



Photoelectric sensors
V180-2, Photoelectric proximity sensor,
Background suppression

VTB180-2N41112



Model Name > [VTB180-2N41112](#)
Part No. > [6043867](#)



Illustration may differ

At a glance

- Detecting presence and positioning in:
 - - Storage/conveying technology
 - - Material handling technology
 - - Packaging industry
 - - Transportation industry
 - - Automotive industry
 - - Wood industry
- Applications with limited space behind the sensor (radial types)

Your benefits

- Lowest-cost M18 cylindrical sensor on the market reduces installation costs
- Bright red sender LED simplifies alignment and saves installation time
- Bright power and signal LEDs with 360° visibility offer quick and simple troubleshooting, reducing installation and maintenance costs
- The flat and smooth lens reduces the collection of dust and dirt, ensuring safe operation with less maintenance and fewer costs
- Sensors with background suppression for reliable detection of challenging objects



Features

| | |
|----------------------------------|--|
| Sensor/detection principle: | Photoelectric proximity sensor, Background suppression |
| Housing design (light emission): | Cylindrical, straight |
| Thread diameter (housing): | M18 x 1 |
| Optical axis: | axial |
| Sensing range max.: | 10 mm ... 350 mm ¹⁾ |
| Sensing range: | 30 mm ... 200 mm ²⁾ |
| Type of light: | Visible red light |
| Light source: | LED ³⁾ |
| Wave length: | 632 nm |
| Angle of dispersion: | Ca. 2.8 ° |
| Adjustment: | Potentiometer, 4 turns |
| Light spot size (distance): | Ø 15 mm (300 mm) |

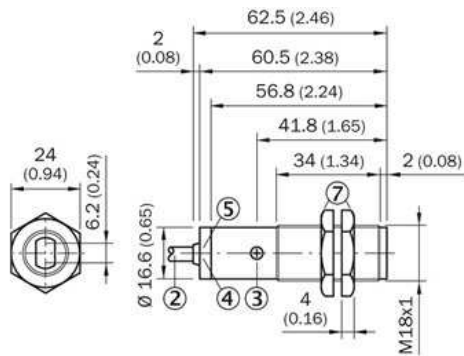
^{1) 2)} Object with 90 % reflectance (referred to standard white, DIN 5033) ³⁾ Average service life of 100,000 h at T_A = +25 °C

Mechanics/electronics

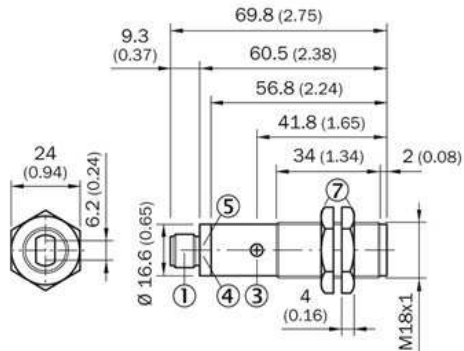
| | |
|-----------------------------------|---|
| Supply voltage: | 10 V DC ... 30 V DC ¹⁾ |
| Residual ripple: | $\pm 10\%$ ²⁾ |
| Power consumption: | $\leq 35\text{ mA}$ ³⁾ |
| Output type: | NPN, open collector ⁴⁾ |
| Switching mode: | Light/dark switching ⁵⁾ |
| Switching mode selector: | Selectable via L/D control wire |
| Output current I _{max} : | $\leq 100\text{ mA}$ |
| Response time: | $\leq 1\text{ ms}$ ⁶⁾ |
| Switching frequency: | $\leq 500\text{ Hz}$ ⁷⁾ |
| Electrical connection: | Cable, 4-wire, 2 m ⁸⁾ |
| Conductor cross-section: | 0.18 mm ² |
| Cable diameter: | $\varnothing 3.8\text{ mm}$ |
| Circuit protection::: | A, B, D ⁹⁾ ¹⁰⁾ ¹¹⁾ |
| Protection class: | III |
| Weight: | 95 g |
| Housing material: | Nickel-plated brass and PC, Metal |
| Optics material: | PMMA |
| Enclosure rating: | IP 67 |
| Items supplied: | Fastening nuts (2 x) |
| Ambient temperature operation: | -25 °C ... +55 °C |
| Ambient storage temperature: | -40 °C ... +70 °C |
| Signal voltage NPN HIGH/LOW: | Approx. $V_S / < 1.8\text{ V}$ |

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)} Control wire open: light-switching L.ON 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⁾ D = outputs overcurrent and short-circuit protected

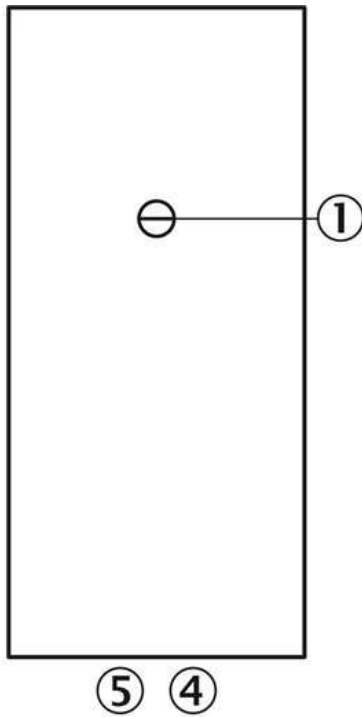
Dimensional drawing



- |1| Connector M12, 4-pin
- |2| Connection cable 2 m
- |3| Sensitivity adjustment 270°
- |4| LED indicator orange: switching output active
- |5| LED indicator green: strength indicator
- |7| fastening nuts (2 x); 24 mm hex, metal

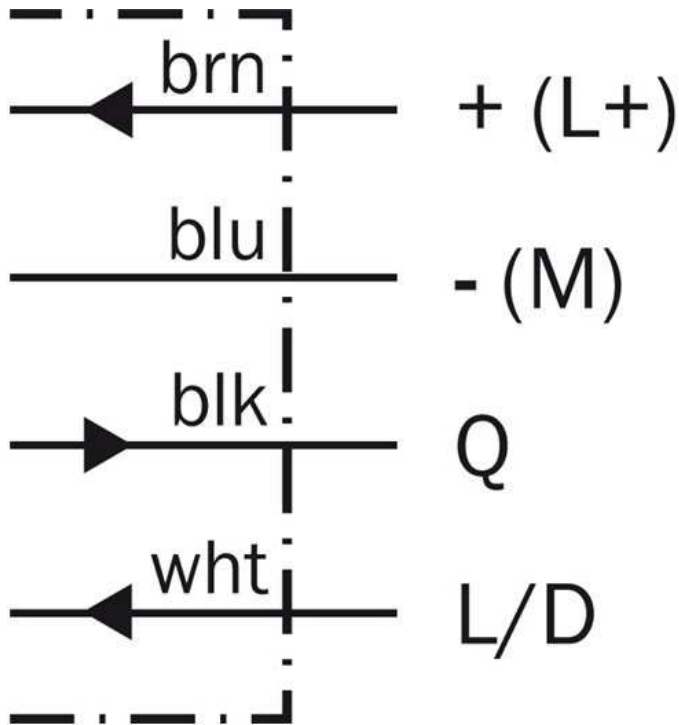


Adjustments possible

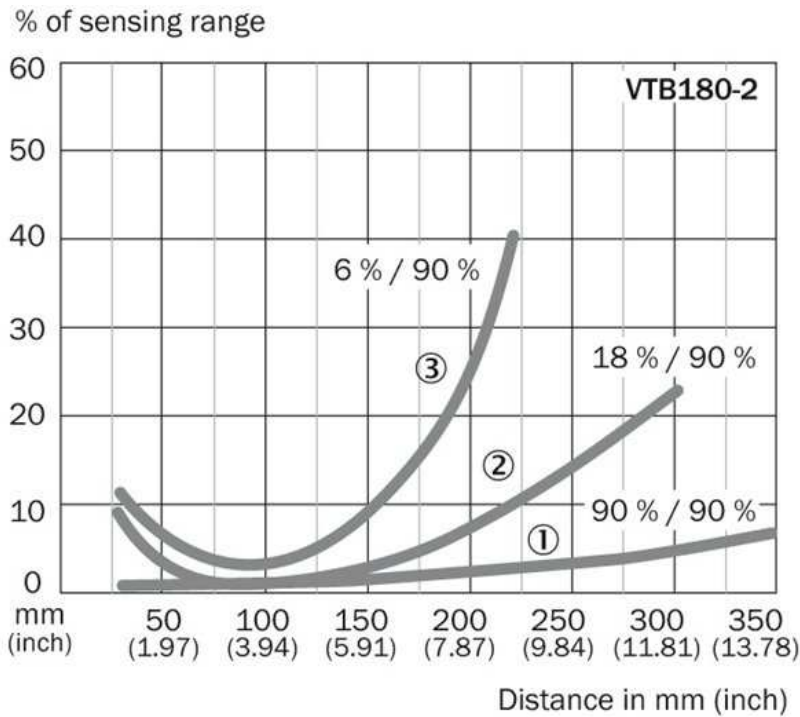


- |3| Sensitivity adjustment 270°
- |4| LED indicator orange: switching output active
- |5| LED indicator green

Connection diagram

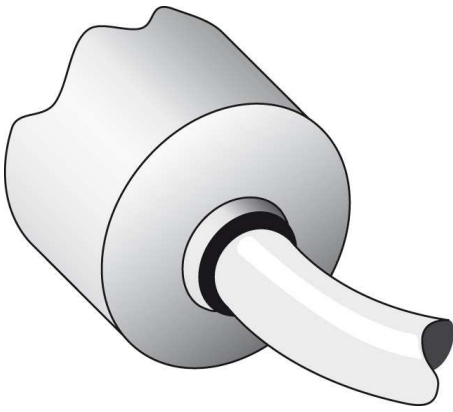


Characteristic curve

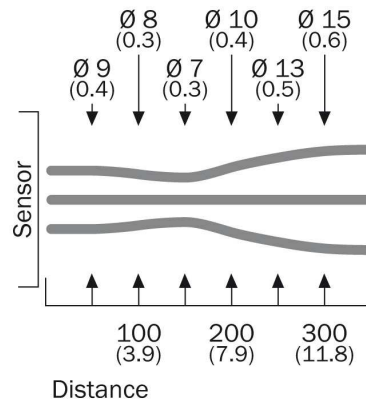


- [1] Sensing range on white, 90 % remission
- [2] Sensing range on grey, 18 % remission
- [3] Sensing range on black, 6 % remission

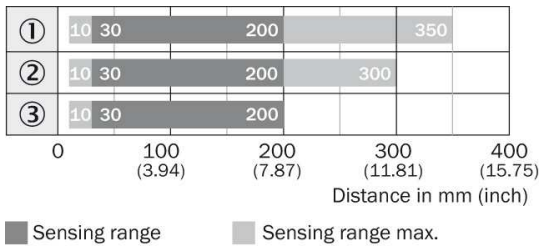
Connection type



Light spot size



Sensing range diagram



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