



OD5000-C15W01

OD5000

DISPLACEMENT MEASUREMENT SENSORS

SICK
Sensor Intelligence.



Ordering information

| Type | Part no. |
|---------------|----------|
| OD5000-C15W01 | 6063620 |

Other models and accessories → www.sick.com/OD5000



Detailed technical data

Mechanics/electronics

| | |
|--|--|
| Supply voltage V_s | DC 12 V ... 24 V, $\pm 10\%$, including residual ripple |
| Power consumption | 180 mA, at 24 V |
| Warm-up time | < 10 min |
| Housing material | Metal (Aluminum die cast) |
| Window material | Plastic (PMMA) |
| Connection type | Cable with male connector, M12, 8-pin, A-coded, 50 cm |
| Indication | Status LEDs |
| Weight | 280 g |
| Dimensions (W x H x D) | 25.9 mm x 71.5 mm x 53.2 mm |
| Enclosure rating | IP67 |
| Protection class | III (EN 50178) |

Safety-related parameters

| | |
|-------------------------|------------|
| MTTF_D | 60.9 years |
| DC_{avg} | 0% |

Performance

| | |
|---------------------------------------|--|
| Measurement range min ... max: | 14 mm ... 16 mm |
| Target | Natural objects |
| Repeatability | 0.01 μm ^{1) 2)} |
| Linearity | Specular $\pm 1 \mu\text{m}$, Near side |

¹⁾ Measurement on 60 % remission (ceramic, white).

²⁾ Set average: 65536, median: 31, response time: 50 μs , constant application parameters.

³⁾ At 0.0125 ms, measurement is only possible within a sub-range.

⁴⁾ Dependent on the set average or sensitivity.

⁵⁾ At 80 kHz, measurement is only possible in a sub-area.

⁶⁾ Visible, wavelength: 655 nm, max. power: 0.39 mW.

| | |
|--|--|
| | Specular $\pm 1 \mu\text{m}$, Far side Diffuse not supported |
| Response time | $\geq 12.5 \mu\text{s}$ ^{3) 4)} |
| Measuring frequency | $\leq 80 \text{ kHz}$ ⁵⁾ |
| Output time | $\geq 0.0125 \text{ ms}$ |
| Light source | Laser, red visible red light |
| Laser class | 1 (IEC 60825-1:2014, EN 60825-1:2014) ⁶⁾ |
| Typ. light spot size (distance) | 30 μm x 1,000 μm |
| Special task | Thickness measurement of transparent material |
| Thickness measurement of transparent material | 0.06 mm ... 0.18 mm |

¹⁾ Measurement on 60 % remission (ceramic, white).

²⁾ Set average: 65536, median: 31, response time: 50 μs , constant application parameters.

³⁾ At 0.0125 ms, measurement is only possible within a sub-range.

⁴⁾ Dependent on the set average or sensitivity.

⁵⁾ At 80 kHz, measurement is only possible in a sub-area.

⁶⁾ Visible, wavelength: 655 nm, max. power: 0.39 mW.

Interfaces

| | |
|-----------------------|--|
| Ethernet | ✓, TCP/IP, UDP |
| Digital input | In ₁ Can be used as laser off, external teach-in, or deactivated |
| Digital output | |
| Number | 1 ... 3 ¹⁾ |
| Type | PNP/NPN, selectable |
| Analog output | |
| Number | 1 |
| Type | Current output |
| Function | Optional over evaluation unit AOD1 |
| Current | 4 mA ... 20 mA, $\leq 300 \Omega$ |

¹⁾ Optional over evaluation unit AOD1.

Ambient data

| | |
|---|--|
| Ambient temperature, operation | -10 °C ... +50 °C, Operating temperature at $V_S = 24 \text{ V}$ |
| Ambient temperature, storage | -20 °C ... +60 °C |
| Relative air humidity (non-condensing) | 35 % ... 85 % |
| Temperature drift | $\pm 0.01 \%$ FS/K at -10 °C ... +40 °C (FS = Full Scale = sensor measuring range) $\pm 0.03 \%$ FS/K at +40 °C ... +50 °C (FS = Full Scale = sensor measuring range) |
| Typ. Ambient light immunity | Artificial light: $\leq 3,000 \text{ lx}$ ¹⁾ Sunlight: $\leq 10,000 \text{ lx}$ |
| Vibration resistance | EN 60068-2-6, EN 60068-2-64 |
| Shock resistance | EN 60068-2-27 |

¹⁾ With constant object movement in the measuring range.

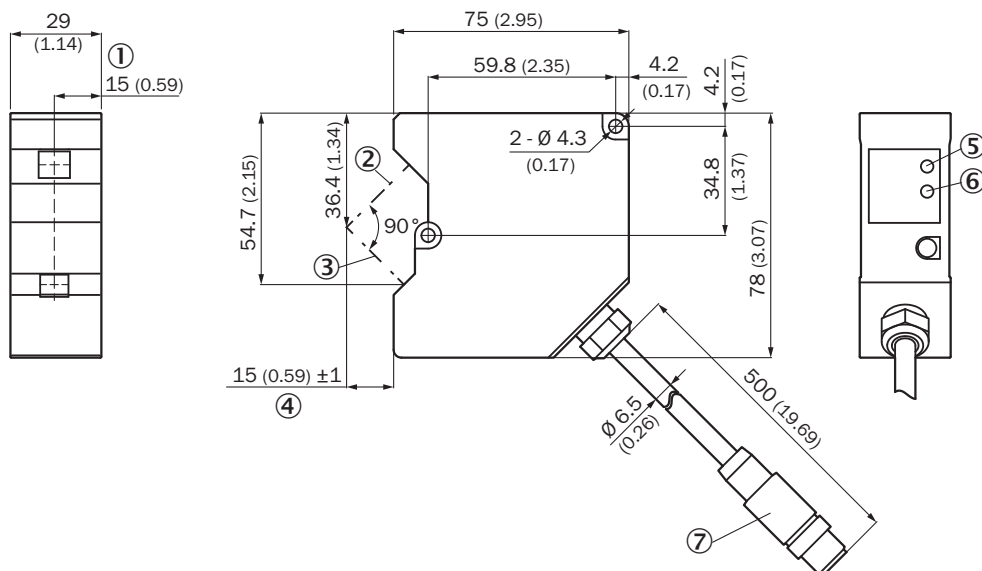
Classifications

| | |
|-------------------|----------|
| eCl@ss 5.0 | 27270801 |
|-------------------|----------|

| | |
|-----------------------|----------|
| eCl@ss 5.1.4 | 27270801 |
| eCl@ss 6.0 | 27270801 |
| eCl@ss 6.2 | 27270801 |
| eCl@ss 7.0 | 27270801 |
| eCl@ss 8.0 | 27270801 |
| eCl@ss 8.1 | 27270801 |
| eCl@ss 9.0 | 27270801 |
| eCl@ss 10.0 | 27270801 |
| eCl@ss 11.0 | 27270801 |
| eCl@ss 12.0 | 27270916 |
| ETIM 5.0 | EC001825 |
| ETIM 6.0 | EC001825 |
| ETIM 7.0 | EC001825 |
| ETIM 8.0 | EC001825 |
| UNSPSC 16.0901 | 41111613 |

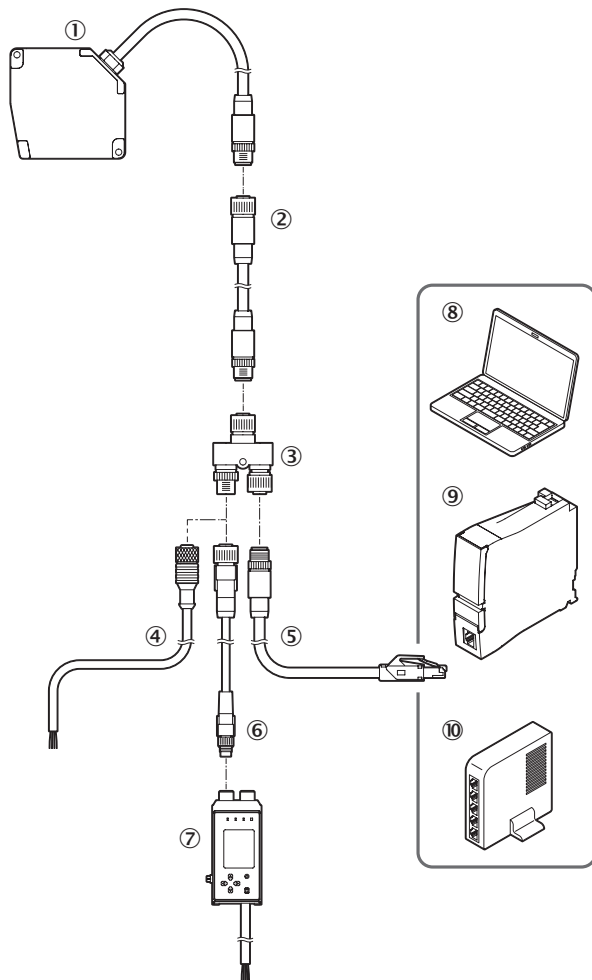
Dimensional drawing (Dimensions in mm (inch))

OD5000-C15x01



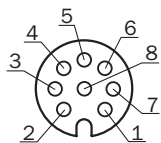
- ① Reference edge
- ② Optical axis, receiver
- ③ Optical axis, sender
- ④ Measuring range
- ⑤ Link LED
- ⑥ Status LED
- ⑦ Male connector M12, 8-pin

Connection diagram



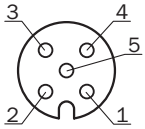
- ① OD5000
- ② Sensor head extension cable
- ③ Y-distribution (included with delivery)
- ④ Cable with open ends
- ⑤ Ethernet Connection cable
- ⑥ AOD1 connection cable, M12, 4-pin to M8, 4-pin
- ⑦ AOD1
- ⑧ PC
- ⑨ PLC
- ⑩ switch

PIN assignment



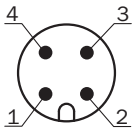
Female connector M12, 8-pin, A-coded

- 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

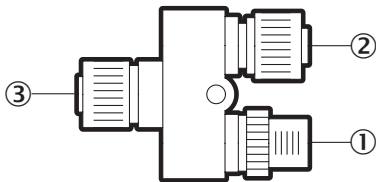
- ① TxD+
- ② RxD+
- ③ TxD-
- ④ RxD-
- ⑤ nc



Connector M12, 4-pin, A-coded

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

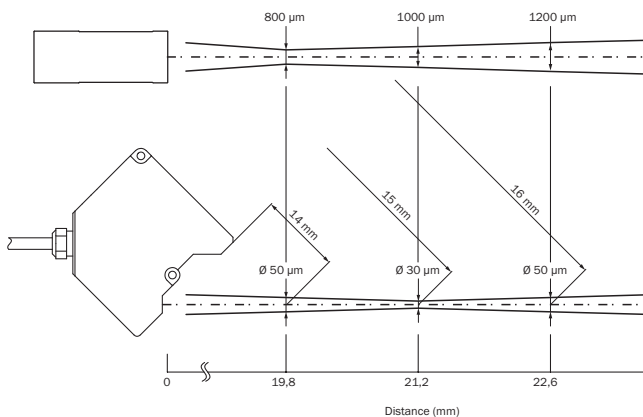
Y-junctions



Y-distribution connections

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

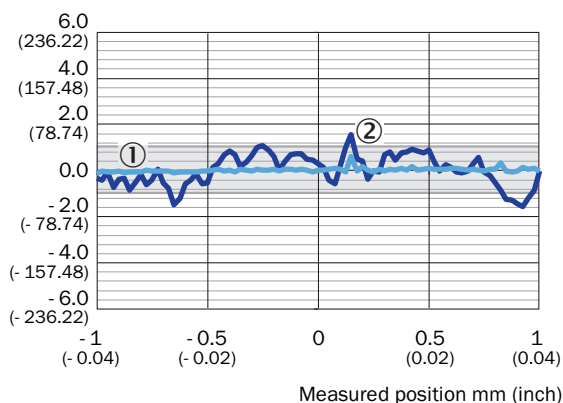
Light spot size



Linearity

OD5000-C15W01 (reflective)

Linearity μm (μin)



- ① Mirror
- ② Glass

Recommended accessories

Other models and accessories → 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 |
| Plug connectors and cables | | | |
| | Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 2 m | YF2A14-020UB3XLEAX | 2095607 |
| | Head A: female connector, M12, 8-pin, straight Head B: male connector, M12, 8-pin, straight Cable: PUR, 2 m | DSC-1208-G02MA | 6064004 |
| | Head A: male connector, M12, 4-pin, straight, D-coded Head B: male connector, RJ45, 4-pin, straight Cable: Ethernet, PROFINET, PUR, halogen-free, shielded, 2 m | YM2D24-020PN1MRJA4 | 2106182 |

Recommended services

Additional services → www.sick.com/OD5000

| | Type | Part no. |
|--|--|----------|
| Commissioning | | |
| <ul style="list-style-type: none"> • Product area: Displacement measurement sensors • Range of services: 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 • Travel expenses: The prices do not include travel costs such as hotel, flight, travel time and expenses. • Duration: Additional work will be invoiced separately | DT20 Hi/OD/OL commissioning | 1612241 |
| Extended warranty | | |
| <ul style="list-style-type: none"> • Product area: Identification solutions, machine vision, Distance sensors, Detection and ranging solutions • Range of services: The services correspond to the scope of the statutory manufacturer warranty (SICK general terms of delivery). • Duration: Five-year warranty from delivery date. | 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