



# WS/WE45-N250S02

W45

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

Type	part no.
WS/WE45-N250S02	1016799

Other models and accessories → [www.sick.com/W45](http://www.sick.com/W45)

Illustration may differ



### Detailed technical data

#### Features

<b>Functional principle</b>	Through-beam photoelectric sensor
<b>Dimensions (W x H x D)</b>	60 mm x 105 mm x 105 mm
<b>Housing design (light emission)</b>	Rectangular
<b>Sensing range max.</b>	0 m ... 350 m
<b>Sensing range</b>	0 m ... 300 m
<b>Focus</b>	Approx. 0.9°
<b>Type of light</b>	Infrared light
<b>Light source</b>	LED <sup>1)</sup>
<b>Light spot size (distance)</b>	Ø 4.5 m (300 m)
<b>Angle of dispersion</b>	Approx. 0.9°
<b>Adjustment</b>	Potentiometer
<b>Special features</b>	Front screen heating, permanent, in conjunction with glass front screen

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

#### Mechanics/electronics

<b>Supply voltage U<sub>B</sub></b>	10 V DC ... 60 V DC <sup>1)</sup>
<b>Ripple</b>	< 5 V <sub>pp</sub> <sup>2)</sup>

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

<sup>2)</sup> May not fall below or exceed 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> 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.

<sup>9)</sup> Reference voltage: 50 V DC.

<sup>10)</sup> Flashes at approx. 5 Hz, switch to VS.

<sup>11)</sup> Up to 140 °C with cooling plates (see accessories).

<b>Power consumption, sender</b>	250 mA <sup>3)</sup>
<b>Power consumption, receiver</b>	250 mA <sup>3)</sup>
<b>Switching output</b>	NPN
<b>Output function</b>	Complementary
<b>Switching mode</b>	Light/dark switching
<b>Output current I<sub>max.</sub></b>	≤ 200 mA
<b>Response time</b>	≤ 500 μs <sup>4)</sup>
<b>Switching frequency</b>	1,000 Hz <sup>5)</sup>
<b>Time functions</b>	Switch-on delay Off delay ON and OFF delay
<b>Delay time</b>	Adjustable via time delay selector switch, 0.5 s, 0.015 s ... 12 s, 0.3 s
<b>Connection type</b>	Terminal connection with PG13,5, 6-pin
<b>Circuit protection</b>	A <sup>6)</sup> C <sup>7)</sup> D <sup>8)</sup>
<b>Protection class</b>	I <sup>9)</sup>
<b>Weight</b>	1,600 g
<b>Front screen heating</b>	✓
<b>Alarm output</b>	100 mA <sup>10)</sup>
<b>Special device</b>	✓
<b>Housing material</b>	Metal
<b>Enclosure rating</b>	IP67
<b>Test input sender off</b>	TE to V <sub>S</sub>
<b>Ambient operating temperature</b>	-25 °C ... +55 °C <sup>11)</sup>
<b>Ambient temperature, storage</b>	-40 °C ... +70 °C
<b>Part number of individual components</b>	2020821 WE45-N250S02 2020822 WS45-D250S02

1) Limit values.

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

3) Without load.

4) Signal transit time with resistive load.

5) With light/dark ratio 1:1.

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

7) C = interference suppression.

8) D = outputs overcurrent and short-circuit protected.

9) Reference voltage: 50 V DC.

10) Flashes at approx. 5 Hz, switch to VS.

11) Up to 140 °C with cooling plates (see accessories).

## Certificates

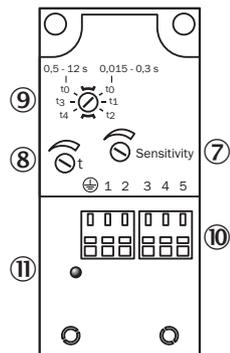
<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>Moroccan declaration of conformity</b>	✓
<b>China RoHS</b>	✓

<b>Photobiological safety (DIN EN 62471) certificate</b>	✓
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### Classifications

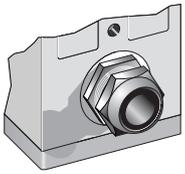
<b>ECLASS 5.0</b>	27270901
<b>ECLASS 5.1.4</b>	27270901
<b>ECLASS 6.0</b>	27270901
<b>ECLASS 6.2</b>	27270901
<b>ECLASS 7.0</b>	27270901
<b>ECLASS 8.0</b>	27270901
<b>ECLASS 8.1</b>	27270901
<b>ECLASS 9.0</b>	27270901
<b>ECLASS 10.0</b>	27270901
<b>ECLASS 11.0</b>	27270901
<b>ECLASS 12.0</b>	27270901
<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

### Adjustments

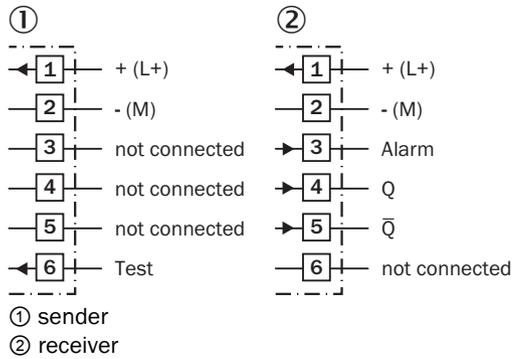


- ⑦ sensitivity control
- ⑧ Time control
- ⑨ time delay selector switch
- ⑩ terminal strip
- ⑪ Status indicator

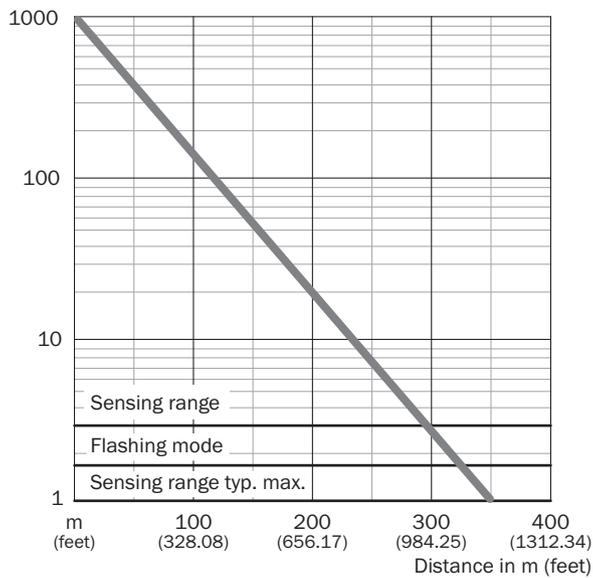
### Connection type



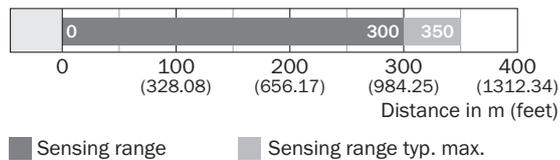
### Connection diagram Cd-166



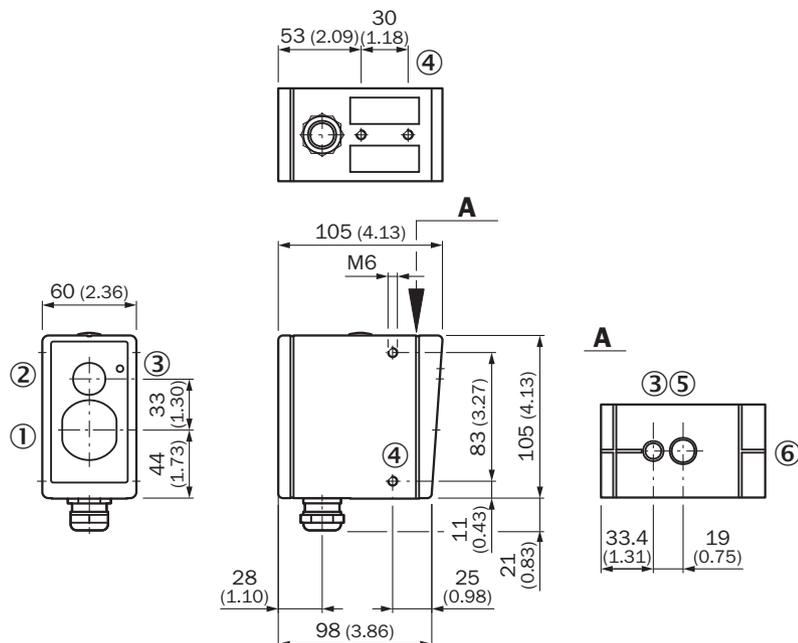
### Characteristic curve



### Sensing range diagram



### Dimensional drawing



Dimensions in mm (inch)

- ① Center of optical axis, sender (WS)
- ① Center of optical axis, receiver (WE)
- ② View finder lens
- ③ LED signal strength indicator
- ④ M6 threaded mounting hole, 8 mm deep
- ⑤ Eyepiece for alignment aid
- ⑥ Alignment sight

### Recommended accessories

Other models and accessories → [www.sick.com/W45](http://www.sick.com/W45)

	Brief description	Type	part no.
Mounting systems			
	<ul style="list-style-type: none"> <li><b>Description:</b> Mounting bracket</li> <li><b>Material:</b> Steel</li> <li><b>Details:</b> Steel, zinc coated</li> <li><b>Items supplied:</b> Mounting hardware included</li> </ul>	BEF-WN-W45	2011480

## 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)