SICK.COM




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]<br>B [8]<br>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

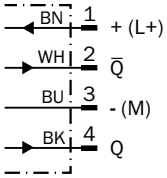
| | |
|---|---|
| $MTTF_D$ | 3,138 years |
| $DC_{avg}$ | 0 % |

## CERTIFICATES

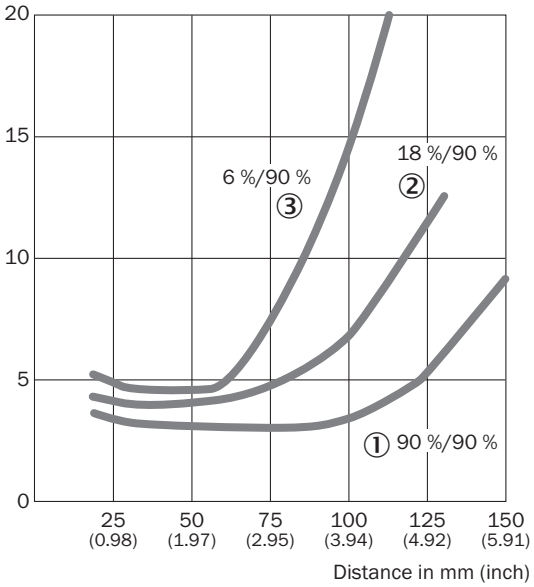
| | |
|---|---|
| EU declaration of conformity | ✓ |
| UK declaration of conformity | ✓ |
| ACMA declaration of conformity | ✓ |
| Moroccan declaration of conformity | ✓ |
| China RoHS | ✓ |
| China Compulsory Product Certification (CCC) exempt | ✓ |
| cULus certificate | ✓ |

| | |
|---|---|
| Photobiological safety (DIN EN 62471) certificate | ✓ |

### CONNECTION DIAGRAM CD-084

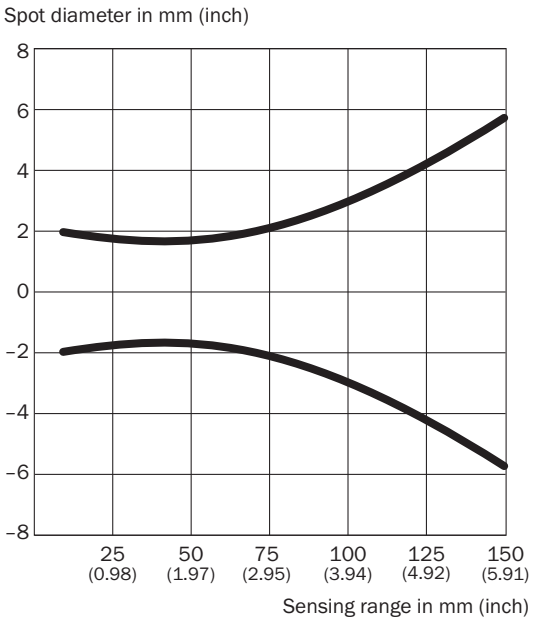



### CHARACTERISTIC CURVE WTB2S-2, 150 MM




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

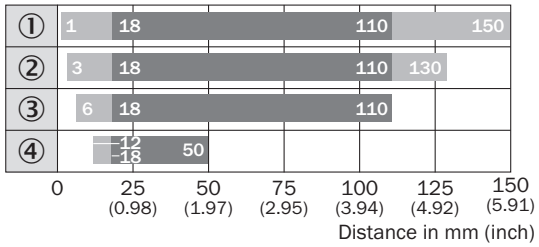
### LIGHT SPOT SIZE WTB2S-2, 150 MM




**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) |

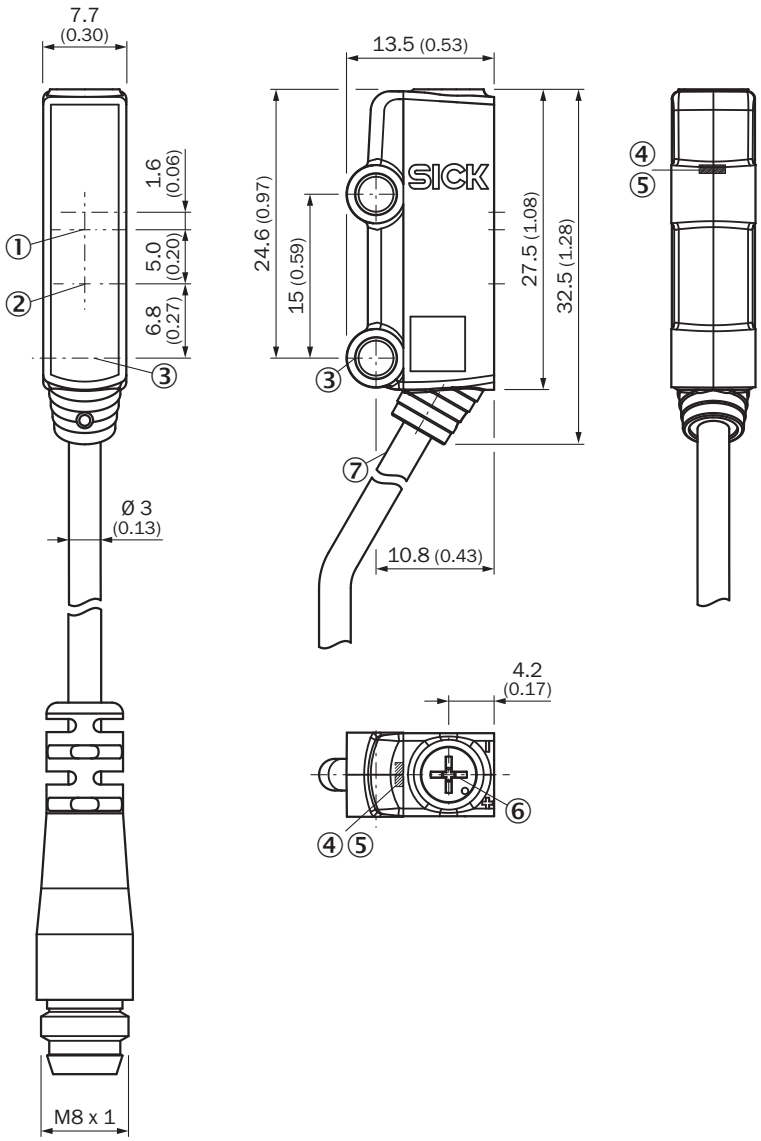
### SENSING RANGE DIAGRAM WTB2S-2, 150 MM




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.

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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