



# M4P-ZA02500D00

deTem

**SAFETY MULTIBEAM SENSORS**

**SICK**  
Sensor Intelligence.



### Ordering information

Type	part no.
M4P-ZA02500D00	1102635

Other models and accessories → [www.sick.com/deTem](http://www.sick.com/deTem)



### Detailed technical data

#### Features

<b>Product version</b>	deTem4 A/P
<b>Application</b>	Normal industrial environment
<b>Functional principle</b>	Active/passive
<b>System part</b>	Active unit
<b>Scanning range</b>	3.2 m
<b>Dimension of the light path</b>	Typical 0.5 m ... 3.2 m
<b>Number of beams</b>	2
<b>Beam separation</b>	500 mm
<b>Response time</b>	20 ms
<b>End cap with integrated LED</b>	✓
<b>Items supplied</b>	Active unit Safety instruction Mounting instructions Operating instructions for download

#### Safety-related parameters

<b>Type</b>	Type 4 (IEC 61496-1)
<b>Safety integrity level</b>	SIL 3 (IEC 61508)
<b>Category</b>	Category 4 (ISO 13849-1)
<b>Performance level</b>	PL e (ISO 13849-1)
<b>PFH<sub>D</sub> (mean probability of a dangerous failure per hour)</b>	$6.6 \times 10^{-9}$
<b>T<sub>M</sub> (mission time)</b>	20 years (ISO 13849-1)
<b>Safe state in the event of a fault</b>	At least one OSSD is in the OFF state.

## Functions

<b>Note</b>	The deTem4 A/P safety light-beam sensor can be used with different function packages. The function packages are determined by the equipment used.
<b>Function package SP1</b>	Protective operation Beam coding Restart interlock External device monitoring (EDM) Application diagnostic output (ADO) IO-Link Equipment: Active unit with SP1 system plug
<b>Function package SP2</b>	Function package SP1 included Muting (2-signal muting) Equipment: Active unit with SP2 system plug
<b>Function package DMM4</b>	Function package SP2 included Muting (4-signal muting) Operating mode selection Inputs for safety sensors (SDI) Equipment: Active unit with SP1 system connector and DMM4 extension module
<b>Beam coding</b>	✓
<b>Restart interlock</b>	✓
<b>Differentiation between man and material (muting)</b>	✓
Concurrence monitoring	✓
Monitoring of total muting time	✓
Sensor gap monitoring	✓
Muting with override	✓
Exit monitoring	✓
Entry and exit monitoring	✓
End of muting by ESPE	✓

## Interfaces

<b>System connection</b>	Depending on system plug (M12 male connector, 5-pin or 8-pin)
<b>Extension connection</b>	Depending on system plug (without extension connection or with M12 female connector, 5-pin)
<b>Configuration method</b>	DIP switch on system plug
<b>Display elements</b>	LEDs
<b>Alignment aid</b>	Alignment quality via diagnostic LEDs
<b>End cap with integrated LED</b>	✓
<b>Application diagnostic output (ADO)</b>	✓
<b>IO-Link</b>	✓
<b>Near Field Communication (NFC)</b>	✓

## Electronics

<b>Protection class</b>	III (IEC 61140) <sup>1)</sup>
<b>Supply voltage <math>V_s</math></b>	24 V DC (19.2 V DC ... 28.8 V DC) <sup>2)</sup>
<b>Residual ripple</b>	≤ 10 % <sup>3)</sup>

<sup>1)</sup> SELV/PELV safety/protective extra-low voltage.

<sup>2)</sup> The external voltage supply must be capable of buffering brief mains voltage failures of 20 ms as specified in EN 60204-1. Suitable power supplies are available as accessories from SICK.

<sup>3)</sup> Within the limits of  $V_s$ .

<sup>4)</sup> Applies to the voltage range between -30 V and +30 V.

<b>Power consumption typical</b>	4 W (DC)
<b>Output signal switching devices (OSSDs)</b>	2 PNP semiconductors, short-circuit protected, cross-circuit monitored <sup>4)</sup>
ON state, switching voltage HIGH	24 V DC ( $V_S - 2.25 \text{ V DC} \dots V_S$ )
OFF state, switching voltage LOW	$\leq 2 \text{ V DC}$
Current-carrying capacity per OSSD	$\leq 500 \text{ mA}$
<b>Application diagnostic output (ADO)</b>	PNP semiconductor, short-circuit protected <sup>4)</sup>
Output voltage HIGH (active)	$\geq V_S - 3 \text{ V}$
Output voltage LOW (deactivated)	High resistance
Current loading	$\leq 100 \text{ mA}$

<sup>1)</sup> SELV/PELV safety/protective extra-low voltage.

<sup>2)</sup> The external voltage supply must be capable of buffering brief mains voltage failures of 20 ms as specified in EN 60204-1. Suitable power supplies are available as accessories from SICK.

<sup>3)</sup> Within the limits of  $V_S$ .

<sup>4)</sup> Applies to the voltage range between  $-30 \text{ V}$  and  $+30 \text{ V}$ .

### Mechanics

<b>Dimensions</b>	See dimensional drawing
<b>Housing cross-section</b>	30.7 mm x 34 mm
<b>Material</b>	
Housing	Aluminum extruded profile
Front screen	Polycarbonate, scratch-resistant coating
<b>Weight</b>	+ 565 g ( $\pm 50 \text{ g}$ )

### Ambient data

<b>Enclosure rating</b>	IP65 (IEC 60529) IP67 (IEC 60529)
<b>Ambient operating temperature</b>	$-30 \text{ }^\circ\text{C} \dots +55 \text{ }^\circ\text{C}$
<b>Storage temperature</b>	$-30 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
<b>Air humidity</b>	15 % ... 95 %, Non-condensing
<b>Vibration resistance</b>	5 ... 150 Hz, 3,5 mm / 1 g (EN 60068-2-6)
<b>Shock resistance</b>	15 g / 6 ms (EN 60068-2-27)
<b>Class</b>	3M4 (IEC TR 60721-4-3)

### Other information

<b>Type of light</b>	Near-infrared (NIR), invisible
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### Certificates

<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>Moroccan declaration of conformity</b>	✓
<b>China RoHS</b>	✓
<b>ULus approval</b>	✓
<b>cUL approval</b>	✓
<b>EC-Type-Examination approval</b>	✓

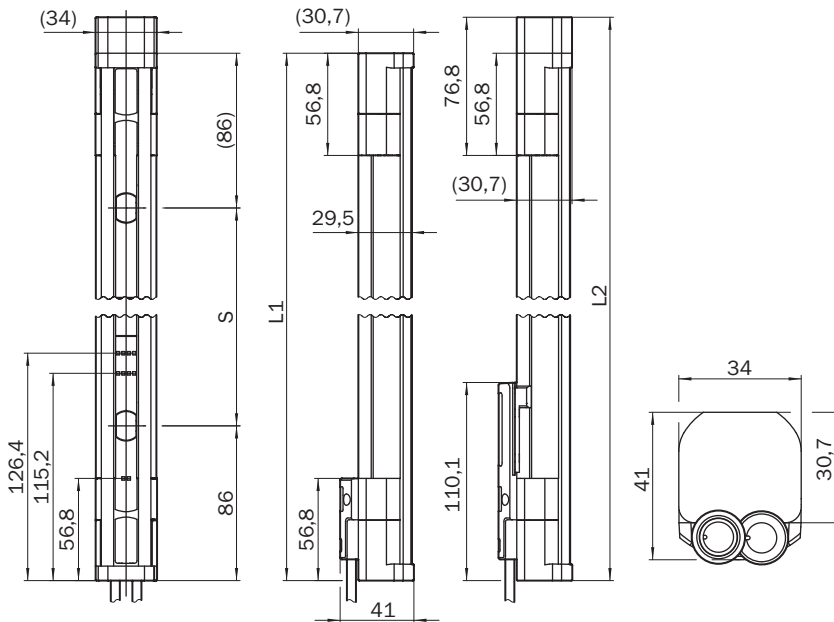
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)

✓

Classifications

<b>ECLASS 5.0</b>	27272703
<b>ECLASS 5.1.4</b>	27272703
<b>ECLASS 6.0</b>	27272703
<b>ECLASS 6.2</b>	27272703
<b>ECLASS 7.0</b>	27272703
<b>ECLASS 8.0</b>	27272703
<b>ECLASS 8.1</b>	27272703
<b>ECLASS 9.0</b>	27272703
<b>ECLASS 10.0</b>	27272703
<b>ECLASS 11.0</b>	27272703
<b>ECLASS 12.0</b>	27272703
<b>ETIM 5.0</b>	EC001832
<b>ETIM 6.0</b>	EC001832
<b>ETIM 7.0</b>	EC001832
<b>ETIM 8.0</b>	EC001832
<b>UNSPSC 16.0901</b>	46171620

Dimensional drawing Active unit

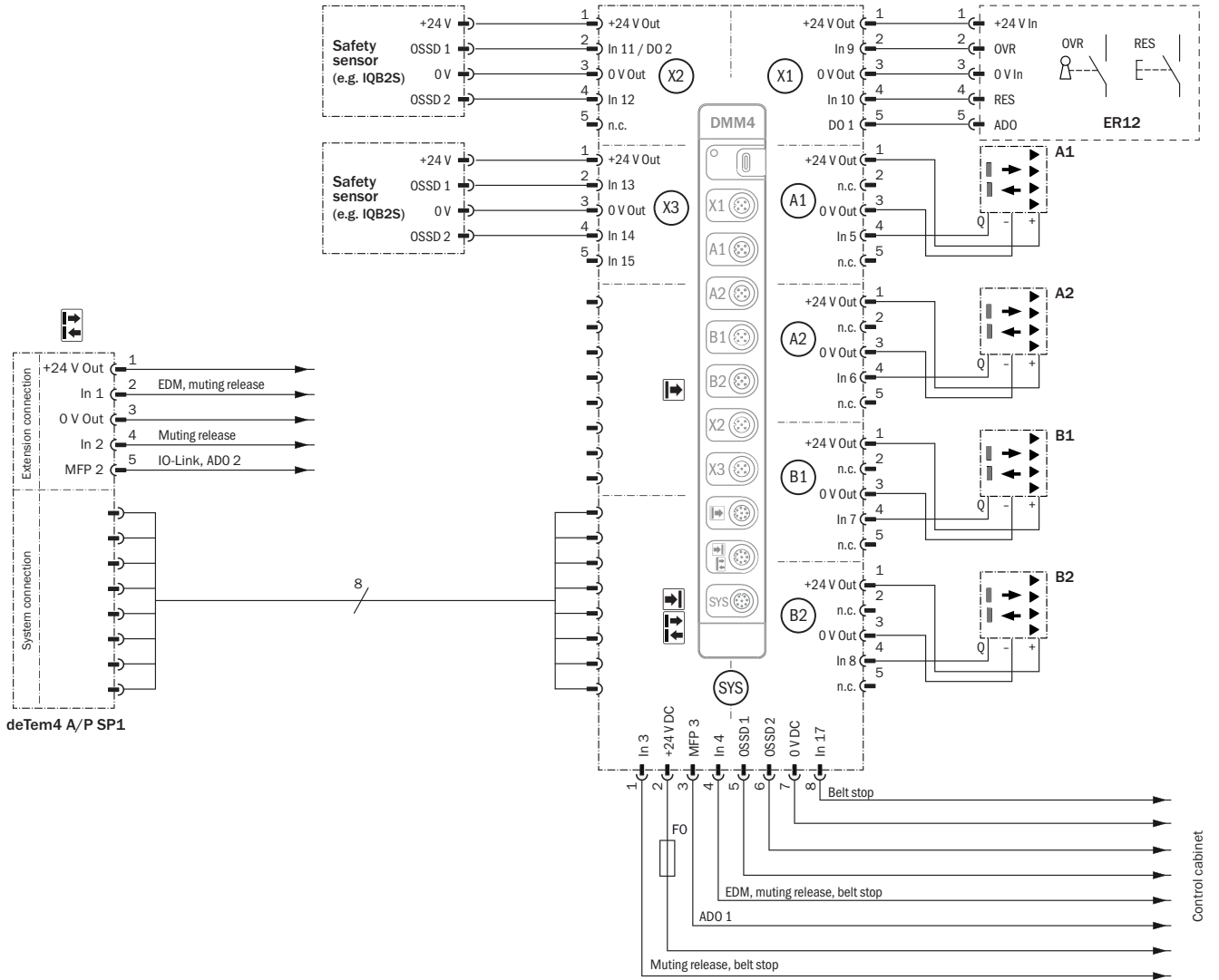


Dimensions in mm (inch)

Number of beams	Beam separation S	L1	L2
2	500	672	692

Number of beams	Beam separation S	L1	L2
4	300	1.072	1.092

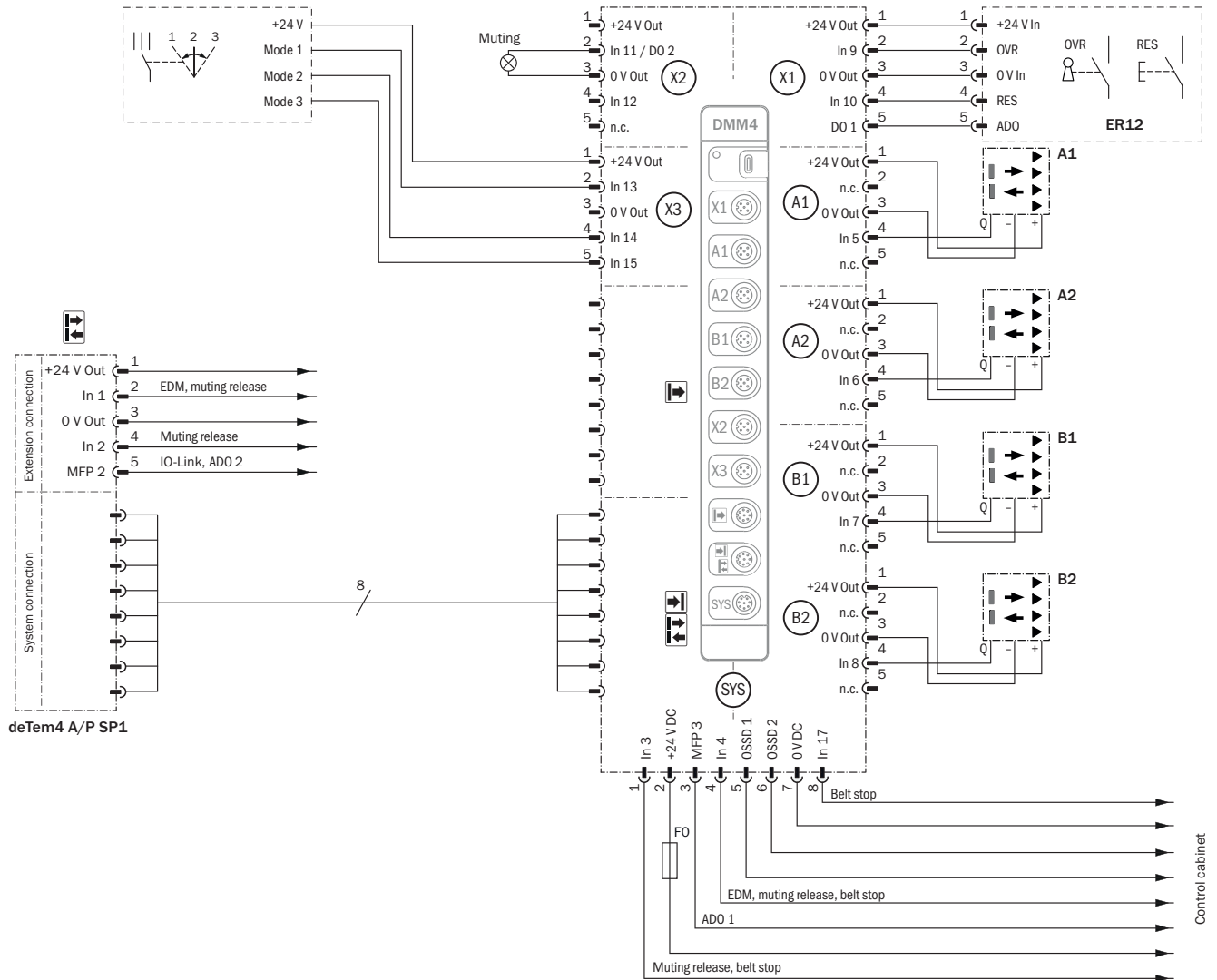
Connection diagram deTem4 A/P on DMM4, connection diagram, muting, reset, override, SDI



E416699/00/2024-12-20

The requirements in the operating instructions of the devices used must be adhered to.

Connection diagram deTem4 A/P on DMM4, connection example, muting, reset, override, operating mode selection



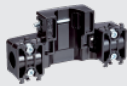
















E416700/00/2024-12-20

The requirements in the operating instructions of the devices used must be adhered to.






### Recommended accessories



Other models and accessories → [www.sick.com/deTem](http://www.sick.com/deTem)

	Brief description	Type	part no.
Mounting systems			
	<ul style="list-style-type: none"> <li><b>Description:</b> QuickFix bracket for 2 devices (e.g. sender and receiver)</li> <li><b>Material:</b> Plastic</li> <li><b>Details:</b> Plastic</li> <li><b>Packing unit:</b> 4 pieces</li> </ul>	BEF-3SHABPKU4	2098710
	<ul style="list-style-type: none"> <li><b>Description:</b> FlexFix bracket for 2 devices (e.g. sender and receiver), can be aligned <math>\pm 15^\circ</math>, including M5 screw</li> <li><b>Material:</b> Plastic</li> <li><b>Details:</b> Plastic</li> <li><b>Packing unit:</b> 4 pieces</li> </ul>	BEF-1SHABPKU4	2066614
	<ul style="list-style-type: none"> <li><b>Description:</b> Muting arm bracket for deTec safety light curtain or deTem safety multibeam sensor</li> <li><b>Packing unit:</b> 1 piece</li> <li><b>Suitable for:</b> deTec, deTem</li> </ul>	Muting arm bracket	2106455
	<ul style="list-style-type: none"> <li><b>Description:</b> Muting arm, short</li> <li><b>Suitable for:</b> deTec, deTem</li> </ul>	Muting arm, short	2111924
	<ul style="list-style-type: none"> <li><b>Description:</b> Muting arm, long</li> <li><b>Suitable for:</b> deTec, deTem</li> </ul>	Muting arm, long	2111923
	<ul style="list-style-type: none"> <li><b>Description:</b> Universal holder for round steel arms and muting arms, for mounting sensors or reflectors</li> </ul>	BEF-KHS-N01	2044953

	Brief description	Type	part no.
connectors and cables			
		IO-Link connector	2092757
		Muting connector	2092758
	<ul style="list-style-type: none"> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 2 m, 5-wire, PUR, halogen-free</li> <li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A15-020UB5XLEAX	2095617
	<ul style="list-style-type: none"> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 5 m, 5-wire, PUR, halogen-free</li> <li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A15-050UB5XLEAX	2095618
	<ul style="list-style-type: none"> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 10 m, 5-wire, PUR, halogen-free</li> <li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A15-100UB5XLEAX	2095619
	<ul style="list-style-type: none"> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 5 m, 8-wire, PUR, halogen-free</li> <li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A18-050UA5XLEAX	2095653
	<ul style="list-style-type: none"> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 10 m, 8-wire, PUR, halogen-free</li> <li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A18-100UA5XLEAX	2095654
	<ul style="list-style-type: none"> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Male connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 2 m, 5-wire, PUR, halogen-free</li> <li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A15-020UB5M2A15	2096009
	<ul style="list-style-type: none"> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Male connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 5 m, 5-wire, PUR, halogen-free</li> <li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A15-050UB5M2A15	2096010
	<ul style="list-style-type: none"> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Male connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 10 m, 5-wire, PUR, halogen-free</li> <li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A15-100UB5M2A15	2096011
	<ul style="list-style-type: none"> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 2 m, 8-wire, PUR, halogen-free</li> <li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A18-020UA5XLEAX	2095652

	Brief description	Type	part no.
system plugs and extension modules			
	<ul style="list-style-type: none"> <li>• <b>Function range:</b> SP1</li> <li>• <b>System connection:</b> Plug, M12, 5-pin</li> <li>• <b>Extension connection:</b> Without extension connection</li> </ul>	SP1-1000	2076832
	<ul style="list-style-type: none"> <li>• <b>Function range:</b> SP1</li> <li>• <b>System connection:</b> Plug, M12, 5-pin</li> <li>• <b>Extension connection:</b> Female connector M12, 5-pin</li> </ul>	SP1-1100	2076833
	<ul style="list-style-type: none"> <li>• <b>Function range:</b> SP1</li> <li>• <b>System connection:</b> Male connector M12, 8-pin</li> <li>• <b>Extension connection:</b> Without extension connection</li> </ul>	SP1-1200	2076834
	<ul style="list-style-type: none"> <li>• <b>Function range:</b> SP1</li> <li>• <b>System connection:</b> Male connector M12, 8-pin</li> <li>• <b>Extension connection:</b> Female connector M12, 5-pin</li> </ul>	SP1-1300	2076835
	<ul style="list-style-type: none"> <li>• <b>Function range:</b> SP2</li> <li>• <b>System connection:</b> Plug, M12, 5-pin</li> <li>• <b>Extension connection:</b> Female connector M12, 5-pin</li> </ul>	SP2-2100	2093098
	<ul style="list-style-type: none"> <li>• <b>Function range:</b> SP2</li> <li>• <b>System connection:</b> Male connector M12, 8-pin</li> <li>• <b>Extension connection:</b> Female connector M12, 5-pin</li> </ul>	SP2-2300	2093100
Photoelectric sensors			
	<ul style="list-style-type: none"> <li>• <b>Sensing range max.:</b> 0.15 m ... 12 m, 0.15 m ... 10 m</li> <li>• <b>Functional principle:</b> Photoelectric retro-reflective sensor</li> <li>• <b>Functional principle detail:</b> With minimum distance to reflector (dual lens system)</li> <li>• <b>Switching output:</b> PNP</li> <li>• <b>Switching mode:</b> Light/dark switching</li> <li>• <b>Connection type:</b> Male connector M12, 4-pin</li> <li>• <b>Light source:</b> PinPoint LED</li> <li>• <b>Adjustment:</b> None</li> </ul>	GL10-P4151	1069860
	<ul style="list-style-type: none"> <li>• <b>Sensing range max.:</b> 0.03 m ... 6 m</li> <li>• <b>Functional principle:</b> Photoelectric retro-reflective sensor</li> <li>• <b>Connection type:</b> Cable with M12 male connector, 4-pin</li> <li>• <b>Type of light:</b> Visible red light</li> <li>• <b>Adjustment:</b> Potentiometer</li> <li>• <b>Housing:</b> Rectangular</li> </ul>	GL6-P0211S49	1070568
	<ul style="list-style-type: none"> <li>• <b>Sensing range max.:</b> 20 mm ... 950 mm</li> <li>• <b>Functional principle:</b> Photoelectric proximity sensor</li> <li>• <b>Functional principle detail:</b> Background suppression</li> <li>• <b>Switching output:</b> PNP</li> <li>• <b>Switching mode:</b> Light switching</li> <li>• <b>Connection type:</b> Male connector M12, 4-pin</li> <li>• <b>Light source:</b> PinPoint LED</li> <li>• <b>Adjustment:</b> Potentiometer</li> </ul>	GTB10-P4411S01	1066852
	<ul style="list-style-type: none"> <li>• <b>Sensing range max.:</b> 5 mm ... 500 mm</li> <li>• <b>Functional principle:</b> Photoelectric proximity sensor</li> <li>• <b>Connection type:</b> Cable with M12 male connector, 4-pin, 300 mm</li> <li>• <b>Type of light:</b> Infrared light</li> <li>• <b>Adjustment:</b> Potentiometer</li> <li>• <b>Housing:</b> Rectangular</li> </ul>	GTB6-P7441S56	1077541

	Brief description	Type	part no.
network devices			
		IOLA2US-01101 (SiLink2 Master)	1061790
		SIG200-0A0G12200	1102605
		SIG200-0A0412200	1089794
		SIG200-0A0512200	1089796
reflectors and optics			
	<ul style="list-style-type: none"> <li>• <b>Description:</b> Rectangular, screw connection</li> <li>• <b>Dimensions:</b> 51 mm 61 mm</li> <li>• <b>Ambient operating temperature:</b> -30 °C ... +65 °C</li> </ul>	P250	5304812

	Brief description	Type	part no.
Safety relays			
	<ul style="list-style-type: none"> <li>• <b>Applications:</b> Output expansion module for OSSDs</li> <li>• <b>Compatible sensor types:</b> Safety sensors with OSSDs</li> <li>• <b>Connection type:</b> Front connector with spring terminals</li> <li>• <b>Restart interlock:</b> no</li> <li>• <b>External device monitoring (EDM):</b> Via path</li> <li>• <b>Outputs:</b> 2 enabling current paths (safe), 1 feedback current path (for use as external device monitoring, not safe)</li> <li>• <b>Housing width:</b> 18 mm</li> </ul>	RLY3-OSSD100	1085343
	<ul style="list-style-type: none"> <li>• <b>Applications:</b> Output expansion module for OSSDs</li> <li>• <b>Compatible sensor types:</b> Safety sensors with OSSDs</li> <li>• <b>Connection type:</b> Front connector with spring terminals</li> <li>• <b>Restart interlock:</b> no</li> <li>• <b>External device monitoring (EDM):</b> Via path</li> <li>• <b>Outputs:</b> 4 enabling current paths (safe), 1 feedback current path (for use as external device monitoring, not safe), 1 signaling current path (not safe)</li> <li>• <b>Housing width:</b> 28 mm</li> </ul>	RLY3-OSSD400	1099971

## SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)