



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

WTB12-3F2431



**Model Name** > [WTB12-3F2431](#)  
**Part No.** > [1041420](#)



*Illustration may differ*

**At a glance**

- State of the art technology provides precise background suppression
- Withstands harsh environments
- PinPoint LED technology with highly visible light spot; variants available with IR LED for highly critical applications
- Rugged die-cast zinc housing, with optional Teflon® coating
- Versatile mounting options due to 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 background suppression and reliable detection of challenging objects

High immunity to ambient light, optical reflections and crosstalk ensures fewer false readings and less downtime

PinPoint LED technology provides a highly visible light spot that enables quick and easy sensor alignment

Highly visible status LEDs simplify sensing distance adjustments and reduce installation time

A rugged metal housing withstands high-pressure cleaners and cleaning agents, reducing downtime

Complementary outputs in one housing reduce inventory and procurement costs  
IO-Link enables quick remote diagnostics and maintenance (optional)

Easy installation using SICK accessories



**Features**

Sensor/detection principle:	Photoelectric proximity sensor, Background 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.:	20 mm ... 350 mm <sup>1)</sup>
Sensing range:	20 mm ... 350 mm
Type of light:	Visible red light

Light source:	LED <sup>2)</sup>
Wave length:	640 nm
Time type:	Time delay off
Delay time:	Fix:
Off delay:	20 ms
Adjustment:	Potentiometer, 5-turn
Light spot size (distance):	Ø 6 mm (200 mm)

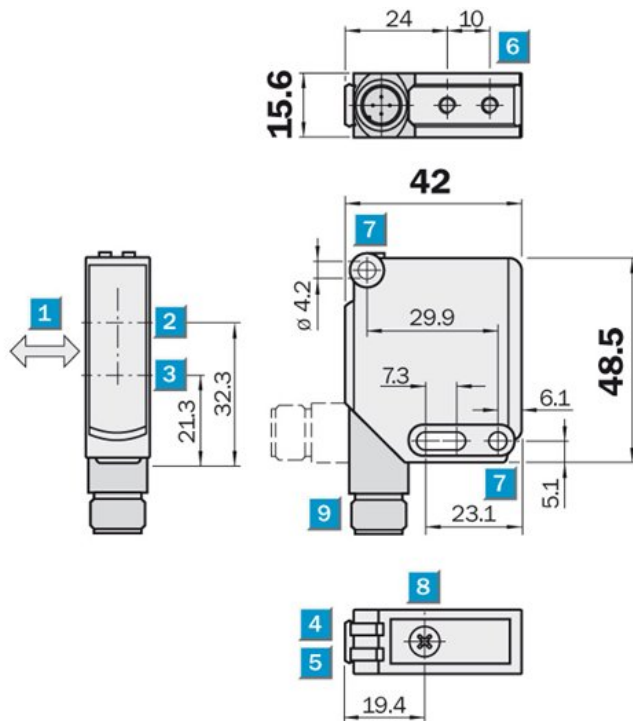
<sup>1)</sup> Object with 90 % reflectance (referred to standard white DIN 5033) <sup>2)</sup> Average service life of 100,000 h at  $T_A = +25\text{ °C}$

## Mechanics/electronics

Supply voltage:	10 V DC ... 30 V DC <sup>1)</sup>
Ripple:	$\leq 5\text{ Vpp}$ <sup>2)</sup>
Power consumption:	$\leq 60\text{ mA}$ <sup>3)</sup>
Output type:	PNP
Output function:	Complementary
Switching mode:	Light/dark-switching
Output current I <sub>max.</sub> :	100 mA
Response time:	$\leq 330\text{ }\mu\text{s}$ <sup>4)</sup>
Switching frequency:	1,500 Hz <sup>5)</sup>
Connection type:	Connector M12, 4-pin
Circuit protection:::	A, C, D <sup>6) 7) 8)</sup>
Protection class:	II
Weight:	120 g
Special device:	-
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

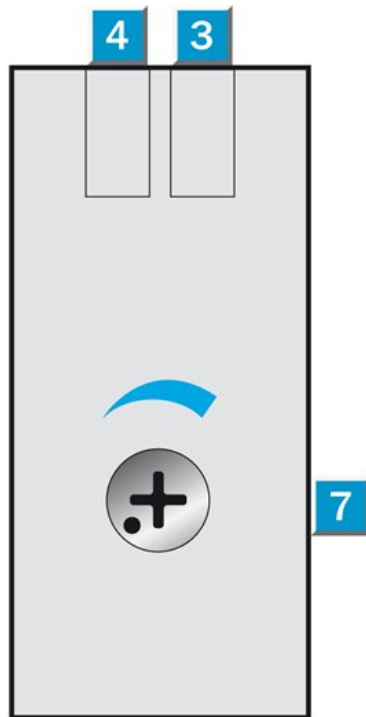
<sup>1)</sup> Limit values, operation in short-circuit protected network max. 8 A <sup>2)</sup> May not exceed or fall short of  $V_S$  tolerances <sup>3)</sup> Without load <sup>4)</sup> Signal transit time with resistive load <sup>5)</sup> With light/dark ratio 1:1 <sup>6)</sup> A =  $V_S$  connections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

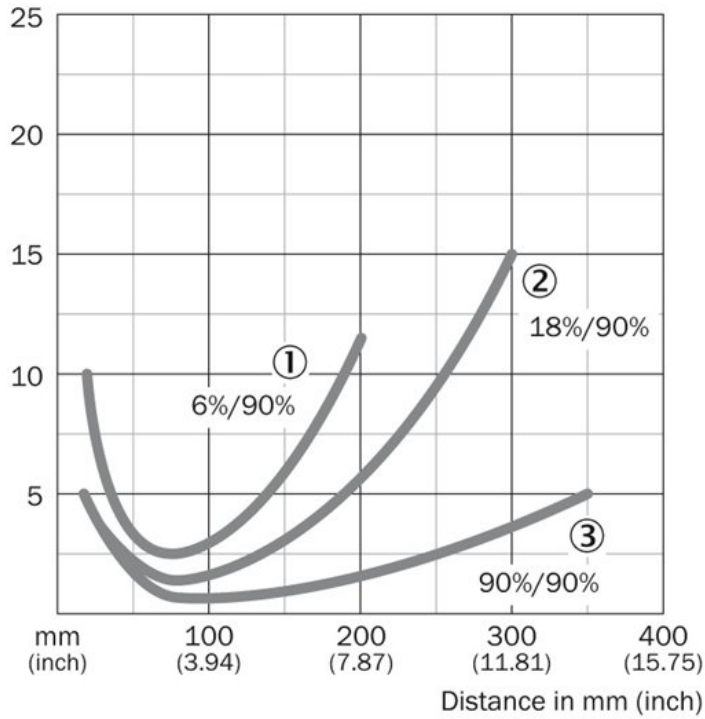


- |4| Green LED indicator: supply voltage active
- |5| LED indicator yellow: Light received
- |8| Sensing range adjustment: potentiometer

Connection diagram

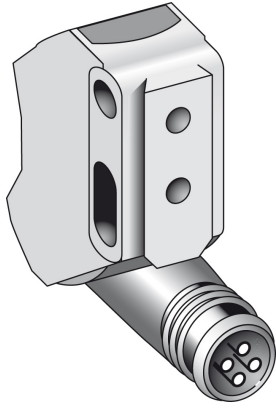


Characteristic curve

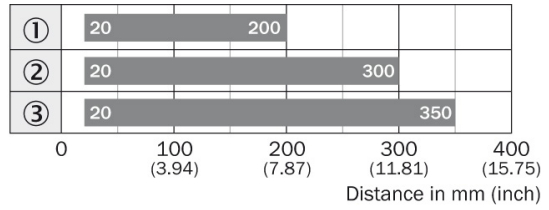


- [1] Sensing range on black, 6 % remission
- [2] Sensing range on grey, 18 % remission
- [3] Sensing range on white, 90 % remission

## 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

**Australia**

Phone +61 3 9457 0600  
1800 334 802 – tollfree  
E-Mail sales@sick.com.au

**Belgium/Luxembourg**

Phone +32 (0)2 466 55 66  
E-Mail info@sick.be

**Brasil**

Phone +55 11 3215-4900  
E-Mail sac@sick.com.br

**Canada**

Phone +1 905 771 14 44  
E-Mail information@sick.com

**Ceská Republika**

Phone +420 2 57 91 18 50  
E-Mail sick@sick.cz

**China**

Phone +86 4000 121 000  
E-Mail info.china@sick.net.cn  
Phone +852-2153 6300  
E-Mail ghk@sick.com.hk

**Danmark**

Phone +45 45 82 64 00  
E-Mail sick@sick.dk

**Deutschland**

Phone +49 211 5301-301  
E-Mail kundenservice@sick.de

**España**

Phone +34 93 480 31 00  
E-Mail info@sick.es

**France**

Phone +33 1 64 62 35 00  
E-Mail info@sick.fr

**Great Britain**

Phone +44 (0)1727 831121  
E-Mail info@sick.co.uk

**India**

Phone +91-22-4033 8333  
E-Mail info@sick-india.com

**Israel**

Phone +972-4-6801000  
E-Mail info@sick-sensors.com

**Italia**

Phone +39 02 27 43 41  
E-Mail info@sick.it

**Japan**

Phone +81 (0)3 3358 1341  
E-Mail support@sick.jp

**Magyarország**

Phone +36 1 371 2680  
E-Mail office@sick.hu

**Nederlands**

Phone +31 (0)30 229 25 44  
E-Mail info@sick.nl

**Norge**

Phone +47 67 81 50 00  
E-Mail austefjord@sick.no

**Österreich**

Phone +43 (0)22 36 62 28 8-0  
E-Mail office@sick.at

**Polska**

Phone +48 22 837 40 50  
E-Mail info@sick.pl

**România**

Phone +40 356 171 120  
E-Mail office@sick.ro

**Russia**

Phone +7-495-775-05-30  
E-Mail info@sick.ru

**Schweiz**

Phone +41 41 619 29 39  
E-Mail contact@sick.ch

**Singapore**

Phone +65 6744 3732  
E-Mail admin@sicksgp.com.sg

**Slovenija**

Phone +386 (0)1-47 69 990  
E-Mail office@sick.si

**South Africa**

Phone +27 11 472 3733  
E-Mail info@sickautomation.co.za

**South Korea**

Phone +82 2 786 6321/4  
E-Mail info@sickkorea.net

**Suomi**

Phone +358-9-25 15 800  
E-Mail sick@sick.fi

**Sverige**

Phone +46 10 110 10 00  
E-Mail info@sick.se

**Taiwan**

Phone +886-2-2375-6288  
E-Mail sales@sick.com.tw

**Türkiye**

Phone +90 (216) 528 50 00  
E-Mail info@sick.com.tr

**United Arab Emirates**

Phone +971 (0) 4 8865 878  
E-Mail info@sick.ae

**USA/México**

Phone +1(952) 941-6780  
1 800-325-7425 – tollfree  
E-Mail info@sickusa.com

More representatives and agencies  
at [www.sick.com](http://www.sick.com)