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DATA SHEET

WTB9-3N1161

W9
Photoelectric sensors

SICK Sensor Intelligence



Illustration may differ

PHOTOELECTRIC SENSORS

WTB9-3N1161

ORDERING INFORMATION

Type	part no.
WTB9-3N1161	1049052

Further device versions and accessories at www.sick.com/W9

DETAILED TECHNICAL DATA

FEATURES

Functional principle	Photoelectric proximity sensor
Functional principle detail	Background suppression
Dimensions (W x H x D)	12.2 mm x 50 mm x 23.6 mm
Housing design (light emission)	Rectangular
Mounting hole	M3
Sensing range max.	20 mm ... 350 mm [1]
Sensing range	20 mm ... 200 mm [2]
Type of light	Visible red light
Light source	PinPoint LED [3]
Light spot size (distance)	Ø 4.5 mm (75 mm)
Wave length	650 nm
Adjustment	Potentiometer, 5 turns

[1] Object with 90% remission (based on standard white, DIN 5033).

[2] Object with 6% remission (based on standard white, DIN 5033).

[3] Average service life: 100,000 h at T_U = +25 °C.

MECHANICS/ELECTRONICS

Supply voltage U_B	10 V DC ... 30 V DC [1]
Ripple	< 5 V_{pp} [2]
Current consumption	30 mA [3]
Switching output	NPN [4]
Output function	Complementary
Switching mode	Light/dark switching [4]
Output current $I_{max.}$	≤ 100 mA [5]
Response time	< 0.333 ms [6]
Switching frequency	1,500 Hz [7]
Connection type	Cable, 4-wire, 2 m [8]
Cable material	Plastic, PVC
Conductor cross section	0.14 mm²
Circuit protection	A [9] B [10] C [11]
Protection class	III
Weight	80 g
Housing material	Plastic, VISTAL®
Optics material	Plastic, PMMA
Enclosure rating	IP66 IP67 IP69K
Ambient operating temperature	–40 °C ... +60 °C
Ambient temperature, storage	–40 °C ... +75 °C
UL File No.	NRKH.E181493

[1] Limit values when operated in short-circuit protected network: max. 8 A.

[2] May not fall below or exceed U_V tolerances.

[3] Without load.

[4] Q = light switching.

[5] At and above Tu 50 °C, a max. load current of Imax. = 50 mA is permitted.

[6] Signal transit time with resistive load.

[7] With light/dark ratio 1:1.

[8] Do not bend below 0 °C.

[9] A = V_S connections reverse-polarity protected.

[10] B = inputs and output reverse-polarity protected.

[11] C = interference suppression.

SAFETY-RELATED PARAMETERS

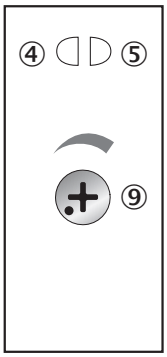
$MTTF_D$	891 years
DC_{avg}	0 %
T_M (mission time)	20 years

CERTIFICATES

EU declaration of conformity	✓
UK declaration of conformity	✓

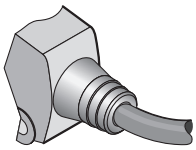
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
China Compulsory Product Certification (CCC) exempt	✓
ECOLAB certificate	✓
cULus certificate	✓
Photobiological safety (DIN EN 62471) certificate	✓

ADJUSTMENTS POSSIBLE POTENTIOMETER

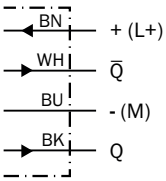


④ LED indicator yellow: Status of received light beam
⑤ LED indicator green: power on
⑨ Adjustment of sensing range

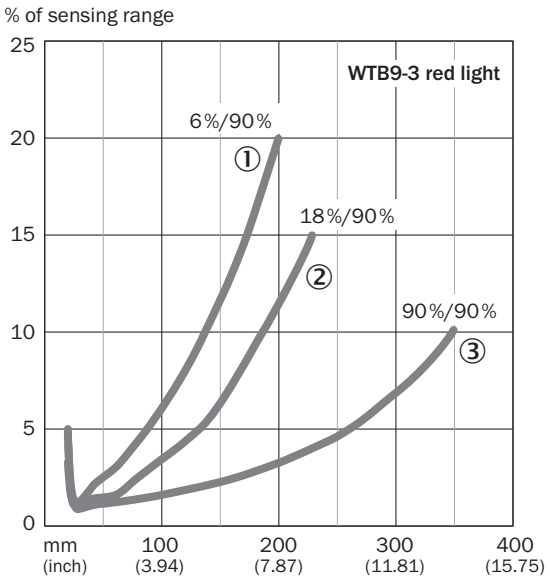
CONNECTION TYPE



CONNECTION DIAGRAM CD-094

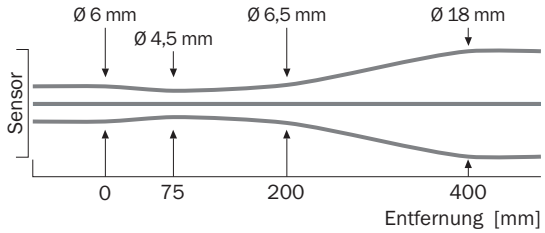


CHARACTERISTIC CURVE WT9-3, RED LIGHT, 350 MM

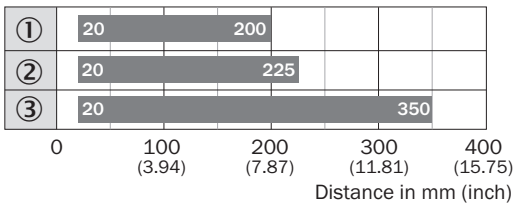


① Sensing range on black, 6% remission factor
② Sensing range on gray, 18% remission factor
③ Sensing range on white, 90% remission factor

LIGHT SPOT SIZE WT9-3, RED LIGHT, 350 MM



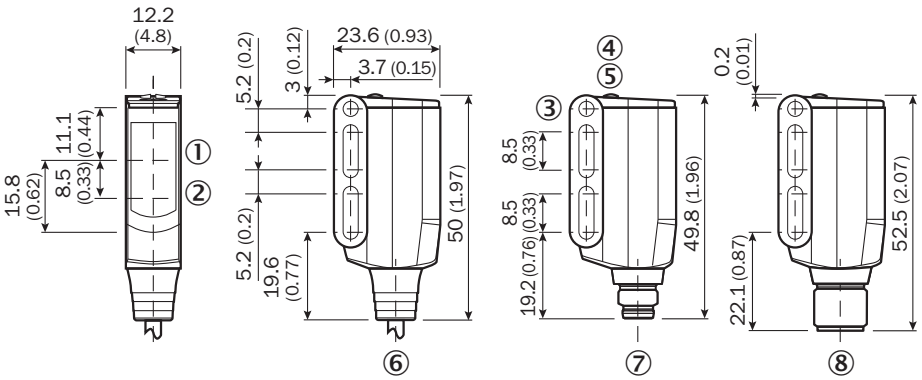
SENSING RANGE DIAGRAM WT9-3, RED LIGHT, 350 MM



Sensing range

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

DIMENSIONAL DRAWING WT9-3



Dimensions in mm (inch)
① Center of optical axis, receiver
② Center of optical axis, sender
③ Mounting hole M3 (Ø 3.1 mm)
④ LED indicator yellow: Status of received light beam
⑤ LED indicator green: power on
⑥ Connection cable 2 m
⑦ male connector M8, 4-pin
⑧ male connector M12, 4-pin

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/1049052

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SICK AT A GLANCE

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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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