M12	176	DDLS 200/80.2-20-W	421
CSL710-R20-1270.A/L-M12	176	CSL710-T20-630.A-M12	176	DDLS 200/80.2-50-W-M12	419
CSL710-R20-1430.A/L-M12	176	CSL710-T20-790.A-M12	176	DDLS 200/120.1-10	420
CSL710-R20-1590.A/L-M12	176	CSL710-T20-950.A-M12	176	DDLS 200/120.1-10-H	420
CSL710-R20-1750.A/L-M12	176	CSL710-T20-1110.A-M12	176	DDLS 200/120.1-10-H-M12	420
CSL710-R20-1910.A/L-M12	176	CSL710-T20-1270.A-M12	176	DDLS 200/120.1-10-M12	420
CSL710-R20-2070.A/L-M12	176	CSL710-T20-1430.A-M12	176	DDLS 200/120.1-20	421
CSL710-R20-2230.A/L-M12	176	CSL710-T20-1590.A-M12	176	DDLS 200/120.1-20-H	421
CSL710-R20-2390.A/L-M12	176	CSL710-T20-1750.A-M12	176	DDLS 200/120.1-40	422
CSL710-R20-2550.A/L-M12	176	CSL710-T20-1910.A-M12	176	DDLS 200/120.1-40-H	422
CSL710-R20-2710.A/L-M12	176	CSL710-T20-2070.A-M12	176	DDLS 200/120.1-50	419
CSL710-R20-2870.A/L-M12	177	CSL710-T20-2230.A-M12	176	DDLS 200/120.1-50-H	419
CSL710-R40-290.A/L-M12	177	CSL710-T20-2390.A-M12	176	DDLS 200/120.1-50-M12	420
CSL710-R40-610.A/L-M12	177	CSL710-T20-2550.A-M12	176	DDLS 200/120.2-10	420
CSL710-R40-930.A/L-M12	177	CSL710-T20-2710.A-M12	176	DDLS 200/120.2-10-H	420
CSL710-R40-1250.A/L-M12	177	CSL710-T20-2870.A-M12	177	DDLS 200/120.2-10-H-M12	420
CSL710-R40-1570.A/L-M12	177	CSL710-T40-290.A-M12	177	DDLS 200/120.2-10-M12	420
CSL710-R40-1890.A/L-M12	177	CSL710-T40-610.A-M12	177	DDLS 200/120.2-20	421
CSL710-R40-2210.A/L-M12	177	CSL710-T40-930.A-M12	177	DDLS 200/120.2-20-H	421
CSL710-R40-2530.A/L-M12	177	CSL710-T40-1250.A-M12	177	DDLS 200/120.2-40	422
CSL710-R40-2850.A/L-M12	177	CSL710-T40-1570.A-M12	177	DDLS 200/120.2-40-H	422
CSL710-T05-160.A-M12	172	CSL710-T40-1890.A-M12	177	DDLS 200/120.2-50	419
CSL710-T05-240.A-M12	172	CSL710-T40-2210.A-M12	177	DDLS 200/120.2-50-H	419
CSL710-T05-320.A-M12	172	CSL710-T40-2530.A-M12	177	DDLS 200/120.2-50-M12	420
CSL710-T05-400.A-M12	172	CSL710-T40-2850.A-M12	177	DDLS 200/200.1-10	420
CSL710-T05-480.A-M12	172	CSR780-01-96/GWHE-M12	179	DDLS 200/200.1-10-H	420
CSL710-T05-560.A-M12	172	CSR780-01-96/GWHE-M12	179	DDLS 200/200.1-10-H-M12	421
CSL710-T05-640.A-M12	172	CSR780-01-432/GWHE-M12	179	DDLS 200/200.1-10-M12	421
CSL710-T05-720.A-M12	172	CSR780-01-432/GWHE-M12	179	DDLS 200/200.1-20	421
CSL710-T05-800.A-M12	172	CS-SC1/FR	345	DDLS 200/200.1-20-H	421
CSL710-T05-880.A-M12	172	CS-SC2/FR	345	DDLS 200/200.1-40	422
CSL710-T05-960.A-M12	173	CS-SC3/FR	345	DDLS 200/200.1-40-H	422
CSL710-T05-1040.A-M12	173	CS-SC4/FR	345	DDLS 200/200.1-50	420
CSL710-T05-1120.A-M12	173	CS-SC5/FR	345	DDLS 200/200.1-50-H	420
CSL710-T05-1200.A-M12	173	CS-SC6/FR	345	DDLS 200/200.1-50-M12	420
CSL710-T05-1280.A-M12	173	CS-SC7/FR	345	DDLS 200/200.2-10	420
CSL710-T05-1360.A-M12	173	CS-SCF/FR	345	DDLS 200/200.2-10-H	420
CSL710-T05-1440.A-M12	173	CS-SCH/FR	345	DDLS 200/200.2-10-H-M12	421
CSL710-T05-1520.A-M12	173	CS-SCP/FR	344	DDLS 200/200.2-10-M12	421
CSL710-T05-1600.A-M12	173	CS-SIF/FR	344	DDLS 200/200.2-20	421
CSL710-T05-1680.A-M12	173	CS-SIL/FR	344	DDLS 200/200.2-20-H	421
CSL710-T05-1760.A-M12	173	CS-SIN/FR	344	DDLS 200/200.2-40	422
CSL710-T05-1840.A-M12	173	CS-SIO/FR	344	DDLS 200/200.2-40-H	422
CSL710-T05-1920.A-M12	173	CS-SMS/FR	344	DDLS 200/200.2-50	420
CSL710-T05-2000.A-M12	173	CS-SMX/FR	344	DDLS 200/200.2-50-H	420
CSL710-T05-2080.A-M12	173	CS-SRS/FR	344	DDLS 200/200.2-50-M12	420
CSL710-T05-2160.A-M12	173	CS-SSF/FR	344	DDLS 200/300.1-10	421
CSL710-T05-2240.A-M12	174	CS-SSH/FR	344	DDLS 200/300.1-10-H	421
CSL710-T05-2320.A-M12	174	CS-WT1/FR	344	DDLS 200/300.1-10-H-M12	421
CSL710-T05-2400.A-M12	174	D9-V1-G-SGSOSRBZ2	458	DDLS 200/300.1-10-M12	421
CSL710-T05-2480.A-M12	174	DC-900-S2	452	DDLS 200/300.1-20	421
CSL710-T05-2560.A-M12	174	DC-1000-S2	452	DDLS 200/300.1-20-H	422
CSL710-T05-2640.A-M12	174	DC-1070-S2	452	DDLS 200/300.1-40	422
CSL710-T05-2720.A-M12	174	DC-1140-S2	452	DDLS 200/300.1-40-H	422
CSL710-T05-2800.A-M12	174	DC-1300-S2	452	DDLS 200/300.1-50	420
CSL710-T05-2880.A-M12	174	DC-1600-S2	452	DDLS 200/300.1-50-H	420
CSL710-T05-2960.A-M12	174	DC-1900-S2	452	DDLS 200/300.2-10	421
CSL710-T10-160.A-M12	174	DCR80M2/R2-S5	391	DDLS 200/300.2-10-H	421
CSL710-T10-320.A-M12	174	DCR 202i FIX-F-102-R3	386	DDLS 200/300.2-10-H-M12	421
CSL710-T10-480.A-M12	174	DCR 202i FIX-F-102-R3-G	386	DDLS 200/300.2-10-M12	421
CSL710-T10-640.A-M12	174	DCR 202i FIX-F-102-R3-P	386	DDLS 200/300.2-20	421
CSL710-T10-800.A-M12	174	DCR 202i FIX-M-102-R3	386	DDLS 200/300.2-20-H	422
CSL710-T10-960.A-M12	175	DCR 202i FIX-M-102-R3-G	386	DDLS 200/300.2-40	422
CSL710-T10-1120.A-M12	175	DCR 202i FIX-M-102-R3-P	386	DDLS 200/300.2-40-H	422
CSL710-T10-1280.A-M12	175	DCR 202i FIX-N-102-R3	386	DDLS 200/300.2-50	420
CSL710-T10-1440.A-M12	175	DCR 202i FIX-N-102-R3-G	386	DDLS 200/300.2-50-H	420
CSL710-T10-1600.A-M12	175	DCR 202i FIX-N-102-R3-P	386	DDLS 200/500.1-10	421
CSL710-T10-1760.A-M12	175	DDLS 200/30.1-10-W	420	DDLS 200/500.1-10-H	421
CSL710-T10-1920.A-M12	175	DDLS 200/30.1-20-W	421	DDLS 200/500.1-20	422
CSL710-T10-2080.A-M12	175	DDLS 200/30.2-10-W	420	DDLS 200/500.1-20-H	422
CSL710-T10-2240.A-M12	175	DDLS 200/30.2-20-W	421	DDLS 200/500.2-10	421
CSL710-T10-2400.A-M12	175	DDLS 200/80.1-10-W	420	DDLS 200/500.2-10-H	421
CSL710-T10-2560.A-M12	175	DDLS 200/80.1-10-W-H	420	DDLS 200/500.2-20	422
CSL710-T10-2720.A-M12	175	DDLS 200/80.1-20-W	421	DDLS 200/500.2-20-H	422
CSL710-T10-2880.A-M12	175	DDLS 200/80.1-50-W-M12	419	DDLS 508 40.0	417

DDLS 508 40.0	417	E7-V1-DS-C	458	FT5I.3/2N	40
DDLS 508 40.0 H	417	E7-V1-DS-G	458	FT5I.3/2N-M8	40
DDLS 508 40.0 H	417	E7-V1-DS-O	458	FT5I.3/4P	40
DDLS 508 40.0 L	417	E7-V1-DS-R	458	FT5I.3/4P-200-M12P1	40
DDLS 508 40.0 L	417	E7-V1-DS-Y	458	FT5I.3/4P-M8	40
DDLS 508 40.0 L H	417	EMS-V1-Q94-A32	459	FT28.3/2N	62
DDLS 508 40.0 L H	417	EMS-V3-Q94-A32	459	FT28.3/2N-200-M12	62
DDLS 508 40.3	417	ERS200-M0C3-M20-HAL	320	FT28.3/2N-M12	62
DDLS 508 40.3 H	417	ERS200-M0C3-M20-HAR	320	FT28.3/4P	62
DDLS 508 40.3 L	417	ERS200-M0C3-M20-HLR	320	FT28.3/4P-200-M12	62
DDLS 508 40.3 L H	417	ERS200-M1C1-M20-HAL	320	FT28.3/4P-M12	62
DDLS 508 40.4	417	ERS200-M1C1-M20-HAR	320	FT318B.3/2N	94
DDLS 508 40.4 H	417	ERS200-M1C3-M20-HLR	320	FT318B.3/2N-M12	94
DDLS 508 40.4 L	417	ERS200-M4C1-M12-HLR	320	FT318B.3/4P	94
DDLS 508 40.4 L H	417	ERS200-M4C1-M20-HLR	320	FT318B.3/4P-M12	94
DDLS 508 120.0	417	ERS200-M4C3-M20-HAL	320	FT318BI.3/2N	95
DDLS 508 120.0	417	ERS200-M4C3-M20-HAR	320	FT318BI.3/2N-M12	95
DDLS 508 120.0 H	417	ERS200-M4C3-M20-HLR	320	FT318BI.3/4P	95
DDLS 508 120.0 H	417	ESB200-4KR-C	322	FT318BI.3/4P-M12	95
DDLS 508 120.0 L	417	ESB200-4KR-M12p	322	FT318BI-100F.3/2N	95
DDLS 508 120.0 L	417	ESB200-4TR-C	322	FT318B.W3/2N	95
DDLS 508 120.0 L H	417	ESB200-4TR-M12p	322	FT318B.W3/2N-M12	95
DDLS 508 120.0 L H	417	ET5.3/2N	40	FT318B.W3/4P	95
DDLS 508 120.3	417	ET5.3/2N-200-M12	40	FT318B.W3/4P-M12	95
DDLS 508 120.3 H	417	ET5.3/2N-M8	40	FT328.3/2N	101
DDLS 508 120.3 L	417	ET5.3/4P	40	FT328.3/2N-M12	101
DDLS 508 120.3 L H	418	ET5.3/4P-200-M12	40	FT328.3/4P	101
DDLS 508 120.4	417	ET5.3/4P-M8	40	FT328.3/4P-M12	101
DDLS 508 120.4 H	417	ET5I.3/2N	40	FT328I.3/4P-M12P1	102
DDLS 508 120.4 L	417	ET5I.3/4P	40	FT328I-100F.3/2N	102
DDLS 508 120.4 L H	418	ET28.3/2N	62	FT328I-100F.3/4P	102
D-ET1	367	ET28.3/2N-200-M12	62	FT328.W3/2N	102
D-ET1	375	ET28.3/2N-M12	62	FT328.W3/2N-M12	102
D-ET1	377	ET28.3/4P	62	FT328.W3/4P	102
D-ET1	419	ET28.3/4P-200-M12	62	FT328.W3/4P-M12	102
D-ET1	445	ET28.3/4P-M12	62	GF-ETG-BR-305-IQ	154
D M8A-3P-SK	445	ET318B.3/2N	95	GF-ETG-BR-310-IQ	153
D M8A-4P-SK	445	ET318B.3/2N-M12	95	GF-ETG-BR-605-IQ	154
DMU418B-400.X3/LTC-M12	207	ET318B.3/4P	95	GF-ETG-BR-610-IQ	154
DMU418B-400.X3/LTV-M12	207	ET318B.3/4P-M12	95	GF-ETG-BR-630-IQ	153
DMU418B-1300.X3/LTC-M12	207	ET318BI.3/2N	95	GF-ETG-BR-650-IQ	153
DMU418B-1300.X3/LTV-M12	207	ET318BI.3/2N-M12	95	GF-ETG-BR-710-SU	154
DMU430B-3000.X3/LTC-M12	208	ET318BI.3/4P	95	GF-ETG-SI-305-IQ	154
DMU430B-3000.X3/LTV-M12	208	ET318BI.3/4P-M12	95	GF-ETG-SI-310-IQ	154
E4-MH1	457	ET318BI-400F.3/2N	95	GF-ETG-SI-605-IQ	154
E4-MP1-100	457	ET318B.W3/2N	94	GF-ETG-SI-610-IQ	154
E4-MP1-250	457	ET318B.W3/2N-M12	94	GF-ETG-SI-630-IQ	153
E4-MP1-400	457	ET318B.W3/4P	94	GF-ETG-SI-650-IQ	153
E4-MW1	457	ET318B.W3/4P-M12	94	GF-ETG-SI-710-SU	154
E4-MW2	457	ET328.3/2N	102	GF-ETG-SS-305-IQ	154
E4-V1-BZ1	458	ET328.3/2N-M12	102	GF-ETG-SS-310-IQ	154
E4-V1-DB-B	458	ET328.3/4P	102	GF-ETG-SS-605-IQ	154
E4-V1-DB-C	458	ET328.3/4P-M12	102	GF-ETG-SS-610-IQ	154
E4-V1-DB-G	458	ET328I-400F.3/2N	102	GF-ETG-SS-630-IQ	153
E4-V1-DB-O	458	ET328I-400F.3/2N-M12	102	GF-ETG-SS-650-IQ	153
E4-V1-DB-R	458	ET328I-400F.3/4P	102	GF-ETG-SS-710-SU	154
E4-V1-DB-Y	458	ET328I-400F.3/4P-M12	102	GF-ETM-BR-402-IM	154
E4-V1-DS-B	458	ET328.W3/2N	102	GF-LB-BR-405-IQ	153
E4-V1-DS-C	458	ET328.W3/2N-M12	101	GF-LB-BR-410-IQ	153
E4-V1-DS-G	458	ET328.W3/4P	102	GF-LB-BR-430-IQ	153
E4-V1-DS-O	458	ET328.W3/4P-M12	101	GF-LB-BR-450-IQ	153
E4-V1-DS-R	458	FBA-V1-Q94-O	459	GF-LB-BR-610-SD	153
E4-V1-DS-Y	458	FBA-V1-Q94-R	459	GF-LB-BR-610-SU	153
E7-MH1	457	FBA-V3-Q94-O	459	GF-LB-BR-630-SD	153
E7-MP1-100	457	FBA-V3-Q94-R	459	GF-LB-BR-810-SF	153
E7-MP1-250	457	FIS 6170	394	GF-LB-SI-405-IQ	153
E7-MP1-400	457	FRK 92/3-300 L Ex	108	GF-LB-SI-410-IQ	153
E7-MW1	457	FRK 95/44-150 L	83	GF-LB-SI-430-IQ	153
E7-MW2	457	FRK 95/44-350 L	83	GF-LB-SI-450-IQ	153
E7-V1-BZ1	458	FRKR 95/44-150 L	83	GF-LB-SI-610-SD	153
E7-V1-DB-B	458	FRKR 95/44-350 L	83	GF-LB-SI-610-SU	153
E7-V1-DB-C	458	FT5.3/2N	40	GF-LB-SI-630-SD	153
E7-V1-DB-G	458	FT5.3/2N-200-M12	40	GF-LB-SI-810-SF	153
E7-V1-DB-O	458	FT5.3/2N-M8	40	GF-LB-SS-405-IQ	153
E7-V1-DB-R	458	FT5.3/4P	40	GF-LB-SS-410-IQ	153
E7-V1-DB-Y	458	FT5.3/4P-200-M12	40	GF-LB-SS-430-IQ	153
E7-V1-DS-B	458	FT5.3/4P-M8	40	GF-LB-SS-450-IQ	153

GF-LB-SS-610-SD	153	Holder for Z-3010	451	HRTL 53/66-S8	75
GF-LB-SS-610-SU	153	HRT 3B/44	34	HRTL 55/66,200-S12	79
GF-LB-SS-630-SD	153	HRT 3B/44,200-S12	34	HRTL 55/66,5000	79
GF-LB-SS-810-SF	153	HRT 8/66.6-350-S12	44	HRTL 55/66-S8	79
GF-LB-SS-830-SM	153	HRT 25B/2	57	HRTL 96B M/6.4.02S-S12	89
GK 14/24 L	161	HRT 25B/4D,200-S12	57	HRTL 96B M/6.09.06S-S12	89
GK 14/24 L.2	161	HRT 25B/4D-S12	57	HRTL 96B M/6.9S-S12	89
GS 04M/N-30-S8	156	HRT 25B/6.8,200-S12	57	HRTL 96B M/6.49.02S-S12	89
GS 04M/N-50-S8	156	HRT 25B/6-S8	57	HRTL 96B M/66.01-S12	90
GS 04M/N-80-S8	156	HRT 25B/44,200-S12	57	HRTL 96B M/66.01S-S12	89
GS 04M/N-120-S8	156	HRT 25B/44-S8	57	HRTL 96B M/66.02S-S12	89
GS 04M/N-220-S8	156	HRT 25B/44-S12	57	HRTL 96B M/66.04S-S12	89
GS 04M/P-20-S8	156	HRT 25B/66	57	HRTL 96B M/66.9.03S-S12	89
GS 04M/P-30-S8	156	HRT 25B/66,200-S8	57	HRTL 96B M/666.01S-S12	89
GS 04M/P-50-S8	156	HRT 25B/66,200-S12	57	HRTL 96B M/C66.01.C1S-S12	90
GS 04M/P-80-S8	156	HRT 25B/66-S8	57	HRTL 96B M/C66.01S-S12	90
GS 04M/P-120-S8	156	HRT 25B/66-S12	57	HRTL 96B M/C66.03S-S12	90
GS 04M/P-220-S8	156	HRT 46B/4D,200-S12	67	HRTL 96B M/V66.01S-S12	90
GS 61/6	158	HRT 46B/7-S12	67	HRTR 2/2-50F,150-S8.3	27
GS 61/6.2	158	HRT 46B/66,200-S12 S-Ex n	112	HRTR 2/42-15F	28
GS 61/6.2,200-S12	158	HRT 55/44,200-S12	80	HRTR 2/42-15F,150-S8	27
GS 61/6.2-S8	158	HRT 96K/P-1600.1-1200-41	89	HRTR 2/42-15F,150-S12	27
GS 61/6.2-S8.3	158	HRT 96K/P-1600-1200-21	89	HRTR 2/42-30F	27
GS 61/6.2-S8V	158	HRT 96K/P-1600-1200-41	89	HRTR 2/42-30F,150-S8	27
GS 61/6.3	158	HRT 96K/P-1600-1800-41	88	HRTR 2/42-30F,150-S12	27
GS 61/6.3,200-S12	158	HRT 96K/P-1607-1200-49	89	HRTR 2/42-50F	27
GS 61/6,200-S12	158	HRT 96K/P-1630-800-21	88	HRTR 2/42-50F,150-S8	27
GS 61/6D	158	HRT 96K/P-1630-800-41	88	HRTR 2/42-50F,150-S12	27
GS 61/6D.2	158	HRT 96K/P-1631-800-47	88	HRTR 2/42D-15F	28
GS 61/6D.2,200-S12	158	HRT 96K/P-1640-800-41	88	HRTR 2/42D-15F,150-S8	27
GS 61/6D.2-S8	158	HRT 96K/R-1680-1200-25	89	HRTR 2/42D-15F,150-S12	27
GS 61/6D.2-S8.3	158	HRT 96K/R-1690-1200-25	89	HRTR 2/42D-30F	27
GS 61/6D.2-S8V	158	HRT 96M/A-1660-1200-44	88	HRTR 2/42D-30F,150-S8	27
GS 61/6D,200-S12	158	HRT 96M/A-1670-800-44	88	HRTR 2/42D-30F,150-S12	27
GS 61/6D-S8	158	HRT 96M/N-1606-1200-27	89	HRTR 2/42D-50F	27
GS 61/6D-S8.3	158	HRT 96M/P-1600-2000-42	88	HRTR 2/42D-50F,150-S8	27
GS 61/6D-S8V	158	HRT 96M/P-1610-1200-21	89	HRTR 2/42D-50F,150-S12	27
GS 61/6-S8	158	HRT 96M/P-1610-1200-41	89	HRTR 3B/2.7	34
GS 61/6-S8.3	158	HRT 96M/P-1620-1200-21	89	HRTR 3B/2.7-V	36
GS 61/6-S8V	158	HRT 96M/P-1620-1200-41	89	HRTR 3B/4,200-S8.3	34
GS 63B/6	159	HRT 96M/P-1620-1800-41	88	HRTR 3B/4-XL-S8	35
GS 63B/6.01,200-S12	159	HRT 96M/P-1630-800-41	88	HRTR 3B/6.7	34
GS 63B/6.3,200-S8	159	HRT 96M/P-1636-800-41	88	HRTR 3B/6.7-S8	34
GS 63B/6.3-S8	159	HRT 96M/P-1639-800-21 Ex n	113	HRTR 3B/6D.7	34
GS 63B/6.3-S8V	159	HRT 96M/P-1640-800-21	88	HRTR 3B/6D-XL-S8.3	35
GS 63B/6,200-S12	159	HRT 96M/P-1640-800-41	88	HRTR 3B/6-S8.3	34
GS 63B/6D	160	HRT 96M/P-1649-800-21 Ex n	113	HRTR 3B/6-S,200-S8.3	36
GS 63B/6D.3-S8	159	HRT 96M/P-3604-2000-42	88	HRTR 3B/6-S-S8.3	36
GS 63B/6D.3-S8V	160	HRT 96M/R-1680-1200-25	89	HRTR 3B/6-XL-S8.3	35
GS 63B/6D,200-S8	160	HRT 96M/R-1690-1200-25	89	HRTR 3B/22	34
GS 63B/6D,200-S12	160	HRTL 96B M/66.01S-S12	90	HRTR 3B/22-S8	34
GS 63B/6D-S8	160	HRTL 96B M/66.03S-S12	90	HRTR 3B/44	34
GS 63B/6-S8	159	HRTL 96BM/66.04S-S12	90	HRTR 3B/44-95,200-S8	34
GS 63B/6-S8V	159	HRTL 96B M/C66.01S-S12	90	HRTR 3B/44,200-S12	34
GS 754B/C4-27-S12	238	HRTL 96BM/C66.02S-S12	90	HRTR 3B/44-350,200-S8	34
GS 754B/C4-98-S12	238	HRTL 3B/66	35	HRTR 3B/44,5000	34
GS 754B/D3-27-S12	238	HRTL 3B/66,200-S8	35	HRTR 3B/44-L,200-S8	35
GS 754B/D3-98-S12	238	HRTL 3B/66,200-S12	35	HRTR 3B/44-L,200-S12	35
GS 754B/D24-27-S12	238	HRTL 3B/66.C2	35	HRTR 3B/44-L-S8	35
GS 754B/D24-98-S12	238	HRTL 3B/66.C2,200-S8	35	HRTR 3B/44-S8	34
GS 754B/V4-27-S12	238	HRTL 3B/66.C2,200-S12	35	HRTR 3B/44-VXL,200-M12	36
GS 754B/V4-98-S12	238	HRTL 3B/66.C2-S8	35	HRTR 3B/44-VXL-S8	36
GSL 04M/N-30-S8	156	HRTL 3B/66-S8	35	HRTR 3B/44-XL,200-S12	35
GSL 04M/P-30-S8	156	HRTL 8/24-150	44	HRTR 3B/44-XL-S8	35
GSL 04M/P-50-S8	156	HRTL 8/24-150-S12	44	HRTR 3B/66	34
GSL 04M/P-80-S8	156	HRTL 8/24-350	44	HRTR 3B/66,200-S8	34
GSU 06/24-2	162	HRTL 8/24-350-S12	44	HRTR 3B/66,200-S12	34
GSU 06/24-2-S8	162	HRTL 8/66.09-150-S12	44	HRTR 3B/66-S	36
GSU 06/24D-2	162	HRTL 8/66-150-S12	44	HRTR 3B/66-S8	34
GSU 06/24D-2,200-S12	162	HRTL 8/66-350,5000	44	HRTR 3B/66-S,200-S8	36
GSU 06/24D-2-S8	162	HRTL 8/66-350-S12	44	HRTR 3B/66-S,200-S12	36
GSU 14D/66.3-S12	163	HRTL 46B/6.8-S12	68	HRTR 3B/66-S,5000	36
GSU 14D/66D.3-S12	163	HRTL 46B/66.1-S12	68	HRTR 3B/66-S-S8	36
GSU 14D/66D.31-S12	163	HRTL 46B/66,200-S12	68	HRTR 3B/66-V	36
HCR 6200 DPM	394	HRTL 46B/66,200-S12 S-Ex n	111	HRTR 3B/66-V,200-S8	36
HFM 3500 D	399	HRTL 46B/66-S12	68	HRTR 3B/66-V,200-S12	36
HFM 3520 D	399	HRTL 53/66,5000	75	HRTR 3B/66-V-S8	36

HRTR 3B/66-VXL-S8.	36	HRTU 420/2NC.2-S8.	140	HTU418B-1300.X3/LT4-M12.	143
HRTR 3B/66-XL.	35	HRTU 420/2NC.2-S-S8.	140	HTU430B-3000.X3/LT4-M12.	144
HRTR 3B/66-XL,200-S8.	35	HRTU 420/2NO.2-L-S8.	140	IGS 63B/6.3.	159
HRTR 3B/66-XL,200-S12.	35	HRTU 420/2NO.2-S8.	140	IGS 63B/6.3,200-S12.	159
HRTR 3B/66-XL-S8.	35	HRTU 420/2NO.2-S-S8.	140	IGS 63B/6D.3,200-S12.	160
HRTR 8/44-350.	44	HRTU 420/4NC.2-L-S8.	140	IGSU 14D/6.3G-S12.	164
HRTR 8/44-350-S12.	44	HRTU 420/4NC.2-S8.	140	IGSU 14D/6.3-S12.	164
HRTR 8/66-350.	44	HRTU 420/4NC.2-S-S8.	140	IGSU 14D/6.3SD-S12.	164
HRTR 8/66-350,5000.	44	HRTU 420/4NO.2-L-S8.	140	IGSU 14D/6.31-S12.	164
HRTR 8/66-350-S12.	44	HRTU 420/4NO.2-S8.	140	IGSU 14D/6D.3-S12.	164
HRTR 25B/4D,200-S8.	57	HRTU 420/4NO.2-S-S8.	140	IGSU 14DN/6.3G-S12.	164
HRTR 25B/4D,200-S12.	57	HS 6508 DPM.	394	IGSU 14DN/6.3-S12.	164
HRTR 25B/4D-XL,200-S12.	58	HS 6578 DPM.	394	IHRT 8/4-100-S12.	44
HRTR 25B/4D-XL-S12.	58	HT10L1.3/L6T.	47	IHRT 8/4-200-S12.	44
HRTR 25B/6.	57	HT10L1.3/L6T,200-M12.	47	IHRT 46B/4,200-S12 S-Ex n.	112
HRTR 25B/6.01,200-S12.	57	HT10L1.3/L6T-M12.	47	IHRT 46B/4D,200-S12.	67
HRTR 25B/6.8-S-S12.	58	HT10L1.3/L6T.P1-M12.	47	IHRT 46B/4D-S12.	67
HRTR 25B/6,200-S12.	57	HT10L1.3/L6X.	47	IHRT 46B/4-S12.	67
HRTR 25B/6-S12.	57	HT10L1.3/L6X,200-M12.	47	ILS 95/44 E-L.1.	82
HRTR 25B/6-S-S12.	58	HT10L1.3/L6X-M12.	47	ILSER 3B/4,200-S8.	30
HRTR 25B/44-S8.	57	HT10L1.3/L66.	47	ILSER 3B/4-S8.	29
HRTR 25B/44-S12.	57	HT10L1.3/L66,200-M12.	47	ILSER 25B/4-S12.	53
HRTR 25B/44-S-S12.	58	HT10L1.3/L66-M12.	47	ILSER 25B/4-S12.	53
HRTR 25B/66.	57	HT10L1.3/L69.	47	ILSR 95/44 E-L.1.	82
HRTR 25B/66,200-S8.	57	HT10L1.3/L69,200-M12.	47	IPRK 8/A-S12.	43
HRTR 25B/66,200-S12.	57	HT10L1.3/L69-M12.	47	IPRK 18/4 DL.41.	50
HRTR 25B/66,5000.	57	HT10L1-25M.3/L69.	47	IPRK 18/A.1 L.4.	51
HRTR 25B/66-S8.	57	HT10L1-25M.3/L69,200-M12.	47	IPRK 18/A L.4.	51
HRTR 25B/66-S12.	57	HT10L1-25M.3/L69-M12.	47	IPRK 18/A L.46.	50
HRTR 25B/66-S,200-S12.	58	HT46C/2N-M12.	67	IPRK 18/V L.03.	51
HRTR 25B/66-S-S8.	58	HT46C/4P.	68	IPRK 25B/4.3,200-S12.	55
HRTR 25B/66-S-S12.	58	HT46C/4P-200-M12.	68	IPRK 25B/4.3-S12.	55
HRTR 25B/66-XL.	58	HT46C/4P-M12.	67	IPRK 25B/4,200-S12.	54
HRTR 25B/66-XL,200-S8.	58	HT46C/4W-M12.	67	IPRK 25B/4-S12.	54
HRTR 25B/66-XL,200-S12.	58	HT46C/4X-200-M12.	68	IPRK 46B/4.2-S12.	66
HRTR 25B/66-XL-S12.	58	HT46C/4X-M12.	68	IPRK 46B/4,200-S12 S-Ex n.	111
HRTR 46B/4,200-S12.	68	HT46C/48-M12.	68	IPRK 95/4.8 L.2.	82
HRTR 46B/6.22,200-S12.	68	HT46C.E/4P-M12.	68	IPRK 95/44 L.2.	82
HRTR 46B/6.22-S12.	68	HT46CI/2N-M12.	67	IPRK 95/44 L.3.	82
HRTR 46B/66,200-S12 S-Ex n.	112	HT46CI/4P.	67	IPRK 95/44 L.5.	82
HRTR 46B/66-S-S12.	69	HT46CI/4P-200-M12.	67	IPRK 95/44 L.21.	82
HRTR 46B/L4.23-S12.	68	HT46CI/4P-M12.	67	IRKR 95/44-250 L.	83
HRTR 46B/L6.23-S12.	68	HT46CI/4W-M12.	67	IRTR 8/A-800-S12.	44
HRTR 46B/L.221-S12.	69	HT46CI/4X-M12.	67	IS 204MP/4NO-1E5.	136
HRTR 53/66,5000.	75	HT46CI/48-M12.	67	IS 205MM/4NO-1E5.	136
HRTR 53/66-S8.	75	HT46CI.E/4P-M12.	67	IS 205MM/4NO-1E5-S8.3.	136
HRTR 53/66-S,5000.	75	HT46CI/PX-200-M12.	67	IS 206MP/4NO-2E0.	137
HRTR 53/66-S-S8.	75	HT46CI/PX-M12.	67	IS 206MP/4NO-2E0,150-S8.3W.	137
HRTR 53/66-V-S8.	75	HT46CI.SL/4P-M12.	67	IS 206MP/4NO-2E0,300-S8.3W.	137
HRTR 53/66-VXL-S8.	75	HT46CI.SL/4X-200-M12.	67	IS 206MP/4NO-3E0.	137
HRTR 53/66-XL-S8.	75	HT46C/PX-200-M12.	68	IS 208FM/2NO.5-2E0.	128
HRTR 55/22-XL,5000.	80	HT46C/PX-M12.	68	IS 208FM/2NO.5-2E0.	130
HRTR 55/44-XL,5000.	80	HT46C.SL/4P-M12.	68	IS 208FM/2NO.5-2E0-S8.3.	128
HRTR 55/66,200-S12.	80	HT46C.SL/4X-200-M12.	68	IS 208FM/2NO.5-2E0-S8.3.	130
HRTR 55/66,5000.	80	HT49CI.UCH/TS-TB.	72	IS 208FM/4NC.5-2E0.	128
HRTR 55/66-S8.	79	HT49CI.UC/M4.	72	IS 208FM/4NC.5-2E0.	130
HRTR 55/66-S8 Ex.	109	HT49CI.UC/M4-TB.	72	IS 208FM/4NC.5-2E0-S8.3.	128
HRTR 55/66-S,200-S12.	80	HT49CI.UC/TS.	72	IS 208FM/4NC.5-2E0-S8.3.	130
HRTR 55/66-S,5000.	80	HT49CI.UC/TS-TB.	72	IS 208FM/4NO.5-2E0.	128
HRTR 55/66-S-S8.	80	HT49C.UCH/TS-TB.	72	IS 208FM/4NO.5-2E0.	130
HRTR 55/66-V,200-S12.	80	HT49C.UC/M4.	72	IS 208FM/4NO.5-2E0-S8.3.	128
HRTR 55/66-XL,200-S12.	80	HT49C.UC/M4-TB.	72	IS 208FM/4NO.5-2E0-S8.3.	130
HRTR 55/66-XL,5000.	80	HT49C.UC/TS.	72	IS 208MM/2NC-1E5.	122
HRTR 55/66-XL-S8.	79	HT49C.UC/TS-TB.	72	IS 208MM/2NC-2E0.	121
HRTR 318K/66-120.	95	HTK 82.	463	IS 208MM/2NC-4NO-S8.3.	121
HRTR 318K/66-120-S12.	95	HTK 82-24V.	463	IS 208MM/2NO-1E5.	122
HRTR 318M/66-120.	98	HTU418B-400/4T4-M12.	143	IS 208MM/2NO-2E0.	122
HRTR 318M/66-120-S12.	98	HTU418B-400/4TX-M12.	143	IS 208MM/2NO-2E0-S8.3.	121
HRTU 412/2NC.2-S12.	142	HTU418B-400/PTX-M12.	143	IS 208MM/2NO-2N5.	121
HRTU 412/2NC.2-S-S12.	142	HTU418B-400.W/4T4-M12.	143	IS 208MM/2NO-4NO.	121
HRTU 412/2NO.2-S12.	142	HTU418B-400.W/4TX-M12.	143	IS 208MM/2NO-4NO-S8.3.	121
HRTU 412/2NO.2-S-S12.	142	HTU418B-400.X3/LT4-M12.	143	IS 208MM/4NC-1E5.	122
HRTU 412/4NC.2-S12.	142	HTU418B-700/4TX-M12.	143	IS 208MM/4NC-1E5-S8.3.	122
HRTU 412/4NC.2-S-S12.	142	HTU418B-1000/4TX-M12.	143	IS 208MM/4NC-1E5-S12.	122
HRTU 412/4NO.2-S12.	142	HTU418B-1000.W/4TX-M12.	143	IS 208MM/4NC-2E0.	121
HRTU 412/4NO.2-S-S12.	142	HTU418B-1300/4T4-M12.	143	IS 208MM/4NC-2E0-S8.3.	121
HRTU 420/2NC.2-L-S8.	140	HTU418B-1300.W/4T4-M12.	143	IS 208MM/4NC-2N5-S8.3.	121

IS 208MM/4NC-4NO	121	IS 218FM/4NO.5-5E0	132	IS 240PP/22-4E0-S8.4	118
IS 208MM/4NC-4NO-S8.3	121	IS 218FM/4NO.5-5E0-S12	128	IS 240PP/22-8NO	118
IS 208MM/4NO-1E5	122	IS 218FM/4NO.5-5E0-S12	132	IS 240PP/22-8NO-S8.4	118
IS 208MM/4NO-1E5,5000	122	IS 218FM/4NO.5F-10E-S12	128	IS 240PP/44-4E0	118
IS 208MM/4NO-1E5-S8.3	122	IS 218FM/4NO.5F-10E-S12	132	IS 240PP/44-4E0-S8.4	118
IS 208MM/4NO-1E5-S12	122	IS 218FM/4NO.5F-20N-S12	128	IS 240PP/44-8NO	118
IS 208MM/4NO-2E0	121	IS 218FM/4NO.5F-20N-S12	132	IS 240PP/44-8NO-S8.4	118
IS 208MM/4NO-2E0,200-S8.3	121	IS 218MM/1NC.3-5E0	129	IS 244PP/22-20E-TB.4	119
IS 208MM/4NO-2E0-S8.3	121	IS 218MM/1NO.3-5E0	129	IS 244PP/22-40N-TB.4	119
IS 208MM/4NO-2N5	121	IS 218MM/2NC-8E0	125	IS 244PP/44-20E-TB.4	119
IS 208MM/4NO-2N5-S8.3	121	IS 218MM/2NC-8E0-S12	125	IS 244PP/44-40N-TB.4	119
IS 208MM/4NO-2N5-S12	121	IS 218MM/2NC-8NO	125	IS 255MP/2NO-1E5	135
IS 208MM/4NO-4NO	121	IS 218MM/2NC-8NO-S12	125	IS 255MP/4NO-1E5	135
IS 208MM/4NO-4NO-S8.3	121	IS 218MM/2NO-5E0	125	IS 255MP/4NO-1E5,200-S8.3	135
IS 212FM/2NO.5-3E0	128	IS 218MM/2NO-8E0	125	IS 288MP/2NO-1E5	117
IS 212FM/2NO.5-3E0	131	IS 218MM/2NO-8E0-S12	125	IS 288MP/4NC-2E0	117
IS 212FM/2NO.5-3E0-S12	128	IS 218MM/2NO-8NO	125	IS 288MP/4NO-1E5	117
IS 212FM/2NO.5-3E0-S12	131	IS 218MM/2NO-8NO-S12	125	IS 288MP/44-8NO-S8.3	117
IS 212FM/4NC.5-3E0	128	IS 218MM/2NO-12E	125	IS 288MP/4NO-2E0	117
IS 212FM/4NC.5-3E0	131	IS 218MM/2NO-20N	125	IS 288MP/4NO-2E0-S8.3	117
IS 212FM/4NC.5-3E0-S12	128	IS 218MM/4NC-5E0	125	IS 288MP/4NO-3E0	117
IS 212FM/4NC.5-3E0-S12	131	IS 218MM/4NC-5E0-S12	123	IS 288MP/4NO-3E0-S8.3	117
IS 212FM/4NO.5-3E0	128	IS 218MM/4NC-5E0-S12	125	ISS 206MP/4NO-2E0-S8.3	137
IS 212FM/4NO.5-3E0	131	IS 218MM/4NC-8E0	125	ISS 208MM/4NC-2E0-S8.3	121
IS 212FM/4NO.5-3E0-S12	128	IS 218MM/4NC-8E0-S12	125	ISS 208MM/4NO-2E0,200-S8.3	121
IS 212FM/4NO.5-3E0-S12	131	IS 218MM/4NC-8NO	125	ISS 208MM/4NO-2E0-S8.3	121
IS 212FM/4NO.5F-6E0-S12	128	IS 218MM/4NC-8NO-S12	125	ISS 208MM/4NO-2N5-S8.3	121
IS 212FM/4NO.5F-6E0-S12	131	IS 218 MM/4NC-12E-S12	125	ISS 212MM/2NC-4E0-S12	123
IS 212FM/4NO.5F-10N-S12	128	IS 218MM/4NC-20N	124	ISS 212MM/2NO-4E0-S12	123
IS 212FM/4NO.5F-10N-S12	131	IS 218MM/4NO-5E0	125	ISS 212MM/2NO-4NO	123
IS 212FM/4NO.5W-6E0-S12	131	IS 218MM/4NO-5E0-S12	125	ISS 212MM/2NO-6E0-S12	123
IS 212MM/1NC.3-2E0	129	IS 218MM/4NO-8E0	125	ISS 212MM/4NC-4E0	123
IS 212MM/1NO.3-2E0	129	IS 218MM/4NO-8E0-S12	125	ISS 212MM/4NC-4E0-S12	123
IS 212MM/2NC-2E0	123	IS 218MM/4NO-8NO	125	ISS 212MM/4NO-4E0	123
IS 212MM/2NC-4E0	123	IS 218MM/4NO-8NO-S12	125	ISS 212MM/4NO-4E0-S12	123
IS 212MM/2NC-4E0-S12	123	IS 218MM/4NO-12E	125	ISS 212MM/4NO-4NO-S12	123
IS 212MM/2NC-4NO	123	IS 218 MM/4NO-12E-S12	125	ISS 212MM/4NO-6E0-S12	123
IS 212MM/2NC-4NO-S12	123	IS 218MM/4NO-20N	125	ISS 212MM/4NO-10N-S12	122
IS 212MM/2NC-8NO	123	IS 230FM/2NO.5-10E	128	ISS 218MM/2NC-8E0-S12	125
IS 212MM/2NO-2E0	123	IS 230FM/2NO.5-10E	133	ISS 218MM/2NO-8E0-S12	125
IS 212MM/2NO-4E0	123	IS 230FM/2NO.5-10E-S12	128	ISS 218MM/2NO-12E-S12	125
IS 212MM/2NO-4E0-S12	123	IS 230FM/2NO.5-10E-S12	133	ISS 218MM/4NC-5E0-S12	125
IS 212MM/2NO-4NO	123	IS 230FM/4NC.5-10E	128	ISS 218MM/4NC-8E0-S12	125
IS 212MM/2NO-4NO-S12	123	IS 230FM/4NC.5-10E	133	ISS 218MM/4NC-12E-S12	125
IS 212MM/2NO-6E0	123	IS 230FM/4NC.5-10E-S12	128	ISS 218MM/4NC-20N-S12	124
IS 212MM/2NO-8NO	123	IS 230FM/4NC.5-10E-S12	133	ISS 218MM/4NO-5E0	125
IS 212MM/2NO-8NO-S12	123	IS 230FM/4NO.5-10E	128	ISS 218MM/4NO-5E0-S12	125
IS 212MM/2NO-10N	122	IS 230FM/4NO.5-10E	133	ISS 218MM/4NO-8E0-S12	125
IS 212MM/4NC-2E0	123	IS 230FM/4NO.5-10E-S12	128	ISS 218MM/4NO-12E-S12	125
IS 212MM/4NC-2E0-S12	123	IS 230FM/4NO.5-10E-S12	133	ISS 218MM/4NO-20N-S12	124
IS 212MM/4NC-4E0	123	IS 230FM/4NO.5F-20E-S12	128	ISS 244PP/22-20E-S12	119
IS 212MM/4NC-4E0-S12	123	IS 230FM/4NO.5F-20E-S12	133	ISS 244PP/22-40N-S12	119
IS 212MM/4NC-4NO	123	IS 230FM/4NO.5F-40N-S12	128	ISS 244PP/44-20E-S12	119
IS 212MM/4NC-4NO-S12	123	IS 230FM/4NO.5F-40N-S12	133	ISS 244PP/44-40N-S12	119
IS 212MM/4NC-8NO	123	IS 230MM/1NC.3-15N	129	IT 1280i FR-3	383
IS 212MM/4NC-8NO-S12	123	IS 230MM/1NO.3-15N	129	IT 1300g-2	382
IS 212MM/4NC-10N	122	IS 230MM/2NC-15N	126	IT 1450g 1D-2	382
IS 212MM/4NC-10N-S12	122	IS 230MM/2NO-10E	127	IT 1452g 1D-2	382
IS 212MM/4NO-2E0	123	IS 230MM/2NO-15N	126	IT 1900g ER-2	392
IS 212MM/4NO-2E0-S12	123	IS 230MM/2NO-15N-S12	126	IT 1900g HD-2	392
IS 212MM/4NO-4E0	123	IS 230MM/2NO-22E	126	IT 1900g SR-2	392
IS 212MM/4NO-4E0-S12	123	IS 230MM/2NO-40N	126	IT 1902g ER-2	392
IS 212MM/4NO-4NO	123	IS 230MM/4NC-10E	127	IT 1902g HD-2	392
IS 212MM/4NO-4NO-S12	123	IS 230MM/4NC-10E-S12	126	IT 1902g SR-2	392
IS 212MM/4NO-6E0	123	IS 230MM/4NC-15N	126	IT 1910i ER-3	393
IS 212MM/4NO-8NO	123	IS 230MM/4NC-15N-S12	126	IT 1911i ER-3	393
IS 212MM/4NO-8NO-S12	123	IS 230MM/4NC-22E-S12	126	IT 1980i FR-3	393
IS 212MM/4NO-10N	122	IS 230MM/4NO-10E	127	IT 1981i FR-3	393
IS 218FM/2NO.5-5E0	128	IS 230MM/4NO-10E-S12	127	IT 3800 i SR030E	383
IS 218FM/2NO.5-5E0	132	IS 230MM/4NO-15N	126	IT 3800 i SR050E	383
IS 218FM/2NO.5-5E0-S12	128	IS 230MM/4NO-15N-S12	126	IT 3820i SRE	383
IS 218FM/2NO.5-5E0-S12	132	IS 230MM/4NO-22E	126	IT 3820 SR0C0BE	383
IS 218FM/4NC.5-5E0	128	IS 230MM/4NO-22E-S12	126	KB-008-1000 AA	442
IS 218FM/4NC.5-5E0	132	IS 230MM/4NO-40N	126	KB-008-1000 AR	442
IS 218FM/4NC.5-5E0-S12	128	IS 230MM/4NO-40N-S12	126	KB-008-2000 AR	442
IS 218FM/4NC.5-5E0-S12	132	IS 240PP/4NO-4E0-S8.3	118	KB 008-3000 A	219
IS 218FM/4NO.5-5E0	128	IS 240PP/22-4E0	118	KB 008-3000 A	438

KB-008-3000 AA	219	KB ET-5000-SA-RJ45	443	KB PB-2000-BA	423
KB-008-3000 AA	352	KB ET-5000-SSA	214	KB PB-2000-BA	441
KB-008-3000 AA	442	KB ET-5000-SSA	217	KB PB-2000-SA	235
KB-008-3000 AR	219	KB ET-5000-SSA	367	KB PB-2000-SA	423
KB-008-3000 AR	352	KB ET-5000-SSA	374	KB PB-2000-SA	440
KB-008-3000 A-S	219	KB ET-5000-SSA	377	KB PB-2000-SBA	235
KB-008-3000 A-S	352	KB ET-5000-SSA	387	KB PB-2000-SBA	424
KB-008-3000 A-S	437	KB ET-5000-SSA	391	KB PB-2000-SBA	444
KB 008-10000 A	438	KB ET-5000-SSA	411	KB PB-5000-BA	214
KB 008-10000 A-S	352	KB ET-5000-SSA	433	KB PB-5000-BA	217
KB 008-10000 A-S	437	KB ET-5000-SSA	443	KB PB-5000-BA	225
KB-014S-5000-14	227	KB ET-10000-SA	418	KB PB-5000-BA	235
KB 034-2000	389	KB ET-10000-SA	423	KB PB-5000-BA	367
KB 034-2000	442	KB ET-10000-SA	440	KB PB-5000-BA	374
KB 232-1 f. FIS 6170	394	KB ET-10000-SA-RJ45	298	KB PB-5000-BA	377
KB 301-3000	367	KB ET-10000-SA-RJ45	419	KB PB-5000-BA	411
KB 301-3000	444	KB ET-10000-SA-RJ45	443	KB PB-5000-BA	423
KB 301-3000-MA200	444	KB ET-10000-SSA	443	KB PB-5000-BA	441
KB 301-10000	444	KB ET-15000-SA	418	KB PB-5000-SA	214
KB 307-3000	419	KB ET-15000-SA	423	KB PB-5000-SA	217
KB 307-3000	444	KB ET-15000-SA	440	KB PB-5000-SA	225
KB 900-1000	379	KB ET-15000-SA-RJ45	298	KB PB-5000-SA	235
KB 900-1000	413	KB ET-15000-SA-RJ45	419	KB PB-5000-SA	367
KB 900-3000	379	KB ET-15000-SA-RJ45	443	KB PB-5000-SA	374
KB 900-3000	413	KB ET-15000-SSA	443	KB PB-5000-SA	377
KB 900-5000	379	KB ET-30000-SA	418	KB PB-5000-SA	411
KB 900-5000	413	KB ET-30000-SA	423	KB PB-5000-SA	423
KB DN/CAN-1000 SBA	443	KB ET-30000-SA	440	KB PB-5000-SA	440
KB DN/CAN-2000 BA	440	KB ET-30000-SA-RJ45	298	KB PB-5000-SBA	214
KB DN/CAN-2000 SA	440	KB ET-30000-SA-RJ45	419	KB PB-5000-SBA	217
KB DN/CAN-2000 SBA	443	KB ET-30000-SA-RJ45	443	KB PB-5000-SBA	235
KB DN/CAN-5000 BA	214	KB ET-30000-SSA	443	KB PB-5000-SBA	367
KB DN/CAN-5000 BA	411	KB IBS-2000-SA	440	KB PB-5000-SBA	374
KB DN/CAN-5000 BA	440	KB IBS-5000-SA	214	KB PB-5000-SBA	377
KB DN/CAN-5000 SA	214	KB IBS-5000-SA	440	KB PB-5000-SBA	411
KB DN/CAN-5000 SA	411	KB IBS-10000-SA	440	KB PB-5000-SBA	424
KB DN/CAN-5000 SA	440	KB IBS-15000-SA	440	KB PB-5000-SBA	444
KB DN/CAN-5000 SBA	214	KB IBS-30000-SA	440	KB PB-10000-BA	235
KB DN/CAN-5000 SBA	411	KB JST-3000	411	KB PB-10000-BA	423
KB DN/CAN-5000 SBA	443	KB JST-HS-300	382	KB PB-10000-BA	441
KB DN/CAN-10000 BA	440	KB JST-HS-300	383	KB PB-10000-SA	423
KB DN/CAN-10000 SA	440	KB JST-HS-300	383	KB PB-10000-SA	440
KB DN/CAN-10000 SBA	443	KB JST-HS-300	384	KB PB-10000-SBA	235
KB DN/CAN-20000 SBA	443	KB JST-HS-300	392	KB PB-10000-SBA	424
KB DN/CAN-30000 BA	440	KB JST-HS-300	393	KB PB-10000-SBA	444
KB DN/CAN-30000 SA	440	KB JST-HS-300	394	KB PB-15000-BA	235
KB DSub-9P-3000	444	KB JST-HS-300	395	KB PB-15000-BA	423
KB ET-2000-SA	387	KB JST-HS-300	411	KB PB-15000-BA	441
KB ET-2000-SA	418	KB JST-M12A-5P-3000	411	KB PB-15000-SA	423
KB ET-2000-SA	423	KB JST-M12A-5P-3000	444	KB PB-15000-SA	441
KB ET-2000-SA	440	KB JST-M12A-8P-3000	389	KB PB-15000-SBA	424
KB ET-2000-SA-RJ45	298	KB JST-M12A-8P-Y-3000	411	KB PB-15000-SBA	444
KB ET-2000-SA-RJ45	387	KB M12/8-1000-BA	438	KB PB-30000-BA	423
KB ET-2000-SA-RJ45	419	KB M12/8-1000-SA	437	KB PB-30000-BA	441
KB ET-2000-SA-RJ45	443	KB M12/8-2000-BA	438	KB PB-30000-SA	423
KB ET-2000-SSA	387	KB M12/8-2000-SA	437	KB PB-30000-SA	441
KB ET-2000-SSA	443	KB M12/8-5000-BA	390	KB PB-30000-SBA	424
KB ET-5000-SA	214	KB M12/8-5000-BA	433	KB PB-30000-SBA	444
KB ET-5000-SA	387	KB M12/8-5000-BA	438	KB-ROD4-CP-5000	227
KB ET-5000-SA	390	KB M12/8-5000-SA	225	KB-ROD4PC-3000	227
KB ET-5000-SA	418	KB M12/8-5000-SA	280	KB-ROD4 plus 5000	227
KB ET-5000-SA	423	KB M12/8-5000-SA	390	KB RS232-1 HS 65x8	395
KB ET-5000-SA	433	KB M12/8-5000-SA	433	KB-RS232-Base Hx520	399
KB ET-5000-SA	440	KB M12/8-5000-SA	437	KB RS232/PIN9 IT4xxx	384
KB ET-5000-SA-RJ45	214	KB M12/8-10000-BA	438	KB-RS232-USB	227
KB ET-5000-SA-RJ45	217	KB M12/8-10000-SA	280	KB-RS232-USB	399
KB ET-5000-SA-RJ45	225	KB M12/8-10000-SA	437	KB SSI/IBS-2000-BA	440
KB ET-5000-SA-RJ45	227	KB M12/8-15000-SA	280	KB SSI/IBS-2000-BA	441
KB ET-5000-SA-RJ45	298	KB M12/8-15000-SA	437	KB SSI/IBS-2000-BA	444
KB ET-5000-SA-RJ45	367	KB M12/8-30000-BA	439	KB SSI/IBS-2000-BA	444
KB ET-5000-SA-RJ45	374	KB M12/8-30000-SA	280	KB SSI/IBS-5000-BA	214
KB ET-5000-SA-RJ45	377	KB M12/8-30000-SA	437	KB SSI/IBS-5000-BA	217
KB ET-5000-SA-RJ45	387	KB M12A-8P-USB-3000	389	KB SSI/IBS-5000-BA	367
KB ET-5000-SA-RJ45	391	KB PB-1000-SBA	235	KB SSI/IBS-5000-BA	440
KB ET-5000-SA-RJ45	411	KB PB-1000-SBA	424	KB SSI/IBS-5000-BA	441
KB ET-5000-SA-RJ45	419	KB PB-1000-SBA	444	KB SSI/IBS-10000-BA	440
KB ET-5000-SA-RJ45	433	KB PB-2000-BA	235	KB SSI/IBS-10000-BA	441

KB SSI/IBS-15000-BA.	440	K-D M8A-4P-5m-FAB.	440	K-D M12A-5P-5m-PUR.	438
KB SSI/IBS-15000-BA.	441	K-D M8A-4P-10m-FAB.	76	K-D M12A-5P-5m-PVC.	45
KB SSI/IBS-30000-BA.	440	K-D M8A-4P-10m-FAB.	440	K-D M12A-5P-5m-PVC.	48
KB SSI/IBS-30000-BA.	441	K-D M8A-4P-20m-PVC.	440	K-D M12A-5P-5m-PVC.	51
KB TTL-RS232/PIN9 IT4xxx.	384	K-D M8W-3P-10M-PVC.	439	K-D M12A-5P-5m-PVC.	84
KB USB-1 HS 65x8.	395	K-D M8W-4P-2m-FAB.	76	K-D M12A-5P-5m-PVC.	91
KB USB-1 IT190x.	382	K-D M8W-4P-2m-FAB.	81	K-D M12A-5P-5m-PVC.	165
KB USB-1 IT190x.	383	K-D M8W-4P-2m-FAB.	110	K-D M12A-5P-5m-PVC.	180
KB USB-1 IT190x.	384	K-D M8W-4P-2m-FAB.	439	K-D M12A-5P-5m-PVC.	187
KB USB-1 IT190x.	392	K-D M8W-4P-5m-FAB.	81	K-D M12A-5P-5m-PVC.	190
KB USB-1 IT190x.	393	K-D M8W-4P-5m-FAB.	110	K-D M12A-5P-5m-PVC.	192
KB USB-2 IT190x.	382	K-D M8W-4P-5m-FAB.	439	K-D M12A-5P-5m-PVC.	198
KB USB-2 IT190x.	383	K-D M8W-4P-10m-FAB.	76	K-D M12A-5P-5m-PVC.	200
KB USB-2 IT190x.	384	K-D M8W-4P-10m-FAB.	439	K-D M12A-5P-5m-PVC.	202
KB USB-2 IT190x.	392	K-D M12A-4P-2m-FAB.	134	K-D M12A-5P-5m-PVC.	205
KB USB-2 IT190x.	393	K-D M12A-4P-2m-FAB.	438	K-D M12A-5P-5m-PVC.	208
KB USB A - USB A.	444	K-D M12A-4P-5m-FAB.	134	K-D M12A-5P-5m-PVC.	209
KB USB A - USB miniB.	444	K-D M12A-4P-5m-FAB.	438	K-D M12A-5P-5m-PVC.	214
KB USB IT4xxx.	384	K-D M12A-4P-10m-FAB.	438	K-D M12A-5P-5m-PVC.	217
KD 01-5-BA.	214	K-D M12A-4P-20m-PVC.	289	K-D M12A-5P-5m-PVC.	235
KD 01-5-BA.	217	K-D M12A-4P-20m-PVC.	290	K-D M12A-5P-5m-PVC.	239
KD 01-5-BA.	219	K-D M12A-4P-20m-PVC.	438	K-D M12A-5P-5m-PVC.	367
KD 01-5-BA.	352	K-D M12A-4P-30m-PVC.	289	K-D M12A-5P-5m-PVC.	374
KD 01-5-BA.	445	K-D M12A-4P-30m-PVC.	290	K-D M12A-5P-5m-PVC.	377
KD 01-5-SA.	214	K-D M12A-4P-30m-PVC.	438	K-D M12A-5P-5m-PVC.	411
KD 01-5-SA.	445	K-D M12A-5P-2m-FAB.	165	K-D M12A-5P-5m-PVC.	418
KD 01-5-SR.	445	K-D M12A-5P-2m-FAB.	438	K-D M12A-5P-5m-PVC.	423
KD 01-8-BA.	445	K-D M12A-5P-2m-PUR.	45	K-D M12A-5P-5m-PVC.	438
KD 01-8-SA.	445	K-D M12A-5P-2m-PUR.	165	K-D M12A-5P-10m-PVC.	45
KD 02-5-BA.	214	K-D M12A-5P-2m-PUR.	180	K-D M12A-5P-10m-PVC.	190
KD 02-5-BA.	217	K-D M12A-5P-2m-PUR.	187	K-D M12A-5P-10m-PVC.	192
KD 02-5-BA.	236	K-D M12A-5P-2m-PUR.	190	K-D M12A-5P-10m-PVC.	235
KD 02-5-BA.	352	K-D M12A-5P-2m-PUR.	192	K-D M12A-5P-10m-PVC.	418
KD 02-5-BA.	367	K-D M12A-5P-2m-PUR.	198	K-D M12A-5P-10m-PVC.	423
KD 02-5-BA.	375	K-D M12A-5P-2m-PUR.	200	K-D M12A-5P-10m-PVC.	438
KD 02-5-BA.	377	K-D M12A-5P-2m-PUR.	202	K-D M12A-5P-30m-PVC.	438
KD 02-5-BA.	411	K-D M12A-5P-2m-PUR.	235	K-D M12A-8P-2m-PUR.	178
KD 02-5-BA.	445	K-D M12A-5P-2m-PUR.	438	K-D M12A-8P-2m-PUR.	192
KD 02-5-SA.	214	K-D M12A-5P-2m-PVC.	45	K-D M12A-8P-2m-PUR.	193
KD 02-5-SA.	217	K-D M12A-5P-2m-PVC.	48	K-D M12A-8P-2m-PUR.	206
KD 02-5-SA.	367	K-D M12A-5P-2m-PVC.	51	K-D M12A-8P-2m-PUR.	235
KD 02-5-SA.	375	K-D M12A-5P-2m-PVC.	84	K-D M12A-8P-2m-PUR.	389
KD 02-5-SA.	377	K-D M12A-5P-2m-PVC.	91	K-D M12A-8P-2m-PUR.	438
KD 02-5-SA.	411	K-D M12A-5P-2m-PVC.	141	K-D M12A-8P-5m-PUR.	178
KD 02-5-SA.	445	K-D M12A-5P-2m-PVC.	145	K-D M12A-8P-5m-PUR.	192
KD 095-4.	445	K-D M12A-5P-2m-PVC.	165	K-D M12A-8P-5m-PUR.	193
KD 095-4A.	445	K-D M12A-5P-2m-PVC.	180	K-D M12A-8P-5m-PUR.	206
KD 095-5.	165	K-D M12A-5P-2m-PVC.	187	K-D M12A-8P-5m-PUR.	225
KD 095-5.	445	K-D M12A-5P-2m-PVC.	190	K-D M12A-8P-5m-PUR.	227
KD 095-5A.	165	K-D M12A-5P-2m-PVC.	192	K-D M12A-8P-5m-PUR.	235
KD 095-5A.	214	K-D M12A-5P-2m-PVC.	198	K-D M12A-8P-5m-PUR.	389
KD 095-5A.	217	K-D M12A-5P-2m-PVC.	200	K-D M12A-8P-5m-PUR.	438
KD 095-5A.	367	K-D M12A-5P-2m-PVC.	202	K-D M12A-8P-10m-PUR.	178
KD 095-5A.	375	K-D M12A-5P-2m-PVC.	205	K-D M12A-8P-10m-PUR.	192
KD 095-5A.	377	K-D M12A-5P-2m-PVC.	208	K-D M12A-8P-10m-PUR.	193
KD 095-5A.	419	K-D M12A-5P-2m-PVC.	209	K-D M12A-8P-10m-PUR.	206
KD 095-5A.	445	K-D M12A-5P-2m-PVC.	235	K-D M12A-8P-10m-PUR.	235
KD 095-5A-PG9.	445	K-D M12A-5P-2m-PVC.	239	K-D M12A-8P-10m-PUR.	438
K-D M8A-3P-2m-PVC.	28	K-D M12A-5P-2m-PVC.	423	K-D M12W-4P-2m-FAB.	134
K-D M8A-3P-2m-PVC.	37	K-D M12A-5P-2m-PVC.	438	K-D M12W-4P-2m-FAB.	436
K-D M8A-3P-2m-PVC.	41	K-D M12A-5P-5m-FAB.	165	K-D M12W-4P-5m-FAB.	134
K-D M8A-3P-2m-PVC.	110	K-D M12A-5P-5m-FAB.	438	K-D M12W-4P-5m-FAB.	437
K-D M8A-3P-2m-PVC.	120	K-D M12A-5P-5m-PUR.	45	K-D M12W-4P-10m-FAB.	437
K-D M8A-3P-2m-PVC.	127	K-D M12A-5P-5m-PUR.	51	K-D M12W-4P-20M-PVC.	437
K-D M8A-3P-2m-PVC.	129	K-D M12A-5P-5m-PUR.	84	K-D M12W-5P-2m-FAB.	165
K-D M8A-3P-2m-PVC.	137	K-D M12A-5P-5m-PUR.	91	K-D M12W-5P-2m-FAB.	437
K-D M8A-3P-2m-PVC.	157	K-D M12A-5P-5m-PUR.	141	K-D M12W-5P-2m-FAB.	165
K-D M8A-3P-2m-PVC.	165	K-D M12A-5P-5m-PUR.	145	K-D M12W-5P-2m-PUR.	180
K-D M8A-3P-2m-PVC.	439	K-D M12A-5P-5m-PUR.	165	K-D M12W-5P-2m-PUR.	187
K-D M8A-3P-10M-PVC.	439	K-D M12A-5P-5m-PUR.	180	K-D M12W-5P-2m-PUR.	198
K-D M8A-4P-2m-FAB.	76	K-D M12A-5P-5m-PUR.	187	K-D M12W-5P-2m-PUR.	200
K-D M8A-4P-2m-FAB.	81	K-D M12A-5P-5m-PUR.	190	K-D M12W-5P-2m-PUR.	202
K-D M8A-4P-2m-FAB.	110	K-D M12A-5P-5m-PUR.	192	K-D M12W-5P-2m-PUR.	437
K-D M8A-4P-2m-FAB.	440	K-D M12A-5P-5m-PUR.	198	K-D M12W-5P-2m-PVC.	48
K-D M8A-4P-5m-FAB.	76	K-D M12A-5P-5m-PUR.	200	K-D M12W-5P-2m-PVC.	51
K-D M8A-4P-5m-FAB.	81	K-D M12A-5P-5m-PUR.	202	K-D M12W-5P-2m-PVC.	84
K-D M8A-4P-5m-FAB.	110	K-D M12A-5P-5m-PUR.	235	K-D M12W-5P-2m-PVC.	91

K-D M12W-5P-2m-PVC	141	KD S-M12-4W-P1-150	437	KDS U-M12-4A-M12-4A-P1-006-DP	442
K-D M12W-5P-2m-PVC	145	K-DS M12A-8P-0,75m-LxS36-CP	225	KDS U-M12-4A-M12-4A-P1-010	442
K-D M12W-5P-2m-PVC	165	K-DS M12A-8P-4P-2m-L-PUR	178	KDS U-M12-4A-M12-4A-P1-010-DP	442
K-D M12W-5P-2m-PVC	180	K-DS M12A-8P-4P-2m-L-PUR	235	KDS U-M12-4A-M12-4A-P1-015	442
K-D M12W-5P-2m-PVC	187	K-DS M12A-8P-4P-2m-L-PUR	442	KDS U-M12-4A-M12-4A-P1-020	442
K-D M12W-5P-2m-PVC	198	K-DS M12A-8P-4P-5m-L-PUR	178	KDS U-M12-4A-M12-4A-P1-020-DP	442
K-D M12W-5P-2m-PVC	200	K-DS M12A-8P-4P-5m-L-PUR	235	KDS U-M12-4A-M12-4A-P1-030	442
K-D M12W-5P-2m-PVC	202	K-DS M12A-8P-4P-5m-L-PUR	442	KDS U-M12-4A-M12-4A-P1-030-DP	442
K-D M12W-5P-2m-PVC	205	K-DS M12A-M8A-4P-0,3m-PVC	442	KDS U-M12-4A-M12-4A-P1-050	442
K-D M12W-5P-2m-PVC	208	K-DS M12A-MA-5P-3m-S-PUR	411	KDS U-M12-4A-M12-4A-P1-050-DP	442
K-D M12W-5P-2m-PVC	209	K-DS M12A-MA-5P-3m-S-PUR	442	KDS U-M12-4A-M12-4A-P1-100	442
K-D M12W-5P-2m-PVC	239	K-DS M12A-MA-8P-3m-S-PUR	206	KDS U-M12-4A-M12-4W-P1-003	442
K-D M12W-5P-2m-PVC	437	K-DS M12A-MA-8P-3m-S-PUR	411	KDS U-M12-4A-M12-4W-P1-006	442
K-D M12W-5P-5m-FAB	165	K-DS M12A-MA-8P-3m-S-PUR	442	KDS U-M12-4A-M12-4W-P1-010	442
K-D M12W-5P-5m-FAB	437	KD S-M12-CA-P1-020	387	KDS U-M12-4A-M12-4W-P1-020	442
K-D M12W-5P-5m-PUR	51	KD S-M12-CA-P1-020	439	KDS U-M12-4A-M12-4W-P1-030	442
K-D M12W-5P-5m-PUR	84	KD S-M12-CA-P1-050	387	KDS U-M12-4A-M12-4W-P1-050	442
K-D M12W-5P-5m-PUR	91	KD S-M12-CA-P1-050	439	KDS U-M12-4A-M12-4W-P1-003	442
K-D M12W-5P-5m-PUR	141	KD S-M12-CA-P1-100	439	KDS U-M12-4A-M12-4W-V1-006	442
K-D M12W-5P-5m-PUR	145	KDS S-M12-CA-M12-CA-P1-020	387	KDS U-M12-4A-M12-4W-V1-010	442
K-D M12W-5P-5m-PUR	165	KDS S-M12-CA-M12-CA-P1-020	442	KDS U-M12-4A-M12-4W-V1-020	442
K-D M12W-5P-5m-PUR	180	KDS S-M12-CA-M12-CA-P1-050	387	KDS U-M12-4A-M12-4W-V1-030	442
K-D M12W-5P-5m-PUR	187	KDS S-M12-CA-M12-CA-P1-050	442	KDS U-M12-4A-M12-4W-V1-050	442
K-D M12W-5P-5m-PUR	198	KDS S-M12-CA-M12-CA-P1-100	442	KDS U-M12-4W-M12-4A-P1-006-3DP	441
K-D M12W-5P-5m-PUR	200	KDS U-M8-3A-M8-3A-P1-003	442	KDS U-M12-4W-M12-4A-P1-010-3DP	441
K-D M12W-5P-5m-PUR	202	KDS U-M8-3A-M8-3A-P1-003-DP	442	KDS U-M12-4W-M12-4A-P1-015-3DP	441
K-D M12W-5P-5m-PUR	437	KDS U-M8-3A-M8-3A-P1-006	442	KDS U-M12-4W-M12-4A-P1-020-3DP	441
K-D M12W-5P-5m-PVC	48	KDS U-M8-3A-M8-3A-P1-006-DP	442	KDS U-M12-4W-M12-4A-P1-030-3DP	441
K-D M12W-5P-5m-PVC	51	KDS U-M8-3A-M8-3A-P1-010	442	KDS U-M12-4W-M12-4A-P1-050-3DP	441
K-D M12W-5P-5m-PVC	84	KDS U-M8-3A-M8-3A-P1-010-DP	442	KD U-M8-3A-P1-020	120
K-D M12W-5P-5m-PVC	91	KDS U-M8-3A-M8-3A-P1-015	443	KD U-M8-3A-P1-020	127
K-D M12W-5P-5m-PVC	165	KDS U-M8-3A-M8-3A-P1-015-DP	443	KD U-M8-3A-P1-020	129
K-D M12W-5P-5m-PVC	180	KDS U-M8-3A-M8-3A-P1-020	443	KD U-M8-3A-P1-020	137
K-D M12W-5P-5m-PVC	187	KDS U-M8-3A-M8-3A-P1-020-DP	443	KD U-M8-3A-P1-020	157
K-D M12W-5P-5m-PVC	198	KDS U-M8-3A-M8-3A-P1-030	443	KD U-M8-3A-P1-020	439
K-D M12W-5P-5m-PVC	200	KDS U-M8-3A-M8-3A-P1-050	442	KD U-M8-3A-P1-020-DP	439
K-D M12W-5P-5m-PVC	202	KDS U-M8-3A-M8-3A-P1-050	443	KD U-M8-3A-P1-030	439
K-D M12W-5P-5m-PVC	205	KDS U-M8-3A-M8-3A-V1-003	442	KD U-M8-3A-P1-050	137
K-D M12W-5P-5m-PVC	208	KDS U-M8-3A-M8-3A-V1-006	442	KD U-M8-3A-P1-050	150
K-D M12W-5P-5m-PVC	209	KDS U-M8-3A-M8-3A-V1-010	443	KD U-M8-3A-P1-050	157
K-D M12W-5P-5m-PVC	239	KDS U-M8-3A-M8-3A-V1-020	443	KD U-M8-3A-P1-050	439
K-D M12W-5P-5m-PVC	437	KDS U-M8-3A-M12-3A-P1-003	441	KD U-M8-3A-P1-050-DP	440
K-D M12W-5P-10m-PVC	437	KDS U-M8-3A-M12-3A-P1-006	441	KD U-M8-3A-P1-100	157
KDS BUS OUT M12-T-5P	236	KDS U-M8-3A-M12-3A-P1-010	443	KD U-M8-3A-P1-100	439
KDS DN-M12-5A-M12-5A-P3-010	178	KDS U-M8-3A-M12-3A-P1-015	441	KD U-M8-3A-P1-100-DP	440
KDS DN-M12-5A-M12-5A-P3-010	235	KDS U-M8-3A-M12-3A-P1-020	441	KD U-M8-3A-P1-150	439
KDS DN-M12-5A-M12-5A-P3-010	443	KDS U-M8-3W-M8-3A-P1-003	442	KD U-M8-3A-P1-200	439
KDS DN-M12-5A-M12-5A-P3-010	444	KDS U-M8-3W-M8-3A-P1-003-DP	442	KD U-M8-3A-V1-020	439
KDS DN-M12-5A-M12-5A-P3-020	178	KDS U-M8-3W-M8-3A-P1-006	442	KD U-M8-3A-V1-020-DP	439
KDS DN-M12-5A-M12-5A-P3-020	235	KDS U-M8-3W-M8-3A-P1-006-DP	442	KD U-M8-3A-V1-030	439
KDS DN-M12-5A-M12-5A-P3-020	443	KDS U-M8-3W-M8-3A-P1-010	442	KD U-M8-3A-V1-050	28
KDS DN-M12-5A-M12-5A-P3-020	444	KDS U-M8-3W-M8-3A-P1-010-DP	442	KD U-M8-3A-V1-050	37
KDS DN-M12-5A-M12-5A-P3-050	178	KDS U-M8-3W-M8-3A-P1-015-DP	442	KD U-M8-3A-V1-050	41
KDS DN-M12-5A-M12-5A-P3-050	235	KDS U-M8-3W-M8-3A-P1-020	442	KD U-M8-3A-V1-050	110
KDS DN-M12-5A-M12-5A-P3-050	443	KDS U-M8-3W-M8-3A-P1-020-DP	442	KD U-M8-3A-V1-050	120
KDS DN-M12-5A-M12-5A-P3-050	444	KDS U-M8-4A-M8-4A-P1-003	443	KD U-M8-3A-V1-050	127
KDS DN-M12-5A-M12-5A-P3-100	178	KDS U-M8-4A-M8-4A-P1-006	443	KD U-M8-3A-V1-050	129
KDS DN-M12-5A-M12-5A-P3-100	235	KDS U-M8-4A-M8-4A-P1-010	443	KD U-M8-3A-V1-050	137
KDS DN-M12-5A-M12-5A-P3-100	443	KDS U-M8-4A-M8-4A-P1-020	443	KD U-M8-3A-V1-050	157
KDS DN-M12-5A-M12-5A-P3-100	444	KDS U-M12-3A-M12-3A-P1-006	441	KD U-M8-3A-V1-050	165
KDS DN-M12-5A-M12-5A-P3-200	178	KDS U-M12-3A-M12-3A-P1-010	441	KD U-M8-3A-V1-050	439
KDS DN-M12-5A-M12-5A-P3-200	235	KDS U-M12-3A-M12-3A-P1-020	441	KD U-M8-3A-V1-050-DP	440
KDS DN-M12-5A-M12-5A-P3-200	443	KDS U-M12-3A-M12-3A-P1-030	441	KD U-M8-3A-V1-100	439
KDS DN-M12-5A-M12-5A-P3-200	444	KDS U-M12-3A-M12-3A-P1-050	442	KD U-M8-3A-V1-100-DP	440
KDS ET-M12 / RJ45 W-4P	419	KDS U-M12-3W-M12-3A-P1-006	441	KD U-M8-3A-V1-150	439
K-DS M8A-M12A-4P-0,3m-PVC	441	KDS U-M12-3W-M12-3A-P1-006-DP	441	KD U-M8-3A-V1-200	439
KD S-M12-4A-P1-020	438	KDS U-M12-3W-M12-3A-P1-010	441	KD U-M8-3W-P1-020	439
KD S-M12-4A-P1-050	258	KDS U-M12-3W-M12-3A-P1-010-DP	441	KD U-M8-3W-P1-020-DP	439
KD S-M12-4A-P1-050	438	KDS U-M12-3W-M12-3A-P1-020	441	KD U-M8-3W-P1-030	439
KD S-M12-4A-P1-100	258	KDS U-M12-3W-M12-3A-P1-020-DP	441	KD U-M8-3W-P1-030-DP	439
KD S-M12-4A-P1-100	438	KDS U-M12-3W-M12-3A-P1-030	441	KD U-M8-3W-P1-050	137
KD S-M12-4A-V1-020	438	KDS U-M12-3W-M12-3A-P1-030-DP	441	KD U-M8-3W-P1-050	150
KD S-M12-4A-V1-050	438	KDS U-M12-3W-M12-3A-P1-050	441	KD U-M8-3W-P1-050	157
KD S-M12-4A-V1-100	438	KDS U-M12-3W-M12-3A-P1-050-DP	441	KD U-M8-3W-P1-050	439
KD S-M12-4W-P1-020	436	KDS U-M12-4A-M12-4A-P1-003	442	KD U-M8-3W-P1-050-DP	439
KD S-M12-4W-P1-050	437	KDS U-M12-4A-M12-4A-P1-003-DP	442	KD U-M8-3W-P1-100	439
KD S-M12-4W-P1-100	437	KDS U-M12-4A-M12-4A-P1-006	442	KD U-M8-3W-P1-100-DP	439

KD U-M8-3W-P1-200	439	KD U-M8-4W-V1-020	37	KD U-M12-4A-P1-020-DP	438
KD U-M8-3W-V1-020	28	KD U-M8-4W-V1-020	41	KD U-M12-4A-P1-030	438
KD U-M8-3W-V1-020	37	KD U-M8-4W-V1-020	59	KD U-M12-4A-P1-030-DP	438
KD U-M8-3W-V1-020	41	KD U-M8-4W-V1-020	141	KD U-M12-4A-P1-050	51
KD U-M8-3W-V1-020	110	KD U-M8-4W-V1-020	150	KD U-M12-4A-P1-050	59
KD U-M8-3W-V1-020	157	KD U-M8-4W-V1-020	165	KD U-M12-4A-P1-050	63
KD U-M8-3W-V1-020	165	KD U-M8-4W-V1-020	171	KD U-M12-4A-P1-050	70
KD U-M8-3W-V1-020	439	KD U-M8-4W-V1-020	183	KD U-M12-4A-P1-050	81
KD U-M8-3W-V1-020-DP	439	KD U-M8-4W-V1-020	185	KD U-M12-4A-P1-050	84
KD U-M8-3W-V1-030	439	KD U-M8-4W-V1-020	439	KD U-M12-4A-P1-050	91
KD U-M8-3W-V1-030-DP	439	KD U-M8-4W-V1-020-DP	439	KD U-M12-4A-P1-050	96
KD U-M8-3W-V1-050	28	KD U-M8-4W-V1-030	439	KD U-M12-4A-P1-050	99
KD U-M8-3W-V1-050	37	KD U-M8-4W-V1-050	28	KD U-M12-4A-P1-050	103
KD U-M8-3W-V1-050	41	KD U-M8-4W-V1-050	37	KD U-M12-4A-P1-050	105
KD U-M8-3W-V1-050	110	KD U-M8-4W-V1-050	41	KD U-M12-4A-P1-050	107
KD U-M8-3W-V1-050	137	KD U-M8-4W-V1-050	59	KD U-M12-4A-P1-050	110
KD U-M8-3W-V1-050	157	KD U-M8-4W-V1-050	120	KD U-M12-4A-P1-050	112
KD U-M8-3W-V1-050	165	KD U-M8-4W-V1-050	141	KD U-M12-4A-P1-050	188
KD U-M8-3W-V1-050	439	KD U-M8-4W-V1-050	150	KD U-M12-4A-P1-050	283
KD U-M8-3W-V1-050-DP	439	KD U-M8-4W-V1-050	171	KD U-M12-4A-P1-050	289
KD U-M8-3W-V1-100	439	KD U-M8-4W-V1-050	183	KD U-M12-4A-P1-050	290
KD U-M8-3W-V1-100-DP	439	KD U-M8-4W-V1-050	185	KD U-M12-4A-P1-050	292
KD U-M8-3W-V1-200	439	KD U-M8-4W-V1-050	439	KD U-M12-4A-P1-050	294
KD U-M8-4A-P1-020	120	KD U-M8-4W-V1-050-DP	439	KD U-M12-4A-P1-050	438
KD U-M8-4A-P1-020	171	KD U-M8-4W-V1-100	439	KD U-M12-4A-P1-050-DP	438
KD U-M8-4A-P1-020	292	KD U-M8-4W-V1-100-DP	439	KD U-M12-4A-P1-100	188
KD U-M8-4A-P1-020	324	KD U-M12-3A-P1-020	437	KD U-M12-4A-P1-100	283
KD U-M8-4A-P1-020	440	KD U-M12-3A-P1-020-DP	437	KD U-M12-4A-P1-100	289
KD U-M8-4A-P1-030	440	KD U-M12-3A-P1-030	437	KD U-M12-4A-P1-100	290
KD U-M8-4A-P1-050	59	KD U-M12-3A-P1-030-DP	437	KD U-M12-4A-P1-100	292
KD U-M8-4A-P1-050	171	KD U-M12-3A-P1-050	438	KD U-M12-4A-P1-100	294
KD U-M8-4A-P1-050	292	KD U-M12-3A-P1-050-DP	438	KD U-M12-4A-P1-100	438
KD U-M8-4A-P1-050	324	KD U-M12-3A-P1-100	438	KD U-M12-4A-P1-100-DP	438
KD U-M8-4A-P1-050	440	KD U-M12-3A-P1-100-DP	438	KD U-M12-4A-P1-100	28
KD U-M8-4A-P1-100	171	KD U-M12-3A-V1-020	437	KD U-M12-4A-V1-020	37
KD U-M8-4A-P1-100	292	KD U-M12-3A-V1-020-DP	437	KD U-M12-4A-V1-020	41
KD U-M8-4A-P1-100	324	KD U-M12-3A-V1-030	437	KD U-M12-4A-V1-020	51
KD U-M8-4A-P1-100	440	KD U-M12-3A-V1-030-DP	437	KD U-M12-4A-V1-020	59
KD U-M8-4A-P1-150	440	KD U-M12-3A-V1-050	438	KD U-M12-4A-V1-020	63
KD U-M8-4A-P1-200	440	KD U-M12-3A-V1-050-DP	438	KD U-M12-4A-V1-020	70
KD U-M8-4A-V1-020	28	KD U-M12-3A-V1-100	438	KD U-M12-4A-V1-020	81
KD U-M8-4A-V1-020	37	KD U-M12-3A-V1-100-DP	438	KD U-M12-4A-V1-020	84
KD U-M8-4A-V1-020	41	KD U-M12-3W-P1-020	436	KD U-M12-4A-V1-020	91
KD U-M8-4A-V1-020	59	KD U-M12-3W-P1-020-DP	436	KD U-M12-4A-V1-020	96
KD U-M8-4A-V1-020	120	KD U-M12-3W-P1-030	436	KD U-M12-4A-V1-020	99
KD U-M8-4A-V1-020	141	KD U-M12-3W-P1-030-DP	436	KD U-M12-4A-V1-020	103
KD U-M8-4A-V1-020	150	KD U-M12-3W-P1-050	436	KD U-M12-4A-V1-020	105
KD U-M8-4A-V1-020	165	KD U-M12-3W-P1-050-DP	436	KD U-M12-4A-V1-020	107
KD U-M8-4A-V1-020	171	KD U-M12-3W-P1-100	436	KD U-M12-4A-V1-020	110
KD U-M8-4A-V1-020	183	KD U-M12-3W-P1-100-DP	436	KD U-M12-4A-V1-020	112
KD U-M8-4A-V1-020	185	KD U-M12-3W-P1-150-DP	436	KD U-M12-4A-V1-020	120
KD U-M8-4A-V1-020	440	KD U-M12-3W-V1-020	436	KD U-M12-4A-V1-020	127
KD U-M8-4A-V1-030	440	KD U-M12-3W-V1-020-DP	436	KD U-M12-4A-V1-020	129
KD U-M8-4A-V1-050	28	KD U-M12-3W-V1-030	436	KD U-M12-4A-V1-020	134
KD U-M8-4A-V1-050	37	KD U-M12-3W-V1-030-DP	436	KD U-M12-4A-V1-020	145
KD U-M8-4A-V1-050	41	KD U-M12-3W-V1-050	436	KD U-M12-4A-V1-020	150
KD U-M8-4A-V1-050	59	KD U-M12-3W-V1-050-DP	436	KD U-M12-4A-V1-020	183
KD U-M8-4A-V1-050	120	KD U-M12-3W-V1-100	436	KD U-M12-4A-V1-020	185
KD U-M8-4A-V1-050	141	KD U-M12-3W-V1-100-DP	436	KD U-M12-4A-V1-020	188
KD U-M8-4A-V1-050	150	KD U-M12-3W-V1-150-DP	436	KD U-M12-4A-V1-020	289
KD U-M8-4A-V1-050	165	KD U-M12-4A-P1-020	63	KD U-M12-4A-V1-020	290
KD U-M8-4A-V1-050	171	KD U-M12-4A-P1-020	70	KD U-M12-4A-V1-020	438
KD U-M8-4A-V1-050	183	KD U-M12-4A-P1-020	81	KD U-M12-4A-V1-020-DP	438
KD U-M8-4A-V1-050	185	KD U-M12-4A-P1-020	96	KD U-M12-4A-V1-030	438
KD U-M8-4A-V1-050	440	KD U-M12-4A-P1-020	99	KD U-M12-4A-V1-030-DP	438
KD U-M8-4A-V1-100	440	KD U-M12-4A-P1-020	103	KD U-M12-4A-V1-050	28
KD U-M8-4A-V1-150	440	KD U-M12-4A-P1-020	105	KD U-M12-4A-V1-050	37
KD U-M8-4A-V1-200	440	KD U-M12-4A-P1-020	107	KD U-M12-4A-V1-050	41
KD U-M8-4W-P1-020	439	KD U-M12-4A-P1-020	110	KD U-M12-4A-V1-050	51
KD U-M8-4W-P1-020-DP	439	KD U-M12-4A-P1-020	112	KD U-M12-4A-V1-050	59
KD U-M8-4W-P1-030	439	KD U-M12-4A-P1-020	188	KD U-M12-4A-V1-050	63
KD U-M8-4W-P1-050	59	KD U-M12-4A-P1-020	283	KD U-M12-4A-V1-050	70
KD U-M8-4W-P1-050	439	KD U-M12-4A-P1-020	289	KD U-M12-4A-V1-050	81
KD U-M8-4W-P1-050-DP	439	KD U-M12-4A-P1-020	290	KD U-M12-4A-V1-050	84
KD U-M8-4W-P1-100	439	KD U-M12-4A-P1-020	292	KD U-M12-4A-V1-050	91
KD U-M8-4W-P1-100-DP	439	KD U-M12-4A-P1-020	294	KD U-M12-4A-V1-050	96
KD U-M8-4W-V1-020	28	KD U-M12-4A-P1-020	438	KD U-M12-4A-V1-050	99

KD U-M12-4A-V1-050	103	KD U-M12-4W-V1-050	107	KRTL 3B/4.3111-S8	182
KD U-M12-4A-V1-050	105	KD U-M12-4W-V1-050	110	KRTL 3B/6.3111-S8	182
KD U-M12-4A-V1-050	107	KD U-M12-4W-V1-050	112	KRTM 3B/2.1121,200-S12	182
KD U-M12-4A-V1-050	110	KD U-M12-4W-V1-050	120	KRTM 3B/2.1121-S8	182
KD U-M12-4A-V1-050	112	KD U-M12-4W-V1-050	127	KRTM 3B/2.1221,200-S12	182
KD U-M12-4A-V1-050	120	KD U-M12-4W-V1-050	129	KRTM 3B/2.1221-S8	182
KD U-M12-4A-V1-050	127	KD U-M12-4W-V1-050	134	KRTM 3B/4.1121,200-S12	182
KD U-M12-4A-V1-050	129	KD U-M12-4W-V1-050	145	KRTM 3B/4.1121-S8	182
KD U-M12-4A-V1-050	134	KD U-M12-4W-V1-050	150	KRTM 3B/4.1221,200-S12	182
KD U-M12-4A-V1-050	145	KD U-M12-4W-V1-050	183	KRTM 3B/4.1221-S8	182
KD U-M12-4A-V1-050	150	KD U-M12-4W-V1-050	185	KRTM 3B/4.2121-S8	182
KD U-M12-4A-V1-050	183	KD U-M12-4W-V1-050	437	KRTM 3B/6.1121-S8	182
KD U-M12-4A-V1-050	185	KD U-M12-4W-V1-050-3DP	437	KRTM 3B/6.1221-S8	182
KD U-M12-4A-V1-050	188	KD U-M12-4W-V1-050-DP	437	KRTM 3B/6.2121-S8	182
KD U-M12-4A-V1-050	289	KD U-M12-4W-V1-100	437	KRTM 20M/C-20-6526-S12	186
KD U-M12-4A-V1-050	290	KD U-M12-4W-V1-100-3DP	437	KRTM 20M/C-20-6626-S12	186
KD U-M12-4A-V1-050	438	KD U-M12-4W-V1-100-DP	437	KRTM 20M/N-20-3320-S12	186
KD U-M12-4A-V1-050-DP	438	KF-ET-10ML-20	152	KRTM 20M/N-20-6320-S12	186
KD U-M12-4A-V1-100	438	KF-ET-15MLD-20	152	KRTM 20M/P-12-6420-S12	186
KD U-M12-4A-V1-100-DP	438	KF-ET-20MLS-20	152	KRTM 20M/P-20-3320-S12	186
KD U-M12-4W-P1-020	63	KF-ET-30ML-20	152	KRTM 20M/P-20-6320-S12	186
KD U-M12-4W-P1-020	70	KF-ET-50ML-20	152	KRTM 20M/P-50-6320-S12	186
KD U-M12-4W-P1-020	81	KF-ETB-38V-20	152	KRTM 20M/V-20-0001-S12	186
KD U-M12-4W-P1-020	96	KF-ETE-220	151	KRTM 20M/V-20-0004-S12	186
KD U-M12-4W-P1-020	99	KF-ETH-38H-20	152	KRTM 55/2.1121,200-S12	184
KD U-M12-4W-P1-020	103	KF-ETW-FU47-20	152	KRTM 55/2.1121-S8	184
KD U-M12-4W-P1-020	105	KF-ETW-K10-20	152	KRTM 55/2.1221,200-S12	184
KD U-M12-4W-P1-020	107	KF-ETY-20MLSD-20	152	KRTM 55/2.1221-S8	184
KD U-M12-4W-P1-020	110	KF-L-10ML-10	152	KRTM 55/4.1121,200-S12	184
KD U-M12-4W-P1-020	112	KF-L-10MLD-20	152	KRTM 55/4.1121,5000	184
KD U-M12-4W-P1-020	437	KF-L-15MLD-10	152	KRTM 55/4.1121-S8	184
KD U-M12-4W-P1-020-3DP	437	KF-L-30ML-20	152	KRTM 55/4.1221,200-S12	184
KD U-M12-4W-P1-020-DP	437	KF-L-50ML-20	152	KRTM 55/4.1221-S8	184
KD U-M12-4W-P1-030	437	KF-L-320-D-T14L	151	KRTM 55/6.1121-S8	184
KD U-M12-4W-P1-030-3DP	437	KF-LC32-12	151	KRTW 3B/2.1110-S8	182
KD U-M12-4W-P1-030-DP	437	KF-LD-210-32	151	KRTW 3B/2.1121,200-S12	182
KD U-M12-4W-P1-050	51	KF-LE-220	151	KRTW 3B/2.1121-S8	182
KD U-M12-4W-P1-050	59	KF-LH-305-D	151	KRTW 3B/2.1321,200-S12	182
KD U-M12-4W-P1-050	63	KF-LH-320-D	151	KRTW 3B/2.1321-S8	182
KD U-M12-4W-P1-050	70	KF-LP-FU92-520-Q	151	KRTW 3B/4.1110-S8	182
KD U-M12-4W-P1-050	81	KF-LP-FU96-520-Q	151	KRTW 3B/4.1121,200-S12	182
KD U-M12-4W-P1-050	84	KF-LW-FU53-20	152	KRTW 3B/4.1121-S8	182
KD U-M12-4W-P1-050	91	KF-LW-FU57-20	152	KRTW 3B/4.1321,200-S12	182
KD U-M12-4W-P1-050	96	KF-LY-77TZ-20	151	KRTW 3B/4.1321-S8	182
KD U-M12-4W-P1-050	99	KF-LY-U09-20	152	KRTW 3B/4.2121-S8	182
KD U-M12-4W-P1-050	103	KFX-ET-20ML-20	152	KRTW 3B/6.1121-S8	182
KD U-M12-4W-P1-050	105	KFX-ET-605	152	KRTW 3B/6.1321-S8	182
KD U-M12-4W-P1-050	107	KFX-ET-620	151	KRTW 55/2.1121,200-S12	184
KD U-M12-4W-P1-050	110	KFX-ETA-320	151	KRTW 55/2.1121-S8	184
KD U-M12-4W-P1-050	112	KFX-ETA-420	151	KRTW 55/4.1121,200-S12	184
KD U-M12-4W-P1-050	145	KFX-ETC7-120	152	KRTW 55/4.1121,5000	184
KD U-M12-4W-P1-050	437	KFX-ETC-320	152	KRTW 55/4.1121-S8	184
KD U-M12-4W-P1-050-3DP	437	KFX-ETC-320-Q	152	KRTW 55/6.1121-S8	184
KD U-M12-4W-P1-050-DP	437	KFX-ETC-420	152	KS 095-4A	375
KD U-M12-4W-P1-100	437	KFX-ETC-620	152	KS 095-4A	445
KD U-M12-4W-P1-100-3DP	437	KFX-ETD-320	152	KS 095-5A	445
KD U-M12-4W-P1-100-DP	437	KFX-ETD-320-Q	152	KSS CR-USB-AA-RJ41-A-T0-018	394
KD U-M12-4W-P1-150-3DP	437	KFX-ETD-420	152	KSS ET-M12-4A-M12-4A-P7-010	214
KD U-M12-4W-V1-020	437	KFX-ETH-620	152	KSS ET-M12-4A-M12-4A-P7-010	217
KD U-M12-4W-V1-020-3DP	437	KFX-ETY-67TZ-20	152	KSS ET-M12-4A-M12-4A-P7-010	367
KD U-M12-4W-V1-020-DP	437	KFX-L-20ML-20	152	KSS ET-M12-4A-M12-4A-P7-010	374
KD U-M12-4W-V1-030	437	KFX-L-320	151	KSS ET-M12-4A-M12-4A-P7-010	377
KD U-M12-4W-V1-030-DP	437	KFX-L-320-Q	151	KSS ET-M12-4A-M12-4A-P7-010	391
KD U-M12-4W-V1-050	28	KFX-L-420	151	KSS ET-M12-4A-M12-4A-P7-010	411
KD U-M12-4W-V1-050	37	KFX-LA-220	151	KSS ET-M12-4A-M12-4A-P7-010	433
KD U-M12-4W-V1-050	41	KFX-LD-120	151	KSS ET-M12-4A-M12-4A-P7-010	443
KD U-M12-4W-V1-050	51	KFX-LD-320	151	KSS ET-M12-4A-RJ45-A-P7-010	214
KD U-M12-4W-V1-050	59	KFX-LD-320-Q	151	KSS ET-M12-4A-RJ45-A-P7-010	217
KD U-M12-4W-V1-050	63	KFX-LD-420	151	KSS ET-M12-4A-RJ45-A-P7-010	225
KD U-M12-4W-V1-050	70	KFX-LH-320	151	KSS ET-M12-4A-RJ45-A-P7-010	227
KD U-M12-4W-V1-050	81	KFX-LH-420	151	KSS ET-M12-4A-RJ45-A-P7-010	298
KD U-M12-4W-V1-050	84	KFX-LY-320	151	KSS ET-M12-4A-RJ45-A-P7-010	367
KD U-M12-4W-V1-050	91	KFX-LY-420	151	KSS ET-M12-4A-RJ45-A-P7-010	374
KD U-M12-4W-V1-050	96	KRT21M-09.PL3/42-M12	188	KSS ET-M12-4A-RJ45-A-P7-010	377
KD U-M12-4W-V1-050	99	KRTL 3B/2.3111,200-S12	182	KSS ET-M12-4A-RJ45-A-P7-010	391
KD U-M12-4W-V1-050	103	KRTL 3B/2.3111-S8	182	KSS ET-M12-4A-RJ45-A-P7-010	411
KD U-M12-4W-V1-050	105	KRTL 3B/4.3111,200-S12	182	KSS ET-M12-4A-RJ45-A-P7-010	419

KSS ET-M12-4A-RJ45-A-P7-010.	433	LE5/4P-200-M12	39	LS5/9D-200-M12	39
KSS ET-M12-4A-RJ45-A-P7-010.	443	LE5/4P-M8	39	LS5/9D-M8	39
K-SSPB M12A-M12A-2P-0,3m-S-PUR . .	236	LE28/2N	61	LS28/9D	61
KS U-M8-3A-P1-020.	439	LE28/2N-M12	61	LS28/9D-M12	61
KS U-M8-3A-P1-050.	439	LE28/4P	61	LS46C	65
KS U-M8-3A-P1-100.	439	LE28/4P-M12	61	LS46C.8-M12	65
KS U-M8-4A-P1-020.	439	LE46C.1/4P-M12	64	LS46C-200-M12	65
KS U-M8-4A-P1-050.	439	LE46C.1/4P-M12	65	LS46CI-M12	65
KS U-M8-4A-P1-100.	439	LE46C/2N-M12.	64	LS46C-M12	64
K-Y1 M12A-2m-M12A-S-PUR.	235	LE46C/2N-M12.	65	LS49CI.UC	71
K-Y1 M12A-5m-M12A-S-PUR.	235	LE46C/4P	65	LS49CI.UCH/TB	71
K-Y1 M12A-10m-M12A-S-PUR.	235	LE46C/4P-200-M12	65	LS49CI.UC-TB	71
K-Y1 M12A-20m-M12A-S-PUR.	235	LE46C/4P-M12	64	LS49C.UC	71
K-YCN M12A-5m-M12A-S-PUR	235	LE46C/4P-M12	65	LS49C.UCH/TB.	71
K-YCN M12A-M12A-S-PUR	235	LE46C/4W-M12	64	LS49C.UC-TB.	71
K-YPB M12A-5m-M12A-S-PUR.	235	LE46C/4W-M12	65	LS 95/2.8 SE-L.1	82
K-YPB M12A-M12A-S-PUR.	235	LE46CI.1/4P-M12	65	LS318B/9D.	93
L10-M2C1-M20-SB20.	312	LE46C.P/2N-M12	64	LS318B/9D-M12	93
L10-M3C1-M20-K0	312	LE46C.P/4P-M12	64	LS318BI/9D-M12	93
L10-M3C1-M20-SB20.	312	LE46C/PX-200-M12	65	LS318B.W/9D.	93
L10-P2C1-M20-SB20	312	LE49CI.UC1/M4	71	LS318B.W/9D-M12.	93
L10-P3C1-M20-K0	312	LE49CI.UC1/M4-TB	71	LS318B.Y1	93
L10-P3C1-M20-LB10	312	LE49CI.UCH1/M4-TB	71	LS328/9D	100
L10-P3C1-M20-LB20	312	LE49CI.UCH/TS-TB	71	LS328/9D-M12	100
L10-P3C1-M20-SB20	312	LE49CI.UC/TS	71	LS328.W/9D	100
L100-P3C3-M20-MLM24	314	LE49CI.UC/TS-TB.	71	LS328.W/9D-M12	100
L100-P3C3-M20-SLM24	314	LE49C.UC1/M4.	71	LS328/XX-M12	100
L100-P4C3-M20-SLM24	314	LE49C.UC1/M4-TB.	71	LS 412M/P	104
L200-MOC3-SLM24-L2G.	315	LE49C.UCH1/M4-TB.	71	LSE 55/44.H2O,200-S12	78
L200-M1C3-MLM24-L2G	315	LE49C.UCH/TS-TB	71	LSE 55/441.H2O,200-S12.	78
L200-M1C3-SLM24-L2G.	315	LE49C.UC/TS	71	LSE 96K/P-1140-21	85
L200-M1C3-SLM24-PB-L2G.	315	LE49C.UC/TS-TB	71	LSE 96M/A-182W-44	85
L300-M31C3-SLM24-KYPB-SCA	317	LE318B/2N.	93	LSE 96M/N-1010-27.	86
L300-M31C3-SLM24-KYPB-UCA	317	LE318B/2N.	93	LSE 96M/P-181W-41	85
L300-M31C3-SLM24-PB-SCA	317	LE318B/2N-M12.	93	LSE 96M/P-1040-42.	85
L300-M31C3-SLM24-PB-UCA	317	LE318B/2N-M12.	93	LSE 96M/P-1130-22.	86
L300-M31C3-SLM24-SCA	317	LE318B/2N-M12.	93	LSE 96M/P-1170-22	85
L300-M31C3-SLM24-UCA	317	LE318B/4P.	93	LSE 96M/P-1170-42.	85
L300-M31M12B8-SLM24-KYPB-SCA . . .	318	LE318B/4P.	93	LSE 96M/P-1816-41.	85
L300-M31M12B8-SLM24-KYPB-UCA . . .	317	LE318B/4P-M12	93	LSE 96M/P-3010-21	86
L300-M31M12B8-SLM24-PB-SCA	318	LE318B/4P-M12	93	LSE 96M/P-3010-41.	85
L300-M31M12B8-SLM24-PB-UCA	317	LE318B/4P-M12	93	LSE 96M/P-3012-21	85
L300-M31M12B8-SLM24-SCA	317	LE318B/PX-M12	93	LSE 96M/P-3012-21	86
L300-M31M12B8-SLM24-UCA	317	LE318B/PX-M12	93	LSE 96M/P-3012-41.	85
L300-M31M12L8-SLM24-KYPB-SCA . . .	318	LE318B/PX-M12	93	LSE 96M/P-3019-21 Ex n	113
L300-M31M12L8-SLM24-KYPB-UCA . . .	317	LE318B.W/2N.	93	LSE 96M/R-176W-25	85
L300-M31M12L8-SLM24-PB-SCA	318	LE318B.W/2N-M12.	93	LSE 96M/R-1310-25.	86
L300-M31M12L8-SLM24-PB-UCA	317	LE318B.W/4P.	93	LSE 96M/R-3310-25.	86
L300-M31M12L8-SLM24-SCA	317	LE318B.W/4P-M12	93	LSEL 318M/P	97
L300-M31M12L8-SLM24-UCA	317	LE328/2N	100	LSEL 318M/P-B5	97
L300-M31M12R8-SLM24-KYPB-SCA . . .	318	LE328/2N-M12	100	LSEL 318M/P-B5-S12.	97
L300-M31M12R8-SLM24-KYPB-UCA . . .	317	LE328/4P	100	LSEL 318M/P-S12	97
L300-M31M12R8-SLM24-PB-SCA	318	LE328/4P-M12	100	LSER 2/4,150-S8.3.	26
L300-M31M12R8-SLM24-PB-UCA	317	LE328/4X-M12	100	LSER 2/42	26
L300-M31M12R8-SLM24-SCA	318	LE328.W/2N	100	LSER 2/42,150-S8	26
L300-M31M12R8-SLM24-UCA	317	LE328.W/2N-M12	100	LSER 2/42,150-S12	26
L300-M41C3-SLM24-KYPB-UCA	317	LE328.W/4P	100	LSER 2/42D	26
L300-M41C3-SLM24-PB-UCA	317	LE328.W/4P-M12	100	LSER 2/42D,150-S8	26
L300-M41C3-SLM24-UCA	317	LES 36HI/PB.	223	LSER 2/42D,150-S12	26
L300-M41M12B8-SLM24-KYPB-UCA . . .	317	LES 36HI/VC6.	223	LSER 3B/44.1,5000	30
L300-M41M12B8-SLM24-PB-UCA	317	LES 36/PB	223	LSER 3B/66	30
L300-M41M12B8-SLM24-UCA	317	LES 36/VC6	223	LSER 3B/66.1-S8	29
L300-M41M12L8-SLM24-KYPB-UCA . . .	317	LPS 36	222	LSER 3B/66,200-S12	29
L300-M41M12L8-SLM24-PB-UCA	317	LPS 36/EN	222	LSER 3B/66,200-S12	29
L300-M41M12L8-SLM24-UCA	317	LPS 36HI/EN.	222	LSER 3B/66,5000	30
L300-M41M12R8-SLM24-KYPB-UCA . . .	317	LRS 36/6	224	LSER 3B/66,5000	30
L300-M41M12R8-SLM24-PB-UCA	317	LRS 36/6.10	224	LSER 3B/66-S8	29
L300-M41M12R8-SLM24-UCA	317	LRS 36/PB	224	LSER 3B/66-S8	29
LA-78	465	LRT 8/24.04-50-S12.	189	LSER 8/44	43
LA-78M	465	LRT 8/24.04-100-S12.	189	LSER 8/44-S12.	43
LA-78M-UDC	465	LRT 8/24.10-150-S12.	189	LSER 8/66	43
LA-78U	465	LRT 8/24.14-150-S12	189	LSER 8/66-S12.	43
LA-78UDC	465	LRT 8/24.16-80-S12	189	LSER 25B/4,200-S8.1	53
LE5/2N	39	LRT 8/44.1B-150-S12.	189	LSER 25B/4,200-S12	53
LE5/2N-200-M12	39	LRT 8/44.04-100-S12	189	LSER 25B/66	53
LE5/2N-M8	39	LRT 8/44.14-150-S12	189	LSER 25B/66.1-S12	53
LE5/4P	39	LS5/9D.	39	LSER 25B/66-S8	53

LSEr 25B/66-S12	53	LSSL 318M-S12	97	MA 21 110	407
LSEr 25B/66-S12	53	LSSr 2	26	MA 21 120	407
LSEr 46B/66	64	LSSr 2.8,150-S8.3	26	MA 21 130	407
LSEr 46B/66,200-S12 S-Ex n.	111	LSSr 2,150-S8	26	MA 22 DC	408
LSEr 46B/66-S-S12	64	LSSr 2,150-S12	26	MA 31 100	409
LSEr 53/66-S8	74	LSSr 3B.8	30	MA 31 110	409
LSEr 55/66,200-S12	77	LSSr 3B.8,200-S8	30	MA 31 120	409
LSEr 55/66,5000	77	LSSr 3B.8,200-S12	29	MA 31 130	409
LSEr 55/66-S8	77	LSSr 3B.8,5000	30	MA 100	367
LSErL 8/24.01	42	LSSr 3B.8-S8	29	MA 100i	405
LSErL 8/24.01-S12	42	LSSr 3B,200-S12	29	MA 204i Profibus gateway	410
LSErL 8/24.01-S12	42	LSSr 3B-S8	29	MA 208i Ethernet gateway	410
LSErL 8/44.01-S12	42	LSSr 8	43	MA 235i CANopen gateway	410
LSErL 8/44.01-S12	42	LSSr 8-S12	43	MA 238i EtherCAT gateway	410
LSEU 18/24-S12	139	LSSr 25B.8	53	MA 248i PROFINET gateway	410
LSIS 222 M5M-R1	388	LSSr 25B.8-S8	53	MA 255i DeviceNet gateway	410
LSIS 223 M5M-R1	388	LSSr 25B.8-S12	53	MA 258i EtherNet/IP gateway	410
LSIS 412i M43-I1	431	LSSr 25B,200-S8.1	53	MA 900	378
LSIS 412i M43-I1-01	431	LSSr 25B,200-S12	53	MA 900i	413
LSIS 412i M43-M1	431	LSSr 25B-S12	53	MC 006K	450
LSIS 412i M43-M1-01	431	LSSr 46B	64	MC 008K	450
LSIS 412i M43-W1	431	LSSr 46B,200-S12 S-Ex n.	111	MC 008K-LS	450
LSIS 412i M43-W1-01	431	LSSr 46B-S-S12	64	MC 012K	450
LSIS 412i M45-I1	431	LSSr 53.8-S8	74	MC 012K-LS	450
LSIS 412i M45-I1-01	431	LSSr 55.8,200-S12	77	MC 018K	451
LSIS 412i M45-M1	431	LSSr 55.8,5000	77	MC 018K-LS	451
LSIS 412i M45-M1-01	431	LSSr 55.8-S8	77	MC 030K	451
LSIS 412i M45-W1	431	LSSrL 8.9	42	MC 030K-LS	451
LSIS 412i M45-W1-01	431	LSSrL 8.9-S12	42	MC330-S1-A	324
LSIS 412i M49-X9	431	LSSrL 8.98-S12	42	MC330-S1C2-A	323
LSIS 412i M49-X9-01	431	LSSU 18-S12	139	MC330-S1-C02M12-A	323
LSIS 422i M43-I1	389	LV461.1/P2	147	MC330-S1C5-A	323
LSIS 422i M43-I1-01	389	LV461.1/P2-150-M8	147	MC330-S1C10-A	323
LSIS 422i M43-M1	389	LV462.4/2	148	MC330-S1M8-A	323
LSIS 422i M43-M1-01	389	LV462.4/2X-150-M8	148	MC330-S1R2-A	323
LSIS 422i M43-W1	389	LV462.4/4	148	MC330-S1R5-A	323
LSIS 422i M43-W1-01	389	LV462.4/4X-150-M8	148	MC330-S1R10-A	323
LSIS 422i M45-I1	389	LV463.7/2-150-M8.3	149	MC330-S2-A	324
LSIS 422i M45-I1-01	390	LV463.7/2T	149	MC330-S2C2-A	323
LSIS 422i M45-M1	390	LV463.7/2T-150-M8	149	MC330-S2-C02M12-A	323
LSIS 422i M45-M1-01	390	LV463.7/2T-150-M12	149	MC330-S2C5-A	323
LSIS 422i M45-W1	390	LV463.7/2T-M8	149	MC330-S2M8-A	323
LSIS 422i M45-W1-01	390	LV463.7/4-150-M8.3	149	MC336-S1-A	324
LSIS 422i M49-X9	390	LV463.7/4T	149	MC336-S1C2-A	323
LSIS 462i M43-I1	431	LV463.7/4T-150-M8	149	MC336-S1-C02M12-A	323
LSIS 462i M43-I1-01	431	LV463.7/4T-150-M12	149	MC336-S1C5-A	323
LSIS 462i M43-M1	431	LV463.7/4T-M8	149	MC336-S1C10-A	323
LSIS 462i M43-M1-01	431	LV463.7/L4	149	MC336-S1M8-A	323
LSIS 462i M43-W1	431	LV463.7/L4-150-M8	149	MC336-S1R2-A	323
LSIS 462i M43-W1-01	432	LV463.7/L4-150-M12	149	MC336-S1R5-A	323
LSIS 462i M45-I1	432	LV463.7/L4-M8	149	MC336-S1R10-A	323
LSIS 462i M45-I1-01	432	LV463B.7/2T	149	MC336-S2-A	324
LSIS 462i M45-M1	432	LV463B.7/2T-150-M12	149	MC336-S2C2-A	323
LSIS 462i M45-M1-01	432	LV463B.7/2T-M8	149	MC336-S2-C02M12-A	323
LSIS 462i M45-W1	432	LV463B.7/4T	149	MC336-S2C5-A	323
LSIS 462i M45-W1-01	432	LV463B.7/4T-150-M12	149	MC336-S2M8-A	323
LSIS 462i M49-X9	432	LV463B.7/4T-M8	149	MC336-SP-8	324
LSIS 472i M43-I1	432	MA 2	406	MC388-S1-A	324
LSIS 472i M43-I1-H	432	MA 4	414	MC388-S1C2-A	323
LSIS 472i M45-I1	432	MA 4.7	415	MC388-S1-C02M12-A	323
LSIS 472i M45-I1-H	432	MA 4 100	414	MC388-S1C5-A	323
LSS 95/2.8 SE-L.1	82	MA 4 110	414	MC388-S1C10-A	323
LSS 55.H2O,200-S12	78	MA 4 120	414	MC388-S1M8-A	323
LSS 96K-1213-24	85	MA 4 130	414	MC388-S1R2-A	323
LSS 96M-120W-43	85	MA 4 D	414	MC388-S1R5-A	323
LSS 96M-175W-26	85	MA 4 D.7	415	MC388-S1R10-A	323
LSS 96M-180W-44	85	MA 4 D 100	414	MC388-S2-A	324
LSS 96M-1070-23	86	MA 4 D 110	414	MC388-S2C2-A	323
LSS 96M-1070-43	85	MA 4 D 120	414	MC388-S2C2-AL	323
LSS 96M-1079-23 Ex n.	113	MA 4 D 130	414	MC388-S2-C02M12-A	323
LSS 96M-1090-24	86	MA 8-01	219	MC388-S2C5-A	323
LSS 96M-1090-43	85	MA 8-01	352	MC388-S2M8-A	323
LSS 96M-1093-24	85	MA 8-01	412	MC388-S2R10-A	323
LSS 96M-1200-23	85	MA 8.1	352	MC388-SP-8	324
LSS 96M-1206-43	85	MA 8.1	412	MD 7XXP-11-42IO5-12	446
LSS 96M-1350-26	86	MA 21 100	407	MD 7XXP-11-42IO5-13	446
LSSL 318M	97	MA 21 100.2	407	MD 7XXP-11-48IO3-12	446

MD 7XXP-11-48IO3-K030	446	MLC311R40-750	256	MLC500T14-900H/A	250
MD 7XXP-11-48IO3-K050	446	MLC311R40-900	256	MLC500T14-900-IP	245
MD 7XXP-11-48IO3-K100	446	MLC311R40-1050	256	MLC500T14-900MG	251
MD 7XXP-11-68IO3-12	446	MLC311R40-1200	256	MLC500T14-900/V	244
MD 7XXP-11-82IO4-12	446	MLC320R20-150	257	MLC500T14-900/V	247
MD 7XXP-11-82IO4-13	446	MLC320R20-225	257	MLC500T14-900/V	248
MD 7XXP-11-82IO4-K030	446	MLC320R20-300	257	MLC500T14-1050	245
MD 7XXP-11-82IO4-K050	446	MLC320R20-450	257	MLC500T14-1050	247
MD 7XXP-11-82IO4-K100	446	MLC320R20-600	257	MLC500T14-1050	248
MD 7XXP-11-82IO5-13	446	MLC320R20-750	257	MLC500T14-1050/A	245
MD 7XXP-11-82IO5-FK	446	MLC320R20-900	257	MLC500T14-1050G	252
MD 7XXP-11-82IO5-K030	446	MLC320R20-1050	257	MLC500T14-1050H	250
MD 7XXP-11-82IO5-K050	446	MLC320R20-1200	257	MLC500T14-1050H/A	250
MD 7XXP-11-82IO5-K100	446	MLC320R20-1350	257	MLC500T14-1050-IP	245
MD 7XXP-11-88IO3-12	446	MLC320R20-1500	257	MLC500T14-1050MG	251
MD 7XXP-11-88IO3-K030	446	MLC320R20-1650	257	MLC500T14-1200	245
MD 7XXP-11-88IO3-K050	446	MLC320R20-1800	257	MLC500T14-1200	247
MD 7XXP-11-88IO3-K100	446	MLC500T14-150	244	MLC500T14-1200	248
MD 7XXP-11-108IO3-12	446	MLC500T14-150	246	MLC500T14-1200/A	245
MK 300	366	MLC500T14-150	248	MLC500T14-1200G	252
MK 301	366	MLC500T14-150/A	244	MLC500T14-1200H	250
MK 304	217	MLC500T14-150G	252	MLC500T14-1200H/A	250
MK 304	367	MLC500T14-150/V	246	MLC500T14-1200-IP	245
MK 307	217	MLC500T14-300	244	MLC500T14-1200MG	251
MK 308	367	MLC500T14-300	246	MLC500T14-1350	245
MK 348	217	MLC500T14-300	248	MLC500T14-1350	247
MK 348	367	MLC500T14-300/A	244	MLC500T14-1350	248
MK 358	367	MLC500T14-300G	252	MLC500T14-1350/A	245
MLC300T20-150	256	MLC500T14-300H	250	MLC500T14-1350G	252
MLC300T20-150	257	MLC500T14-300H/A	250	MLC500T14-1350H	250
MLC300T20-225	256	MLC500T14-300-IP	244	MLC500T14-1350H/A	250
MLC300T20-225	257	MLC500T14-300MG	251	MLC500T14-1350MG	251
MLC300T20-300	256	MLC500T14-300/V	244	MLC500T14-1500	245
MLC300T20-300	257	MLC500T14-300/V	246	MLC500T14-1500	247
MLC300T20-450	256	MLC500T14-300/V	248	MLC500T14-1500	248
MLC300T20-450	257	MLC500T14-450	244	MLC500T14-1500/A	245
MLC300T20-600	256	MLC500T14-450	247	MLC500T14-1500G	252
MLC300T20-600	257	MLC500T14-450	248	MLC500T14-1500H	251
MLC300T20-750	256	MLC500T14-450/A	244	MLC500T14-1500H/A	250
MLC300T20-750	257	MLC500T14-450G	252	MLC500T14-1500MG	251
MLC300T20-900	256	MLC500T14-450H	250	MLC500T14-1650	245
MLC300T20-900	257	MLC500T14-450H/A	250	MLC500T14-1650	247
MLC300T20-1050	256	MLC500T14-450-IP	244	MLC500T14-1650	248
MLC300T20-1050	257	MLC500T14-450MG	251	MLC500T14-1650/A	245
MLC300T20-1200	256	MLC500T14-450/V	244	MLC500T14-1650G	252
MLC300T20-1200	257	MLC500T14-450/V	247	MLC500T14-1650H	251
MLC300T20-1350	256	MLC500T14-450/V	248	MLC500T14-1650H/A	251
MLC300T20-1350	257	MLC500T14-600	244	MLC500T14-1650MG	251
MLC300T20-1500	256	MLC500T14-600	247	MLC500T14-1800	245
MLC300T20-1500	257	MLC500T14-600	248	MLC500T14-1800	247
MLC300T20-1650	256	MLC500T14-600/A	244	MLC500T14-1800	248
MLC300T20-1650	257	MLC500T14-600G	252	MLC500T14-1800/A	245
MLC300T20-1800	256	MLC500T14-600H	250	MLC500T14-1800G	252
MLC300T20-1800	257	MLC500T14-600H/A	250	MLC500T14-1800H	251
MLC301T40-300	256	MLC500T14-600-IP	244	MLC500T14-1800H/A	251
MLC301T40-450	256	MLC500T14-600MG	251	MLC500T14-1800MG	251
MLC301T40-600	256	MLC500T14-600/V	244	MLC500T14-1950	245
MLC301T40-750	256	MLC500T14-600/V	247	MLC500T14-1950	247
MLC301T40-900	256	MLC500T14-600/V	248	MLC500T14-1950	248
MLC301T40-1050	256	MLC500T14-750	244	MLC500T14-2100	245
MLC301T40-1200	256	MLC500T14-750	247	MLC500T14-2100	247
MLC310R20-150	256	MLC500T14-750	248	MLC500T14-2100	248
MLC310R20-225	256	MLC500T14-750/A	244	MLC500T14-2250	245
MLC310R20-300	256	MLC500T14-750G	252	MLC500T14-2250	247
MLC310R20-450	256	MLC500T14-750H	250	MLC500T14-2250	248
MLC310R20-600	256	MLC500T14-750H/A	250	MLC500T14-2400	245
MLC310R20-750	256	MLC500T14-750-IP	244	MLC500T14-2400	247
MLC310R20-900	256	MLC500T14-750MG	251	MLC500T14-2400	248
MLC310R20-1050	256	MLC500T14-750/V	244	MLC500T14-2550	245
MLC310R20-1200	256	MLC500T14-750/V	247	MLC500T14-2550	247
MLC310R20-1350	256	MLC500T14-750/V	248	MLC500T14-2550	248
MLC310R20-1500	256	MLC500T14-900	244	MLC500T14-2700	245
MLC310R20-1650	256	MLC500T14-900	247	MLC500T14-2700	247
MLC310R20-1800	256	MLC500T14-900	248	MLC500T14-2700	248
MLC311R40-300	256	MLC500T14-900/A	244	MLC500T14-2850	245
MLC311R40-450	256	MLC500T14-900G	252	MLC500T14-2850	247
MLC311R40-600	256	MLC500T14-900H	250	MLC500T14-2850	248

MLC500T14-3000	245	MLC510R14-900/A	244	MLC520R14-1200H	250
MLC500T14-3000	247	MLC510R14-900H/A	250	MLC520R14-1200MG	251
MLC500T14-3000	248	MLC510R14-900-IP	245	MLC520R14-1350	247
MLC500T20-600-EX2	252	MLC510R14-900/V	244	MLC520R14-1350G	252
MLC500T20-750-EX2	252	MLC510R14-1050	245	MLC520R14-1350H	250
MLC500T20-900-EX2	252	MLC510R14-1050/A	245	MLC520R14-1350MG	251
MLC500T20-1050-EX2	252	MLC510R14-1050H/A	250	MLC520R14-1500	247
MLC500T20-1200-EX2	252	MLC510R14-1050-IP	245	MLC520R14-1500G	252
MLC500T20-1350-EX2	253	MLC510R14-1200	245	MLC520R14-1500H	251
MLC500T20-1500-EX2	253	MLC510R14-1200/A	245	MLC520R14-1500MG	251
MLC500T30-150	249	MLC510R14-1200H/A	250	MLC520R14-1650	247
MLC500T30-225	249	MLC510R14-1200-IP	245	MLC520R14-1650G	252
MLC500T30-300	249	MLC510R14-1350	245	MLC520R14-1650H	251
MLC500T30-450	249	MLC510R14-1350/A	245	MLC520R14-1650MG	251
MLC500T30-600	249	MLC510R14-1350H/A	250	MLC520R14-1800	247
MLC500T30-750	249	MLC510R14-1500	245	MLC520R14-1800G	252
MLC500T30-900	249	MLC510R14-1500/A	245	MLC520R14-1800H	251
MLC500T30-1050	249	MLC510R14-1500H/A	250	MLC520R14-1800MG	251
MLC500T30-1200	249	MLC510R14-1650	245	MLC520R14-1950	247
MLC500T30-1350	249	MLC510R14-1650/A	245	MLC520R14-2100	247
MLC500T30-1500	249	MLC510R14-1650H/A	251	MLC520R14-2250	247
MLC500T30-1650	249	MLC510R14-1800	245	MLC520R14-2400	247
MLC500T30-1800	249	MLC510R14-1800/A	245	MLC520R14-2550	247
MLC500T30-1950	249	MLC510R14-1800H/A	251	MLC520R14-2700	247
MLC500T30-2100	249	MLC510R14-1950	245	MLC520R14-2850	247
MLC500T30-2250	249	MLC510R14-2100	245	MLC520R14-3000	247
MLC500T30-2400	249	MLC510R14-2250	245	MLC520R20-600-EX2	252
MLC500T30-2550	249	MLC510R14-2400	245	MLC520R20-750-EX2	252
MLC500T30-2700	249	MLC510R14-2550	245	MLC520R20-900-EX2	252
MLC500T30-2850	249	MLC510R14-2700	245	MLC520R20-1050-EX2	252
MLC500T30-3000	249	MLC510R14-2850	245	MLC520R20-1200-EX2	252
MLC501T14-300	246	MLC510R14-3000	245	MLC520R20-1350-EX2	253
MLC501T14-450	246	MLC511R14-300	246	MLC520R20-1500-EX2	253
MLC501T14-600	246	MLC511R14-450	246	MLC530R14-150	248
MLC501T14-750	246	MLC511R14-600	246	MLC530R14-300	248
MLC501T14-900	246	MLC511R14-750	246	MLC530R14-300/V	248
MLC501T14-1050	246	MLC511R14-900	246	MLC530R14-450	248
MLC501T14-1200	246	MLC511R14-1050	246	MLC530R14-450/V	248
MLC501T14-1350	246	MLC511R14-1200	246	MLC530R14-600	248
MLC501T14-1500	246	MLC511R14-1350	246	MLC530R14-600/V	248
MLC501T14-1650	246	MLC511R14-1500	246	MLC530R14-750	248
MLC501T14-1800	246	MLC511R14-1650	246	MLC530R14-750/V	248
MLC502T14-150	244	MLC511R14-1800	246	MLC530R14-900	248
MLC502T14-300	244	MLC520R14-150	246	MLC530R14-900/V	248
MLC502T14-450	244	MLC520R14-150G	252	MLC530R14-1050	248
MLC502T14-600	244	MLC520R14-150/V	246	MLC530R14-1200	248
MLC502T14-750	244	MLC520R14-300	246	MLC530R14-1350	248
MLC502T14-900	244	MLC520R14-300G	252	MLC530R14-1500	248
MLC502T14-1050	245	MLC520R14-300H	250	MLC530R14-1650	248
MLC502T14-1200	245	MLC520R14-300MG	251	MLC530R14-1800	248
MLC502T14-1350	245	MLC520R14-300/V	246	MLC530R14-1950	248
MLC502T14-1500	245	MLC520R14-450	247	MLC530R14-2100	248
MLC502T14-1650	245	MLC520R14-450G	252	MLC530R14-2250	248
MLC502T14-1800	245	MLC520R14-450H	250	MLC530R14-2400	248
MLC510R14-150	244	MLC520R14-450MG	251	MLC530R14-2550	248
MLC510R14-150/A	244	MLC520R14-450/V	247	MLC530R14-2700	248
MLC510R14-300	244	MLC520R14-600	247	MLC530R14-2850	248
MLC510R14-300/A	244	MLC520R14-600G	252	MLC530R14-3000	248
MLC510R14-300H/A	250	MLC520R14-600H	250	MLC530R30-150-SPG	249
MLC510R14-300-IP	244	MLC520R14-600MG	251	MLC530R30-225-SPG	249
MLC510R14-300/V	244	MLC520R14-600/V	247	MLC530R30-300-SPG	249
MLC510R14-450	244	MLC520R14-750	247	MLC530R30-450-SPG	249
MLC510R14-450/A	244	MLC520R14-750G	252	MLC530R30-600-SPG	249
MLC510R14-450H/A	250	MLC520R14-750H	250	MLC530R30-750-SPG	249
MLC510R14-450-IP	244	MLC520R14-750MG	251	MLC530R30-900-SPG	249
MLC510R14-450/V	244	MLC520R14-750/V	247	MLC530R30-1050-SPG	249
MLC510R14-600	244	MLC520R14-900	247	MLC530R30-1200-SPG	249
MLC510R14-600/A	244	MLC520R14-900G	252	MLC530R30-1350-SPG	249
MLC510R14-600H/A	250	MLC520R14-900H	250	MLC530R30-1500-SPG	249
MLC510R14-600-IP	244	MLC520R14-900MG	251	MLC530R30-1650-SPG	249
MLC510R14-600/V	244	MLC520R14-900/V	247	MLC530R30-1800-SPG	249
MLC510R14-750	244	MLC520R14-1050	247	MLC530R30-1950-SPG	249
MLC510R14-750/A	244	MLC520R14-1050G	252	MLC530R30-2100-SPG	249
MLC510R14-750H/A	250	MLC520R14-1050H	250	MLC530R30-2250-SPG	249
MLC510R14-750-IP	244	MLC520R14-1050MG	251	MLC530R30-2400-SPG	249
MLC510R14-750/V	244	MLC520R14-1200	247	MLC530R30-2550-SPG	249
MLC510R14-900	244	MLC520R14-1200G	252	MLC530R30-2700-SPG	249

MLC530R30-2850-SPG	249	MLD300-XT3	273	MLD320-XR4M	273
MLC530R30-3000-SPG	249	MLD300-XT3	273	MLD330-R2	274
MLC-PS150	456	MLD300-XT3	274	MLD330-R2L	274
MLC-PS225	456	MLD300-XT3	275	MLD330-R2LM	274
MLC-PS300	456	MLD300-XT3L	272	MLD330-R2M	274
MLC-PS450	456	MLD300-XT3L	272	MLD330-R3	274
MLC-PS600	456	MLD300-XT3L	273	MLD330-R3L	274
MLC-PS750	456	MLD300-XT3L	273	MLD330-R3LM	274
MLC-PS900	456	MLD300-XT3L	274	MLD330-R3M	274
MLC-PS1050	456	MLD300-XT3L	275	MLD330-R4	274
MLC-PS1200	456	MLD300-XT4	272	MLD330-R4L	274
MLC-PS1350	456	MLD300-XT4	272	MLD330-R4LM	274
MLC-PS1500	456	MLD300-XT4	273	MLD330-R4M	274
MLC-PS1650	456	MLD300-XT4	273	MLD330-RT2	278
MLC-PS1800	456	MLD300-XT4	274	MLD330-RT2M	278
MLD300-T2	271	MLD300-XT4	275	MLD330-RT3	278
MLD300-T2	272	MLD300-XT4L	272	MLD330-RT3M	279
MLD300-T2	273	MLD300-XT4L	272	MLD330-R2	274
MLD300-T2	273	MLD300-XT4L	273	MLD330-XR2L	274
MLD300-T2	274	MLD300-XT4L	273	MLD330-XR3	274
MLD300-T2	274	MLD300-XT4L	274	MLD330-XR3L	274
MLD300-T2	275	MLD300-XT4L	275	MLD330-XR4	274
MLD300-T2	275	MLD310-R2	271	MLD330-XR4L	274
MLD300-T2L	272	MLD310-R2L	272	MLD335-R2	275
MLD300-T2L	272	MLD310-R3	272	MLD335-R2L	275
MLD300-T2L	273	MLD310-R3L	272	MLD335-R2LM	275
MLD300-T2L	273	MLD310-R4	272	MLD335-R2M	275
MLD300-T2L	274	MLD310-R4L	272	MLD335-R3	275
MLD300-T2L	274	MLD310-RT2	277	MLD335-R3L	275
MLD300-T2L	275	MLD310-RT3	277	MLD335-R3LM	275
MLD300-T2L	275	MLD310-XR2	271	MLD335-R3M	275
MLD300-T3	272	MLD310-XR2L	272	MLD335-R4	275
MLD300-T3	272	MLD310-XR3	272	MLD335-R4L	275
MLD300-T3	273	MLD310-XR3L	272	MLD335-R4LM	275
MLD300-T3	273	MLD310-XR4	272	MLD335-R4M	275
MLD300-T3	274	MLD310-XR4L	272	MLD335-RT2	279
MLD300-T3	274	MLD312-R2	272	MLD335-RT2M	279
MLD300-T3	275	MLD312-R2L	272	MLD335-RT3	279
MLD300-T3	275	MLD312-R3	272	MLD335-RT3M	279
MLD300-T3L	272	MLD312-R3L	272	MLD335-XR2	275
MLD300-T3L	272	MLD312-R4	272	MLD335-XR2L	275
MLD300-T3L	273	MLD312-R4L	272	MLD335-XR3	275
MLD300-T3L	273	MLD312-RT2	278	MLD335-XR3L	275
MLD300-T3L	274	MLD312-RT3	278	MLD335-XR4	275
MLD300-T3L	274	MLD312-XR2	272	MLD335-XR4L	275
MLD300-T3L	275	MLD312-XR2L	272	MLD500-T1	284
MLD300-T3L	275	MLD312-XR3	272	MLD500-T1	285
MLD300-T4	272	MLD312-XR3L	272	MLD500-T1	286
MLD300-T4	272	MLD312-XR4	272	MLD500-T1/A	284
MLD300-T4	273	MLD312-XR4L	272	MLD500-T1/A	284
MLD300-T4	273	MLD320-R2	273	MLD500-T1L	284
MLD300-T4	274	MLD320-R2L	273	MLD500-T1L	285
MLD300-T4	274	MLD320-R2LM	273	MLD500-T1L	286
MLD300-T4	275	MLD320-R2M	273	MLD500-T1L/A	284
MLD300-T4	275	MLD320-R3	273	MLD500-T1L/A	284
MLD300-T4L	272	MLD320-R3L	273	MLD500-T2	261
MLD300-T4L	272	MLD320-R3LM	273	MLD500-T2	263
MLD300-T4L	273	MLD320-R3M	273	MLD500-T2	263
MLD300-T4L	273	MLD320-R4	273	MLD500-T2	264
MLD300-T4L	274	MLD320-R4L	273	MLD500-T2	264
MLD300-T4L	274	MLD320-R4LM	273	MLD500-T2	265
MLD300-T4L	275	MLD320-R4M	273	MLD500-T2	265
MLD300-T4L	275	MLD320-RT2	278	MLD500-T2/A	261
MLD300-XT2	271	MLD320-RT2M	278	MLD500-T2/A	261
MLD300-XT2	272	MLD320-RT3	278	MLD500-T2/A	261
MLD300-XT2	273	MLD320-RT3M	278	MLD500-T2L	261
MLD300-XT2	273	MLD320-XR2	273	MLD500-T2L	263
MLD300-XT2	274	MLD320-XR2L	273	MLD500-T2L	263
MLD300-XT2	275	MLD320-XR2LM	273	MLD500-T2L	264
MLD300-XT2L	272	MLD320-XR2M	273	MLD500-T2L	264
MLD300-XT2L	272	MLD320-XR3	273	MLD500-T2L	265
MLD300-XT2L	273	MLD320-XR3L	273	MLD500-T2L	265
MLD300-XT2L	273	MLD320-XR3LM	273	MLD500-T2L/A	261
MLD300-XT2L	274	MLD320-XR3M	273	MLD500-T2L/A	261
MLD300-XT2L	275	MLD320-XR4	273	MLD500-T2L/A	261
MLD300-XT3	272	MLD320-XR4L	273	MLD500-T2L-UDC-1000-S2	300
MLD300-XT3	272	MLD320-XR4LM	273	MLD500-T2L-UDC-1000-S2	300

MLD500-T2L-UDC-1000-S2	300	MLD500-XT4	263	MLD520-R1	285
MLD500-T2-UDC-1000-S2-P	300	MLD500-XT4	263	MLD520-R1L	285
MLD500-T3	261	MLD500-XT4	264	MLD520-R2	263
MLD500-T3	263	MLD500-XT4	265	MLD520-R2L	263
MLD500-T3	263	MLD500-XT4/A	262	MLD520-R2LM	263
MLD500-T3	264	MLD500-XT4/A	262	MLD520-R2L-UDC-1000-S2	300
MLD500-T3	264	MLD500-XT4L	262	MLD520-R2M	263
MLD500-T3	265	MLD500-XT4L	263	MLD520-R3	263
MLD500-T3	265	MLD500-XT4L	263	MLD520-R3L	263
MLD500-T3/A	261	MLD500-XT4L	264	MLD520-R3LM	263
MLD500-T3/A	261	MLD500-XT4L	265	MLD520-R3M	263
MLD500-T3/A	261	MLD500-XT4L/A	262	MLD520-R4	263
MLD500-T3L	262	MLD500-XT4L/A	262	MLD520-R4L	263
MLD500-T3L	263	MLD510-R1	284	MLD520-R4LM	263
MLD500-T3L	263	MLD510-R1/A	284	MLD520-R4M	263
MLD500-T3L	264	MLD510-R1E/A	284	MLD520-RT2	268
MLD500-T3L	264	MLD510-R1L	284	MLD520-RT2M	268
MLD500-T3L	265	MLD510-R1L/A	284	MLD520-RT3	268
MLD500-T3L	265	MLD510-R1LE/A	284	MLD520-RT3M	268
MLD500-T3L/A	261	MLD510-R2	261	MLD520-RT3-UDC-1300-S2	300
MLD500-T3L/A	262	MLD510-R2/A	261	MLD520-RT3-UDC-1600-S2	300
MLD500-T3L/A	262	MLD510-R2E/A	261	MLD520-XR1	285
MLD500-T4	262	MLD510-R2L	261	MLD520-XR2	263
MLD500-T4	263	MLD510-R2L/A	261	MLD520-XR2L	263
MLD500-T4	263	MLD510-R2LE/A	261	MLD520-XR2LM	263
MLD500-T4	264	MLD510-R2LM/A	261	MLD520-XR2M	263
MLD500-T4	264	MLD510-R2L-UDC-1000-S2	300	MLD520-XR3	263
MLD500-T4	265	MLD510-R2M/A	261	MLD520-XR3L	263
MLD500-T4	265	MLD510-R2-UDC-1000-S2-P	300	MLD520-XR3LM	263
MLD500-T4/A	262	MLD510-R3	261	MLD520-XR3M	263
MLD500-T4/A	262	MLD510-R3/A	261	MLD520-XR4	263
MLD500-T4/A	262	MLD510-R3E/A	261	MLD520-XR4L	263
MLD500-T4L	262	MLD510-R3L	262	MLD520-XR4LM	263
MLD500-T4L	263	MLD510-R3L/A	262	MLD520-XR4M	263
MLD500-T4L	263	MLD510-R3LE/A	262	MLD530-R1	286
MLD500-T4L	264	MLD510-R3LM/A	261	MLD530-R1L	286
MLD500-T4L	264	MLD510-R3M/A	261	MLD530-R2	264
MLD500-T4L	265	MLD510-R4	262	MLD530-R2L	264
MLD500-T4L	265	MLD510-R4/A	262	MLD530-R2LM	264
MLD500-T4L/A	262	MLD510-R4E/A	262	MLD530-R2LM-UDC-1000-S2	300
MLD500-T4L/A	262	MLD510-R4L	262	MLD530-R2M	264
MLD500-T4L/A	262	MLD510-R4L/A	262	MLD530-R3	264
MLD500-XT1	284	MLD510-R4LE/A	262	MLD530-R3L	264
MLD500-XT1	285	MLD510-R4LM/A	262	MLD530-R3LM	264
MLD500-XT1	286	MLD510-R4M/A	262	MLD530-R3M	264
MLD500-XT1/A	284	MLD510-RT2	267	MLD530-R4	264
MLD500-XT1/A	284	MLD510-RT2/A	267	MLD530-R4L	264
MLD500-XT2	261	MLD510-RT2E/A	268	MLD530-R4LM	264
MLD500-XT2	263	MLD510-RT2M/A	268	MLD530-R4M	264
MLD500-XT2	263	MLD510-RT2ME/A	268	MLD530-RT2	269
MLD500-XT2	264	MLD510-RT3	268	MLD530-RT2M	269
MLD500-XT2	265	MLD510-RT3/A	268	MLD530-RT2M-UDC-1000-S2	300
MLD500-XT2/A	261	MLD510-RT3E/A	268	MLD530-RT3	269
MLD500-XT2/A	261	MLD510-RT3M/A	268	MLD530-RT3M	269
MLD500-XT2L	261	MLD510-RT3ME/A	268	MLD530-RT3M-UDC-1300-S2	300
MLD500-XT2L	263	MLD510-XR1	284	MLD530-XR1	286
MLD500-XT2L	263	MLD510-XR1/A	284	MLD530-XR2	264
MLD500-XT2L	264	MLD510-XR1E/A	284	MLD530-XR2L	264
MLD500-XT2L	265	MLD510-XR2	261	MLD530-XR3	264
MLD500-XT2L/A	261	MLD510-XR2/A	261	MLD530-XR3L	264
MLD500-XT2L/A	261	MLD510-XR2E/A	261	MLD530-XR4	264
MLD500-XT3	261	MLD510-XR2L	261	MLD530-XR4L	264
MLD500-XT3	263	MLD510-XR2L/A	261	MLD535-R2	265
MLD500-XT3	263	MLD510-XR2LE/A	261	MLD535-R2L	265
MLD500-XT3	264	MLD510-XR3	261	MLD535-R2LM	265
MLD500-XT3	265	MLD510-XR3/A	261	MLD535-R2M	265
MLD500-XT3/A	261	MLD510-XR3E/A	261	MLD535-R3	265
MLD500-XT3/A	261	MLD510-XR3L	262	MLD535-R3L	265
MLD500-XT3L	262	MLD510-XR3L/A	262	MLD535-R3LM	265
MLD500-XT3L	263	MLD510-XR3LE/A	262	MLD535-R3M	265
MLD500-XT3L	263	MLD510-XR3L-UDC-1140-S2	300	MLD535-R4	265
MLD500-XT3L	264	MLD510-XR4	262	MLD535-R4L	265
MLD500-XT3L	265	MLD510-XR4/A	262	MLD535-R4LM	265
MLD500-XT3L/A	262	MLD510-XR4E/A	262	MLD535-R4M	265
MLD500-XT3L/A	262	MLD510-XR4L	262	MLD535-RT2	269
MLD500-XT3L-UDC-1140-S2	300	MLD510-XR4L/A	262	MLD535-RT2M	269
MLD500-XT4	262	MLD510-XR4LE/A	262	MLD535-RT3	269

MLD535-RT3M	269	MLD-XM03	278	MTKS 20x20	462
MLD535-RT3M-UDC-1600-S2	300	MLD-XM03	278	MTKS 20x30	38
MLD535-RT3M-UDC-1900-S2	300	MLD-XM03	279	MTKS 20x30	462
MLD535-XR2	265	MLD-XM03	279	MTKS 20x40.1	76
MLD535-XR2L	265	MLD-XM03	279	MTKS 20x40.1	81
MLD535-XR3	265	MMS-A-2N55	449	MTKS 20x40.1	111
MLD535-XR3L	265	MMS-AP-N60	449	MTKS 20x40.1	462
MLD535-XR4	265	MS70/2	460	MTKS 30x50.1	462
MLD535-XR4L	265	MS70/LED	460	MTKS 40x60.1	462
MLD-M002	267	MS70/LED-M12-2000-4GM	460	MTKS 50x50.1	38
MLD-M002	267	MS 300	367	MTKS 50x50.1	46
MLD-M002	268	MS 301	367	MTKS 50x50.1	52
MLD-M002	268	MS 304	217	MTKS 50x50.1	60
MLD-M002	268	MS 304	367	MTKS 50x50.1	70
MLD-M002	268	MS 307	217	MTKS 50x50.1	73
MLD-M002	268	MS 308	367	MTKS 50x50.1	76
MLD-M002	269	MS 348	217	MTKS 50x50.1	81
MLD-M002	269	MS 348	367	MTKS 50x50.1	99
MLD-M002	269	MS 358	367	MTKS 50x50.1	111
MLD-M002	269	MS851	460	MTKS 50x50.1	462
MLD-M002	277	MSI-2HB-01	333	MTKZ 15-30 SET	433
MLD-M002	278	MSI-2HB-02	333	MW OMS/AMS 01	451
MLD-M002	278	MSI101	337	NT Base IT1911-EU	393
MLD-M002	278	MSI102	337	NT f. Base HS 6578	395
MLD-M002	278	MSI201	338	NT f. HS 6508	395
MLD-M002	278	MSI202	338	NT f. IT 1900+Base-EU	382
MLD-M002	279	MSI-CM52B-01	328	NT f. IT 1900+Base-EU	383
MLD-M002	279	MSI-CM52B-02	328	NT f. IT 1900+Base-EU	384
MLD-M002-UDC-1000-S2	300	MSI-DT30B-01	329	NT f. IT 1900+Base-EU	392
MLD-M003	268	MSI-DT30B-02	329	NT f. IT 1900+Base-EU	393
MLD-M003	268	MSI-EM201-4RO	339	NT HCR 6200	394
MLD-M003	268	MSI-EM201-8I4IO	339	NT Hx5x0	399
MLD-M003	268	MSI-EM202-4RO	339	NT IT4x2x/ST2020	384
MLD-M003	268	MSI-EM202-8I4IO	339	NT ITxx0x	384
MLD-M003	268	MSI-FB-PB101	340	OCS 110x80mm-M reflector	180
MLD-M003	268	MSI-MC310	336	OCS 450x80mm-M reflector	180
MLD-M003	269	MSI-MC311	336	ODKL 96B M/C6-S12	204
MLD-M003	269	MSI-RM2B-01	332	ODKL 96B M/D26-S12	204
MLD-M003	269	MSI-RM2B-02	332	ODKL 96B M/D36-S12	204
MLD-M003	269	MSI-SR4B-01	330	ODKL 96B M/L-S12	204
MLD-M003	277	MSI-SR4B-02	330	ODKL 96B M/V6-S12	204
MLD-M003	278	MSI-SR5B-01	331	ODS10L1.8/L6X-M12	201
MLD-M003	278	MSI-SR5B-02	331	ODS10L1.8/LA6	201
MLD-M003	278	MSI-SWC1	340	ODS10L1.8/LA6,200-M12	201
MLD-M003	278	MSI-TR1B-01	334	ODS10L1.8/LA6-M12	201
MLD-M003	279	MSI-TR1B-02	334	ODS10L1.8/LAK	201
MLD-M003	279	MSI-TR2B-01	334	ODS10L1.8/LAK,200-M12	201
MLD-M003	279	MSI-TR2B-02	334	ODS10L1.8/LAK-M12	201
MLD-M003-UDC-1300-S2	300	MSI-TRMB-01	335	ODS10L1-25M.8/LAK	200
MLD-M003-UDC-1300-S2	300	MSI-TRMB-02	335	ODS10L1-25M.8/LAK,200-M12	200
MLD-M003-UDC-1600-S2	300	MSI-TSB-01	334	ODS10L1-25M.8/LAK-M12	201
MLD-M003-UDC-1600-S2	300	MSI-TSB-02	334	ODS 96B M/C6-600-S12	202
MLD-M003-UDC-1900-S2	300	MSP 290i - 511 F 00	381	ODS 96B M/C66.01-1400-S12	202
MLDSET-M1-1300L	299	MSP 290i - 511 L 00	381	ODS 96B M/V6-600-S12	202
MLDSET-M1-1300T	299	MSP 290i - 511 M 00	381	ODS 96B M/V6-1400-S12	202
MLDSET-M1-1600L	299	MSP 290i - 511 N 00	381	ODSIL 96B M/C6-S12	204
MLDSET-M1-1600T	299	MSP 290i - 520 F 00	381	ODSIL 96B M/L-S12	204
MLDSET-M1-1600T4	299	MSP 290i - 520 F 88	381	ODSIL 96B M/V6-S12	204
MLDSET-M2-1300L	299	MSP 290i - 520 F 4848	381	ODSL 8/66-500-S12	197
MLDSET-M2-1300T	299	MSP 290i - 520 L 00	381	ODSL 8/C66-45-S12	197
MLDSET-M2-1600L	299	MSP 290i - 520 M 00	381	ODSL 8/C66-200-S12	197
MLDSET-M2-1600T	299	MSP 290i - 520 M 88	381	ODSL 8/C66-500-S12	197
MLDSET-M2-1600T4	299	MSP 290i - 520 N 00	381	ODSL 8/V66.01-500-S12	197
MLD-XM03	268	MSP 290i - 620 F 88	381	ODSL 8/V66-45-S12	197
MLD-XM03	268	MSP 290i - 620 F 4848	381	ODSL 8/V66-200-S12	197
MLD-XM03	268	MSP 290i - 620 M 88	381	ODSL 8/V66-500-S12	197
MLD-XM03	268	MSP 290i - 920 M 88	381	ODSL 9/C6-100-S12	199
MLD-XM03	268	MSP 290i - 920 M 88 MSC	381	ODSL 9/C6-200-S12	199
MLD-XM03	268	MSP 290i - 920 N 88	381	ODSL 9/C6-450-S12	198
MLD-XM03	268	MSP 290i - 920 N 88 MSC	381	ODSL 9/C6-650-S12	198
MLD-XM03	269	MSP 360i - 530 F 01	381	ODSL 9/C6.C1-450-S12	199
MLD-XM03	269	MSP 490i - 540 M 01	381	ODSL 9/C66-100-S12	199
MLD-XM03	269	MTK 20	462	ODSL 9/C66-450-S12	198
MLD-XM03	269	MTKS 14x23	462	ODSL 9/D26-100-S12	199
MLD-XM03	277	MTKS 14x23.P	77	ODSL 9/D26-450-S12	199
MLD-XM03	278	MTKS 14x23.P	462	ODSL 9/D36-100-S12	199
MLD-XM03	278	MTKS 20x20	60	ODSL 9/D36-450-S12	199

ODSL 9/D36-650-S12	198	PRK 3B/4D.22,200-S8	31	PRK 25/66.2	54
ODSL 9/L-100-S12	199	PRK 3B/6.2,200-S8.3	31	PRK 25/66.2, 150-S12	54
ODSL 9/L-450-S12	199	PRK 3B/6.2-S8.3	31	PRK 25/66.2-S12	54
ODSL 9/L-650-S12	198	PRK 3B/6.7	30	PRK 25/66.41	54
ODSL 9/V6-100-S12	199	PRK 3B/6.7-S8	30	PRK 25/66.41,150-S12	54
ODSL 9/V6-200-S12	199	PRK 3B/6.22	31	PRK 25/66.41-S8	54
ODSL 9/V6-450-S12	199	PRK 3B/6.22,200-S8	31	PRK 25/66.41-S12	54
ODSL 9/V6-650-S12	198	PRK 3B/6.22,200-S12	31	PRK 25B/4.3,200-S8.1	55
ODSL 9/V6.C1-450-S12	199	PRK 3B/6.22-S8	31	PRK 25B/4.3,200-S12	55
ODSL 9/V66-100-S12	199	PRK 3B/6.42	32	PRK 25B/4.8-S12	54
ODSL 9/V66-450-S12	199	PRK 3B/6.42,200-S8	32	PRK 25B/4.38-S12	55
ODSL 30/24-30M-S12	206	PRK 3B/6.42,200-S12	32	PRK 25B/4,200-S8.1	54
ODSL 30/D232-30M-S12	206	PRK 3B/6.42,5000	32	PRK 25B/4D.3,200-S12	55
ODSL 30/D485-30M-S12	206	PRK 3B/6.42-S8	32	PRK 25B/4D.3,2000-S12	55
ODSL 30/V-30M Ex d	206	PRK 3B/6D.7-S8	30	PRK 25B/4D.3-S8	55
ODSL 30/V-30M-S12	206	PRK 3B/6D.22-S8	31	PRK 25B/4D.3-S12	55
ODSL 96B M/66-2000-S12	203	PRK 3B/6D.42,200-S12	32	PRK 25B/44.3,200-S12	55
ODSL 96B M/C6-2000 Ex d	203	PRK 3B/6D.42-S8	32	PRK 25B/44.3-S12	55
ODSL 96B M/C6-2000-S12	203	PRK 3B/6D.46	32	PRK 25B/44-S12	54
ODSL 96B M/C6.C1S-1500-S12	203	PRK 3B/6-S8.3	30	PRK 25B/66	54
ODSL 96B M/C6-S12	204	PRK 3B/66	30	PRK 25B/66.1-S12	54
ODSL 96B M/C6.S-800-S12	203	PRK 3B/66.1	30	PRK 25B/66.3	55
ODSL 96B M/C6.XL-1200-S12	203	PRK 3B/66.1-S8	30	PRK 25B/66.3,200-S8	55
ODSL 96B M/C66-S12	204	PRK 3B/66,200-S8	30	PRK 25B/66.3,200-S12	55
ODSL 96B M/D26-2000-S12	203	PRK 3B/66,200-S12	30	PRK 25B/66.3-S8	55
ODSL 96B M/D26-S12	204	PRK 3B/66-S8	30	PRK 25B/66.3-S12	55
ODSL 96B M/D26.S-800-S12	203	PRK5/2N	39	PRK 25B/66.30,200-S12	55
ODSL 96B M/D36-2000-S12	203	PRK5/2N-200-M12	39	PRK 25B/66.31	55
ODSL 96B M/D36-S12	204	PRK5/2N-M8	39	PRK 25B/66.31,200-S12	55
ODSL 96B M/D36.S-800-S12	203	PRK5/4-200-M8.3	39	PRK 25B/66.31-S8	55
ODSL 96B M/L-2000-S12	203	PRK5/4P	39	PRK 25B/66.31-S12	55
ODSL 96B M/L-S12	204	PRK5/4P-200-M8	39	PRK 25B/66,100-S8	54
ODSL 96B M/V6-2000-S12	203	PRK5/4P-200-M12	39	PRK 25B/66,200-S12	54
ODSL 96B M/V6.C1S-1500-S12	203	PRK5/4P-350-M12	39	PRK 25B/66-S8	54
ODSL 96B M/V6-S12	204	PRK5/4P-800-M12	39	PRK 25B/66-S12	54
ODSL 96B M/V6.S-800-S12	203	PRK5/4P-M8	39	PRK28/2N	61
ODSL 96B M/V6.XL-1200-S12	203	PRK5/4X-200-M8.1	39	PRK28/2N-200-M12	61
ODSL 96K/66-2300-S12	204	PRK5.M3/2N	39	PRK28/2N-M12	61
ODSL 96K/V66-2300-S12	204	PRK5.M3/2N-M8	39	PRK28.3/2N	61
ODSLR 96B M/C6-2000-S12	203	PRK5.M3/4P	39	PRK28.3/2N-200-M12	61
ODSLR 96B M/V6-2000-S12	203	PRK5.M3/4P-M8	39	PRK28.3/2N-M12	61
ODSR 96B M/C6-600-S12	202	PRK 8/44	43	PRK28.3/4P	61
ODSR 96B M/V6-600-S12	202	PRK 8/44-S12	43	PRK28.3/4P-200-M12	61
P30-V1-B-DS-B	459	PRK 8/66	43	PRK28.3/4P-M12	61
P30-V1-B-DS-C	459	PRK 8/66.11-S12	43	PRK28/4P	61
P30-V1-B-DS-G	459	PRK 8/66.41-S12	43	PRK28/4P-200-M12	61
P30-V1-B-DS-O	459	PRK 8/66.42-S12	43	PRK28/4P-M12	61
P30-V1-B-DS-R	459	PRK 8/66-S12	43	PRK 46B/6.2-S12	66
P30-V1-B-DS-Y	459	PRK 18/24 DL.42	50	PRK 46B/7D,5000	66
P30-V1-B-DV	459	PRK 18/24 DL.46	50	PRK 46B/7D-S12	66
P45-V1-B-DS-B	459	PRK 18/44 L.43	50	PRK 46B/66.01,200-S12 S-Ex n	112
P45-V1-B-DS-C	459	PRK18B.1/2N-6000	49	PRK 46B/66,200-S12 S-Ex n	112
P45-V1-B-DS-G	459	PRK18B.1/2N-M12	49	PRK 46B/66D-S12	66
P45-V1-B-DS-O	459	PRK18B.1/4P-6000	49	PRK46C.1/4P-M12	66
P45-V1-B-DS-O-BZ-098	459	PRK18B.1/4P-M12	49	PRK46C/2N	66
P45-V1-B-DS-R	459	PRK18B.FXT3/2N-6000	50	PRK46C/2N-M12	66
P45-V1-B-DS-R-BZ-098	459	PRK18B.FXT3/2N-M12	50	PRK46C/4P	66
P45-V1-B-DS-Y	459	PRK18B.FXT3/2T-6000	50	PRK46C/4P-200-M12	66
P45-V1-B-DV	459	PRK18B.FXT3/4P-6000	50	PRK46C/4P-M12	66
P65-V1-B-DS-B	459	PRK18B.FXT3/4P-M12	50	PRK46C/4W-M12	66
P65-V1-B-DS-C	459	PRK18B.T2/2N-6000	50	PRK46C/48-M12	66
P65-V1-B-DS-G	459	PRK18B.T2/4P-6000	50	PRK46C.D1/4P-M12	66
P65-V1-B-DS-O	459	PRK18B.T2/4P-M12	49	PRK46C.D1/PX-M12	66
P65-V1-B-DS-O-BZ-103	459	PRK18B.T2/4X-M12	49	PRK46C.D/2N-M12	66
P65-V1-B-DS-R	459	PRK18B.T2/NX-M12	49	PRK46C.D/4P	66
P65-V1-B-DS-R-BZ-103	459	PRK18B.T2/PX-M12	49	PRK46C.D/4P-200-M12	66
P65-V1-B-DS-Y	459	PRK18B.T3/2N-M12	50	PRK46C.D/4P-M12	66
P65-V1-B-DV	459	PRK18B.T3/4P-M12	50	PRK46C.D/4W-M12	66
P65-V1-B-DW	459	PRK18B.TT3/2N-6000	50	PRK46C.D/48-M12	66
PBZ-V1-065	459	PRK18B.TT3/2N-M12	50	PRK46C.D/PX-200-M12	66
PBZ-V1-085	459	PRK18B.TT3/4P-6000	50	PRK46C.D/PX-M12	66
PRK 2/42	27	PRK18B.TT3/4P-M12	50	PRK46C/PX-200-M12	66
PRK 2/42,150-S8	27	PRK18B.TT3/LP-M12	50	PRK49C.DC/TS-TB	72
PRK 2/42,150-S12	27	PRK18B.TT3/P4-M12	50	PRK49C.UC1/M4	72
PRK 2/42D	27	PRK18B.XT2/4P-M12	50	PRK49C.UC1/M4-TB	72
PRK 2/42D,150-S8	27	PRK18B.XT3/4P-M12	50	PRK49C.UC1/TS	72
PRK 2/42D,150-S12	27	PRK18B.XTT3/4P-M12	50	PRK49C.UC1/TS-TB	72

PRK49C.UCD1/TS	72	PRK328.W3/2N-M12	101	REF 4-A-50x50	42
PRK49C.UCD1/TS-TB	72	PRK328.W3/4P	101	REF 4-A-50x50	60
PRK49C.UCH/M4-TB	72	PRK328.W3/4P-M12	101	REF 4-A-50x50	63
PRK49C.UCH/TS-TB	72	PRK 412M/P	104	REF 4-A-50x50	70
PRK49C.UC/M4-TB	72	PRK 412M/P-S12	104	REF 4-A-50x50	73
PRK49C.UC/TS-TB	72	PRK 618/4-S12	106	REF 4-A-50x50	76
PRK 53/6.22,5000	74	PRKL 3B/6.2,200-S8.3	31	REF 4-A-50x50	81
PRK 53/6.22-S8	74	PRKL 3B/6.2-S8.3	31	REF 4-A-50x50	96
PRK 53/6.42-S8	75	PRKL 3B/6.4-S8.3	32	REF 4-A-50x50	103
PRK 53/6D.42-S8	75	PRKL 3B/6.22	31	REF 4-A-50x50	111
PRK 55/6.22,200-S12	78	PRKL 3B/6.22,200-S8	31	REF 4-A-50x50	463
PRK 55/6.22,5000	78	PRKL 3B/6.22,200-S12	31	REF 4-A-50X1000	463
PRK 55/6.22-S8	78	PRKL 3B/6.22-S8	31	REF 4-A-50x45700	463
PRK 55/6.42,200-S12	79	PRKL 3B/6.42	32	REF 4-A-100x100	46
PRK 55/6.42,5000	79	PRKL 3B/6.42,200-S8	32	REF 4-A-100x100	52
PRK 55/6.42-S8	79	PRKL 3B/6.42,200-S12	32	REF 4-A-100x100	60
PRK 55/6.42-S8 Ex	109	PRKL 3B/6.42-S8	32	REF 4-A-100x100	70
PRK 55/6D.42,200-S12	79	PRKL 3B/6D.2-S8.3	31	REF 4-A-100x100	73
PRK 55/6D.42-S8	79	PRKL 3B/6D.22-S8	31	REF 4-A-100x100	84
PRK 55/6D.42-S8.3 Ex	109	PRKL 8/24.91	43	REF 4-A-100x100	91
PRK 55/66,200-S12	78	PRKL 8/24.91-S12	43	REF 4-A-100x100	99
PRK 55/66,5000	78	PRKL 8/24.99-S12	43	REF 4-A-100x100	463
PRK 55/66-S8	78	PRKL 8/44.91-S12	43	REF 4-A-100x45700	463
PRK 92/3 L Ex	108	PRKL 25B/4.1,200-S12	56	REF 4-A-920x749	463
PRK 95/4 L.2	82	PRKL 25B/4D.1-S12	56	REF 6-A-9x9	38
PRK 95/44 L	82	PRKL 25B/6.81-S12	56	REF 6-A-9x9	46
PRK 95/44 L.4	83	PRKL 25B/66.1	56	REF 6-A-9x9	60
PRK 95/A L.4	83	PRKL 25B/66.1-S8	56	REF 6-A-9x9	77
PRK 96K/N-1380-46	86	PRKL 25B/66.1-S12	56	REF 6-A-9x9	81
PRK 96K/P-1360.1-41	87	PRKL 25B/66.P-S12	56	REF 6-A-9x9	99
PRK 96K/P-1360-21	87	PRKL 53/6.22-S8	74	REF 6-A-9x9	111
PRK 96K/P-1360-41	87	PRKL 55/6.22,200-S12	78	REF 6-A-9x9	464
PRK 96K/P-1361-29	87	PRKL 55/6.22,5000	78	REF 6-A-14x45	46
PRK 96K/P-1380-41	87	PRKL 55/6.22-S8	78	REF 6-A-14x45	60
PRK 96K/P-3368-41	86	PRKL 318M/P	97	REF 6-A-14x45	77
PRK 96K/R-1420.1-25	87	PRKL 318M/P-S12	97	REF 6-A-14x45	81
PRK 96K/R-1420-25	87	PSC-900-S2	456	REF 6-A-14x45	99
PRK 96K/R-1430-25	87	PSC-1000-S2	456	REF 6-A-14x45	111
PRK 96K/R-3428.1-25	86	PSC-1300-S2	456	REF 6-A-14x45	464
PRK 96K/R-3428-25	86	PSC-1600-S2	456	REF 6-A-25x25	38
PRK 96M/A-3410-44	86	PSC-1900-S2	456	REF 6-A-25x25	464
PRK 96M/N-3366-27	86	PSC-2500-S2	456	REF 6-A-50x50	38
PRK 96M/P-1361.1-47	86	PSU-02A-1P-24V-S	426	REF 6-A-50x50	46
PRK 96M/P-1361-47	86	PSU-05A-1P-24V-H	426	REF 6-A-50x50	52
PRK 96M/P-1362-47	86	PSU-05A-1P-24V-S	426	REF 6-A-50x50	77
PRK 96M/P-1370-22	87	PSU-05A-3P-24V-H	426	REF 6-A-50x50	81
PRK 96M/P-1370-42	86	PSU-10A-1P-24V-H	426	REF 6-A-50x50	111
PRK 96M/P-1375-22	87	PSU-10A-1P-24V-S	426	REF 6-A-50x50	464
PRK 96M/P-1400-22	87	PSU-10A-3P-24V-H	426	REF 6-A-77x77	464
PRK 96M/P-1400-42	86	PSU-20A-1P-24V-H	426	REF 6-S-20x40	46
PRK 96M/P-1830-21	87	PSU-20A-3P-24V-H	426	REF 6-S-20x40	462
PRK 96M/P-1830-41	87	PSU-40A-3P-24V-H	426	REF 6-S-26x280	462
PRK 96M/P-1832-41	87	RD800-MP-M12L	325	REF 7-A-100x100	48
PRK 96M/P-1838-21	87	RD800-MP-M12R	325	REF 7-A-100x100	91
PRK 96M/P-1838-41	87	RD800-MSCA-CB2-L	325	REF 7-A-100x100	202
PRK 96M/P-2838-28	87	RD800-MSCA-CB2-R	325	REF 7-A-100x100	205
PRK 96M/P-2838-28 Ex n	113	RD800-MSCA-M12L	325	REF 7-A-100x100	464
PRK 96M/P-3360-21	86	RD800-MSCA-M12R	325	REF 7-A-200x300	464
PRK 96M/P-3369-21 Ex n	113	RD800-MUCA-CB2-L	325	REF 7-A-1000x600	464
PRK 96M/P-3380-41	86	RD800-MUCA-CB2-R	325	Reflective tape 200x200mm-H	464
PRK 96M/R-1850-25	87	RD800-MUCA-M12L	325	Reflective tape 200x200mm-M	214
PRK 96M/R-1858-25	87	RD800-MUCA-M12R	325	Reflective tape 200x200mm-M	464
PRK 96M/R-3420-25	86	RD800-SSCA-CB2-L	325	Reflective tape 200x200mm-S	214
PRK 96M/R-3430-25	86	RD800-SSCA-CB2-R	325	Reflective tape 200x200mm-S	464
PRK318B/2N	94	RD800-SSCA-M12L	325	Reflective tape 500x500mm-H	464
PRK318B/2N-M12	94	RD800-SSCA-M12R	325	Reflective tape 500x500mm-M	214
PRK318B/4P	94	RD800-SUCA-CB2-L	325	Reflective tape 500x500mm-M	464
PRK318B/4P-M12	94	RD800-SUCA-CB2-R	325	Reflective tape 500x500mm-S	214
PRK318B.W/2N	94	RD800-SUCA-M12L	325	Reflective tape 500x500mm-S	464
PRK318B.W/2N-M12	94	RD800-SUCA-M12R	325	Reflective tape 749x914mm-S	464
PRK318B.W/4P	94	RD800-x-SCA	326	Reflective tape 914x914mm-H	464
PRK318B.W/4P-M12	94	RD800-x-UCA	326	Reflective tape 914x914mm-M	214
PRK328.3/2N	101	REF 4-A-20x20	463	Reflective tape 914x914mm-M	464
PRK328.3/2N-M12	101	REF 4-A-25X1000	463	Reflective tape 914x914mm-S	214
PRK328.3/4P	101	REF 4-A-25x45700	463	Reflective tape 914x914mm-S	464
PRK328.3/4P-M12	101	REF 4-A-50x50	29	RFI 32 L 120	397
PRK328.W3/2N	101	REF 4-A-50x50	38	RFI 32 L 120-L10	397



RFM 12 SL 200	398	RSL430-XL/CU429-5	296	Set-AC-ML-2SA	281
RFM 32 SL 200	398	RSL430-XL/CU429-10	296	Set-AC-ML-2SA	467
RFM 32 SL 200 Ex-n.	398	RSL430-XL/CU429-25	296	Set-AC-ML-2SB	281
RFM 62 SL 200	398	RSL440-L/CU429-5	297	Set-AC-ML-2SB	467
RK18B.1/2N-6000	49	RSL440-L/CU429-10	297	Set-AC-MLX.2-2SA	467
RK18B.1/2N-M12	49	RSL440-L/CU429-25	297	Set-AC-MLX.2-2SB	467
RK18B.1/4P-6000	49	RSL440-M/CU429-5	297	Set-AC-MLX-2SA	281
RK18B.1/4P-M12	49	RSL440-M/CU429-10	297	Set-AC-MLX-2SA	467
RK18B.T2/2N-M12	50	RSL440-M/CU429-25	297	Set-AC-MLX-2SB	281
RK18B.T2/4P-M12	50	RSL440-S/CU429-5	297	Set-AC-MLX-2SB	467
RK46C.DXL3/2N-M12	65	RSL440-S/CU429-10	297	Set-AC-MT-2S	467
RK46C.DXL3/4P	65	RSL440-S/CU429-25	297	Set-AC-MT-4S	281
RK46C.DXL3/4P-200-M12	65	RSL440-XL/CU429-5	297	Set-AC-MT-4S	467
RK46C.DXL3/4P-M12	65	RSL440-XL/CU429-10	297	Set-AC-MTX.2-1S	467
RK46C.DXL3/PX-M12	65	RSL440-XL/CU429-25	297	Set-AC-MTX.2-2S	467
RK 96M/P-1440-21	87	RT 96M/P-1474-800-42	88	Set-AC-MTX-2S	467
RKL 3B/6.221	31	RT 96M/R-1574-800-25	88	Set-AC-MTX-4S	281
RKR 3B/6.42	32	RT 412M/P-200	104	Set-AC-MTX-4S	467
RKR 3B/6.42,200-S8	32	RT 412M/P-200-S12	104	SET LS 412M/P-S12	104
RKR 3B/6.42,200-S12	32	RT 618/4-200-S12	106	SET LS 618/4-S12	106
RKR 3B/6.42-S8	32	RTFR 3B/6D-S8.3	33	SET MD12-US2-IL1.1 + acc.	178
RKR 3B/6D.42	32	RTFR 3B/6-S8.3	33	SET MD12-US2-IL1.1 + acc.	236
RKR 3B/22D.01,200-S8	33	RTFR 3B/66	33	SLE46C-40.K2/4P	288
RKR 3B/66.11	33	RTFR 3B/66-S8	33	SLE46C-40.K2/4P-M12	288
RKR 3B/66.11-S8	33	RTFR 25B/66	56	SLE46C-40.K4/4P	282
RKR 53/6.42-S8	75	RTFR 25B/66-S8	56	SLE46C-40.K4/4P-M12	282
RKR 55/6.42,200-S12	79	RTFR 25B/66-S12	56	SLE46C-70.K2/4P	288
RKR 55/6.42,5000	79	RTL 318M/P-300-S12	98	SLE46C-70.K2/4P-M12	288
RKR 55/6.42-S8	79	RTR 3B/66	33	SLE46C-70.K4/4P	282
RKR 95/44-600 L	83	RTR 3B/66-S8	33	SLE46C-70.K4/4P-M12	282
RKU 420/2NC.2-S8	140	RTR 8/66-800	44	SLE46CI-40.K2/4P	288
ROD4-08 plus	226	RTR 8/66-800-S12	44	SLE46CI-40.K2/4P-M12	288
ROD4-30	226	RTR 25B/66-S12	56	SLE46CI-40.K4/4P	282
ROD4-36	226	S20-P1C1-M20-FH	302	SLE46CI-40.K4/4P-M12	282
ROD4-38	226	S20-P1C3-M20-LH	302	SLE46CI-70.K2/4P	288
ROD4-50 plus	226	S20-P3C1-M20-FH	302	SLE46CI-70.K2/4P-M12	288
ROD4-56 plus	226	S20-P4C1-M12-FH	302	SLE46CI-70.K4/4P	282
ROD4-58 plus	226	S20-P4C1-M20-FH	302	SLE46CI-70.K4/4P-M12	282
ROD4-MS	227	S20-P4C1-M20-FH30	302	SLS46C-40.K28	288
ROD4 plus	226	S20-P4C3-M20-LH	302	SLS46C-40.K28-M12	288
RS4-clean-Set1	298	S200-M1C1-M20	303	SLS46C-40.K48	282
RS4-clean-Set2	298	S200-M3C1-M20	303	SLS46C-40.K48-M12	282
RSL410-L/CU405-2M12	295	S200-M4C1-M12	303	SLS46C-70.K28	288
RSL410-L/CU408-M12	295	S200-M4C1-M20	303	SLS46C-70.K28-M12	288
RSL410-L/CU411-RS4	295	S300-M0C3-M20-15	305	SLS46C-70.K48	282
RSL410-M/CU405-2M12	295	S300-M0C3-M20-31	305	SLS46C-70.K48-M12	282
RSL410-M/CU408-M12	295	S300-M13C3-M20-15	305	SLS46CI-40.K28	288
RSL410-M/CU411-RS4	295	S300-M13C3-M20-31	305	SLS46CI-40.K28-M12	288
RSL410-S/CU405-2M12	295	S300-M13C3-M20-CB	305	SLS46CI-40.K48	282
RSL410-S/CU408-M12	295	S300-M13C3-M20-SB	305	SLS46CI-40.K48-M12	282
RSL410-S/CU411-RS4	295	S300-P0C1-M20-CB	305	SLS46CI-70.K28	288
RSL410-XL/CU405-2M12	295	S300-P13C1-M12-CB	305	SLS46CI-70.K28-M12	288
RSL410-XL/CU408-M12	295	S300-P13C1-M12-SB	305	SLS46CI-70.K48	282
RSL420-L/CU411-RS4	296	S300-P13C1-M20-CB	305	SLS46CI-70.K48-M12	282
RSL420-L/CU416-5	296	S300-P13C1-M20-SB	305	SLSE 318K/P	293
RSL420-L/CU416-10	296	S400-M1-CB02M12-W	307	SLSE 318K/P-S12	293
RSL420-L/CU416-25	296	S400-M4CB2-B	307	SLSE 318M/P-S12	293
RSL420-M/CU411-RS4	296	S400-M4-CB02M12-W	307	SLSER 25B/66	291
RSL420-M/CU416-5	296	S400-M4-CB2PUR-W	307	SLSER 25B/66,200-S12	291
RSL420-M/CU416-10	296	S400-M4CB2-T	307	SLSER 25B/66-S8	291
RSL420-M/CU416-25	296	S400-M4M12-B	307	SLSER 25B/66-S12	291
RSL420-S/CU411-RS4	296	S400-M4M12-T	307	SLSER 46B/66	290
RSL420-S/CU416-5	296	S410-M1CB2-B	309	SLSER 46B/66-S12	290
RSL420-S/CU416-10	296	S410-M1CB2-T	309	SLSS 318K	293
RSL420-S/CU416-25	296	S410-M1M12-B	309	SLSS 318K-S12	293
RSL420-XL/CU416-5	296	S410-M1M12-T	309	SLSS 318M-S12	293
RSL420-XL/CU416-10	296	S410-M4-CB02M12-W	309	SLSSR 25B.8	291
RSL420-XL/CU416-25	296	S410-M4-CB2PUR-W	309	SLSSR 25B.8,200-S12	291
RSL430-L/CU429-5	296	S420-9CB2-LW	310	SLSSR 25B.8-S8	291
RSL430-L/CU429-10	296	S420-9-CB02M12-LW	310	SLSSR 25B.8-S12	291
RSL430-L/CU429-25	296	S420-OS-CB2-LW	310	SLSSR 46B.8	290
RSL430-M/CU429-5	296	S420-OS-CB02M12-LW	310	SLSSR 46B.8-S12	290
RSL430-M/CU429-10	296	SAT 5	283	S-M12A-ET	367
RSL430-M/CU429-25	296	SAT 5	289	S-M12A-ET	375
RSL430-S/CU429-5	296	SAT 5	291	S-M12A-ET	377
RSL430-S/CU429-10	296	SAT 5	292	S-M12A-ET	419
RSL430-S/CU429-25	296	SAT 5	465	S-M12A-ET	445

ST 2020-5BE	384	TKS 20x40.P	462	UDC-900-S2	452
TFI 03 1101.120	400	TKS 25	462	UDC-1000-S2	452
TFI 03 1601.120	400	TKS 30x45	461	UDC-1140-S2	452
TFI 05 1101.120	400	TKS 30X50	38	UDC-1300-S2	452
TFI 05 1601.120	400	TKS 30X50	42	UDC-1600-S2	452
TFM 02 1125.220	400	TKS 30X50	45	UDC-1900-S2	452
TFM 02 2210.210	400	TKS 30X50	52	UM60-150	455
TFM 03 1110.210	400	TKS 30X50	60	UM60-225	455
TFM 03 1510.210	400	TKS 30X50	63	UM60-300	455
TFM 03 5125.220	400	TKS 30X50	70	UM60-450	455
TFM 04 1190.230	400	TKS 30X50	73	UM60-600	455
TFM 05 1110.210	400	TKS 30X50	84	UM60-750	455
TFM 05 1110.Ex	401	TKS 30X50	91	UM60-900	455
TFM 05 1510.210	401	TKS 30X50	96	UM60-1050	455
TFM 05 2210.210	400	TKS 30X50	99	UM60-1200	455
TFM 06 1110.210	401	TKS 30X50	103	UM60-1350	455
TFM 08 1110.210	401	TKS 30X50	105	UM60-1500	455
TFM 08 1610.210	401	TKS 30X50	107	UM60-1650	455
TFM 08 2125.220	400	TKS 30X50	109	UM60-1800	455
TG 15	461	TKS 30X50	113	UMC-902-S2	454
TG 29	52	TKS 30X50	114	UMC-1000-S2	453
TG 29	462	TKS 30X50	461	UMC-1002-S2	454
TK 10.P	462	TKS 30X60	461	UMC-1143-S2	454
TK 20.1	461	TKS 30X500	461	UMC-1300-S2	453
TK 20x75	461	TKS 40X60	29	UMC-1303-S2	454
TK 25.1	462	TKS 40X60	38	UMC-1304-S2	454
TK 30x50	461	TKS 40X60	42	UMC-1600-S2	453
TK 35.1	462	TKS 40X60	52	UMC-1603-S2	454
TK 40x180	461	TKS 40X60	60	UMC-1900-S2	453
TK 40 x180.1-Set	461	TKS 40X60	63	UMS 96	91
TK 45.1	462	TKS 40X60	70	UMS 96	205
TK 50x100	461	TKS 40X60	76	UMS 96	449
TK 50 x100-Set	461	TKS 40X60	81	UMS 96-82	449
TK 60	109	TKS 40X60	96	UMS 96-95	449
TK 60	462	TKS 40X60	99	VRTR 8/66-250	44
TK 82.2	38	TKS 40X60	103	VRTR 8/66-250-S12	44
TK 82.2	42	TKS 40X60	111	VRTU 430M/P-1110-6000-S12	144
TK 82.2	60	TKS 40X60	113	VRTU 430M/V-1710-6000-S12	208
TK 82.2	63	TKS 40X60	461	Z-3110 + KB-USB	382
TK 82.2	70	TKS 40x60.1.AF	461		
TK 82.2	73	TKS 40x60.P	77		
TK 82.2	96	TKS 40x60.P	462		
TK 82.2	103	TKS 50X50	70		
TK 82.2	113	TKS 50X50	84		
TK 82.2	462	TKS 50X50	91		
TK 82.AF	462	TKS 50X50	113		
TK 100x100	461	TKS 50X50	461		
TK 100 x100-Set	461	TKS 50X50.1	461		
TKA 30X46	461	TKS 50x50.1.HT	461		
TKA 30X60	461	TKS 50X100	461		
TK BR 53	462	TKS 85x85	461		
TKS 10x32	461	TKS 100X100	29		
TKS 20.P	462	TKS 100X100	38		
TKS 20x20	461	TKS 100X100	42		
TKS 20X40	29	TKS 100X100	45		
TKS 20X40	38	TKS 100X100	52		
TKS 20X40	42	TKS 100X100	60		
TKS 20X40	45	TKS 100X100	63		
TKS 20X40	52	TKS 100X100	70		
TKS 20X40	60	TKS 100X100	73		
TKS 20X40	63	TKS 100X100	76		
TKS 20X40	70	TKS 100X100	81		
TKS 20X40	73	TKS 100X100	84		
TKS 20X40	76	TKS 100X100	91		
TKS 20X40	81	TKS 100X100	96		
TKS 20X40	84	TKS 100X100	99		
TKS 20X40	91	TKS 100X100	103		
TKS 20X40	96	TKS 100X100	105		
TKS 20X40	99	TKS 100X100	107		
TKS 20X40	103	TKS 100X100	111		
TKS 20X40	105	TKS 100X100	113		
TKS 20X40	107	TKS 100X100	114		
TKS 20X40	111	TKS 100X100	193		
TKS 20X40	113	TKS 100X100	461		
TKS 20X40	114	TS 01-5-SA	236		
TKS 20X40	461	TS 02-4-SA	236		
TKS 20x40.P	77	TS 02-4-SA	424		

NOTES

[illegible]

GLOSSARY

abeam	Calibrated abeam optics system (precise beam alignment max. $\pm 0.25^\circ$ spread) eliminates complicated alignment of the sensor after mounting
ALC	Automatic switching-threshold correction for maximum function reserve
Alignment mode	A command can be used to activate the bar code reader to read and output the decoding capability on the interface
AOPD	A ctive O ptoelectronic P rotective D evice
AOPDDR	A ctive O ptoelectronic P rotective D evice responsive to D iffuse R eflection
AS-Interface Safety at Work	For economical, complete solutions including sensor and safety monitor
AutoReflAct (reflector polling)	A stationary bar code reader with this function facilitates control of the reading gate without an external, triggering photoelectric sensor
availabilitycontrol	Function which outputs a warning message even before contamination-related failure of a sensor occurs
A²LS	A ctive A mbient L ight S uppression for reliable detection
Blanking	A function with which one or more areas of the protective field of an ESPE is/ are made ineffective so that work pieces in the ESPE's protective field do not cause the protective device to switch off. Blanking can be stationary or floating
brightvision®	Simplifies the handling and commissioning of sensors by means of a bright, highly visible light spot
Contactor monitoring (EDM)	The contactor monitoring monitors the NC contacts of downstream positive-guided contactors and relays
CDRH	Laser products which are imported into the USA are to be specified by the manufacturer to the CDRH (Center for Devices and Radiological Health), a branch of the FDA
	The CE certification certifies conformity with the applicable guideline(s)
CRT	Code reconstruction technology (CRT) – enables reliable detection, even with soiled or damaged codes
	Products with this certification have been tested by Underwriters Laboratory Inc. (UL) in compliance with the relevant regulations for USA and Canada
	Products with this certification have been tested by the Canadian Standards Association (CSA) in compliance with the relevant regulations for Canada
	Products with this certification are components tested by Underwriters Laboratory Inc. (UL) and comply with the relevant regulations for USA and Canada.
Cycle time	Sum of the response times of all beams of a light curtain plus the internal evaluation
Dark switching	With dark switching optical sensors, the transistor is disabled if the light path is free and switched through if the light path is interrupted

easyhandling	Sophisticated fastening concepts enable simple and robust mounting of the devices. Should replacement be necessary, the devices can be exchanged position-neutral, i.e., without realigning.
ECOLAB+	Under the ECOLAB+ designation, the products are subjected to an entire series of additional aggressive cleaning agents at temperatures of 50°C before being forced to demonstrate their leak-proofness under the mechanical load of a steam-jet cleaner
EDM	External Device Monitoring
ESPE	Electro Sensitive Protective Equipment (German: BWS)
ESPE	E lectro- S ensitive P rotective E quipment (ESPE) offers protection by telling the machine to move into a safe operating state before a person can get into a dangerous situation
Fieldbus gateways	For field use for connection of bar code readers and identification systems
Function reserve	Receivers of optical sensors require a minimum amount of light to be able to switch (switching threshold). All light over and above this minimum amount is designated as “function reserve”
HI	LPS HI - High resolution versions (HI) with laser line 60 ... 170 mm
HYGIENE design	For the pharmaceutical test, the 53 series sensors are tested against H ₂ O ² and 70 % alcohol to ensure that they satisfy these special requirements as well
integratedconnectivity	The devices can be integrated problem-free in all common fieldbus systems and configured directly via the control
integratedlaseralignment	Convenient alignment function for large distances
Interfaces	Variety of interfaces for the common industrial interface systems – among others, PROFIBUS, PROFINET, EtherNet TCP/IP and INTERBUS
IO-Link	Standardized interface for the lowest field level for quick and convenient configuration and inspection of sensors directly via the control
	In order to make the protection of housings against foreign objects and water comparable, the degrees of protection have been defined in DIN 40050
Light switching	With light switching optical sensors, the transistor is switched through if the light path is free and disabled if the light path is interrupted
Machine Safety Services	Our “machine safety” service package
Muting	Temporary safety-related automatic suspension of the ESPE’s protective function during the material transport through the ESPE (see also IEC TS 62046)
Muting override	Manual activation of the muting function by actuating a command device. Moving material out of the muting area (at least one muting sensor must be activated for this, see also IEC TS 62046)
NPN transistor output	The NPN transistor output is a high-impedance switching output. It switches GND to the connected load
omnimount	Integrated mounting and alignment concept without additional components
Operating range	Distance between transmitter and receiver, and with reflex systems between sensor and reflector (with light curtains also called protective field width)
Operating range	The range recommended for typical installation situations for a sensor with corresponding function reserve
Operating range limit	Describes the maximum possible range of the sensor
Operating range Sa (inductive switches)	Also assured operating distance. Value that is guaranteed under all specified operating conditions.

OSSD	Output Signal Switching Device
PNP transistor outputs	The PNP transistor output is a high-impedance switching output. It switches positive potential to the connected load
Point to Point multiNet slave	For easy wiring and configuration
Potentially explosive area	Potentially explosive environments
Protective field	The area in which the defined test object is detected by the ESPE
Protective field height	Height of the active protective field with safety light curtains
Readiness delay	The delay before start-up suppresses sensor operation until all device-internal preparations have been concluded
Reproducibility	The deviation in measurement distance in the case of repeated measurement using an identical object under identical environmental conditions
RES	Start/restart interlock, prevents the automatic restarting of the machine after addressing a safety sensor, after switching on the supply voltage or changing the machine's operating or actuation mode
Response time	Time between penetration/entry into the active protective field and the actual switching off of the OSSDs. Time from entry of an object into the light path to switching of the output.
Sensitivity adjustment	The electrical gain is adjusted using an operational control, e. g. potentiometer or teach button. This adapts the function reserve to the application
<i>slimline</i>-design	Slimline-design of an optical forked sensor for installation directly on the dispensing edge
System integration	Clever and simple with protective sensor sets
Teach-in	For optimum sensitivity adjustment
<i>thinkmodular</i>	Freely selectable range of functions
Tracking	Automatic contamination compensation (tracking function). It compensates the gradual fouling of the sensor, determines the current reception level and compares this with the initial reference value
Typ. operating range limit	Maximum possible operating range of a sensor. If the sensor is used at this operating range limit, the sensor functions without function reserve
Typ. operating range limit Sn (inductive switches)	Also: "rated switching distance". The switching distance for which a sensor is configured
User guidance	User guidance is used to configure detection of highly transparent objects reliably without an object
WASH-DOWN design	For the pharmaceutical test, the 53 series sensors are tested against H ₂ O ₂ and 70 % alcohol to ensure that they satisfy these special requirements as well
<i>webConfig</i>	Browser-based software solution for convenient, computer-independent sensor configuration via Ethernet

NOTES

[illegible]

Copyright

All rights reserved, in particular right of reproduction and translation.
Copying or reproductions in any form require the written consent of
Leuze electronic GmbH + Co. KG.

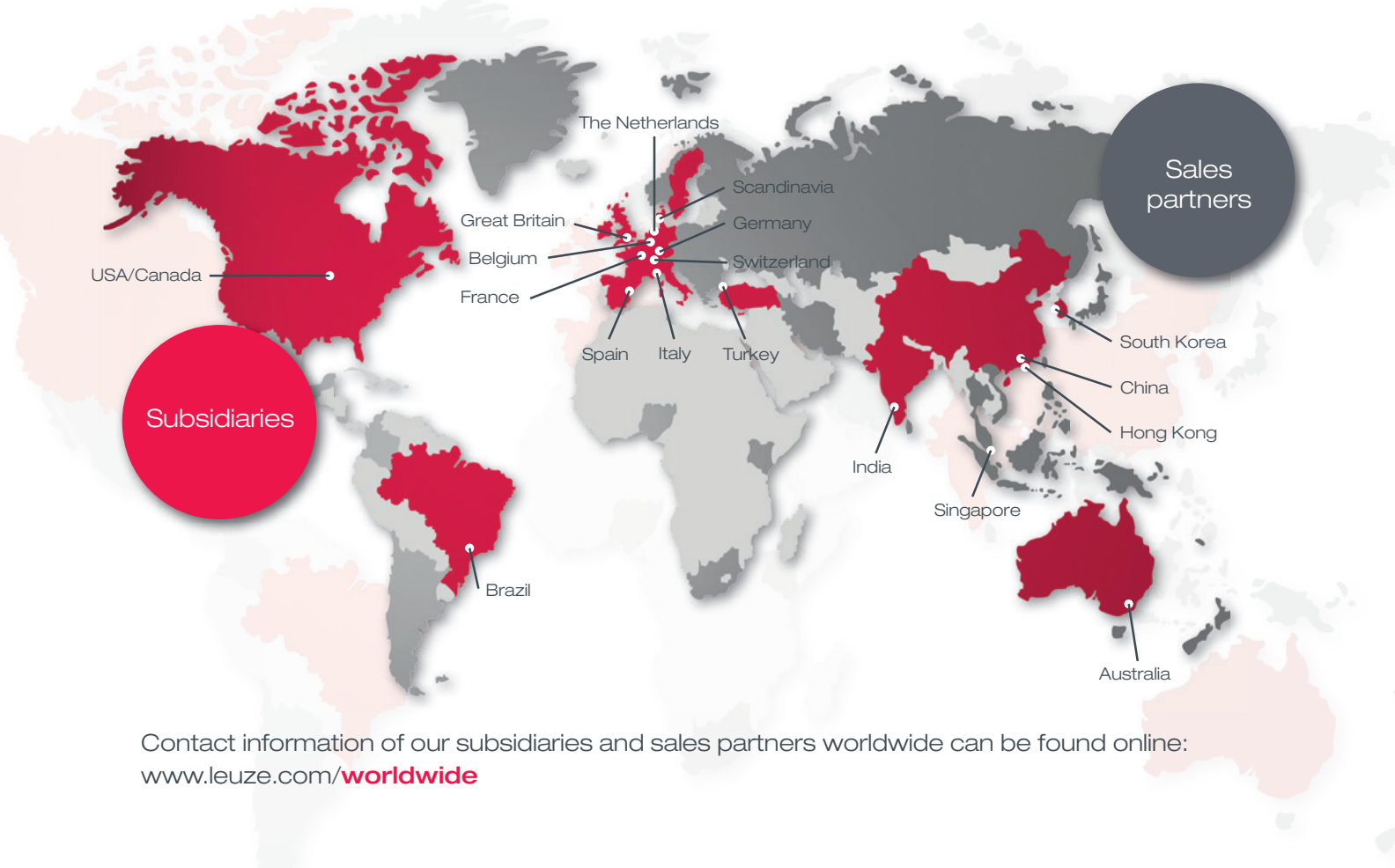
Product names are used without warranty of unrestricted applicability.

Changes reflecting technical improvements may be made.

© **Copyright 2016/2017** Leuze electronic GmbH + Co. KG
In der Braike 1, D-73277 Owen

SALES LOCATIONS WORLDWIDE

With our staff of qualified field representatives and capable Customer Support Centers, we are able to provide you with service worldwide. Our dedication to qualified service and focus on the customer have always been among our distinguishing characteristics.



Contact information of our subsidiaries and sales partners worldwide can be found online:
www.leuze.com/worldwide



SMARTER **PRODUCT USABILITY**

We place emphasis on the especially good usability of all devices.

SMARTER **APPLICATION KNOW-HOW**

We optimize our solutions for selected focus industries and applications and offer an extensive product portfolio for these areas.

SMARTER **CUSTOMER SERVICE**

We offer service that is closely aligned with your needs with emphasis on personal closeness and technical competence.

Switching Sensors

Optical Sensors
Ultrasonic Sensors
Fiber Optic Sensors
Inductive Switches
Forked Sensors
Light Curtains
Special Sensors

Measuring Sensors

Distance Sensors
Sensors for Positioning
3D Sensors
Light Curtains
Forked Sensors

Products for Safety at Work

Optoelectronic Safety Sensors
Safe Locking Devices, Switches and Proximity Sensors
Safe Control Components
Machine Safety Services

Identification

Bar Code Identification
2D-Code Identification
RF Identification

**Data Transmission /
Control Components**

MA Modular Connection Units
Data Transmission
Safe Control Components
Signaling Devices
Connection Technology and Passive Distributors

Industrial Image Processing

Light Section Sensors
Smart Camera

Leuze electronic GmbH + Co. KG
In der Braike 1
D-73277 Owen / Germany
Phone +49 7021 573-0
Fax +49 7021 573-199
info@leuze.de
www.leuze.com