



# OD2000-0501T15

## OD2000

DISPLACEMENT MEASUREMENT SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

| Type           | part no. |
|----------------|----------|
| OD2000-0501T15 | 6074381  |

Other models and accessories → [www.sick.com/OD2000](http://www.sick.com/OD2000)



### Detailed technical data

#### Features

|                                 |  |
|---------------------------------|--|
| <b>Measuring range</b>          | 40 mm ... 60 mm <sup>1)</sup>  |
| <b>Repeatability</b>            | 0.2 μm <sup>2) 3) 4)</sup>   |
| <b>Linearity</b>                | ± 20 μm <sup>2) 4) 5)</sup>  |
| <b>Response time</b>            | ≥ 0.533 ms <sup>6)</sup>   |
| <b>Measuring frequency</b>      | ≤ 7.5 kHz  |
| <b>Output time</b>              | ≥ 0.1333 ms  |
| <b>Emitted beam</b>             |  |
| Light source                    | Laser, red   |
| Typ. light spot size (distance) | Ø 70 μm (50 mm)  |
| <b>Key laser figures</b>        |  |
| Normative reference             | IEC 60825-1:2014, EN 60825-1:2014  |
| Laser class                     | 1 <sup>7)</sup><br>8)  |
| <b>Additional function</b>      | Adjustable average value or median filter<br>Switching mode: Distance to Object (DtO) / switching window / object between sensor and background (ObSB)<br>Teach-in of digital output<br>Invertable digital output<br>Teach-in of analog output<br>Invertable analog output |

<sup>1)</sup> 6 % ... 90 % remission; at default settings.

<sup>2)</sup> Measurement on 60 % remission (ceramic, white).

<sup>3)</sup> Average value setting: 512, median: 31, measuring frequency: 5 kHz, in the middle of the measuring range, for static measurement.

<sup>4)</sup> Observe min. warm-up time of 30 minutes.

<sup>5)</sup> At T = +25 °C, under constant general conditions.

<sup>6)</sup> Dependent on the set average or sensitivity.

<sup>7)</sup> Visible, wavelength: 655 nm, max. average power: 0.39 mW, max. pulse power: 0.39 mW, max. pulse duration: 5 ms.

<sup>8)</sup> Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

|                                  |   |
|----------------------------------|---|
|                                  | Switchable analog output (mA / V)<br>Multifunctional input: sender off/hold functions/deactivated<br>Switch-off display<br>Lock user interface<br>Display can be rotated by 180°<br>Alarm function<br>Edge height jump<br>Time functions (ON/OFF delay, 1 shot)<br>region of interest |
| <b>Safety-related parameters</b> |   |
|                                  | MTTF <sub>D</sub> 107 years   |
|                                  | DC <sub>avg</sub> 0%  |

- 1) 6 % ... 90 % remission; at default settings.
- 2) Measurement on 60 % remission (ceramic, white).
- 3) Average value setting: 512, median: 31, measuring frequency: 5 kHz, in the middle of the measuring range, for static measurement.
- 4) Observe min. warm-up time of 30 minutes.
- 5) At T = +25 °C, under constant general conditions.
- 6) Dependent on the set average or sensitivity.
- 7) Visible, wavelength: 655 nm, max. average power: 0.39 mW, max. pulse power: 0.39 mW, max. pulse duration: 5 ms.
- 8) Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

## Interfaces

|                        |  |
|------------------------|--|
| <b>IO-Link</b>         | ✓ , IO-Link V1.1   |
| Function               | Process data, parameterization, diagnosis, data storage                                  |
| Data transmission rate | 230,4 kbit/s (COM3), Process data length 6 bytes, min. cycle time 0.7 ms                 |
| <b>Digital input</b>   | In <sub>1</sub><br>Can be used as sender off, trigger for hold functions, or deactivated |
| <b>Digital output</b>  |  |
| Number                 | 2 <sup>1)</sup>  |
| Type                   | PNP/NPN, selectable  |
| <b>Analog output</b>   |  |
| Number                 | 1  |
| Type                   | Current output / voltage output  |
| Function               | Selectable   |
| Current                | 4 mA ... 20 mA, ≤ 300 Ω  |
| Voltage                | 0 V ... 10 V, > 10,000 Ω   |
| Resolution             | 16 bit   |

- <sup>1)</sup> PNP/PP: HIGH = UV > 13.5 V/LOW = UV < 8 V; NPN: HIGH = UV < 8 V/LOW = UV > 13.5 V.

## Electronics

|                                     |  |
|-------------------------------------|--|
| <b>Supply voltage U<sub>B</sub></b> | DC 18 V ... 24 V, ± 10%, including residual ripple <sup>1)</sup> |
| <b>Power consumption</b>            | 1.5 W, At 24 V DC <sup>2)</sup>                                  |
| <b>Warm-up time</b>                 | < 30 min   |
| <b>Display</b>                      | OLED display, status LEDs  |
| <b>Enclosure rating</b>             | IP67   |
| <b>Protection class</b>             | III (EN 50178)   |

- <sup>1)</sup> Limit values, reverse-polarity protected.  
<sup>2)</sup> Without load, at +20 °C.

|                          |   |
|--------------------------|---|
| <b>Electrical safety</b> | IEC 61010-1 AMD 1:2016-12                             |
| <b>Connection type</b>   | Cable with male connector, M12, 5-pin, A-coded, 30 cm |

<sup>1)</sup> Limit values, reverse-polarity protected.

<sup>2)</sup> Without load, at +20 °C.

### Mechanics

|                               |                       |
|-------------------------------|-----------------------|
| <b>Dimensions (W x H x D)</b> | 27 mm x 60 mm x 50 mm |
| <b>Control elements</b>       | 4 buttons             |
| <b>Housing material</b>       | Plastic (PBT)         |
| <b>Window material</b>        | Plastic (PMMA)        |
| <b>Weight</b>                 | 90 g                  |

### Ambient data

|   |   |
|---|---|
| <b>Ambient temperature, operation</b>         | -10 °C ... +50 °C, Operating temperature at V <sub>S</sub> = 24 V   |
| <b>Ambient temperature, storage</b>           | -20 °C ... +60 °C   |
| <b>Relative air humidity (non-condensing)</b> | 35 % ... 85 %   |
| <b>Temperature drift</b>                      | 12 µm/K   |
| <b>Typ. Ambient light immunity</b>            | Artificial light: ≤ 3,000 lx <sup>1)</sup><br>Sunlight: ≤ 10,000 lx |
| <b>Vibration resistance</b>                   | EN 60068-2-6, EN 60068-2-64   |
| <b>Shock resistance</b>                       | EN 60068-2-27   |

<sup>1)</sup> With constant object movement in the measuring range.

### Certificates

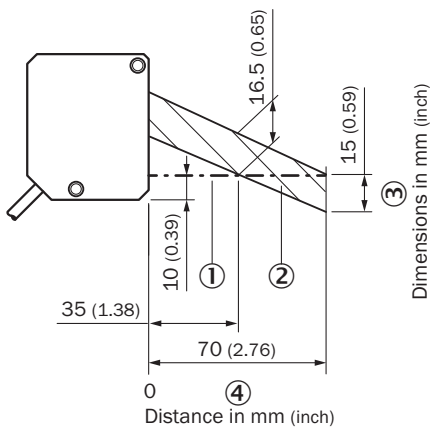
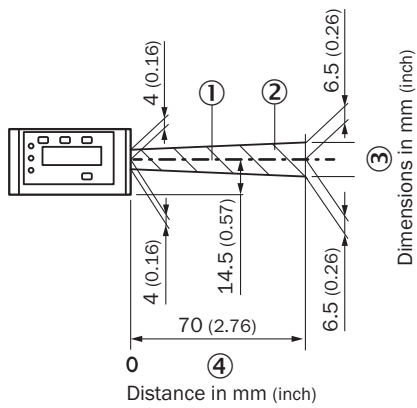
|  |   |
|--|---|
| <b>EU declaration of conformity</b>  | ✓ |
| <b>UK declaration of conformity</b>  | ✓ |
| <b>ACMA declaration of conformity</b>  | ✓ |
| <b>Moroccan declaration of conformity</b>                                    | ✓ |
| <b>China RoHS</b>  | ✓ |
| <b>Information according to Art. 3 of Data Act (Regulation EU 2023/2854)</b> | ✓ |

### 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 |

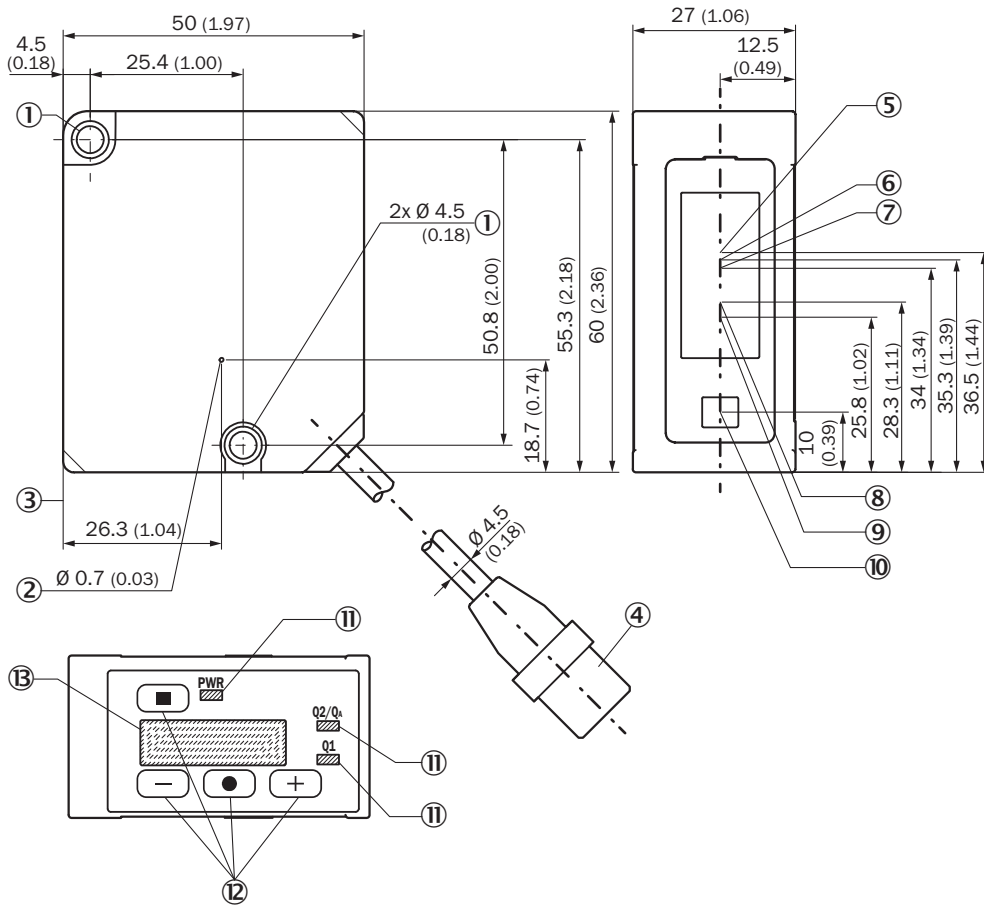
|                       |          |
|-----------------------|----------|
| <b>ETIM 5.0</b>       | EC001825 |
| <b>ETIM 6.0</b>       | EC001825 |
| <b>ETIM 7.0</b>       | EC001825 |
| <b>ETIM 8.0</b>       | EC001825 |
| <b>UNSPSC 16.0901</b> | 41111613 |

Interference diagram



- Dimensions in mm (inch)
- ① Optical axis sender and receiver
  - ② Interference range
  - ③ dimensions in mm (inch)
  - ④ Distance in mm

Dimensional drawing

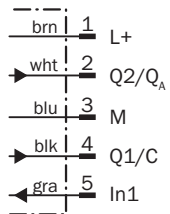


Dimensions in mm (inch)

structure and device dimensions, unit: mm (inch), decimal separator: period

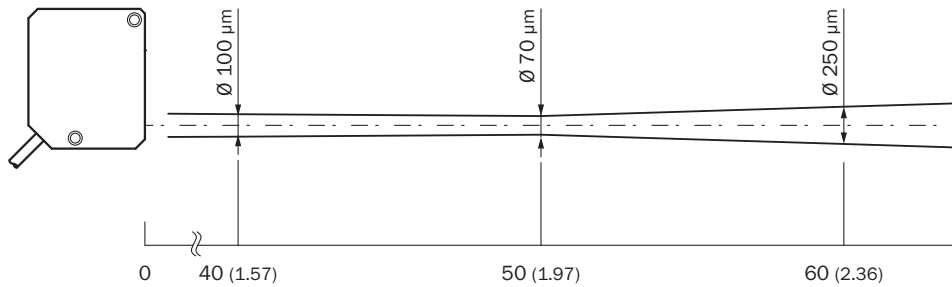
- ① M4 fixing holes
- ② Ventilation opening (do not cover)
- ③ Device zero point (distance = 0 mm)
- ④ Device cable (length: 300 mm) with male connector, M12, 5-pin, A-coded
- ⑤ Center of optical axis, receiver (device type OD2000-350, OD2000-700)
- ⑥ Center of optical axis, receiver (device type OD2000-245)
- ⑦ Center of optical axis, receiver (device type OD2000-130)
- ⑧ Center of optical axis, receiver (device type OD2000-050)
- ⑨ Center of optical axis, receiver (device type OD2000-030)
- ⑩ Center of optical axis, sender
- ⑪ status LEDs
- ⑫ Control elements
- ⑬ Display

### Connection diagram



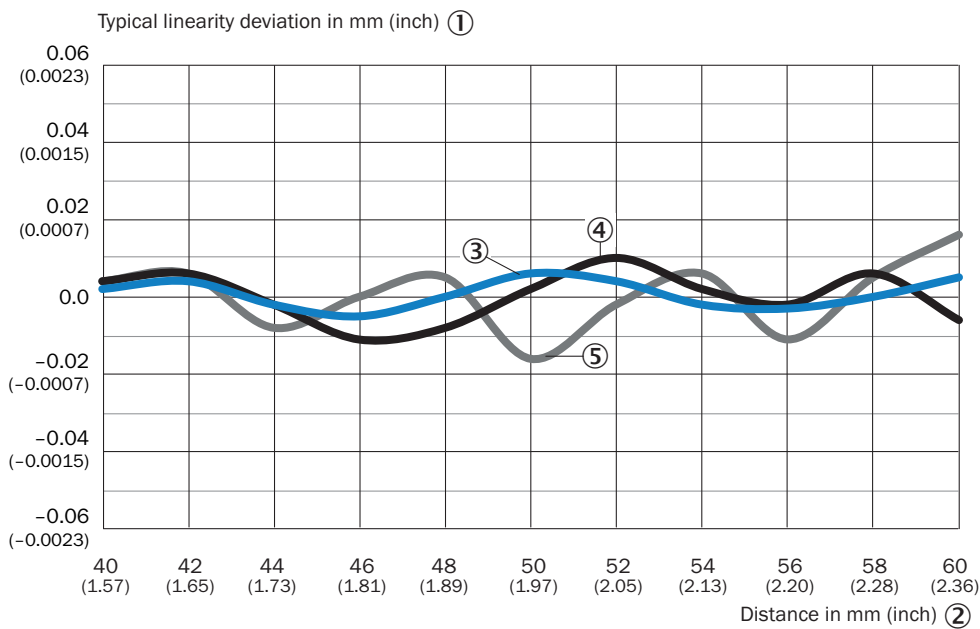
- ① Brown
- ② White
- ③ blue
- ④ Black
- ⑤ Gray

### Light spot size Typical light spot size OD2000-050xxxx



Unit: mm (inch), decimal separator: period

### Linearity








- ① Typical linearity deviation in mm (inch)
- ② Distance in mm (inch)
- ③ White 60% remission factor

- ④ Black 9.5% remission factor
- ⑤ stainless steel

### Recommended accessories

Other models and accessories → [www.sick.com/OD2000](http://www.sick.com/OD2000)

|   | Brief description   | Type                              | part no. |
|---|---|-----------------------------------|----------|
| integration modules and adapters  |   |                                   |          |
|    |   | IOLA2US-01101<br>(SiLink2 Master) | 1061790  |
| connectors and cables   |   |                                   |          |
|    | <ul style="list-style-type: none"> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Connection type head A:</b> Female connector, M12, 5-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> 2 m, 5-wire, PVC</li> <li>• <b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>   | YF2A15-020VB5XLEAX                | 2096239  |
|    | <ul style="list-style-type: none"> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Connection type head A:</b> Female connector, M12, 5-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> 0.6 m, 5-wire, PVC</li> <li>• <b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul> | YF2A15-<br>C60VB5XLEAX            | 2145570  |
|  | <ul style="list-style-type: none"> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Connection type head A:</b> Female connector, M12, 5-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> 3 m, 5-wire, PVC</li> <li>• <b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>   | YF2A15-030VB5XLEAX                | 2145572  |
| 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-OD2000                     | 4112929  |

## 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)