



Photoelectric sensors
W9-3, Photoelectric proximity sensor,
Background suppression

WTB9-3P1161



Model Name > [WTB9-3P1161](#)
Part No. > [1049043](#)



Illustration may differ

At a glance

- High-performance proximity sensing in ultra-rugged VISTAL™ housing
- PinPoint LED for highly visible and precise light spot
- Two emitter LEDs for best-in-class background suppression
- Variable mounting with M3 or M4 hole pattern
- Wide range of connection options

Your benefits

- Rugged VISTAL™ housing provides reliable installation and operation
- Reliable object detection in all situations using best-in-class technology
- Quick and easy alignment with reliable object detection due to the highly visible PinPoint light spot
- M3 slotted hole mounting for multiple mounting possibilities
- One housing with a wide range of options makes machine integration easy
- Variety of accessories for quick and easy mounting



Features

Sensor/detection principle:	Photoelectric proximity sensor, Background suppression
Dimensions (W x H x D):	12.2 mm x 50 mm x 23.6 mm
Housing design (light emission):	Rectangular
Mounting hole:	M3
Sensing range max.:	20 mm ... 350 mm ¹⁾
Sensing range:	20 mm ... 200 mm ²⁾
Type of light:	Visible red light
Light source:	PinPoint LED ³⁾
Wave length:	650 nm
Adjustment:	Potentiometer, 5-turn
Light spot size (distance):	Ø 4.5 mm (75 mm)

¹⁾ Object with 90 % reflectance (referred to standard white DIN 5033) ²⁾ Object with 6 % reflectance (referred to standard white DIN 5033) ³⁾ Average service life of 100,000 h at T_A = +25 °C

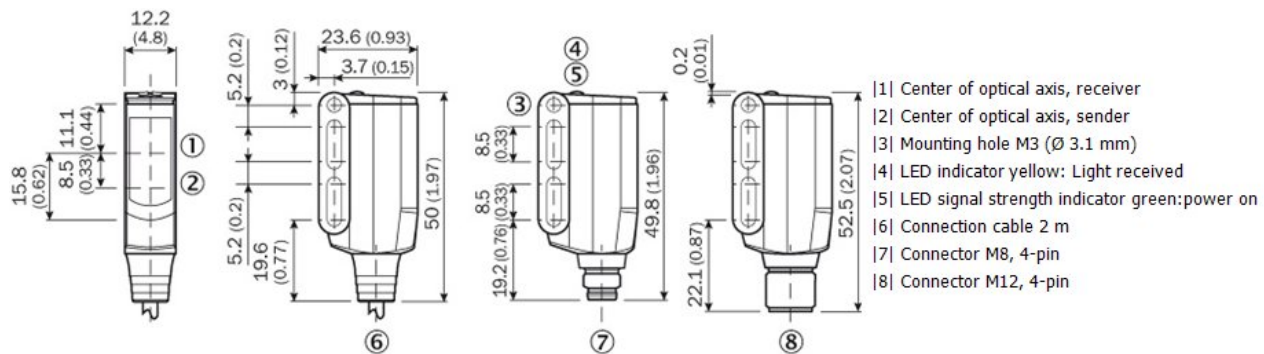
Mechanics/electronics

Supply voltage:	10 V DC ... 30 V DC ¹⁾
Power consumption:	≤ 30 mA ²⁾
Output type:	PNP ³⁾
Output function:	Complementary

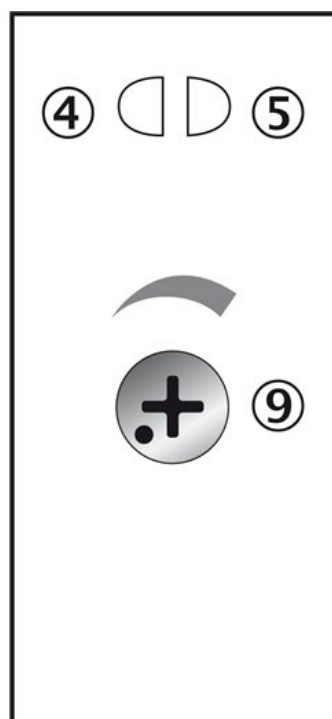
Switching mode:	Light/dark-switching ⁴⁾
Output current I _{max} ::	≤ 100 mA ⁵⁾
Response time:	< 0.333 ms ⁶⁾
Switching frequency:	1,500 Hz ⁷⁾
Connection type:	Cable, 4-wire, 2 m ⁸⁾
Cable material:	PVC
Conductor cross-section:	0.14 mm ²
Circuit protection:::	A, B, C ⁹⁾ 10) 11)
Protection class:	III
Weight:	80 g
Polarisation filter:	-
Housing material:	Plastic, VISTAL
Optics material:	PMMA
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

¹⁾ Limit values, operation in short-circuit protected network max. 8 A ²⁾ Without load ³⁾ 4) Q = light-switching ⁵⁾ As of Tu 50 °C, a max. load current I_{max}. = 50 mA is permitted ⁶⁾ Signal transit time with resistive load ⁷⁾ With light/dark ratio 1:1 ⁸⁾ Do not bend below 0 °C ⁹⁾ A = V_S connections reverse-polarity protected ¹⁰⁾ B = inputs and output reverse-polarity protected ¹¹⁾ C = interference suppression

Dimensional drawing



Adjustments possible

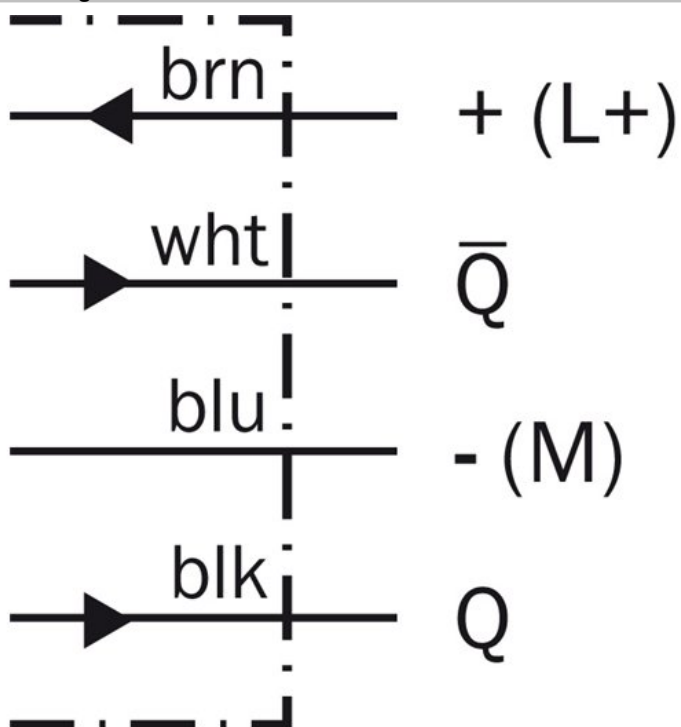


|4| LED indicator yellow: Light received

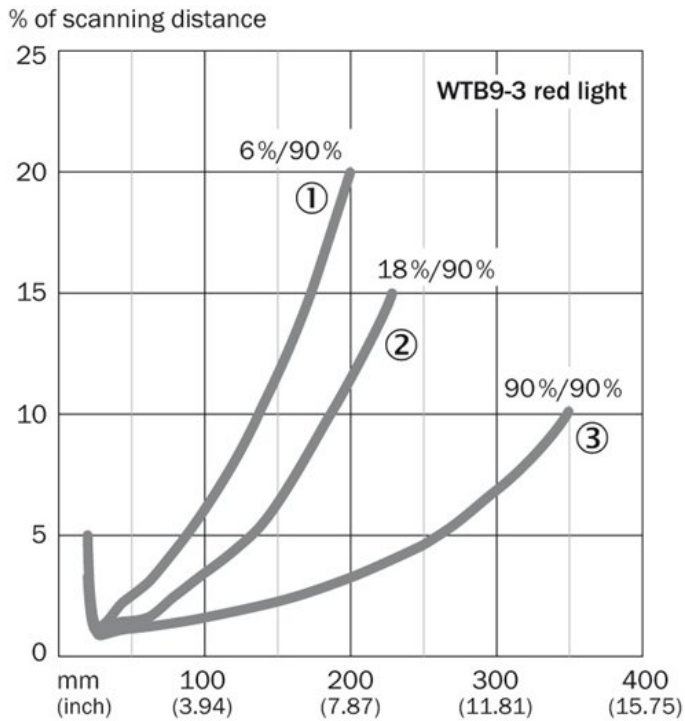
|5| LED signal strength indicator green: power on

|9| Sensing range adjustment

Connection diagram

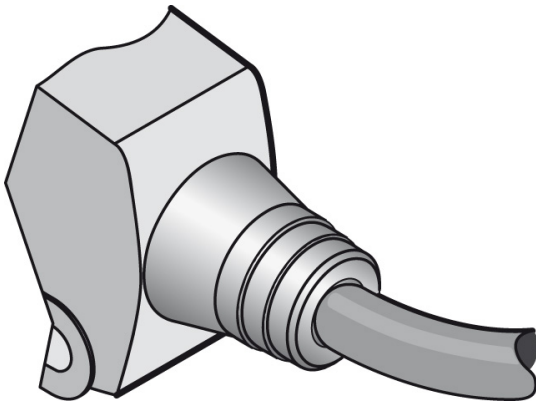


Characteristic curve

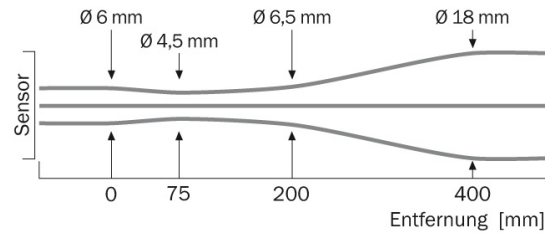


- |1| Sensing range on black, 6 % remission
- |2| Sensing range on grey, 18 % remission
- |3| Sensing range on white, 90 % remission

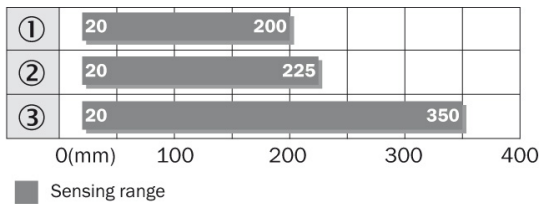
Connection type



Light spot size



Sensing range diagram



- | | |
|---|--|
| 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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