



# OD2-P250W150U2

OD Value

DISPLACEMENT MEASUREMENT SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

| Type           | part no. |
|----------------|----------|
| OD2-P250W150U2 | 6036642  |

Other models and accessories → [www.sick.com/OD\\_Value](http://www.sick.com/OD_Value)

Detailed technical data

Features

|                                 |                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measuring range                 | 100 mm ... 400 mm <sup>1)</sup>                                                                                                                                                                                                                                                                                                            |
| Target                          | Natural objects                                                                                                                                                                                                                                                                                                                            |
| Repeatability                   | 75 µm <sup>2) 3) 4)</sup>                                                                                                                                                                                                                                                                                                                  |
| Linearity                       | ± 750 µm <sup>2) 3) 5)</sup>                                                                                                                                                                                                                                                                                                               |
| Response time                   | ≥ 1 ms                                                                                                                                                                                                                                                                                                                                     |
| Output time                     | ≥ 0.75 ms                                                                                                                                                                                                                                                                                                                                  |
| Light source                    | Laser, redvisible red light                                                                                                                                                                                                                                                                                                                |
| Type of light                   | Visible red light                                                                                                                                                                                                                                                                                                                          |
| Laser class                     | 2 (IEC 60825-1:2014, EN 60825-1:2014) <sup>6)</sup>                                                                                                                                                                                                                                                                                        |
| Typ. light spot size (distance) | 1.8 mm x 3.5 mm (250 mm)                                                                                                                                                                                                                                                                                                                   |
| Additional function             | Mean-value setting 1 ... 64x<br>Automatic sensitivity adjustment<br>Analog outputs can be taught in<br>Invertable analog output<br>Teach-in of digital output<br>Invertable switching output<br>Multifunctional input: laser-off / external teach-in / trigger<br>Switching mode: distance to object (DtO)<br>Switching mode: window (Wnd) |
| Safety-related parameters       |                                                                                                                                                                                                                                                                                                                                            |
| MTTF <sub>D</sub>               | 101 years                                                                                                                                                                                                                                                                                                                                  |

<sup>1)</sup> 6% ... 90% remission factor.  
<sup>2)</sup> Measurement on 90 % remission (ceramic, white).  
<sup>3)</sup> At averaging function medium.  
<sup>4)</sup> Constant ambient conditions.  
<sup>5)</sup> When calibrated in the application regularly.  
<sup>6)</sup> Wavelength: 655 nm, max. output: 1 mW.

|                   |    |
|-------------------|----|
| DC <sub>avg</sub> | 0% |
|-------------------|----|

<sup>1)</sup> 6% ... 90% remission factor.  
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<sup>3)</sup> At averaging function medium.  
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<sup>5)</sup> When calibrated in the application regularly.  
<sup>6)</sup> Wavelength: 655 nm, max. output: 1 mW.

## Interfaces

|                                       |                          |
|---------------------------------------|--------------------------|
| <b>Digital output</b>                 |                          |
| Number                                | 2 <sup>1)</sup>          |
| Type                                  | PNP                      |
| Maximum output current I <sub>A</sub> | ≤ 100 mA                 |
| <b>Analog output</b>                  |                          |
| Number                                | 1                        |
| Type                                  | Voltage output           |
| Voltage                               | 0 V ... 10 V, > 10,000 Ω |
| Resolution                            | 16 bit                   |
| <b>Multifunctional input (MF)</b>     | 1 x MF <sup>2)</sup>     |

- <sup>1)</sup> PNP: HIGH = V<sub>S</sub> - (< 2 V) / LOW = < 2 V; NPN: HIGH = < 2 V / LOW = V<sub>S</sub>.  
<sup>2)</sup> MF can be used as laser-off, trigger, external teach-in, or deactivated; response time ≤ 3 ms.

## Electronics

|                                     |                                         |
|-------------------------------------|-----------------------------------------|
| <b>Supply voltage U<sub>B</sub></b> | DC 18 V ... 24 V                        |
| <b>Power consumption</b>            | ≤ 2.88 W <sup>1)</sup>                  |
| <b>Warm-up time</b>                 | ≤ 30 min                                |
| <b>Indication</b>                   | Distance bar graph, up to 8 status LEDs |
| <b>Enclosure rating</b>             | IP67                                    |
| <b>Protection class</b>             | III                                     |

- <sup>1)</sup> Without load, with current output.

## Mechanics

|                               |                         |
|-------------------------------|-------------------------|
| <b>Dimensions (W x H x D)</b> | 20.4 mm x 60 mm x 50 mm |
| <b>Housing material</b>       | Plastic (PBT)           |
| <b>Window material</b>        | Plastic (PMMA)          |
| <b>Weight</b>                 | 70 g                    |
| <b>Connection type</b>        | Cable, 2 m              |

## Ambient data

|                                               |                                                             |
|-----------------------------------------------|-------------------------------------------------------------|
| <b>Ambient temperature, operation</b>         | -10 °C ... +40 °C                                           |
| <b>Ambient temperature, storage</b>           | -20 °C ... +60 °C                                           |
| <b>Relative air humidity (non-condensing)</b> | 35 % ... 95 %                                               |
| <b>Temperature drift</b>                      | ± 0.08 % FS/K (FS = Full Scale = Measuring range of sensor) |
| <b>Typ. Ambient light immunity</b>            | Artificial light: ≤ 3,000 lx<br>Sunlight: ≤ 10,000 lx       |

|                             |                                                                 |
|-----------------------------|-----------------------------------------------------------------|
| <b>Vibration resistance</b> | 10 Hz ... 55 Hz (amplitude 1.5 mm, x-, y-, z-axis 2 hours each) |
| <b>Shock resistance</b>     | 50 G (x, y, z axis 3 times each)                                |

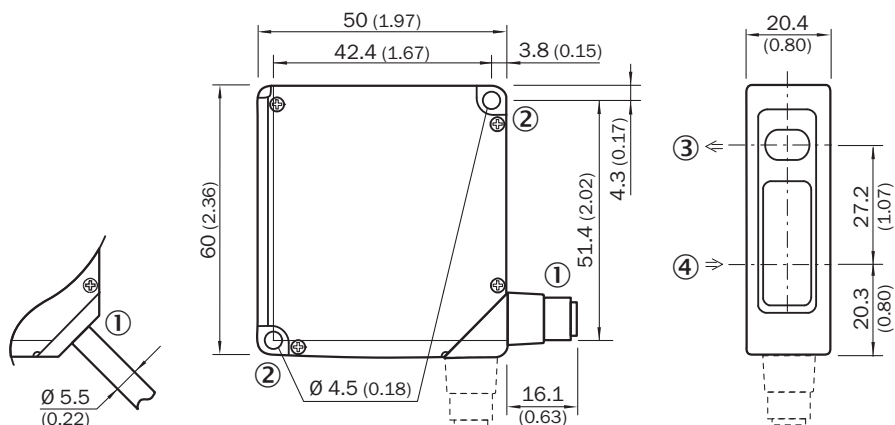
## Certificates

|                                    |   |
|------------------------------------|---|
| EU declaration of conformity       | ✓ |
| UK declaration of conformity       | ✓ |
| ACMA declaration of conformity     | ✓ |
| Moroccan declaration of conformity | ✓ |
| China-RoHS                         | ✓ |

## Classifications

|                       |          |
|-----------------------|----------|
| <b>ECLASS 5.0</b>     | 27270801 |
| <b>ECLASS 5.1.4</b>   | 27270801 |
| <b>ECLASS 6.0</b>     | 27270801 |
| <b>ECLASS 6.2</b>     | 27270801 |
| <b>ECLASS 7.0</b>     | 27270801 |
| <b>ECLASS 8.0</b>     | 27270801 |
| <b>ECLASS 8.1</b>     | 27270801 |
| <b>ECLASS 9.0</b>     | 27270801 |
| <b>ECLASS 10.0</b>    | 27270801 |
| <b>ECLASS 11.0</b>    | 27270801 |
| <b>ECLASS 12.0</b>    | 27270916 |
| <b>ETIM 5.0</b>       | EC001825 |
| <b>ETIM 6.0</b>       | EC001825 |
| <b>ETIM 7.0</b>       | EC001825 |
| <b>ETIM 8.0</b>       | EC001825 |
| <b>UNSPSC 16.0901</b> | 41111613 |

Dimensional drawing OD2-x250W150xx

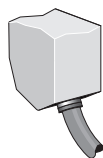


Dimensions in mm (inch)

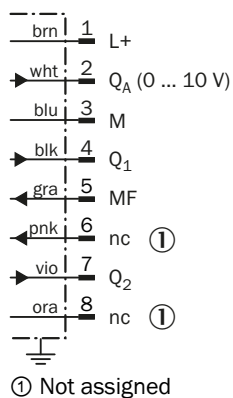
① 2 m cable or M12 connector; 90° rotatable

- ② Mounting hole, Ø 4.5 mm
- ③ optical axis, sender
- ④ optical axis, receiver

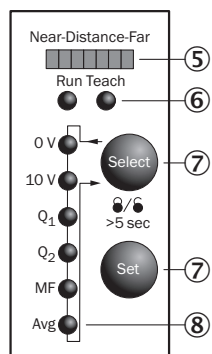
Connection type OD2-xxxxxxA2 OD2-xxxxxxC2 OD2-xxxxxxI2 OD2-xxxxxxU2 cable



### Connection diagram

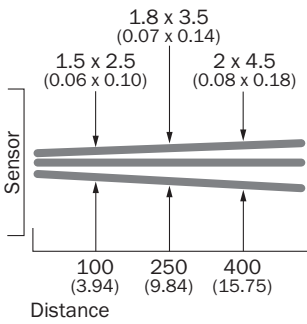


### Adjustment possible OD2-xxxxxxUx



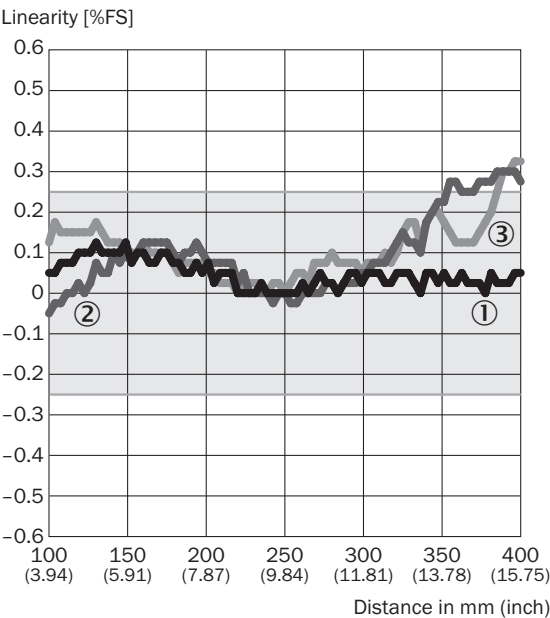
- ⑤ Distance indicator
- ⑥ mode indicator (Run/Teach)
- ⑦ Control elements
- ⑧ status indicator in- and outputs (Run-mode)/menu indicator (Teach-mode)

Light spot size OD2-x250W150xx



All dimensions in mm (inch)

Linearity OD2-x250xxxxx



- ① White ceramic
- ② Black paper
- ③ stainless steel

## Recommended accessories

Other models and accessories → [www.sick.com/OD\\_Value](http://www.sick.com/OD_Value)

|                                                                                   | Brief description                                                                                                                                                                                                                                                                                                                                                                                              | Type           | part no. |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------|
| connectors and cables                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                |                |          |
|  | <ul style="list-style-type: none"><li>• <b>Connection type head A:</b> Female connector, M12, 8-pin, straight</li><li>• <b>Connection type head B:</b> Flying leads</li><li>• <b>Signal type:</b> Sensor/actuator cable</li><li>• <b>Cable:</b> 2 m, 8-wire, PVC</li><li>• <b>Description:</b> Sensor/actuator cable, special color code, shielded</li><li>• <b>Connection systems:</b> Flying leads</li></ul> | DOL-1208-G02MF | 6020663  |
| Mounting systems                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                |                |          |
|  | <ul style="list-style-type: none"><li>• <b>Description:</b> Stainless-steel mounting bracket</li><li>• <b>Material:</b> Stainless steel</li><li>• <b>Details:</b> Stainless steel</li></ul>                                                                                                                                                                                                                    | BEF-WN-OD1000  | 4089813  |

## 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)