



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

VTB180-2P41117



**Model Name** > [VTB180-2P41117](#)  
**Part No.** > [6043873](#)



*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 <sup>1)</sup>
Sensing range:	30 mm ... 200 mm <sup>2)</sup>
Type of light:	Visible red light
Light source:	LED <sup>3)</sup>
Wave length:	632 nm
Angle of dispersion:	Ca. 2.8 °
Adjustment:	Potentiometer, 4 turns
Light spot size (distance):	Ø 15 mm (300 mm)

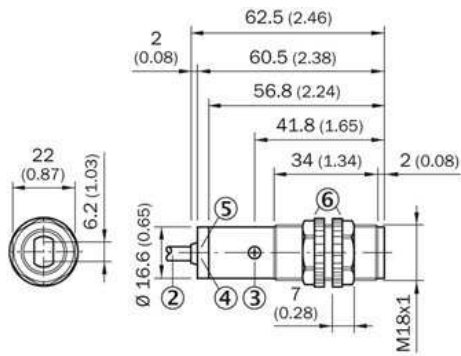
<sup>1) 2)</sup> Object with 90 % reflectance (referred to standard white, DIN 5033) <sup>3)</sup> Average service life of 100,000 h at T<sub>A</sub> = +25 °C

**Mechanics/electronics**

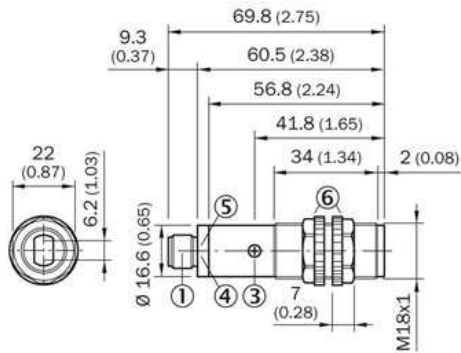
Supply voltage:	10 V DC ... 30 V DC <sup>1)</sup>
Residual ripple:	$\pm 10\%$ <sup>2)</sup>
Power consumption:	$\leq 35\text{ mA}$ <sup>3)</sup>
Output type:	PNP, open collector <sup>4)</sup>
Switching mode:	Light/dark switching <sup>5)</sup>
Switching mode selector:	Selectable via L/D control wire
Output current I <sub>max</sub> :	$\leq 100\text{ mA}$
Response time:	$\leq 1\text{ ms}$ <sup>6)</sup>
Switching frequency:	$\leq 500\text{ Hz}$ <sup>7)</sup>
Electrical connection:	Cable, 4-wire, 2 m <sup>8)</sup>
Conductor cross-section:	0.18 mm <sup>2</sup>
Cable diameter:	$\varnothing 3.8\text{ mm}$
Circuit protection:::	A, B, D <sup>9)</sup> <sup>10)</sup> <sup>11)</sup>
Protection class:	III
Weight:	62 g
Housing material:	Plastic, PBT/PC
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 PNP HIGH/LOW:	Approx. VS - 1.8 V / 0 V

<sup>1)</sup> Limit values, operation in short-circuit protected network max. 8 A <sup>2)</sup> May not exceed or fall short of  $V_S$  tolerances <sup>3)</sup> Without load <sup>4) 5)</sup> Control wire open: dark-switching D.ON <sup>6)</sup> Signal transit time with resistive load <sup>7)</sup> With light/dark ratio 1:1 <sup>8)</sup> Do not bend below 0 °C <sup>9)</sup> A =  $V_S$  connections reverse-polarity protected <sup>10)</sup> B = inputs and output reverse-polarity protected <sup>11)</sup> D = outputs overcurrent and short-circuit protected

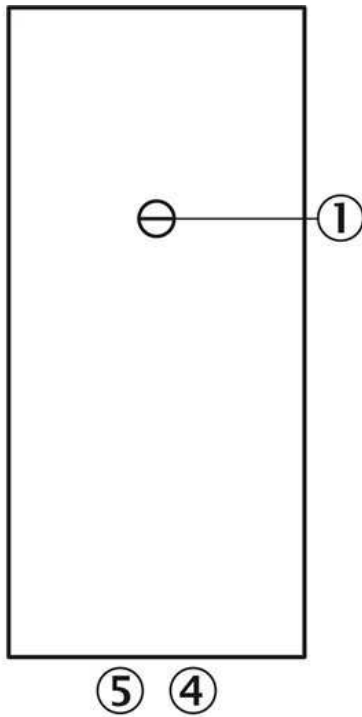
## Dimensional drawing



- |1| Connector M12, 4-pin
- |2| Connection cable 2 m
- |3| Sensitivity control (potentiometer, 270°)
- |4| LED indicator orange: switching output active
- |5| LED indicator green: strength indicator
- |6| fastening nuts (2 x); width across 22, PC

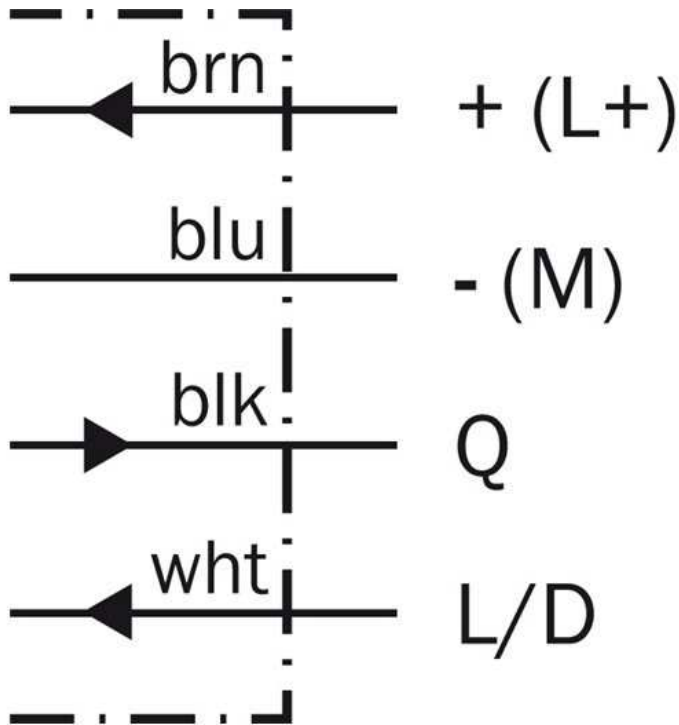


## Adjustments possible

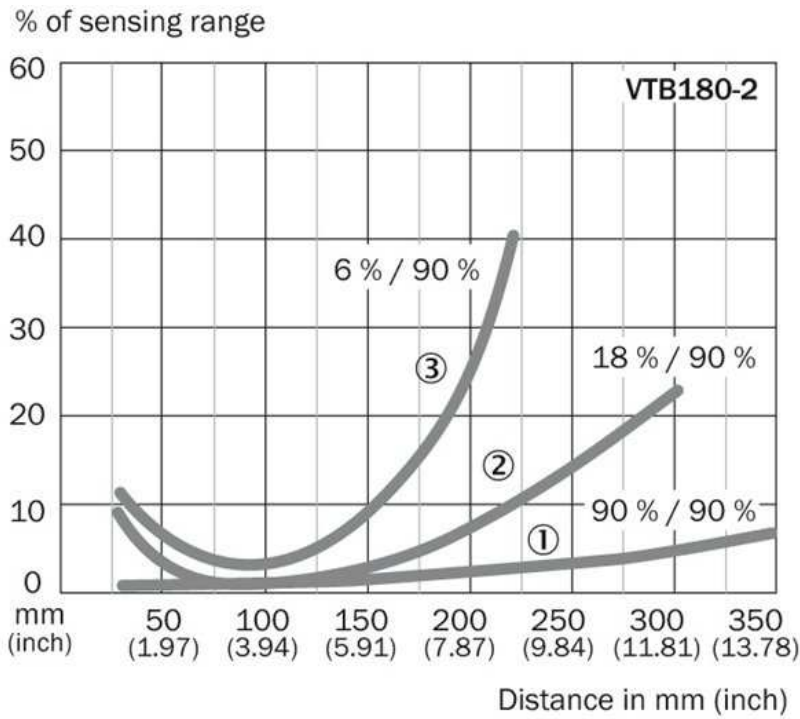


- |3| Sensitivity adjustment 270°
- |4| LED indicator orange: switching output active
- |5| LED indicator green

Connection diagram

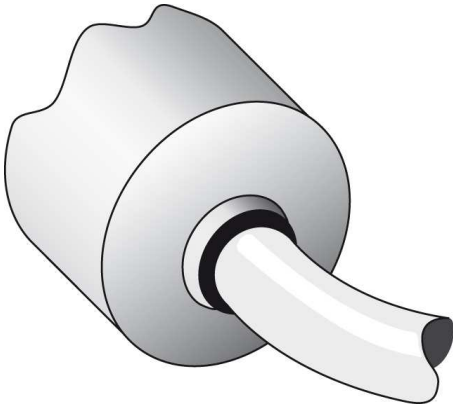


Characteristic curve

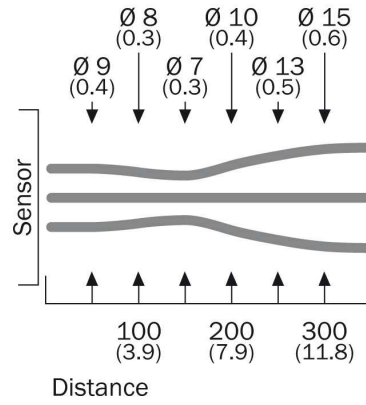


- [1] Sensing range on white, 90 % remission
- [2] Sensing range on grey, 18 % remission
- [3] Sensing range on black, 6 % remission

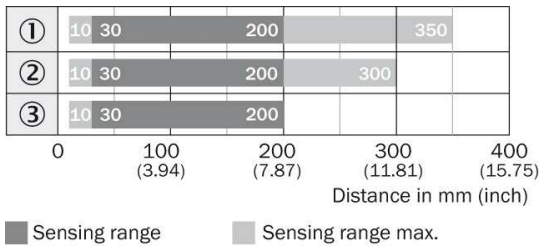
### Connection type



### Light spot size



### Sensing range diagram



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