



Photoelectric sensors  
W4S-3, Photoelectric proximity sensor,  
Background suppression

WTB4S-3N2161



**Model Name** > [WTB4S-3N2161](#)  
**Part No.** > [1042045](#)



*Illustration may differ*

**At a glance**

- Best background suppression in its class
- Setting either via teach-in pushbutton, 5-turn potentiometer cable or by IO-Link
- All models with PinPoint LED technology
- Versions with laser-like LED light spots
- High immunity to ambient light

**Your benefits**

- Less downtime due to reliable detection of all types of objects
- Laser-like light spot provides quick and easy alignment
- Smart machine design makes it possible to mount the sensor in the tightest spaces
- Reliable object detection due to best-in-class background suppression and high immunity to ambient light



**Features**

|                                  |  |
|----------------------------------|--|
| Sensor/detection principle:      | Photoelectric proximity sensor, Background suppression |
| Dimensions (W x H x D):          | 12.2 mm x 41.8 mm x 17.3 mm                            |
| Housing design (light emission): | Rectangular  |
| Sensing range max.:              | 4 mm ... 180 mm <sup>1)</sup>                          |
| Sensing range:                   | 10 mm ... 180 mm <sup>2)</sup>                         |
| Type of light:                   | Visible red light                                      |
| Light source:                    | PinPoint LED <sup>3)</sup>                             |
| Wave length:                     | 650 nm   |
| Adjustment:                      | Potentiometer, 5 turns                                 |
| Light spot size (distance):      | Ø 6.5 mm (150 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

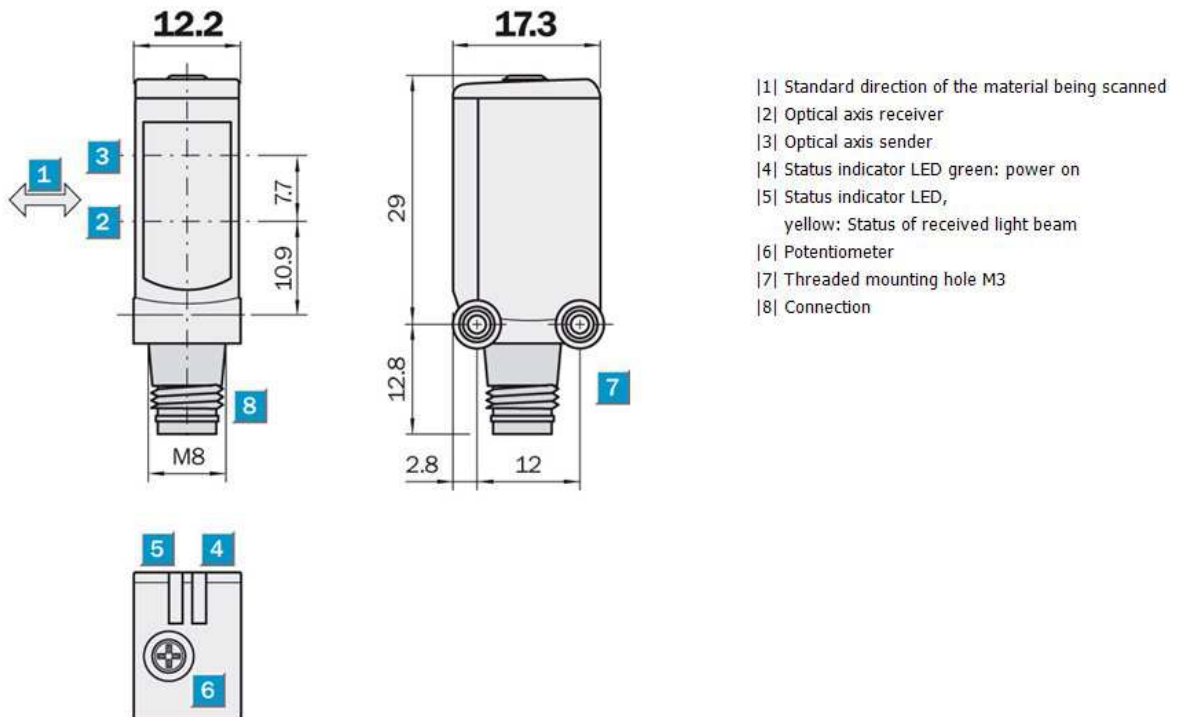
**Mechanics/electronics**

|                                    |                                   |
|------------------------------------|-----------------------------------|
| 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> : | ≤ 100 mA                          |
| Response time:                     | < 0.5 ms <sup>4)</sup>            |

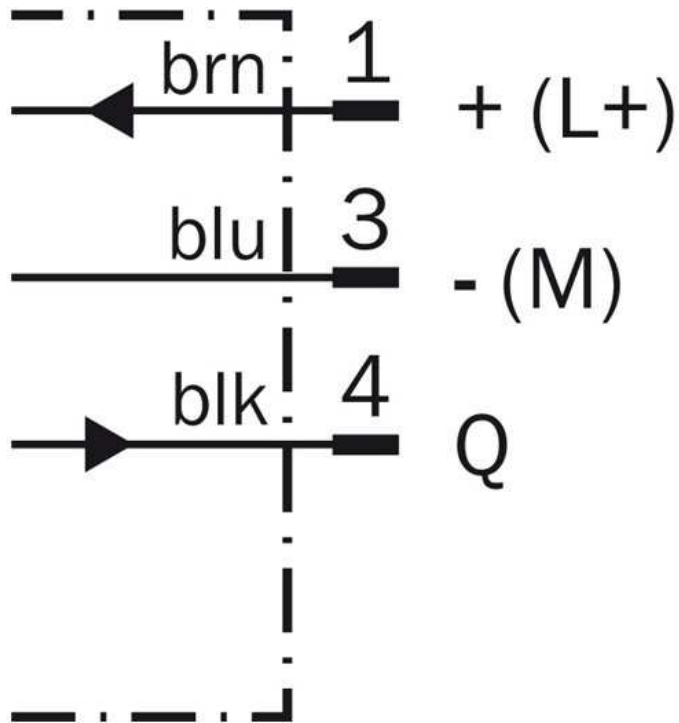
|                                |                              |
|--------------------------------|------------------------------|
| Switching frequency:           | 1,000 Hz <sup>5)</sup>       |
| Connection type:               | Connector M8, 3-pin          |
| Circuit protection:::          | A, C, D <sup>6) 7) 8)</sup>  |
| Protection class:              | III                          |
| Weight:                        | 30 g                         |
| Housing material:              | ABS, Plastic                 |
| Optics material:               | PMMA                         |
| Enclosure rating:              | IP 67<br>IP 66               |
| Ambient operating temperature: | -40 °C ... 60 °C             |
| Ambient storage temperature:   | -40 °C ... 75 °C             |
| UL File No.:                   | NRKH.E181493 & NRKH7.E181493 |

1) Limit values 2) May not exceed or fall short of  $V_S$  tolerances 3) Without load 4) Signal transit time with resistive load 5) With light/dark ratio 1:1 6)  $A = V_S$   
 connections reverse-polarity protected 7) C = interference suppression 8) D = outputs overcurrent and short-circuit protected

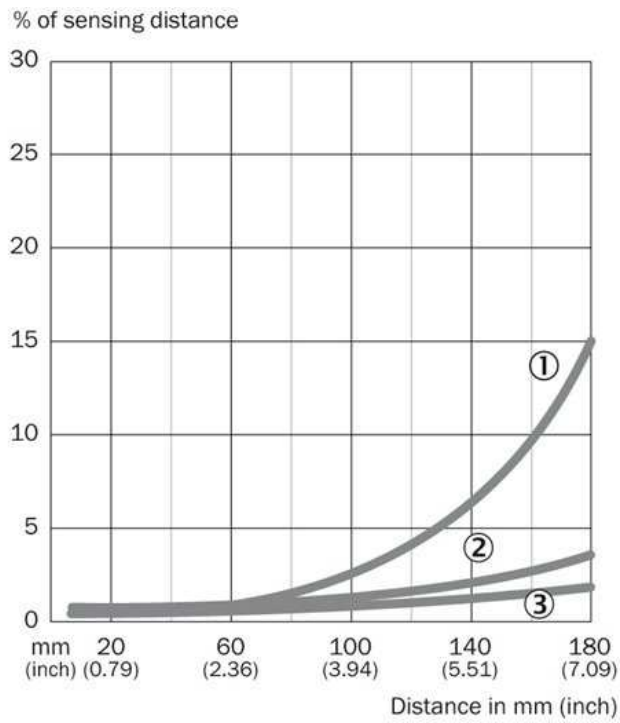
### Dimensional drawing



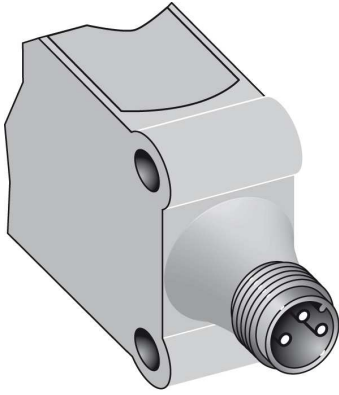
Connection diagram



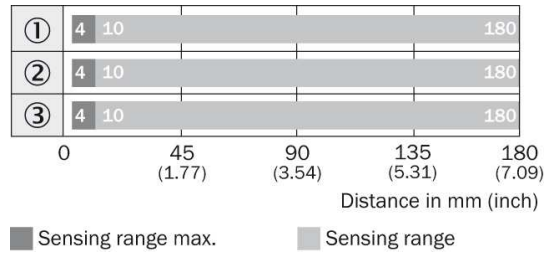
Characteristic curve



## Connection type



## Sensing range diagram



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