



# WSE250-2P1231

W250-2

COMPACT PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

| Type          | Part no. |
|---------------|----------|
| WSE250-2P1231 | 6044704  |

Included in delivery: BEF-W250 (1)  
Other models and accessories → [www.sick.com/W250-2](http://www.sick.com/W250-2)

Detailed technical data

Features

|                                 |                                      |
|---------------------------------|--------------------------------------|
| Functional principle            | Through-beam photoelectric sensor    |
| Dimensions (W x H x D)          | 20 mm x 65 mm x 43.9 mm              |
| Housing design (light emission) | Rectangular                          |
| Sensing range max.              | 0 m ... 50 m                         |
| Sensing range                   | 0 m ... 40 m                         |
| Focus                           | Approx. 2°                           |
| Type of light                   | Visible red light                    |
| Light source                    | LED <sup>1)</sup>                    |
| Light spot size (distance)      | Ø 0.6 m (20 m)                       |
| Angle of dispersion             | Approx. 2°                           |
| Adjustment                      | Potentiometer, 2 turns <sup>2)</sup> |

<sup>1)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.  
<sup>2)</sup> With position indicator.

Mechanics/electronics

|                               |                                   |
|-------------------------------|-----------------------------------|
| Supply voltage U <sub>B</sub> | 10 V DC ... 30 V DC <sup>1)</sup> |
| Ripple                        | < 5 V <sub>pp</sub> <sup>2)</sup> |

<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> B = inputs and output reverse-polarity protected.  
<sup>9)</sup> C = interference suppression.  
<sup>10)</sup> D = outputs overcurrent and short-circuit protected.  
<sup>11)</sup> The AC/DC devices comply with the Radio Safety Requirements for the industrial sector (Radio Safety Class A). They may cause radio interference if used in a residential area.

|                                            |                                                                           |
|--------------------------------------------|---------------------------------------------------------------------------|
| <b>Power consumption, sender</b>           | 20 mA <sup>3)</sup>                                                       |
| <b>Power consumption, receiver</b>         | 20 mA <sup>3)</sup>                                                       |
| <b>Switching output</b>                    | PNP                                                                       |
| <b>Switching mode</b>                      | Light/dark switching                                                      |
| <b>Switching mode selector</b>             | Selectable via L/D control cable                                          |
| <b>Output current I<sub>max.</sub></b>     | ≤ 100 mA                                                                  |
| <b>Response time</b>                       | ≤ 0.5 ms <sup>4)</sup>                                                    |
| <b>Switching frequency</b>                 | 1,000 Hz <sup>5)</sup>                                                    |
| <b>Angle of reception</b>                  | 20°                                                                       |
| <b>Connection type</b>                     | Cable, 4-wire, 5 m <sup>6)</sup>                                          |
| <b>Cable material</b>                      | PVC                                                                       |
| <b>Conductor cross section</b>             | 0.18 mm <sup>2</sup>                                                      |
| <b>Cable diameter</b>                      | Ø 3.8 mm                                                                  |
| <b>Circuit protection</b>                  | A <sup>7)</sup><br>B <sup>8)</sup><br>C <sup>9)</sup><br>D <sup>10)</sup> |
| <b>Protection class</b>                    | III                                                                       |
| <b>Weight</b>                              | 300 g                                                                     |
| <b>Housing material</b>                    | Plastic, ABS                                                              |
| <b>Optics material</b>                     | Plastic, PMMA                                                             |
| <b>Enclosure rating</b>                    | IP67                                                                      |
| <b>Items supplied</b>                      | BEF-W250 mounting bracket                                                 |
| <b>Electromagnetic compatibility (EMC)</b> | EN 60947-5-2 <sup>11)</sup>                                               |
| <b>Ambient operating temperature</b>       | -25 °C ... +55 °C                                                         |
| <b>Ambient temperature, storage</b>        | -40 °C ... +70 °C                                                         |
| <b>UL File No.</b>                         | NRKH2.E300503 & NRKH8.E300503                                             |

<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>y</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.

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

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<sup>11)</sup> The AC/DC devices comply with the Radio Safety Requirements for the industrial sector (Radio Safety Class A). They may cause radio interference if used in a residential area.

## Safety-related parameters

|                         |             |
|-------------------------|-------------|
| <b>MTTF<sub>D</sub></b> | 3,252 years |
| <b>DC<sub>avg</sub></b> | 0 %         |

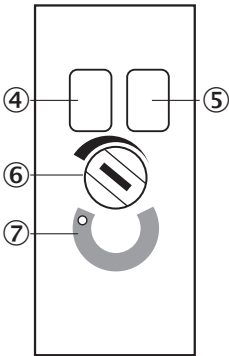
## Classifications

|                   |          |
|-------------------|----------|
| <b>eCl@ss 5.0</b> | 27270901 |
|-------------------|----------|

|                |          |
|----------------|----------|
| eCl@ss 5.1.4   | 27270901 |
| eCl@ss 6.0     | 27270901 |
| eCl@ss 6.2     | 27270901 |
| eCl@ss 7.0     | 27270901 |
| eCl@ss 8.0     | 27270901 |
| eCl@ss 8.1     | 27270901 |
| eCl@ss 9.0     | 27270901 |
| eCl@ss 10.0    | 27270901 |
| eCl@ss 11.0    | 27270901 |
| eCl@ss 12.0    | 27270901 |
| ETIM 5.0       | EC002716 |
| ETIM 6.0       | EC002716 |
| ETIM 7.0       | EC002716 |
| ETIM 8.0       | EC002716 |
| UNSPSC 16.0901 | 39121528 |

Adjustments

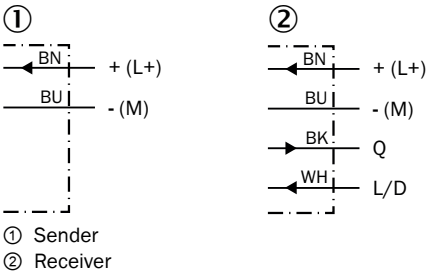
WSE250-2, sender



- ④ LED indicator green: Stability indicator
- ⑤ LED indicator yellow: Status of received light beam
- ⑥ Sensitivity control: potentiometer
- ⑦ Position indicator for sensitivity setting (270°)

Connection diagram

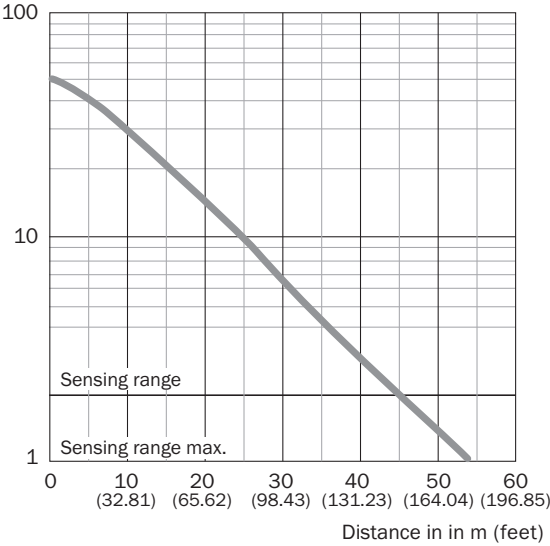
Cd-058



Characteristic curve

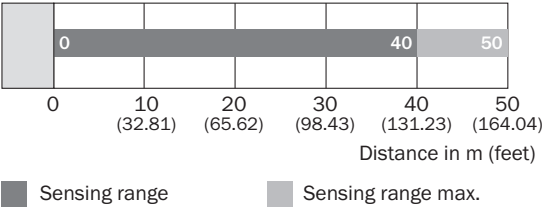
WSE250-2

Operating reserve



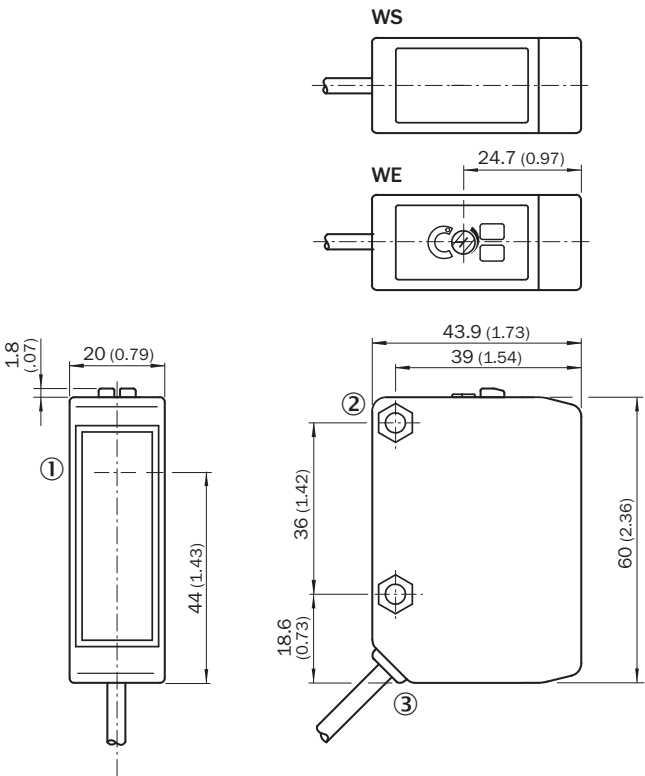
Sensing range diagram

WSE250-2



Dimensional drawing (Dimensions in mm (inch))

WSE250-2, DC, cable



- ① Center of the optical axis, sender (WS 250), receiver (WE 250)  
 ② Mounting hole  $\varnothing$  4.2 mm, for M4 hexagon nuts on both sides  
 ③ Connection cable

Recommended accessories

Other models and accessories → [www.sick.com/W250-2](http://www.sick.com/W250-2)

|                                                                                     | 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)