



## WL9C-3P3432A00

W9

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ

## Ordering information

Type	part no.
WL9C-3P3432A00	1098210

Other models and accessories → [www.sick.com/W9](http://www.sick.com/W9)

## Detailed technical data

## Features

<b>Functional principle</b>	Photoelectric retro-reflective sensor
<b>Functional principle detail</b>	Without reflector minimum distance (autocollimation/coaxial optics)
<b>Dimensions (W x H x D)</b>	12.2 mm x 52.2 mm x 23.6 mm
<b>Housing design (light emission)</b>	Rectangular
<b>Mounting hole</b>	M3
<b>Sensing range max.</b>	0 m ... 5 m <sup>1)</sup>
<b>Sensing range</b>	0 m ... 3 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 45 mm (1.5 m)
<b>Wave length</b>	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>U</sub> = +25 °C.

## Mechanics/electronics

<b>Supply voltage <math>U_B</math></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>	30 mA <sup>3)</sup>
<b>Switching output</b>	PNP <sup>4)</sup> <sup>5)</sup>
<b>Output function</b>	Complementary
<b>Switching mode</b>	Light/dark switching <sup>4)</sup>
<b>Output current <math>I_{max.}</math></b>	≤ 100 mA <sup>6)</sup>
<b>Response time</b>	< 0.5 ms <sup>7)</sup>
<b>Response time Q/ on Pin 2</b>	300 µs ... 450 µs <sup>7) 8)</sup>
<b>Switching frequency</b>	1,000 Hz <sup>9)</sup>
<b>Switching frequency Q / to pin 2</b>	≤ 1,000 Hz <sup>10)</sup>
<b>Connection type</b>	Cable with M12 male connector, 4-pin, 120 mm
<b>Circuit protection</b>	A <sup>11)</sup> B <sup>12)</sup> C <sup>13)</sup>
<b>Protection class</b>	III
<b>Weight</b>	13 g
<b>Polarisation filter</b>	✓
<b>Housing material</b>	Plastic, VISTAL®
<b>Optics material</b>	Plastic, PMMA
<b>Enclosure rating</b>	IP66 IP67 IP69K
<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
<b>Repeatability Q/ on Pin 2:</b>	150 µs <sup>8)</sup>

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

<sup>2)</sup> May not fall below or exceed  $U_V$  tolerances.

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

<sup>4)</sup> Q = light switching.

<sup>5)</sup> Pin 4: This switching output must not be connected to another output.

<sup>6)</sup> At and above  $T_u$  50 °C, a max. load current of  $I_{max.} = 50$  mA is permitted.

<sup>7)</sup> Signal transit time with resistive load.

<sup>8)</sup> Valid for Q \ on Pin2, if configured with software.

<sup>9)</sup> With light/dark ratio 1:1.

<sup>10)</sup> With light / dark ratio 1:1, valid for Q \ on Pin2, if configured with software.

<sup>11)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>12)</sup> B = inputs and output reverse-polarity protected.

<sup>13)</sup> C = interference suppression.

## Safety-related parameters

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

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>	0x8000D6
<b>DeviceID DEC</b>	8388822

## Smart Task

<b>Smart Task name</b>	Base logics
<b>Logic function</b>	Direct AND OR WINDOW Hysteresis
<b>Timer function</b>	Deactivated Switch-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> SIO Logic: 1000 Hz <sup>2)</sup> IOL: 900 Hz <sup>3)</sup>
<b>Response time</b>	SIO Direct: 300 µs ... 450 µs <sup>1)</sup> SIO Logic: 500 µs ... 600 µs <sup>2)</sup> IOL: 500 µs ... 900 µs <sup>3)</sup>
<b>Repeatability</b>	SIO Direct: 150 µs <sup>1)</sup> SIO Logic: 150 µs <sup>2)</sup> IOL: 400 µs <sup>3)</sup>
<b>Switching signal</b>	Switching signal Q <sub>L1</sub> Output type (dependant on the adjusted threshold) Switching signal Q <sub>L2</sub> Output type (dependant on the adjusted threshold)

<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.

## Diagnosis

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

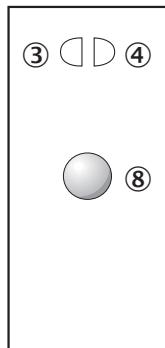
## Certificates

<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>ECOLAB certificate</b>	✓
<b>cULus certificate</b>	✓
<b>IO-Link</b>	✓
<b>Photobiological safety (DIN EN 62471) certificate</b>	✓

## Classifications

<b>ECLASS 5.0</b>	27270902
<b>ECLASS 5.1.4</b>	27270902
<b>ECLASS 6.0</b>	27270902
<b>ECLASS 6.2</b>	27270902
<b>ECLASS 7.0</b>	27270902
<b>ECLASS 8.0</b>	27270902
<b>ECLASS 8.1</b>	27270902
<b>ECLASS 9.0</b>	27270902
<b>ECLASS 10.0</b>	27270902
<b>ECLASS 11.0</b>	27270902
<b>ECLASS 12.0</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

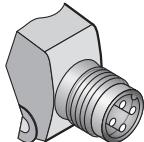
## Adjustments Single teach-in button



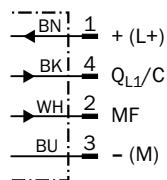
③ LED indicator yellow: Status of received light beam

- ④ LED indicator green: power on
- ⑧ Teach-in button

### Connection type

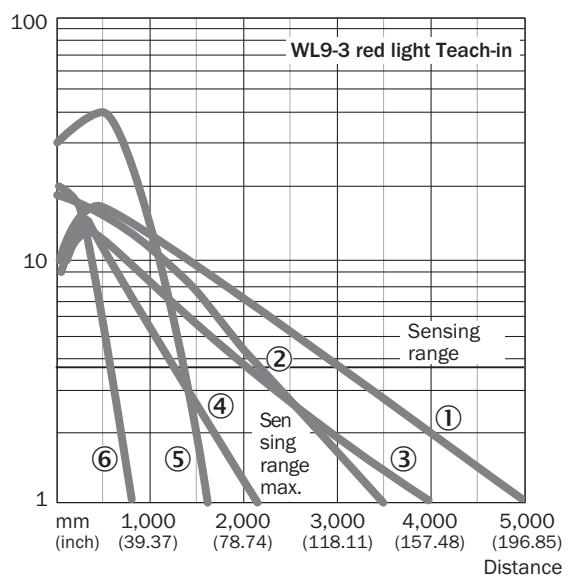


### Connection diagram Cd-367



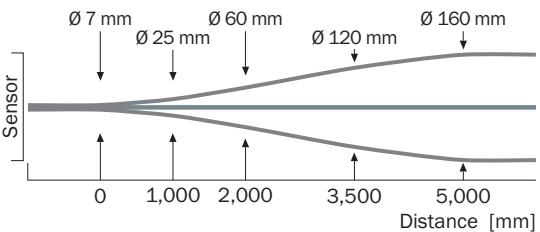
### Characteristic curve WL9-3, red light, 5 m

Function reserve

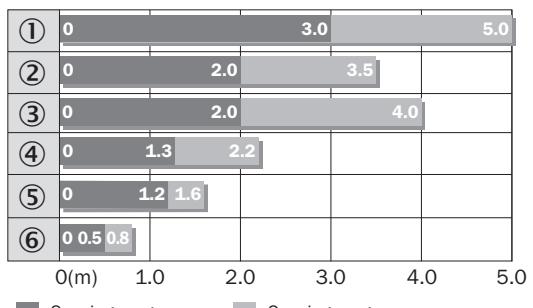


- ① Reflector PL80A
- ② Reflector P250
- ③ Reflector PL40A
- ④ Reflector PL20A
- ⑤ PL10F reflector
- ⑥ Reflective tape REF-IRF-56

Light spot size WL9-3, red light, 5 m



Sensing range diagram WL9-3, red light, 5 m



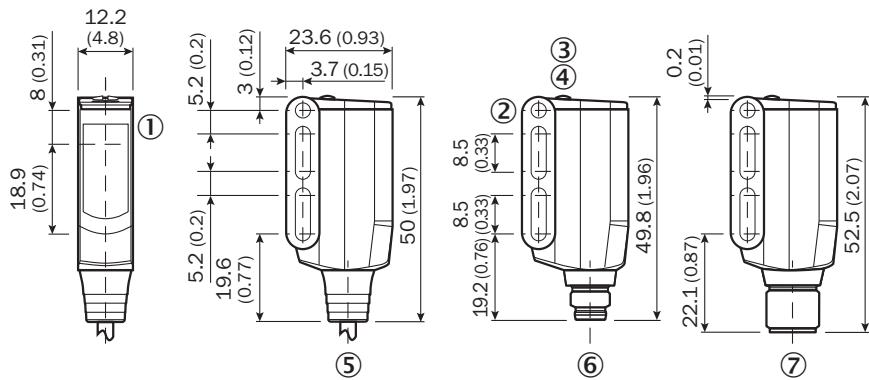
0(m) 1.0 2.0 3.0 4.0 5.0

Sensing range

Sensing range max.

- ① Reflector PL80A
- ② Reflector P250F
- ③ Reflector PL40A
- ④ Reflector PL20F
- ⑤ PL10F reflector
- ⑥ Reflective tape REF-IRF-56

Dimensional drawing WL9-3, WSE9-3



Dimensions in mm (inch)

- ① Sender and receiver optical axis center
- ② Mounting hole M3 (Ø 3.1 mm)
- ③ LED indicator yellow: Status of received light beam
- ④ LED indicator green: power on
- ⑤ Connecting cable or connector
- ⑥ male connector M8, 4-pin
- ⑦ male connector M12, 4-pin

## Recommended accessories

Other models and accessories → [www.sick.com/W9](http://www.sick.com/W9)

Brief description	Type	part no.	
Mounting systems			
	<ul style="list-style-type: none"> <li><b>Description:</b> Mounting bracket</li> <li><b>Material:</b> Steel</li> <li><b>Details:</b> Steel, zinc coated</li> <li><b>Items supplied:</b> Mounting hardware included</li> <li><b>Suitable for:</b> W9-3</li> </ul>	BEF-WN-W9-2	2022855
reflectors and optics			
	<ul style="list-style-type: none"> <li><b>Description:</b> Rectangular, screw connection</li> <li><b>Dimensions:</b> 40 mm 60 mm</li> <li><b>Ambient operating temperature:</b> -30 °C ... +65 °C</li> </ul>	PL40A	1012720
connectors and cables			
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 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, Uncontaminated zones</li> </ul>	YF2A14-050VB3XLEAX	2096235
	<ul style="list-style-type: none"> <li><b>Connection type head A:</b> Male connector, M12, 4-pin, straight, A-coded</li> <li><b>Description:</b> Unshielded</li> <li><b>Connection systems:</b> Screw-type terminals</li> <li><b>Permitted cross-section:</b> ≤ 0.75 mm<sup>2</sup></li> </ul>	STE-1204-G	6009932

## 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)