



## PHOTOELECTRIC SENSORS

## WL4SL-3P2232

## ORDERING INFORMATION

Type	part no.
WL4SL-3P2232	1061561

Further device versions and accessories at [www.sick.com/W4](http://www.sick.com/W4)



Illustration may differ



## DETAILED TECHNICAL DATA

## FEATURES

Functional principle	Photoelectric retro-reflective sensor	
Functional principle detail	Without reflector minimum distance (autocollimation/coaxial optics)	
Sensing range max.	0 m ... 12 m <sup>1)</sup>	
Sensing range	0 m ... 8 m <sup>1)</sup>	
Polarisation filter	Yes	
Emitted beam	Light source	Laser <sup>2)</sup>
	Type of light	Visible red light
	Light spot size (distance)	Ø 1 mm (500 mm)
Key laser figures	Normative reference	EN 60825-1:2014, IEC 60825-1:2014 / CDRH 21 CFR 1040.10 & 1040.11
	Laser class	1 <sup>3)</sup>
	Wave length	650 nm
Adjustment	Single teach-in button	
Special applications	Detecting small objects	
Mounting hole	M3	

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

<sup>2)</sup> Average service life: 50,000 h at T<sub>v</sub> = +25 °C.

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

## SAFETY-RELATED PARAMETERS

MTTF <sub>D</sub>	616 years (EN ISO 13849-1) <sup>1)</sup>
DC <sub>avg</sub>	0 %
T <sub>M</sub> (mission time)	10 years

<sup>1)</sup> Mode of calculation: Parts-Count-calculation.

## ELECTRONICS

Supply voltage U <sub>s</sub>	10 V DC ... 30 V DC <sup>1)</sup>
Ripple	< 5 V <sub>pp</sub> <sup>2)</sup>
Current consumption	30 mA <sup>3)</sup>
Protection class	III
Digital output	Type PNP <sup>4)</sup>
	Switching mode Light/dark switching <sup>4)</sup>
	Output current I <sub>max.</sub> ≤ 100 mA
	Response time ≤ 0.5 ms <sup>5)</sup>
	Switching frequency 1,000 Hz <sup>6)</sup>
Output function	Complementary
Circuit protection	A <sup>7)</sup> B <sup>8)</sup> C <sup>9)</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>v</sub> tolerances.

<sup>3)</sup> Without load.

<sup>4)</sup> Q = light switching.

<sup>5)</sup> Signal transit time with resistive load.

<sup>6)</sup> With light/dark ratio 1:1.

<sup>7)</sup> A = V<sub>s</sub> connections reverse-polarity protected.

<sup>8)</sup> B = inputs and output reverse-polarity protected.

<sup>9)</sup> C = interference suppression.

## MECHANICS

Housing	Rectangular
Design detail	Slim
Dimensions (W x H x D)	12.2 mm x 41.8 mm x 17.3 mm
Connection	Male connector M8, 4-pin
Material	Housing Plastic, Novodur Front screen Plastic, PMMA
Weight	100 g

## AMBIENT DATA

Enclosure rating	IP66 IP67
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<sup>1)</sup> As of T<sub>a</sub> = 50 °C, a max. supply voltage V<sub>max.</sub> = 24 V and a max. load current I<sub>max.</sub> = 50 mA is permitted.

<sup>2)</sup> Operation below Tu -10 °C is possible if the sensor is already switched on at Tu > -10 °C, then cools down, and the supply voltage is subsequently not switched off. Switching on below Tu -10 °C is not permissible.

Ambient operating temperature	-10 °C ... +50 °C
Ambient operating temperature extended	-30 °C ... +55 °C <sup>1) 2)</sup>
Ambient temperature, storage	-30 °C ... +70 °C

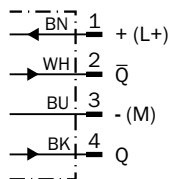
<sup>1)</sup> As of  $T_a = 50\text{ °C}$ , a max. supply voltage  $V_{max} = 24\text{ V}$  and a max. load current  $I_{max} = 50\text{ mA}$  is permitted.

<sup>2)</sup> Operation below  $T_u -10\text{ °C}$  is possible if the sensor is already switched on at  $T_u > -10\text{ °C}$ , then cools down, and the supply voltage is subsequently not switched off. Switching on below  $T_u -10\text{ °C}$  is not permissible.

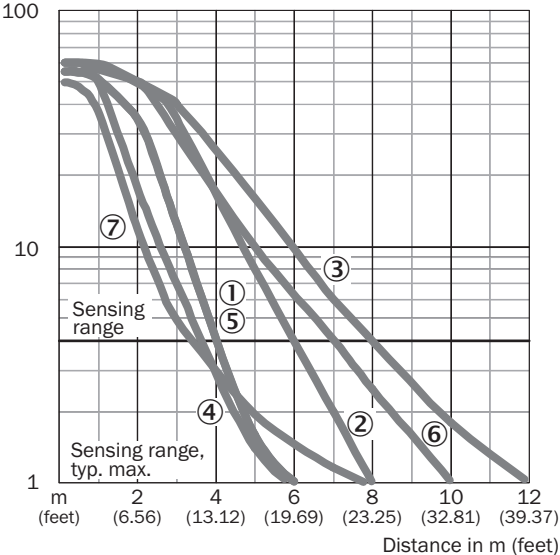
## CERTIFICATES

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
China Compulsory Product Certification (CCC) exempt	✓
ECOLAB certificate	✓
Laser safety (IEC 60825-1) certificate	✓

## CONNECTION DIAGRAM CD-083

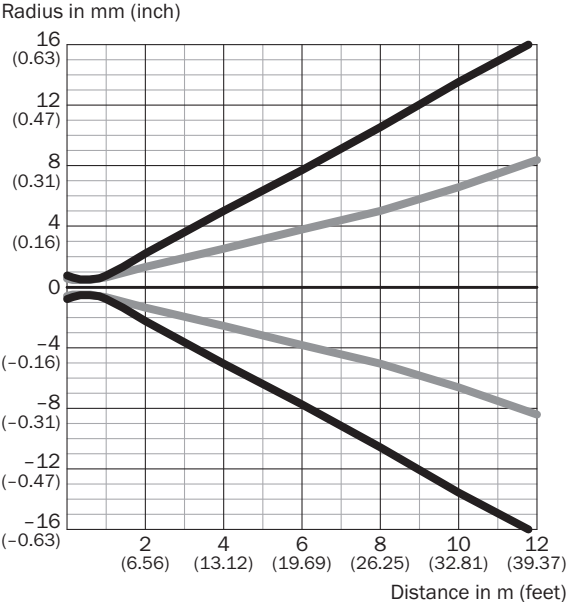


**CHARACTERISTIC CURVE**



- ① Reflector PL20A
- ② Reflector PL40A
- ③ Reflector PL80A
- ④ PL10F reflector
- ⑤ Reflector PL20F
- ⑥ Reflector P250F
- ⑦ Reflective tape REF-AC1000

**LIGHT SPOT SIZE**



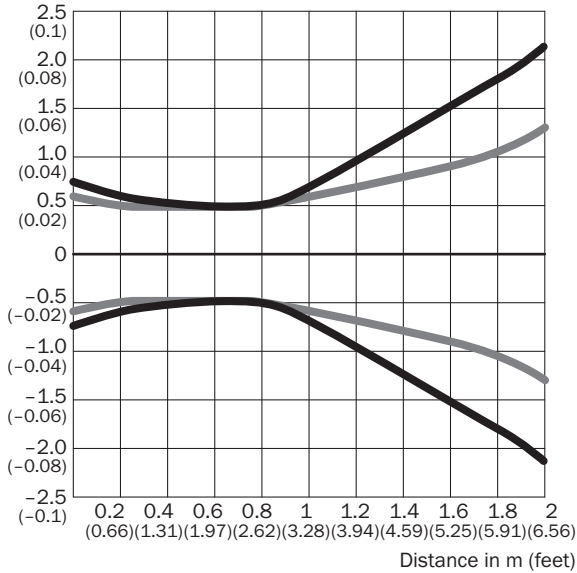
**Dimensions in mm (inch)**

Sensing range	Vertical	Horizontal
<b>0.5 m</b> <b>(1.64 feet)</b>	< 1.0 (0.04)	< 1.0 (0.04)
<b>1 m</b> <b>(3.28 feet)</b>	1.5 (0.06)	1.2 (0.05)
<b>6 m</b> <b>(19.69 feet)</b>	15.2 (0.60)	7.6 (0.30)
<b>12 m</b> <b>(39.37 feet)</b>	32.4 (1.28)	16.4 (0.65)

— Vertical  
— Horizontal

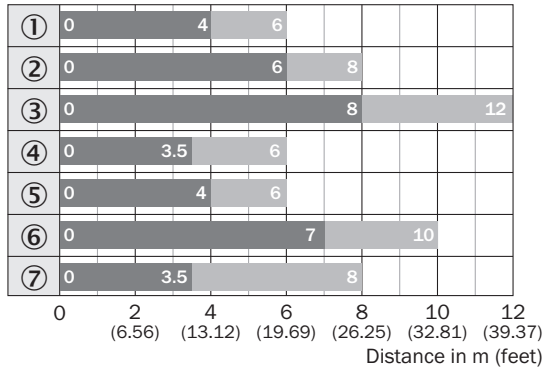
**LIGHT SPOT SIZE (DETAILED VIEW)**

Radius in mm (inch)



— Vertical  
— Horizontal

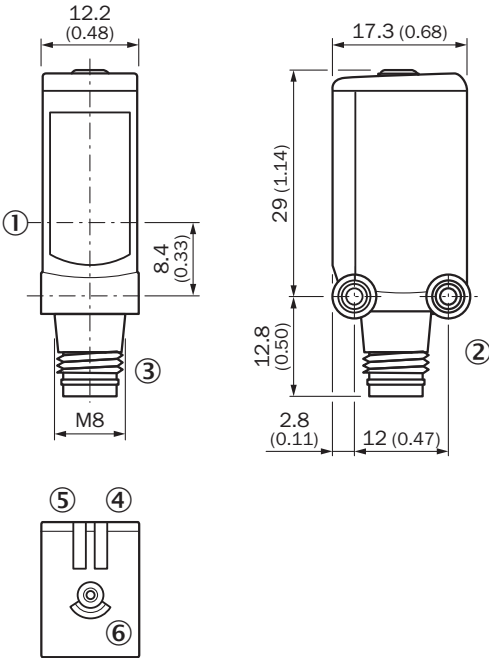
**SENSING RANGE DIAGRAM**



■ Sensing range      ■ Sensing range typ. max.

- ① Reflector PL20A
- ② Reflector PL40A
- ③ Reflector PL80A
- ④ PL10F reflector
- ⑤ Reflector PL20F
- ⑥ Reflector P250F
- ⑦ Reflective tape REF-AC1000

**DIMENSIONAL DRAWING WL4SL-3, WL4SLG-3, WSE4SL-3, PLUG**



- Dimensions in mm (inch)
- ① Center of optical axis
  - ② Threaded mounting hole M3
  - ③ Connection
  - ④ LED indicator green: Supply voltage active
  - ⑤ LED indicator yellow: Status of received light beam
  - ⑥ single teach-in button

Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at [www.sick.com/1061561](http://www.sick.com/1061561)



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Sensor Intelligence