



# VTF180-2P42414

V180-2

CYLINDRICAL PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



## Ordering information

| Type           | Part no. |
|----------------|----------|
| VTF180-2P42414 | 6043806  |

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

## Detailed technical data

### Features

|  |                                     |
|--|-------------------------------------|
| <b>Functional principle</b>            | Photoelectric proximity sensor      |
| <b>Functional principle detail</b>     | Background blanking                 |
| <b>Dimensions (W x H x D)</b>          | 18 mm x 18 mm x 83.8 mm             |
| <b>Housing design (light emission)</b> | Cylindrical                         |
| <b>Housing length</b>                  | 83.8 mm                             |
| <b>Optical axis</b>                    | Radial                              |
| <b>Sensing range max.</b>              | 1 mm ... 130 mm <sup>1)</sup>       |
| <b>Sensing range</b>                   | 1 mm ... 100 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 8 mm (100 mm)                     |
| <b>Wave length</b>                     | 645 nm                              |
| <b>Adjustment</b>                      | Potentiometer, 270° (Sensing range) |
| <b>Special feature</b>                 | Focused optics                      |

<sup>1)</sup> Object with 90% remission (based on 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>              |

<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: dark switching D.ON.

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

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

<sup>7)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>8)</sup> B = inputs and output reverse-polarity protected.

<sup>9)</sup> D = outputs overcurrent and short-circuit protected.

|   |   |
|---|---|
| <b>Current consumption</b>                        | 30 mA <sup>3)</sup>                                   |
| <b>Switching output</b>                           | PNP <sup>4)</sup>                                     |
| <b>Switching mode</b>                             | Light/dark switching <sup>4)</sup>                    |
| <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>5)</sup>                   |
| <b>Switching frequency</b>                        | 1,000 Hz <sup>6)</sup>                                |
| <b>Connection type</b>                            | Male connector M12, 4-pin                             |
| <b>Circuit protection</b>                         | A <sup>7)</sup><br>B <sup>8)</sup><br>D <sup>9)</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>Special feature</b>                            | Focused optics  |
| <b>Ambient operating temperature</b>              | -25 °C ... +55 °C                                     |
| <b>Ambient temperature, storage</b>               | -40 °C ... +70 °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) Control wire open: dark switching D.ON.

5) Signal transit time with resistive load.

6) With light/dark ratio 1:1.

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

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

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

## 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 |

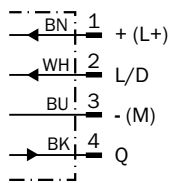
|                       |          |
|-----------------------|----------|
| <b>eCI@ss 12.0</b>    | 27270903 |
| <b>ETIM 5.0</b>       | EC002719 |
| <b>ETIM 6.0</b>       | EC002719 |
| <b>ETIM 7.0</b>       | EC002719 |
| <b>ETIM 8.0</b>       | EC002719 |
| <b>UNSPSC 16.0901</b> | 39121528 |

### Connection type



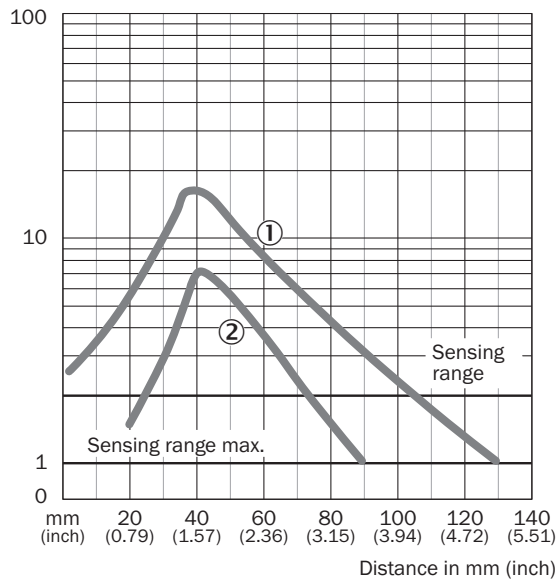
### Connection diagram

Cd-087



### Characteristic curve

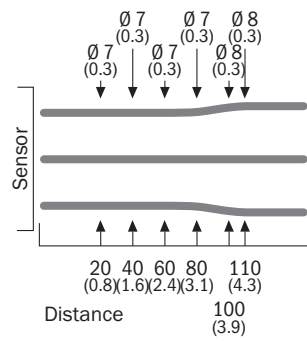
VTF180-2, 130 mm, radial



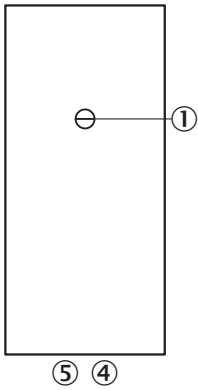
- ① Sensing range on white, 90% remission
- ② Sensing range on gray, 18% remission

### Light spot size

VTF180-2



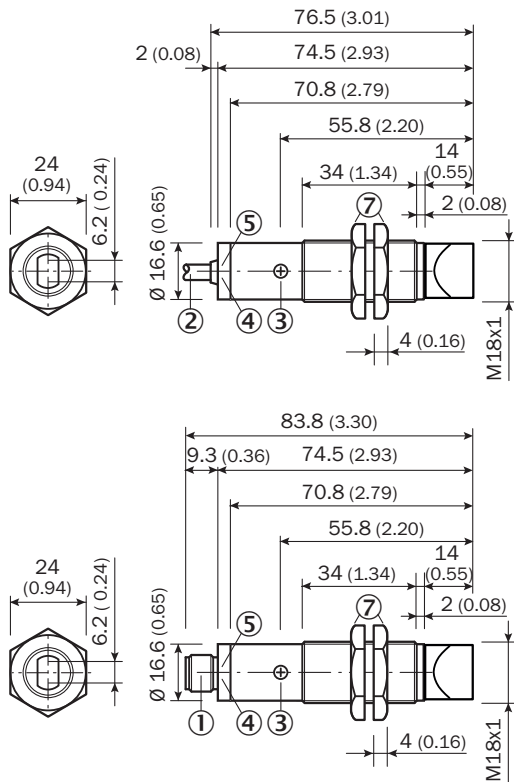
## Adjustments



- 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, metal, radial



- ① Connector M12, 3-pin / Connector M12, 3-pin
- ② Connection cable 2 m
- ③ Sensitivity control: potentiometer 270°
- ④ LED indicator orange: switching output active
- ⑤ LED indicator green, stability indicator: LED lights continuously = light reception < 0.9/> 1.1; LED off = light reception > 0.9 / < 1.1
- ⑦ Metal housing, fastening nuts (2 x); width across 24

**Recommended accessories**

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

|   | <b>Brief description</b>  | <b>Type</b>        | <b>Part no.</b> |
|---|---|--------------------|-----------------|
| <b>Plug connectors and cables</b>   |   |                    |                 |
|  | Head A: female connector, M12, 4-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 5 m | YF2A14-050VB3XLEAX | 2096235         |
|  | Head A: male connector, M12, 4-pin, straight<br>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)