



# WS016P-243ZZ1A0ZZZZLLZZZZZZZZ1, WE016P-2416R500A00ZLLZZZZZZZZ1 L25

SAFETY SINGLE-BEAM SENSORS

**SICK**  
Sensor Intelligence.

### SAFETY SINGLE-BEAM SENSORS



#### Ordering information

System part	Type	Part no.
Sender	WSO16P-243ZZ1A0ZZZZLLZZZZZZZZ1	2113101
Receiver	WEO16P-2416R500A00ZLLZZZZZZZZ1	2113102

Other models and accessories → [www.sick.com/L25](http://www.sick.com/L25)



#### Detailed technical data

##### Features

<b>Smart Sensor</b>	Diagnosis Efficient communication Smart Task
<b>Light source</b>	PinPoint LED
<b>Type of light</b>	Red light, visible
<b>Scanning range</b>	20 m
<b>Number of beams</b>	1
<b>Detection capability</b>	30 mm <sup>1)</sup>
<b>Response time</b>	0.5 ms
<b>Response time</b>	0.5 ms + Test device response time
<b>Cascading</b>	Cascading allows up to 4 single-beam photoelectric safety switches to be connected in series. You can find response times and connection diagrams for cascading in the operating instructions.

<sup>1)</sup> A test rod with a diameter of at least 30 mm is required for thorough check. Suitable test rods are available as accessories from SICK.

##### Safety-related parameters

<b>Type</b>	Type 2 (IEC 61496-1) <sup>1)</sup>
<b>Safety integrity level</b>	SIL1 (IEC 61508) <sup>1)</sup>
<b>Category</b>	Category 2 (EN ISO 13849) <sup>1)</sup>
<b>Test rate (external test)</b>	100 /s (EN ISO 13849)
<b>Maximum demand rate</b>	≤ 60 min <sup>-1</sup> (EN ISO 13849) <sup>2)</sup>
<b>Performance level</b>	PL c (EN ISO 13849) <sup>1)</sup>

<sup>1)</sup> Only in combination with an appropriate test device, e.g., Flexi Classic or Flexi Soft.

<sup>2)</sup> Between two requirements on a safety-related response of the device, at least 100 external tests must be carried out.

<b>PFH<sub>D</sub> (mean probability of a dangerous failure per hour)</b>	1.0 x 10 <sup>-6</sup> (EN ISO 13849) <sup>1)</sup>
<b>T<sub>M</sub> (mission time)</b>	20 years (EN ISO 13849)

<sup>1)</sup> Only in combination with an appropriate test device, e.g., Flexi Classic or Flexi Soft.

<sup>2)</sup> Between two requirements on a safety-related response of the device, at least 100 external tests must be carried out.

Interfaces

<b>Connection type</b>	Male connector M12, 4-pin, connector 270° rotatable
<b>Configuration method</b>	Via IO-Link
<b>Display elements</b>	LEDs
<b>Alignment aid</b>	Alignment quality via diagnostic LEDs Easy and quick sensor alignment using BluePilot
<b>Application diagnostic output (ADO)</b>	✓
<b>IO-Link</b>	✓
Data exchange via IO-Link	Device information Quality of reception
Configuration via IO-Link	Switching output Application diagnostic output (ADO)
IO-Link master	SiLink2 Master IOLA2US-01101
Configuration software	SOPAS ET

Electrical data

<b>Protection class</b>	III (IEC 61140)
<b>Supply voltage V<sub>S</sub></b>	24 V DC (19.2 V DC ... 28.8 V DC)
<b>Residual ripple</b>	≤ 5 V
<b>Power consumption</b>	≤ 30 mA
<b>Test input voltage</b>	≤ 3 V (Sender off) <sup>1)</sup> ≥ U <sub>V</sub> - 4 V (Sender on) <sup>1)</sup>
<b>Test input response time</b>	≤ 1.1 ms
<b>Switching outputs</b>	Push-pull <sup>2)</sup>
<b>Current loading</b>	≤ 100 mA

<sup>1)</sup> The test input may not be operated when not connected. The test input has a pull-up resistor to activate the sender (sender on) even when not connected. Therefore, an active-switched LOW signal is required to activate the cyclic test with test gap (sender off).

<sup>2)</sup> Switching output for controlling the downstream test device, no OSSD according to IEC 61496-1. Output short-circuit protected.

Mechanical data

<b>Design</b>	Rectangular
<b>Dimensions (W x H x D)</b>	20 mm x 42 mm x 55.4 mm
<b>Housing material</b>	VISTAL®

Ambient data

<b>Enclosure rating</b>	IP66 (IEC 60529) IP67 (IEC 60529) IP69K (ISO 20653)
<b>Ambient operating temperature</b>	-40 °C ... +60 °C
<b>Storage temperature</b>	-40 °C ... +75 °C
<b>Air humidity</b>	15 % ... 95 %, Non-condensing
<b>Vibration resistance</b>	5 g, 10 Hz ... 55 Hz (IEC 60068-2-6)

## SAFETY SINGLE-BEAM SENSORS

<b>Shock resistance</b>	10 g, 16 ms (IEC 60068-2-29)
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### Other information

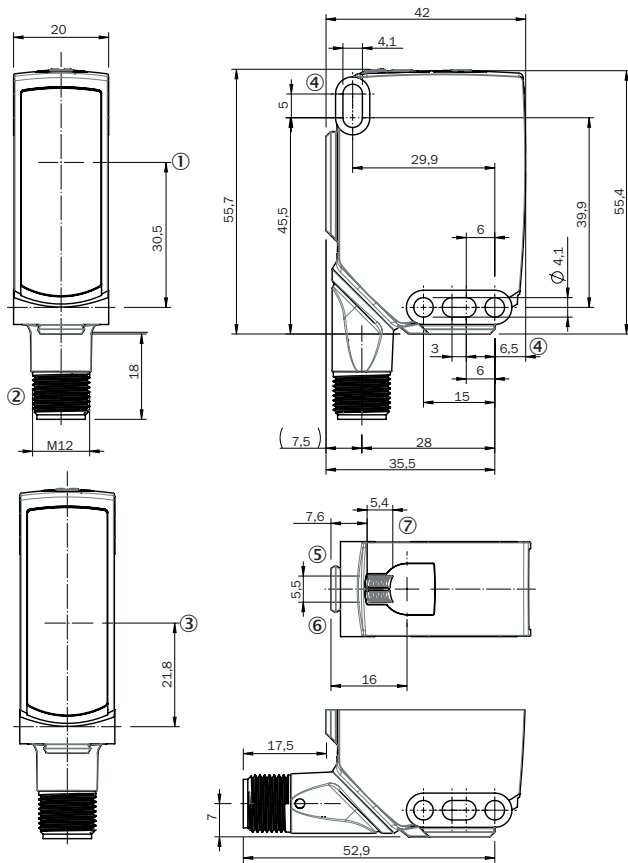
<b>Light source</b>	PinPoint LED
<b>Type of light</b>	Red light, visible
<b>Wave length</b>	635 nm
<b>Light spot diameter (distance)</b>	90 mm (8 m)

### Classifications

<b>eCl@ss 5.0</b>	27272701
<b>eCl@ss 5.1.4</b>	27272701
<b>eCl@ss 6.0</b>	27272701
<b>eCl@ss 6.2</b>	27272701
<b>eCl@ss 7.0</b>	27272701
<b>eCl@ss 8.0</b>	27272701
<b>eCl@ss 8.1</b>	27272701
<b>eCl@ss 9.0</b>	27272701
<b>eCl@ss 10.0</b>	27272701
<b>eCl@ss 11.0</b>	27272701
<b>eCl@ss 12.0</b>	27272701
<b>ETIM 5.0</b>	EC001831
<b>ETIM 6.0</b>	EC001831
<b>ETIM 7.0</b>	EC001831
<b>ETIM 8.0</b>	EC001831
<b>UNSPSC 16.0901</b>	46171620

Dimensional drawing (Dimensions in mm (inch))



L25



- ① Center of optical axis, sender
- ② Connection
- ③ Center of optical axis, receiver
- ④ Mounting holes
- ⑤ Green operating LED: Supply voltage active
- ⑥ Yellow status LED: Light receiver indication
- ⑦ Alignment aid (BluePilot): Blue alignment quality LEDs

Recommended accessories

Other models and accessories → [www.sick.com/L25](http://www.sick.com/L25)

	Brief description	Type	Part no.
Universal bar clamp systems			
	Plate N02 for universal clamp bracket, Zinc plated steel (sheet), Zinc die cast (clamping bracket), Universal clamp (5322626), mounting hardware	BEF-KHS-N02	2051608
	Plate N03 for universal clamp bracket, zinc coated, Zinc plated steel (sheet), Zinc die cast (clamping bracket), Universal clamp (5322626), mounting hardware	BEF-KHS-N03	2051609

SAFETY SINGLE-BEAM SENSORS

	Brief description	Type	Part no.
	Plate N04 for universal clamp, steel, Zinc plated steel (sheet), Zinc die cast (clamping bracket), Universal clamp (5322626), mounting hardware	BEF-KHS-N04	2051610
Device protection (mechanical)			
	Protective housing for universal clamp, Zinc plated steel (protective housing), Zinc die cast (clamping bracket), Universal clamp, mounting hardware	BEF-SG-W16	2096146
Mounting brackets and plates			
	Mounting bracket, large, stainless steel, mounting hardware included	BEF-WG-W12	2013942
	Mounting bracket, small, stainless steel, mounting hardware included	BEF-WK-W12	2012938
	Mounting bracket with articulated arm, steel, zinc coated, mounting hardware included	BEF-WN-MULTI2	2093945
Plug connectors and cables			
	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YF2A14-050VB3XLEAX	2096235
Terminal and alignment brackets			
	Double clamp bracket for dovetail mounting, Aluminum (anodised), mounting hardware included	BEF-DKH-W12	2013947
	Clamping block for dovetail mounting, Aluminum (anodised), mounting hardware included	BEF-KH-W12	2013285
Others			
	IO-Link V1.1 Class A port, USB2.0 port, optional external power supply 24V / 1A		On request
Sensor Integration Gateway			
	<ul style="list-style-type: none"> <li>• <b>Further functions:</b> Web server integrated, USB connection for easy configuration of the SIG200 Sensor Integration Gateway with SOPAS ET, the engineering tool from SICK, logic editor is available for easy configuration of logic functions</li> <li>• <b>Connection CONFIG:</b> 1 x M8, 4-pin female connector, USB 2.0 (USB-A)</li> <li>• <b>Logic editor:</b> yes</li> <li>• <b>Communication interface:</b> IO-Link, USB, Ethernet, PROFINET, REST API</li> <li>• <b>Product category:</b> IO-Link Master</li> </ul>	SIG200-0A0412200	1089794
	<ul style="list-style-type: none"> <li>• <b>Further functions:</b> Web server integrated, USB connection for easy configuration of the SIG200 Sensor Integration Gateway with SOPAS ET, the engineering tool from SICK, logic editor is available for easy configuration of logic functions</li> <li>• <b>Connection CONFIG:</b> 1 x M8, 4-pin female connector, USB 2.0 (USB-A)</li> <li>• <b>Logic editor:</b> yes</li> <li>• <b>Communication interface:</b> IO-Link, USB, Ethernet, REST API</li> <li>• <b>Product category:</b> IO-Link Master</li> </ul>	SIG200-0A0G12200	1102605

## 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)