



**WTB250-2R1651**  
W250-2

**COMPACT PHOTOELECTRIC SENSORS**

**SICK**  
Sensor Intelligence.

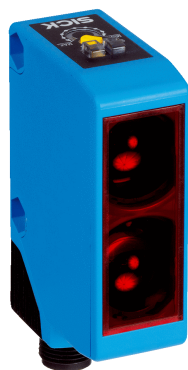


Illustration may differ



## Ordering information

Type	Part no.
WTB250-2R1651	6044694

**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

<b>Functional principle</b>	Photoelectric proximity sensor
<b>Functional principle detail</b>	Background suppression
<b>Dimensions (W x H x D)</b>	20 mm x 60 mm x 43.9 mm
<b>Housing design (light emission)</b>	Rectangular
<b>Sensing range max.</b>	200 mm ... 1,000 mm <sup>1)</sup>
<b>Sensing range</b>	200 mm ... 1,000 mm <sup>1)</sup>
<b>Focus</b>	Approx. 3°
<b>Type of light</b>	Visible red light
<b>Light source</b>	LED <sup>2)</sup>
<b>Light spot size (distance)</b>	Ø 35 mm (1,000 mm)
<b>Angle of dispersion</b>	Approx. 3°
<b>Adjustment</b>	Potentiometer, 2 turns <sup>3)</sup> Potentiometer, 2 rotations

<sup>1)</sup> Object with 90% remission (based on standard white, DIN 5033).

<sup>2)</sup> Average service life: 100,000 h at T<sub>J</sub> = +25 °C.

<sup>3)</sup> With position indicator.

### Mechanics/electronics

<b>Supply voltage U<sub>B</sub></b>	24 V DC ... 240 V DC <sup>1)</sup> 24 V AC/DC ... 240 V AC/DC <sup>1)</sup>
-------------------------------------	--

<sup>1)</sup> ± 10%.

<sup>2)</sup> Provide suitable spark suppression for inductive or capacitive loads.

<sup>3)</sup> With light/dark ratio 1:1.

<sup>4)</sup> Do not bend below 0 °C.

<sup>5)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>6)</sup> C = interference suppression.

<sup>7)</sup> Reference voltage: 250 V AC.

<sup>8)</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</b>	≤ 5 VA
<b>Switching output</b>	Relay, electrically isolated <sup>2)</sup>
<b>Output function</b>	Change-over contacts
<b>Switching mode</b>	Light switching <sup>2)</sup>
<b>Switching current (switching voltage)</b>	3 A (240 V AC) 3 A (30 V DC)
<b>Response time</b>	≤ 15 ms
<b>Switching frequency</b>	33 Hz <sup>3)</sup>
<b>Connection type</b>	Cable, 5-wire, 5 m <sup>4)</sup>
<b>Cable material</b>	PVC
<b>Conductor cross section</b>	0.76 mm <sup>2</sup>
<b>Cable diameter</b>	Ø 6.4 mm
<b>Circuit protection</b>	A <sup>5)</sup> C <sup>6)</sup>
<b>Protection class</b>	II <sup>7)</sup>
<b>Overvoltage category</b>	2
<b>Weight</b>	330 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>8)</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

1) +- 10%.

2) Provide suitable spark suppression for inductive or capacitive loads.

3) With light/dark ratio 1:1.

4) Do not bend below 0 °C.

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

6) C = interference suppression.

7) Reference voltage: 250 V AC.

8) 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.

## Classifications

<b>ECLASS 5.0</b>	27270904
<b>ECLASS 5.1.4</b>	27270904
<b>ECLASS 6.0</b>	27270904
<b>ECLASS 6.2</b>	27270904
<b>ECLASS 7.0</b>	27270904
<b>ECLASS 8.0</b>	27270904
<b>ECLASS 8.1</b>	27270904
<b>ECLASS 9.0</b>	27270904

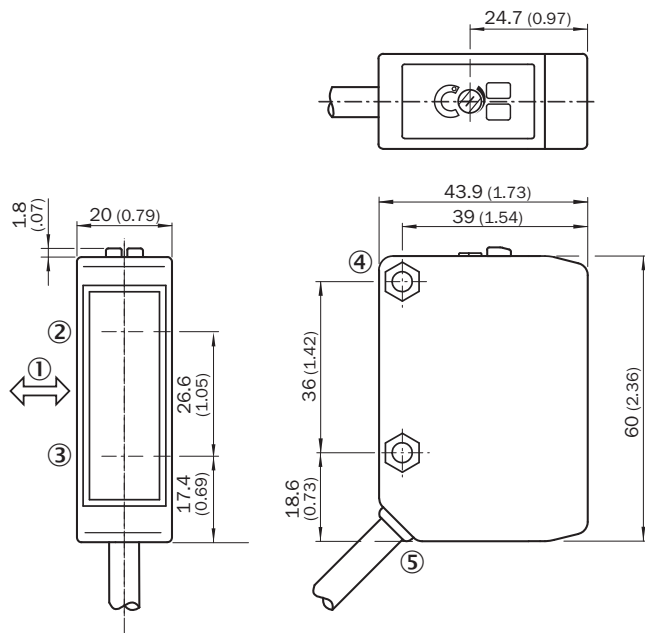
# WTB250-2R1651 | W250-2

## COMPACT PHOTOELECTRIC SENSORS

<b>ECLASS 10.0</b>	27270904
<b>ECLASS 11.0</b>	27270904
<b>ECLASS 12.0</b>	27270903
<b>ETIM 5.0</b>	EC002719
<b>ETIM 6.0</b>	EC002719
<b>ETIM 7.0</b>	EC002719
<b>ETIM 8.0</b>	EC002719
<b>UNSPSC 16.0901</b>	39121528

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

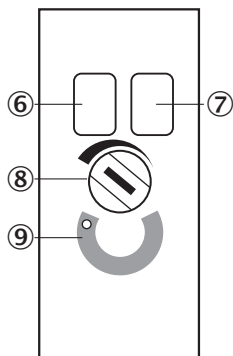
WTB250-2, AC/DC, cable



- ① Standard direction of the material being detected
- ② Axis of sender
- ③ Axis of receiver
- ④ Mounting hole  $\varnothing$  4.2 mm, for M4 hexagon nuts on both sides
- ⑤ Connection cable

## Adjustments

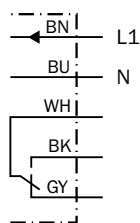
WTB250-2



- ⑥ LED indicator green: Stability indicator
- ⑦ LED indicator yellow: Status of received light beam
- ⑧ Sensing range adjustment: potentiometer
- ⑨ Position indicator for sensitivity setting (270°)

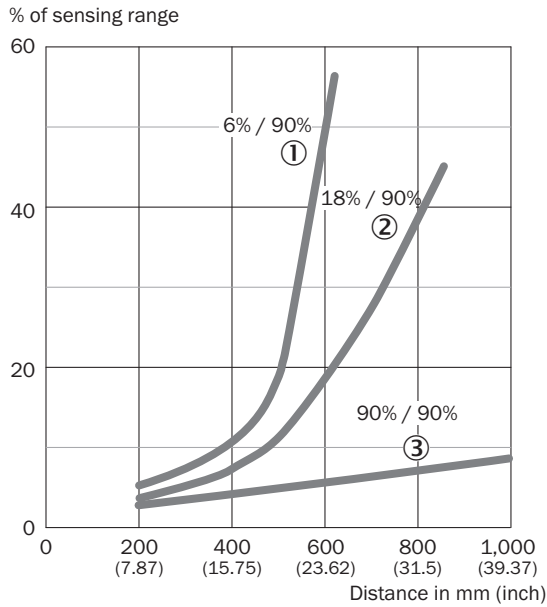
## Connection diagram

Cd-163



**Characteristic curve**

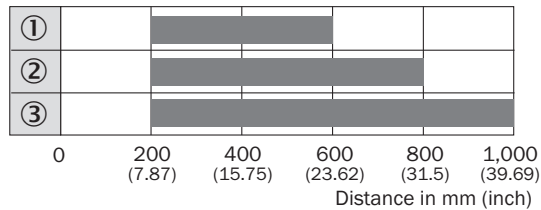
WTB250-2, 1000 mm



- ① Sensing range on black, white background
- ② Sensing range on gray, white background
- ③ Sensing range on white, white background

**Sensing range diagram**


WTB250-2, 1000 mm



- Sensing range
- ① Sensing range on black, white background
- ② Sensing range on gray, white background
- ③ Sensing range on white, white background

## 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			
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 5-pin, straight</li> <li>• <b>Description:</b> Unshielded, Head A: male connector, M12, 5-pin, straight, unshielded, for cable diameter 4 mm ... 6 mm Head B: -</li> <li>• <b>Connection systems:</b> Screw-type terminals</li> <li>• <b>Permitted cross-section:</b> ≤ 0.75 mm<sup>2</sup></li> <li>• <b>Note:</b> For field bus technology</li> </ul>	STE-1205-G	6022083

## 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)