





Illustration may differ



### Ordering information

| Type        | Part no. |
|-------------|----------|
| WTB9-3P1111 | 1049042  |

Other models and accessories → [www.sick.com/W9](http://www.sick.com/W9)

### Detailed technical data

#### Features

|  |  |
|--|--|
| <b>Sensor/ detection principle</b>     | Photoelectric proximity sensor, Background suppression |
| <b>Dimensions (W x H x D)</b>          | 12.2 mm x 50 mm x 23.6 mm                              |
| <b>Housing design (light emission)</b> | Rectangular  |
| <b>Mounting hole</b>                   | M3   |
| <b>Sensing range max.</b>              | 20 mm ... 500 mm <sup>1)</sup>                         |
| <b>Sensing range</b>                   | 20 mm ... 250 mm <sup>2)</sup>                         |
| <b>Type of light</b>                   | Infrared light   |
| <b>Light source</b>                    | LED <sup>3)</sup>                                      |
| <b>Light spot size (distance)</b>      | Ø 20 mm (250 mm)                                       |
| <b>Wave length</b>                     | 850 nm   |
| <b>Adjustment</b>                      | Potentiometer, 5 turns                                 |

<sup>1)</sup> Object with 90 % reflectance (referred to standard white, DIN 5033).

<sup>2)</sup> Object with 6 % reflectance (referred to standard white, DIN 5033).

<sup>3)</sup> Average service life: 100,000 h at T<sub>J</sub> = +25 °C.

## Mechanics/electronics

|  |   |
|--|---|
| <b>Supply voltage</b>                  | 10 V DC ... 30 V DC <sup>1)</sup>                       |
| <b>Ripple</b>                          | < 5 V <sub>pp</sub> <sup>2)</sup>                       |
| <b>Current consumption</b>             | 30 mA <sup>3)</sup>                                     |
| <b>Switching output</b>                | PNP <sup>4)</sup>                                       |
| <b>Output function</b>                 | Complementary   |
| <b>Switching mode</b>                  | Light/dark switching <sup>4)</sup>                      |
| <b>Output current I<sub>max.</sub></b> | ≤ 100 mA <sup>5)</sup>                                  |
| <b>Response time</b>                   | < 0.5 ms <sup>6)</sup>                                  |
| <b>Switching frequency</b>             | 1,000 Hz <sup>7)</sup>                                  |
| <b>Connection type</b>                 | Cable, 4-wire, 2 m <sup>8)</sup>                        |
| <b>Cable material</b>                  | PVC   |
| <b>Conductor cross-section</b>         | 0.14 mm <sup>2</sup>                                    |
| <b>Circuit protection</b>              | A <sup>9)</sup><br>B <sup>10)</sup><br>C <sup>11)</sup> |
| <b>Protection class</b>                | III   |
| <b>Weight</b>                          | 80 g  |
| <b>Housing material</b>                | Plastic, VISTAL®  |
| <b>Optics material</b>                 | Plastic, PMMA   |
| <b>Enclosure rating</b>                | IP66<br>IP67<br>IP69K                                   |
| <b>Ambient operating temperature</b>   | -40 °C ... +60 °C                                       |
| <b>Ambient storage temperature</b>     | -40 °C ... +75 °C                                       |
| <b>UL File No.</b>                     | NRKH.E181493  |

<sup>1)</sup> Limit values when operated in short-circuit protected network: max. 8 A.

<sup>2)</sup> May not exceed or fall below U<sub>y</sub> tolerances.

<sup>3)</sup> Without load.

<sup>4)</sup> Q = light switching.

<sup>5)</sup> At and above T<sub>u</sub> 50 °C, a max. load current of I<sub>max.</sub> = 50 mA is permitted.

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

<sup>7)</sup> With light/dark ratio 1:1.

<sup>8)</sup> Do not bend below 0 °C.

<sup>9)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>10)</sup> B = inputs and output reverse-polarity protected.

<sup>11)</sup> C = interference suppression.

## Safety-related parameters

|                         |             |
|-------------------------|-------------|
| <b>MTTF<sub>D</sub></b> | 1,145 years |
| <b>DC<sub>avg</sub></b> | 0%          |

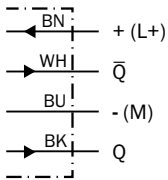
## Classifications

|                     |          |
|---------------------|----------|
| <b>ECl@ss 5.0</b>   | 27270904 |
| <b>ECl@ss 5.1.4</b> | 27270904 |
| <b>ECl@ss 6.0</b>   | 27270904 |

|                       |          |
|-----------------------|----------|
| <b>ECl@ss 6.2</b>     | 27270904 |
| <b>ECl@ss 7.0</b>     | 27270904 |
| <b>ECl@ss 8.0</b>     | 27270904 |
| <b>ECl@ss 8.1</b>     | 27270904 |
| <b>ECl@ss 9.0</b>     | 27270904 |
| <b>ECl@ss 10.0</b>    | 27270904 |
| <b>ECl@ss 11.0</b>    | 27270904 |
| <b>ETIM 5.0</b>       | EC002719 |
| <b>ETIM 6.0</b>       | EC002719 |
| <b>ETIM 7.0</b>       | EC002719 |
| <b>UNSPSC 16.0901</b> | 39121528 |

### Connection diagram

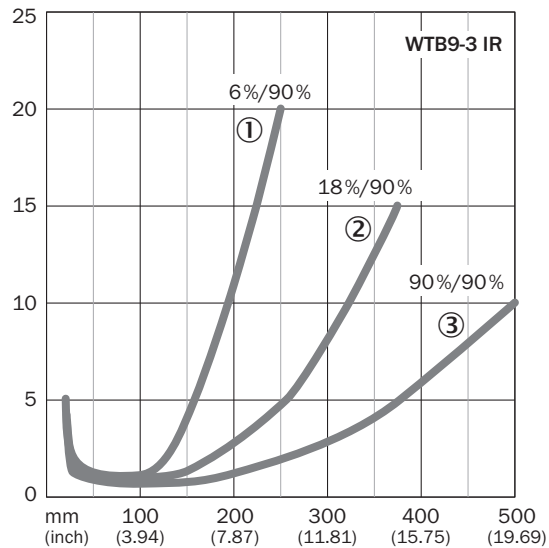
Cd-094



### Characteristic curve

WTB9-3, infrared light, 500 mm

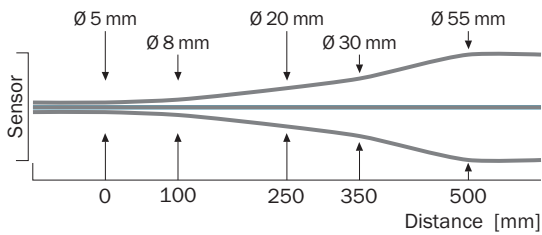
% of sensing range



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

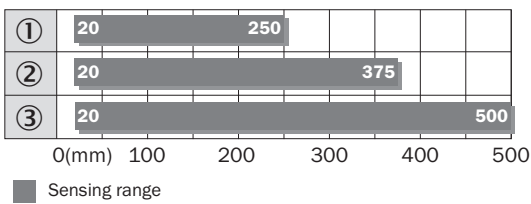
## Light spot size

WTB9-3, infrared light, 500 mm



## Sensing range diagram

WTB9-3, infrared light, 500 mm



■ Sensing range

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

## Adjustments possible

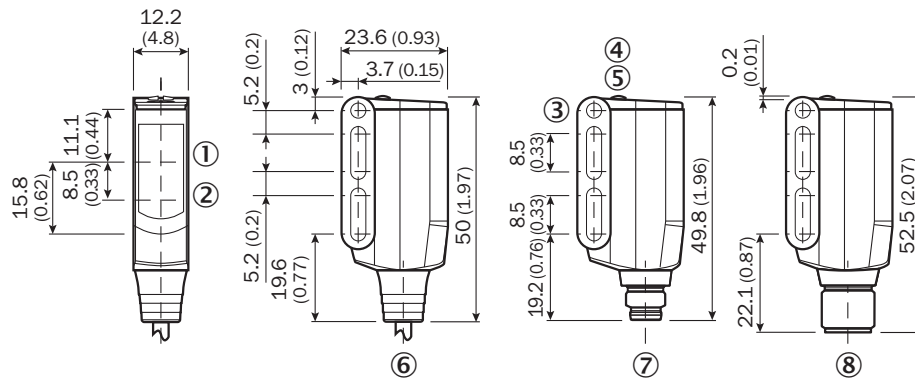
Potentiometer



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

### Dimensional drawing (Dimensions in mm (inch))




WT9-3



- 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

### Recommended accessories

Other models and accessories → [www.sick.com/W9](http://www.sick.com/W9)

|   | Brief description   | Type               | Part no. |
|---|---|--------------------|----------|
| <b>Mounting brackets and plates</b>   |   |                    |          |
|  | Mounting bracket, steel, zinc coated, mounting hardware included  | BEF-WN-W9-2        | 2022855  |
| <b>Plug connectors and cables</b>   |   |                    |          |
|  | Head A: female connector, M12, 4-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 5 m | YF2A14-050VB3XLEAX | 2096235  |
|  | Head A: male connector, M12, 4-pin, straight<br>Head B: -<br>Cable: unshielded  | STE-1204-G         | 6009932  |

## SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

## WORLDWIDE PRESENCE:

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