



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

WTF12-3N2431



Model Name > **WTF12-3N2431**
Part No. > **1041408**



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 ¹⁾
Sensing range:	30 mm ... 175 mm
Type of light:	Visible red light
Light source:	LED ²⁾
Wave length:	640 nm
Adjustment:	Potentiometer, 5-turn
Light spot size (distance):	Ø 2 mm (60 mm)

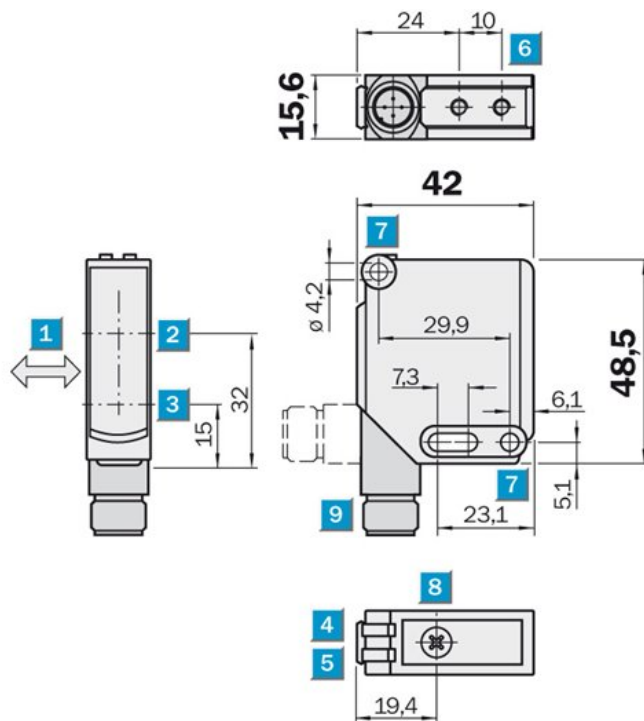
¹⁾ Object with 90 % reflectance (referred to standard white DIN 5033) ²⁾ Average service life of 100,000 h at T_A = +25 °C

Mechanics/electronics

Supply voltage:	10 V DC ... 30 V DC ¹⁾
Ripple:	$\leq 5 \text{ V}_{pp}$ ²⁾
Power consumption:	$\leq 45 \text{ mA}$ ³⁾
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_{max} :	100 mA
Response time:	$\leq 330 \mu\text{s}$ ⁴⁾
Switching frequency:	1,500 Hz ⁵⁾
Connection type:	Connector M12, 4-pin
Circuit protection:::	A, C, D ⁶⁾ ⁷⁾ ⁸⁾
Protection class:	II
Weight:	120 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

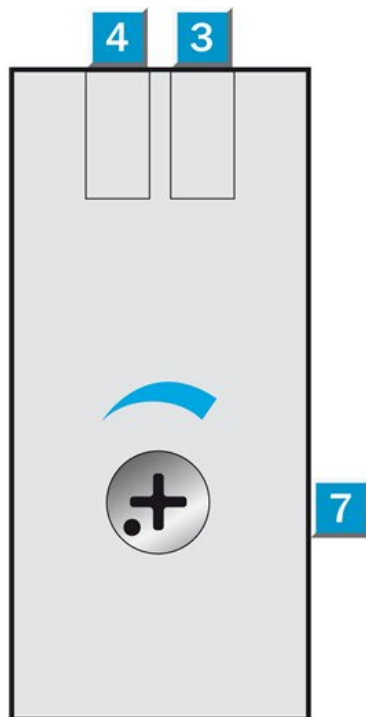
¹⁾ Limit values, operation in short-circuit protected network max. 8 A ²⁾ May not exceed or fall short of V_S tolerances ³⁾ Without load ⁴⁾ Signal transit time with resistive load ⁵⁾ With light/dark ratio 1:1 ⁶⁾ A = V_S connections reverse-polarity protected ⁷⁾ C = interference suppression ⁸⁾ D = outputs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

Dimensional drawing



- [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

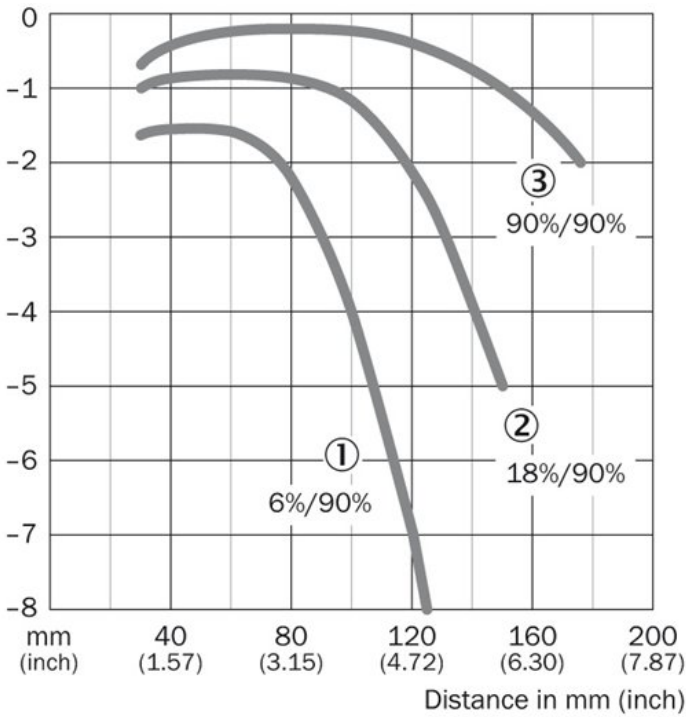


- [4] Green LED indicator: supply voltage active
- [5] LED indicator yellow: Light received
- [8] Sensing range adjustment: potentiometer

Connection diagram

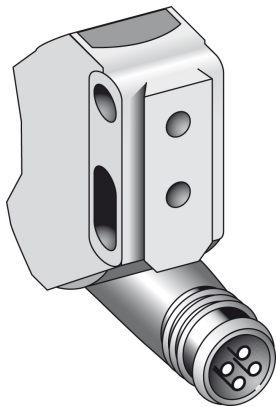


Characteristic curve

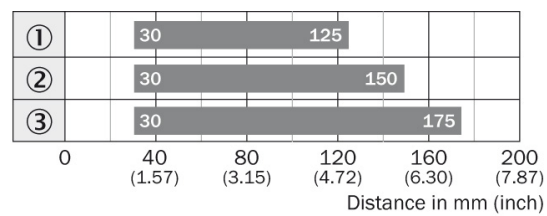


- |1| Sensing range on black, 6 % remission
- |2| Sensing range on grey, 18 % remission
- |3| Sensing range on white, 90 % remission

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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