

# OD5-500W200

OD Precision

DISPLACEMENT MEASUREMENT SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

| Type        | Part no. |
|-------------|----------|
| OD5-500W200 | 6035982  |

Other models and accessories → [www.sick.com/OD\\_Precision](http://www.sick.com/OD_Precision)



### Detailed technical data

#### Features

|                    |             |
|--------------------|-------------|
| <b>System part</b> | Sensor head |
|--------------------|-------------|

#### Mechanics/electronics

|  |  |
|--|--|
| <b>Supply voltage <math>V_s</math></b> | DC 12 V ... 24 V <sup>1)</sup>                     |
| <b>Warm-up time</b>                    | ≤ 5 min  |
| <b>Housing material</b>                | Metal (Aluminum)                                   |
| <b>Window material</b>                 | Glass  |
| <b>Connection type</b>                 | 0.5 m cable with connector <sup>2)</sup>           |
| <b>Indication</b>                      | LEDs, 4" color display on optional evaluation unit |
| <b>Weight</b>                          | 250 g <sup>3)</sup>                                |
| <b>Dimensions (W x H x D)</b>          | 29 mm x 78 mm x 75 mm                              |
| <b>Enclosure rating</b>                | IP67   |
| <b>Protection class</b>                | III  |

<sup>1)</sup> DC 12 V (-5 %) ... DC 24 V (+10 %).

<sup>2)</sup> Can be extended to up to 50 m with extension cable.

<sup>3)</sup> Includes 0.5 m cable.

#### Safety-related parameters

|                         |           |
|-------------------------|-----------|
| <b>MTTF<sub>D</sub></b> | 101 years |
| <b>DC<sub>avg</sub></b> | 0%        |

#### Performance

|                                       |                                 |
|---------------------------------------|---------------------------------|
| <b>Measurement range min ... max:</b> | 300 mm ... 700 mm <sup>1)</sup> |
| <b>Target</b>                         | Natural objects                 |
| <b>Repeatability</b>                  | 10 μm <sup>2)</sup>             |
| <b>Linearity</b>                      | ± 400 μm <sup>2)</sup>          |

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

<sup>2)</sup> Measurement at 90% remission (ceramic, white), or mirror for OD5-25x; averaging set to: 256 or 4096 for OD5-25x; constant ambient conditions.

<sup>3)</sup> Time needed for automatic sensitivity adjustment is calculated as: sampling period x 20. At default setting 100 μs (10kHz) this is ≤ 2ms.

<sup>4)</sup> Default setting for OD5-350x100 and OD5-500x200 = 0.8 ms, or 1.25 kHz, all others = 0.1 ms/10 kHz.

<sup>5)</sup> Wavelength: 658 nm, max. output: 1 mW.

|  |  |
|--|--|
| <b>Response time</b>                   | ≥ 0.1 ms <sup>3) 4)</sup>  |
| <b>Measuring frequency</b>             | ≤ 1.25 kHz <sup>1) 4)</sup>  |
| <b>Output time</b>                     | ≥ 0.8 ms   |
| <b>Light source</b>                    | Laser, red<br>visible red light  |
| <b>Laser class</b>                     | 2 (IEC 60825-1:2014, EN 60825-1:2014) <sup>5)</sup>  |
| <b>Typ. light spot size (distance)</b> | 1,000 μm x 3,700 μm (500 mm)   |
| <b>Additional function</b>             | Mean-value setting 1 ... 4,096x, selectable measuring frequency (automatic / 0.1 ms ... 3.2 ms), automatic sensitivity adjustment, manual sensitivity adjustment, Mutual interference, Glass thickness measurement |

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

<sup>2)</sup> Measurement at 90% remission (ceramic, white), or mirror for OD5-25x; averaging set to: 256 or 4096 for OD5-25x; constant ambient conditions.

<sup>3)</sup> Time needed for automatic sensitivity adjustment is calculated as: sampling period x 20. At default setting 100 μs (10kHz) this is ≤ 2ms.

<sup>4)</sup> Default setting for OD5-350x100 and OD5-500x200 = 0.8 ms, or 1.25 kHz, all others = 0.1 ms/10 kHz.

<sup>5)</sup> Wavelength: 658 nm, max. output: 1 mW.

## Interfaces

|                                       |   |
|---------------------------------------|---|
| <b>Serial</b>                         | ✓, RS-422   |
| Remark                                | RS-232 optional via external evaluation unit AOD5 |
| <b>Digital output</b>                 |   |
| Number                                | 5 <sup>1)</sup>                                   |
| Type                                  | PNP / NPN   |
| Maximum output current I <sub>A</sub> | ≤ 100 mA  |
| <b>Analog output</b>                  |   |
| Number                                | 3 <sup>1) 2)</sup>                                |
| Type                                  | Current output / voltage output                   |
| Current                               | 4 mA ... 20 mA, ≤ 300 Ω                           |
| Voltage                               | 0 V ... 10 V <sup>3)</sup>                        |
| <b>Laser-off input</b>                | 1 x laser-off                                     |

<sup>1)</sup> Optional over evaluation unit AOD5.

<sup>2)</sup> A maximum of three current and three voltage outputs are possible via the AOD5 evaluation unit.

<sup>3)</sup> Output resistance 100 Ω, min. load 10 k Ω.

## Ambient data

|   |   |
|---|---|
| <b>Ambient temperature, operation</b>         | -10 °C ... +50 °C   |
| <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 (FS = Full Scale = Measuring range of sensor)     |
| <b>Typ. Ambient light immunity</b>            | Artificial light: ≤ 3,000 lx<br>Sunlight: ≤ 10,000 lx           |
| <b>Vibration resistance</b>                   | 10 Hz ... 55 Hz (amplitude 1.5 mm, x-, y-, z-axis 2 hours each) |
| <b>Shock resistance</b>                       | 50 G (x, y, z axis 3 times each)                                |

## General notes

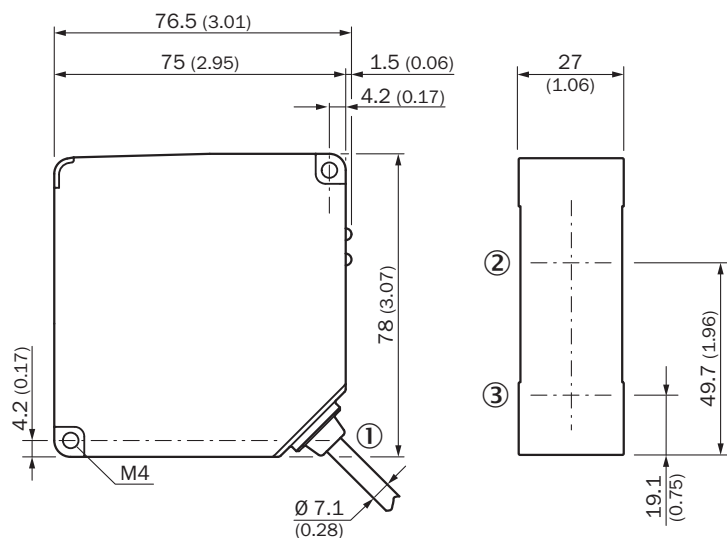
|                    |  |
|--------------------|--|
| <b>Note on use</b> | OD Precision sensor head can be used in combination with AOD5-P/N1 or stand-alone via RS-422 |
|--------------------|--|

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))

OD5-500xxxx



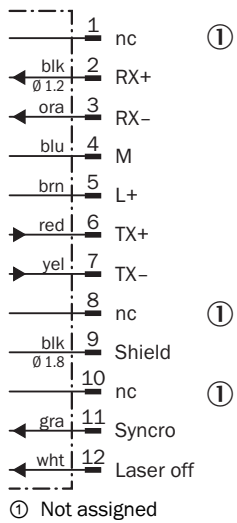
- ① Cable Ø 7.1 mm, 0.5 m with connector, 12-pin
- ② Optical axis, receiver
- ③ Optical axis, sender

### Connection type

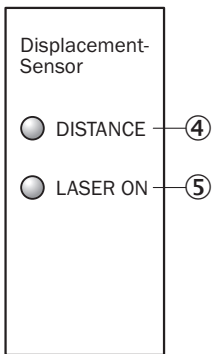
Hirose 12-pin male connector for sensor head



### Connection diagram



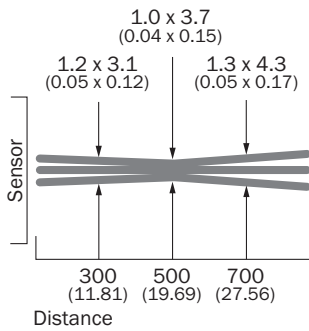
### Adjustment possible



- ④ Distance indicator
- ⑤ Status indicator laser (laser on)

### Light spot size

OD5-500W200

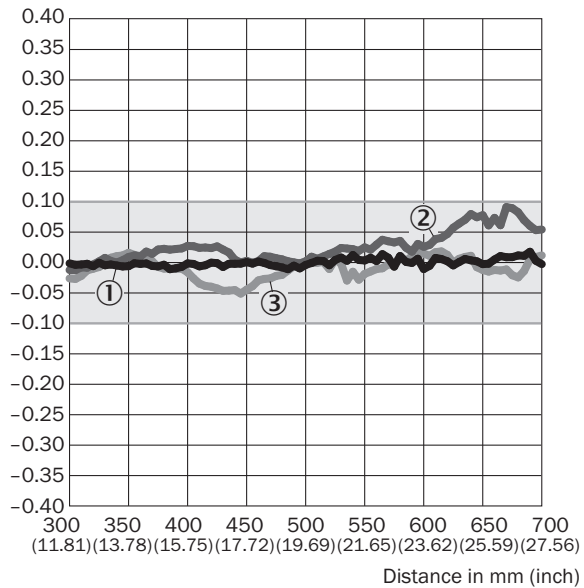


All dimensions in mm (inch)

### Linearity

OD5-500W200






Linearity [%FS]



- ① White ceramic
- ② Stainless steel
- ③ Black rubber

## Recommended accessories

Other models and accessories → [www.sick.com/OD\\_Precision](http://www.sick.com/OD_Precision)

|  | Brief description  | Type              | Part no. |
|--|--|-------------------|----------|
| <b>Evaluation units</b>  |  |                   |          |
|   | Evaluation unit: OD Precision, 5 x NPN   | AOD5-N1           | 6035984  |
|  | Evaluation unit: OD Precision, 5 x PNP   | AOD5-P1           | 6035985  |
| <b>Plug connectors and cables</b>  |  |                   |          |
|   | Head A: female connector, M12, 12-pin, straight<br>Head B: Flying leads<br>Cable: PVC, shielded, 5 m<br>For stand-alone operation                              | DOL-1212-G05M     | 6035988  |
|   | Head A: male connector, 50-pin, straight<br>Head B: Flying leads<br>Cable: PVC, shielded, 3 m<br>In- and output expansion cable for AOD5-P/N1 (OD Precision)   | IO-EXP-AOD5       | 6035990  |
|   | Head A: female connector, M12, 12-pin, straight<br>Head B: male connector, M12, 12-pin, straight<br>Cable: RS-422, PVC, shielded, 2 m<br>OD Precision specific | YFHRSB-020XXMHRSB | 6035986  |
|  | Head A: female connector, M12, 12-pin, straight<br>Head B: male connector, M12, 12-pin, straight<br>Cable: RS-422, PVC, shielded, 5 m<br>OD Precision specific | YFHRSB-050XXMHRSB | 6035987  |
|  | Head A: male connector, 12-pin<br>Head B: terminal connector, 12-pin<br>Cable: unshielded<br>Terminal strip for AOD5-P/N1 (OD Precision)                       | TERM.-AOD5        | 6035989  |

## Recommended services

Additional services → [www.sick.com/OD\\_Precision](http://www.sick.com/OD_Precision)

|  | Type   | Part no. |
|--|--|----------|
| <b>Commissioning</b>   |  |          |
| <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  |
| <b>Extended warranty</b>   |  |          |
| <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)