



# WS/WE18-3P110

W18-3

SMALL PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



## Ordering information

| Type          | Part no. |
|---------------|----------|
| WS/WE18-3P110 | 1075297  |

Other models and accessories → [www.sick.com/W18-3](http://www.sick.com/W18-3)

## Detailed technical data

### Features

|  |                                   |
|--|-----------------------------------|
| <b>Functional principle</b>            | Through-beam photoelectric sensor |
| <b>Dimensions (W x H x D)</b>          | 17.6 mm x 75.5 mm x 33.5 mm       |
| <b>Housing design (light emission)</b> | Rectangular                       |
| <b>Sensing range max.</b>              | 0 m ... 20 m                      |
| <b>Focus</b>                           | 4.5°                              |
| <b>Type of light</b>                   | Infrared light                    |
| <b>Light source</b>                    | LED <sup>1)</sup>                 |
| <b>Light spot size (distance)</b>      | Ø 950 mm (15 m)                   |
| <b>Angle of dispersion</b>             | 4.5°                              |
| <b>Wave length</b>                     | 880 nm                            |
| <b>Adjustment</b>                      | Potentiometer, 1 turn             |

<sup>1)</sup> Average service life: 100,000 h at T<sub>J</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>Power consumption, sender</b>   | < 45 mA <sup>3)</sup>             |
| <b>Power consumption, receiver</b> | < 35 mA <sup>3)</sup>             |
| <b>Switching output</b>            | PNP                               |

<sup>1)</sup> Limit values when operated in short-circuit protected network: max. 8 A.

<sup>2)</sup> May not exceed or fall below U<sub>V</sub> 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> Do not bend below 0 °C.

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

<sup>8)</sup> C = interference suppression.

<sup>9)</sup> D = outputs overcurrent and short-circuit protected.

|   |   |
|---|---|
| <b>Output function</b>                      | Complementary   |
| <b>Switching mode</b>                       | Light/dark switching                                  |
| <b>Output current I<sub>max</sub></b>       | ≤ 100 mA  |
| <b>Response time</b>                        | < 500 μs <sup>4)</sup>                                |
| <b>Switching frequency</b>                  | 1,000 Hz <sup>5)</sup>                                |
| <b>Angle of reception</b>                   | 6°  |
| <b>Connection type</b>                      | Cable, 4-wire, 2 m <sup>6)</sup>                      |
| <b>Cable material</b>                       | PVC   |
| <b>Circuit protection</b>                   | A <sup>7)</sup><br>C <sup>8)</sup><br>D <sup>9)</sup> |
| <b>Weight</b>                               | 120 g   |
| <b>Housing material</b>                     | Plastic, ABS  |
| <b>Optics material</b>                      | Plastic, PMMA   |
| <b>Enclosure rating</b>                     | IP67  |
| <b>Test input sender off</b>                | TE to 0 V   |
| <b>Ambient operating temperature</b>        | -40 °C ... +60 °C                                     |
| <b>Ambient temperature, storage</b>         | -40 °C ... +75 °C                                     |
| <b>UL File No.</b>                          | NRKH.E181493 & NRKH7.E181493                          |
| <b>Part number of individual components</b> | 2031012 WS18-3D110 2031013 WE18-3P110                 |

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<sup>8)</sup> C = interference suppression.

<sup>9)</sup> D = outputs overcurrent and short-circuit protected.

## Safety-related parameters

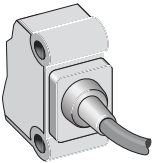
|                         |           |
|-------------------------|-----------|
| <b>MTTF<sub>D</sub></b> | 857 years |
| <b>DC<sub>avg</sub></b> | 0 %       |

## 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 |

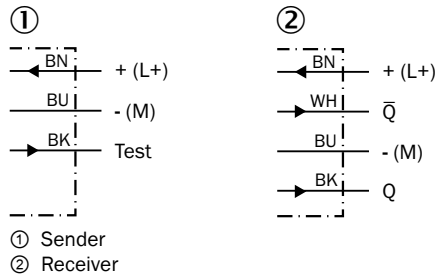
|                       |          |
|-----------------------|----------|
| <b>eCl@ss 12.0</b>    | 27270901 |
| <b>ETIM 5.0</b>       | EC002716 |
| <b>ETIM 6.0</b>       | EC002716 |
| <b>ETIM 7.0</b>       | EC002716 |
| <b>ETIM 8.0</b>       | EC002716 |
| <b>UNSPSC 16.0901</b> | 39121528 |

Connection type

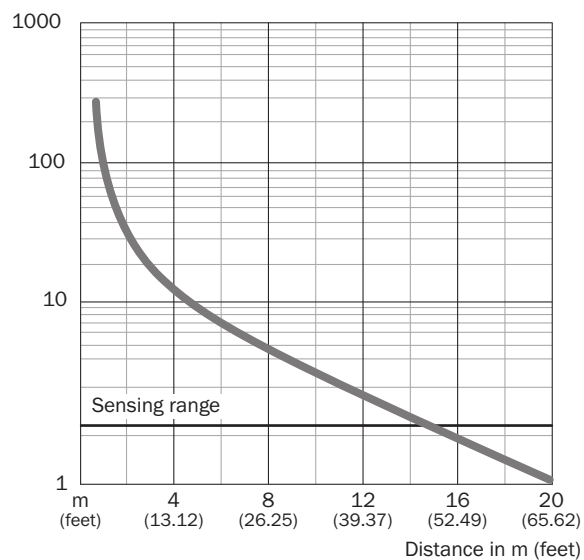


Connection diagram

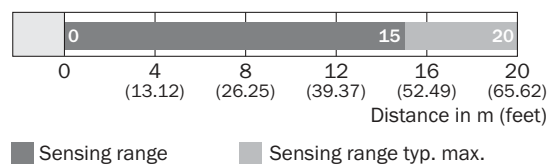
Cd-074



## Characteristic curve

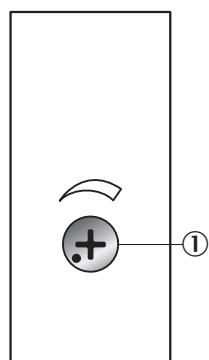


## Sensing range diagram



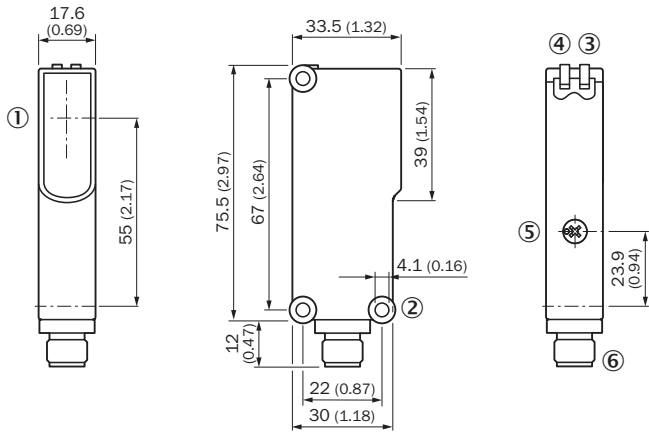
## Adjustments

### Potentiometer



① Setting of the sensing range: potentiometer, 4 revolutions


**Dimensional drawing** (Dimensions in mm (inch))



- ① Center of optical axis
- ② Mounting hole  $\varnothing$  4.1 mm
- ③ LED indicator yellow: Status of received light beam
- ④ LED indicator green: Supply voltage active
- ⑤ Sensitivity control, potentiometer 270° on WE
- ⑥ 4-pin M12 male connector or 2 m cable or 6-pin cubic connector

**Recommended accessories**

Other models and accessories → [www.sick.com/W18-3](http://www.sick.com/W18-3)

|   | Brief description   | Type       | Part no. |
|---|---|------------|----------|
| Plug connectors and cables  |   |            |          |
|  | Head A: male connector, M12, 4-pin, straight<br>Cable: unshielded | STE-1204-G | 6009932  |

## 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)