



**WTB4S-3E1331**  
W4

**PHOTOELECTRIC SENSORS**

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

| Type         | part no. |
|--------------|----------|
| WTB4S-3E1331 | 1042064  |

Other models and accessories → [www.sick.com/W4](http://www.sick.com/W4)

Detailed technical data

Features

|                                    |                            |                                |
|------------------------------------|----------------------------|--------------------------------|
| <b>Functional principle</b>        |                            | Photoelectric proximity sensor |
| <b>Functional principle detail</b> |                            | Background suppression         |
| <b>Sensing range max.</b>          |                            | 4 mm ... 120 mm <sup>1)</sup>  |
| <b>Sensing range</b>               |                            | 10 mm ... 120 mm <sup>1)</sup> |
| <b>Emitted beam</b>                |                            |                                |
|                                    | Light source               | PinPoint LED <sup>2)</sup>     |
|                                    | Type of light              | Visible red light              |
|                                    | Light spot size (distance) | Ø 2.5 mm (50 mm)               |
| <b>Key LED figures</b>             |                            |                                |
|                                    | Wave length                | 650 nm                         |
| <b>Adjustment</b>                  |                            | Potentiometer, 5 turns         |

<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.

Safety-related parameters

|                                     |           |
|-------------------------------------|-----------|
| <b>MTTF<sub>D</sub></b>             | 893 years |
| <b>DC<sub>avg</sub></b>             | 0 %       |
| <b>T<sub>M</sub> (mission time)</b> | 20 years  |

## Electronics

|                                        |                                                       |
|----------------------------------------|-------------------------------------------------------|
| <b>Supply voltage <math>U_B</math></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>             | 20 mA <sup>3)</sup>                                   |
| <b>Protection class</b>                | III                                                   |
| <b>Digital output</b>                  |                                                       |
| Type                                   | NPN                                                   |
| Switching mode                         | Dark switching                                        |
| Output current I <sub>max.</sub>       | ≤ 100 mA                                              |
| Response time                          | < 0.5 ms <sup>4)</sup>                                |
| Switching frequency                    | 1,000 Hz <sup>5)</sup>                                |
| <b>Circuit protection</b>              | A <sup>6)</sup><br>C <sup>7)</sup><br>D <sup>8)</sup> |

<sup>1)</sup> Limit values.

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

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

<sup>4)</sup> Signal transit time with resistive load.

<sup>5)</sup> With light/dark ratio 1:1.

<sup>6)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>7)</sup> C = interference suppression.

<sup>8)</sup> D = outputs overcurrent and short-circuit protected.

## Mechanics

|                               |                                  |
|-------------------------------|----------------------------------|
| <b>Housing</b>                | Rectangular                      |
| <b>Design detail</b>          | Slim                             |
| <b>Dimensions (W x H x D)</b> | 12.2 mm x 41.8 mm x 17.3 mm      |
| <b>Connection</b>             | Cable, 3-wire, 2 m <sup>1)</sup> |
| <b>Connection detail</b>      |                                  |
| Conductor size                | 0.14 mm <sup>2</sup>             |
| Cable diameter                | Ø 3.4 mm                         |
| Length of cable (L)           | 2 m <sup>1)</sup>                |
| <b>Material</b>               |                                  |
| Housing                       | Plastic, ABS                     |
| Front screen                  | Plastic, PMMA                    |
| Cable                         | Plastic, PVC                     |
| <b>Weight</b>                 | 30 g                             |

<sup>1)</sup> Do not bend below 0 °C.

## Ambient data

|                                      |                              |
|--------------------------------------|------------------------------|
| <b>Enclosure rating</b>              | IP67<br>IP66                 |
| <b>Ambient operating temperature</b> | -40 °C ... +60 °C            |
| <b>Ambient temperature, storage</b>  | -40 °C ... +75 °C            |
| <b>UL File No.</b>                   | NRKH.E181493 & NRKH7.E181493 |

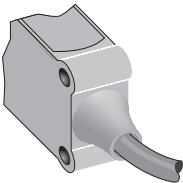
Certificates

|                                                          |   |
|----------------------------------------------------------|---|
| <b>EU declaration of conformity</b>                      | ✓ |
| <b>UK declaration of conformity</b>                      | ✓ |
| <b>ACMA declaration of conformity</b>                    | ✓ |
| <b>Moroccan declaration of conformity</b>                | ✓ |
| <b>China-RoHS</b>                                        | ✓ |
| <b>ECOLAB certificate</b>                                | ✓ |
| <b>cULus certificate</b>                                 | ✓ |
| <b>Photobiological safety (DIN EN 62471) certificate</b> | ✓ |

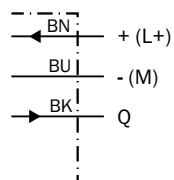
Classifications

|                       |          |
|-----------------------|----------|
| <b>ECLASS 5.0</b>     | 27270904 |
| <b>ECLASS 5.1.4</b>   | 27270904 |
| <b>ECLASS 6.0</b>     | 27270904 |
| <b>ECLASS 6.2</b>     | 27270904 |
| <b>ECLASS 7.0</b>     | 27270904 |
| <b>ECLASS 8.0</b>     | 27270904 |
| <b>ECLASS 8.1</b>     | 27270904 |
| <b>ECLASS 9.0</b>     | 27270904 |
| <b>ECLASS 10.0</b>    | 27270904 |
| <b>ECLASS 11.0</b>    | 27270904 |
| <b>ECLASS 12.0</b>    | 27270903 |
| <b>ETIM 5.0</b>       | EC002719 |
| <b>ETIM 6.0</b>       | EC002719 |
| <b>ETIM 7.0</b>       | EC002719 |
| <b>ETIM 8.0</b>       | EC002719 |
| <b>UNSPSC 16.0901</b> | 39121528 |

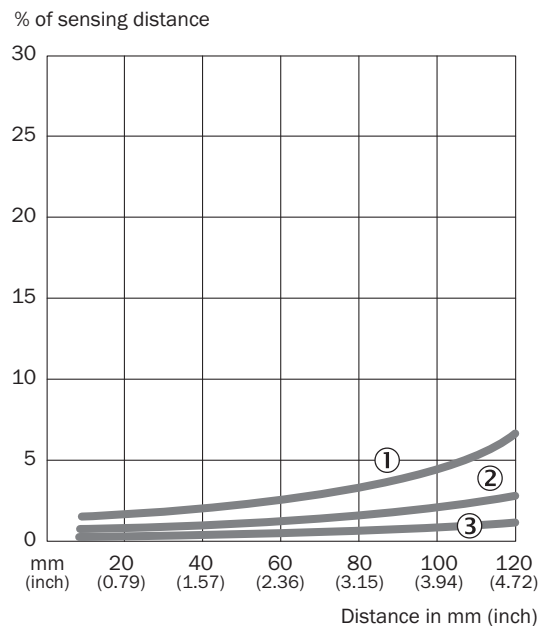
Connection type



## Connection diagram Cd-043

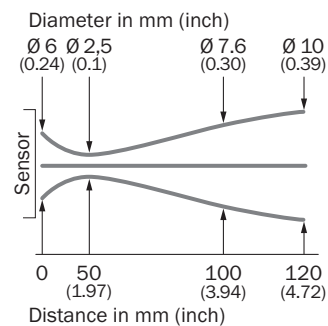


## Characteristic curve WTB4S-3, 120 mm

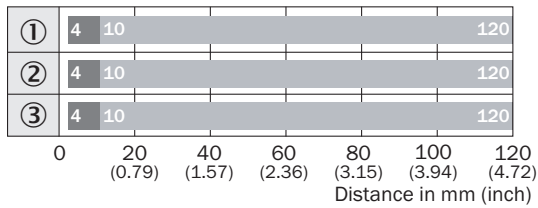


- ① Sensing range on black, 6% remission factor
- ② Sensing range on gray, 18% remission factor
- ③ Sensing range on white, 90% remission factor

## Light spot size



### Sensing range diagram WTB4S-3, 120 mm

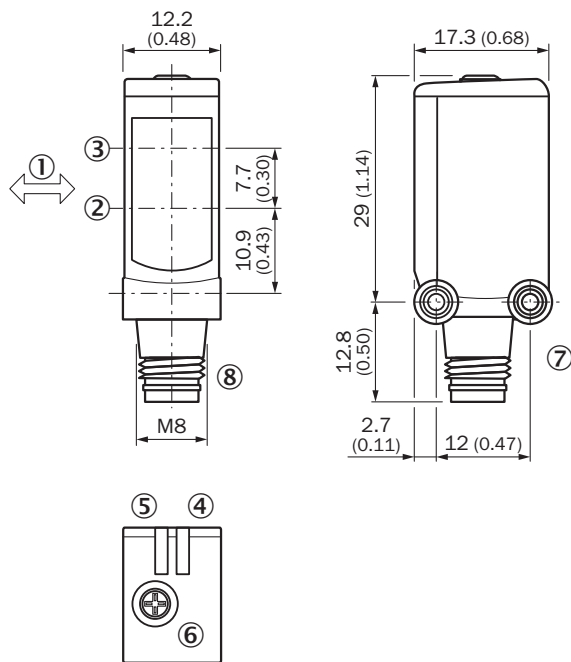


■ Sensing range max.

■ Sensing range

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

### Dimensional drawing WTB4S-3, potentiometer



Dimensions in mm (inch)

- ① Standard direction of the material being detected
- ② optical axis, receiver
- ③ optical axis, sender
- ④ LED indicator green: Supply voltage active
- ⑤ LED indicator yellow: Status of received light beam
- ⑥ Potentiometer
- ⑦ Threaded mounting hole M3
- ⑧ Connection

## Recommended accessories

Other models and accessories → [www.sick.com/W4](http://www.sick.com/W4)

|                                                                                   | Brief description                                                                                                                                                                                                                                                                                                   | Type       | part no. |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------|
| connectors and cables                                                             |                                                                                                                                                                                                                                                                                                                     |            |          |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M8, 3-pin, straight, A-coded</li> <li>• <b>Description:</b> Unshielded</li> <li>• <b>Connection systems:</b> Screw-type terminals</li> <li>• <b>Permitted cross-section:</b> 0.14 mm² ... 0.5 mm²</li> </ul>                | STE-0803-G | 6037322  |
| Mounting systems                                                                  |                                                                                                                                                                                                                                                                                                                     |            |          |
|  | <ul style="list-style-type: none"> <li>• <b>Description:</b> Mounting bracket for wall mounting</li> <li>• <b>Material:</b> Stainless steel</li> <li>• <b>Details:</b> Stainless steel 1.4571</li> <li>• <b>Items supplied:</b> Mounting hardware included</li> <li>• <b>Suitable for:</b> W4S, W4F, W4S</li> </ul> | BEF-W4-A   | 2051628  |

## 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:

Contacts and other locations –[www.sick.com](http://www.sick.com)