



# WS/WE12L-2P410S02

## W12

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	part no.
WS/WE12L-2P410S02	1028481

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

### 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 0.5 mm (2 m)
<b>Key laser figures</b>	
Laser class	2 <sup>2)</sup> <sup>3)</sup>
<b>Key LED figures</b>	
Wave length	650 nm
<b>Adjustment</b>	Potentiometer
<b>Special features</b>	Vibration-resistant design
<b>Special applications</b>	Detecting small objects, Detection of objects moving at high speeds
<b>Part number of individual components</b>	2021726 WE12L-2P430 2034794 WS12L-2D410S02

<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.

## Electronics

<b>Supply voltage <math>U_B</math></b>	10 V DC ... 30 V DC <sup>1)</sup>
<b>Ripple</b>	$< 5 V_{pp}$ <sup>2)</sup>
<b>Current consumption, sender</b>	$\leq 45 \text{ mA}$ <sup>3)</sup>
<b>Current consumption, receiver</b>	$\leq 15 \text{ mA}$ <sup>3)</sup>
<b>Protection class</b>	III
<b>Digital output</b>	
Type	PNP
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 $I_{max}$	$\leq 100 \text{ mA}$
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> 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.

## 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>	$-10 \text{ }^\circ\text{C} \dots +50 \text{ }^\circ\text{C}$
<b>Ambient temperature, storage</b>	$-25 \text{ }^\circ\text{C} \dots +75 \text{ }^\circ\text{C}$
<b>UL File No.</b>	NRKH.E181493 & NRKH7.E181493

## Classifications

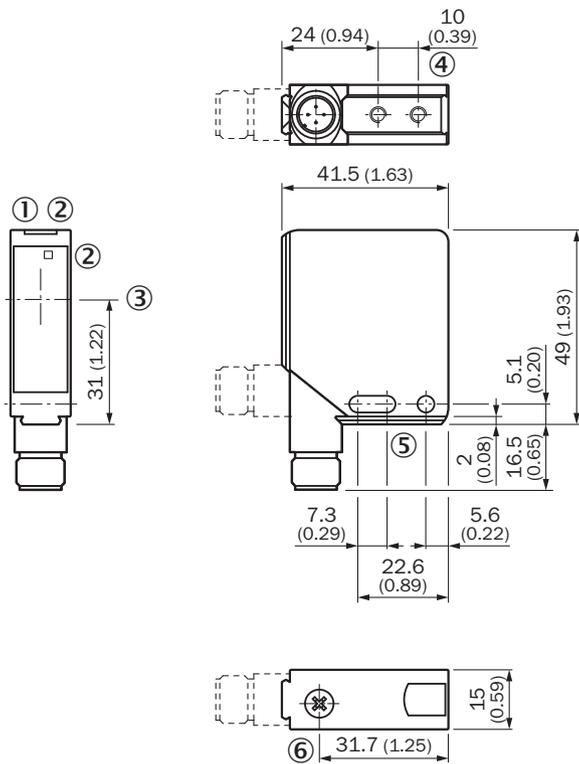
<b>ECLASS 5.0</b>	27270901
<b>ECLASS 5.1.4</b>	27270901
<b>ECLASS 6.0</b>	27270901
<b>ECLASS 6.2</b>	27270901

<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

## 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>	✓

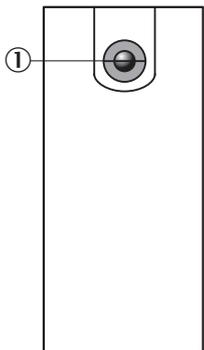
## Dimensional drawing



Dimensions in mm (inch)

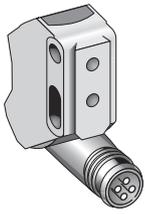
- ① Operating indicator, green
- ② LED reception indicator, yellow
- ③ Center of optical axis
- ④ M4 threaded mounting hole – 4 mm depth
- ⑤ Mounting hole, Ø 4.2 mm
- ⑥ sensitivity control

## Adjustments

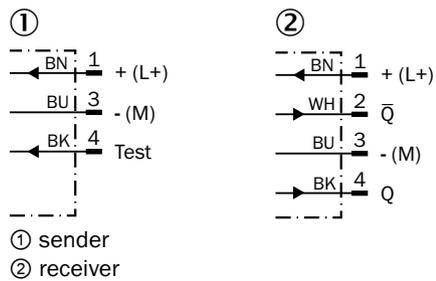


- ① status indicator (WS, top only)

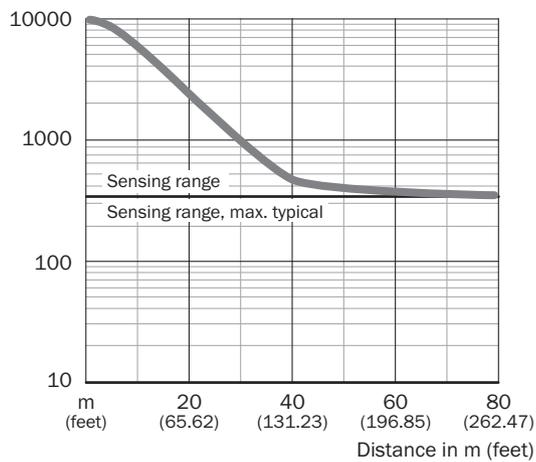
### Connection type



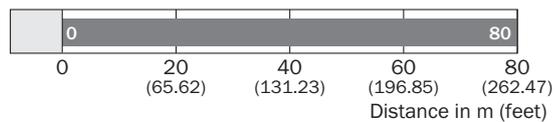
### Connection diagram Cd-077



### 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> Zones with chemicals, Uncontaminated zones</li> </ul>	YF2A14-050VB3XLEAX	2096235
	<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
	<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> Uncontaminated zones, 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)