

# WL9GC-3P3432A00

W9

SMALL PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



## Ordering information

| Type            | Part no. |
|-----------------|----------|
| WL9GC-3P3432A00 | 1125678  |

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>     | Autocollimation   |
| <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<br>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 |
| <b>AutoAdapt</b>                       | ✓   |
| <b>Special feature</b>                 | Detecting transparent objects   |
| <b>Special applications</b>            | Detecting transparent objects   |

<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>                     | 20 mA <sup>3)</sup>  |
| <b>Switching output</b>                        | PNP <sup>4) 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>Switching frequency</b>                     | 1,000 Hz <sup>8)</sup>                                     |
| <b>Connection type</b>                         | Cable with M12 male connector, 4-pin, 168 mm <sup>9)</sup> |
| <b>Circuit protection</b>                      | A <sup>10)</sup><br>B <sup>11)</sup><br>C <sup>12)</sup>   |
| <b>Protection class</b>                        | III  |
| <b>Weight</b>                                  | 80 g   |
| <b>Polarisation filter</b>                     | ✓  |
| <b>Housing material</b>                        | Plastic, VISTAL®   |
| <b>Optics material</b>                         | Plastic, PMMA  |
| <b>Enclosure rating</b>                        | IP66<br>IP67<br>IP69K                                      |
| <b>Special feature</b>                         | Detecting transparent objects                              |
| <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 <math>Q/</math> on Pin 2:</b> | 150 μs <sup>13)</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  $U_v$  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 any other 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> With light/dark ratio 1:1.

<sup>9)</sup> Do not bend below 0 °C.

<sup>10)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>11)</sup> B = inputs and output reverse-polarity protected.

<sup>12)</sup> C = interference suppression.

<sup>13)</sup> Valid for Q \ on Pin2, if configured with software.

## Safety-related parameters

|                         |             |
|-------------------------|-------------|
| <b>MTTF<sub>D</sub></b> | 1,222 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><br>Bit 1 = switching signal Q <sub>L2</sub><br>Bit 2 ... 15 = empty |
| <b>VendorID</b>                       | 26   |
| <b>DeviceID HEX</b>                   | 0x8000DD   |
| <b>DeviceID DEC</b>                   | 8388829  |

### Smart Task

|                            |   |
|----------------------------|---|
| <b>Smart Task name</b>     | Base logics   |
| <b>Logic function</b>      | Direct<br>AND<br>OR<br>WINDOW<br>Hysteresis   |
| <b>Timer function</b>      | Deactivated<br>On delay<br>Off delay<br>ON and OFF delay<br>Impulse (one shot)  |
| <b>Inverter</b>            | Yes   |
| <b>Switching frequency</b> | SIO Direct: 1000 Hz <sup>1)</sup><br>SIO Logic: 1000 Hz <sup>2)</sup><br>IOL: 900 Hz <sup>3)</sup>                                |
| <b>Response time</b>       | SIO Direct: 300 µs ... 450 µs <sup>1)</sup><br>SIO Logic: 500 µs ... 600 µs <sup>2)</sup><br>IOL: 500 µs ... 900 µs <sup>3)</sup> |
| <b>Repeatability</b>       | SIO Direct: 150 µs <sup>1)</sup><br>SIO Logic: 150 µs <sup>2)</sup><br>IOL: 400 µs <sup>3)</sup>                                  |
| <b>Switching signal</b>    | Switching signal Q <sub>L1</sub> Switching output<br>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").

<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 |

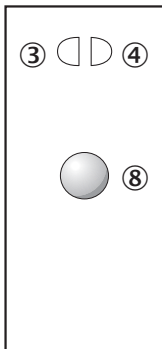
### Classifications

|                     |          |
|---------------------|----------|
| <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 |

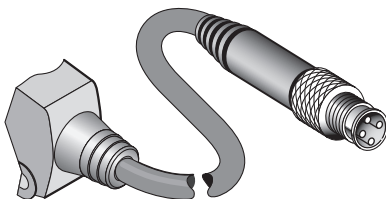
## Adjustments

Single teach-in button



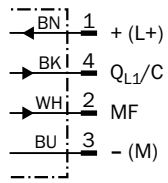
- ③ LED indicator yellow: Status of received light beam
- ④ LED indicator green: power on
- ⑧ Teach-in button

## Connection type



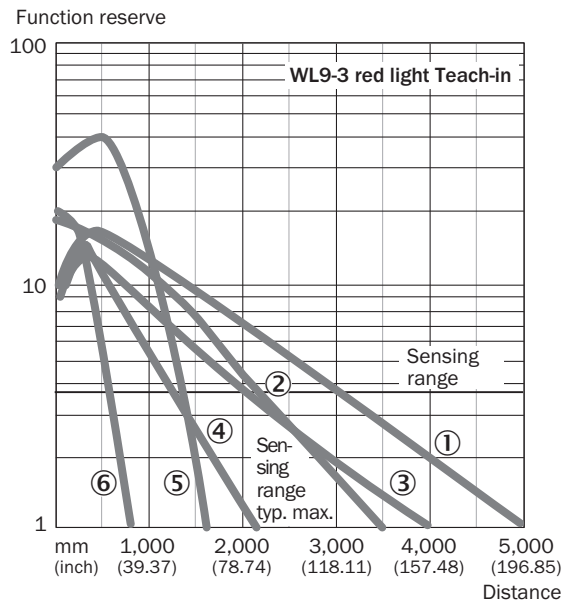
### Connection diagram

Cd-367



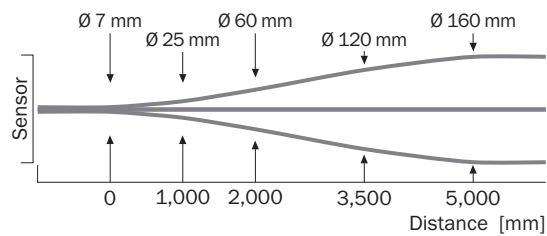
### Characteristic curve

WL9G-3



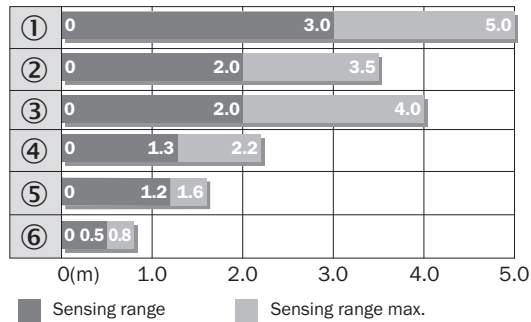
- ① Reflector PL80A
- ② Reflector P250F
- ③ Reflector PL40A
- ④ Reflector PL20F
- ⑤ PL10F reflector
- ⑥ Reflective tape REF-IRF-56

### Light spot size



## Sensing range diagram

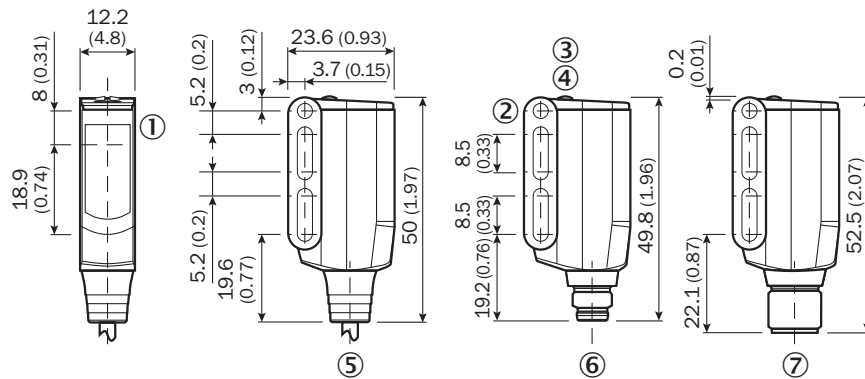
WL9G-3



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

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





WL9-3, WSE9-3



- 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. |
|---|---|--------------------|----------|
| <b>Mounting brackets and plates</b>   |   |                    |          |
|  | Mounting bracket, steel, zinc coated, mounting hardware included  | BEF-WN-W9-2        | 2022855  |
| <b>Plug connectors and cables</b>   |   |                    |          |
|  | Head A: female connector, M12, 4-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 5 m | YF2A14-050VB3XLEAX | 2096235  |
|  | Head A: male connector, M12, 4-pin, straight<br>Cable: unshielded   | STE-1204-G         | 6009932  |
| <b>Reflectors</b>   |   |                    |          |
|  | Fine triple reflector, screw connection, suitable for laser sensors, 52 mm x 62 mm, PM-MA/ABS, Screw-on, 2 hole mounting              | P250F              | 5308843  |



## 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)