



# WL27-3P2451

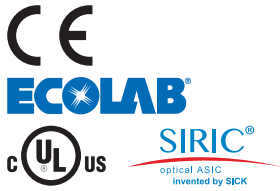
W27

COMPACT PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

| Type        | Part no. |
|-------------|----------|
| WL27-3P2451 | 1027770  |

Other models and accessories → [www.sick.com/W27](http://www.sick.com/W27)

### 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>          | 24.6 mm x 80.6 mm x 54 mm             |
| <b>Housing design (light emission)</b> | Rectangular                           |
| <b>Sensing range max.</b>              | 0.1 m ... 15 m <sup>1)</sup>          |
| <b>Sensing range</b>                   | 0.1 m ... 11 m <sup>1)</sup>          |
| <b>Focus</b>                           | Approx. 1.5°                          |
| <b>Type of light</b>                   | Visible red light                     |
| <b>Light source</b>                    | LED <sup>2)</sup>                     |
| <b>Light spot size (distance)</b>      | Ø 220 mm (10 m)                       |
| <b>Angle of dispersion</b>             | Approx. 1.5°                          |
| <b>Wave length</b>                     | 660 nm                                |
| <b>Adjustment</b>                      | Potentiometer                         |

<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 <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>                        | 45 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>                | Approx. $V_S - 2.5 \text{ V} / 0 \text{ V}$           |
| <b>Output current <math>I_{\text{max}}</math></b> | ≤ 100 mA  |
| <b>Response time</b>                              | ≤ 500 μs <sup>4)</sup>                                |
| <b>Switching frequency</b>                        | 1,000 Hz <sup>5)</sup>                                |
| <b>Connection type</b>                            | Male connector M12, 4-pin                             |
| <b>Circuit protection</b>                         | A <sup>6)</sup><br>B <sup>7)</sup><br>C <sup>8)</sup> |
| <b>Protection class</b>                           | II <sup>9)</sup>                                      |
| <b>Weight</b>                                     | 100 g   |
| <b>Polarisation filter</b>                        | ✓   |
| <b>Front screen heating</b>                       | ✓ <sup>10)</sup>                                      |
| <b>Housing material</b>                           | Plastic, ABS  |
| <b>Optics material</b>                            | Plastic, PMMA   |
| <b>Enclosure rating</b>                           | 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                          |

<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> Signal transit time with resistive load.

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

<sup>6)</sup> A =  $V_S$  connections reverse-polarity protected.

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

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

<sup>9)</sup> Reference voltage: 50 V DC.

<sup>10)</sup> Static, low heat output, use in +5 °C ... +15 °C.

## Safety-related parameters

|                         |             |
|-------------------------|-------------|
| <b>MTTF<sub>D</sub></b> | 1,640 years |
| <b>DC<sub>avg</sub></b> | 0 %         |

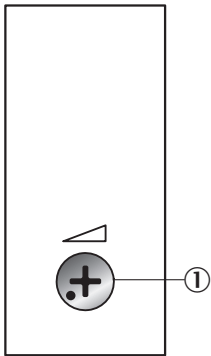
## Classifications

|                     |          |
|---------------------|----------|
| <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 |

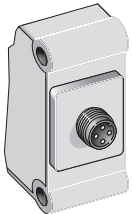
### Adjustments

Potentiometer



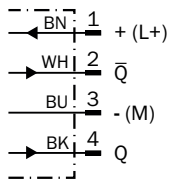
① Potentiometer

### Connection type



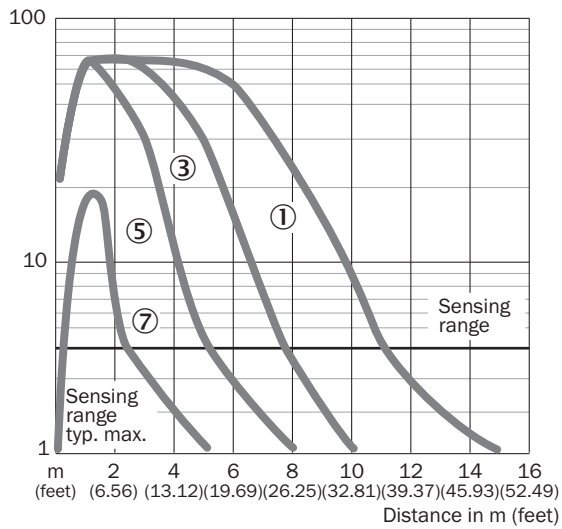
### Connection diagram

Cd-083



### Characteristic curve

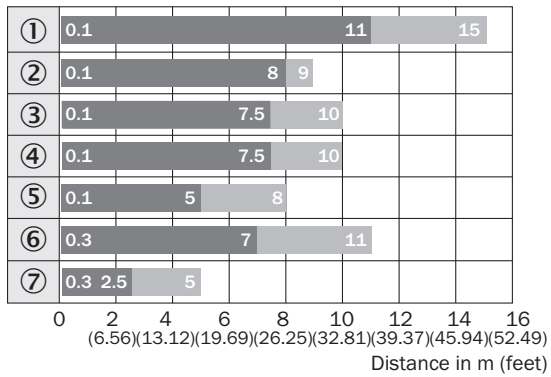
WL27-3



- ① Reflector PL80A
- ③ Reflector PL40A
- ⑤ Reflector PL20A
- ⑦ Reflective tape Diamond Grade

### Sensing range diagram

WL27-3

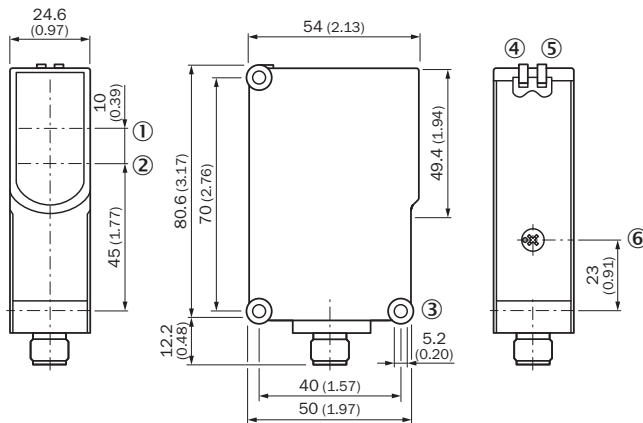


■ Sensing range    ■ Sensing range max.

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

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






WL27-3, potentiometer



- ① Optical axis, sender
- ② Optical axis, receiver
- ③ Mounting hole  $\varnothing$  5.2 mm
- ④ LED indicator green: Supply voltage active
- ⑤ LED indicator yellow: Status of received light beam
- ⑥ Sensitivity control ( 10 revolutions)

Recommended accessories

Other models and accessories → [www.sick.com/W27](http://www.sick.com/W27)

|  | Brief description   | Type               | Part no. |
|--|---|--------------------|----------|
| Device protection (mechanical)   |   |                    |          |
|   | Protective housing for W26, W27-3 and mounting rods with diameter 12 mm ... 20 mm, Zinc plated steel (protective housing), Zinc die cast (clamping bracket), Universal clamp BEF-KHS-KH1 (2022726), mounting hardware   | BEF-SG-W27         | 2039601  |
| Mounting brackets and plates   |   |                    |          |
|   | Universal mounting bracket for reflectors, steel, zinc coated   | BEF-WN-REFX        | 2064574  |
| Plug connectors and cables   |   |                    |          |
|   | <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> Zones with chemicals</li> </ul> | YF2A14-050VB3XLEAX | 2096235  |
|   | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 4-pin, straight</li> <li>• <b>Description:</b> Unshielded</li> <li>• <b>Connection systems:</b> Screw-type terminals</li> <li>• <b>Permitted cross-section:</b> ≤ 0.75 mm<sup>2</sup></li> </ul>   | STE-1204-G         | 6009932  |
| Reflectors   |   |                    |          |
|  | Rectangular, screw connection, 84 mm x 84 mm, PMMA/ABS, Screw-on, 2 hole mounting   | PL80A              | 1003865  |

## 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)