



# WL12-3P1731

## W12-3

SMALL PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	Part no.
WL12-3P1731	1041438

**Included in delivery:** BEF-KH-W12 (1)

Other models and accessories → [www.sick.com/W12-3](http://www.sick.com/W12-3)

### Detailed technical data

#### Features

<b>Functional principle</b>	Photoelectric retro-reflective sensor						
<b>Functional principle detail</b>	Without reflector minimum distance (autocollimation/coaxial optics)						
<b>Sensing range max.</b>	0 m ... 7 m <sup>1)</sup>						
<b>Sensing range</b>	0 m ... 5 m <sup>1)</sup>						
<b>Polarisation filters</b>	Yes						
<b>Emitted beam</b>	<table border="0"> <tr> <td>Light source</td> <td>LED <sup>2)</sup></td> </tr> <tr> <td>Type of light</td> <td>Visible red light</td> </tr> <tr> <td>Light spot size (distance)</td> <td>Ø 100 mm (3 m)</td> </tr> </table>	Light source	LED <sup>2)</sup>	Type of light	Visible red light	Light spot size (distance)	Ø 100 mm (3 m)
Light source	LED <sup>2)</sup>						
Type of light	Visible red light						
Light spot size (distance)	Ø 100 mm (3 m)						
<b>Key LED figures</b>	<table border="0"> <tr> <td>Wave length</td> <td>640 nm</td> </tr> </table>	Wave length	640 nm				
Wave length	640 nm						
<b>Adjustment</b>	Potentiometer, 5 turns						
<b>Angle of dispersion</b>	Approx. 1.5°						
<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>J</sub> = +25 °C.

#### Safety-related parameters

<b>MTTF<sub>D</sub></b>	1,543 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
Switching mode	Light/dark switching
Signal voltage PNP HIGH/LOW	> $U_V - 2,5 \text{ V}$ / ca. 0 V
Output current $I_{\max}$	≤ 100 mA
Response time	≤ 330 μs <sup>4)</sup>
Switching frequency	1,500 Hz <sup>5)</sup>
<b>Output function</b>	Complementary
<b>Circuit protection</b>	A <sup>6)</sup> C <sup>7)</sup> D <sup>8)</sup>

<sup>1)</sup> Limit values when operated in short-circuit protected network: max. 8 A.

<sup>2)</sup> May not fall below or exceed  $U_V$  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>	15.6 mm x 48.5 mm x 42 mm
<b>Connection</b>	Cable, 4-wire, 3 m <sup>1)</sup>
<b>Connection detail</b>	
Length of cable (L)	3 m <sup>1)</sup>
<b>Material</b>	
Housing	Metal
Front screen	Plastic, PMMA
Cable	Plastic, PVC
<b>Weight</b>	250 g

<sup>1)</sup> Do not bend below 0 °C.

## Ambient data

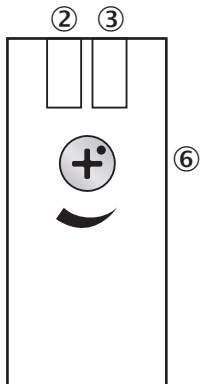
<b>Enclosure rating</b>	IP66 IP67 IP69K
<b>Ambient operating temperature</b>	-40 °C ... +60 °C
<b>Ambient temperature, storage</b>	-40 °C ... +75 °C
<b>UL File No.</b>	NRKH.E181493 & NRKH7.E181493

### Classifications

<b>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

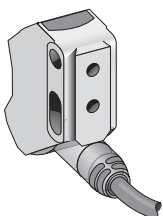
### Adjustments

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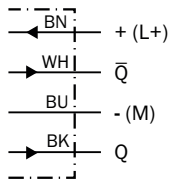
- ② LED indicator yellow: Status of received light beam
- ③ LED indicator green: Supply voltage active
- ⑥ Sensitivity control: potentiometer

### Connection type



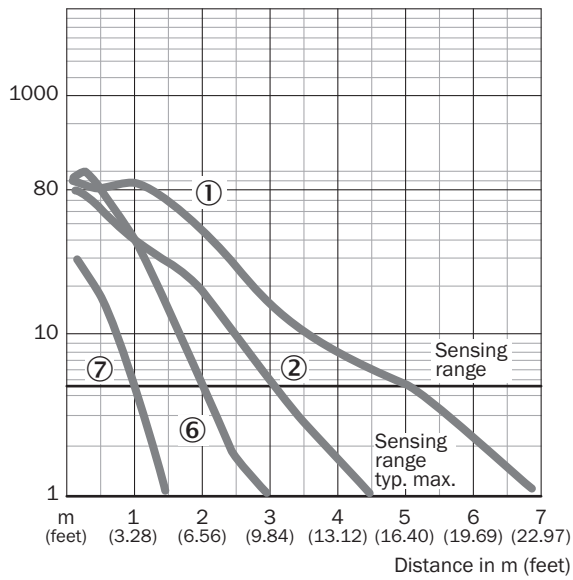
### Connection diagram

Cd-094



### Characteristic curve

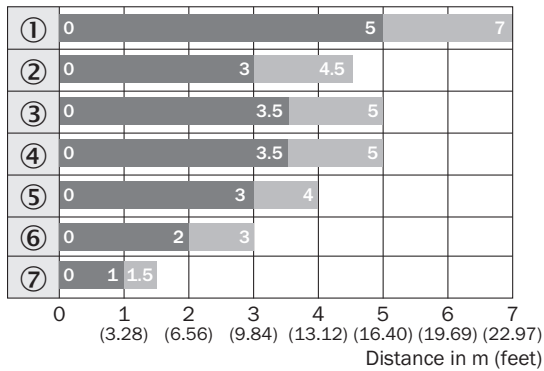
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- ① Reflector PL80A
- ② Reflector C110A
- ⑥ Reflector PL20A
- ⑦ Reflective tape

### Sensing range diagram

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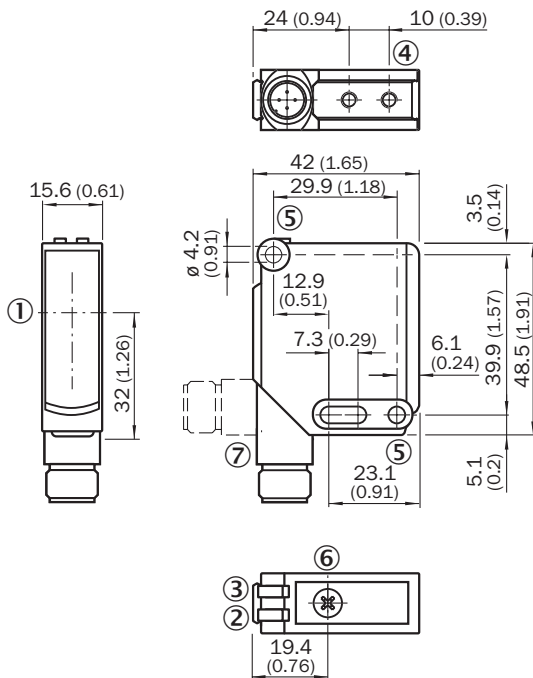


■ Sensing range      ■ Sensing range typ. max.

- ① Reflector PL80A
- ② Reflector C110A
- ③ Reflector PL50A
- ④ Reflector PL40A
- ⑤ Reflector PL30A
- ⑥ Reflector PL20A
- ⑦ Reflective tape Diamond Grade

### 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/W12-3](http://www.sick.com/W12-3)

	Brief description	Type	Part no.
Mounting brackets and plates			
	Universal mounting bracket for reflectors, steel, zinc coated	BEF-WN-REFX	2064574
Reflectors			
	Rectangular, screw connection, 18 mm x 60 mm, PMMA/ABS, Screw-on, 2 hole mounting	PL20A	1012719
Others			
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 4-pin, straight, A-coded</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)