



VTE180-2P42447  
V180

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Ordering information

| Type           | part no. |
|----------------|----------|
| VTE180-2P42447 | 6037484  |

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

Illustration may differ



Detailed technical data

Features

|                                        |                                     |
|----------------------------------------|-------------------------------------|
| <b>Functional principle</b>            | Photoelectric proximity sensor      |
| <b>Functional principle detail</b>     | Energetic                           |
| <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 ... 500 mm <sup>1)</sup>       |
| <b>Sensing range</b>                   | 1 mm ... 350 mm <sup>1)</sup>       |
| <b>Focus</b>                           | Approx. 1.5°                        |
| <b>Type of light</b>                   | Visible red light                   |
| <b>Light source</b>                    | LED <sup>2)</sup>                   |
| <b>Light spot size (distance)</b>      | Ø 20 mm (400 mm)                    |
| <b>Angle of dispersion</b>             | Approx. 1.5°                        |
| <b>Wave length</b>                     | 645 nm                              |
| <b>Adjustment</b>                      | Potentiometer, 270° (Sensing range) |

<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 <math>U_B</math></b>      | 10 V DC ... 30 V DC <sup>1)</sup>                               |
| <b>Ripple</b>                               | $\pm 10\%$ <sup>2)</sup>                                        |
| <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>Switching mode selector</b>              | Selectable via L/D control cable                                |
| <b>Signal voltage PNP HIGH/LOW</b>          | Approx. $V_S - 1.8\text{ V} / 0\text{ V}$                       |
| <b>Output current <math>I_{\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>                               | 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>        | $-25\text{ }^{\circ}\text{C} \dots +55\text{ }^{\circ}\text{C}$ |
| <b>Ambient temperature, storage</b>         | $-40\text{ }^{\circ}\text{C} \dots +70\text{ }^{\circ}\text{C}$ |

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

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

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

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

## Safety-related parameters

|                         |             |
|-------------------------|-------------|
| <b>MTTF<sub>D</sub></b> | 1,982 years |
| <b>DC<sub>avg</sub></b> | 0 %         |

## Certificates

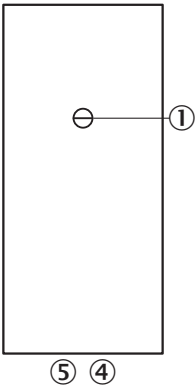
|                                           |   |
|-------------------------------------------|---|
| <b>EU declaration of conformity</b>       | ✓ |
| <b>UK declaration of conformity</b>       | ✓ |
| <b>ACMA declaration of conformity</b>     | ✓ |
| <b>Moroccan declaration of conformity</b> | ✓ |
| <b>China RoHS</b>                         | ✓ |
| <b>cULus certificate</b>                  | ✓ |

|                                                   |   |
|---------------------------------------------------|---|
| Photobiological safety (DIN EN 62471) certificate | ✓ |
|---------------------------------------------------|---|

Classifications

|                |          |
|----------------|----------|
| ECLASS 5.0     | 27270903 |
| ECLASS 5.1.4   | 27270903 |
| ECLASS 6.0     | 27270903 |
| ECLASS 6.2     | 27270903 |
| ECLASS 7.0     | 27270903 |
| ECLASS 8.0     | 27270903 |
| ECLASS 8.1     | 27270903 |
| ECLASS 9.0     | 27270903 |
| ECLASS 10.0    | 27270904 |
| ECLASS 11.0    | 27270904 |
| ECLASS 12.0    | 27270903 |
| ETIM 5.0       | EC001821 |
| ETIM 6.0       | EC001821 |
| ETIM 7.0       | EC002719 |
| ETIM 8.0       | EC002719 |
| UNSPSC 16.0901 | 39121528 |

Adjustments

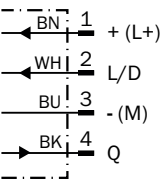


- ③ sensitivity control 270°
- ④ LED indicator orange: switching output active
- ⑤ LED indicator green

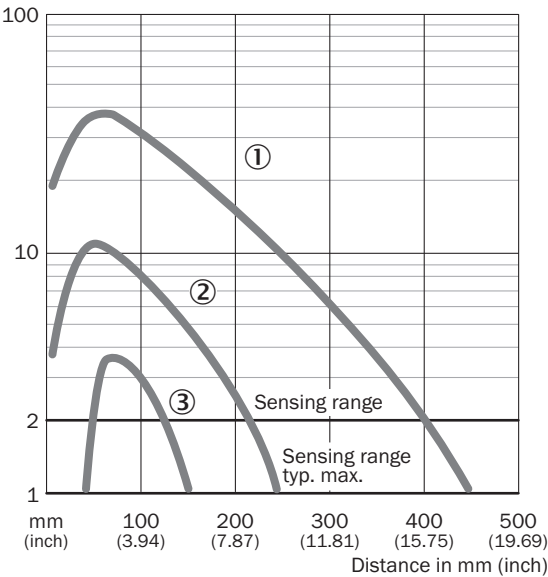
Connection type



Connection diagram Cd-087

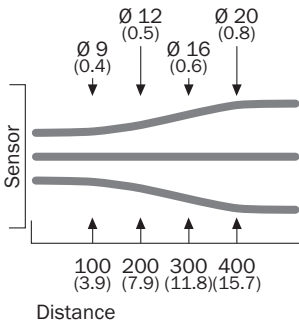


Characteristic curve VTE180-2, 450 mm, radial

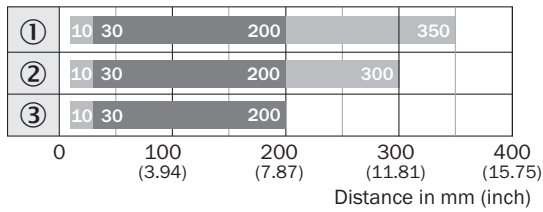


- ① Sensing range on white, 90% remission factor
- ② Sensing range on gray, 18% remission factor
- ③ Sensing range on black, 6% remission factor

Light spot size VTE180-2, 400 mm, 500 mm



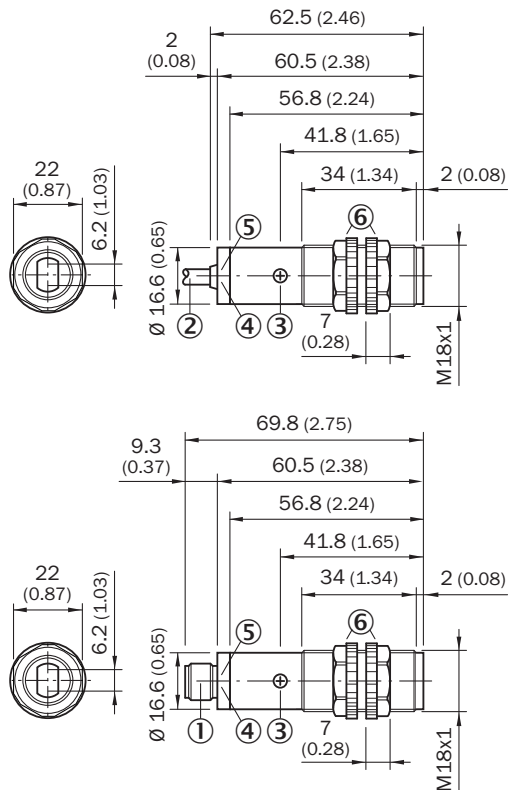
### Sensing range diagram VTB180-2, 350 mm



■ Sensing range      ■ Sensing range max.

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

### Dimensional drawing VTF180-2, VTE180-2, VTB180-2, plastic, axial



Dimensions in mm (inch)

- 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](http://www.sick.com/V180)

|                                                                                   | Brief description                                                                                                                                                                                                                                                                                                                                                                                                                   | Type               | part no. |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
| connectors and cables                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                     |                    |          |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 4-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 5 m, 4-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul> | YF2A14-050VB3XLEAX | 2096235  |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 4-pin, straight, A-coded</li> <li>• <b>Description:</b> Unshielded</li> <li>• <b>Connection systems:</b> Screw-type terminals</li> <li>• <b>Permitted cross-section:</b> ≤ 0.75 mm²</li> </ul>                                                                                                                                         | STE-1204-G         | 6009932  |
| Mounting systems                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                     |                    |          |
|  | <ul style="list-style-type: none"> <li>• <b>Description:</b> Mounting bracket for M18 sensors</li> <li>• <b>Material:</b> Steel</li> <li>• <b>Details:</b> Steel, zinc coated</li> <li>• <b>Items supplied:</b> Without mounting hardware</li> <li>• <b>Suitable for:</b> GR18, V180-2, V18, W15, Z1, Z2</li> </ul>                                                                                                                 | BEF-WN-M18         | 5308446  |

## 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)