



# WS/WE12L-2P410

W12-2 Laser

SMALL PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

| Type           | Part no. |
|----------------|----------|
| WS/WE12L-2P410 | 1018256  |

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

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>                 | Through-beam photoelectric sensor                                   |
| <b>Sensing range max.</b>                   | 0 m ... 10 m  |
| <b>Emitted beam</b>                         |   |
| Light source                                | Laser <sup>1) 2)</sup>  |
| Type of light                               | Visible red light   |
| Light spot size (distance)                  | Ø 1 mm (1 m)  |
| <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>Adjustment</b>                           | Potentiometer   |
| <b>Special applications</b>                 | Detecting small objects, Detection of objects moving at high speeds |
| <b>Items supplied</b>                       | 2 x clamps BEF-KH-W12, incl. screws                                 |
| <b>Part number of individual components</b> | 2021726 WE12L-2P430 2022025 WS12L-2D410                             |

<sup>1)</sup> Average service life: 50,000 h at T<sub>U</sub> = +25 °C.

<sup>2)</sup> Parallel light beam.

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

#### Safety-related parameters

|                         |           |
|-------------------------|-----------|
| <b>MTTF<sub>D</sub></b> | 283 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, sender</b>     | ≤ 45 mA <sup>3)</sup>                                    |
| <b>Current consumption, receiver</b>   | ≤ 15 mA <sup>3)</sup>                                    |
| <b>Protection class</b>                | III  |
| <b>Digital output</b>                  |  |
| Type                                   | Push-pull: PNP/NPN <sup>4)</sup>                         |
| Switching mode                         | Light/dark switching                                     |
| Signal voltage PNP HIGH/LOW            | U <sub>v</sub> - < 2.9 V, U <sub>v</sub> V / 0 V ≤ 1.5 V |
| Signal voltage NPN HIGH/LOW            | U <sub>v</sub> - < 2.9 V, U <sub>v</sub> V / 0 V ≤ 1.5 V |
| Output current I <sub>max</sub>        | ≤ 100 mA   |
| Response time                          | ≤ 200 μs <sup>5)</sup>                                   |
| Switching frequency                    | 2,500 Hz <sup>6)</sup>                                   |
| <b>Output function</b>                 | Complementary  |
| <b>Circuit protection</b>              | A <sup>7)</sup><br>C <sup>8)</sup><br>D <sup>9)</sup>    |
| <b>Test input sender off</b>           | TE to 0 V  |

<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> Pin 4 and pin 2: 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> C = interference suppression.

<sup>9)</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, 4-pin |
| <b>Material</b>               |                           |
| Housing                       | Metal                     |
| Front screen                  | Plastic, PMMA             |
| <b>Weight</b>                 | 260 g                     |

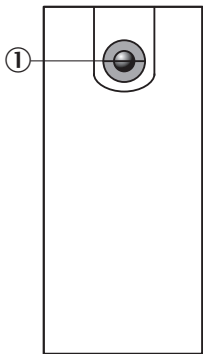
## Ambient data

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

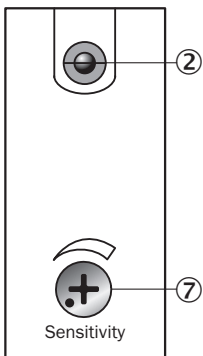
### Classifications

|                       |          |
|-----------------------|----------|
| <b>ECLASS 5.0</b>     | 27270901 |
| <b>ECLASS 5.1.4</b>   | 27270901 |
| <b>ECLASS 6.0</b>     | 27270901 |
| <b>ECLASS 6.2</b>     | 27270901 |
| <b>ECLASS 7.0</b>     | 27270901 |
| <b>ECLASS 8.0</b>     | 27270901 |
| <b>ECLASS 8.1</b>     | 27270901 |
| <b>ECLASS 9.0</b>     | 27270901 |
| <b>ECLASS 10.0</b>    | 27270901 |
| <b>ECLASS 11.0</b>    | 27270901 |
| <b>ECLASS 12.0</b>    | 27270901 |
| <b>ETIM 5.0</b>       | EC002716 |
| <b>ETIM 6.0</b>       | EC002716 |
| <b>ETIM 7.0</b>       | EC002716 |
| <b>ETIM 8.0</b>       | EC002716 |
| <b>UNSPSC 16.0901</b> | 39121528 |

### Adjustments



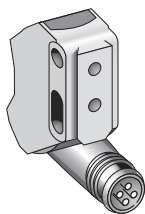
① Status indicator (WS, top only)



② LED signal strength indicator (WE)

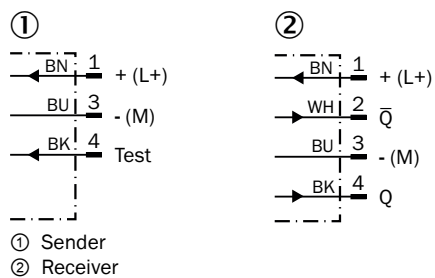
⑦ Sensitivity adjustment (WE)

### Connection type



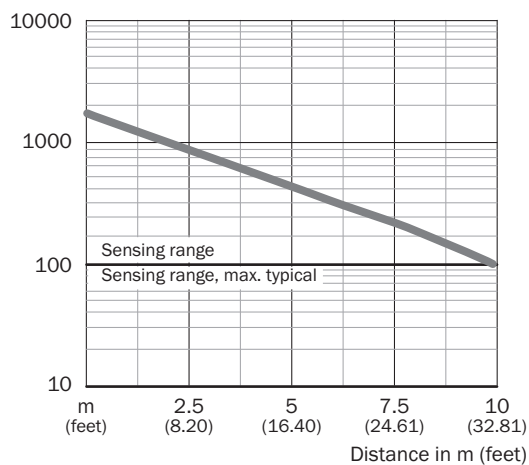
### Connection diagram

Cd-077



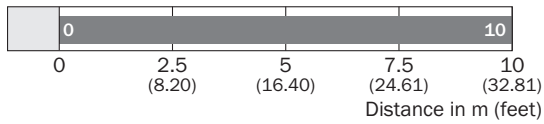
### Characteristic curve

WS/WE12L-2, 10 m



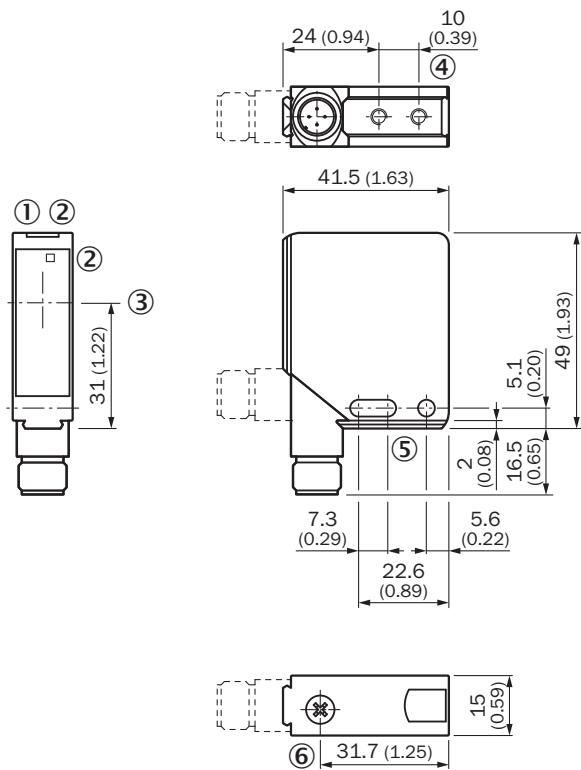
### Sensing range diagram

WS/WE12L-2, 10 m



■ Sensing range/sensing range typ. max.



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



- 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 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. |
|---|---|--------------------|----------|
| 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 mm<sup>2</sup></li> </ul>   | STE-1204-G         | 6009932  |

## 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)