



## WL8-P2231S12

W8

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



## Ordering information

Type	part no.
WL8-P2231S12	6076592

Other models and accessories → [www.sick.com/W8](http://www.sick.com/W8)

Illustration may differ



## 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>Dimensions (W x H x D)</b>	11 mm x 31 mm x 20 mm
<b>Housing design (light emission)</b>	Rectangular
<b>Sensing range max.</b>	0 m ... 4 m <sup>1)</sup>
<b>Sensing range</b>	0 m ... 3 m <sup>1)</sup>
<b>Type of light</b>	Visible red light
<b>Light source</b>	LED <sup>2)</sup>
<b>Light spot size (distance)</b>	Ø 30 mm (1 m)
<b>Wave length</b>	650 nm
<b>Adjustment</b>	Potentiometer, 270 °
<b>Special applications</b>	Detection of objects moving at high speeds
<b>Special features</b>	Without accessories

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

<sup>2)</sup> Average service life: 100,000 h at  $T_U = +25$  °C.

## Mechanics/electronics

<b>Supply voltage <math>U_B</math></b>	10 V DC ... 30 V DC <sup>1)</sup>
<b>Ripple</b>	± 10 % <sup>2)</sup>
<b>Current consumption</b>	30 mA <sup>3)</sup>
<b>Switching output</b>	PNP
<b>Switching mode</b>	Light/dark switching
<b>Switching mode selector</b>	Selectable via light/dark rotary switch
<b>Signal voltage PNP HIGH/LOW</b>	Approx. $V_S$ – 1.8 V / 0 V
<b>Output current <math>I_{max.}</math></b>	≤ 100 mA
<b>Response time</b>	≤ 0.25 ms <sup>4)</sup>
<b>Switching frequency</b>	2,000 Hz <sup>5)</sup>
<b>Connection type</b>	Male connector M8, 4-pin
<b>Circuit protection</b>	A <sup>6)</sup> B <sup>7)</sup> D <sup>8)</sup>
<b>Weight</b>	10 g
<b>Polarisation filter</b>	✓
<b>Special device</b>	✓
<b>Housing material</b>	Plastic, ABS
<b>Optics material</b>	Plastic, PMMA
<b>Enclosure rating</b>	IP67
<b>Ambient operating temperature</b>	-25 °C ... +55 °C
<b>Ambient temperature, storage</b>	-40 °C ... +70 °C

<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> B = inputs and output reverse-polarity protected.

<sup>8)</sup> D = outputs overcurrent and short-circuit protected.

## Safety-related parameters

<b>MTTF<sub>D</sub></b>	1,431 years
<b>DC<sub>avg</sub></b>	0 %

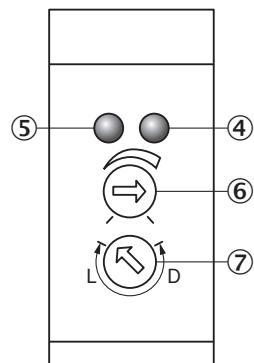
## Certificates

<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>Photobiological safety (DIN EN 62471) certificate</b>	✓

## Classifications

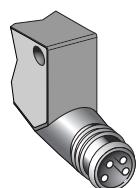
<b>ECLASS 5.0</b>	27270902
<b>ECLASS 5.1.4</b>	27270902
<b>ECLASS 6.0</b>	27270902
<b>ECLASS 6.2</b>	27270902
<b>ECLASS 7.0</b>	27270902
<b>ECLASS 8.0</b>	27270902
<b>ECLASS 8.1</b>	27270902
<b>ECLASS 9.0</b>	27270902
<b>ECLASS 10.0</b>	27270902
<b>ECLASS 11.0</b>	27270902
<b>ECLASS 12.0</b>	27270902
<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 WL8

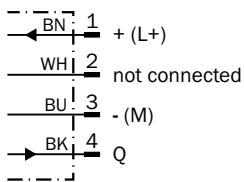


- ④ Orange LED indicator : switching output active
- ⑤ LED indicator green: stability indicator
- ⑥ sensitivity control
- ⑦ Light/ dark rotary switch: L = light switching, D = dark switching

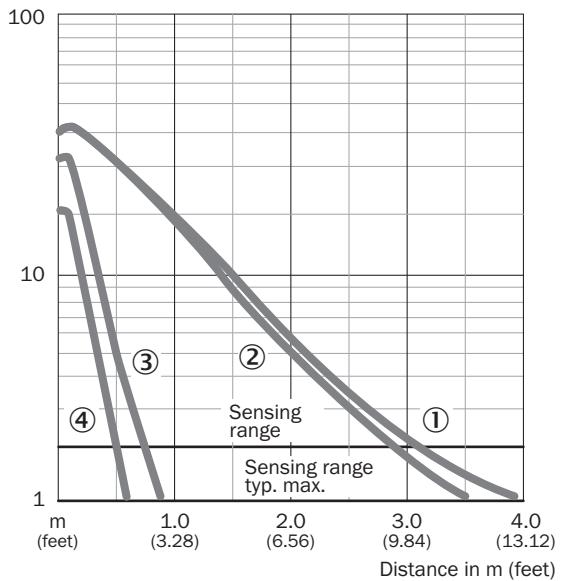
## Connection type



## Connection diagram Cd-066

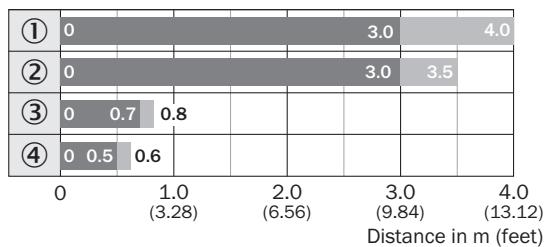


## Characteristic curve WL8



- ① Reflector PL80A
- ② Reflector P250
- ③ P45
- ④ Reflective tape Diamond Grade

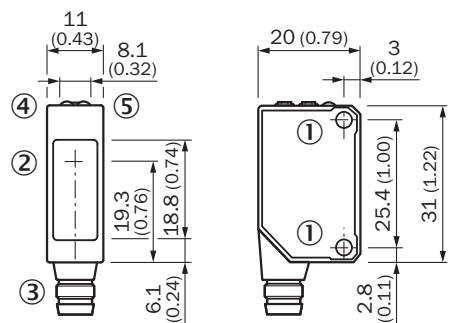
## Sensing range diagram WL8



■ Sensing range ■ Sensing range max.

- ① Reflector PL80A
- ② Reflector P250
- ③ P45
- ④ Reflective tape Diamond Grade

## Dimensional drawing



Dimensions in mm (inch)

- ① Fixing hole ø 3.2 mm without thread
- ② Center of optical axis
- ③ Connection
- ④ Orange LED indicator : switching output active
- ⑤ LED indicator green: stability indicator

## Recommended accessories

Other models and accessories → [www.sick.com/W8](http://www.sick.com/W8)

	<b>Brief description</b>	<b>Type</b>	<b>part no.</b>
<b>Mounting systems</b>			
	<ul style="list-style-type: none"> <li>• <b>Description:</b> Universal mounting bracket for reflectors</li> <li>• <b>Dimensions (W x H x L):</b> 85 mm x 90 mm x 35 mm</li> <li>• <b>Material:</b> Steel</li> <li>• <b>Details:</b> Steel, zinc coated</li> <li>• <b>Suitable for:</b> C110A, P250, PL20, PL30A, PL40A, PL80A</li> </ul>	BEF-WN-REFX	2064574
<b>reflectors and optics</b>			
	<ul style="list-style-type: none"> <li>• <b>Description:</b> Fine triple reflector, screw connection, suitable for laser sensors</li> <li>• <b>Dimensions:</b> 52 mm x 62 mm</li> <li>• <b>Ambient operating temperature:</b> -30 °C ... +65 °C</li> </ul>	P250F	5308843
<b>connectors and cables</b>			
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M8, 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> 0.14 mm<sup>2</sup> ... 0.5 mm<sup>2</sup></li> </ul>	STE-0804-G	6037323
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M8, 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>	YF8U14-050VA3XLEAX	2095889

## 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)