

# WL4SLC-3P2232A70

The logo for SICK Sensor Intelligence. The word "SICK" is in a large, bold, blue sans-serif font. To its right, the words "Sensor Intelligence" are written in a smaller, blue sans-serif font.



Illustration may differ

PHOTOELECTRIC SENSORS

WL4SLC-3P2232A70

ORDERING INFORMATION

| Type             | part no. |
|------------------|----------|
| WL4SLC-3P2232A70 | 1080947  |

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



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><br>Type of light Visible red light<br>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<br>Laser class 1 <sup>3)</sup><br>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 $Q_{L1}$<br>Bit 1 = switching signal $Q_{L2}$<br>Bit 2 ... 15 = measuring value |
| VendorID                    | 26                                                                                                       |
| DeviceID HEX                | 0x800111                                                                                                 |
| DeviceID DEC                | 8388881                                                                                                  |
| 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><br><sup>5)</sup><br>Switching mode Light/dark switching <sup>4)</sup><br>Output current $I_{max}$ ≤ 100 mA<br>Response time ≤ 0.5 ms <sup>6)</sup><br>Repeatability (response time) 150 μs <sup>7)</sup><br>Switching frequency 1,000 Hz <sup>8)</sup> |
| Output function                    | Complementary                                                                                                                                                                                                                                                                 |
| Circuit protection                 | A <sup>9)</sup><br>B <sup>10)</sup><br>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  $Q \setminus$  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  $Q \setminus$  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<br>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                                                             | Time measurement + debouncing                                                                                                                                                          |
| Logic function                                                              | Direct<br>WINDOW                                                                                                                                                                       |
| Timer function                                                              | Deactivated<br>Switch-on delay<br>Off delay<br>ON and OFF delay<br>Impulse (one shot)                                                                                                  |
| Inverter                                                                    | Yes                                                                                                                                                                                    |
| Time measurement accuracy                                                   | SIO Direct: --- <sup>1)</sup><br>SIO Logic: - 0,7 ... + 0,7 ms ± 0,5 % of time measurement value <sup>2)</sup><br>IOL: - 0,9 ... + 0,9 ms ± 0.5% of the time measurement <sup>3)</sup> |
| Time measurement accuracy (e.g. accuracy for time measurement value = 1 s ) | SIO Direct: --- <sup>1)</sup><br>SIO Logic: - 5,7 ... + 5,7 ms <sup>2)</sup><br>IOL: - 5,9 ... + 5,9 ms <sup>3)</sup>                                                                  |
| Resolution time measuring value                                             | 1 ms                                                                                                                                                                                   |
| Min. Time between two process events (switches)                             | SIO Direct: ---<br>SIO Logic: 450 µs<br>IOL: 500 µs                                                                                                                                    |
| Debounce time max.                                                          | SIO Direct: --- <sup>1)</sup><br>SIO Logic: 30.000 ms <sup>2)</sup><br>IOL: 30.000 ms <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                                                             | Time measurement 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.

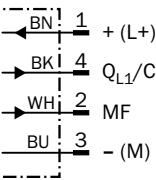
DIAGNOSIS

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

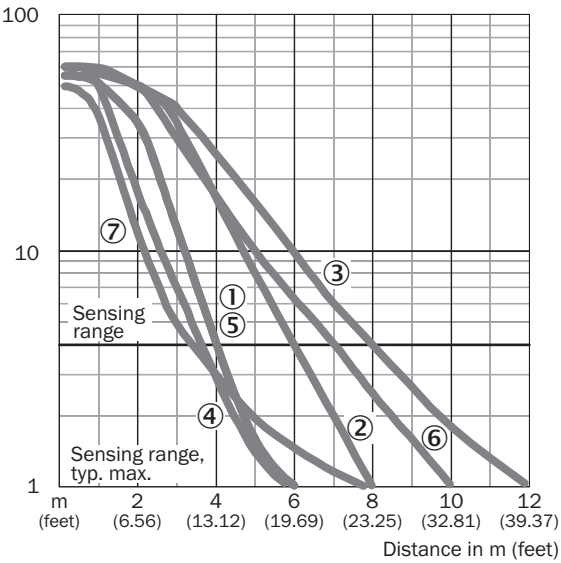
CERTIFICATES

|                                                                       |   |
|-----------------------------------------------------------------------|---|
| 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

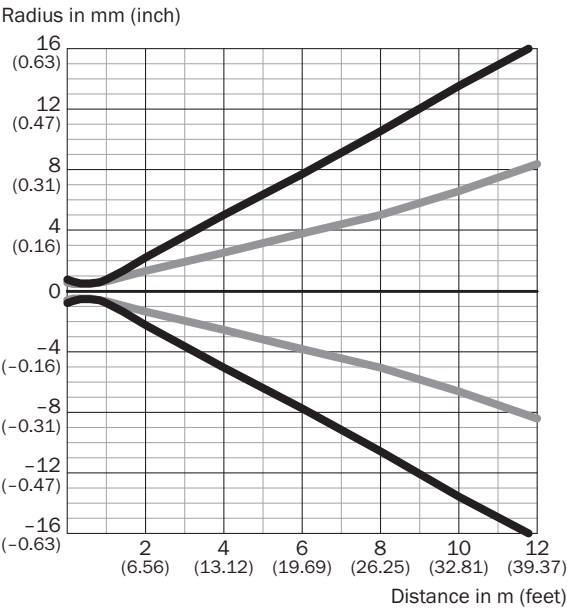


CHARACTERISTIC CURVE



- 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

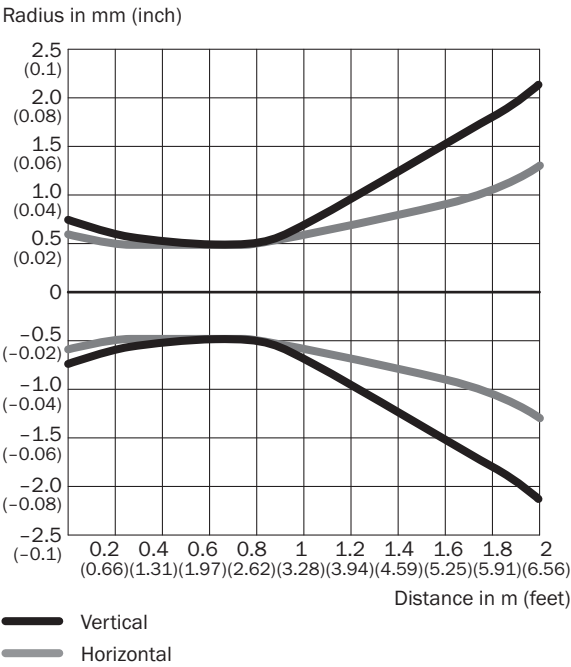


Dimensions in mm (inch)

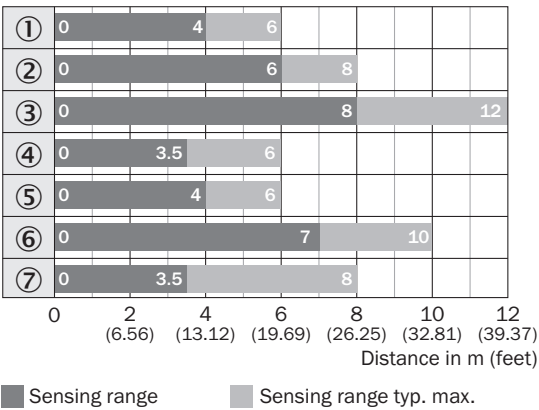
| Sensing range        | Vertical        | Horizontal      |
|----------------------|-----------------|-----------------|
| 0.5 m<br>(1.64 feet) | < 1.0<br>(0.04) | < 1.0<br>(0.04) |
| 1 m<br>(3.28 feet)   | 1.5<br>(0.06)   | 1.2<br>(0.05)   |
| 6 m<br>(19.69 feet)  | 15.2<br>(0.60)  | 7.6<br>(0.30)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

— Vertical  
— Horizontal

LIGHT SPOT SIZE (DETAILED VIEW)

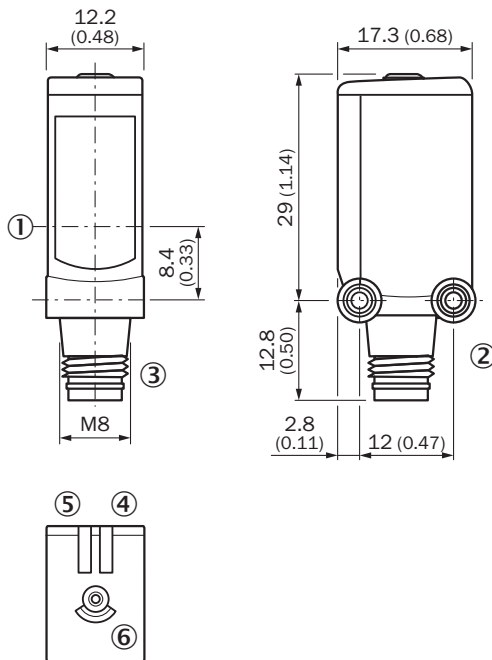


SENSING RANGE DIAGRAM



- 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/1080947](http://www.sick.com/1080947)



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