



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

WTB9-3N2461



Model Name > [WTB9-3N2461](#)
Part No. > [1049053](#)



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 52.2 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⁾ |
| Adjustment: | Potentiometer, 5 turns |
| 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

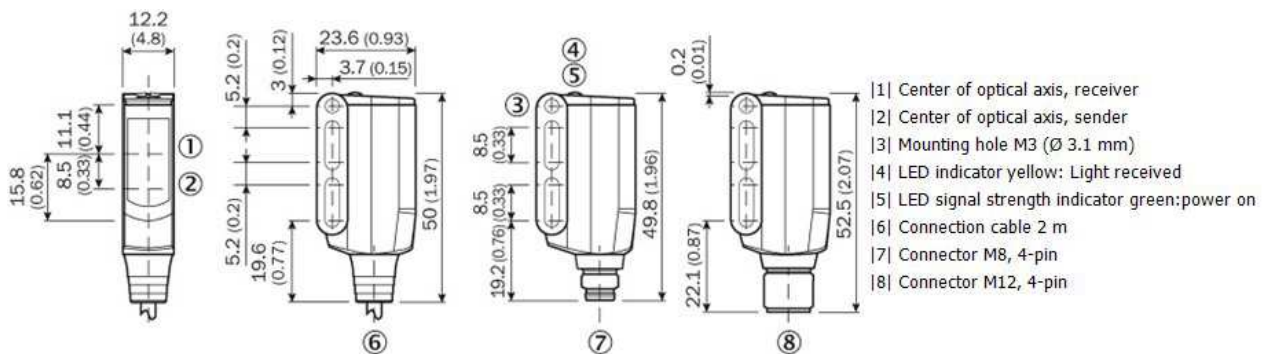
Mechanics/electronics

| | |
|--------------------|-----------------------------------|
| Supply voltage: | 10 V DC ... 30 V DC ¹⁾ |
| Ripple: | < 5 Vpp ²⁾ |
| Power consumption: | ≤ 30 mA ³⁾ |
| Output type: | NPN ⁴⁾ |
| Output function: | Complementary |

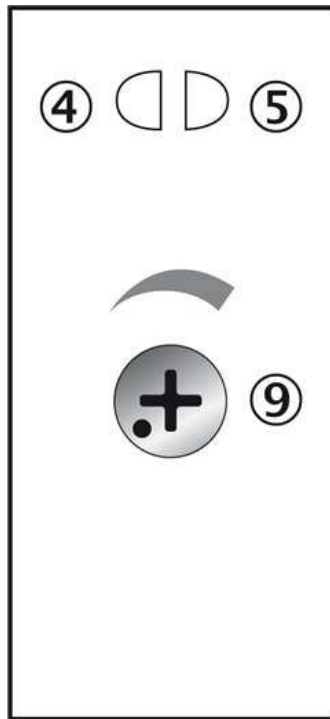
| | |
|------------------------------------|------------------------------------|
| Switching mode: | Light/dark switching ⁵⁾ |
| Output current I _{max.} : | ≤ 100 mA ⁶⁾ |
| Response time: | < 0.333 ms ⁷⁾ |
| Switching frequency: | 1,500 Hz ⁸⁾ |
| Connection type: | Connector M12, 4-pin |
| Circuit protection::: | A, B, C ^{9) 10) 11)} |
| Protection class: | III |
| Weight: | 13 g |
| Polarisation filter: | - |
| 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

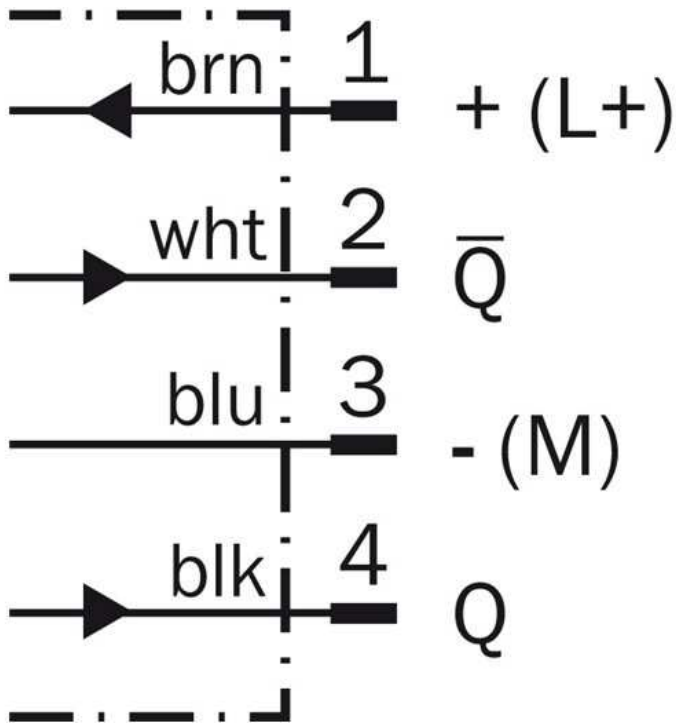


Adjustments possible

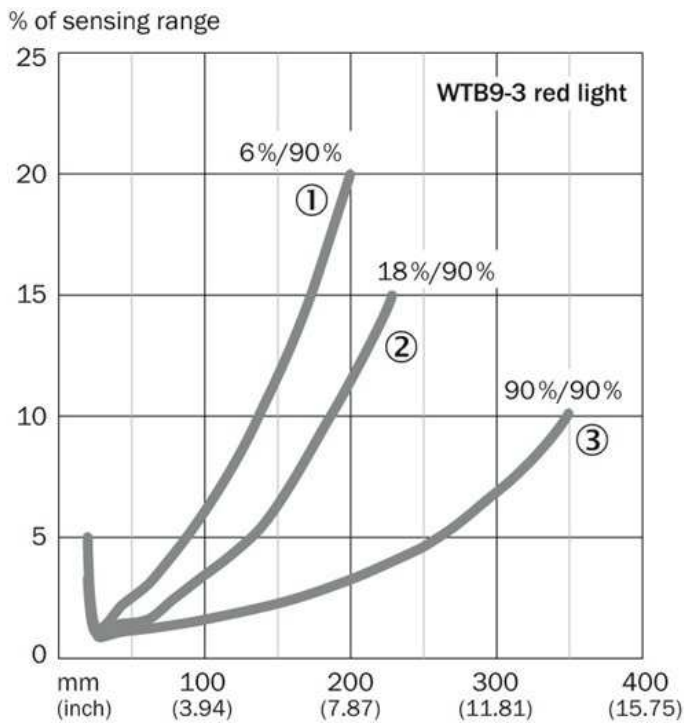


- |4| LED indicator yellow: Light received
- |5| LED signal strength indicator green:power on
- |9| Sensing range adjustment

Connection diagram

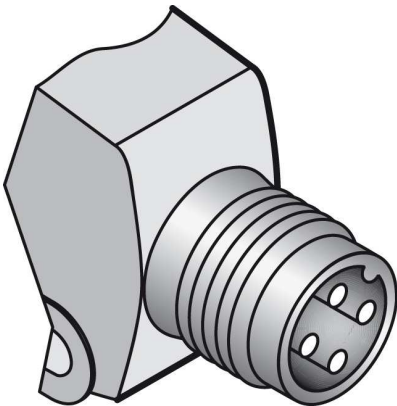


Characteristic curve

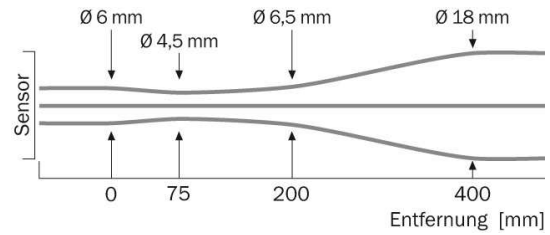


- |1| Sensing range on black, 6 % remission
- |2| Sensing range on gray, 18 % remission
- |3| Sensing range on white, 90 % remission

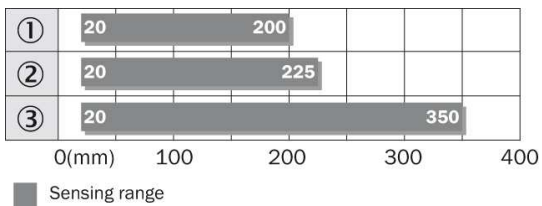
Connection type



Light spot size



Sensing range diagram



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