



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

WTF12-3N1131



**Model Name** > [WTF12-3N1131](#)  
**Part No.** > [1041410](#)



*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 ... 175 mm <sup>1)</sup>
Sensing range:	30 mm ... 175 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 2 mm (60 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

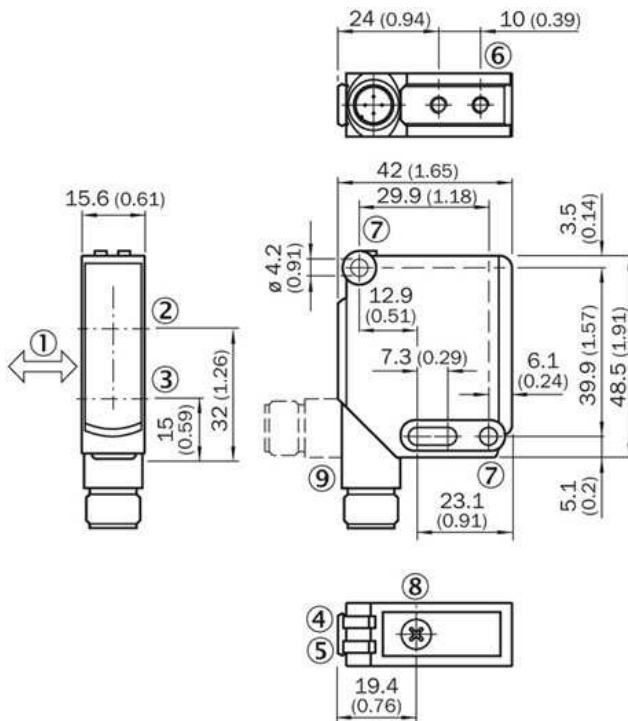
## Mechanics/electronics

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Supply voltage:	10 V DC ... 30 V DC <sup>1)</sup>
Ripple:	$\leq 5 \text{ Vpp}$ <sup>2)</sup>
Power consumption:	$\leq 45 \text{ mA}$ <sup>3)</sup>
Output type:	NPN
Output function:	Complementary
Switching mode:	Light/dark switching
Signal voltage NPN HIGH/LOW:	Approx. $V_S / < 2.5 \text{ V}$
Output current $I_{\text{max}}$ :	100 mA
Response time:	$\leq 330 \mu\text{s}$ <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) 8) 9)</sup>
Protection class:	II
Weight:	200 g
Housing material:	Metal
Enclosure rating:	IP 66 IP 67 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



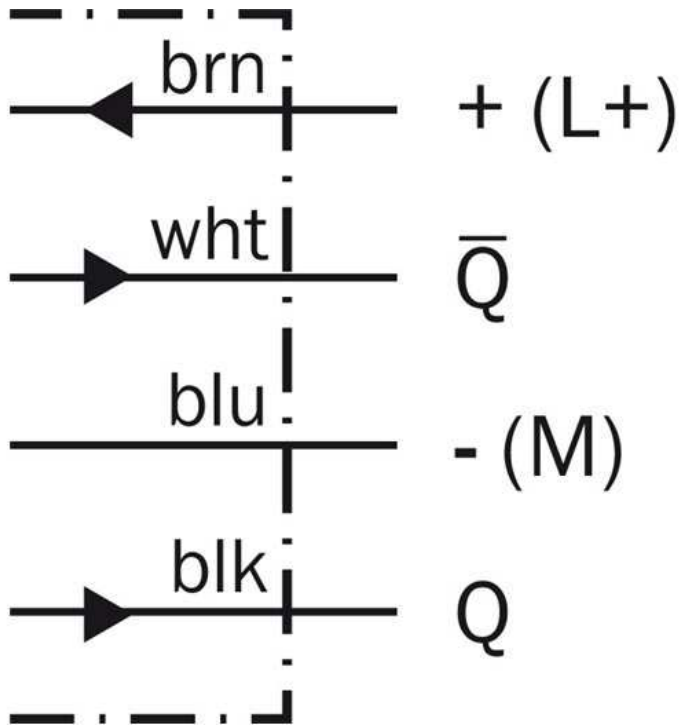
- |1| Standard direction of the material being scanned
- |2| Optical axis, receiver
- |3| Optical axis, sender
- |4| Status indicator LED green: power on
- |5| Status indicator LED, yellow: Status of received light beam
- |6| M4 threaded mounting hole, 4 mm deep
- |7| Mounting hole, Ø 4.2 mm
- |8| Sensing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

## Adjustments possible

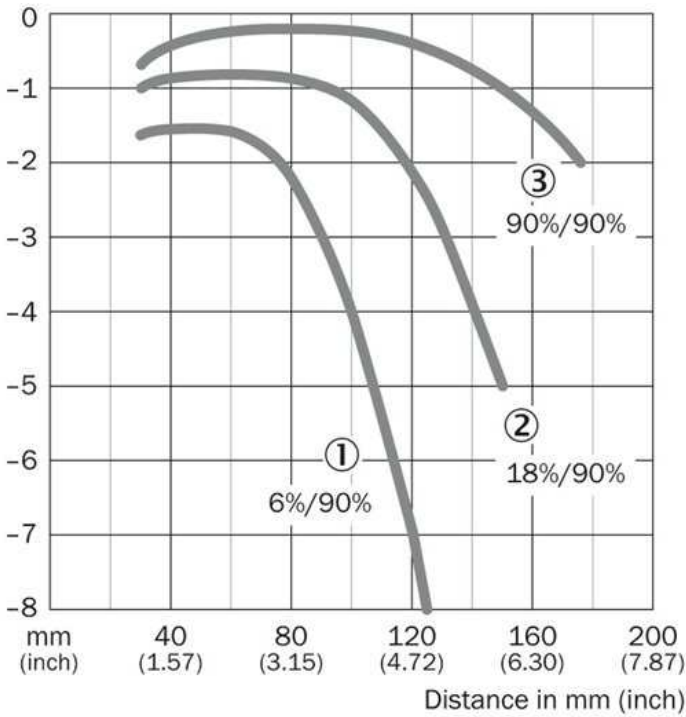


- |4| Green LED indicator: supply voltage active
- |5| LED indicator yellow: Light received
- |8| Sensing range adjustment: potentiometer

Connection diagram

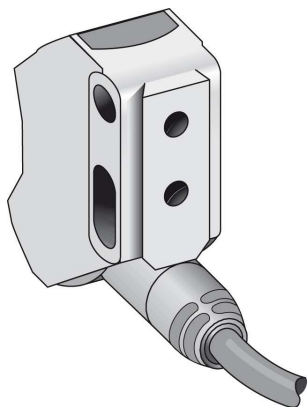


Characteristic curve

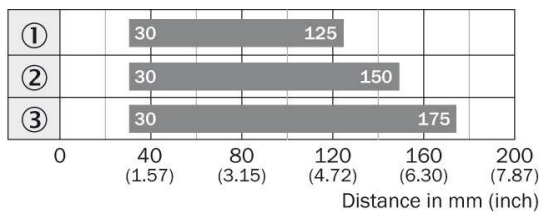


- |1| Sensing range on black, 6 % remission
- |2| Sensing range on grey, 18 % remission
- |3| Sensing range on white, 90 % remission

## 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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