



# WS/WE12L-2P431

W12

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

Type	part no.
WS/WE12L-2P431	1047960

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

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

Illustration may differ



### Detailed technical data

#### Features

<b>Functional principle</b>	Through-beam photoelectric sensor
<b>Sensing range max.</b>	0 m ... 80 m
<b>Emitted beam</b>	
Light source	Laser <sup>1)</sup>
Type of light	Visible red light
Light spot size (distance)	Ø 150 mm (60 m)
<b>Key laser figures</b>	
Laser class	1 <sup>2) 3)</sup>
<b>Key LED figures</b>	
Wave length	650 nm
<b>Adjustment</b>	Potentiometer
<b>Special features</b>	Laser protection class 1
<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>	2051073 WS12L-2D431 2051074 WE12L-2P431

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

<sup>2)</sup> Pulse length 4 µs, max. pulse power < 5,0 mW.

<sup>3)</sup> Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

#### Safety-related parameters

<b>MTTF<sub>D</sub></b>	440 years
<b>DC<sub>avg</sub></b>	0 %

## Electronics

<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	PNP
Output current I <sub>max.</sub>	≤ 100 mA
Response time	≤ 500 μs <sup>4)</sup>
Switching frequency	1,000 Hz <sup>5)</sup>
<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<sub>y</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.

## Mechanics

<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 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

## Certificates

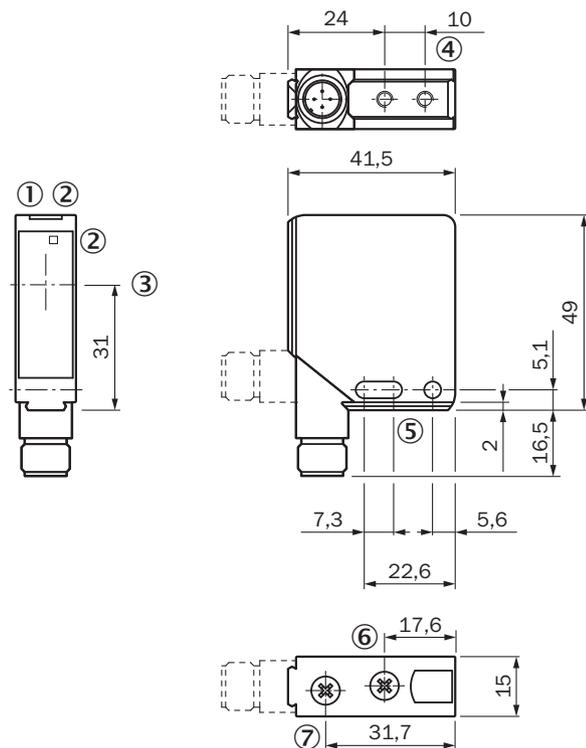
<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>Moroccan declaration of conformity</b>	✓
<b>China RoHS</b>	✓

<b>cULus certificate</b>	✓
<b>Laser safety (IEC 60825-1) certificate</b>	✓

### 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

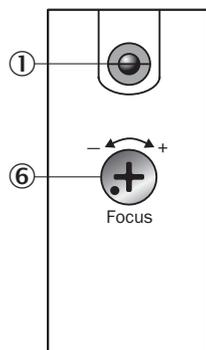
### Dimensional drawing WL12L-2, WS/WE12L-2



Dimensions in mm (inch)

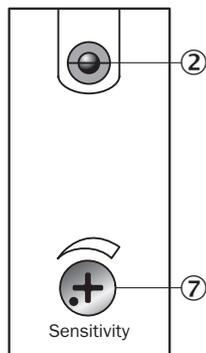
- ① Operating indicator, green
- ② LED reception indicator, yellow
- ③ Center of optical axis
- ④ M4 threaded mounting hole - 4 mm depth
- ⑤ Mounting hole,  $\varnothing$  4.2 mm
- ⑥ Focal adjustment
- ⑦ sensitivity control

### Adjustments WS/WE12L-2



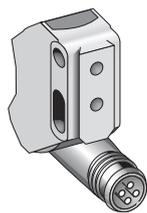
- ① status indicator (WS, top only)
- ⑥ Focal adjustment (WS)

### Adjustments

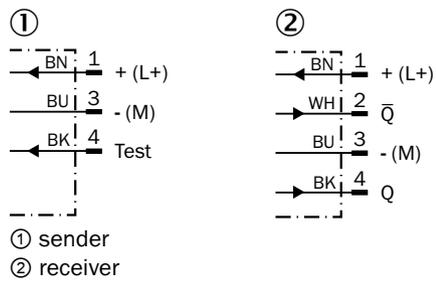


- ② LED signal strength indicator (WE)
- ⑦ Sensitivity adjustment (WE)

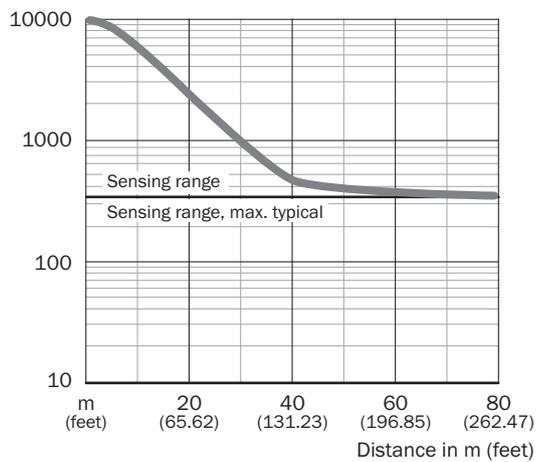
### Connection type



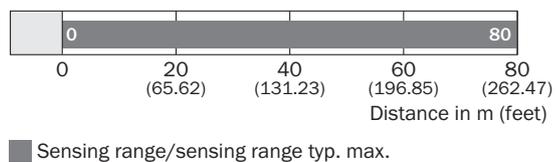
Connection diagram Cd-077



Characteristic curve WS/WE12L-2, 80 m



Sensing range diagram WS/WE12L-2, 80 m



## Recommended accessories

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

	Brief description	Type	part no.
<b>Mounting systems</b>			
	<ul style="list-style-type: none"> <li><b>Description:</b> Mounting bracket, large</li> <li><b>Material:</b> Stainless steel</li> <li><b>Details:</b> Stainless steel</li> <li><b>Items supplied:</b> Mounting hardware included</li> <li><b>Suitable for:</b> W11-2, W12-3, W16</li> </ul>	BEF-WG-W12	2013942
	<ul style="list-style-type: none"> <li><b>Description:</b> Plate N11N for universal clamp bracket</li> <li><b>Material:</b> Stainless steel</li> <li><b>Details:</b> Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp)</li> <li><b>Items supplied:</b> Universal clamp (5322627), mounting hardware</li> <li><b>Usable for:</b> DeltaPac, Glare, WTD20E</li> </ul>	BEF-KHS-N11N	2071081
<b>connectors and cables</b>			
	<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> Uncontaminated zones, Zones with chemicals</li> </ul>	YF2A14-050VB3XLEAX	2096235
	<ul style="list-style-type: none"> <li><b>Description:</b> Unshielded</li> <li><b>Connection type head A:</b> Male connector, M12, 4-pin, straight, A-coded</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
	<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, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A14-050UB3XLEAX	2095608

## 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)