

# OD5000-C85W20

OD5000

DISPLACEMENT 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>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>	≥ 0.0125 ms <sup>4) 5)</sup>
<b>Measuring frequency</b>	≤ 80 kHz <sup>6)</sup>
<b>Output time</b>	≥ 0.0125 ms
<b>Emitted beam</b>	
Light source	Laser, red
Typ. light spot size (distance)	70 µm x 2,000 µm
<b>Key laser figures</b>	
Normative reference	IEC 60825-1:2014, EN 60825-1:2014
Laser class	1 <sup>7)</sup>
<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> At 80 kHz, measurement is only possible in a sub-area.

<sup>7)</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>Display</b>	Status LEDs
<b>Enclosure rating</b>	IP67
<b>Protection class</b>	III (EN 50178)
<b>Connection type</b>	
	Cable with male connector, 50 cm

## 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

## 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

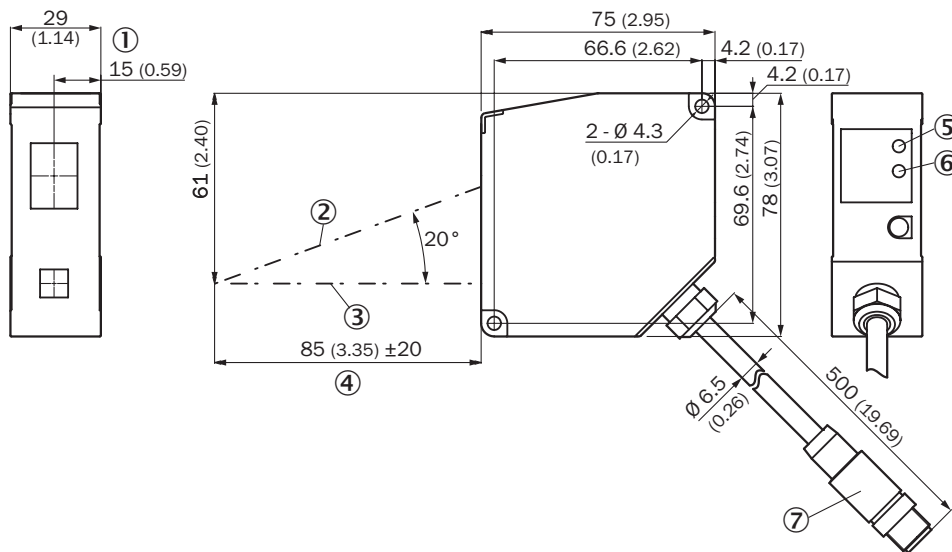
<sup>1)</sup> With constant object movement in the measuring range.

## Classifications

<b>ECLASS 5.0</b>	27270801
<b>ECLASS 5.1.4</b>	27270801

<b>ECLASS 6.0</b>	27270801
<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

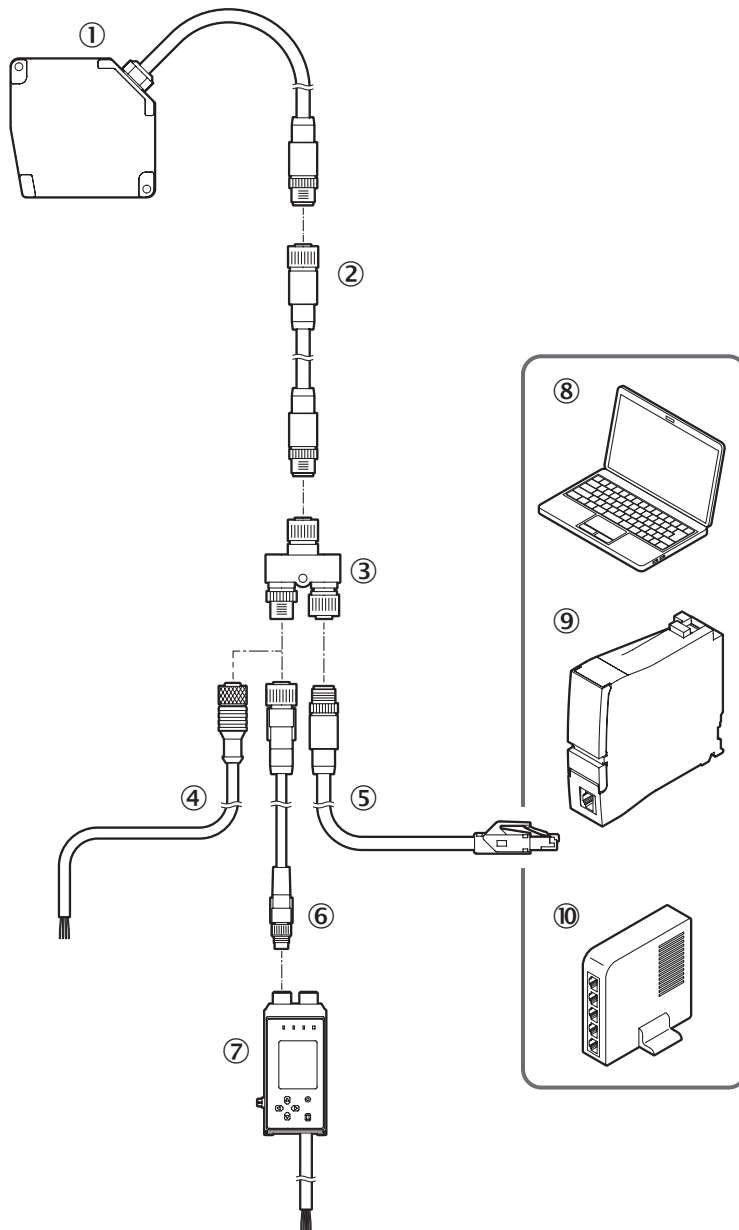
### Dimensional drawing OD5000-C85x20



Dimensions in mm (inch)

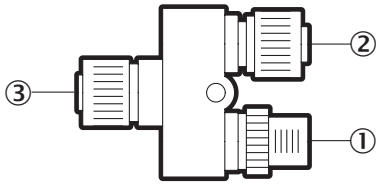
- ① reference edge
- ② optical axis, receiver
- ③ optical axis, sender
- ④ measuring range
- ⑤ Link LED
- ⑥ status LED
- ⑦ male connector M12, 8-pin

## 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

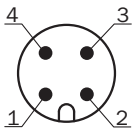
### PIN assignment Y-junctions



Y-distribution connections

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

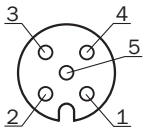
### PIN assignment



Connector M12, 4-pin, A-coded

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

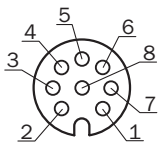
### PIN assignment



female connector M12, 5-pin, D-coded

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

### PIN assignment

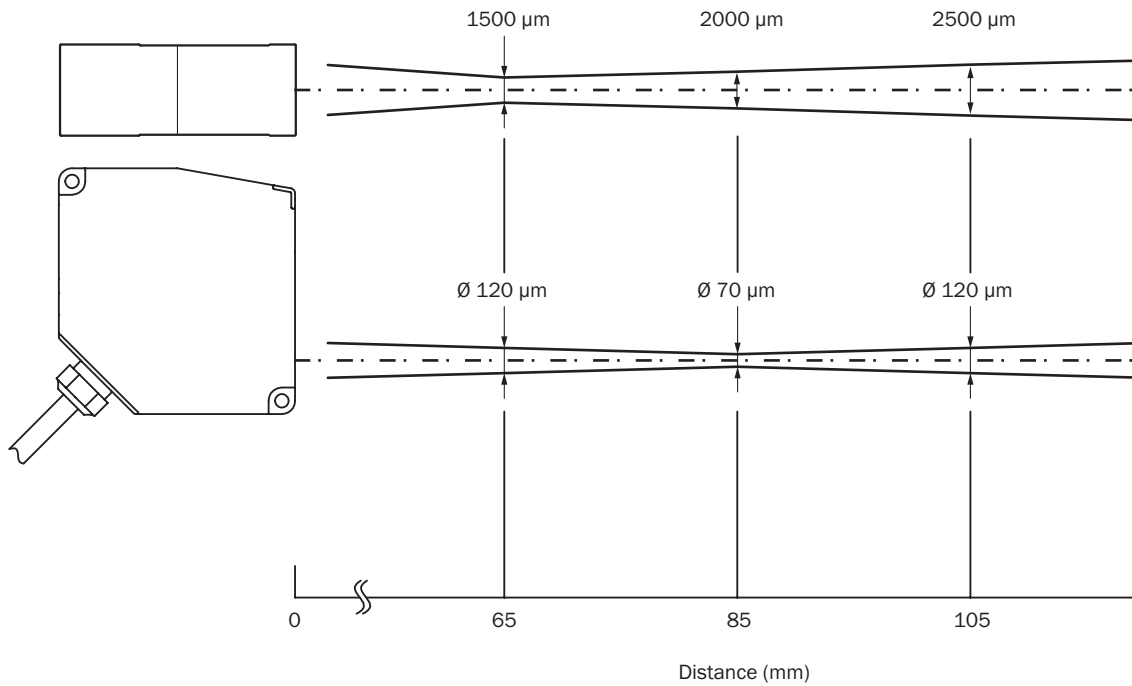


female connector M12, 8-pin, A-coded

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

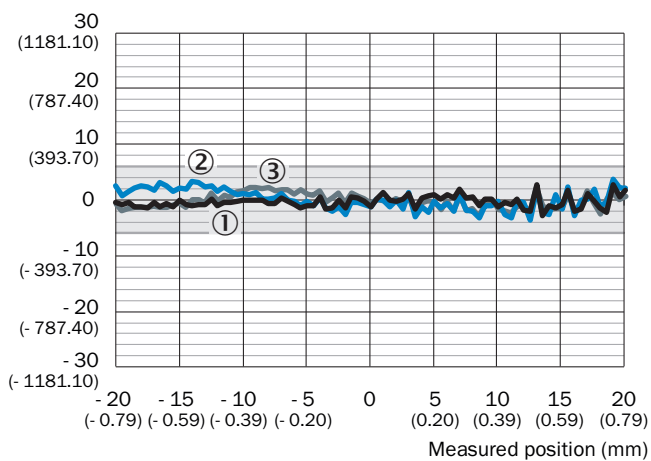
- ⑥ TxD+
- ⑦ Input (MF) / RS485-
- ⑧ RxD-

## Light spot size



## Linearity OD5000-C85W20 (diffuse)

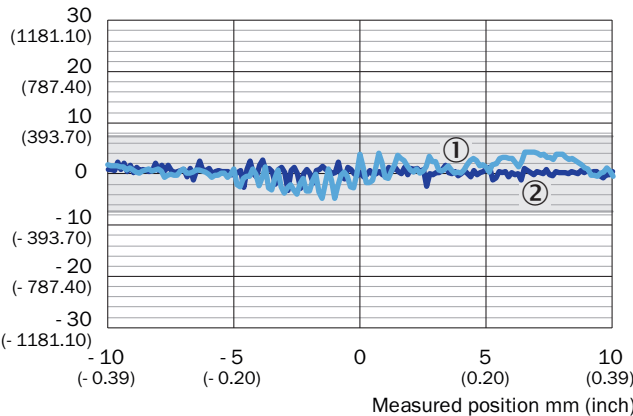
Linearity (µm)



- ① white 60% remission factor
- ② black 9.5% remission factor
- ③ stainless steel

Linearity OD5000-C85W20 (reflective)






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



- ① Mirror  
② Glass

Recommended accessories

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

	Brief description	Type	part no.
connectors and cables			
	<p>Strich</p> <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> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li></ul>	YF2A14-020UB3XLEAX	On request 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, shielded, PROFINET</li><li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants</li></ul>	YM2D24-020P-N1MRJA4	2106182
	<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> 0.6 m, 4-wire, PUR, halogen-free</li><li>• <b>Description:</b> Sensor/actuator cable, unshielded</li><li>• <b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li></ul>	YF2A14-C60UB3XLEAX	2145654
	<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> 1 m, 4-wire, PUR, halogen-free</li><li>• <b>Description:</b> Sensor/actuator cable, unshielded</li><li>• <b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li></ul>	YF2A14-010UB3XLEAX	2145655
	<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> 3 m, 4-wire, PUR, halogen-free</li><li>• <b>Description:</b> Sensor/actuator cable, unshielded</li><li>• <b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li></ul>	YF2A14-030UB3XLEAX	2145656



	Brief description	Type	part no.
integration modules and adapters			
	Strich		On request
	Strich		On request
	Strich		On request
	Strich		On request
	Strich		On request
	Strich		On request

## 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)