



DATA SHEET

# WTB2SC-2P3244B05

W2  
Photoelectric sensors

# SICK

Sensor Intelligence



Illustration may differ

PHOTOELECTRIC SENSORS

WTB2SC-  
2P3244B05

ORDERING INFORMATION

| Type             | part no. |
|------------------|----------|
| WTB2SC-2P3244B05 | 1120664  |

Further device versions and accessories at [www.sick.com/W2](http://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 21.8 mm x 13.5 mm                                                       |
| Housing design (light emission) | Rectangular                                                                      |
| Sensing range max.              | 4 mm ... 110 mm <sup>1)</sup>                                                    |
| Preset sensing range            | 45 mm                                                                            |
| Sensing range                   | 10 mm ... 90 mm <sup>1)</sup>                                                    |
| Type of light                   | Visible red light                                                                |
| Light source                    | PinPoint LED <sup>2)</sup>                                                       |
| Light spot size (distance)      | Ø 4.4 mm (60 mm)                                                                 |
| Wave length                     | 640 nm                                                                           |
| Adjustment                      | IO-Link                                                                          |
| Pin 2 configuration             | External input, Teach-in input, Sender off input, Detection output, logic output |
| Special applications            | Detecting small objects                                                          |
| Special features                | Sensing range preset: 45 mm<br>Pin 2 = deactivated<br>Inverter 1 = activated     |

<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.

MECHANICS/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>                                       |
| Switching output                 | PNP <sup>4)</sup><br><sup>5)</sup>                        |
| Switching mode                   | Light/dark switching <sup>4)</sup>                        |
| Switching mode selector          | Programmable                                              |
| Output current $I_{max}$         | ≤ 50 mA                                                   |
| Response time                    | < 0.5 ms <sup>6)</sup>                                    |
| Response time Q/ on Pin 2        | 300 μs ... 450 μs <sup>6) 7)</sup>                        |
| Switching frequency              | 1,000 Hz                                                  |
| Switching frequency Q / to pin 2 | 1,000 Hz <sup>7)</sup><br><sup>8)</sup>                   |
| Connection type                  | Cable with M8 male connector, 4-pin, 200 mm <sup>9)</sup> |
| Cable material                   | Plastic, PVC                                              |
| Conductor cross section          | 0.09 mm <sup>2</sup>                                      |
| Cable diameter                   | Ø 3 mm                                                    |
| Circuit protection               | A <sup>10)</sup><br>B <sup>11)</sup><br>D <sup>12)</sup>  |
| Protection class                 | III                                                       |
| Housing material                 | Plastic, ABS/PC                                           |
| Optics material                  | Plastic, PMMA                                             |
| Enclosure rating                 | IP67                                                      |
| Description                      | IO-Link                                                   |
| Ambient operating temperature    | -25 °C ... +50 °C                                         |
| Ambient temperature, storage     | -40 °C ... +75 °C                                         |
| UL File No.                      | NRKH.E181493                                              |
| Repeatability Q/ on Pin 2:       | 150 μs <sup>7)</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> Parametrisable via IO-Link.

<sup>5)</sup> Pin 4: This switching output must not be connected to another output.

<sup>6)</sup> Signal transit time with resistive load.

<sup>7)</sup> Valid for Q \ on Pin2, if configured with software.

<sup>8)</sup> With light/dark ratio 1:1.

<sup>9)</sup> Do not bend below 0 °C.

<sup>10)</sup> A =  $V_B$  connections reverse-polarity protected.

<sup>11)</sup> B = output reverse-polarity protected.

<sup>12)</sup> D = outputs overcurrent and short-circuit protected.

SAFETY-RELATED PARAMETERS

|                   |             |
|-------------------|-------------|
| MTTF <sub>D</sub> | 1,547 years |
| DC <sub>avg</sub> | 0 %         |

COMMUNICATION INTERFACE

|                             |                                                                                                              |
|-----------------------------|--------------------------------------------------------------------------------------------------------------|
| IO-Link                     | ✓ , IO-Link V1.1                                                                                             |
| Data transmission rate      | COM2 (38,4 kBaud)                                                                                            |
| Cycle time                  | 2.3 ms                                                                                                       |
| Process data length         | 16 Bit                                                                                                       |
| Process data structure      | Bit 0 = switching signal Q <sub>L1</sub><br>Bit 1 = switching signal Q <sub>L2</sub><br>Bit 2 ... 15 = empty |
| VendorID                    | 26                                                                                                           |
| DeviceID HEX                | 0x800121                                                                                                     |
| DeviceID DEC                | 8388897                                                                                                      |
| Compatible master port type | A                                                                                                            |
| SIO mode support            | Yes                                                                                                          |

SMART TASK

|                     |                                                                                                                                   |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Smart Task name     | Base logics                                                                                                                       |
| Logic function      | Direct<br>AND<br>OR<br>WINDOW<br>Hysteresis                                                                                       |
| Timer function      | Deactivated<br>Switch-on delay<br>Off delay<br>ON and OFF delay<br>Impulse (one shot)                                             |
| Inverter            | Yes                                                                                                                               |
| Switching frequency | SIO Direct: 1000 Hz <sup>1)</sup><br>SIO Logic: 1000 Hz <sup>2)</sup><br>IOL: 900 Hz <sup>3)</sup>                                |
| Response time       | SIO Direct: 300 µs ... 450 µs <sup>1)</sup><br>SIO Logic: 500 µs ... 600 µs <sup>2)</sup><br>IOL: 500 µs ... 900 µs <sup>3)</sup> |
| Repeatability       | SIO Direct: 150 µs <sup>1)</sup><br>SIO Logic: 150 µs <sup>2)</sup><br>IOL: 400 µs <sup>3)</sup>                                  |
| Switching signal    | Switching signal Q <sub>L1</sub> Switching output<br>Switching signal Q <sub>L2</sub> Switching output                            |

<sup>1)</sup> SIO Direct: sensor operation in standard I/O mode without IO-Link communication and without using internal sensor logic or time parameters (set to "direct"/"deactivated").  
<sup>2)</sup> SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.  
<sup>3)</sup> IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

DIAGNOSIS

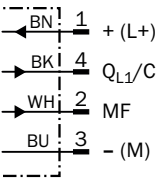
|               |     |
|---------------|-----|
| Device status | Yes |
|---------------|-----|

CERTIFICATES

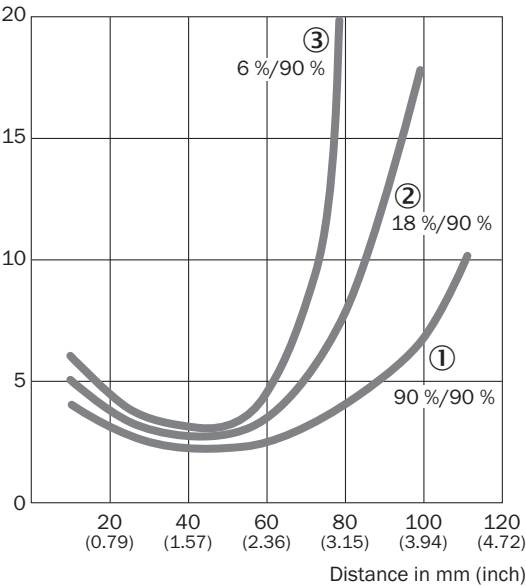
|                                    |   |
|------------------------------------|---|
| EU declaration of conformity       | ✓ |
| ACMA declaration of conformity     | ✓ |
| Moroccan declaration of conformity | ✓ |
| China RoHS                         | ✓ |

|                                                                       |   |
|-----------------------------------------------------------------------|---|
| China Compulsory Product Certification (CCC) exempt                   | ✓ |
| cULus certificate                                                     | ✓ |
| IO-Link certificate                                                   | ✓ |
| Photobiological safety (DIN EN 62471) certificate                     | ✓ |
| Information according to Art. 3 of Data Act (Regulation EU 2023/2854) | ✓ |

CONNECTION DIAGRAM CD-367

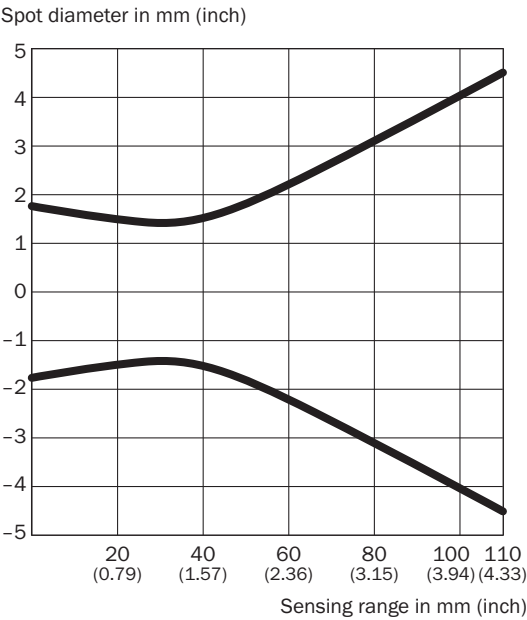


CHARACTERISTIC CURVE WTB2S-2, 110 MM



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

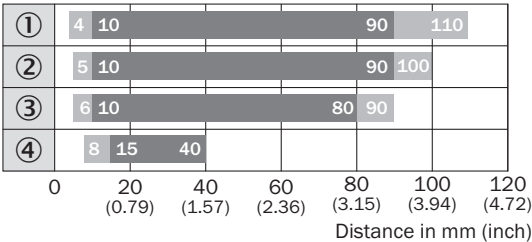
LIGHT SPOT SIZE WTB2S-2, 110 MM



Dimensions in mm (inch)

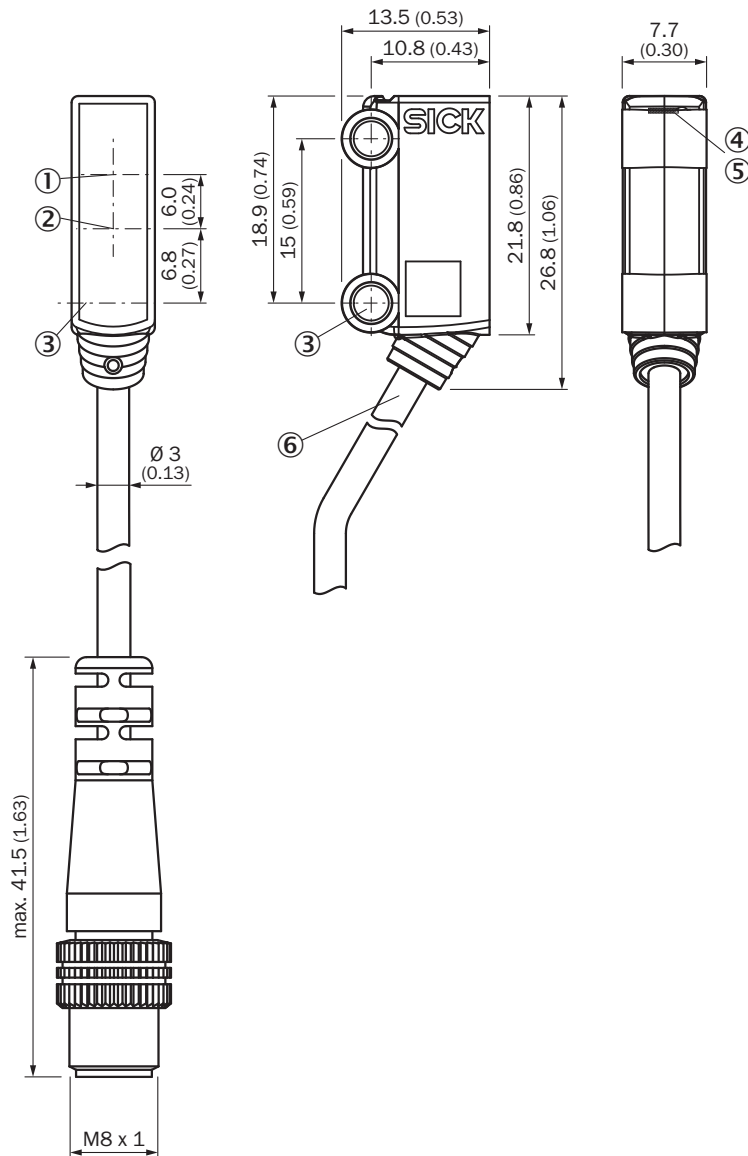
| Sensing range | Spot diameter |
|---------------|---------------|
| 0<br>(0.00)   | 3.5<br>(0.14) |
| 20<br>(0.79)  | 3.0<br>(0.12) |
| 40<br>(1.57)  | 3.0<br>(0.12) |
| 60<br>(2.36)  | 4.4<br>(0.17) |
| 100<br>(3.94) | 8.0<br>(0.31) |
| 110<br>(4.33) | 9.0<br>(0.35) |

SENSING RANGE DIAGRAM WTB2S-2, 110 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, 66 MM, 90 MM, 110 MM



Dimensions in mm (inch)

- ① Optical axis, receiver
- ② Optical axis, sender
- ③ Middle axis fixing hole  $\varnothing 3.2$  mm
- ④ LED indicator green: Supply voltage active
- ⑤ LED indicator yellow: Status of received light beam
- ⑥ 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/1120664](http://www.sick.com/1120664)



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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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