

# OD5000-C85W20

OD5000

DISPLACEMENT MEASUREMENT SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
OD5000-C85W20	6063624

Other models and accessories → [www.sick.com/OD5000](http://www.sick.com/OD5000)



### Detailed technical data

#### Features

<b>Measuring range</b>	65 mm ... 105 mm <sup>1)</sup>
<b>Target</b>	Natural objects
<b>Repeatability</b>	0.1 μm <sup>2) 3)</sup>
<b>Linearity</b>	Diffuse ± 6 μm <sup>2)</sup> Specular ± 6 μm
<b>Response time</b>	≥ 12.5 μs <sup>4) 5)</sup>
<b>Output time</b>	≥ 0.0125 ms
<b>Light source</b>	Laser, red visible red light
<b>Type of light</b>	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>	70 μm x 2,000 μm
<b>Special task</b>	Thickness measurement of transparent material
<b>Thickness measurement of transparent material</b>	0.5 mm ... 2 mm
<b>Safety-related parameters</b>	
	MTTF <sub>D</sub> 61 years
	DC <sub>avg</sub> 0%

<sup>1)</sup> If there are reflections, the measuring range is reduced to 71.5 ... 91.5 mm.

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

<sup>3)</sup> Set average: 65536, median: 31, response time: 50 μs, constant application parameters.

<sup>4)</sup> At 0.0125 ms, measurement is only possible within a sub-range.

<sup>5)</sup> Dependent on the set average or sensitivity.

<sup>6)</sup> Visible, wavelength: 655 nm, max. power: 0.39 mW.

## Interfaces

<b>Ethernet</b>	✓, TCP/IP, UDP
<b>Digital input</b>	In <sub>1</sub> Can be used as laser off, external teach-in, or deactivated
<b>Digital output</b>	Number 1 ... 3 <sup>1)</sup> Type PNP/NPN, selectable
<b>Analog output</b>	Number 1 Type Current output Function Optional over evaluation unit AOD1 Current 4 mA ... 20 mA, ≤ 300 Ω

<sup>1)</sup> Optional over evaluation unit AOD1.

## Electronics

<b>Supply voltage U<sub>B</sub></b>	DC 12 V ... 24 V, ± 10%, including residual ripple
<b>Power consumption</b>	180 mA, at 24 V
<b>Warm-up time</b>	< 10 min
<b>Indication</b>	Status LEDs
<b>Enclosure rating</b>	IP67
<b>Protection class</b>	III (EN 50178)

## Mechanics

<b>Dimensions (W x H x D)</b>	25.9 mm x 71.5 mm x 53.2 mm
<b>Housing material</b>	Metal (Aluminum die cast)
<b>Window material</b>	Plastic (PMMA)
<b>Weight</b>	280 g
<b>Connection type</b>	Cable with male connector, M12, 8-pin, A-coded, 50 cm

## 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>	± 0.01 % FS/K at -10 °C ... +40 °C (FS = Full Scale = sensor measuring range) ± 0.03 % FS/K at +40 °C ... +50 °C (FS = Full Scale = sensor measuring range)
<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>ECLASS 5.0</b>	27270801
<b>ECLASS 5.1.4</b>	27270801
<b>ECLASS 6.0</b>	27270801

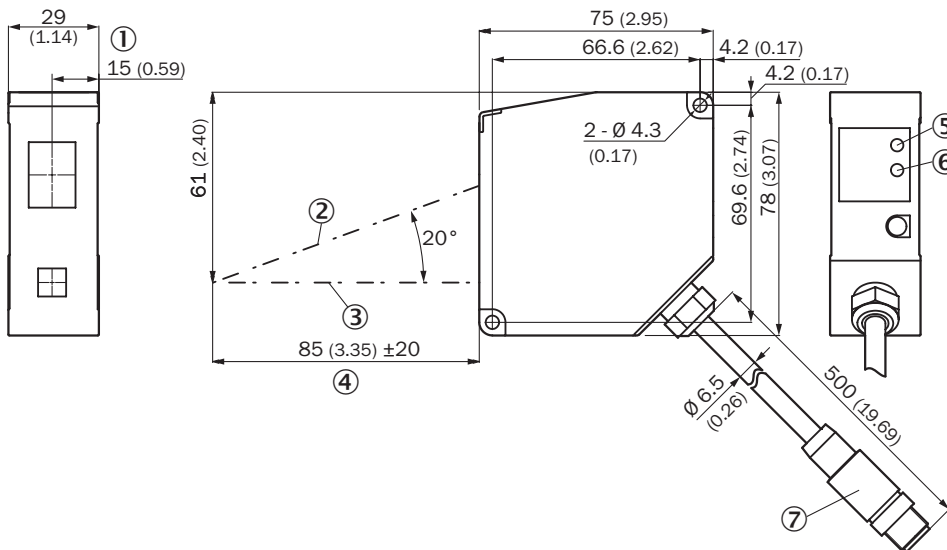
# OD5000-C85W20 | OD5000

## DISPLACEMENT MEASUREMENT SENSORS

<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

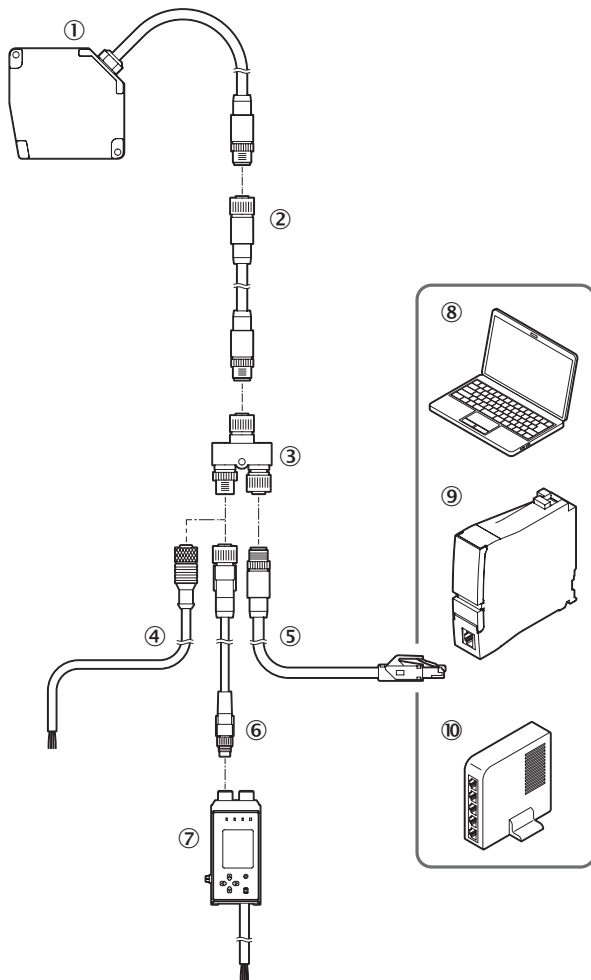
### Dimensional drawing (Dimensions in mm (inch))

OD5000-C85x20



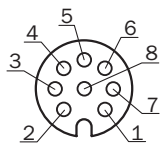
- ① Reference edge
- ② Optical axis, receiver
- ③ Optical axis, sender
- ④ Measuring range
- ⑤ Link LED
- ⑥ Status LED
- ⑦ Male connector M12, 8-pin

### Connection diagram



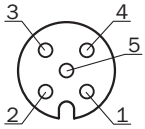
- ① OD5000
- ② Sensor head extension cable
- ③ Y-distribution (included with delivery)
- ④ Cable with open ends
- ⑤ Ethernet Connection cable
- ⑥ AOD1 connection cable, M12, 4-pin to M8, 4-pin
- ⑦ AOD1
- ⑧ PC
- ⑨ PLC
- ⑩ switch

### PIN assignment



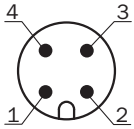
Female connector M12, 8-pin, A-coded

- ① Input (MF) / RS485+
- ② 0 V
- ③ 24 V
- ④ TxD-
- ⑤ RxD+
- ⑥ TxD+
- ⑦ Input (MF) / RS485-
- ⑧ RxD-



Female connector M12, 5-pin, D-coded

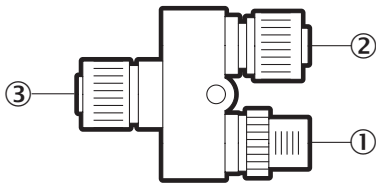
- ① TxD+
- ② RxD+
- ③ TxD-
- ④ RxD-
- ⑤ nc



Connector M12, 4-pin, A-coded

- ① 24 V
- ② Input (MF) / RS485+
- ③ 0 V
- ④ Input (MF) / RS485-

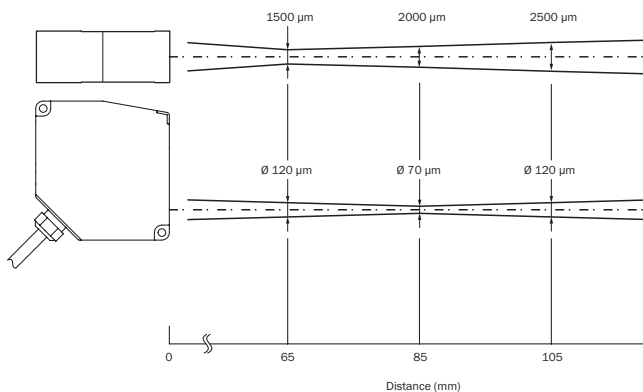
Y-junctions



Y-distribution connections

- ① M12, 4-pin, A-coded
- ② M12, 5-pin, D-coded
- ③ M12, 8-pin, A-coded

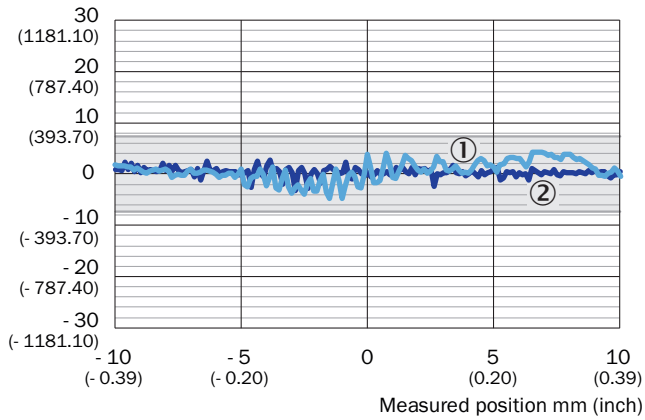
### Light spot size



## Linearity

OD5000-C85W20 (reflective)

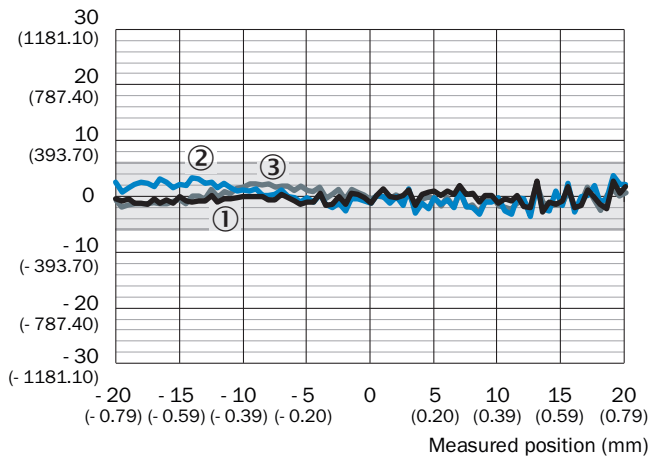
Linearity  $\mu\text{m}$  ( $\mu\text{in}$ )



- ① Mirror
- ② Glass

OD5000-C85W20 (diffuse)




Linearity ( $\mu\text{m}$ )



- ① White, 60% remission
- ② Black, 9.5% remission
- ③ Stainless steel

Recommended accessories

Other models and accessories → [www.sick.com/OD5000](http://www.sick.com/OD5000)

	Brief description	Type	Part no.
Evaluation units			
	OD Mini evaluation unit, master, 1 x Q, M8 male connector, 4-pin	AOD1-MR24Q1	6054270
	OD Mini evaluation unit, master, 2 x Q, M12 male connector, 5-pin	AOD1-MR25Q2	6054272
	OD Mini evaluation unit, OD5000 and OL1, master, 3 x Q, 1 x analog, open end cable, 2 m	AOD1-MR27C4	6058195
	OD Mini evaluation unit, slave, 1 x Q, M8 male connector, 4-pin	AOD1-SR24Q1	6054271
	OD Mini evaluation unit, slave, 2 x Q, M12 male connector, 5-pin	AOD1-SR25Q2	6054273
	OD Mini evaluation unit, OD5000 and OL1, slave, 3 x Q, 1 x analog, open end cable, 2 m	AOD1-SR27C4	6058196
	<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> Male connector, M12, 8-pin, straight</li> <li>• <b>Cable:</b> 2 m, PUR</li> </ul>	DSC-1208-G02MA	6064004
	<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> 2 m, 4-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Zones with oils and lubricants, Drag chain operation, Robot</li> </ul>	YF2A14-020UB3XLEAX	2095607
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 4-pin, straight, D-coded</li> <li>• <b>Connection type head B:</b> Male connector, RJ45, 4-pin, straight</li> <li>• <b>Signal type:</b> Ethernet, PROFINET</li> <li>• <b>Cable:</b> 2 m, 4-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Ethernet, PROFINET, shielded</li> <li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants</li> </ul>	YM2D24-020PN1MRJA4	2106182

Recommended services

Additional services → [www.sick.com/OD5000](http://www.sick.com/OD5000)

	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



## 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)