



## PHOTOELECTRIC SENSORS

## WL4SLC-3P2232A71

## ORDERING INFORMATION

Type	part no.
WL4SLC-3P2232A71	1080949

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	IO-Link, Single teach-in button	
Special applications	Detecting small objects	
Mounting hole	M3	
Pin 2 configuration	External input, Teach-in input, Sender off input, Detection output, logic output, Device contamination alarm output	

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

<sup>2)</sup> Average service life: 50,000 h at T<sub>u</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>	562 years (EN ISO 13849-1) <sup>1)</sup>
DC <sub>avg</sub>	0 %

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

$T_M$ (mission time)	10 years
----------------------	----------

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

## COMMUNICATION INTERFACE

IO-Link	✓, IO-Link V1.1
Data transmission rate	COM2 (38,4 kBaud)
Cycle time	2.3 ms
Process data length	16 Bit
Process data structure	Bit 0 = switching signal $Q_{L1}$ Bit 1 = switching signal $Q_{L2}$ Bit 2 ... 15 = measuring value
VendorID	26
DeviceID HEX	0x800113
DeviceID DEC	8388883
Compatible master port type	A
SIO mode support	Yes

## ELECTRONICS

Supply voltage $U_B$	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> <sup>5)</sup>
Switching mode	Light/dark switching <sup>4)</sup>
Output current $I_{max}$	≤ 100 mA
Response time	≤ 0.5 ms <sup>6)</sup>
Repeatability (response time)	150 μs <sup>7)</sup>
Switching frequency	1,000 Hz <sup>8)</sup>
Output function	Complementary
Circuit protection	A <sup>9)</sup> B <sup>10)</sup> C <sup>11)</sup>
Response time Q/ on Pin 2	300 μs ... 450 μs <sup>6) 7)</sup>
Switching frequency Q / to pin 2	1,000 Hz <sup>12)</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> Q = light switching.

<sup>5)</sup> Pin 4: This switching output must not be connected to another output.

<sup>6)</sup> Signal transit time with resistive load.

<sup>7)</sup> Valid for Q \ on Pin2, if configured with software.

<sup>8)</sup> With light/dark ratio 1:1.

<sup>9)</sup> A =  $V_s$  connections reverse-polarity protected.

<sup>10)</sup> B = inputs and output reverse-polarity protected.

<sup>11)</sup> C = interference suppression.

<sup>12)</sup> With light / dark ratio 1:1, valid for Q \ on Pin2, if configured with software.

**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
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
UL File No.	NRKH.E181493

<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.

**SMART TASK**

Smart Task name	Counter + debouncing
Logic function	Direct WINDOW Hysteresis
Timer function	Deactivated Switch-on delay Off delay ON and OFF delay Impulse (one shot)
Inverter	Yes
Maximum counting frequency	SIO Direct: --- <sup>1)</sup> SIO Logic: 1000 Hz <sup>2)</sup> IOL: 900 Hz <sup>3)</sup>
Counter reset	SIO Direct: --- SIO Logic: 1,5 ms IOL: 1,5 ms
Min. Time between two process events (switches)	SIO Direct: --- SIO Logic: 450 µs IOL: 500 µs
Debounce time max.	SIO Direct: --- <sup>1)</sup> SIO Logic: 450 µs <sup>2)</sup> IOL: 500 µs <sup>3)</sup>
Switching signal	Switching signal Q <sub>L1</sub> : Output type (dependant on the adjusted threshold) Switching signal Q <sub>L2</sub> : Output type (dependant on the adjusted threshold)
Measuring value	Counting value

<sup>1)</sup> SIO Direct: sensor operation in standard I/O mode without IO-Link communication and without using internal sensor logic or time parameters (set to "direct"/"deactivated").

<sup>2)</sup> SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.

<sup>3)</sup> IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

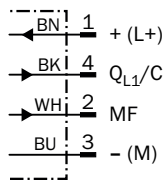
**DIAGNOSIS**

Device status	Yes
Quality of teach	Yes
Quality of run	Yes, Contamination display

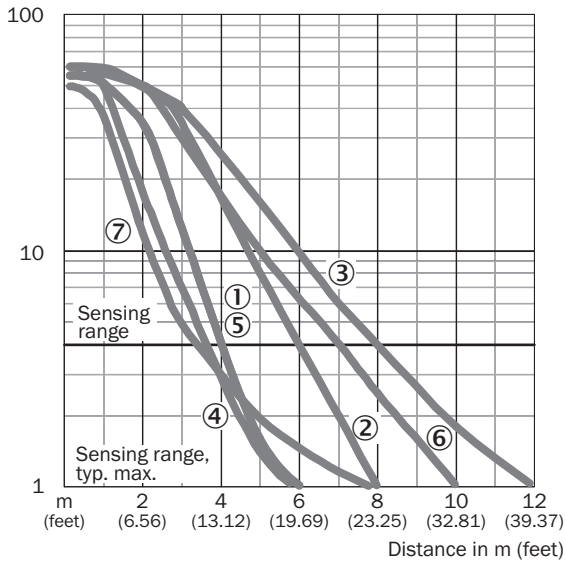
**CERTIFICATES**

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	✓
IO-Link certificate	✓
Laser safety (IEC 60825-1) certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

**CONNECTION DIAGRAM CD-367**

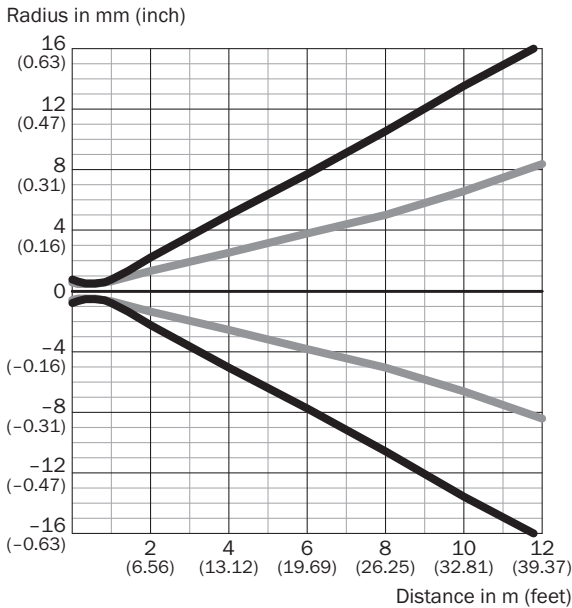


**CHARACTERISTIC CURVE**



- 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**

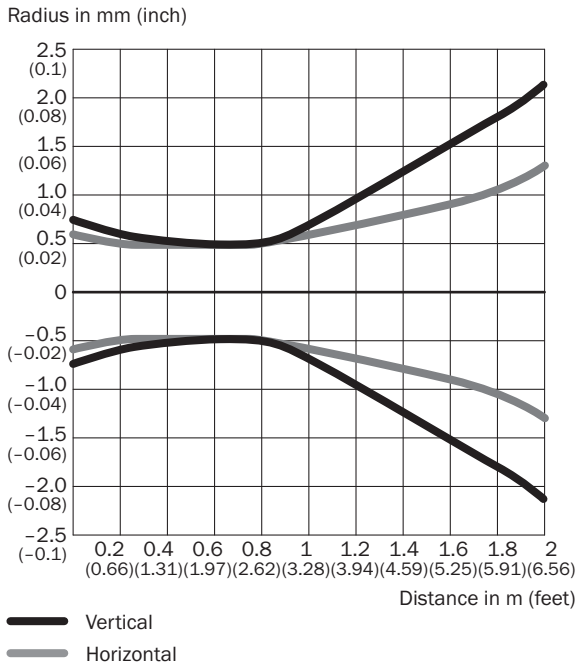


**Dimensions in mm (inch)**

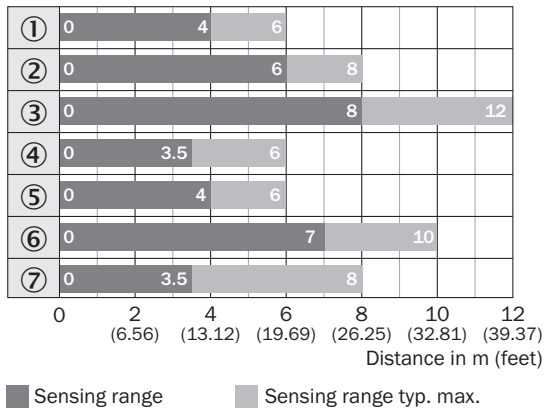
Sensing range	Vertical	Horizontal
<b>0.5 m</b> <b>(1.64 feet)</b>	< 1.0 (0.04)	< 1.0 (0.04)
<b>1 m</b> <b>(3.28 feet)</b>	1.5 (0.06)	1.2 (0.05)
<b>6 m</b> <b>(19.69 feet)</b>	15.2 (0.60)	7.6 (0.30)
<b>12 m</b> <b>(39.37 feet)</b>	32.4 (1.28)	16.4 (0.65)

— Vertical  
— Horizontal

**LIGHT SPOT SIZE (DETAILED VIEW)**

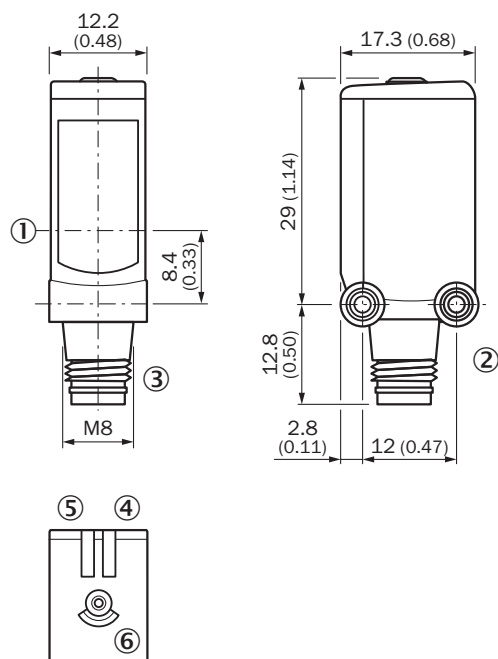


**SENSING RANGE DIAGRAM**



- 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/1080949](http://www.sick.com/1080949)



SICK AG  
WALDKIRCH  
GERMANY  
SICK.COM

# SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

**SICK**  
Sensor Intelligence