



# WTB12-3N1231

## W12-3

SMALL PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



## Ordering information

Type	Part no.
WTB12-3N1231	1041419

**Included in delivery:** BEF-KH-W12 (2)

Other models and accessories → [www.sick.com/W12-3](http://www.sick.com/W12-3)

## Detailed technical data

### Features

<b>Functional principle</b>	Photoelectric proximity sensor
<b>Functional principle detail</b>	Background suppression
<b>Sensing range max.</b>	20 mm ... 350 mm <sup>1)</sup>
<b>Sensing range</b>	20 mm ... 350 mm
<b>Emitted beam</b>	
Light source	LED <sup>2)</sup>
Type of light	Visible red light
Light spot size (distance)	Ø 6 mm (200 mm)
<b>Key LED figures</b>	
Wave length	640 nm
<b>Adjustment</b>	Potentiometer, 5 turns
<b>Items supplied</b>	2 x clamps BEF-KH-W12, incl. screws

<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.

### Safety-related parameters

<b>MTTF<sub>D</sub></b>	672 years
<b>DC<sub>avg</sub></b>	0 %
<b>T<sub>M</sub> (mission time)</b>	20 years

## Electrical data

<b>Supply voltage <math>U_B</math></b>	10 V DC ... 30 V DC <sup>1)</sup>
<b>Ripple</b>	< 5 V <sub>pp</sub> <sup>2)</sup>
<b>Current consumption</b>	45 mA <sup>3)</sup>
<b>Protection class</b>	III
<b>Digital output</b>	
Type	NPN
Switching mode	Light/dark switching
Signal voltage NPN HIGH/LOW	Approx. $V_S$ / < 2.5 V
Output current $I_{max}$	≤ 100 mA
Response time	≤ 330 μs <sup>4)</sup>
Switching frequency	1,500 Hz <sup>5)</sup>
<b>Output function</b>	Complementary
<b>Circuit protection</b>	A <sup>6)</sup> C <sup>7)</sup> D <sup>8)</sup>

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

<sup>2)</sup> May not fall below or exceed  $U_y$  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 =  $V_S$  connections reverse-polarity protected.

<sup>7)</sup> C = interference suppression.

<sup>8)</sup> D = outputs overcurrent and short-circuit protected.

## Mechanical data

<b>Housing</b>	Rectangular
<b>Dimensions (W x H x D)</b>	15.6 mm x 48.5 mm x 42 mm
<b>Connection</b>	Cable, 4-wire, 5 m <sup>1)</sup>
<b>Connection detail</b>	
Conductor size	0.25 mm <sup>2</sup>
Length of cable (L)	5 m <sup>1)</sup>
<b>Material</b>	
Housing	Metal
Front screen	Plastic, PMMA
Cable	Plastic, PVC
<b>Weight</b>	280 g

<sup>1)</sup> Do not bend below 0 °C.

## Ambient data

<b>Enclosure rating</b>	IP66 IP67 IP69K
<b>Ambient operating temperature</b>	-40 °C ... +60 °C
<b>Ambient temperature, storage</b>	-40 °C ... +75 °C

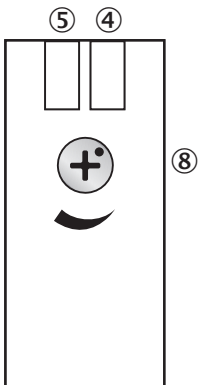
<b>UL File No.</b>	NRKH.E181493 & NRKH7.E181493
--------------------	------------------------------

### 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
<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

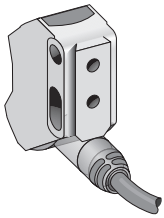
### Adjustments

WTB12-3, WTF12-3, potentiometer



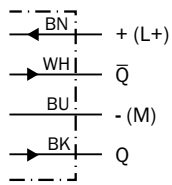
- ④ LED indicator green: Supply voltage active
- ⑤ LED indicator yellow: Status of received light beam
- ⑧ Sensing range adjustment: potentiometer

### Connection type



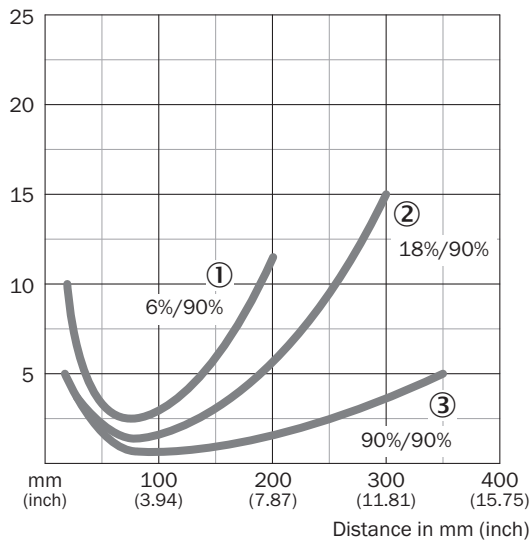
### Connection diagram

Cd-094



### Characteristic curve

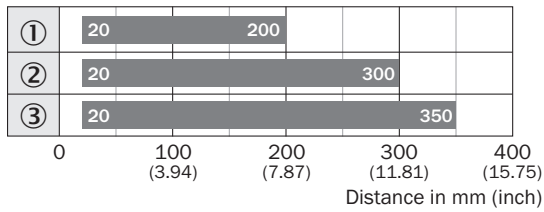
WTB12-3, red light, 350 mm



- ① Sensing range on black, 6% remission factor
- ② Sensing range on gray, 18% remission factor
- ③ Sensing range on white, 90% remission factor

### Sensing range diagram

WTB12-3, red light, 350 mm

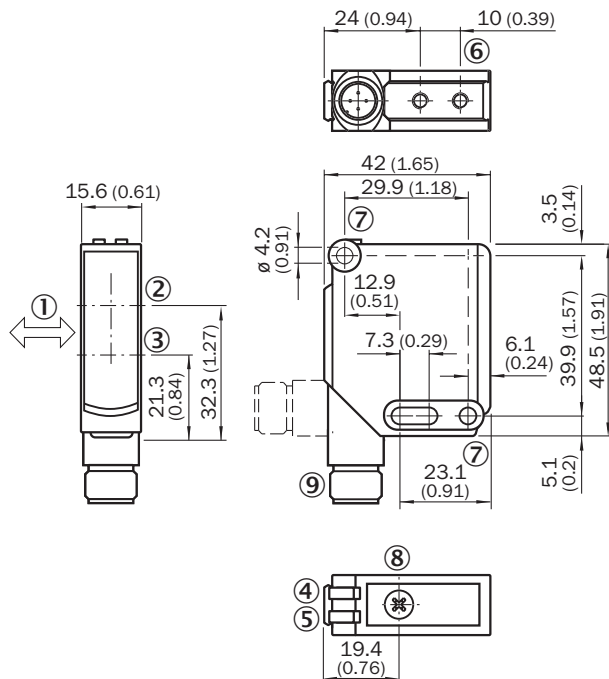


■ Sensing range

- ① Sensing range on black, 6% remission factor
- ② Sensing range on gray, 18% remission factor
- ③ Sensing range on white, 90% remission factor

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


WTB12-3, potentiometer



- ① Standard direction of the material being detected
- ② Optical axis, receiver
- ③ Optical axis, sender
- ④ LED indicator green: Supply voltage active
- ⑤ LED indicator yellow: Status of received light beam
- ⑥ M4 threaded mounting hole, 4 mm deep
- ⑦ Mounting hole,  $\varnothing 4.2$  mm
- ⑧ Sensing range adjustment: potentiometer
- ⑨ Connection

### Recommended accessories

Other models and accessories → [www.sick.com/W12-3](http://www.sick.com/W12-3)

	Brief description	Type	Part no.
Others			
	<ul style="list-style-type: none"><li>• <b>Connection type head A:</b> Male connector, M12, 4-pin, straight, A-coded</li><li>• <b>Description:</b> Unshielded</li><li>• <b>Connection systems:</b> Screw-type terminals</li><li>• <b>Permitted cross-section:</b> ≤ 0.75 mm<sup>2</sup></li></ul>	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)