



# WL12GC-3P2472A00

## W12G

SMALL PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

| Type             | Part no. |
|------------------|----------|
| WL12GC-3P2472A00 | 1054087  |

Other models and accessories → [www.sick.com/W12G](http://www.sick.com/W12G)

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 ... 4 m                                                                                                         |
| <b>Sensing range</b>               |                            | 0 m ... 4 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 25 mm (1.5 m)                                                                                                     |
| <b>Key LED figures</b>             |                            |                                                                                                                     |
|                                    | Wave length                | 660 nm                                                                                                              |
| <b>Adjustment</b>                  |                            | IO-Link, Single teach-in button <sup>3)</sup>                                                                       |
| <b>Special applications</b>        |                            | Detecting transparent objects                                                                                       |
| <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.

<sup>3)</sup> Mode I, 10 % attenuation.

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

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

<sup>2)</sup> Average service life: 100,000 h at  $T_U = +25\text{ °C}$ .

<sup>3)</sup> Mode I, 10 % attenuation.

### Safety-related parameters

|                                     |           |
|-------------------------------------|-----------|
| <b>MTTF<sub>D</sub></b>             | 891 years |
| <b>DC<sub>avg</sub></b>             | 0 %       |
| <b>T<sub>M</sub> (mission time)</b> | 20 years  |

### 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           | 0x8000F2                                                                                                     |
| DeviceID DEC           | 8388850                                                                                                      |

### 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>          | 30 mA <sup>3)</sup>                  |
| <b>Protection class</b>             | III                                  |
| <b>Digital output</b>               |                                      |
| Type                                | PNP <sup>4)</sup>                    |
| Switching mode                      | Light/dark switching                 |
| Signal voltage PNP HIGH/LOW         | Approx. V <sub>S</sub> – 2.5 V / 0 V |
| Output current I <sub>max.</sub>    | ≤ 100 mA                             |
| Response time                       | <sup>5)</sup>                        |
| Repeatability (response time)       | 100 μs <sup>6)</sup>                 |
| Switching frequency                 | 1,500 Hz <sup>7)</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> Signal transit time with resistive load.

<sup>6)</sup> Valid for Q \ on Pin2, if configured with software.

<sup>7)</sup> With light/dark ratio 1:1.

<sup>8)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>9)</sup> B = inputs and output reverse-polarity protected.

<sup>10)</sup> C = interference suppression.

<sup>11)</sup> D = outputs overcurrent and short-circuit protected.

<sup>12)</sup> With light / dark ratio 1:1, valid for Q \ on Pin2, if configured with software.

|                                  |                                                                            |
|----------------------------------|----------------------------------------------------------------------------|
| Attenuation along light beam     | > 8 %                                                                      |
| Circuit protection               | A <sup>8)</sup><br>B <sup>9)</sup><br>C <sup>10)</sup><br>D <sup>11)</sup> |
| Response time Q/ on Pin 2        | 200 µs ... 300 µs <sup>5)</sup> <sup>6)</sup>                              |
| Switching frequency Q / to pin 2 | ≤ 1,500 Hz <sup>12)</sup>                                                  |
| Special feature                  | Detecting transparent objects                                              |

- 1) Limit values when operated in short-circuit protected network: max. 8 A.  
2) May not exceed or fall below U<sub>V</sub> tolerances.  
3) Without load.  
4) Pin 4: This switching output must not be connected to another output.  
5) Signal transit time with resistive load.  
6) Valid for Q \ on Pin2, if configured with software.  
7) With light/dark ratio 1:1.  
8) A = V<sub>S</sub> connections reverse-polarity protected.  
9) B = inputs and output reverse-polarity protected.  
10) C = interference suppression.  
11) D = outputs overcurrent and short-circuit protected.  
12) With light / dark ratio 1:1, valid for Q \ on Pin2, if configured with software.

Mechanical data

|                        |                           |
|------------------------|---------------------------|
| Housing                | Rectangular               |
| Dimensions (W x H x D) | 15.5 mm x 48.5 mm x 42 mm |
| Connection             | Male connector M12, 4-pin |
| Material               |                           |
| Housing                | Metal, zinc diecast       |
| Front screen           | Plastic, PMMA             |
| Weight                 | 120 g                     |

Ambient data

|                               |                              |
|-------------------------------|------------------------------|
| Enclosure rating              | IP66<br>IP67                 |
| Ambient operating temperature | −40 °C ... +60 °C            |
| Ambient temperature, storage  | −40 °C ... +75 °C            |
| UL File No.                   | NRKH.E181493 & NRKH7.E181493 |

Smart Task

|                 |                                                          |
|-----------------|----------------------------------------------------------|
| Smart Task name | Base logics                                              |
| Logic function  | Direct<br>AND<br>OR<br>WINDOW<br>Hysteresis              |
| Timer function  | Deactivated<br>On delay<br>Off delay<br>ON and OFF delay |

- 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.

|                                  |                                                                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
|                                  | Impulse (one shot)                                                                                                                |
| <b>Inverter</b>                  | Yes                                                                                                                               |
| <b>Switching frequency</b>       | SIO Direct: 1500 Hz <sup>1)</sup><br>SIO Logic: 1500 Hz <sup>2)</sup><br>IOL: 1100 Hz <sup>3)</sup>                               |
| <b>Response time</b>             | SIO Direct: 200 µs ... 300 µs <sup>1)</sup><br>SIO Logic: 400 µs ... 500 µs <sup>2)</sup><br>IOL: 400 µs ... 750 µs <sup>3)</sup> |
| <b>Repeatability</b>             | SIO Direct: 100 µs <sup>1)</sup><br>SIO Logic: 100 µs <sup>2)</sup><br>IOL: 350 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

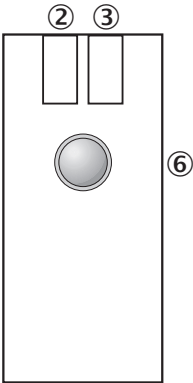
|                         |                            |
|-------------------------|----------------------------|
| <b>Device status</b>    | Yes                        |
| <b>Quality of teach</b> | Yes                        |
| <b>Quality of run</b>   | Yes, Contamination display |

## 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 |

Adjustments

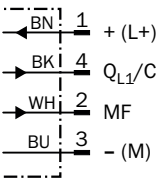
Teach-in



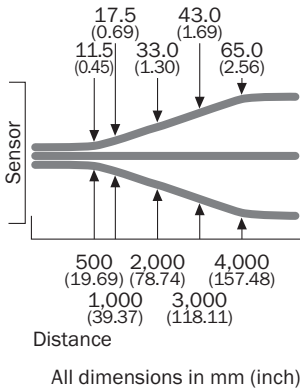
- ② LED indicator yellow: Status of received light beam
- ③ Green LED indicator: power on, teach-in mode I Blue LED indicator: teach-in mode II
- ⑥ Single teach-in button, Function 1: teach-in sensitivity on reflector, Function 2: change operation/teach-in mode

Connection diagram

Cd-367

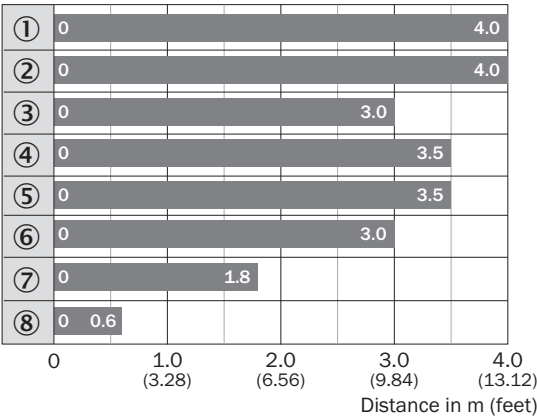


Light spot size



Sensing range diagram

WL12G-3



- Sensing range max.
- ①

 Reflector PL80A
- ②

 Reflector C110A
- ③

 Reflector P250F
- ④

 Reflector PL50A
- ⑤

 Reflector PL40A
- ⑥

 Reflector PL30A
- ⑦

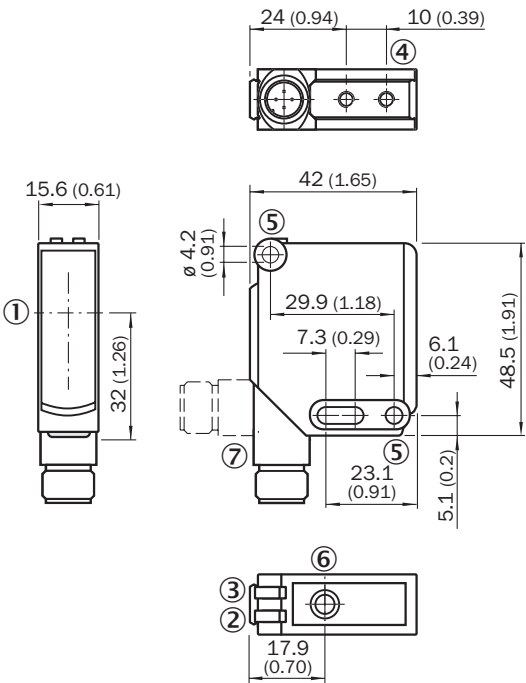
 Reflector PL20A
- ⑧

 Reflective tape REF-IRF-56

Functions

| Teach-In-Modus für Objekte / Teach-in mode for objects | Lichtdämpfung / Light attenuation | Objekttyp / Object type                                | Teach-In-Zeit / Teach-in time | Ext. Teach-In über Leitung / Ext. cable teach-in | Anzeige-LED / LED indicator |
|--------------------------------------------------------|-----------------------------------|--------------------------------------------------------|-------------------------------|--------------------------------------------------|-----------------------------|
| I                                                      | 10 %                              | PET-Flasche / Folie / Glas / PET-bottle / Foil / glass | 1 ... 5 s                     | 30 ... 100 ms                                    | grün / green                |
| II                                                     | 18 %                              | Farbglasflaschen / Colored glass bottles               | 5 ... 10 s                    | 100 ... 200 ms                                   | blau / blue                 |

Dimensional drawing (Dimensions in mm (inch))



- ① Optical axis
- ② LED indicator yellow: Status of received light beam
- ③ LED indicator green: Supply voltage active
- ④ M4 threaded mounting hole, 4 mm deep
- ⑤ Mounting hole, Ø 4.2 mm
- ⑥ Sensitivity setting: single teach-in button
- ⑦ Connection

Recommended accessories

Other models and accessories → [www.sick.com/W12G](http://www.sick.com/W12G)

|                                                                                     | Brief description                                                                                                                                                                                                                                                                                                                                                                                      | Type               | Part no. |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
| Mounting brackets and plates                                                        |                                                                                                                                                                                                                                                                                                                                                                                                        |                    |          |
|  | Universal mounting bracket for reflectors, steel, zinc coated                                                                                                                                                                                                                                                                                                                                          | BEF-WN-REFX        | 2064574  |
| Plug 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</li></ul> | YF2A14-050VB3XLEAX | 2096235  |
|  | <ul style="list-style-type: none"><li>• <b>Connection type head A:</b> Male connector, M12, 4-pin, straight</li><li>• <b>Description:</b> Unshielded</li><li>• <b>Connection systems:</b> Screw-type terminals</li><li>• <b>Permitted cross-section:</b> ≤ 0.75 mm²</li></ul>                                                                                                                          | STE-1204-G         | 6009932  |



|                                                                                   | Brief description                                                                                                        | Type  | Part no. |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------|----------|
| Reflectors                                                                        |                                                                                                                          |       |          |
|  | Fine triple reflector, screw connection, suitable for laser sensors, 52 mm x 62 mm, PM-MA/ABS, Screw-on, 2 hole mounting | P250F | 5308843  |

## Recommended services

Additional services → [www.sick.com/W12G](https://www.sick.com/W12G)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 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)