



# VTB180-2N41112

V180-2

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	Part no.
VTB180-2N41112	6043867

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

### Detailed technical data

#### Features

<b>Sensor/detection principle</b>	Photoelectric proximity sensor, Background suppression
<b>Housing design (light emission)</b>	Cylindrical, straight
<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

<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>U</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>

<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> Control wire open: light switching L.ON.

<sup>5)</sup> Signal transit time with resistive load.

<sup>6)</sup> With light/dark ratio 1:1.

<sup>7)</sup> Do not bend below 0 °C.

<sup>8)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>9)</sup> B = inputs and output reverse-polarity protected.

<sup>10)</sup> D = outputs overcurrent and short-circuit protected.

<b>Output type</b>	NPN, Open Collector <sup>4)</sup>
<b>Switching mode</b>	Light/dark switching <sup>4)</sup>
<b>Switching mode selector</b>	Selectable via L/D control cable
<b>Signal voltage NPN HIGH/LOW</b>	Approx. $V_S / < 1.8 \text{ V}$
<b>Output current <math>I_{\text{max}}</math></b>	$\leq 100 \text{ mA}$
<b>Response time</b>	$\leq 1 \text{ ms}$ <sup>5)</sup>
<b>Switching frequency</b>	$\leq 500 \text{ Hz}$ <sup>6)</sup>
<b>Connection type</b>	Cable, 4-wire, 2 m <sup>7)</sup>
<b>Conductor cross-section</b>	0.18 mm <sup>2</sup>
<b>Cable diameter</b>	$\varnothing 3.8 \text{ mm}$
<b>Circuit protection</b>	A <sup>8)</sup> B <sup>9)</sup> D <sup>10)</sup>
<b>Protection class</b>	III
<b>Weight</b>	95 g
<b>Housing material</b>	Nickel-plated brass and PCmetal
<b>Optics material</b>	Plastic, PMMA
<b>Enclosure rating</b>	IP 67
<b>Items supplied</b>	Fastening nuts (2 x)
<b>Ambient operating temperature</b>	-25 °C ... +55 °C
<b>Ambient storage temperature</b>	-40 °C ... +70 °C

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

<sup>2)</sup> May not exceed or fall below  $U_V$  tolerances.

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

<sup>4)</sup> Control wire open: light switching L.ON.

<sup>5)</sup> Signal transit time with resistive load.

<sup>6)</sup> With light/dark ratio 1:1.

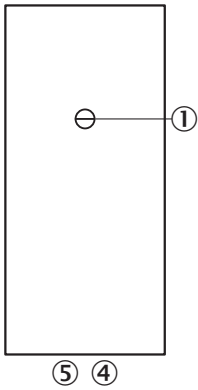
<sup>7)</sup> Do not bend below 0 °C.

<sup>8)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>9)</sup> B = inputs and output reverse-polarity protected.

<sup>10)</sup> D = outputs overcurrent and short-circuit protected.

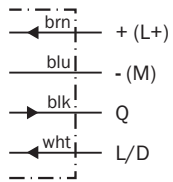
### Adjustments possible



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

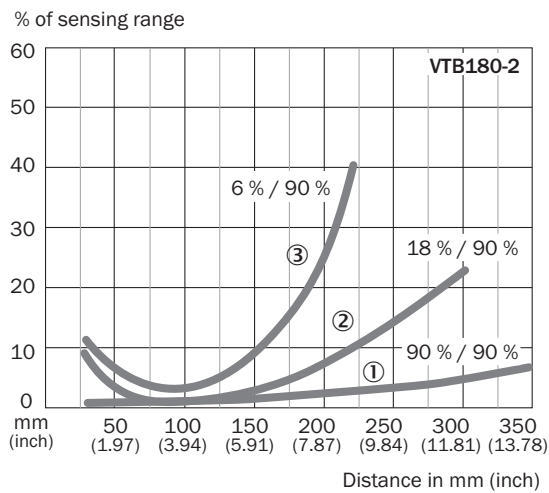
### Connection diagram

Cd-089



### Characteristic curve

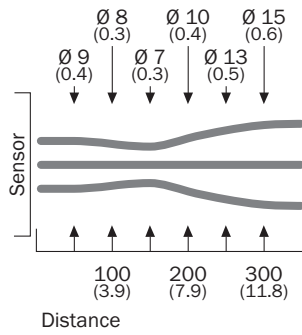
VTB180-2, 350 mm



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

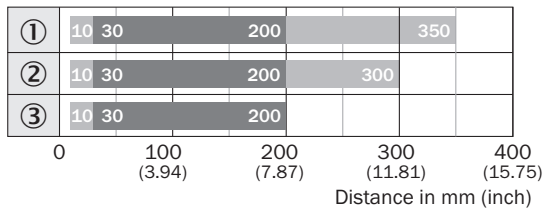
### Light spot size

VTB180-2



### Sensing range diagram

VTB180-2, 350 mm

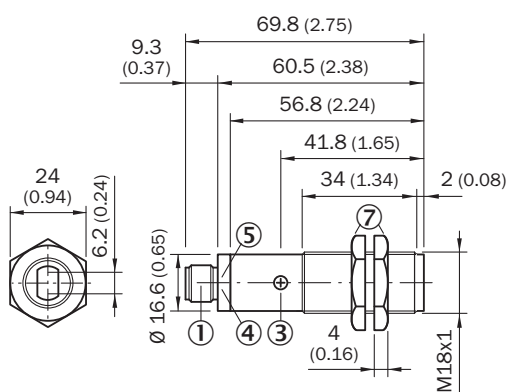
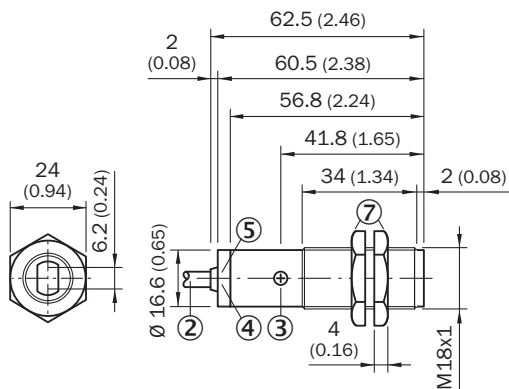


■ Sensing range      ■ Sensing range max.

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

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




VTF180-2, VTE180-2, VTB180-2, metal, axial






- ① M12 male device connector, 4-pin
- ② Connection cable 2 m
- ③ Sensitivity control 270°
- ④ LED indicator orange: switching output active
- ⑤ LED indicator green: strength indicator
- ⑦ Fastening nuts (2 x); width across 24, metal

### Recommended accessories

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

	Brief description	Type	Part no.
Universal bar clamp systems			
	Plate N06 for universal clamp bracket, M18, Zinc plated steel (sheet), Zinc die cast (clamping bracket), Universal clamp (5322626), mounting hardware	BEF-KHS-N06	2051612
Mounting brackets and mounting plates			
	Mounting plate for M18 sensors, steel, zinc coated, without mounting hardware	BEF-WG-M18	5321870
	Mounting bracket, M18 thread, steel, zinc coated, without mounting hardware	BEF-WN-M18	5308446
Terminal and alignment brackets			

	Brief description	Type	Part no.
	Mounting bracket with ball-and-socket, plastic, mounting hardware included	BEF-WN-M18-ST02	5312973
	Clamping block for round sensors M18, without fixed stop, plastic (PA12), glass-fiber reinforced, mounting hardware included	BEF-KH-M18	2051481
	Clamping block for round sensors M18, with fixed stop, plastic (PA12), glass-fiber reinforced, mounting hardware included	BEF-KHF-M18	2051482
	Mounting ring, Stainless steel, without mounting hardware	BEF-WN-MH15-2V	4053358

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