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DATA SHEET

WTB2S-2P3251

W2
Photoelectric sensors

SICK Sensor Intelligence



Illustration may differ

PHOTOELECTRIC SENSORS

WTB2S-2P3251

ORDERING INFORMATION

Type	part no.
WTB2S-2P3251	1066111

Further device versions and accessories at www.sick.com/W2

DETAILED TECHNICAL DATA

FEATURES

Functional principle	Photoelectric proximity sensor
Functional principle detail	Background suppression
Dimensions (W x H x D)	7.7 mm x 27.5 mm x 13.5 mm
Housing design (light emission)	Rectangular
Sensing range max.	1 mm ... 150 mm [1]
Sensing range	18 mm ... 110 mm [1]
Type of light	Visible red light
Light source	PinPoint LED [2]
Light spot size (distance)	Ø 3.5 mm (50 mm)
Wave length	640 nm
Adjustment	Potentiometer, 3 turns
Special applications	Detecting small objects

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

[2] 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	20 mA [3]
Switching output	PNP
Switching mode	Light/dark switching
Output current $I_{max.}$	≤ 50 mA
Response time	< 0.5 ms [4]
Switching frequency	1,000 Hz [5]
Connection type	Cable with M8 male connector, 4-pin, 200 mm [6]
Cable material	Plastic, PVC
Conductor cross section	0.09 mm²
Cable diameter	Ø 3 mm
Circuit protection	A [7] B [8] D [9]
Housing material	Plastic, ABS/PC
Optics material	Plastic, PMMA
Enclosure rating	IP67
Ambient operating temperature	–25 °C ... +50 °C
Ambient temperature, storage	–40 °C ... +75 °C
UL File No.	NRKH.E181493

[1] Limit values.

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

[3] Without load.

[4] Signal transit time with resistive load.

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

[6] Do not bend below 0 °C.

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

[8] B = output reverse-polarity protected.

[9] D = outputs overcurrent and short-circuit protected.

SAFETY-RELATED PARAMETERS

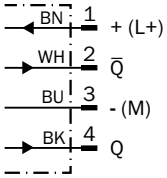
$MTTF_D$	3,138 years
DC_{avg}	0 %

CERTIFICATES

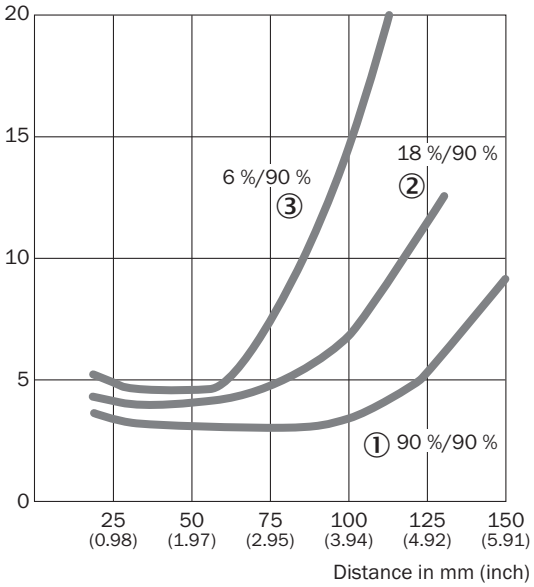
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
China Compulsory Product Certification (CCC) exempt	✓
cULus certificate	✓

Photobiological safety (DIN EN 62471) certificate	✓

CONNECTION DIAGRAM CD-084



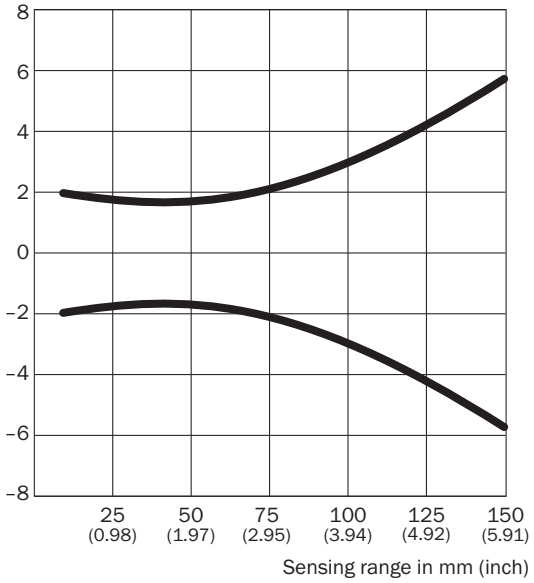
CHARACTERISTIC CURVE WTB2S-2, 150 MM



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

LIGHT SPOT SIZE WTB2S-2, 150 MM

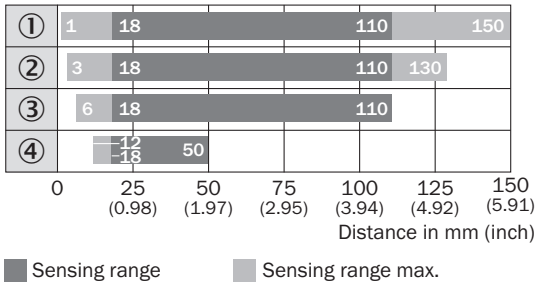
Spot diameter in mm (inch)



Dimensions in mm (inch)

Sensing range	Spot diameter
10 **(0.39)**	4.0 (0.16)
20 **(0.79)**	3.7 (0.15)
40 **(1.57)**	3.4 (0.13)
80 **(3.15)**	4.4 (0.17)
120 **(4.72)**	8.0 (0.31)
150 **(5.91)**	11.5 (0.45)

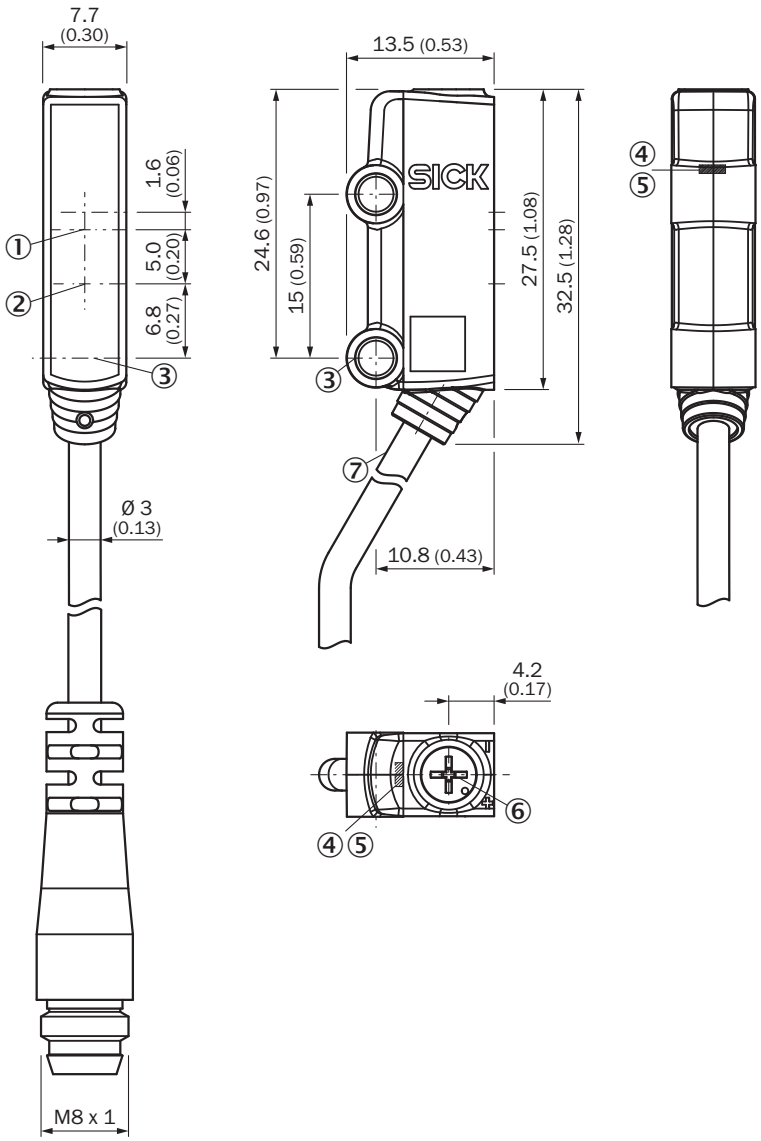
SENSING RANGE DIAGRAM WTB2S-2, 150 MM



Sensing range Sensing range max.

① Sensing range on white, 90% remission factor
② Sensing range on gray, 18% remission factor
③ Sensing range on black, 6% remission factor
④ sensing range to ultra-black, 1% remission factor

DIMENSIONAL DRAWING WTB2S-2, 150 MM



Dimensions in mm (inch)
① optical axis, receiver
② optical axis, sender
③ Mounting hole, Ø 3.2 mm
④ LED indicator green: Supply voltage active
⑤ LED indicator yellow: Status of received light beam
⑥ Potentiometer
⑦ 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/1066111

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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.

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