



**WSE4C-3P2230A70**

W4-3

**MINIATURE PHOTOELECTRIC SENSORS**

**SICK**  
Sensor Intelligence.



Illustration may differ

### Ordering information

| Type            | Part no. |
|-----------------|----------|
| WSE4C-3P2230A70 | 1080937  |

Other models and accessories → [www.sick.com/W4-3](http://www.sick.com/W4-3)



### Detailed technical data

#### Features

|                                        |                                                                                                |
|----------------------------------------|------------------------------------------------------------------------------------------------|
| <b>Dimensions (W x H x D)</b>          | 16 mm x 39.5 mm x 12 mm                                                                        |
| <b>Housing design (light emission)</b> | Rectangular                                                                                    |
| <b>Sensing range max.</b>              | 0 m ... 4 m                                                                                    |
| <b>Sensing range</b>                   | 0 m ... 3.5 m                                                                                  |
| <b>Type of light</b>                   | Visible red light                                                                              |
| <b>Light source</b>                    | PinPoint LED <sup>1)</sup>                                                                     |
| <b>Light spot size (distance)</b>      | Ø 75 mm (2 m)                                                                                  |
| <b>Wave length</b>                     | 650 nm                                                                                         |
| <b>Adjustment</b>                      | IO-Link                                                                                        |
| <b>Diagnosis</b>                       | Status indicator operating reserve                                                             |
| <b>Pin 2 configuration</b>             | External input, Teach-in input, Detection output, logic output, alarm output operating reserve |

<sup>1)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

## Mechanics/electronics

|                                         |                                                       |
|-----------------------------------------|-------------------------------------------------------|
| <b>Supply voltage</b>                   | 10 V DC ... 30 V DC <sup>1)</sup>                     |
| <b>Ripple</b>                           | < 5 V <sub>pp</sub> <sup>2)</sup>                     |
| <b>Switching output</b>                 | PNP                                                   |
| <b>Switching mode</b>                   | Light/dark switching                                  |
| <b>Output current I<sub>max.</sub></b>  | ≤ 100 mA                                              |
| <b>Response time</b>                    | < 0.5 ms <sup>3)</sup>                                |
| <b>Switching frequency</b>              | 1,000 Hz <sup>4)</sup>                                |
| <b>Switching frequency Q / to pin 2</b> | 1,000 Hz <sup>5)</sup>                                |
| <b>Circuit protection</b>               | A <sup>6)</sup><br>C <sup>7)</sup><br>D <sup>8)</sup> |
| <b>Protection class</b>                 | III                                                   |
| <b>Weight</b>                           | 60 g                                                  |
| <b>Housing material</b>                 | Plastic, ABS                                          |
| <b>Optics material</b>                  | Plastic, PMMA                                         |
| <b>Enclosure rating</b>                 | IP67<br>IP66                                          |
| <b>Test input sender off</b>            | TE to 0 V                                             |
| <b>Ambient operating temperature</b>    | -40 °C ... +60 °C                                     |
| <b>Ambient storage temperature</b>      | -40 °C ... +75 °C                                     |

<sup>1)</sup> Limit values.

<sup>2)</sup> May not exceed or fall below U<sub>v</sub> tolerances.

<sup>3)</sup> Signal transit time with resistive load.

<sup>4)</sup> With light/dark ratio 1:1.

<sup>5)</sup> With light / dark ratio 1:1, valid for Q \ on Pin2, if configured with software.

<sup>6)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>7)</sup> C = interference suppression.

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

## Communication interface

|                                       |                                                                                                                        |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| <b>Communication interface</b>        | IO-Link V1.1                                                                                                           |
| <b>Communication Interface detail</b> | COM2 (38,4 kBaud)                                                                                                      |
| <b>Cycle time</b>                     | 2.3 ms                                                                                                                 |
| <b>Process data length</b>            | 16 Bit                                                                                                                 |
| <b>Process data structure</b>         | Bit 0 = switching signal Q <sub>L1</sub><br>Bit 1 = switching signal Q <sub>L2</sub><br>Bit 2 ... 15 = measuring value |
| <b>VendorID</b>                       | 26                                                                                                                     |
| <b>DeviceID HEX</b>                   | 0x800107                                                                                                               |
| <b>DeviceID DEC</b>                   | 8388871                                                                                                                |

## Smart Task

|                        |                               |
|------------------------|-------------------------------|
| <b>Smart Task name</b> | Time measurement + debouncing |
|------------------------|-------------------------------|

<sup>1)</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>2)</sup> IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

|                                                                                    |                                                                                                                                                      |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Logic function</b>                                                              | Direct<br>WINDOW                                                                                                                                     |
| <b>Timer function</b>                                                              | Deactivated<br>On delay<br>Off delay<br>ON and OFF delay<br>Impulse (one shot)                                                                       |
| <b>Inverter</b>                                                                    | Yes                                                                                                                                                  |
| <b>Response time</b>                                                               | 1) 2)                                                                                                                                                |
| <b>Time measurement accuracy</b>                                                   | SIO Direct: ---<br>SIO Logic: - 0,7 ... + 0,7 ms $\pm$ 0,5 % of time measurement value<br>IOL: - 0.9 ... + 0.9 ms $\pm$ 0.5% of the time measurement |
| <b>Repeatability</b>                                                               | 1) 2)                                                                                                                                                |
| <b>Time measurement accuracy (e.g. accuracy for time measurement value = 1 s )</b> | SIO Direct: ---<br>SIO Logic: - 5,7 ... + 5,7 ms<br>IOL: - 5,9 ... + 5,9 ms                                                                          |
| <b>Resolution time measuring value</b>                                             | 1 ms                                                                                                                                                 |
| <b>Min. Time between two process events (switches)</b>                             | SIO Direct: ---<br>SIO Logic: 450 $\mu$ s<br>IOL: 500 $\mu$ s                                                                                        |
| <b>Debounce time max.</b>                                                          | SIO Direct: ---<br>SIO Logic: 30.000 ms<br>IOL: 30.000 ms                                                                                            |
| <b>Switching signal Q<sub>L1</sub></b>                                             | Output type (dependant on the adjusted threshold)                                                                                                    |
| <b>Switching signal Q<sub>L2</sub></b>                                             | Output type (dependant on the adjusted threshold)                                                                                                    |
| <b>Measuring value</b>                                                             | Time measurement value                                                                                                                               |

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

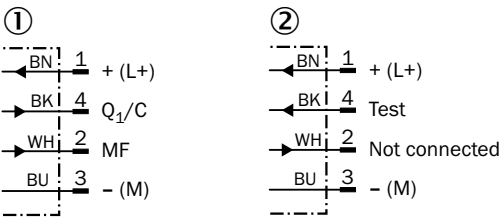
2) IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

## Classifications

|                       |          |
|-----------------------|----------|
| <b>ECl@ss 5.0</b>     | 27270901 |
| <b>ECl@ss 5.1.4</b>   | 27270901 |
| <b>ECl@ss 6.0</b>     | 27270901 |
| <b>ECl@ss 6.2</b>     | 27270901 |
| <b>ECl@ss 7.0</b>     | 27270901 |
| <b>ECl@ss 8.0</b>     | 27270901 |
| <b>ECl@ss 8.1</b>     | 27270901 |
| <b>ECl@ss 9.0</b>     | 27270901 |
| <b>ECl@ss 10.0</b>    | 27270901 |
| <b>ECl@ss 11.0</b>    | 27270901 |
| <b>ETIM 5.0</b>       | EC002716 |
| <b>ETIM 6.0</b>       | EC002716 |
| <b>ETIM 7.0</b>       | EC002716 |
| <b>UNSPSC 16.0901</b> | 39121528 |

Connection diagram

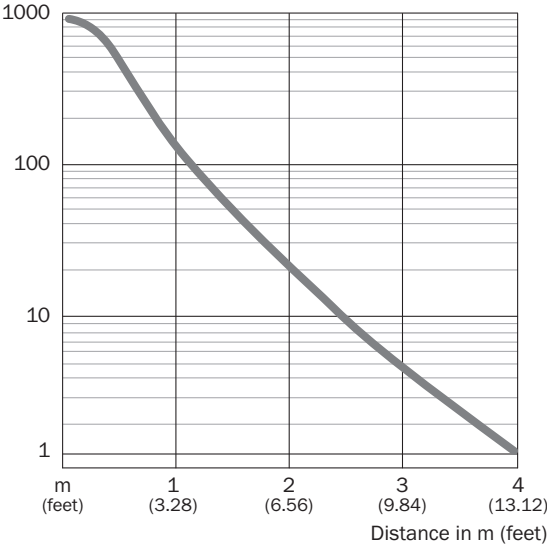
Cd-298



Characteristic curve

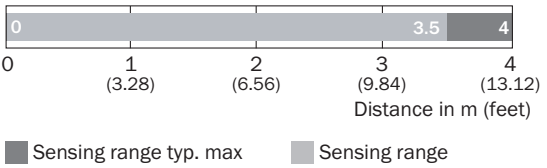
WSE4-3

Operating reserve



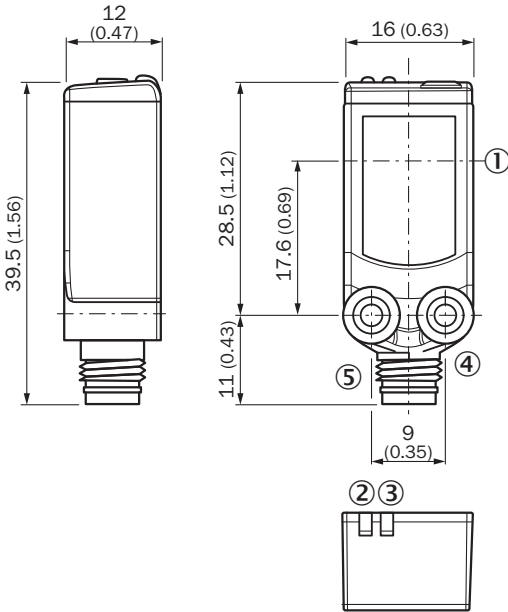
Sensing range diagram

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Dimensional drawing (Dimensions in mm (inch))

WSE4-3



- ① Center of optical axis
- ② Orange LED indicator: status of received light beam
- ③ LED indicator green: Supply voltage active
- ④ Threaded mounting hole M3
- ⑤ Connection

Recommended accessories

Plug connectors and cables

Plug connectors and cables

Connecting cables

Field-attachable connectors

Other models and accessories → [www.sick.com/W4-3](http://www.sick.com/W4-3)

| Brief description                                                                                                                    | Type               | Part no. |
|--------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
| Head A: female connector, M8, 4-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 5 m | YF8U14-050VA3XLEAX | 2095889  |
| Brief description                                                                                                                    | Type               | Part no. |
| Head A: male connector, M8, 4-pin, straight<br>Head B: -<br>Cable: unshielded                                                        | STE-0804-G         | 6037323  |

## Recommended services

Additional services → [www.sick.com/W4-3](https://www.sick.com/W4-3)

|                                                                                                                                                                                                                                                                                                                                                           | Type                   | Part no.   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------|
| Function Block Factory                                                                                                                                                                                                                                                                                                                                    |                        |            |
| <ul style="list-style-type: none"><li>• <b>Description:</b> The Function Block Factory supports common programmable logic controllers (PLCs) from various manufacturers, such as Siemens, Beckhoff, Rockwell Automation and B&amp;R. More information on the FBF can be found <a _blank"="" href="https://fbf.cloud.sick.com target=">here</a>.</li></ul> | Function Block Factory | On request |

## 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)