



DATA SHEET

# WTB12-3N1711

W12  
Photoelectric sensors

# SICK

Sensor Intelligence

## PHOTOELECTRIC SENSORS

## WTB12-3N1711

## ORDERING INFORMATION

Type	part no.
WTB12-3N1711	1041430

Further device versions and accessories at [www.sick.com/W12](http://www.sick.com/W12)



Illustration may differ



## DETAILED TECHNICAL DATA

## FEATURES

Functional principle	Photoelectric proximity sensor	
Functional principle detail	Background suppression	
Sensing range max.	20 mm ... 600 mm <sup>1)</sup>	
Sensing range	20 mm ... 600 mm	
Emitted beam	Light source	LED <sup>2)</sup>
	Type of light	Infrared light
	Light spot size (distance)	15 mm x 15 mm (200 mm)
Key LED figures	Wave length	850 nm
	Adjustment	Potentiometer, 5 turns
Items supplied	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  $T_u = +25^\circ\text{C}$ .

## SAFETY-RELATED PARAMETERS

MTTF <sub>D</sub>	533 years
DC <sub>avg</sub>	0 %
T <sub>M</sub> (mission time)	20 years

**ELECTRONICS**

Supply voltage $U_B$	10 V DC ... 30 V DC <sup>1)</sup>												
Ripple	< 5 V <sub>pp</sub> <sup>2)</sup>												
Current consumption	55 mA <sup>3)</sup>												
Protection class	III												
Digital output	<table border="0"> <tr> <td>Type</td> <td>NPN</td> </tr> <tr> <td>Switching mode</td> <td>Light/dark switching</td> </tr> <tr> <td>Signal voltage NPN HIGH/LOW</td> <td>Approx. <math>V_S</math> / &lt; 2.5 V</td> </tr> <tr> <td>Output current <math>I_{max}</math></td> <td>≤ 100 mA</td> </tr> <tr> <td>Response time</td> <td>≤ 330 μs <sup>4)</sup></td> </tr> <tr> <td>Switching frequency</td> <td>1,500 Hz <sup>5)</sup></td> </tr> </table>	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>
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Output current $I_{max}$	≤ 100 mA												
Response time	≤ 330 μs <sup>4)</sup>												
Switching frequency	1,500 Hz <sup>5)</sup>												
Output function	Complementary												
Circuit protection	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  $U_V$  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 =  $V_V$  connections reverse-polarity protected.

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

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

**MECHANICS**

Housing	Rectangular						
Dimensions (W x H x D)	15.6 mm x 48.5 mm x 42 mm						
Connection	Cable, 4-wire, 3 m <sup>1)</sup>						
Connection detail	<table border="0"> <tr> <td>Conductor size</td> <td>0.25 mm<sup>2</sup></td> </tr> <tr> <td>Length of cable (L)</td> <td>3 m <sup>1)</sup></td> </tr> </table>	Conductor size	0.25 mm <sup>2</sup>	Length of cable (L)	3 m <sup>1)</sup>		
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Material	<table border="0"> <tr> <td>Housing</td> <td>Metal</td> </tr> <tr> <td>Front screen</td> <td>Plastic, PMMA</td> </tr> <tr> <td>Cable</td> <td>Plastic, PVC</td> </tr> </table>	Housing	Metal	Front screen	Plastic, PMMA	Cable	Plastic, PVC
Housing	Metal						
Front screen	Plastic, PMMA						
Cable	Plastic, PVC						
Weight	250 g						

<sup>1)</sup> Do not bend below 0 °C.

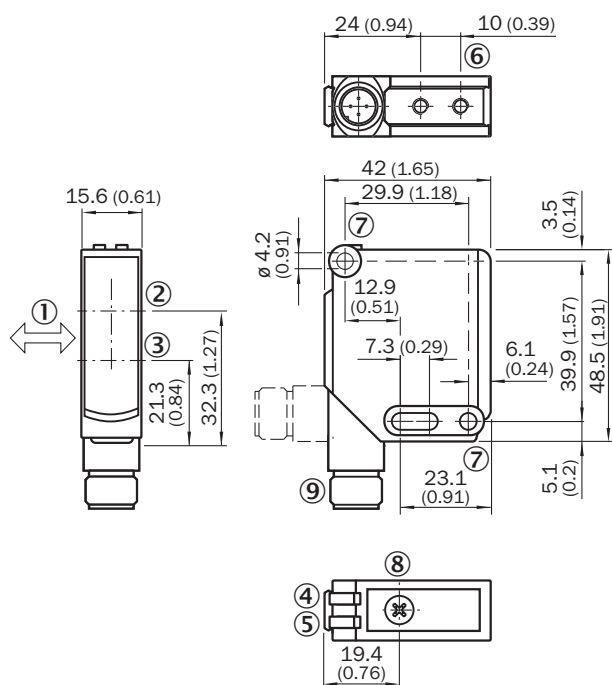
**AMBIENT DATA**

Enclosure rating	IP66 IP67 IP69K
Ambient operating temperature	-40 °C ... +60 °C
Ambient temperature, storage	-40 °C ... +75 °C
UL File No.	NRKH.E181493 & NRKH7.E181493

**CERTIFICATES**

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
ECOLAB certificate	✓
cULus certificate	✓
Photobiological safety (DIN EN 62471) certificate	✓

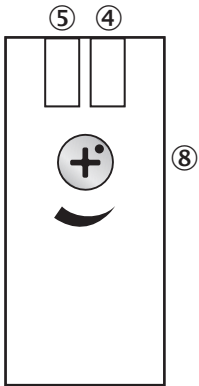
**DIMENSIONAL DRAWING WTB12-3, POTENTIOMETER**



Dimensions in mm (inch)

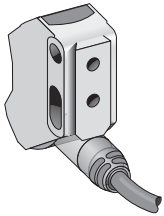
- ① Standard direction of the material being detected
- ② Optical axis, receiver
- ③ Optical axis, sender
- ④ LED indicator green: Supply voltage active
- ⑤ LED indicator yellow: Status of received light beam
- ⑥ M4 threaded mounting hole, 4 mm deep
- ⑦ Mounting hole, Ø 4.2 mm
- ⑧ Sensing range adjustment: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

**ADJUSTMENTS WTB12-3, WTF12-3, POTENTIOMETER**

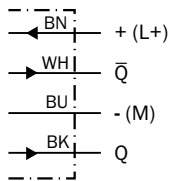


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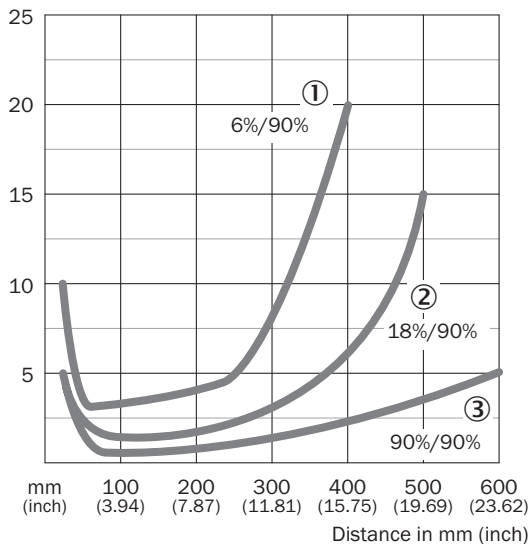
**CONNECTION TYPE**



**CONNECTION DIAGRAM CD-094**

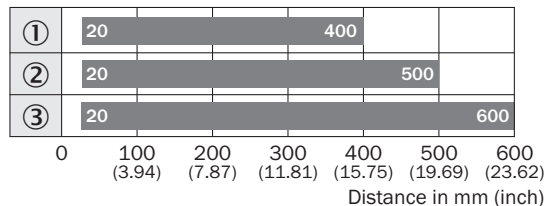


**CHARACTERISTIC CURVE WTB12-3, INFRARED LIGHT**



- 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, INFRARED LIGHT**



- 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

Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at [www.sick.com/1041430](http://www.sick.com/1041430)



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WALDKIRCH  
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# SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

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