



**VTB180-2F32417**

V180-2

**CYLINDRICAL PHOTOELECTRIC SENSORS**

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
VTB180-2F32417	6044020

Other models and accessories → [www.sick.com/V180-2](http://www.sick.com/V180-2)

Illustration may differ



### Detailed technical data

#### Features

<b>Sensor/ detection principle</b>	Photoelectric proximity sensor, Background suppression
<b>Dimensions (W x H x D)</b>	18 mm x 18 mm
<b>Housing design (light emission)</b>	Cylindrical
<b>Thread diameter (housing)</b>	M18 x 1
<b>Optical axis</b>	Axial
<b>Sensing range max.</b>	10 mm ... 350 mm <sup>1)</sup>
<b>Sensing range</b>	30 mm ... 200 mm <sup>1)</sup>
<b>Type of light</b>	Visible red light
<b>Light source</b>	LED <sup>2)</sup>
<b>Light spot size (distance)</b>	Ø 15 mm (300 mm)
<b>Angle of dispersion</b>	Approx. 2.8°
<b>Wave length</b>	632 nm
<b>Adjustment</b>	Potentiometer, 4 turns (Sensing range)

<sup>1)</sup> Object with 90 % reflectance (referred to standard white, DIN 5033).

<sup>2)</sup> Average service life: 100,000 h at T<sub>J</sub> = +25 °C.

#### Mechanics/electronics

<b>Supply voltage</b>	10 V DC ... 30 V DC <sup>1)</sup>
<b>Ripple</b>	± 10 % <sup>2)</sup>
<b>Power consumption</b>	35 mA <sup>3)</sup>
<b>Switching output</b>	PNP

<sup>1)</sup> Limit values when operated in short-circuit protected network: max. 8 A.

<sup>2)</sup> May not exceed or fall below U<sub>V</sub> tolerances.

<sup>3)</sup> Without load.

<sup>4)</sup> Signal transit time with resistive load.

<sup>5)</sup> With light/dark ratio 1:1.

<sup>6)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>7)</sup> B = inputs and output reverse-polarity protected.

<sup>8)</sup> D = outputs overcurrent and short-circuit protected.

<b>Switching mode</b>	Light switching
<b>Signal voltage PNP HIGH/LOW</b>	Approx. $V_S - 1.8 \text{ V} / 0 \text{ V}$
<b>Output current <math>I_{\text{max}}</math></b>	$\leq 100 \text{ mA}$
<b>Response time</b>	$\leq 1 \text{ ms}^{4)}$
<b>Switching frequency</b>	$500 \text{ Hz}^{5)}$
<b>Connection type</b>	Male connector M12, 4-pin
<b>Circuit protection</b>	A <sup>6)</sup> B <sup>7)</sup> D <sup>8)</sup>
<b>Protection class</b>	III
<b>Weight</b>	18 g
<b>Housing material</b>	Plastic, PBT/PC
<b>Optics material</b>	Plastic, PMMA
<b>Enclosure rating</b>	IP67
<b>Items supplied</b>	Fastening nuts (2 x)
<b>Ambient operating temperature</b>	$-25 \text{ °C} \dots +55 \text{ °C}$
<b>Ambient storage temperature</b>	$-40 \text{ °C} \dots +70 \text{ °C}$

1) Limit values when operated in short-circuit protected network: max. 8 A.

2) May not exceed or fall below  $U_V$  tolerances.

3) Without load.

4) Signal transit time with resistive load.

5) With light/dark ratio 1:1.

6) A =  $V_S$  connections reverse-polarity protected.

7) B = inputs and output reverse-polarity protected.

8) D = outputs overcurrent and short-circuit protected.

### Safety-related parameters

<b>MTTF<sub>D</sub></b>	461 years
<b>DC<sub>avg</sub></b>	0%

### Classifications

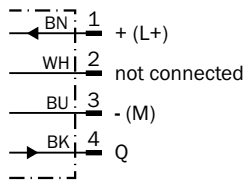
<b>ECI@ss 5.0</b>	27270904
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<b>ECI@ss 6.2</b>	27270904
<b>ECI@ss 7.0</b>	27270904
<b>ECI@ss 8.0</b>	27270904
<b>ECI@ss 8.1</b>	27270904
<b>ECI@ss 9.0</b>	27270904
<b>ECI@ss 10.0</b>	27270904
<b>ECI@ss 11.0</b>	27270904
<b>ETIM 5.0</b>	EC002719
<b>ETIM 6.0</b>	EC002719
<b>ETIM 7.0</b>	EC002719

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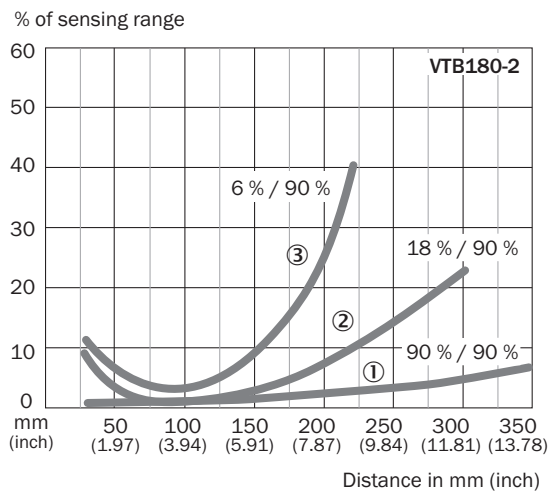
**Connection diagram**

Cd-066



**Characteristic curve**

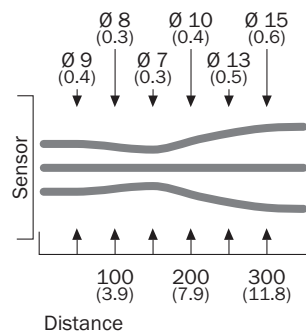
VTB180-2, 350 mm



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

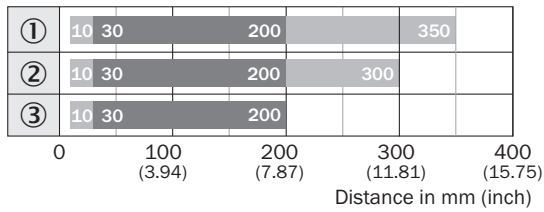
**Light spot size**

VTB180-2



## Sensing range diagram

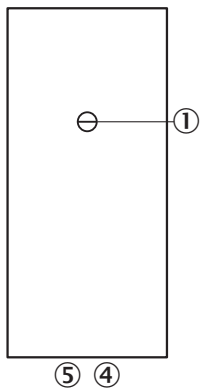
VTB180-2, 350 mm



■ Sensing range      ■ Sensing range max.

- ① Sensing range on white, 90% remission
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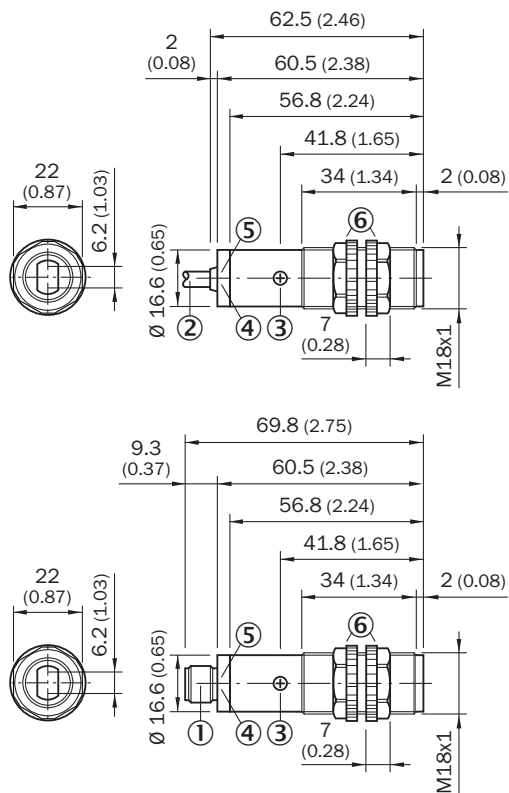
## Adjustments possible



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

**Dimensional drawing** (Dimensions in mm (inch))



VTF180-2, VTE180-2, VTB180-2, plastic, axial



- ① M12 male device connector, 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); A/F 22, PC

**Recommended accessories**

Other models and accessories → [www.sick.com/V180-2](http://www.sick.com/V180-2)

	Brief description	Type	Part no.
Plug connectors and cables			
	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YF2A14-050VB3XLEAX	2096235
	Head A: male connector, M12, 4-pin, straight Head B: - Cable: unshielded	STE-1204-G	6009932

## SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)