



## Photoelectric sensors W9-3, Photoelectric proximity sensor, Background suppression

WTB9M4-3P1111



**Model Name** > **WTB9M4-3P1111**  
**Part No.** > **1051886**



Illustration may differ

#### At a glance

- High-performance proximity sensor in ultra-rugged VISTAL™ housing
- PinPoint LED for highly visible and precise light spot
- Two emitter LEDs for best-in-class background suppression
- Variable mounting with M4 hole pattern
- Wide range of connection options

#### Your benefits

- Rugged VISTAL™ housing provides reliable installation and operation
- Reliable object detection in all situations using best-in-class technology
- Quick and easy alignment with reliable object detection due to the highly visible PinPoint light spot
- M4 slotted hole mounting for multiple mounting possibilities
- One housing with a wide range of options makes machine integration easy
- Variety of accessories for simple mounting



#### Features

|                                  |                                                        |
|----------------------------------|--------------------------------------------------------|
| Sensor/detection principle:      | Photoelectric proximity sensor, Background suppression |
| Dimensions (W x H x D):          | 12.2 mm x 50 mm x 23.6 mm                              |
| Housing design (light emission): | Rectangular                                            |
| Mounting hole:                   | M4                                                     |
| Sensing range max.:              | 20 mm ... 500 mm <sup>1)</sup>                         |
| Sensing range:                   | 20 mm ... 250 mm <sup>2)</sup>                         |
| Type of light:                   | Infrared light                                         |
| Light source:                    | LED <sup>3)</sup>                                      |
| Wave length:                     | 850 nm                                                 |
| Adjustment:                      | Potentiometer, 5-turn                                  |
| Light spot size (distance):      | Ø 20 mm (250 mm)                                       |

<sup>1)</sup> Object with 90 % reflectance (referred to standard white DIN 5033) <sup>2)</sup> Object with 6 % reflectance (referred to standard white DIN 5033) <sup>3)</sup> Average service life of 100,000 h at T<sub>A</sub> = +25 °C

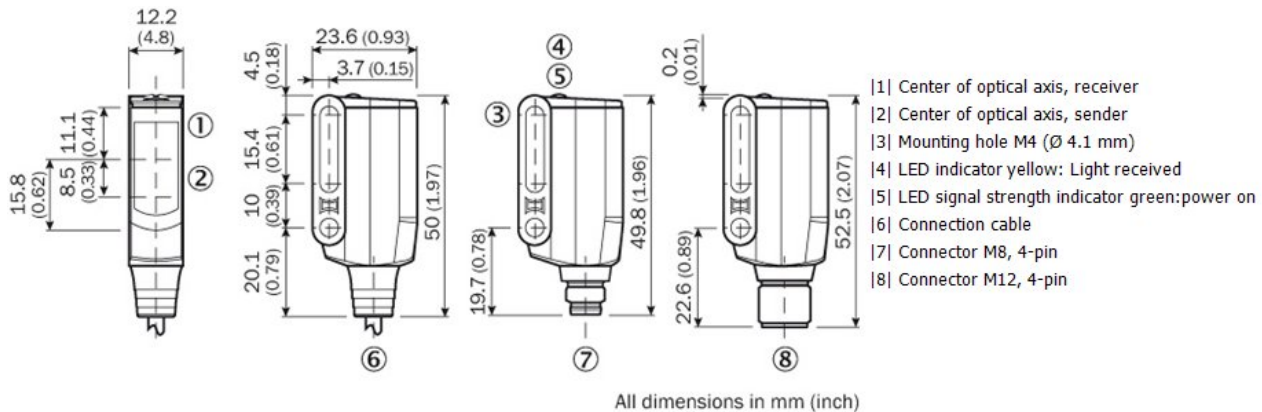
#### Mechanics/electronics

|                    |                                   |
|--------------------|-----------------------------------|
| Supply voltage:    | 10 V DC ... 30 V DC <sup>1)</sup> |
| Power consumption: | ≤ 30 mA <sup>2)</sup>             |
| Output type:       | PNP <sup>3)</sup>                 |
| Output function:   | Complementary                     |

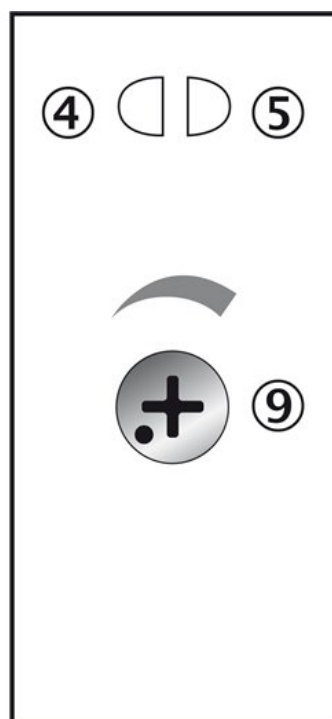
|                                    |                                    |
|------------------------------------|------------------------------------|
| Switching mode:                    | Light/dark-switching <sup>4)</sup> |
| Output current I <sub>max</sub> :: | ≤ 100 mA <sup>5)</sup>             |
| Response time:                     | < 0.5 ms <sup>6)</sup>             |
| Switching frequency:               | 1,000 Hz <sup>7)</sup>             |
| Connection type:                   | Cable, 4-wire, 2 m <sup>8)</sup>   |
| Cable material:                    | PVC                                |
| Conductor cross-section:           | 0.14 mm <sup>2</sup>               |
| Circuit protection:::              | A, B, C <sup>9)</sup> 10) 11)      |
| Protection class:                  | III                                |
| Weight:                            | 80 g                               |
| Housing material:                  | Plastic, VISTAL                    |
| Optics material:                   | PMMA                               |
| Enclosure rating:                  | IP 66<br>IP 67<br>IP 69K           |
| Ambient operating temperature:     | -40 °C ... 60 °C                   |
| Ambient storage temperature:       | -40 °C ... 75 °C                   |
| UL File No.:                       | NRKH.E181493                       |

<sup>1)</sup> Limit values, operation in short-circuit protected network max. 8 A <sup>2)</sup> Without load <sup>3)</sup> 4) Q = light-switching <sup>5)</sup> As of Tu 50 °C, a max. load current I<sub>max</sub>. = 50 mA is permitted <sup>6)</sup> Signal transit time with resistive load <sup>7)</sup> With light/dark ratio 1:1 <sup>8)</sup> Do not bend below 0 °C <sup>9)</sup> A = V<sub>S</sub> connections reverse-polarity protected <sup>10)</sup> B = inputs and output reverse-polarity protected <sup>11)</sup> C = interference suppression

## Dimensional drawing

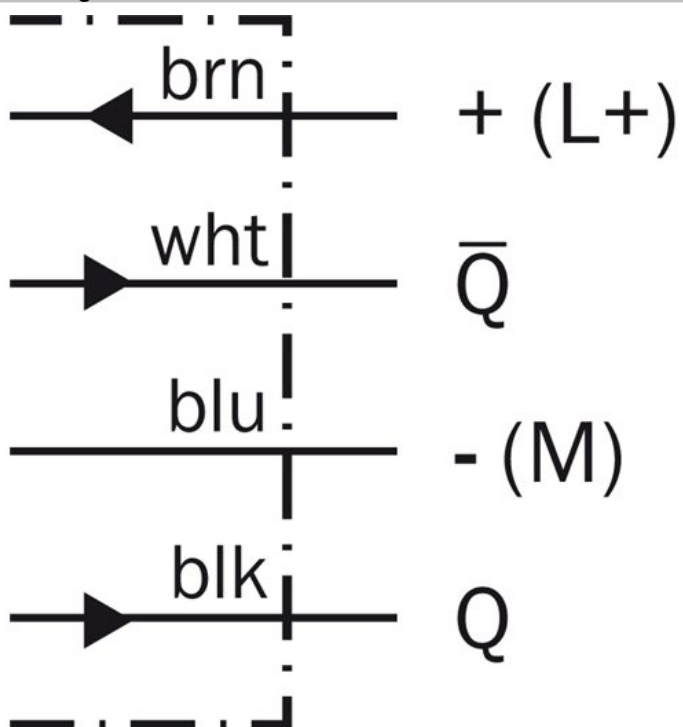


## Adjustments possible

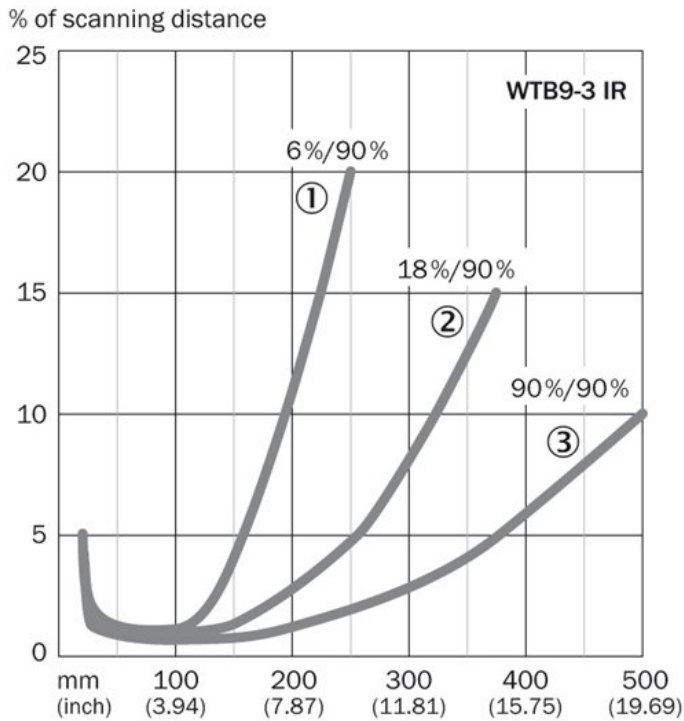


- |4| LED indicator yellow: Light received
- |5| LED signal strength indicator green: power on
- |9| Sensing range adjustment

## Connection diagram

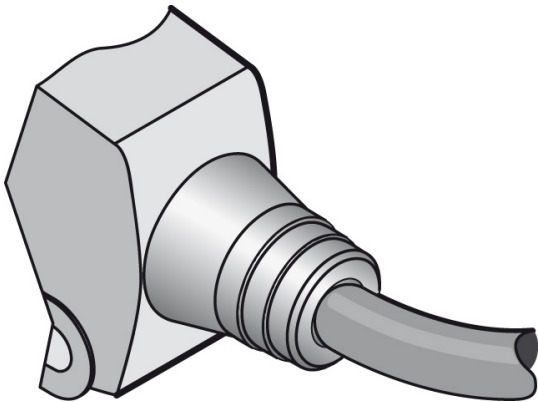


## Characteristic curve

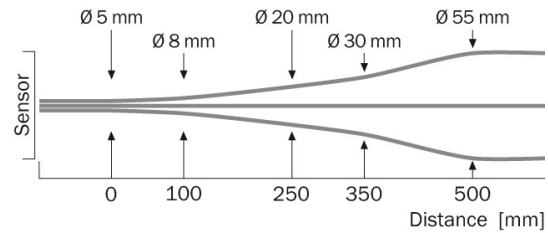


- |1| Sensing range on black, 6 % remission
- |2| Sensing range on grey, 18 % remission
- |3| Sensing range on white, 90 % remission

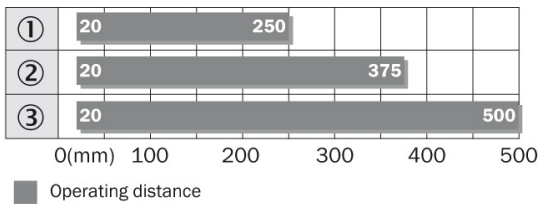
## Connection type



## Light spot size



## Sensing range diagram



- |1| Scanning distance on black, 6% remission
- |2| Scanning distance on gray, 18 % remission
- |3| Scanning distance on white, 90 % remission

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