



Photoelectric sensors  
W12-3, Photoelectric proximity sensor,  
Foreground suppression

WTF12-3P1141



Type > [WTF12-3P1141](#)  
Part No. > [1041402](#)



Illustration may differ

**At a glance**

- Precise foreground suppression
- Rugged sensors for industrial use
- PinPoint LED technology with a highly visible light spot
- Die-cast zinc housing, with optional Teflon® coating
- Dovetail mounting - mounting holes and oblong holes
- Flexible sensing ranges and hysteresis settings
- Key lock function, remote teach, quality monitoring
- Diagnostics messages (contamination and short-circuit)

**Your benefits**

- State of the art technology, e.g. OES3 provides precise foreground suppression in harsh environments
- High immunity to ambient light and crosstalk ensures fewer false readings and less downtime
- PinPoint LED technology provides quick and easy sensor alignment due to a highly visible light spot
- Highly visible status LEDs simplify sensing range adjustments and reduce installation time
- Quick and easy format adjustment
- Easy monitoring of sensor status
- Key lock function and parameter download prevent incorrect settings
- Simple sensor cloning



**Features**

|                                  |  |
|----------------------------------|--|
| Sensor/detection principle:      | Photoelectric proximity sensor, Foreground suppression |
| Dimensions (W x H x D):          | 15.6 mm x 48.5 mm x 42 mm                              |
| Housing design (light emission): | Rectangular  |
| Sensing range max.:              | 30 mm ... 500 mm <sup>1)</sup>                         |
| Sensing range:                   | 30 mm ... 500 mm                                       |
| Type of light:                   | Visible red light                                      |
| Light source:                    | LED <sup>2)</sup>                                      |
| Wave length:                     | 640 nm   |
| Adjustment:                      | Potentiometer, 5 turns                                 |
| Light spot size (distance):      | Ø 7 mm (300 mm)  |

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

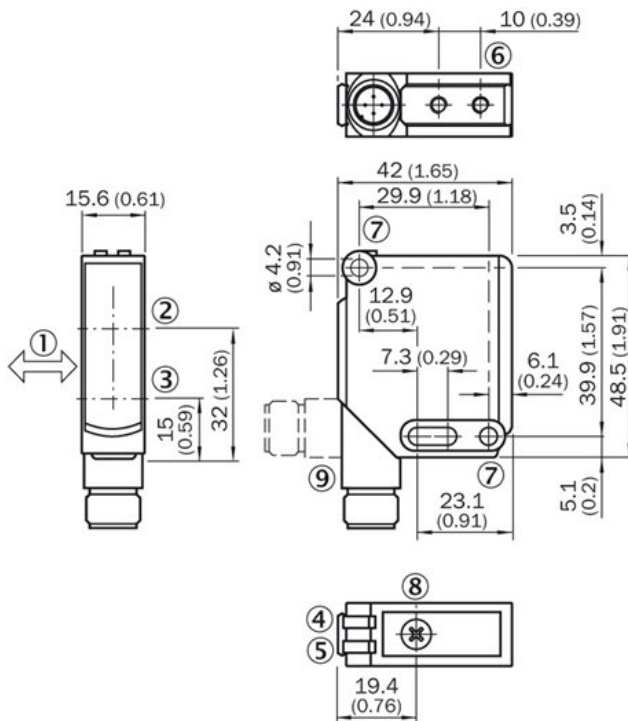
## Mechanics/electronics

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|                                    |   |
|------------------------------------|---|
| Supply voltage:                    | 10 V DC ... 30 V DC <sup>1)</sup>                 |
| Ripple:                            | $\leq 5$ Vpp <sup>2)</sup>                        |
| Power consumption:                 | $\leq 45$ mA <sup>3)</sup>                        |
| Output type:                       | PNP   |
| Output function:                   | Complementary                                     |
| Switching mode:                    | Light/dark switching                              |
| Signal voltage PNP HIGH/LOW:       | $> U_v - 2,5$ V / ca. 0 V                         |
| Output current I <sub>max.</sub> : | 100 mA  |
| Response time:                     | $\leq 330$ $\mu$ s <sup>4)</sup>                  |
| Switching frequency:               | 1,500 Hz <sup>5)</sup>                            |
| Connection type:                   | Cable, 4-wire, 2 m <sup>6)</sup>                  |
| Cable material:                    | PVC   |
| Conductor cross-section:           | 0.25 mm <sup>2</sup>                              |
| Circuit protection:::              | A, C, D <sup>7)</sup> <sup>8)</sup> <sup>9)</sup> |
| Protection class:                  | II  |
| Weight:                            | 200 g   |
| Housing material:                  | Metal   |
| 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 & NRKH7.E181493                      |

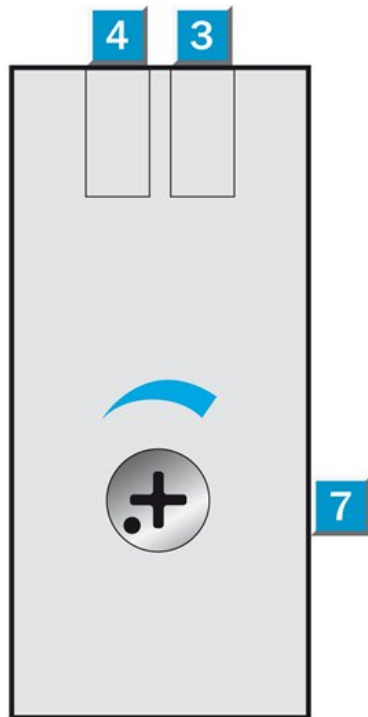
<sup>1)</sup> Limit values, operation in short-circuit protected network max. 8 A <sup>2)</sup> May not exceed or fall short of  $V_S$  tolerances <sup>3)</sup> Without load <sup>4)</sup> Signal transit time with resistive load <sup>5)</sup> With light/dark ratio 1:1 <sup>6)</sup> Do not bend below 0 °C <sup>7)</sup> A =  $V_S$  connections reverse-polarity protected <sup>8)</sup> C = interference suppression <sup>9)</sup> D = outputs overcurrent and short-circuit protected

## Dimensional drawing



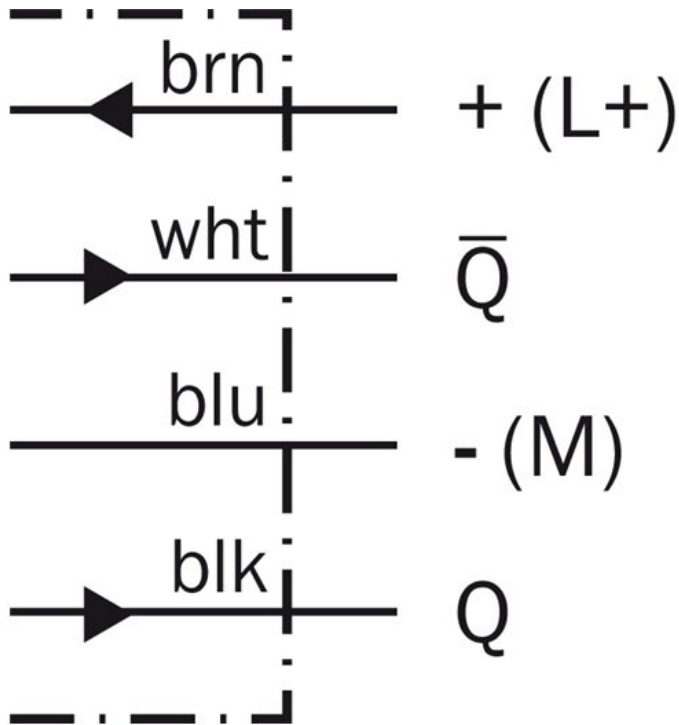
- |1| Standard direction of the material being scanned
- |2| Optical axis, receiver
- |3| Optical axis, sender
- |4| Status indicator LED green: power on
- |5| Status indicator LED, yellow: Status of received light beam
- |6| M4 threaded mounting hole, 4 mm deep
- |7| Mounting hole,  $\varnothing 4.2$  mm
- |8| Sensing range adjustment: potentiometer
- |9| Connection

## Adjustments possible

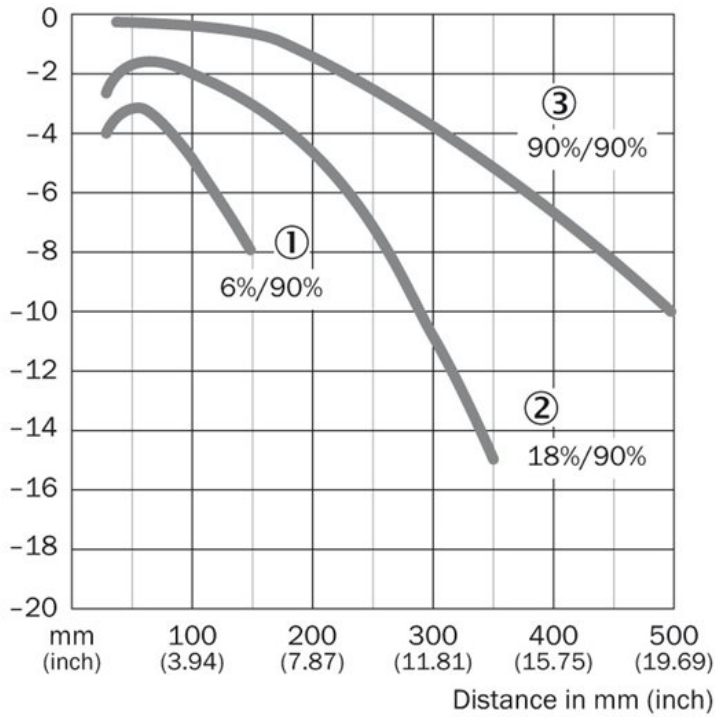


- |4| Green LED indicator: supply voltage active
- |5| LED indicator yellow: Light received
- |8| Sensing range adjustment: potentiometer

Connection diagram

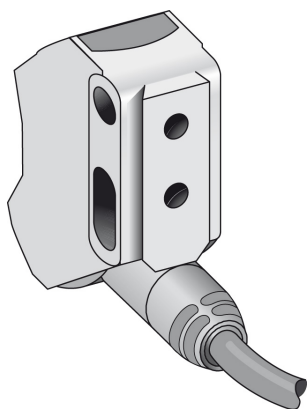


Characteristic curve

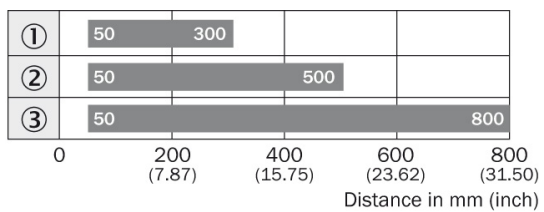


- [1] Sensing range on black, 6 % remission
- [2] Sensing range on grey, 18 % remission
- [3] Sensing range on white, 90 % remission

## Connection type



## Sensing range diagram



■ Sensing range

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

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