



VL180-2P42436P02

V180

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ

### Ordering information

| Type             | part no. |
|------------------|----------|
| VL180-2P42436P02 | 1053299  |

**Included in delivery:** PL40A (1)

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

### Detailed technical data

#### Features

|  |   |
|--|---|
| <b>Functional principle</b>            | Photoelectric retro-reflective sensor                 |
| <b>Functional principle detail</b>     | With minimum distance to reflector (dual lens system) |
| <b>Dimensions (W x H x D)</b>          | 18 mm x 18 mm x 70.2 mm                               |
| <b>Housing design (light emission)</b> | Cylindrical   |
| <b>Housing length</b>                  | 70.2 mm   |
| <b>Thread diameter (housing)</b>       | M18 x 1   |
| <b>Optical axis</b>                    | Axial   |
| <b>Sensing range max.</b>              | 0.05 m ... 7 m <sup>1)</sup>                          |
| <b>Sensing range</b>                   | 0.05 m ... 6 m <sup>1)</sup>                          |
| <b>Focus</b>                           | Approx. 4.5°  |
| <b>Type of light</b>                   | Visible red light                                     |
| <b>Light source</b>                    | LED <sup>2)</sup>                                     |
| <b>Light spot size (distance)</b>      | Ø 400 mm (6 m)  |
| <b>Angle of dispersion</b>             | Approx. 4.5°  |
| <b>Wave length</b>                     | 645 nm  |
| <b>Adjustment</b>                      | Potentiometer, 270° (Sensitivity)                     |

<sup>1)</sup> Reflector PL80A.

<sup>2)</sup> Average service life: 100,000 h at T<sub>J</sub> = +25 °C.

#### Mechanics/electronics

|                                     |                                   |
|-------------------------------------|-----------------------------------|
| <b>Supply voltage U<sub>B</sub></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 fall below or exceed 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> 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>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 NPN HIGH/LOW</b>          | Approx. $V_S / < 1.8\text{ V}$                        |
| <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>Polarizing filter</b>                    | ✓   |
| <b>Special device</b>                       | ✓   |
| <b>Housing material</b>                     | Plastic, PBT/PC                                       |
| <b>Optics material</b>                      | Plastic, PMMA   |
| <b>Enclosure rating</b>                     | IP67  |
| <b>Items supplied</b>                       | Reflector PL40A, fastening nuts (2 x)                 |
| <b>Ambient operating temperature</b>        | $-25\text{ °C} \dots +55\text{ °C}$                   |
| <b>Ambient temperature, storage</b>         | $-40\text{ °C} \dots +70\text{ °C}$                   |

<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: 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> A =  $V_S$  connections reverse-polarity protected.

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

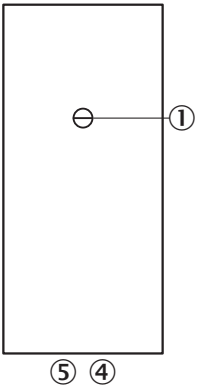
<sup>9)</sup> D = outputs overcurrent and short-circuit protected.

## Classifications

|                     |          |
|---------------------|----------|
| <b>ECLASS 5.0</b>   | 27270902 |
| <b>ECLASS 5.1.4</b> | 27270902 |
| <b>ECLASS 6.0</b>   | 27270902 |
| <b>ECLASS 6.2</b>   | 27270902 |
| <b>ECLASS 7.0</b>   | 27270902 |
| <b>ECLASS 8.0</b>   | 27270902 |
| <b>ECLASS 8.1</b>   | 27270902 |
| <b>ECLASS 9.0</b>   | 27270902 |
| <b>ECLASS 10.0</b>  | 27270902 |
| <b>ECLASS 11.0</b>  | 27270902 |

|                       |          |
|-----------------------|----------|
| <b>ECLASS 12.0</b>    | 27270902 |
| <b>ETIM 5.0</b>       | EC002717 |
| <b>ETIM 6.0</b>       | EC002717 |
| <b>ETIM 7.0</b>       | EC002717 |
| <b>ETIM 8.0</b>       | EC002717 |
| <b>UNSPSC 16.0901</b> | 39121528 |

### Adjustments

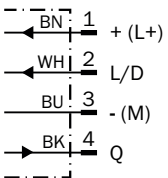


- ③ sensitivity control 270°
- ④ LED indicator orange: switching output active
- ⑤ LED indicator green

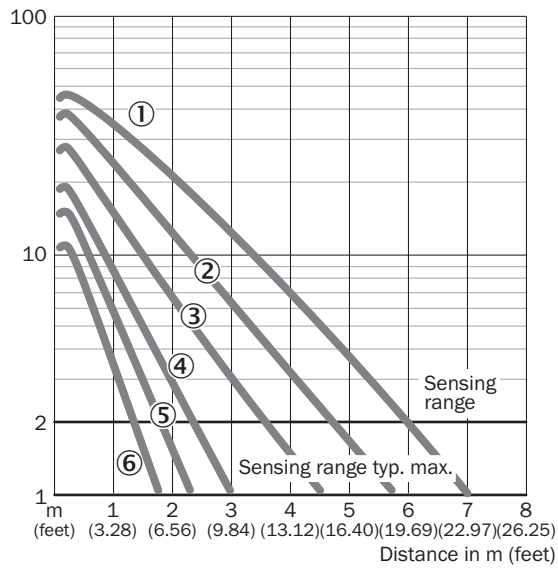
### Connection type



### Connection diagram Cd-087

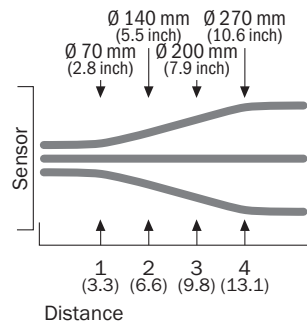


Characteristic curve VL180-2, 7 m, axial

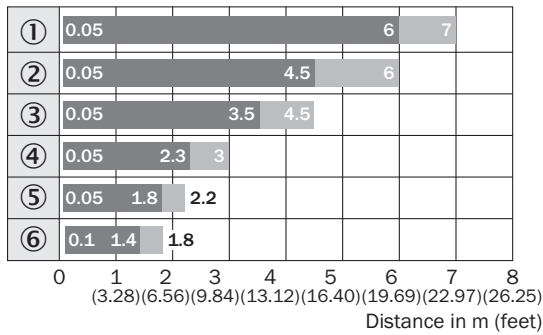


- ① Reflector PL80A
- ② Reflector P250, PL40A, PL50A, C110A
- ③ Reflector PL30A, PL31A
- ④ Reflector PL20A
- ⑤ P45
- ⑥ Reflective tape Diamond Grade

Light spot size VL180-2



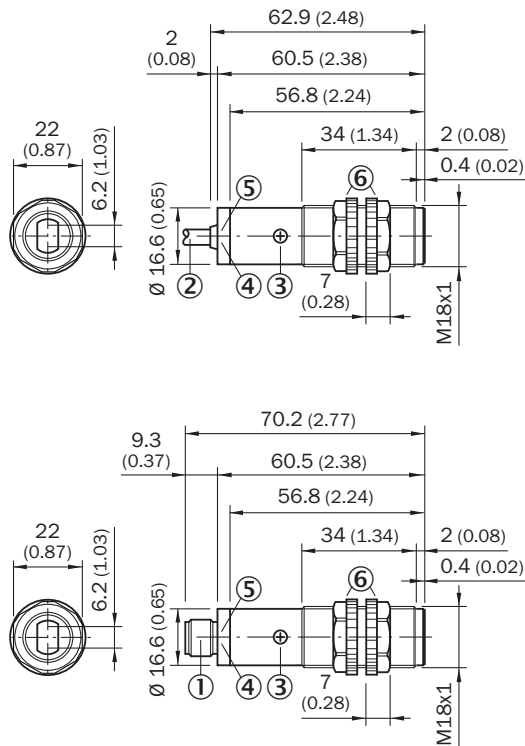
### Sensing range diagram VL180-2, 7 m, axial



■ Sensing range    ■ Sensing range max.

- ① Reflector PL80A
- ② Reflector P250, PL40A, PL50A, C110A
- ③ Reflector PL30A, PL31A
- ④ Reflector PL20A
- ⑤ P45
- ⑥ Reflective tape Diamond Grade

### Dimensional drawing VL180-2, 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>Description:</b> Sensor/actuator cable, unshielded</li> <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>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul> | YF2A14-050VB3XLEAX | 2096235  |
|   | <ul style="list-style-type: none"> <li><b>Description:</b> Unshielded</li> <li><b>Connection type head A:</b> Male connector, M12, 4-pin, straight, A-coded</li> <li><b>Connection systems:</b> Screw-type terminals</li> <li><b>Permitted cross-section:</b> ≤ 0.75 mm<sup>2</sup></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  |
| reflectors and optics  |   |                    |          |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Rectangular, screw connection</li> <li><b>Dimensions:</b> 51 mm 61 mm</li> <li><b>Ambient operating temperature:</b> -30 °C ... +65 °C</li> </ul>  | P250               | 5304812  |

## 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)