



WLG16P-34162120A00  
W16

## SMALL PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



## Ordering information

Type	Part no.
WLG16P-34162120A00	1218947

Other models and accessories → [www.sick.com/W16](http://www.sick.com/W16)

Illustration may differ



## Detailed technical data

## Features

<b>Device type</b>	Photoelectric sensors	
<b>Sensor/ detection principle</b>	Photoelectric retro-reflective sensor, autocollimation	
<b>Dimensions (W x H x D)</b>	20 mm x 55.7 mm x 42 mm	
<b>Housing design (light emission)</b>	Rectangular	
<b>Sensing range max.</b>	0 m ... 5 m <sup>1)</sup>	
<b>Type of light</b>	Visible red light	
<b>Light source</b>	PinPoint LED <sup>2)</sup>	
<b>Light spot size (distance)</b>	Ø 80 mm (5 m)	
<b>Wave length</b>	635 nm	
<b>Adjustment</b>	Teach-Turn adjustment Teach-Pilot: Teach-in plus user mode selector IO-Link: For configuring the sensor parameters and Smart Task functions	
<b>Indication</b>	LED blue: BluePilot: Mode display LED green: Operating indicator Static: power on	

<sup>1)</sup> Reflector P250F.

<sup>2)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

	LED yellow	Flashing: IO-Link mode Status of received light beam Static: object not present Static off: object present
<b>Pin 2 configuration</b>		External input, Teach-in, switching signal
<b>Special applications</b>		Detecting transparent objects

1) Reflector P250F.

2) Average service life: 100,000 h at  $T_U = +25^\circ\text{C}$ .

## Mechanics/electronics

<b>Supply voltage</b>	10 V DC ... 30 V DC <sup>1)</sup>
<b>Ripple</b>	$< 5 \text{ V}_{\text{pp}}$
<b>Current consumption</b>	30 mA <sup>2)</sup> 50 mA <sup>3)</sup>
<b>Switching output</b>	Push-pull: PNP/NPN
<b>Output: Q<sub>L1</sub> / C</b>	Switching output or IO-Link mode
<b>Output function</b>	Factory setting: Pin 2 / white (MF): NPN normally closed (light switching), PNP normally open (dark switching), Pin 4 / black (QL1 / C): NPN normally open (dark switching), PNP normally closed (light switching), IO-Link
<b>Switching mode</b>	Light/dark switching
<b>Signal voltage PNP HIGH/LOW</b>	Approx. $V_S - 2.5 \text{ V} / 0 \text{ V}$
<b>Signal voltage NPN HIGH/LOW</b>	Approx. $VS / < 2.5 \text{ V}$
<b>Output current I<sub>max.</sub></b>	$\leq 100 \text{ mA}$
<b>Response time</b>	$\leq 500 \mu\text{s}$ <sup>4)</sup>
<b>Switching frequency</b>	1,000 Hz <sup>5)</sup>
<b>Connection type</b>	Cable with M12 male connector, 4-pin, 270 mm <sup>6)</sup>
<b>Cable material</b>	PVC
<b>Circuit protection</b>	A <sup>7)</sup> B <sup>8)</sup> C <sup>9)</sup> D <sup>10)</sup>
<b>Protection class</b>	III
<b>Weight</b>	70 g
<b>Polarisation filter</b>	✓
<b>Housing material</b>	Plastic, VISTAL®
<b>Optics material</b>	Plastic, PMMA

1) Limit values.

2) 16 V DC ... 30 V DC, without load.

3) 10 V DC ... 16 V DC, without load.

4) Signal transit time with resistive load in switching mode. Different values possible in COM2 mode.

5) With light/dark ratio 1:1 in switching mode. Different values possible in IO-Link mode.

6) Do not bend below 0 °C.

7) A =  $V_S$  connections reverse-polarity protected.

8) B = inputs and output reverse-polarity protected.

9) C = interference suppression.

10) D = outputs overcurrent and short-circuit protected.

11) Replaces IP69K with ISO 20653: 2013-03.

<b>Enclosure rating</b>	IP66 (According to EN 60529) IP67 (According to EN 60529) IP69 (According to EN 60529) <sup>11)</sup>
<b>Ambient operating temperature</b>	-40 °C ... +60 °C
<b>Ambient temperature, storage</b>	-40 °C ... +75 °C
<b>UL File No.</b>	NRKH.E181493 & NRKH7.E181493

- <sup>1)</sup> Limit values.
- <sup>2)</sup> 16 V DC ... 30 V DC, without load.
- <sup>3)</sup> 10 V DC ... 16 V DC, without load.
- <sup>4)</sup> Signal transit time with resistive load in switching mode. Different values possible in COM2 mode.
- <sup>5)</sup> With light/dark ratio 1:1 in switching mode. Different values possible in IO-Link mode.
- <sup>6)</sup> Do not bend below 0 °C.
- <sup>7)</sup> A = V<sub>S</sub> connections reverse-polarity protected.
- <sup>8)</sup> B = inputs and output reverse-polarity protected.
- <sup>9)</sup> C = interference suppression.
- <sup>10)</sup> D = outputs overcurrent and short-circuit protected.
- <sup>11)</sup> Replaces IP69K with ISO 20653: 2013-03.

### Safety-related parameters

<b>MTTF<sub>D</sub></b>	627 years
<b>DC<sub>avg</sub></b>	0 %

### Communication interface

<b>Communication interface</b>	IO-Link V1.1
<b>Communication Interface detail</b>	COM2 (38,4 kBaud)
<b>Cycle time</b>	2.3 ms
<b>Process data length</b>	16 Bit
<b>Process data structure</b>	Bit 0 = switching signal Q <sub>L1</sub> Bit 1 = switching signal Q <sub>L2</sub> Bit 2 ... 15 = empty
<b>VendorID</b>	26
<b>DeviceID HEX</b>	0x800170
<b>DeviceID DEC</b>	8388976

### Smart Task

<b>Smart Task name</b>	Base logics
<b>Logic function</b>	Direct AND OR Window Hysteresis
<b>Timer function</b>	Deactivated On delay Off delay ON and OFF delay Impulse (one shot)
<b>Inverter</b>	Yes
<b>Switching frequency</b>	SIO Direct: 1000 Hz <sup>1)</sup>

<sup>1)</sup> SIO Direct: sensor operation in standard I/O mode without IO-Link communication and without using internal sensor logic or time parameters (set to "direct"/"deactivated").

<sup>2)</sup> SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.

<sup>3)</sup> IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

	SIO Logic: 800 Hz <sup>2)</sup> IOL: 650 Hz <sup>3)</sup>
<b>Response time</b>	SIO Direct: 500 $\mu$ s <sup>1)</sup> SIO Logic: 600 $\mu$ s <sup>2)</sup> IOL: 750 $\mu$ s <sup>3)</sup>
<b>Repeatability</b>	SIO Direct: 150 $\mu$ s <sup>1)</sup> SIO Logic: 300 $\mu$ s <sup>2)</sup> IOL: 400 $\mu$ s <sup>3)</sup>
<b>Switching signal</b>	
Switching signal Q <sub>L1</sub>	Switching output
Switching signal Q <sub>L2</sub>	Switching output

<sup>1)</sup> SIO Direct: sensor operation in standard I/O mode without IO-Link communication and without using internal sensor logic or time parameters (set to "direct"/"deactivated").

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<sup>3)</sup> IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

## Diagnosis

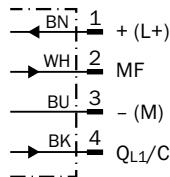
<b>Status information</b>	
Device status	Yes
Quality of teach	Yes
Quality of run	Yes, Contamination display

## Classifications

<b>ECI@ss 5.0</b>	27270902
<b>ECI@ss 5.1.4</b>	27270902
<b>ECI@ss 6.0</b>	27270902
<b>ECI@ss 6.2</b>	27270902
<b>ECI@ss 7.0</b>	27270902
<b>ECI@ss 8.0</b>	27270902
<b>ECI@ss 8.1</b>	27270902
<b>ECI@ss 9.0</b>	27270902
<b>ECI@ss 10.0</b>	27270902
<b>ECI@ss 11.0</b>	27270902
<b>ETIM 5.0</b>	EC002717
<b>ETIM 6.0</b>	EC002717
<b>ETIM 7.0</b>	EC002717
<b>ETIM 8.0</b>	EC002717
<b>UNSPSC 16.0901</b>	39121528

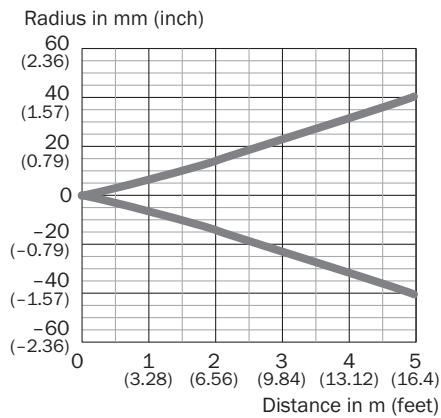
## Connection diagram

Cd-390



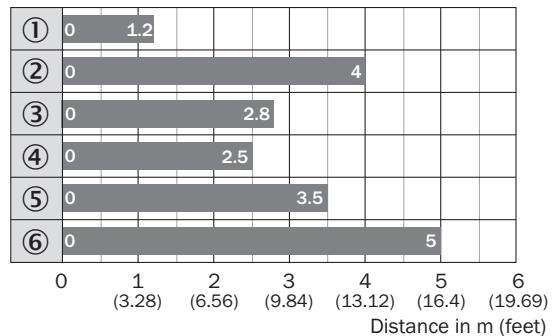
## Light spot size

WLG16P-xxxxx1xx



## Sensing range diagram

WLG16P-xxxxx1xx

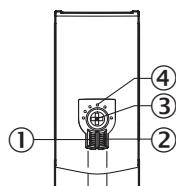


Sensing range

- ① PL10F CHEM reflector
- ② Reflective tape REF-AC1000 (50 x 50 mm)
- ③ PL10FH-1 reflector
- ④ PL10F reflector
- ⑤ Reflector PL20F
- ⑥ Reflector P250F

## Adjustments

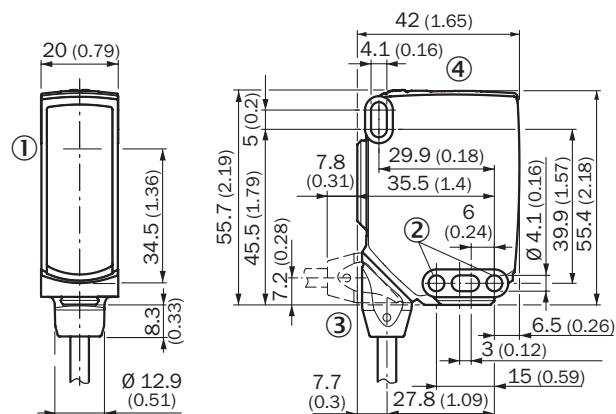
Display and adjustment elements



- ① LED indicator green
- ② LED indicator yellow
- ③ Teach-Turn adjustment
- ④ LED blue

## Dimensional drawing (Dimensions in mm (inch))

WLA16,cable



- ① Center of optical axis
- ② Mounting hole, Ø 4.1 mm
- ③ Connection
- ④ Display and adjustment elements

## Recommended accessories

Other models and accessories → [www.sick.com/W16](http://www.sick.com/W16)

	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
Mounting brackets and plates			
	Universal mounting bracket for reflectors, steel, zinc coated	BEF-WN-REFX	2064574

	<b>Brief description</b>	<b>Type</b>	<b>Part no.</b>
	Adapter for mounting W16 sensors in existing W14-2/W18-3 installations or L25 sensors in existing L28 installations, plastic, fastening screws included	BEF-AP-W16	2095677
<b>Plug connectors and cables</b>			
	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
	Head A: male connector, M12, 4-pin, straight Head B: - Cable: unshielded	STE-1204-G	6009932
<b>Reflectors</b>			
	Fine triple reflector, screw connection, suitable for laser sensors, 52 mm x 62 mm, PMMA/ABS, Screw-on, 2 hole mounting	P250F	5308843

## Recommended services

Additional services → [www.sick.com/W16](http://www.sick.com/W16)

	<b>Type</b>	<b>Part no.</b>
<b>Function Block Factory</b>		
• <b>Description:</b> The Function Block Factory supports common programmable logic controllers (PLCs) from various manufacturers, such as Siemens, Beckhoff, Rockwell Automation and B&R. More information on the FBF can be found <a href="https://fbf.cloud.sick.com">here</a> .	Function Block Factory	On request

## 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)