



# WL12L-2B520

W12-2 Laser

SMALL PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	Part no.
WL12L-2B520	1018253

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

### 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 ... 15 m <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 (300 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>Adjustment</b>	Potentiometer
<b>Special features</b>	Focusable from 150 mm to 450 mm
<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

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

<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>	448 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>	55 mA <sup>3)</sup>
<b>Protection class</b>	III
<b>Digital output</b>	
Type	PNPNPN <sup>4) 5)</sup>
Switching mode	Light switching, Dark switching <sup>4) 5)</sup>
Switching mode selector	Selectable via L/D control cable
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> < 1,5 V / U <sub>v</sub> < 2,9 V
Output current I <sub>max.</sub>	≤ 100 mA
Response time	≤ 200 μs <sup>6)</sup>
Switching frequency	2,500 Hz <sup>7)</sup>
<b>Circuit protection</b>	A <sup>8)</sup> C <sup>9)</sup> D <sup>10)</sup>

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) 0 V or not connected, light switching.

5) U<sub>v</sub>, dark switching.

6) Signal transit time with resistive load.

7) With light/dark ratio 1:1.

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

9) C = interference suppression.

10) 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 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

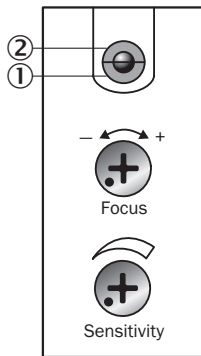
## Classifications

<b>ECLASS 5.0</b>	27270902
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<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

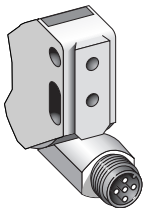
### Adjustments

WL12L-2



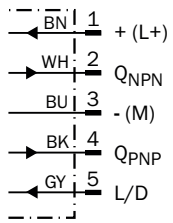
- ① Operating indicator, green
- ② LED reception indicator, yellow
- ③ Focal adjustment
- ④ Sensitivity control

### Connection type



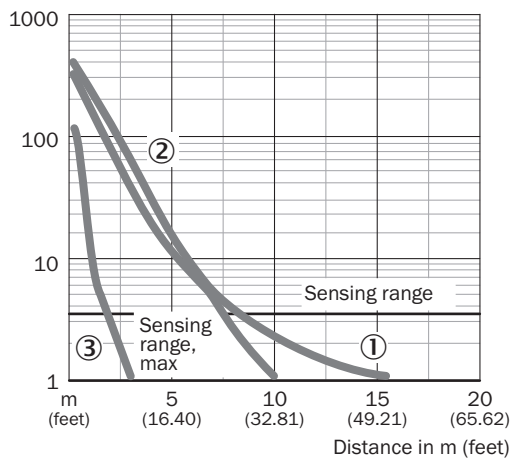
### Connection diagram

Cd-145



### Characteristic curve

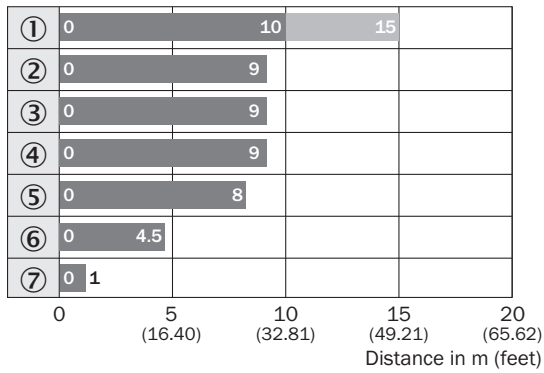
WL12L-2, 15 m



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

### Sensing range diagram

WL12L-2, 15 m

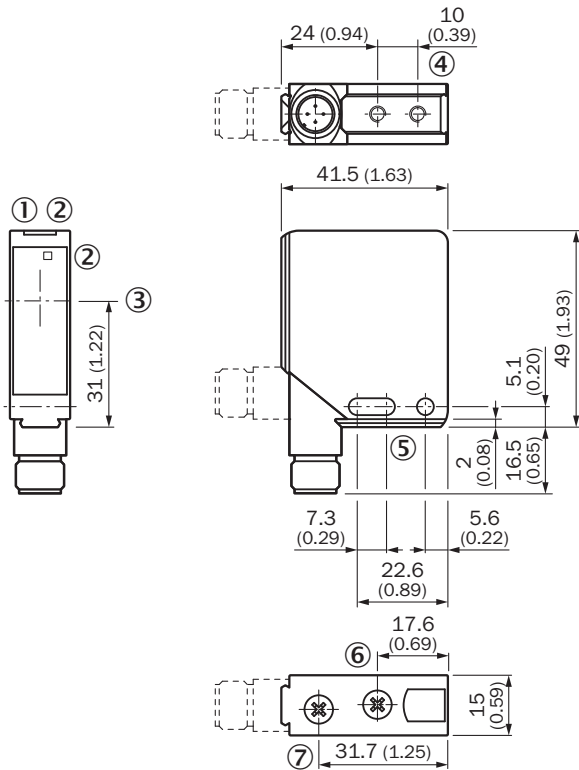


■ Sensing range      ■ Sensing range typ. max.

- 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.”

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)