



# WL12-3P1131

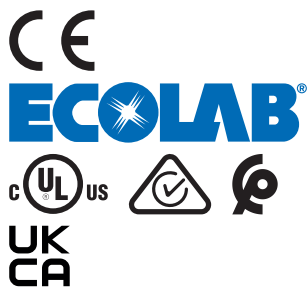
W12

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

| Type        | part no. |
|-------------|----------|
| WL12-3P1131 | 1041437  |

Included in delivery: BEF-KH-W12 (1)  
Other models and accessories → [www.sick.com/W12](http://www.sick.com/W12)

Detailed technical data

Features

|                                    |                            |                                                                     |
|------------------------------------|----------------------------|---------------------------------------------------------------------|
| <b>Functional principle</b>        |                            | Photoelectric retro-reflective sensor                               |
| <b>Functional principle detail</b> |                            | Without reflector minimum distance (autocollimation/coaxial optics) |
| <b>Sensing range max.</b>          |                            | 0 m ... 7 m <sup>1)</sup>                                           |
| <b>Sensing range</b>               |                            | 0 m ... 5 m <sup>1)</sup>                                           |
| <b>Polarisation filters</b>        |                            | Yes                                                                 |
| <b>Emitted beam</b>                |                            |                                                                     |
|                                    | Light source               | LED <sup>2)</sup>                                                   |
|                                    | Type of light              | Visible red light                                                   |
|                                    | Light spot size (distance) | Ø 100 mm (3 m)                                                      |
| <b>Key LED figures</b>             |                            |                                                                     |
|                                    | Wave length                | 640 nm                                                              |
| <b>Adjustment</b>                  |                            | Potentiometer, 5 turns                                              |
| <b>Angle of dispersion</b>         |                            | Approx. 1.5°                                                        |
| <b>Items supplied</b>              |                            | 2 x clamps BEF-KH-W12, incl. screws                                 |

<sup>1)</sup> Reflector PL80A.  
<sup>2)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

Safety-related parameters

|                         |             |
|-------------------------|-------------|
| <b>MTTF<sub>D</sub></b> | 1,543 years |
| <b>DC<sub>avg</sub></b> | 0 %         |

## Electronics

|                                        |                                                       |
|----------------------------------------|-------------------------------------------------------|
| <b>Supply voltage <math>U_B</math></b> | 10 V DC ... 30 V DC <sup>1)</sup>                     |
| <b>Ripple</b>                          | < 5 V <sub>pp</sub> <sup>2)</sup>                     |
| <b>Current consumption</b>             | 30 mA <sup>3)</sup>                                   |
| <b>Protection class</b>                | III                                                   |
| <b>Digital output</b>                  |                                                       |
| Type                                   | PNP                                                   |
| Switching mode                         | Light/dark switching                                  |
| Signal voltage PNP HIGH/LOW            | > U <sub>v</sub> - 2,5 V / ca. 0 V                    |
| Output current I <sub>max.</sub>       | ≤ 100 mA                                              |
| Response time                          | ≤ 330 μs <sup>4)</sup>                                |
| Switching frequency                    | 1,500 Hz <sup>5)</sup>                                |
| <b>Output function</b>                 | Complementary                                         |
| <b>Circuit protection</b>              | A <sup>6)</sup><br>C <sup>7)</sup><br>D <sup>8)</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>y</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> C = interference suppression.

<sup>8)</sup> D = outputs overcurrent and short-circuit protected.

## Mechanics

|                               |                                  |
|-------------------------------|----------------------------------|
| <b>Housing</b>                | Rectangular                      |
| <b>Dimensions (W x H x D)</b> | 15.6 mm x 48.5 mm x 42 mm        |
| <b>Connection</b>             | Cable, 4-wire, 2 m <sup>1)</sup> |
| <b>Connection detail</b>      |                                  |
| Conductor size                | 0.25 mm <sup>2</sup>             |
| Length of cable (L)           | 2 m <sup>1)</sup>                |
| <b>Material</b>               |                                  |
| Housing                       | Metal                            |
| Front screen                  | Plastic, PMMA                    |
| Cable                         | Plastic, PVC                     |
| <b>Weight</b>                 | 200 g                            |

<sup>1)</sup> Do not bend below 0 °C.

## Ambient data

|                                      |                       |
|--------------------------------------|-----------------------|
| <b>Enclosure rating</b>              | IP66<br>IP67<br>IP69K |
| <b>Ambient operating temperature</b> | -40 °C ... +60 °C     |
| <b>Ambient temperature, storage</b>  | -40 °C ... +75 °C     |

|                    |                              |
|--------------------|------------------------------|
| <b>UL File No.</b> | NRKH.E181493 & NRKH7.E181493 |
|--------------------|------------------------------|

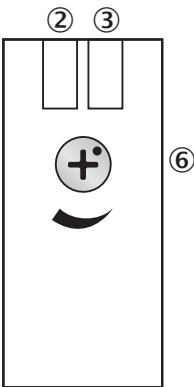
Certificates

|                                                          |   |
|----------------------------------------------------------|---|
| <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>ECOLAB certificate</b>                                | ✓ |
| <b>cULus certificate</b>                                 | ✓ |
| <b>Photobiological safety (DIN EN 62471) certificate</b> | ✓ |

Classifications

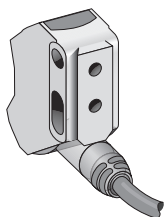
|                       |          |
|-----------------------|----------|
| <b>ECLASS 5.0</b>     | 27270902 |
| <b>ECLASS 5.1.4</b>   | 27270902 |
| <b>ECLASS 6.0</b>     | 27270902 |
| <b>ECLASS 6.2</b>     | 27270902 |
| <b>ECLASS 7.0</b>     | 27270902 |
| <b>ECLASS 8.0</b>     | 27270902 |
| <b>ECLASS 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 WL12-3, WSE12-3

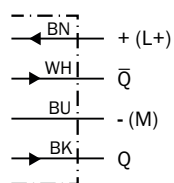


- ② LED indicator yellow: Status of received light beam
- ③ LED indicator green: Supply voltage active
- ⑥ Sensitivity control: potentiometer

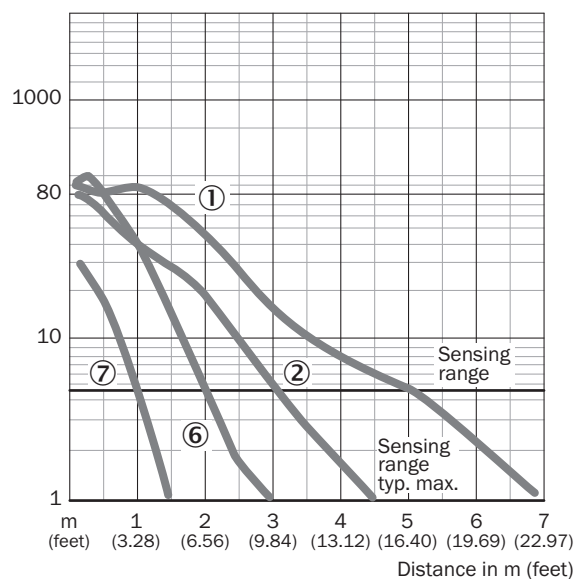
## Connection type



## Connection diagram Cd-094

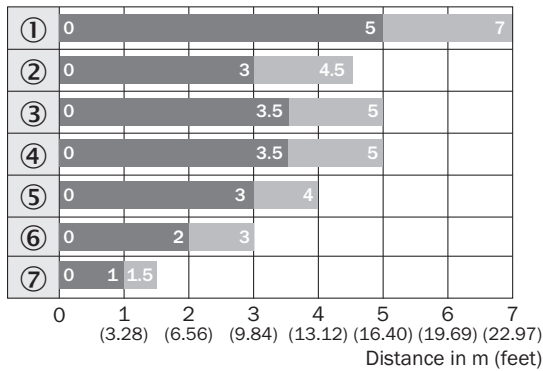


## Characteristic curve WL12-3



- ① Reflector PL80A
- ② Reflector C110A
- ⑥ Reflector PL20A
- ⑦ reflective tape

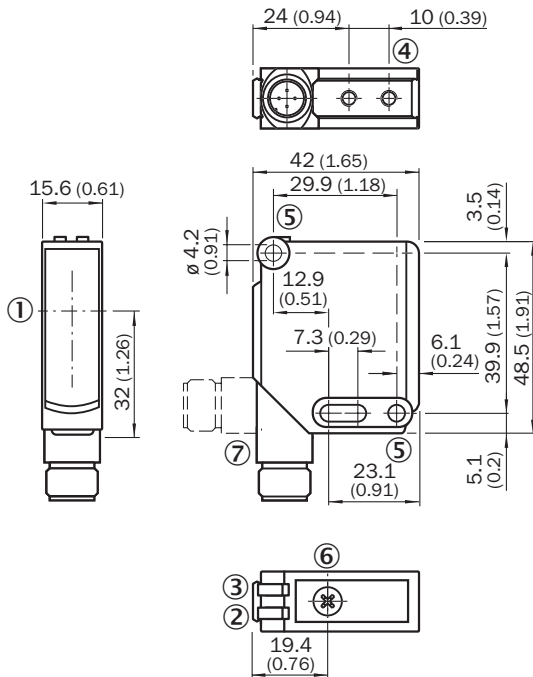
### Sensing range diagram WL12-3



■ Sensing range      ■ Sensing range typ. max.

- ① Reflector PL80A
- ② Reflector C110A
- ③ Reflector PL50A
- ④ Reflector PL40A
- ⑤ Reflector PL30A
- ⑥ Reflector PL20A
- ⑦ Reflective tape Diamond Grade

### Dimensional drawing WL12-3, WSE12-3



Dimensions in mm (inch)

- ① Optical axis
- ② LED indicator yellow: Status of received light beam
- ③ LED indicator green: Supply voltage active
- ④ M4 threaded mounting hole, 4 mm deep
- ⑤ Mounting hole, Ø 4.2 mm
- ⑥ Sensitivity control: potentiometer
- ⑦ Connection

## Recommended accessories

Other models and accessories → [www.sick.com/W12](http://www.sick.com/W12)

|                                                                                   | Brief description                                                                                                                                                                                                                                                                                                                        | Type        | part no. |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------|
| Mounting systems                                                                  |                                                                                                                                                                                                                                                                                                                                          |             |          |
|  | <ul style="list-style-type: none"> <li>• <b>Description:</b> Universal mounting bracket for reflectors</li> <li>• <b>Dimensions (W x H x L):</b> 85 mm x 90 mm x 35 mm</li> <li>• <b>Material:</b> Steel</li> <li>• <b>Details:</b> Steel, zinc coated</li> <li>• <b>Suitable for:</b> C110A, P250, PL20, PL30A, PL40A, PL80A</li> </ul> | BEF-WN-REFX | 2064574  |
| reflectors and optics                                                             |                                                                                                                                                                                                                                                                                                                                          |             |          |
|  | <ul style="list-style-type: none"> <li>• <b>Description:</b> Rectangular, screw connection</li> <li>• <b>Dimensions:</b> 18 mm 60 mm</li> <li>• <b>Ambient operating temperature:</b> -30 °C ... +65 °C</li> </ul>                                                                                                                       | PL20A       | 1012719  |
| connectors and cables                                                             |                                                                                                                                                                                                                                                                                                                                          |             |          |
|  | <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  |

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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.

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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.”

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