



# VTF180-2F32412

V180-2

CYLINDRICAL PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



## Ordering information

Type	Part no.
VTF180-2F32412	6044021

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

## Detailed technical data

### Features

<b>Sensor/ detection principle</b>	Photoelectric proximity sensor, Background blanking
<b>Dimensions (W x H x D)</b>	18 mm x 18 mm x 69.8 mm
<b>Housing design (light emission)</b>	Cylindrical
<b>Housing length</b>	69.8 mm
<b>Thread diameter (housing)</b>	M18 x 1
<b>Optical axis</b>	Axial
<b>Sensing range max.</b>	1 mm ... 140 mm <sup>1)</sup>
<b>Sensing range</b>	1 mm ... 100 mm <sup>1)</sup>
<b>Focus</b>	<sup>2)</sup>
<b>Type of light</b>	Visible red light
<b>Light source</b>	LED <sup>3)</sup>
<b>Light spot size (distance)</b>	Ø 8 mm (100 mm)
<b>Wave length</b>	645 nm
<b>Adjustment</b>	Potentiometer, 270° (Sensing range)

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

<sup>2)</sup> Focused, focus approx. 7 mm at 60 mm .

<sup>3)</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>

<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>Power consumption</b>	30 mA <sup>3)</sup>
<b>Switching output</b>	PNP
<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>	$\leq 0.5 \text{ ms}$ <sup>4)</sup>
<b>Switching frequency</b>	1,000 Hz <sup>5)</sup>
<b>Connection type</b>	Connector M12, 3-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>	47 g
<b>Housing material</b>	Metal, Nickel-plated brass and PC
<b>Optics material</b>	Plastic, PMMA
<b>Enclosure rating</b>	IP67
<b>Items supplied</b>	Fastening nuts (2 x)
<b>Special feature</b>	Focused optics
<b>Ambient operating temperature</b>	-25 °C ... +55 °C
<b>Ambient storage temperature</b>	-40 °C ... +70 °C
<b>UL File No.</b>	NRKH2.E300503 & NRKH8.E300503

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<sup>2)</sup> May not exceed or fall below  $U_V$  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 =  $V_S$  connections reverse-polarity protected.

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## Safety-related parameters

<b>MTTF<sub>D</sub></b>	1,884 years
<b>DC<sub>avg</sub></b>	0%

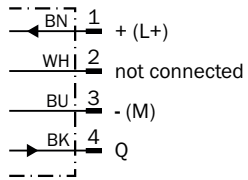
## Classifications

<b>ECl@ss 5.0</b>	27270904
<b>ECl@ss 5.1.4</b>	27270904
<b>ECl@ss 6.0</b>	27270904
<b>ECl@ss 6.2</b>	27270904
<b>ECl@ss 7.0</b>	27270904
<b>ECl@ss 8.0</b>	27270904
<b>ECl@ss 8.1</b>	27270904
<b>ECl@ss 9.0</b>	27270904
<b>ECl@ss 10.0</b>	27270904

<b>ECl@ss 11.0</b>	27270904
<b>ETIM 5.0</b>	EC002719
<b>ETIM 6.0</b>	EC002719
<b>ETIM 7.0</b>	EC002719
<b>UNSPSC 16.0901</b>	39121528

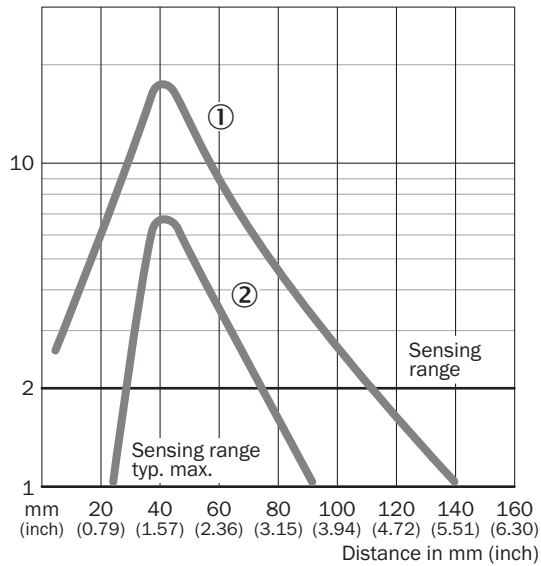
**Connection diagram**

Cd-066



**Characteristic curve**

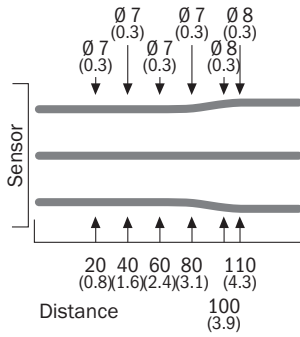
VTF180-2, 140 mm, axial



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

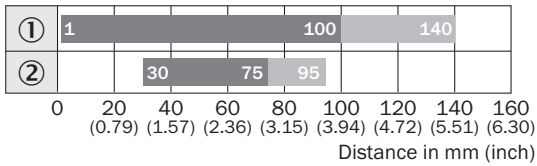
## Light spot size

VTF180-2



## Sensing range diagram

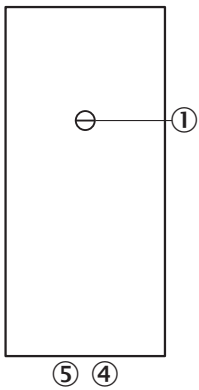
VTF180-2, 140 mm, axial



■ Sensing range    ■ Sensing range max.

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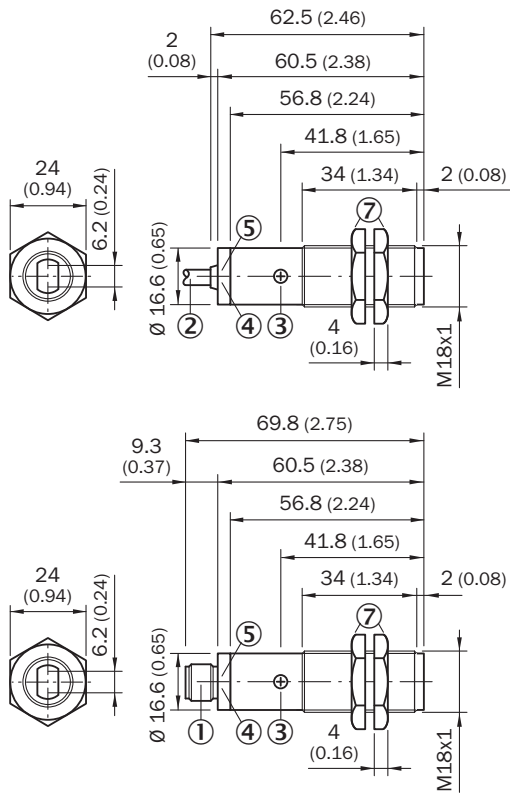
## Adjustments possible



- 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, 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 (2x); width across 24, metal

## 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)