



# VL18-4N3712

V18

CYLINDRICAL PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Ordering information

| Type        | Part no. |
|-------------|----------|
| VL18-4N3712 | 6013612  |

Other models and accessories → [www.sick.com/V18](http://www.sick.com/V18)

Illustration may differ



Detailed technical data

Features

|                                        |                                       |
|----------------------------------------|---------------------------------------|
| <b>Functional principle</b>            | Photoelectric retro-reflective sensor |
| <b>Dimensions (W x H x D)</b>          | 18 mm x 18 mm x 63.6 mm               |
| <b>Housing design (light emission)</b> | Cylindrical                           |
| <b>Housing length</b>                  | 63.6 mm                               |
| <b>Thread diameter (housing)</b>       | M18 x 1                               |
| <b>Optical axis</b>                    | Axial                                 |
| <b>Sensing range max.</b>              | 0.05 m ... 3.7 m <sup>1)</sup>        |
| <b>Sensing range</b>                   | 0.05 m ... 3 m <sup>1)</sup>          |
| <b>Focus</b>                           | Approx. 2.8°                          |
| <b>Type of light</b>                   | Visible red light                     |
| <b>Light source</b>                    | LED <sup>2)</sup>                     |
| <b>Light spot size (distance)</b>      | Ø 150 mm (3 m)                        |
| <b>Angle of dispersion</b>             | Approx. 2.8°                          |
| <b>Adjustment</b>                      | Potentiometer, 270° (Sensitivity)     |

<sup>1)</sup> Reflector C110A.  
<sup>2)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

Mechanics/electronics

|                                     |                                   |
|-------------------------------------|-----------------------------------|
| <b>Supply voltage U<sub>B</sub></b> | 10 V DC ... 30 V DC <sup>1)</sup> |
| <b>Ripple</b>                       | ± 10 % <sup>2)</sup>              |

<sup>1)</sup> Limit values.  
<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> C = interference suppression.  
<sup>11)</sup> D = outputs overcurrent and short-circuit protected.

|                                       |                                                                            |
|---------------------------------------|----------------------------------------------------------------------------|
| <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>Output current I<sub>max</sub></b> | ≤ 100 mA                                                                   |
| <b>Response time</b>                  | ≤ 2 ms <sup>5)</sup>                                                       |
| <b>Switching frequency</b>            | 250 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>        | 0.14 mm <sup>2</sup>                                                       |
| <b>Cable diameter</b>                 | Ø 5 mm                                                                     |
| <b>Circuit protection</b>             | A <sup>8)</sup><br>B <sup>9)</sup><br>C <sup>10)</sup><br>D <sup>11)</sup> |
| <b>Protection class</b>               | III                                                                        |
| <b>Weight</b>                         | 100 g                                                                      |
| <b>Polarisation filter</b>            | ✓                                                                          |
| <b>Housing material</b>               | Plastic, PBT/PC                                                            |
| <b>Optics material</b>                | Plastic, PMMA                                                              |
| <b>Enclosure rating</b>               | IP67                                                                       |
| <b>Ambient operating temperature</b>  | -25 °C ... +70 °C                                                          |
| <b>UL File No.</b>                    | NMFT2.E175606                                                              |

1) Limit values.

2) May not exceed or fall below U<sub>v</sub> 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<sub>S</sub> connections reverse-polarity protected.

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

10) C = interference suppression.

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

## Safety-related parameters

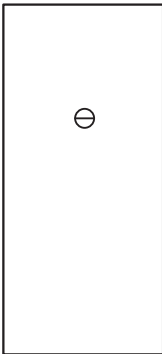
|                         |          |
|-------------------------|----------|
| <b>MTTF<sub>D</sub></b> | 68 years |
| <b>DC<sub>avg</sub></b> | 0 %      |

## Classifications

|                     |          |
|---------------------|----------|
| <b>eCl@ss 5.0</b>   | 27270902 |
| <b>eCl@ss 5.1.4</b> | 27270902 |
| <b>eCl@ss 6.0</b>   | 27270902 |
| <b>eCl@ss 6.2</b>   | 27270902 |
| <b>eCl@ss 7.0</b>   | 27270902 |

|                |          |
|----------------|----------|
| eCl@ss 8.0     | 27270902 |
| eCl@ss 8.1     | 27270902 |
| eCl@ss 9.0     | 27270902 |
| eCl@ss 10.0    | 27270902 |
| eCl@ss 11.0    | 27270902 |
| eCl@ss 12.0    | 27270902 |
| ETIM 5.0       | EC002717 |
| ETIM 6.0       | EC002717 |
| ETIM 7.0       | EC002717 |
| ETIM 8.0       | EC002717 |
| UNSPSC 16.0901 | 39121528 |

Adjustments

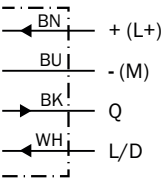


Connection type

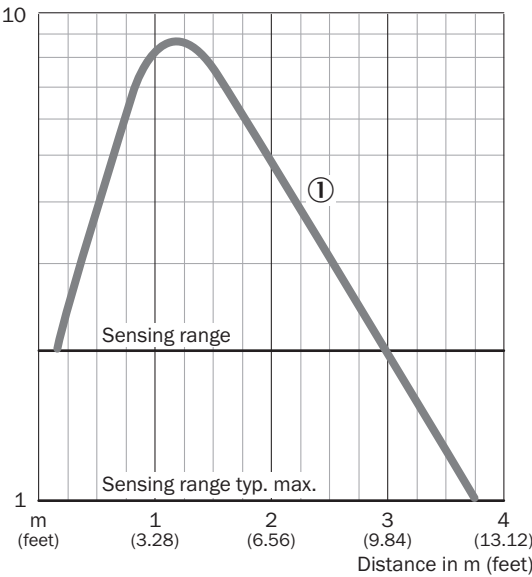


Connection diagram

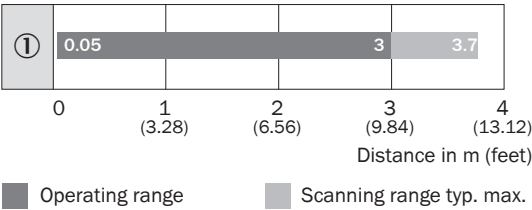
Cd-089



Characteristic curve

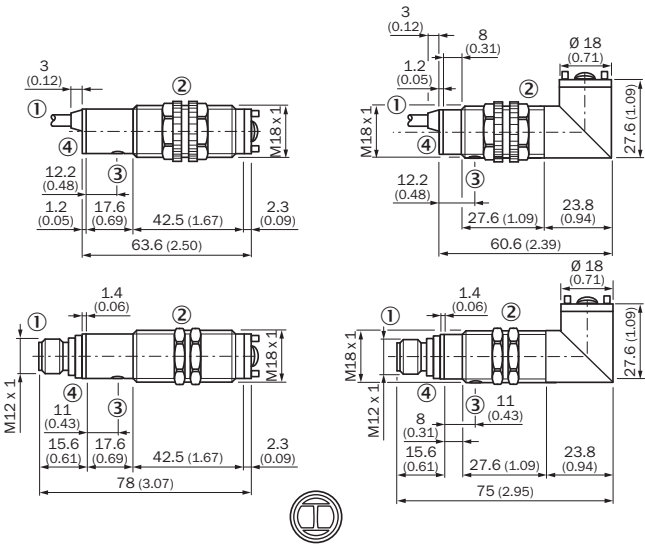


Sensing range diagram



① Reflector type C110

Dimensional drawing (Dimensions in mm (inch))



- ① Connecting cable or connector  
② Fastening nut, 22 mm hex, made of plastic for equipment with plastic housingFastening nut, 24 mm hex, made of metal for equipment with metal housing  
③ Sensitivity control  
④ Signal strength indicator, LED, yellow

Recommended accessories

Other models and accessories → [www.sick.com/V18](http://www.sick.com/V18)

|                                                                                     | Brief description                                                                 | Type        | Part no. |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------|----------|
| Mounting brackets and plates                                                        |                                                                                   |             |          |
|  | Mounting bracket for M18 sensors, steel, zinc coated, without mounting hardware   | BEF-WN-M18  | 5308446  |
|  | Universal mounting bracket for reflectors, steel, zinc coated                     | BEF-WN-REFX | 2064574  |
| Plug connectors and cables                                                          |                                                                                   |             |          |
|  | Head A: male connector, M12, 4-pin, straight<br>Cable: unshielded                 | STE-1204-G  | 6009932  |
| Reflectors                                                                          |                                                                                   |             |          |
|  | Rectangular, screw connection, 51 mm x 61 mm, PMMA/ABS, Screw-on, 2 hole mounting | 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)