



# WS/WE45-R650

W45

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



## Ordering information

Type	part no.
WS/WE45-R650	1010996

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

## 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>	Pulsating

<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>	20 V AC/DC ... 250 V AC/DC <sup>1)</sup>
<b>Power consumption, sender</b>	≤ 6 VA
<b>Power consumption, receiver</b>	≤ 6 VA
<b>Switching output</b>	Relay, electrically isolated <sup>2)</sup>

<sup>1)</sup> Limit values, rated current male connector: I<sub>N</sub> = max. 10A.

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

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

<sup>4)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>5)</sup> C = interference suppression.

<sup>6)</sup> Up to 140 °C with cooling plates (see accessories).

<b>Output function</b>	Change-over contacts
<b>Switching mode</b>	Light/dark switching <sup>2)</sup>
<b>Switching mode selector</b>	Selectable via time delay selector switch
<b>Switching current (switching voltage)</b>	4 A @ 250 V AC, 4 A @ 24 V DC, 0.125 A @ 120 V DC UL: 4 A @ 250 V AC, general purpose / 2 A @ 250 V AC, pilot duty
<b>Response time</b>	≤ 10 ms
<b>Switching frequency</b>	10 Hz <sup>3)</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 ... 12 s
<b>Connection type</b>	Connector Hirschmann, 6-pin
<b>Circuit protection</b>	A <sup>4)</sup> C <sup>5)</sup>
<b>Protection class</b>	I
<b>Weight</b>	1,600 g
<b>Front screen heating</b>	✓
<b>Housing material</b>	Metal
<b>Enclosure rating</b>	IP65
<b>Usage category</b>	AC-15, DC-13 According to EN 60947-1
<b>Ambient operating temperature</b>	-25 °C ... +55 °C <sup>6)</sup>
<b>Ambient temperature, storage</b>	-40 °C ... +70 °C
<b>UL File No.</b>	NRKH.E181493 & NRKH7.E181493
<b>Part number of individual components</b>	1009727 WE45-R650 1009734 WS45-U650

<sup>1)</sup> Limit values, rated current male connector:  $I_N = \max. 10A$ .

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

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

<sup>4)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>5)</sup> C = interference suppression.

<sup>6)</sup> Up to 140 °C with cooling plates (see accessories).

## Certificates

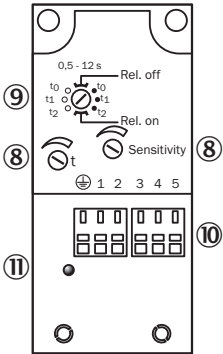
<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>Moroccan declaration of conformity</b>	✓
<b>China RoHS</b>	✓
<b>CCC certificate</b>	✓
<b>cULus certificate</b>	✓
<b>Photobiological safety (DIN EN 62471) certificate</b>	✓

## Classifications

<b>ECLASS 5.0</b>	27270901
<b>ECLASS 5.1.4</b>	27270901

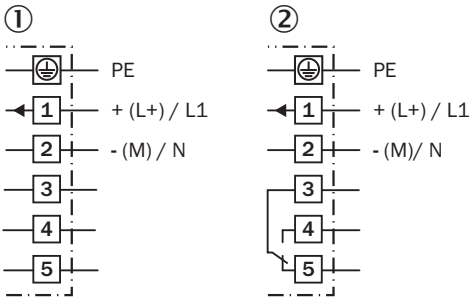
<b>ECLASS 6.0</b>	27270901
<b>ECLASS 6.2</b>	27270901
<b>ECLASS 7.0</b>	27270901
<b>ECLASS 8.0</b>	27270901
<b>ECLASS 8.1</b>	27270901
<b>ECLASS 9.0</b>	27270901
<b>ECLASS 10.0</b>	27270901
<b>ECLASS 11.0</b>	27270901
<b>ECLASS 12.0</b>	27270901
<b>ETIM 5.0</b>	EC002716
<b>ETIM 6.0</b>	EC002716
<b>ETIM 7.0</b>	EC002716
<b>ETIM 8.0</b>	EC002716
<b>UNSPSC 16.0901</b>	39121528

Adjustments



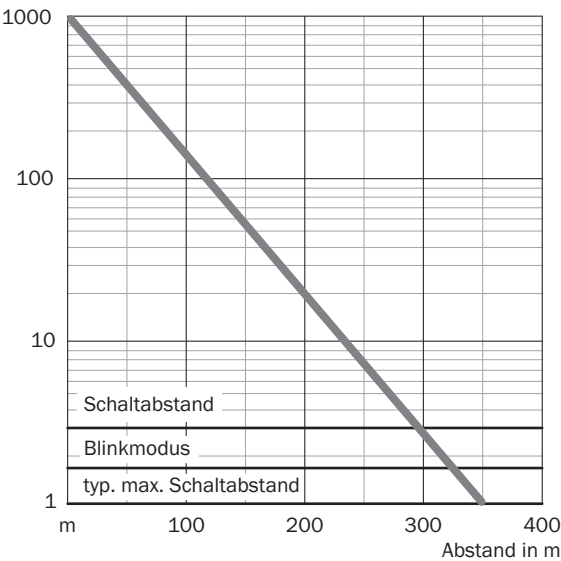
- ⑦ sensitivity control
- ⑧ Time control
- ⑨ time delay selector switch
- ⑩ terminal strip
- ⑪ Status indicator

Connection diagram Cd-168

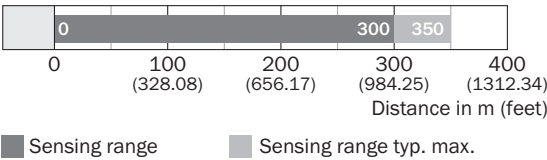


- ① sender
- ② receiver

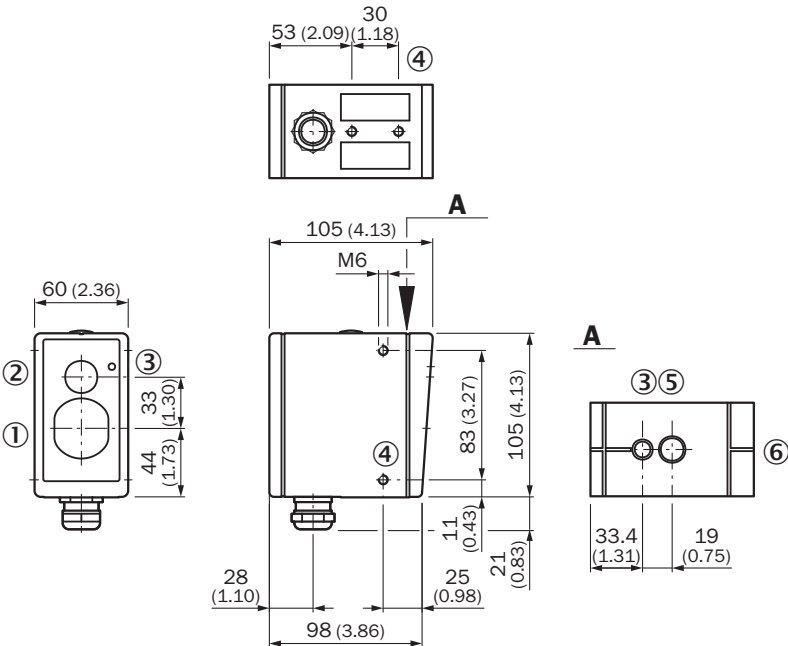
Characteristic curve



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.
connectors and cables			
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M26, 7-pin, straight, A-coded</li> <li>• <b>Description:</b> Unshielded</li> <li>• <b>Connection systems:</b> Crimp contacts</li> <li>• <b>Permitted cross-section:</b> 0.5 mm² ... 1.5 mm²</li> <li>• <b>Note:</b> 7 crimping contacts enclosed</li> </ul>	DOS-0607G000GA3KMC	6006612
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)