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DATA SHEET

**WTB4-3F2161**

W4  
Photoelectric sensors

**SICK** Sensor Intelligence

## PHOTOELECTRIC SENSORS

## WTB4-3F2161

## ORDERING INFORMATION

Type	part no.
WTB4-3F2161	1028107

Further device versions and accessories at [www.sick.com/W4](http://www.sick.com/W4)



Illustration may differ

## DETAILED TECHNICAL DATA

## FEATURES

Functional principle	Photoelectric proximity sensor	
Functional principle detail	Background suppression	
Sensing range max.	4 mm ... 150 mm <sup>1)</sup>	
Sensing range	15 mm ... 150 mm <sup>1)</sup>	
Emitted beam	Light source	PinPoint LED <sup>2)</sup>
	Type of light	Visible red light
	Light spot size (distance)	Ø 7 mm (50 mm)
Key LED figures	Wave length	650 nm
	Adjustment	Potentiometer, 5 turns
Special applications	Detecting small objects	

<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>u</sub> = +25 °C.

## SAFETY-RELATED PARAMETERS

MTTF <sub>D</sub>	1,064 years
DC <sub>avg</sub>	0 %

**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	20 mA <sup>3)</sup>
Protection class	III
Digital output	Type PNP Switching mode Dark switching Output current $I_{max}$ ≤ 100 mA Response time < 0.5 ms <sup>4)</sup> Switching frequency 1,000 Hz <sup>5)</sup>
Circuit protection	A <sup>6)</sup> C <sup>7)</sup> D <sup>8)</sup>

<sup>1)</sup> Limit values.<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 =  $V_S$  connections reverse-polarity protected.<sup>7)</sup> C = interference suppression.<sup>8)</sup> D = outputs overcurrent and short-circuit protected.**MECHANICS**

Housing	Rectangular
Design detail	Flat
Dimensions (W x H x D)	16 mm x 39.5 mm x 12 mm
Connection	Connector M8, 3-pin
Material	Housing Plastic, ABS Front screen Plastic, PMMA
Weight	30 g

**AMBIENT DATA**

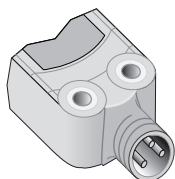
Enclosure rating	IP67 IP66
Ambient operating temperature	-40 °C ... +60 °C
Ambient temperature, storage	-40 °C ... +75 °C
UL File No.	NRKH.E181493 & NRKH7.E181493

**CERTIFICATES**

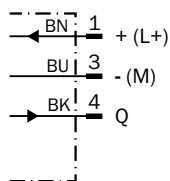
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
ECOLAB certificate	✓

Photobiological safety (DIN EN 62471) certificate ✓

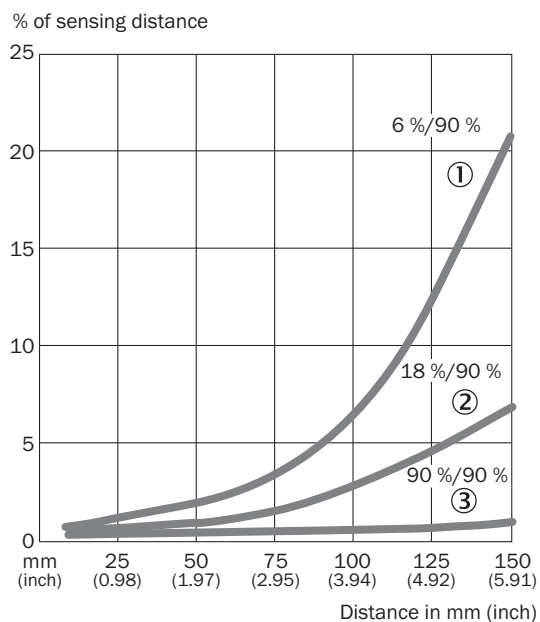
**CONNECTION TYPE**



**CONNECTION DIAGRAM CD-045**

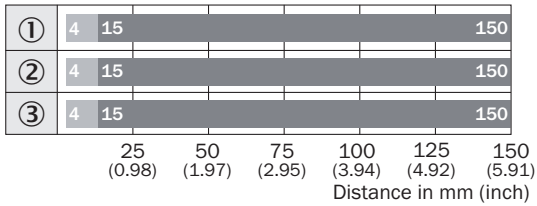


**CHARACTERISTIC CURVE WTB4-3**



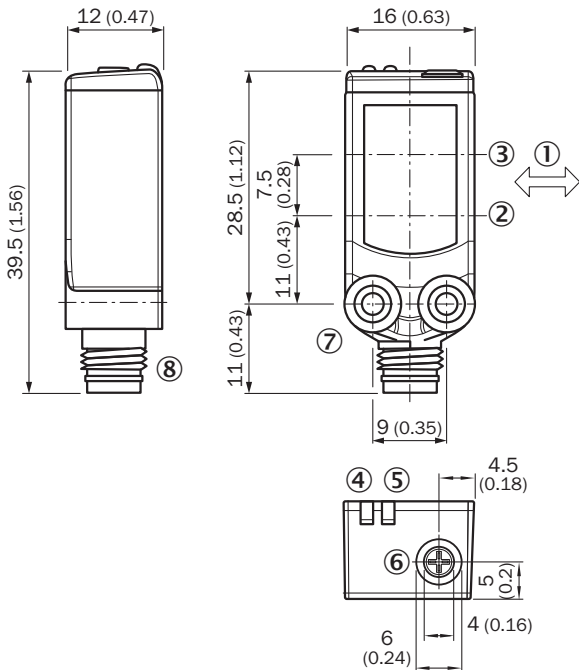
- ① Sensing range on black, 6% remission factor
- ② Sensing range on gray, 18% remission factor
- ③ Sensing range on white, 90% remission factor

**SENSING RANGE DIAGRAM WTB4-3**



- Sensing range max.    ■ 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 WTX4-3, POTENTIOMETER**



- Dimensions in mm (inch)
- ① Standard direction of the material being detected
  - ② Optical axis, sender
  - ③ Optical axis, receiver
  - ④ LED indicator yellow: Status of received light beam
  - ⑤ LED indicator green: Supply voltage active
  - ⑥ Potentiometer
  - ⑦ Threaded mounting hole M3
  - ⑧ Connection

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/1028107](http://www.sick.com/1028107)



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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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