



# WL150-N420

W150

MINIATURE PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

| Type       | Part no. |
|------------|----------|
| WL150-N420 | 6020685  |

**Included in delivery:** BEF-W150-A (1), PL20A (1)

Other models and accessories → [www.sick.com/W150](http://www.sick.com/W150)

### Detailed technical data

#### Features

|  |                                       |
|--|---------------------------------------|
| <b>Functional principle</b>            | Photoelectric retro-reflective sensor |
| <b>Functional principle detail</b>     | Dual lens                             |
| <b>Dimensions (W x H x D)</b>          | 10 mm x 28 mm x 17.5 mm               |
| <b>Housing design (light emission)</b> | Rectangular                           |
| <b>Sensing range max.</b>              | 0.01 m ... 0.7 m <sup>1)</sup>        |
| <b>Sensing range</b>                   | 0.01 m ... 0.6 m <sup>1)</sup>        |
| <b>Focus</b>                           | Approx. 7.5°                          |
| <b>Type of light</b>                   | Visible red light                     |
| <b>Light source</b>                    | LED <sup>2)</sup>                     |
| <b>Angle of dispersion</b>             | Approx. 7.5°                          |
| <b>Adjustment</b>                      | Potentiometer, 270°                   |
| <b>Special feature</b>                 | Detecting transparent objects         |
| <b>Special applications</b>            | Detecting transparent objects         |

<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> |
| <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> Signal transit time with resistive load.

<sup>5)</sup> With light/dark ratio 1:1.

<sup>6)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>7)</sup> B = inputs and output reverse-polarity protected.

<sup>8)</sup> C = interference suppression.

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

|  |  |
|--|--|
| <b>Current consumption</b>             | 30 mA <sup>3)</sup>  |
| <b>Switching output</b>                | NPN  |
| <b>Switching mode</b>                  | Light/dark switching   |
| <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>                   | ≤ 0.5 ms <sup>4)</sup>   |
| <b>Switching frequency</b>             | 1,000 Hz <sup>5)</sup>   |
| <b>Attenuation along light beam</b>    | > 20 %   |
| <b>Connection type</b>                 | Male connector M8, 4-pin   |
| <b>Circuit protection</b>              | A <sup>6)</sup><br>B <sup>7)</sup><br>C <sup>8)</sup><br>D <sup>9)</sup> |
| <b>Protection class</b>                | II   |
| <b>Weight</b>                          | 7 g  |
| <b>Polarisation filter</b>             | ✓  |
| <b>Housing material</b>                | Plastic, ABS   |
| <b>Optics material</b>                 | Plastic, PC  |
| <b>Enclosure rating</b>                | IP67   |
| <b>Items supplied</b>                  | BEF-W150-A mounting bracket, Reflector PL20A                             |
| <b>Special feature</b>                 | Detecting transparent objects  |
| <b>Ambient operating temperature</b>   | -25 °C ... +55 °C  |
| <b>Ambient temperature, storage</b>    | -40 °C ... +75 °C  |
| <b>UL File No.</b>                     | NRNT2.E128350 & NRNT8.E128350  |

<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> Signal transit time with resistive load.

<sup>5)</sup> With light/dark ratio 1:1.

<sup>6)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>7)</sup> B = inputs and output reverse-polarity protected.

<sup>8)</sup> C = interference suppression.

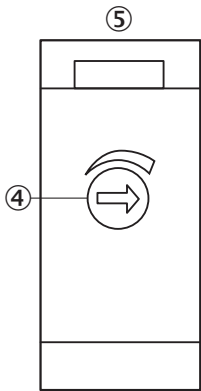
<sup>9)</sup> D = outputs overcurrent and short-circuit protected.

## 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 |

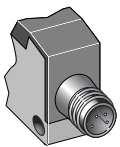
|                       |          |
|-----------------------|----------|
| <b>ECLASS 11.0</b>    | 27270902 |
| <b>ECLASS 12.0</b>    | 27270902 |
| <b>ETIM 5.0</b>       | EC002717 |
| <b>ETIM 6.0</b>       | EC002717 |
| <b>ETIM 7.0</b>       | EC002717 |
| <b>ETIM 8.0</b>       | EC002717 |
| <b>UNSPSC 16.0901</b> | 39121528 |

### Adjustments



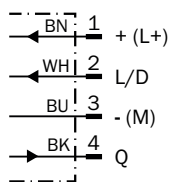
- ④ Sensitivity control 270°
- ⑤ LED indicator red: Light received  $\geq$  switching threshold

### Connection type

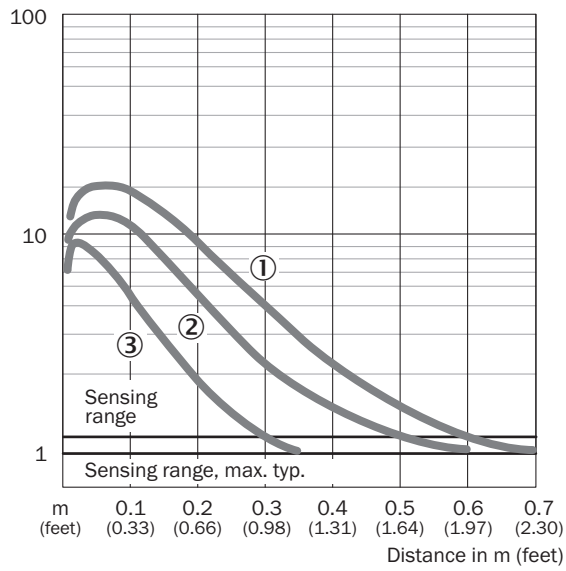


### Connection diagram

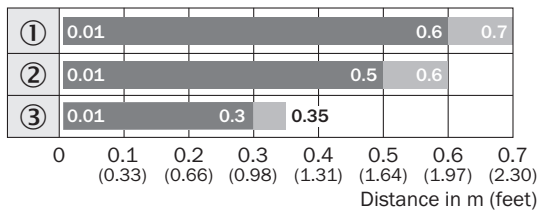
Cd-087



### Characteristic curve



### Sensing range diagram



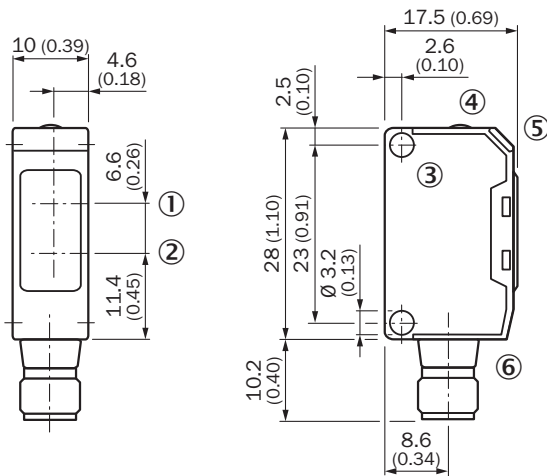
■ Sensing range

■ Sensing range typ. max.

### Reflector type

- ① PL80A
- ② PL250
- ③ PL20A





### Dimensional drawing (Dimensions in mm (inch))



- ① Center of optical axis, receiver
- ② Center of optical axis, sender
- ③ Mounting hole,  $\varnothing$  3.2 mm
- ④ Sensitivity control 270°
- ⑤ LED indicator red: Light received  $\geq$  switching threshold
- ⑥ Connector M8, 4-pin or cable

### Recommended accessories

Other models and accessories → [www.sick.com/W150](http://www.sick.com/W150)

|   | Brief description  | Type               | Part no. |
|---|--|--------------------|----------|
| <b>Mounting brackets and plates</b>   |  |                    |          |
|  | Universal mounting bracket for reflectors, steel, zinc coated  | BEF-WN-REFX        | 2064574  |
| <b>Reflectors</b>   |  |                    |          |
|  | Rectangular, screw connection, 51 mm x 61 mm, PMMA/ABS, Screw-on, 2 hole mounting  | P250               | 5304812  |
| <b>Others</b>   |  |                    |          |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M8, 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> 0.14 mm<sup>2</sup> ... 0.5 mm<sup>2</sup></li> </ul>   | STE-0804-G         | 6037323  |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M8, 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</li> </ul> | YF8U14-050VA3XLEAX | 2095889  |

## 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)