



WLG4SC-3P2232VA00

W4

MINIATURE PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



## Ordering information

| Type              | Part no. |
|-------------------|----------|
| WLG4SC-3P2232VA00 | 1097830  |

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> |                            | Without reflector minimum distance (autocollimation/coaxial optics)                                                 |
| <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>                  |                            | Single teach-in button                                                                                              |
| <b>Special applications</b>        |                            | Hygienic and washdown zones, Detecting transparent objects                                                          |
| <b>Housing design</b>              |                            | Washdown                                                                                                            |
| <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.

|                  |   |
|------------------|---|
| <b>AutoAdapt</b> | ✓ |
|------------------|---|

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

<sup>2)</sup> Average service life: 100,000 h at T<sub>U</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><br>Bit 1 = switching signal Q <sub>L2</sub><br>Bit 2 ... 15 = empty |
| VendorID               | 26                                                                                                           |
| DeviceID HEX           | 0x8001CF                                                                                                     |
| DeviceID DEC           | 8389071                                                                                                      |

## Electronics

|                                     |                                   |
|-------------------------------------|-----------------------------------|
| <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>          | 30 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                          |
| Response time                       | < 0.5 ms <sup>5)</sup>            |
| Repeatability (response time)       | 150 μs                            |
| Switching frequency                 | 1,000 Hz <sup>6)</sup>            |
| <b>Attenuation along light beam</b> | > 8 %                             |
| <b>Output function</b>              | Complementary                     |
| <b>Circuit protection</b>           | A, B, C <sup>7)</sup> 8) 9)       |

<sup>1)</sup> Limit values, reverse-polarity protected, operation in short-circuit protected network: max. 8 A.

<sup>2)</sup> May not fall below or exceed 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> Signal transit time with resistive load.

<sup>6)</sup> With light/dark ratio 1:1.

<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> Valid for Q \ on Pin2, if configured with software.

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

|                                         |                                     |
|-----------------------------------------|-------------------------------------|
| <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, reverse-polarity protected, operation 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> Pin 4: This switching output must not be connected to another output.

<sup>5)</sup> Signal transit time with resistive load.

<sup>6)</sup> With light/dark ratio 1:1.

<sup>7)</sup> A =  $V_S$  connections reverse-polarity protected.

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

## Mechanics

|                               |                                           |
|-------------------------------|-------------------------------------------|
| <b>Housing</b>                | Rectangular                               |
| <b>Design detail</b>          | Slim                                      |
| <b>Dimensions (W x H x D)</b> | 15.25 mm x 44.9 mm x 22.2 mm              |
| <b>Connection</b>             | Male connector M8, 4-pin <sup>1)</sup>    |
| <b>Material</b>               | Housing                                   |
|                               | Metal, Stainless steel V4A (1.4404, 316L) |
|                               | Front screen                              |
|                               | Plastic, PMMA                             |
| <b>Weight</b>                 | 40 g                                      |

<sup>1)</sup> Max. tightening torque: 0.6 Nm.

## Ambient data

|                                      |                                                      |
|--------------------------------------|------------------------------------------------------|
| <b>Enclosure rating</b>              | IP66<br>IP67<br>IP68<br>IP69K <sup>1)</sup>          |
| <b>Ambient operating temperature</b> | -30 °C ... +70 °C <sup>2)</sup><br>-30 °C ... +60 °C |
| <b>Ambient temperature, storage</b>  | -30 °C ... +75 °C                                    |
| <b>UL File No.</b>                   | NRKH.E181493 & NRKH7.E181493                         |

<sup>1)</sup> Only in case of correctly mounted IP69K connecting cable.

<sup>2)</sup> At  $UV \leq 24$  V and  $IA < 30$  mA.

## 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>Switch-on delay<br>Off delay |

<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.

|                                  |                                                                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
|                                  | ON and OFF delay<br>Impulse (one shot)                                                                                            |
| <b>Inverter</b>                  | Yes                                                                                                                               |
| <b>Switching frequency</b>       | SIO Direct: 1000 Hz<br>SIO Logic: 1000 Hz<br>IOL: 900 Hz                                                                          |
| <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                                                                                                                  |
| 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

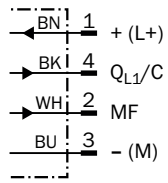
|                         |                            |
|-------------------------|----------------------------|
| <b>Device status</b>    | Yes                        |
| <b>Quality of teach</b> | Yes                        |
| <b>Quality of run</b>   | Yes, Contamination display |

## 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 |

## Connection diagram

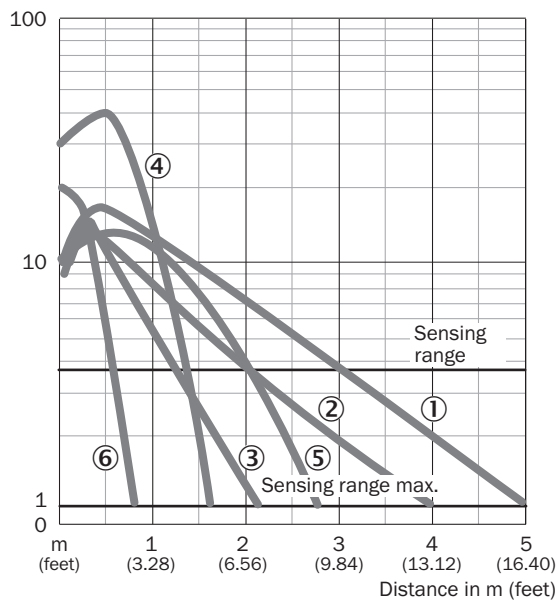
Cd-367



## Characteristic curve

WL4S-3, WLG4S-3, 5 m

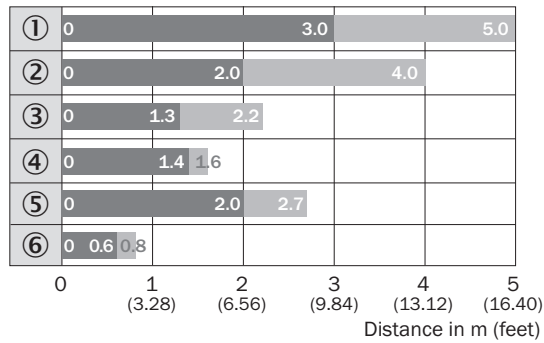
Operating reserve



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

## Sensing range diagram

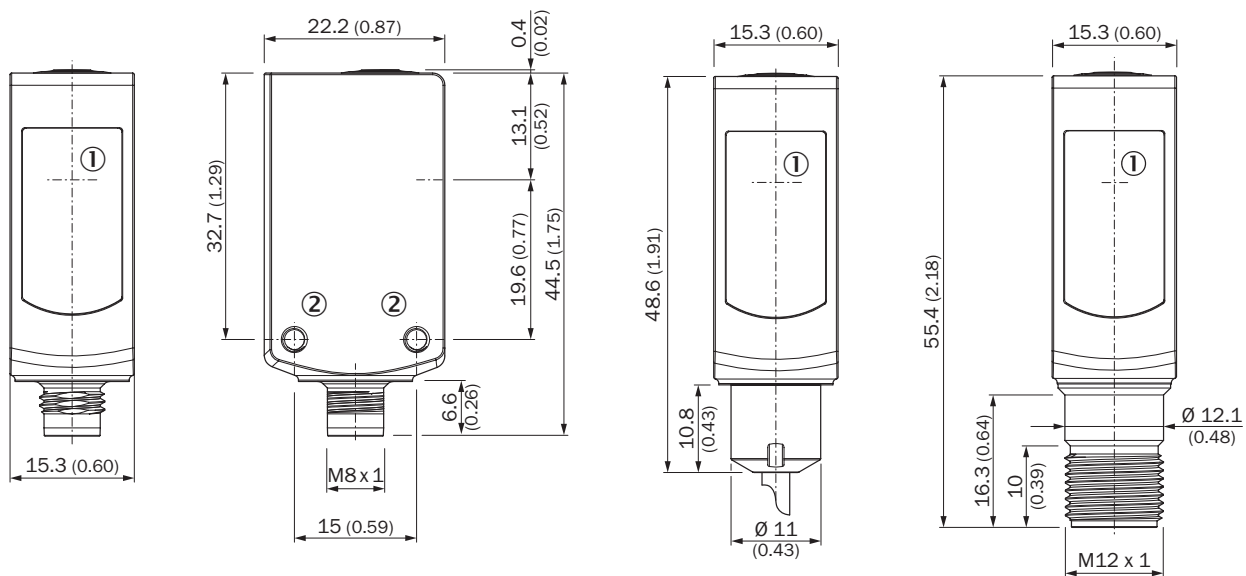
WL4S-3, WLG4S-3, 5 m



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

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

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



- 
- ① Center of optical axis
  - ② Threaded mounting hole M3
  - ③ LED indicator yellow: Status of received light beam
  - ④ LED indicator green: Supply voltage active
  - ⑤ Teach-in button
- 7.9 (0.31) distance to teach-in button

## Recommended accessories

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

|                                                                                   | Brief description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Type            | Part no. |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------|
| Mounting brackets and plates                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |          |
|  | <ul style="list-style-type: none"> <li>• <b>Description:</b> Mounting bracket for floor mounting</li> <li>• <b>Material:</b> Stainless steel</li> <li>• <b>Details:</b> Stainless steel 1.4571</li> <li>• <b>Items supplied:</b> Mounting hardware included</li> <li>• <b>Suitable for:</b> W4S, W4F, W4S</li> </ul>                                                                                                                                                                                                                                                                                                                                                                       | BEF-W4-B        | 2051630  |
| Others                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |          |
|  | <ul style="list-style-type: none"> <li>• <b>Description:</b> Chemically resistant, screw connection</li> <li>• <b>Dimensions:</b> 52 mm 61 mm</li> <li>• <b>Ambient operating temperature:</b> -20 °C ... +140 °C</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                               | P250 CHEM       | 5321097  |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M8, 4-pin, straight</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>Connection systems:</b> Flying leads</li> <li>• <b>Note:</b> This product is generally resistant to chemical cleaning agents (see ECOLAB). Please do not use cleaning agents of any other Kind., Not resistant against lactic acid &amp; hydrogen peroxide (H2O2)</li> <li>• <b>Application:</b> Hygienic and washdown zones</li> </ul> | DOL-0804-G05MNI | 6059194  |

## 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 is an engineering tool for creating device and environment-specific function blocks that enable IO-Link sensors to be integrated into programmable logic controllers. The Function Block Factory supports common programmable logic controllers (PLCs) of various manufacturers such as Siemens, Beckhoff, Rockwell Automation B&amp;R and more. More information on the FBF can be found <a href="https://fbf.cloud.sick.com" target="_blank">here</a>.</li> <li>• <b>Provision:</b> Customers can obtain access to the Function Block Factory and the license via <a href="https://fbf.cloud.sick.com" target="_blank">https://fbf.cloud.sick.com</a>.</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)