



# VSE180-2N42432

V180-2

CYLINDRICAL PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



## Ordering information

| Type           | Part no. |
|----------------|----------|
| VSE180-2N42432 | 6041821  |

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

## Detailed technical data

### Features

|  |   |
|--|---|
| <b>Functional principle</b>            | Through-beam photoelectric sensor               |
| <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>              | 0 m ... 28 m                                    |
| <b>Sensing range</b>                   | 0 m ... 20 m                                    |
| <b>Focus</b>                           | Approx. 5°                                      |
| <b>Type of light</b>                   | Visible red light                               |
| <b>Light source</b>                    | LED <sup>1)</sup>                               |
| <b>Light spot size (distance)</b>      | Ø 1,100 mm (20 m)                               |
| <b>Angle of dispersion</b>             | Approx. 5°                                      |
| <b>Wave length</b>                     | 645 nm  |
| <b>Adjustment</b>                      | Potentiometer, 270° (Sensitivity) <sup>2)</sup> |

<sup>1)</sup> Average service life: 100,000 h at T<sub>J</sub> = +25 °C.

<sup>2)</sup> Receiver.

### 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: 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>Power consumption, sender</b>                  | 20 mA <sup>3)</sup>                                   |
| <b>Power consumption, receiver</b>                | 15 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. $V_S / < 1.8 \text{ V}$                       |
| <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>                                     | 94 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 (4 x)                                  |
| <b>Ambient operating temperature</b>              | -25 °C ... +55 °C                                     |
| <b>Ambient temperature, storage</b>               | -40 °C ... +70 °C                                     |
| <b>UL File No.</b>                                | NRKH2.E300503 & NRKH8.E300503                         |

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

<sup>2)</sup> May not exceed or fall below  $U_V$  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.

## Safety-related parameters

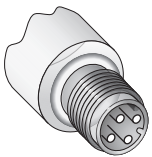
|                         |             |
|-------------------------|-------------|
| <b>MTTF<sub>D</sub></b> | 1,303 years |
| <b>DC<sub>avg</sub></b> | 0 %         |

## Classifications

|                     |          |
|---------------------|----------|
| <b>eCl@ss 5.0</b>   | 27270901 |
| <b>eCl@ss 5.1.4</b> | 27270901 |
| <b>eCl@ss 6.0</b>   | 27270901 |
| <b>eCl@ss 6.2</b>   | 27270901 |
| <b>eCl@ss 7.0</b>   | 27270901 |
| <b>eCl@ss 8.0</b>   | 27270901 |
| <b>eCl@ss 8.1</b>   | 27270901 |

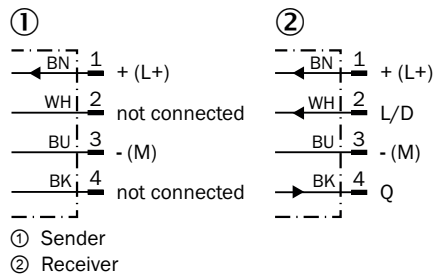
|                       |          |
|-----------------------|----------|
| <b>eCl@ss 9.0</b>     | 27270901 |
| <b>eCl@ss 10.0</b>    | 27270901 |
| <b>eCl@ss 11.0</b>    | 27270901 |
| <b>eCl@ss 12.0</b>    | 27270901 |
| <b>ETIM 5.0</b>       | EC002716 |
| <b>ETIM 6.0</b>       | EC002716 |
| <b>ETIM 7.0</b>       | EC002716 |
| <b>ETIM 8.0</b>       | EC002716 |
| <b>UNSPSC 16.0901</b> | 39121528 |

### Connection type



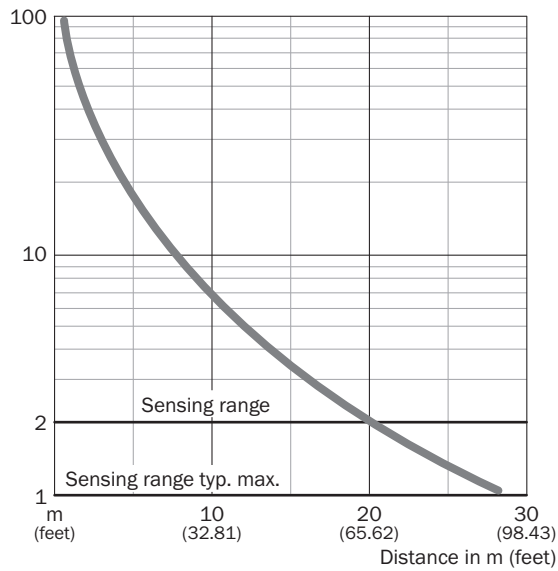
### Connection diagram

Cd-060



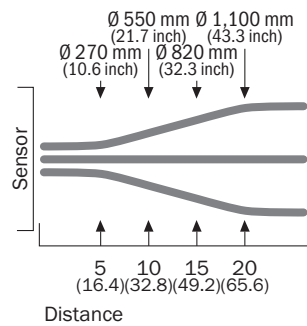
### Characteristic curve

VSE180-2, 28 m, axial



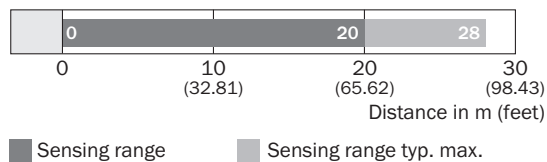
### Light spot size

VSE180-2, 28 m, axial

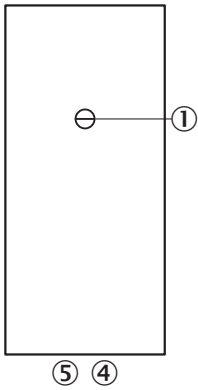


### Sensing range diagram

VSE180-2, 28 m, axial



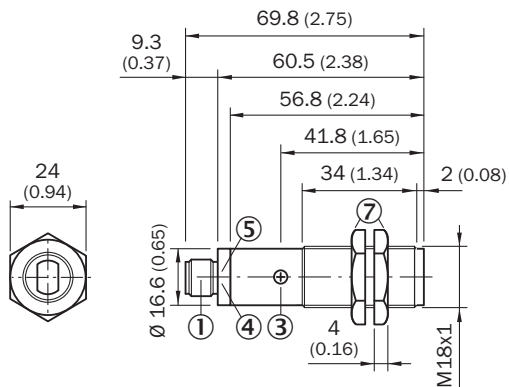
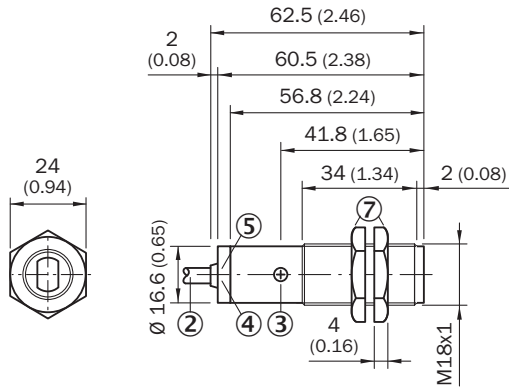
Adjustments



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

Dimensional drawing (Dimensions in mm (inch))



VSE180-2, 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: 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)