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

WTB12-3F2431

SICK
Sensor Intelligence.

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Model Name   **> WTB12-3F2431**
Part No.   **> 1041420**

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
- Highly visible status LEDs
- Sensing range adjustment with potentiometer or teach-in pushbutton
- IO-Link communication available (optional)

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

Dimensions (W x H x D):	15.6 mm x 48.5 mm x 42 mm
Sensing range max.:	20 mm ... 350 mm [1]
Sensing range:	20 mm ... 350 mm
Housing design (light emission):	Rectangular
Light source:	LED [2]
Type of light:	Visible red light

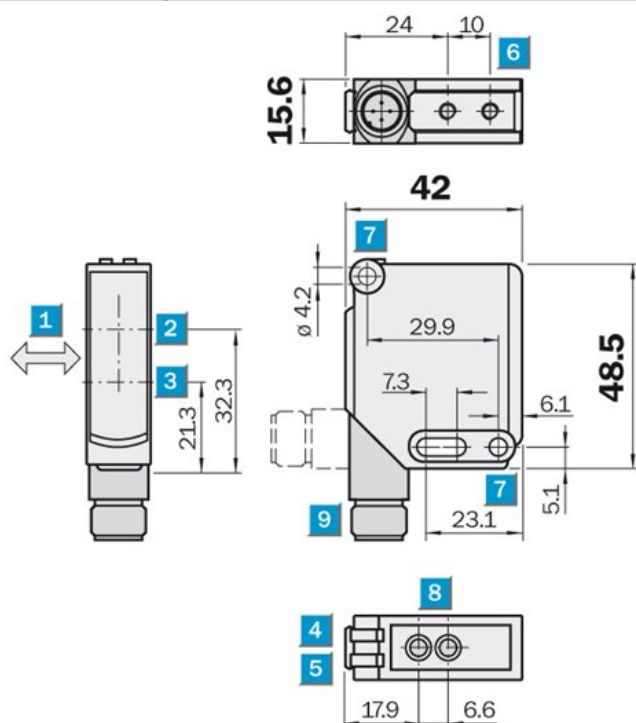|	
Wave length:	640 nm
Sensitivity adjustment:	Potentiometer, 5-turn
Delay time:	Fix:
Time type:	Time delay off
Off delay:	20 ms
Sensor/detection principle:	Photoelectric proximity sensor, Background suppression
Light spot (distance):	6 mm (200 mm)

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

Mechanics/electronics

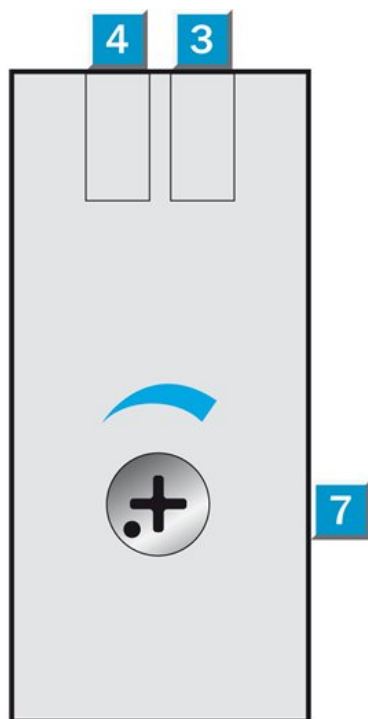|	
Enclosure rating:	IP 66 IP 67 IP 69K
Supply voltage:	10 V DC ... 30 V DC [1]
Residual ripple:	≤ 5 Vpp [2]
Power consumption:	≤ 60 mA [3]
Switching output:	PNP, light/dark-switching, Complementary
Output current Imax.:	100 mA
Response time:	≤ 330 µs [4]
Switching frequency:	1,500 Hz [5]
Connection type:	Connector M12, 4-pin
Protection class:	II
Circuit protection:::	A, C, D [6] [7] [8]
Weight:	120 g
Ambient operating temperature:	-40 °C ... 60 °C
Ambient storage temperature:	-40 °C ... 75 °C
Special device:	-
UL File-No.:	UL No. NRKH.E181493 & cUL No. NRKH7.E181493

[1] Limit values, operation in short-circuit protected network max. 8 A [2] May not exceed or fall short of V_S [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
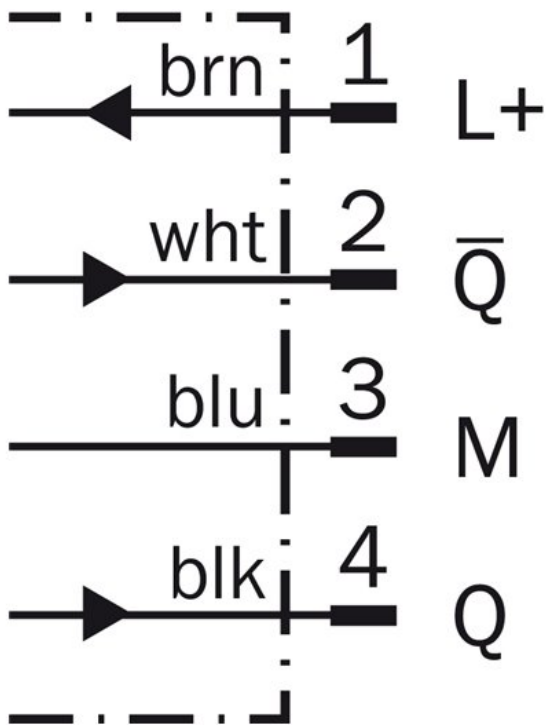
Dimensional drawing

|1| Standard direction of the material being scanned
|2| Optical axis, receiver
|3| Optical axis, sender
|4| Status indicator LED green: supply voltage active
|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| Scanning distance adjustment, double Teach button
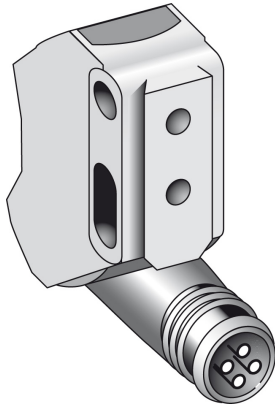|9| Connection

Einstell-Möglichkeiten

|3| Status indicator LED,
   yellow: Status of received light beam
|4| Status indicator LED green: supply voltage active
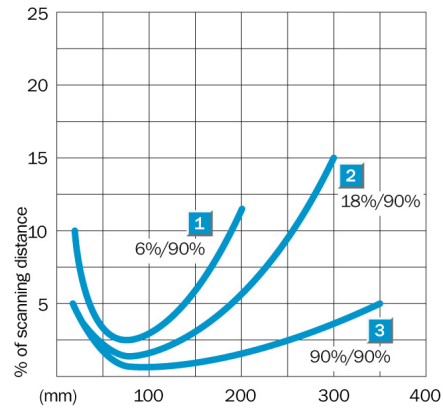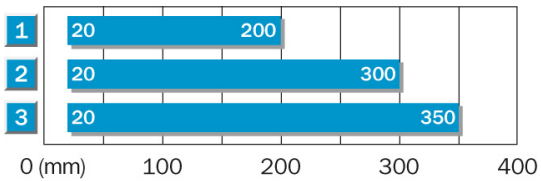|7| Sensing distance adjustment: Poti

Connection diagram

Wire	Pin	Signal
brn	1	L+
wht	2	Q̄
blu	3	M
blk	4	Q

Connection type

Characteristic curve

1 — 6%/90%
2 — 18%/90%
3 — 90%/90%

% of scanning distance vs (mm) 100 200 300 400

Sensing range diagram

1	20	200
2	20	300
3	20	350

0 (mm) 100 200 300 400

1	Scanning distance on black, 6 % Remission
2	Scanning distance on grey, 18 % Remission
3	Scanning on white, 90 % Remission

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