



Photoelectric sensors  
W2S-2, Photoelectric proximity sensor,  
Background suppression

WTB2S-2N1175



**Model Name** > [WTB2S-2N1175](#)  
**Part No.** > [1064621](#)



*Illustration may differ*

**At a glance**

- Sensing ranges of up to 150 mm
- Almost no black/white shift up to 60 mm
- Sensor with line-shaped light spot
- Sensor with laser-like focused light spots
- Precise background suppression that is immune to interference/crosstalk
- High-performance PinPoint 2.0 LED

**Your benefits**

- An ultra-compact design with the performance of large photoelectric proximity sensors offers new space-saving machine construction possibilities.
- Large variety of proximity sensors and operating concepts enable a wide range of application options
- Use in confined spaces: detection of small, flat parts thanks to high-quality background suppression and almost nonexistent black/white shift
- Remote access: models with IO-Link allow data to be easily accessed from the PLC
- High availability and long-term use in grippers thanks to flexible and rugged cable entry



**Features**

|                                  |  |
|----------------------------------|--|
| Sensor/detection principle:      | Photoelectric proximity sensor, 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 ... 90 mm <sup>1)</sup>                           |
| Sensing range:                   | 10 mm ... 70 mm <sup>2)</sup>                          |
| Type of light:                   | Visible red light                                      |
| Light source:                    | PinPoint LED <sup>3)</sup>                             |
| Wave length:                     | 640 nm   |
| Special features:                | Line-shaped light spot                                 |
| Adjustment:                      | Cable  |
| Light spot size (distance):      | 2.2 mm x 9 mm (45 mm)                                  |

<sup>1) 2)</sup> Object with 90 % reflectance (referred to standard white, DIN 5033) <sup>3)</sup> Average service life of 100,000 h at T<sub>A</sub> = +25 °C

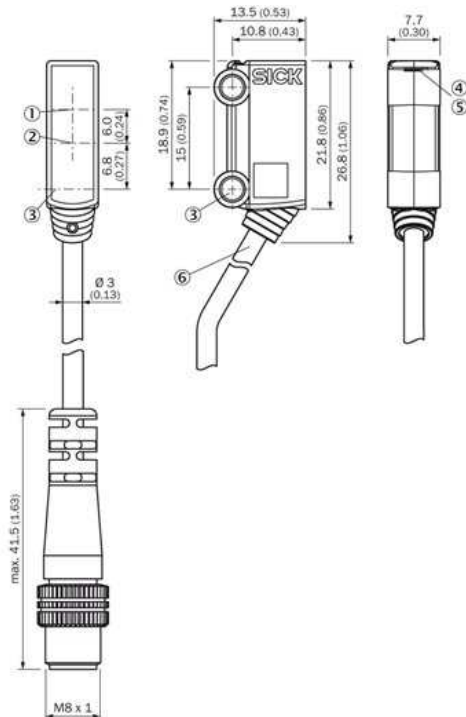
**Mechanics/electronics**

|                 |                                   |
|-----------------|-----------------------------------|
| Supply voltage: | 10 V DC ... 30 V DC <sup>1)</sup> |
| Ripple:         | ≤ 5 Vpp <sup>2)</sup>             |

|                                    |                                  |
|------------------------------------|----------------------------------|
| Power consumption:                 | ≤ 20 mA <sup>3)</sup>            |
| Output type:                       | NPN                              |
| Switching mode:                    | Light switching                  |
| Output current I <sub>max.</sub> : | < 50 mA                          |
| Response time:                     | < 0.5 ms <sup>4)</sup>           |
| Switching frequency:               | 1,000 Hz <sup>5)</sup>           |
| Connection type:                   | Cable, 4-wire, 2 m <sup>6)</sup> |
| Cable material:                    | PVC                              |
| Cable diameter:                    | Ø 3 mm                           |
| Circuit protection:::              | A, B, D <sup>7) 8) 9)</sup>      |
| IO-Link:                           | -                                |
| Optics material:                   | PMMA                             |
| Enclosure rating:                  | IP 67                            |
| Special feature:                   | Line-shaped light spot           |
| Ambient temperature operation:     | -25 °C ... +50 °C                |
| Ambient storage temperature:       | -40 °C ... +75 °C                |
| UL File No.:                       | NRKH.E181493                     |
| Housing material:                  | ABS/PC, Plastic                  |

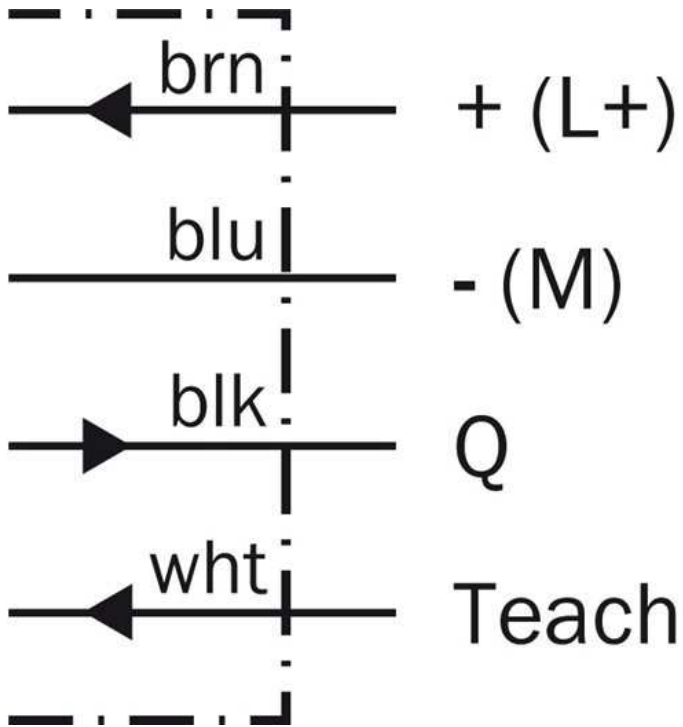
1) Limit values 2) May not exceed or fall short of V<sub>S</sub> tolerances 3) Without load 4) Signal transit time with resistive load 5) With light/dark ratio 1:1 6) Do not bend below 0 °C 7) A = V<sub>S</sub> connections reverse-polarity protected 8) B = output reverse-polarity protected 9) D = outputs overcurrent and short-circuit protected

## Dimensional drawing

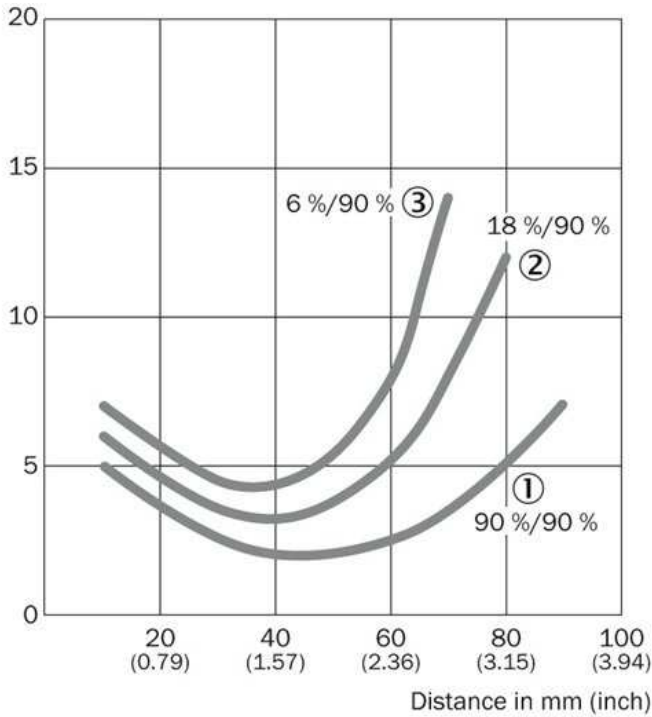


- |1| Optical axis, receiver
- |2| Optical axis, sender
- |3| Middle axis fixing hole Ø 3.2 mm
- |4| Status indicator LED green: supply voltage on
- |5| Status indicator LED, yellow: Status of received light beam
- |6| Connection

### Connection diagram



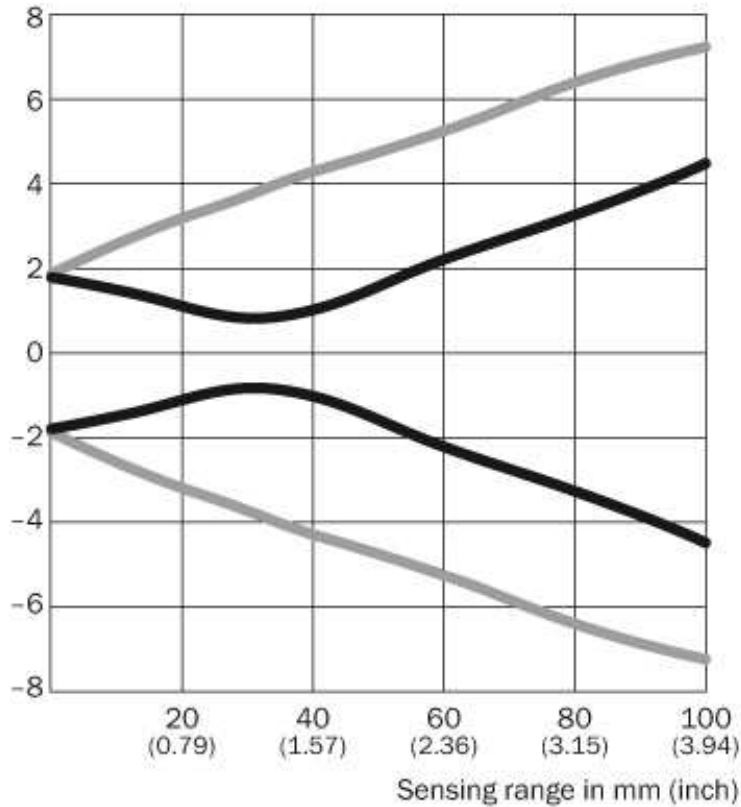
### Characteristic curve



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

**Light spot size**

Spot diameter in mm (inch)

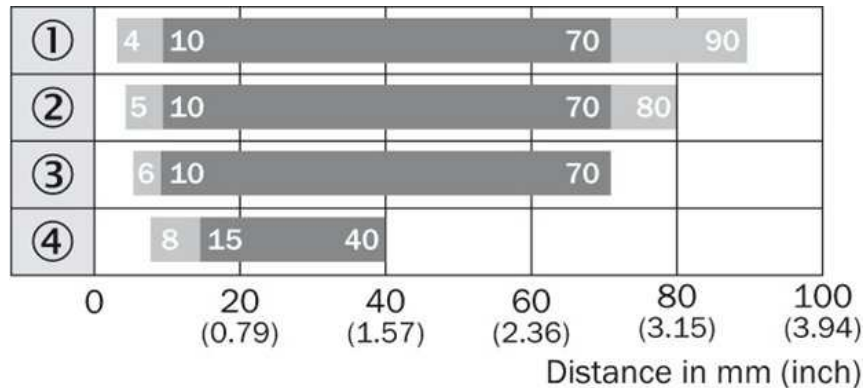


**Dimensions in mm (inch)**

| Sensing range        | Spot diameter |                |
|----------------------|---------------|----------------|
|                      | Vertical      | Horizontal     |
| <b>0</b><br>(0.00)   | 3.5<br>(0.14) | 3.8<br>(0.15)  |
| <b>10</b><br>(0.39)  | 3.0<br>(0.12) | 5.2<br>(0.20)  |
| <b>20</b><br>(0.79)  | 3.3<br>(0.13) | 6.4<br>(0.25)  |
| <b>30</b><br>(1.18)  | 1.8<br>(0.07) | 7.4<br>(0.29)  |
| <b>40</b><br>(1.57)  | 2.0<br>(0.08) | 8.6<br>(0.34)  |
| <b>60</b><br>(2.36)  | 4.4<br>(0.17) | 10.5<br>(0.41) |
| <b>80</b><br>(3.15)  | 6.5<br>(0.26) | 12.8<br>(0.50) |
| <b>100</b><br>(3.94) | 9.0<br>(0.35) | 14.5<br>(0.57) |

— Vertical  
— Horizontal

**Sensing range diagram**



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

■ Sensing range      ■ Sensing range max.

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