



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

WTB9M4-3P2411



Model Name > [WTB9M4-3P2411](#)
Part No. > [1051890](#)



Illustration may differ

At a glance

- High-performance proximity sensor 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 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
- M4 slotted hole mounting for multiple mounting possibilities
- One housing with a wide range of options makes machine integration easy
- Variety of accessories for simple mounting



Features

Sensor/detection principle:	Photoelectric proximity sensor, Background suppression
Dimensions (W x H x D):	12.2 mm x 52.2 mm x 23.6 mm
Housing design (light emission):	Rectangular
Mounting hole:	M4
Sensing range max.:	20 mm ... 500 mm ¹⁾
Sensing range:	20 mm ... 250 mm ²⁾
Type of light:	Infrared light
Light source:	LED ³⁾
Adjustment:	Potentiometer, 5 turns
Light spot size (distance):	Ø 20 mm (250 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

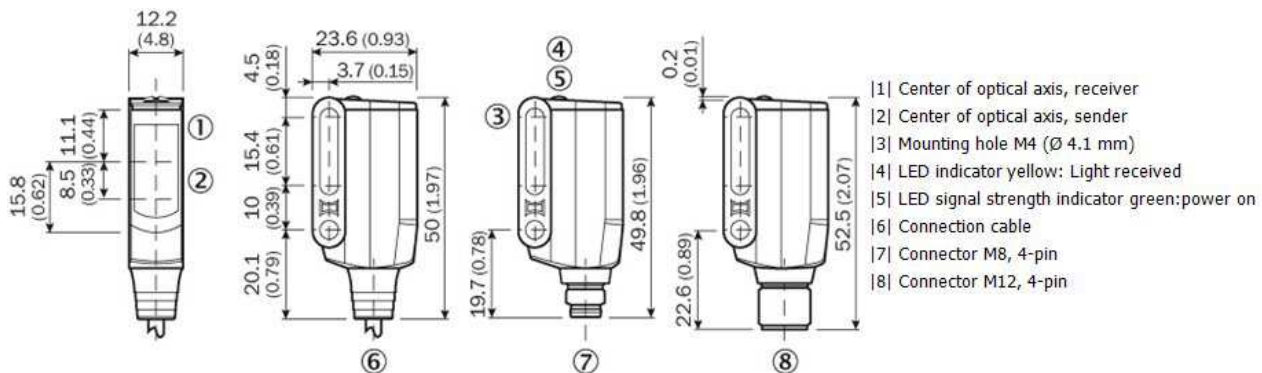
Mechanics/electronics

Supply voltage:	10 V DC ... 30 V DC ¹⁾
Ripple:	< 5 V _{pp} ²⁾
Power consumption:	≤ 30 mA ³⁾
Output type:	PNP ⁴⁾
Output function:	Complementary

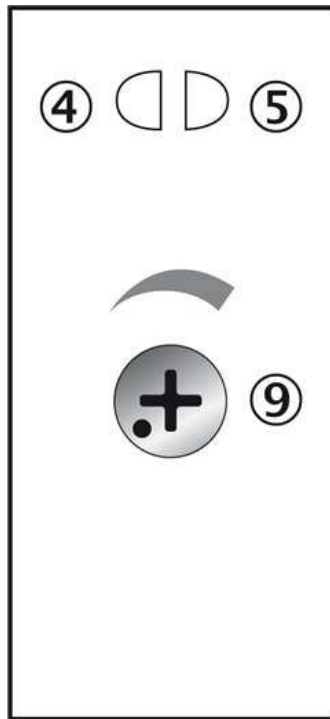
Switching mode:	Light/dark switching ⁵⁾
Output current I _{max.} :	≤ 100 mA ⁶⁾
Response time:	< 0.5 ms ⁷⁾
Switching frequency:	1,000 Hz ⁸⁾
Connection type:	Connector M12, 4-pin
Circuit protection:::	A, B, C ^{9) 10) 11)}
Protection class:	III
Weight:	13 g
Optics material:	PMMA
Enclosure rating:	IP 66 IP 67 IP 69K
Ambient operating temperature:	-40 °C ... +60 °C
Ambient storage temperature:	-40 °C ... +75 °C
UL File No.:	NRKH.E181493
Housing material:	Plastic, VISTAL

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) 5)} Q = light-switching ⁶⁾ As of Tu 50 °C, a max. load current I_{max.} = 50 mA is permitted ⁷⁾ Signal transit time with resistive load ⁸⁾ With light/dark ratio 1:1 ⁹⁾ A = V_S connections reverse-polarity protected ¹⁰⁾ B = inputs and output reverse-polarity protected ¹¹⁾ C = interference suppression

Dimensional drawing

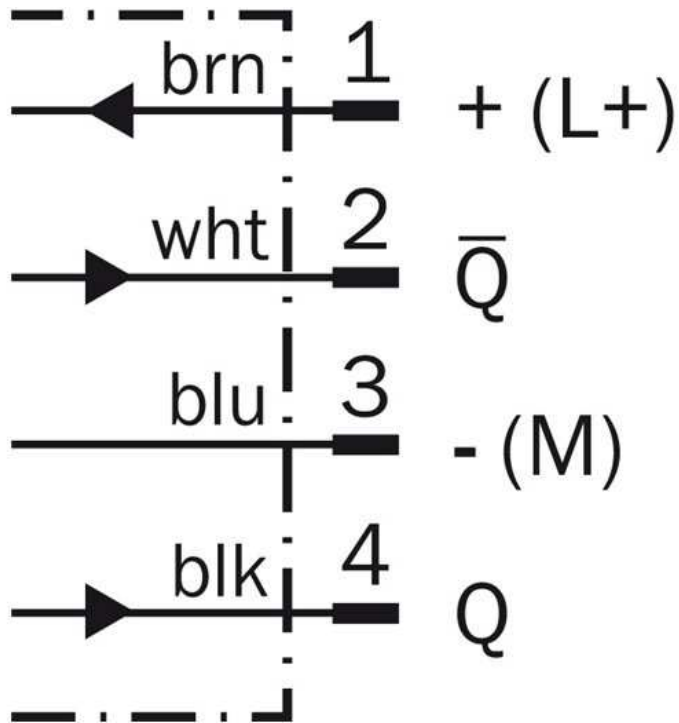


Adjustments possible



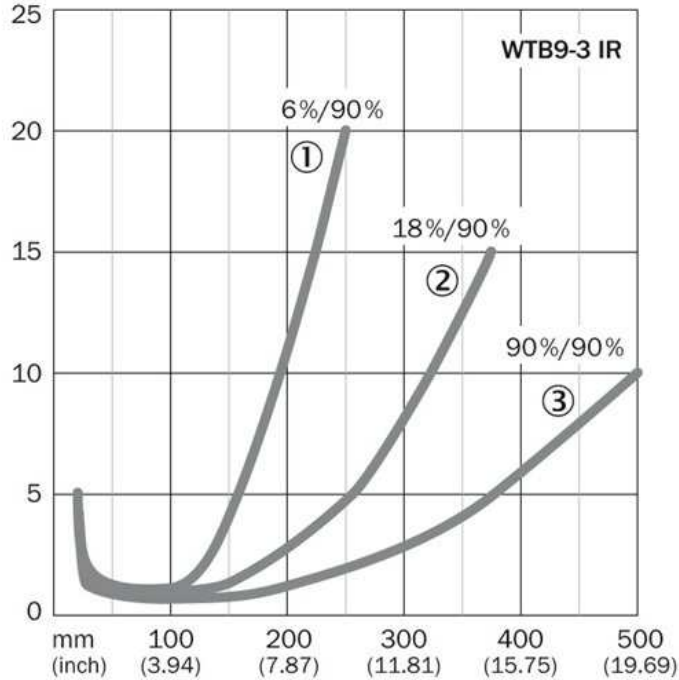
- |4| LED indicator yellow: Light received
- |5| LED signal strength indicator green:power on
- |9| Sensing range adjustment

Connection diagram



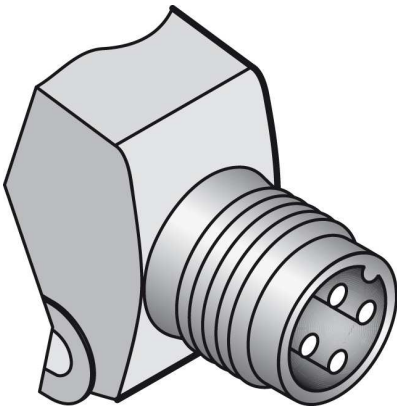
Characteristic curve

% of sensing range

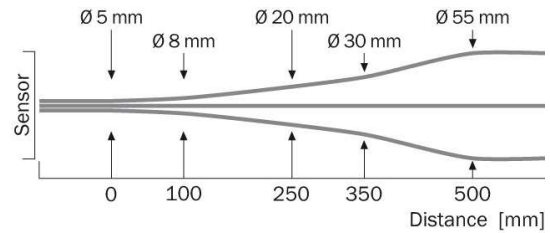


- |1| Sensing range on black, 6 % remission
- |2| Sensing range on gray, 18 % remission
- |3| Sensing range on white, 90 % remission

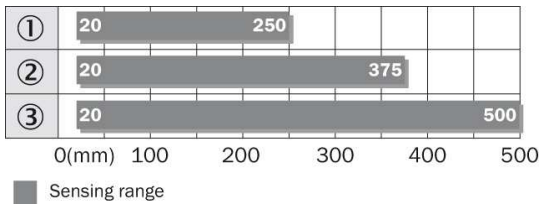
Connection type



Light spot size



Sensing range diagram



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