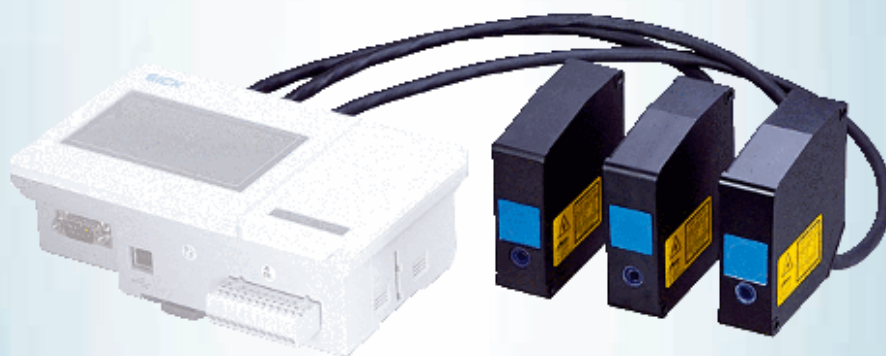




# OD5-25W01

OD Precision

DISPLACEMENT MEASUREMENT SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

| Type      | part no. |
|-----------|----------|
| OD5-25W01 | 6035976  |

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                                                                                                                                                                                                                  |
| <b>Measuring range</b>                               | 24 mm ... 26 mm <sup>1)</sup>                                                                                                                                                                                                |
| <b>Target</b>                                        | Natural objects                                                                                                                                                                                                              |
| <b>Repeatability</b>                                 | 0.02 µm <sup>2)</sup>                                                                                                                                                                                                        |
| <b>Linearity</b>                                     | ± 1.6 µm <sup>2)</sup>                                                                                                                                                                                                       |
| <b>Response time</b>                                 | ≥ 0.1 ms <sup>3) 4)</sup>                                                                                                                                                                                                    |
| <b>Output time</b>                                   | ≥ 0.1 ms                                                                                                                                                                                                                     |
| <b>Light source</b>                                  | Laser, redvisible red light                                                                                                                                                                                                  |
| <b>Type of light</b>                                 | Visible red light                                                                                                                                                                                                            |
| <b>Laser class</b>                                   | 1 (IEC 60825-1:2014, EN 60825-1:2014) <sup>5)</sup>                                                                                                                                                                          |
| <b>Typ. light spot size (distance)</b>               | 100 µm x 700 µm (25 mm)                                                                                                                                                                                                      |
| <b>Special task</b>                                  | Thickness measurement of transparent material                                                                                                                                                                                |
| <b>Additional function</b>                           | Mean-value setting 1 ... 4,096x<br>Selectable measuring frequency (automatic / 0.1 ms ... 3.2 ms)<br>Automatic sensitivity adjustment<br>Manual sensitivity adjustment<br>Mutual interference<br>Glass thickness measurement |
| <b>Thickness measurement of transparent material</b> | 0.3 mm ... 2 mm                                                                                                                                                                                                              |
| <b>General notes</b>                                 |                                                                                                                                                                                                                              |
| Note on use                                          | OD Precision sensor head can be used in combination with AOD5-P/N1 or stand-alone via RS-422                                                                                                                                 |
| <b>Safety-related parameters</b>                     |                                                                                                                                                                                                                              |
| MTTF <sub>D</sub>                                    | 101 years                                                                                                                                                                                                                    |
| DC <sub>avg</sub>                                    | 0%                                                                                                                                                                                                                           |

<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: 650 nm, max. output: 390 µW.

## 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.

## Electronics

|                                     |                                                    |
|-------------------------------------|----------------------------------------------------|
| <b>Supply voltage U<sub>B</sub></b> | DC 12 V ... 24 V <sup>1)</sup>                     |
| <b>Warm-up time</b>                 | ≤ 5 min                                            |
| <b>Indication</b>                   | LEDs, 4" color display on optional evaluation unit |
| <b>Enclosure rating</b>             | IP67                                               |
| <b>Protection class</b>             | III                                                |

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

## Mechanics

|                               |                                          |
|-------------------------------|------------------------------------------|
| <b>Dimensions (W x H x D)</b> | 29 mm x 78 mm x 75 mm                    |
| <b>Housing material</b>       | Metal (Aluminum)                         |
| <b>Window material</b>        | Glass                                    |
| <b>Weight</b>                 | 250 g <sup>1)</sup>                      |
| <b>Connection type</b>        | 0.5 m cable with connector <sup>2)</sup> |

<sup>1)</sup> Includes 0.5 m cable.

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

## 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)                                |

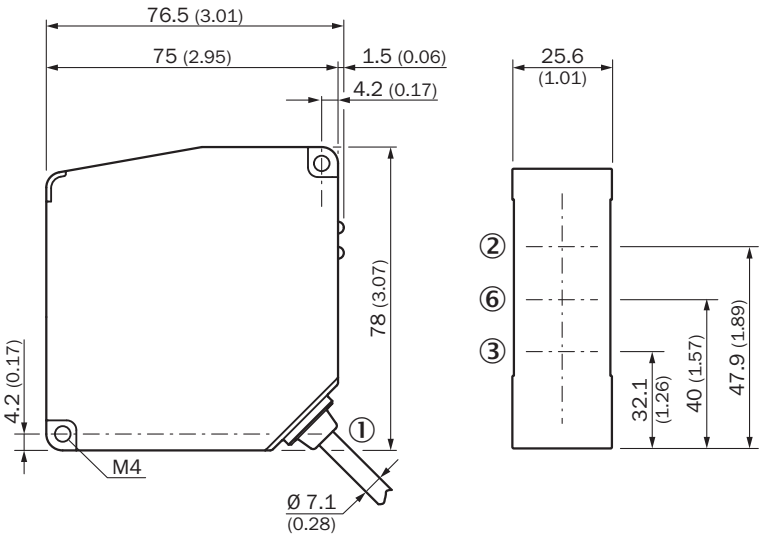
Certificates

|                                           |   |
|-------------------------------------------|---|
| <b>EU declaration of conformity</b>       | ✓ |
| <b>UK declaration of conformity</b>       | ✓ |
| <b>ACMA declaration of conformity</b>     | ✓ |
| <b>Moroccan declaration of conformity</b> | ✓ |
| <b>China-RoHS</b>                         | ✓ |

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 OD5-25xxx

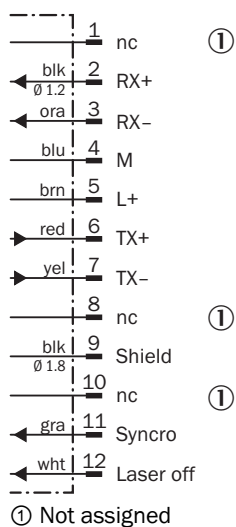


- ② optical axis, receiver
- ③ optical axis, sender
- ⑥ Optical axis, light spot (at 25 mm due to V-Optics with 17.5°)

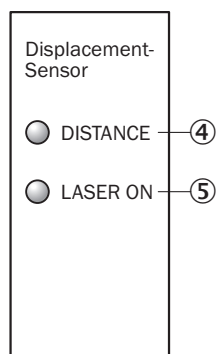
### Connection type Hirose 12-pin male connector for sensor head



### Connection diagram

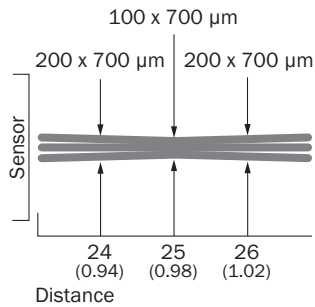


### Adjustment possible



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

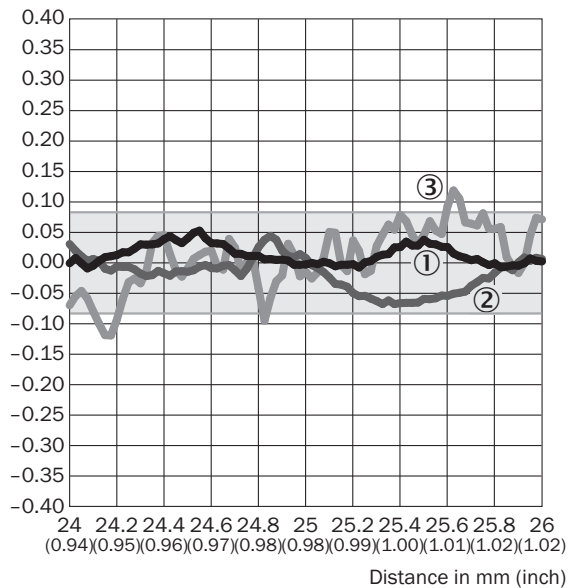
## Light spot size OD5-25W01



All dimensions in mm (inch)

## Linearity OD5-25W01

Linearity [%FS]



- ① Mirror
- ② Stone, ceramic, glass
- ③ stainless steel

## Recommended accessories

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

|                                                                                     | Brief description                                                                                                                                                                                                                                                                                                                                                                           | Type              | part no. |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------|
| connectors and cables                                                               |                                                                                                                                                                                                                                                                                                                                                                                             |                   |          |
|    | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 12-pin, straight</li> <li><b>Connection type head B:</b> Male connector, M12, 12-pin, straight</li> <li><b>Signal type:</b> RS-422</li> <li><b>Cable:</b> 2 m, 12-wire, twisted pair, PVC</li> <li><b>Description:</b> RS-422, shielded</li> <li><b>Note:</b> OD Precision specific</li> </ul> | YFHRSB-020XXXMRSE | 6035986  |
|    | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 12-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Cable:</b> 5 m, 12-wire, PVC</li> <li><b>Description:</b> Shielded</li> <li><b>Note:</b> For stand-alone operation</li> </ul>                                                                                | DOL-1212-G05M     | 6035988  |
|    | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 12-pin, straight</li> <li><b>Connection type head B:</b> Male connector, M12, 12-pin, straight</li> <li><b>Signal type:</b> RS-422</li> <li><b>Cable:</b> 5 m, 12-wire, twisted pair, PVC</li> <li><b>Description:</b> RS-422, shielded</li> <li><b>Note:</b> OD Precision specific</li> </ul> | YFHRSB-050XXXMRSE | 6035987  |
|    | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Male connector, 50-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Cable:</b> 3 m, 50-wire, PVC</li> <li><b>Description:</b> Shielded</li> <li><b>Connection systems:</b> Flying leads</li> <li><b>Note:</b> In- and output expansion cable for AOD5-P/N1 (OD Precision)</li> </ul>    | IO-EXP-AOD5       | 6035990  |
|   | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Male connector, 12-pin</li> <li><b>Connection type head B:</b> Terminal connector, 12-pin</li> <li><b>Description:</b> Unshielded</li> <li><b>Connection systems:</b> Spring terminal</li> <li><b>Note:</b> Terminal strip for AOD5-P/N1 (OD Precision)</li> </ul>                                                    | TERM.-AOD5        | 6035989  |
| integration modules and adapters                                                    |                                                                                                                                                                                                                                                                                                                                                                                             |                   |          |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Evaluation unit: OD Precision, 5 x PNP</li> </ul>                                                                                                                                                                                                                                                                                | AOD5-P1           | 6035985  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Evaluation unit: OD Precision, 5 x NPN</li> </ul>                                                                                                                                                                                                                                                                                | AOD5-N1           | 6035984  |

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Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

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