



# WL12L-2B530P02

W12-2 Laser

SMALL PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

| Type           | Part no. |
|----------------|----------|
| WL12L-2B530P02 | 1059804  |

Other models and accessories → [www.sick.com/W12-2\\_Laser](http://www.sick.com/W12-2_Laser)

Illustration may differ



### 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 ... 530 mm <sup>1)</sup>  |
| <b>Polarisation filters</b>        | Yes   |
| <b>Emitted beam</b>                |   |
| Light source                       | Laser <sup>2)</sup>   |
| Type of light                      | Visible red light   |
| Light spot size (distance)         | Ø 0.8 mm (530 mm)   |
| <b>Key laser figures</b>           |   |
| Normative reference                | EN 60825-1:2014, IEC 60825-1:2007                                   |
| Laser class                        | 2 <sup>3)</sup>   |
| <b>Key LED figures</b>             |   |
| Wave length                        | 650 nm  |
| <b>Special applications</b>        | Detecting small objects, Detection of objects moving at high speeds |
| <b>Items supplied</b>              | P41F reflector  |

<sup>1)</sup> P41F reflector.

<sup>2)</sup> Average service life: 50,000 h at T<sub>U</sub> = +25 °C.

<sup>3)</sup> Pulse length 4 µs, max. pulse power < 5,0 mW.

#### Safety-related parameters

|                                     |           |
|-------------------------------------|-----------|
| <b>MTTF<sub>D</sub></b>             | 404 years |
| <b>DC<sub>avg</sub></b>             | 0 %       |
| <b>T<sub>M</sub> (mission time)</b> | 10 years  |

## 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>             | 55 mA <sup>3)</sup>   |
| <b>Protection class</b>                | III   |
| <b>Digital output</b>                  |   |
| Type                                   | PNPNPN  |
| Switching mode                         | Light/dark switching  |
| Switching mode selector                | Selectable via L/D control cable  |
| Signal voltage PNP HIGH/LOW            | $U_v - < 2.9 \text{ V}, U_v \text{ V} / 0 \text{ V} \leq 1.5 \text{ V}$ |
| Signal voltage NPN HIGH/LOW            | $U_v - < 2.9 \text{ V}, U_v \text{ V} / 0 \text{ V} \leq 1.5 \text{ V}$ |
| Output current $I_{\text{max}}$        | $\leq 100 \text{ mA}$   |
| Response time                          | $\leq 200 \mu\text{s}$ <sup>4)</sup>                                    |
| Switching frequency                    | 2,500 Hz <sup>5)</sup>  |
| <b>Circuit protection</b>              | A <sup>6)</sup><br>C <sup>7)</sup><br>D <sup>8)</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> Signal transit time with resistive load.

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

<sup>6)</sup> A =  $V_S$  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 mm x 49 mm x 41.5 mm   |
| <b>Connection</b>             | Male connector M12, 5-pin |
| <b>Material</b>               |                           |
| Housing                       | Metal                     |
| Front screen                  | Plastic, PMMA             |
| <b>Weight</b>                 | 130 g                     |

## Ambient data

|                                      |                              |
|--------------------------------------|------------------------------|
| <b>Enclosure rating</b>              | IP67<br>IP69K                |
| <b>Ambient operating temperature</b> | -10 °C ... +50 °C            |
| <b>Ambient temperature, storage</b>  | -25 °C ... +75 °C            |
| <b>UL File No.</b>                   | NRKH.E181493 & NRKH7.E181493 |

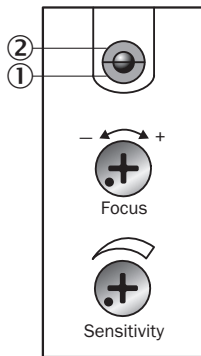
## Classifications

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

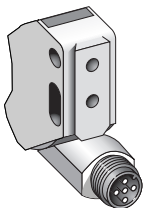
### Adjustments

WL12L-2



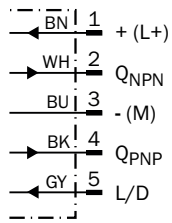
- ① Operating indicator, green
- ② LED reception indicator, yellow
- ⑥ Focal adjustment
- ⑦ Sensitivity control

### Connection type



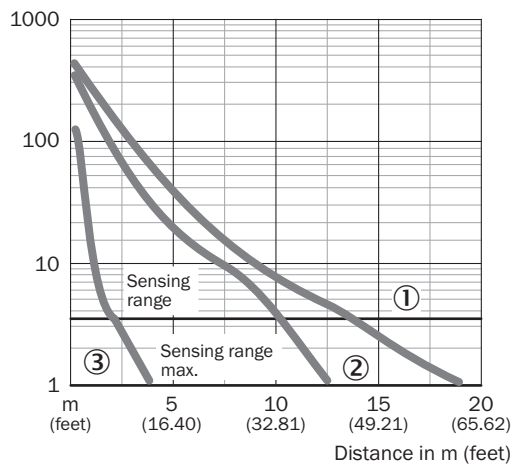
### Connection diagram

Cd-145



### Characteristic curve

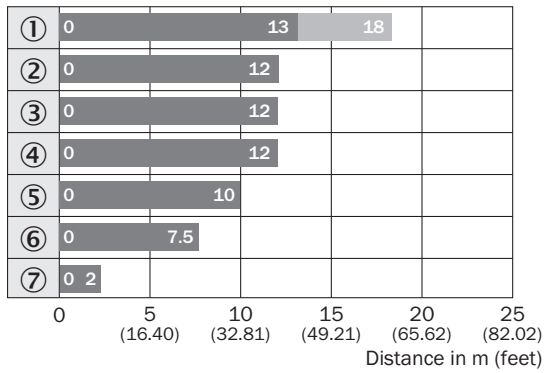
WL12L-2, 18 m



- ① Reflector PL80A
- ② Reflector PL50A
- ③ Reflective tape Diamond Grade

### Sensing range diagram

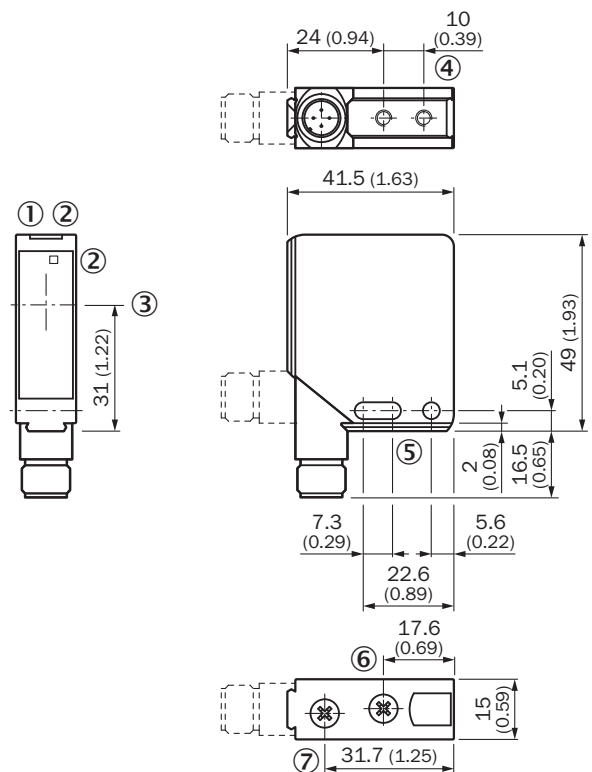
WL12L-2, 18 m



- Sensing range
- Sensing range typ. max.
- ① Reflector PL80A
- ② Reflector PL50A
- ③ Reflector PL40A
- ④ Reflector P250
- ⑤ Reflector PL30A
- ⑥ Reflector PL20A
- ⑦ Reflective tape Diamond Grade

Dimensional drawing (Dimensions in mm (inch))



WL12L-2, WS/WE12L-2





- ① Operating indicator, green
- ② LED reception indicator, yellow
- ③ Center of optical axis
- ④ M4 threaded mounting hole - 4 mm depth
- ⑤ Mounting hole, Ø 4.2 mm
- ⑥ Focal adjustment
- ⑦ Sensitivity control

Recommended accessories

Other models and accessories → [www.sick.com/W12-2\\_Laser](http://www.sick.com/W12-2_Laser)

|   | 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>   |   |                    |          |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-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, 5-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Zones with chemicals</li> </ul> | YF2A15-050VB5XLEAX | 2096240  |

|   | Brief description  | Type       | Part no. |
|---|--|------------|----------|
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 5-pin, straight</li> <li>• <b>Description:</b> Unshielded, Head A: male connector, M12, 5-pin, straight, unshielded, for cable diameter 4 mm ... 6 mm Head B: -</li> <li>• <b>Connection systems:</b> Screw-type terminals</li> <li>• <b>Permitted cross-section:</b> ≤ 0.75 mm<sup>2</sup></li> <li>• <b>Note:</b> For field bus technology</li> </ul> | STE-1205-G | 6022083  |
| Reflectors  |  |            |          |
|  | Rectangular, screw connection, width across flats 48 mm, PMMA/ABS, Screw-on, 2 hole mounting   | PL50A      | 1000132  |



## 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.”

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