



CATALOG 2020

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SENSORS
IMAGE PROCESSING AND
IDENTIFICATION SYSTEMS
SAFETY TECHNOLOGY
LIGHTING
ACCESSORIES

WELCOME TO DI-SORIC

ABOUT THE INVENTOR OF THE FORK LIGHT BARRIER: DI-SORIC.

For over 40 years, di-soric GmbH & Co. KG has been producing and selling sensors featuring a wide variety of technologies. These sensors are used in industrial automation—primarily in assembly and handling technology, in the automotive, electronics and pharmaceutical industries and in packaging technology. Other important cornerstones of our product range are innovative vision sensors and code readers, high-quality LED lighting for machines and image processing, and products from the segment of safety technology.

Our own ambition is to benefit you. When we develop products and solutions to handle your tasks, we always strive to make them both as simple and as practical as possible.

We draw upon our high level of technical know-how and a clear view of the developments of tomorrow to support our customers – today and in the future – with precise, non-disruptive and efficient production processes.





DI-SORIC FACTS

■ **100% OWNER-MANAGED**

■ **HEADQUARTERS**

Urbach, Germany

■ **TECHNOLOGY AND PRODUCTION CENTER**

Lüdenscheid, Germany

■ **REPRESENTATIVES AND BRANCH OFFICES**

in more than 40 countries

■ **CERTIFICATIONS**

IQNet, DQS - ISO 9001:2015, UL, RoHS

OUR PROMISE TO YOU:

SOLUTIONS.
CLEVER.
PRACTICAL.



SOLUTIONS.

**To us, finding solutions means
providing you with exactly the right solution
for the job.**

- Solution-oriented consultation and implementation
- Product portfolio for numerous application areas



CLEVER.

To us, being clever means **finding new, smart, unconventional and therefore more effective solutions.**

- Added value for product and application
- Efficient in function and application
- Openness and flexibility for the best solutions

PRACTICAL.

To us, being practical means **being available, taking a straightforward approach and communicating as partners.**

- Solution-oriented consultation and technical expertise
- Straightforward, cooperative and dynamic approach
- Address what is important and forget about unnecessary factors.

A / Sensors



Inductive sensors **8**

Inductive proximity sensors	8
Inductive ring sensors	44
Inductive tube sensors	50

Optical sensors **52**

Light barriers and diffuse sensors	52
Optical distance sensors	66
Fork light barriers	70
Angled light barriers	80
Frame and ring light barriers	84
Light curtains	86
High-performance light barriers	94
Plastic fiber-optic sensors	98
Glass fiber-optic sensors	108
Color sensors	114
Contrast sensors	116

Ultrasonic sensors **118**

Ultrasonic barriers/sensors	119
Ultrasonic fork sensors	125

Capacitive proximity sensors **126**

Label sensors **132**

Magnetic field sensors **136**

Special sensors **140**



B / Industrial image processing and identification systems



Vision sensors **144**

Hand-held readers **146**

Lenses **148**

nVision software **158**

C / Safety technology



<u>Opto-electronic safety sensors</u>	<u>160</u>
<u>Reliable control components</u>	<u>176</u>

D / Lighting



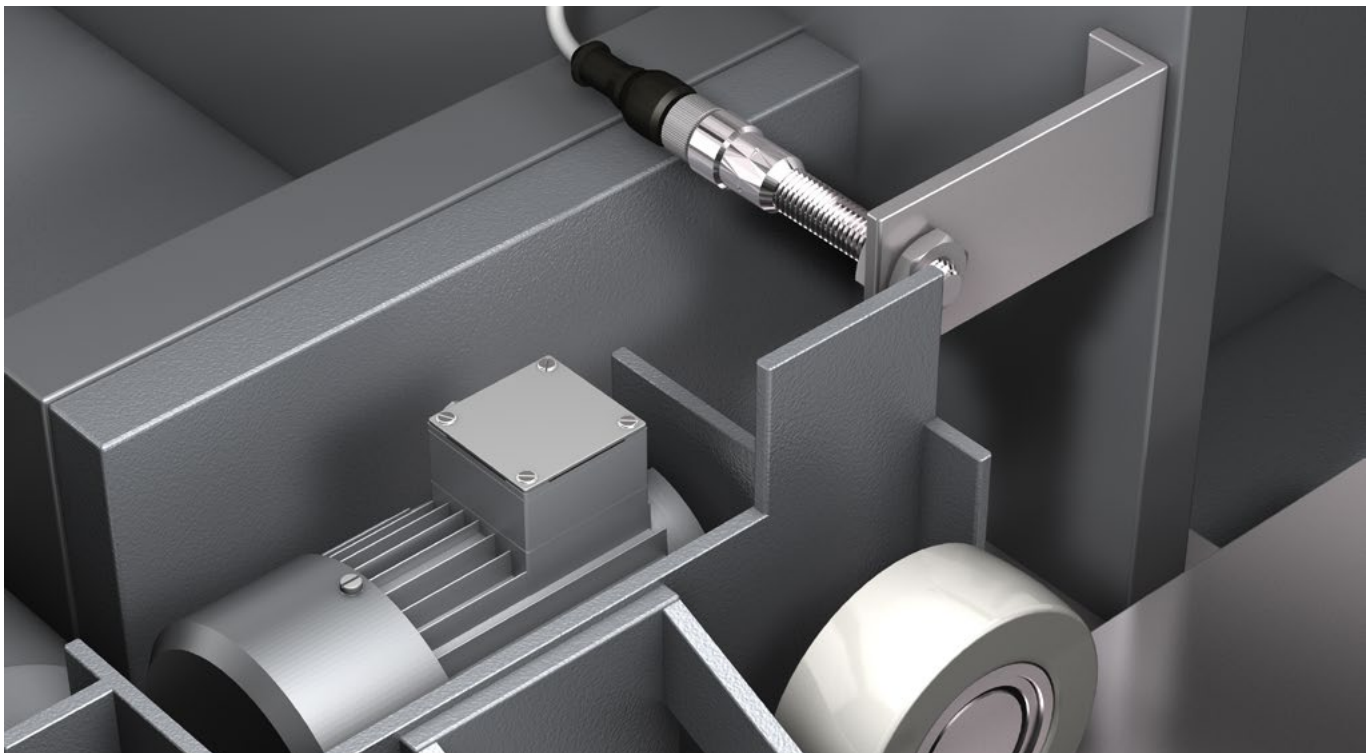
<u>Lighting for industrial image processing</u>	<u>182</u>
<u>Machine lighting</u>	<u>194</u>
<u>Signal lighting</u>	<u>198</u>

E / Accessories



<u>Sensor accessories</u>	<u>200</u>
<u>Accessories for industrial image processing</u>	<u>220</u>
<u>Identification system accessories</u>	<u>228</u>
<u>Safety technology accessories</u>	<u>230</u>
<u>Lighting accessories</u>	<u>240</u>
<u>Mounting technology</u>	<u>246</u>

Inductive proximity sensors



Our inductive proximity sensors are available in Ø 3 mm to M30 models as well as rectangular designs from miniature up to 40 x 40. Fully metallic versions, pressure-resistant sensors up to 500 bar, as well as up to 3x or 4x switching distances supplement our product range, in addition to sensors with analog output for precise production or testing processes. We are continually making developments to our catalog to offer our customers real added value in a digitized industrial environment.



 **di-soric**

INS Standard	9
INE Extended	18
INC Advanced	28
INW Full Metal Extended	30
INP High-Pressure Resistant	34
INA Analog	35
INH High-Temperature Resistant	36
INF Food & Beverage	38
INN Namur	40
INU Universal Voltage	41
INZ Special Applications	42
Installation Instructions	43











INS STANDARD

The INS standard series is the optimal choice for requirements with a good balance between cost and practicality. These products are available in all sizes – from Ø 3 mm to M30 with normal design length as well as rectangular models – and feature a sufficient functional reserve. These sensors have single and double switching distances and can be connected with plugs or PVC cables.



Technical data (typ.)	+20 °C, 24 VDC
Installation instructions	flush / non-flush / virtually flush (see page 43)
For more information, visit	www.di-soric.com

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Cable length, plug connector	Product description
INS Standard, standard design							
	M8 x 45	1.5	f	pnp, 200 mA, NO	Brass nickel plated	2m	DCB 08 MB 1.5 PS-3
				nnp, 200 mA, NO			DCB 08 MB 1.5 NS-3
	M8 x 50	1.5	f	pnp, 200 mA, NO	Brass nickel plated	M8	DCB 08 MB 1.5 PS-T3
				nnp, 200 mA, NO			DCB 08 MB 1.5
	M8 x 36	1.5	f	pnp, 200 mA, NO	Brass nickel plated	2m	DCBK 08 MB 1.5 PS-3
				nnp, 200 mA, NO			DCBK 08 MB 1.5 NS-3
	M8 x 40	1.5	f	pnp, 200 mA, NO	Brass nickel plated	M8	DCBK 08 MB 1.5 PS-T3
				nnp, 200 mA, NO			DCBK 08 MB 1.5 NS-T3
	M8 x 35	1.5	f	pnp, 200 mA, NO	Stainless steel V2A	2m	DCC 08 M 1.5 PSLK
				pnp, 200 mA, NC			DCC 08 M 1.5 POLK
				nnp, 200 mA, NO			DCC 08 M 1.5 NSLK
				nnp, 200 mA, NC			DCC 08 M 1.5 NOLK
	M8 x 22	1.5	f	pnp, 200 mA, NO	Stainless steel V2A	2m	DCC 08 M 1.5 PSLK/22
				pnp, 200 mA, NC			DCC 08 M 1.5 POLK/22
				nnp, 200 mA, NO			DCC 08 M 1.5 NSLK/22
				nnp, 200 mA, NC			DCC 08 M 1.5 NOLK/22
	M8 x 30	1.5	f	pnp, 200 mA, NO	Stainless steel V2A	2m	DCC 08 M 1.5 PSLK/30
				pnp, 200 mA, NC			DCC 08 M 1.5 POLK/30
				nnp, 200 mA, NO			DCC 08 M 1.5 NSLK/30
				nnp, 200 mA, NC			DCC 08 M 1.5 NOLK/30
	M8 x 45	1.5	f	pnp, 200 mA, NO	Stainless steel V2A	M8	DCC 08 M 1.5 PSK-TSL
				pnp, 200 mA, NC			DCC 08 M 1.5 POK-TSL
				nnp, 200 mA, NO			DCC 08 M 1.5 NSK-TSL
				nnp, 200 mA, NC			DCC 08 M 1.5 NOK-TSL






	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Cable length, plug connector	Product description
	M8 x 32	1.5	f	pnp, 200 mA, NO	Stainless steel V2A	M8	DCC 08 M 1.5 PSK-TSL/32
				pnp, 200 mA, NC			DCC 08 M 1.5 POK-TSL/32
				npn, 200 mA, NO			DCC 08 M 1.5 NSK-TSL/32
				npn, 200 mA, NC			DCC 08 M 1.5 NOK-TSL/32
	M8 x 40	1.5	f	pnp, 200 mA, NO	Stainless steel V2A	M8	DCC 08 M 1.5 PSK-TSL/40
				pnp, 200 mA, NC			DCC 08 M 1.5 POK-TSL/40
				npn, 200 mA, NO			DCC 08 M 1.5 NSK-TSL/40
				npn, 200 mA, NC			DCC 08 M 1.5 NOK-TSL/40
	M8 x 45	1.5	f	pnp, 200 mA, NO	Stainless steel V2A	M12	DCC 08 M 1.5 PSK-IBSL
				pnp, 200 mA, NC			DCC 08 M 1.5 POK-IBSL
				npn, 200 mA, NO			DCC 08 M 1.5 NSK-IBSL
				npn, 200 mA, NC			DCC 08 M 1.5 NOK-IBSL
	M8 x 16	1.5	f	pnp, 200 mA, NO	Stainless steel V2A	2m	DCCK 08 M 1.5 PSLK
				pnp, 200 mA, NC			DCCK 08 M 1.5 POLK
				npn, 200 mA, NO			DCCK 08 M 1.5 NSLK
				npn, 200 mA, NC			DCCK 08 M 1.5 NOLK
	M8 x 45	1.5	f	pnp, 200 mA, NO	Brass nickel plated	2m	DCB 08 MN 2.5 PS-3
				npn, 200 mA, NO			DCB 08 MN 2.5 NS-3
	M8 x 50	2.5	nf	pnp, 200 mA, NO	Brass nickel plated	M8	DCB 08 MN 2.5 PS-T3
				npn, 200 mA, NO			DCB 08 MN 2.5 NS-T3
	M8 x 36	2.5	nf	pnp, 200 mA, NO	Brass nickel plated	2m	DCBK 08 MN 2.5 PS-3
				npn, 200 mA, NO			DCBK 08 MN 2.5 NS-3
	M8 x 40	2.5	nf	pnp, 200 mA, NO	Brass nickel plated	M8	DCBK 08 MN 2.5 PS-T3
				npn, 200 mA, NO			DCBK 08 MN 2.5 NS-T3
	M8 x 45	2.5	nf	pnp, 200 mA, NO	Stainless steel V2A	M8	DCC 08 M 2.5 PSK-TSL
				pnp, 200 mA, NC			DCC 08 M 2.5 POK-TSL
				npn, 200 mA, NO			DCC 08 M 2.5 NSK-TSL
				npn, 200 mA, NC			DCC 08 M 2.5 NOK-TSL
	M8 x 48	2.5	nf	pnp, 200 mA, NO	Stainless steel V2A	M12	DCC 08 M 2.5 PSK-IBSL
				pnp, 200 mA, NC			DCC 08 M 2.5 POK-IBSL
				npn, 200 mA, NO			DCC 08 M 2.5 NSK-IBSL
				npn, 200 mA, NC			DCC 08 M 2.5 NOK-IBSL

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Cable length, plug connector	Product description
	M12 x 50	2.0	f	pnp, 200 mA, NO	Brass nickel plated	2m	DCB 12 MB 02 PS-3
				npn, 200 mA, NO			DCB 12 MB 02 NS-3
	M12 x 50	2.0	f	pnp, 200 mA, NC	Brass nickel plated	2m	DCC 12 M 02 POLK
				npn, 200 mA, NC			DCC 12 M 02 NOLK
	M12 x 35	2.0	f	pnp, 200 mA, NO	Brass nickel plated	2m	DCCK 12 M 02 PSLK
				pnp, 200 mA, NC			DCCK 12 M 02 POLK
				npn, 200 mA, NO			DCCK 12 M 02 NSLK
				npn, 200 mA, NC			DCCK 12 M 02 NOLK
	M12 x 65	2.0	f	pnp, 200 mA, NO	Brass nickel plated	M12	DCB 12 MB 02 PS-B3
				npn, 200 mA, NO			DCB 12 MB 02 NS-B3
	M12 x 53	2.0	f	pnp, 200 mA, NO	Brass nickel plated	M12	DCBK 12 MB 02 PS-B3
				pnp, 200 mA, NC			DCBK 12 MB 02 PO-B3
				npn, 200 mA, NO			DCBK 12 MB 02 NS-B3
	M12 x 60	2.0	f	pnp, 200 mA, NC	Brass nickel plated	M12	DCC 12 M 02 POK-IBSL
				npn, 200 mA, NC			DCC 12 M 02 NOK-IBSL
	M12 x 45	2.0	f	pnp, 200 mA, NO	Brass nickel plated	M12	DCCK 12 M 02 PSK-IBSL
				pnp, 200 mA, NC			DCCK 12 M 02 POK-IBSL
				npn, 200 mA, NO			DCCK 12 M 02 NSK-IBSL
				npn, 200 mA, NC			DCCK 12 M 02 NOK-IBSL
	M12 x 50	4.0	nf	pnp, 200 mA, NO	Brass nickel plated	2m	DCB 12 MN 04 PS-3
				npn, 200 mA, NO			DCB 12 MN 04 NS-3
	M12 x 65	4.0	nf	pnp, 200 mA, NO	Brass nickel plated	M12	DCB 12 MN 04 PS-B3
				npn, 200 mA, NO			DCB 12 MN 04 NS-B3

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Cable length, plug connector	Product description
INS Standard, standard design							
	M12 x 50	4.0	nf	pnp, 200 mA, NO	Brass nickel plated	2 m	DCC 12 M 04 PSLK
pnp, 200 mA, NC				DCC 12 M 04 POLK			
npn, 200 mA, NO				DCC 12 M 04 NSLK			
npn, 200 mA, NC				DCC 12 M 04 NOLK			
	M12 x 35	4.0	nf	pnp, 200 mA, NO	Brass nickel plated	2 m	DCCK 12 M 04 PSLK
pnp, 200 mA, NC				DCCK 12 M 04 POLK			
npn, 200 mA, NO				DCCK 12 M 04 NSLK			
npn, 200 mA, NC				DCCK 12 M 04 NOLK			
	M12 x 60	4.0	nf	pnp, 200 mA, NO	Brass nickel plated	M12	DCC 12 M 04 PSK-IBSL
pnp, 200 mA, NC				DCC 12 M 04 POK-IBSL			
npn, 200 mA, NO				DCC 12 M 04 NSK-IBSL			
npn, 200 mA, NC				DCC 12 M 04 NOK-IBSL			
	M12 x 45	4.0	nf	pnp, 200 mA, NO	Brass nickel plated	M12	DCCK 12 M 04 PSK-IBSL
pnp, 200 mA, NC				DCCK 12 M 04 POK-IBSL			
npn, 200 mA, NO				DCCK 12 M 04 NSK-IBSL			
npn, 200 mA, NC				DCCK 12 M 04 NOK-IBSL			
	M18 x 50	5.0	f	pnp, 400 mA, NO	Brass nickel plated	2 m	DCB 18 MB 05 PS-3
npn, 400 mA, NO				DCB 18 MB 05 NS-3			
	M18 x 50	5.0	f	pnp, 200 mA, NO	Brass nickel plated	2 m	DCC 18 M 05 PSLK
pnp, 200 mA, NC				DCC 18 M 05 POLK			
npn, 200 mA, NO				DCC 18 M 05 NSLK			
npn, 200 mA, NC				DCC 18 M 05 NOLK			
	M18 x 35	5.0	f	pnp, 200 mA, NO	Brass nickel plated	2 m	DCCK 18 M 05 PSLK
pnp, 200 mA, NC				DCCK 18 M 05 POLK			
npn, 200 mA, NO				DCCK 18 M 05 NSLK			
npn, 200 mA, NC				DCCK 18 M 05 NOLK			
	M18 x 64	5.0	f	pnp, 400 mA, NO	Brass nickel plated	M12	DCB 18 MB 05 PS-B3
npn, 400 mA, NO				DCB 18 MB 05 NS-B3			
	M18 x 65	5.0	f	pnp, 200 mA, NO	Brass nickel plated	M12	DCC 18 M 05 PSK-IBSL
pnp, 200 mA, NC				DCC 18 M 05 POK-IBSL			
npn, 200 mA, NO				DCC 18 M 05 NSK-IBSL			
npn, 200 mA, NC				DCC 18 M 05 NOK-IBSL			

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Cable length, plug connector	Product description
	M18 x 50	5.0	f	pnp, 200 mA, NO	Brass nickel plated	M12	DCCK 18 M 05 PSK-IBSL
				pnp, 200 mA, NC			DCCK 18 M 05 POK-IBSL
				npn, 200 mA, NO			DCCK 18 M 05 NSK-IBSL
				npn, 200 mA, NC			DCCK 18 M 05 NOK-IBSL
	M18 x 50	8.0	nf	pnp, 400 mA, NO	Brass nickel plated	2 m	DCB 18 MN 08 PS-3
				npn, 400 mA, NO			DCB 18 MN 08 NS-3
	M18 x 50	8.0	nf	pnp, 200 mA, NO	Brass nickel plated	2 m	DCC 18 M 08 PSLK
				pnp, 200 mA, NC			DCC 18 M 08 POLK
				npn, 200 mA, NO			DCC 18 M 08 NSLK
				npn, 200 mA, NC			DCC 18 M 08 NOLK
	M18 x 35	8.0	nf	pnp, 200 mA, NO	Brass nickel plated	2 m	DCCK 18 M 08 PSLK
				pnp, 200 mA, NC			DCCK 18 M 08 POLK
				npn, 200 mA, NO			DCCK 18 M 08 NSLK
				npn, 200 mA, NC			DCCK 18 M 08 NOLK
	M18 x 64	8.0	nf	pnp, 400 mA, NO	Brass nickel plated	M12	DCB 18 MN 08 PS-B3
				npn, 400 mA, NO			DCB 18 MN 08 NS-B3
	M18 x 65	8.0	nf	pnp, 200 mA, NO	Brass nickel plated	M12	DCC 18 M 08 PSK-IBSL
				pnp, 200 mA, NC			DCC 18 M 08 POK-IBSL
				npn, 200 mA, NO			DCC 18 M 08 NSK-IBSL
				npn, 200 mA, NC			DCC 18 M 08 NOK-IBSL
	M18 x 50	8.0	nf	pnp, 200 mA, NO	Brass nickel plated	M12	DCCK 18 M 08 PSK-IBSL
				pnp, 200 mA, NC			DCCK 18 M 08 POK-IBSL
				npn, 200 mA, NO			DCCK 18 M 08 NSK-IBSL
				npn, 200 mA, NC			DCCK 18 M 08 NOK-IBSL
	M30 x 60	10.0	f	pnp, 400 mA, NO	Brass nickel plated	2 m	DCB 30 MB 10 PS-3
				npn, 400 mA, NO			DCB 30 MB 10 NS-3
	M30 x 52	10.0	f	pnp, 200 mA, NO	Brass nickel plated	2 m	DCC 30 M 10 PSLK
				pnp, 200 mA, NC			DCC 30 M 10 POLK
				npn, 200 mA, NO			DCC 30 M 10 NSLK
				npn, 200 mA, NC			DCC 30 M 10 NOLK

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Cable length, plug connector	Product description
	M30 x 36	10.0	f	pnp, 200 mA, NO	Brass nickel plated	2 m	DCCK 30 M 10 PSLK
				pnp, 200 mA, NC			DCCK 30 M 10 POLK
				npn, 200 mA, NO			DCCK 30 M 10 NSLK
				npn, 200 mA, NC			DCCK 30 M 10 NOLK
	M30 x 76	10.0	f	pnp, 400 mA, NO	Brass nickel plated	M12	DCB 30 MB 10 PS-B3
				npn, 400 mA, NO			DCB 30 MB 10 NS-B3
	M30 x 64	10.0	f	pnp, 200 mA, NO	Brass nickel plated	M12	DCC 30 M 10 PSK-IBSL
				pnp, 200 mA, NC			DCC 30 M 10 POK-IBSL
				npn, 200 mA, NO			DCC 30 M 10 NOK-IBSL
				npn, 200 mA, NC			DCC 30 M 10 NSK-IBSL
	M30 x 50	10.0	f	pnp, 200 mA, NO	Brass nickel plated	M12	DCCK 30 M 10 PSK-IBSL
				pnp, 200 mA, NC			DCCK 30 M 10 POK-IBSL
				npn, 200 mA, NO			DCCK 30 M 10 NSK-IBSL
				npn, 200 mA, NC			DCCK 30 M 10 NOK-IBSL
	M30 x 53	15.0	nf	pnp, 200 mA, NO	Brass nickel plated	2 m	DCC 30 M 15 PSLK
				pnp, 200 mA, NC			DCC 30 M 15 POLK
				npn, 200 mA, NO			DCC 30 M 15 NSLK
				npn, 200 mA, NC			DCC 30 M 15 NOLK
	M30 x 60	15.0	f	pnp, 400 mA, NO	Brass nickel plated	2 m	DCB 30 MN 15 PS-3
				npn, 400 mA, NO			DCB 30 MN 15 NS-3
	M30 x 76	15.0	f	pnp, 400 mA, NO	Brass nickel plated	M12	DCB 30 MN 15 PS-B3
				npn, 400 mA, NO			DCB 30 MN 15 NS-B3
	M30 x 35	15.0	nf	pnp, 200 mA, NO	Brass nickel plated	2 m	DCCK 30 M 15 PSLK
				pnp, 200 mA, NC			DCCK 30 M 15 POLK
				npn, 200 mA, NO			DCCK 30 M 15 NSLK
				npn, 200 mA, NC			DCCK 30 M 15 NOLK
	M30 x 66	15.0	nf	pnp, 200 mA, NO	Brass nickel plated	M12	DCC 30 M 15 PSK-IBSL
				pnp, 200 mA, NC			DCC 30 M 15 POK-IBSL
				npn, 200 mA, NO			DCC 30 M 15 NOK-IBSL
				npn, 200 mA, NC			DCC 30 M 15 NSK-IBSL
	M30 x 52	15.0	nf	pnp, 200 mA, NO	Brass nickel plated	M12	DCCK 30 M 15 PSK-IBSL
				pnp, 200 mA, NC			DCCK 30 M 15 POK-IBSL
				npn, 200 mA, NO			DCCK 30 M 15 NSK-IBSL
				npn, 200 mA, NC			DCCK 30 M 15 NOK-IBSL

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Cable length, plug connector	Product description
INS Standard, small diameters							
	M5 x 25	0.8	f	pnp, 100 mA, NO	Stainless steel V2A	2m	DCC 05 V 0.8 PSLK
				pnp, 100 mA, NC			DCC 05 V 0.8 POLK
				npn, 100 mA, NO			DCC 05 V 0.8 NSLK
				npn, 100 mA, NC			DCC 05 V 0.8 NOLK
	M5 x 38	0.8	f	pnp, 100 mA, NO	Stainless steel V2A	M8	DCC 05 V 0.8 PSK-TSL
				pnp, 100 mA, NC			DCC 05 V 0.8 POK-TSL
				npn, 100 mA, NO			DCC 05 V 0.8 NSK-TSL
				npn, 100 mA, NC			DCC 05 V 0.8 NOK-TSL
	Ø4.0x25	0.8	f	pnp, 100 mA, NO	Stainless steel V2A	2m	DCC 4.0 V 0.8 PSLK
				pnp, 100 mA, NC			DCC 4.0 V 0.8 POLK
				npn, 100 mA, NO			DCC 4.0 V 0.8 NSLK
				npn, 100 mA, NC			DCC 4.0 V 0.8 NOLK
	Ø4.0x38	0.8	f	pnp, 100 mA, NO	Stainless steel V2A	M8	DCC 4.0 V 0.8 PSK-TSL
				pnp, 100 mA, NC			DCC 4.0 V 0.8 POK-TSL
				npn, 100 mA, NO			DCC 4.0 V 0.8 NSK-TSL
				npn, 100 mA, NC			DCC 4.0 V 0.8 NOK-TSL
	Ø 6.5x36	1.5	f	pnp, 200 mA, NO	Stainless steel V2A	2m	DCC 6.5 V 1.5 PSLK
				pnp, 200 mA, NC			DCC 6.5 V 1.5 POLK
				npn, 200 mA, NO			DCC 6.5 V 1.5 NSLK
				npn, 200 mA, NC			DCC 6.5 V 1.5 NOLK
	Ø 6.5x45	1.5	f	pnp, 200 mA, NO	Stainless steel V2A	M8	DCC 6.5 V 1.5 PSK-TSL
				pnp, 200 mA, NC			DCC 6.5 V 1.5 POK-TSL
				npn, 200 mA, NO			DCC 6.5 V 1.5 NSK-TSL
				npn, 200 mA, NC			DCC 6.5 V 1.5 NOK-TSL
	Ø 6.5x16	1.5	f	pnp, 200 mA, NO	Stainless steel V2A	2m	DCCK 6.5 V 1.5 PSLK
				pnp, 200 mA, NC			DCCK 6.5 V 1.5 POLK
				npn, 200 mA, NO			DCCK 6.5 V 1.5 NSLK
				npn, 200 mA, NC			DCCK 6.5 V 1.5 NOLK
	Ø 6.5x29	1.5	f	pnp, 200 mA, NO	Stainless steel V2A	M8	DCCK 6.5 V 1.5 PSK-TSL
				pnp, 200 mA, NC			DCCK 6.5 V 1.5 POK-TSL
				npn, 200 mA, NO			DCCK 6.5 V 1.5 NSK-TSL
				npn, 200 mA, NC			DCCK 6.5 V 1.5 NOK-TSL
	Ø 6.5x22	1.5	f	pnp, 200 mA, NO	Stainless steel V2A	2m	DCC 6.5 V 1.5 PSLK/22
				pnp, 200 mA, NC			DCC 6.5 V 1.5 POLK/22
				npn, 200 mA, NO			DCC 6.5 V 1.5 NSLK/22
				npn, 200 mA, NC			DCC 6.5 V 1.5 NOLK/22

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Cable length, plug connector	Product description
INS Standard, rectangular design							
	5 x 5 x 25	0.8	f	pnp, 200 mA, NO	Brass nickel plated	2m	DCCQ 05 M 0.8 PSLK
pnp, 200 mA, NC				DCCQ 05 M 0.8 POLK			
npn, 200 mA, NO				DCCQ 05 M 0.8 NSLK			
npn, 200 mA, NC				DCCQ 05 M 0.8 NOLK			
	8 x 8 x 40	1.5	f	pnp, 200 mA, NO	Brass nickel plated	2m	DCQZ 08 M 1.5 PSL
	8 x 8 x 40	1.5	f	pnp, 200 mA, NO	Brass nickel plated	M8	DCQZ 08 M 1.5 PSK-TSL
	8 x 8 x 40	1.5	f	pnp, 200 mA, NO	Brass nickel plated	2m	DCCQ 08 M 1.5 PSLK
pnp, 200 mA, NC				DCCQ 08 M 1.5 POLK			
npn, 200 mA, NO				DCCQ 08 M 1.5 NSLK			
npn, 200 mA, NC				DCCQ 08 M 1.5 NOLK			
	8 x 8 x 50	1.5	f	pnp, 200 mA, NO	Brass nickel plated	M8	DCCQ 08 M 1.5 PSK-TSL
pnp, 200 mA, NC				DCCQ 08 M 1.5 POK-TSL			
npn, 200 mA, NO				DCCQ 08 M 1.5 NSK-TSL			
npn, 200 mA, NC				DCCQ 08 M 1.5 NOK-TSL			
	8 x 8 x 40	2.0	f	pnp, 200 mA, NO	Brass nickel plated	2m	DCCQ 08 M 02 PSLK
pnp, 200 mA, NC				DCCQ 08 M 02 POLK			
npn, 200 mA, NO				DCCQ 08 M 02 NSLK			
npn, 200 mA, NC				DCCQ 08 M 02 NOLK			
	8 x 8 x 50	2.0	f	pnp, 200 mA, NO	Brass nickel plated	M8	DCCQ 08 M 02 PSK-TSL
pnp, 200 mA, NC				DCCQ 08 M 02 POK-TSL			
npn, 200 mA, NO				DCCQ 08 M 02 NSK-TSL			
npn, 200 mA, NC				DCCQ 08 M 02 NOK-TSL			
	28 x 16 x 10	2.0	f	pnp, 200 mA, NO	Plastic PBT	2m	DCR 30 K 02 PSLK
pnp, 200 mA, NC				DCR 30 K 02 POLK			
npn, 200 mA, NO				DCR 30 K 02 NSLK			
npn, 200 mA, NC				DCR 30 K 02 NOLK			
	28 x 16 x 10	2.0	f	pnp, 200 mA, NO	Plastic PBT	M8	DCR 30 K 02 PSK-TSL
pnp, 200 mA, NC				DCR 30 K 02 POK-TSL			
npn, 200 mA, NO				DCR 30 K 02 NSK-TSL			
npn, 200 mA, NC				DCR 30 K 02 NOK-TSL			

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Cable length, plug connector	Product description
INS Standard, rectangular design							
	40 x 26 x 12	2.0	f	pnp, 200 mA, NO	Plastic PBT	2m	DCR 40 K 02 PSLK
pnp, 200 mA, NC				DCR 40 K 02 POLK			
npn, 200 mA, NO				DCR 40 K 02 NSLK			
npn, 200 mA, NC				DCR 40 K 02 NOLK			
	40 x 26 x 12	2.0	f	pnp, 200 mA, NO	Plastic PBT	2m	DCR 40 K 02 PSK-TSL
pnp, 200 mA, NC				DCR 40 K 02 POK-TSL			
npn, 200 mA, NO				DCR 40 K 02 NSK-TSL			
npn, 200 mA, NC				DCR 40 K 02 NOK-TSL			
	40 x 26 x 12	4.0	nf	pnp, 200 mA, NO	Plastic PBT	2m	DCR 40 K 04 PSLK
pnp, 200 mA, NC				DCR 40 K 04 POLK			
npn, 200 mA, NO				DCR 40 K 04 NSLK			
npn, 200 mA, NC				DCR 40 K 04 NOLK			
	40 x 26 x 12	4.0	nf	pnp, 200 mA, NO	Plastic PBT	M8	DCR 40 K 04 PSK-TSL
pnp, 200 mA, NC				DCR 40 K 04 POK-TSL			
npn, 200 mA, NO				DCR 40 K 04 NSK-TSL			
npn, 200 mA, NC				DCR 40 K 04 NOK-TSL			
	40 x 26 x 12	4.0	nf	pnp, 200 mA, NO	Plastic PBT	M8	DCR 40 K 04 V PSK-TSL
	80 x 80 x 40	50	nf	pnp, 200 mA NO/NC antivalent	Plastic PBT	Clamps	DCCR 80 K 50 PSOL-KL





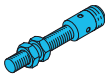
INE EXTENDED

The sensors in the INE Extended series are robust sensors in all sizes up to M30, which offer more than just the standard. Thanks to their double and triple switching distances, they exhibit greater mounting tolerances. The INE sensors are available in normal and short designs. In addition to the common standard connections with plugs or PVC cables, PUR cables and cables with connector are also available.



Technical data (typ.)	+20 °C, 24 VDC
Installation instructions	flush / non-flush / virtually flush (see page 43)
For more information, visit	www.di-soric.com

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (n)	Switching output	Housing material	Cable length, plug connector	Product description
INE Extended, standard design							
	M8 x 35	2.0	f	pnp, 200 mA, NO	Stainless steel V2A	2 m	DCC 08 M 02 PSLK
				pnp, 200 mA, NC			DCC 08 M 02 POLK
				npn, 200 mA, NO			DCC 08 M 02 NSLK
				npn, 200 mA, NC			DCC 08 M 02 NOLK
	M8 x 45	2.0	f	pnp, 200 mA, NO	Brass nickel plated	2 m	DCB 08 MB 02 PS-3
				npn, 200 mA, NO			DCB 08 MB 02 NS-3
	M8 x 36	2.0	f	pnp, 200 mA, NO	Brass nickel plated	M8	DCBK 08 MB 02 PS-3
				npn, 200 mA, NO			DCBK 08 MB 02 NS-3
	M8 x 16	2.0	f	pnp, 200 mA, NO	Stainless steel V2A	2 m	DCC 08 M 02 PSLK/16
				pnp, 200 mA, NC			DCC 08 M 02 POLK/16
				npn, 200 mA, NO			DCC 08 M 02 NSLK/16
				npn, 200 mA, NC			DCC 08 M 02 NOLK/16
	M8 x 22	2.0	f	pnp, 200 mA, NO	Stainless steel V2A	2 m	DCC 08 M 02 PSLK/22
				pnp, 200 mA, NC			DCC 08 M 02 POLK/22
				npn, 200 mA, NO			DCC 08 M 02 NSLK/22
				npn, 200 mA, NC			DCC 08 M 02 NOLK/22
	M8 x 30	2.0	f	pnp, 200 mA, NO	Stainless steel V2A	2 m	DCC 08 M 02 PSLK/30
				pnp, 200 mA, NC			DCC 08 M 02 POLK/30
				npn, 200 mA, NO			DCC 08 M 02 NSLK/30
				npn, 200 mA, NC			DCC 08 M 02 NOLK/30
	M8 x 50	2.0	f	pnp, 200 mA, NO	Brass nickel plated	M8	DCB 08 MB 02 PS-T3
				npn, 200 mA, NO			DCB 08 MB 02 NS-T3

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Cable length, plug connector	Product description
	M8 x 40	2.0	f	pnp, 200 mA, NO	Brass nickel plated	M8	DCBK 08 MB 02 PS-T3
				npn, 200 mA, NO			DCBK 08 MB 02 NS-T3
	M8 x 45	2.0	f	pnp, 200 mA, NO	Stainless steel V2A	M8	DCC 08 M 02 PSK-TSL
				pnp, 200 mA, NC			DCC 08 M 02 POK-TSL
				npn, 200 mA, NO			DCC 08 M 02 NSK-TSL
				npn, 200 mA, NC			DCC 08 M 02 NOK-TSL
	M8 x 29	2.0	f	pnp, 200 mA, NO	Stainless steel V2A	M8	DCC 08 M 02 PSK-TSL/29
				pnp, 200 mA, NC			DCC 08 M 02 POK-TSL/29
				npn, 200 mA, NO			DCC 08 M 02 NSK-TSL/29
				npn, 200 mA, NC			DCC 08 M 02 NOK-TSL/29
	M8 x 32	2.0	f	pnp, 200 mA, NO	Stainless steel V2A	M8	DCC 08 M 02 PSK-TSL/32
				pnp, 200 mA, NC			DCC 08 M 02 POK-TSL/32
				npn, 200 mA, NO			DCC 08 M 02 NSK-TSL/32
				npn, 200 mA, NC			DCC 08 M 02 NOK-TSL/32
	M8 x 40	2.0	f	pnp, 200 mA, NO	Stainless steel V2A	M8	DCC 08 M 02 PSK-TSL/40
				pnp, 200 mA, NC			DCC 08 M 02 POK-TSL/40
				npn, 200 mA, NO			DCC 08 M 02 NSK-TSL/40
				npn, 200 mA, NC			DCC 08 M 02 NOK-TSL/40
	M8 x 46	2.0	f	pnp, 200 mA, NO	Stainless steel V2A	M12	DCC 08 M 02 PSK-IBSL
				pnp, 200 mA, NC			DCC 08 M 02 POK-IBSL
				npn, 200 mA, NO			DCC 08 M 02 NSK-IBSL
				npn, 200 mA, NC			DCC 08 M 02 NOK-IBSL
	M8 x 48	3.0	f	pnp, 200 mA, NO	Brass nickel plated	2m	DCC 08 M 03 PSLK
				pnp, 200 mA, NC			DCC 08 M 03 POLK
				npn, 200 mA, NO			DCC 08 M 03 NSLK
				npn, 200 mA, NC			DCC 08 M 03 NOLK
	M8 x 60	3.0	f	pnp, 200 mA, NO	Brass nickel plated	M8	DCC 08 M 03 PSK-TSL
				pnp, 200 mA, NC			DCC 08 M 03 POK-TSL
				npn, 200 mA, NO			DCC 08 M 03 NSK-TSL
				npn, 200 mA, NC			DCC 08 M 03 NOK-TSL
	M8 x 67	3.0	f	pnp, 200 mA, NO	Brass nickel plated	M12	DCC 08 M 03 PSK-IBSL
				pnp, 200 mA, NC			DCC 08 M 03 POK-IBSL
				npn, 200 mA, NO			DCC 08 M 03 NSK-IBSL
				npn, 200 mA, NC			DCC 08 M 03 NOK-IBSL






	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Cable length, plug connector	Product description
INE Extended, standard design							
	M8 x 45	4.0	nf	pnp, 200 mA, NO	Brass nickel plated	2 m	DCB 08 MN 04 PS-3
pnp, 200 mA, NC				DCB 08 MN 04 NS-3			
npn, 200 mA, NO				DCBK 08 MN 04 PS-3			
npn, 200 mA, NC				DCBK 08 MN 04 NS-3			
	M8 x 35	4.0	nf	pnp, 200 mA, NO	Stainless steel V2A	2 m	DCC 08 V 04 NB PSLK
pnp, 200 mA, NC				DCC 08 V 04 NB POLK			
npn, 200 mA, NO				DCC 08 V 04 NB NSLK			
npn, 200 mA, NC				DCC 08 V 04 NB NOLK			
	M8 x 50	4.0	nf	pnp, 200 mA, NO	Brass nickel plated	M8	DCB 08 MN 04 PS-T3
npn, 200 mA, NO				DCB 08 MN 04 NS-T3			
	M8 x 40	4.0	nf	pnp, 200 mA, NO	Brass nickel plated	M8	DCB 08 MN 04 PS-T3
npn, 200 mA, NO				DCBK 08 MN 04 NS-T3			
	M8 x 46	4.0	nf	pnp, 200 mA, NO	Stainless steel V2A	M8	DCC 08 V 04 NB PSK-TSL
pnp, 200 mA, NC				DCC 08 V 04 NB POK-TSL			
npn, 200 mA, NO				DCC 08 V 04 NB NSK-TSL			
npn, 200 mA, NC				DCC 08 V 04 NB NOK-TSL			
	M8 x 45	6.0	nf	pnp, 200 mA, NO	Brass nickel plated	2 m	DCC 08 M 06 PSLK
pnp, 200 mA, NC				DCC 08 M 06 POLK			
npn, 200 mA, NO				DCC 08 M 06 NSLK			
npn, 200 mA, NC				DCC 08 M 06 NOLK			
	M8 x 60	6.0	nf	pnp, 200 mA, NO	Brass nickel plated	M8	DCC 08 M 06 PSK-TSL
pnp, 200 mA, NC				DCC 08 M 06 POK-TSL			
npn, 200 mA, NO				DCC 08 M 06 NSK-TSL			
npn, 200 mA, NC				DCC 08 M 06 NOK-TSL			
	M8 x 66	6.0	nf	pnp, 200 mA, NO	Brass nickel plated	M12	DCC 08 M 06 PSK-IBSL
pnp, 200 mA, NC				DCC 08 M 06 POK-IBSL			
npn, 200 mA, NO				DCC 08 M 06 NSK-IBSL			
npn, 200 mA, NC				DCC 08 M 06 NOK-IBSL			






	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Cable length, plug connector	Product description
	M12 x 50	4.0	f	pnp, 200 mA, NO	Brass nickel plated	2m	DCC 12 M 04 B PSLK
				pnp, 200 mA, NC			DCC 12 M 04 B POLK
				npn, 200 mA, NO			DCC 12 M 04 B NSLK
	M12 x 35	4.0	f	pnp, 200 mA, NO	Brass nickel plated	2m	DCCK 12 M 04 B PSLK
				pnp, 200 mA, NC			DCCK 12 M 04 B POLK
				npn, 200 mA, NO			DCCK 12 M 04 B NOLK
				npn, 200 mA, NC			DCCK 12 M 04 B NSLK
	M12 x 65	4.0	f	pnp, 200 mA, NO	Brass nickel plated	M12	DCB 12 MB 04 PS-B3
				npn, 200 mA, NO			DCB 12 MB 04 NS-B3
	M12 x 53	4.0	f	pnp, 200 mA, NO	Brass nickel plated	M12	DCBK 12 MB 04 PS-B3
				pnp, 200 mA, NC			DCBK 12 MB 04 PO-B3
	M12 x 60	4.0	f	pnp, 200 mA, NO	Brass nickel plated	M12	DCC 12 M 04 B PSK-IBSL
				pnp, 200 mA, NC			DCC 12 M 04 B POK-IBSL
				npn, 200 mA, NO			DCC 12 M 04 B NSK-IBSL
				npn, 200 mA, NC			DCC 12 M 04 B NOK-IBSL
	M12 x 45	4.0	f	pnp, 200 mA, NO	Brass nickel plated	M12	DCCK 12 M 04 B PSK-IBSL
				pnp, 200 mA, NC			DCCK 12 M 04 B POK-IBSL
				npn, 200 mA, NO			DCCK 12 M 04 B NSK-IBSL
	M12 x 50	8.0	nf	pnp, 200 mA, NO	Brass nickel plated	2m	DCB 12 MN 08 PS-3
				npn, 200 mA, NO			DCB 12 MN 08 NS-3
	M12 x 40	8.0	nf	pnp, 200 mA, NO	Brass nickel plated	2m	DCBK 12 MN 08 PS-3
				npn, 200 mA, NO			DCBK 12 MN 08 NS-3
	M12 x 65	8.0	nf	pnp, 200 mA, NO	Brass nickel plated	M12	DCB 12 MN 08 PS-B3
				npn, 200 mA, NO			DCB 12 MN 08 NS-B3

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Cable length, plug connector	Product description
	M12 x 53	8.0	nf	pnp, 200 mA, NO	Brass nickel plated	M12	DCBK 12 MN 08 PS-B3
				npn, 200 mA, NO			DCBK 12 MN 08 NS-B3
	M12 x 50	10.0	nf	pnp, 200 mA, NO	Brass nickel plated	2 m	DCC 12 M 10 PSLK
				pnp, 200 mA, NC			DCC 12 M 10 POLK
				npn, 200 mA, NO			DCC 12 M 10 NSLK
				npn, 200 mA, NC			DCC 12 M 10 NOLK
	M12 x 35	10.0	nf	pnp, 200 mA, NO	Brass nickel plated	2 m	DCCK 12 M 10 PSLK
				pnp, 200 mA, NC			DCCK 12 M 10 POLK
				npn, 200 mA, NO			DCCK 12 M 10 NSLK
				npn, 200 mA, NC			DCCK 12 M 10 NOLK
	M12 x 60	10.0	nf	pnp, 200 mA, NO	Brass nickel plated	M12	DCC 12 M 10 PSK-IBSL
				pnp, 200 mA, NC			DCC 12 M 10 POK-IBSL
				npn, 200 mA, NO			DCC 12 M 10 NSK-IBSL
				npn, 200 mA, NC			DCC 12 M 10 NOK-IBSL
	M12 x 45	10.0	nf	pnp, 200 mA, NO	Brass nickel plated	M12	DCCK 12 M 10 PSK-IBSL
				pnp, 200 mA, NC			DCCK 12 M 10 POK-IBSL
				npn, 200 mA, NO			DCCK 12 M 10 NSK-IBSL
				npn, 200 mA, NC			DCCK 12 M 10 NOK-IBSL
	M18 x 50	8.0	f	pnp, 400 mA, NO	Brass nickel plated	2 m	DCB 18 MB 08 PS-3
				npn, 400 mA, NO			DCB 18 MB 08 NS-3
	M18 x 64	8.0	f	pnp, 400 mA, NO	Brass nickel plated	M12	DCB 18 MB 08 PS-B3
				npn, 400 mA, NO			DCB 18 MB 08 NS-B3
	M18 x 50	12.0	nf	pnp, 400 mA, NO	Brass nickel plated	2 m	DCB 18 MN 12 PS-3
				npn, 400 mA, NO			DCB 18 MN 12 NS-3

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Cable length, plug connector	Product description
INE Extended, standard design							
	M18 x 50	20.0	nf	pnp, 200 mA, NO	Brass nickel plated	2m	DCC 18 M 20 PSLK
				pnp, 200 mA, NC			DCC 18 M 20 POLK
				npn, 200 mA, NO			DCC 18 M 20 NSLK
				npn, 200 mA, NC			DCC 18 M 20 NOLK
	M18 x 35	20.0	nf	pnp, 200 mA, NO	Brass nickel plated	2m	DCCK 18 M 20 PSLK
				pnp, 200 mA, NC			DCCK 18 M 20 POLK
				npn, 200 mA, NO			DCCK 18 M 20 NSLK
				npn, 200 mA, NC			DCCK 18 M 20 NOLK
	M18 x 64	20.0	nf	pnp, 200 mA, NO	Brass nickel plated	M12	DCC 18 M 20 PSK-IBSL
				pnp, 200 mA, NC			DCC 18 M 20 POK-IBSL
				npn, 200 mA, NO			DCC 18 M 20 NSK-IBSL
				npn, 200 mA, NC			DCC 18 M 20 NOK-IBSL
	M18 x 49	20.0	nf	pnp, 200 mA, NO	Brass nickel plated	M12	DCCK 18 M 20 PSK-IBSL
				pnp, 200 mA, NC			DCCK 18 M 20 POK-IBSL
				npn, 200 mA, NO			DCCK 18 M 20 NSK-IBSL
				npn, 200 mA, NC			DCCK 18 M 20 NOK-IBSL
	M30 x 64	12.0	nf	pnp, 400 mA, NO	Brass nickel plated	M12	DCB 18 MN 12 PS-B3
				npn, 400 mA, NO			DCB 18 MN 12 NS-B3
	M30 x 60	15.0	f	pnp, 400 mA, NO	Brass nickel plated	2m	DCB 30 MB 15 PS-3
				npn, 400 mA, NO			DCB 30 MB 15 NS-3
	M30 x 76	15.0	f	pnp, 400 mA, NO	Brass nickel plated	M12	DCB 30 MB 15 PS-B3
				npn, 400 mA, NO			DCB 30 MB 15 NS-B3
	M30 x 60	20.0	nf	pnp, 400 mA, NO	Brass nickel plated	2m	DCB 30 MN 20 PS-3
				npn, 400 mA, NO			DCB 30 MN 20 NS-3
				npn, 400 mA, NC			DCB 30 MN 20 NO-3
	M30 x 76	20.0	nf	pnp, 400 mA, NO	Brass nickel plated	M12	DCB 30 MN 20 PS-B3
				npn, 400 mA, NO			DCB 30 MN 20 NS-B3

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Cable length, plug connector	Product description
	Ø3.0x22	0.6	f	pnp, 200 mA, NO	Stainless steel V2A	2m	DCC 3.0 V 0.6 PSLK
				pnp, 200 mA, NC			DCC 3.0 V 0.6 POLK
				npn, 200 mA, NO			DCC 3.0 V 0.6 NSLK
				npn, 200 mA, NC			DCC 3.0 V 0.6 NOLK
	Ø 6.5x22	2.0	f	pnp, 200 mA, NO	Stainless steel V2A	2m	DCC 6.5 V 02 PSLK/22
				pnp, 200 mA, NC			DCC 6.5 V 02 POLK/22
				npn, 200 mA, NC			DCC 6.5 V 02 NOLK/22
	Ø 6.5x29	2.0	f	pnp, 200 mA, NO	Stainless steel V2A	M8	DCC 6.5 V 02 PSK-TSL/29
				pnp, 200 mA, NC			DCC 6.5 V 02 POK-TSL/29
				npn, 200 mA, NO			DCC 6.5 V 02 NSK-TSL/29
				npn, 200 mA, NC			DCC 6.5 V 02 NOK-TSL/29
	Ø 6.5x30	2.0	f	pnp, 200 mA, NO	Stainless steel V2A	2m	DCC 6.5 V 02 PSLK/30
				pnp, 200 mA, NC			DCC 6.5 V 02 POLK/30
				npn, 200 mA, NO			DCC 6.5 V 02 NSLK/30
				npn, 200 mA, NC			DCC 6.5 V 02 NOLK/30
	Ø 6.5x35	2.0	f	pnp, 200 mA, NO	Stainless steel V2A	2m	DCC 6.5 V 02 PSLK
				pnp, 200 mA, NC			DCC 6.5 V 02 POLK
				npn, 200 mA, NO			DCC 6.5 V 02 NSLK
				npn, 200 mA, NC			DCC 6.5 V 02 NOLK
	Ø 6.5x45	2.0	f	pnp, 200 mA, NO	Stainless steel V2A	M8	DCC 6.5 V 02 PSK-TSL
				pnp, 200 mA, NC			DCC 6.5 V 02 POK-TSL
				npn, 200 mA, NO			DCC 6.5 V 02 NSK-TSL
				npn, 200 mA, NC			DCC 6.5 V 02 NOK-TSL
	Ø 6.5x40	2.0	f	pnp, 200 mA, NO	Stainless steel V2A	M8	DCC 6.5 V 02 PSK-TSL/40
				pnp, 200 mA, NC			DCC 6.5 V 02 POK-TSL/40
				npn, 200 mA, NO			DCC 6.5 V 02 NOK-TSL/40
	Ø 6.5x17	2.0	f	pnp, 200 mA, NO	Stainless steel V2A	2m	DCCK 6.5 V 02 PSLK
				pnp, 200 mA, NC			DCCK 6.5 V 02 POLK
				npn, 200 mA, NO			DCCK 6.5 V 02 NSLK
				npn, 200 mA, NC			DCCK 6.5 V 02 NOLK

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Cable length, plug connector	Product description
INE Extended, small diameters							
	M4 x 22	0.6	f	pnp, 200 mA, NO pnp, 200 mA, NC npn, 200 mA, NO npn, 200 mA, NC	Stainless steel V2A	2m	DCC 04 M 0.6 PSLK DCC 04 M 0.6 POLK DCC 04 M 0.6 NSLK DCC 04 M 0.6 NOLK
	M4 x 22	0.6	f	pnp, 200 mA, NO pnp, 200 mA, NC npn, 200 mA, NO npn, 200 mA, NC	Stainless steel V2A	0.2m/M8	DCC 04 M 0.6 PSK-K-TSL DCC 04 M 0.6 POK-K-TSL DCC 04 M 0.6 NSK-K-TSL DCC 04 M 0.6 NOK-K-TSL
	M4 x 22	1.0	f	pnp, 200 mA, NO pnp, 200 mA, NC npn, 200 mA, NO npn, 200 mA, NC	Stainless steel V2A	2m	DCC 04 V 1.0 PSLK DCC 04 V 1.0 POLK DCC 04 V 1.0 NSLK DCC 04 V 1.0 NOLK
	M4 x 22	1.0	f	pnp, 200 mA, NO pnp, 200 mA, NC npn, 200 mA, NO npn, 200 mA, NC	Stainless steel V2A	0.2m/M8	DCC 04 V 1.0 PSK-K-TSL DCC 04 V 1.0 POK-K-TSL DCC 04 V 1.0 NSK-K-TSL DCC 04 V 1.0 NOK-K-TSL
	M5 x 25	1.5	f	pnp, 100 mA, NO pnp, 100 mA, NC npn, 100 mA, NO npn, 100 mA, NC	Stainless steel V2A	2m	DCC 05 V 1.5 PSLK DCC 05 V 1.5 POLK DCC 05 V 1.5 NSLK DCC 05 V 1.5 NOLK
	M5 x 38	1.5	f	pnp, 100 mA, NO pnp, 100 mA, NC npn, 100 mA, NO npn, 100 mA, NC	Stainless steel V2A	M8	DCC 05 V 1.5 PSK-TSL DCC 05 V 1.5 POK-TSL DCC 05 V 1.5 NSK-TSL DCC 05 V 1.5 NOK-TSL

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Cable length, plug connector	Product description
INE Extended, small diameters							
	Ø3.0x22	0.6	f	pnp, 200 mA, NO	Stainless steel V2A	0.2m/M8	DCC 3.0 V 0.6 PSK-K-TSL
				pnp, 200 mA, NC			DCC 3.0 V 0.6 POK-K-TSL
				npn, 200 mA, NO			DCC 3.0 V 0.6 NSK-K-TSL
				npn, 200 mA, NC			DCC 3.0 V 0.6 NOK-K-TSL
	Ø3.0x22	1.0	f	pnp, 200 mA, NO	Stainless steel V2A	2m	DCC 3.0 V 1.0 PSLK
				pnp, 200 mA, NC			DCC 3.0 V 1.0 POLK
				npn, 200 mA, NO			DCC 3.0 V 1.0 NSLK
				npn, 200 mA, NC			DCC 3.0 V 1.0 NOLK
	Ø3.0x22	1.0	f	pnp, 200 mA, NO	Stainless steel V2A	0.15m/M8	DCC 3.0 V 1.0 PSK-K-TSL
				pnp, 200 mA, NC			DCC 3.0 V 1.0 POK-K-TSL
				npn, 200 mA, NO			DCC 3.0 V 1.0 NSK-K-TSL
				npn, 200 mA, NC			DCC 3.0 V 1.0 NOK-K-TSL
	Ø4.0x25	0.8	f	pnp, 100 mA, NO	Stainless steel V2A	0.2m/M8	DCC 4.0 V 0.8 PSK-KR-TSL
				pnp, 100 mA, NC			DCC 4.0 V 0.8 POK-KR-TSL
				npn, 100 mA, NO			DCC 4.0 V 0.8 NSK-KR-TSL
				npn, 100 mA, NC			DCC 4.0 V 0.8 NOK-KR-TSL
	Ø4.0x25	1.5	f	pnp, 100 mA, NO	Stainless steel V2A	2m	DCC 4.0 V 1.5 PSLK
				pnp, 100 mA, NC			DCC 4.0 V 1.5 POLK
				npn, 100 mA, NO			DCC 4.0 V 1.5 NSLK
				npn, 100 mA, NC			DCC 4.0 V 1.5 NOLK
	Ø4.0x38	1.5	f	pnp, 100 mA, NO	Stainless steel V2A	M8	DCC 4.0 V 1.5 PSK-TSL
				pnp, 100 mA, NC			DCC 4.0 V 1.5 POK-TSL
				npn, 100 mA, NO			DCC 4.0 V 1.5 NSK-TSL
				npn, 100 mA, NC			DCC 4.0 V 1.5 NOK-TSL
	Ø 6.5x17	1.5	f	pnp, 200 mA, NO	Stainless steel V2A	2m	DCCKR 6.5 V 1.5 PSLK
				pnp, 200 mA, NC			DCCKR 6.5 V 1.5 POLK
				npn, 200 mA, NO			DCCKR 6.5 V 1.5 NSLK
				npn, 200 mA, NC			DCCKR 6.5 V 1.5 NOLK
	Ø 6.5x17	2.0	f	pnp, 200 mA, NO	Stainless steel V2A	2m	DCCKR 6.5 V 02 POLK
				pnp, 200 mA, NC			DCCKR 6.5 V 02 PSLK
				npn, 200 mA, NO			DCCKR 6.5 V 02 NOLK
				npn, 200 mA, NC			DCCKR 6.5 V 02 NSLK

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Cable length, plug connector	Product description
INE Extended, rectangular design							
	5 x 5 x 25	0.8	f	pnp, 200 mA, NO	Brass nickel plated	0.2m/M8	DCCQ 05 M 0.8 PSK-K-TSL
pnp, 200 mA, NC				DCCQ 05 M 0.8 POK-K-TSL			
npn, 200 mA, NO				DCCQ 05 M 0.8 NSK-K-TSL			
npn, 200 mA, NC				DCCQ 05 M 0.8 NOK-K-TSL			
	5 x 5 x 25	1.5	f	pnp, 200 mA, NO	Brass nickel plated	2m	DCCQ 05 M 1.5 PSLK
pnp, 200 mA, NC				DCCQ 05 M 1.5 POLK			
npn, 200 mA, NO				DCCQ 05 M 1.5 NSLK			
npn, 200 mA, NC				DCCQ 05 M 1.5 NOLK			
	5 x 5 x 25	1.5	f	pnp, 200 mA, NO	Brass nickel plated	0.2m/M8	DCCQ 05 M 1.5 PSK-K-TSL
pnp, 200 mA, NC				DCCQ 05 M 1.5 POK-K-TSL			
npn, 200 mA, NO				DCCQ 05 M 1.5 NSK-K-TSL			
npn, 200 mA, NC				DCCQ 05 M 1.5 NOK-K-TSL			
	5 x 5 x 25	0.8	f	pnp, 200 mA, NO	Brass nickel plated	0.2m/M8	DCCQ 05 M 0.8 PSK-K-TSL
pnp, 200 mA, NC				DCCQ 05 M 0.8 POK-K-TSL			
npn, 200 mA, NO				DCCQ 05 M 0.8 NSK-K-TSL			
npn, 200 mA, NC				DCCQ 05 M 0.8 NOK-K-TSL			
	5 x 5 x 25	1.5	f	pnp, 200 mA, NO	Brass nickel plated	2m	DCCQ 05 M 1.5 PSLK
pnp, 200 mA, NC				DCCQ 05 M 1.5 POLK			
npn, 200 mA, NO				DCCQ 05 M 1.5 NSLK			
npn, 200 mA, NC				DCCQ 05 M 1.5 NOLK			
	40 x 26 x 12	4.0	nf	pnp, 200 mA, NO	Plastic PBT	2m	DCR 40 K 04 V PSLK
	40 x 40 x 118	20.0	f	pnp, 200 mA, NO	Polyamide	Clamps	DCCR 40 K 20 PSOL-KL
	40 x 40 x 67	20.0	f	pnp, 200 mA, NO	Polyamide	M12	DCCR 44 K 20 PSOL-IBS
	40 x 40 x 118	40.0	nf	pnp, 200 mA, antivalent	Polyamide	Clamps	DCCR 40 K 40 PSOL-KL

INC ADVANCED

The sensors in our INC Advanced series guarantee precise, process-reliable object detection at a maximum of 4x distance. With these sensors, switching distances of 8 mm (with M12 flush design) up to 40 mm (with M30 or square design) can be implemented for ambitious applications.

Technical data (typ.)	+20 °C, 24 VDC
Installation instructions	flush / non-flush / virtually flush (see page 43)
For more information, visit	www.di-soric.com



	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Cable length, plug connector	Product description
INC Advanced, standard design							
	M30 x 60	40.0	nf	pnp, 200 mA, NO	Brass nickel plated	2m	DCC 30 M 40 PSLK
				pnnp, 200 mA, NC			DCC 30 M 40 POLK
				nnpn, 200 mA, NO			DCC 30 M 40 NSLK
				nnpn, 200 mA, NC			DCC 30 M 40 NOLK
	M30 x 35	40.0	nf	pnnp, 200 mA, NO	Brass nickel plated	2m	DCCK 30 M 40 PSLK
				pnnp, 200 mA, NC			DCCK 30 M 40 POLK
				nnpn, 200 mA, NO			DCCK 30 M 40 NSLK
				nnpn, 200 mA, NC			DCCK 30 M 40 NOLK
	M30 x 74	40.0	nf	pnnp, 200 mA, NO	Brass nickel plated	M12	DCC 30 M 40 PSK-IBSL
				pnnp, 200 mA, NC			DCC 30 M 40 POK-IBSL
				nnpn, 200 mA, NO			DCC 30 M 40 NSK-IBSL
				nnpn, 200 mA, NC			DCC 30 M 40 NOK-IBSL
	M30 x 49	40.0	nf	pnnp, 200 mA, NO	Brass nickel plated	M12	DCCK 30 M 40 PSK-IBSL
				pnnp, 200 mA, NC			DCCK 30 M 40 POK-IBSL
				nnpn, 200 mA, NO			DCCK 30 M 40 NSK-IBSL
				nnpn, 200 mA, NC			DCCK 30 M 40 NOK-IBSL

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Cable length, plug connector	Product description
INC Advanced, small diameters							
	Ø4.0x25	2.5	f	pnp, 200 mA, NO	Stainless steel V2A	2m	DCC 4.0 V 2.5 PSLK
				pnp, 200 mA, NC			DCC 4.0 V 2.5 POLK
				nnp, 200 mA, NO			DCC 4.0 V 2.5 NSLK
				nnp, 200 mA, NC			DCC 4.0 V 2.5 NOLK
	Ø4.0x38	2.5	f	pnp, 200 mA, NO	Stainless steel V2A	M8	DCC 4.0 V 2.5 PSK-TSL
				pnp, 200 mA, NC			DCC 4.0 V 2.5 POK-TSL
				nnp, 200 mA, NO			DCC 4.0 V 2.5 NSK-TSL
				nnp, 200 mA, NC			DCC 4.0 V 2.5 NOK-TSL
	M5 x 25	2.5	f	pnp, 200 mA, NO	Stainless steel V2A	2m	DCC 05 V 2.5 PSLK
				pnp, 200 mA, NC			DCC 05 V 2.5 POLK
				nnp, 200 mA, NO			DCC 05 V 2.5 NSLK
	M5 x 38	2.5	f	pnp, 200 mA, NO	Stainless steel V2A	M8	DCC 05 V 2.5 PSK-TSL
				pnp, 200 mA, NC			DCC 05 V 2.5 POK-TSL
				nnp, 200 mA, NO			DCC 05 V 2.5 NSK-TSL
				nnp, 200 mA, NC			DCC 05 V 2.5 NOK-TSL
	Ø 6.5x48	3.0	f	pnp, 200 mA, NO	Brass nickel plated	2m	DCC 6.5 M 03 PSLK
				pnp, 200 mA, NC			DCC 6.5 M 03 POLK
				nnp, 200 mA, NO			DCC 6.5 M 03 NSLK
				nnp, 200 mA, NC			DCC 6.5 M 03 NOLK
	Ø 6.5x60	3.0	f	pnp, 200 mA, NO	Brass nickel plated	M8	DCC 6.5 M 03 PSK-TSL
				pnp, 200 mA, NC			DCC 6.5 M 03 POK-TSL
				nnp, 200 mA, NO			DCC 6.5 M 03 NSK-TSL
				nnp, 200 mA, NC			DCC 6.5 M 03 NOK-TSL







INW FULL METAL EXTENDED

These sensors are robust fully metallic sensors for challenging applications. They are a secure choice for solutions that pose increased risk of mechanical contact with the metallic parts being detected during the tool process. INW sensors have single and double switching distances and can be connected with PUR cables or plugs.



Technical data (typ.)	+20 °C, 24 VDC
Installation instructions	flush / non-flush / virtually flush (see page 43)
For more information, visit	www.di-soric.com

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Protection class	Cable length, plug connector	Product description
	M8 x 45	2.0	f	pnp, 200 mA, NO	Stainless steel V2A	IP 68	2m	D7B 08 VB 02 PS-3
				npn, 200 mA, NO				D7B 08 VB 02 NS-3
	M8 x 60	2.0	f	pnp, 200 mA, NO	Stainless steel V2A	IP 68	M8	D7B 08 VB 02 PS-T3
				npn, 200 mA, NO				D7B 08 VB 02 NS-T3
	M8 x 45	3.0	f	pnp, 200 mA, NO	Stainless steel V2A	IP 68 IP69K	2m	D7C 08 V 03 PSLK
				pnp, 200 mA, NO				D7C 08 V 03 NSLK
	M8 x 60	3.0	f	pnp, 200 mA, NO	Stainless steel V2A	IP 67	M8	D7C 08 V 03 PSK-TSL
				pnp, 200 mA, NO				D7C 08 V 03 NSK-TSL
	M8 x 66	3.0	f	pnp, 200 mA, NO	Stainless steel V2A	IP 67	M12	D7C 08 V 03 PSK-IBSL
				pnp, 200 mA, NC				D7C 08 V 03 POK-IBSL
				npn, 200 mA, NO				D7C 08 V 03 NSK-IBSL
				npn, 200 mA, NC				D7C 08 V 03 NOK-IBSL
	M8 x 45	6.0	nf	pnp, 200 mA, NO	Stainless steel V2A	IP 68	2m	D7C 08 V 06 PSLK
				npn, 200 mA, NO				D7C 08 V 06 NSLK
	M8 x 45	6.0	nf	pnp, 200 mA, NO	Stainless steel V2A	IP 67	M8	D7C 08 V 06 PSK-TSL
				pnp, 200 mA, NC				D7C 08 V 06 POK-TSL
	M8 x 66	6.0	nf	pnp, 200 mA, NO	Stainless steel V2A	IP 67	M12	D7C 08 V 06 PSK-IBSL
				pnp, 200 mA, NC				D7C 08 V 06 POK-IBSL
				npn, 200 mA, NO				D7C 08 V 06 NSK-IBSL
				npn, 200 mA, NC				D7C 08 V 06 NOK-IBSL

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Protection class	Cable length, plug connector	Product description
	M12 x 50	3.0	f	pnp, 200 mA, NO	Stainless steel V2A	IP 68 IP 69K	2m	D7B 12 VB 03 PS-3
				nnp, 200 mA, NO				D7B 12 VB 03 NS-3
	M12 x 60	3.0	f	pnp, 200 mA, NO	Stainless steel V2A	IP 68 IP 69K	M12	D7B 12 VB 03 PS-B3
				nnp, 200 mA, NO				D7B 12 VB 03 NS-B3
	M12 x 50	6.0	f	pnp, 200 mA, NO	Stainless steel V2A	IP 69K	2m	D7C 12 V 06 PSLK
				pnp, 200 mA, NC				D7C 12 V 06 POLK
				nnp, 200 mA, NO				D7C 12 V 06 NSLK
				nnp, 200 mA, NC				D7C 12 V 06 NOLK
	M12 x 60	6.0	f	pnp, 200 mA, NO	Stainless steel V2A	IP 68	M12	D7C 12 V 06 PSK-IBSL
				pnp, 200 mA, NC				D7C 12 V 06 POK-IBSL
				nnp, 200 mA, NO				D7C 12 V 06 NSK-IBSL
				nnp, 200 mA, NC				D7C 12 V 06 NOK-IBSL
	M12 x 50	10.0	nf	pnp, 200 mA, NO	Stainless steel V2A	IP 69K	2m	D7C 12 V 10 PSLK
				pnp, 200 mA, NC				D7C 12 V 10 POLK
				nnp, 200 mA, NO				D7C 12 V 10 NSLK
				nnp, 200 mA, NC				D7C 12 V 10 NOLK
	M12 x 60	10.0	nf	pnp, 200 mA, NO	Stainless steel V2A	IP 68	M12	D7C 12 V 10 PSK-IBSL
				pnp, 200 mA, NC				D7C 12 V 10 POK-IBSL
				nnp, 200 mA, NO				D7C 12 V 10 NSK-IBSL
				nnp, 200 mA, NC				D7C 12 V 10 NOK-IBSL

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Protection class	Cable length, plug connector	Product description
	M18 x 51	5.0	f	pnp, 200 mA, NO	Stainless steel V2A	IP 68 IP 69K	2m	D7B 18 VB 05 PS-3
				nnp, 200 mA, NO				D7B 18 VB 05 NS-3
	M18 x 64	5.0	f	pnp, 200 mA, NO	Stainless steel V2A	IP 68 IP 69K	2m	D7B 18 VB 05 PS-B3
				nnp, 200 mA, NO				D7B 18 VB 05 NS-B3
	M18 x 50	8.0	nf	pnp, 200 mA, NO	Stainless steel V2A	IP 69K	2m	D7C 18 V 08 PSLK
				nnp, 200 mA, NO				D7C 18 V 08 NSLK
	M18 x 64	8.0	nf	pnp, 200 mA, NO	Stainless steel V2A	IP 68	M12	D7C 18 V 08 PSK-IBSL
				nnp, 200 mA, NO				D7C 18 V 08 NSK-IBSL
	M18 x 50	10.0	f	pnp, 200 mA, NO	Stainless steel V2A	IP 69K	2m	D7C 18 V 10 PSLK
				pnp, 200 mA, NC				D7C 18 V 10 POLK
				nnp, 200 mA, NO				D7C 18 V 10 NSLK
				nnp, 200 mA, NC				D7C 18 V 10 NOLK
	M18 x 64	10.0	f	pnp, 200 mA, NO	Stainless steel V2A	IP 68	M12	D7C 18 V 10 PSK-IBSL
				pnp, 200 mA, NC				D7C 18 V 10 POK-IBSL
				nnp, 200 mA, NO				D7C 18 V 10 NOK-IBSL
				nnp, 200 mA, NC				D7C 18 V 10 NSK-IBSL
	M18 x 50	20.0	nf	pnp, 200 mA, NO	Stainless steel V2A	IP 69K	2m	D7C 18 V 20 PSLK
				pnp, 200 mA, NC				D7C 18 V 20 POLK
				nnp, 200 mA, NO				D7C 18 V 20 NSLK
				nnp, 200 mA, NC				D7C 18 V 20 NOLK
	M18 x 64	20.0	nf	pnp, 200 mA, NO	Stainless steel V2A	IP 68	M12	D7C 18 V 20 PSK-IBSL
				pnp, 200 mA, NC				D7C 18 V 20 POK-IBSL
				nnp, 200 mA, NO				D7C 18 V 20 NSK-IBSL
				nnp, 200 mA, NC				D7C 18 V 20 NOK-IBSL












	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Protection class	Cable length, plug connector	Product description
	M30 x 50	10.0	f	pnp, 200 mA, NO	Stainless steel V2A	IP 68 IP 69K	2m	D7B 30 VB 10 PS-3
				pnp, 200 mA, NC				D7B 30 VB 10 NS-3
	M30 x 65	10.0	f	pnp, 200 mA, NO	Stainless steel V2A	IP 68 IP 69K	M12	D7B 30 VB 10 PS-B3
				pnp, 200 mA, NC				D7B 30 VB 10 NS-B3
	M30 x 50	20.0	f	pnp, 200 mA, NO	Stainless steel V2A	IP 69K	2m	D7C 30 V 20 PSLK
				pnp, 200 mA, NC				D7C 30 V 20 POLK
	M30 x 64	20.0	f	pnp, 200 mA, NO	Stainless steel V2A	IP 68	M12	D7C 30 V 20 PSK-IBSL
				pnp, 200 mA, NC				D7C 30 V 20 POK-IBSL
				npn, 200 mA, NO				D7C 30 V 20 NSK-IBSL
				npn, 200 mA, NC				D7C 30 V 20 NOK-IBSL
	M30 x 50	40.0	nf	pnp, 200 mA, NO	Stainless steel V2A	IP 69K	2m	D7C 30 V 40 PSLK
				pnp, 200 mA, NC				D7C 30 V 40 POLK
				npn, 200 mA, NO				D7C 30 V 40 NSLK
				npn, 200 mA, NC				D7C 30 V 40 NOLK
	M30 x 64	40.0	nf	pnp, 200 mA, NO	Stainless steel V2A	IP 68	M12	D7C 30 V 40 PSK-IBSL
				pnp, 200 mA, NC				D7C 30 V 40 POK-IBSL
				npn, 200 mA, NO				D7C 30 V 40 NSK-IBSL
				npn, 200 mA, NC				D7C 30 V 40 NOK-IBSL

INP HIGH-PRESSURE RESISTANT

Our high-pressure resistant sensors can handle the pressure. They withstand a process pressure up to 500 bar and are available with a stainless steel housing in sizes M12, M14 and M18. They are optimal and safe for position monitoring in hydraulic systems or monitoring of valve positions under high pressure.



Technical data (typ.)	+20 °C, 24 VDC
Pressure resistance	up to 500 bar
Installation instructions	flush / non-flush / virtually flush (see page 43)
For more information, visit	www.di-soric.com

	Housing design Size (mm)	Switching distance (mm)	Switching output	Housing material	Protection class	Cable length, plug connector	Product description
INP High-Pressure Resistant, standard design							
	M12 x 56	2.0	pnp, 200mA, NO	Stainless steel V2A	IP 68 / IP 69	M12	DCC 12 VHD 2 PS-B3-56-4
	M12 x 56	2.0	pnp, 200mA, NO	Stainless steel V2A	IP 68 / IP 69	M12	DCC 12 VHD 2 PS-B3-56-7
	M12 x 69	2.0	pnp, 200mA, NO	Stainless steel V2A	IP 68 / IP 69	M12	DCC 12 VHD 2 PS-B3-69-2
	M12 x 69	2.0	pnp, 200mA, NC	Stainless steel V2A	IP 68 / IP 69	M12	DCC 12 VHD 2 P0-B3-69-2
	M12 x 78	2.0	pnp, 200mA, NO	Stainless steel V2A	IP 68 / IP 69	M12	DCC 12 VHD 2 PS-B3-78-7
	M12 x 93	2.0	pnp, 200mA, NO	Stainless steel V2A	IP 68 / IP 69	M12	DCC 12 VHD 2 PS-B3-93-2
	M12 x 98	2.0	pnp, 200mA, NO	Stainless steel V2A	IP 68 / IP 69	M12	DCC 12 VHD 2 PS-B3-98-7
	M12 x 127	2.0	pnp, 200mA, NO	Stainless steel V2A	IP 68 / IP 69	M12	DCC 12 VHD 2 PS-B3-127-2
	M14 x 65	3.0	pnp, 200mA, NO	Stainless steel V2A	IP 68	M12	DCC 14 V 03 PSK 500-IBS
	M14 x 65	3.0	nnp, 200mA, NO	Stainless steel V2A	IP 68	M12	DCC 14 V 03 NSK 500-IBS
	M14 x 57	3.0	pnp, 200mA, NO	Stainless steel V2A	IP 68	2m PUR	DCC 14 V 03 PSK 500




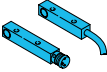
INA ANALOG

The analog series INA includes highly precise inductive proximity sensors which have an analog current and voltage output available. They are suited for measuring switching distances of metallic parts in production or testing processes in which small changes in distance can reflect the quality of the process.



Technical data (typ.)	+20 °C, 24 VDC
Installation instructions	flush / non-flush / virtually flush (see page 43)
For more information, visit	www.di-soric.com

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf) / quasi-flush (qf)	Analog output	Housing material	Protection class	Cable length, plug connector	Product description
INA Analog, standard design								
	M8 x 45	0 to 4	quasi-flush	0 to 10 V	Brass nickel plated	IP 67	2m	DCC 08 M 04/10 AK
	M8 x 60						M8	DCC 08 M 04/10 AK-TSL
	M8 x 66						M12	DCC 08 M 04/10 AK-IBS
	M12 x 50	0 to 6	quasi-flush	0 to 10 V, 4 to 20 mA	Brass nickel plated	IP 67	2m	DCC 12 M 06/10 AIK
	M12 x 60						M12	DCC 12 M 06/10 AIK-IBS
	M12 x 35	0 to 6	quasi-flush	0 to 10 V, 4 to 20 mA	Brass nickel plated	IP 67	2m	DCCK 12 M 06/10 AK
	M12 x 45						M12	DCCK 12 M 06/10 AK-IBS
	M18 x 50	0 to 10	quasi-flush	0 to 10 V, 4 to 20 mA	Brass nickel plated	IP 67	2m	DCC 18 M 10/10 AIK
	M18 x 64						M12	DCC 18 M 10/10 AIK-IBS
	M18 x 35	0 to 10	quasi-flush	0 to 10 V, 4 to 20 mA	Brass nickel plated	IP 67	2m	DCCK 18 M 10/10 AIK
	M18 x 49						M12	DCCK 18 M 10/10 AIK-IBS
	M18 x 64	0 to 20	nf	0 to 10 V, 4 to 20 mA	Brass nickel plated	IP 67	M12	DCC 18 M 20/10 AIK-IBS
	M30 x 60	0 to 20	quasi-flush	0 to 10 V, 4 to 20 mA	Brass nickel plated	IP 67	2m	DCC 30 M 20/10 AIK
	M30 x 74						M12	DCC 30 M 20/10 AIK-IBS

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf) / quasi-flush (qf)	Analog output	Housing material	Protection class	Cable length, plug connector	Product description
INA Analog, standard design								
	M30 x 35	0 to 20	quasi-flush	0 to 10 V, 4 to 20 mA	Brass nickel plated	IP 67	2m	DCCK 30 M 20/10 AIK
	M30 x 49						M12	DCCK 30 M 20/10 AIK-IBS
	M30 x 35	0 to 40	nf	0 to 10 V, 4 to 20 mA	Brass nickel plated	IP 67	2m	DCCK 30 M 40/10 AIK
INA Analog, rectangular design								
	8 x 8 x 50	0 to 4	quasi-flush	0 to 10 V	Brass nickel plated	IP 67	2m	DCCQ 08 M 04/10 AK
							M8	DCCQ 08 M 04/10 AK-TSL




INH HIGH-TEMPERATURE RESISTANT

Our high-temperature resistant INH series satisfies high demands in a compact design. The sensors can be used in ambient temperatures from - 55 °C to + 230 °C.

Technical data (typ.)	+20 °C, 24 VDC
Installation instructions	flush / non-flush / virtually flush (see page 43)
For more information, visit	www.di-soric.com



	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf) / quasi-flush (qf)	Temperature range (°C)	Switching output	Housing material	Protection class	Cable length, plug connector	Product description
INH High-Temperature Resistant, standard design									
	M8 x 55	2.0	f	0 to +140	pnp, 120 mA, NO nnp, 120 mA, NO	V2A LCP	IP 65	2m	DCC 08 VH 02 PSK/140 DCC 08 VH 02 NSK/140

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf) / quasi-flush (qf)	Temperature range (°C)	Switching output	Housing material	Protection class	Cable length, plug connector	Product description
INH High-Temperature Resistant, standard design									
	M12 x 63	2.0	f	-25 to +120	pnp, 200 mA, NO	Stainless steel V4A	IP 65	2m	DCE 12 VH 02 PSK
	M12 x 56	3.0	f	0 to +150	pnp, 120 mA, NO	Stainless steel V2A	IP 65	2m	DCC 12 VH 03 PSK/150
					nnp, 120 mA, NO				DCC 12 VH 03 NSK/150
	M12 x 63	4.0	nf	-25 to +120	pnp, 200 mA, NO	Stainless steel V4A	IP 68	2m	DCE 12 VH 04 PSK
	M18 x 80	5.0	f	-25 to +120	pnp, 200 mA, NO	Stainless steel V4A	IP 65	2m	DCE 18 VH 05 PSK
	M18 x 67	5.0	f	-25 to +120	pnp, 200 mA, NO	Stainless steel V4A	IP 68	2m	DCE 18 VH 05 PSLK
	M18 x 70	5.0	f	0 to +180	pnp, 200 mA, NO	Stainless steel V2A	IP 65	2m	DCC 18 VH 05 PSK/180
	M18 x 70	5.0	f	0 to +180	pnp, 150 mA, NO	Stainless steel V4A	IP 65	2m	DCC 18 VH 05 NSK/180
	M18 x 70	5.0	f	0 to +230 (sensor)	nnp, 200 mA, NO	Stainless steel V2A	IP 65	2m	DCC 18 VH 05 NSK/230/V
	M18 x 67	7.0	nf	-25 to +120	pnp, 200 mA, NO	Stainless steel V4A	IP 68	2m	DCE 18 VH 07 PSLK
	M18 x 77	8.0	nf	0 to +180	pnp, 150 mA, NO	Stainless steel V2A	IP 65	2m	DCC 18 VH 08 PSK/180
					nnp, 150 mA, NO				DCC 18 VH 08 NSK/180
	M30 x 85	10.0	f	-25 to +160	pnp, 200 mA, NO	Stainless steel V4A	IP 65	2m	DCE 30 VH 10 PSK
	M30 x 75	10.0	f	0 to +180	pnp, 150 mA, NO	Stainless steel V2A	IP 65	2m	DCC 30 VH 10 PSK/180
					pnp, 150 mA, NC				DCC 30 VH 10 POK/180
					nnp, 150 mA, NO				DCC 30 VH 10 NSK/180
	M30 x 75	10.0	f	0 to +230 (sensor)	pnp, 200 mA, NO	Stainless steel V2A	IP 65	2m	DCC 30 VH 10 PSK/230/V
					nnp, 200 mA, NO				DCC 30 VH 10 NSK/230/V
	M30 x 83	15.0	nf	0 to +180	pnp, 150 mA, NO	Stainless steel V2A	IP 65	2m	DCC 30 VH 15 PSK/180
					nnp, 150 mA, NO				DCC 30 VH 15 NSK/180
	M30 x 83	15.0	nf	0 to +230 (sensor)	pnp, 200 mA, NO	Stainless steel V2A	IP 65	2m	DCC 30 VH 15 PSK/230/V
					nnp, 200 mA, NO				DCC 30 VH 15 NSK/230/V
	M50 x 89	25.0	nf	0 to +180	pnp, 150 mA, NO	Stainless steel V2A	IP 65	2m	DCC 50 VH 25 PSK/180
					nnp, 150 mA, NO				DCC 50 VH 25 NSK/180
	M50 x 68	25.0	nf	0 to +230 (sensor)	pnp, 200 mA, NO	Stainless steel V2A	IP 65	2m	DCC 50 VH 25 PSK/230/V
					nnp, 200 mA, NO				DCC 50 VH 25 NSK/230/V

INF FOOD & BEVERAGE

The sensors in the INF series are available in the conventional sizes M12, M18 or M30. They feature a completely impermeable, single-piece fully metallic stainless steel housing (V4A / AISI 316L), including the sensor area. This makes them highly resistant to the corrosive chemicals that are used in cleaning or washing.



Technical data (typ.)	+20 °C, 24 VDC
Installation instructions	flush / non-flush / virtually flush (see page 43)
For more information, visit	www.di-soric.com

	Housing design Size (mm)	Switching distance (mm)	flush (f) non-flush (nf)	Switching output	Housing material	Protection class	Cable length, plug connector	Product description
	M12 x 69	6.0	f	pnp, 200 mA, NO	Stainless steel V4A	IP 68 IP 69K	2m	DCC 12 VL 06 PSLK
				pnp, 200 mA, NC				DCC 12 VL 06 POLK
				npn, 200 mA, NO				DCC 12 VL 06 NSLK
				npn, 200 mA, NC				DCC 12 VL 06 NOLK
	M12 x 60	6.0	f	pnp, 200 mA, NO	Stainless steel V4A	IP 68 IP 69K	M12	DCC 12 VL 06 PSK-IBSL
				pnp, 200 mA, NC				DCC 12 VL 06 POK-IBSL
				npn, 200 mA, NO				DCC 12 VL 06 NSK-IBSL
				npn, 200 mA, NC				DCC 12 VL 06 NOK-IBSL
	M12 x 69	10.0	nf	pnp, 200 mA, NO	Stainless steel V4A	IP 68 IP 69K	2m	DCC 12 VL 10 PSLK
				pnp, 200 mA, NC				DCC 12 VL 10 POLK
				npn, 200 mA, NO				DCC 12 VL 10 NSLK
				npn, 200 mA, NC				DCC 12 VL 10 NOLK
	M12 x 60	10.0	nf	pnp, 200 mA, NO	Stainless steel V4A	IP 68 IP 69K	M12	DCC 12 VL 10 PSK-IBSL
				pnp, 200 mA, NC				DCC 12 VL 10 POK-IBSL
				npn, 200 mA, NO				DCC 12 VL 10 NSK-IBSL
				npn, 200 mA, NC				DCC 12 VL 10 NOK-IBSL
	M18 x 70	10.0	f	pnp, 200 mA, NO	Stainless steel V4A	IP 68 IP 69K	2m	DCC 18 VL 10 PSLK
				pnp, 200 mA, NC				DCC 18 VL 10 POLK
				npn, 200 mA, NO				DCC 18 VL 10 NSLK
				npn, 200 mA, NC				DCC 18 VL 10 NOLK
	M18 x 64	10.0	f	pnp, 200 mA, NO	Stainless steel V4A	IP 68 IP 69K	M12	DCC 18 VL 10 PSK-IBSL
				pnp, 200 mA, NC				DCC 18 VL 10 POK-IBSL
				npn, 200 mA, NO				DCC 18 VL 10 NSK-IBSL
				npn, 200 mA, NC				DCC 18 VL 10 NOK-IBSL

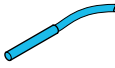
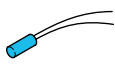

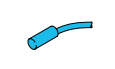
	Housing design Size (mm)	Switching distance (mm)	flush (f) non-flush (nf)	Switching output	Housing material	Protection class	Cable length, plug connector	Product description
INF Food & Beverage, standard design								
	M18 x 70	20.0	nf	pnp, 200 mA, NO	Stainless steel V4A	IP 68 IP 69K	2m	DCC 18 VL 20 PSLK
				pnp, 200 mA, NC				DCC 18 VL 20 POLK
				npn, 200 mA, NO				DCC 18 VL 20 NSLK
				npn, 200 mA, NC				DCC 18 VL 20 NOLK
	M18 x 64	20.0	nf	pnp, 200 mA, NO	Stainless steel V4A	IP 68 IP 69K	M12	DCC 18 VL 20 PSK-IBSL
				pnp, 200 mA, NC				DCC 18 VL 20 POK-IBSL
				npn, 200 mA, NO				DCC 18 VL 20 NSK-IBSL
				npn, 200 mA, NC				DCC 18 VL 20 NOK-IBSL
	M30 x 70	20.0	f	pnp, 200 mA, NO	Stainless steel V4A	IP 68 IP 69K	2m	DCC 30 VL 20 PSLK
				pnp, 200 mA, NC				DCC 30 VL 20 POLK
				npn, 200 mA, NO				DCC 30 VL 20 NSLK
				npn, 200 mA, NC				DCC 30 VL 20 NOLK
	M30 x 64	20.0	f	pnp, 200 mA, NO	Stainless steel V4A	IP 68 IP 69K	M12	DCC 30 VL 20 POLK
				pnp, 200 mA, NC				DCC 30 VL 20 POK-IBSL
				npn, 200 mA, NO				DCC 30 VL 20 NSK-IBSL
				npn, 200 mA, NC				DCC 30 VL 20 NOK-IBSL
	M30 x 70	40.0	nf	pnp, 200 mA, NO	Stainless steel V4A	IP 68 IP 69K	2m	DCC 30 VL 40 PSLK
				pnp, 200 mA, NC				DCC 30 VL 40 POLK
				npn, 200 mA, NO				DCC 30 VL 40 NSLK
				npn, 200 mA, NC				DCC 30 VL 40 NOLK
	M30 x 64	40.0	nf	pnp, 200 mA, NO	Stainless steel V4A	IP 68 IP 69K	M12	DCC 30 VL 40 PSK-IBSL
				pnp, 200 mA, NC				DCC 30 VL 40 POK-IBSL
				npn, 200 mA, NO				DCC 30 VL 40 NSK-IBSL
				npn, 200 mA, NC				DCC 30 VL 40 NOK-IBSL

INN NAMUR

Our process sensors in the INN Namur series guarantee high-precision measuring and control without intervention into the process. The measured values are available in real-time via a reliable, easily implementable interface that will be supported over the long term.



Technical data (typ.)	+20 °C, 24 VDC
Installation instructions	flush / non-flush / virtually flush (see page 43)
For more information, visit	www.di-soric.com

	Housing design Size (mm)	Switching distance (mm)	flush (f) non-flush (nf)	Switching output	Housing material	Protection class	Cable length, plug connector	Product description
INN Namur, small diameters								
	Ø3.0x22	3.0	f	Namur, < 1 mA/> 2.2 mA	Stainless steel V2A	IP 67	2m	DCC 3.0 V 0.6 NAMUR
	Ø4.0x10	4.0	f	Namur, < 1 mA/> 2.2 mA	Stainless steel V2A	IP 67	1.0m	DCC 4.0 V 0.8 NAMUR-K
	Ø6.5x16	1.5	f	Namur, < 1 mA/> 2.2 mA	Stainless steel V2A	IP 67	2m	DCCK 6.5 V 1.5 NAMUR
	Ø6.5x16	1.5	f	Namur, < 1 mA/> 2.2 mA	Stainless steel V2A	IP 67	2m	DCCK 6.5 V 1.5 NAMUR/ 2m PUR

INU UNIVERSAL VOLTAGE

The INU Universal Voltage series can be used for all types of industrial power supply AC/DC, allowing cost and maintenance effort to be significantly reduced. Our all-voltage sensors are available in the standard sizes M12, M18 and M30.



Technical data (typ.)	+20 °C, 24 VDC
Installation instructions	flush / non-flush / virtually flush (see page 43)
For more information, visit	www.di-soric.com

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Housing material	Protection class	Cable length, plug connector	Product description
INU Universal Voltage, standard design								
	M12 x 70	2.0	f	UC, 300mA, NO UC, 300mA, NC	Brass nickel plated	IP 67	2m	UCC 12 M 02 SL UCC 12 M 02 OL
	M12 x 75	2.0	f	UC, 300mA, NO UC, 300mA, NC	Brass nickel plated	IP 67	M12	UCC 12 M 02 S-IBSL UCC 12 M 02 O-IBSL
	M12 x 70	4.0	nf	UC, 300mA, NO UC, 300mA, NC	Brass nickel plated	IP 67	2m	UCC 12 M 04 SL UCC 12 M 04 OL
	M12 x 75	4.0	nf	UC, 300mA, NO UC, 300mA, NC	Brass nickel plated	IP 67	M12	UCC 12 M 04 S-IBSL UCC 12 M 04 O-IBSL
	M18 x 60	5.0	f	UC, 300mA, NO UC, 300mA, NC	Brass nickel plated	IP 67	2m	UCC 18 M 05 SL UCC 18 M 05 OL
	M18 x 80	5.0	f	UC, 300mA, NO UC, 300mA, NC	Brass nickel plated	IP 67	M12	UCC 18 M 05 S-IBSL UCC 18 M 05 O-IBSL
	M18 x 60	8.0	nf	UC, 300mA, NO UC, 300mA, NC	Brass nickel plated	IP 67	2m	UCC 18 M 08 SL UCC 18 M 08 OL
	M18 x 80	8.0	nf	UC, 300mA, NO UC, 300mA, NC	Brass nickel plated	IP 67	M12	UCC 18 M 08 S-IBSL UCC 18 M 08 O-IBSL
	M30 x 60	10.0	f	UC, 300mA, NO UC, 300mA, NC	Brass nickel plated	IP 67	2m	UCC 30 M 10 SL UCC 30 M 10 OL
	M30 x 80	10.0	f	UC, 300mA, NO UC, 300mA, NC	Brass nickel plated	IP 67	M12	UCC 30 M 10 S-IBSL UCC 30 M 10 O-IBSL
	M30 x 60	15.0	nf	UC, 300mA, NO UC, 300mA, NC	Brass nickel plated	IP 67	2m	UCC 30 M 15 SL UCC 30 M 15 OL

INU Universal Voltage, rectangular design								
	120 x 40 x 40	20.0	f	UC, 300mA, NO or NC	PA 6.6	IP 67	Clamps	UCCR 40 K 20 S0-KL

INZ SPECIAL APPLICATIONS

Our inductive proximity sensors in the INZ series are suitable for many special applications, such as those in the low temperature range.

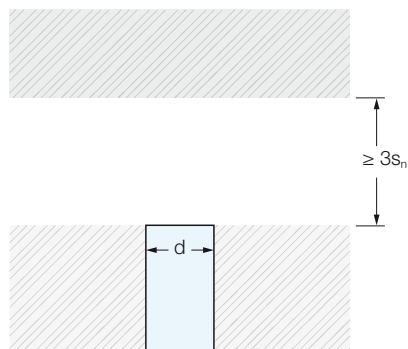
Technical data (typ.)	+20 °C, 24 VDC
Installation instructions	flush / non-flush / virtually flush (see page 43)
For more information, visit	www.di-soric.com



	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf) / quasi-flush (qf)	Temperature range (°C)	Switching output	Housing material	Protection class	Cable length, plug connector	Product description
INZ Special Applications, standard design									
	M12 x 63	2.0	f	-55 to +60	pnp, 200 mA, NO	Stainless steel V4A	IP 68 (IP 69K)	2m	DCE 12 VT 02 PSK
		4.0	nf						DCE 12 VT 04 PSK
	M18 x 67	5.0	f	-55 to +60	pnp, 200 mA, NO	Stainless steel V4A	IP 68 (IP 69K)	2m	DCE 18 VT 05 PSLK
		7.0	nf						DCE 18 VT 07 PSLK

INSTALLATION INSTRUCTIONS FOR INDUCTIVE PROXIMITY SENSORS

Flush installation (f)

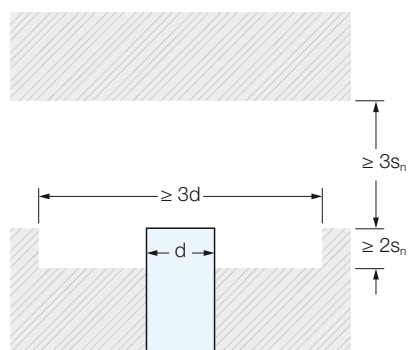


These proximity switches can be installed in all materials (metals / non-metals) such that the active sensor surface lines up flush with the surrounding material on the front side.

They have the following advantages:

- Flush installation in conductive materials (metals)
- Protection of the sensing surface prior to mechanical damage
- Less influence from external interference fields
- Less distance to the next proximity switch on the side

Non-flush installation (nf)



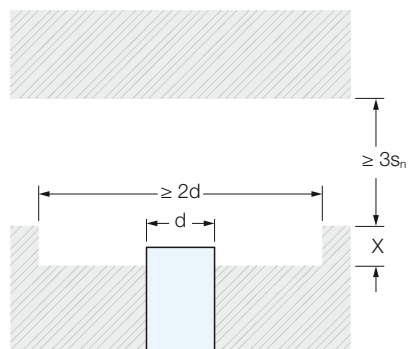
These proximity switches are allowed to be installed non-flush in conductive materials.

They have the greatest possible switching distance.

Special installation instructions apply to these proximity switches.

Flush installation in nonconductive materials is permitted.

Quasi-flush installation (qf)



These proximity switches have a greater switching distance than proximity switches for flush installation. However, they are only allowed to be installed quasi-flush in conductive materials, i.e. not entirely flush. The proximity switches must protrude from the installation surface by dimension X (see the Installation instructions).

Flush installation in nonconductive materials is permitted.

Inductive ring sensors



Our inductive ring and wire breakage sensors detect the smallest metallic parts that are conveyed in supply tubes for further processing. In the case of parts that are fed very quickly, the integrated pulse stretching generates an output signal that can be easily analyzed. All devices from di-soric are reliably protected against overload, short-circuit and polarity reversal.







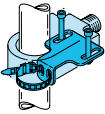
IRB Standard	45
IR Static	46
IRD Dynamic	48
IRDB Inductive Wire-Break Sensor	49

IRB STANDARD

The inductive ring sensors in the IRB Standard series in the sizes Ø 10.1 mm to 27 mm detect the smallest metallic parts. They can be put into service quickly and have no adjusting elements. These sensors work according to the static operating principle and exhibit a short response time.

Technical data (typ.)	+20 °C, 24 VDC
Service voltage	10 to 35 V DC
Voltage drop	2.0 V
Speed of parts	< 35 m/s
Ambient temperature	-25 to 70 °C
Protection class	IP 67
Insulation proof voltage	1,000 V
Housing material	Polyamide, ring POM



	Ring diameter (mm)	Evaluation: Static (S)	No-load current (mA)	Resolution, steel ball (mm)	Switching output	Pulse stretching (ms)	Cable length, Plug connector	Product description
IRB Standard								
	10.1	S	11	2.0	pnp, 200 mA, NO	150	M12	IRB 10 PS-B3
					nnp, 200 mA, NO			IRB 10 NS-B3
	15.1	S	11	2.5	pnp, 200 mA, NO	150	M12	IRB 15 PS-B3
					nnp, 200 mA, NO			IRB 15 NS-B3
	20.1	S	11	3.0	pnp, 200 mA, NO	150	M12	IRB 20 PS-B3
					nnp, 200 mA, NO			IRB 20 NS-B3
	27.1	S	11	5.0	pnp, 200 mA, NO	150	M12	IRB 27 PS-B3
	Mounting bracket for ring sensors IRB 6-27							
	see "Accessories for ring sensors", page 214							




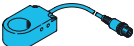



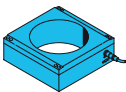
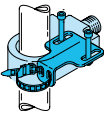
IR STATIC

The devices in the IR series are inductive standard ring sensors that can be used to detect even the smallest metallic parts. They are available in Ø 6.1 mm to 151.0 mm models and are well suited for quickly supplied parts.



Technical data (typ.)	+20 °C, 24 VDC
Service voltage	10 to 35 V DC
Sensitivity adjustment	Potentiometer
Voltage drop	2.0 V
Speed of parts	< 35 m/s
Ambient temperature	-25 to 70 °C
Protection class	IP 67
Insulation proof voltage	1,000V
Housing material	Polyamide, ring POM
	Die-cast aluminum, ring POM (only IR 150 ...)

	Ring diameter (mm)	Evaluation: Static (S) / Dynamic (D)	No-load current (mA)	Resolution, steel ball (mm)	Switching output	Pulse stretching (ms)	Cable length, Plug connector	Product description
	6.1	S	11	1.0	pnp, 200 mA, NO/NC	10 to 150	M12	IR 6 PSOK-IBS
					npn, 200 mA, NO/NC			IR 6 NSOK-IBS
					pnp, 200 mA, NO/NC		0.3m/M12	IR 6 PSOK-K-BS
	10.1	S	11	1.5	pnp, 200 mA, NO/NC	10 to 150	M12	IR 10 PSOK-IBS
					pnp, 200 mA, NO/NC			IR 10 NSOK-IBS
					pnp, 200 mA, NO/NC		0.3m/M12	IR 10 PSOK-K-BS
	15.1	S	11	2.0	pnp, 200 mA, NO/NC	10 to 150	M12	IR 15 PSOK-IBS
					pnp, 200 mA, NO/NC			IR 15 NSOK-IBS
					pnp, 200 mA, NO/NC		0.3m/M12	IR 15 PSOK-K-BS

	Ring diameter (mm)	Evaluation: Static (S) / Dynamic (D)	No-load current (mA)	Resolution, steel ball (mm)	Switching output	Pulse stretching (ms)	Cable length, Plug connector	Product description
IR Static								
	20.1	S	11	2.5	pnp, 200 mA, NO/NC	10 to 150	M12	IR 20 PSOK-IBS
					npn, 200 mA, NO/NC			IR 20 NSOK-IBS
							0.3m/M12	IR 20 PSOK-K-BS
	25.1	S	11	3.0	pnp, 200 mA, NO/NC	10 to 150	M12	IR 25 PSOK-IBS
					npn, 200 mA, NO/NC			IR 25 NSOK-IBS
							0.3m/M12	IR 25 PSOK-K-BS
	35.2	S	11	4.5	pnp, 200 mA, NO/NC	10 to 150	M12	IR 35 PSOK-IBS
					npn, 200 mA, NO/NC			IR 35 NSOK-IBS
	51.0	S	11	6.0	pnp, 200 mA, NO/NC	10 to 150	M12	IR 50 PSOK-IBS
					npn, 200 mA, NO/NC			IR 50 NSOK-IBS
	101.0	S	15	10.0	pnp, 200 mA, NO/NC	10 to 150	M12	IR 100 PSOK-IBS
					npn, 200 mA, NO/NC			IR 100 NSOK-IBS
	151.0	S	15	19.0	pnp, 200 mA, NO/NC	10 to 150	M12	IR 150 PSOK-IBS
					npn, 200 mA, NO/NC			IR 150 NSOK-IBS
	Mounting bracket for ring sensors IRB 6-27							
	see "Accessories for ring sensors", page 214							

IRD DYNAMIC

Ring sensors with dynamic evaluation have a higher resolution than ring sensors with static resolution, making them particularly suitable for detecting very small parts with a low mass. The dynamic operating principle independently compensates for contamination in the supply tube.



Technical data (typ.)	+20 °C, 24 VDC
Service voltage	10 to 35 V DC
Sensitivity adjustment	Potentiometer
Voltage drop	2.0V
Speed of parts	<35 m/s
Ambient temperature	-25 to 70 °C
Protection class	IP 67
Insulation proof voltage	1,000V
Housing material	Polyamide, ring POM
	Die-cast aluminum, ring POM (only IRD 150 ...)

	Ring diameter (mm)	Evaluation: Static (S) / Dynamic (D)	No-load current (mA)	Resolution, steel ball (mm)	Switching output	Pulse stretching (ms)	Cable length, Plug connector	Product description
	6.1	D	<20	0.5	pnp, 200 mA, NO/NC	0.1 to 150	M12	IRD 6 PSOK-IBS
					npn, 200 mA, NO/NC			IRD 6 NSOK-IBS
	10.1	D	<20	0.6	pnp, 200 mA, NO/NC	0.1 to 150	M12	IRD 10 PSOK-IBS
					npn, 200 mA, NO/NC			IRD 10 NSOK-IBS
	15.1	D	<20	0.8	pnp, 200 mA, NO/NC	0.1 to 150	M12	IRD 15 PSOK-IBS
					npn, 200 mA, NO/NC			IRD 15 NSOK-IBS
					pnp, 200 mA, NO/NC		0.3m/M12	IRD 15 PSOK-K-BS
	20.1	D	<20	1.0	pnp, 200 mA, NO/NC	0.1 to 150	M12	IRD 20 PSOK-IBS
					npn, 200 mA, NO/NC			IRD 20 NSOK-IBS
					pnp, 200 mA, NO/NC		0.3m/M12	IRD 20 PSOK-K-BS
	25.1	D	<20	1.2	pnp, 200 mA, NO/NC	0.1 to 150	M12	IRD 25 PSOK-IBS
					npn, 200 mA, NO/NC			IRD 25 NSOK-IBS
					pnp, 200 mA, NO/NC		0.3m/M12	IRD 25 PSOK-K-BS
	35.2	D	<20	2.0	pnp, 200 mA, NO/NC	0.1 to 150	M12	IRD 35 PSOK-IBS
					npn, 200 mA, NO/NC			IRD 35 NSOK-IBS
	51.0	D	<20	2.5	pnp, 200 mA, NO/NC	0.1 to 150	M12	IRD 50 PSOK-IBS
					npn, 200 mA, NO/NC			IRD 50 NSOK-IBS
	101.0	D	<20	5.0	pnp, 200 mA, NO/NC	0.1 to 150	M12	IRD 100 PSOK-IBS
					npn, 200 mA, NO/NC			IRD 100 NSOK-IBS
	151.0	D	<20	10.0	pnp, 200 mA, NO/NC	0.1 to 150	M12	IRD 150 PSOK-IBS
					npn, 200 mA, NO/NC			IRD 150 NSOK-IBS

IRDB INDUCTIVE WIRE-BREAK SENSOR

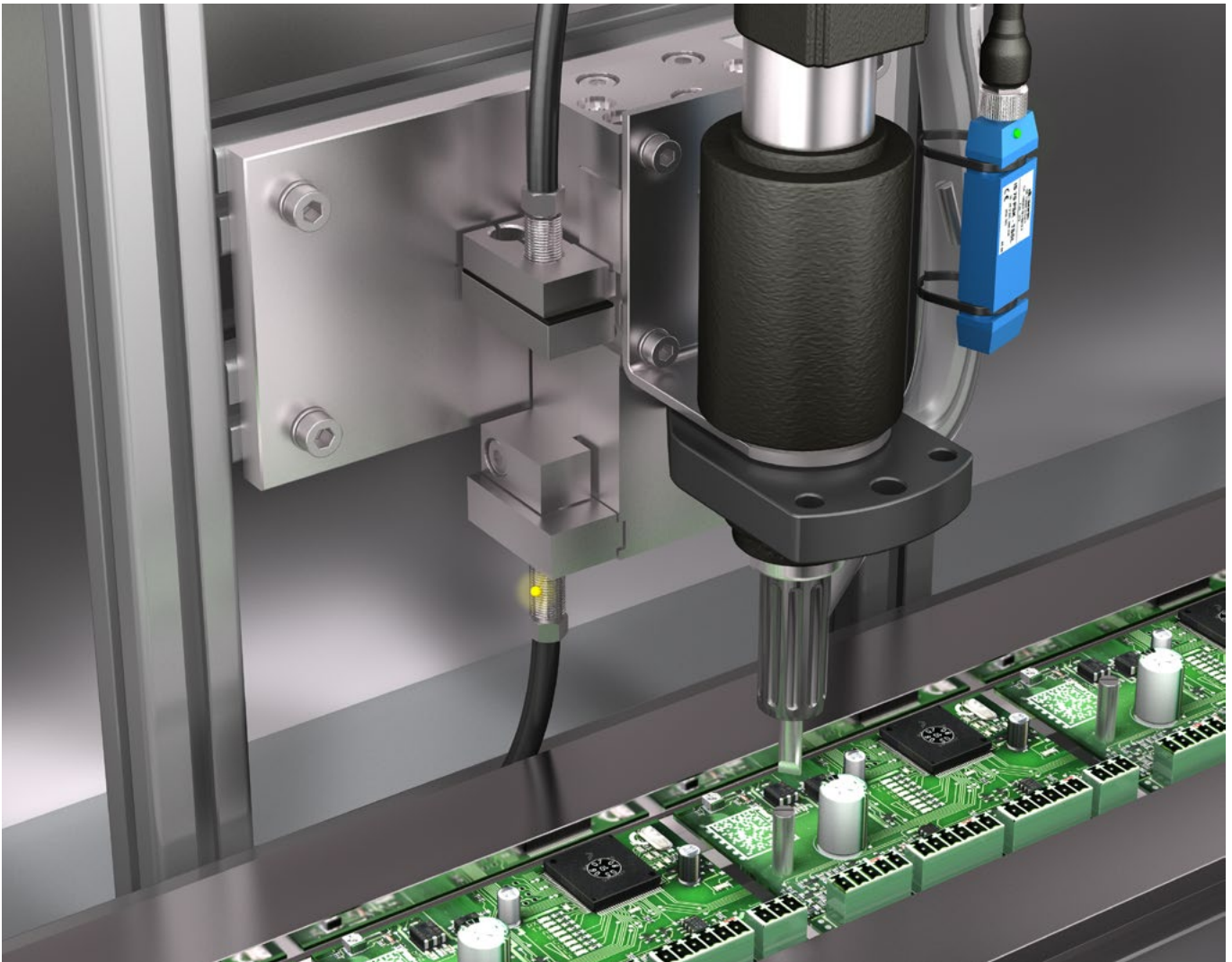
The inductive wire breakage sensors in the IRDB series are used for detecting wire breaks. The sensors are available in the sizes Ø 4 mm and 6 mm. They can be put into service quickly and have no adjusting elements. These sensors work according to the static operating principle and exhibit a short response time.

Technical data (typ.)	+20 °C, 24 VDC
Service voltage	10 to 35 V DC
Sensitivity adjustment	Potentiometer
Voltage drop	2.0 V
Speed of parts	< 35 m/s
Ambient temperature	-25 to 70 °C
Protection class	IP 67
Insulation proof voltage	1,000V
Housing material	Polyamide, ring POM ceramic insert (IRDBx 4...) Polyamide, ring POM (IRDBx 6...)



	Ring diameter (mm)	Evaluation: Static (S) / Dynamic (D)	No-load current (mA)	Resolution, Cu wire (mm)	Switching output	Pulse stretching (ms)	Cable length, Plug connector	Product description
IRDB Inductive Wire-Break Sensor								
	4.0	S	11	0.2	pnp, 200 mA, NO npn, 200 mA, NO	10 to 150	M12	IRDB 4 PSOK-IBS IRDB 4 NSOK-IBS
		D	<20	0.1	pnp, 200 mA, NO npn, 200 mA, NO	0.1 to 150		IRDBD 4 PSOK-IBS IRDBD 4 NSOK-IBS
	6.1	S	11	0.2	pnp, 200 mA, NO npn, 200 mA, NO	10 to 150	M12	IRDB 6 PSOK-IBS IRDB 6 NSOK-IBS
		D	<20	0.1	pnp, 200 mA, NO npn, 200 mA, NO	0.1 to 150		IRDBD 6 PSOK-IBS IRDBD 6 NSOK-IBS

Inductive tube sensors



The area of application of our tube sensors is parts detection and counting. The static and dynamic evaluation principle enables a simple accumulation monitoring to be implemented. The compact sensors with a universal fastening system can be quickly adapted to different tube cross-sections without having to dismantle the supply tube.



IS STATIC

Our inductive tube sensors in static design can detect the smallest metallic parts reliably. They are very well suited for quickly supplied parts and for the detection of material accumulation. They are available in the size 70 x 20 x 12 mm.



Technical data (typ.)	+20 °C, 24 VDC
Service voltage	10 to 35 V DC
Voltage drop	2.0 V
Shock/vibration load	30 g _n /10 to 55 Hz, 1 mm
Speed of parts	<35 m/s
Ambient temperature	-25 to 70 °C
Protection class	IP 67
Insulation proof voltage	500 V
LED display	Switching output yellow, operation green
Housing material	Polycarbonate

	Housing design Size (mm)	Evaluation: Static (S) / Dynamic (D)	No-load current (mA)	Switching output	Pulse stretching (ms)	Cable length, Plug connector	Product description
IS Static							
	70 x 20 x 12	S	15	pnp, 200 mA, NO	100	M8	IS 70 PSK-TSSL
				npn, 200 mA, NO			IS 70 NSK-TSSL
				pnp, 200 mA, NO		0.5m/M12	IS 70 PSLK-K-BS
				npn, 200 mA, NO			IS 70 NSLK-K-BS

ISDP DYNAMIC

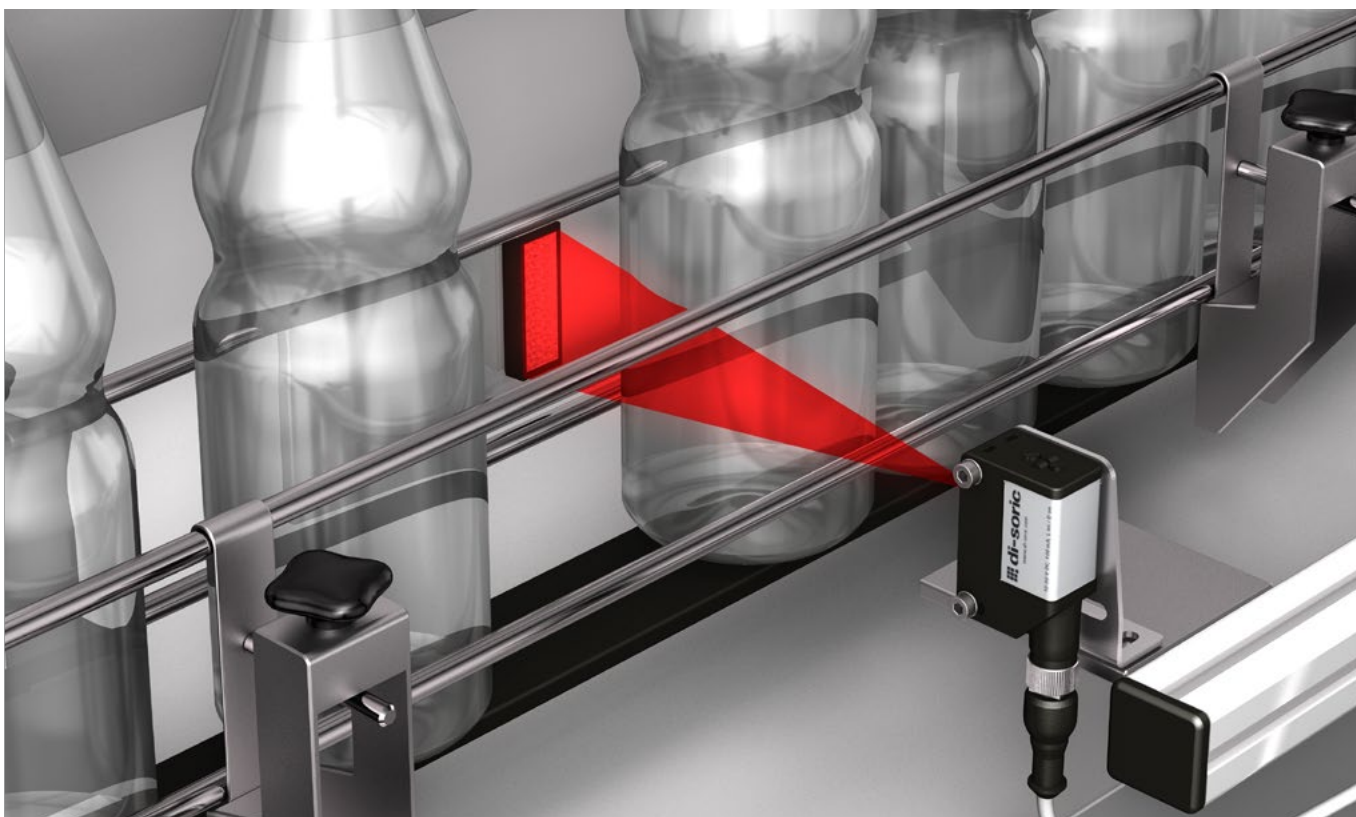
Our tube sensors with dynamic evaluation have a high resolution and a short response time. Contaminants with metallic content are automatically hidden. The sensors can be assembled afterward and can be fixed with cable ties. They stand out thanks to their low weight, their compact design and the high protection class IP 67. They also have a metallic connecting plug.



Technical data (typ.)	+20 °C, 24 VDC
Service voltage	10 to 35 V DC
Voltage drop	2.0 V
Shock/vibration load	30 g _n /10 to 55 Hz, 1 mm
Speed of parts	<35 m/s
Ambient temperature	-25 to 70 °C
Protection class	IP 67
Insulation proof voltage	500 V
LED display	Switching output yellow, operation green
Housing material	Polycarbonate

	Housing design Size (mm)	Evaluation: Static (S) / Dynamic (D)	No-load current (mA)	Switching output	Pulse stretching (ms)	Cable length, Plug connector	Product description
ISDP Dynamic							
	70 x 20 x 12	D	25	pnp, 200 mA, NO	100	M8	ISDP 70 PSK-TSSL
				npn, 200 mA, NO			ISDP 70 NSK-TSSL
				pnp, 200 mA, NO		0.5m/M12	ISDP 70 PSLK-K-BS
				npn, 200 mA, NO			ISDP 70 NSLK-K-BS

Light barriers and diffuse sensors



The light barriers and diffuse sensors from di-soric have been developed in several models and functional principles for many task areas in automation technology.

The products are suited for fast, secure object detection and stand out for having extremely high functional safety. Various functional principles, sensors, reflection or through-beam sensors are available.



 **di-soric**

O-20 Miniature	53
O-21 Miniature	54
O-30 Universal	56
O-40 Standard	58
O-40E Extended	58
O-50 Metal	59
O-81 Laser	60
O-Q10 Miniature	60
O-M5	61
O-M8	61
O-M18 Standard	62
O-M18E Extended	64
O-D4	65

O-20 MINIATURE

The very small, efficient light barriers and diffuse sensors in the O-20 miniature series can be easily integrated. The devices, which are available as sensors, reflective or through-beam diffuse sensors, detect the smallest parts in the entire active zone.

Technical data (typ.)	+20 °C, 24 VDC
For more information, visit	www.di-soric.com

	Scan width / range, setting range (mm)	Housing design Size (mm)	Sensitivity setting by means of	Transmitter (T) / Receiver (R)	Transmission light (clocked)	Laser class	Switching output	Ambient temperature (°C)	Switching frequency	Housing material	Cable material/length, Plug connector	Connection cable (optionally available)	Product description
O-20 Miniature retroreflective energetic diffuse sensors													
	6 to 14	22 x 10 x 8	Potentiometer	-	red		pnp, 50 mA NO pnp, 50 mA NC	-25 to +55	1,000	Plastic	PVC, 2.0 m	-	OTV 22 K 14 P1K OTV 22 K 14 P2K
	90 to 115	22 x 10 x 8	Potentiometer	-	red		pnp, 50 mA NO pnp, 50 mA NC	-25 to +55	1,000	Plastic	PVC, 2.0 m	-	OTV 22 K 115 P1K OTV 22 K 115 P2K
	15 to 160	22 x 10 x 8	Potentiometer	-	red		pnp, 50 mA NO pnp, 50 mA NC	-25 to +55	1,000	Plastic	PVC, 2.0 m	-	OTV 22 K 160 P1K OTV 22 K 160 P2K
	20 to 50	22 x 13 x 8.5	Potentiometer	-	 Laser, red	1	pnp, 50 mA NO/NC	-10 to +55	1,000	Plastic	2.0 m M8	- TK ... /4	LT 21 K 50 P3 LT 21 K 50 P3-K-T4
	20 to 70	22 x 13 x 8.5	Potentiometer	-	 Laser, red	1	pnp, 50 mA NO/NC	-10 to +55	1,000	Plastic	2.0 m M8	- TK ... /4	LLT 21 K 70 P3 LLT 21 K 70 P3-K-T4
	45 to 300	22 x 13 x 8.5	Potentiometer	-	 Laser, red	1	pnp, 50 mA NO/NC	-10 to +55	1,000	Plastic	2.0 m M8	- TK ... /4	LT 21 K 300 P3 LT 21 K 300 P3-K-T4
O-20 Miniature retroreflective sensors													
	30 to 200	22 x 10 x 8	Potentiometer	-	red		pnp, 50 mA NO pnp, 50 mA NC	-25 to +55	1,000	Plastic	PVC, 2.0 m	-	ORV 22 K 200 P1K ORV 22 K 200 P2K
	0 to 4,000	22 x 13 x 8.5	Potentiometer	-	 Laser, red	1	pnp, 50 mA NO/NC	-10 to +55	1,000	Plastic	2.0 m M8	- TK ... /4	LT 21 K 4000 P3 LT 21 K 4000 P3-K-T4
O-20 Miniature through-beam sensors													
	0 to 2,000	19 x 10 x 8	Potentiometer	T/R	red		pnp, 50 mA NO/NC	-25 to +55	1,000	Plastic	PVC, 2.0 m	-	OESV 19 K 2000 P3K
	0 to 1,000	19 x 12 x 8.5	-	T/R	 Laser, red	1	pnp, 50 mA NO/NC	-10 to +55	1,000	Plastic	2.0 m M8	- TK ... /4	LES 21 K 1000 P3 LES 21 K 1000 P3-K-T4

O-21 MINIATURE

The very small and efficient light barriers and diffuse sensors in the O-21 Miniature series with IO-Link can be easily integrated. The retro-reflective sensors with background suppression are suited for detecting small and flat objects. The retroreflective sensors feature a high functional reserve.



Technical data (typ.)	+20 °C, 24 VDC
For more information, visit	www.di-soric.com

	Scan width / range, setting range (mm)	Housing design Size (mm)	Sensitivity setting by means of	Transmitter (T) / Receiver (R)	Transmission light (clocked)	Laser class	Switching output	Ambient temperature (°C)	Switching frequency	Housing material	Cable material/length, Plug connector	Connection cable (optionally available)	Product description
O-21 Miniature retroreflective energetic diffuse sensors													
	0 to 180	28.1 x 8.1 x 14.4	IO-Link	-	red		pnp, 100 mA NO	-25 to +60	1,000	Plastic	PVC, 2.0 m	-	OT21-PS-2C ¹⁾
			-				nnp, 100 mA, NO						OT21-NS-2C ¹⁾
	0 to 180	28.1 x 8.1 x 14.4	IO-Link	-	red		pnp, 100 mA NO	-25 to +60	1,000	Plastic	-	-	OT21-PS-0.3T3 ¹⁾
			-				nnp, 100 mA, NO						OT21-NS-0.3T3 ¹⁾
O-21 Miniature retroreflective sensors													
	20 to 4,000	28.1 x 8.1 x 14.4	IO-Link	-	red	pnp, 100 mA NO	-25 to +60	1,000	Plastic	PVC, 2.0 m	-	OR21-PS-2C ¹⁾	
			-			nnp, 100 mA, NO						OR21-NS-2C ¹⁾	
	20 to 4,000	28.1 x 8.1 x 14.4	IO-Link	-	red	pnp, 100 mA NO	-25 to +60	1,000	Plastic	-	-	OR21-PS-0.3T3 ¹⁾	
			-			nnp, 100 mA, NO						OR21-NS-0.3T3 ¹⁾	
O-21 Miniature through-beam sensors													
	0 to 3,000	28.1 x 8.1 x 14.4	IO-Link	S	red	pnp, 100 mA NO	-25 to +60	1,000	Plastic	PVC 2.0	-	OS21-2C ¹⁾	
			-			nnp, 100 mA, NO						OS21-0.3T3 ¹⁾	
	0 to 3,000	28.1 x 8.1 x 14.4	IO-Link	E	red	pnp, 100 mA NO	-25 to +60	1,000	Plastic	PVC, 2.0 m	-	OE21-PS-2C ¹⁾	
			-			nnp, 100 mA, NO						OE21-NS-2C ¹⁾	
	0 to 3,000	28.1 x 8.1 x 14.4	IO-Link	E	red	pnp, 100 mA NO	-25 to +60	1,000	Plastic	-	-	OE21-PS-0.3T3 ¹⁾	
			-			nnp, 100 mA, NO						OE21-NS-0.3T3 ¹⁾	

¹⁾ available starting 2nd quarter 2020

	Scan width / range, setting range (mm)	Housing design Size (mm)	Sensitivity setting by means of	Transmitter (T) / Receiver (R)	Transmission light (clocked)	Laser class	Switching output	Ambient temperature (°C)	Switching frequency	Housing material	Cable material/length, Plug connector	Connection cable (optionally available)	Product description
	15 (10 to 80)	28.1 x 8.1 x 14.4	IO-Link	-	red		pnp, 100 mA NO/NC	-25 to +60	1,000	Plastic	PVC, 2.0 m	-	OH21-15PS-2C ¹⁾
	15		-				npn, 100 mA, NO						OH21-15NS-2C ¹⁾
	15 (10 to 80)	28.1 x 8.1 x 14.4	IO-Link	-	red		pnp, 100 mA NO/NC	-25 to +60	1,000	Plastic	-	-	OH21-15PS-0.3-T3 ¹⁾
	15		-				npn, 100 mA, NO						OH21-15NS-0.3T3 ¹⁾
	50 (10 to 80)	28.1 x 8.1 x 14.4	IO-Link	-	red		pnp, 100 mA NO/NC	-25 to +60	1,000	Plastic	PVC, 2.0 m	-	OH21-50PS-2C ¹⁾
	50		-				npn, 100 mA, NO						OH21-50NS-2C ¹⁾
	50 (10 to 80)	28.1 x 8.1 x 14.4	IO-Link	-	red		pnp, 100 mA NO/NC	-25 to +60	1,000	Plastic	-	-	OH21-50PS-0.3T3 ¹⁾
	50		-				npn, 100 mA, NO						OH21-50NS-0.3T3
	80 (10 to 80)	28.1 x 8.1 x 14.4	IO-Link	-	red		pnp, 100 mA NO/NC	-25 to +60	1,000	Plastic	PVC, 2.0 m	-	OH21-80PS-2C ¹⁾
	80		-				npn, 100 mA, NO						OH21-80NS-2C ¹⁾
	80 (10 to 80)	28.1 x 8.1 x 14.4	IO-Link	-	red		pnp, 100 mA NO/NC	-25 to +60	1,000	Plastic	-	-	OH21-80PS-0.3T3 ¹⁾
	80		-				npn, 100 mA, NO						OH21-80NS-0.3T3 ¹⁾







¹⁾ available starting 2nd quarter 2020





O-30 UNIVERSAL





The efficient light barriers and diffuse sensors in the O-30 Universal series are versatile. With their compact design and mounting hole spacing of 25.4 mm, the sensors can be integrated quickly and easily. The user-friendly and robust devices with short response times and good functional reserves are suited for many applications in packaging technology and assembly and handling technology.

Technical data (typ.)	+20 °C, 24 VDC
For more information, visit	www.di-soric.com

Scan width / range, setting range (mm)	Housing design Size (mm)	Sensitivity setting by means of	Transmitter (T) / Receiver (R)	Transmission light (clocked)	Laser class	Switching output	Ambient temperature (°C)	Switching frequency	Housing material	Cable material/length, Plug connector	Connection cable (optionally available)	Product description
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O-30 Miniature retroreflective energetic diffuse sensors													
	10 to 100	31 x 21 x 13	Potentiometer	-	red		pnp, 100 mA NO/NC	-25 to +70	1,000	Plastic	M8	TK ... /4	OT 31 K 100 P3-T4
											0.2m/M8	TK ...	OT 31 K 100 P3-K-T3
											2.0m	-	OT 31 K 100 P3-3
	10 to 100	31 x 21 x 13	Potentiometer	-	red		nnp, 100 mA NO/NC	-25 to +70	1,000	Plastic	M8	TK ... /4	OT 31 K 100 N3-T4
											0.2m/M8	TK ...	OT 31 K 100 N3-K-T3
											2.0m	-	OT 31 K 100 N3-3
	0 to 400	31 x 21 x 13	Potentiometer	-	red		pnp, 100 mA NO/NC	-25 to +70	2,000	Plastic	M8	TK ... /4	OT 31 K 400 P3-T4
											0.2m/M8	TK ...	OT 31 K 400 P3-K-T3
											2.0m	-	OT 31 K 400 P3-3
	0 to 400	31 x 21 x 13	Potentiometer	-	red		nnp, 100 mA NO/NC	-25 to +70	2,000	Plastic	M8	TK ... /4	OT 31 K 400 N3-T4
											0.2m/M8	TK ...	OT 31 K 400 N3-K-T3
											2.0m	-	OT 31 K 400 N3-3
	0 to 1,000	31 x 21 x 13	Potentiometer	-	red		pnp, 100 mA NO/NC	-25 to +70	1,000	Plastic	M8	TK ... /4	OT 31 K 1000 P3-T4
											0.2m/M8	TK ...	OT 31 K 1000 P3-K-T3
											2.0m	-	OT 31 K 1000 P3-3
	0 to 1,000	31 x 21 x 13	Potentiometer	-	red		nnp, 100 mA NO/NC	-25 to +70	1,000	Plastic	M8	TK ... /4	OT 31 K 1000 N3-T4
											0.2m/M8	TK ...	OT 31 K 1000 N3-K-T3
											2.0m	-	OT 31 K 1000 N3-3




O-30 Miniature retroreflective diffuse sensors background suppression													
	30 to 200	31 x 21 x 13	Potentiometer	-	red		pnp, 100 mA NO/NC	-25 to +70	1,000	Plastic	M8	TK ... /4	OH 31 K 200 P3-T4
											0.2m/M8	TK ...	OH 31 K 200 P3-K-T3
											2.0m	-	OH 31 K 200 P3-3
	30 to 200	31 x 21 x 13	Potentiometer	-	red		nnp, 100 mA NO/NC	-25 to +70	1,000	Plastic	M8	TK ... /4	OH 31 K 200 N3-T4
											0.2m/M8	TK ...	OH 31 K 200 N3-K-T3
											2.0m	-	OH 31 K 200 N3-3
	30 to 400	31 x 21 x 13	Potentiometer	-	Infrared		pnp, 100 mA NO/NC	-25 to +70	1,000	Plastic	M8	TK ... /4	OH 30 K 400 P3-T4
											0.2m/M8	TK ...	OH 30 K 400 P3-K-T3
											2.0m	-	OH 30 K 400 P3-3
	30 to 400	31 x 21 x 13	Potentiometer	-	Infrared		nnp, 100 mA NO/NC	-25 to +70	1,000	Plastic	M8	TK ... /4	OH 30 K 400 N3-T4
											0.2m/M8	TK ...	OH 30 K 400 N3-K-T3
											2.0m	-	OH 30 K 400 N3-3

	Scan width / range, setting range (mm)	Housing design Size (mm)	Sensitivity setting by means of	Transmitter (T) / Receiver (R)	Transmission light (blocked)	Laser class	Switching output	Ambient temperature (°C)	Switching frequency	Housing material	Cable material/length, Plug connector	Connection cable (optionally available)	Product description
O-30 Miniature retroreflective sensors 													
	50 to 1,500	31 x 21 x 13	Potentiometer	-	red		pnp, 100 mA NO/NC	-25 to +70	2,000	Plastic	M8	TK ... /4	OR 31 K 1500 P3-T4
											0.2m/M8	TK ...	OR 31 K 1500 P3-K-T3
											2.0m	-	OR 31 K 1500 P3-3
	50 to 1,500	31 x 21 x 13	Potentiometer	-	red		nnp, 100 mA NO/NC	-25 to +70	2,000	Plastic	M8	TK ... /4	OR 31 K 1500 N3-T4
											0.2m/M8	TK ...	OR 31 K 1500 N3-K-T3
											2.0m	-	OR 31 K 1500 N3-3
	400 to 4,000	31 x 21 x 13	Potentiometer	-	red		pnp, 100 mA NO/NC	-25 to +70	2,000	Plastic	M8	TK ... /4	OR 31 K 4000 P3-T4
											0.2m/M8	TK ...	OR 31 K 4000 P3-K-T3
											2.0m	-	OR 31 K 4000 P3-3
	400 to 4,000	31 x 21 x 13	Potentiometer	-	red		nnp, 100 mA NO/NC	-25 to +70	2,000	Plastic	M8	TK ... /4	OR 31 K 4000 N3-T4
											0.2m/M8	TK ...	OR 31 K 4000 N3-K-T3
											2.0m	-	OR 31 K 4000 N3-3
	20 to 5,000	31 x 21 x 13	Potentiometer	-	red		pnp, 100 mA NO/NC	-25 to +70	2,000	Plastic	M8	TK ... /4	OR 31 K 5000 P3-T4
											0.2m/M8	TK ...	OR 31 K 5000 P3-K-T3
											2.0m	-	OR 31 K 5000 P3-3
	20 to 5,000	31 x 21 x 13	Potentiometer	-	red		nnp, 100 mA NO/NC	-25 to +70	2,000	Plastic	M8	TK ... /4	OR 31 K 5000 N3-T4
											0.2m/M8	TK ...	OR 31 K 5000 N3-K-T3
											2m	-	OR 31 K 5000 N3-3
O-30 Universal retroreflective sensors 													
	0 to 20,000	31 x 21 x 13	Potentiometer	-	red		pnp, 100 mA NO/NC	-25 to +70	2,000	Plastic	M8	TK ... /4	OES 31 K 20000 P3-T4
											0.2m/M8	TK ...	OES 31 K 20000 P3-K-T3
											2.0m	-	OES 31 K 20000 P3-3
	0 to 20,000	31 x 21 x 13	Potentiometer	-	red		nnp, 100 mA NO/NC	-25 to +70	2,000	Plastic	M8	TK ... /4	OES 31 K 20000 N3-T4
											0.2m/M8	TK ...	OES 31 K 20000 N3-K-T3
											2.0m	-	OES 31 K 20000 N3-3

O-40 STANDARD

The compact light barriers and diffuse sensors in the O-40 Standard series are suited for medium ranges in a broad field of application. The sensors are reliable, economic and cost-efficient. The universal slotted-hole fastening makes flexible mounting possible.



Technical data (typ.)	+20 °C, 24 VDC
For more information, visit	www.di-soric.com

	Scan width / range, setting range (mm)	Housing design Size (mm)	Sensitivity setting by means of	Transmitter (T) / Receiver (R)	Transmission light (clocked)	Laser class	Switching output	Ambient temperature (°C)	Switching frequency	Housing material	Cable material/length, Plug connector	Connection cable (optionally available)	Product description
O-40 Standard retroreflective energetic diffuse sensors													
	10 to 600	38 x 27 x 15	Potentiometer	-	red		pnp, 100 mA NO	-25 to +60	500	Plastic	M8	TK ...	OT 6-41 K 0.6 P1-T3
							pnp, 100 mA NC						OT 6-41 K 0.6 P2-T3
	100 to 1,000	41 x 31.5 x 16	Teach Teach Remote teach	-	red		Push-pull, 200 mA NO/NC	-25 to +60	1,000	Plastic	M8	TK ... TK ... /4	OTT 41 M 1 G3-T3
							Push-pull, 200 mA NO/NC						OTT 41 M 1 FG3-T4
O-40 Standard retroreflective sensors													
	400 to 4,000	38 x 27 x 15	Potentiometer	-	red		pnp, 100 mA NC	-25 to +60	500	Plastic	M8	TK ...	OR 6-41 K 4 P1-T3
							pnp, 100 mA NO						OR 6-41 K 4 P2-T3

O-40E EXTENDED

The devices in the O-40E Extended series for medium ranges have a robust metallic housing with a metallic plug and are used in the detection of standard or small parts. These light barriers detect with LED or with laser variants (laser class 1) that are safe for the eye.

Technical data (typ.)	+20 °C, 24 VDC
For more information, visit	www.di-soric.com

	Scan width / range, setting range (mm)	Housing design Size (mm)	Sensitivity setting by means of	Transmitter (T) / Receiver (R)	Transmission light (clocked)	Laser class	Switching output	Ambient temperature (°C)	Switching frequency	Housing material	Cable material/length, Plug connector	Connection cable (optionally available)	Product description
O-40E Extended retroreflective diffuse sensors background suppression													
	30 to 350	40 x 30 x 15	Potentiometer	-	 Laser, red	1	Push-pull, 200 mA NO/NC antivalent	-10 to +50	1,000	Metal	M8	TK ... /4	LH 41 M 350 G4L-T4

O-50 METAL

The robust and highly efficient light barriers in the O-50 Metal series work with visible red light LEDs or with laser light that is safe for the eye (laser class 1). They are robust and have a metallic housing and metallic plug. The sensors have maximum functional reserve and are used for long ranges.

Technical data (typ.)	+20 °C, 24 VDC
For more information, visit	www.di-soric.com

Scan width / range, setting range (mm)	Housing design Size (mm)	Sensitivity setting by means of	Transmitter (T) / Receiver (R)	Transmission light (clocked)	Laser class	Switching output	Ambient temperature (°C)	Switching frequency	Housing material	Cable material/length, Plug connector	Connection cable (optionally available)	Product description
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O-50 Metal retroreflective energetic diffuse sensors													
	15 to 150	50 x 40 x 15	Potentiometer	-	red		pnp, 200 mA NO/NC	-10 to +60	1,000	Metal	M12	VK ...	OTV 51 M 150 P3K-IBS
	100 to 500												OTV 51 M 500 P3K-IBS
	100 to 600	50 x 40 x 15	Potentiometer	-	Infrared		pnp, 200 mA NO/NC	-10 to +60	1,000	Metal	M12	VK ...	OTV 50 M 600 P3K-IBS
	50 to 1,200												OTV 50 M 1200 P3K-IBS
	75 to 200	50 x 40 x 15	Potentiometer	-	Laser, red	1	pnp, 200 mA NO/NC	-10 to +50	2,000	Metal	M12	VK ...	LTV 51 M 200 P3K-IBS
	100 to 600							500					LTV 51 M 600 P3K-IBS
	50 to 400	50 x 50 x 16	Teach Remote teach	-	Laser, red	1	Push-pull, 150mA NO/NC	18 to 30	100	Metal	M12	VK ...	LVHT 51 M 400 G3-B4

O-50 Metal retroreflective diffuse sensors background suppression													
	50 to 200	50 x 40 x 15	Potentiometer	-	Laser, red	1	Push-pull, 200 mA NO/NC	-10 to +50	500	Metal	M12	VK ...	LHT 51 M 200 G3-B4 1)
	50 to 200	50 x 40 x 15	Potentiometer	-	Laser, red	1	Push-pull, 200 mA NO/NC	-10 to +50	500	Metal	M12	VK ...	LLH 51 M 200 G3-B4


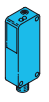

O-50 Metal retroreflective sensors													
	40 to 2,000	50 x 40 x 15	Potentiometer	-	red		pnp, 200 mA NO/NC	-10 to +60	1,000	Metal	M12	VK ...	ORV 51 M 2000 P3K-IBS
	300 to 5,000	50 x 40 x 15	Potentiometer	-	red		pnp, 200 mA NO/NC	-10 to +60	1,000	Metal	M12	VK ...	ORV 51 M 5000 P3K-IBS
	100 to 1,000												LRV 51 M 1000 P3K-IBS
	200 to 2,000	50 x 40 x 15	Potentiometer	-	Laser, red	1	pnp, 200 mA NO/NC	0 to +50	2,000	Metal	M12	VK ...	LRV 51 M 2000 P3K-IBS
	1,000 to 10,000												LRV 51 M 10000 P3K-IBS
	50 to 500	50 x 40 x 15	Potentiometer	-	Laser, red	1	pnp, 200 mA NO/NC	5 to +50	750	Metal	M12	VK ...	LLRV 51 M 500 P3K-IBS

O-50 Metal retroreflective sensors													
	0 to 10,000	50 x 40 x 15	Potentiometer	S	red		-	-25 to +60		Metal	M12	VK ...	OSV 51 M 10000-IBS
				E	red		pnp, 200 mA NO/NC	-25 to +60	100/200	Metal	M12	VK ...	OEV 51 M 10000-P3K-IBS

O-81 LASER

The laser diffuse sensors in the O-81 Laser series are used for precise detection of objects using red light lasers. The sensors can be adjusted precisely and distinguished by their high resolution and functional reserve. The robust devices with a metallic housing and metallic plug can be operated intuitively by way of potentiometers and NO-NC switches.

Technical data (typ.)	+20 °C, 24 VDC
For more information, visit	www.di-soric.com

	Scan width / range, setting range (mm)	Housing design Size (mm)	Sensitivity setting by means of	Transmitter (T) / Receiver (R)	Transmission light (clocked)	Laser class	Switching output	Ambient temperature (°C)	Switching frequency	Housing material	Cable material/length, Plug connector	Connection cable (optionally available)	Product description
O-81 Metal retroreflective diffuse sensors background suppression 													
	40 to 400	76 x 30 x 18	Potentiometer	-		1	Antivalent, 200 mA NO/NC	-10 to +60	1,000	Metal	M12	VK ... /4	LHT 81 M 300 G4L-IBS
							200 mA, NO switching output NC alarm output						LHT 81 M 300 G6L-IBS

O-Q10 MINIATURE

The devices in O-Q10 Miniature series are the first choice for applications that require compact laser through-beam sensors for small parts detection. The robust devices with a metallic housing and metallic plug consistently satisfy the safe laser protection class 1.



Technical data (typ.)	+20 °C, 24 VDC
For more information, visit	www.di-soric.com

	Scan width / range, setting range (mm)	Housing design Size (mm)	Sensitivity setting by means of	Transmitter (T) / Receiver (R)	Transmission light (clocked)	Laser class	Switching output	Ambient temperature (°C)	Switching frequency	Housing material	Cable material/length, Plug connector	Connection cable (optionally available)	Product description
O-Q10 Miniature through-beam sensors 													
	0 to 500	10 x 10 x 60	-	S		1	-	0 to +50	2,000	Metal	M8	TK ...	OLSQ 10 M 500-TSSL
							pnp, 200 mA NC						OLEQ 10 M 500 P1K-TSSL
							pnp, 200 mA NO						OLEQ 10 M 500 P2K-TSSL
	0 to 2,000	10 x 10 x 60	-	S		1	-	0 to +50	2,000	Metal	M8	TK ...	OLSQ 10 M 2000-TSSL
							pnp, 200 mA NC						OLEQ 10 M 2000 P1K-TSSL
							pnp, 200 mA NO						OLEQ 10 M 2000 P2K-TSSL

O-M5

The device in the O-M5 series are the smallest diffuse sensors from di-soric in a threaded model. The sensors are distinguished by their precise detection of objects and are ideal for mounting in confined space conditions.




Technical data (typ.)	+20 °C, 24 VDC
For more information, visit	www.di-soric.com

	Scan width / range, setting range (mm)	Housing design Size (mm)	Sensitivity setting by means of	Transmitter (T) / Receiver (R)	Transmission light (clocked)	Laser class	Switching output	Ambient temperature (°C)	Switching frequency	Housing material	Cable material/length, Plug connector	Connection cable (optionally available)	Product description
O-M5 Metal retroreflective energetic diffuse sensors 													
	... 10	M5	–	–	Infrared		pnp, 100 mA NO	0 to +55	250	Stainless steel V2A	2.0 m M8	– TK ...	OTV 05 V 10 P1K OTV 05 V 10 P1K-TSSL
	... 20	M5	–	–	Infrared		pnp, 100 mA NO	0 to +55	250	Stainless steel V2A	M8	TK ...	OTV 05 V 20 P1K-TSSL
	... 50	M5	–	–	Infrared		pnp, 100 mA NO	0 to +55	250	Stainless steel V2A	2.0 m M8	– TK ...	OTV 05 V 50 P1K OTV 05 V 50 P1K-TSSL

O-M8

The compact laser light sensors are used for the detection of small parts and are designed for the safe laser class 1. This avoids injuries to the human eye.

Technical data (typ.)	+20 °C, 24 VDC
For more information, visit	www.di-soric.com

	Scan width / range, setting range (mm)	Housing design Size (mm)	Sensitivity setting by means of	Transmitter (T) / Receiver (R)	Transmission light (clocked)	Laser class	Switching output	Ambient temperature (°C)	Switching frequency	Housing material	Cable material/length, Plug connector	Connection cable (optionally available)	Product description
O-M8 through-beam sensors 													
	0 to 2,000	M8 x 70	–	S	 Laser, red	1	–	0 to +50	2,000	Stainless steel	M8	TK ...	OLS 08 V 2000-TSSL
				E			pnp, 200 mA NO						OLE 08 V 2000 P2K-TSSL


O-M18 STANDARD

The light barriers and diffuse sensors in the O-M18 Standard series are ideal devices for economical and cost-efficient applications. The sensors are alternatively available in a straight model or with 90° angled optics. The plastic or metallic housing is distinguished by its short construction.

Technical data (typ.)	+20 °C, 24 VDC
For more information, visit	www.di-soric.com

Scan width / range, setting range (mm)	Housing design Size (mm)	Sensitivity setting by means of	Transmitter (T) / Receiver (R)	Transmission light (clocked)	Laser class	Switching output	Ambient temperature (°C)	Switching frequency	Housing material	Cable material/length, Plug connector	Connection cable (optionally available)	Product description
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O-M18 Miniature through-beam sensors 





	8,000	M18 x 68	Potentiometer	–	Infrared	pnp, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	M12	VK... /4	OES 18 FKR 8000 P3-B4 OES 18 FMR 8000 P3-B4
	8,000	M18 x 68	Potentiometer	–	Infrared	nnp, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	M12	VK... /4	OES 18 FKR 8000 N3-B4 OES 18 FMR 8000 N3-B4
	8,000	M18 x 58	Potentiometer	–	Infrared	pnp, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	PVC, 2.0 m	–	OES 18 FKR 8000 P3 OES 18 FMR 8000 P3
	8,000	M18 x 58	Potentiometer	–	Infrared	nnp, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	PVC, 2.0 m	–	OES 18 FKR 8000 N3 OES 18 FMR 8000 N3
	10,000	M18 x 55	Potentiometer	–	Infrared	pnp, 100 mA NO/NC	-25 to +55	333	Plastic Metal	M12	VK... /4	OES 18 FK 10000 P3-B4 OES 18 FM 10000 P3-B4
	10,000	M18 x 55	Potentiometer	–	Infrared	nnp, 100 mA NO/NC	-25 to +55	333	Plastic Metal	M12	VK... /4	OES 18 FK 10000 N3-B4 OES 18 FM 10000 N3-B4
	10,000	M18 x 45	Potentiometer	–	Infrared	pnp, 100 mA NO/NC	-25 to +55	333	Plastic Metal	PVC, 2.0 m	–	OES 18 FK 10000 P3 OES 18 FM 10000 P3
	10,000	M18 x 45	Potentiometer	–	Infrared	nnp, 100 mA NO/NC	-25 to +55	333	Plastic Metal	PVC, 2.0 m	–	OES 18 FK 10000 N3 OES 18 FM 10000 N3

O-M18 Standard retroreflective energetic diffuse sensors 






	320	M18 x 68	Potentiometer	–	Infrared	pnp, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	M12	VK... /4	OT 18 FKR 320 P3-B4 OT 18 FMR 320 P3-B4
	320	M18 x 68	Potentiometer	–	Infrared	nnp, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	M12	VK... /4	OT 18 FKR 320 N3-B4 OT 18 FMR 320 N3-B4
	320	M18 x 58	Potentiometer	–	Infrared	pnp, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	PVC, 2.0 m	–	OT 18 FKR 320 P3 OT 18 FMR 320 P3
	320	M18 x 58	Potentiometer	–	Infrared	nnp, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	PVC, 2.0 m	–	OT 18 FKR 320 N3 OT 18 FMR 320 N3
	400	M18 x 55	Potentiometer	–	Infrared	pnp, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	M12	VK... /4	OT 18 FK 400 P3-B4 OT 18 FM 400 P3-B4
	400	M18 x 55	Potentiometer	–	Infrared	nnp, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	M12	VK... /4	OT 18 FK 400 N3-B4 OT 18 FM 400 N3-B4
	400	M18 x 45	Potentiometer	–	Infrared	pnp, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	PVC, 2.0 m	–	OT 18 FK 400 P3 OT 18 FM 400 P3
	400	M18 x 45	Potentiometer	–	Infrared	nnp, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	PVC, 2.0 m	–	OT 18 FK 400 N3 OT 18 FM 400 N3

	Scan width / range, setting range (mm)	Housing design Size (mm)	Sensitivity setting by means of	Transmitter (T) / Receiver (R)	Transmission light (clocked)	Laser class	Switching output	Ambient temperature (°C)	Switching frequency	Housing material	Cable material/length, Plug connector	Connection cable (optionally available)	Product description
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O-M18 Standard retroreflective energetic diffuse sensors

	600	M18 x 68	Potentiometer	-	Infrared		pnp, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	M12	VK ... /4	OT 18 FKR 600 P3-B4 OT 18 FMR 600 P3-B4
	600	M18 x 68	Potentiometer	-	Infrared		npn, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	M12	VK ... /4	OT 18 FKR 600 N3-B4 OT 18 FMR 600 N3-B4
	600	M18 x 58	Potentiometer	-	Infrared		pnp, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	PVC, 2.0 m	-	OT 18 FKR 600 P3 OT 18 FMR 600 P3
	600	M18 x 58	Potentiometer	-	Infrared		npn, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	PVC, 2.0 m	-	OT 18 FKR 600 N3 OT 18 FMR 600 N3
	800	M18 x 55	Potentiometer	-	Infrared		pnp, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	M12	VK ... /4	OT 18 FK 800 P3-B4 OT 18 FM 800 P3-B4
	800	M18 x 55	Potentiometer	-	Infrared		npn, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	M12	VK ... /4	OT 18 FK 800 N3-B4 OT 18 FM 800 N3-B4
	800	M18 x 45	Potentiometer	-	Infrared		pnp, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	PVC, 2.0 m	-	OT 18 FK 800 P3 OT 18 FM 800 P3
	800	M18 x 45	Potentiometer	-	Infrared		npn, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	PVC, 2.0 m	-	OT 18 FK 800 N3 OT 18 FM 800 N3



O-M18 Standard retroreflective sensors

	3,000	M18 x 83	Potentiometer	-	red		pnp, 100 mA NO/NC npn, 100 mA NO/NC	-25 to +70	250	Metal	M12	VK ... /4	OR 18-1 M 3000 P4-B4 OR 18-1 M 3000 N4-B4
	3,600	M18 x 68	Potentiometer	-	red		pnp, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	M12	VK ... /4	OR 18-1 FKR 3600 P3-B4 OR 18-1 FMR 3600 P3-B4
	3,600	M18 x 68	Potentiometer	-	red		npn, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	M12	VK ... /4	OR 18-1 FKR 3600 N3-B4 OR 18-1 FMR 3600 N3-B4
	3,600	M18 x 58	Potentiometer	-	red		pnp, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	PVC, 2.0 m	-	OR 18-1 FKR 3600 P3 OR 18-1 FMR 3600 P3
	3,600	M18 x 58	Potentiometer	-	red		npn, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	PVC, 2.0 m	-	OR 18-1 FKR 3600 N3 OR 18-1 FMR 3600 N3
	5,700	M18 x 55	Potentiometer	-	red		pnp, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	M12	VK ... /4	OR 18-1 FK 5700 P3-B4 OR 18-1 FM 5700 P3-B4
	5,700	M18 x 55	Potentiometer	-	red		npn, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	M12	VK ... /4	OR 18-1 FK 5700 N3-B4 OR 18-1 FM 5700 N3-B4
	5,700	M18 x 45	Potentiometer	-	red		pnp, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	PVC, 2.0 m	-	OR 18-1 FK 5700 P3 OR 18-1 FM 5700 P3
	5,700	M18 x 45	Potentiometer	-	red		npn, 100 mA NO/NC	-25 to +55	1,000	Plastic Metal	PVC, 2.0 m	-	OR 18-1 FK 5700 N3 OR 18-1 FM 5700 N3

O-M18E EXTENDED

The diffuse sensors in the O-M18E Extended series can be used universally and are the first choice in challenging applications. The devices have a robust metallic housing and score points with their high functional reserve and efficient background suppression.

Technical data (typ.)	+20 °C, 24 VDC
For more information, visit	www.di-soric.com



	Scan width / range, setting range (mm)	Housing design Size (mm)	Sensitivity setting by means of	Transmitter (T) / Receiver (R)	Transmission light (clocked)	Laser class	Switching output	Ambient temperature (°C)	Switching frequency	Housing material	Cable material/length, Plug connector	Connection cable (optionally available)	Product description
O-M18E Extended retroreflective diffuse sensors background suppression 													
	30 to 130	M18 x 80	Potentiometer	-	red		pnp, 100 mA NO/NC	-25 to +70	1,000	Metal	M12	VK... /4	OH 18-1 M 130 P4-B4
							nnp, 100 mA NO/NC						OH 18-1 M 130 N4-B4

O-D4

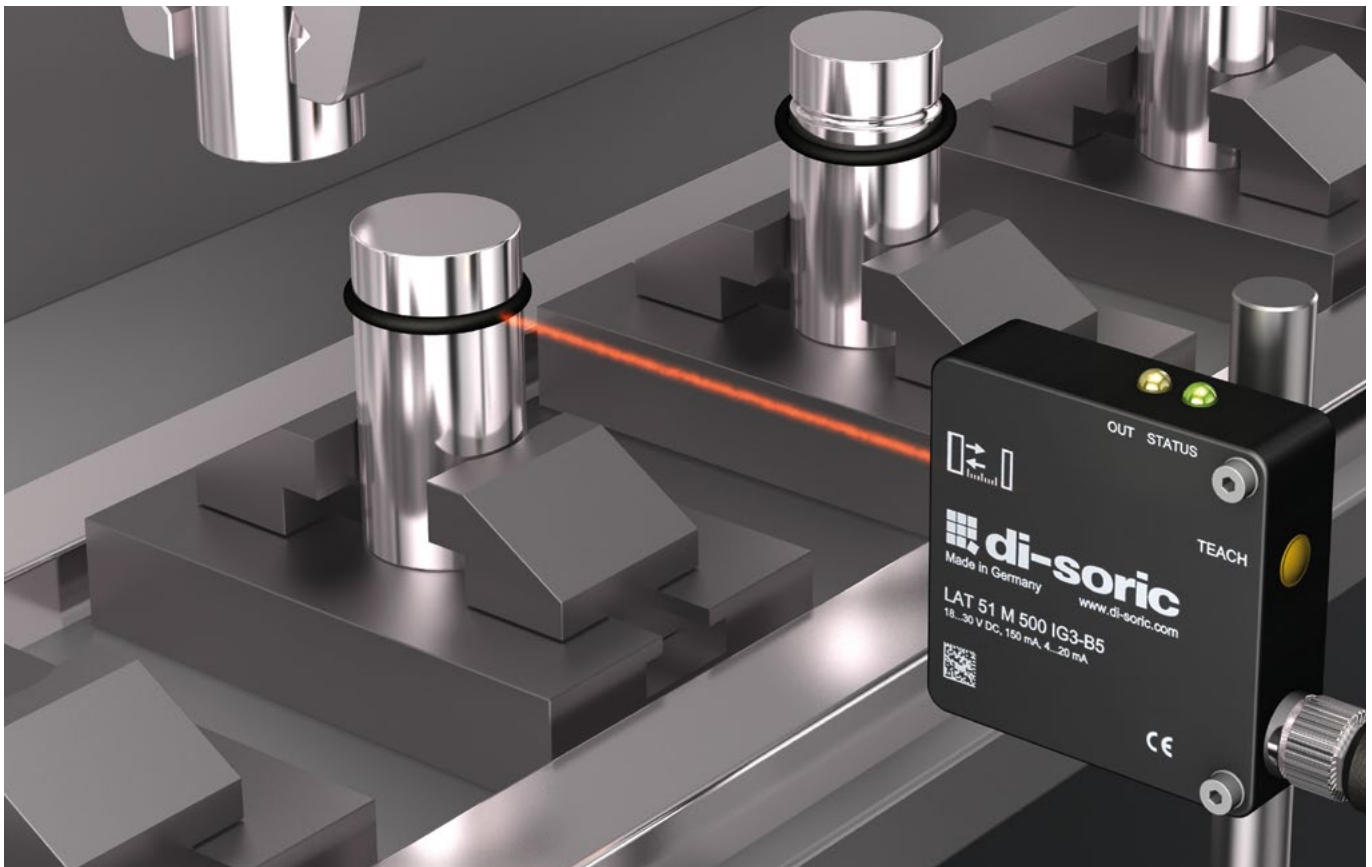
The devices in the O-D4 series are the smallest diffuse sensors that di-soric offers in a cylindrical model. They guarantee the precise detection of objects and are ideal for mounting everywhere where space is scarce.

Technical data (typ.) **+20 °C, 24 VDC**

For more information, visit www.di-soric.com

	Scan width / range, setting range (mm)	Housing design Size (mm)	Sensitivity setting by means of	Transmitter (T) / Receiver (R)	Transmission light (clocked)	Laser class	Switching output	Ambient temperature (°C)	Switching frequency	Housing material	Cable material/length, Plug connector	Connection cable (optionally available)	Product description
O-D4 retroreflective energetic diffuse sensors 													
	... 10	Ø4.0	–	–	Infrared		pnp, 100 mA NO	0 to +55	250	Stainless steel V2A	2.0 m	–	OTV 4.0 V 10 P1K
											M8	TK ...	OTV 4.0 V 10 P1K-TSSL
	... 20	Ø4.0	–	–	Infrared		pnp, 100 mA NO	0 to +55	250	Stainless steel V2A	2.0 m	–	OTV 4.0 V 20 P1K
											M8	TK ...	OTV 4.0 V 20 P1K-TSSL
	... 50	Ø4.0	–	–	Infrared		pnp, 100 mA NO	0 to +55	250	Stainless steel V2A	2.0 m	–	OTV 4.0 V 50 P1K
											M8	TK ...	OTV 4.0 V 50 P1K-TSSL

Optical distance sensors



The optical distance sensors measure distances quickly and precisely with red light laser. Thanks to the metallic housing, all sensors are very robust. They offer a wide bandwidth of measuring ranges and ranges of up to 10 m, and resolutions into the micrometer range.



 **di-soric**

LHT-9 Long Range	67
LAT-51 Compact	68
LAT-61 Precise	69

LHT-9 LONG RANGE

The LHT-9 features a large range of up to 10m. The sensor is equally well suited for measuring and switching applications. Its easily readable display serves to display measured values and to configure the sensor. A good color and surface independence makes distance measurement possible on many surfaces.



Technical data (typ.)	+20°C, 24 VDC
Emitted light	Red-light laser, clocked
Switching output 1	pnp, 200mA, NO/NC programmable
Switching output 2	pnp or analog output
Switching output 3	-
Measuring frequency	1 to 33 Hz
No-load current	< 150mA
Interface	IO-Link V1.1, COM2
Ambient temperature	-10to+60°C
Protection class	IP 67
Protection class	III, operation on protective low voltage
Housing material	Die-cast zinc, black varnished



LHT-9 Long Range															
Analog output (4 to 20 mA)	Analog output (0 to 10 V)	Emitted light	Laser class	Detection range (mm)	Housing design Size (mm)	Digital display	Service voltage (VDC)	Resolution (mm)	Diameter of light spot (mm)	Cable material/length, Plug connector	Connection cable (optionally available)	Product description			
	■	■	Laser, red	2	200 to 10,000	45x52x52	■	10 to 30 18 to 30	-	Ø6	M12	VK... VK.../4	LHT 9-45 M 10 P3-B4 LHT 9-45 M 10 P3IU-B4		
Protective frame with glass insert for LAT-45...															
	see "Accessories for optical distance sensors", page 215														

LAT-51 COMPACT

The LAT-51 Compact is a compact, universal sensor with a metallic housing for medium distances up to 500 mm. It is fast and is used in case of applications in the mm and sub-mm range. Laser class 1 guarantees complete eye safety.



Technical data (typ.)	+20 °C, 24 VDC
Emitted light	Red-light laser, clocked
Switching output 1	Push-pull, 150 mA
Service voltage	18 to 30 V DC
No-load current	60 mA
Ambient temperature	0 to +50 °C
Protection class	IP 67
Protection class	III, operation on protective low voltage
Housing material	Aluminum, black anodized



LAT-51 Compact													
	Laser distance sensors	Emitted light	Laser class	Analog output (4 to 20 mA)	Analog output (0 to 10 V)	Detection range (mm)	Housing design Size (mm)	Digital display	Resolution (mm)	Light spot diameter / distance (mm)	Cable material/length, Plug connector	Connection cable (optionally available)	Product description
	■	 Laser, red	1	■		50 to 500	50x50x16	–	0.05 to 1.5	2.0 / 100	M12	VK.../5	LAT 51 M 500 IG3-B5
	■		1	■		50 to 500	50x50x16	–	0.05 to 1.5	2.0 / 100	M12	VK.../5	LAT 51 M 500 UG3-B5

LAT-61 PRECISE

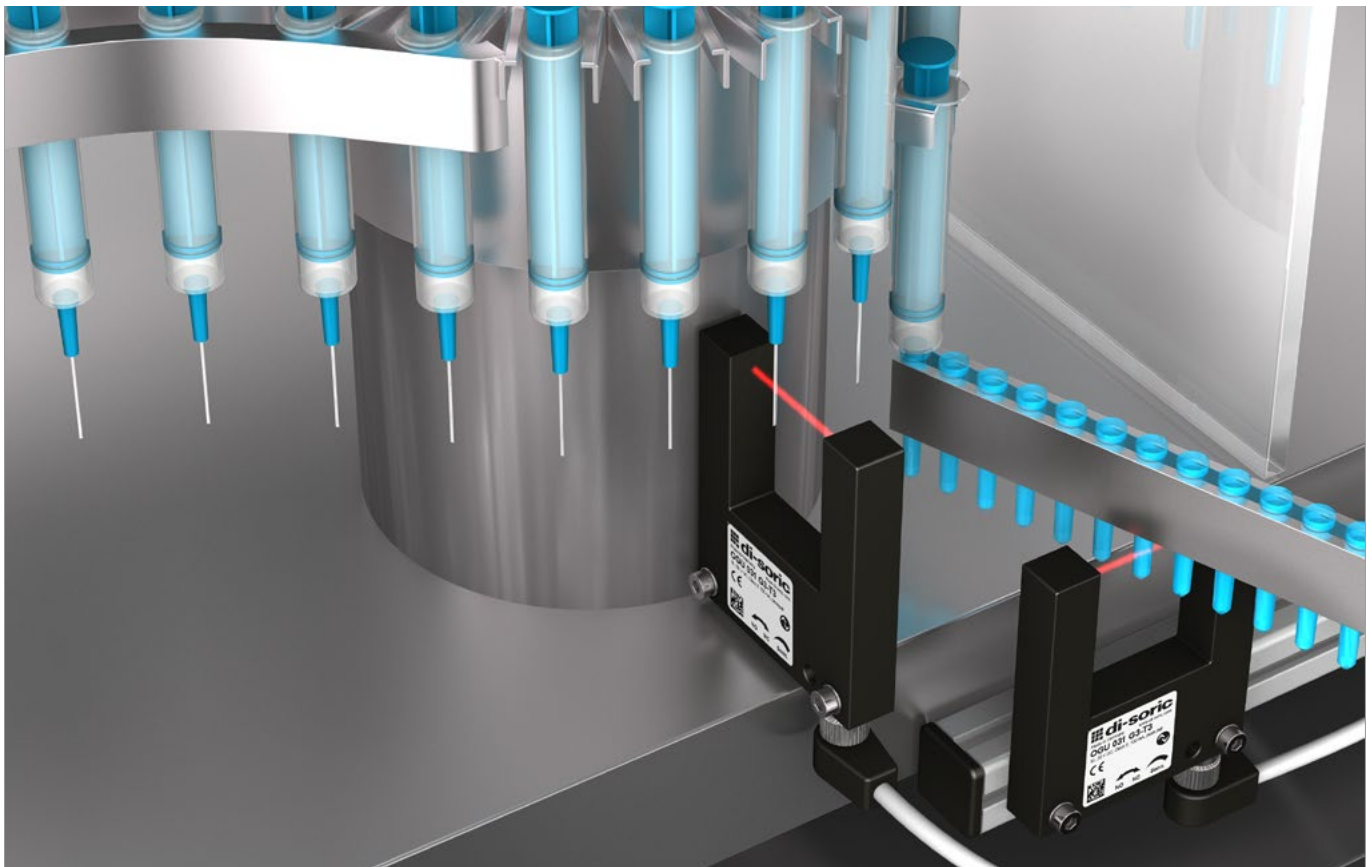
Highly precise, fast distance measurements into the micrometer range are the area of application of the LAT-61. Its small and precise laser spot makes highly precise and fast determination of distances into the micrometer range possible. The integrated display serves to display measured values and to configure the sensor.



Technical data (typ.)	+20 °C, 24 VDC
Emitted light	
Switching output 1	pnp/npn, 50mA
Switching output 2	pnp/npn, 50mA
Switching output 3	pnp/npn, 50mA
Analog output	4 to 20 mA
	0 to 10 V
No-load current	< 100 mA
Ambient temperature	-10to+45 °C
Protection class	IP 67
Protection class	III, operation on protective low voltage
Housing material	Plastic (PBT)

Laser distance sensors	Emitted light	Laser class	Analog output (4 to 20 mA)	Analog output (0 to 10 V)	Detection range (mm)	Housing design Size (mm)	Digital display	Service voltage (VDC)	Resolution (mm)	Diameter of light spot	Cable material/length, Plug connector	Connection cable (optionally available)	Product description
LAT-61 Precise													
	■	 Laser, red	2	■ ■	30 ± 4	60 x 57 x 20	■	21.6 to 26.4	0.5 µm	0.1 x 0.1	5.0 m	-	LAT 61 K 30/8 IUPN
				50 ± 10	1.5 µm				0.5 x 1.0	LAT 61 K 50/20 IUPN			
				85 ± 20	2.5 µm				0.75 x 1.25	LAT 61 K 85/40 IUPN			
				120 ± 60	8.0 µm				1.0 x 1.5	LAT 61 K 120/120 IUPN			

Fork light barriers



di-soric fork light barriers operate on the functional principle of through-beam sensors. They are delivered ready to install and do not have to be adjusted afterward. Fork light barriers are used wherever small objects or object positions, regardless of what type of surface they have, must be detected quickly and precisely.



OGU	71
OGUP Dirt-Resistant	75
OGUL Laser	76
OGU Stainless Steel	77
LLGT Measuring	78
Special designs	79

OGU

The OGU series with LED light source is the standard among fork light barriers. The largest range of fork light barriers on the market includes devices with fork widths from 5 mm to 250 mm. The OGU fork light barriers offer high resolution and reproducibility with formidable speed. They are operated intuitively using potentiometers, auto-teach or IO-Link. Four preset operating modes make ideal adaptation to the application possible, and simultaneously, IO-Link offers important advantages in configuration and diagnosis.

Technical data (typ.)	+20 °C, 24 VDC
Service voltage	10 to 30 V DC
No-load current	40 mA
Switching output	Push-pull (pnp/hpn can be adjusted by IO-Link) 100 mA, NO/NC (can be switched by potentiometer)
Sensitivity adjustment	Adjustable (potentiometer)
Ambient temperature	-25 to 60 °C
Protection class	IP 67
Operation modes	Standard (general applications) High Resolution (for detecting very small objects) Power (increased function reserve) Speed (reliable detection of fast-moving parts)
Plug connector	M8, 3-pin
Connection cable	TK... (optionally available)



Operation modes



Standard – General applications

- 5 kHz
- Reproducibility: 0.02 mm



Power – Increased function reserve

- Increased transmitting power,



High Resolution – For detecting very small objects


- Resolution improved by 30%



Speed – Reliable detection of fast-moving parts

- 30% higher switching frequency

	Fork width (mm)	Housing design Size (mm)	Red light, 660 nm, clocked	Infrared light, 880 nm	Resolution, smallest detectable part (mm)	Standard factory settings	Adjustable switching frequency (Hz)	IO-Link interface	Reproducibility (mm)	Die-cast zinc, powder-coated	Aluminum, black varnished/anodized	Product description
	05	25 x 45 x 10	■	■	Ø 0.2 (min. Ø 0.1)	■	10,000 (max. 14,000)	■	0.02	■		OGU 005 G3-T3
	10	25 x 45 x 10		■	Ø 0.3 (min. Ø 0.2)	■	10,000 (max. 14,000)	■	0.02	■		OGU 010 G3-T3
	20	40 x 50 x 10	■	■	Ø 0.3 (min. Ø 0.2)	■	5,000 (max. 8,000)	■	0.02	■		OGU 020 G3-T3 OGU 021 G3-T3
	30	50 x 60 x 10	■	■	Ø 0.3 (min. Ø 0.2)	■	5,000 (max. 8,000)	■	0.02	■		OGU 030 G3-T3 OGU 031 G3-T3
	40	60 x 70 x 10	■		Ø 0.3 (min. Ø 0.2)	■	5,000 (max. 8,000)	■	0.02	■		OGU 041 G3-T3
	50	70 x 80 x 10	■	■	Ø 0.3 (min. Ø 0.2)	■	5,000 (max. 8,000)	■	0.02	■		OGU 050 G3-T3 OGU 051 G3-T3
	60	80 x 80 x 10	■		Ø 0.3 (min. Ø 0.2)	■	5,000 (max. 8,000)	■	0.02		■	

	Fork width (mm)	Housing design Size (mm)	Red light, 660 nm, clocked	Infrared light, 880 nm	Resolution, smallest detectable part (mm)	Standard factory settings	Adjustable switching frequency (Hz)	IO-Link Interface	Reproducibility (mm)	Die-cast zinc, powder-coated	Aluminum, black varnished/anodized	Product description	
	70	90 x 80 x 10	■		Ø0.3 (min. Ø0.2)	■	5,000 (max. 8,000)	■	0.02		■	OGU 071 G3-T3	
	80	100 x 80 x 10	■	■	Ø0.3 (min. Ø0.2)	■	5,000 (max. 8,000)	■	0.02	■		OGU 080 G3-T3	
												OGU 081 G3-T3	
	90	110 x 80 x 10	■		Ø0.3 (min. Ø0.2)	■	5,000 (max. 8,000)	■	0.02		■	OGU 91 G3-T3	
	100	120 x 80 x 10	■		Ø0.3 (min. Ø0.2)	■	5,000 (max. 8,000)	■	0.02	■		OGU 101 G3-T3	
	120	144 x 155 x 12		■	Ø0.5 (min. Ø0.3)	■	5,000 (max. 8,000)	■	0.02	■			OGU 120 G3-T3
			■									OGU 121 G3-T3	
	170	194 x 140 x 12	■		Ø0.5 (min. Ø0.4)	■	5,000 (max. 8,000)	■	0.03	■			OGU 171 G3-T3
220	244 x 140 x 12	■		Ø1.0 (min. Ø0.8)	■	5,000 (max. 6,500)	■	0.03	■			OGU 221 G3-T3	
250	274 x 140 x 12	■		Ø1.0 (min. Ø0.8)	■	5,000 (max. 6,500)	■	0.03		■		OGU 251 G3-T3	

Technical data (typ.)		at +20 °C, 24 VDC	
Service voltage	10 to 35 VDC (supply class 2)	Protection class	IP 67
Switching output	pnp, 200 mA, NO/NC		
Sensitivity adjustment	Adjustable (potentiometer)	Plug connector	M8, 3-pin
Ambient temperature	-10 to 60 °C	Connection cable	TK... (optionally available)



Fork width (mm)	Housing design Size (mm)	Red light, 660 nm, clocked	Infrared light, 880 nm	No-load current (mA)	Resolution, smallest detectable part (mm)	Adjustable switching frequency (Hz)	Sensitivity potentiometer Operable on the front side	Reproducibility (mm)	Die-cast zinc, powder-coated	Aluminum, black varnished anodized	Product description
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OGU adjustable on the front side											
	30	50 x 60 x 10	■	■	30	Ø0.5	4,000	■	0.02	■	OGU 030 VP3K-TSSL
			■								OGU 031 VP3K-TSSL
	50	70 x 80 x 10		■	30	Ø0.5	4,000	■	0.04	■	OGU 050 VP3K-TSSL
			■								OGU 051 VP3K-TSSL
	50	70 x 150 x 10		■	30	Ø0.5	4,000	■	0.06	■	OGU 050/125 VP3K-TSSL
			■								OGU 051/125 VP3K-TSSL
	80	100 x 80 x 10		■	30	Ø0.5	4,000	■	0.06	■	OGU 080 VP3K-TSSL
			■								OGU 081 VP3K-TSSL
80	100 x 150 x 10	■		30	Ø0.5	4,000	■	0.06	■	OGU 081/125 VP3K-TSSL	
120	144 x 155 x 12	■		44	Ø0.8	2,000	■	0.06	■	OGU 121/125 VP3K-TSSL	

Air nozzles (FBE)	
	see "Accessories for forked and angled light barriers", page 214

Fork light barriers with teach function

These devices are set using the teach button. The autoteach function enables teach-in during a process while having maximum function reserve.



Technical data (typ.)	+20°C, 24 VDC
Service voltage	10 to 35 VDC (Supply class 2)
Switching output	pnp, 200 mA, NO/NC switchable
Ambient temperature	-10 to 60 °C
Protection class	IP 67
Plug connector	M8, 3-pin
Connection cable	TK... (optionally available)

	Fork width (mm)	Housing design Size (mm)	Red light, 660 nm, clocked	No-load current (mA)	Resolution, smallest detectable part (mm)	Switching frequency (Hz)	Reproducibility (mm)	Die-cast zinc, varnished	Product description
OGUTI									
	30	50 x 60 x 10	■	30	Ø 0.3	3,000	0.03	■	OGUTI 031 P3K-TSSL
	50	70 x 80 x 10		30	Ø 0.3	3,000	0.03		OGUTI 051 P3K-TSSL
	80	100 x 80 x 10		30	Ø 0.3	3,000	0.03		OGUTI 081 P3K-TSSL
	120	144 x 90 x 12		50	Ø 0.7	1,500	0.05		OGUTI 121 G3K-TSSL

Air nozzles (FBE)	
	see "Accessories for forked and angled light barriers", page 214

OGUP DIRT-RESISTANT

These high-performance fork light barriers have an increased functional reserve, which means that cleaning cycles are reduced to a minimum. They are operated intuitively using potentiometers or IO-Link. Four preset operating modes make ideal adaptation to the application possible, while IO-Link offers important advantages in configuration and diagnosis.

Technical data (typ.)	+20 °C, 24 VDC
Service voltage	10 to 30 VDC (Supply class 2)
Switching output	Push-pull (pnp/npn can be adjusted by IO-Link) 100 mA, NO/NC (can be switched by potentiometer)
Sensitivity adjustment	Adjustable (potentiometer)
Ambient temperature	-25 to 60 °C
Protection class	IP 67
Operation modes	Power (increased function reserve) Factory settings Standard (general applications) High Resolution (for detecting very small objects) Speed (reliable detection of fast-moving parts)
Plug connector	M8, 3-pin
Connection cable	TK... (optionally available)



Operation modes



Standard – General applications

- 5 kHz
- Reproducibility: 0.02 mm



Power – Increased function reserve

- Increased transmitting power,



High Resolution – For detecting very small objects

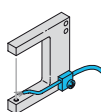
- Resolution improved by 30%



Speed – Reliable detection of fast-moving parts

- 30% higher switching frequency

	Fork width (mm)	Housing design Size (mm)	Infrared light, 860 nm	No-load current (mA)	Resolution, smallest detectable part (mm)	Factory settings	Switching frequency (Hz)	Reproducibility (mm)	Die-cast zinc, black, powder-coated	Product description
OGUP Dirt-Resistant										
	20	40 x 50 x 10	■	30	Ø 2.0 (min. Ø 0,2)	Power	200 (max 8,000)	0.03	■	OGUP 020 G3-T3
	30	50 x 60 x 10								OGUP 030 G3-T3
	50	70 x 80 x 10								OGUP 050 G3-T3
	80	100 x 80 x 10								OGUP 080 G3-T3



Air nozzles (FBE)

see "Accessories for forked and angled light barriers", page 214





OGUL LASER


The OGUL series is particularly suited for detecting small parts down to 0.05 mm. Using collimated laser red light achieves a high degree of precision of the switching point between transmitter and receiver across the entire fork width. The devices work with a clocked red light laser in the eye-safe laser class 1. The easily visible, small laser point makes quick adjustment to the object possible even with a large amount of ambient light.

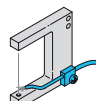


Technical data (typ.)	+20°C, 24 VDC
Emitted light	Red-light laser, 655 nm, clocked
Service voltage	10 to 30 VDC (Supply class 2)
Switching output	Push-pull (pnp/npn can be adjusted by IO-Link) 100 mA, NO/NC (can be switched by potentiometer)
Sensitivity adjustment	Adjustable (potentiometer)
Ambient temperature	-25 to 60 °C
Protection class	IP 67
Operation modes	Standard (general applications) High Resolution (for detecting very small objects) Power (increased function reserve) Speed (reliable detection of fast-moving parts)
Plug connector	M8, 3-pin
Connection cable	TK... (optionally available)

Operation modes

 <p>Standard – General applications</p> <ul style="list-style-type: none"> 5 kHz Reproducibility: 0.01 mm 	 <p>Power – Increased function reserve</p> <ul style="list-style-type: none"> Increased transmitting power,
 <p>High Resolution – For detecting very small objects</p> <ul style="list-style-type: none"> Resolution improved by 30% 	 <p>Speed – Reliable detection of fast-moving parts</p> <ul style="list-style-type: none"> 100% higher switching frequency

	Fork width (mm)	Housing design Size (mm)	Transmission light (clocked)	No-load current (mA)	Resolution, smallest detectable part (mm)	Standard factory settings	Switching frequency (Hz)	Reproducibility (mm)	Die-cast zinc, black, powder-coated	Stainless steel V4A (1.4404 / 1.4571)	Product description
OGUL Laser											
	30	50 x 60 x 10	Laser, red	< 30	Ø 0.05 (min. Ø 0,03)	■	5000 (max 10,000)	0.001	■		OGUL 031 G3-T3
	50	70 x 80 x 10			Ø 0.05 (min. Ø 0,03)						OGUL 051 G3-T3
	80	100 x 80 x 10			Ø 0.05 (min. Ø 0,04)						OGUL 081 G3-T3
	120	144 x 90 x 12			Ø 0.10 (min. Ø 0,05)						OGUL 121 G3-T3
	30	50 x 60 x 10	Laser, red	< 30	Ø 0.05 (min. Ø 0,03)	■	5000 (max 10,000)	0.001	■		OGUL 031 G3-T3/V4A
	50	70 x 80 x 10			Ø 0.05 (min. Ø 0,03)						OGUL 051 G3-T3/V4A
	80	100 x 80 x 10			Ø 0.05 (min. Ø 0,04)						OGUL 081 G3-T3/V4A
	120	144 x 90 x 12			Ø 0.10 (min. Ø 0,05)						OGUL 121 G3-T3/V4a

	Air nozzles (FBE)
see "Accessories for forked and angled light barriers", page 214	

OGU STAINLESS STEEL

The OGU fork light barriers with V4A stainless steel housing are mechanically and electrically compatible with standard fork light barriers. These devices are used particularly in the pharmaceuticals, beverage and food industries, because they satisfy the particular requirements for easy and reliable cleaning using aggressive media.



Technical data (typ.)	+20 °C, 24 VDC
Service voltage	10 to 30 VDC (Supply class 2)
Switching output	Push-pull (pnp/hpn can be adjusted by IO-Link)
	100 mA, NO/NC (can be switched by potentiometer)
Sensitivity adjustment	Adjustable (potentiometer)
Ambient temperature	-25 to 60 °C
Protection class	IP 67
Operation modes	Standard (general applications)
	High Resolution (for detecting very small objects)
	Power (increased function reserve)
	Speed (reliable detection of fast-moving parts)
Plug connector	M8, 3-pin
Connection cable	TK... (optionally available)

Operation modes



Standard – General applications

- 5 kHz OGU 03x – 12x
- Reproducibility: 0.02 mm



Power – Increased function reserve

- Increased transmitting power,



High Resolution – For detecting very small objects

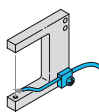
- Resolution improved by 30%



Speed – Reliable detection of fast-moving parts

- 30% higher switching frequency

	Fork width (mm)	Housing design Size (mm)	Red light, 660 nm, clocked	No-load current (mA)	Resolution, smallest detectable part (mm)	Standard factory settings	Switching frequency (Hz)	Reproducibility (mm)	Stainless steel V4A (1.4404 / 1.4571)	Product description
OGU Stainless Steel										
	30	50 x 60 x 10	■	30	Ø 0.3 (min. Ø 0.2)	■	5,000 (10,000)	0.02	■	OGU 031 G3-T3/V4A
	50	70 x 80 x 10	■	30	Ø 0.3 (min. Ø 0.2)	■	5,000 (10,000)	0.02	■	OGU 051 G3-T3/V4A
	80	100 x 80 x 10	■	30	Ø 0.3 (min. Ø 0.2)	■	5,000 (10,000)	0.02	■	OGU 081 G3-T3/V4A
	120	144 x 90 x 12	■	45	Ø 0.5 (min. Ø 0.2)	■	5,000 (10,000)	0.02	■	OGU 121 G3-T3/V4A



Air nozzles (FBE)


see "Accessories for forked and angled light barriers", page 214

LLGT MEASURING

The LLGT line laser fork light barrier with analog output is used for precise edge measurement and for determining diameters. The measuring, high-resolution fork light barrier can be used to reliably capture and analyze even the smallest differences in dimensions.

Technical data (typ.)	+20 °C, 24 VDC
Service voltage	18 to 30 V DC
Resolution	> 20 µm (analog output)
Measuring range	25 mm
Switching output	Push-pull, 150mA (2x)
Switching hysteresis	0.1 mm
Analog output	4 to 20 mA / 0 to 10V switchable
Analog output linearity	± 0.3%
Admissible impedance	≤ 500 ohm / ≥ 1 kohm
Frequency of measuring sequence	200Hz
Characteristics	Trigger input
Display	LED green (operation) LED yellow (switching outputs)
Ambient temperature	+5 to 45 °C
Ambient light immunity	5 kLx
Insulation proof voltage	500V
Protection class	IP 67
Protection optics	PMMA
Plug connector	M12 connector, 8-pin



	Fork width (mm)	Housing design Size (mm)	Red-light laser line, 650 nm	Laser class (EN60825-1)	No-load current (mA/24 V DC)	Resolution, smallest detectable part (mm)	Switching frequency (Hz)	Aluminum, black anodized	Product description
LLGT Measuring									
	80	150 x 90 x 18	■	1	70	Ø0.5		■	LLGT 081 M 25 IUG8-B8

Accessories for LLGT 081	
	see "Connection technology", page 201

SPECIAL DESIGNS

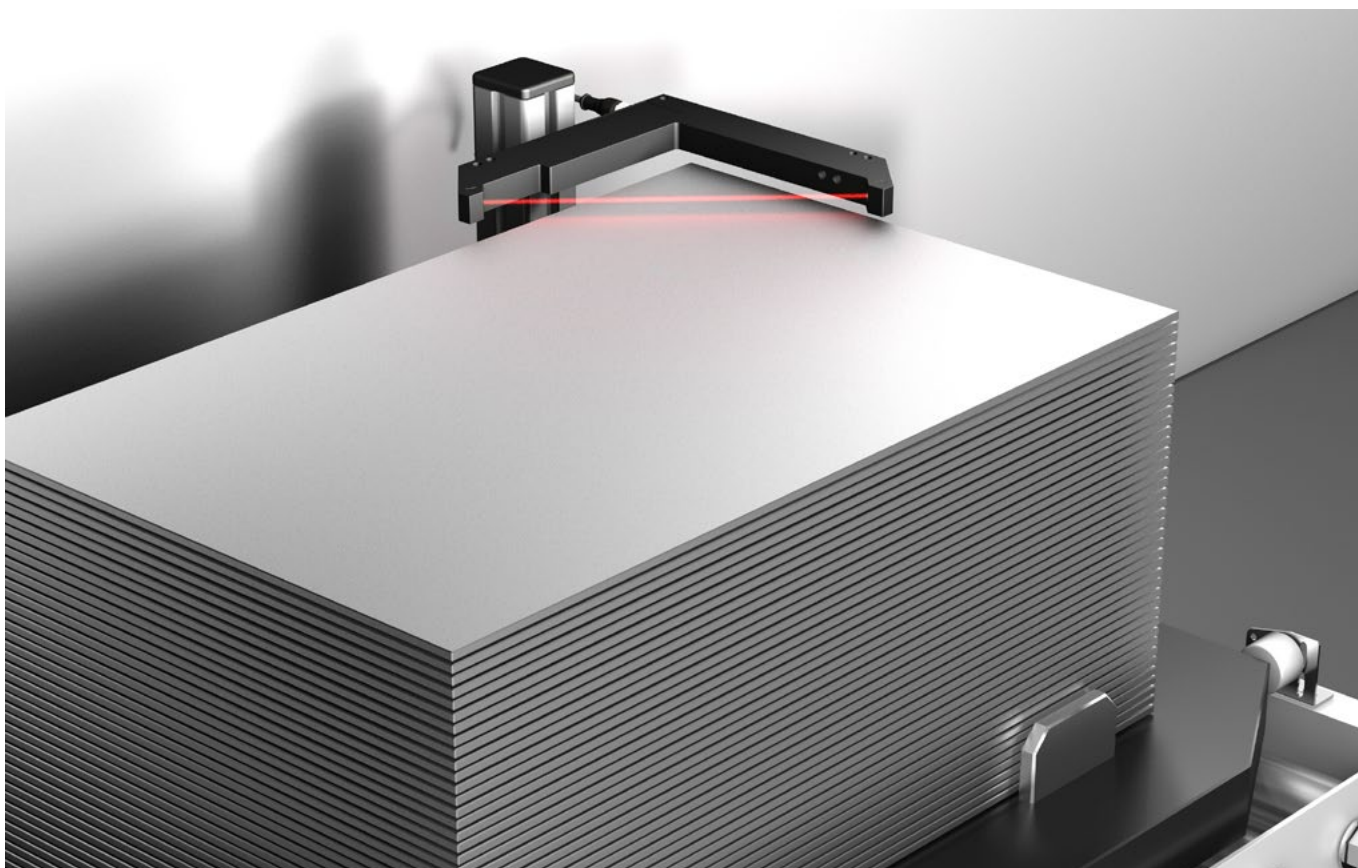
Fork light barriers in specific designs complete the extensive range that di-soric offers. Differential fork light barriers detect even minimal remission differences (diffuse reflection) for the detection of films that are very thin and as clear as glass. Fork light barriers for flow monitoring provide a continuous switching signal in case of flow of a preset minimum quantity.

Technical data (typ.)	+20 °C, 24 VDC
Service voltage	10 to 35 V DC
Switching output	pnp, 200 mA, NO/NC switchable
Sensitivity adjustment	4-turn potentiometer
Ambient temperature	-10 to 60 °C
Protection class	IP 67
Plug connector	M8, 3-pin
Connection cable	TK... (optionally available)



	Fork width (mm)	Housing design Size (mm)	Infrared light, 880 nm	No-load current (mA)	Resolution, smallest detectable part (mm)	Switching frequency (Hz)	Reproducibility (mm)	Aluminum, black anodized	Product description
Differential Fork Light Barriers									
	30	50 x 70 x 10	■	35	Ø 0.07	5,000	0.01	■	ODG 30 P3K-TSSL
	50	70 x 90 x 10			Ø 0.1				ODG 50 P3K-TSSL
	90	110 x 115 x 10			Ø 0.25				ODG 90 P3K-TSSL
Air nozzles (FBE)									
	see "Accessories for forked and angled light barriers", page 214								

Angled light barriers



Angled light barriers from di-soric work according to the through-beam principle. They are used, preferably in tight spaces, for fast, surface-independent detection of objects. Since transmitter, receiver and the electronics are located in one housing, they can be mounted quickly. Costly brackets and time-consuming adjustments can be avoided.



 **di-soric**

OGL	81
OGLP Dirt-Resistant	82
OGLL Laser	83





OGL

The OGL angled light barrier offers unsurpassed performance and can be operated with a potentiometer. The OGL offers high resolution and reproducibility with outstanding speed. It is operated intuitively using potentiometers or IO-Link. Four preset operating modes make ideal adaptation to the application possible, and simultaneously, IO-Link offers important advantages in configuration and diagnosis.

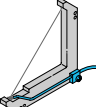


Technical data (typ.)	+20 °C, 24 VDC
Service voltage	10 to 30 VDC (Supply Class 2)
Switching output	Push-pull (pnp/npn can be adjusted by IO-Link) 100 mA, NO/NC (can be switched by potentiometer)
Sensitivity adjustment	Adjustable (potentiometer)
Ambient temperature	-25 to +60 °C
Protection class	IP 67
Operation modes	Standard (general applications) High Resolution (for detecting very small objects) Power (increased function reserve) Speed (reliable detection of fast-moving parts)
Plug connector	M8, 3-pin
Connection cable	TK ... (optionally available)

Operation modes

 <p>Standard – General applications</p> <ul style="list-style-type: none"> 5 kHz Reproducibility: 0.02 mm 	 <p>Power – Increased function reserve</p> <ul style="list-style-type: none"> Increased transmitting power,
 <p>High Resolution – For detecting very small objects</p> <ul style="list-style-type: none"> Resolution improved by 30% 	 <p>Speed – Reliable detection of fast-moving parts</p> <ul style="list-style-type: none"> 30% higher switching frequency

	Length of the optical axis (mm)	Housing design Size (mm)	Red light, 660 nm	Infrared light, 880 nm	No-load current (mA)	Resolution (mm)	Switching frequency (Hz)	Reproducibility (mm)	Die-cast zinc, black powder-coated	Product description
	50	75 x 75 x 10	■	■	< 30	Ø 0.3 (min. Ø 0.2)	5,000 (max. 10,000)	0.02	■	OGL 050 G3-T3 ¹⁾ OGL 051 G3-T3 ¹⁾
	80	105 x 105 x 10	■	■	< 30	Ø 0.3 (min. Ø 0.2)	5,000 (max. 10,000)	0.02	■	OGL 080 G3-T3 ¹⁾ OGL 081 G3-T3 ¹⁾
	120	150 x 150 x 12	■	■	< 30	Ø 0.5 (min. Ø 0.4)	5,000 (max. 10,000)	0.02	■	OGL 120 G3-T3 ¹⁾ OGL 121 G3-T3 ¹⁾

 Air nozzles (FBE) for OGLP xx G3-T3	
	see "Accessories for forked and angled light barriers", page 214

OGLP DIRT-RESISTANT

The high-performance angled light barriers from di-soric have an increased functional reserve. In the devices with contamination indicator, the cleaning cycles are reduced to a minimum.

Technical data (typ.) +20°C, 24 VDC	OGLP xx G3-T3	OGL xx/xx P6L-IBS
Service voltage	10 to 30 VDC (Supply Class 2)	10 to 35 V DC
Switching output	Push-pull (pnp/npn can be adjusted by IO-Link) 100mA, NO/NC (can be switched by potentiometer)	pnp, 200 mA, NO
Sensitivity adjustment	Adjustable (potentiometer)	
Ambient temperature	-25 to +60 °C	-10 to +60 °C
Protection class	IP 67	IP 67
Operation modes	Standard (general applications) High Resolution (for detecting very small objects) Power (increased function reserve) Speed (reliable detection of fast-moving parts)	
Plug connector	M8, 3-pin	M12, 4-pin
Connection cable	TK ... (optionally available)	VK ... /4 (optionally available)



Operation modes OGLP xx G3-T3



- Standard** – General applications
- 5 kHz
 - Reproducibility: 0.02 mm



- Power** – Increased function reserve
- Increased transmitting power,

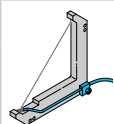


- High Resolution** – For detecting very small objects
- Resolution improved by 30%



- Speed** – Reliable detection of fast-moving parts
- 30% higher switching frequency

	Length of the optical axis (mm)	Housing design Size (mm)	Infrared light, 860 nm	Red light, 660 nm	No-load current (mA)	Resolution (mm)	Switching frequency (Hz)	Reproducibility (mm)	Contamination indicator / output	IO-Link	Die-cast zinc, black powder-coated	Die-cast zinc, natural	Product description
OGLP Dirt-Resistant													
	50	75 x 75 x 10	■		< 30	Ø0.3 (min. Ø0.2)	5,000 (max. 8,000)	0.02	–	■	■	–	OGLP 050 G3-T3
	80	105 x 105 x 10	■		< 30	Ø0.3 (min. Ø0.2)	5,000 (max. 8,000)	0.02	–	■	■	–	OGLP 080 G3-T3
	120	150 x 150 x 12	■		< 30	Ø0.5 (min. Ø0.4)	5,000 (max. 8,000)	0.03	–	■	■	–	OGLP 120 G3-T3
	40	60 x 83 x 10		■	45	–	200	–	■	–	–	■	OGL 50/31 P6L-IBS
	60	65 x 106 x 10		■	45	–	200	–	■	–	–	■	OGL 55/54 P6L-IBS



Air nozzles (FBE) for OGLP xx G3-T3

see "Accessories for forked and angled light barriers", page 214

OGLL LASER

The OGLL Laser angled light barrier is particularly suited for detecting small parts down to 0.05 mm. Using collimated laser red light achieves a high degree of precision of the switching point between transmitter and receiver across the entire fork width. The devices work with a clocked red light laser in the eye-safe laser class 1. The easily visible, small laser point makes quick adjustment to the object possible even with a large amount of ambient light.



Technical data (typ.)	+20°C, 24 VDC
Service voltage	10 to 30 VDC (Supply Class 2)
Switching output	Push-pull (pnp/hpn can be adjusted by IO-Link) 100mA, NO/NC (can be switched by potentiometer)
Sensitivity adjustment	Adjustable (potentiometer)
Ambient temperature	-25 to +60°C
Protection class	IP 67
Operation modes	Standard (general applications) High Resolution (for detecting very small objects) Power (increased function reserve) Speed (reliable detection of fast-moving parts)
Plug connector	M8, 3-pin
Connection cable	TK ... (optionally available)

Operation modes



Standard – General applications

- 5 kHz
- Reproducibility: 0.01 mm



Power – Increased function reserve

- Increased transmitting power,



High Resolution – For detecting very small objects

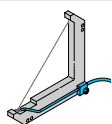
- Resolution improved by 30%



Speed – Reliable detection of fast-moving parts

- 100% higher switching frequency

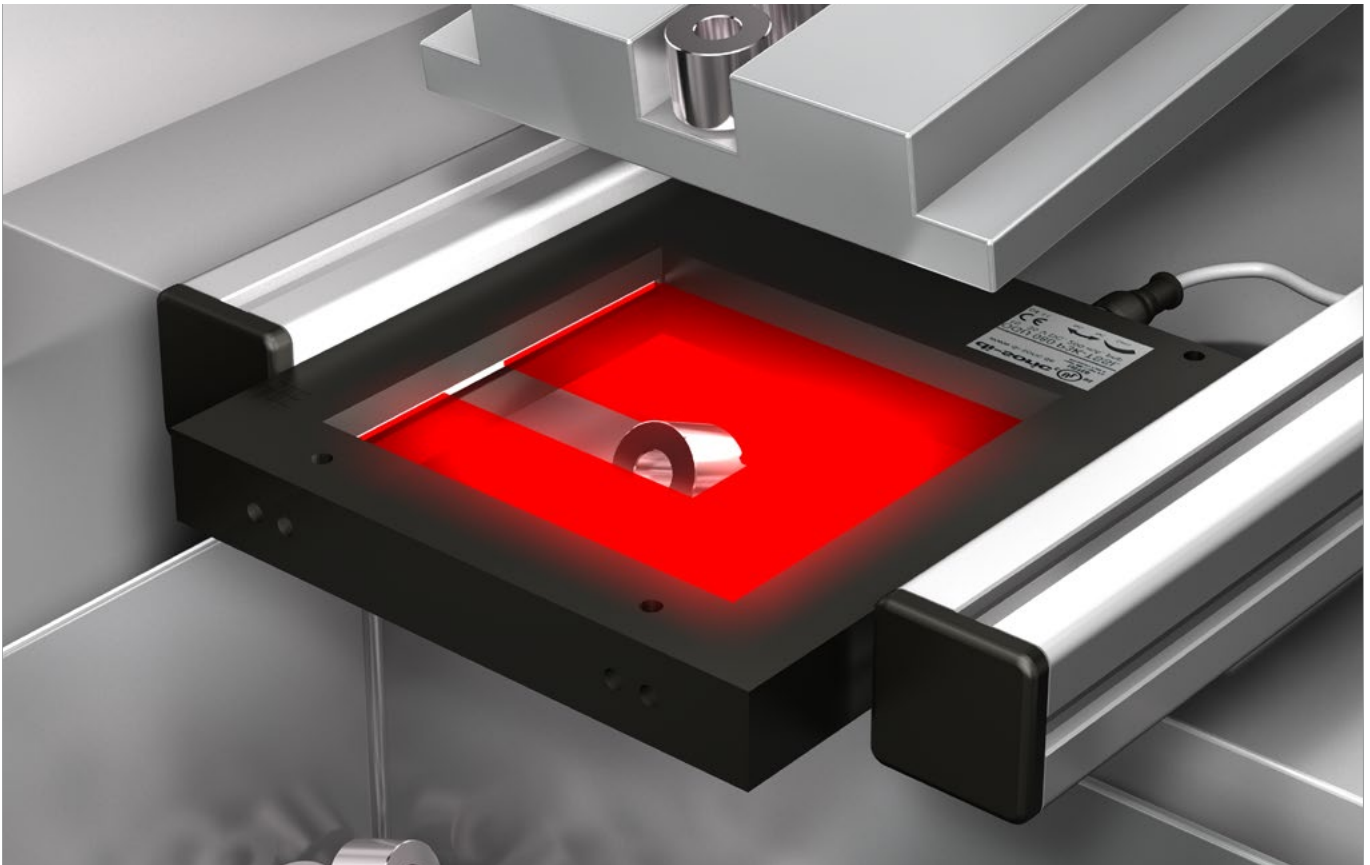
	Length of the optical axis (mm)	Housing design Size (mm)	Transmission light (clocked)	Red-light laser, 670 nm	No-load current (mA)	Resolution (mm)	Switching frequency (Hz)	Reproducibility (mm)	Die-cast zinc, black powder-coated	Product description
OGLL Laser										
	50	75 x 75 x 10	■	■	< 30	Ø0.05 (min. Ø0.03)	5,000 (10,000)	0.01	■	OGLL 051 G3-T3
	80	105 x 105 x 10		■	< 30	Ø0.05 (min. Ø0.04)	5,000 (10,000)	0.01	■	OGLL 081 G3-T3
	120	150 x 150 x 12	■	■	< 30	Ø0.10 (min. Ø0.05)	5,000 (10,000)	0.01	■	OGLL 121 G3-T3



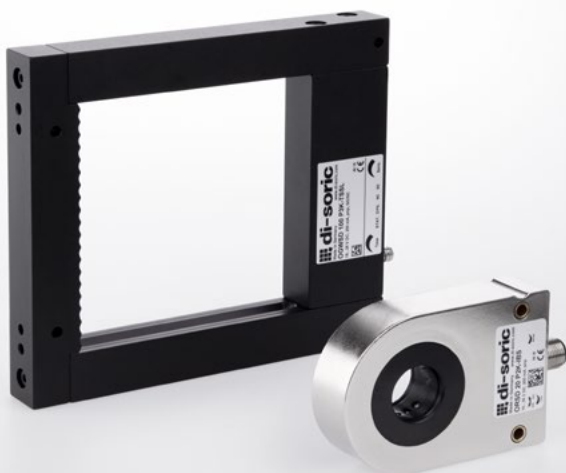
Air nozzles (FBE)

see "Accessories for forked and angled light barriers", page 214

Frame and ring light barriers



Our frame and ring light barriers detect mostly small objects in a small to medium-sized detection field. They are used wherever metallic or non-metallic objects are to be detected not only periodically, but across a range, quickly and independent of surface.



 **di-soric**

OGSWD Frame Design

85

ORSD Ring design

85

OGSWD FRAME DESIGN

The OGSWD frame light sensors detect fast-moving and static objects in an established rectangular range of up to 300 x 397 mm. The devices have a robust metallic housing with collision protection and can be easily operated with a potentiometer.



Technical data (typ.)	+20 °C, 24 VDC
Emitted light	Infrared light, 880 nm
Activation time	0.1 ms
Release time	0.1 to 150 ms
Pulse stretching	0.1 to 150 ms
Ambient temperature	0 to 60 °C
Protection class	IP 67
Insulation proof voltage	500 V
Housing material	Aluminum, anodized

	Active zone / ring diameter (mm)	Housing design Size (mm)	Functional principle S = static / D = dynamic	Switching output	No-load current (mA)	Resolution, dynamic operation (mm)	Resolution, static operation (mm)	Ambient light immunity (KLx)	Service voltage (VDC)	Plug connector	Connection cable (optionally available)	Product description	
OGSWD Frame Design													
	25 x 23	60 x 60 x 15	S/D	pnp	200 mA NO/NC	25	Ø 0.7	Ø 1.0	30	10 to 35	M8	TK ...	OGWSW 25 P3K-TSSL
				nnp									OGWSW 25 N3K-TSSL
	40 x 49	80 x 125 x 20		pnnp									OGWSW 4055 P3K-TSSL
				nnp									OGWSW 4055 N3K-TSSL
	70 x 62	110 x 123 x 20		pnnp									OGWSW 70 P3K-TSSL
				nnp									OGWSW 70 N3K-TSSL
	100 x 92	140 x 153 x 20		pnnp									OGWSW 100 P3K-TSSL
				nnp									OGWSW 100 N3K-TSSL
	150 x 142	190 x 203 x 20		pnnp									OGWSW 150 P3K-TSSL
				nnp									OGWSW 150 N3K-TSSL
	250 x 242	290 x 303 x 20		pnnp									OGWSW 250 P3K-TSSL
				nnp									OGWSW 250 N3K-TSSL
	300 x 397.5	340 x 458.5 x 20		pnnp									OGWSW 300 P3K-TSSL
				nnp									OGWSW 300 N3K-TSSL

ORSD RING DESIGN

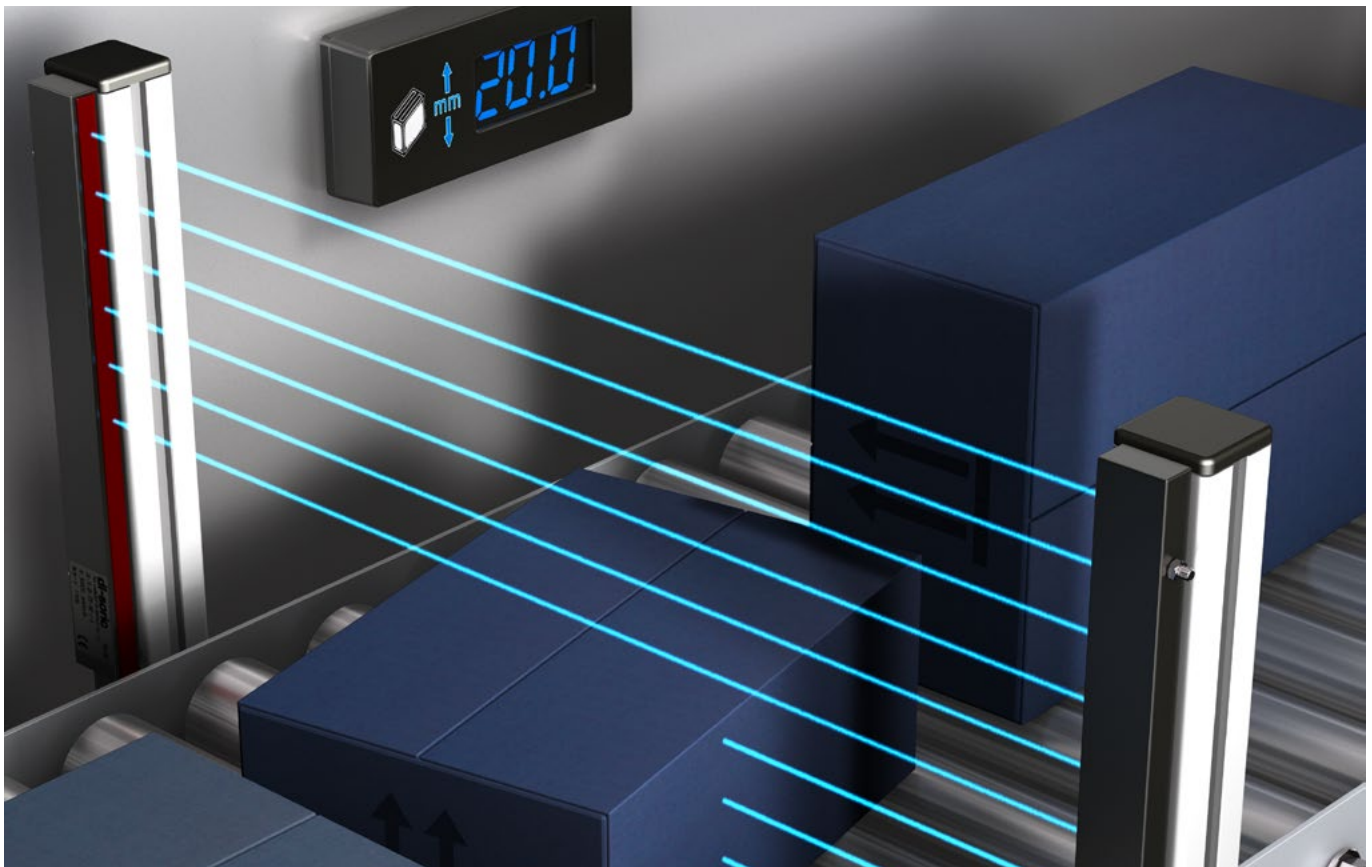
The ORSD ring light barriers are used in feed control and for counting small parts. They reliably detect fast-moving and static objects in a round detection area and in tubes with a diameter of 20mm or smaller. The devices have a metallic housing and can be easily operated with a potentiometer.



Technical data (typ.)	+20 °C, 24 VDC
Emitted light	Infrared light, 880 nm
Activation time	0.1 ms
Release time	
Pulse stretching	1 to 150 ms
Ambient temperature	0 to 60 °C
Protection class	IP 67
Insulation proof voltage	500 V
Housing material	Plastic PA

ORSD Ring Design													
	Ø20.6	60 x 85 x 20	S/D	pnnp	200 mA NO	30	Ø 1.5	Ø 1.5	5	10 to 35	M12	VK ...	ORSD 20 P2K-IBS
	Adapter set for ORSD 20 P2K-IBS ring light barrier see "Accessories for ring light barriers", page 214												

Light curtains



 **di-soric**

Our light curtains detect and measure objects in a large detection or measuring field. The light curtain systems operate on the principle of multiple through-beam sensors whose output signals are either interlinked (switching light curtains) or evaluated individually (measuring light curtains). Through different resolutions and elevations, they can be used in many applications.

LA Switching	87
LI Measuring	90
Evaluation Electronics for LI Series	93



LA SWITCHING



The area of application of the LA Switching light curtains is object detection. The devices were designed in a cost-optimized manner for simple applications. Slim construction, integrated switching outputs and quick commissioning are their distinguishing features.



Technical data (typ.)	+20°C, 24 VDC
Range	0.7 to 4.0 m / set to 4.0 m at the factory
Number of beams	8 to 112
Beam separation	12.5/25/50/112 mm
Monitoring height	88 to 2571 mm
Emitted light	Infrared light, 880 nm, clocked
Service voltage	20.4 to 28.8 V DC
Outputs	Transistor pnp (switching output and alarm output)
Current-carrying capacity	200 mA, short-circuit proof
Ambient temperature	-10 to +45 °C
Protection class	IP 54, optionally IP 65
EMC directives	EN 61000-6-3:2001/EN 61000-6-1:2001
Housing material	Aluminum bar profile

Beam separation (mm)	Number of beams	Monitoring height H (mm)	Profile length L ca. (mm)	Design	Number of threaded bolts	Dimension A (mm)	Dimension B (mm)	Dimension X (mm)	Dimension Y (mm)	Light switching	Dark switching	Product description	Product description				
LA Switching												Horizontal beam evaluation	Diagonal beam evaluation				
12.5	8	88	260	I	2	30	200	13.5	153.5	■		LA 8-12.5-88-260 I-H	LA-D 8-12.5-88-260 I-H				
													■		LA 8-12.5-88-260 I-D	LA-D 8-12.5-88-260 I-D	
	16	188	360		2	30	300						■		LA 16-12.5-188-360 I-H	LA-D 16-12.5-188-360 I-H	
														■		LA 16-12.5-188-360 I-D	LA-D 16-12.5-188-360 I-D
	24	288	460		2	80	300							■		LA 24-12.5-288-460 I-H	LA-D 24-12.5-288-460 I-H
														■		LA 24-12.5-288-460 I-D	LA-D 24-12.5-288-460 I-D
	32	388	560		2	80	400							■		LA 32-12.5-388-560 I-H	LA-D 32-12.5-388-560 I-H
														■		LA 32-12.5-388-560 I-D	LA-D 32-12.5-388-560 I-D
	40	488	660		2	80	500							■		LA 40-12.5-488-660 I-H	LA-D 40-12.5-488-660 I-H
														■		LA 40-12.5-488-660 I-D	LA-D 40-12.5-488-660 I-D
	48	588	760		2	30	700							■		LA 48-12.5-588-760 I-H	LA-D 48-12.5-588-760 I-H
														■		LA 48-12.5-588-760 I-D	LA-D 48-12.5-588-760 I-D
56	688	860	2	80	700					■		LA 56-12.5-688-860 I-H	LA-D 56-12.5-688-860 I-H				
										■		LA 56-12.5-688-860 I-D	LA-D 56-12.5-688-860 I-D				
64	788	960	3	80	400					■		LA 64-12.5-788-960 I-H	LA-D 64-12.5-788-960 I-H				
										■		LA 64-12.5-788-960 I-D	LA-D 64-12.5-788-960 I-D				
72	888	1,060	3	130	400					■		LA 72-12.5-888-1060 I-H					
										■		LA 72-12.5-888-1060 I-D					
80	988	1,160	3	80	500					■		LA 80-12.5-988-1160 I-H					
										■		LA 80-12.5-988-1160 I-D					
88	1,088	1,260	3	30	600					■		LA 88-12.5-1088-1260 I-H					
										■		LA 88-12.5-1088-1260 I-D					

Beam separation (mm)	Number of beams	Monitoring height H (mm)	Profile length L ca. (mm)	Design	Number of threaded bolts	Dimension A (mm)	Dimension B (mm)	Dimension X (mm)	Dimension Y (mm)	Light switching	Dark switching	Product description	Product description	
LA Switching											 Horizontal beam evaluation	 Diagonal beam evaluation		
12.5	96	1,188	1,360	I	3	80	600	13.5	13.5	■		LA 96-12.5-1188-1360 I-H		
										■		LA 96-12.5-1188-1360 I-D		
	104	1,288	1,460		3	130				400	■		LA 104-12.5-1288-1460 I-H	
											■		LA 104-12.5-1288-1460 I-D	
	112	1,388	1,560		4	30				500	■		LA 112-12.5-1388-1560 I-H	
											■		LA 112-12.5-1388-1560 I-D	
25	8	175	360	2	30	300	20	160	■		LA 8-25-175-360 I-H	LA-D 8-25-175-360 I-H		
									■		LA 8-25-175-360 I-D	LA-D 8-25-175-360 I-D		
	16	375	560	2	80	400			■		LA 16-25-375-560 I-H	LA-D 16-25-375-560 I-H		
									■		LA 16-25-375-560 I-D	LA-D 16-25-375-560 I-D		
	24	575	760	2	30	700			■		LA 24-25-575-760 I-H	LA-D 24-25-575-760 I-H		
									■		LA 24-25-575-760 I-D	LA-D 24-25-575-760 I-D		
	32	775	960	3	80	400			■		LA 32-25-775-960 I-H	LA-D 32-25-775-960 I-H		
									■		LA 32-25-775-960 I-D	LA-D 32-25-775-960 I-D		
	40	975	1,160	3	80	500			■		LA 40-25-975-1160 I-H	LA-D 40-25-975-1160 I-H		
									■		LA 40-25-975-1160 I-D	LA-D 40-25-975-1160 I-D		
	48	1,175	1,360	3	80	600			■		LA 48-25-1175-1360 I-H	LA-D 48-25-1175-1360 I-H		
									■		LA 48-25-1175-1360 I-D	LA-D 48-25-1175-1360 I-D		
	56	1,375	1,560	4	80	500			■		LA 56-25-1375-1560 I-H	LA-D 56-25-1375-1560 I-H		
									■		LA 56-25-1375-1560 I-D	LA-D 56-25-1375-1560 I-D		
	64	1,575	1,760	4	130	500			■		LA 64-25-1575-1760 I-H	LA-D 64-25-1575-1760 I-H		
									■		LA 64-25-1575-1760 I-D	LA-D 64-25-1575-1760 I-D		
	72	1,775	1,960	4	80	600			■		LA 72-25-1775-1960 I-H			
									■		LA 72-25-1775-1960 I-D			
80	1,975	2,160	5	80	500	■		LA 80-25-1975-2160 I-H						
						■		LA 80-25-1975-2160 I-D						
88	2,175	2,360	5	140	520	■		LA 88-25-2175-2360 I-H						
						■		LA 88-25-2175-2360 I-D						

Beam separation (mm)	Number of beams	Monitoring height H (mm)	Profile length L ca. (mm)	Design	Number of threaded bolts	Dimension A (mm)	Dimension B (mm)	Dimension X (mm)	Dimension Y (mm)	Light switching	Dark switching	Product description				
LA Switching											 Horizontal beam evaluation	 Diagonal beam evaluation				
50	8	350	560	I	2	80	400	20	185	■		LA 8-50-350-560 I-H	LA-D 8-50-350-560 I-H			
													■		LA 8-50-350-560 I-D	LA-D 8-50-350-560 I-D
	16	750	960		3	80	400			■		LA 16-50-750-960 I-H	LA-D 16-50-750-960 I-H			
													■		LA 16-50-750-960 I-D	LA-D 16-50-750-960 I-D
	24	1,150	1,360		3	80	600			■		LA 24-50-1150-1360 I-H	LA-D 24-50-1150-1360 I-H			
													■		LA 24-50-1150-1360 I-D	LA-D 24-50-1150-1360 I-D
	32	1,550	1,760		4	130	500			■		LA 32-50-1550-1760 I-H	LA-D 32-50-1550-1760 I-H			
													■		LA 32-50-1550-1760 I-D	LA-D 32-50-1550-1760 I-D
50	40	1,950	2,160	5	130	500	■		LA 40-50-1950-2160 I-H	LA-D 40-50-1950-2160 I-H						
									■		LA 40-50-1950-2160 I-D	LA-D 40-50-1950-2160 I-D				
	48	2,350	2,560	5	80	600	■		LA 48-50-2350-2560 I-H	LA-D 48-50-2350-2560 I-H						
										■		LA 48-50-2350-2560 I-D	LA-D 48-50-2350-2560 I-D			
	112	8	783	1,050	I	3	125	400	20	245	■		LA 8-112-783-1050 I-H	LA-D 8-112-783-1050 I-H		
														■		LA 8-112-783-1050 I-D
16		1,677	1,950	4		75	600	■				LA 16-112-1677-1950 I-H	LA-D 16-112-1677-1950 I-H			
													■		LA 16-112-1677-1950 I-D	LA-D 16-112-1677-1950 I-D



10x27 mm

LA ... Q

Light curtains in the LA ... Q housing design are optionally available upon request




LI MEASURING

The LI Measuring light curtains are used in object measurement and for challenging measuring and detection tasks. The most important features are high resolution and a short response time, as well as their slim construction for simple integration. An additional evaluation unit is required to use them.





Technical data (typ.)	+20 °C, 24 VDC
Range	0.25 to 6.0 m can be adjusted using the evaluation electronics
Number of beams	8 to 344
Beam separation	5 / 10 / 12.5 / 25 / 50 / 112 mm
Monitoring height	35 to 2375 mm
Emitted light	Infrared light, 880 nm
	200 mA, short-circuit proof
Ambient temperature	-10 to +45 °C
Protection class	IP 54, optionally IP 65 (EN 61000-6-3:2001/EN 61000-6-1:2001)
Housing material	Aluminum bar profile

Beam separation (mm)	Number of beams	Monitoring height H (mm)	Profile length L ca. (mm)	Design	Dimension X (mm)	Dimension Y (mm)	Product description
LI Measuring							Horizontal or diagonal beam evaluation
	5	35	70	T	17.5	17.5	LI 8-5-35-70 T
		16	110				LI 16-5-75-110 T
		24	150				LI 24-5-115-150 T
		32	190				LI 32-5-155-190 T
		40	230				LI 40-5-195-230 T
		48	270				LI 48-5-235-270 T
		56	310				LI 56-5-275-310 T
		64	350				LI 64-5-315-350 T
		72	390				LI 72-5-355-390 T
		80	430				LI 80-5-395-430 T
		88	470				LI 88-5-435-470 T
		96	510				LI 96-5-475-510 T
		104	550				LI 104-5-515-550 T
		112	590				LI 112-5-555-590 T
		120	630				LI 120-5-595-630 T
		128	670				LI 128-5-635-670 T
		136	710				LI 136-5-675-710 T
		144	750				LI 144-5-715-750 T
		152	790				LI 152-5-755-790 T
		160	830				LI 160-5-795-830 T
		168	870				LI 168-5-835-870 T
		176	910				LI 176-5-875-910 T
		184	950				LI 184-5-915-950 T
		192	990				LI 192-5-955-990 T
		200	1,030				LI 200-5-995-1030 T
		208	1,070				LI 208-5-1035-1070 T
		216	1,110				LI 216-5-1075-1110 T
		224	1,150				LI 224-5-1115-1150 T
		232	1,190				LI 232-5-1155-1190 T
		240	1,230				LI 240-5-1195-1230 T
		248	1,270				LI 248-5-1235-1270 T
		256	1,310				LI 256-5-1275-1310 T
		264	1,350				LI 264-5-1315-1350 T
		272	1,390				LI 272-5-1355-1390 T
280	1,430	LI 280-5-1395-1430 T					
288	1,470	LI 288-5-1435-1470 T					
296	1,510	LI 296-5-1475-1510 T					
344	1,750	LI 344-5-1715-1750 T					

	Beam separation (mm)	Number of beams	Monitoring height H (mm)	Profile length L ca. (mm)	Design	Number of threaded bolts	Dimension A (mm)	Dimension B (mm)	Dimension X (mm)	Dimension Y (mm)	Product description	
	LI Measuring											
	  Horizontal or diagonal beam evaluation											
	10	8	70	130	I	I	2	20	90	13.5	38.5	LI 8-10-70-130 I
		16	150	210			2	55	100			LI 16-10-150-210 I
		24	230	290			2	45	200			LI 24-10-230-290 I
		32	310	370			2	35	300			LI 32-10-310-370 I
		40	390	450			2	75	300			LI 40-10-390-450 I
		48	470	530			2	65	400			LI 48-10-470-530 I
		56	550	610			2	105	400			LI 56-10-550-610 I
		64	630	690			2	45	600			LI 64-10-630-690 I
		72	710	770			2	35	700			LI 72-10-710-770 I
		80	790	850			2	75	700			LI 80-10-790-850 I
		88	870	930			2	65	800			LI 88-10-870-930 I
		96	950	1,010			3	105	400			LI 96-10-950-1010 I
		104	1,030	1,090			3	145	400			LI 104-10-1030-1090 I
		112	1,110	1,170			3	85	500			LI 112-10-1110-1170 I
		120	1,190	1,250			3	125	500			LI 120-10-1190-1250 I
		128	1,270	1,330			3	65	600			LI 128-10-1270-1330 I
	136	1,350	1,410	3	105	600	LI 136-10-1350-1410 I					
	144	1,430	1,490	4	145	400	LI 144-10-1430-1490 I					
	152	1,510	1,570	4	35	500	LI 152-10-1510-1570 I					
	160	1,590	1,650	4	75	500	LI 160-10-1590-1650 I					
	12.5	8	88	140	I	I	2	25	90	13.5	38.5	LI 8-12.5-88-140 I
		16	188	240			2	70	100			LI 16-12.5-188-240 I
		24	288	340			2	70	200			LI 24-12.5-288-340 I
		32	388	440			2	70	300			LI 32-12.5-388-440 I
		40	488	540			2	70	400			LI 40-12.5-488-540 I
		48	588	640			2	70	500			LI 48-12.5-588-640 I
56		688	740	2			70	600	LI 56-12.5-688-740 I			
64		788	840	2			70	700	LI 64-12.5-788-840 I			
72		888	940	2			70	800	LI 72-12.5-888-940 I			
80		988	1,040	3			120	400	LI 80-12.5-988-1040 I			
88		1,088	1,140	3			70	500	LI 88-12.5-1088-1140 I			
96		1,188	1,240	3			120	500	LI 96-12.5-1188-1240 I			
104		1,288	1,340	3			70	600	LI 104-12.5-1288-1340 I			
112		1,388	1,440	3			120	600	LI 112-12.5-1388-1440 I			
120		1,488	1,540	4			170	400	LI 120-12.5-1488-1540 I			
128		1,588	1,640	4			70	500	LI 128-12.5-1588-1640 I			
136	1,688	1,740	4	120	500	LI 136-12.5-1688-1740 I						
144	1,788	1,840	4	170	500	LI 144-12.5-1788-1840 I						

Light curtains with greater monitoring height H (max. 196 beams)

Available on request!

	Beam separation (mm)	Number of beams	Monitoring height H (mm)	Profile length L ca. (mm)	Design	Number of threaded bolts	Dimension A (mm)	Dimension B (mm)	Dimension X (mm)	Dimension Y (mm)	Product description	
	LI Measuring											
	 Horizontal or diagonal beam evaluation											
	25	8	175	240	I		2	70	100	20	45	LI 8-25-175-240 I
		16	375	440			2	70	300			LI 16-25-375-440 I
		24	575	640			2	70	500			LI 24-25-575-640 I
		32	775	840			2	70	700			LI 32-25-775-840 I
		40	975	1,040			3	120	400			LI 40-25-975-1040 I
		48	1,175	1,240			3	125	500			LI 48-25-1175-1240 I
		56	1,375	1,440			3	120	600			LI 56-25-1375-1440 I
		64	1,575	1,640			4	70	500			LI 64-25-1575-1640 I
		72	1,775	1,840			4	170	500			LI 72-25-1775-1840 I
		80	1,975	2,040			4	120	600			LI 80-25-1975-2040 I
		88	2,175	2,240			5	120	500			LI 88-25-2175-2240 I
	96	2,375	2,440	5	165	520	LI 96-25-2375-2440 I					
	50	8	350	440	I		2	70	300	20	70	LI 8-50-350-440 I
		16	750	840			2	70	700			LI 16-50-750-840 I
		24	1,150	1,240			3	120	500			LI 24-50-1150-1240 I
		32	1,550	1,640			4	70	500			LI 32-50-1550-1640 I
		40	1,950	2,040			4	120	600			LI 40-50-1950-2040 I
		48	2,350	2,440			5	180	520			LI 48-50-2350-2440 I
	112	4	336	490	I		2	95	300	20	130	LI 4-112-336-490 I
		8	783	940			2	70	800			LI 8-112-783-940 I
		12	1,230	1,380			3	90	600			LI 12-112-1230-1380 I
		16	1,677	1,830			4	165	500			LI 16-112-1677-1830 I
		20	2,124	2,280			5	175	500			LI 20-112-2124-2280 I



10x27 mm

LI... Q

Light curtains in housing design LI... Q are optionally available upon request

EVALUATION ELECTRONICS FOR LI SERIES



Technical data (typ.)		at +20 °C, 24 VDC	
Range	0.4 to 6.0m, autocalibration	LED display	Status indicator /error indicator
Number of beams	See Light curtains LL...	Ambient temperature	0 to +40 °C
Switching frequency	10Hz	Protection class	IP 54
Switching capacity	250VDC, 250W 400V AC, 2000VA	Protection class	III, operation on protective low voltage
Output function	Light switching	EMC directives	EN 61000-6-1: 2001
Beam evaluation	Multiplexing		EN 61000-6-3: 2001
Cycle time per light beam	down to 0.08 ms/beam (Depending on range)	Housing material	ABS gray

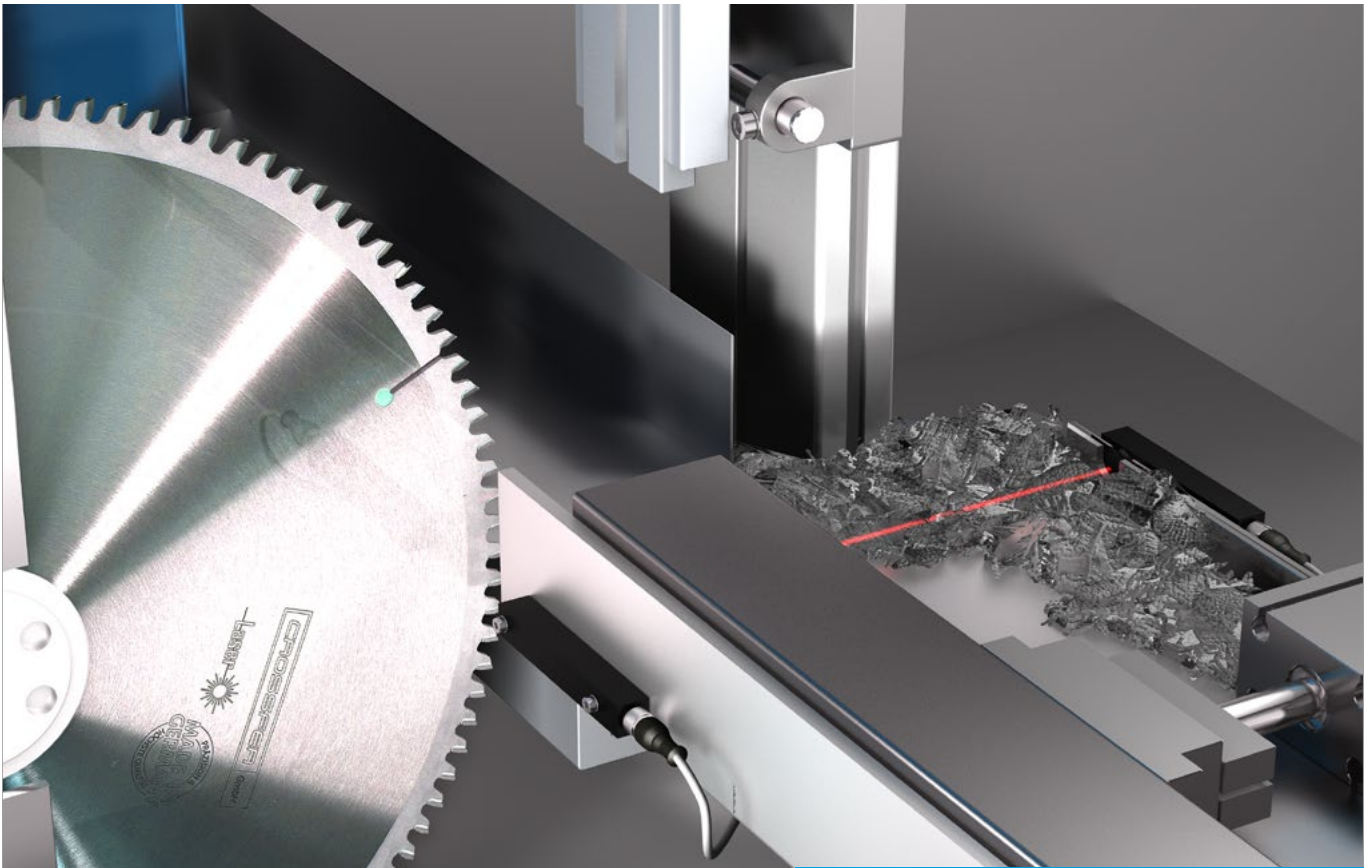
	Number of light curtains being operated	Switching output (relay 10Hz)	Analog outputs	Service voltage (VDC)	Profibus interface D-Sub, 9-pin (address adjustable)	Ethernet / IP	Profinet	Dimensions LxWxH (mm)	Product description
Evaluation electronics LVB ..., switching									
	1	1		19 to 30				57.5 x 120 x 200	LVB-24VDC
	1	1		230 (+5/-10%)				57.5 x 120 x 200	LVB-230VAC

Technical data (typ.)		at +20 °C, 24 VDC	
Range	0.25 to 6.0m, adjustable	LED display	Error indicator
Number of beams	max. 500	Ambient temperature	0 to +40 °C
Service voltage	20 to 26 V DC	Protection class	IP 00
Outputs	See the graphic above		IP 65 with optional outer housing
Switching capacity	250mA	Protection class	III, operation on protective low voltage
Output function	Configurable	EMC directives	EN 61000-6-1: 2001
Beam evaluation	Parameters can be configured horizontally / diagonally		EN 61000-6-3: 2001
Cycle time per light beam	0.05ms (depends on configuration and range of light curtain)	Housing material	Plastic

	Number of light curtains being operated	Configurable inputs (24 VDC, 12mA, 3,000 Hz)	Outputs (24 VDC, 0.25A, PNP)	Analog outputs (0 to 10 V)	3 combined I/Os	RS 232	Configuration by means of DIP series	CANopen interface	Profibus interface D-Sub, 9-pin (address adjustable)	Ethernet / IP	Profinet	Dimensions LxWxH (mm)	Product description	
Evaluation electronics LVE .../ LVX ..., measuring														
1	1	1										88 x 126 x 60	LVE ¹⁾	
		1							■			163 x 126 x 60	LVE-PBI ¹⁾	
		1				■	■	■		■		130 x 126 x 60	LVE-ENI ¹⁾	
		1									■		163 x 126 x 60	LVE-PNI ¹⁾
		1	2										124 x 126 x 60	LVE-ALX ¹⁾
		17											147 x 126 x 60	LVE-016 ¹⁾
2	1	3										125 x 126 x 60	LVX ¹⁾	
		3							■			200 x 126 x 60	LVX-PBI ¹⁾	
		3				■	■	■			■	200 x 126 x 60	LVX-PNI ¹⁾	
		3	2									161 x 126 x 60	LVX-ALX ¹⁾	
		19											184 x 126 x 60	LVX-016 ¹⁾

¹⁾ The evaluation electronics are configured at the factory using the customer's application.

High-performance light barriers



Our high-performance light barriers are available as threaded and rectangular models, which can be combined with one another. These products penetrate even heavy contamination, such as dust, oil and dirty water. They are optimized for the highest functionality and have a range of up to 50 m.



 **di-soric**

OP-M12	95
OP-Q12	96
OP-50	97

OP-M12

The threaded M12 model consists of a transmitter and receiver in a compact construction and simple threaded mounting. Thanks to the robust stainless steel housing, the systems are resistant to vibrations and shaking and therefore do not have to be continually readjusted.

Technical data (typ.)	+20°C, 24 VDC
Emitted light	Infrared light, clocked
Service voltage	10 to 35V DC
Ambient temperature	-20to+60°C



	Range (opening angle 15°) when operating with OSP 12 VLF ... / OSP 12 MLFL ... (m)	Range (opening angle 6°) When operating with OSP 12 VHF ... / OSP 12 MHFL ... (m)	Housing design Size (mm)	Transmitter (T) / Receiver (R)	Dispersion angle / opening angle	Switching output	NC (nnp) / NO (nnp)	NO (pnp) / NC (nnp)	NO/NC	Switching frequency (Hz)	Protection class	Housing material	integrated heating function	Cable material/length, Plug connector	Connection cable (optionally available)	Product description
OP-M12 through-beam sensors																
	-	-	M12 x 60	S	15° 6°	-				-	IP 67, IP 68, IP 69K	Stainless steel V2A		PVC, 5m		OSP 12 VLF-5M OSP 12 VHFL-5M
	1	5	M12 x 60	E	Push-pull 200mA	■				500	IP 67, IP 68, IP 69K	Stainless steel V2A		PVC, 5m		OEP 12 V 5000 G1L-5M OEP 12 V 5000 G2L-5M
	6	20				■			150	OEP 12 V 20000 G1L-5M OEP 12 V 20000 G2L-5M						
	20	50				■			20	OEP 12 V 50000 G1L-5M OEP 12 V 50000 G2L-5M						
	-	-	M12 x 75	S	15° 6°	-				-	IP 67, IP 68, IP 69K	Stainless steel V2A		M12	VK ...	OSP 12 VLF-IBSL OSP 12 VHF-IBSL
	1	5	M12 x 75	E	Push-pull 200mA	■				500	IP 67, IP 68, IP 69K	Stainless steel V2A		M12	VK ...	OEP 12 V 5000 G1-IBSL OEP 12 V 5000 G2-IBSL
	6	20				■			150	OEP 12 V 20000 G1-IBSL OEP 12 V 20000 G2-IBSL						
	20	50				■			20	OEP 12 V 50000 G1-IBSL OEP 12 V 50000 G2-IBSL						

OP-Q12

The rectangular M12 model consists of a transmitter and receiver in a compact construction and simple threaded mounting. Thanks to the robust metal housing, the systems are resistant to vibrations and shaking and therefore do not have to be continually readjusted.



Technical data (typ.)	+20°C, 24 VDC
Emitted light	Infrared light, clocked
Service voltage	10 to 35V DC
Ambient temperature	-20 to +60°C

	Range (opening angle 15°) when operating with OSPQ 12 MLFL ... / ... / OSPQ 12 MHFL ... (m)	Range (opening angle 6°) When operating with OSP 12 VHF ... / OSPQ 12 MHFL ... (m)	Housing design Size (mm)	Transmitter (T) / Receiver (R)	Dispersion angle / opening angle	Switching output	NC (nnp) / NO (nnp)	NO (pnp) / NC (nnp)	NO/NC	Switching frequency (Hz)	Protection class	Housing material	integrated heating function	Cable material/length, Plug connector	Connection cable (optionally available)	Product description
OP-Q12 through-beam sensors																
	-	-	12 x 12 x 82	S	15° 6°	-				-	IP 67	Aluminum, anodized		PVC, 5m		OSPQ 12 MLFL-5M OSPQ 12 MHFL-5M
	1	5					■			500						OEPQ 12 M 5000 G1L-5M OEPQ 12 M 5000 G2L-5M
	6	20	12 x 12 x 82	E		Push-pull 200mA	■			150	IP 67	Aluminum, anodized		PVC, 5m		OEPQ 12 M 20000 G1-5M OEPQ 12 M 20000 G2L-5M OEPQ 12 M 50000 G1L-5M OEPQ 12 M 50000 G2L-5M
	20	50					■			20						
	-	-	12 x 12 x 82	S	15° 6°	-				-	IP 67	Aluminum, anodized		M8	TK ...	OSPQ 12 MLF-TSSL OSPQ 12 MHF-TSSL
	1	5					■			500						OEPQ 12 M 5000 G1-TSSL OEPQ 12 M 5000 G2-TSSL
	6	20	12 x 12 x 82	E		Push-pull 200mA	■			150	IP 67	Aluminum, anodized		M8	TK ...	OEPQ 12 M 20000 G1-TSSL OEPQ 12 M 20000 G2-TSSL OEPQ 12 M 50000 G1-TSSL OEPQ 12 M 50000 G2-TSSL
	20	50					■			20						

OP-50

The high-performance light barriers in the OP-50 series have a robust metallic housing. The systems in rectangular design have special functions such as a switchable reflected beam angle, adjustable transmitting power and variants with a heating function.

Technical data (typ.)	+20°C, 24 VDC
Emitted light	Infrared light, clocked
Service voltage	10 to 35V DC
Ambient temperature	-10to+60°C
	-40to+50°C (.../H)



OP-50 through-beam sensors																
	Range (opening angle 15°) when operating with OSP 12 MLF ... / ... (m)	Range (opening angle 6°) When operating with OSP 12 VHF ... /OSPQ 12 MHFL ... (m)	Housing design Size (mm)	Transmitter (T) / Receiver (R)	Dispersion angle / opening angle	Switching output	NC (npn) / NO (npn)	NO (pnp) / NC (pnp)	NO/NC	Switching frequency (Hz)	Protection class	Housing material	integrated heating function	Cable material/length, Plug connector	Connection cable (optionally available)	Product description
	50	50	50 x 40 x 15	S	-				-	IP 67	Die-cast zinc		M12	VK ...	OSP 50 M 50000-IBS	
				E	Push-pull, 200 mA		■	20	OEVP 50 M 50000 G3LK-IBS							
	50	50	50 x 40 x 15	S	-				-	IP 67	Die-cast zinc	■	M12	VK ...	OSP 50 M 50000-IBS/H	
				E	Push-pull, 200 mA		■	20	OEVP 50 M 50000 G3LK-IBS/H							

Plastic fiber-optic sensors



Our plastic fiber optic sensors are used wherever small objects must be detected and mounting space is limited. Through a range of modular fiber optics and accessories, they can be adapted to the respective application. For tophat rail mounting, the fiber-optic amplifiers can be arranged in series as desired.



 **di-soric**

OLV-K Amplifier

99

Plastic Fiber-Optic Cables

100

OLV-K AMPLIFIER

di-soric fiber optic amplifiers can be easily operated and simultaneously offer maximum control. The very high-performance and efficient amplifiers stand out for their very long ranges, time functions and simple operation. Alternatively, amplifiers with two digital LED displays or potentiometers are available.



Technical data (typ.)	+20°C, 24 VDC	
	OLVK 61 ...	OLK 71 ...
Emitted light	Red light, clocked	Red light, clocked
Switching output	Transistor, 200 mA, NO/NC, switchable	100 mA, NO/NC, programmable
Ambient temperature	-25 to +55 °C	-10 to +55 °C
Protection class	IP 64	IP 54
Housing material	PBTP (Crastin)	ABS / PC

	Housing design Size (mm)	Sensitivity adjustment by means of	Service voltage (V)	Activation time (ms)	Polarity	Digital LED display	Switching hysteresis (%)	Temperature drift (%/K)	No-load current (mA)	Plug connector	Connection cable (optionally available)	Product description
OLV-K Amplifiers for glass fiber optic cables												
	60 x 31 x 10	Potentiometer	10 to 30	0.33	pnp	10	0.2	15	M8	TK ...		OLVK 61 P3K-TSSL/3
					pnp	10	0.2					OLVK 61 P3FK-TSSL
	69 x 33 x 10.5	Teach	12 to 24	0.25 to 1.25	pnp	■		40	M8	TK ... /4		OLK 71 P3-T4
					npn	■						OLK 71 N3-T4
	69 x 33 x 10.5	Teach	12 to 24	0.25 to 1.25	pnp	■		40		Cable 2.0 m		OLK 71 P3-3
					npn	■						OLK 71 N3-3

Range specifications for plastic fiber-optic cables

The maximum range specification for fiber-optic cables refers to measurements using the reference amplifier OLV 71 ... with a light intensity of 200% and a standard target of 100x100 mm, white. When using another amplifier or a different amplifier setting, determine the expected range based on the calculation factor.

Fiber-optic amplifier	Calculation factor compared to the reference amplifier OLV 71 ... ¹⁾ (typ.)	
OLK 71 ... ¹⁾	100%	
OLVK 61 P3K-TSSL/3	100%	
OLVK 61 P3FK-TSSL	100%	

Light intensity	Range factor ¹⁾	Activation time
200%	100%	1.25 ms
100%	75%	0.63 ms
50%	70%	0.42 ms
25%	40%	0.31 ms
12%	25%	0.25 ms

¹⁾ OLV71 ... with light intensity 12 to 200%

Lichtstaster Diffuse reflective sensor	Tastkopf (Größe/Material) (Sensor probe Size/Material)	Faser Fibre	Reichweite ¹⁾ Operating range ¹⁾ (mm)	Auflösung ¹⁾ Resolution ¹⁾ (mm)	Produktbezeichnung Product-ID
	M6 Edelstahl Stainless steel	Parallel 1,0mm (2x)	200	Ø0,1	KLT-M6-T2-1
	M6 Edelstahl Stainless steel	Koaxial 1,0mm (1x) 0,25mm (1x)	250	Ø0,05	KLT-M6-T2-1K
	M4 Edelstahl Stainless steel	Parallel 0,5mm (2x)	75	Ø0,05	KLT-M4-T2-0.5
	M4 Edelstahl Stainless steel	Koaxial 0,5mm (1x) 0,25mm (1x)	100	Ø0,05	KLT-M4-T2-0.5K

PLASTIC FIBER-OPTIC CABLES

di-soric offer a wide range of fiber optic products with accessories. The portfolio includes, among others, sensor probes made of stainless steel with bend protection, sensor probes with light bands for range monitoring and fiber optics for detection of the smallest parts.

Technical data (typ.)	+20 °C, 24 VDC
For more information, visit	www.di-soric.com



Order information					
	Axial light aperture	M3	Optional attachment optics	R _{min} 15	Minimum permitted bending radius of the fiber-optic cable
	Radial light aperture	Coaxial	Coaxial fiber arrangement		Fiber-optic cable can be cut to size, cutting knife included
	Flexible sensor probe	-35/85 °C	Ambient temperature		Fiber-optic cable cannot be cut to size
	Area detection	2 m	Length of the fiber-optic cable		
	Fixed-focus detection		Cable grommet		

	Sensor probe (size/material)	Fiber	Range (mm)	Resolution (mm)	Product description
Glass Fiber-Optic Cable Diffuse Sensors					
	M6 Stainless steel	Parallel 1.0 mm (2x)	200 ¹⁾	Ø0,1 ²⁾	2 m R _{min} 25 -55/70 °C
	Large range				
	M6 Stainless steel	Coaxial 1.0 mm (1x) 0.25 mm (16x)	250 ¹⁾	Ø0,05 ²⁾	2 m R _{min} 25 Coaxial -55/70 °C
	Large range Small parts detection				
	M4 Stainless steel	Parallel 0.5 mm (2x)	75 ¹⁾	Ø0,05 ²⁾	2 m M4 R _{min} 15 -55/70 °C
	Accurate detection Optional attachment optics				

¹⁾ Maximum values (typ.) for a standard target 100 x 100 mm, white.

²⁾ Resolution (typ.) for optimal settings and measuring distances (sensor approx. 5 mm, one-way: approx. 100 mm).

	Sensor probe (size / material)	Fiber	Range (mm)	Resolution (mm)	Product description
Glass Fiber-Optic Cable Diffuse Sensors					
	M4 Stainless steel	Coaxial 0.5 mm (1x) 0.25 mm (9x)	100 ¹⁾	Ø0,05 ²⁾	
Small parts detection Optional attachment optics					KLT-M4-T2-0.5K
	M3 Stainless steel	Parallel 0.5 mm (2x)	75 ¹⁾	Ø0,05 ²⁾	
Accurate detection Optional attachment optics					KLT-M3-T2-0.5
	M3 Stainless steel	Coaxial 0.5 mm (1x) 0.25 mm (9x)	100 ¹⁾	Ø0,05 ²⁾	
Small parts detection Optional attachment optics					KLT-M3-T2-0.5K
<p>Cutting knife with bending gauge SMB 1</p>	M3 / Ø1.4 Stainless steel	Parallel 0.5 mm (2x)	75 ¹⁾	Ø0,1 ²⁾	
Flexible sensor probe / R min. > 10mm Accurate detection					KLT-M3-B40-T2-0.5
<p>Cutting knife with bending gauge SMB 1</p>	M3 / Ø1.4 Stainless steel	Coaxial 0.5 mm (1x) 0.25 mm (9x)	100 ¹⁾	Ø0,05 ²⁾	
Flexible sensor probe / R min. > 10mm Small parts detection					KLT-M3-B40-T2-0.5K
<p>Cutting knife with bending gauge SMB 1</p>	M3 / Ø1.4 Stainless steel	Parallel 0.5 mm (1x)	75 ¹⁾	Ø0,1 ²⁾	
Flexible sensor probe / R min. > 10mm Accurate detection					KLT-M3-B90-T2-0.5
<p>Cutting knife with bending gauge SMB 1</p>	M3 / Ø1.4 Stainless steel	Coaxial 0.5 mm (1x) 0.25 mm (9x)	100 ¹⁾	Ø0,05 ²⁾	
Flexible sensor probe / R min. > 10mm Small parts detection					KLT-M3-B90-T2-0.5K

¹⁾ Maximum values (typ.) for a standard target 100 x 100 mm, white.

²⁾ Resolution (typ.) for optimal settings and measuring distances (sensor approx. 5mm, one-way: approx. 100 mm).

	Sensor probe (size / material)	Fiber	Range (mm)	Resolution (mm)	Product description
Glass Fiber-Optic Cable Diffuse Sensors					
	M3 Stainless steel	Coaxial Ø0.25 (1x) Ø0.125 (10x)	40 ¹⁾	Ø0.02 ²⁾	
Highly accurate detection Optional attachment optics					KLT-M3-S0.5-0.25K
	M4 Stainless steel	Parallel 0.5 mm (2x)	60 ¹⁾	Ø0,1 ²⁾	
Low installation depth 90° deflection Accurate detection Optional attachment optics					KLTR-M4-T2-0.5
	M4 Stainless steel	Coaxial 0.5 mm (1x) 0.25 mm (10x)	90 ¹⁾	Ø0,05 ²⁾	
Low installation depth 90° deflection Small parts detection Optional attachment optics					KLTR-M4-T2-0.5K
	10 x 10 x 3.5 mm Stainless steel	5.25 mm Transmitter 0.265 mm (16x) Receiver	100 ¹⁾	Ø0,1 ²⁾	
Area detection without gaps Accurate detection					KLTM-Q10-T1-5
	19 x 25 x 6 mm Plastic	14.5 mm Transmitter 0.265 mm (16x) Receiver 0.265 mm (16x)	240 ¹⁾	Ø0,5 ²⁾	
Area detection Large range					KLTM-Q25K-T1-14
	38 x 19 x 5 mm Plastic	24.8 mm Transmitter 0.265 mm (32x) Receiver	200 ¹⁾	Ø1,0 ²⁾	
Area detection 90° deflection Large range					KLTRM-Q38K-1-24

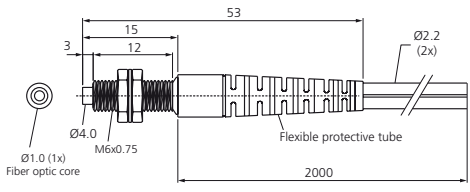

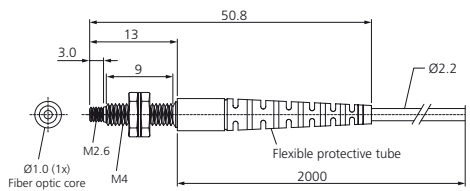

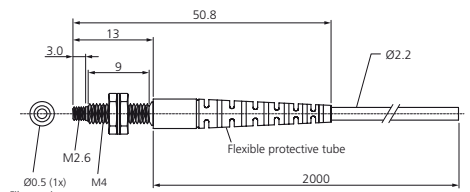

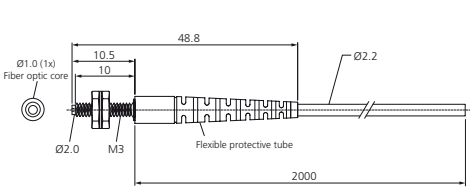
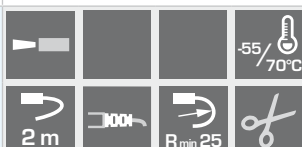
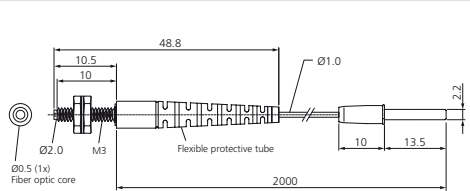

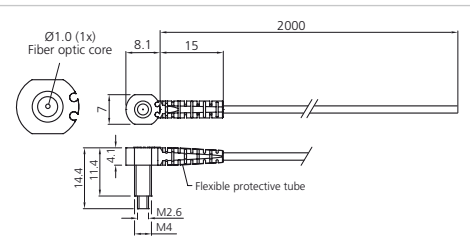

¹⁾ Maximum values (typ.) for a standard target 100 x 100 mm, white.

²⁾ Resolution (typ.) for optimal settings and measuring distances (sensor approx. 5 mm, one-way: approx. 100 mm).

	Sensor probe (size / material)	Fiber	Range (mm)	Resolution (mm)	Product description
Glass Fiber-Optic Cable Diffuse Sensors					
	18 x 17 x 5 mm Plastic	A: 7.2 mm parallel Ø0.5 (2x)	5 to 10 ¹⁾	Ø0,1 ²⁾	 40/70°C
Fixed-focus detection 90° deflection Low installation depth					KLTVR-Q18-2-10
	M5 Stainless steel	0.5 mm	200 ¹⁾	Ø0,1 ²⁾	 -25/70°C
Ball-shaped optics for cylindrical beam Ø 8 mm					WRBT 2000 K-M5-Z8
	M4 Stainless steel	Parallel 0.5 mm (2x)	75 ¹⁾	Ø0,05 ²⁾	 -55/70°C
Accurate detection Optional attachment optics					WRBT 2000 K-M4-1.0
	M3 Stainless steel	Parallel 0.5 mm (2x)	75 ¹⁾	Ø0,05 ²⁾	 -55/70°C
Accurate detection Optional attachment optics					WRBT 2000 K-M3-0.5
	Ø5 Stainless steel	Ø 0.8 mm	100 ¹⁾	Ø0,2 ²⁾	 -55/80°C
Low installation depth Small sensor probe					WRBT 2000 KR-5.0-2.0


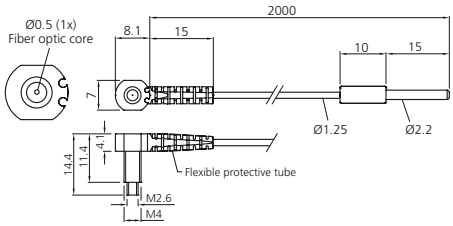

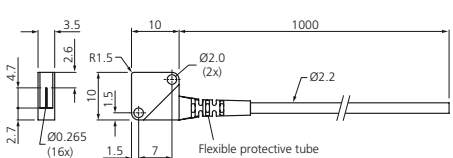

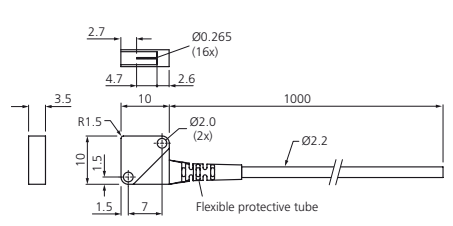

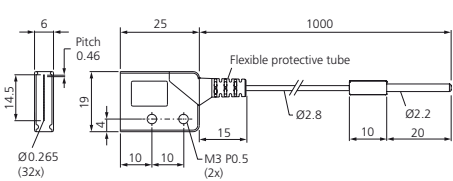

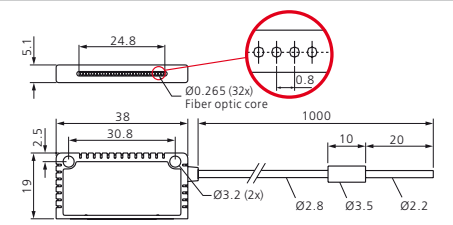

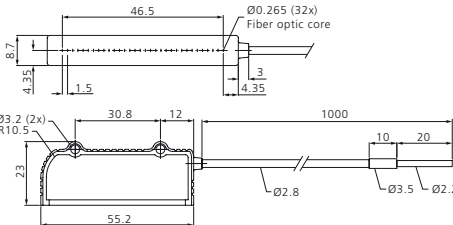

¹⁾Maximum values (typ.) for a standard target 100 x 100 mm, white.

²⁾Resolution (typ.) for optimal settings and measuring distances (sensor approx. 5mm, one-way: approx. 100 mm).

	Sensor probe (size / material)	Fiber	Range (mm)	Resolution (mm)	Product description
Plastic Fiber-Optic Cable Through-Beam Sensors					
	M6 Stainless steel	1.0mm	1,000 ¹⁾	Ø0,2 ²⁾	
Large range					KLE-M6-T2-1
	M6 Stainless steel	1.0mm	1,000 ¹⁾	Ø0,2 ²⁾	
Large range					KLE-M4-T2-1
	M4 Stainless steel	0.5mm	250 ¹⁾	Ø0,1 ²⁾	
Accurate detection Optional attachment optics					KLE-M4-T2-0.5
	M3 Stainless steel	1.0mm	1,000 ¹⁾	Ø0,2 ²⁾	
Large range					KLE-M3-T2-1
	M3 Stainless steel	0.5mm	250 ¹⁾	Ø0,1 ²⁾	
Accurate detection					KLE-M3-T2-0.5
	M4 Stainless steel	1.0mm	400 ¹⁾	Ø0,2 ²⁾	
Low installation depth 90° deflection Large range Optional attachment optics					KLER-M4-T2-1


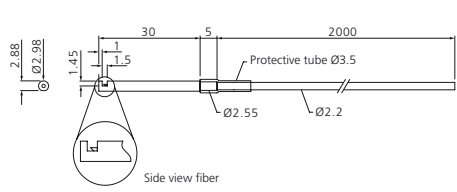

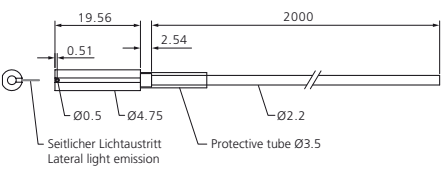

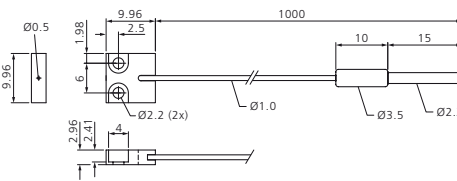

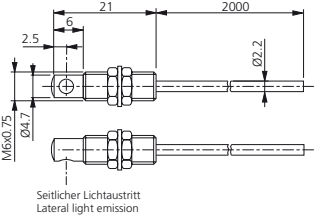

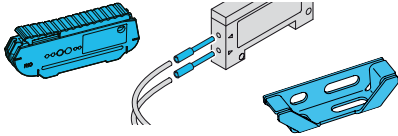
¹⁾ Maximum values (typ.) for a standard target 100 x 100 mm, white.

²⁾ Resolution (typ.) for optimal settings and measuring distances (sensor approx. 5 mm, one-way: approx. 100 mm).

Sensor probe (size / material)	Fiber	Range (mm)	Resolution (mm)	Product description
Plastic Fiber-Optic Cable Through-Beam Sensors 				
	M4 Stainless steel	0.5 mm	200 ¹⁾	Ø0,1 ²⁾
Low installation depth 90° deflection Accurate detection Optional attachment optics				 <p style="text-align: center;">KLER-M4-T2-0.5</p>
	10 x 10 x 3.5 mm Stainless steel	4.24 mm 0.265 mm (16x)	200 ¹⁾	Ø0,1 ²⁾
Area detection without gaps Large range Accurate detection				 <p style="text-align: center;">KLEM-Q10-T1-4</p>
	10 x 10 x 3.5 mm Stainless steel	4.24 mm 0.265 mm (16x)	200 ¹⁾	Ø0,1 ²⁾
Area detection without gaps 90° deflection Large range Accurate detection				 <p style="text-align: center;">KLEMR-Q10-T1-4</p>
	19 x 25 x 6 mm Plastic	14.5 mm 0.265 (32x)	1,000 ¹⁾	Ø0,5 ²⁾
Area detection Large range				 <p style="text-align: center;">KLEM-Q25K-T1-14</p>
	38 x 19 x 5 mm Plastic	24.8 mm 0.265 (32x)	800 ¹⁾	Ø1,0 ²⁾
Area detection 90° deflection Large range				 <p style="text-align: center;">KLEMR-Q38K-1-24</p>
	55 x 23 x 9 mm Plastic	46.5 mm 0.265 (32x)	800 ¹⁾	Ø2,0 ²⁾
Area detection 90° deflection Large range				 <p style="text-align: center;">KLEMR-Q55K-1-46</p>

¹⁾Maximum values (typ.) for a standard target 100 x 100 mm, white.

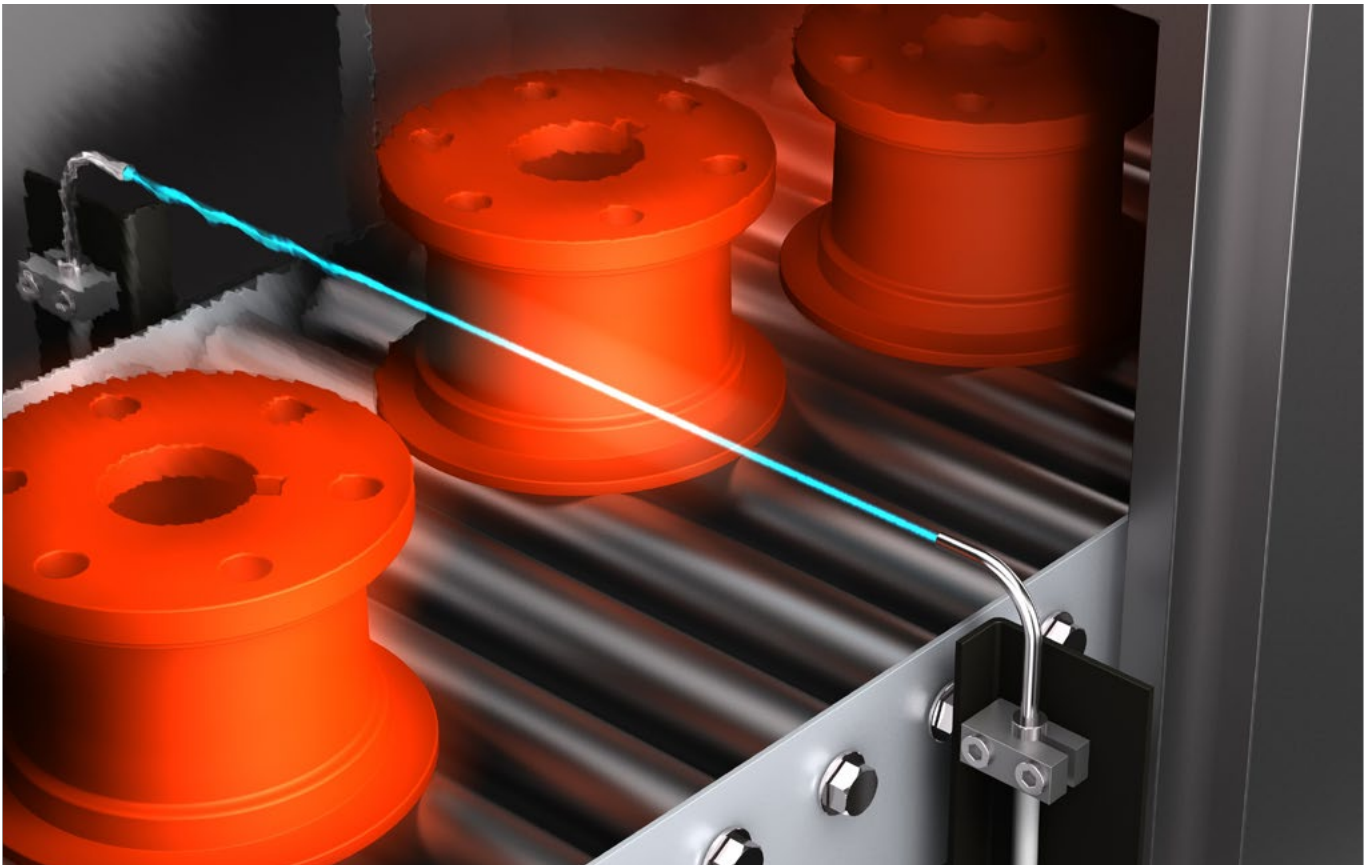
²⁾Resolution (typ.) for optimal settings and measuring distances (sensor approx. 5mm, one-way: approx. 100 mm).

	Sensor probe (size/material)	Fiber	Range (mm)	Resolution (mm)	Product description
Plastic Fiber-Optic Cable Through-Beam Sensors 					
	Ø 2.98 mm Stainless steel	1.0 mm	600 ¹⁾	Ø0,2 ²⁾	
Low installation depth 90° deflection Large range					KLER-D3-30-S2-1
	Ø 4.75 mm Stainless steel	Ø0.5 mm	200 ¹⁾	Ø0,05 ²⁾	
Low installation depth 90° deflection Highly accurate object detection					KLER-D4.75-19-S2-0.5
	10 x 10 x 3 mm Metal	Ø0.5 mm	200 ¹⁾	Ø0,05 ²⁾	
Accurate detection Flat design					KLE-Q10M-1-0.5
	M6 Brass	Ø 1.0 mm	1,200 ¹⁾	Ø0,2 ²⁾	
Low installation depth Large range					WRBE 2000 KR-M6-1.0
Accessories for plastic fiber-optic cables					
					
see "Accessories for plastic fiber-optic cables", page 212					

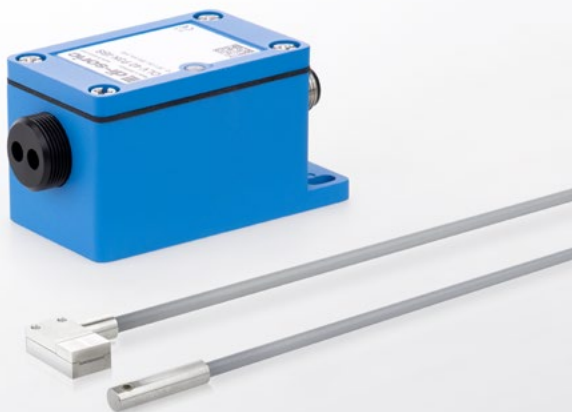
¹⁾ Maximum values (typ.) for a standard target 100 x 100 mm, white.

²⁾ Resolution (typ.) for optimal settings and measuring distances (sensor approx. 5 mm, one-way: approx. 100 mm).

Glass fiber-optic sensors



Challenging applications with little installation space are the area of application of the fiber optic sensors from di-soric. The robust devices stand the test with oil just as reliably as with high mechanical loads and at high temperatures. Their large range is another important advantage.



 **di-soric**

OLV-G Amplifier

109

Glass Fiber-Optic Cables

109

OLV-G AMPLIFIER

Thanks to their stable metallic housing and the high protection class, the amplifiers in the OLV-G series are ideal for handling challenging individual applications. The devices are operated through simple auto-teach.



Technical data (typ.)	+20 °C, 24 VDC
Switching output	Transistor, pnp, 200 mA, NO/NC, switchable
Ambient temperature	-10 to +60 °C
Housing material	Die-cast zinc
Protection class	IP 65

	Housing design Size (mm)	Sensitivity adjustment by means of	Service voltage (V)	Switching frequency (kHz)	Infrared light, clocked	Red light, clocked	Green light, clocked	Switching hysteresis (%)	Temperature drift (%/K)	Ambient light immunity (KLx)	No-load current (mA)	Plug connector	Connection cable (optionally available)	Product description		
OLV-G Amplifiers for glass fiber optic cables																
	40 x 41 x 75	Potentiometer	12 to 35	1.5	■			10	0.3	20	55	M12	VK ... /4	OLV 40 P3K-IBS		
				1.5		■										OLV 41 P3K-IBS
				0.5			■									
	40 x 41 x 75	Potentiometer	12 to 35	1.5	■			10	0.3	20	55	Clamps		OLV 40 P4K		
						■										OLV 41 P4K
	40 x 41 x 75	Teach	10 to 35	1.5	■			12	0.1	50	45	M12	VK ... /4	OLV 40 P3K-IBS		
						■			0.25							OLV 41 P3K-IBS

GLASS FIBER-OPTIC CABLES

Our product portfolio of fiber optics includes high-quality fibers for large ranges, a high mechanical load and high temperatures.



Technical data (typ.)	+20 °C, 24 VDC
Housing material	V2A
	Aluminum (...SQ... / ...MQ... / WRB 220 SW)
Single fiber	50 µm
Opening angle	67°
Temperature resistance	-40 to +180 °C, for short periods up to +250 °C (silicone-metal sleeve) -40 to +180 °C, for short periods up to +300 °C (metal sleeve)

Diffuse sensors

Through-beam sensors

Installation instructions for glass fiber-optic cables

- 1) For permanently installed fiber optic cables.
- 2) All specified scan widths and ranges are average values associated with the fiber-optic amplifier in infrared light. If necessary, adjust the sensitivity range using the basic sensitivity potentiometer P2.
The specified scan widths and ranges are reduced to about 80% in red light and to about 30% in green light. The values also depend on the fiber-optic cable and on the object being scanned (size, shape, surface, color, etc.).
- 3) With attachment optics and axial light aperture.
Only possible for fiber-optic cables of corresponding length.

	Fiber bundle	Scan width ¹⁾ (mm)	Cable jacket	Cable length (mm)	Bending radius	Protection class	Product description
Glass Fiber-Optic Cable Diffuse Sensors							
	Ø1.0	up to 20	Silicone metal sleeve	300 600 1,000	> 3x tube Ø	IP 67	WRB 110 S-1.5-1.0 WRB 120 S-1.5-1.0 WRB 130 S-1.5-1.0
	Ø1.0	up to 20	metal sleeve	300 600 1,000	> 10x tube Ø	IP 60	WRB 110 M-1.5-1.0 WRB 120 M-1.5-1.0 WRB 130 M-1.5-1.0
	Ø1.0	up to 15	Silicone metal sleeve	300 600 1,000	> 3x tube Ø	IP 67	WRB 110 S-90-1.5-1.0 WRB 120 S-90-1.5-1.0 WRB 130 S-90-1.5-1.0
	Ø1.0	up to 15	metal sleeve	300 600 1,000	> 10x tube Ø	IP 60	WRB 110 M-90-1.5-1.0 WRB 120 M-90-1.5-1.0 WRB 130 M-90-1.5-1.0
<p>biegsamer Bereich, min. Radius 6 mm bendable area, min. radius 6 mm</p>	Ø1.0	up to 20	Silicone metal sleeve	300 600 1,000	> 3x tube Ø	IP 67	WRB 110 SB-2.0-1.0 WRB 120 SB-2.0-1.0 WRB 130 SB-2.0-1.0
	Ø1.0	up to 20	metal sleeve	300 600 1,000	> 10x tube Ø	IP 60	WRB 110 MB-2.0-1.0 WRB 120 MB-2.0-1.0 WRB 130 MB-2.0-1.0
	Ø1.5	up to 30	Silicone metal sleeve	300 600 1,000	> 3x tube Ø	IP 67	WRB 110 S-M2.5-1.5 WRB 120 S-M2.5-1.5 WRB 130 S-M2.5-1.5
	Ø1.5	up to 30	metal sleeve	300 600 1,000	> 10x tube Ø	IP 60	WRB 110 M-M2.5-1.5 WRB 120 M-M2.5-1.5 WRB 130 M-M2.5-1.5
	Ø2.5	up to 85	Silicone metal sleeve	300 600 1,000	> 3x tube Ø	IP 67	WRB 110 S-M4-2.5 WRB 120 S-M4-2.5 WRB 130 S-M4-2.5
	Ø2.5	up to 85	metal sleeve	300 600 1,000	> 10x tube Ø	IP 60	WRB 110 M-M4-2.5 WRB 120 M-M4-2.5 WRB 130 M-M4-2.5
	Ø2.5	up to 85	Silicone metal sleeve	300 600 1,000	> 3x tube Ø	IP 67	WRB 110 S-M6-2.5 WRB 120 S-M6-2.5 WRB 130 S-M6-2.5
	Ø2.5	up to 85	metal sleeve	300 600 1,000	> 10x tube Ø	IP 60	WRB 110 M-M6-2.5 WRB 120 M-M6-2.5 WRB 130 M-M6-2.5
	Ø2.5	up to 85	Polyurethane metal sleeve	300 600 1,000	> 5x tube Ø	IP 67	WRB 110 P-5.6-2.5 WRB 120 P-5.6-2.5 WRB 130 P-5.6-2.5
	Ø2.5	up to 85	Silicone metal sleeve	300 600 1,000	> 3x tube Ø	IP 67	WRB 110 S-8.0-2.5 WRB 120 S-8.0-2.5 WRB 130 S-8.0-2.5
	Ø2.5	up to 85	metal sleeve	300 600 1,000	> 10x tube Ø	IP 60	WRB 110 M-8.0-2.5 WRB 120 M-8.0-2.5 WRB 130 M-8.0-2.5


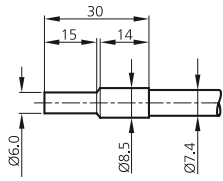
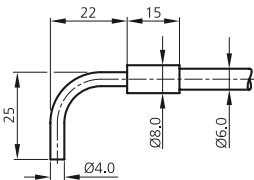
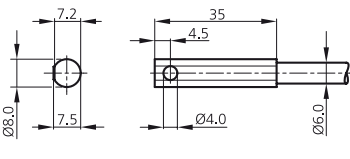
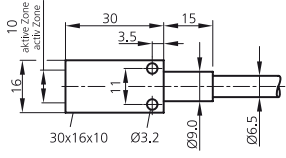
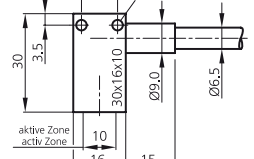
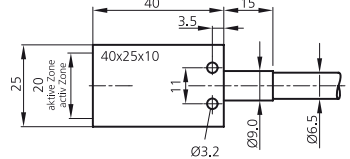
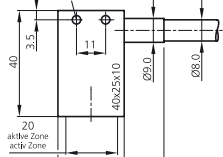
^{1), 2)} and ³⁾ see "Installation instructions for glass fiber-optic cables" on page 109

	Fiber bundle	Scan width ¹⁾ (mm)	Cable jacket	Cable length (mm)	Bending radius	Protection class	Product description
Glass Fiber-Optic Cable Diffuse Sensors							
	Ø4.0	up to 150	Silicone metal sleeve	300 600 1,000	>3x tube Ø	IP 67	WRB 110 S-8.5-4.0 WRB 120 S-8.5-4.0 WRB 130 S-8.5-4.0
	Ø4.0	up to 150	metal sleeve	300 600 1,000	>10x tube Ø	IP 60	WRB 110 M-8.5-4.0 WRB 120 M-8.5-4.0 WRB 130 M-8.5-4.0
	Ø2.5	up to 80	Silicone metal sleeve	300 600 1,000	>3x tube Ø	IP 67	WRB 110 S-9.0-4.0-2.5 WRB 120 S-9.0-4.0-2.5 WRB 130 S-9.0-4.0-2.5
	Ø2.5	up to 80	metal sleeve	300 600 1,000	>10x tube Ø	IP 60	WRB 110 M-9.0-4.0-2.5 WRB 120 M-9.0-4.0-2.5 WRB 130 M-9.0-4.0-2.5
	Ø2.5	up to 70	Silicone metal sleeve	300 600 1,000	>3x tube Ø	IP 67	WRB 110 SR-8.0-2.5 WRB 120 SR-8.0-2.5 WRB 130 SR-8.0-2.5
	Ø2.5	up to 70	metal sleeve	300 600 1,000	>10x tube Ø	IP 60	WRB 110 MR-8.0-2.5 WRB 120 MR-8.0-2.5 WRB 130 MR-8.0-2.5
	Ø0.6 (10x) Ø0.3 (10x)	up to 90	Silicone metal sleeve	300 600 1,000	>3x tube Ø	IP 67	WRB 110 SQ-10-0.6 WRB 120 SQ-10-0.6 WRB 130 SQ-10-0.6
	Ø0.6 (10x) Ø0.3 (10x)	up to 90	metal sleeve	300 600 1,000	>10x tube Ø	IP 60	WRB 110 MQ-10-0.6 WRB 120 MQ-10-0.6 WRB 130 MQ-10-0.6
	Ø0.6 (10x) Ø0.3 (10x)	up to 85	Silicone metal sleeve	300 600 1,000	>3x tube Ø	IP 67	WRB 110 SQ-9.0-10-0.6 WRB 120 SQ-9.0-10-0.6 WRB 130 SQ-9.0-10-0.6
	Ø0.6 (10x) Ø0.3 (10x)	up to 85	metal sleeve	300 600 1,000	>10x tube Ø	IP 60	WRB 110 MQ-9.0-10-0.6 WRB 120 MQ-9.0-10-0.6 WRB 130 MQ-9.0-10-0.6
	Ø0.6 (20x) Ø0.3 (20x)	up to 210	Silicone metal sleeve	300 600 1,000	>3x tube Ø	IP 67	WRB 110 SQ-20-0.6 WRB 120 SQ-20-0.6 WRB 130 SQ-20-0.6
	Ø0.6 (20x) Ø0.3 (20x)	up to 210	metal sleeve	300 600 1,000	>10x tube Ø	IP 60	WRB 110 MQ-20-0.6 WRB 120 MQ-20-0.6 WRB 130 MQ-20-0.6
	Ø0.6 (20x) Ø0.3 (20x)	up to 200	Silicone metal sleeve	300 600 1,000	>3x tube Ø	IP 67	WRB 110 SQ-9.0-20-0.6 WRB 120 SQ-9.0-20-0.6 WRB 130 SQ-9.0-20-0.6
	Ø0.6 (20x) Ø0.3 (20x)	up to 200	metal sleeve	300 600 1,000	>10x tube Ø	IP 60	WRB 110 MQ-9.0-20-0.6 WRB 120 MQ-9.0-20-0.6 WRB 130 MQ-9.0-20-0.6
	Ø2.5	10-100	Silicone metal sleeve	600	>3x tube Ø	IP 67	WRB 220 SW

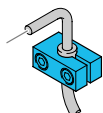
^{1), 2)} and ³⁾ see "Installation instructions for glass fiber-optic cables" on page 109

	Fiber bundle	Scan width ¹⁾ (mm)	Cable jacket	Cable length (mm)	Bending radius	Protection class	Product description
	Ø 1.0	up to 150	Silicone metal sleeve	300	> 3x ¹⁾ tube Ø	IP 67	WRB 210 S-1.5-1.0
				600			WRB 220 S-1.5-1.0
				1,000			WRB 230 S-1.5-1.0
	Ø 1.0	up to 150	metal sleeve	300	> 10x ¹⁾ tube Ø	IP 60	WRB 210 M-1.5-1.0
				600			WRB 220 M-1.5-1.0
				1,000			WRB 230 M-1.5-1.0
	Ø 1.0	up to 120	Silicone metal sleeve	300	> 3x ¹⁾ tube Ø	IP 67	WRB 210 S-90-1.5-1.0
				600			WRB 220 S-90-1.5-1.0
				1,000			WRB 230 S-90-1.5-1.0
	Ø 1.0	up to 120	metal sleeve	300	> 10x ¹⁾ tube Ø	IP 60	WRB 210 M-90-1.5-1.0
				600			WRB 220 M-90-1.5-1.0
				1,000			WRB 230 M-90-1.5-1.0
	Ø 1.0	up to 150	Silicone metal sleeve	300	> 3x ¹⁾ tube Ø	IP 67	WRB 210 SB-2.0-1.0
				600			WRB 220 SB-2.0-1.0
				1,000			WRB 230 SB-2.0-1.0
	Ø 1.0	up to 150	metal sleeve	300	> 10x ¹⁾ tube Ø	IP 60	WRB 210 MB-2.0-1.0
				600			WRB 220 MB-2.0-1.0
				1,000			WRB 230 MB-2.0-1.0
	Ø 1.5	up to 250 (500) ³⁾	Silicone metal sleeve	300	> 3x ¹⁾ tube Ø	IP 67	WRB 210 S-M2.5-1.5
				600			WRB 220 S-M2.5-1.5
				1,000			WRB 230 S-M2.5-1.5
	Ø 1.5	up to 250 (500) ³⁾	metal sleeve	300	> 10x ¹⁾ tube Ø	IP 60	WRB 210 M-M2.5-1.5
				600			WRB 220 M-M2.5-1.5
				1,000			WRB 230 M-M2.5-1.5
	Ø 2.5	up to 900 (1,800) ³⁾	Silicone metal sleeve	300	> 3x ¹⁾ tube Ø	IP 67	WRB 210 S-M4-2.5
				600			WRB 220 S-M4-2.5
				1,000			WRB 230 S-M4-2.5
	Ø 2.5	up to 900 (1,800) ³⁾	metal sleeve	300	> 10x ¹⁾ tube Ø	IP 60	WRB 210 M-M4-2.5
				600			WRB 220 M-M4-2.5
				1,000			WRB 230 M-M4-2.5
	Ø 2.5	up to 900	Silicone metal sleeve	300	> 3x ¹⁾ tube Ø	IP 67	WRB 210 S-M6-2.5
				600			WRB 220 S-M6-2.5
				1,000			WRB 230 S-M6-2.5
	Ø 2.5	up to 900	metal sleeve	300	> 10x ¹⁾ tube Ø	IP 60	WRB 210 M-M6-2.5
				600			WRB 220 M-M6-2.5
				1,000			WRB 230 M-M6-2.5
	Ø 2.5	up to 85	Polyurethane metal sleeve	300	> 5x ¹⁾ tube Ø	IP 67	WRB 210 P-5.6-2.5
				600			WRB 220 P-5.6-2.5
				1,000			WRB 230 P-5.6-2.5
	Ø 2.5	up to 85	Silicone metal sleeve	300	> 3x ¹⁾ tube Ø	IP 67	WRB 210 S-8.0-2.5
				600			WRB 220 S-8.0-2.5
				1,000			WRB 230 S-8.0-2.5
	Ø 2.5	up to 85	metal sleeve	300	> 10x ¹⁾ tube Ø	IP 60	WRB 210 M-8.0-2.5
				600			WRB 220 M-8.0-2.5
				1,000			WRB 230 M-8.0-2.5

^{1), 2)} and ³⁾ see "Installation instructions for glass fiber-optic cables" on page 109

Fiber bundle	Scan width ¹⁾ (mm)	Cable jacket	Cable length (mm)	Bending radius	Protection class	Product description
Glass Fiber-Optic Cable Through-Beam Sensors 						
	Ø4.0 up to 150	Silicone metal sleeve	300 600 1,000	>3x tube Ø	IP 67	WRB 210 S-8.5-4.0 WRB 220 S-8.5-4.0 WRB 230 S-8.5-4.0
	Ø4.0 up to 150	metal sleeve	300 600 1,000	>10x tube Ø	IP 60	WRB 210 M-8.5-4.0 WRB 220 M-8.5-4.0 WRB 230 M-8.5-4.0
	Ø2.5 up to 900	Silicone metal sleeve	300 600 1,000	>3x tube Ø	IP 67	WRB 210 S-90-4.0-2.5 WRB 220 S-90-4.0-2.5 WRB 230 S-90-4.0-2.5
	Ø2.5 up to 900	metal sleeve	300 600 1,000	>10x tube Ø	IP 60	WRB 210 M-90-4.0-2.5 WRB 220 M-90-4.0-2.5 WRB 230 M-90-4.0-2.5
	Ø2.5 up to 800	Silicone metal sleeve	300 600 1,000	>3x tube Ø	IP 67	WRB 210 SR-8.0-2.5 WRB 220 SR-8.0-2.5 WRB 230 SR-8.0-2.5
	Ø2.5 up to 800	metal sleeve	300 600 1,000	>10x tube Ø	IP 60	WRB 210 MR-8.0-2.5 WRB 220 MR-8.0-2.5 WRB 230 MR-8.0-2.5
	Ø0.6 (10x) Ø0.3 (10x) up to 700	Silicone metal sleeve	300 600 1,000	>3x tube Ø	IP 67	WRB 210 SQ-10-0.3 WRB 220 SQ-10-0.3 WRB 230 SQ-10-0.3
	Ø0.6 (10x) Ø0.3 (10x) up to 700	metal sleeve	300 600 1,000	>10x tube Ø	IP 60	WRB 210 MQ-10-0.3 WRB 220 MQ-10-0.3 WRB 230 MQ-10-0.3
	Ø0.6 (10x) Ø0.3 (10x) up to 650	Silicone metal sleeve	300 600 1,000	>3x tube Ø	IP 67	WRB 210 SQ-90-10-0.3 WRB 220 SQ-90-10-0.3 WRB 230 SQ-90-10-0.3
	Ø0.6 (10x) Ø0.3 (10x) up to 650	metal sleeve	300 600 1,000	>10x tube Ø	IP 60	WRB 210 MQ-90-10-0.3 WRB 220 MQ-90-10-0.3 WRB 230 MQ-90-10-0.3
	Ø0.6 (20x) Ø0.3 (20x) up to 1,200	Silicone metal sleeve	300 600 1,000	>3x tube Ø	IP 67	WRB 210 SQ-20-0.3 WRB 220 SQ-20-0.3 WRB 230 SQ-20-0.3
	Ø0.6 (20x) Ø0.3 (20x) up to 1,200	metal sleeve	600 1,000	>10x tube Ø	IP 60	WRB 220 MQ-20-0.3 WRB 230 MQ-20-0.3
	Ø0.6 (20x) Ø0.3 (20x) up to 1,100	Silicone metal sleeve	300 600 1,000	>3x tube Ø	IP 67	WRB 210 SQ-90-20-0.3 WRB 220 SQ-90-20-0.3 WRB 230 SQ-90-20-0.3
	Ø0.6 (20x) Ø0.3 (20x) up to 1,100	metal sleeve	300 600 1,000	>10x tube Ø	IP 60	WRB 210 MQ-90-20-0.3 WRB 220 MQ-90-20-0.3 WRB 230 MQ-90-20-0.3

Accessories for glass fiber optic cables



see "Accessories for glass fiber optic cables", page 213

^{1), 2)} and ³⁾ see "Installation instructions for glass fiber-optic cables" on page 109

Color sensors



The di-soric color sensors detect colors and compare them to 100 saved reference color values. Through their perceptive functioning, which is similar to the human eye, small differences can be detected precisely. This makes the use of the devices in the area of quality testing possible - even under industrial ambient conditions.



 **di-soric**

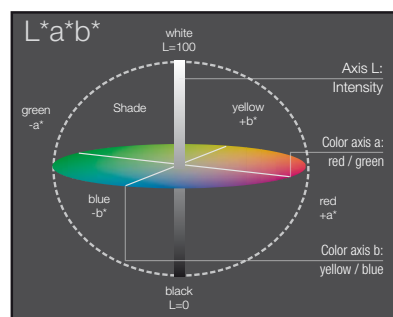
FS-10 Compact	115
FS-50 Extended	115
FS-100 Advanced	115

FS-10 COMPACT, FS-50 EXTENDED, FS-100 ADVANCED

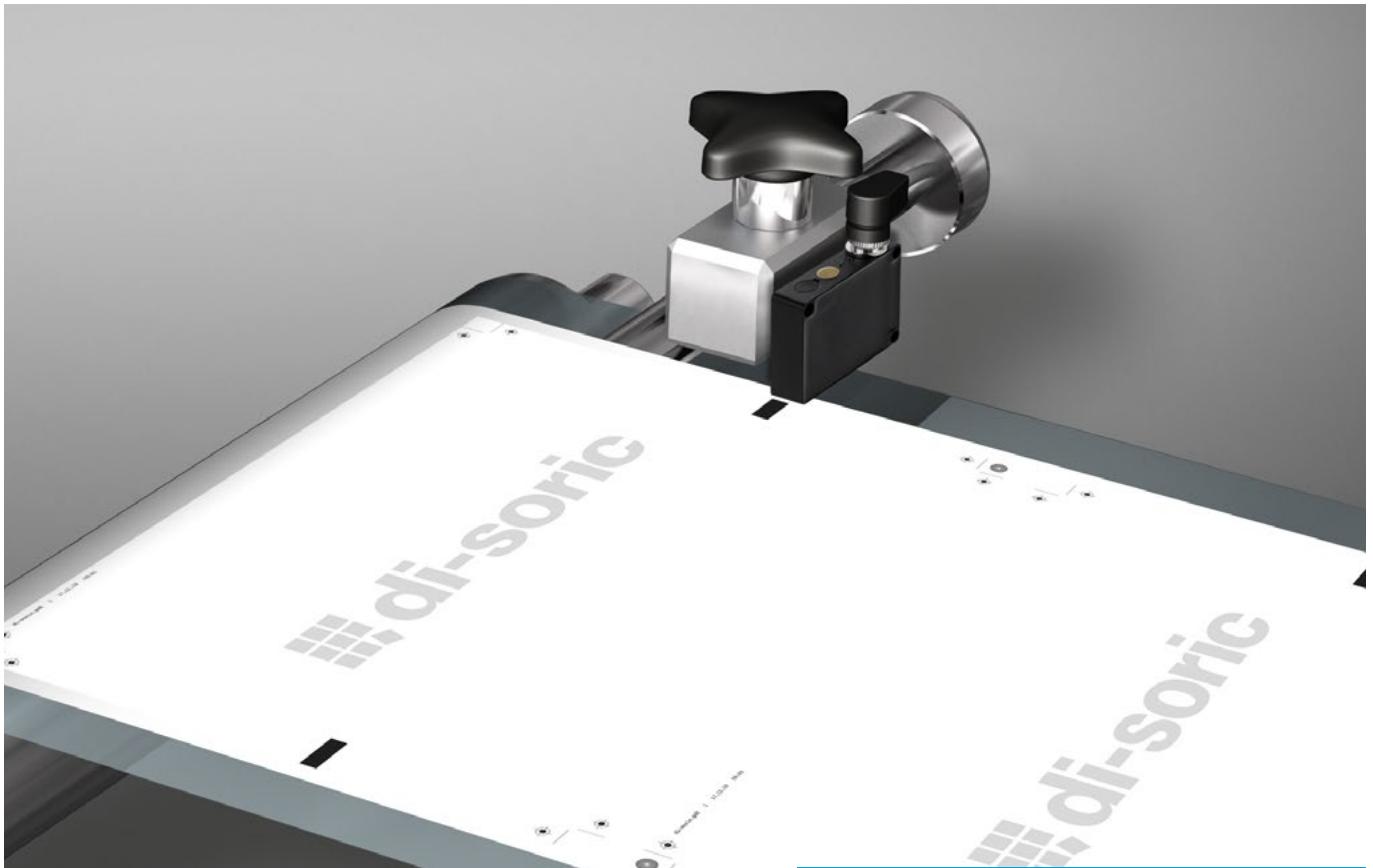
Technical data (typ.)	+20 °C, 24 VDC
Emitting light source	White-light LED, can be turned off
Color resolution	DE Lab < 1
Protection class	IP 54
	IP 67 (FSB 10...)



	Range (mm)	Measuring channels (number)	Number of color channels (Auto-teach via button)	Number of outputs npn + pnp (push-pull)	Service voltage (VDC)	Color memory internal	Operation using software	Operation using buttons	Color channels with binary coding (number)	Fiber-optic cable adapter	Fixed optics	Lighting with aging-compensating white-light LED	Profibus	Ethernet	Product description
FS-10 Compact															
	See fiber-optic cables	1	1	1	10 to 28	1	■		■		■				FSB 10 M G1-B8
FS-50 Extended															
	See fiber-optic cables	1	4	4	18 to 28	100	■	■	15	■		■			FS 12-50 M G3-B8
	30 to 60										■	■			FS 50 M 60 G3-B8
	See fiber-optic cables	1	4	4	18 to 28	4		■		■		■			FSB 50 M G3-B8
	30 to 60										■	■			FSB 50 M 60 G3-B8
FS-100 Advanced															
	See fiber-optic cables	1	12	12	18 to 28	100	■	■	100	■		■			FS 12-100-1 M G8-B8
										■				■	FS 12-100-1 M G8-B8-E
	See fiber-optic cables	2	12	12	18 to 28	100	■	■	100	■					FS 12-100-2 M G8-B8
										■		■	■		FS 12-100-2 M G8-B8-PB
Accessories for color sensors															
	see "Accessories for color sensors", page 216														



Contrast sensors



Contrast sensors can detect and compare precise contrasts. The devices are used for reliable, precise detection of printed marks based on color and grayscale contrasts on an extremely wide range of carrier materials such as labels, films, banderoles, cartons or tubes. The devices are configured through intuitive teaching-in.



 **di-soric**

OK-50

117

OK-50

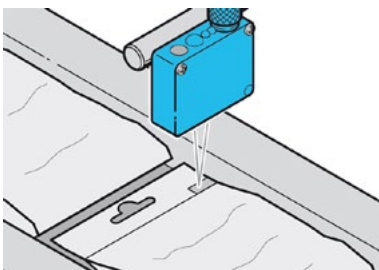
These contract sensors have a robust metallic housing in rectangular design with a high protection class. The sensors work with white-light (LED) and detect even the finest of contrasts. Their sensitivity can be adjusted in an easy and user-friendly manner with an auto-teach button.



Technical data (typ.)	+20°C, 24 VDC
Service voltage	10 to 35V DC
Switching output	Push-pull, 200 mA, NO/NC switchable
Ambient temperature	-10 to +60°C
Protection class	IP 67
Housing material	Die-cast zinc, varnished
Size	50 x 40 x 15 mm (housing dimensions)

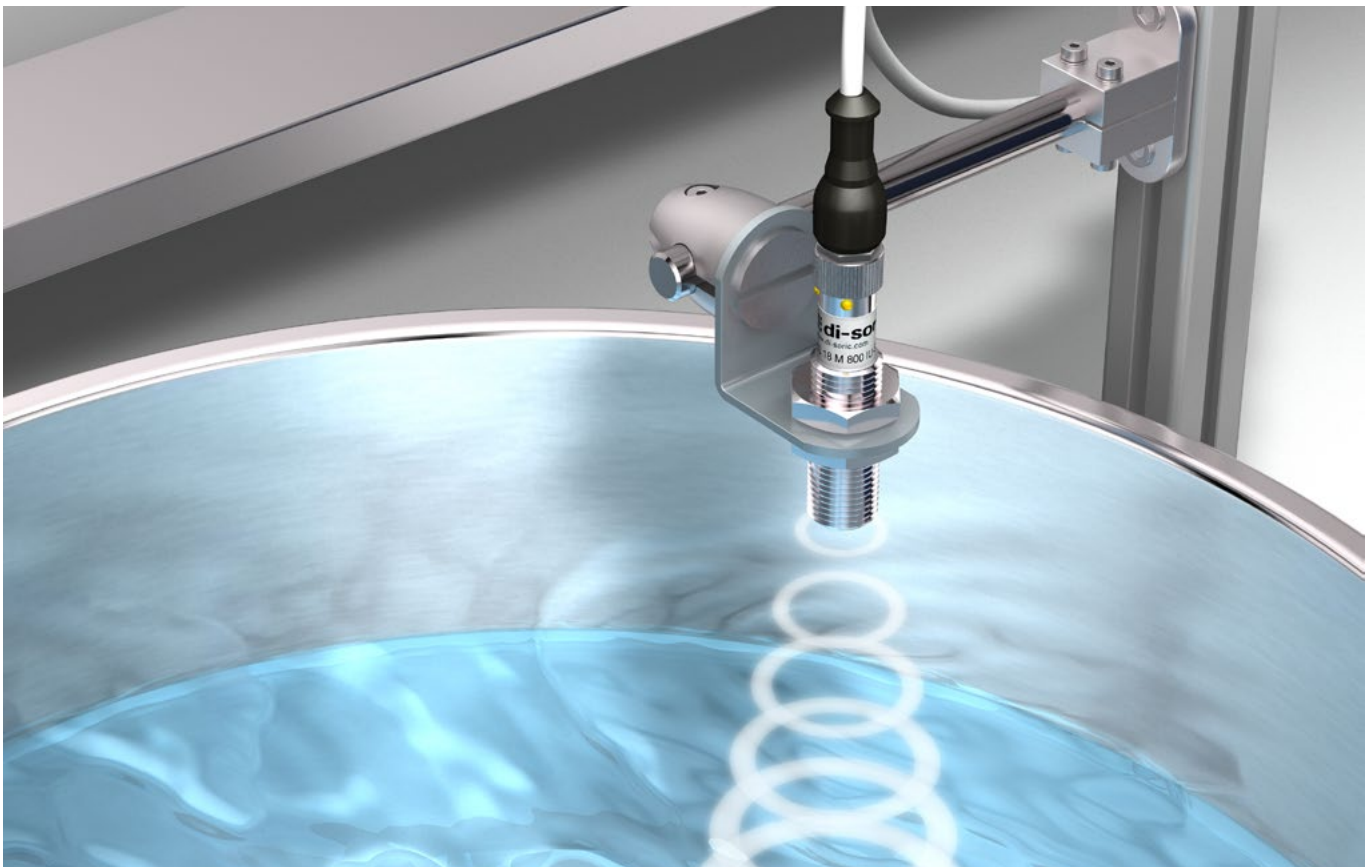
OK-50	Scanning range (mm)	Min. teach range (mm)	Transmission light: white, clocked	Resolution (mm)	Sensitivity adjustment by means of	No-load current (mA)	Switching frequency (Hz)	Light spot size (mm)	Plug connector length	Connection cable (optionally available)	Product description
	27 to 33	50	■	Ø 0.7	Teach key, remote teach	< 40	3000	Ø 3	M12	VK ...	OKTTI 55 M 30 FG3LK-IBS

Application example



- Contrast sensor with high resolution for detecting print marks
- Auto-teach key / remote teach option / lock function
- Auto-teach during a running process
- LED indicator for the teach procedure

Ultrasonic sensors



The ultrasonic sensors from di-soric are used as proximity switches in automation for distance measurement and for web edge control. They make it possible to detect objects with any color or surface. Even transparent, liquid and powdery objects are securely detected. The sensors are insensitive to contamination and can be operated across long distances.




US-M8	119
US-M12	119
US-Q12	120
US-M18	121
US-M30	122
US-46	122
US-60	123
USGT	125

US-M8

The US-M8 is the smallest ultrasonic sensor that can be integrated into machines very easily with its compact housing dimensions. At short ranges, the US-M8 offers maximum flexibility, even where installation space is limited, and is perfect for modernizing systems.

Technical data (typ.)	+20 °C, 24 VDC
Service voltage	18 to 30 V DC
For more information, visit	www.di-soric.com









	Operating range (mm)	Housing design Size (mm)	Sound outlet	Switching output	Analog output	Reproducibility	IO-Link	M/I/O	Ambient temperature (°C)	Plug connector	Connection cable (optionally available)	Product description
US-M8												
	20 to 100	M8 x 70	Axial	Push-pull, 150 mA NO/NC	–	0.3 mm	■		0 to 50	M8	TK ... /4	US 08 M 100 G3-B4

US-M12

The US-M12 is the compact class of ultrasonic sensors in the M12 housing. Equipped with an IO-Link interface, the sensor can be operated to switch or to measure. The sensitivity can also be adjusted via auto-teach, so the sensor is thus operational within a few seconds.

Technical data (typ.)	+20 °C, 24 VDC
Service voltage	18 to 30 V DC
For more information, visit	www.di-soric.com



	Operating range (mm)	Housing design Size (mm)	Sound outlet	Switching output	Analog output	Reproducibility	IO-Link	M/I/O	Ambient temperature (°C)	Plug connector	Connection cable (optionally available)	Product description
US-M12												
	0 to 150	M12 x 65	Axial	Push-pull, 150 mA NO/NC	–	0.5 mm	■		-25 to 70	M12	VK ... /4	US 12 M 150 FB G3-B4
	20 to 200	M12 x 65	Axial	Push-pull, 150 mA NO/NC	–	0.5 mm	■		-25 to 70	M12	VK ... /4	US 12 M 200 G3-B4
	40 to 400	M12 x 65	Axial	Push-pull, 150 mA NO/NC	–	1.5 mm	■		-25 to 70	M12	VK ... /4	US 12 M 400 G3-B4
	0 to 150	M12 x 65	Axial	Push-pull, 150 mA NO/NC	0 to 10 V 4 to 20 mA	0.5 mm	■	■	-25 to 70	M12	VK ... /4	US 12 M 150 FB IU-B4
	20 to 200	M12 x 65	Axial	Push-pull, 150 mA NO/NC	0 to 10 V 4.0 to 20 mA	0.5 mm	■	■	-25 to 70	M12	VK ... /4	US 12 M 200 IU-B4
	40 to 400	M12 x 65	Axial	Push-pull, 150 mA NO/NC	0 to 10 V 4 to 20 mA	1.5 mm	■	■	-25 to 70	M12	VK ... /4	US 12 M 400 IU-B4

US-Q12

The US-Q12 is the compact class in cubic form and with a small mounting depth. Equipped with an IO-Link interface, the sensor can be operated to switch or to measure. Its area of application is short distances, and the sensitivity is adjusted simply via auto-teach, potentiometer or IO-Link.

Technical data (typ.)	+20 °C, 24 VDC
Service voltage	18 to 30 V DC
For more information, visit	www.di-soric.com








	Operating range (mm)	Housing design Size (mm)	Sound outlet	Switching output	Analog output	Reproducibility	IO-Link	M/I/O	Ambient temperature (°C)	Plug connector	Connection cable (optionally available)	Product description
	20 to 200	M12x75	Radial	Push-pull, 150 mA NO/NC	–	0.5 mm	■		-25 to 70	M8	TK... /4	US Q12 M 200 G3-T4
	40 to 400	M12x75	Radial	Push-pull, 150 mA NO/NC	–	0.5 mm	■		-10 to 70	M8	TK... /4	US Q 12 M 400 FP G3-T4
	40 to 400	M12x75	Radial	Push-pull, 150 mA NO/NC	–	0.5 mm	■		-10 to 70	M8	TK... /4	US Q12 M 400 G3-T4
	40 to 400	M12x75	Radial	Push-pull, 150 mA NO/NC	–	0.5 mm	■		-10 to 70	M8	TK... /4	US Q12 M 400 FP G3-T4
	40 to 400	M12x75	Radial	Push-pull, 150 mA NO/NC	–	0.5 mm	■		-10 to 70	M8	TK... /4	US Q12 M 400 R G3-T4
	40 to 400	M12x75	Radial	Push-pull, 150 mA NO/NC	–	0.5 mm	■		-10 to 70	M8	TK... /4	US Q12 M 400 XP G3-T4
	20 to 200	M12x75	Radial	Push-pull, 150 mA	0 to 10 V 4 to 20 mA	0.5 mm	■	■	-25 to 70	M8	TK... /4	US Q12 M 200 IU-T4
	40 to 400	M12x75	Radial	Push-pull, 150 mA	0 to 10 V 4 to 20 mA	0.5 mm	■	■	-10 to 70	M8	TK... /4	US Q12 M 400 IU-T4

US-M18

The US-M18 is the standard variant in a short design, which makes this sensor very compact. It is suited for medium ranges and can be operated to switch or to measure. Thanks to three modes and other settings, the auto-teach is exceptionally easy. IO-Link ensures constant monitoring of the device functions and parameters and offers extended adjustment options.

Technical data (typ.)	+20 °C, 24 VDC
Service voltage	18 to 30 V DC
For more information, visit	www.di-soric.com



	Operating range (mm)	Housing design size (mm)	Sound outlet	Switching output	Analog output	Reproducibility	Accuracy	IO-Link	M/I/O	Ambient temperature (°C)	Plug connector	Connection cable (optionally available)	Product description
US-M18													
	80 to 800	M18 x 55.5	Axial	Push-pull, 150 mA NO/NC	–	1 mm		■		-25 to 70	M12	VK.../4	US 18 M 800 G3-B4
	120 to 1,500	M18 x 55.5	Axial	Push-pull, 150 mA NO/NC	–	1 mm		■		-25 to 70	M12	VK.../4	US 18 M 1500 G3-B4
	80 to 800	M18 x 65	Axial	Push-pull, 150 mA	0 to 10 V 4 to 20 mA			■		-25 to 70	M12	VK.../4	US 18 M 800 IU-B4
	150 to 1,500	M18 x 65	Axial	Push-pull, 150 mA NO/NC	0 to 10 V 4 to 20 mA			■		-25 to 70	M12	VK.../4	US 18 M 1500 IU-B4
	120 to 1,500	M18 x 123	Radial	pnp, 100 mA NO/NC	–		2% (Sn max.)			0 to 60	M12	VK.../4	UST 18 MR 1500 P3-B4
	120 to 1,500	M18 x 123	Radial	npn, 100 mA NO/NC	–		2% (Sn max.)			0 to 60	M12	VK.../4	UST 18 MR 1500 N3-B4
	120 to 1,500	M18 x 123	Radial	–	0 to 10 V 4 to 20 mA		2% (Sn max.)			0 to 60	M12	VK.../4	UST 18 MR 1500 IU-B4

US-M30

The US-M30 is the right choice for large ranges up to 6,000 mm. It is distinguished by its compact, short design. The sensor can be operated to measure and to switch. The US M30 is quickly operational thanks to simple auto-teach and IO-Link.



Technical data (typ.)	+20 °C, 24 VDC
Service voltage	18 to 30 V DC
For more information, visit	www.di-soric.com

	Operating range (mm)	Housing design Size (mm)	Sound outlet	Switching output	Analog output	Reproducibility	IO-Link	M/I/O	Ambient temperature (°C)	Plug connector	Connection cable (optionally available)	Product description
US-M30												
	300 to 3,000	M30 x 60	Axial	Push-pull, 100 mA NO/NC	–	2.0 mm	■		-25 to 70	M12	VK... /4	US 30 M 3000 G3-B4
	600 to 6,000	M30 x 78	Axial	Push-pull, 100 mA NO/NC	–	4.0 mm	■		-25 to 70	M12	VK... /4	US 30 M 6000 G3-B4
	300 to 3,000	M30 x 60	Axial	Push-pull, 100 mA NO/NC	0 to 10 V 4 to 20 mA	2.0 mm	■	■	-25 to 70	M12	VK... /4	US 30 M 3000 IU-B4
	600 to 6,000	M30 x 78	Axial	Push-pull, 100 mA NO/NC	0 to 10 V 4 to 20 mA	4.0 mm	■	■	-25 to 70	M12	VK... /4	US 30 M 6000 IU-B4

US-46

The very compact US-46 ultrasonic sensors in rectangular form have a detection range up to 500 mm. They work reliably in the presence of dust, dirt, mist and light, and measuring is done independent of surface, color and size of the target object. Transparent and shiny objects are also detected precisely. The robust housing of these ultrasonic sensors in protection class IP 67 is waterproof and oil-resistant.



Technical data (typ.)	+20 °C, 24 VDC
Service voltage	18 to 30 V DC
For more information, visit	www.di-soric.com

	Operating range (mm)	Housing design Size (mm)	Sound outlet	Switching output	Analog output	Reproducibility	IO-Link	M/I/O	Ambient temperature (°C)	Plug connector	Connection cable (optionally available)	Product description
US-46												
	60 to 150	46 x 30 x 18	Radial	pnp, 100 mA NO	–	1% (Sn max.)			0 to 50	M8	TK ...	US 46 K 150 PSK-TSSL
	60 to 150	46 x 30 x 18	Radial	npn, 100 mA NO	–	1% (Sn max.)			0 to 50	M8	TK ...	US 46 K 150 NSK-TSSL
	120 to 500	46 x 30 x 18	Radial	pnp, 100 mA NO	–	1% (Sn max.)			0 to 50	M8	TK ...	US 46 K 500 PSK-TSSL
	0 to 1,500	Receiver	Radial	pnp, 100 mA NO	–				0 to 50	M8	TK ...	USE 46 K 1500 PSKT-TSSL
				npn, 100 mA NO	–			USE 46 K 1500 NSKT-TSSL				
	–	Transmitter	Radial	–	–				0 to 50	M8	TK ...	USS 46 K 1500-TSSL

US-60

The US-60 series stands out for its very high acoustic power despite its very small construction volume. This allows even small, moving objects and objects with poor reflectivity to be reliably detected. These sensors also work in the presence of heavy dirt. At less than 40 mm in length, they are the most compact ultrasonic sensors for large measuring ranges.

Technical data (typ.)	+20 °C, 24 VDC
Service voltage	18 to 30 V DC
For more information, visit	www.di-soric.com



Operating range (mm)	Housing design Size (mm)	Sound outlet	Switching output	Analog output	Accuracy	IO-Link	M/I/O	Ambient temperature (°C)	Plug connector	Connection cable (optionally available)	Product description
US-60											
80 to 500	60 x 41 x 32	Radial	pnp, 100 mA 2 x NO	–	±1% (Sn max.)			0 to 50	M8	TK ... /4	US 60 K 500 PSS-TSSL
			pnp, 100 mA NO + NC	–							US 60 K 500 PSO-TSSL
			pnp, 100 mA NO	0 to 10 V							US 60 K 500 PSA-TSSL
			pnp, 100 mA NO	10 to 0 V							US 60 K 500 PSA-I-TSSL
			pnp, 100 mA NO	4 to 20 mA							US 60 K 500 PSI-TSSL
			pnp, 100 mA NO	20 to 4 mA							US 60 K 500 PSI-I-TSSL
80 to 800	60 x 41 x 32	Radial	–	0 to 10 V 4 to 20 mA	±1% (Sn max.)			0 to 50	M8	TK ... /4	US 60 K 500 AI-TSSL
			–	10 to 0 V 20 to 4 mA							US 60 K 500 AI-I-TSSL
135 to 1,000	60 x 41 x 32	Radial	pnp, 100 mA 2 x NO	–	±1% (Sn max.)			0 to 50	M8	TK ... /4	US 60 K 1000 PSS-TSSL
			pnp, 100 mA NO + NC	–							US 60 K 1000 PSO-TSSL
			pnp, 100 mA NO	0 to 10 V							US 60 K 1000 PSA-TSSL
			pnp, 100 mA NO	10 to 0 V							US 60 K 1000 PSA-I-TSSL
			pnp, 100 mA NO	4 to 20 mA							US 60 K 1000 PSI-TSSL
			pnp, 100 mA NO	20 to 4 mA							US 60 K 1000 PSI-I-TSSL
135 to 1,500	60 x 41 x 32	Radial	–	0 to 10 V 4 to 20 mA	±1% (Sn max.)			0 to 50	M8	TK ... /4	US 60 K 1000 AI-TSSL
			–	10 to 0 V 20 to 4 mA							US 60 K 1000 AI-I-TSSL



	Operating range (mm)	Housing design Size (mm)	Sound outlet	Switching output	Analog output	Accuracy	IO-Link	M/I/O	Ambient temperature (°C)	Plug connector	Connection cable (optionally available)	Product description
US-60												
	250 to 2,500	60 x 41 x 33	Radial	pnp, 100 mA 2 x NO	–	±1 % (Sn max.)			0 to 50	M8	TK ... /4	US 60 K 2500 PSS-TSSL
				pnp, 100 mA NO + NC	–							US 60 K 2500 PSO-TSSL
				pnp, 100 mA NO	0 to 10 V							US 60 K 2500 PSA-TSSL
				pnp, 100 mA NO	10 to 0 V							US 60 K 2500 PSA-I-TSSL
				pnp, 100 mA NO	4 to 20 mA							US 60 K 2500 PSI-TSSL
				pnp, 100 mA NO	20 to 4 mA							US 60 K 2500 PSI-I-TSSL
	250 to 3,000	60 x 41 x 33	Radial	–	0 to 10 V 4 to 20 mA	±1 % (Sn max.)			0 to 50	M8	TK ... /4	US 60 K 2500 AI-TSSL
				–	10 to 0 V 20 to 4 mA							US 60 K 2500 AI-I-TSSL
	400 to 5,000	60 x 41 x 38	Radial	pnp, 100 mA 2 x NO	–	±1 % (Sn max.)			0 to 50	M8	TK ... /4	US 60 K 5000 PSS-TSSL
				pnp, 100 mA NO + NC	–							US 60 K 5000 PSO-TSSL
				pnp, 100 mA NO	0 to 10 V							US 60 K 5000 PSA-TSSL
				pnp, 100 mA NO	10 to 0 V							US 60 K 5000 PSA-I-TSSL
				pnp, 100 mA NO	4 to 20 mA							US 60 K 5000 PSI-TSSL
				pnp, 100 mA NO	20 to 4 mA							US 60 K 5000 PSI-I-TSSL
	400 to 6,000	60 x 41 x 38	Radial	–	0 to 10 V 4 to 20 mA 10 to 0 V 20 to 4 mA	±1 % (Sn max.)			0 to 50	M8	TK ... /4	US 60 K 5000 AI-TSSL
				–								US 60 K 5000 AI-I-TSSL

USGT

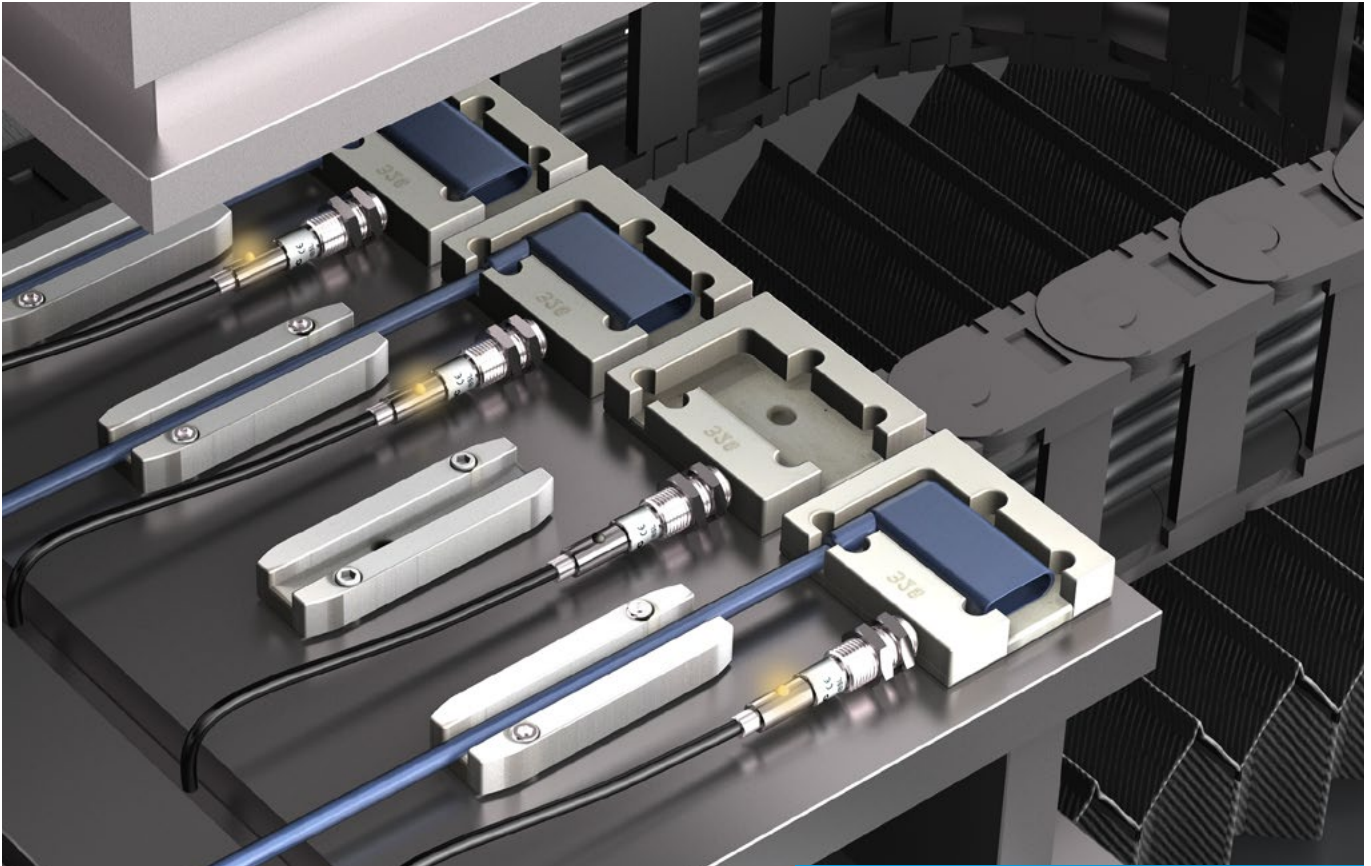
The USGT ultrasonic fork sensors are balanced sensors for determining the position of edges in films and paper (transparent, non-transparent and reflective). The sensors are distinguished by a very high repetition accuracy. They are insensitive to dirt and have a robust metallic housing in a high protection class.

Technical data (typ.)	+20 °C, 24 VDC
Service voltage	8 to 30 V DC
Protection class	IP 67
Housing material	Aluminum, black anodized



	Operating range (mm) fork width / measuring range (mm)	Housing design Size (mm)	Switching output	Analog output	Reproducibility	Ambient temperature (°C)	Plug connector	Connection cable (optionally available)	Product description
USGT									
	30/8	74 x 30 x 65	-	0 to 10 V 10 to 0 V	0.1 mm	0 to 60	M12	VK.../4	USGT 30/8 U-B4
	40/13	92 x 39 x 80							USGT 40/13 U-B4
	60/8	104 x 30 x 65							USGT 60/8 U-B4
	70/13	122 x 39 x 80							USGT 70/13 U-B4
	30/8	74 x 30 x 65	-	4 to 20 mA	0.1 mm	0 to 60	M12	VK.../4	USGT 30/8 I-B4
	40/13	92 x 39 x 80							USGT 40/13 I-B4

Capacitive proximity sensors



Our capacitive proximity sensors detect liquid, powdery and solid materials precisely and reliably. They are equally suitable for the detection of metallic and non-metallic parts. Parts can also be detected through container walls or packaging.



 **di-soric**

KNS Extended	127
KDC Standard	129
Installation instructions	131

KNS EXTENDED

Our capacitive proximity sensors detect liquid, powdery and solid materials precisely and reliably, even through container walls or packaging. They are equally suitable for the detection of metallic and non-metallic parts. The sensitivity and NO/NC switching is adjusted using the Smart Sensor Profile. The sensors are available in the smallest sizes Ø 6.5mm, M8 and M12.



Technical data (typ.)	+20 °C, 24 VDC
Sensitivity adjustment	via IO-Link or multturn potentiometer
Operation modes	Standard (general applications)
	High Resolution (for detecting very small objects)
	Speed (reliable detection of fast-moving parts)
Installation instructions	flush / non-flush / virtually flush (see page 131)
For more information, visit	www.di-soric.com

Operation modes	
<p>Standard – General applications</p> <ul style="list-style-type: none"> Switching frequency 100 Hz Normal interference immunity 	<p>High Resolution – For detecting very small objects</p> <ul style="list-style-type: none"> Stable measured value Reduced switching frequency 10 Hz High interference immunity
<p>Speed – Reliable detection of fast-moving parts</p> <ul style="list-style-type: none"> Fast object detection Switching frequency 300 Hz Low interference immunity 	

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Switching frequency (Hz) / mode	IO-Link adjustments	Potentiometer sensitivity adjustments	Housing material	Protection class	Cable material/length, Plug connector	Product description
	M8 x 37.5	2.0 ¹⁾ (0.2 to 3.0)	f	Push-pull, 100 mA, NO/NC	100 (Standard) 10 (High resolution) 200 (Speed)	■		Stainless steel V2A	IP 65, IP 67	2 m/PVC	KNS M08KM 2B G3-2R
	M8 x 45									M8	KNS M08KM 2B G3-T3
	M8 x 40.6	3.0 ¹⁾ (0.2 to 4.0)	nf	Push-pull, 100 mA, NO/NC	100 (Standard) 10 (High resolution) 200 (Speed)	■		Stainless steel V2A	IP 65, IP 67	2 m/PVC	KNS M08KM 3N G3-2R
	M8 x 48									M8	KNS M08 KM 3N G3-T3
	M8 x 52	2.0 (0.1 to 3.0)	f	Push-pull, 100 mA, NO/NC	100 Hz		■	Stainless steel V2A	IP 65, IP 67	2 m/PVC	KNS M8M 02B G3-2R
	M8 x 60									M8	KNS M8M 02B G3-T3
	M8 x 52	3.0 (0.1 to 4.0)	nf	Push-pull, 100 mA, NO/NC	100 Hz		■	Stainless steel V2A	IP 65, IP 67	2 m/PVC	KNS M8M 03N G3-2R
	M8 x 60									M8	KNS M8M 03N G3-T3
	M12 x 40	4.0 ¹⁾ (0.3 to 8.0)	f	Push-pull, 100 mA, NO/NC	100 (Standard) 10 (High resolution) 200 (Speed)	■		Brass, nickel-plated	IP 65, IP 67	2 m/PVC	KNS M12KM 4B G3-2R
	M12 x 45									M12	KNS M12KM 4B G3-B3
	M12 x 44	8.0 ¹⁾ (0.3 to 12)	nf	Push-pull, 100 mA, NO/NC	100 (Standard) 10 (High resolution) 200 (Speed)	■		Brass, nickel-plated	IP 65, IP 67	2 m/PVC	KNS M12KM 8N G3-2R
	M12 x 49									M12	KNS M12KM 8N G3-B3

¹⁾Switching distance adjustment via IO-Link

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Switching frequency (Hz) / mode	IO-Link adjustments	Potentiometer sensitivity adjustments	Housing material	Protection class	Cable material/length, Plug connector	Product description
	M12 x 55	4.0 (0.1 to 8.0)	f	Push-pull, 100 mA, NO/NC	100 Hz	■		Stainless steel V2A	IP 65, IP 67	2 m/PVC	KNS M12M 04B G3-2R
	M12 x 60									M12	KNS M12M 04B G3-B3
	Ø 6.5x37.6	2.0 ¹⁾ (0.2 to 3.0)	f	Push-pull, 100 mA, NO/NC	100 (Standard) 10 (High resolution) 200 (Speed)	■		Stainless steel V2A	IP 65, IP 67	2 m/PVC	KNS D6.5KM 2B G3-2R
	Ø 6.5x45									M8	KNS D6.5KM 2B G3-T3
	Ø 6.5x40.6	3.0 ¹⁾ (0.2 to 4.0)	nf	Push-pull, 100 mA, NO/NC	100 (Standard) 10 (High resolution) 200 (Speed)	■		Stainless steel V2A	IP 65, IP 67	2 m/PVC	KNS D6.5 KM 3N G3-2R
	Ø 6.5x48									M8	KNS D6.5 KM3N G3-T3
	Ø 6.5x52	2.0 (0.1 to 3.0)	f	Push-pull, 100 mA, NO/NC	100 Hz	■		Stainless steel V2A	IP 65, IP 67	2 m/PVC	KNS D6.5M 02B G3-2R
	Ø 6.5x60									M8	KNS D6.5M 02B G3-T3
	Ø 6.5x52	3.0 (0.1 to 4.0)	nf	Push-pull, 100 mA, NO/NC	100 Hz	■		Stainless steel V2A	IP 65, IP 67	2 m/PVC	KNS D6.5M 03N G3-2R
	Ø 6.5x60									M8	KNS D6.5M 03N G3-T3
	Ø 6.5x55	2.0 (0.1 to 3.0)	f	Push-pull, 150 mA, NO/NC	70 Hz	■		Stainless steel V2A	IP 65, IP 67	2 m/PUR	KDCT 6.5 V 02 G3-3
										2 m/PUR	KDCT 6.5 V 02 G3-4
	Ø 6.5x60	2.0 (0.1 to 3.0)	f	Push-pull, 150 mA, NO/NC	70 Hz	■		Stainless steel V2A	IP 65, IP 67	M8 3-pin	KDCT 6.5 V 02 G3-T3
										M8 4-pin	KDCT 6.5 V 02 G3-T4

¹⁾Switching distance adjustment via IO-Link

KDC STANDARD

Capacitive proximity sensors in the KDC series are available in stainless steel and plastic housings. They are particularly suited for the detection of liquid, powdery and solid materials, as well as metallic and non-metallic parts. They are available in different sizes from M18 to M30 and \varnothing 50 mm.



Technical data (typ.)	+20 °C, 24 VDC
Sensitivity adjustment	Using multiturn potentiometer or auto-teach key
Installation instructions	flush / non-flush / virtually flush (see page 131)
For more information, visit	www.di-soric.com

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Potentiometer sensitivity adjustments Auto-teach key	Housing material	Protection class	Cable material/length, Plug connector	Product description
	M8 x 52	2.0 (0.1 to 3.0)	f	Push-pull, 150 mA, NO/NC	■	Stainless steel V2A	IP 65	2 m/PUR	KDCT 08 V 02 G3-3
									KDCT 08 V 02 G3-4
	M8 x 60	2.0 (0.1 to 3.0)	f	Push-pull, 150 mA, NO/NC	■	Stainless steel V2A	IP 65	M8	KDCT 08 V 02 G3-T3
									KDCT 08 V 02 G3-T4
	M8 x 60	3.0 (0.1 to 4.0)	nf	Push-pull, 150 mA, NO/NC	■	Stainless steel V2A	IP 65	M8	KDCT 08 V 03 G3-T3
									KDCT 08 V 03 G3-T4
	M12x60	4.0 (0.1 to 6.0)	f	Push-pull, 150 mA, NO/NC, switchable	■	Stainless steel V2A	IP 65	2 m/PUR	KDCT 12 V 04 G3-4
								M12	KDCT 12 V 04 G3-B4
	M18 x 66	8.0	f	pnp, 200 mA, NC	■	Stainless steel V2A	IP 67	2 m/PVC	KDC 18 M 08 NSLK
				npn, 200 mA, NO					KDC 18 M 08 NOLK
	M18 x 75	8.0	f	pnp, 200 mA, NO	■	Stainless steel V2A	IP 67	M12	KDC 18 M 08 PSK-IBSL
				pnp, 200 mA, NC					KDC 18 M 08 POK-IBSL
				npn, 200 mA, NO					KDC 18 M 08 NSK-IBSL
			npn, 200 mA, NC					KDC 18 M 08 NOK-IBSL	
M18 x 76	8.0	f	pnp, 100 mA, NO	■	Stainless steel V2A	IP 67	2 m/PUR	KDC 18 MB 08 PSL	
	M18 x 88.5	15	nf	npn, 100 mA, NO	■	Plastic PBT	IP 67	M12	KDC 18 K 15 NSK-IBSL
				pnp, 200 mA, NC					KDC 18 K 15 POK-IBSL
				pnp, 200 mA, NO					KDC 18 K 15 L PSK-IBSL
	M18 x 65	2 to 15	nf	pnp, 200 mA, NO	■	Plastic PBT	IP66, IP64	2 m/PVC	KDC 18 K 15 SPSPK
				M18 x 75.5					2 to 15

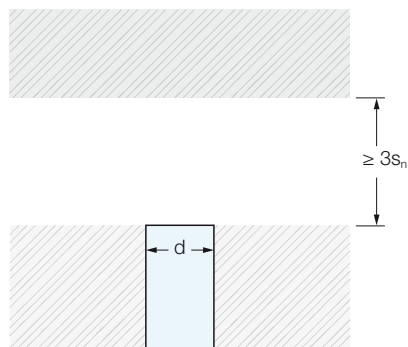
¹Front side ²Back side

	Housing design Size (mm)	Switching distance (mm)	flush (f) / non-flush (nf)	Switching output	Potentiometer sensitivity adjustments Auto-teach key	Housing material	Protection class	Cable material/length, Plug connector	Product description
	M30 x 67	15	f	pnp, 100 mA, NO	■	Stainless steel V2A	IP 67	2 m/PUR	KDC 30 M 15 PSLK
	M30 x 67	20	f	pnp, 300 mA, NO/NC	■	Stainless steel V2A	IP 67	2 m/PUR	KDC 30 M 20 NSOLK
	M30 x 67	20	f	pnp, 300 mA, NO/NC	■	Stainless steel V2A	IP 67	M12	KDC 30 M 20 PSOK-BSL
	M30 x 67	20	f	nnp, 300 mA, NO/NC	■	Stainless steel V2A	IP 67	M12	KDC 30 M 20 NSOK-BSL
	M30 x 78.5	1 to 25	nf	pnp, 100 mA, NO	■	Plastic PBT	IP 67	M12 4-pin	KDC 30 K 25 PSK-BSL
	M30 x 87	30	nf	nnp, 300 mA, NO/NC switchable	■	Plastic PBT	IP 68 ¹⁾ IP 64 ²⁾	M12 3-pin	KDC 30 K 30 NSOK-BSL
	M30 x 82	30	nf	nnp, 300 mA, NO/NC switchable	■	Plastic PBT	IP 68 ¹⁾ IP 64 ²⁾	2 m/PVC	KDC 30 K 30 NSOLK
	M30 x 82	30	nf	pnp, 300 mA, NO/NC switchable	■	Plastic PBT	IP 68 ¹⁾ IP 64 ²⁾	2 m/PVC	KDC 30 K 30 PSOLK
	Ø50 x 10	2 to 25 (adjustable)	f	pnp/nnp, 150 mA, NO/NC	■	Plastic POM	IP 67	2 m/PUR	KDC 50 K 25 PNSOLK
	Ø50 x 10	2 to 25 (adjustable)	nf	pnp, 300 mA, NO/NC	■	Plastic POM	IP 67	2 m/PVC	KDC 50 K 25S PSOLK
	Ø50 x 10	2 to 25 (adjustable)	nf	nnp, 300 mA, NO/NC	■	Plastic POM	IP 67	2 m/PVC	KDC 50 K 25S NSOLK
	Ø50 x 10	2 to 25 (adjustable)	f	pnp/nnp, 150 mA, NO/NC	■	Plastic POM	IP 67	M8	KDC 50 K 25 PNSOK-TSL

¹⁾ Front side ²⁾ Back side

INSTALLATION INSTRUCTIONS FOR CAPACITIVE PROXIMITY SENSORS

Flush installation (f)

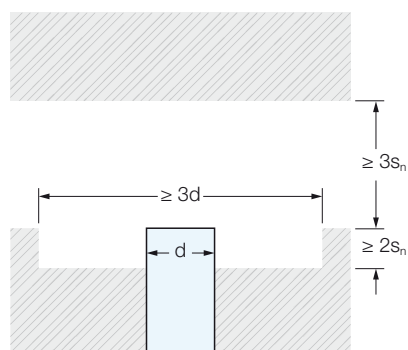


These proximity switches can be installed in all materials (metals / non-metals) such that the active sensor surface lines up flush with the surrounding material on the front side.

They have the following advantages:

- Flush installation in conductive materials (metals)
- Protection of the sensing surface prior to mechanical damage
- Less influence from external interference fields
- Less distance to the next proximity switch on the side

Non-flush installation (nf)

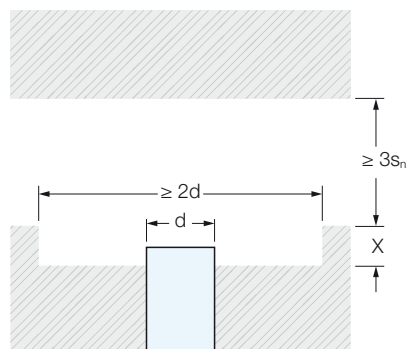


These proximity switches are allowed to be installed non-flush in conductive materials.

They have the greatest possible switching distance. Special installation instructions apply to these proximity switches.

Flush installation in nonconductive materials is permitted.

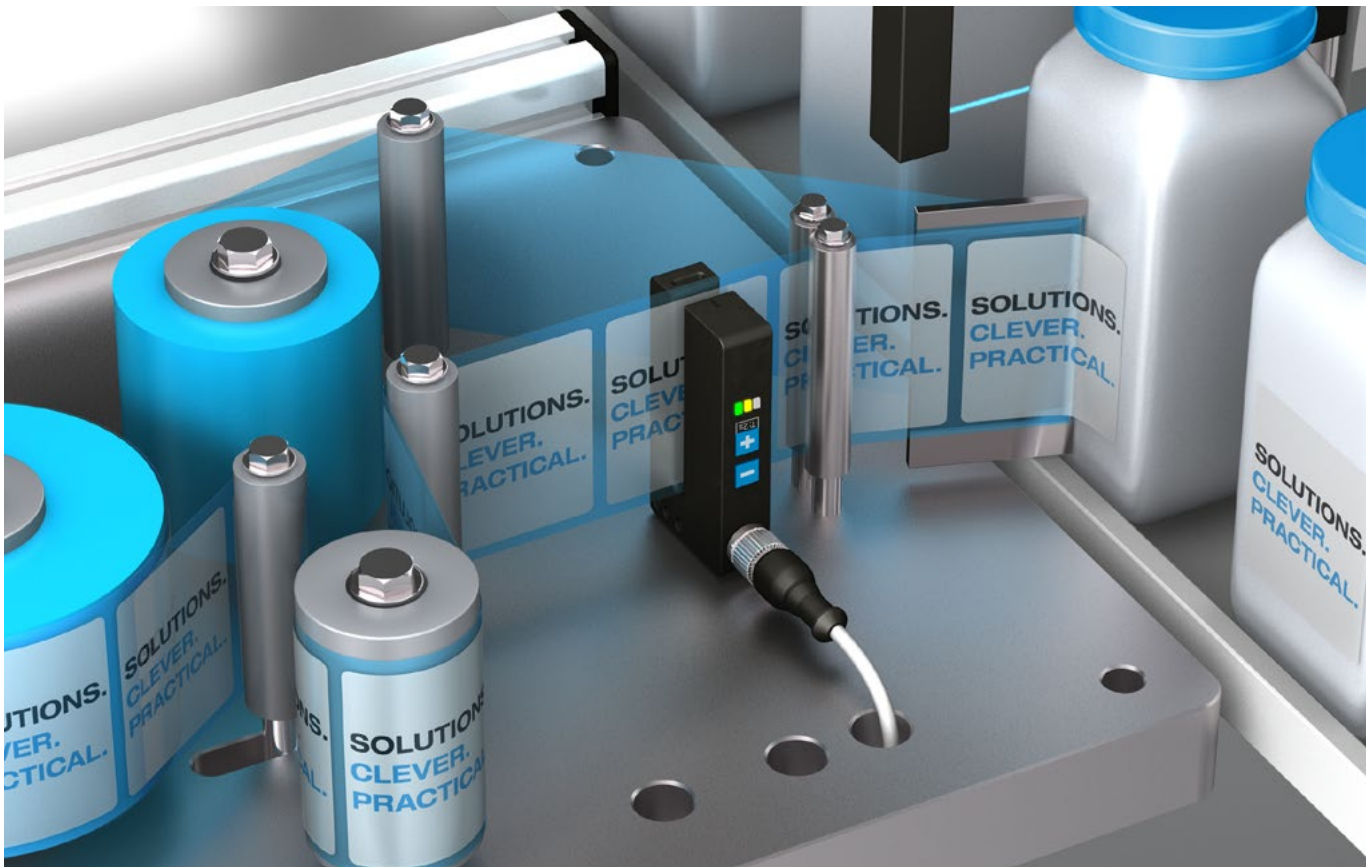
Quasi-flush installation (qf)



These proximity switches have a greater switching distance than proximity switches for flush installation. However, they are only allowed to be installed quasi-flush in conductive materials, i.e. not entirely flush. The proximity switches must protrude from the installation surface by dimension X (see the Installation instructions).

Flush installation in nonconductive materials is permitted.

Label sensors



When our sensors are used for label detection in a fork construction, labels can be positioned precisely at high belt speeds. They have been calibrated to a variety of different label materials (paper, metallic, transparent, thin/thick) and are available with different functional principles (optical/capacitive/ultrasonic).



 **di-soric**

OGUTI Optical	133
UGUTI Ultrasonic	134
KSSTI Capacitive	135

Detection	Optical	Capacitive	Ultrasonic
Series	OGUTI	KSSTI	UGUTI
Very small labels	✓	✓	✓
Transparent labels		✓	✓
Metallic labels	✓		✓
Very thin labels	✓	✓	✓
Thick labels	✓	✓	✓
Booklets	✓		✓
Thick carrier material		✓	✓

Special requirements			
Exact positioning	✓	✓	✓
Maximum belt speed	✓		
Maximum reproducibility	✓		
Mounting directly on the dispensing edge	✓		
IO-Link			✓
Manual teach			✓
Auto-teach	✓	✓	✓
Remote teach	✓	✓	✓
Adjustable pulse stretching (using IO-Link)			✓
Warning output			✓

OGUTI OPTICAL

The compact, OGUTI optical label sensors detect both thin and thick paper labels with outstanding speed and precision thanks to their large fork openings. They stand out for their extremely high dispensing precision and reproducibility, making maximum belt speeds possible. Using auto-teach, they can be taught in to new materials quickly and intuitively.

Technical data (typ.)	+20 °C, 24 VDC
Service voltage	10 to 35 V DC
Ambient temperature	-10 to +60 °C
Housing material	Die-cast zinc, varnished




	Fork/slot width (mm)	Slot depth (mm)	Infrared light, 880 nm, clocked	Switching output	IO-Link interface	No-load current (mA)	Activation time (µs)	Max. belt speed (m/min)	Reproducibility (µm)	Sensitivity adjustment using teach button	Sensitivity adjustment using remote teaching	Plug connector	Connection cable (optionally available)	Product description
	2	40	■	pnp 200 mA, NO/NC		35	166	500	< 50	■	■	M8	TK ...	OGUTI 002 P3K-TSSL
													TK ... /4	OGUTI 002 FP3K-TSSL
	5	50	■	Push-pull 200 mA, NO/NC		35	166	500	< 50	■	■	M8	TK ...	OGUTI 005/50 G3K-TSSL
													TK ... /4	OGUTI 005/50 FG3K-TSSL

UGUTI ULTRASONIC

The UGUTI ultrasonic label sensors can be used universally for a wide variety of label materials. They reliably detect not only thin and thick transparent, foil and paper labels but also metallic labels. The innovative dual operation concept—implemented using either IO-Link or auto-teach—makes it possible to put the sensors into operation quickly.

Technical data (typ.)	+20 °C, 24 VDC
Service voltage	10 to 30 V DC
Ambient temperature	0 to +60 °C
Housing material	Aluminum, black anodized



UGUTI Ultrasonic														
	Fork/slot width (mm)	Slot depth (mm)	Infrared light, 880 nm, clocked	Switching output	IO-Link interface	No-load current (mA)	Activation time (µs)	Max. belt speed (m/min)	Reproducibility (µm)	Sensitivity adjustment using teach button	Sensitivity adjustment using remote teaching	Plug connector	Connection cable (optionally available)	Product description
	6	70		2 independent outputs, push-pull, 100 mA, NO/NC	■	40	< 250	250 ¹⁾	< 200 ²⁾	■	■	M12 M12 (radial)	VK .../5	UGUTI 6/70 G6-B5 UGUTI 6/70 G6-RB5


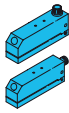
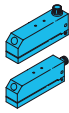
¹⁾ 2 mm label and 2 mm gap
²⁾ Depends on the label material and carrier material

KSSTI CAPACITIVE

The KSSTI capacitive label sensors are the solution of choice for detecting thin transparent labels, foil labels and paper labels. They show their strengths particularly well wherever high tape speeds are required. Using auto-teach, they are taught in to new materials quickly and intuitively.



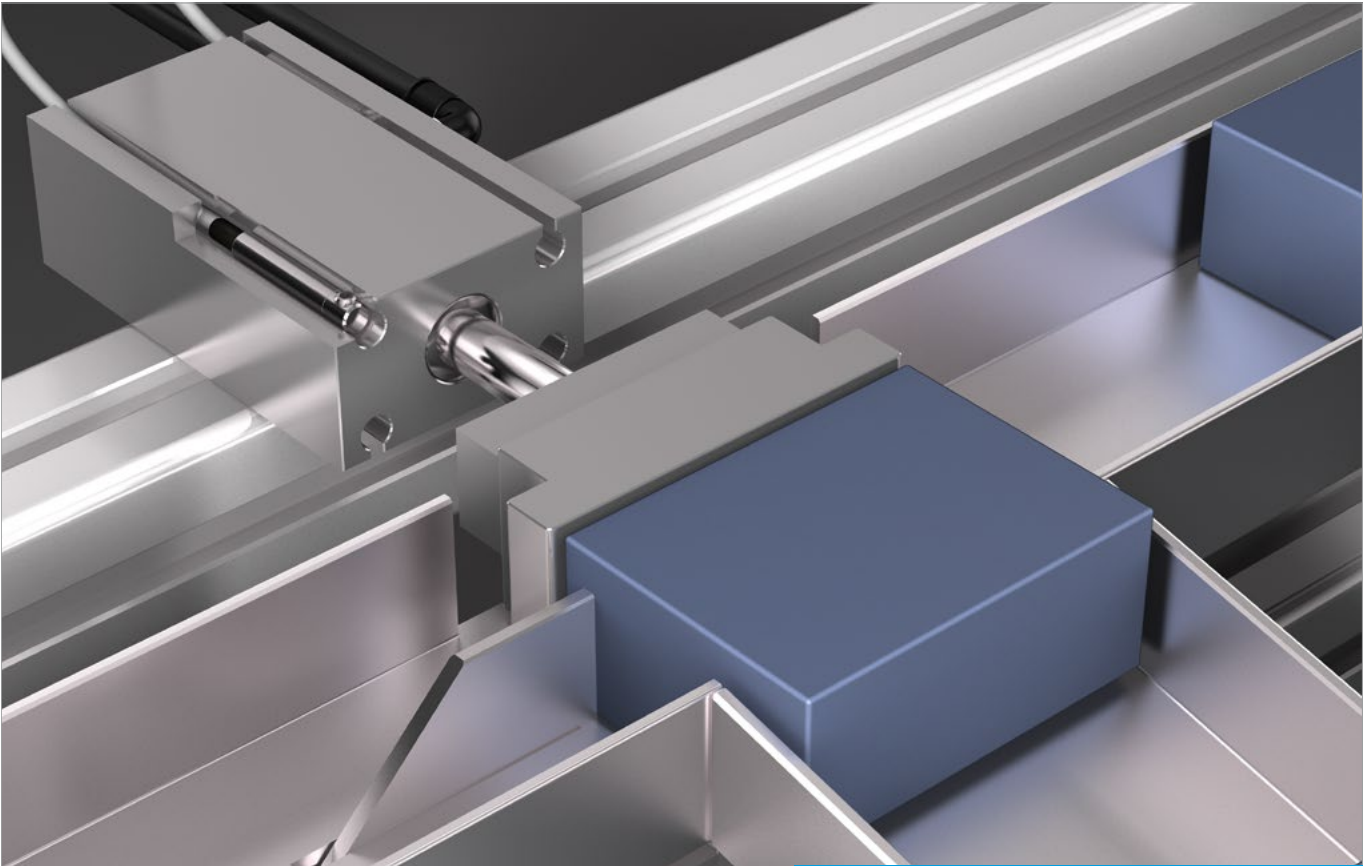
Technical data (typ.)	+20 °C, 24 VDC
Service voltage	10 to 35 V DC
Ambient temperature	0 to +60 °C
Housing material	Aluminum, black anodized

	Fork/slot width (mm)	Slot depth (mm)	Infrared light, 880 nm, clocked	Switching output	IO-Link interface	No-load current (mA)	Activation time (µs)	Max. belt speed (m/min)	Reproducibility (µm)	Sensitivity adjustment using teach button	Sensitivity adjustment using remote teaching	Plug connector	Connection cable (optionally available)	Product description
	0.4	50		Push-pull 200 mA, NO/NC		70	< 600	300 ¹⁾	< 150 ²⁾	■	■	M8	TK ...	KSSTI 400 G3K-TSSL
										■	■		TK ... /4	KSSTI 400 FG3K-TSSL
	0.6	50		Push-pull 200 mA, NO/NC		70	< 600	300 ¹⁾	< 150 ²⁾	■	■	M8	TK ...	KSSTI 600 G3K-TSSL
										■	■		TK ... /4	KSSTI 600 FG3K-TSSL
	1.0	50		Push-pull 200 mA, NO/NC		70	< 600	300 ¹⁾	< 150 ²⁾	■	■	M8	TK ...	KSSTI 1000 G3K-TSSL
										■	■		TK ... /4	KSSTI 1000 FG3K-TSSL
	0.6	85		Push-pull 200 mA, NO/NC		70	< 600	300 ¹⁾	< 150 ²⁾	■	■	M12	VK ... /4	KSSTI 600/80 FG3LK-IBS
	1.0	85		Push-pull 200 mA, NO/NC		70	< 600	300 ¹⁾	< 150 ²⁾	■	■	M12	VK ... /4	KSSTI 1000/80 FG3LK-IBS
	0.6	85		Push-pull 200 mA, NO/NC		70	< 600	300 ¹⁾	< 150 ²⁾	■	■	M12	VK ... /4	KSSTI 600/80 FG3LK-AIBS
	1.0	85		Push-pull 200 mA, NO/NC		70	< 600	300 ¹⁾	< 150 ²⁾	■	■	M12 (radial)		KSSTI 1000/80 FG3LK-AIBS

¹⁾ 2 mm label and 2 mm gap

²⁾ Depends on the label material and carrier material

Magnetic field sensors



Magnetic field sensors are designed for pneumatic cylinders with integrated magnets. The piston position is detected through the cylinder wall.



 **di-soric**











Cylinder Sensors C-Groove	137
Cylinder Sensors T-Groove	138
Gripper Sensors	139



CYLINDER SENSORS C-GROOVE

Our cylinder sensors for the C groove are designed for all common pneumatic cylinders with installed magnets.



Technical data (typ.)	+20 °C, 24 VDC
Service voltage	10 to 30 V DC
Voltage drop	2.0 V
	2.5 V (MZEx 9-xx...)
Switching frequency	1,000 Hz
Ambient temperature	-25 to +70 °C
	-25 to +80 °C (MZEx 9-xx...)
Insulation proof voltage	500 V
Polarity-safe	Yes
Protection class	IP 67



	Housing design Size (mm)	Installation method	Housing material	Switching output	Short-circuit-proof	Reproducibility (mm)	Cable length (m)	Plug connector	Connection cable (optionally available)	Connection cable, PUR	Product description
Cylinder Sensors C-Groove											
	Ø3.7x21		V2A (1.4301 / AISI 304)	Transistor pnp 100mA, NO		0.1	0.3 0.6 0.3	M8 M8 M12	TK ... TK ... VK ...		MZEC 3.7 VPS-K-T3 MZEC 3.7 VPS-K0.6-T3 MZEC 3.7 VPS-K-B3
	Ø3.7x21		V2A (1.4301 / AISI 304)	Transistor npn 100mA, NO		0.1	0.3 0.6 0.3	M8 M8 M12	TK ... TK ... VK ...		MZEC 3.7 VNS-K-T3 MZEC 3.7 VNS-K0.6-T3 MZEC 3.7 VNS-K-B3
	Ø4.0x25		V2A (1.4301 / AISI 304)	Transistor pnp 100mA, NO		0.1	2.5 0.3 0.6 0.3	- M8 M8 M12	- TK ... TK ... VK ...		MZEC 4.0 PSL MZEC 4.0 PS-K-TSSL MZEC 4.0 PS-K0.6-TSSL MZEC 4.0 PS-K-IBS
	2.8 x 7.7 x 17.5		Polyamide, mounting eccentric stainless steel	Transistor pnp 100mA, NO	■	0.2	2.0 0.3	- M8	- TK ...	■	MZEC 9-18 PSL MZEC 9-18 PSL-K-TSS
	2.8 x 5 x 25.8		Polyamide, mounting eccentric stainless steel	Transistor pnp 100mA, NO	■	0.2	2.0 0.3	- M8	- TK ...	■	MZEC 9-26 PSL MZEC 9-26 PSL-K-TSS

-  Mounting lengthwise along the groove
 Can be inserted into the groove from above








CYLINDER SENSORS T-GROOVE

Our cylinder sensors for the T-groove are designed for all common pneumatic cylinders with installed magnets.

Technical data (typ.)	+20 °C, 24 VDC
Service voltage	10 to 30 V DC
Switching output	Transistor pnp / NO
Voltage drop	2.0 V
Switching frequency	1,000 Hz
Ambient temperature	-25 to +70 °C
Insulation proof voltage	500 V
Polarity-safe	Yes
Protection class	IP 67

 Mounting lengthwise along the groove
 Can be inserted into the groove from above



	Housing design Size (mm)	Installation method	Housing material	Current-carrying capacity (mA)	Short-circuit-proof	Reproducibility (mm)	Cable length (m)	Plug connector	Suitable connection cable (optionally available)	Connection cable, PUR, welding-spark-resistant	Product description
	6.1 x 5 x 25		Die-cast zinc	200	■	0.1	2.5	–	–	■	MZET 25 PSLK
							0.3	M8	TK ...		MZET 25 PSK-K-TSSL
							0.6	M8	TK ...		MZET 25 PSK-K0.6-TSSL
							0.3	M12	VK ...		MZET 25 PSK-K-IBS
	6.1 x 5 x 25		Die-cast zinc	200	■	0.1	2.5	–	–	■	MZET 28 PSLK
							0.3	M8	TK ...		MZET 28 PSK-K-TSSL
							0.6	M8	TK ...		MZET 28 PSK-K0.6-TSSL
							0.3	M12	VK ...		MZET 28 PSK-K-IBS
	5 x 7 x 20		Die-cast zinc	200	■	0.1	–	M8	TK ...		MZERT 20 PSK-TSSL
											MZERTI 20 PSK-TSSL ¹⁾
	5 x 6.5 x 25		Polyamide, mounting eccentric stainless steel	100	■	0.2	2.0	–	–	■	MZET 9-25 PSL
							0.3	M8	TK ...		MZET 9-25 PSL-K-TSS
							0.3	M12	VK ...		MZET 9-25 PSL-K-IBS

¹⁾ With an Allen screw

GRIPPER SENSORS

Our gripper sensors are designed and developed for gripper systems that are used in automated processes as end-of-arm tooling on portals and robots. The gripper systems are designed individually for the respective application cases in the most varied industries.



Technical data (typ.)	+20 °C, 24 VDC
Service voltage	10 to 30 V DC
Switching output	Transistor pnp / NO
Voltage drop	2.0 V
Switching frequency	1,000 Hz
Ambient temperature	-25 to +70 °C
Insulation proof voltage	500 V
Polarity-safe	Yes
Protection class	IP 67

Mounting lengthwise along the groove
 Can be inserted into the groove from above

	Housing design Size (mm)	Installation method	Housing material	Current-carrying capacity (mA)	Short-circuit-proof	Reproducibility (mm)	Cable length (m)	Plug connector	Connection cable (optionally available)	Connection cable, PUR	Product description
Gripper Sensors for the C-Groove											
	Ø3.9x21		Stainless steel, plastic	100		0.1	2.5	–	–		MZES 3.9 PSL
							0.3	M8	TK ...		MZES 3.9 PS-K-TSSL
							0.6	M8	TK ...		MZES 3.9 PS-K0.6-TSSL
Gripper Sensors for the T-Groove											
	6.1 x 5 x 25		Die-cast zinc	100		0.1	2.5	–	–	■	MZES 25 PSL
							0.3	M8	TK ...		MZES 25 PS-K-TSSL

Special sensors



Our special sensors solve special detection tasks and are designed for specific applications. di-soric's range of products thus includes movement sensors for contact-free detection of movements.



 **di-soric**

OBS Optical Motion Sensors	141
RS Radar Sensors	142
KUS Contact Sensors	143

OBS OPTICAL MOTION SENSORS

The OBS optical movement sensors are used for contact-free close-range detection of movements and direction of movement. The sensors have a detection range of 20 mm to 40 mm. They can distinguish between movement and standstill and, have an option for detecting the direction of movement. The standstill speed up to 5 m/s is easy to set using a potentiometer.

Technical data (typ.)	+20 °C, 24 VDC
Service voltage	10 to 30V DC
No-load current	30mA
Diameter of light spot	Ø 2.0mm
Working distance	30±10 based on material
Pulse stretching	1 to 1,000 ms, adjustable
Activation time	10 ms
Emitted light	Infrared laser, 850nm
Laser class (EN 60825-1)	1M
Ambient light immunity	5 kLx
Ambient temperature	+5 to +45 °C
Insulation proof voltage	500V
Protection class	IP 67
Protection class	III, operation on protective low voltage
Housing material	Aluminum, black anodized
Window material	PMMA



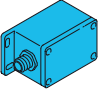
	Movement sensor	Detection of direction	Emitted light	Speed (m/s, based on material)	Push-pull, 150mA	NO/NC, switchable	NO	Voltage drop (V)	LED: Switching output	LED: Switching output (yellow), operation (green)	Plug connector	Connection cable (optionally available)	Product description
OBS Optical Motion Sensors													
	■		Laser, infrared	< 5.0	1x	■		2.5		■	M8, 3-pin	TK ...	OBS 60 M 30 G3-T3
	■	X or Y	Laser, infrared	< 5.0	2x		■	2.0	2x		M8, 4-pin	TK ... /4	OBSR 60 M 30 G8-T4

RS RADAR SENSORS

Radar movement sensors are used for contact-free detection of large objects and distinguish between approaching and departing objects at a distance of 0.5 m to 6 m. The sensitivity or size of the part to detect can be adjusted and small parts can thereby be hidden. Due to their robust nature and the high protection class, these radar sensors are also very well suited for the outdoors.

Technical data (typ.)	+20 °C, 24 VDC
Service voltage	10 to 35V DC
No-load current	35mA
Working distance	500 to 6,000 mm
Pulse stretching	0.1 to 30 s adjustable
Activation time	10 ms
Switching frequency	< 2 Hz
Working frequency	24.125 GHz, K-band
Ambient temperature	-20 to +60 °C
Insulation proof voltage	500V
Protection class	IP 67
Protection class	III, operation on protective low voltage
Housing material	Die-cast zinc, black varnished



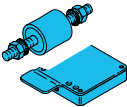
	Radar sensor	Switching output for detection of approximation and distance	Direction-dependent switching output for detection of approximation and distance	Push-pull, 200 mA	NO/NC, switchable	Voltage drop (V)	LED: Operation (green), Distance (yellow), Proximity (yellow)	Plug connector	Connection cable (optionally available)	Product description
RS Radar Sensors										
	■	1x	■	■	2.0	■	M12	VK ...		RS 40 M 6000 G3L-IBS
	■	2x	■	■	2.0	■	M12	VK ...		RS 40 M 6000 G8L-IBS

KUS CONTACT SENSORS

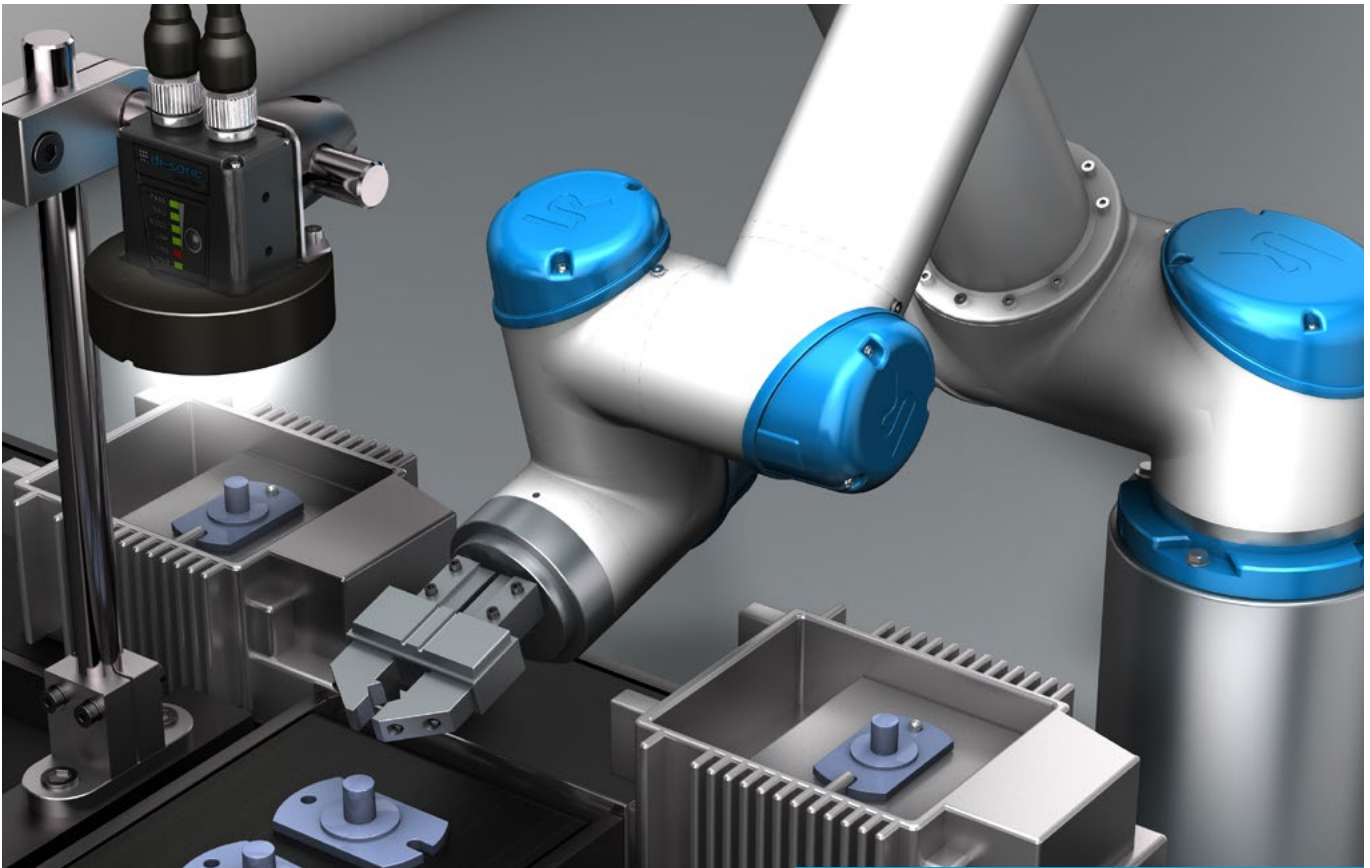
The KUS contact sensors react to the contact of an object on the sensor contact surface. They are used for detecting small parts down to 0.3 g.

Technical data (typ.)	+20 °C, 24 VDC
Service voltage	10 to 35V DC
No-load current	15 mA
Sensitivity	Steel ball Ø 3 mm from 20 mm height
Pulse stretching	0.1 to 30 ms adjustable
Response-/release time	0.30 ms
Switching frequency	100 Hz
Ambient temperature	-25 to +70 °C
Insulation proof voltage	500 V
Protection class	IP 67
Protection class	III, operation on protective low voltage



	Up to 100 parts per second	Contact sensor	Contact sensor included Baffle plate made of stainless steel	PNP, 200 mA	NO	Voltage drop (V)	Housing material (contact sensor)	Housing material (baffle plate)	Plug connector	Connection cable (optionally available)	Product description
KUS Contact Sensors											
	■	■				2.0	Aluminum		M8	TK ...	KUS 50 M 100 PSK-TSL
	■		■	■	■		Aluminum	Stainless steel			KUSP 50 M 100 PSK-TSL

Vision sensors



The vision sensors from di-soric are intuitively operated Smart Vision sensor systems that can be put into operation within minutes and without training. The Vision Sensors can be used out-of-box and have an extensive assortment of software tools and standardized interfaces for communication with peripherals.




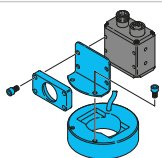
CS-50

High-performance and fast – as the smallest vision sensor on the market, CS-50 offers big performance for numerous testing tasks in industrial applications. It has the most varied communication interfaces and extensive accessories. In the most varied industrial environments, it is ideally suited for completeness control, rotation tests, presence control and much more.

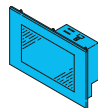
Technical data (typ.)	+20 °C, 24 VDC
Service voltage	4.75 to 30V DC
No-load current	150mA, (24VDC)
Dimensions (H x W x D)	25.4 x 44.5 x 44.5 mm
Control buttons	1
Interchangeable light	Yes (red, white, blue, infrared)
Ambient temperature	0 to +40 °C
Protection class	IP 65, IP 67
Protection class	III, operation on protective low voltage
Housing material	Aluminum, black
Weight	68g
Vibration/shock resistance	55 Hz sine / 2,000 Hz random / 50 g
Number of inputs/outputs	1/3
External trigger input	off = < 1.0 V (ON input)
Inspection tasks	Locating, counting, presence, measuring, logic
Equipment	Internal trigger External trigger input PC software setup Logic for user-defined outputs
Image output	b/w, VGA
Number of jobs	Unlimited (1.4 GB)
Exposure time	1 -255 for operation with Profinet 66 to 58.825 µs



	Focal length (mm)	Working distance (mm)	Light color	Max. part speed (Images/sec)	Profinet	RS 232	Ethernet / IP	TCP/IP	Product description
CS-50									
	5 / 10	50 to 300	<input checked="" type="checkbox"/> High power, red	42	■	■	■	■	CS 50 BM2-2-ES-G1
			<input type="checkbox"/> High power, white						CS 50 BM2-2-ES-G5
	16 / 32	50 to 150	<input checked="" type="checkbox"/> High power, red	42	■	■	■	■	CS 50 BM2-4-ES-G1
			<input type="checkbox"/> High power, white						CS 50 BM2-4-ES-G5
	16 / 32	75 to 1200	<input checked="" type="checkbox"/> High power, red	42	■	■	■	■	CS 50 BM2-4L-ES-G1
			<input type="checkbox"/> High power, white						CS 50 BM2-4L-ES-G5



Ethernet cable for CS-50 Vision Sensors



see "Accessories CS-50", page 224

Hand-held readers



In most industries, data must be detected quickly, reliably and flexibly. In this context, the ID handheld systems from di-soric are the first choice – from the lightweight hand-reading system to the extremely robust aluminum reader. The automatic scanners read and decode 1D and 2D codes in any process environment for an accelerated, stable process.








 **di-soric**

ID-10	147
ID-80 Standard	147
ID-100	147
ID-200 Aluminum Housing	147



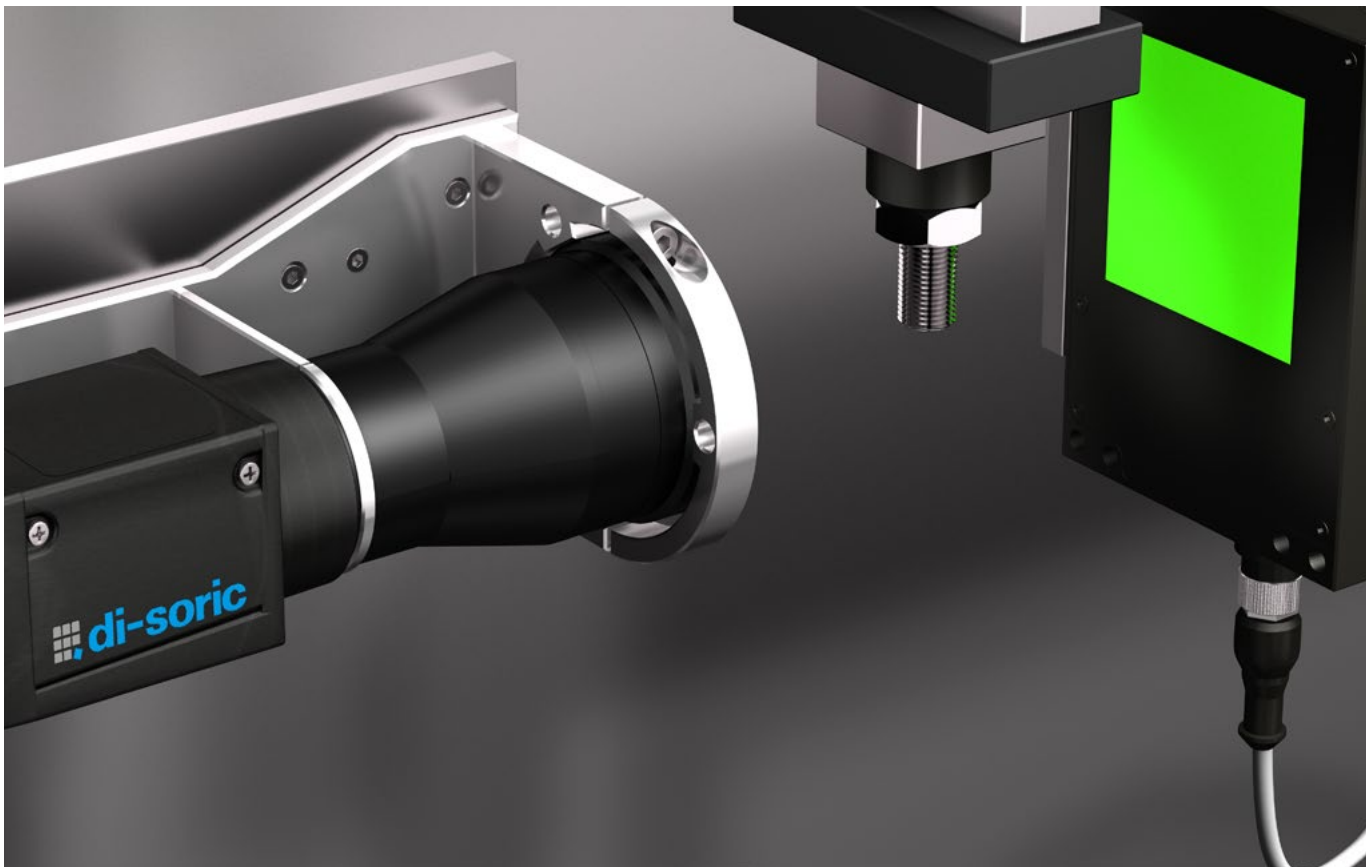
Technical data (typ.)	+20 °C, 24 VDC
Image sensor	CMOS
Optics	Fixed optics
For more information, visit	www.di-soric.com

	Warranty	Target setup	ESD-capable	Resolution (pixels)	Service voltage (VDC)	Protection class	Housing material	Connection	RS 232	USB	Product description
ID-10											
	2-year	■		960 x 640	5.0	IP 54	Plastic	Cable	■	■	ID-10-IM3-2-US
ID-80 Standard											
	5-year	■		1280 x 960	5.0	IP 54	Plastic	Cable	■		ID-80-IM3-2-S
										■	ID-80-IM3-2-U
ID-100											
	3-year	■		1280 x 960	5.0	IP 54	Plastic	Cable	■	■ ¹⁾	ID-100-IM3-2-US
ID-200 Aluminum Housing											
	3-year	■	■	1280 x 960	5.0	IP 54	Aluminum	Cable	■	■	ID-200-IM3-2-US

Accessories for handheld readers											
								see "Identification system accessories", page 228			

¹⁾With separately available accessories

Lenses



 **di-soric**

The selection of the appropriate lens is decisive for the quality of the generated image and influence variables such as measuring accuracy, freedom from errors, distortion and therefore the reliability of the subsequent evaluation. di-soric lenses are available in various designs and impress with their very robust mechanical design and the highest optical quality.

O-C1 Standard	149
O-C2 Extended	150
O-C2-C Compact	151
O-C2-R Robust	152
O-C2-LDA Low Distortion	153
O-C3 Extended	154
O-C4 High Resolution 1"	155
O-C4-R Robust	156
O-C5 High Resolution 1.1"	157

O-C1 STANDARD

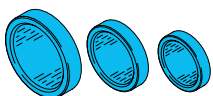
The lenses in the O-C1 series are standard objectives with fixed focal length and represent a good value for the money. With various models with different focal lengths, this series is suited for many applications in industrial image processing. A filter thread comes standard in all models.



Technical data (typ.)

Threaded connection C-mount

Focal length (mm)	Aperture ratio	Aperture (F)	Working distance WD (mm)	Minimum Object Distance MDD (mm)	Mx filter thread Pitch P (mm)	Minimum pixel size (µm)	Sensor size, max.	Weight (g)	Product description
O-C1 Standard									
3.5	1:1.4	1.4	200	200	-	10	1/2"	73 g	0-C1-S-035-14
6	1:1.4	1.4	200	200	M27 x 0.5	10	1/2"	49 g	0-C1-S-06-14
8	1:1.3	1.3	200	200	M25.5 x 0.5	10	2/3"	55 g	0-C1-S-08-13
12	1:1.4	1.4	300	300	M27 x 0.5	10	1/2"	44 g	0-C1-S-12-14
16	1:1.4	1.4	400	400	M27 x 0.5	10	2/3"	34 g	0-C1-S-16-14
25	1:1.4	1.4	500	500	M27 x 0.5	10	1"	36 g	0-C1-S-25-14
35	1:1.8	1.8	300	300	M27 x 0.5	10	2/3"	47 g	0-C1-S-35-18
50	1:1.8	1.8	1000	1000	M30.5 x 0.5	10	2/3"	67 g	0-C1-S-50-18
75	1:2.7	2.7	1000	1000	M30.5 x 0.5	10	1/2"	76 g	0-C1-S-75-27
100	1:3.5	3.5	1000	1000	M30.5 x 0.5	10	1/2"	79 g	0-C1-S-100-35



Accessories for lenses

see "Accessories for industrial image processing", page 220-223

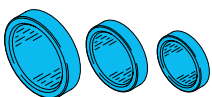
O-C2 EXTENDED

The megapixel lenses in the O-C2 series have a high resolution capacity of up to 5 megapixels. With various models with different focal lengths, this series is suited for many applications in industrial image processing. A filter thread comes standard in all models.

Technical data (typ.)	
Threaded connection	C-mount



Focal length (mm)	Aperture ratio	Aperture (F)	Working distance WD (mm)	Minimum Object Distance MOD (mm)	Mx filter thread Pitch P (mm)	Minimum pixel size (µm)	Sensor size, max.	Weight (g)	Product description
O-C2 Extended									
6	1:1.4	1.4	100	100	M40.5 x 0.5	3.45	2/3"	145 g	0-C2-S-06-14
8	1:1.4	1.4	100	100	M35.5 x 0.5	3.45	2/3"	125 g	0-C2-S-08-14
12	1:1.4	1.4	100	100	M27 x 0.5	3.45	2/3"	85 g	0-C2-S-12-14
16	1:1.4	1.4	100	100	M27 x 0.5	3.45	2/3"	85 g	0-C2-S-16-14
25	1:1.4	1.4	150	150	M27 x 0.5	3.45	2/3"	65 g	0-C2-S-25-14
50	1:2.6	2.6	500	500	M27 x 0.5	3.45	2/3"	53 g	0-C2-S-50-26
75	1:2.5	2.5	1200	1200	M34 x 0.5	3.45	1"	85 g	0-C2-S-75-25
100	1:2.8	2.8	2000	2000	M37.5 x 0.5	3.45	1"	105 g	0-C2-S-100-28



Accessories for lenses

see "Accessories for industrial image processing", page 220-223

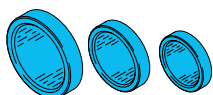
O-C2-C COMPACT

The lenses in the O-C2-C series are very compact and high-resolution. All models exhibit a diameter of 29 mm and therefore fit into the smallest installation spaces. Thanks to the M27 filter thread on all models, filters, safety screens, etc. can be used. These lenses are quite especially for use in smart cameras under their lens covers due to their small size.



Technical data (typ.)	
Threaded connection	C-mount

Focal length (mm)	Aperture ratio	Aperture (F)	Working distance WD (mm)	Minimum Object Distance MOD (mm)	Mx filter thread Pitch P (mm)	Minimum pixel size (µm)	Sensor size, max.	Weight (g)	Product description
O-C2-C Compact									
6	1:2.0	2.0	100	100	M27 x 0.5	3.3	1/1.8"	62 g	0-C2-C-06-20
8	1:1.8	1.8	100	100	M27 x 0.5	3.3	1/1.8"	64 g	0-C2-C-08-18
12	1:1.8	1.8	100	100	M27 x 0.5	3.3	1/1.8"	60 g	0-C2-C-12-18
16	1:1.8	1.8	100	100	M27 x 0.5	3.3	1/1.8"	58 g	0-C2-C-16-18
25	1:1.8	1.8	250	250	M27 x 0.5	3.3	1/1.8"	60 g	0-C2-C-25-18
35	1:1.8	1.8	250	250	M27 x 0.5	3.3	2/3"	48 g	0-C2-C-35-18
50	1:2.6	2.6	400	400	M27 x 0.5	3.3	2/3"	54 g	0-C2-C-50-26



Accessories for lenses

see "Accessories for industrial image processing", page 220-223

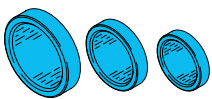
O-C2-R ROBUST

The O-C2-R series is ideally suited for rough use conditions, since it stays in focus despite vibrations or jolts. These lenses provide high image quality and thanks to their fixed aperture and locking screws, they maintain this quality during operation of the image processing system. The O-C2-R series is suited for pixel sizes up to 7µm with a resolution of up to 5 megapixels and a max. 2/3" sensor size, depending on the model.

Technical data (typ.)	
Threaded connection	C-mount



Focal length (mm)	Aperture ratio	Aperture (F)	Working distance WD (mm)	Minimum Object Distance MOD (mm)	Mx filter thread Pitch P (mm)	Minimum pixel size (µm)	Sensor size, max.	Weight (g)	Product description
O-C2-R Robust									
4	1:2.0	2.1	403.2 – 92.7		M27 x 0.5	7µm	1/2"	44 g	0-C2-R-04-21
15	1:2.0	2.1	490.7 – 40.3		M27 x 0.5	7µm	2/3"	42 g	0-C2-R-15-21
20	1:2.0	2.1	516.8 – 50.7		M27 x 0.5	7µm	2/3"	36 g	0-C2-R-20-21
25	1:2.0	2.1	514.6 – 55.6		M27 x 0.5	7µm	2/3"	38 g	0-C2-R-25-21
30	1:2.0	2.4	513.5 – 80.1		M27 x 0.5	7µm	2/3"	39 g	0-C2-R-30-24
35	1:1.9	2.5	163.9 – 83.1		M27 x 0.5	7µm	2/3"	43 g	0-C2-R-35-25
50	1:2.5	2.6	633.6 – 128.7		M27 x 0.5	7µm	2/3"	60 g	0-C2-R-50-26
75	1:3.8	4.1	562.9 – 153.8		M27 x 0.5	7µm	2/3"	80 g	0-C2-R-75-41



Accessories for lenses

see "Accessories for industrial image processing", page 220-223

O-C2-LDA LOW DISTORTION

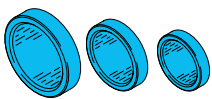
The lenses of the LDA series generate images with very low distortion, even when using intermediate rings. They are suited for a large bandwidth of magnifications, working distances and depth definitions. Since more lens shifts are used, the lenses exhibit little distortion and shadowing. This leads to a large variety of working distances and magnifications, wherein the highest image quality for the entire image field is maintained. A filter thread comes standard in all models.



Technical data (typ.)

Threaded connection C-mount

Focal length (mm)	Aperture ratio	Aperture (F)	Working distance WD (mm)	Minimum Object Distance MOD (mm)	Mx filter thread Pitch P (mm)	Minimum pixel size (µm)	Sensor size, max.	Weight (g)	Product description
O-C2-LDA Low Distortion									
4	1:2.0	2.1	403.2–92.7		M27 x 0.5	7	1/2"	49 g	0-C2-LDA-04-21
15	1:2.0	2.1 – 2.2	489.2–88.9		M27 x 0.5	7	2/3"	46 g	0-C2-LDA-15-21
20	1:2.0	2.1 – 2.3	510.3–86.6		M27 x 0.5	7	2/3"	47 g	0-C2-LDA-20-21
25	1:2.0	2.1 – 2.6	508.2–100.2		M27 x 0.5	7	2/3"	49 g	0-C2-LDA-25-21
30	1:2.0	2.4 – 2.8	381.6–141.5		M27 x 0.5	7	2/3"	47 g	0-C2-LDA-30-24
35	1:1.9	2.5 – 2.9	142.9–96.1		M27 x 0.5	7	2/3"	58 g	0-C2-LDA-35-25
50	1:2.5	2.7 – 3.1	512.4–221.5		M27 x 0.5	7	2/3"	76 g	0-C2-LDA-50-27
75	1:3.8	4.1 – 4.5	527.5–245.6		M27 x 0.5	7	2/3"	92 g	0-C2-LDA-75-41



Accessories for lenses

see "Accessories for industrial image processing", page 220-223

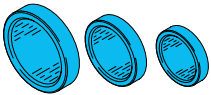
O-C3 EXTENDED

The megapixel lenses in the O-C3 series have a high resolution capacity of up to 5 megapixels. With various models with different focal lengths, this series is suited for high-resolution applications in industrial image processing. A filter thread comes standard in all models.

Technical data (typ.)	
Threaded connection	C-mount



Focal length (mm)	Aperture ratio	Aperture (F)	Working distance WD (mm)	Minimum Object Distance MOD (mm)	Mx filter thread Pitch P (mm)	Minimum pixel size (µm)	Sensor size, max.	Weight (g)	Product description
O-C3 Extended									
35	1:1.4	1.4	200	200	M35.5 x 0.5	3.45	2/3"	150 g	0-C3-S-35-14
50	1:1.4	1.4	300	300	M40.5 x 0.5	3.45	2/3"	170 g	0-C3-S-50-14



Accessories for lenses

see "Accessories for industrial image processing", page 220-223

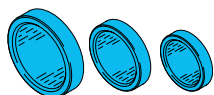
O-C4 HIGH RESOLUTION 1"

The megapixel lenses of the Q-C4 series have a high-resolution capacity of up to 9 megapixels and are suited for large-format sensors up to a 1" sensor format. With various models with different focal lengths, this series is perfectly suited for high-resolution, ambitious applications in industrial image processing. A filter thread comes standard in all models.



Technical data (typ.)	
Threaded connection	C-mount

Focal length (mm)	Aperture ratio	Aperture (F)	Working distance WD (mm)	Minimum Object Distance MOD (mm)	Myx filter thread Pitch P (mm)	Minimum pixel size (µm)	Sensor size, max.	Weight (g)	Product description
O-C4 High Resolution 1"									
6	1:1.8	1.8		100	-	5	1"	250 g	0-C4-S-06-18
8	1:1.4	1.4		100	M55 x 0.75	5	1"	175 g	0-C4-S-08-14
12	1:1.4	1.4	300	300	M35.5 x 0.5	5	1"	140 g	0-C4-S-12-14
16	1:1.4	1.4	300	300	M30.5 x 0.5	5	1"	120 g	0-C4-S-16-14
25	1:1.4	1.4	300	300	M30.5 x 0.5	5	1"	90 g	0-C4-S-25-14
35	1:1.4	1.4	300	300	M30.5 x 0.5	5	1"	100 g	0-C4-S-35-14
50	1:1.8	1.8	500	500	M40.5 x 0.5	5	1"	135 g	0-C4-S-50-18



Accessories for lenses

see "Accessories for industrial image processing", page 220-223

O-C4-R ROBUST

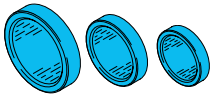
The O-C4-R series is the high-resolution ruggedized lens developed for rough industrial use and stays in focus even after vibrations or jolts. Thanks to their fixed aperture and locking screws, the lenses provide the highest image quality and maintain this quality during operation of the image processing system. They are suited for pixel sizes up to 5µm with a resolution of up to 9 megapixels and a max. 1" sensor size.

Technical data (typ.)	
Resolution	High resolution
	5 – 9 MP
Threaded connection	C-mount



Focal length (mm)	Aperture ratio	Aperture (F)	Working distance WD (mm)	Minimum Object Distance MOD (mm)	Mx filter thread Pitch P (mm)	Minimum pixel size (µm)	Sensor size, max.	Weight (g)	Product description
O-C4-R Robust									
8	1:1.4	1.4 / 5.6 / 8*		100	M55 x 0.75	5	1"	94 g	0-C4-R-08-X
12	1:1.4	1.4 / 5.6 / 8*		300	M35.5 x 0.5	5	1"	106 g	0-C4-R-12-X
16	1:1.4	1.4 / 5.6 / 8*		300	M30.5 x 0.5	5	1"	100 g	0-C4-R-16-X
25	1:1.4	1.4 / 5.6 / 8*		300	M30.5 x 0.5	5	1"	66 g	0-C4-R-25-X
35	1:1.4	1.4 / 5.6 / 8*		300	M30.5 x 0.5	5	1"	72 g	0-C4-R-35-X
50	1:1.8	1.4 / 5.6 / 8*		500	M40.5 x 0.5	5	1"	94 g	0-C4-R-50-X

* Changeable, threaded diaphragm plates



Accessories for lenses

see "Accessories for industrial image processing", page 220-223

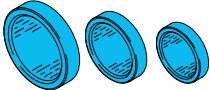
O-C5 HIGH RESOLUTION 1.1"

The megapixel lenses of the O-C5 series have a resolution capacity of 12 megapixels at a pixel size of 3.45µm and are suited for sensors up to 1.1". The lenses in the O-C5 series are infrared-corrected for a maximum image sharpness from the visible up to the NIR range. A filter thread comes standard in this series.



Technical data (typ.)	
Resolution	IR-optimized – 12 MP
Threaded connection	C-mount

Focal length (mm)	Aperture ratio	Aperture (F)	Working distance WD (mm)	Minimum Object Distance MOD (mm)	Myx filter thread Pitch P (mm)	Minimum pixel size (µm)	Sensor size, max.	Weight (g)	Product description
O-C5 High Resolution 1.1"									
12	1:1.8	1.8		300	M52 x 0.75	3.45	1.1"	340 g	O-C5-S-12-18/IR0
16	1:1.8	1.8		300	M40 x 0.5	3.45	1.1"	290 g	O-C5-S-16-18/IR0
25	1:1.8	1.8		300	M43 x 0.75	3.45	1.1"	390 g	O-C5-S-25-18/IR0



Accessories for lenses

see "Accessories for industrial image processing", page 220-223

nVision software

The visual development environment for industrial image processing.

nVision's speed and performance capacity along with its custom adjustment options give you the right solution for your job in image processing.

The solution features a pioneering, intuitive and visually attractive user interface and reliable software.



**SOLUTIONS.
CLEVER.
PRACTICAL.**

nVision is the result of over 20 years of experience in the area of image processing. We are continuously developing it using modern, powerful programming languages.

By offering the nVision image processing platform, di-soric is breaking down the boundaries that previously separated traditional smart camera programming from PC high-level language programming. nVision allows intuitive graphic programming. Function blocks can be created, saved and reused.

Users appreciate the unmatched flexibility and the extremely short programming and commissioning times. Customers acquire an individually tailored software package with runtime licenses adjusted to match their individual needs.

nVision can be used in all industries – in logistics as well as medical and clinical diagnosis.

Thanks to nVision, your projects can be implemented better and more quickly, ensuring more efficiency and profitability.

The easy-to-use image processing software for industry and science.

nVision is the unique and state-of-the-art culmination of 20 years of experience. nVision is a complete and flexible solution, making it perfect for your applications in image processing as well.



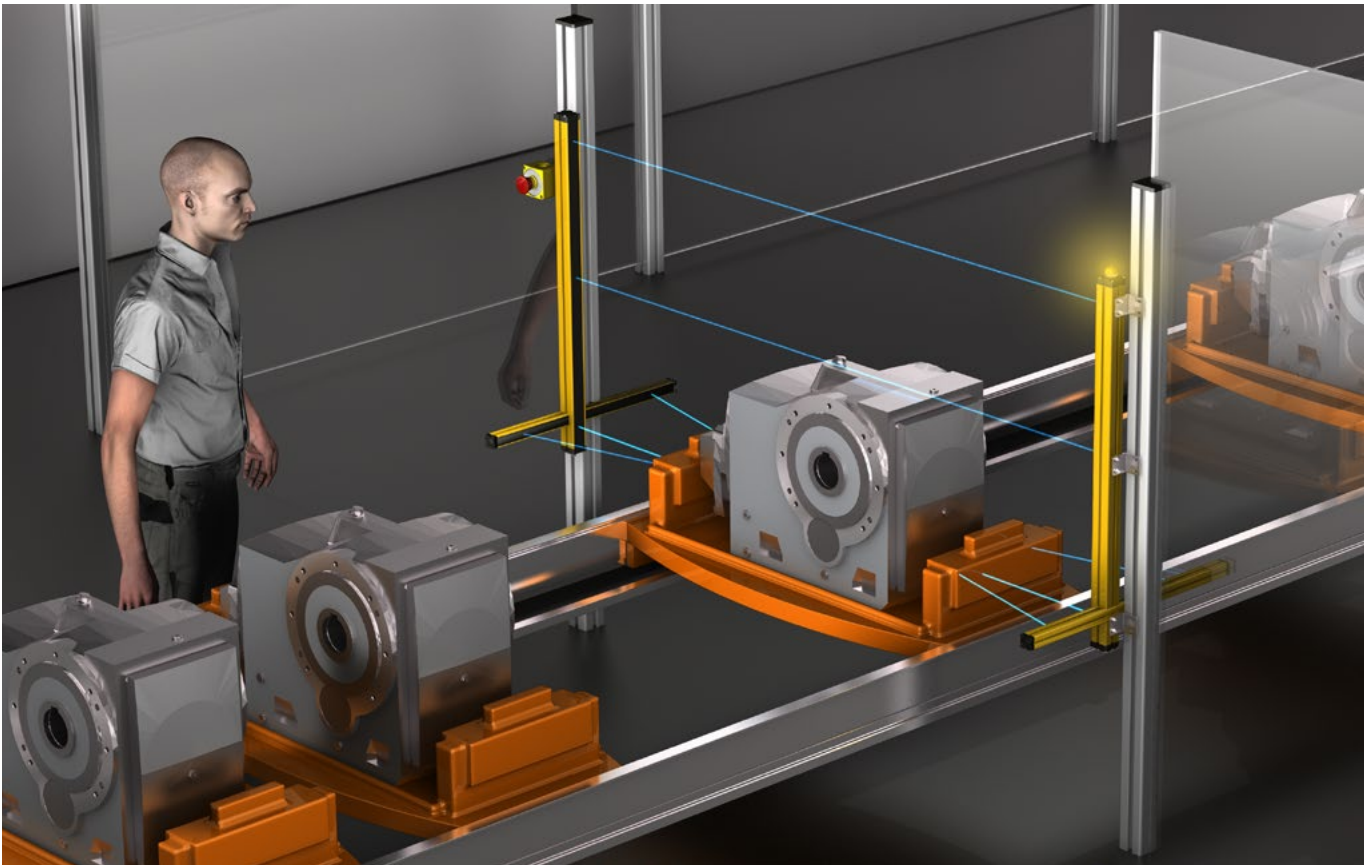
Functions

- Live data processing
- Automation of your application
- All pixel calculations either monochromatic or in color
- Barcode and Data Matrix identification
- Completeness check
- Interactive measuring
- Font recognition (OCR, OCV)
- Pattern detection
- Surface inspection
- Position detection and robot guidance
- Printed image control
- Color recognition/color processing

Advantages

- Modern user interface
- Simple, intuitive and personalized operation
- Easy handling
- Top performance and stability
- Wide repertoire of functions
- Ensures that applications are feasible
- Less development time
- Time saving = Time to market is shortened
- Supports a wide variety of cameras
- Easy integration into automated devices
- Individualized service and support

Opto-electronic safety sensors

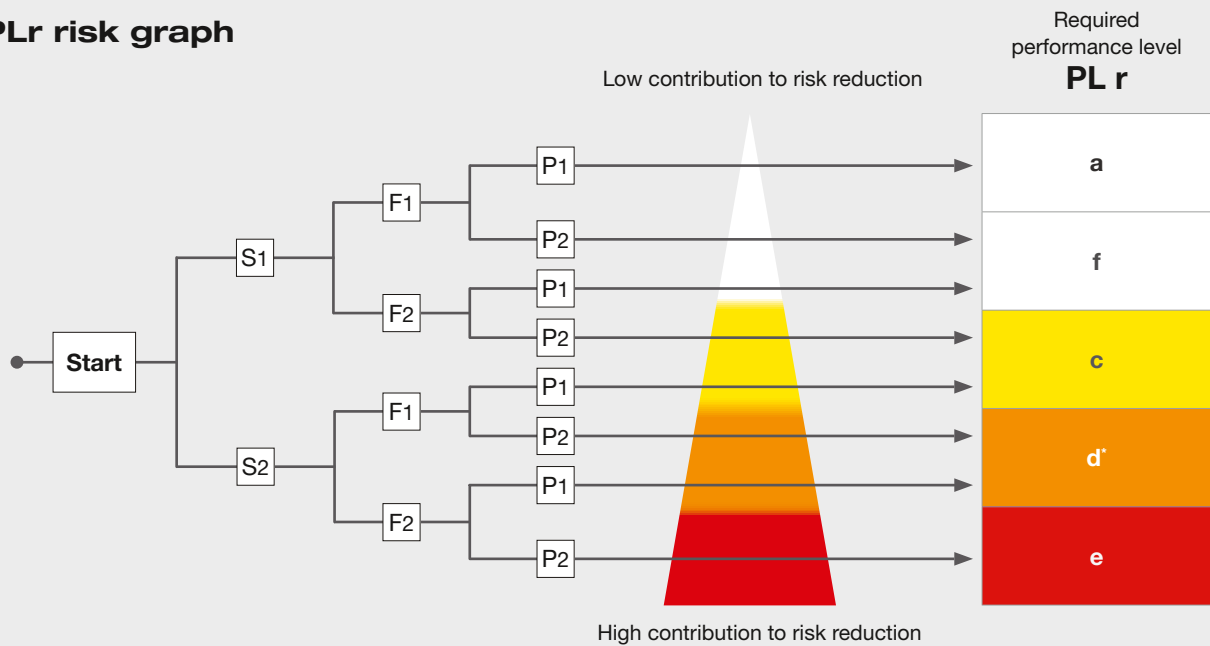


Our opto-electronic safety sensors are used as electro-sensitive protective equipment where danger zones and hazard areas must be reliably and cost-efficiently safeguarded. The large product range also includes robust and resilient variants for technical safety integration up to the highest level of safety.



Selection guide for safety light curtains/grids	162
SL-4 Safety Light Curtains/Grids, Type 4	164
SLM4 – Muting Safety Light Curtains/Grids, Type 4	172
MA.../MZ Muting Arms	174

PLr risk graph



* If a required performance level PL d is necessary, light barriers with a **Type 4** safety level must be used!

S	Injury severity level
S1	Minor injury (usually reversible)
S2	Serious injury (usually irreversible) or death

F	Frequency and/or duration of the exposure to the hazard
F1	Seldom/short
F2	Continuous/prolonged

P	Possibility of hazard prevention or limitation of harm
P1	Possible under certain conditions
P2	Virtually impossible

→ **Note:** The PLr values are entirely "hierarchical". PLr(e) provides the largest and PLr(a) provides the smallest contribution for risk reduction.

Directives and standards for PL e

Safety light curtains / grids

Type 4 / Type 4 in accordance with IEC/TS 61496-2
SIL 3 – SILCL 3 in accordance with IEC 61508 - IEC 62061

PL e – Cat. 4 in accordance with ISO 13849-1

- Corresponds to the following directives and standards:
- 2006/42/EG „Machinery Directive“
- 2014/30/EU „EMC Directive / Directive relating to electromagnetic compatibility“
- 2014/35/EU „Low Voltage Directive“
- 2011/65/EU „RoHS Directive“
- IEC/EN 61496-1 Edition 2.1, IEC/TS 61496-2 Edition 2 „Electro-sensitive protective equipment“
- EN ISO 13849-1 „Safety of machinery – Safety-related parts of control systems – General principles for design“
- IEC/EN 62061 ed.1 ; am1 „Sof machinery – Functional safety of safety-related electrical, electronic and programmable electronic control systems“
- IEC 61508-1, -2, -3, -4 ed.2 „Functional safety of safety-related electrical, electronic and programmable electronic systems“
- EN 50178: 1997 „Electronic equipment for use in power installations“
- EN 55022: 2010 „Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement“
- EN 61000-6-2: 2005 „Electromagnetic compatibility (EMV) - Part 6-2: Generic standards – Immunity for industrial environments“
- UL (C+US) for Canada and the USA
- ANSI / UL 1998 „Safety software in programmable components“

Safety level

TYPE 4

SIL 3 – SILCL 3
PL e – Cat. 4



SELECTION GUIDE FOR SAFETY LIGHT CURTAINS/GRIDS

It is helpful to divide the application of safety light curtains / grids into four groups:



Detection of a finger



Detection of a body in the danger zone




Detection of a finger




Detection of a body during access control

 Finger protection	SLB4-...	SLI4-...
Light barrier type	Light curtain	
Safety level	Type 4 SIL 3 – SILCL 3 PL e – Cat. 4	
Resolution	14 mm	
Protective field height	160 - 1,810 mm	
Maximum range	6 m	
Start / restart interlock integrated	-	✓
EDM integrated	-	✓
Master/slave versions	-	✓ (Slave / Slave 2)

 Hand protection	SLB4-...	SLBH4-...	SLI4-...	SLIH4-...	SLM4-...
Light barrier type	Light curtain				Light curtain with muting lamp
Safety level	Type 4 SIL 3 – SILCL 3 PL e – Cat. 4				
Resolution	20 - 30 - 40 mm				30 mm
Protective field height	160 - 1,810 mm				310 - 2,260 mm
Maximum range	12 m	20 m	12 m	20 m	12 m
Start / restart interlock integrated	-	-	✓	✓	✓
EDM integrated	-	-	✓	✓	✓
Master/slave versions	-	-	✓ (Slave / Slave 2)	-	-

 Body protection	SLB4-...	SLBH4-...	SLI4-...	SLIH4-...
Light barrier type	Light curtain			
Safety level	Type 4 SIL 3 – SILCL 3 PL e – Cat. 4			
Resolution	50 - 90 mm			
Protective field height	160 - 1,810 mm			
Maximum range	12 m	20 m	12 m	20 m
Start / restart interlock integrated	-	-	✓	✓
EDM integrated	-	-	✓	✓
Master/slave versions	-	-	✓ (Slave / Slave 2)	-

 Access control	SLB4-xB	SLBH4-xB	SLI4-xB	SLIH4-xB	SLM4-...
Light barrier type	Light grids				Light grid with muting lamp
Safety level	Type 4 SIL 3 – SILCL 3 PL e – Cat. 4				
Number of beams	2 - 3 - 4				
Beam separation (axis distance)	300 - 400 - 500 mm				
Protective field height	510 - 810 - 910 mm				-
Maximum range	12 m	20 m	12 m	20 m	12 m
Start / restart interlock integrated	-	-	✓	✓	✓
EDM integrated	-	-	✓	✓	✓
Master/slave versions	-	-	✓ (Slave / Slave 2)	-	-

Glossary

Start / restart interlock:

Locking function when the machine is started or restarted (manual confirmation required).

EDM- External Device Monitoring:

Monitoring of the external switch protection devices using a feedback input.

Master/slave:

Two or three light curtains / grids can be switched in series; all outputs are managed by only one light curtain/grid (master).

SL-4 SAFETY LIGHT CURTAINS/GRIDS, TYPE 4

With safety level type 4, these safety light curtains / grids cover the highest safety level for finger, hand and body protection or in access control. The compact, slim devices can also be installed in confined space conditions. The master/slave variants as well as a version with integrated control function (EDM) are available as options.





Technical data (typ.)	+20°C, 24 VDC
Safety level	Type 4 in accordance with IEC/TS 61496-2 SIL 3 – SILCL 3 in accordance with IEC 61508 - IEC 62061 PL e – Cat. 4 in accordance with ISO 13849-1
Profile cross section	28x30mm
Safety outputs	PNP (2x), 400mA, 24V DC
LED displays	Self-diagnostics Status
Start / restart	Automatic
Service voltage	19.2 to 28.8V DC
Master connection	M12, 5-pin M12, 8-pin (receiver) (SLB... and SLI...)
Length of connection cable	max. 100m unshielded
Ambient temperature	-20 to +55°C
Protection class	IP 65 + IP 67
Protection class	III, operation on protective low voltage
Housing material	Aluminum
Window material	Polycarbonate
Mounting	Rear side, T-groove, or by the use of adjustable brackets SFB E180 (optional)

		Resolution / beam separation	Number of beams	Protective field height (mm)	Total height (mm)	Response time (ms)	Connection cable (optionally available)	Product description			
SL-4 Safety Light Curtain / Grid						SLB4	SLBH4	SLI4	SLIH4		
Special feature						For external safety functions		Integrated safety functions			
Range						up to 6 m		up to 6 m			
	Finger protection 14 mm	15	160	213	4	Transmitter CD ...	SLB4-151		SLI4-151 ¹⁾		
		30	310	363	5.5		SLB4-301		SLI4-301 ¹⁾		
		45	460	513	7.5		SLB4-451		SLI4-451 ¹⁾		
		60	610	663	9		SLB4-601		SLI4-601 ¹⁾		
		75	760	813	11		SLB4-751		SLI4-751 ¹⁾		
		90	910	963	13		SLB4-901		SLI4-901 ¹⁾		
		105	1,060	1,113	14.5		Receiver CD... / SLI... : C8D	SLB4-1051		SLI4-1051 ¹⁾	
		120	1,210	1,263	16.5			SLB4-1201		SLI4-1201 ¹⁾	
		135	1,360	1,413	18			SLB4-1351		SLI4-1351 ¹⁾	
		150	1,510	1,563	20			SLB4-1501		SLI4-1501 ¹⁾	
		165	1,660	1,713	22			SLB4-1651		SLI4-1651 ¹⁾	
		180	1,810	1,886	23.5			SLB4-1801		SLI4-1801 ¹⁾	

¹⁾ see "Note", page 168

							Resolution / beam separation	Number of beams	Protective field height (mm)	Total height (mm)	Response time (ms)	Connection cable (optionally available)	Product description
SL-4 Safety Light Curtain / Grid							SLB4	SLBH4	SLI4	SLIH4			
Special feature							For external safety functions			Integrated safety functions			
Range							up to 12 m	up to 20 m	up to 12 m	up to 20 m			
	Hand protection 20mm	15	160	213	4	Transmitter CD ...		SLBH4-152		SLIH4-152			
		30	310	363	5.5			SLBH4-302		SLIH4-302			
		45	460	513	7.5			SLBH4-452		SLIH4-452			
		60	610	663	9			SLBH4-602		SLIH4-602			
		75	760	813	11			SLBH4-752		SLIH4-752			
		90	910	963	13			SLBH4-902		SLIH4-902			
		105	1,060	1,113	14.5		Receiver CD... / C8D		SLBH4-1052		SLIH4-1052		
		120	1,210	1,263	16.5				SLBH4-1202		SLIH4-1202		
		135	1,360	1,413	18				SLBH4-1352		SLIH4-1352		
		150	1,510	1,563	20				SLBH4-1502		SLIH4-1502		
		165	1,660	1,713	22				SLBH4-1652		SLIH4-1652		
180	1,810	1,886	23.5		SLBH4-1802			SLIH4-1802					
Range							up to 12 m	up to 20 m	up to 12 m	up to 20 m			
	Hand protection 30mm	8	160	213	4	Transmitter CD ...	SLB4-153		SLI4-153 ¹⁾				
		13	260	313	5		SLB4-253		SLI4-253 ¹⁾				
		16	310	363	5.4		SLB4-303		SLI4-303 ¹⁾				
		23	460	513	7.5		SLB4-453		SLI4-453 ¹⁾				
		31	610	663	9		SLB4-603		SLI4-603 ¹⁾				
		38	760	813	10.5		SLB4-753		SLI4-753 ¹⁾				
		46	910	963	12.5		SLB4-903		SLI4-903 ¹⁾				
		53	1,060	1,113	14		Receiver CD... / C8D	SLB4-1053		SLI4-1053 ¹⁾			
		61	1,210	1,263	15.5			SLB4-1203		SLI4-1203 ¹⁾			
		68	1,360	1,413	17			SLB4-1353		SLI4-1353 ¹⁾			
		76	1,510	1,563	19			SLB4-1503		SLI4-1503 ¹⁾			
		88	1,660	1,713	20.5			SLB4-1653		SLI4-1653 ¹⁾			
		91	1,810	1,886	22			SLB4-1803		SLI4-1803 ¹⁾			
Range							up to 12 m	up to 20 m	up to 12 m	up to 20 m			
	Hand protection 30mm	8	160	213	3	Transmitter CD ...		SLBH4-153		SLIH4-153 ¹⁾			
		16	310	363	4			SLBH4-303		SLIH4-303 ¹⁾			
		23	460	513	5			SLBH4-453		SLIH4-453 ¹⁾			
		31	610	663	6			SLBH4-603		SLIH4-603 ¹⁾			
		38	760	813	6.5			SLBH4-753		SLIH4-753 ¹⁾			
		46	910	963	7.5			SLBH4-903		SLIH4-903 ¹⁾			
		53	1,060	1,113	8.5		Receiver CD... / C8D	SLBH4-1053		SLIH4-1053 ¹⁾			
		61	1,210	1,263	9.5			SLBH4-1203		SLIH4-1203 ¹⁾			
		68	1,360	1,413	10			SLBH4-1353		SLIH4-1353 ¹⁾			
		76	1,510	1,563	11			SLBH4-1503		SLIH4-1503 ¹⁾			
		88	1,660	1,713	12			SLBH4-1653		SLIH4-1653 ¹⁾			
91	1,810	1,886	13	SLBH4-1803		SLIH4-1803 ¹⁾							




¹⁾ see "Note", page 168

							Resolution / beam separation	Number of beams	Protective field height (mm)	Total height (mm)	Response time (ms)	Connection cable (optionally available)	Product description	
SL-4 Safety Light Curtain / Grid							SLB4	SLBH4	SLI4	SLIH4				
Special feature							For external safety functions			Integrated safety functions				
Range							up to 12 m	up to 20 m	up to 12 m	up to 20 m				
	Hand protection 40 mm	6	160	213	3.5	Transmitter CD ...	SLB4-154		SLI4-154 ¹⁾					
		8	260	313	4		SLB4-254		SLI4-254 ¹⁾					
		11	310	363	4.5		SLB4-304		SLI4-304 ¹⁾					
		16	460	513	5.5		SLB4-454		SLI4-454 ¹⁾					
		21	610	663	7		SLB4-604		SLI4-604 ¹⁾					
		26	760	813	8		SLB4-754		SLI4-754 ¹⁾					
		31	910	963	9		SLB4-904		SLI4-904 ¹⁾					
		36	1,060	1,113	10		Receiver CD... / C8D	SLB4-1054		SLI4-1054 ¹⁾				
		41	1,210	1,263	11			SLB4-1204		SLI4-1204 ¹⁾				
		46	1,360	1,413	12.5			SLB4-1354		SLI4-1354 ¹⁾				
		51	1,510	1,563	13.5			SLB4-1504		SLI4-1504 ¹⁾				
		56	1,660	1,713	14.5			SLB4-1654		SLI4-1654 ¹⁾				
61	1,810	1,886	15.5	SLB4-1804		SLI4-1804 ¹⁾								
Range							up to 12 m	up to 20 m	up to 12 m	up to 20 m				
	Hand protection 40 mm	6	160	213	3	Transmitter CD ...		SLBH4-154		SLIH4-154 ¹⁾				
		11	310	363	3.5			SLBH4-304		SLIH4-304 ¹⁾				
		16	460	513	4			SLBH4-454		SLIH4-454 ¹⁾				
		21	610	663	4.5			SLBH4-604		SLIH4-604 ¹⁾				
		26	760	813	5			SLBH4-754		SLIH4-754 ¹⁾				
		31	910	963	6			SLBH4-904		SLIH4-904 ¹⁾				
		36	1,060	1,113	6.5		Receiver CD... / C8D	SLBH4-1054		SLIH4-1054 ¹⁾				
		41	1,210	1,263	7			SLBH4-1204		SLIH4-1204 ¹⁾				
		46	1,360	1,413	7.5			SLBH4-1354		SLIH4-1354 ¹⁾				
		51	1,510	1,563	8			SLBH4-1504		SLIH4-1504 ¹⁾				
		56	1,660	1,713	8.5			SLBH4-1654		SLIH4-1654 ¹⁾				
		61	1,810	1,886	9.5			SLBH4-1804		SLIH4-1804 ¹⁾				

¹⁾ see "Note", page 168

						Resolution / beam separation	Number of beams	Protective field height (mm)	Total height (mm)	Response time (ms)	Connection cable (optionally available)	Product description	
SL-4 Safety Light Curtain / Grid						SLB4	SLBH4	SLI4	SLIH4				
Special feature						For external safety functions			Integrated safety functions				
Range						up to 12 m		up to 20 m		up to 12 m		up to 20 m	
	Hand protection 50mm	4	160	213	3	Transmitter CD...	SLB4-155		SLI4-155 ¹⁾				
		8	310	363	4		SLB4-305		SLI4-305 ¹⁾				
		12	460	513	4.5		SLB4-455		SLI4-455 ¹⁾				
		16	610	663	5.5		SLB4-605		SLI4-605 ¹⁾				
		20	760	813	6.5		SLB4-755		SLI4-755 ¹⁾				
		24	910	963	7.5		SLB4-905		SLI4-905 ¹⁾				
		28	1,060	1,113	8.5		Receiver CD... / C8D	SLB4-1055		SLI4-1055 ¹⁾			
		32	1,210	1,263	9			SLB4-1205		SLI4-1205 ¹⁾			
		36	1,360	1,413	10			SLB4-1355		SLI4-1355 ¹⁾			
		40	1,510	1,563	11			SLB4-1505		SLI4-1505 ¹⁾			
		44	1,660	1,713	12			SLB4-1655		SLI4-1655 ¹⁾			
48	1,810	1,886	13	SLB4-1805		SLI4-1805 ¹⁾							
Range						up to 12 m		up to 20 m		up to 12 m		up to 20 m	
	Hand protection 50mm	4	160	213	2.5	Transmitter CD...		SLBH4-155		SLIH4-155 ¹⁾			
		8	310	363	3			SLBH4-305		SLIH4-305 ¹⁾			
		12	460	513	3.5			SLBH4-455		SLIH4-455 ¹⁾			
		16	610	663	4			SLBH4-605		SLIH4-605 ¹⁾			
		20	760	813	4.5			SLBH4-755		SLIH4-755 ¹⁾			
		24	910	963	5			SLBH4-905		SLIH4-905 ¹⁾			
		28	1,060	1,113	5.5		Receiver CD... / C8D		SLBH4-1055		SLIH4-1055 ¹⁾		
		32	1,210	1,263	6				SLBH4-1205		SLIH4-1205 ¹⁾		
		36	1,360	1,413	6.5				SLBH4-1355		SLIH4-1355 ¹⁾		
		40	1,510	1,563	7				SLBH4-1505		SLIH4-1505 ¹⁾		
		44	1,660	1,713	7				SLBH4-1655		SLIH4-1655 ¹⁾		
48	1,810	1,886	8		SLBH4-1805		SLIH4-1805 ¹⁾						
Range						up to 12 m		up to 20 m		up to 12 m		up to 20 m	
	Body protection 90mm	4	310	363	3	Transmitter CD...	SLB4-309		SLI4-309 ¹⁾				
		6	460	513	3.5		SLB4-459		SLI4-459 ¹⁾				
		8	610	663	4		SLB4-609		SLI4-609 ¹⁾				
		10	760	813	4.5		SLB4-759		SLI4-759 ¹⁾				
		12	910	963	5		SLB4-909		SLI4-909 ¹⁾				
		14	1,060	1,113	5.5		SLB4-1059		SLI4-1059 ¹⁾				
		16	1,210	1,263	5.5		Receiver CD... / C8D	SLB4-1209		SLI4-1209 ¹⁾			
		18	1360	1,413	6			SLB4-1359		SLI4-1359 ¹⁾			
		20	1,510	1,563	6.5			SLB4-1509		SLI4-1509 ¹⁾			
		22	1,660	1,713	7			SLB4-1659		SLI4-1659 ¹⁾			
		24	1,810	1,886	7.5			SLB4-1809		SLI4-1809 ¹⁾			

¹⁾ see "Note", page 168

							Resolution / beam separation	Number of beams	Protective field height (mm)	Total height (mm)	Response time (ms)	Connection cable (optionally available)	Product description
SL-4 Safety Light Curtain / Grid							SLB4	SLBH4	SLI4	SLIH4			
Special feature							For external safety functions			Integrated safety functions			
Range							up to 12 m	up to 20 m	up to 12 m	up to 20 m			
	Body protection 90mm	4	310	363	2.5	Transmitter CD ...		SLBH4-309		SLIH4-309 ¹⁾			
		6	460	513	3			SLBH4-459		SLIH4-459 ¹⁾			
		8	610	663	3			SLBH4-609		SLIH4-609 ¹⁾			
		10	760	813	3.5			SLBH4-759		SLIH4-759 ¹⁾			
		12	910	963	3.5			SLBH4-909		SLIH4-909 ¹⁾			
		14	1,060	1,113	3.5			SLBH4-1059		SLIH4-1059 ¹⁾			
		16	1,210	1,263	4		Receiver CD... / C8D		SLBH4-1209		SLIH4-1209 ¹⁾		
		18	1,360	1,413	4				SLBH4-1359		SLIH4-1359 ¹⁾		
		20	1,510	1,563	4.5				SLBH4-1509		SLIH4-1509 ¹⁾		
		22	1,660	1,713	4.5				SLBH4-1659		SLIH4-1659 ¹⁾		
24	1,810	1,886	5		SLBH4-1809		SLIH4-1809 ¹⁾						
Range							up to 12 m	up to 20 m	up to 12 m	up to 20 m			
	500	2	510	653	2.5	Transmitter CD ... Receiver CD... / SLI... : C8D	SLB4-2B		SLI4-2B ¹⁾				
	400	3	810	953	3		SLB4-3B		SLI4-3B ¹⁾				
	300	4	910	1,053	3		SLB4-4B		SLI4-4B ¹⁾				
	500	2	510	653	2.5	Transmitter CD ... Receiver CD... / SLI... : C8D		SLBH4-2B		SLIH4-2B ¹⁾			
	400	3	810	953	2.5			SLBH4-3B		SLIH4-3B ¹⁾			
	300	4	910	1,053	2.5			SLBH4-4B		SLIH4-4B ¹⁾			

¹⁾ see "Note", page 168

Note



¹⁾ Light curtains / grids are also available as a variant in a protective housing.

SLI ... -WTF (IP 69K)

SLI ... -WTHF (IP 69K, heated)

SL-4 Master/slave models with integrated control functions

Technical data (typ.)	+20 °C, 24 VDC
Safety level	Type 4 in accordance with IEC/TS 61496-2 SIL 3 – SILCL 3 in accordance with IEC 61508 - IEC 62061 PL e – Cat. 4 in accordance with ISO 13849-1
Profile cross section	28x30mm
Safety outputs (master)	PNP (2x), 400 mA, 24 V DC
LED displays	Self-diagnostics Status
Start / restart (master)	Automatic or manual (selectable)
External relay (device) monitoring - EDM (master models)	Feedback input, selectable release
Service voltage	19.2 to 28.8V DC
Master connection	M12, 5-pin (transmitter) M12, 8-pin (receiver)
Master / slave 2 / slave connection	M12, 5-pin (transmitter and receiver)
Length of connection cable	max. 100m unshielded
Length of connection cable	max. 50m unshielded (between master/slave)
Ambient temperature	-20to +55 °C
Protection class	IP 65 + IP 67
Protection class	III, operation on protective low voltage
Housing material	Aluminum
Window material	Polycarbonate
Mounting	Rear side, T-groove, or by the use of adjustable brackets SFB E180 (optional)

		Resolution / beam separation	Number of beams (mm)	Protective field height (mm)	Master / slave 2 (mm)	Slave (mm)	Total height	Conf. range				
								Low Range to (m)	High Range to (m)	Product description		
SL-4 Safety Light Curtain / Grid								Master	Slave	Slave 2		
	Finger protection 14mm	15	160	-	213	3	3	6			SLI4-151-S	
		30	310	387	363					SLI4-301-M	SLI4-301-S	SLI4-301-S2
		45	460	537	513					SLI4-451-M	SLI4-451-S	SLI4-451-S2
		60	610	687	663					SLI4-601-M	SLI4-601-S	SLI4-601-S2
		75	760	837	813					SLI4-751-M	SLI4-751-S	SLI4-751-S2
		90	910	987	963					SLI4-901-M	SLI4-901-S	SLI4-901-S2
		105	1,060	1,137	1,113					SLI4-1051-M	SLI4-1051-S	SLI4-1051-S2
		120	1,210	1,287	1,263					SLI4-1201-M	SLI4-1201-S	SLI4-1201-S2
		135	1,360	1,437	1,413					SLI4-1351-M	SLI4-1351-S	SLI4-1351-S2
		150	1,510	1,587	1,563					SLI4-1501-M	SLI4-1501-S	SLI4-1501-S2
		165	1,660	1,737	1,713					SLI4-1651-M	SLI4-1651-S	SLI4-1651-S2
180	1,810	1,910	1,886	SLI4-1801-M	SLI4-1801-S	SLI4-1801-S2						
	Hand protection 30mm	8	160	-	213	4	4	12			SLI4-153-S	
		13	260	337	313					SLI4-253-M	SLI4-253-S	SLI4-253-S2
		16	310	387	363					SLI4-303-M	SLI4-303-S	SLI4-303-S2
		23	460	537	513					SLI4-453-M	SLI4-453-S	SLI4-453-S2
		31	610	687	663					SLI4-603-M	SLI4-603-S	SLI4-603-S2
		38	760	837	813					SLI4-753-M	SLI4-753-S	SLI4-753-S2
		46	910	987	963					SLI4-903-M	SLI4-903-S	SLI4-903-S2
		53	1,060	1,137	1,113					SLI4-1053-M	SLI4-1053-S	SLI4-1053-S2
		61	1,210	1,287	1,263					SLI4-1203-M	SLI4-1203-S	SLI4-1203-S2
		68	1,360	1,437	1,413					SLI4-1353-M	SLI4-1353-S	SLI4-1353-S2
		76	1,510	1,587	1,563					SLI4-1503-M	SLI4-1503-S	SLI4-1503-S2
		88	1,660	1,737	1,713					SLI4-1653-M	SLI4-1653-S	SLI4-1653-S2
		91	1,810	1,910	1,886					SLI4-1803-M	SLI4-1803-S	SLI4-1803-S2

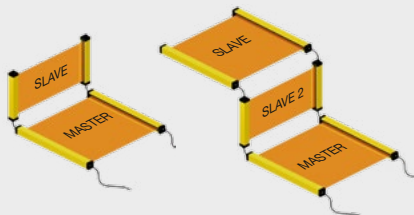
	Resolution / beam separation	Number of beams (mm)	Protective field height (mm)	Total height		Conf. range		Product description			
				Master / slave 2 (mm)	Slave (mm)	Low Range to (m)	High Range to (m)				
SL-4 Safety Light Curtain / Grid								Master	Slave	Slave 2	
	Hand protection 40mm	6	160	-	213	4	12		SLI4-154-S		
		8	260	337	313			SLI4-254-M	SLI4-254-S	SLI4-254-S2	
		11	310	387	363			SLI4-304-M	SLI4-304-S	SLI4-304-S2	
		16	460	537	513			SLI4-454-M	SLI4-454-S	SLI4-454-S2	
		21	610	687	663			SLI4-604-M	SLI4-604-S	SLI4-604-S2	
		26	760	837	813			SLI4-754-M	SLI4-754-S	SLI4-754-S2	
		31	910	987	963			SLI4-904-M	SLI4-904-S	SLI4-904-S2	
		36	1,060	1,137	1,113			SLI4-1054-M	SLI4-1054-S	SLI4-1054-S2	
		41	1,210	1,287	1,263			SLI4-1204-M	SLI4-1204-S	SLI4-1204-S2	
		46	1,360	1,437	1,413			SLI4-1354-M	SLI4-1354-S	SLI4-1354-S2	
		51	1,510	1,587	1,563			SLI4-1504-M	SLI4-1504-S	SLI4-1504-S2	
		56	1,660	1,737	1,713			SLI4-1654-M	SLI4-1654-S	SLI4-1654-S2	
61	1,810	1,910	1,886	SLI4-1804-M	SLI4-1804-S	SLI4-1804-S2					
	Body protection 50mm	4	160	-	213	4	12		SLI4-155-S		
		8	310	387	363			SLI4-305-M	SLI4-305-S	SLI4-305-S2	
		12	460	537	513			SLI4-455-M	SLI4-455-S	SLI4-455-S2	
		16	610	687	663			SLI4-605-M	SLI4-605-S	SLI4-605-S2	
		20	760	837	813			SLI4-755-M	SLI4-755-S	SLI4-755-S2	
		24	910	987	963			SLI4-905-M	SLI4-905-S	SLI4-905-S2	
		28	1,060	1,137	1,113			SLI4-1055-M	SLI4-1055-S	SLI4-1055-S2	
		32	1,210	1,287	1,263			SLI4-1205-M	SLI4-1205-S	SLI4-1205-S2	
		36	1,360	1,437	1,413			SLI4-1355-M	SLI4-1355-S	SLI4-1355-S2	
		40	1,510	1,587	1,563			SLI4-1505-M	SLI4-1505-S	SLI4-1505-S2	
		44	1,660	1,737	1,713			SLI4-1655-M	SLI4-1655-S	SLI4-1655-S2	
		48	1,810	1,910	1,886			SLI4-1805-M	SLI4-1805-S	SLI4-1805-S2	
	Body protection 90mm	4	310	387	363	4	12	SLI4-309-M	SLI4-309-S	SLI4-309-S2	
		6	460	537	513			SLI4-459-M	SLI4-459-S	SLI4-459-S2	
		8	610	687	663			SLI4-609-M	SLI4-609-S	SLI4-609-S2	
		10	760	837	813			SLI4-759-M	SLI4-759-S	SLI4-759-S2	
		12	910	987	963			SLI4-909-M	SLI4-909-S	SLI4-909-S2	
		14	1,060	1,137	1,113			SLI4-1059-M	SLI4-1059-S	SLI4-1059-S2	
		16	1,210	1,287	1,263			SLI4-1209-M	SLI4-1209-S	SLI4-1209-S2	
		18	1,360	1,437	1,413			SLI4-1359-M	SLI4-1359-S	SLI4-1359-S2	
		20	1,510	1,587	1,563			SLI4-1509-M	SLI4-1509-S	SLI4-1509-S2	
		22	1,660	1,737	1,713			SLI4-1659-M	SLI4-1659-S	SLI4-1659-S2	
		24	1,810	1,910	1,886			SLI4-1809-M	SLI4-1809-S	SLI4-1809-S2	
			Beams 2-3-4	500	2			510	677	653	4
400	3			810	977	953	SLI4-3B-M	SLI4-3B-S	SLI4-3B-S2		
300	4			910	1,077	1,053	SLI4-4B-M	SLI4-4B-S	SLI4-4B-S2		

Function of master/slave models

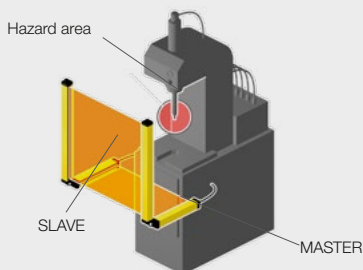
The master/slave model makes it possible to switch up to three light curtains / grids in series and to have combined detection of hands and body, or to simultaneously monitor various sides of the machine. With the following critical advantages:

- Only one pair of safety outputs
- No interference between light barriers installed in adjacent spaces

Examples for series connection of master/slave models

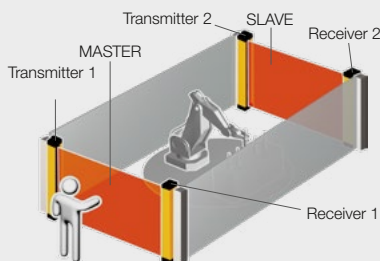


It is possible to connect any master model to any slave model. All electrical connections are designed with 5-pin M12 connectors, with the exception of the master receiver, which requires an 8-pin M12 connector. For the connection between master and slave, cables prefabricated with 2 connectors are available (see page 186).



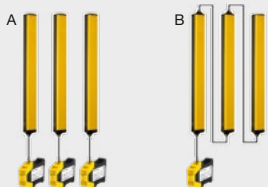
The master is positioned horizontally for the detection of a body, while the vertical slave takes over the detection of hands. You can also turn the connection and position the master vertically for the protection of hands and the slave horizontally for the detection of the body. The application pictured here is among the most common: Horizontal safety light curtains / grids are used for preventing the operator from going undetected if he or she remains between the vertical light curtain/grid and the dangerous machine when turning it on or restarting it.

Example of series connection of master/slave models for protecting two sides of a machine



In the case of safety light curtains / grids SLI, a (non-shielded) standard cable is used for the connection between master and slave. It can have a length of up to 50 meters (see page 186). This property allows for the use of 2 light curtains / grids switched in series, whereby one of them is positioned at the front and the other at the rear side of the machine, with only one connection for the power supply and the control circuit of the machine. Up to 3 safety light curtains / grids switched in series are possible.

Advantage when using master/slave series connections



A schematic of the series connection:
For three standard light curtains / grids, 3 safety modules or 6 relays have to be used and cabled.

B For the master/slave solution with 3 light curtains / grids switched in series, it is possible to use and cable only 1 safety module or 2 relays.

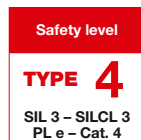
Formulas for calculating the total response time in the case of master/slave series connections SLI4-....:

For a resolution of 14 mm	Master + Slave	$t_{tot} = [0.06 \times (No_{Master} + No_{Slave}) + 0.9636] \times 2$
	Master + Slave 2 + Slave	$t_{tot} = [0.06 \times (No_{Master} + No_{Slave 2} + No_{Slave}) + 1.0036] \times 2$
For all other resolutions or beam separations	Master + Slave	$t_{tot} = [0.11 \times (No_{Master} + No_{Slave}) + 0.9376] \times 2$
	Master + Slave 2 + Slave	$t_{tot} = [0.11 \times (No_{Master} + No_{Slave 2} + No_{Slave}) + 1.0508] \times 2$


Key t_{tot} = Total response time No. = Number of beams for the selected model

SLM4 – MUTING SAFETY LIGHT CURTAINS/GRIDS, TYPE 4

Type4 Muting SLM4 safety light curtains / grids meet the requirements for the highest safety level Type 4 and permanent personal protection is ensured with unhindered material feed. Additional external muting sensors can be connected to devices with integrated muting function. Ready-to-install muting arms can be added to the modular system.



Technical data (typ.)	+20 °C, 24 VDC
Safety level	Type 4 in accordance with TS 61496-2 SIL 3 – SILCL 3 in accordance with IEC 61508 - IEC 62061 PL e – Cat. 4 in accordance with ISO 13849-1
Profile cross section	50x55 mm
Safety outputs	PNP (2x), 400mA, 24 V DC
LED displays	Self-diagnostics Status
Start / restart	Automatic or manual (selectable)
External device (relay) monitoring - EDM	Feedback input, selectable release
Service voltage	19.2 to 28.8V DC
Connection (transmitter)	M12, 5-pin (main plug) M12, 5-pin (2x, muting sensors)
Connection (receiver)	M12, 12-pin (main plug) M12, 5-pin (2x, muting sensors) M12, 5-pin (muting light SLM4, SLM4O) configuration M12, 5-pin (configuration SLM4PO)
Length of connection cable	max. 100m unshielded
Ambient temperature	-30 to +55 °C
Protection class	IP 65 + IP 67
Protection class	III, operation on protective low voltage
Housing material	Aluminum
Window material	Polycarbonate
Mounting	T-groove (mounting bracket in scope of delivery)

		Resolution / beam separation (mm)	Number of beams	Beam separation (mm)	Protective field height (mm)	Total height (mm)	Response time (ms)	Connection cable (optionally available)	Product description	
SLM4 Safety Light Curtain/Grid								SLM4	SLM4O	SLM4PO
Special feature									with light	programmable with light
Range								up to 12 m		
	Detection of a body during access control	2	500		685	5.5	Receiver (main plug) CS12D... (Muting lamp) CD... (Configuration) CS12USB	SLM4-2B		
		3	400		985	5.5		SLM4-3B		
		4	300		1,085	5.5		SLM4-4B		
		2	500		710	5.5			SLM4O-2B	SLM4PO-2B
		3	400		1,010	5.5			SLM4O-3B	SLM4PO-3B
		4	300		1,110	5.5			SLM4O-4B	SLM4PO-4B
	Hand protection 30mm	16		310	420	8.0	Receiver (main plug) CS12D... (Configuration) CS12USB			SLM4PO-303
		23		460	570	9.5				SLM4PO-453
		31		610	720	11.0				SLM4PO-603
		38		760	870	12.5				SLM4PO-753
		46		910	1,020	14.5				SLM4PO-903
		53		1,060	1,170	16.0				SLM4PO-1053
		61		1,210	1,320	17.6				SLM4PO-1203
		68		1,360	1,470	19.0				SLM4PO-1353
		76		1,510	1,620	20.5				SLM4PO-1503
		83		1,660	1,770	22.0				SLM4PO-1653
		91		1,810	1,920	23.5				SLM4PO-1803
		98		1,960	2,070	25.0				SLM4PO-1953
		106		2,110	2,220	26.5				SLM4PO-2103
113		2,260	2,370	28.0			SLM4PO-2253			

MA.../MZ MUTING ARMS

The muting arms MA .../MZ can be directly mounted on and connected to the safety light grids/curtains SLM4. Multiple muting functions can be implemented thanks to simple hardware wiring. Even perforated objects, such as pallets, can be detected with the MZ multibeam light barriers.

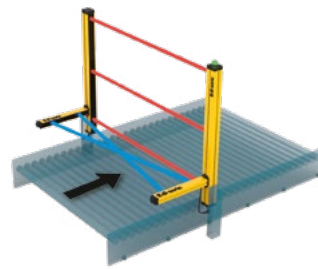
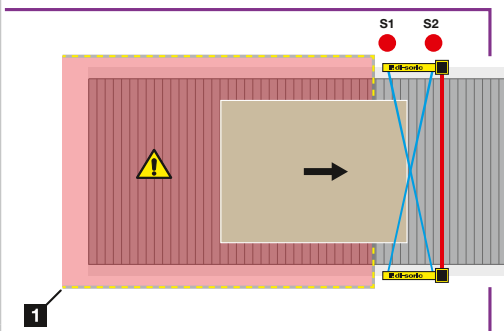


Technical data (typ.)	+20 °C, 24 VDC
Emitted light	Infrared
Service voltage	19.2 to 28.8 V DC
Switching output	pnp, 100 mA, NO
Ambient temperature	-30to+55 °C

Muting arm design	Number of muting sensors in set	Parallel (P) or Cross-muting (X)	Range (m)	Operating principle								Adjustment		Product description
				Through-beam sensor	Retroreflective light barrier	Through-beam sensor, 5-beam ¹⁾	Transparent detection, Reduced sensitivity	For high speed belts, with longer muting arms	Safety functions Muting activation	Height adjustable	Rotary position adjustable	IP light		
MA.../MZ Muting Arms														
	L	2	X	1 to 2.5	■						■	■	■	MA-L2X
	L	2	P	0 to 3.5		■					■	■	■	MA-L2P-TRX
	L	2	P	0 to 2		■		■			■	■	■	MA-L2P-TRX-G
	L	2	P	0 to 3.5		■		■			■	■	■	MA-L2P-TRX-V
	T	2	X	1 to 2.5	■						■	■	■	MA-T2X
	T	4	P	0 to 3.5		■					■	■	■	MA-T4P-TRX
	T	4	P	0 to 2		■		■			■	■	■	MA-T4P-TRX-G
	T	4	P	0 to 3.5		■		■			■	■	■	MA-T4P-TRX-V
	L	2	X/P	0 to 3.5			■				■	■	■	MZ-L2XP
	L	2	P	0 to 3.5			■		■		■	■	■	MZ-L2XP-V
	T	2	X	0 to 3.5			■				■	■	■	MZ-T2X
	T	4	P	0 to 3.5			■				■	■	■	MZ-T4P
	T	4	P	0 to 3.5			■		■		■	■	■	MZ-T4P-V

Housing design Size (mm)	Beam separation (mm)	Number of beams	Operating voltage (VDC)	Response time (ms)	Switching output	Protection class	Ambient temperature (°C)	Cable length, plug connector	Product description	
										Through-beam light barriers 5-beam ¹⁾
	70 x 28 x 30	10	5	24±20%	100	PNP, 100 mA,	IP 65	-30 to 55	0,9m M12, 5-pin	M5-A
	70 x 28 x 30	10	5	24±20%	100	PNP, 100 mA,	IP 65	-30 to 55	0,9m M12, 5-pin	M5-B

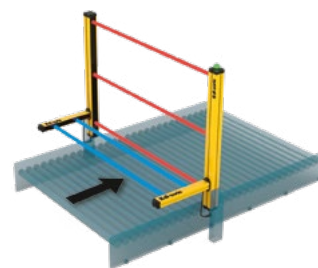
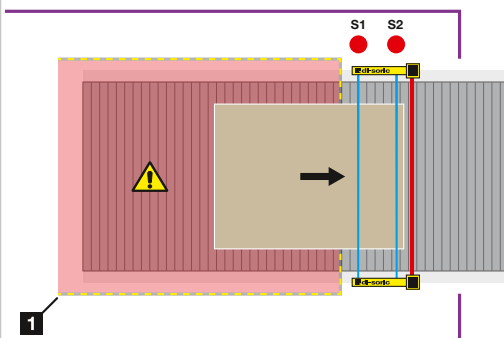
¹⁾ For pallet machines that work with irregular loads and pallets

L2X Muting arms with two crossed muting sensors, material transport out of the danger zone

In this muting mode, the two muting arms are located in front of the vertically mounted safety light barrier, facing the danger zone, and are in front of the hazardous passageway.

This unidirectional mode is used for transporting material out of the danger zone

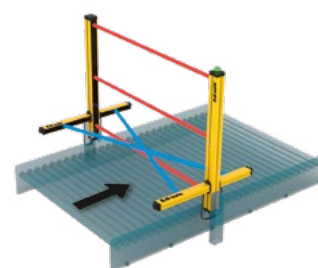
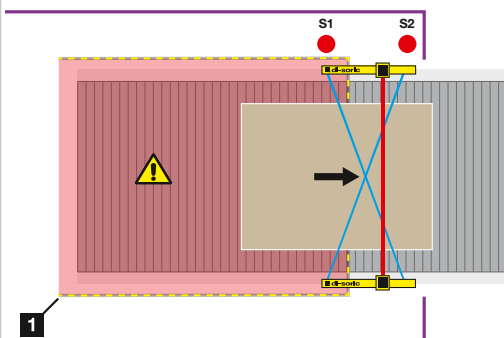
1 = Danger zone

L2P with two crossed muting sensors, material transport out of the danger zone

In this muting mode, sensors 1 and 2 are on the same side of the vertical safety light barrier and are in front of the hazardous passageway.

This unidirectional mode is used for protecting material outputs.

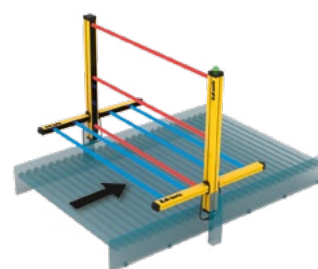
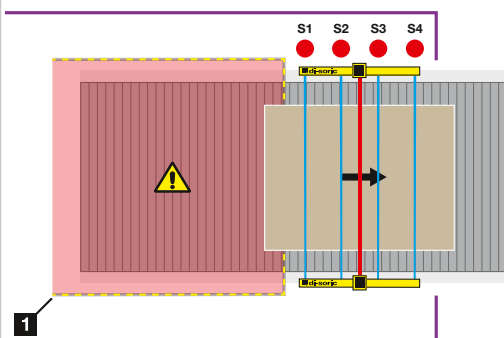
1 = Danger zone

T2X with two crossed muting sensors, material transport into and out of the danger zone

In this muting mode, one sensor (S1) is located on the side of the vertically oriented safety light barrier facing the danger zone. The second sensor (S2) is located on the side facing away from the danger zone.

This bidirectional mode is used for transporting material out of and into the danger zone.

1 = Danger zone

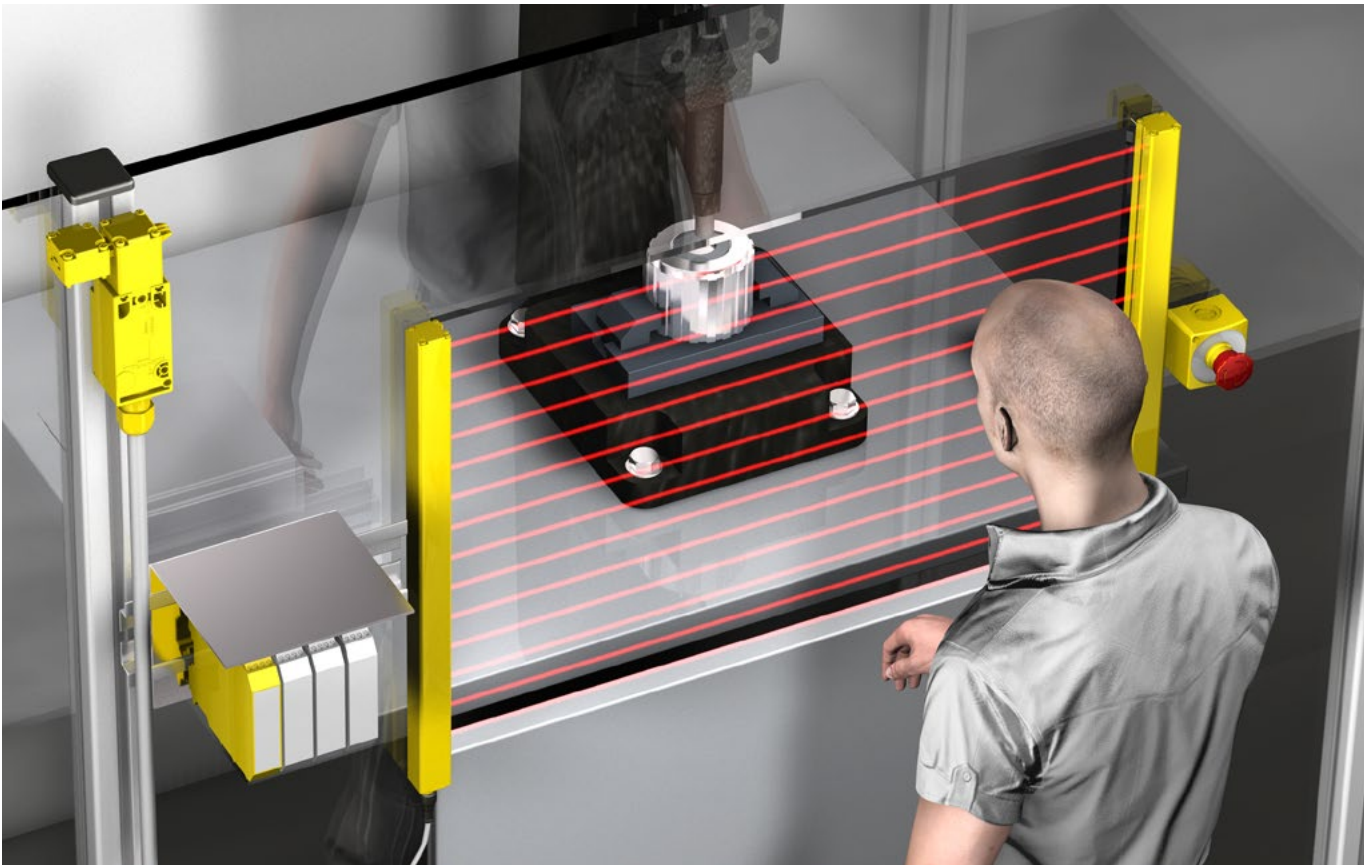
T4P with four parallel muting sensors, material transport into and out of the danger zone

In this muting mode, two sensors are located on one side of the vertical safety light barrier and two are located on the other side.

This bidirectional mode is used for transporting material out of and into the danger zone.

1 = Danger zone

Reliable control components



di-soric features various secure control components in its product range with which safety sensors can be integrated into work safety solutions. The result is ideal protection with a high degree of machine availability.

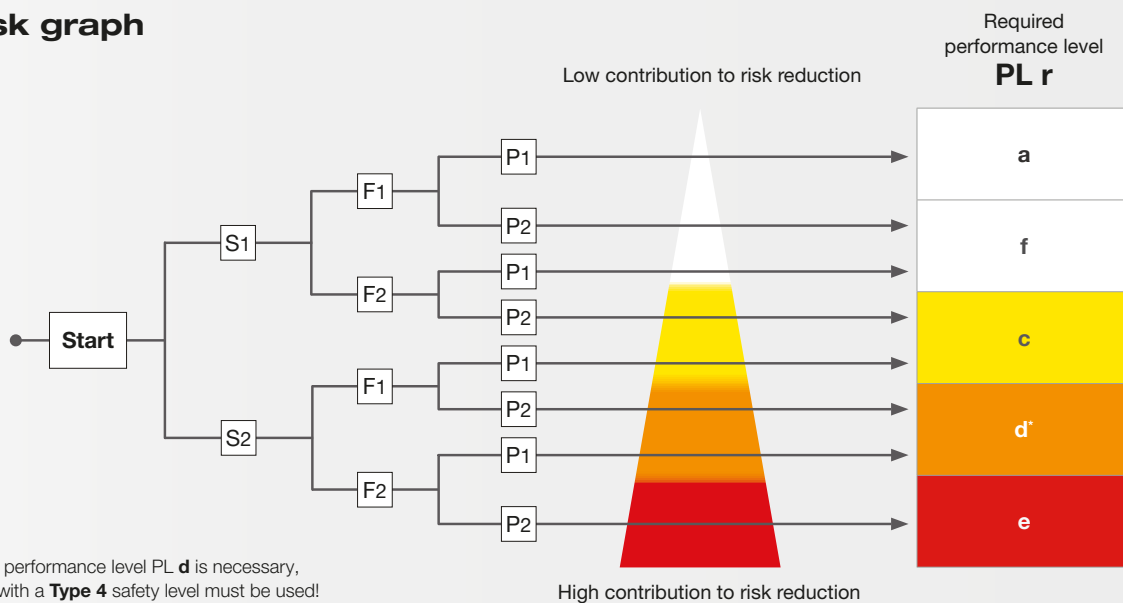


 **di-soric**

SR Safety Relay – Safety Switching Devices 178

MODSI Safety Control System 179

PLr risk graph



* If a required performance level PL d is necessary, light barriers with a **Type 4** safety level must be used!

S	Injury severity level
S1	Minor injury (usually reversible)
S2	Serious injury (usually irreversible) or death
F	Frequency and/or duration of the exposure to the hazard
F1	Seldom/short
F2	Continuous/prolonged
P	Possibility of hazard prevention or limitation of harm
P1	Possible under certain conditions
P2	Virtually impossible

→ **Note:** The PLr values are entirely „hierarchical“. PLr(e) provides the largest and PLr(a) provides the smallest contribution for risk reduction.

Directives and standards for PL e

MODSI- Modular safety system

<p>Type 4 / Type 4 in accordance with IEC/TS 61496-2 SIL 3 – SILCL 3 in accordance with IEC 61508 - IEC 62061</p>	<p>PL e – Cat. 4 in accordance with ISO 13849-1</p>
<p>Corresponds to the following directives and standards:</p> <ul style="list-style-type: none"> 2006/42/EG "Machinery Directive" 2014/30/EU "EMC Directive / Directive relating to electromagnetic compatibility" 2014/35/EU "Low Voltage Directive" CEI EN 61131-2 "Programmable controllers, Part 2: Equipment requirements and tests" EN ISO 13849-1 "Safety of machinery - Safety-related parts of control systems - General principles for design" EN ISO 13849-2 "Safety of machinery: Safety-related parts of control systems - Part 2: Validation" IEC/EN 61496-1 "Safety of machinery: Electro-sensitive protective equipment - Part 1: General requirements and tests" IEC/EN 62061 "Safety of machinery – Functional safety of safety-related electrical, electronic and programmable electronic control systems" IEC 61508-1 "Functional safety of safety-related electrical, electronic and programmable electronic control systems - Part 1: General requirements" IEC 61508-2 "Functional safety of safety-related electrical, electronic and programmable electronic control systems - Part 2: Requirements for electrical/electronic/programmable electronic safety-related systems" IEC 61508-3 "Functional safety of safety-related electrical, electronic and programmable electronic control systems - Part 3: Software requirements" IEC 61508-4 "Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 4: Definitions and abbreviations" IEC 61784-3 "Industrial communication networks - Profiles - Part 3: Functional safety fieldbuses– General rules and profile definitions" UL (C+US) for Canada and the USA ANSI / UL 1998 „Safety software in programmable components“ 	
<p>Safety level</p> <p>TYPE 4</p> <p>SIL 3 – SILCL 3 PL e – Cat. 4</p>	
<p>CE</p> <p>TUV SUD</p> <p>UL LISTED</p>	



SR SAFETY RELAY – SAFETY SWITCHING DEVICES

The safety relay / safety switching devices from di-soric make simple integration of individual safety sensors into occupational safety solutions possible. di-soric can optionally also deliver devices with integrated control function (External Device Monitoring - EDM) or with integrated muting function, to which additional external muting sensors can be connected.

Technical data (typ.)	+20 °C, 24 VDC
Reaction time	< 20 ms
Service voltage	19.2 to 28.8 V DC
Connection	to terminal strip
Ambient temperature	0 to +55 °C
Protection class	IP20 for housing IP2X for terminal strip
Mounting	on top-hat rail in accordance with EN 50022-35 standard

Dimensions (mm)	Integrated muting function	Start / restart ¹⁾ (Automatic or manual (selectable on terminal strip), interlock)	External device (relay) monitoring - EDM (Feedback input, selectable release)	Two-channel inputs for safety light curtains / grids	Outputs safety relay (2A, 250VAC)	Status output (PNP (1x), 100 mA, 24VDC)	Inputs for muting sensors 2x, 24VDC, PNP, dark-on, NO	Input for muting release 24VDC, PNP or relay	Product description
-----------------	----------------------------	---	--	---	-----------------------------------	--	--	---	---------------------


Safety relay for safety light curtains/grids type 2 and type 4

	99 x 22.5 x 114.5	■	■	1	NO (2x)	■			SR-1
	99 x 35 x 114.5	■	■	1	NO (2x)	■	■	■	SR-M

¹⁾ Reliable control of the Start / Restart command in accordance with the IEC 61496-1 standard



Interface relay for safety light curtains/grids SLI...

	101 x 35 x 120				NO (2x) NC (1x) ²⁾				SR-0
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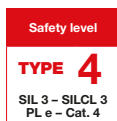
²⁾ Each NO safety switching output is interrupted twice by the two relays



MODSI SAFETY CONTROL SYSTEM

The modular and configurable MODSI safety system can monitor and control various safety equipment in parallel, including safety light curtains / grids, mechanical switches, floor mats, emergency stop switches and two-hand circuits, as well as combinations of these. Using expansion modules, MODSI can be individually adapted to the respective safety requirements.

Technical data (typ.)	+20 °C, 24 VDC
Safety level	TYPE 4 in accordance with IEC/TS 61496-1, -2 SIL 3 – SILCL 3 in accordance with IEC 61508 - IEC 62061 PL e – Cat. 4 in accordance with ISO 13849-1
Service voltage	19.2 to 28.8V DC
Connections	Removable terminal strips, screw contacts
Ambient temperature	-10 to +55 °C
Storage temperature	-10 to +85 °C
Protection class	IP20 for housing, IP2X for terminal strip
Mounting	on top-hat rail in accordance with EN 50022-35 standard
Dimensions - HxLxD	99 x 22.5 x 114.5 mm



MODSI



Compact design










MS-M
Configuration Memory



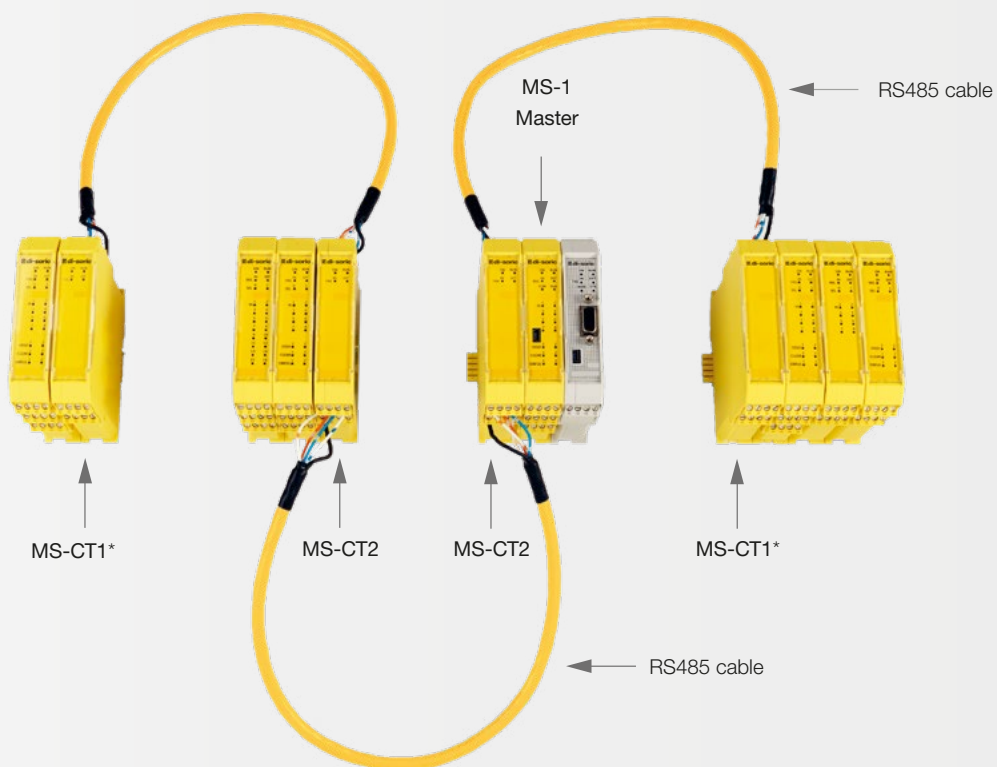
MS-SC
Safety Communication

- Compact design: Design size of each individual module 22.5x99x114.5 mm
- Removable terminal strips, screw contacts
- Can be used with the most common safety sensors
- Data transmission possible over fieldbus systems
- MS-SD - Safety Designer
 - Simple and intuitive software with a graphical user interface
- A large selection of safety functions and logical operators that can be configured using the software (starting on page 51)
- MS-M - Configuration Memory
 - Removable memory card for backing up and transferring configuration data
- MS-SC - Safety Communication
 - Communication between the modules over a 5-way high-speed bus
- Max. 14 expansion modules in addition to the M1 master
- Max. 128 inputs and 16 OSSD safety outputs (pairs)
- Remote maintenance/control of the MS expansion modules is possible over the MS-SC bus (a range of up to 100 m)
- Digital safety inputs that can be programmed individually or in pairs with the option for monitoring using dedicated output signals
- Filters and delays can be programmed separately for each input
- Delays can be programmed for output activation and deactivation
- Independent control of output pairs possible
- Programmable diagnostic output signals
- Easy diagnostics using LED displays on the front side and the bus expansion modules as well as configuration software MS-SD

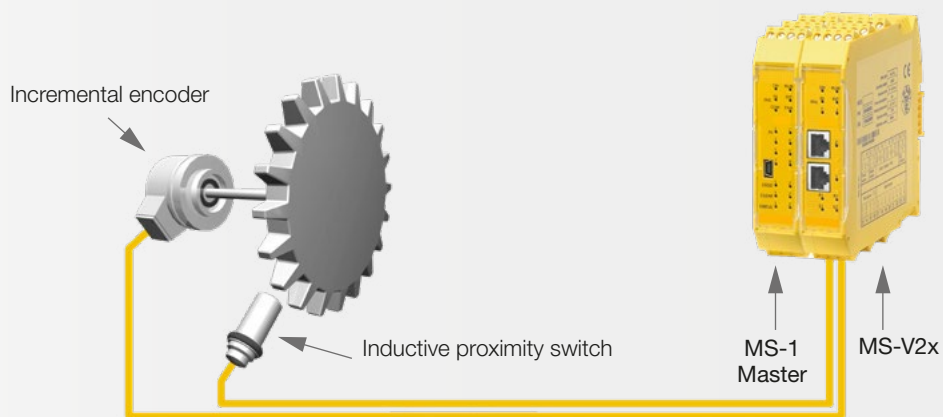
	USB connection	MS-M card slot	Connection to MS-SC bus	MS-SC connector including Safety inputs	PNP safety outputs, 400mA OSSD (number of pairs)	PNP signal outputs, 100mA (programmable)	Test outputs	Safety relay outputs: NO (2x) NC (1x) 6A 250 V AC	NO (4x) NC (2x) 6A 250 V AC	Inputs for start / restart (EDM)	LED display	Product description	
Main module MS-1 for the modular safety system MODSI													
	■	■	■	-	8	2	2	4	-	-	2	Status input/output interference diagnosis	MS-1
Expansion module MS-... for the modular safety system MODSI													
	-	-	■	■	8	2	2	4	-	-	2	Status input/output interference diagnosis	MS-18-02
	-	-	■	■	8	-	-	4	-	-	-		MS-18
	-	-	■	■	16	-	-	4	-	-	-		MS-116
	-	-	■	■	12	-	-	8	-	-	-		MS-112-T8
	-	-	■	■	-	2	2	-	-	-	2		MS-02
	-	-	■	■	-	4	4	-	-	-	4		MS-04
	-	-	-	-	-	-	-	-	■	-	1	Output status	MS-R2
	-	-	-	-	-	-	-	-	■	-	2		MS-R4
	-	-	■	■	-	-	-	-	-	■	4		MS-OR4
	-	-	■	■	-	-	8	-	-	■	4		MS-OR4-S8
Expansion modules MS-Vx ... for safety speed monitoring													
	-	-	■	■	1-4	Inputs: 2 for PNP/NPN inductive proximity switches					Status input Interference diagnosis	MS-V0	
	-	-	■	■		Inputs: 1 TTL incremental encoder + 1- 2 induct. PNP/NPN proximity switch						MS-V1T	
	-	-	■	■		Inputs: 1 HTL incremental encoder + 1- 2 induct. PNP/NPN proximity switch						MS-V1H	
	-	-	■	■		Inputs: 1 sin/cos incremental encoder + 1- 2 induct. PNP/NPN proximity switch						MS-V1S	
	-	-	■	■		Inputs: 1- 2 TTL incremental encoder + 1- 2 induct. PNP/NPN proximity switch						MS-V2T	
	-	-	■	■		Inputs: 1- 2 HTL incremental encoder + 1- 2 induct. PNP/NPN proximity switch						MS-V2H	
	-	-	■	■		Inputs: 1- 2 sin/cos incremental encoder + 1- 2 induct. PNP/NPN proximity switch						MS-V2S	
	Expansion modules MS-Bx... for bus diagnosis and data transmission												
	■	-	■	■	Profibus DP - expansion module							Error diagnostics	MS-BP
	■	-	■	■	DeviceNET - expansion module								MS-BD
	■	-	■	■	CANopen - expansion module								MS-BC
	■	-	■	■	Ethernet IP - expansion module								MS-BEI
	■	-	■	■	EtherCAT - expansion module								MS-BEC
	■	-	■	■	PROFINET - expansion module								MS-BEP
	■	-	■	■	Universal Serial Bus - expansion module								MS-BU
Interface modules MS-CTx for connecting exported expansion modules via the MS-SC Bus													
	-	-	■	■	Interface with 1 connection * (1 input or 1 output)							Output status	MS-CT1
	-	-	■	■	Interface with 2 connections (1 input and 1 output)								MS-CT2
Configuration memory for main module													
												MS-M	
Safety communication for main/expansion module													
												MS-SC	

* End or start of the network

Connection variant with MS-CTx



Connection variant with MS-Vx



Lighting for industrial image processing



These lighting systems are used for contrast amplification in image-processing applications. The product range includes solutions for an extremely wide range of lighting scenarios, including area, bar, spot, ring, coaxial, dark field and dome lighting systems. The products are distinguished by various color temperatures, a high protection class, load-free trigger and trigger inversion.



 **di-soric**

Area Lights	183
Barlights	185
Spotlights	188
Ringlights	189
Coaxial Lights	191
Darkfield Lights	192
Customized Lighting	193




AREA LIGHTS

Area lights with switchable constant light are suited for operation using a 24 V DC voltage source. They offer a constant light intensity across a wide voltage range.

Technical data (typ.)	+20 °C, 24 VDC
Trigger input low level	0 to < 2.8 V
Trigger input high level	> 3.3 to 35 V
Plug connector	M12
Connection cable	VK... (optionally available)



	Illuminated area (mm)	Dispersion angle (°)	Size / housing design (mm)	Service voltage (VDC)	Ambient temperature (°C)	Integrated control of power output	Light intensity can be adjusted	Trigger	Protection class	Housing material	Light color	Product description
Area Lights with switchable constant light												
	30 x 30	–	30 x 30 x 20	24	0 to +40				IP 67	Aluminum Black Anodized	<div style="display: flex; gap: 5px;"> ■ Red □ White </div>	BE-F30/30RL-G1-K-BS BE-F30/30RL-G5-K-BS
	50 x 50	–	50 x 50 x 20	24	0 to +40				IP 67	Aluminum Black Anodized	<div style="display: flex; gap: 5px;"> ■ Red □ White </div>	BE-F50/50RL-G1-K-BS BE-F50/50RL-G5-K-BS
	50 x 50	–	80 x 110 x 15	15 to 35	0 to +50	■	■	■	IP 67	Aluminum Black Anodized	 Infrared	BEK-F50/50-G0TI-IBS
				15 to 35							■ Red	BEK-F50/50-G1TI-IBS
				18 to 35							■ Green	BEK-F50/50-G2TI-IBS
				18 to 35							■ Blue	BEK-F50/50-G3TI-IBS
				18 to 35							□ White	BEK-F50/50-G5TI-IBS
	100 x 100	–	130 x 160 x 15	15 to 35	0 to +50	■	■	■	IP 67	Aluminum Black Anodized	 Infrared	BEK-F100/100-G0TI-IBS
				15 to 35							■ Red	BEK-F100/100-G1TI-IBS
				18 to 35							■ Green	BEK-F100/100-G2TI-IBS
				18 to 35							■ Blue	BEK-F100/100-G3TI-IBS
				18 to 35							□ White	BEK-F100/100-G5TI-IBS
	150 x 150	–	180 x 210 x 15	15 to 35	0 to +50	■	■	■	IP 67	Aluminum Black Anodized	 Infrared	BEK-F150/150-G0TI-IBS
				15 to 35							■ Red	BEK-F150/150-G1TI-IBS
				18 to 35							■ Green	BEK-F150/150-G2TI-IBS
				18 to 35							■ Blue	BEK-F150/150-G3TI-IBS
				18 to 35							□ White	BEK-F150/150-G5TI-IBS
	200 x 200	–	230 x 260 x 18	15 to 35	0 to +50	■	■	■	IP 67	Aluminum Black Anodized	 Infrared	BEK-F200/200-G0TI-IBS
15 to 35				■ Red							BEK-F200/200-G1TI-IBS	
18 to 35				■ Green							BEK-F200/200-G2TI-IBS	
18 to 35				■ Blue							BEK-F200/200-G3TI-IBS	
18 to 35				□ White							BEK-F200/200-G5TI-IBS	
	250 x 250	–	317 x 317 x 23	24	0 to +40				IP 67	Aluminum Black Anodized	<div style="display: flex; gap: 5px;"> ■ Red □ White </div>	BEK-FL250/250-G1TI-IBS BEK-FL250/250-G5TI-IBS
	250 x 250	–	317 x 317 x 23	24	0 to +40				IP 20	Aluminum Black Anodized	□ White	BEK-FL250/250-R50-G5TI-IBS

	Illuminated area (mm)	Dispersion angle (°)	Size / housing design (mm)	Service voltage (VDC)	Ambient temperature (°C)	Integrated control of power output	Light intensity can be adjusted	Trigger	Protection class	Housing material	Light color	Product description
Area Lights with switchable constant light												
	400 x 400	–	467 x 467 x 23	24	0 to +40				IP 67	Aluminum Black Anodized	<input checked="" type="checkbox"/> Red <input type="checkbox"/> White	BEK-FL400/400-G1T-IBS BEK-FL400/400-G5T-IBS
	400 x 400	–	467 x 467 x 23	24	0 to +40				IP 20	Aluminum Black Anodized	<input type="checkbox"/> White	BEK-FL400/400-R50-G5T-IBS
	1,000 x 1,000	–	1067 x 1067 x 23	24	0 to +40				IP 67	Aluminum Black Anodized	<input checked="" type="checkbox"/> Red <input type="checkbox"/> White	BEK-FL1000/1000-G1T-IBS BEK-FL1000/1000-G5T-IBS

Externally flashable area lights are suited for operation using a constant current source or a flash controller. They are the ideal solution for very short camera exposure times and therefore for extremely high-speed processes.

Technical data (typ.)	+20°C, 24 VDC
Service voltage	Operation exclusively with flash controller
Risk group	Clear (DIN EN 62471)
Protection class	III, operation on protective low voltage
Shock/vibration load	30 g / 10 – 55 Hz, 1 mm
Ambient temperature	0 to +50 °C
Insulation proof voltage	500 V
Housing material	Aluminum, black anodized
Connection	Cable PUR 2.5 m



	Illuminated area/length (mm)	Dispersion angle (°)	Size / housing design (mm)	Ambient temperature (°C)	Pulse power consumption (W)	Pulse overload factor	Pulse current-carrying capacity (mA)	Protection class	Window material	Window	Light color	Product description
Externally Flashable Area Lights												
	50 x 50	–	80 x 80 x 13	0 to 50	Max. 135	Max. 18	Max. 6,400	IP 67	PC, opal	Diffuse	<input checked="" type="checkbox"/> Infrared	BE-F50/50-F0-K
					Max. 25	Max. 6.4	Max. 1,600				<input checked="" type="checkbox"/> Red	BE-F50/50-F1-K
					Max. 40	Max. 8	Max. 1,600				<input type="checkbox"/> White	BE-F50/50-F5-K
	100 x 100	–	130 x 130 x 13	0 to 50	Max. 275	Max. 18	Max. 12,800	IP 67	PC, opal	Diffuse	<input checked="" type="checkbox"/> Infrared	BE-F100/100-F0-K
					Max. 48	Max. 6.4	Max. 3,200				<input checked="" type="checkbox"/> Red	BE-F100/100-F1-K
					Max. 80	Max. 9	Max. 3,200				<input type="checkbox"/> White	BE-F100/100-F5-K
	150 x 150	–	180 x 180 x 13	0 to 50	Max. 460	Max. 19	Max. 19,200	IP 67	PC, opal	Diffuse	<input checked="" type="checkbox"/> Infrared	BE-F150/150-F0-K
					Max. 80	Max. 6.6	Max. 4,800				<input checked="" type="checkbox"/> Red	BE-F150/150-F1-K
					Max. 125	Max. 9.6	Max. 4,800				<input type="checkbox"/> White	BE-F150/150-F5-K
	200 x 200	–	230 x 230 x 13	0 to 50	Max. 500	Max. 18	Max. 19,900	IP 67	PC, opal	Diffuse	<input checked="" type="checkbox"/> Infrared	BE-F200/200-F0-K
					Max. 120	Max. 9	Max. 6,400				<input checked="" type="checkbox"/> Red	BE-F200/200-F1-K
					Max. 180	Max. 9	Max. 6,400				<input type="checkbox"/> White	BE-F200/200-F5-K







BARLIGHTS

Barlights with switchable constant light are suited for operation using a 24 V DC voltage source. They offer a constant light intensity across a wide voltage range.

Technical data (typ.)	+20 °C, 24 VDC
Trigger input low level	0 to < 2.8 V
Trigger input high level	> 3.3 to 35 V
Shock/vibration load	30 g / 10 – 55 Hz, 1 mm
Plug connector	M12
Connection cable	VK... (optionally available)



	Illuminated area / length (mm)	Dispersion angle (°)	Size / housing design (mm)	Service voltage (VDC)	Ambient temperature (°C)	Integrated control of power output	Trigger	Protection class	Housing material	Light color	Product description
Barlights with switchable constant light											
	30 x 30	–	30 x 30 x 20	24	0 to +40			IP 67	Aluminum Black Anodized	 Red  White	BE-A30/30-G1-K-BS BE-A30/30-G5-K-BS
	50 x 50	–	50 x 50 x 20	24	0 to +40			IP 67	Aluminum Black Anodized	 Red  White	BE-A50/50-G1-K-BS BE-A50/50-G5-K-BS
 SMD-LED	16 x 65	120°	16 x 20 x 84	24	0 to +40			IP 20	Aluminum Black Anodized	 Infrared	BE 1-A65/120-G0-K-BS
										 Red	BE 1-A65/120-G1-K-BS
										 Green	BE 1-A65/120-G2-K-BS
										 Blue	BE 1-A65/120-G3-K-BS
										 White	BE 1-A65/120-G5-K-BS
	16 x 130	120°	16 x 20 x 144	24	0 to +40			IP 20	Aluminum Black Anodized	 Infrared	BE 1-A130/120-G0-K-BS
										 Red	BE 1-A130/120-G1-K-BS
										 Green	BE 1-A130/120-G2-K-BS
										 Blue	BE 1-A130/120-G3-K-BS
										 White	BE 1-A130/120-G5-K-BS
	16 x 240	120°	16 x 20 x 254	24	0 to +40			IP 20	Aluminum Black Anodized	 Infrared	BE 1-A240/120-G0-K-BS
										 Red	BE 1-A240/120-G1-K-BS
 Green										BE 1-A240/120-G2-K-BS	
 Blue										BE 1-A240/120-G3-K-BS	
 White										BE 1-A240/120-G5-K-BS	

	Illuminated area / length (mm)	Dispersion angle (°)	Size / housing design (mm)	Service voltage (V DC)	Ambient temperature (°C)	Integrated control of power output	Trigger	Protection class	Housing material	Light color	Product description	
Barlights with switchable constant light												
	16 x 130	–	16 x 20 x 144	24	0 to +40			IP 20	Aluminum Black Anodized	 Infrared  Red  Green  Blue  White	BE 1-A130-G0-K-BS BE 1-A130-G1-K-BS BE 1-A130-G2-K-BS BE 1-A130-G3-K-BS BE 1-A130-G5-K-BS	
	16 x 240	–	16 x 20 x 254	24	0 to +40			IP 20	Aluminum Black Anodized	 Infrared  Red  Green  Blue  White	BE 1-A240-G0-K-BS BE 1-A240-G1-K-BS BE 1-A240-G2-K-BS BE 1-A240-G3-K-BS BE 1-A240-G5-K-BS	
		96 x 23	30°	40 x 60 x 113	18 to 30	0 to +40	■	■	IP 67	Aluminum Black Anodized	 Infrared  Red  Green  Blue  White	BEK-A100-G0T-K-BS BEK-A100-G1T-K-BS BEK-A100-G2T-K-BS BEK-A100-G3T-K-BS BEK-A100-G5T-K-BS
		196 x 23	30°	40 x 60 x 213	18 to 30	0 to +40	■	■	IP 67	Aluminum Black Anodized	 Red	BEK-A200-G1T-K-BS
296 x 23		30°	40 x 60 x 313	18 to 30	0 to +40	■	■	IP 67	Aluminum Black Anodized	 Infrared  Red  Green  Blue  White	BEK-A300-G0T-K-BS BEK-A300-G1T-K-BS BEK-A300-G2T-K-BS BEK-A300-G3T-K-BS BEK-A300-G5T-K-BS	
396 x 23		30°	40 x 60 x 413	18 to 30	0 to +40	■	■	IP 67	Aluminum Black Anodized	 Infrared  Red  White	BEK-A400-G0T-K-BS BEK-A400-G1T-K-BS BEK-A400-G5T-K-BS	
496 x 23		30°	40 x 60 x 513	18 to 30	0 to +40	■	■	IP 67	Aluminum Black Anodized	 Infrared  Red  White	BEK-A500-G0T-K-BS BEK-A500-G1T-K-BS BEK-A500-G5T-K-BS	

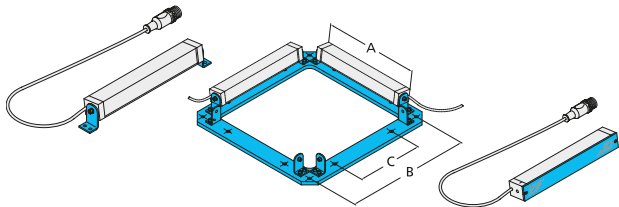
Externally flashable barlights are suited for operation using a constant current source or a flash controller. They are the ideal solution for very short camera exposure times and therefore for extremely high-speed processes.

Technical data (typ.)	+20 °C, 24 VDC
Service voltage	Operation exclusively with flash controller
Risk group	Clear (DIN EN 62471)
Protection class	III, operation on protective low voltage
Shock/vibration load	30 g / 10 – 55 Hz, 1 mm
Ambient temperature	0 to +50 °C
Insulation proof voltage	500 V
Housing material	Aluminum, black anodized
Connection	Cable PUR 2.5 m



	Illuminated area/length (mm)	Dispersion angle (°)	Size / housing design (mm)	Ambient temperature (C°)	Pulse power consumption (W)	Pulse overload factor	Pulse current-carrying capacity (mA)	Protection class	Window material	Window	Light color	Product description
Externally Flashable Barlights												
	16 x 130	-	16 x 20 x 144	0 to 40	31	8	1,350	IP 20			<input checked="" type="checkbox"/> Red	BE-A130-F1-K
					35	10	1,400				<input type="checkbox"/> White	BE-A130-F5-K

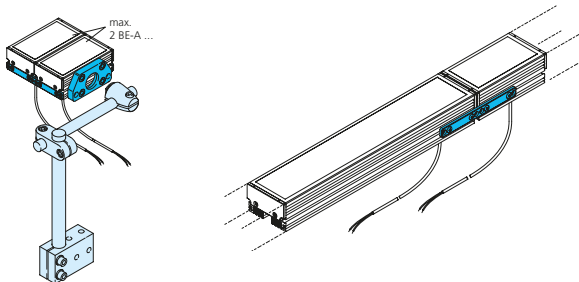
Accessories for BE-A 130...



see "Lighting accessories", page 240

Externally Flashable Barlights												
	46 x 95	-	60 x 40 x 113	0 to 40	290	9.33	20,000	IP 67	PMMA	Clear	<input checked="" type="checkbox"/> Infrared	BE-A100-F0-K
					240	8.0	8,000				<input checked="" type="checkbox"/> Red	BE-A100-F1-K
					250	8.0	8,000				<input type="checkbox"/> White	BE-A100-F5-K
	46 x 295	-	60 x 40 x 313	0 to 40	1,500	24	60,000	IP 67	PMMA	Clear	<input checked="" type="checkbox"/> Infrared	BE-A300-F0-K
					720	12	24,000				<input checked="" type="checkbox"/> Red	BE-A300-F1-K
					750	12	24,000				<input type="checkbox"/> White	BE-A300-F5-K

Accessories for BE-A 100... / BE-A 300...



see "Lighting accessories", page 240

SPOTLIGHTS

Spotlights with switchable constant light are suited for operation using a 24 V DC voltage source. They offer a constant light intensity over a wide voltage range and are distinguished by features such as trigger inversion and brightness adjustment.

Technical data (typ.)	+20 °C, 24 VDC
Trigger input low level	0 to < 2.8 V
Trigger input high level	> 3.3 to 35 V
Shock/vibration load	30 g / 10 – 55 Hz, 1 mm
Plug connector	M12
Connection cable	VK... (optionally available)









	Illuminated area (mm)	Dispersion angle (°)	Size / housing design (mm)	Service voltage (VDC)	Ambient temperature (°C)	Integrated control of power output	Light intensity can be adjusted	Trigger	Protection class	Housing material	Light color	Product description
Spotlights with switchable constant light												
		25°	M12 x 71	10 to 30	0 to +40	■		■	IP 67	Brass nickel plated	<input checked="" type="checkbox"/> Red <input type="checkbox"/> White	BEK-PM12-G1T-BS BEK-PM12-G5T-BS
		Ø21	7°	30 x 32 x 60	18 to 30	0 to +40	■	■	■	IP 67	Aluminum Black Anodized	<input checked="" type="checkbox"/> Infrared <input checked="" type="checkbox"/> Red <input checked="" type="checkbox"/> Blue <input type="checkbox"/> White
Ø21		10°	30 x 32 x 60	10 to 35	0 to +50	■	■	■	IP 67	Aluminum Black Anodized	UV light	BEK-P14-G7TI-IBS
Ø21		14°	30 x 32 x 60	10 to 35	0 to +50	■	■	■	IP 67	Aluminum Black Anodized	<input checked="" type="checkbox"/> Infrared <input checked="" type="checkbox"/> Red <input checked="" type="checkbox"/> Blue <input type="checkbox"/> White	BEK-P14-G0TI-IBS BEK-P14-G1TI-IBS BEK-P14-G3TI-IBS BEK-P14-G5TI-IBS
											UV light	BEK-P14-G7TI-IBS
											UV light	BEK-P25-G7TI-IBS
											<input checked="" type="checkbox"/> Infrared <input checked="" type="checkbox"/> Red <input checked="" type="checkbox"/> Blue <input type="checkbox"/> White	BEK-P30-G0TI-IBS BEK-P30-G1TI-IBS BEK-P30-G3TI-IBS BEK-P30-G5TI-IBS

RINGLIGHTS

Ringlights with switchable CW light are suited for operation using a 24 V DC voltage source. They offer a constant light intensity over a wide voltage range and are distinguished by features such as trigger inversion and brightness adjustment.



Technical data (typ.)	+20 °C, 24 VDC
Trigger input low level	0 to < 2.8 V
Trigger input high level	> 3.3 to 35 V
Shock/vibration load	30 g / 10 – 55 Hz, 1 mm
Plug connector	M12
Connection cable	VK... (optionally available)

	Illuminated area (mm)	Dispersion angle (°)	Size / housing design (mm)	Service voltage (VDC)	Ambient temperature (°C)	Integrated control of power output	Light intensity can be adjusted	Trigger	Protection class	Housing material	Light color	Product description	
Ringlights with switchable CW light													
	Ø 30	90°	Ø 69x20	24	0 to +40				IP 67	Aluminum Black Anodized	 Infrared	BE-R30-G0-K-BS-CLR ¹⁾	
											 Infrared	BE-R30-G0-K-BS-DIF ²⁾	
											 Red	BE-R30-G1-K-BS-CLR ¹⁾	
	Ø 30	80°	Ø 69x20	24	0 to +40					IP 67	Aluminum Black Anodized	 Red	BE-R30-G1-K-BS-DIF ²⁾
												 Red	BE-R30-G1-K-BS-POL ³⁾
												 White	BE-R30-G5-K-BS-CLR ¹⁾
	Ø 30	80°	Ø 69x20	24	0 to +40					IP 67	Aluminum Black Anodized	 White	BE-R30-G5-K-BS-DIF ²⁾
												 White	BE-R30-G5-K-BS-POL ³⁾
	Ø 70	30°	Ø 130x29	18 to 35	0 to +40	■	■	■	IP 67	Aluminum Black Anodized	 Infrared	BEK-R70/30-G0TI-IBS-CLR ¹⁾	
											 Infrared	BEK-R70/30-G0TI-IBS-DIF ²⁾	
											 Red	BEK-R70/30-G1TI-IBS-CLR ¹⁾	
	Ø 70	30°	Ø 130x29	18 to 35	0 to +40	■	■	■	IP 67	Aluminum Black Anodized	Aluminum Black Anodized	 Red	BEK-R70/30-G1TI-IBS-DIF ²⁾
												 Red	BEK-R70/30-G1TI-IBS-POL ³⁾
	Ø 70	20°	Ø 130x29	18 to 35	0 to +40	■	■	■	IP 67	Aluminum Black Anodized	Aluminum Black Anodized	 Green	BEK-R70/20-G2TI-IBS-CLR ¹⁾
												 Green	BEK-R70/20-G2TI-IBS-DIF ²⁾
												 Green	BEK-R70/20-G2TI-IBS-POL ³⁾
	Ø 70	20°	Ø 130x29	18 to 35	0 to +40	■	■	■	IP 67	Aluminum Black Anodized	Aluminum Black Anodized	 Blue	BEK-R70/20-G3TI-IBS-CLR ¹⁾
												 Blue	BEK-R70/20-G3TI-IBS-DIF ²⁾
												 Blue	BEK-R70/20-G3TI-IBS-POL ³⁾
	Ø 70	120°	Ø 130x29	18 to 35	0 to +40	■	■	■	IP 67	Aluminum Black Anodized	Aluminum Black Anodized	 White	BEK-R70/120-G5TI-IBS-CLR ¹⁾
												 White	BEK-R70/120-G5TI-IBS-DIF ²⁾
												 White	BEK-R70/120-G5TI-IBS-POL ³⁾
		90°		22.8 to 25.2	0 to +40		■	■	IP 67	Aluminum Black Anodized	 Infrared	BEK-R33-E0T-K-BS ⁴⁾	
											 Red	BEK-R33-E1T-K-BS ⁴⁾	
											 White	BEK-R33-E5T-K-BS ⁴⁾	

¹⁾ Clear protection window

²⁾ Diffuser panel

³⁾ Polarizer panel

⁴⁾ Accessories for CS 50, pPage 224

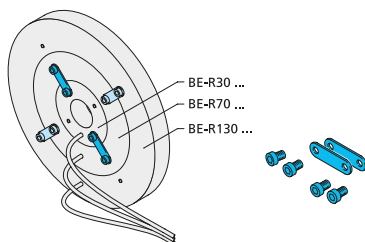
Externally flashable ringlights are suited for operation using a constant current source or a flash controller. They are the ideal solution for very short camera exposure times and therefore for extremely high-speed processes.



Technical data (typ.)	+20 °C, 24 VDC
Service voltage	Operation exclusively with flash controller
Risk group	Clear (DIN EN 62471)
Protection class	III, operation on protective low voltage
Shock/vibration load	30 g / 10 – 55 Hz, 1 mm
Ambient temperature	0 to +50 °C
Insulation proof voltage	500 V
Housing material	Aluminum, black anodized
Connection	Cable PUR 2.5 m

	Illuminated area/length (mm)	Dispersion angle (°)	Size / housing design (mm)	Ambient temperature (C°)	Pulse power consumption (W)	Pulse overload factor	Pulse current-carrying capacity (mA)	Protection class	Window material	Window	Light color	Product description
	Ø 30	30°	Ø 69x20	0 to 40	Max. 30	8	Max. 2,000	IP 67	PMMA	Clear	■ Red	BE-R30-F1-K-CLR
										Diffuse	■ Red	BE-R30-F1-K-DIF
										Polarized	■ Red	BE-R30-F1-K-POL
	Ø 30	120°	Ø 69x20	0 to 40	Max. 45	10	Max. 2,000	IP 67	PMMA	Clear	□ White	BE-R30-F5-K-CLR
										Diffuse	□ White	BE-R30-F5-K-DIF
										Polarized	□ White	BE-R30-F5-K-POL
	Ø 70	30°	Ø 130x20	0 to 40	Max. 96	8	Max. 6,000	IP 67	PMMA	Clear	■ Red	BE-R70-F1-K-CLR
										Diffuse	■ Red	BE-R70-F1-K-DIF
										Polarized	■ Red	BE-R70-F1-K-POL
	Ø 70	120°	Ø 130x20	0 to 40	Max. 140	10	Max. 6,000	IP 67	PMMA	Clear	□ White	BE-R70-F5-K-CLR
										Diffuse	□ White	BE-R70-F5-K-DIF
										Polarized	□ White	BE-R70-F5-K-POL
	Ø 130	30°	Ø 200x20	0 to 40	Max. 230	8	Max. 12,000	IP 67	PMMA	Clear	■ Red	BE-R130-F1-K-CLR
										Diffuse	■ Red	BE-R130-F1-K-DIF
										Polarized	■ Red	BE-R130-F1-K-POL
	Ø 130	120°	Ø 200x20	0 to 40	Max. 275	10	Max. 11,000	IP 67	PMMA	Clear	□ White	BE-R130-F5-K-CLR
										Diffuse	□ White	BE-R130-F5-K-DIF
										Polarized	□ White	BE-R130-F5-K-POL

Accessories for ringlights



see "Lighting accessories", page 240

COAXIAL LIGHTS

Coaxial lights are used for shadow-free, axial illumination of the object examined. Surface reflections are reliably suppressed. They are available in all application-relevant color temperatures and are distinguished by features such as trigger inversion and brightness adjustment. Coaxial lights are suited for operation using a 24 VDC voltage source and are brightness-stabilized for a wide voltage range.



Technical data (typ.)	+20 °C, 24 VDC
Trigger input low level	0 to < 2.8 V
Trigger input high level	> 3.3 to 35 V
Shock/vibration load	30 g / 10 – 55 Hz, 1 mm
Plug connector	M12
Connection cable	VK... (optionally available)

	Illuminated area (mm)	Dispersion angle (°)	Size / housing design (mm)	Service voltage (VDC)	Ambient temperature (°C)	Integrated control of power output	Light intensity can be adjusted	Trigger	Protection class	Housing material	Light color	Product description
Coaxial Lights												
	50 x 50	–	62 x 58 x 103.5	18 to 35	0 to +40	■	■	■	IP 20	Aluminum Black Anodized	<input checked="" type="checkbox"/> Red <input checked="" type="checkbox"/> Green <input checked="" type="checkbox"/> Blue <input type="checkbox"/> White	BEK-K50/50-G1TI-IBS BEK-K50/50-G2TI-IBS BEK-K50/50-G3TI-IBS BEK-K50/50-G5TI-IBS

DARKFIELD LIGHTS

Dark field lights are used for the contrast enhancement of surface defects, for example for quality control. In these lighting systems, light is injected transversely to the camera's viewing direction. They are available in all application-relevant color temperatures and are distinguished by features such as trigger inversion and brightness adjustment.



Technical data (typ.)	+20 °C, 24 VDC
Trigger input low level	0 to < 2.8 V
Trigger input high level	> 3.3 to 35 V
Shock/vibration load	30g/10–55Hz, 1 mm
Plug connector	M12
Connection cable	VK... (optionally available)

	Illuminated area (mm)	Dispersion angle (°)	Size / housing design (mm)	Service voltage (VDC)	Ambient temperature (°C)	Integrated control of power output	Light intensity can be adjusted	Trigger	Protection class	Housing material	Light color	Product description
Darkfield Lights												
	Ø 70	–	95 x 130 x 12	10 to 35	0 to +40	■	■	■	IP 67	Aluminum Black Anodized	■ Infrared ■ Red ■ Green ■ Blue □ White	BEK-D70-G0TI-K-BS BEK-D70-G1TI-K-BS BEK-D70-G2TI-K-BS BEK-D70-G3TI-K-BS BEK-D70-G5TI-K-BS
	Ø 120	–	170 x 200 x 15	10 to 35	0 to +50	■	■	■	IP 67	Aluminum Black Anodized	■ Infrared ■ Red ■ Green ■ Blue □ White	BEK 1-D120-G0TI-IBS BEK 1-D120-G1TI-IBS BEK 1-D120-G2TI-IBS BEK 1-D120-G3TI-IBS BEK 1-D120-G5TI-IBS

CUSTOMIZED LIGHTING



We will review special requirements related to size and design, light color and connectivity together with you and, upon request, we will implement small production runs of customized products.



Does your application have limited installation space available?

Do you require special lighting for image processing?

Are the standard devices from our product line unable to meet the special requirements of your application needs?

Our special customer-specific lights give you a cost-effective option for meeting the particular needs of your application.

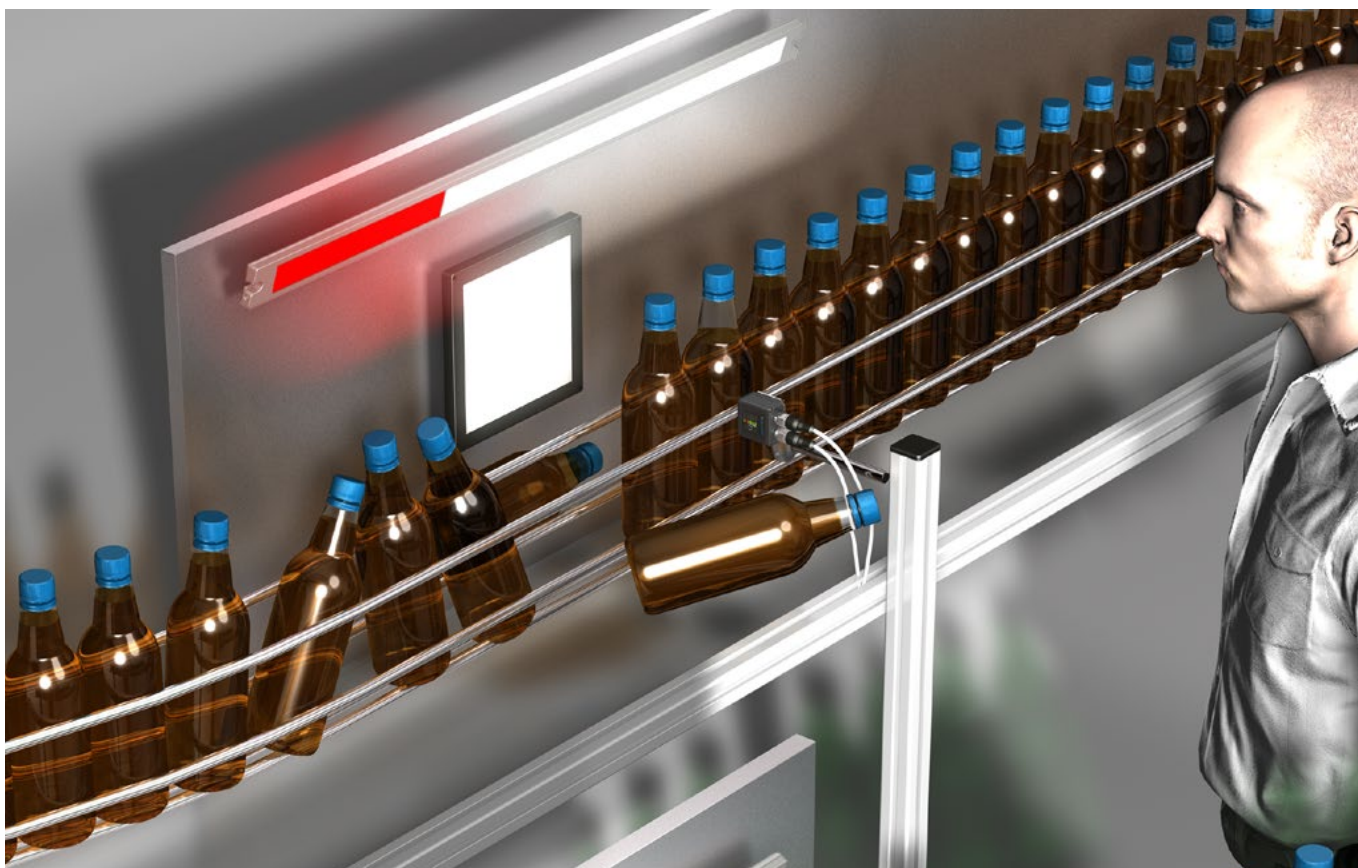
With our custom lights, you can achieve maximum process reliability for your specific image processing application.

And all this at the usual highest di-soric level of quality.



Challenge us. We work together with you.

Machine lighting



The robust, industrial-suited lights make the illumination of machines possible in the highest light quality and are distinguished by their compact design and load-free triggers that meet the strictest requirements. A large selection of overall lengths are available for individual machines.



 **di-soric**


MB-N	195
MB-NP Protected	196
MB-RGBW with Status Indicator	197

MB-N

The MB-N machine lights have a compact design and feature load-free triggers. They offer the highest light quality in white, which meets the strictest requirements.

Technical data (typ.)	+20 °C
Service voltage	24 VDC (Supply Class 2)
Light color	5,000 K white (LED)
Ambient temperature	-20 to 40 °C
Protection class	IP 67
Housing material	Aluminum, natural anodized
Connection cable	VK... (optionally available)




	Illuminated area (mm)	No-load current at 24 V	Power draw at 24 V	Light intensity at 0.5 m	Light intensity at 1.0 m	Luminous flux	Cable 300 mm, M12, 3-pin	Cable 3,000 mm, flying leads	Weight (excluding packaging)	Product description
	95 x 30	190 mA	4.6 W	720 lx	220 lx	440 lm	■	■	115 g	MB-N-126-K-B3
								■	175 g	MB-N-126-K
	220 x 30	450 mA	10.8 W	1800 lx	530 lx	1100 lm	■	■	210 g	MB-N-251-K-B3
								■	260 g	MB-N-251-K
	440 x 30	900 mA	21.6 W	3200 lx	1000 lx	2200 lm	■	■	390 g	MB-N-481-K-B3
								■	440 g	MB-N-481-K
	660 x 30	1350 mA	32.4 W	3900 lx	1300 lx	3300 lm	■	■	550 g	MB-N-701-K-B3
								■	600 g	MB-N-701-K
	870 x 30	1800 mA	43.2 W	4400 lx	1600 lx	4400 lm	■	■	700 g	MB-N-911-K-B3
								■	750 g	MB-N-911-K

MB-NP PROTECTED

Compact MB-NP Protected machine lighting impresses with a high degree of robustness in the face of rough ambient conditions. This machine lighting from di-soric withstand a large number of chemically aggressive cutting and drilling fluids and are protected against cuttings. As a feature, they have load-free triggers and offer the highest light quality in white, which meets the strictest requirements.

Technical data (typ.)	+20 °C
Service voltage	24 VDC (Supply Class 2)
Light color	5,000 K white (LED)
Ambient temperature	0 to 40 °C
Protection class	IP 67
Housing material	Aluminum, natural anodized



	<i>Illuminated area (mm)</i>	<i>No-load current at 24 V</i>	<i>Power draw at 24 V</i>	<i>Light intensity at 0.5 m</i>	<i>Light intensity at 1.0 m</i>		<i>Cable 3,000 mm, flying leads</i>	<i>Weight (excluding packaging)</i>	<i>Product description</i>
MB-NP Protected for use in corrosive environments									
	30 x 220	450mA	10.8 W	1,400lx	430lx		■	410g	MB-NP-250-K
	30 x 440	900mA	21.6 W	2,600lx	800lx		■	700g	MB-NP-480-K

MB-RGBW WITH STATUS INDICATOR

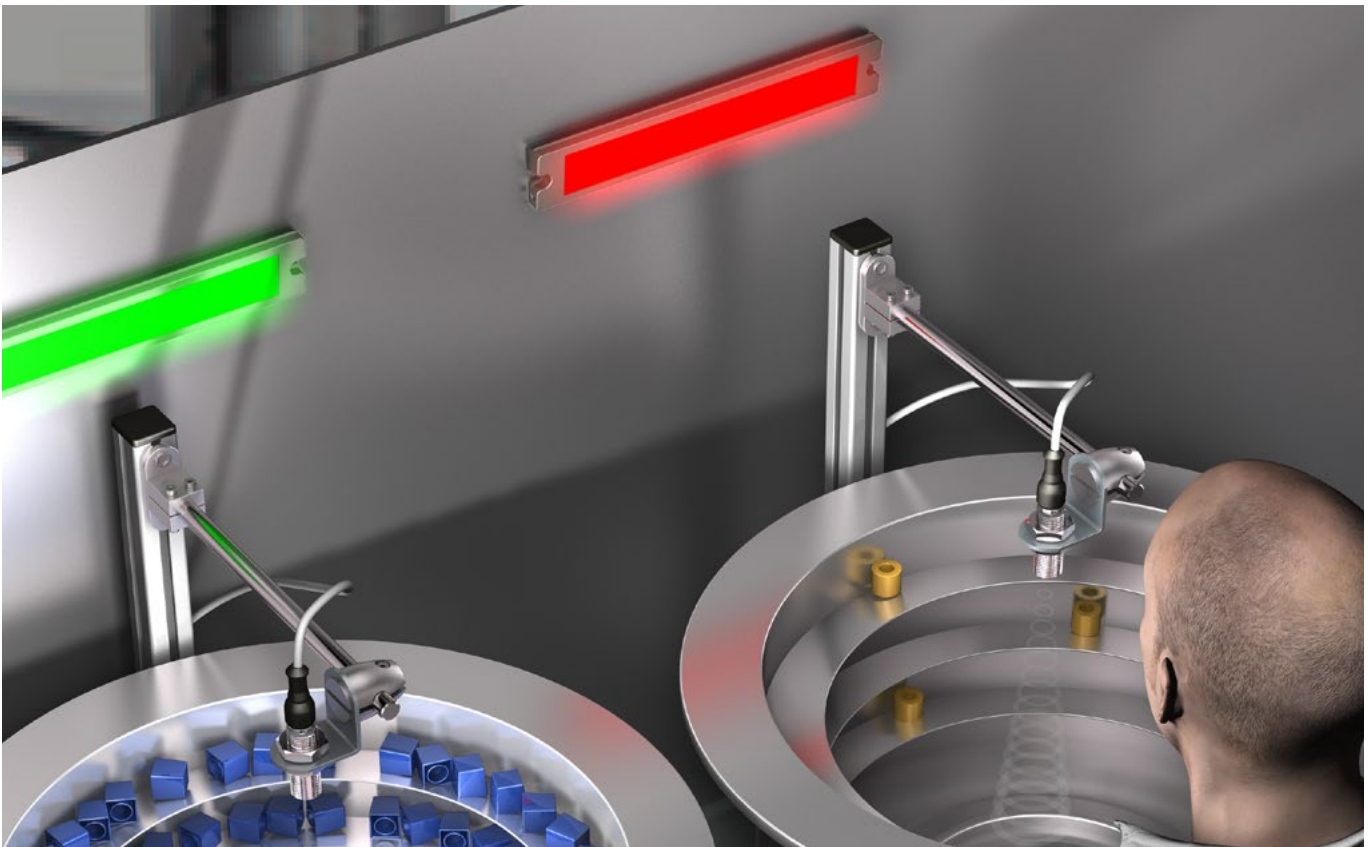
This machine lighting from di-soric offers the highest light quality in white and RGB which meets the strictest requirements. Individualized color parameterization is possible by means of IO-Link. Compact construction and load-free triggers are further features of this lighting.

Technical data (typ.)	+20 °C
Service voltage	24 VDC (Supply Class 2)
Operation modes	RGB: constant, blinking, flashing (MB-RGBW ...)
Service voltage	24 VDC (Supply Class 2)
Light color	RGB + user-defined
Ambient temperature	0 to 40 °C
Protection class	IP 67
Housing material	Aluminum, natural anodized
Connection cable	VK ... /5 (optionally available)



	Illuminated area (mm)	No-load current at 24 V	Power draw at 24 V	IO-Link	Luminous flux		Cable 300 mm, M12, 3-pin	Weight (excluding packaging)	Product description
MB-RGBW with Status Indicator									
	220 x 30	305 mA	7.3 W	■	440lm		■	210 g	MB-RGBW-251-K-B5
	440 x 30	650 mA	15.6 W	■	1,100lm		■	390 g	MB-RGBW-481-K-B5
	660 x 30	1,100 mA	26.4 W	■	2,200lm		■	550 g	MB-RGBW-701-K-B5
	870 x 30	1,520 mA	36.5 W	■	3,300lm		■	700 g	MB-RGBW-911-K-B5

Signal lighting



Signal lighting from di-soric visibly indicate the status of machines. Ready-to-run through 3 color presets (red-yellow-green) or freely parameterizable by way of IO-Link.



 **di-soric**

SB-RGB

199

SBE-RGB


199

SB-RGB

SB-RGB signal lighting with IO-Link are intelligent units that can be adapted to custom requirements. They feature a large RGB illuminated area and display the machine status so that it is visible from far away. They can be configured by means of IO-Link – light functions such as color, brightness and the flashing of individual colors can be freely adjusted. Even without IO-Link configuration, the SB-RGB can be used immediately out-of-the-box thanks to 3 triggerable color presets.



Technical data (typ.)	+20 °C
Service voltage	24 VDC (Supply Class 2)
Light color	RGB + user-defined
Ambient temperature	0 to 40 °C
Protection class	IP 67
Operation modes	Flashing (SB-RGB...)
Housing material	Aluminum, natural anodized / PU, glass clear
Plug connector	Cable: 300 mm with M12 connector, 5-pin
Connection cable	VK .../5 (optionally available)


	Illuminated area (mm)	No-load current at 24 V DC	Power draw at 24 V	IO-Link	Weight (excluding packaging)	Product description
SB-RGB						
	95 x 30	115 mA RMS/150 mA Peak	2.8 W	■	115 g	SB-RGB-126-K-B5
	220 x 30	195 mA RMS/390 mA Peak	4.7 W	■	210 g	SB-RGB-251-K-B5
	440 x 30	385 mA RMS/750 mA Peak	9.2 W	■	390 g	SB-RGB-481-K-B5
	660 x 30	565 mA RMS/1,100 mA Peak	13.5 W	■	550 g	SB-RGB-701-K-B5
	870 x 30	745 mA RMS/1.40 mA Peak	17.8 W	■	700 g	SB-RGB-911-K-B5

SBE-RGB

With a length up to 2 m, status lighting enables the visual indication of the status of machines or access control to protected areas. The fixture lighting can even be installed in the floor. The controller can be used to connect up to three status lights. The color options are red, yellow, green and blue.



Technical data (typ.)	+20 °C
Service voltage	24 VDC ± 5%
Light color	Red, Green, Blue, Yellow
Number of LEDs	60 LEDs / m
Ambient temperature	-20 to +40 °C
Protection class	IP 68
Crush-resistance	100 kg/cm ²
Plug connector	Cable, 0.3 m with M12 connector, 4-pin
Connection cable	VK... (optionally available)

	Illuminated area (mm)	No-load current at 24 V DC	Power draw (W / w / light color)	Mounting T-profile	Aluminum, natural anodized (housing material)	PMMA, walk-on (Window)	Weight (excluding packaging)	Product description
SBE-RGB installation								
	900 x 15	ca. 200 mA / m / light color	4.8 W	Standard bracket clamps	■	■	770 g	SBE-RGB-1000-K-B4
	1900 x 15						1,570 g	SBE-RGB-2000-K-B4

Accessories for SBE-RGB installation

see "Accessories for the installation of status lighting", page 245

Sensor accessories



di-soric offers an extensive selection of accessories for its sensors, perfectly matched to the various products.

Connection technology	201
Field-attachable plug connectors	202
Adapter plugs	204
Logic distributor	205
Counter modules	205
Function adapters	206
Sensor testers	208
Reflectors – Reflective foils	209
IO-LINK basics and technology	210
IO-Link device	211
Accessories for plastic fiber-optic cables	212
Accessories for glass fiber optic cables	213
Accessories for ring sensors	214
Accessories for ring light barriers	214
Accessories for forked and angled light barriers	214
Accessories for optical distance sensors	215
Accessories for ultrasound distance sensors	215
Accessories for color sensors	216

CONNECTION TECHNOLOGY

In the area of connection technology, a wide variety of electrical contacts are available for individual industry-standard mounting.



Technical data (typ.)	+20 °C, 24 VDC
Protection class	IP 67

	Size	Number of wires	Cable length (m)	Metal coupling ring	Max. permissible service voltage (V AC/DC)	Connector material	Cable material PVC, PU coating	Cable material PUR	Product description	Connector material	Cable material PVC	Product description
Connection cable M8												
 straight	M8	3	2.5	■	60	PU	■		TKHM-Z-2.5 ²⁾	PVC	■	TKPM-Z-2.5
			5.0						TKHM-Z-5 ²⁾			TKPM-Z-5
		4	2.5						TKHM-Z-2.5/4 ²⁾			TKPM-Z-2.5/4
			5.0						TKHM-Z-5/4 ²⁾			TKPM-Z-5/4
 angled	M8	3	2.5	■	60	PU	■		TKHM-W-2.5 ²⁾	PVC	■	TKPM-W-2.5
			5.0						TKHM-W-5 ²⁾			TKPM-W-5
		4	2.5						TKHM-W-2.5/4 ²⁾			TKPM-W-2.5/4
			5.0						TKHM-W-5/4 ²⁾			TKPM-W-5/4
Connection cable M12												
 straight	M12	4	2.5	■	250	PUR	■		VKHM-Z-2.5/4 ²⁾	PVC	■	VKPM-Z-2.5/4
			5.0						VKHM-Z-5/4 ²⁾			VKPM-Z-5/4
			10.0						VKHM-Z-10/4 ²⁾			VKPM-Z-10/4
 straight	M12	5	5.0	■	125	PUR	■		VKHM-Z-5/5 ²⁾			
			10.0						VKHM-Z-10/5 ²⁾			
 angled	M12	4	2.5	■	250	PUR	■		VKHM-W-2.5/4 ²⁾	PVC	■	VKPM-W-2.5/4
			5.0						VKHM-W-5/4 ²⁾			VKPM-W-5/4
			10.0						VKHM-W-10/4 ²⁾			VKPM-W-10/4
 angled	M12	5	5.0	■	125	PUR	■		VKHM-W-5/5 ²⁾			
			10.0						VKHM-W-10/5 ²⁾			
 straight	M12	8	2.5	■	30	PUR	■		VKHM-Z-2.5/8 ²⁾			
			5.0						VKHM-Z-5/8 ²⁾			
 angled	M12	8	2.5	■	30	PUR	■		VKHM-W-2.5/8			
			5.0						VKHM-W-5/8 ²⁾			
 straight	M12	12	5.0	■	30	PUR	■		VKSM-Z-5/12-A ^{1,2)}			
			10.0						VKSM-Z-10/12-A ^{1,2)}			
 straight	M12	12	5.0	■	30	PVC	■		VKHM-Z-5/12-A ¹⁾			

¹⁾Shielded cable

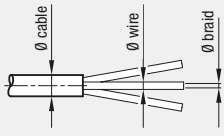



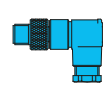







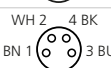
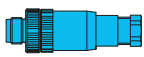


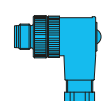

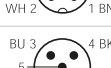
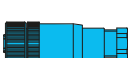





²⁾Drag chain compatible

FIELD-ATTACHABLE PLUG CONNECTORS

Field-attachable plug connectors have a high protection class and are available in various designs. They are useful accessory parts for connecting sensors and products for safety technology to existing and mechanically-incompatible connecting cables.



		Connection diagram (view of the connection side)	Connector / number of pins	Coupling / number of pins	Max. voltage range (V)	Ambient temperature (°C)	Clamping area Ø Cable (mm)	Clamping area Ø Wire (mm)	Cross-section of litz-wires (mm ²)	Product description
Connector M8										
		M8-3		32	-25 to +85	2.5 to 5.1	1.2 to 1.6	0.14 to 0.34	MS-Z-8/0.14	
						4.0 to 5.1		0.25 to 0.5	MS-Z-8	
		M8-4		32	-25 to +85	2.5 to 5.1	1.2 to 1.6	0.14 to 0.34	MS-Z-8/4/0.14	
						4.0 to 5.1		0.25 to 0.5	MS-Z-8/4	
		M8-3		32	-25 to +85	2.5 to 5.1	1.2 to 1.6	0.14 to 0.34	MK-Z-8/0.14	
						4.0 to 5.1		0.25 to 0.5	MK-Z-8	
		M8-4		32	-25 to +85	2.5 to 5.1	1.2 to 1.6	0.14 to 0.34	MK-Z-8/4/0.14	
						4.0 to 5.1		0.25 to 0.5	MK-Z-8/4	
Connector M12										
		M12-4		32	-25 to +85	2.9 to 5.1	1.2 to 1.6	0.14 to 0.34	MS-Z-12/4/0.14	
						4.0 to 5.1		0.25 to 0.5	MS-Z-12/4	
		M12-4		32	-25 to +85	4.0 to 5.1	1.2 to 1.6	0.25 to 0.5	MS-W-12/4	
						2.9 to 5.1	1.0 to 1.6	0.14 to 0.34	MK-Z-12/4	
		M12-4		32	-25 to +85	4.0 to 5.1	1.2 to 1.6	0.25 to 0.5	MK-W-12/4	

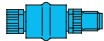














		Connection diagram (View of the connection side)	Connector / number of pins	Coupling / number of pins	terminals	Solder connection	Max. voltage range (V)	Clamping area Ø Cable (mm)	Cross-section of filz wires (mm ²)	Product description
Connector M8										
		M8-3	■			32	3.5 to 5.0	0.25 to 0.34	BS-Z-8/S	
		M8-4							BS-Z-8/4/S	
		M8-3			■	32	3.5 to 5.0	0.25 to 0.34	BS-W-8	
		M8-4							BS-W-8/4	
		M8-3	■			32	3.5 to 5.0	0.25 to 0.34	BK-Z-8/S	
		M8-4							BK-Z-8/4/S	
		M8-3			■	32	3.5 to 5.0	0.25 to 0.34	BK-W-8	
		M8-4							BK-W-8/4	
Connector M12										
		M12-4	■				4.0 to 6.0	0.75	BS-Z-12	
		M12-5	■				4.0 to 6.0	0.75	BS-Z-12/5	
		M12-4	■				4.0 to 6.0	0.75	BS-W-12	
		M12-5	■				4.0 to 6.0	0.75	BS-W-12/5	
		M12-4	■				4.0 to 6.0	0.75	BK-Z-12	
		M12-5	■				4.0 to 6.0	0.75	BK-Z-12/5	
		M12-4	■				4.0 to 6.0	0.75	BK-W-12	
		M12-5	■				4.0 to 6.0	0.75	BK-W-12/5	

ADAPTER PLUGS

Adapter plugs have a high protection class and are available in various designs. They are useful accessory parts for connecting sensors to existing and mechanically-incompatible connecting cables.

Technical data (typ.)	+20 °C, 24 VDC
Max. voltage range (V)	24 V
Max. current-carrying capacity (A)	4.0 A

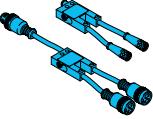


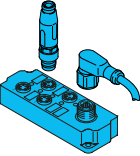
	<i>Coupling / number of pins</i>	<i>Connection diagram</i>	<i>Connector / number of pins</i>		<i>Product description</i>
	M8-3			M8-4	M8K3/M8S4
	M8-4			M8-3	M8K4/M8S3
	M8-3			M12-3	M8K/M12S
	M8-4			M12-4	M8K/M12S/4
	M12-3			M8-3	M12K/M8S
	M12-4			M8-4	M12K/M8S/4

LOGIC DISTRIBUTOR

Matching the sensor range, di-soric offers logic distributors for nearly all function requirements. They can logically link several sensors together and feature a switchable AND/OR switching function. The compact logic distributors, with a high protection class, can be quickly and easily retrofitted and have a large temperature application range.



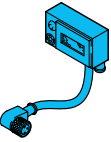
Double logic distributor			
	Connection voltage	10 to 35V	
	Switching output	pnp, 200 mA, AND/OR	
	Switching frequency	6,000Hz	
	Protection class	IP 67	
	Type		Product description
	Logic distributor M8, AND/OR switchable		AV2-UND/ODER-PS-TS
Logic distributor M12, AND/OR switchable		AV2-UND/ODER-PS-IBS	

Quadruple logic distributor			
	Connection voltage	10 to 30V	
	Current-carrying capacity AND/OR	For each 300 mA/logic contact	
	Switching output	pnp 4x, pnp-AND 1x, pnp-OR 1x	
	Protection class	IP 67 (for use of all slots)	
	Type		Product description
	AND-M8 dummy plug		BS-Z-8-UND
5 m connection cable, 8-pin, angled		VKHM-W-5/8	
Logic distributor M8, quadruple		AV4-UND/ODER	

COUNTER MODULES

di-soric counter modules count the output signals of a wide variety of sensors and minimize overproduction in part-related orders. The count values are displayed using 6-digit LCD display and remote or are reset at the press of a button. The long-term storage of count values is performed by the use of a buffer battery. The counter modules with robust metal housings are quickly and easily mounted directly to the sensor using plug connectors.

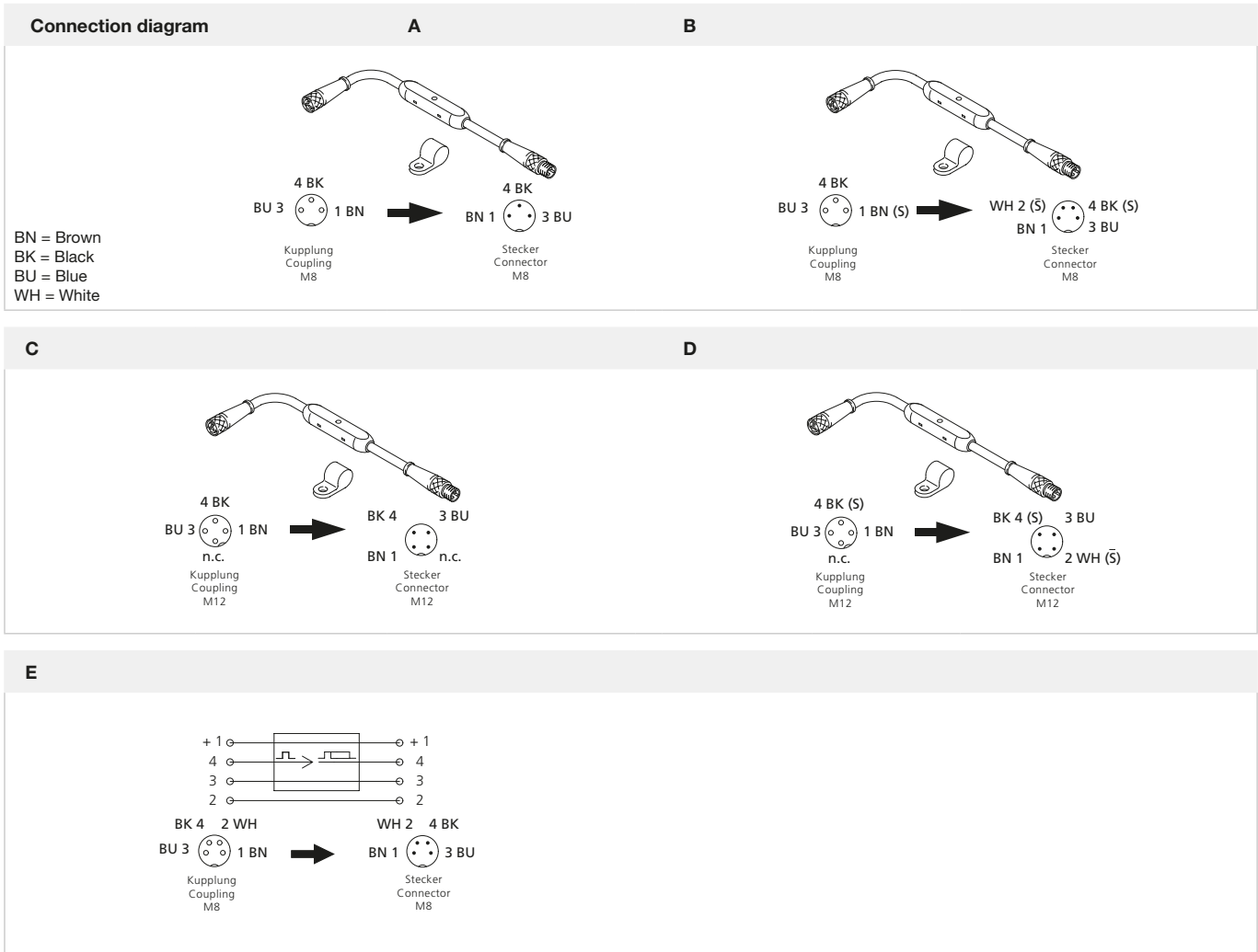


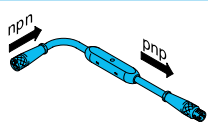
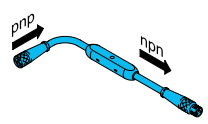
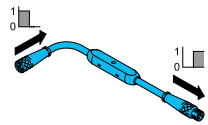
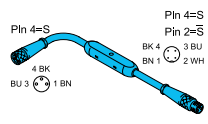
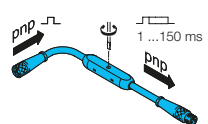
Counting module with reset function			
	Service voltage	10 to 35 V DC	
	Display	LCD display, 6-digit	
	Input	pnp	
	Counting frequency	10,000Hz	
	Protection class	IP 40	
	Housing material	Aluminum, black anodized	
Type		Product description	
Counter module with reset button, connector / socket M8, 3-pin		ZR 06B-TSSL	
Counter module with reset button and remote reset, connector / socket M12, 4-pin		ZRR 06B-IBS	

FUNCTION ADAPTERS

Function adapters can change sensor-specific functions to the desired function (e.g. pulse stretching). They are suitable for all conventional sensors, feature a compact design and can be retrofitted quickly and easily.

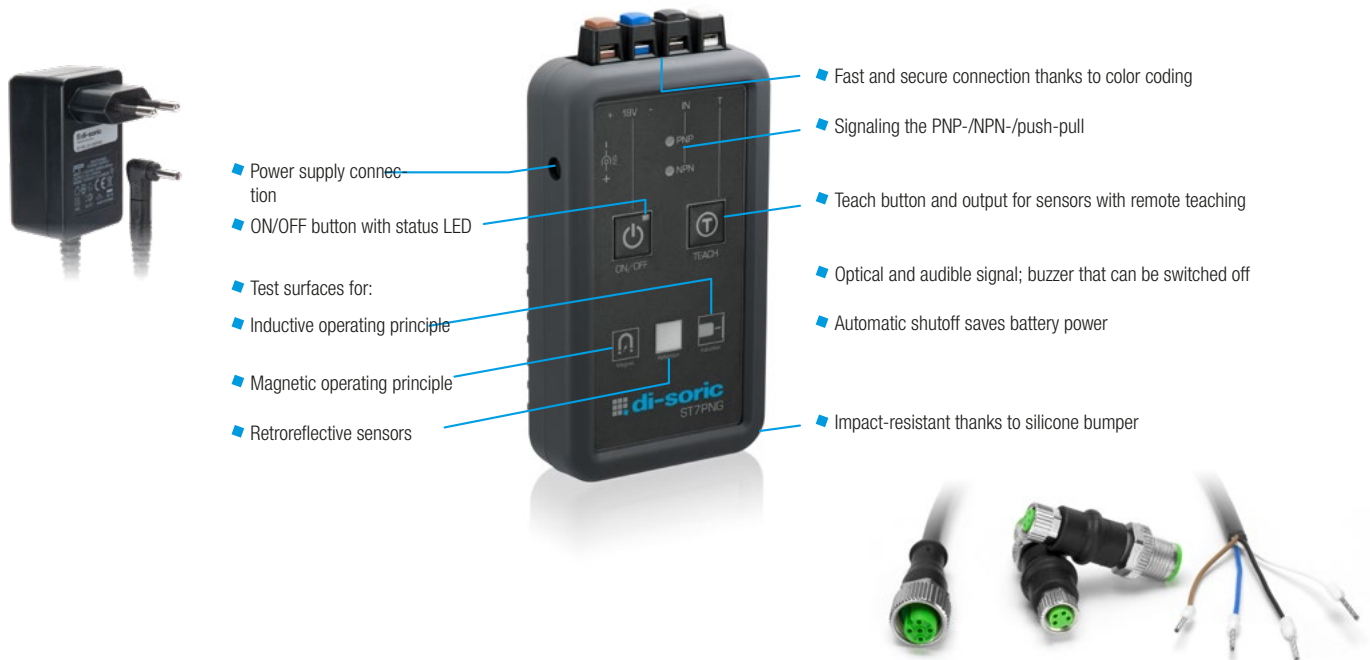
Technical data (typ.)	+20 °C, 24 VDC
Service voltage	10 to 35 V DC
Current-carrying capacity	200mA, short-circuit proof
No-load current	20mA
Ambient temperature	-20 to +70 °C
Protection class	IP 67
Protection class	III, operation on protective low voltage

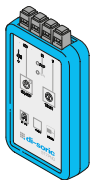



	Minimum pulse length (ms)	Output	Switching frequency (Hz)	Connection diagram (the opposite side)	Coupling	Connector	Product description
npn threshold switch							
	0.1	pnp	< 5,000 Hz	A	M8/3-pin	M8/3-pin	TKHM-Z/TSM-Z/UN
				C	M12/3-pin	M12/3-pin	VKHM-Z/VSM-Z/UN
npn ⇌ npn converter							
	0.1	npn	< 5,000 Hz	A	M8/3-pin	M8/3-pin	TKHM-Z/TSM-Z/U
				C	M12/3-pin	M12/3-pin	VKHM-Z/VSM-Z/U
npn inverter							
	0.1	pnp	< 3,500 Hz	A	M8/3-pin	M8/3-pin	TKHM-Z/TSM-Z/I
				C	M12/3-pin	M12/3-pin	VKHM-Z/VSM-Z/I
npn antivalence device							
	0.1	pnp	< 3,500 Hz	B	M8/3-pin	M8/4-pin	TKHM-Z/TSM-Z/P4
				D	M12/3-pin	M12/4-pin	VKHM-Z/VSM-Z/P4
npn pulse stretcher							
	0.1	pnp 1 to 150 ms	< 500 Hz	A	M8/3-pin	M8/3-pin	TKHM-Z/TSM-Z/T
				E	M8/4-pin	M8/4-pin	TKHM-Z/TSM-Z/T4
				C	M12/3-pin	M12/3-pin	VKHM-Z/VSM-Z/T

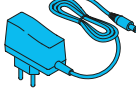
SENSOR TESTERS

The di-soric sensor tester is used to test the proper functioning of all PNP and NPN sensors and light barriers. The output signal of the sensor is expressed by a clear optical and acoustic signal. Practical quick-action sockets and an internal battery power supply ensure fast and flexible use.




Sensor tester for pnp, npn and push-pull sensors		
	Size without protective casing	135 x 76 x 27 mm
	No-load current	< 40 mA
	Output voltage	18 V DC
	Display	LED: green - operation, yellow - switching outputs
	Protection class	IP 21
	Housing material	ABS, black plastic
	Material	Silicone (protective casing)
	Connection	Color-coded quick-action sockets
	Current limiting	60 mA in battery operation 240 mA in operation with external power supply
	Power supply	1.5 V batteries type AA (3x) External 12 V DC power supply (optional)
Weight	295 g	
		ST 7PNG






Connection set ST-AS for testing of sensors with switching output and M8 or M12 connector		
	-Connection cable with coupling M12, 4-pin	
	-Adapter plug coupling, M8, 3-pin / connector M12, 4-pin (1x)	
	-Adapter plug coupling, M8, 4-pin / connector M12, 4-pin (1x)	
		ST-AS

Power supply for operation at 220V		
	Output voltage	12 VDC, 2000 mA
	Connection voltage	100-240 VAC, 50-60 Hz, 800 mA
		ST-PS-12V

REFLECTORS – REFLECTIVE FOILS

di-soric offers an extensive range of reflectors and reflection films for the most varied areas of application. The reflectors are optionally designed for laser, red light and infrared light sensors. Different model variants with different fastening options and high-temperature-proof designs round out the product range.

	Housing design Size (mm)	Mounting	For sensors with red light / infrared light	For sensors with laser light			Temperature stability (°C)	Product description
Reflectors for infrared and red light								
	Ø 10x5.8	M3 x 8.4	■				-20 to 60	R 10 M3
	Ø 19x5.8	M3 x 9	■				-20 to 60	R 21 M3
	Ø 42x7	adhesive	■				-20 to 60	R 42
	Ø 50x8	adhesive	■				-20 to 60	R 50
	69 x 50 x 9	Ø5 mm (2x)	■				to 80	R 46
	Ø 84x7.4	Ø4.5mm (1x)	■				-20 to 60	R 84
	19 x 54 x 9.4	adhesive	■				-20 to 60	R 19x54
	50 x 80 x 7.2	adhesive	■				-20 to 60	R 50x80
	51 x 95 x 8	Ø3.3mm (2x)	■				to 500	R 51x94/500°
	100 x 100 x 9	Ø 3.8 (2x)	■				-20 to 60	R 100x100
	100 x 100 x 9	Ø3.8mm (2x)	■				to 150	R 100x100/150°
	Width of 50	self-adhesive	■				-20 to 60	RFP 50/... m

Reflectors and reflective foil for laser light								
	12.8 x 16.8 x 4.2	adhesive		■			Up to 60	RL 13x17
	42 x 35 x 8.4	Ø 3.3 (2x)		■			Up to 60	RL 42x35
	43 x 20 x 3.5	Ø 3.3 (2x)		■			Up to 110	RL 43x20/110°
	30 x 45 x 5.5	Ø 3.3 (2x)		■			Up to 70	RL 45x30
	50 x 230	adhesive		■			Up to 60	RFPL 50x230

The specified range can be reduced by up to 50% compared to the reference reflector.

IO-LINK BASICS AND TECHNOLOGY

Getting to the point.


An IO-Link is a point-to-point connection within any network, fieldbus or backplane bus. The IO-Link master can be installed either directly in the field or in the control cabinet.

An IO-Link device can be any sensor, actuator or even a combination of the two.

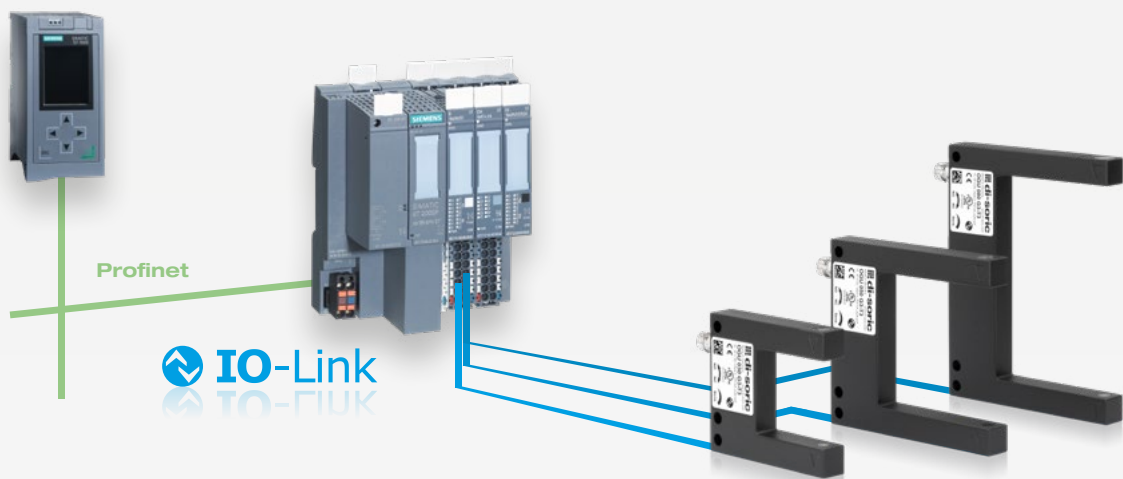
This device is connected to the IO-Link master by means of a standard connection cable with a maximum length of 20 m. The IO-Link device communicates with the IO-Link master using a driver file (the IO-Link Device Description) and can send and receive signals (binary switch signals or analog signals). The IO-Link digitizes these signals directly so that they can be transferred virtually free of interference.

The international IO-Link standard (in accordance with IEC 61131-9) is now regarded as an **“enabler for Industry 4.0”**

**5 REASONS
FOR IO-LINK**



- 1. Reduced costs**
Through reduced storage time
- 2. Implementation of innovative machine concepts**
Thanks to continuous communication
- 3. Shortening of commissioning times**
with cabling using standards
- 4. Increasing machine productivity**
Due to independent parameterization and identification
- 5. Revolutionizing maintenance**
Due to self-diagnosis



This is how IO-Link functions

- Standardized bidirectional point-to-point communication interface for the connection of intelligent sensors and actuators
- Backward compatible for binary PNP or push-pull sensors
- Operation modes without IO-Link (SIO mode) or with IO-Link communication
- 3 standardized data transmission rates
4,800 (COM 1), 38,400 (COM 2), 230,400 Baud (COM 3)
- Unshielded standard sensor cables with a cable length up to 20 m
- Cyclical and acyclical data:
Process data (e.g. switch signals or distance values) is transmitted cyclically, service data (e.g. parameters) is transmitted acyclically

Photos of PLCs and modules: © Siemens AG 2017, all rights reserved.

IO-LINK DEVICE

The IO-Link Device V4 tool can be used for operating sensors and actuators with an IO-Link interface (IO-Link devices). The IO-Link devices are described by XML device descriptions and can thus be conveniently monitored and configured in multiple languages. The tool is designed for presetting, testing and demonstrating IO-Link devices. The tool is not intended for ongoing operation in production systems.



We have set up 3 user levels in IODD for you

- OPERATOR
View only
- MAINTENANCE
Teach-in and modification of approved settings
- SPECIALIST
Full access to all available setting options

Only the relevant setting options are provided in the IODD, as opposed to the exhaustive, full listing of all options, which would be confusing.

The IODD was completely developed in accordance with the Smart Sensor Profile, thus making it possible to configure the sensor directly over the SPS without additional parameterization software. The Smart Sensor Profile describes the assignment of the most important indices and sub-indices, thereby enabling devices to be addressed directly by means of the master if the IODD is not available.

Software that does away with lengthy explanations

You know intuitively what each property represents.

Technical data

USB	USB 2.0 (Mini USB B)
Power supply	5 V / 500 mA (PC USB) 24 V / 80 mA (IO-Link device from USB) 24 V / 1 A (IO-Link device from the power supply)
Protected against polarity reversal	Yes
Protection class	III
IO-Link communication	IO-Link specification V1.1
IO-Link port class	A
Temperature range for operation	0 to 45 °C
Storage temperature	-40 to 80 °C
Protection class	IP 20

IO-Link device

Scope of delivery: IO-Link device tool -USB A-B cable -AC adapter (24V/24W) -"Read Me First" document	IOL master
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Accessories

Connection cable (coupling M12, 4-pin / M12 connector, 4-pin)	VSHM-Z-0.6/VKM-Z/4
Adapter plug (coupling M8, 3-pin / connector M12, 3-pin)	M8K/M12S
Adapter plug (coupling M8, 4-pin / connector M12, 4-pin)	M8K/M12S/4

System requirements for operating the IO-Link device tool V 4.0 software

Computer

Computer with an available USB 1.1 or 2.0 port
Ethernet network interface

Operating System


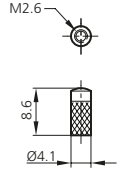

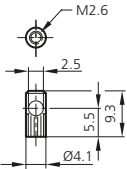

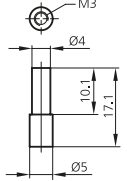

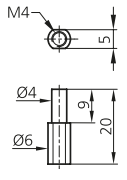
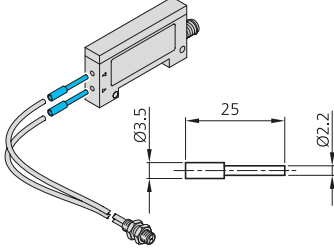
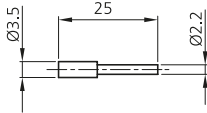
Windows 7 32/64 bit Service Pack 1
Windows 8.1 32/64 bit
Windows 10 64 bit
Microsoft .Net Framework 3.5

Monitor

Resolution of 1024x768 or higher



ACCESSORIES FOR PLASTIC FIBER-OPTIC CABLES

		Light aperture	Thread	Quantity	Product description
Attachment optics for increasing the range for through-beam light barriers with sensor probe thread					
	 <p>M2.6 8.6 Ø4.1</p>				
	<p>To increase the range by up to 400%, installed on the sensor probe of the transmitter.</p>				
		Axial	M2.6	1	V0 M2.6
	 <p>M2.6 2.5 5.5 9.3 Ø4.1</p>				
	<p>For beam deflection, installed on the sensor probe of the transmitter.</p>				
		Radial	M2.6	1	V0 M2.6-90
Attachment optics for light spot focus for light sensors with sensor probe thread					
	 <p>M3 Ø4 10.1 17.1 Ø5</p>				
	<p>For light spot focus, the light spot size is Ø0.5 at a distance of 8mm.</p>				
		Axial	M3	1	V0 M3
	 <p>M4 5 Ø4 9 Ø6 20</p>				
	<p>For light spot focus, the light spot size is Ø0.7 at a distance of 10mm.</p>				
		Axial	M4	1	V0 M4
Adapter					
	 <p>Ø3.5 25 Ø2.2</p>				
	<p>For Ø 1 mm plastic fiber-optic cables Set consists of two pieces.</p>				
				2	AK 2.2/1

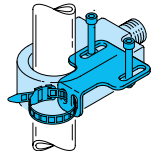
Cutting tool			
	<p>including bending gauge R10 for fiber-optic cables with bendable sensor probe.</p>	<p>For plastic fiber-optic cables that can be cut to size</p>	<p>SMB 1</p>

Fastening bracket for fiber-optic sensors			
	<p>For OLVK 61 ...</p>	<p>BW 60</p>	
<p>For OLVK 61 ...</p>			

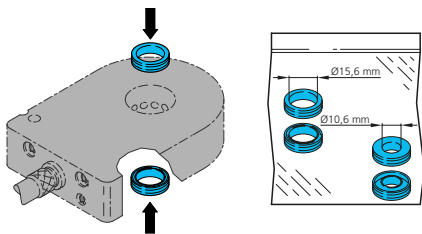
ACCESSORIES FOR GLASS FIBER OPTIC CABLES

Terminal block			
		<p>A = 8.0 mm</p>	<p>KB 8</p>

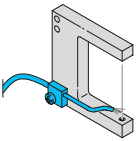
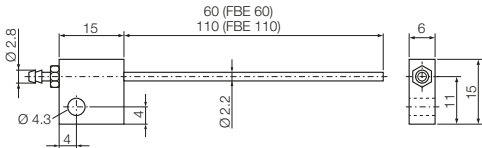
ACCESSORIES FOR RING SENSORS

Mounting bracket for ring sensors IRB 6-27		
		
	Adapter ring	Ø 15 mm (2x)

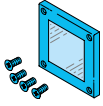
ACCESSORIES FOR RING LIGHT BARRIERS

Adapter set for ORSD 20 P2K-IBS ring light barrier			
			
	Adapter ring	Ø 10 mm (2x)	
	Adapter ring	Ø 15 mm (2x)	ORS-AR-10/15


ACCESSORIES FOR FORKED AND ANGLED LIGHT BARRIERS

Air nozzles (FBE)			
 <p>These air blast devices are used to purge dirt and deposits from optics. They are installed on the forked/angled light barrier, the pneumatic connection is established by means of an M5 hose nipple.</p> 			
	Flexible	Length 60 mm	FBE 60
	Flexible	Length 110 mm	FBE 110

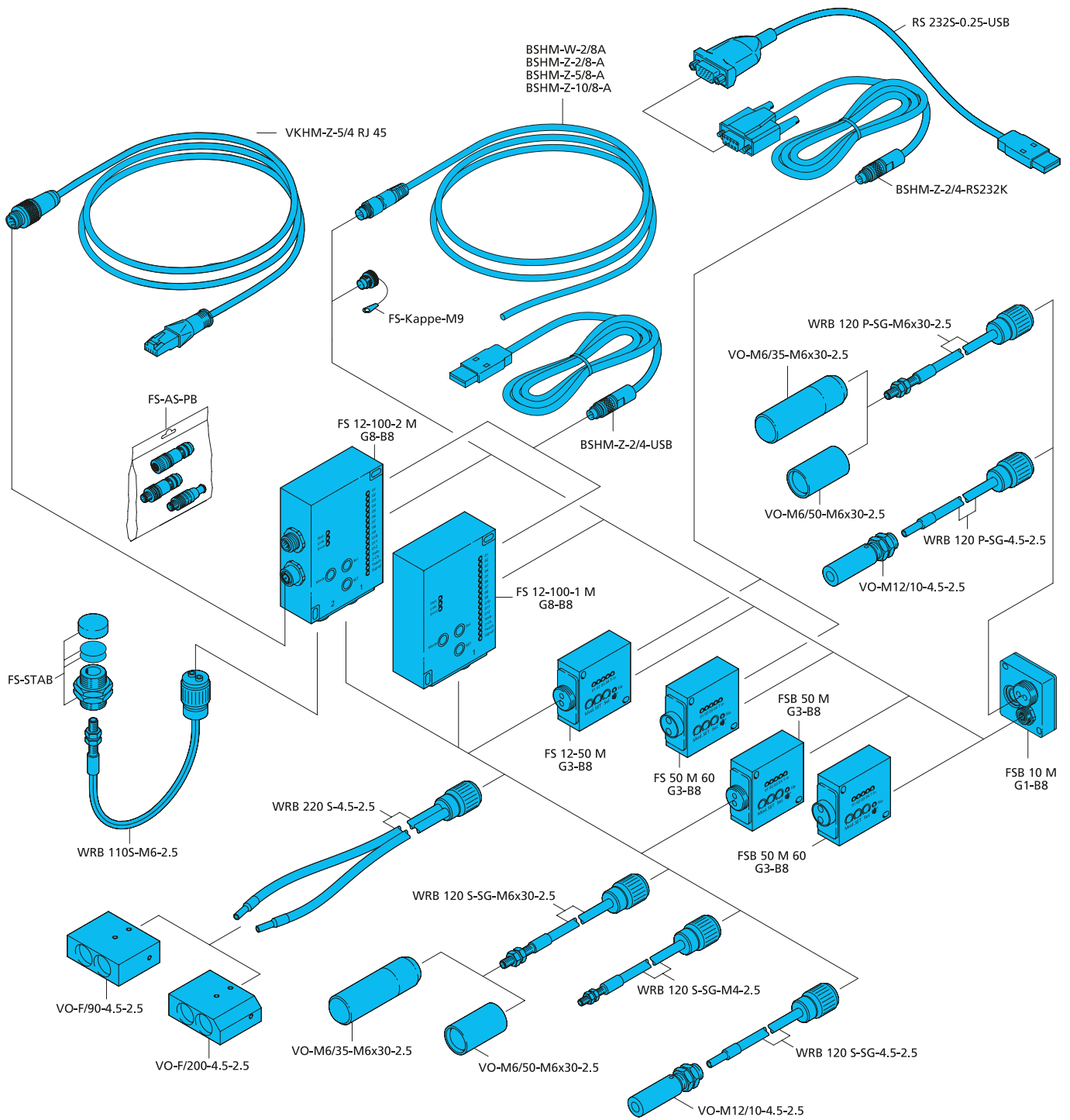
ACCESSORIES FOR OPTICAL DISTANCE SENSORS

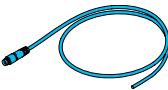



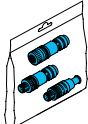
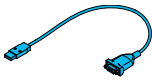
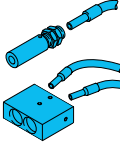
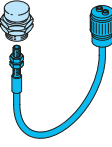

Protective frame with glass insert for LAT 45...	
	
	LHT9-45-SRG

ACCESSORIES FOR ULTRASOUND DISTANCE SENSORS

Deflection angle for ultrasound sensors	
	
	For ultrasound sensors with thread M12
	For ultrasound sensors with thread M18

ACCESSORIES FOR COLOR SENSORS

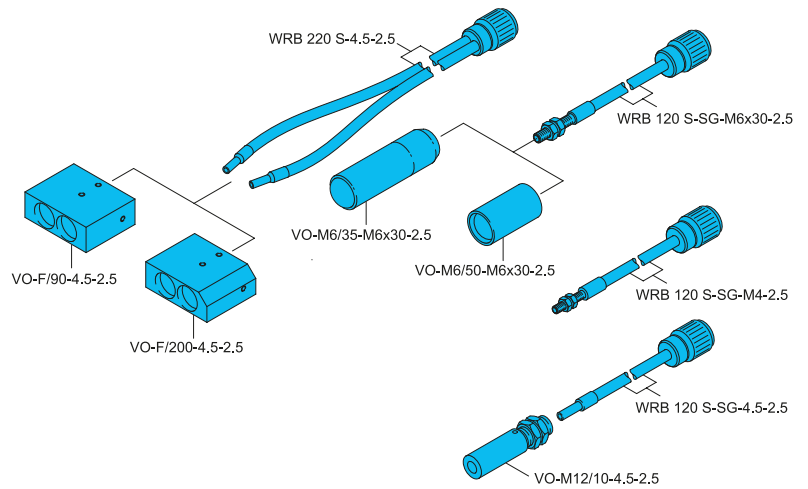


	FSB 10 M G1-B8	FSB 50 M 60 G3-B8	FSB 50 M G3-B8	FS 50 M 60 G3-B8	FS 50 M G3-B8	FS 12-100-1 M G3-B8	FS 12-100-1 M G3-B8-E	FS 12-100-2 M G3-B8	FS 12-100-2 M G3-B8-PB	Connections	Cable length (m)	Protection class	Product description
Connection cable													
	■	■	■	■	■	■	■	■	■	Angled M9 connector, 8-pin / flying leads	2.0	IP 67	BSHM-W-2/8A
	■	■	■	■	■	■	■	■	■	Straight connector M9, 8-pin / flying leads	2.0	IP 67	BSHM-Z-2/8A
	■	■	■	■	■	■	■	■	■		5.0	IP 67	BSHM-Z-5/8A
	■	■	■	■	■	■	■	■	■		10.0	IP 67	BSHM-Z-10/8A
Connection cable for computer, connection set for Profibus / Ethernet													
			■	■	■	■	■	■	■	computer / RS 232	2.0		BSHM-Z-2/4-RS232K
						■	■	■	■	computer / USB	2.0		BSHM-Z-2/4-USB
						■				computer / Ethernet	5.0		VKHM-Z-5/4-RJ45
									■	computer / Profibus	M12, B-coded		FS-AS-PB
Adapter RS232 / USB													
			■	■	■	■	■	■	■	USB / RS 232	0.25		RS232S-0.25-USB
Fiber-Optic cables / Focus Optics													
	■	■	■	■	■	■	■	■	■				Article see "Fiber-optic cables / focus optics" on page 218
Stabilization system													
							■	■			0.3	IP 67	WRB 110 S-M6-2.5
							■	■					FS-STAB

Fiber-optic cables / focus optics

Glass fiber-optic cables feature a robust design.

One- or two-armed fiber-optic cables with different sensor probes are available. Focus optics concentrate the light beam down to a small measuring spot diameter and enable color measurement on very small surfaces. The operating range of the focus optics is 10 to 300 mm.



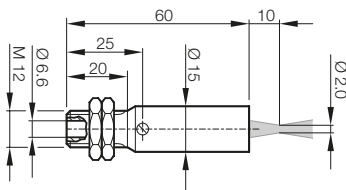
Technical data (typ.)

Focus optics

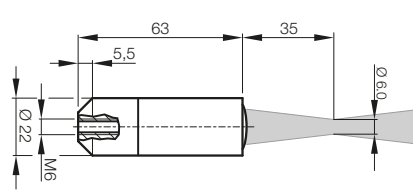
Fiber bundle	Ø 2.5 mm
Material of focus optics	Aluminum, anodized

Focus optics for operation with 1-arm fiber

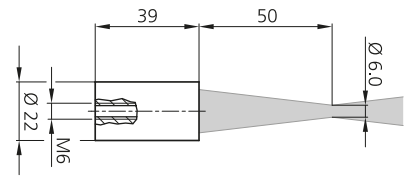
VO-M12/10-4.5-2.5



VO-M6/35-M6x30-2.5

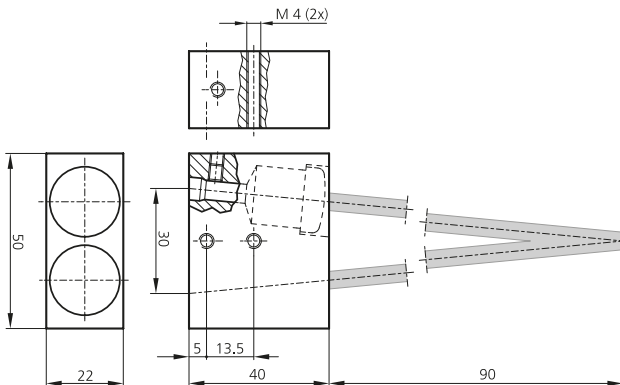


VO-M6/50-M6x30-2.5

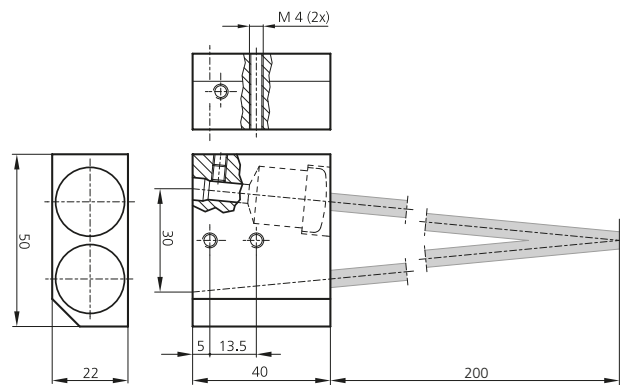


Focus optics for operation with 2-arm fiber

VO-F/90-4.5-2.5














VO-F/200-4.5-2.5



mm (typ.)

Technical data (typ.)		
Fiber-optic cable	WRB 120 S-SG... / WRB 220 S-4.5-2.5	WRB 120 P-SG...
Active Ø	Ø 2.5mm	Ø 2.5mm
Protection class	IP 67	IP 67
Bending radius	≥ 3 x tube Ø	≥ 2 x tube Ø
Material of sensor probe	VA	VA
Material of fibers	Glass fibers	Glass fibers
Material of sheathing	Silicone-metal sleeve	PVC
Length of fiber-optic cable	600mm	600mm

Fiber optics and matching focus oOptics															
		FSB 10 M G1-B8	FSB 50 M G3-B8	FS 50 M G3-B8	FS 12-100-1 M G3-B8	FS 12-100-2 M G3-B8 / ... G3-B8-PB	Fastening for fiber-optic cable / focus optics	Measuring spot Ø (mm)	Working distance (mm)	Length (mm)	Single fiber (mm)	Operating range (mm)	Opening angle	Temperature resistance (°C)	Product description
	Fiber optic cable:	■	■	■	■	■	Ø4.5		600	0.05 ¹⁾		67°	-40 to +180	WRB 120 S-SG-4.5-2.5	
	Fiber optic cable:	■					Ø4.5		600			68°	+80	WRB 120 P-SG-4.5-2.5	
	Focus optics	■	■	■	■	■	Ø4.5	2.0	10		10 to 15			VO-M12/10-4.5-2.5	
	Fiber optic cable:		■	■	■	■	M4		600			67°	-40 to +180	WRB 120 S-SG-M4-2.5	
	Fiber optic cable:		■	■	■	■	M6		600	0.05 ¹⁾		67°	-40 to +180	WRB 120 S-SG-M6x30-2.5	
	Fiber optic cable:	■					M6		600			68°	+80	WRB 120 P-SG-M6x30-2.5	
	Focus optics	■	■	■	■	■	M6	6.0	35		30 to 60			VO-M6/35-M6x30-2.5	
	Focus optics	■	■	■	■	■	M6	6.0	50		35 to 60			VO-M6/50-M6x30-2.5	
	Fiber optic cable:		■	■	■	■	Ø4.5		600	0.05		67°	-40 to +180	WRB 220 S-4.5-2.5	
	Focus optics		■	■	■	■	Ø4.5	14	90		70 to 150			VO-F/90-4.5-2.5	
	Focus optics		■	■	■	■	Ø4.5	20	200		150 to 300			VO-F/200-4.5-2.5	

¹⁾Fiber arrangement statistically mixed

Accessories for industrial image processing




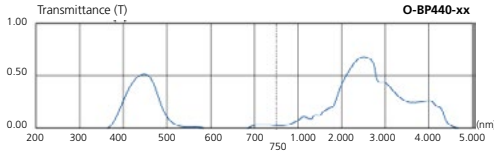

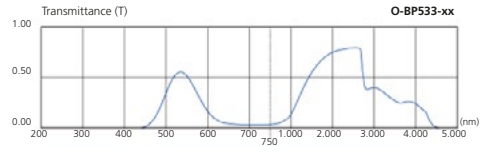

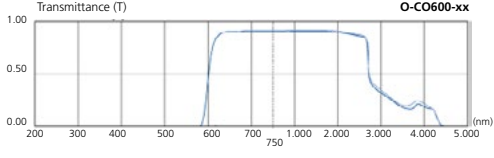

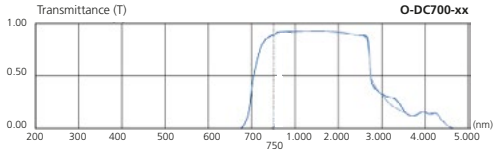


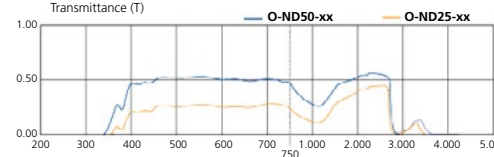
di-soric offers an extensive selection of accessories for industrial image processing perfectly matched to the various products.



Filters	221
Spacer rings	223
Converters	223
Accessories CS-50	224

FILTERS

The filters for our lenses are of the highest quality and are available for a wide range of applications. Whether polarization filters, bandwidth filters, cutoff filters or lens protection glasses - di-soric has the right accessories for nearly all applications in the field of optics for image processing and identification.




	Wavelength	Transmission	Material Filter thread: Aluminum Filter: Glass	Mounting thread for additional filters	Filter thread M x pitch P (mm)	Product description	
Bandpass filter							
 	440 nm Blue	■			M25.5 x 0.5	0-BP440-25	
					M27 x 0.5	0-BP440-27	
					M30.5 x 0.5	0-BP440-30	
					M35.5 x 0.5	0-BP440-35	
					M40.5 x 0.5	0-BP440-40	
 	533 nm Green	■			M25.5 x 0.5	0-BP533-25	
					M27 x 0.5	0-BP533-27	
					M30.5 x 0.5	0-BP533-30	
					M35.5 x 0.5	0-BP533-35	
					M40.5 x 0.5	0-BP533-40	
Cutoff filter							
 	>600 nm Red	■			M25.5 x 0.5	0-CO600-25	
					M27 x 0.5	0-CO600-27	
					M30.5 x 0.5	0-CO600-30	
					M35.5 x 0.5	0-CO600-35	
					M40.5 x 0.5	0-CO600-40	
Daylight cutoff filter							
 	>700 nm	■			M25.5 x 0.5	0-DC700-25	
					M27 x 0.5	0-DC700-27	
					M30.5 x 0.5	0-DC700-30	
					M35.5 x 0.5	0-DC700-35	
					M40.5 x 0.5	0-DC700-40	
Neutral density filter							
  	25%	■	■		M25.5 x 0.5	0-ND25-25	
					M27 x 0.5	0-ND25-27	
					M30.5 x 0.5	0-ND25-30	
					M35.5 x 0.5	0-ND25-35	
					M40.5 x 0.5	0-ND25-40	
	50%	■	■			M25.5 x 0.5	0-ND50-25
						M27 x 0.5	0-ND50-27
						M30.5 x 0.5	0-ND50-30
						M35.5 x 0.5	0-ND50-35
						M40.5 x 0.5	0-ND50-40

	Wavelength	Transmission	Material Filter thread: Aluminum Filter: Glass	Mounting thread for additional filters	Filter thread M x pitch P (mm)	Product description
Polarization filter with locking screw						
			■	■	M25.5 x 0.5	0-POL-25
					M27 x 0.5	0-POL-27
					M30.5 x 0.5	0-POL-30
					M35.5 x 0.5	0-POL-35
					M40.5 x 0.5	0-POL-40
Lens protection glass						
			■		M25.5 x 0.5	0-PG-25
					M27 x 0.5	0-PG-27
					M30.5 x 0.5	0-PG-30
					M35.5 x 0.5	0-PG-35
					M40.5 x 0.5	0-PG-40

SPACER RINGS

Distance rings are inserted between the camera and the lens to increase magnification while simultaneously reducing the working distance. They are essential for defined installation spaces to attain the necessary image fields at a given working distance.




		Magnification factor	Spacer distance (mm)	Filter thread M x pitch P (mm)	Product description
Spacer rings					
			0.5		0-ER-005
			1.0		0-ER-010
			5.0		0-ER-050
			10.0		0-ER-100
			20.0		0-ER-200
			Set		0-ET-5

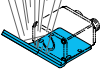










CONVERTERS

The rear converter lens increases magnification, without changing the working distance and is easily inserted between camera and lens.




		Magnification factor	Spacer distance (mm)	Filter thread M x pitch P (mm)	Product description
Converters					
		1.5		M25.5 x 0.5	0-1.5X
		2.0		M27 x 0.5	0-2.0X
		2.5		M30.5 x 0.5	0-2.5X

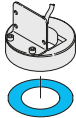
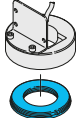
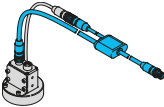
ACCESSORIES CS-50

		Light color					Product description
90° attachment mirror							
							CS-R90
LED board replacement kit							
		 IR	Infrared				BE-CS-G0
			Red (625nm)				BE-CS-G1
			Blue (470nm)				BE-CS-G3
			White (6500K)				BE-CS-G5
Windows							
	Transparent plate		Clear				CS-WINDOWKIT
	For eliminating surface reflections		Diffusor				CS-WINDOWKIT-DIF
			Polarizer				CS-WINDOWKIT-POL
Filters							
	For increasing contrast		red				CS-WINDOWKIT-G1
			Blue				CS-WINDOWKIT-G3
USB stick							
	Software and documentation for CS-50 (alternatively available at www.di-soric.com)						CS50 USB stick

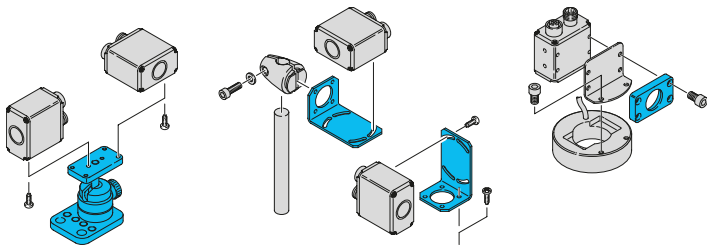
Technical data (typ.)		at +20 °C, 24 VDC	
Service voltage	22 to 30V DC	Protection class	IP 67
Power	23 W (24 V DC)	Protection class	III, operation on protective low voltage
Shock/vibration load	30 g / 10-55Hz, 1 mm	Plug connector	M12
Ambient temperature	0 to +40°C	Weight	80 g
Housing material	Aluminum, black anodized		
Window material	PMMA, clear		



	Dispersion angle	Light color	Risk group (DIN EN 62471)	Light intensity at 0.1 m	Light intensity at 0.3 m	Light intensity at 0.5 m	Product description
 Ø33	90°	 Infrared, 850 nm	Open	11,800 µW/cm ²	1,720 µW/cm ²	640 µW/cm ²	BEK-R33-E0T-K-BS
	80°	 Red, 625 nm	Open	29,000 lux	3,370 lux	1,450 lux	BEK-R33-E1T-K-BS
	80°	 White, 6,000K	Open	51,300 lux	7,100 lux	2,500 lux	BEK-R33-E5T-K-BS

Accessories for operating the CS-50 with a ringlight BEK-R33 ...		
	Polarization film for affixing to the ringlight BEK-R33 ...	BEK-R33-POL
	Focus optics for use with the ringlight BEK-R33 ...	BEK-R33-FOK
	Y-distributor cable for CS-50 and BEK-R33	CS-Y-0.3/12-A

Mounting technology




see "Mounting technology for industrial image processing / identification systems", page 252

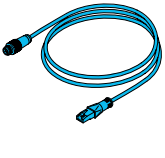





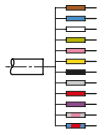




VP multi-functional control panel

The multifunctional VP operating panel enables the visualization of all image and evaluation data. The devices feature simple rights management, on-the-fly job switching, remote access via VNC and a multicamera mode.

Technical data (typ.)		at +20 °C	
Operating principle	Embedded touch screen monitor ARM/Linux-based	Selection of data communication to the camera	All variables linked in AutoVision can be displayed/manipulated
Functions		Mounting	M4 stud bolts (6x)
Communication with camera	CloudLink/Telnet-based	Base languages	German, English, French
Change for camera jobs	Using touch screen		Spanish, Italian and more
Interaction with camera settings	Using touch screen		
Interaction with a job	Using all linked variables/no		



	Screen diagonal	Service voltage (VDC)	Voltage supply	Interfaces	Ethernet	Protection class	Ambient temperature (°C)	Connection (network)	Product description
VP multi-functional control panel for CS-50 Vision Sensors									
	7"	24±5 %	Connector 2-pin	telnet, http, REST Api	■	IP 65 (front side)	0 to +40	RJ 45	VP 700
	10"								VP 1000







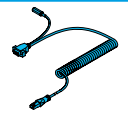


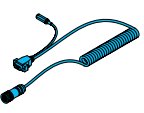
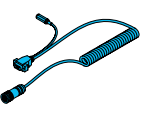
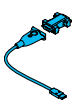

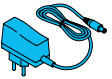
	Ethernet	I/O	Coupling	Cable length (m)	Connector			Protection class	Cable material	Drag chain compatible	Product description
Ethernet cable for CS-50 Vision Sensors											
	■			2.0				IP 67	PUR		VKHM-Z-2/RJ45
				5.0				IP 67	PUR		VKHM-Z-5/RJ45
			10.0			IP 67	PUR		VKHM-Z-10/RJ45		
			10.0				IP 67	PUR		VKHM-W-5/RJ45	
I/O cables for CS-50 Vision Sensors											
	■			5.0				IP 67	PVC		VKHM-Z-5/12-A
				5.0				IP 67	PUR	■	VKSM-Z-5/12-A
			10.0				IP 67	PUR	■	VKSM-Z-10/12-A	
			15.0				IP 67	PUR	■	VKSM-Z-15/12-A	
			20.0				IP 67	PUR	■	VKSM-Z-20/12-A	
			5.0					IP 67	PUR		VKHM-W-5/12-A-CS
I/O extension cables for CS-50 Vision Sensors											
	■			5.0				IP 67	PVC		VSM-Z-5/VKM-Z/12-A

Identification system accessories



di-soric offers an extensive selection of accessories for its identification systems, perfectly matched to its various products.

Brackets	229
Protective cover sets	229
Connection cable / converter	229
Power supply unit and energy supply	229

	ID-10-IM3-2-US	ID-80-IM3-2-S	ID-80-IM3-2-U	ID-100-IM3-2-US	ID-200-IM3-2-US	Designation	Note	Cable length (m)	Product description
Brackets									
	■					Stand	Material: Plastic		ID-10-STAND
		■	■	■		Wall bracket	Material: POM		ID-100-WBKT
					■	Wall bracket	Material: POM		ID-200-WBKT
					■	Wall bracket	Material: POM conductive ESD-Safe		ID-200-WBKT-ESD
Protective cover sets									
					■	ID-200 protective cover set	For protecting the optics and protecting the lighting against contamination and damage Material: POM / glass		ID-200-CVR-SET
					■	ID-200 protective cover set	For the protection of the optics and lighting against contamination and damage Material: POM / glass ESD-Safe		ID-200-CVR-SET-ESD
Connection cable / converter									
	■	■		■		Connection cable	RJ50 / Sub-D / DC Jack	2.4	ID-K-SD/DCJ-RJ50-2
	■		■	■		Connection cable	RJ50 / USB-A	1.8	ID-K-RJ50/U-2
					■	Connection cable	M12,12-pin / USB	2.0	ID-K-M12/U-2
					■	Connection cable	M12,12-pin / Sub-D/DC Jack	Coiled cord 2.0	ID-K-SD/DCJ-M12-2
					■	Connection cable	M12,12-pin / Sub-D/DC Jack	Coiled cord 5.0	ID-K-SD/DCJ-M12-5
	■	■		■	■	USB converter	Serial / USB Display: Operating LED	0.5	VSIK-K-S/U
	■	■		■	■	Serial Keyboard Converter	Serial / USB 9600 BPS German keyboard	1.8	Serial Keyboard Converter
Power supply unit and energy supply									
	■	■		■	■	Power supply unit	Supply voltage: 230 V Service voltage: 5 V DC		ID-PS-230/5V-DCJ

Safety technology accessories



Coordinated accessories for quick installation and commissioning complements the safety technology product range from di-soric. It includes connection and fastening technology as well as utilities for adjusting and checking safety functions.

Mounting columns	231
Deflection mirrors	234
Connection technology	235
Mountings for safety technology	237
Safety screens	238
Laser alignment aid	239
Test rods	239

MOUNTING COLUMNS

Robust mounting columns for safety light curtains / grids protect them and offer a robust fastening option on the floor. Mounting columns with deflection mirrors are also part of the product range, which enable circumferential protective fields with up to four sides. A mounting base with an adjusting function facilitates and speeds up mounting.

Mounting columns

- Effortless installation and removal of the light curtains / grids with the option of easy height adjustment of the first beam
- Models with a rear PG11 connection are also available
- Columns made from extruded aluminum with adjustable angular orientation
- Steel base for floor mounting, with options for adjusting the vertical column axis
- Integrated spherical spirit level for checking correct vertical positioning
- Steel anchor bolts are included in the scope of delivery for the base



FMC-EBx



FMC-B12

Mounting columns with deflection mirrors

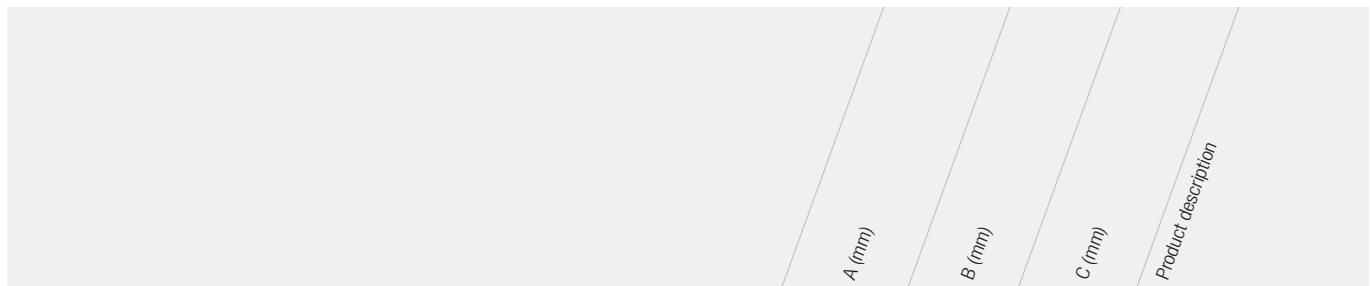
- Pre-mounted deflection mirrors for creating circumferential protective field heights with up to 4 sides
- Models with pre-mounted and freely adjustable deflection mirrors for safety light grids with 2, 3 or 4 beams are also available
- Special models equipped with a protective anti-fragmentation film on the mirrors available upon request
- Columns made from extruded aluminum with adjustable angular orientation
- Steel base for floor mounting, with options for adjusting the vertical column axis
- Optical power reduction factor 15% for each mirror
- Integrated spherical spirit level for checking correct vertical positioning
- Steel anchor bolts are included in the scope of delivery for the base



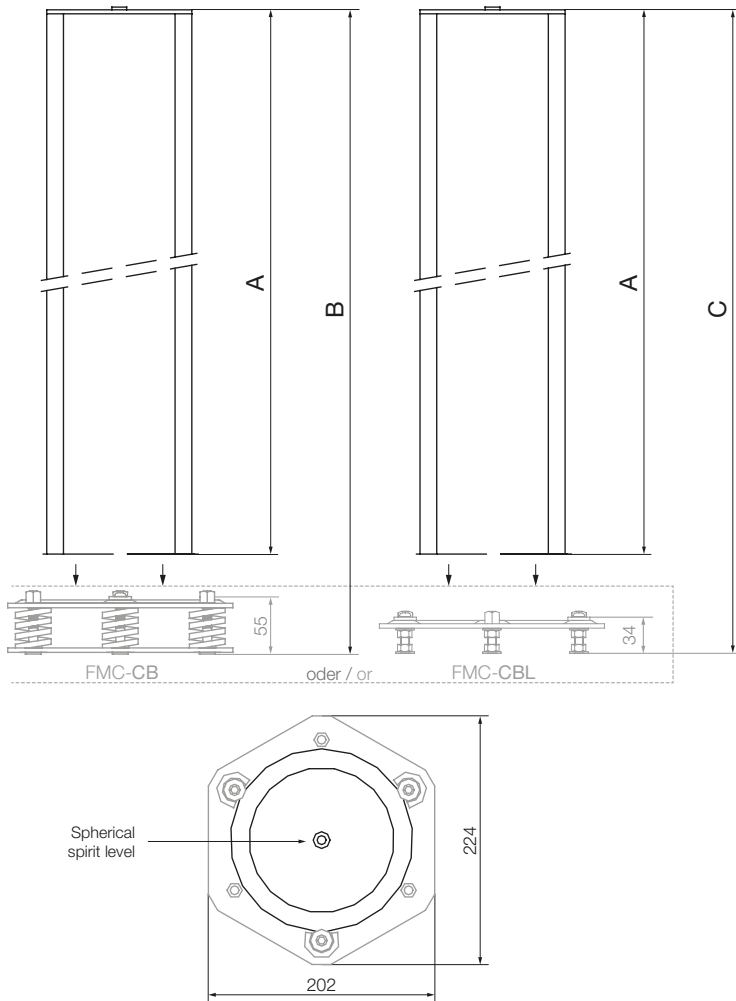
FMC-SB



FMC-S



Mounting columns with base



for SLB / SLI light grids

1,000	1,055	1,034	FMC-EB2
			FMC-EB2R
1,330	1,385	1,364	FMC-EB4
			FMC-EB4R

for SLB / SLI light curtain

1,670	1,725	1,704	FMC-EB1700
			FMC-EB1700R
1,970	2,025	2,004	FMC-EB2000
			FMC-EB2000R
1,200	1,255	1,234	FMC-B12

with deflection mirrors for SLB / SLI light grids

1,000	1,055	1,034	FMC-S2
			FMC-SB2
1,200	1,255	1,234	FMC-S3
			FMC-SB3
1,330	1,385	1,364	FMC-S4
			FMC-SB4

with SLB / SLI deflection mirrors for light curtain

1,670	1,725	1,704	FMC-S1700
1,970	2,025	2,004	FMC-S2000

for SLM4 light grids

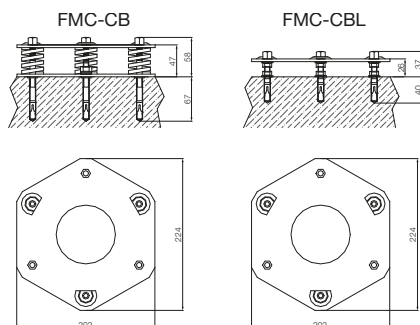
1,000	1,055	1,034	FMC-SGB2
1,200	1,255	1,234	FMC-SGB3
1,330	1,385	1,364	FMC-SGB4

for SLM4 light curtain

1,670	1,725	1,704	FMC-SG1700
1,970	2,025	2,004	FMC-SG2000

The adjustable steel bases FMC-CB or FMC-CBL are required to ensure optimum mounting of mounting columns on the floor.







Base for mounting columns



Dimensions 202x224x58 mm	FMC-CB *
Dimensions 202x224x37 mm	FMC-CBL

Steel anchor bolts are included in the scope of delivery
Order a base for each respective column.

* The steel bases FMC-CB can be adjusted precisely.
They consist of a double plate with steel springs for fine adjustment

		For light curtains / grids with ...					Product description	
		Protective field height up to 1,210 mm	Protective field height up to 1,810 mm	2 beams	3 beams	4 beams		
Mounting columns for SLB / SLI light curtains / grids								
	Without PG11 connection			■			FMC-EB2	
					■	■	FMC-EB4	
		■						FMC-EB1700
			■					FMC-EB2000
	With PG11 connection			■			FMC-EB2R	
					■	■	FMC-EB4R	
		■						FMC-EB1700R
			■					FMC-EB2000R
Aluminum profile with fastening grooves				■	■	■	FMC-B12	
Mounting columns with deflection mirrors for SLB / SLI								
	Premounted deflection mirror			■			FMC-S2	
					■		FMC-S3	
						■		FMC-S4
		■						FMC-S1700
			■					FMC-S2000
	Freely adjustable deflection mirrors			■			FMC-SB2	
					■		FMC-SB3	
						■		FMC-SB4
Base for mounting columns for SLB / SLI								
	202 x 224 x 58 mm			■	■	■	FMC-CB	
	202 x 224 x 37 mm	■	■	■	■	■	FMC-CBL	

DEFLECTION MIRRORS

	A (mm)	B (mm)	Dimensions (mm)	For light curtains with a protective field height of (mm):	For Light curtains / grids			Product description
					2 beams	3 beams	4 beams	
	250	310	310 x 110 x 40	160				SP 100 S
	400	460	460x110x40	310				SP 300 S
	540	600	600 x 110 x 40	460				SP 400 S
	715	775	775x110x40	610	■			SP 600 S
	885	945	945 x 110 x 40	760				SP 700 S
	1,060	1,120	1,120x110x40	910		■		SP 900 S
	1,230	1,290	1,290 x 110 x 40	1,060			■	SP 1100 S
	1,400	1,460	1,460x110x40	1,210				SP 1200 S
	1,450	1,510	1,510x110x40	1,360				SP 1300 S
	1,600	1,660	1,660 x 110 x 40	1,510				SP 1500 S
	1,750	1,810	1,810 x 110 x 40	1,660				SP 1600 S
	1,900	1,960	1,960 x 110 x 40	1,810				SP 1800 S


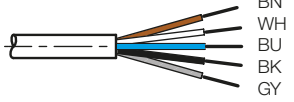


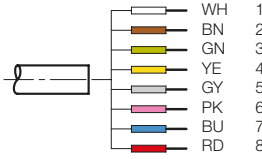


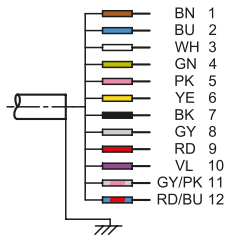

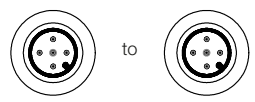


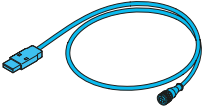

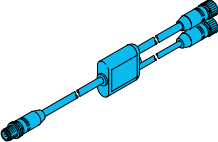
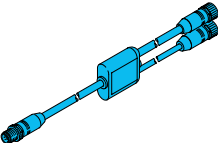

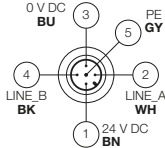


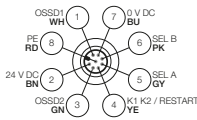

When using deflection mirrors, the following must be taken into account:

- The working distance (range) results from the sum of the lengths of all access sides of the monitored area.
- The maximum usable range between the transmitter and receiver is reduced by 15% for each mirror.
- The mirrors must be positioned so that the safety distance on each access side to the hazard zone can be maintained.
- If protective devices are implemented across long distances and are equipped with deflection mirrors on multiple sides, the LAD 4 laser alignment device should be used to align the light curtains / grids with each quickly and correctly (see page 239).

CONNECTION TECHNOLOGY

In the field of connection technology, the widest range of electrical contacts are available for individual, industrial mounting.

		Straight	Angled	Cable length (m)	Product description
Connection cable for SLB2 ... SLBx4... and for SLI2..., SLIx4... SLM4 transmitters					
	 <p>M12, 5-pin socket, at open end</p> <ul style="list-style-type: none"> BN 1 WH 2 BU 3 BK 4 GY 5 	■		5	CD 5
				10	CD 10
				15	CD 15
				20	CD 20
				25	CD 25
			■	5	CD 95
				10	CD 910
				15	CD 915
Connection cable for SLI2..., SLIx4... receivers					
	 <p>M12, 8-pin socket, at open end</p> <ul style="list-style-type: none"> WH 1 BN 2 GN 3 YE 4 GY 5 PK 6 BU 7 RD 8 	■		5	C8D 5
				10	C8D 10
				15	C8D 15
				25	C8D 25
				40	C8D 40
			■	5	C8D 95
				10	C8D 910
				15	C8D 915
Connection cable for SLM4 receivers					
	 <p>M12, 12-pin socket, at open end</p> <ul style="list-style-type: none"> BN 1 BU 2 WH 3 GN 4 PK 5 YE 6 BK 7 GY 8 RD 9 VL 10 GY/PK 11 RD/BU 12 	■		3	CS12D3
				5	CS12D5
				10	CS12D10
				15	CS12D15
				20	CS12D20
Connection cable between SLI2..., SLIx4... master and slave					
	 <p>M12, 5-pin socket to M12, 5-pin socket</p>	■		0.3	CDS 03
				3	CJBE 3
				5	CJBE 5
				10	CJBE 10
				25	CJBE 25

			Straight	Angled	Cable length (m)	Product description
Connection cable between SLM4PO and PC						
		Socket M12, 5-pin, to USB, type A plug	■		2	CS12 USB
T-piece for muting arms MZ-T4P, transmitter						
		Connector M12, 5-pin,(1x) socket M12, 5-pin,(2x)	■		0.4	CSY12-TX
T-piece for MZ-T4P muting arms, Receiver						
		Connector M12, 5-pin,(1x) socket M12, 5-pin,(2x)	■		0.4	CSY12-RX
Field-attachable plug connector for SLB2..., SLBx4... and for SLI2..., SLIx4... SLM4 transmitters						
	 <p>0 V DC BU 3 PE GY 5 LINE_B BK 4 LINE_A WH 2 24 V DC BN 1</p>	M12 socket, 5-pin, with screw terminals and PG9 screw connection	■			CDM 9
					■	
Field-attachable plug connector for SLI2..., SLIx4... receivers						
	 <p>OSSD1 WH 1 0 V DC BU 7 SEL B PK 6 FE RD 8 SEL A GY 5 24 V DC BN 2 OSSD2 GN 3 K1 K2 / RESTART YE 4</p>	M12 socket, 8-pin, with screw terminals and PG9/11 screw connection	■			C8D M 11
					■	

MOUNTINGS FOR SAFETY TECHNOLOGY

di-soric offers rigid and adjustable brackets for its safety light curtains / grids for quick mounting as well as dampers to protect the light curtains / grids from strong vibrations. The fasteners can be mounted and aligned quickly, resulting in high machine availability.

		For light curtains / grids					
		Up to protective field height (mm)	SLB / SLI	SLM4	Adjustment range up to	Pieces / set	Product description
Standard brackets for light curtains / grids							
	Each set includes the brackets required for transmitters and receivers. A set is already included in the scope of delivery for every light curtain / grid.	1,060	■		–	4	SA 4
		1,210	■		–	6	SA 6
Adjustable brackets SFB 4... / SFB 6...							
	Each set includes the brackets required for transmitters and receivers.	1,060	■		14°	4	SFB 4E
		1,060		■	14°	4	SFB 4SG
		1,210	■		14°	6	SFB 6E
		1,210		■	14°	6	SFB 6SG
Adjustable brackets SFB E 180 ¹⁾							
	Each set includes the brackets required for transmitters and receivers.	–	■		180°	4	SFB 180E
Anti-vibration dampers ²⁾ for light curtains / grids SLB / SLI							
	Each set includes the dampers necessary for transmitters and receivers.	160	■		–	4	SAV 4E
		260 to 1,060	■		–	8	SAV 8E
		1,210 to 1,810	■		–	12	SAV 12E



¹⁾The brackets SFB E enable the light curtains / grids to be rotated along the longitudinal axis as well as allowing the vertical and horizontal position to be adjusted. The use of SFB E brackets is recommended for the alignment of light curtains / grids that operate over long distances or on multiple sides using deflection mirrors.

²⁾Unprotected safety light curtains / grids can be severely damaged if they are subjected to strong vibrations. For example, these vibrations occur with presses, weaving machines, etc. which can then be transferred to the attached light curtains / grids. In these cases, the use of vibration-damping brackets is highly recommended!

SAV vibration dampers can easily reduce vibrations caused by such machines, thereby preventing damage to the light curtains / grids using deflection mirrors.

SAFETY SCREENS

The PSE safety screens, made of polycarbonate, protect the front screen of the safety light curtains/grids from damage. Thanks to quick and simple mounting with the SFS E fastener set, the safety screen can be exchanged problem-free in the event of damage.

	For the protective field height (mm)	Product description
Protective screens for SLB / SLI safety light curtains		
<p>Safety screens</p>  <p>Fastening set</p>  <p>End cap Clamps</p>	160	PSE 150
	310	PSE 300
	460	PSE 450
	610	PSE 600
	760	PSE 750
	910	PSE 900
	1,060	PSE 1050
	1,210	PSE 1200
	1,360	PSE 1350
	1,510	PSE 1500
	1,660	PSE 1650
1,810	PSE 1800	
Safety screens for safety light grids		
Safety screen set for 2-beam light grid	510	PSE 2B
Safety screen set for 3-beam light grid	810	PSE 3B
Safety screen set for 4-beam light grid	910	PSE 4B
Fastening set for PSE safety screens		
Stainless steel clamps and end caps for safety screens		SFS E

LASER ALIGNMENT AID

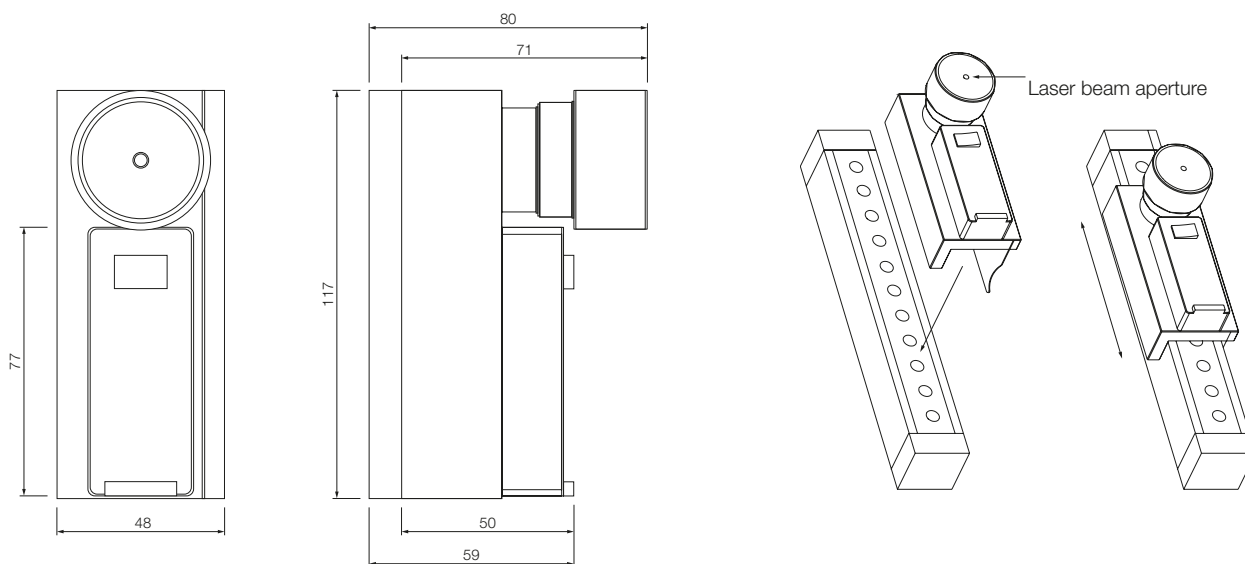
The laser alignment aid enables fast and reliable alignment of safety light curtains / grids using a visible red light laser. This product can be used for the ideal alignment of safety light curtains / grids that are used over large distances or on multiple sides using deflection mirrors.



Technical data (typ.)	+20 °C, 24 VDC
Emitted light	Red-light laser, 650 nm
Laser safety class	II (EN 60825-1)
Range	100 m
Laser beam divergence	< 0.5 mrd
Laser power	1,000 µW
Service voltage	3V DC
Power supply	2x 1.5 V alkaline batteries type AAA
Housing material	Plastic
Fastening type	Quick fastening to the light curtain / grid or the mounting column
Dimensions HxLxD	117 x 48 x 80 mm

Laser alignment aid

Dimensions in mm:



LAD 4

TEST RODS

The test rod is a cylinder made of aluminum with a matte surface. After installation of the safety light curtains / grids, it is used to check their safety function.


	For light curtains with resolution (mm)	Diameter (mm)	Product description
Test rods for light curtains			
	14 mm	Ø 14	TR 14
	20 mm	Ø 20	TR 20
	30 mm	Ø 30	TR 30
	40 mm	Ø 40	TR 40
	50 mm	Ø 50	TR 50

ACCESSORIES FOR IMAGE PROCESSING LIGHTING

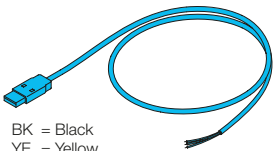
Various controllers are used as accessories for the operation of all externally flashable lighting for industrial image processing.

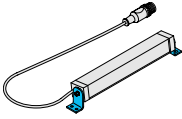
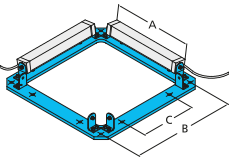
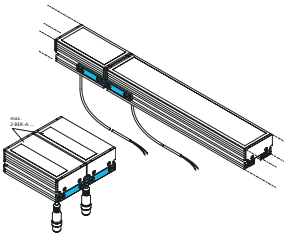
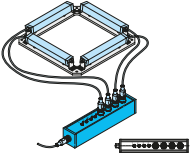
Technical data (typ.)	+20°C, 24 VDC
Service voltage	24 V DC ± 1
Trigger input	5 to 24 V DC potential-free, optocouplers
Trigger output	12V DC, push-pull, pnp, npn configurable (max. 150 mA)
Ready output	12V DC, push-pull, pnp, npn configurable (max. 150 mA)
Input power at 24VDC	Max. 55W
Protection class	III, operation on protective low voltage
Inverse polarity protection	In pairs by terminal group
Short-circuit protection	In pairs by terminal group
Operating display	LED: Green, LED: Yellow (flashing), LED: Red (fault)
Shock/vibration load	10 to 55 Hz / 1.0 mm / 30 g
Ambient temperature	0 to +40°C
Protection class	IP 40
Housing material	Aluminum anodized, PA 6.6 FR



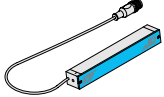
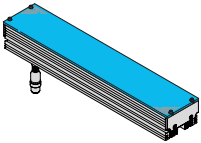
	Average / Peak power consumption	LED constant current (configurable)	LED pulse current (configurable)	Pulse duration (configurable)	Pulse cycle time (configurable)	Pulse delay (configurable)	RS 485 point-to-point connection	Terminal strip	Product description
Flash controller for flashable lighting									
	< 2.5 A 6.0 A	0.1 to 1.8 A	0.1 to 20.0 A	10µs to 50 ms	100 µs to 60s	≥50µs (0 to 2 A) ≥5 µs (2 to 20 A)	■	12-pin	BC-100-20A

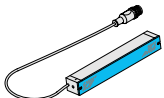
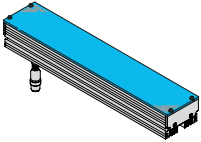
Requirements for the power unit									
24VDC, 6 A									

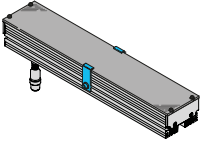
Interface adapter 1.8m, RS485/USB									
									
GND	BK = Black								
Data-(B)	YE = Yellow								
Data+(A)	OG = Orange								RS485-1.8-USB

		Compatible with:								Product description			
		BE 1-A 65 ...	BE 1-A 130 ...	BE 1-A 240 ...	BEK-A100 ...	BEK-A200 ...	BEK-A300 ...	BEK-A400 ...	BEK-A500 ...	BE-A100 ...	BE-A300 ...		
Mounting bracket for barlights													
	<ul style="list-style-type: none"> Stepless adjustment Packing unit 2 pieces 	■	■	■								BW-BE 1-A	
Mounting frame for barlights													
	<ul style="list-style-type: none"> Stepless adjustment For up to four lights The bracket and mounting materials for four lights are included in the scope of delivery 	■										BE 1-A65-FRAMESET	
			■										BE 1-A130-FRAMESET
				■									
Mounting set for barlights													
	<ul style="list-style-type: none"> Crossbar to cascade two joist lights Set consists of: Aluminum crossbars, anodized black (2 pcs.) Required screws and washers 				■	■	■	■	■	■	■	BEK-A-MOUNTINGSET	
Distributor box for barlights													
	<ul style="list-style-type: none"> Four M12 sockets, individually switchable Trigger signal, looped through Current-carrying capacity 4,000 mA 	■	■	■								BEV-200/4-IBS	

		Compatible with:	BE 1-A 65 ...	BE 1-A 130 ...	BE 1-A 240 ...	BEK-A100 ...	BEK-A200 ...	BEK-A300 ...	BEK-A400 ...	BEK-A500 ...	BE-A100 ...	BE-A300 ...	Product description
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Diffusor for barlights													
 <ul style="list-style-type: none"> PMMA Material thickness 3 mm 	81 mm	■											BE 1-A65-DIF
	141 mm		■										BE 1-A130-DIF
	251 mm			■									BE 1-A240-DIF
 <ul style="list-style-type: none"> Homogeneous light reduction Can be retrofitted quickly and easily Scratch-resistant safety screen Mounting materials included in scope of delivery 	113 mm			■							■		BEK-A100-DIF ¹⁾
	213 mm				■								BEK-A200-DIF
	313 mm						■					■	BEK-A300-DIF ²⁾
	413 mm							■					BEK-A400-DIF ³⁾
	513 mm								■				BEK-A500-DIF ³⁾

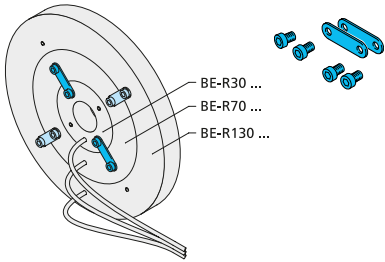
Polarizer for barlights													
 <ul style="list-style-type: none"> PMMA Material thickness 3 mm 	81 mm	■											BE 1-A65-POL
	141 mm		■										BE 1-A130-POL
	251 mm			■									BE 1-A240-POL
 <ul style="list-style-type: none"> To reduce glare or highlights Can be retrofitted quickly and easily Scratch-resistant safety screen Mounting materials included in scope of delivery High-temperature resistant: For a pulse / pause ratio of the lighting, up to 100% 	113 mm			■							■		BEK-A100-POL ¹⁾
	313 mm						■					■	BEK-A300-POL ²⁾
	513 mm								■				BEK-A500-POL ³⁾

Hold-down device set for barlights													
 <ul style="list-style-type: none"> For holding down attachment panels that have a length of 300 mm or longer Set consists of: <ul style="list-style-type: none"> -Hold-down devices (2x) -Mounting material 								■	■	■	■		BEK-A-NH

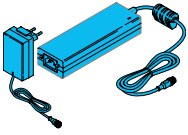
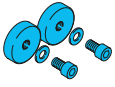
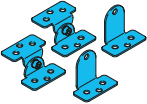
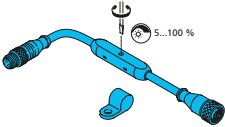

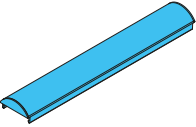
¹⁾ Delivery does not include a BEK-A-NH hold-down device set

²⁾ Delivery includes a BEK-A-NH hold-down device set

³⁾ Delivery includes two BEK-A-NH hold-down device sets

Mounting set for ring lighting													
 <p>BE-R30 ... BE-R70 ... BE-R130 ...</p> <p>For connecting two lights of adjacent design sizes to a single unit Set consists of two connecting elements and four M4x6 cheese-head screws. For installing all three lights into a single unit, two BE-R-MOUNTINGSETS are required.</p>													
													BE-R-MOUNTINGSET

MACHINE LIGHTING ACCESSORIES

		Compatible with:	MB-N-12x-K-B3	MB-N-12x-K	MB-N-25x-K-B3	MB-N-25x-K	MB-N-48x-K-B3	MB-N-48x-K	MB-N-70x-K-B3	MB-N-70x-K	MB-N-91x-K-B3	MB-N-91x-K	MB-NP-250-K	MB-NP-480-K	Product description	
Power supply for machine lighting																
		■	■	■	■	■	■	■	■	■	■	■	■	■	PS-24V/0.9	
		■	■	■	■	■	■	■	■	■	■	■	■	■	DPS-24V/4.0	
Magnetic holder Set for machine lighting																
	<ul style="list-style-type: none"> Adhesive force 3.6 kg (2x) 	■	■												MB-MHS	
	<ul style="list-style-type: none"> Adhesive force 9.0 kg (2x) 			■	■	■	■	■	■	■	■	■	■	■	MB-MHS-2	
Mounting bracket for machine lighting																
	<ul style="list-style-type: none"> Stepless adjustment 	■	■	■	■	■	■	■	■	■	■	■	■	■	BW-MB	
PWM dimmer for machine lighting																
	<ul style="list-style-type: none"> Pulse width modulation Dimming range 5 to 100 % 		■	■	■	■	■	■	■	■	■	■			MB-DIM 2	
Plug connector for machine lighting																
	<ul style="list-style-type: none"> M12, 4-pin 				■		■		■		■	■	■		BK-Z-12	
Diffuser for machine lighting																
	<ul style="list-style-type: none"> For homogeneous light reduction and illumination Simple installation by means of a locking groove 	■	■												MB-DIF-R-125	
				■	■											MB-DIF-R-250
						■	■									MB-DIF-R-480
								■	■							MB-DIF-R-700
										■	■		■	■		MB-DIF-R-910


ACCESSORIES FOR THE INSTALLATION OF STATUS LIGHTING

SBI-RGB controller

- Enables no-load switching of color channels
- Setting brightness of the connected SBE-RGB
- Status display via LEDs
- Overload display via LEDs
- Locked overload shutoff, resettable via voltage reset



Technical data (typ.)	+20 °C
Operating principle	Pulse-Width Modulation (PWM)
Service voltage	24 V DC \pm 5%, / < 3.3 A
Illumination intensity adjustment	Potentiometer
Trigger input	IN1 + IN2, no-load, 24 V DC, for color selection
Display LEDs	Green - operation / yellow - overload / Red - overload cutoff
	200 Hz (PWM)
Ambient temperature during operation	+5 to +45 °C
Protection class	IP 20
Mounting	on top-hat rail in accordance with EN 50022-35 standard

	Light intensity	No-load current at 24 V DC	Number of channels	Switching frequency	Cutoff limit per channel	Aluminum, natural	Connection	Product description
SBI-RGB controller for the installation of status lighting								
	10 to 100%	< 35 mA	3	200 Hz (PWM)	> 1.6 A (24 V)	■	Clamps, 4-pin	SBI-RGB controller

DIN EN 55015:2016-04, DIN EN 61547:2010-03

Mounting elements for the installation of status lighting			
	<ul style="list-style-type: none"> ■ Adjustable ■ Robust design ■ Mounting materials included in scope of delivery 	<ul style="list-style-type: none"> ■ 4 stainless steel brackets, 4 Phillips-head screws ■ Recommended: 4 pieces / m 	SBE-HKC
	<ul style="list-style-type: none"> ■ Adjustable ■ Robust design ■ Mounting materials included in scope of delivery 	<ul style="list-style-type: none"> ■ 3 pieces ■ Recommended: 3 pieces / m 	SBE-HKS

Mounting technology

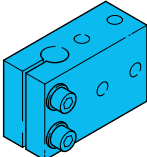
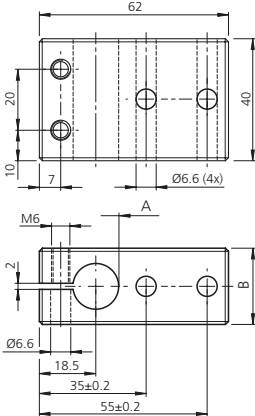
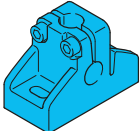
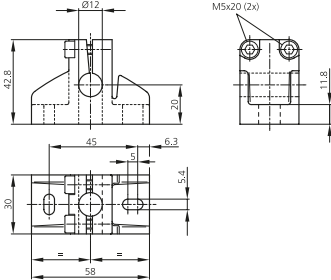
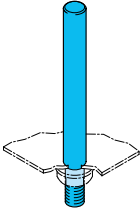
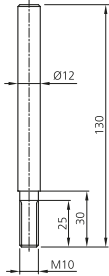


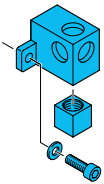
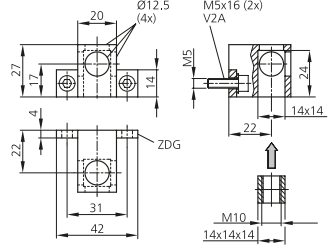
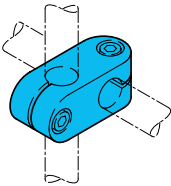
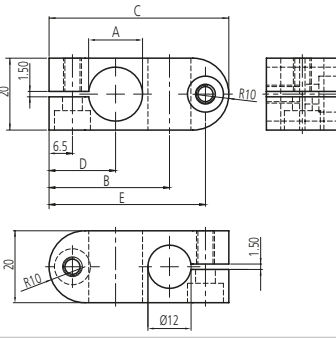
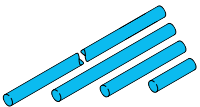
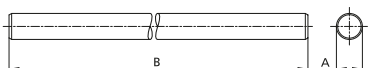
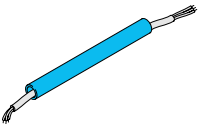
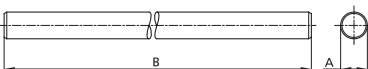
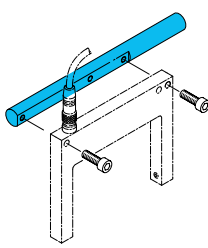
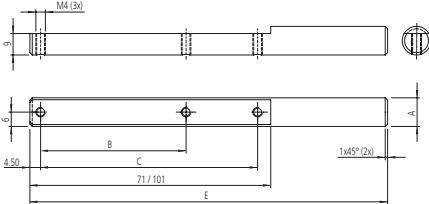
di-soric offers customized bracket and mounting systems for all of its sensors, image processing and identification systems as well as lighting.

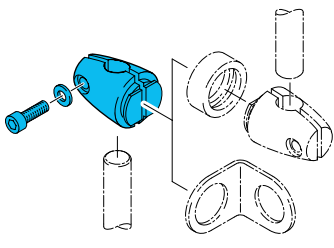
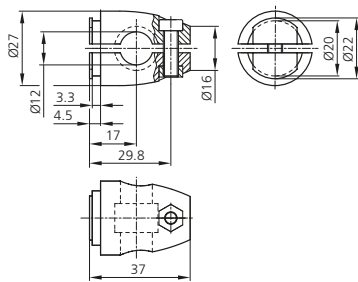
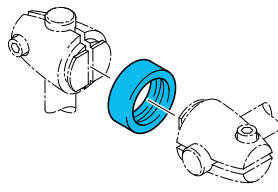
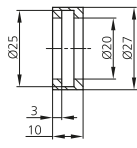
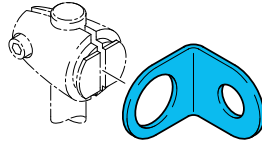
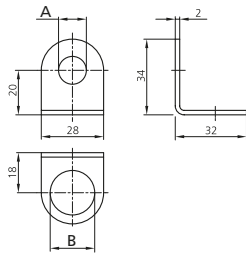
Universal fasteners and HS mounting systems	247
Fasteners for sensors	250
Mountings for lighting	251
Mounting technology for industrial image processing / identification systems	252
Mounting examples system holder, basic holder	254

UNIVERSAL FASTENERS AND HS MOUNTING SYSTEMS

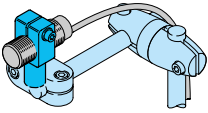
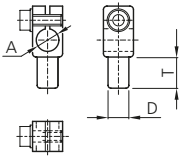
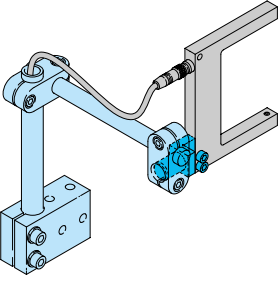
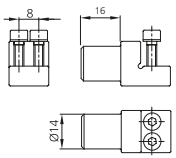
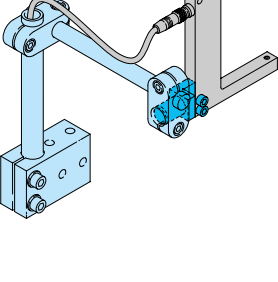
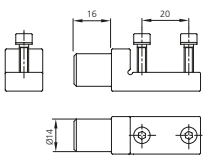
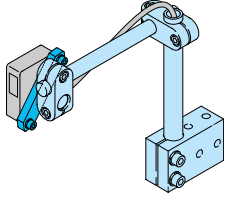
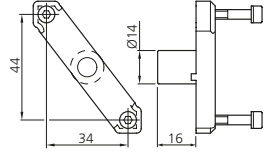
Our universal fasteners are designed for secure and adjustable mounting of the various sensors and lighting systems. A range of system and sensor brackets enable an individual solution and an optimal adaptation to your applications.

		A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Material	Product description
Basic holder								
		12	20				Aluminum	HS-GH-12-A
		15	25					
Basic holder								
							Aluminum	HS-GH-3-12-A
Mounting rod Ø 12mm								
							VA	HS-S-12-130-M10

		A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Material	Product description
Basic holder for mounting rod HS-S-12-130-M10								
							Die-cast zinc	HS-GH-12
Cross connector								
		Ø10	31.5	48	16.5	41.5	Aluminum	HS-K-10-12-A
		Ø12	31.5	48	16.5	41.5		HS-K-12-12-A
		Ø14	33.5	50	18.5	43.5		HS-K-14-12-A
		Ø15	33.5	50	18.5	43.5		HS-K-15-12-A
Mounting rods								
		Ø12	100				VA	HS-S-12-100-V
		Ø12	200					HS-S-12-200-V
		Ø12	500					HS-S-12-500-V
		Ø15	100					HS-S-15-100-V
		Ø15	200					HS-S-15-200-V
		Ø15	500					HS-S-15-500-V
Mounting tube								
		Ø15	150	12			VA	HS-R-15-150-V
Product holder								
		Ø12	61	-		120	VA	HS-PH-12-120-V
		Ø12	61	91		150		HS-PH-12-150-V

		A (mm)	B (mm)	Material	Product description		
Clamping cylinder for mounting rods $\varnothing 12$ mm							
			$\varnothing 12.5 / \varnothing 20$	VA	HS-KL-12-20-V		
Adapter ring for connecting two clamping cylinders							
			$\varnothing 20 / \varnothing 20$	VA	HS-AR-KL-20		
Mounting bracket							
		$\varnothing 12.5$	$\varnothing 20$	VA	HS-BW-12		
		$\varnothing 18.5$	$\varnothing 20$		HS-BW-18		

FASTENERS FOR SENSORS

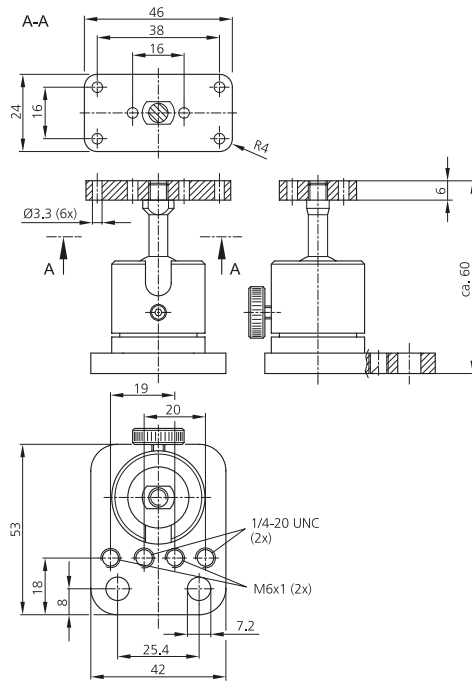
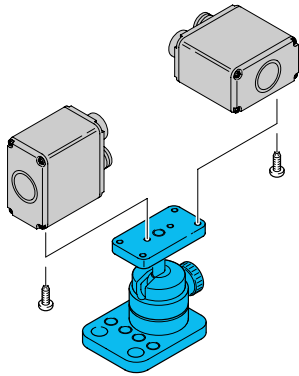
		A (mm)	D (mm)	T (mm)	Material	Product description
Holder for cylindrical housing designs						
		6.5	10	16	Polyamide	SH-6.5-10
		8	10	16		SH-8-10
		12	10	16		SH-12-10
Holders for fork and angled light barriers						
		For angled light barriers OGL...-TSSL OGLP...-TSSL		Plastic	SH-UGU-08-14	
		For fork light barriers Fork width of up to 100mm				
		For fork light barriers Fork width of 100mm or greater		Plastic	SH-UGU-20-14	
Holder for light barriers in the 50 housing series						
		For light barriers in the 50 housing series		Plastic	SH-S50-34-44-14	

MOUNTINGS FOR LIGHTING

The fasteners for the various lighting systems from di-soric ensure a secure hold in all installation positions.

Basic holder for barlights and coaxial lights		
	<p>Barlights</p> <p>Coaxial lights</p>	
<p>Material: Aluminum</p>		<p>SH-G-BE</p>
Universal holder for lights		
	<p>Area lights</p> <p>Barlights</p> <p>Spotlights</p> <p>Darkfield lights</p>	
<p>Material: VA</p>		<p>SH-U1-12-150-V</p>
Holder for area lights, spotlights and dark field lights		
	<p>Area lights</p> <p>Spotlights</p> <p>Darkfield lights</p>	
<p>Material: Aluminum</p>		<p>SH-BEK</p>

Ball head holder, adjustable for CS-50 Vision Sensor

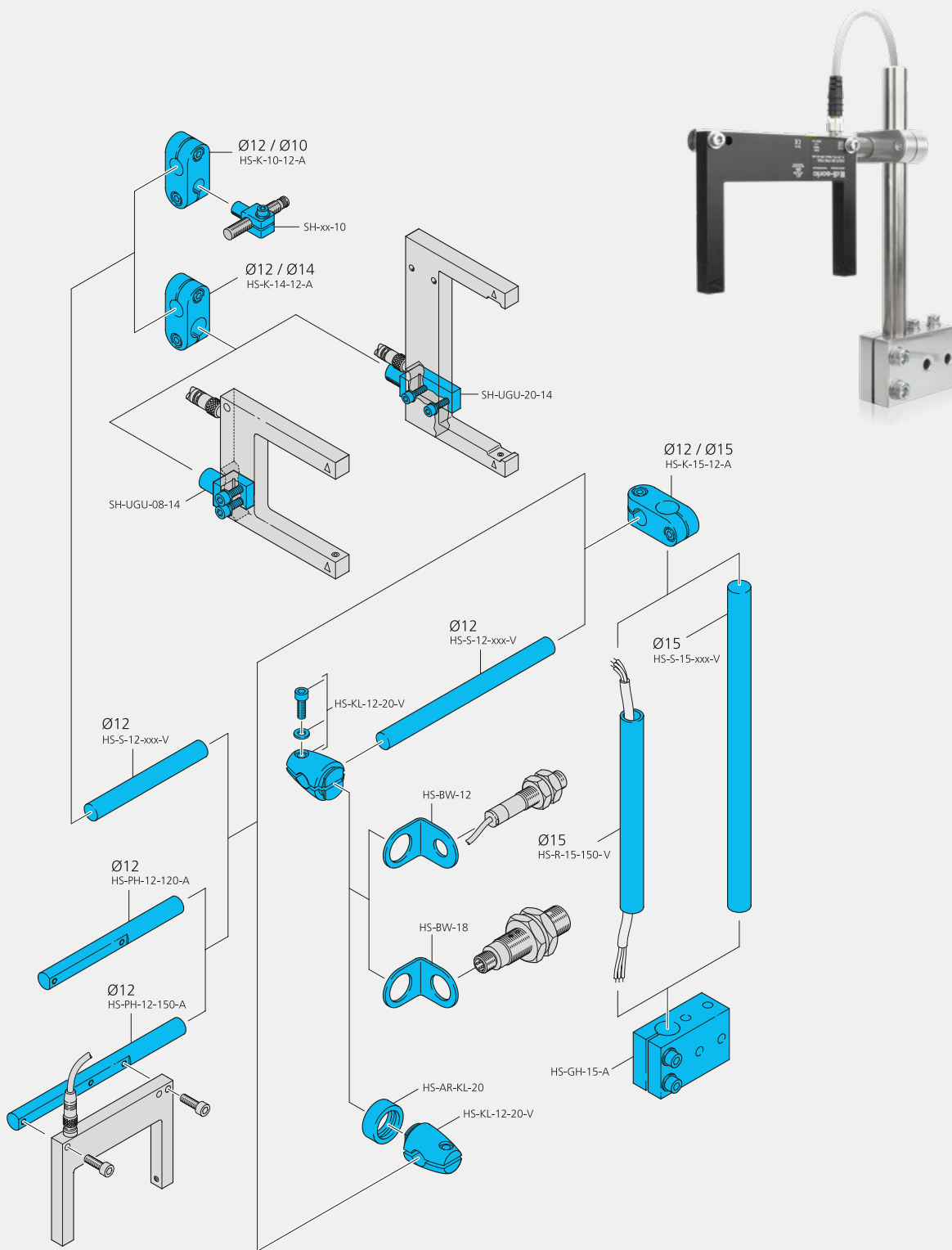


Material: Aluminum

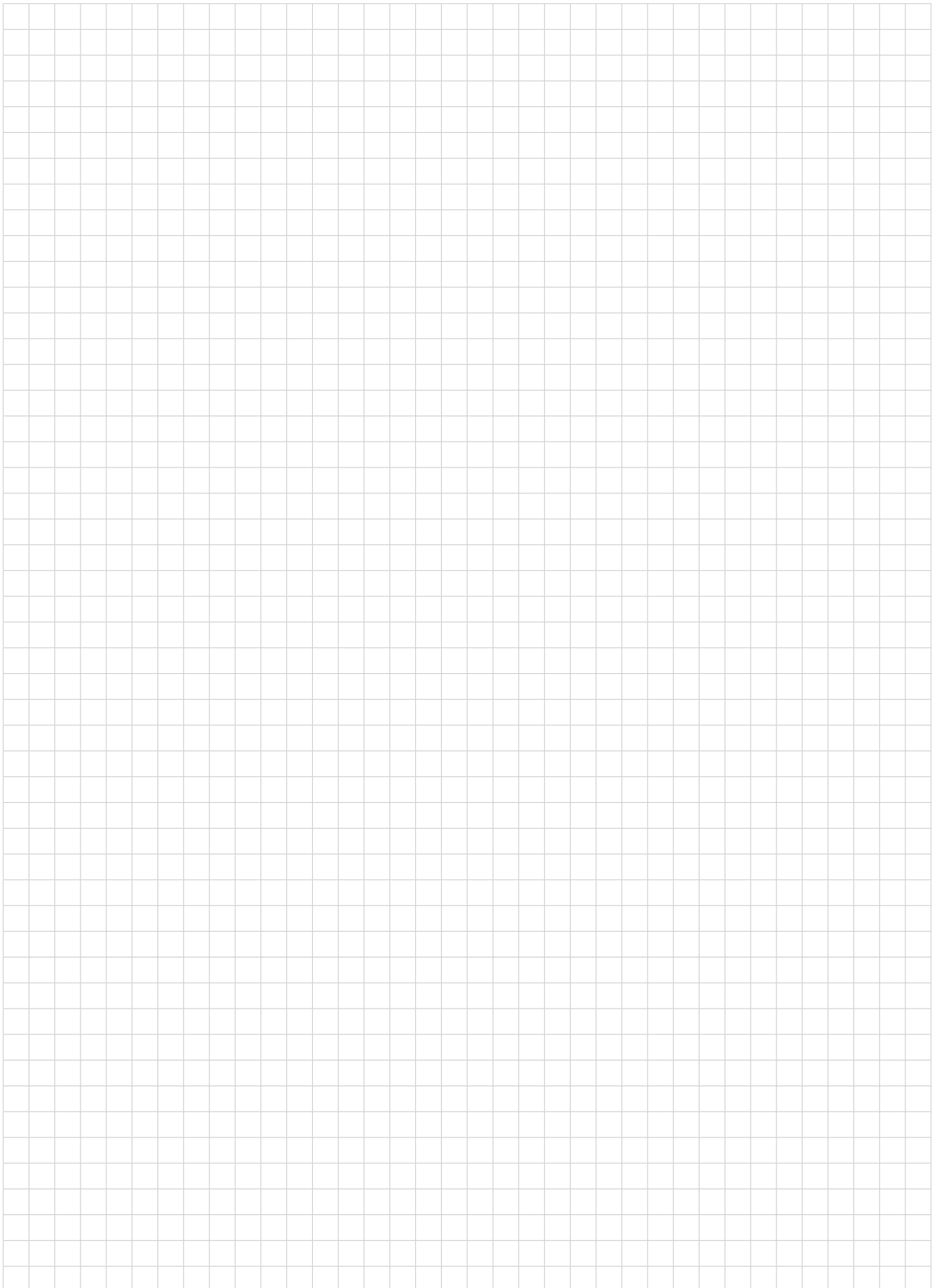
SH-KK-CS

Mounting examples system holders, basic holder

Ø 15mm



NOTES



INDEX SERIES

Area Lights	183	O-50 Metal	59
Barlights	185	O-81 Laser	60
Coaxial Lights	191	OBS Optical Motion Sensors	141
CS-50	145	O-C1 Standard	149
Cylinder Sensors C-Groove	137	O-C2-C Compact	151
Cylinder Sensors T-Groove	138	O-C2 Extended	150
Darkfield Lights	192	O-C2-LDA Low Distortion	153
FS-10 Compact	115	O-C2-R Robust	152
FS-50 Extended	115	O-C3 Extended	154
FS-100 Advanced	115	O-C4 High Resolution 1"	155
Glass Fiber-Optic Cables	109	O-C4-R Robust	156
Gripper Sensors	139	O-C5 High Resolution 1.1"	157
ID-10	147	O-D4	65
ID-80 Standard	147	OGL	81
ID-100	147	OGLL Laser	83
ID-200 Aluminum Housing	147	OGLP Dirt-Resistant	82
INA Analog	35	OGSWD Frame Design	85
INC Advanced	28	OGU	71
INE Extended	18	OGUL Laser	76
INF Food & Beverage	38	OGUP Dirt-Resistant	75
INH High-Temperature Resistant	36	OGU Stainless Steel	77
INN Namur	40	OGUTI Optical	133
INP High-Pressure Resistant	34	OK-50	117
INS Standard	9	OLV-G Amplifier	109
INU Universal Voltage	41	OLV-K Amplifier	99
INW Full Metal Extended	30	O-M5	61
INZ Special Applications	42	O-M8	61
IRB Standard	45	O-M18E Extended	64
IRDB Inductive Wire-Break Sensor	49	O-M18 Standard	62
IRD Dynamic	48	OP-50	97
IR Static	46	OP-M12	95
ISDP Dynamic	51	OP-Q12	96
IS Static	51	O-Q10 Miniature	60
KDC Standard	129	ORSD Ring design	85
KNS Extended	127	Plastic Fiber-Optic Cables	100
KSSTI Capacitive	135	Ringlights	189
KUS Contact Sensors	143	RS Radar Sensors	142
LA Switching	87	SBE-RGB	199
LAT-51 Compact	68	SB-RGB	199
LAT-61 Precise	69	SL-4 Safety Light Curtains/Grids, Type 4	164
LHT-9 Long Range	67	SLM4 – Muting Safety Light Curtains/Grids, Type 4	172
LI Measuring	90	Spotlights	188
LLGT Measuring	78	SR Safety Relay – Safety Switching Devices	178
MA.../MZ Muting Arms	174	UGUTI Ultrasonic	134
MB-N	195	US-46	122
MB-NP Protected	196	US-60	123
MB-RGBW with Status Indicator	197	USGT	125
MODSI Safety Control System	179	US-M8	119
O-20 Miniature	53	US-M12	119
O-21 Miniature	54	US-M18	121
O-30 Universal	56	US-M30	122
O-40E Extended	58	US-Q12	120
O-40 Standard	58		

SOLUTIONS. CLEVER. PRACTICAL.

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