



# WL100L-F3431S42

W100 Laser

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

| Type            | part no. |
|-----------------|----------|
| WL100L-F3431S42 | 6044130  |

Included in delivery: BEF-W100-A (1)  
Other models and accessories → [www.sick.com/W100\\_Laser](http://www.sick.com/W100_Laser)

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)          | 11 mm x 31 mm x 20 mm   |
| Housing design (light emission) | Rectangular   |
| Sensing range max.              | 0.08 m ... 12 m <sup>1)</sup>                                       |
| Sensing range                   | 0.08 m ... 10 m <sup>1)</sup>                                       |
| Type of light                   | Visible red light   |
| Light source                    | Laser <sup>2)</sup>   |
| Wave length                     | 650 nm  |
| Laser class                     | 1   |
| Adjustment                      | Potentiometer, 270°   |
| Special applications            | Detecting small objects, Detection of objects moving at high speeds |
| Special features                | Without reflector<br>Cable length 290 mm                            |

<sup>1)</sup> Reflector P250F.  
<sup>2)</sup> Average service life: 50,000 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>                                | $\pm 10 \%$ <sup>2)</sup>                                     |
| <b>Current consumption</b>                   | 30 mA <sup>3)</sup>   |
| <b>Switching output</b>                      | PNP   |
| <b>Switching mode</b>                        | Light/dark switching  |
| <b>Switching mode selector</b>               | Selectable via light/dark rotary switch                       |
| <b>Signal voltage PNP HIGH/LOW</b>           | $U_V - 1,8 \text{ V} / \text{ca. } 0 \text{ V}$               |
| <b>Output current <math>I_{\max.}</math></b> | $\leq 100 \text{ mA}$   |
| <b>Response time</b>                         | $< 0.25 \text{ ms}$ <sup>4)</sup>                             |
| <b>Switching frequency</b>                   | 2,000 Hz <sup>5)</sup>  |
| <b>Connection type</b>                       | Cable with M12 male connector, 4-pin, 290 mm <sup>6)</sup>    |
| <b>Cable material</b>                        | Plastic, PVC  |
| <b>Cable diameter</b>                        | $\varnothing 0.14 \text{ mm}$                                 |
| <b>Circuit protection</b>                    | A <sup>7)</sup><br>B <sup>8)</sup><br>D <sup>9)</sup>         |
| <b>Weight</b>                                | 150 g   |
| <b>Polarisation filter</b>                   | ✓   |
| <b>Housing material</b>                      | Plastic, ABS/PC   |
| <b>Optics material</b>                       | Plastic, PMMA   |
| <b>Enclosure rating</b>                      | IP65  |
| <b>Items supplied</b>                        | Stainless steel mounting bracket (1.4301/304) BEF-W100-A      |
| <b>Ambient operating temperature</b>         | $-10 \text{ }^\circ\text{C} \dots +50 \text{ }^\circ\text{C}$ |
| <b>Ambient temperature, storage</b>          | $-40 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$ |

<sup>1)</sup> Limit values when operated in short-circuit protected network: max. 8 A.

<sup>2)</sup> May not fall below or exceed  $U_V$  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> Do not bend below  $0 \text{ }^\circ\text{C}$ .

<sup>7)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>8)</sup> B = inputs and output reverse-polarity protected.

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

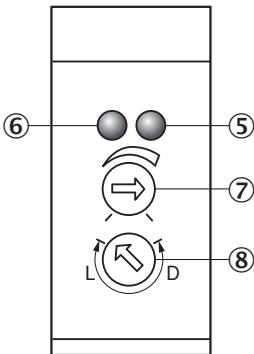
## Certificates

|   |   |
|---|---|
| <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>cRUus certificate</b>                      | ✓ |
| <b>Laser safety (IEC 60825-1) certificate</b> | ✓ |

Classifications

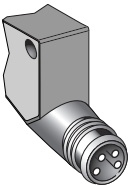
|                       |          |
|-----------------------|----------|
| <b>ECLASS 5.0</b>     | 27270902 |
| <b>ECLASS 5.1.4</b>   | 27270902 |
| <b>ECLASS 6.0</b>     | 27270902 |
| <b>ECLASS 6.2</b>     | 27270902 |
| <b>ECLASS 7.0</b>     | 27270902 |
| <b>ECLASS 8.0</b>     | 27270902 |
| <b>ECLASS 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>    | 27270901 |
| <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 WT100L, WL100L

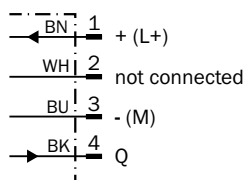


- ⑤ Orange LED indicator : switching output active
- ⑥ LED indicator green: power on
- ⑦ Sensing range (WT) / sensitivity (WL) adjustment: potentiometer, 270°
- ⑧ Light/ dark rotary switch: L = light switching, D = dark switching

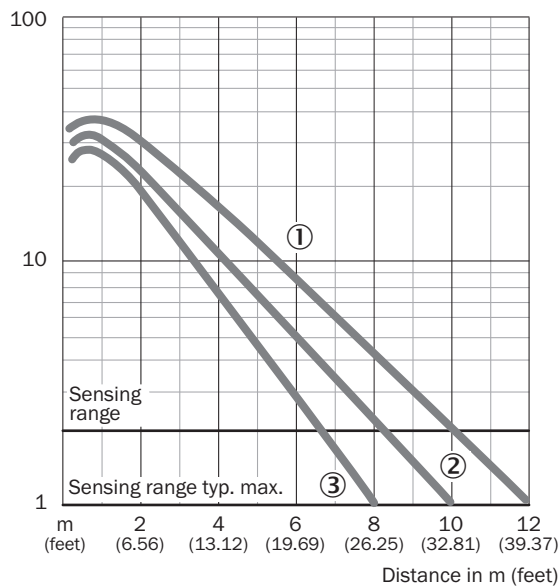
Connection type



## Connection diagram Cd-066

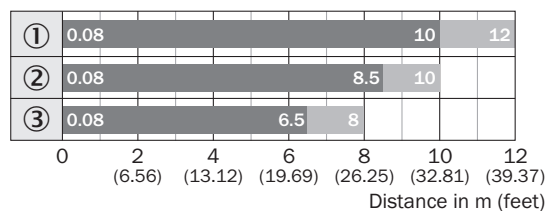


## Characteristic curve WL100L



- ① Reflector P250F
- ② Reflector PL20F
- ③ PL10F reflector

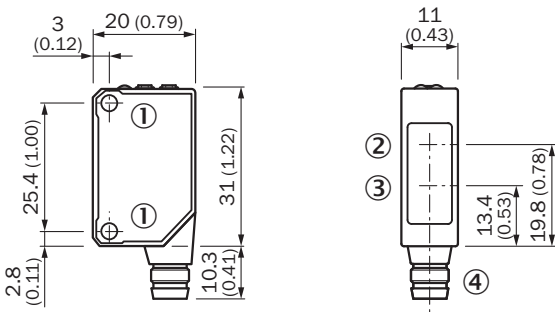
## Sensing range diagram WL100L



■ Sensing range      ■ Sensing range max.

- ① Reflector P250F
- ② Reflector PL20F
- ③ PL10F reflector

Dimensional drawing WT100L, WL100L






Dimensions in mm (inch)

- ① Threaded mounting hole M3
- ② Center of optical axis, receiver
- ③ Center of optical axis, sender
- ④ Connection

Recommended accessories

Other models and accessories → [www.sick.com/W100\\_Laser](http://www.sick.com/W100_Laser)

|   | Brief description  | Type               | part no. |
|---|--|--------------------|----------|
| 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, Uncontaminated zones</li></ul> | YF2A14-050VB3XLEAX | 2096235  |
|   | <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  |
| 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> Fine triple reflector, screw connection, suitable for laser sensors</li><li>• <b>Dimensions:</b> 52 mm 62 mm</li><li>• <b>Ambient operating temperature:</b> -30 °C ... +65 °C</li></ul>   | P250F              | 5308843  |

## 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)