



# WL12G-3B2531

## W12G

SMALL PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

| Type         | Part no. |
|--------------|----------|
| WL12G-3B2531 | 1041456  |

**Included in delivery:** BEF-KH-W12 (2)

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 <sup>1)</sup>             |
| <b>Polarisation filters</b>        | Yes                                   |
| <b>Emitted beam</b>                |                                       |
| Light source                       | 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                        | 640 nm                                |
| <b>Adjustment</b>                  | Potentiometer, 11 turns               |
| <b>Angle of dispersion</b>         | Approx. 1.5°                          |
| <b>Special applications</b>        | Detecting transparent objects         |
| <b>Items supplied</b>              | 2 x clamps BEF-KH-W12, incl. screws   |

<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> | 823 years |
| <b>DC<sub>avg</sub></b> | 0 %       |

## Electrical data

|  |   |
|--|---|
| <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>Protection class</b>                | III   |
| <b>Digital output</b>                  |   |
| Type                                   | PNP<br>NPN  |
| Signal voltage PNP HIGH/LOW            | > U <sub>v</sub> - 3 V / ca. 0 V                      |
| Output current I <sub>max.</sub>       | ≤ 100 mA  |
| Response time                          | ≤ 330 μs <sup>4)</sup>                                |
| Switching frequency                    | 1,500 Hz <sup>5)</sup>                                |
| <b>Switching mode</b>                  | Light switching<br>Dark switching                     |
| <b>Switching mode selector</b>         | Selectable via L/D control cable                      |
| <b>Circuit protection</b>              | A <sup>6)</sup><br>C <sup>7)</sup><br>D <sup>8)</sup> |
| <b>Special feature</b>                 | Detecting transparent objects                         |

<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>v</sub> tolerances.

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

<sup>4)</sup> Signal transit time with resistive load.

<sup>5)</sup> With light/dark ratio 1:1.

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

<sup>7)</sup> C = interference suppression.

<sup>8)</sup> D = outputs overcurrent and short-circuit protected.

## Mechanical data

|                               |                           |
|-------------------------------|---------------------------|
| <b>Housing</b>                | Rectangular               |
| <b>Dimensions (W x H x D)</b> | 15.6 mm x 48.5 mm x 42 mm |
| <b>Connection</b>             | Male connector M12, 5-pin |
| <b>Material</b>               |                           |
| Housing                       | Metal, zinc diecast       |
| Front screen                  | Plastic, PMMA             |
| <b>Weight</b>                 | 120 g                     |

## Ambient data

|                                      |                              |
|--------------------------------------|------------------------------|
| <b>Enclosure rating</b>              | IP66<br>IP67<br>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 & NRKH7.E181493 |

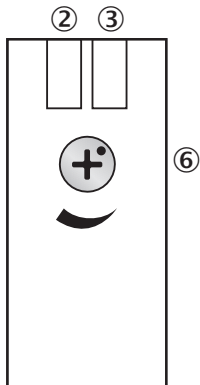
## Classifications

|                   |          |
|-------------------|----------|
| <b>eCl@ss 5.0</b> | 27270902 |
|-------------------|----------|

|                       |          |
|-----------------------|----------|
| <b>eCl@ss 5.1.4</b>   | 27270902 |
| <b>eCl@ss 6.0</b>     | 27270902 |
| <b>eCl@ss 6.2</b>     | 27270902 |
| <b>eCl@ss 7.0</b>     | 27270902 |
| <b>eCl@ss 8.0</b>     | 27270902 |
| <b>eCl@ss 8.1</b>     | 27270902 |
| <b>eCl@ss 9.0</b>     | 27270902 |
| <b>eCl@ss 10.0</b>    | 27270902 |
| <b>eCl@ss 11.0</b>    | 27270902 |
| <b>eCl@ss 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 |

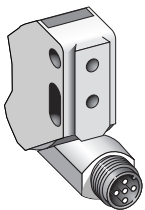
### Adjustments

WL12-3, WSE12-3



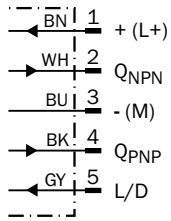
- ② LED indicator yellow: Status of received light beam
- ③ LED indicator green: Supply voltage active
- ⑥ Sensitivity control: potentiometer

### Connection type

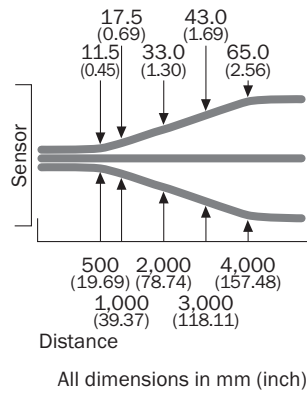


### Connection diagram

Cd-145

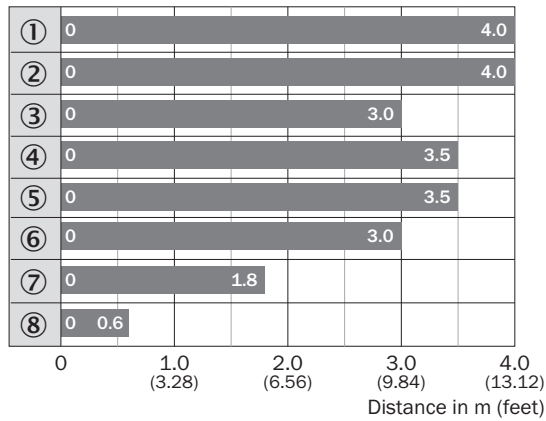


### Light spot size



### Sensing range diagram

WL12G-3

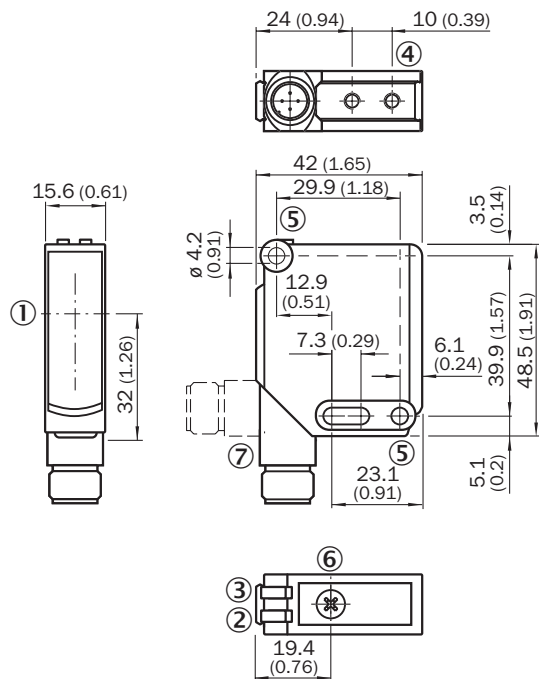


■ Sensing range max.

- 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

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

WL12-3, WSE12-3



- 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,  $\varnothing 4.2$  mm
- ⑥ Sensitivity control: potentiometer
- ⑦ Connection

**Recommended accessories**

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

|                                     | Brief description   | Type               | Part no. |
|-------------------------------------|---|--------------------|----------|
| <b>Mounting brackets and plates</b> |   |                    |          |
|                                     | Universal mounting bracket for reflectors, steel, zinc coated   | BEF-WN-REFX        | 2064574  |
| <b>Plug connectors and cables</b>   |   |                    |          |
|                                     | Head A: female connector, M12, 5-pin, angled, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 2 m | YG2A15-020VB5XLEAX | 2096215  |
| <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)