



# WL11-2P2440

## W11-2

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

| Type        | part no. |
|-------------|----------|
| WL11-2P2440 | 1041389  |

Other models and accessories → [www.sick.com/W11-2](http://www.sick.com/W11-2)

Detailed technical data

Features

|                                 |   |
|---------------------------------|---|
| Functional principle            | Photoelectric retro-reflective sensor                 |
| Functional principle detail     | With minimum distance to reflector (dual lens system) |
| Dimensions (W x H x D)          | 15.6 mm x 48.5 mm x 42 mm                             |
| Housing design (light emission) | Rectangular   |
| Sensing range max.              | 0.15 m ... 10 m <sup>1)</sup>                         |
| Sensing range                   | 0.15 m ... 8 m <sup>1)</sup>                          |
| Focus                           | Approx. 2.2°  |
| Type of light                   | Visible red light                                     |
| Light source                    | LED <sup>2)</sup>                                     |
| Light spot size (distance)      | Ø 50 mm (3 m)   |
| Angle of dispersion             | Approx. 2.2°  |
| Wave length                     | 640 nm  |
| Adjustment                      | None  |

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

## Mechanics/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>Switching output</b>                    | PNP   |
| <b>Output function</b>                     | Complementary   |
| <b>Switching mode</b>                      | Light/dark switching                                  |
| <b>Signal voltage PNP HIGH/LOW</b>         | U <sub>v</sub> - 2.5 V / approx. 0 V                  |
| <b>Output current <math>I_{max}</math></b> | ≤ 100 mA  |
| <b>Response time</b>                       | ≤ 2.5 ms <sup>4)</sup>                                |
| <b>Switching frequency</b>                 | 200 Hz <sup>5)</sup>                                  |
| <b>Connection type</b>                     | Male connector M12, 4-pin                             |
| <b>Circuit protection</b>                  | A <sup>6)</sup><br>C <sup>7)</sup><br>D <sup>8)</sup> |
| <b>Protection class</b>                    | III   |
| <b>Weight</b>                              | 120 g   |
| <b>Housing material</b>                    | Plastic, ABS  |
| <b>Optics material</b>                     | Plastic, PMMA   |
| <b>Enclosure rating</b>                    | IP66<br>IP67<br>IP69K                                 |
| <b>Ambient operating temperature</b>       | -30 °C ... +60 °C                                     |
| <b>Ambient temperature, storage</b>        | -40 °C ... +75 °C                                     |
| <b>UL File No.</b>                         | NRKH.E181493 & NRKH7.E181493                          |

<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.

## Safety-related parameters

|                                     |             |
|-------------------------------------|-------------|
| <b>MTTF<sub>D</sub></b>             | 2,783 years |
| <b>DC<sub>avg</sub></b>             | 0 %         |
| <b>T<sub>M</sub> (mission time)</b> | 20 years    |

## Certificates

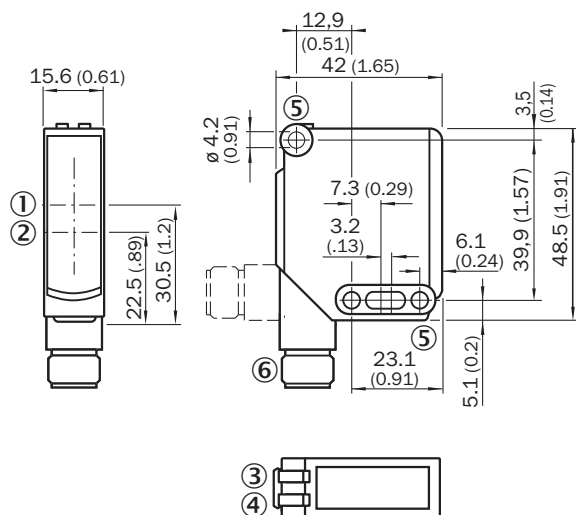
|   |   |
|---|---|
| <b>EU declaration of conformity</b>       | ✓ |
| <b>UK declaration of conformity</b>       | ✓ |
| <b>ACMA declaration of conformity</b>     | ✓ |
| <b>Moroccan declaration of conformity</b> | ✓ |
| <b>China RoHS</b>                         | ✓ |

|   |   |
|---|---|
| ECOLAB certificate                                | ✓ |
| cULus certificate                                 | ✓ |
| Photobiological safety (DIN EN 62471) certificate | ✓ |

### Classifications

|                |          |
|----------------|----------|
| ECLASS 5.0     | 27270902 |
| ECLASS 5.1.4   | 27270902 |
| ECLASS 6.0     | 27270902 |
| ECLASS 6.2     | 27270902 |
| ECLASS 7.0     | 27270902 |
| ECLASS 8.0     | 27270902 |
| ECLASS 8.1     | 27270902 |
| ECLASS 9.0     | 27270902 |
| ECLASS 10.0    | 27270902 |
| ECLASS 11.0    | 27270902 |
| ECLASS 12.0    | 27270902 |
| ETIM 5.0       | EC002717 |
| ETIM 6.0       | EC002717 |
| ETIM 7.0       | EC002717 |
| ETIM 8.0       | EC002717 |
| UNSPSC 16.0901 | 39121528 |

### Dimensional drawing WL11-2

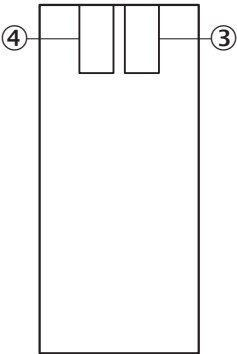


Dimensions in mm (inch)

- ① Optical axis, sender
- ② Optical axis, receiver
- ③ LED indicator green: Supply voltage active
- ④ LED indicator yellow: Status of received light beam
- ⑤ Mounting hole  $\varnothing$  4.2 mm

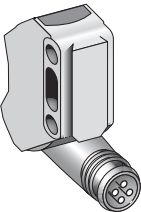
⑥ M12 connector, 4-pin or cable

Adjustments WL11-2

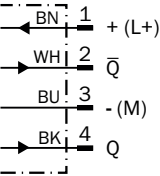


- ③ LED indicator green: Supply voltage active
- ④ LED indicator yellow: Status of received light beam

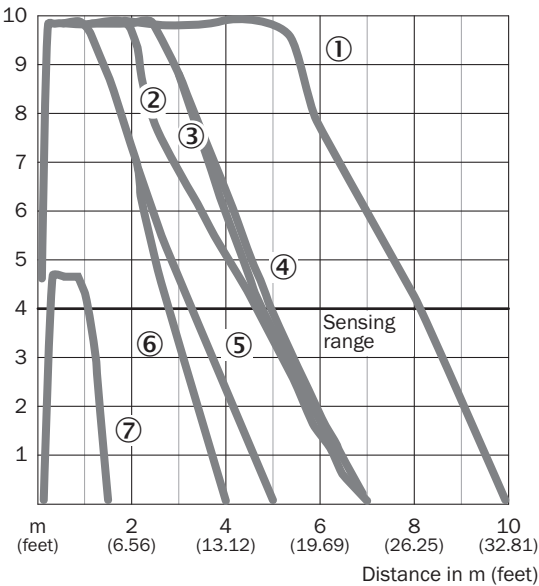
Connection type



Connection diagram Cd-083

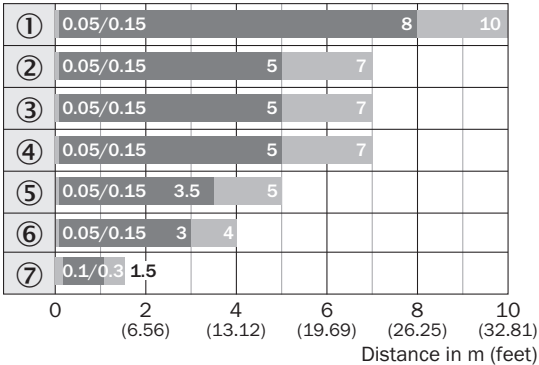


Characteristic curve



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

Sensing range diagram



- 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

## Recommended accessories

Other models and accessories → [www.sick.com/W11-2](http://www.sick.com/W11-2)

|   | Brief description  | Type               | part no. |
|---|--|--------------------|----------|
| Mounting systems  |  |                    |          |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Mounting bracket, large</li> <li><b>Material:</b> Stainless steel</li> <li><b>Details:</b> Stainless steel</li> <li><b>Items supplied:</b> Mounting hardware included</li> <li><b>Suitable for:</b> W11-2, W12-3, W16</li> </ul>  | BEF-WG-W12         | 2013942  |
|    | <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  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Plate N11N for universal clamp bracket</li> <li><b>Material:</b> Stainless steel</li> <li><b>Details:</b> Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp)</li> <li><b>Items supplied:</b> Universal clamp (5322627), mounting hardware</li> <li><b>Usable for:</b> DeltaPac, Glare, WTD20E</li> </ul>  | BEF-KHS-N11N       | 2071081  |
| reflectors and optics   |  |                    |          |
|   | <ul style="list-style-type: none"> <li><b>Description:</b> Rectangular, screw connection</li> <li><b>Dimensions:</b> 40 mm 60 mm</li> <li><b>Ambient operating temperature:</b> -30 °C ... +65 °C</li> </ul>   | PL40A              | 1012720  |
| 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  |
|  | <ul style="list-style-type: none"> <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>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>  | YF2A14-050VB3XLEAX | 2096235  |
|  | <ul style="list-style-type: none"> <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, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul> | YF2A14-050UB3XLEAX | 2095608  |

## 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)