



WL4SC-3P2232A91  
W4

MINIATURE PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

Type	Part no.
WL4SC-3P2232A91	1067762

The timestamp function can only be used with the IO-Link Master from B&R (model X20(c)DS438A)

Other models and accessories → [www.sick.com/W4](http://www.sick.com/W4)

Detailed technical data

Features

<b>Functional principle</b>		Photoelectric retro-reflective sensor
<b>Functional principle detail</b>		Autocollimation
<b>Sensing range max.</b>		0 m ... 5 m <sup>1)</sup>
<b>Sensing range</b>		0 m ... 3 m <sup>1)</sup>
<b>Polarisation filters</b>		Yes
<b>Emitted beam</b>		
	Light source	PinPoint LED <sup>2)</sup>
	Type of light	Visible red light
	Light spot size (distance)	Ø 45 mm (1.5 m)
<b>Key LED figures</b>		
	Wave length	650 nm
<b>Adjustment</b>		IO-Link, Single teach-in button
<b>Pin 2 configuration</b>		External input, Teach-in input, Sender off input, Detection output, logic output, Device contamination alarm output

<sup>1)</sup> Reflector PL80A.

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

## Safety-related parameters

<b>MTTF<sub>D</sub></b>	1,222 years
<b>DC<sub>avg</sub></b>	0 %

## Communication interface

<b>IO-Link</b>	✓, COM2 (38,4 kBaud)
Data transmission rate	COM2 (38,4 kBaud)
Cycle time	2.3 ms
Process data length	16 Bit
Process data structure	Bit 0 = switching signal Q <sub>L1</sub> Bit 1 = switching signal Q <sub>L2</sub> Bit 2 ... 15 = measuring value
VendorID	26
DeviceID HEX	0x8000DB
DeviceID DEC	8388827

## Electrical data

<b>Supply voltage U<sub>B</sub></b>	10 V DC ... 30 V DC <sup>1)</sup>
<b>Ripple</b>	< 5 V <sub>pp</sub> <sup>2)</sup>
<b>Current consumption</b>	20 mA <sup>3)</sup>
<b>Protection class</b>	III
<b>Digital output</b>	
Type	PNP <sup>4)</sup>
Switching mode	Light/dark switching
Output current I <sub>max.</sub>	≤ 100 mA
Repeatability (response time)	150 μs <sup>5)</sup>
Switching frequency	1,000 Hz
<b>Circuit protection</b>	A <sup>6)</sup> B <sup>7)</sup> C <sup>8)</sup> D <sup>9)</sup>
<b>Response time Q/ on Pin 2</b>	300 μs ... 450 μs <sup>10) 5)</sup>
<b>Switching frequency Q / to pin 2</b>	1,000 Hz <sup>11)</sup>

<sup>1)</sup> Limit values when operated in short-circuit protected network: max. 8 A.

<sup>2)</sup> May not exceed or fall below U<sub>y</sub> tolerances.

<sup>3)</sup> Without load.

<sup>4)</sup> Pin 4: This switching output must not be connected to another output.

<sup>5)</sup> Valid for Q \ on Pin2, if configured with software.

<sup>6)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>7)</sup> B = inputs and output reverse-polarity protected.

<sup>8)</sup> C = interference suppression.

<sup>9)</sup> D = outputs overcurrent and short-circuit protected.

<sup>10)</sup> Signal transit time with resistive load.

<sup>11)</sup> With light / dark ratio 1:1, valid for Q \ on Pin2, if configured with software.

## Mechanical data

<b>Housing</b>	Rectangular
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<b>Design detail</b>	Slim
<b>Dimensions (W x H x D)</b>	12.2 mm x 41.8 mm x 17.3 mm
<b>Connection</b>	Male connector M8, 4-pin
<b>Material</b>	
Housing	Plastic, ABS
Front screen	Plastic, PMMA
<b>Weight</b>	30 g

#### Ambient data

<b>Enclosure rating</b>	IP67 IP66
<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

#### Smart Task

<b>Smart Task name</b>	Timestamp + debouncing
<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>Response time</b>	SIO Direct: 300 µs ... 450 µs <sup>1)</sup> SIO Logic: 550 µs ... 650 µs <sup>2)</sup> IOL: — <sup>3)</sup>
<b>Repeatability</b>	SIO Direct: 150 µs <sup>1)</sup> SIO Logic: 150 µs <sup>2)</sup> IOL: — <sup>3)</sup>
<b>Time stamp accuracy</b>	SIO Direct: — SIO Logic: — IOL: - 90 ... + 90 µs
<b>Min. Time between two process events (switches)</b>	SIO Direct: 450 µs SIO Logic: 450 µs IOL: 500 µs
<b>Time stamp number buffer</b>	SIO Direct: — SIO Logic: — IOL: 8
<b>Max. TimeStamp Range</b>	SIO Direct: — SIO Logic: — IOL: 260 ms
<b>Debounce time max.</b>	SIO Direct: — SIO Logic: 52 ms

<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.

Switching signal		IOL: 52 ms
	Switching signal Q <sub>L1</sub>	Switching output
	Switching signal Q <sub>L2</sub>	Switching output
Measuring value		Timestamp

- 1) 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").
- 2) SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.
- 3) IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

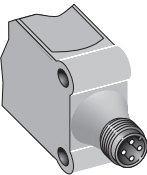
Diagnosis

Device status	Yes
Quality of teach	Yes
Quality of run	Yes, Contamination display

Classifications

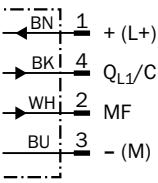
ECLASS 5.0	27270902
ECLASS 5.1.4	27270902
ECLASS 6.0	27270902
ECLASS 6.2	27270902
ECLASS 7.0	27270902
ECLASS 8.0	27270902
ECLASS 8.1	27270902
ECLASS 9.0	27270902
ECLASS 10.0	27270902
ECLASS 11.0	27270902
ECLASS 12.0	27270902
ETIM 5.0	EC002717
ETIM 6.0	EC002717
ETIM 7.0	EC002717
ETIM 8.0	EC002717
UNSPSC 16.0901	39121528

Connection type



Connection diagram

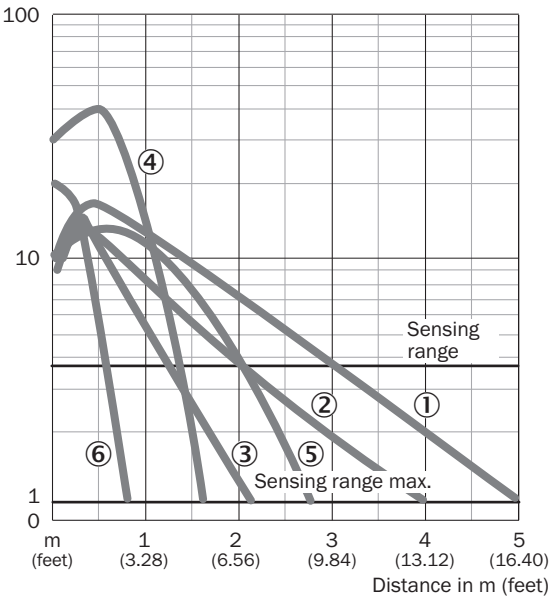
Cd-367



Characteristic curve

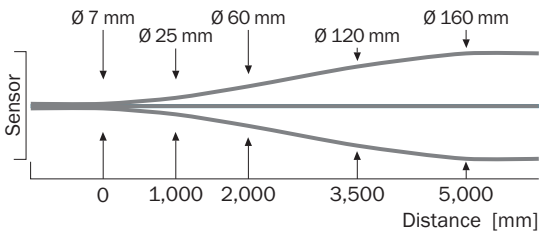
WL4S-3, WLG4S-3, 5 m

Operating reserve



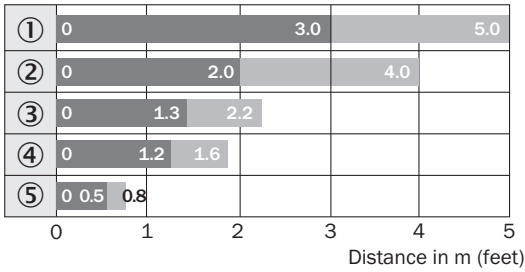
- ① Reflector PL80A
- ② Reflector PL40A
- ③ Reflector PL20A
- ④ PL10F reflector
- ⑤ Reflector P250 CHEM
- ⑥ Reflective tape REF-IRF-56

Light spot size



Sensing range diagram

WL4S-3, WLG4S-3, 5 m

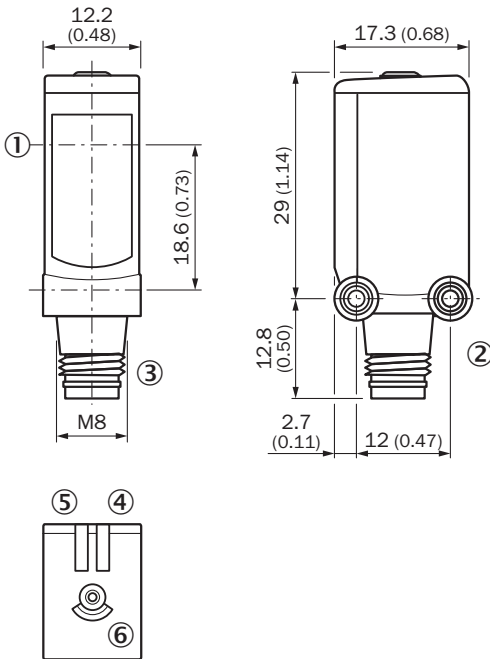


■ Sensing range      ■ Sensing range max.

- ① Reflector PL80A
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Dimensional drawing (Dimensions in mm (inch))






WL4S-3, WLG4S-3, single teach-in button



- ① Center of optical axis
- ② Threaded mounting hole M3
- ③ Connection
- ④ LED indicator green: Supply voltage active
- ⑤ Orange LED indicator: status of received light beam
- ⑥ Teach-in button

### Recommended accessories

Other models and accessories → [www.sick.com/W4](http://www.sick.com/W4)

	Brief description	Type	Part no.
Distributors			
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Male connector, M12, 4-pin, A-coded</li> <li><b>Connection type head B:</b> Female connector, M8, 4-pin, A-coded</li> <li><b>Connection type head C:</b> Female connector, M8, 4-pin, A-coded</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 0.11 m, PVC</li> <li><b>Description:</b> Sensor/actuator cable, Y-distribution, 2 x M8 female connectors, 4-pin, straight, 0.11 m, PVC cable, 1 x M12 male connector, 4-pin, straight, connects a SICK sensor to a SICK Smart sensor; Female connector brassed (A): Auxiliary sensor; Female connector nickel-plated (B): Smart Sensor; Male connector nickel-plated (C): IO-Link master/ PLC</li> <li><b>Note:</b> Slimline T-piece, 2 x M8 female connector + M12 male connector with cable</li> </ul>	SYL-8204-G0M11-X2	6055012
Mounting brackets and plates			
	Mounting bracket for wall mounting, Stainless steel 1.4571, mounting hardware included	BEF-W4-A	2051628
Reflectors			
	Fine triple reflector, screw connection, suitable for laser sensors, 20 mm x 32 mm, PM-MA/ABS, Screw-on, 2 hole mounting	PL10F	5311210
Others			
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M8, 4-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Male connector, M12, 4-pin, straight, A-coded</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 5 m, 4-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Zones with chemicals</li> </ul>	YF8U14-050VA3M2A14	2096609
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M8, 4-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, 4-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Zones with chemicals</li> </ul>	YF8U14-050VA3XLEAX	2095889

### Recommended services

Additional services → [www.sick.com/W4](http://www.sick.com/W4)

	Type	Part no.
Function Block Factory		
<ul style="list-style-type: none"> <li><b>Description:</b> The Function Block Factory supports common programmable logic controllers (PLCs) from various manufacturers, such as Siemens, Beckhoff, Rockwell Automation and B&amp;R. More information on the FBF can be found <a href="https://fbf.cloud.sick.com target='_blank'">here</a>.</li> <li><b>Note:</b> You can configure your function block at <a href="https://fbf.cloud.sick.com target='_blank'">Function Block Factory</a>. As a login please use your SICK ID.</li> </ul>	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)