



# VTF180-2N41112

V180-2

CYLINDRICAL PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



## Ordering information

| Type           | Part no. |
|----------------|----------|
| VTF180-2N41112 | 6041799  |

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 62.5 mm             |
| <b>Housing design (light emission)</b> | Cylindrical                         |
| <b>Housing length</b>                  | 62.5 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>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> |
|-----------------------|-----------------------------------|

<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>Ripple</b>                              | ± 10 % <sup>2)</sup>                                   |
| <b>Current consumption</b>                 | 30 mA <sup>3)</sup>                                    |
| <b>Switching output</b>                    | NPN <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. $V_S / < 1.8 V$                                |
| <b>Output current <math>I_{max}</math></b> | ≤ 100 mA   |
| <b>Response time</b>                       | ≤ 0.5 ms <sup>5)</sup>                                 |
| <b>Switching frequency</b>                 | 1,000 Hz <sup>6)</sup>                                 |
| <b>Connection type</b>                     | Cable, 4-wire, 2 m <sup>7)</sup>                       |
| <b>Cable material</b>                      | PVC  |
| <b>Conductor cross section</b>             | 0.18 mm <sup>2</sup>                                   |
| <b>Cable diameter</b>                      | Ø 3.8 mm   |
| <b>Circuit protection</b>                  | A <sup>8)</sup><br>B <sup>9)</sup><br>D <sup>10)</sup> |
| <b>Protection class</b>                    | III  |
| <b>Weight</b>                              | 95 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 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: light switching L.ON.

5) Signal transit time with resistive load.

6) With light/dark ratio 1:1.

7) Do not bend below 0 °C.

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

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

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

### Safety-related parameters

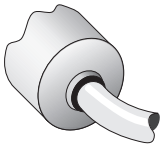
|                         |             |
|-------------------------|-------------|
| <b>MTTF<sub>D</sub></b> | 1,889 years |
| <b>DC<sub>avg</sub></b> | 0 %         |

### 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 |

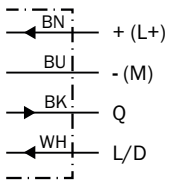
|                       |          |
|-----------------------|----------|
| <b>eCl@ss 7.0</b>     | 27270904 |
| <b>eCl@ss 8.0</b>     | 27270904 |
| <b>eCl@ss 8.1</b>     | 27270904 |
| <b>eCl@ss 9.0</b>     | 27270904 |
| <b>eCl@ss 10.0</b>    | 27270904 |
| <b>eCl@ss 11.0</b>    | 27270904 |
| <b>eCl@ss 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



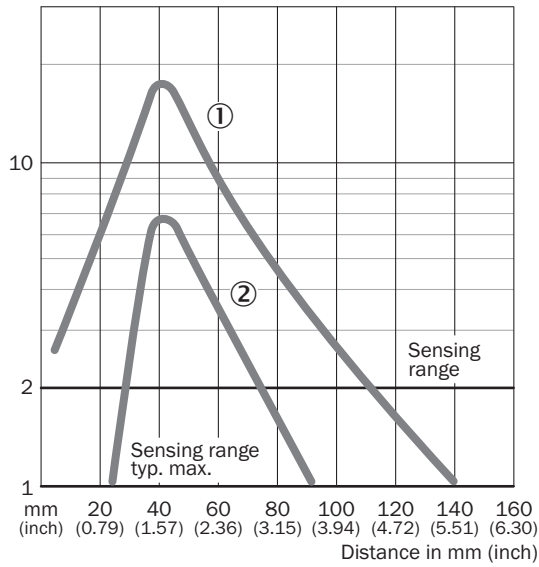
### Connection diagram

Cd-089



### Characteristic curve

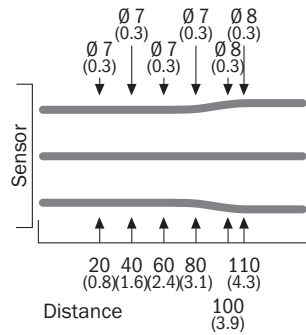
VTF180-2, 140 mm, axial



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

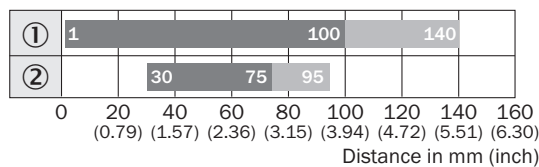
### Light spot size

VTF180-2



### Sensing range diagram

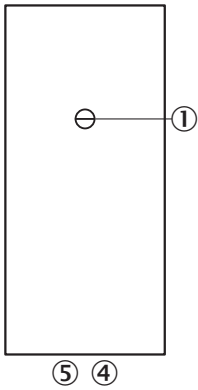
VTF180-2, 140 mm, axial



- Sensing range
- Sensing range max.

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

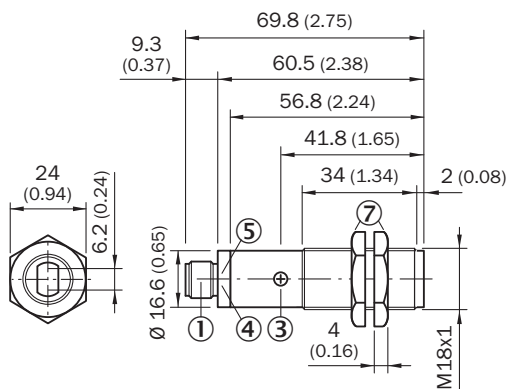
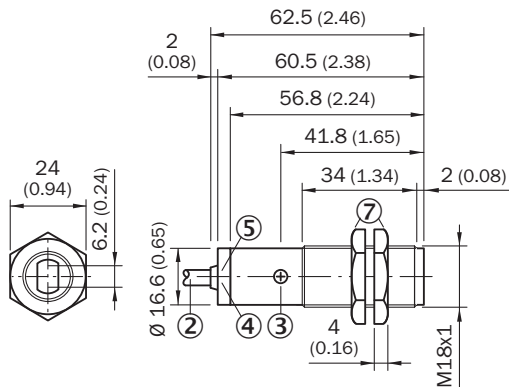
### Adjustments



- 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, 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

### 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: 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)