

# OD1000-6001R15

## OD1000

DISPLACEMENT MEASUREMENT SENSORS

**SICK**  
 Sensor Intelligence.



### Ordering information

Type	Part no.
OD1000-6001R15	1075638

Other models and accessories → [www.sick.com/OD1000](http://www.sick.com/OD1000)



### Detailed technical data

#### Mechanics/electronics

<b>Supply voltage <math>V_s</math></b>	DC 18 V ... 30 V <sup>1)</sup>
<b>Ripple</b>	$\leq 5 V_{pp}$ <sup>2)</sup>
<b>Power consumption</b>	$\leq 2.5 W$ <sup>3)</sup>
<b>Warm-up time</b>	< 10 min
<b>Housing material</b>	Metal (zinc diecast)
<b>Window material</b>	Plastic (PMMA)
<b>Connection type</b>	Cable with male connector, M12, 5-pin, A-coded, 30 cm
<b>Indication</b>	OLED display, status LEDs
<b>Control elements</b>	4 buttons
<b>Weight</b>	280 g
<b>Dimensions (W x H x D)</b>	25.9 mm x 71.5 mm x 53.2 mm
<b>Enclosure rating</b>	IP65 IP67
<b>Protection class</b>	III (EN 50178)

<sup>1)</sup> Limit values, reverse-polarity protected, operation in short-circuit protected network: max. 8 A.

<sup>2)</sup> May not fall short of or exceed  $V_s$  tolerances.

<sup>3)</sup> Without load, at +20 °C.

#### Safety-related parameters

<b>MTTF<sub>D</sub></b>	100 years
<b>DC<sub>avg</sub></b>	0%

## Performance

<b>Measurement range min ... max:</b>	200 mm ... 1,000 mm <sup>1)</sup>
<b>Target</b>	Natural objects
<b>Repeatability</b>	0.4 mm <sup>2) 3)</sup>
<b>Linearity</b>	± 1.5 mm <sup>2) 4)</sup>
<b>Response time</b>	≥ 1.5 ms <sup>5)</sup>
<b>Measuring frequency</b>	≤ 3 kHz
<b>Output time</b>	≥ 0.33 ms
<b>Light source</b>	Laser, red visible red light
<b>Laser class</b>	1 (IEC 60825-1:2014, EN 60825-1:2014) <sup>6)</sup>
<b>Typ. light spot size (distance)</b>	1.5 mm x 1.5 mm (200 mm ... 1,000 mm)
<b>Additional function</b>	Adjustable average value or media filter, Switching mode: Distance to Object (DtO) / switching window / object between sensor and background (ObSB), teach-in of digital output, invertable digital output, teach-in of analog output, Invertable analog output, Switchable analog output (mA / V), Multifunctional input: laser off / external teach-in / deactivated, switch-off display, lock user interface, Display can be rotated by 180°, Alarm function, Edge height jump, Time functions (ON/OFF delay, 1 shot)

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

<sup>2)</sup> With 90% remission (white), with constant ambient conditions.

<sup>3)</sup> Statistical error 3 σ.

<sup>4)</sup> Observe min. warm-up time of 10 minutes.

<sup>5)</sup> With measuring frequency of 3 kHz, target change white 90%/white 90%.

<sup>6)</sup> Wavelength 655 nm, max. pulse output 0.78 mW, max. average power 0.39 mW, max. pulse duration 1.8 ms.

## Interfaces

<b>IO-Link</b>	✓, IO-Link V1.1, IO-Link V1.0
Function	Process data, parameterization, diagnosis, data storage
Data transmission rate	230,4 kbit/s (COM3) / 38,4 kbit/s (COM2)
<b>Digital input</b>	In <sub>1</sub> Can be used as laser off, external teach-in, or deactivated
<b>Digital output</b>	Number 2 <sup>1)</sup> Type Push-pull: PNP/NPN
<b>Analog output</b>	Number 1 Type Current output / voltage output Current 4 mA ... 20 mA, ≤ 600 Ω Voltage 0 V ... 10 V, > 20,000 Ω Resolution 16 bit

<sup>1)</sup> PNP: HIGH = U<sub>V</sub> - (< 3 V) / LOW = < 3 V; NPN: HIGH = < 3 V / LOW = U<sub>V</sub>.

## 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

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

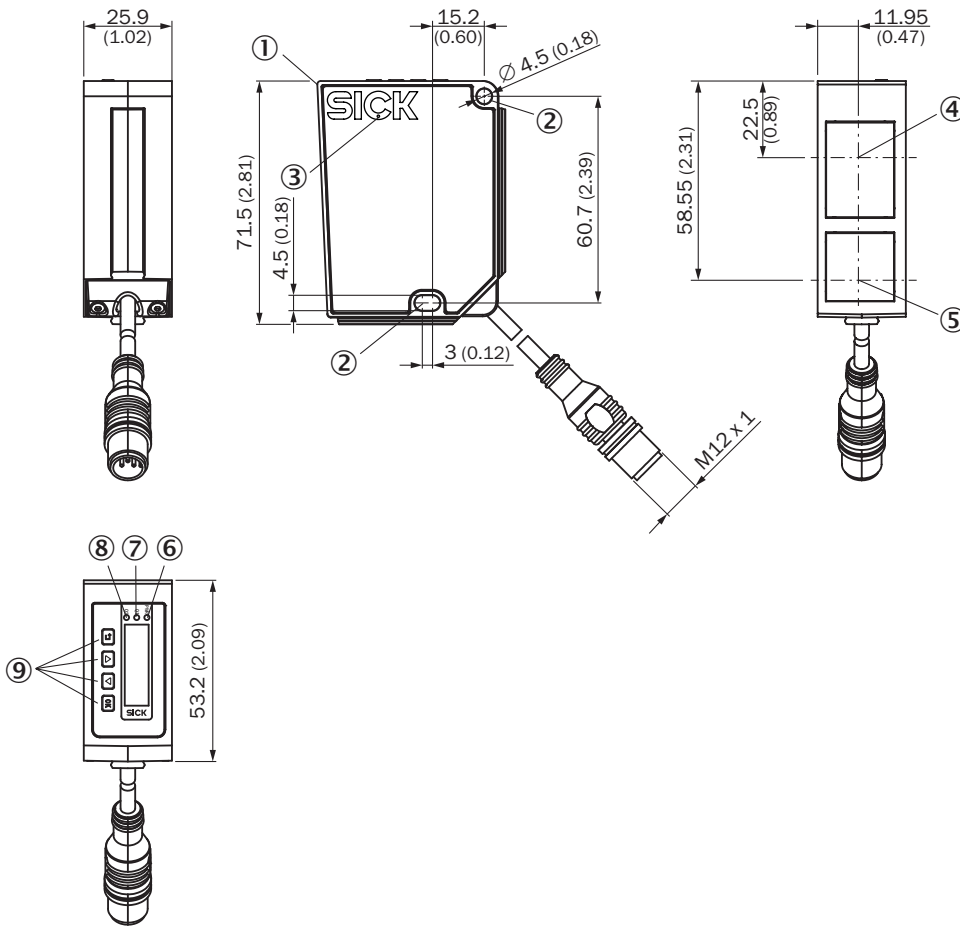
<b>Temperature drift</b>	0.15 mm/K
<b>Typ. Ambient light immunity</b>	Artificial light: ≤ 3,000 lx <sup>1)</sup> Sunlight: ≤ 10,000 lx
<b>Vibration resistance</b>	EN 60068-2-6, EN 60068-2-64
<b>Shock resistance</b>	EN 60068-2-27

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

### Classifications

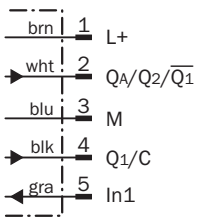
<b>eCl@ss 5.0</b>	27270801
<b>eCl@ss 5.1.4</b>	27270801
<b>eCl@ss 6.0</b>	27270801
<b>eCl@ss 6.2</b>	27270801
<b>eCl@ss 7.0</b>	27270801
<b>eCl@ss 8.0</b>	27270801
<b>eCl@ss 8.1</b>	27270801
<b>eCl@ss 9.0</b>	27270801
<b>eCl@ss 10.0</b>	27270801
<b>eCl@ss 11.0</b>	27270801
<b>eCl@ss 12.0</b>	27270916
<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>	411111613

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



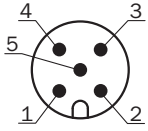
- ① Zero level
- ② Mounting hole M4
- ③ Ventilation opening (do not cover)
- ④ Center of optical axis, receiver
- ⑤ Center of optical axis, sender
- ⑥ PWR LED green
- ⑦ LED Q1, yellow
- ⑧ LED Q2, yellow
- ⑨ Control elements

**Connection diagram**



### PIN assignment

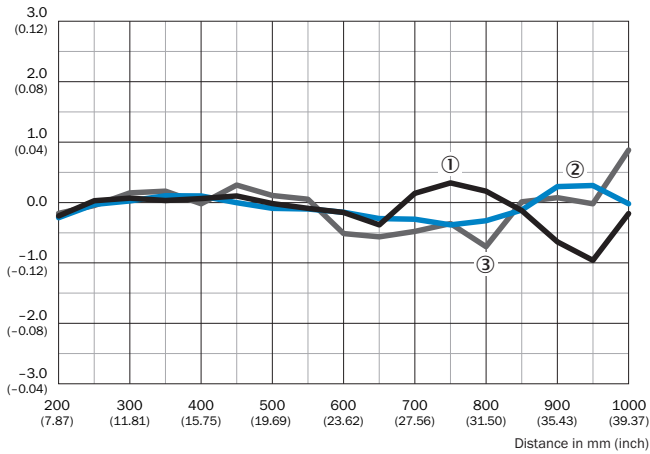
Connector M12, 5-pin, A-coded



- ① L+
- ② QA/Q2/Q̄1
- ③ M
- ④ Q<sub>1</sub>/C
- ⑤ In<sub>1</sub>

### Linearity



Typical linearity deviation in mm (inch)




- ① Black 6 % remission
- ② White 90 % remission
- ③ Stainless steel

### Recommended accessories

Other models and accessories → [www.sick.com/OD1000](http://www.sick.com/OD1000)

	Brief description	Type	Part no.
<b>Connection modules</b>			
	IO-Link V1.1 Class A port, USB2.0 port, optional external power supply 24V / 1A	IOLA2US-01101 (SiLink2 Master)	1061790
<b>Mounting brackets and plates</b>			
	Stainless-steel mounting bracket, stainless steel	BEF-WN-OD1000	4089813

	Brief description	Type	Part no.
Plug connectors and cables			
	Head A: female connector, M12, 5-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 2 m	YF2A15-020VB5XLEAX	2096239

## Recommended services

Additional services → [www.sick.com/OD1000](http://www.sick.com/OD1000)

	Type	Part no.
Commissioning		
<ul style="list-style-type: none"> <li>• <b>Product area:</b> Displacement measurement sensors</li> <li>• <b>Range of services:</b> Inspection of connection and mounting, optimization of parameters of SICK product as well as tests, set-up of previously defined functions of the scaling of the analog measuring range, switching point position, hysteresis, measuring frequency, measured value filter, signal quality, evaluation function, or communication interface</li> <li>• <b>Travel expenses:</b> The prices do not include travel costs such as hotel, flight, travel time and expenses.</li> <li>• <b>Duration:</b> Additional work will be invoiced separately</li> </ul>	DT20 Hi/OD/OL commissioning	1612241
Extended warranty		
<ul style="list-style-type: none"> <li>• <b>Product area:</b> Identification solutions, machine vision, Distance sensors, Detection and ranging solutions</li> <li>• <b>Range of services:</b> The services correspond to the scope of the statutory manufacturer warranty (SICK general terms of delivery).</li> <li>• <b>Duration:</b> Five-year warranty from delivery date.</li> </ul>	Extended warranty for a total of five years from delivery date	1680671

## 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)