



WTB26I-3B111120ZZZ  
W26

COMPACT PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

| Type               | Part no. |
|--------------------|----------|
| WTB26I-3B111120ZZZ | 1222817  |

Other models and accessories → [www.sick.com/W26](http://www.sick.com/W26)

Detailed technical data

Features

|                                                                                                 |                                                                                       |
|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>Functional principle</b>                                                                     | Photoelectric proximity sensor                                                        |
| <b>Functional principle detail</b>                                                              | Background suppression                                                                |
| <b>Sensing range</b>                                                                            |                                                                                       |
| Sensing range min.                                                                              | 30 mm                                                                                 |
| Sensing range max.                                                                              | 2,000 mm                                                                              |
| Adjustable switching threshold for background suppression                                       | 180 mm ... 2,000 mm                                                                   |
| Reference object                                                                                | Object with 90% remission factor (complies with standard white according to DIN 5033) |
| Minimum distance between set sensing range and background (black 6% / white 90%)                | 85 mm, at a distance of 800 mm                                                        |
| Recommended sensing range for the best performance                                              | 200 mm ... 800 mm                                                                     |
| <b>Emitted beam</b>                                                                             |                                                                                       |
| Light source                                                                                    | LED                                                                                   |
| Type of light                                                                                   | Infrared light                                                                        |
| Shape of light spot                                                                             | Point-shaped                                                                          |
| Light spot size (distance)                                                                      | Ø 14 mm (1,000 mm)                                                                    |
| Maximum dispersion of the emitted beam around the standardized transmission axis (squint angle) | < +/- 1.0° (at Ta = +23 °C)                                                           |
| <b>Key LED figures</b>                                                                          |                                                                                       |
| Normative reference                                                                             | EN 62471:2008-09   IEC 62471:2006, modified                                           |
| LED risk group marking                                                                          | Free group                                                                            |
| Wave length                                                                                     | 850 nm                                                                                |

|                      |                       |                                                                                              |
|----------------------|-----------------------|----------------------------------------------------------------------------------------------|
| Average service life |                       | 100,000 h at $T_a = +25\text{ °C}$                                                           |
| <b>Adjustment</b>    | Teach-Turn adjustment | BluePilot: For setting the sensing range                                                     |
|                      |                       |                                                                                              |
| <b>Indication</b>    | LED blue              | BluePilot: sensing range indicator                                                           |
|                      | LED green             | Operating indicator<br>Static on: power on                                                   |
|                      | LED yellow            | Status of received light beam<br>Static on: object present<br>Static off: object not present |
|                      |                       |                                                                                              |

#### Safety-related parameters

|                                     |                                 |
|-------------------------------------|---------------------------------|
| <b>MTTF<sub>D</sub></b>             | 626 years                       |
| <b>DC<sub>avg</sub></b>             | 0 %                             |
| <b>T<sub>M</sub> (mission time)</b> | EN ISO 13849, rate of use: 60 % |

#### Electrical data

|                                     |                                  |                                                                               |
|-------------------------------------|----------------------------------|-------------------------------------------------------------------------------|
| <b>Supply voltage U<sub>B</sub></b> |                                  | 10 V DC ... 30 V DC <sup>1)</sup>                                             |
| <b>Ripple</b>                       |                                  | ≤ 5 V <sub>pp</sub>                                                           |
| <b>Usage category</b>               |                                  | DC-12 (According to EN 60947-5-2)<br>DC-13 (According to EN 60947-5-2)        |
| <b>Current consumption</b>          |                                  | ≤ 30 mA, without load. At U <sub>B</sub> = 24 V <sup>2)</sup>                 |
| <b>Protection class</b>             |                                  | III                                                                           |
| <b>Digital output</b>               | Number                           | 2 (Complementary)                                                             |
|                                     | Type                             | Push-pull: PNP/NPN                                                            |
|                                     | Signal voltage PNP HIGH/LOW      | Approx. U <sub>B</sub> -2.5 V / 0 V                                           |
|                                     | Signal voltage NPN HIGH/LOW      | Approx. U <sub>B</sub> / < 2.5 V                                              |
|                                     | Output current I <sub>max.</sub> | ≤ 100 mA                                                                      |
|                                     | Circuit protection outputs       | Reverse polarity protected<br>Overcurrent and short-circuit protected         |
|                                     | Response time                    | ≤ 500 μs <sup>3)</sup>                                                        |
|                                     | Repeatability (response time)    | 150 μs                                                                        |
|                                     | Switching frequency              | 1,000 Hz <sup>4)</sup>                                                        |
|                                     |                                  |                                                                               |
| <b>Pin/Wire assignment</b>          |                                  |                                                                               |
| Function of pin 4/black (BK)        |                                  | Digital output, light switching, object present → output Q HIGH <sup>5)</sup> |
| Pin 5 function/white (WH)           |                                  | Digital output, dark switching, object present → output $\bar{Q}$ LOW         |

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

<sup>2)</sup> 10 V DC ... 16 V DC, without load.

<sup>3)</sup> Signal transit time with resistive load in switching mode.

<sup>4)</sup> With light/dark ratio 1:1.

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

#### Mechanical data

|                               |                             |
|-------------------------------|-----------------------------|
| <b>Housing</b>                | Rectangular                 |
| <b>Dimensions (W x H x D)</b> | 24.6 mm x 82.5 mm x 53.3 mm |

|                                                       |                                                       |                                        |
|-------------------------------------------------------|-------------------------------------------------------|----------------------------------------|
| <b>Connection</b>                                     | Cable with Q7 male connector, 7-pin, DC-coded, 298 mm |                                        |
| <b>Connection detail</b>                              |                                                       |                                        |
|                                                       | Deep-freeze property                                  | Do not bend below 0 °C                 |
|                                                       | Conductor size                                        | 0.14 mm <sup>2</sup>                   |
|                                                       | Cable diameter                                        | Ø 4.8 mm                               |
|                                                       | Length of cable (L)                                   | 270 mm                                 |
|                                                       | Bending radius                                        | For flexible use > 12 x cable diameter |
|                                                       | Bending cycles                                        | 1,000,000                              |
| <b>Material</b>                                       |                                                       |                                        |
|                                                       | Housing                                               | Plastic, VISTAL®                       |
|                                                       | Front screen                                          | Plastic, PMMA                          |
|                                                       | Cable                                                 | PVC                                    |
|                                                       | Male connector                                        | Plastic, VISTAL®                       |
| <b>Weight</b>                                         | Approx. 100 g                                         |                                        |
| <b>Maximum tightening torque of the fixing screws</b> | 1.3 Nm                                                |                                        |

Ambient data

|                                            |                                                                                                                                                                                                                                            |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Enclosure rating</b>                    | IP65 (EN 60529)                                                                                                                                                                                                                            |
| <b>Ambient operating temperature</b>       | −40 °C ... +60 °C                                                                                                                                                                                                                          |
| <b>Ambient temperature, storage</b>        | −40 °C ... +75 °C                                                                                                                                                                                                                          |
| <b>Shock resistance</b>                    | 50 g, 11 ms (25 positive and 25 negative shocks per axis, for X, Y, Z axes, 150 shocks in total (EN60068-2-27))<br>50 g, 6 ms (5,000 positive and 5,000 negative shocks per axis, for X, Y, Z axes, 30,000 shocks in total (EN60068-2-27)) |
| <b>Vibration resistance</b>                | 10 Hz ... 2,000 Hz (Amplitude 0.5 mm / 10 g, 20 sweeps per axis, for X, Y, Z axes, 1 octave/min, (EN60068-2-6))                                                                                                                            |
| <b>Air humidity</b>                        | 35 % ... 95 %, Relative humidity (no condensation)                                                                                                                                                                                         |
| <b>Electromagnetic compatibility (EMC)</b> | EN 60947-5-2                                                                                                                                                                                                                               |
| <b>UL File No.</b>                         | NRKH.E181493 & NRKH7.E181493                                                                                                                                                                                                               |

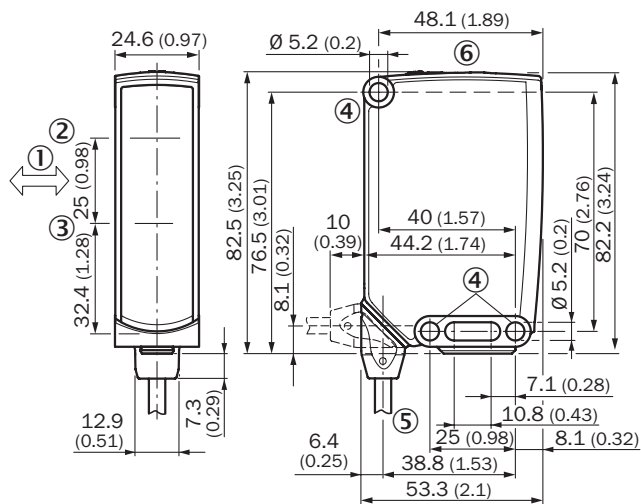
Classifications

|                     |          |
|---------------------|----------|
| <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 |

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

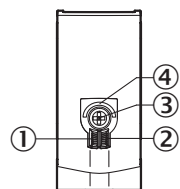
Dimensional drawing, sensor



- ① Standard direction of the material being detected
- ② Center of optical axis, sender
- ③ Center of optical axis, receiver
- ④ Mounting hole, Ø 5.2 mm
- ⑤ Connection
- ⑥ Display and adjustment elements

## Adjustments

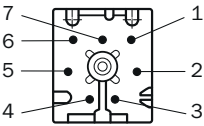
Display and adjustment elements



- ① LED indicator green
- ② LED indicator yellow
- ③ Teach-Turn adjustment
- ④ LED blue

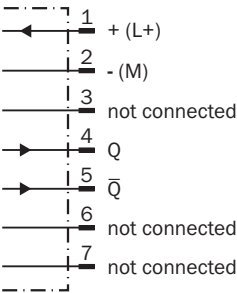
Connection type

Cubic connector, 7-pin



Connection diagram

Cd-191



Truth table

Push-pull: PNP/NPN – dark switching  $\bar{Q}$

|                         | Dark switching $\bar{Q}$ (normally closed (upper switch), normally open (lower switch)) |                             |
|-------------------------|-----------------------------------------------------------------------------------------|-----------------------------|
|                         | Object not present → Output HIGH                                                        | Object present → Output LOW |
| Light receive           | ✗                                                                                       | ✓                           |
| Light receive indicator | ✗                                                                                       | ☹                           |
| Load resistance to L+   | ✗                                                                                       | ⚠                           |
| Load resistance to M    | ⚠                                                                                       | ✗                           |
|                         |                                                                                         |                             |

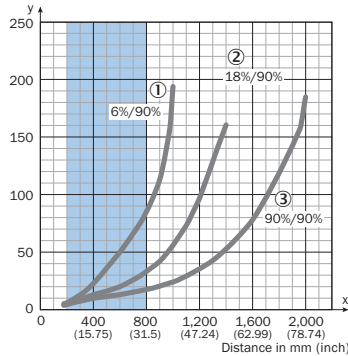
Push-pull: PNP/NPN - light switching Q

|                         | Light switching Q (normally open (upper switch), normally closed (lower switch)) |                              |
|-------------------------|----------------------------------------------------------------------------------|------------------------------|
|                         | Object not present → Output LOW                                                  | Object present → Output HIGH |
| Light receive           | ✗                                                                                | ✓                            |
| Light receive indicator | ✗                                                                                | ☹                            |
| Load resistance to L+   | ⚠                                                                                | ✗                            |
| Load resistance to M    | ✗                                                                                | ⚠                            |
|                         |                                                                                  |                              |

## Characteristic curve

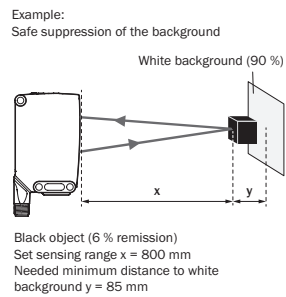
WTB26I-xxxxx1xx

Minimum distance in mm (y) between the set sensing range and white background (90 % remission)



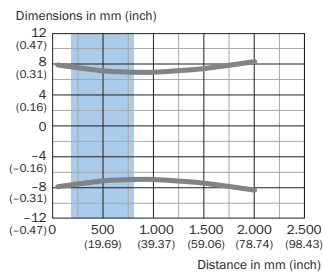
Recommended sensing range for the best performance

- ① Black object, 6% remission factor
- ② Gray object, 18% remission factor
- ③ White object, 90% remission factor

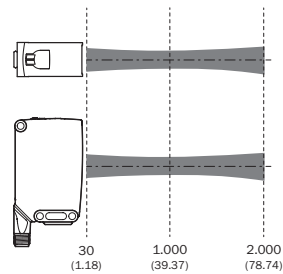


## Light spot size

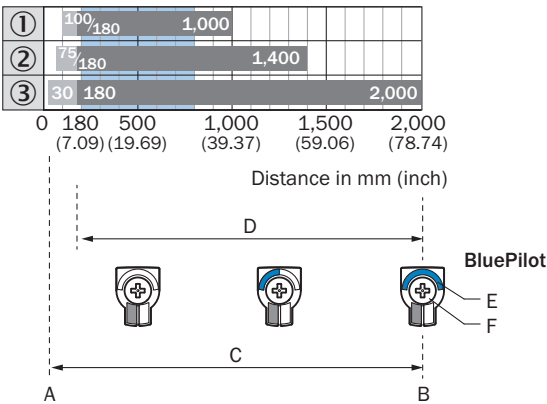
WTB26I-xxxxx1xx



Recommended sensing range for the best performance



Sensing range diagram



Recommended sensing range for the best performance

|   |                                                           |
|---|-----------------------------------------------------------|
|   |                                                           |
| 1 | Black object, 6% remission factor                         |
| 2 | Gray object, 18% remission factor                         |
| 3 | White object, 90% remission factor                        |
| A | Sensing range min. in mm                                  |
| B | Sensing range max. in mm                                  |
| C | Field of view                                             |
| D | Adjustable switching threshold for background suppression |
| E | Sensing range indicator                                   |
| F | Teach-Turn adjustment                                     |

Recommended accessories

Other models and accessories → [www.sick.com/W26](http://www.sick.com/W26)

|                                                                                     | Brief description                                                                                                                                                                                    | Type        | Part no. |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------|
| Universal bar clamp systems                                                         |                                                                                                                                                                                                      |             |          |
|  | Plate N12 for universal clamp. For mounting PL30A, P250 reflectors, W27 and WTR2 sensors., Zinc plated steel (sheet), Zinc die cast (clamping bracket), Universal clamp (2022726), mounting hardware | BEF-KHS-N12 | 2071950  |
| Plug connectors and cables                                                          |                                                                                                                                                                                                      |             |          |
|  | Head A: female connector, Q7, 7-pin, angled, DC-coded<br>Cable: unshielded                                                                                                                           | DOS-2107-W  | 6006823  |

## 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)