



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

WTB12C-3P2432



Type > [WTB12C-3P2432](#)
Part No. > [1067771](#)



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
- Rugged die-cast zinc housing
- Flexible sensor settings, monitoring, advanced diagnostics, and visualization thanks to IO-Link
- Programmable functions as debouncing and time-measurement are included

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
- IO-Link provides easy data access from the PLC
- Quick and easy configuration
- Quick and easy integration using function blocks
- Easy device replacement and identification



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 ¹⁾
Sensing range:	20 mm ... 350 mm ²⁾
Type of light:	Visible red light
Light source:	PinPoint LED ³⁾
Wave length:	640 nm
Adjustment:	Single teach-in button
Light spot size (distance):	Ø 6 mm (200 mm)
IO-Link functions:	Standard functions
Gen. Response Time:::	IOL: 800 µs ^{4) 5) 6)} 1000 µs, SIO Direct: 250 µs ... 350 µs, SIO Logic: 800 µs ... 900 µs
Gen. max. switching frequency:::	IOL: 700 Hz, SIO Direct: 1.100 Hz, SIO Logic: 900 Hz ^{7) 8) 9)}
Gen. Repeatability:::	IOL: 300 µs, SIO Direct: 100 µs, SIO Logic: 100 µs ^{10) 11) 12)}

^{1) 2)} Object with 90 % reflectance (referred to standard white, DIN 5033) ³⁾ Average service life: 100,000 h at T_U = +25 °C ^{4) 7) 10)} SIO Direct: Sensor operation in standard I/O mode without IO-Link communication and without usage of sensor-internal logic or timing parameters (set to "direct"/"deactivated"). ^{5) 8) 11)} SIO Logic:

Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used. ^{6) 9) 12)} IOL:

Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

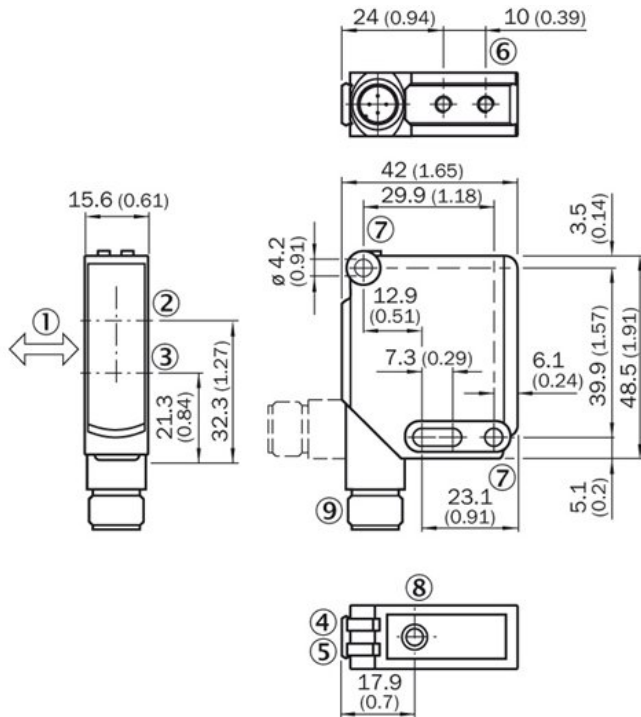
Mechanics/electronics

Supply voltage:	10 V DC ... 30 V DC ¹⁾
Ripple:	$\leq 5 \text{ Vpp}$ ²⁾
Power consumption:	$\leq 45 \text{ mA}$ ³⁾
Output type:	PNP
Switching mode:	Light/dark switching
Output current I _{max} :	$\leq 100 \text{ mA}$
Connection type:	M12, 4-pin male connector
Circuit protection:::	A, B, C, D ^{4) 5) 6) 7)}
Protection class:	II
Weight:	120 g
IO-Link:	✓
Special device:	-
Enclosure rating:	IP 66 IP 67
Ambient operating temperature:	-40 °C ... +60 °C
Ambient storage temperature:	-40 °C ... +75 °C
UL File No.:	NRKH.E181493 & NRKH7.E181493
Signal voltage PNP HIGH/LOW:	$> U_v - 2,5 \text{ V} / \text{ca. } 0 \text{ V}$
Housing material:	Metal
Response time Q/ on Pin 2::	$250 \mu\text{s} \dots 350 \mu\text{s}$ ^{8) 9)}
Switching frequency Q \ on Pin2:	$\leq 1,100 \text{ Hz}$
Repeatability Q/ on Pin 2::	100 μs
IO-Link version:	1.0
Transmission rate:	COM2

With light/dark ratio 1:1, valid for Q \ on Pin2, if configured with software; Valid for Q \ on Pin2, if configured with software;

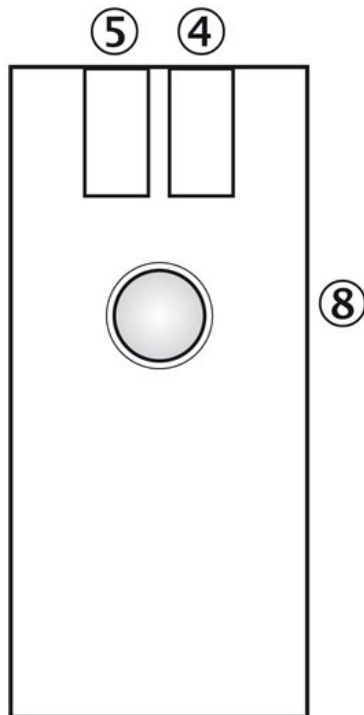
¹⁾ Limit values when operated in short-circuit protected network: max. 8 A ²⁾ May not exceed or fall below U_v tolerances ³⁾ Without load ⁴⁾ A = V_S connections
reverse-polarity protected ⁵⁾ B = inputs and output reverse-polarity protected ⁶⁾ C = interference suppression ⁷⁾ D = outputs overcurrent and short-circuit protected ⁸⁾
Signal transit time with resistive load ⁹⁾ Valid for Q \ on Pin2, if configured with software

Dimensional drawing



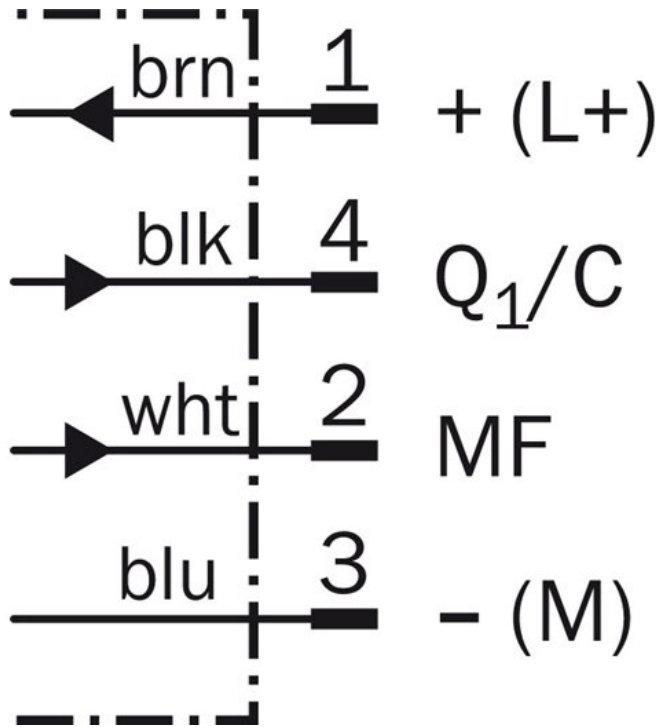
- |1| Standard direction of the material being detected
- |2| Optical axis, receiver
- |3| Optical axis, sender
- |4| Status indicator LED green: supply voltage on
- |5| Status indicator LED,
yellow: Status of received light beam
- |6| M4 threaded mounting hole, 4 mm deep
- |7| Mounting hole, \varnothing 4.2 mm
- |8| Adjustment sensing range: single teach-in button
- |9| Connection

Adjustments possible

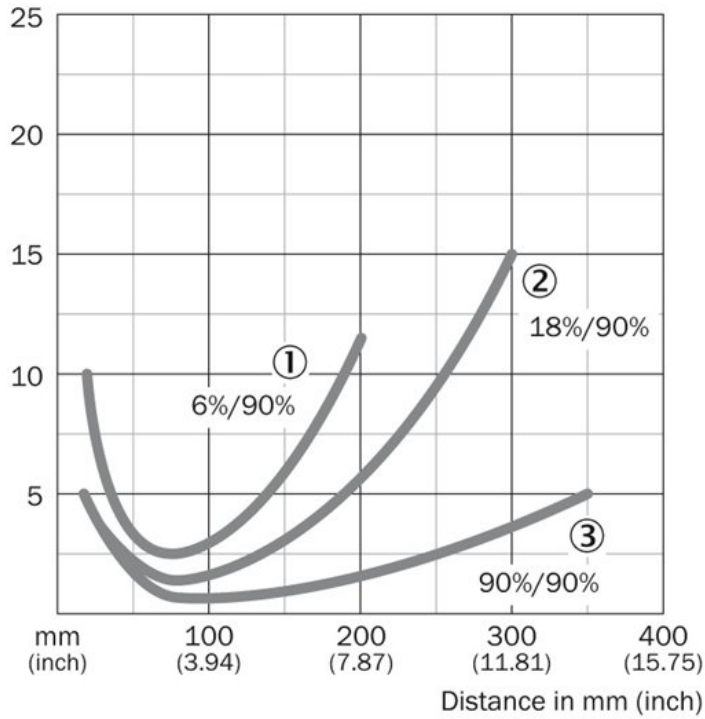


- |4| Status indicator LED green: supply voltage on
- |5| Status indicator LED,
yellow: Status of received light beam
- |8| Adjustment sensing range: single teach-in button

Connection diagram

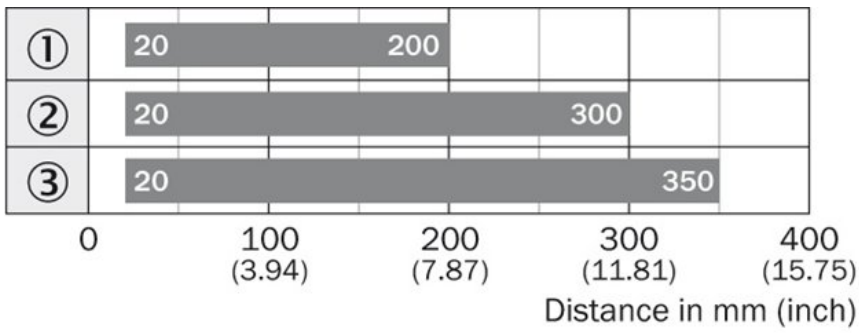


Characteristic curve



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

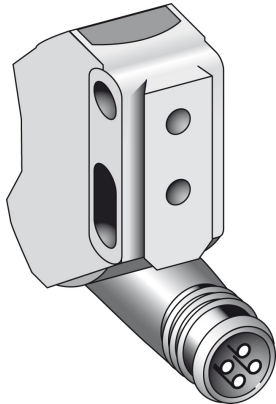
Sensing range diagram



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

■ Sensing range

Connection type



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