



DATA SHEET

# WTB8L-P2111

W8  
Photoelectric sensors

# SICK

Sensor Intelligence



Illustration may differ

# PHOTOELECTRIC SENSORS

## WTB8L-P2111

### ORDERING INFORMATION

| Type        | part no. |
|-------------|----------|
| WTB8L-P2111 | 6033225  |

Further device versions and accessories at [www.sick.com/W8](http://www.sick.com/W8)



### DETAILED TECHNICAL DATA

#### FEATURES

|                                 |                                                                     |
|---------------------------------|---------------------------------------------------------------------|
| Functional principle            | Photoelectric proximity sensor                                      |
| Functional principle detail     | Background suppression                                              |
| Dimensions (W x H x D)          | 11 mm x 31 mm x 20 mm                                               |
| Housing design (light emission) | Rectangular                                                         |
| Sensing range max.              | 5 mm ... 100 mm <sup>1)</sup>                                       |
| Sensing range                   | 20 mm ... 100 mm <sup>1)</sup>                                      |
| Type of light                   | Visible red light                                                   |
| Light source                    | Laser <sup>2)</sup>                                                 |
| Light spot size (distance)      | Ø 1 mm (100 mm)                                                     |
| Wave length                     | 650 nm                                                              |
| Laser class                     | 1 <sup>3)</sup>                                                     |
| Adjustment                      | Potentiometer, 4 turns                                              |
| Special applications            | Detecting small objects, Detection of objects moving at high speeds |

<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.

<sup>3)</sup> Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

**MECHANICS/ELECTRONICS**

|                               |                                                          |
|-------------------------------|----------------------------------------------------------|
| Supply voltage $U_B$          | 10 V DC ... 30 V DC <sup>1)</sup>                        |
| Ripple                        | $\pm 10\%$ <sup>2)</sup>                                 |
| Current consumption           | 30 mA <sup>3)</sup>                                      |
| Switching output              | PNP                                                      |
| Switching mode                | Light/dark switching                                     |
| Switching mode selector       | Selectable via light/dark rotary switch                  |
| Signal voltage PNP HIGH/LOW   | Approx. $V_S - 1.8\text{ V} / 0\text{ V}$                |
| Output current $I_{\max}$     | $\leq 100\text{ mA}$                                     |
| Response time                 | $\leq 0.25\text{ ms}$ <sup>4)</sup>                      |
| Switching frequency           | 2,000 Hz <sup>5)</sup>                                   |
| Connection type               | Connector M8, 3-pin                                      |
| Circuit protection            | A <sup>6)</sup><br>B <sup>7)</sup><br>D <sup>8)</sup>    |
| Weight                        | 10 g                                                     |
| Housing material              | Plastic, ABS                                             |
| Optics material               | Plastic, PMMA                                            |
| Enclosure rating              | IP67                                                     |
| Items supplied                | Stainless steel mounting bracket (1.4301/304) BEF-W100-A |
| Ambient operating temperature | -10 °C ... +50 °C                                        |
| Ambient temperature, storage  | -40 °C ... +70 °C                                        |

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

<sup>2)</sup> May not fall below or exceed  $U_V$  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 =  $V_S$  connections reverse-polarity protected.

<sup>7)</sup> B = inputs and output reverse-polarity protected.

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

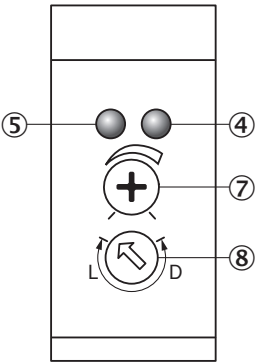
**SAFETY-RELATED PARAMETERS**

|                   |           |
|-------------------|-----------|
| MTTF <sub>D</sub> | 453 years |
| DC <sub>avg</sub> | 0 %       |

**CERTIFICATES**

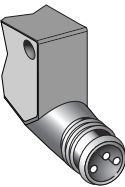
|                                                     |   |
|-----------------------------------------------------|---|
| EU declaration of conformity                        | ✓ |
| UK declaration of conformity                        | ✓ |
| ACMA declaration of conformity                      | ✓ |
| Moroccan declaration of conformity                  | ✓ |
| China RoHS                                          | ✓ |
| China Compulsory Product Certification (CCC) exempt | ✓ |
| cRUus certificate                                   | ✓ |
| Laser safety (IEC 60825-1) certificate              | ✓ |

ADJUSTMENTS WTB8

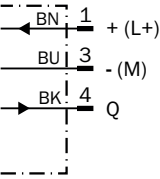


- ④ Orange LED indicator : switching output active
- ⑤ LED indicator green: stability indicator
- ⑦ Adjustment of sensing range
- ⑧ Light/ dark rotary switch: L = light switching, D = dark switching

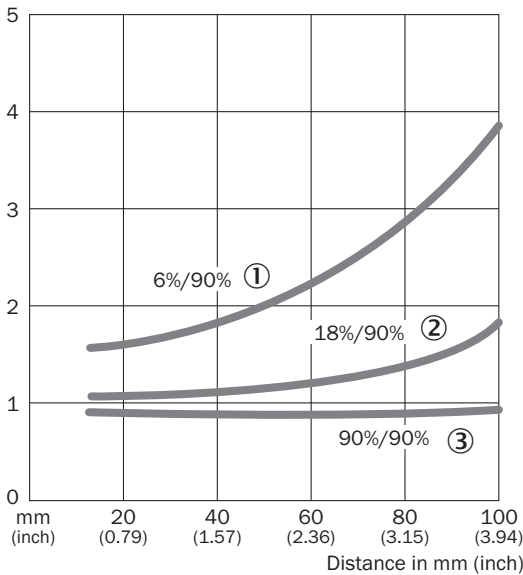
CONNECTION TYPE



CONNECTION DIAGRAM CD-045

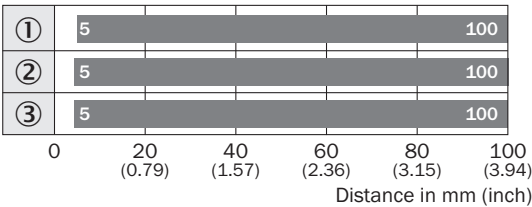


CHARACTERISTIC CURVE WTB8L, 100 MM



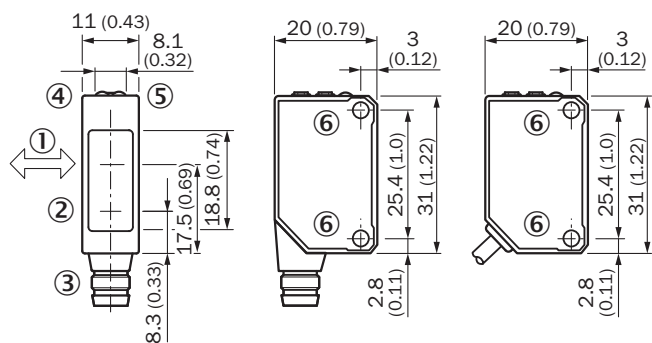
- ① Sensing range on black, 6% remission factor
- ② Sensing range on gray, 18% remission factor
- ③ Sensing range on white, 90% remission factor

SENSING RANGE DIAGRAM WTB8, 100 MM



- 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



Dimensions in mm (inch)

- ① Standard direction
- ② Center of optical axis, sender
- ③ Connection
- ④ Orange LED indicator : switching output active
- ⑤ LED indicator green: stability indicator
- ⑥ Threaded mounting hole M3

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/6033225](http://www.sick.com/6033225)



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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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