

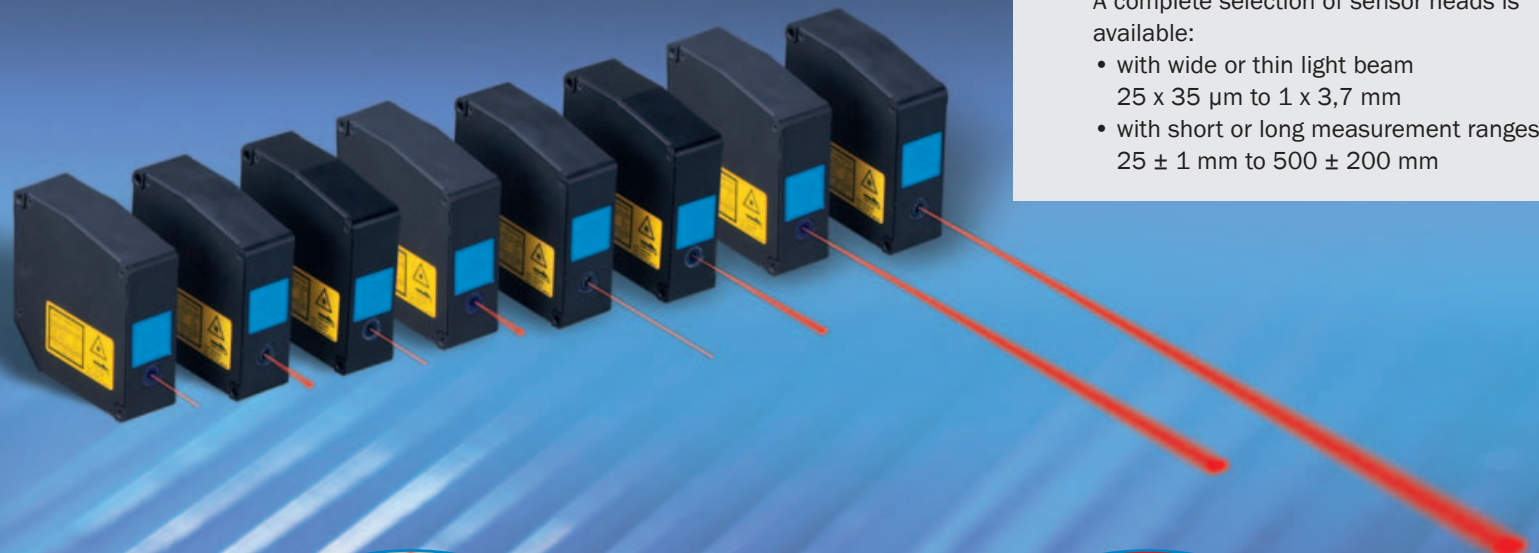
## OD Precision

Displacement sensors for precise and comprehensive measurement tasks

# OD Precision – Displacement sensors for precise and comprehensive measurement tasks

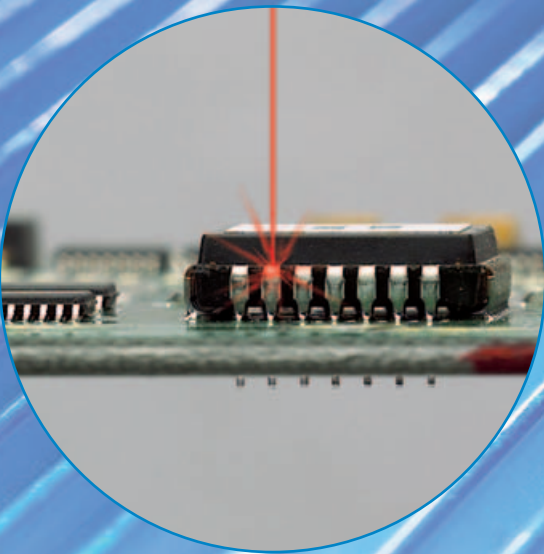


Displacement sensors from the OD Precision series handle the most varied applications: regardless of whether rough or fine structured patterns are measured with a high degree of precision and resolution.

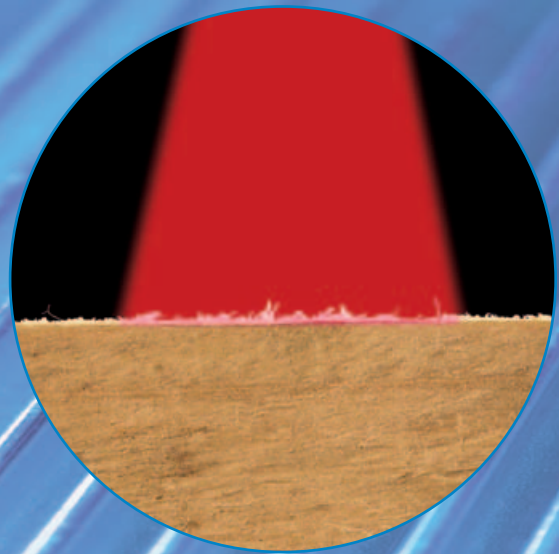


A complete selection of sensor heads is available:

- with wide or thin light beam  
25 x 35  $\mu\text{m}$  to 1 x 3,7 mm
- with short or long measurement ranges  
25  $\pm$  1 mm to 500  $\pm$  200 mm



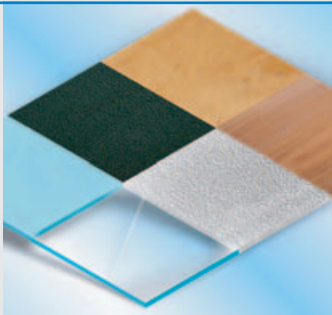
Finely structured or very small elements are measured with a thin light beam.



Rough, grooved surfaces are measured with wide light beam. The influence of surface structures is reduced.

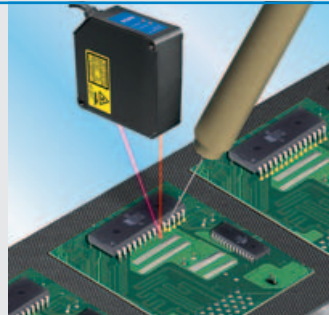


An evaluation unit with application-oriented measurement algorithms and a large selection of sensor heads, which can also be operated without the evaluation unit, are available.



### Multifaceted

Regardless of whether light or dark, rough or structured, transparent or opaque: optimum reliability with very different materials.



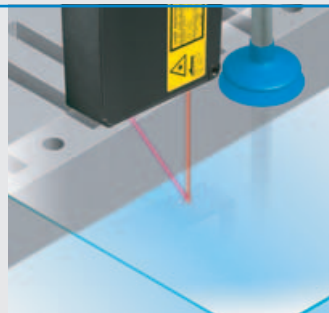
### Optimum precision

Achieve optimum precision with very easy operation and application-oriented functions at the same time.



### Stand alone via RS 422 to the PLC

The sensor heads can be connected directly to the PLC via the RS 422 interface: easy integration into the system, with or without evaluation unit.



### Glass thickness measurement with only one sensor head

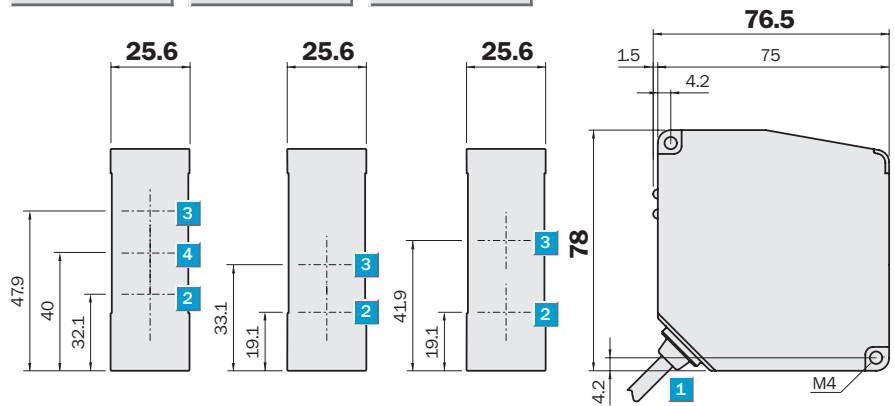
Thickness measurements of transparent objects are very easy now. Only one sensor head is required with the new evaluation algorithm for glass thickness measurement.

# Displacement sensor OD Precision, sensor head

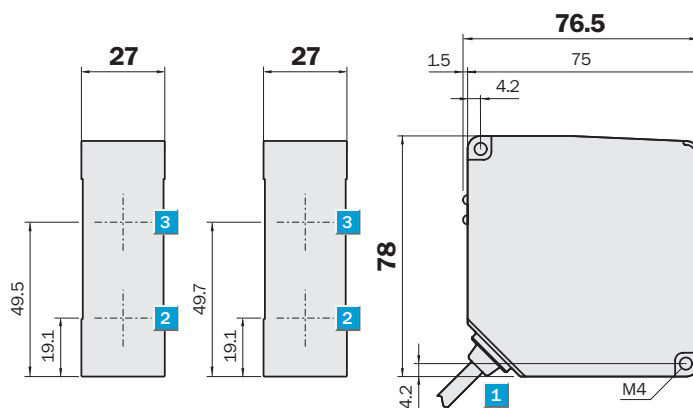
	Measurement ranges
	$25 \pm 1 / 30 \pm 5 / 85 \pm 20 /$ $350 \pm 100 / 500 \pm 200 \text{ mm}$
Displacement sensor	

- Optimum reliability thanks to improved measurement algorithm and different light spot geometries
- Highest accuracy
- Numerous functions with simple operation
- Stand-alone integration of the sensor heads possible (via RS 422)

Dimensional drawing		
OD5-25T01	OD5-30T05	OD5-85T20
OD5-25W01	OD5-30W05	OD5-85W20



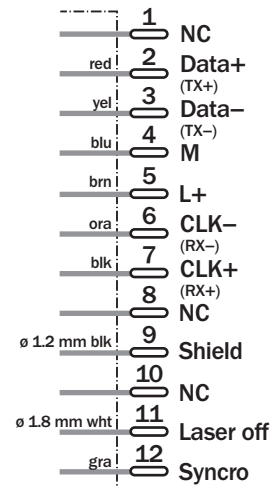
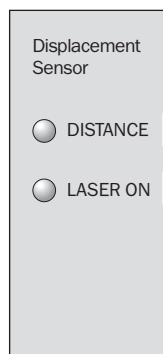
OD5-350W100	OD5-500W200
-------------	-------------



- |   |  |
|---|--|
| <b>1</b> Cable $\varnothing$ 7.1 mm/0.5 m with 12-pin connector | <b>4</b> Optical axis – light spot (at 25 mm due to V-Optics with 17.5°) |
| <b>2</b> Optical axis – sender                                  | <b>5</b> Distance indicator LED  |
| <b>3</b> Optical axis – receiver                                | <b>6</b> Laser on LED  |

Accessories
Cables and connectors

Adjustments possible	Connection types
All types	All types    12-pin

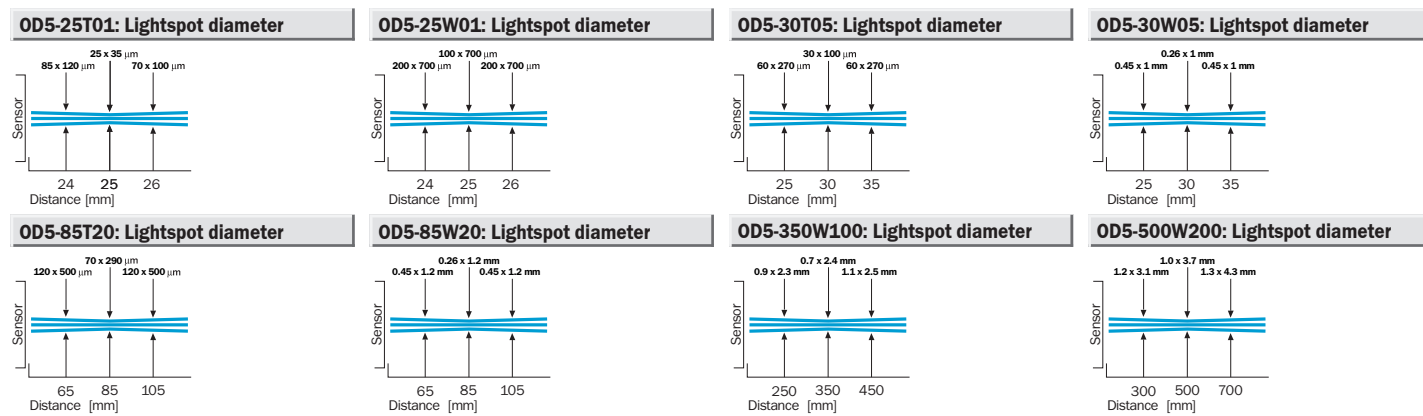




Technical data		OD5-										
		25 T01	25 W01	30 T05	30 W05	85 T20	85 W20	350 W100	500 W200			
<b>Light source</b>	Red laser class 1 (II) <sup>1)</sup>	█										
	Red laser class 2 (II) <sup>2)</sup>	█		█		█		█		█		
<b>Measuring range</b>	25 ± 1 mm	█										
	30 ± 5 mm	█		█								
	85 ± 20 mm	█		█		█						
	350 ± 100 mm	█		█		█		█				
	500 ± 200 mm	█		█		█		█				
<b>Resolution <sup>3)</sup></b>	0.02 µm	█										
	0.2 µm	█		█								
	1 µm	█		█		█						
	5 µm	█		█		█		█				
	10 µm	█		█		█		█				
<b>Reproducibility <sup>4)</sup></b>	0.06 µm	█										
	0.6 µm	█		█								
	3 µm	█		█		█						
	15 µm	█		█		█		█				
	30 µm	█		█		█		█				
<b>Linearity</b>	± 1.6 µm <sup>5)</sup>	█										
	± 10 µm <sup>6)</sup>	█		█								
	± 8 µm <sup>6)</sup>	█		█								
	± 20 µm <sup>6)</sup>	█		█		█						
	± 160 µm <sup>6)</sup>	█		█		█		█				
<b>Temperature drift</b>	± 0.01 % FS <sup>7)</sup> /°C	█										
	<b>Measuring frequency</b>	10 kHz	█									
	1.25 kHz	█									█	
<b>Data interfaces</b>	RS 422 <sup>8)</sup>	█										
<b>Supply voltage V<sub>s</sub></b>	12 ... 24 V DC (-5/+10 %)	█										
<b>Enclosure rating</b>	IP 67	█										
<b>VDE protection class</b>	⊲	█										
<b>Ambient temperature</b>	Operation -10 °C ... +50 °C <sup>9)</sup>	█										
	Storage -20 °C ... +60 °C	█										
<b>Vibration resistance</b>	10/s ... 55/s <sup>10)</sup>	█										
<b>Shock resistance</b>	50 G (500 m/s <sup>2</sup> )	█										
<b>Material</b>	Housing/Front	Aluminium/Glass										
<b>Connection type</b>		0.5 m pigtail with plug <sup>11)</sup>										

- <sup>1)</sup> Wavelength 650 nm, max. output 390 µW
- <sup>2)</sup> Wavelength 650 nm, max. output 1 mW
- <sup>3)</sup> Averaging: 4,096 measurement values: 90% remission/mirror (OD5-25); Distance: middle distance
- <sup>4)</sup> Averaging: 4,096 measurement values: 90% remission/mirror (OD5-25) and constant environmental conditions
- <sup>5)</sup> On mirror: Parallel alignment of the active sensor surface to the object surface
- <sup>6)</sup> For 90% remission (white ceramics)
- <sup>7)</sup> Full Scale:  
 OD5-25T01 = 2 mm  
 OD5-30T05 = 10 mm  
 OD5-85T20 = 40 mm  
 OD5-350W100 = 200 mm  
 OD5-500W200 = 400 mm
- <sup>8)</sup> (Full duplex) when used without evaluation unit
- <sup>9)</sup> Non-condensing
- <sup>10)</sup> Double amplitude 1.5 mm, 2 h for xyz axes
- <sup>11)</sup> Extendable by cable to max. 50 m

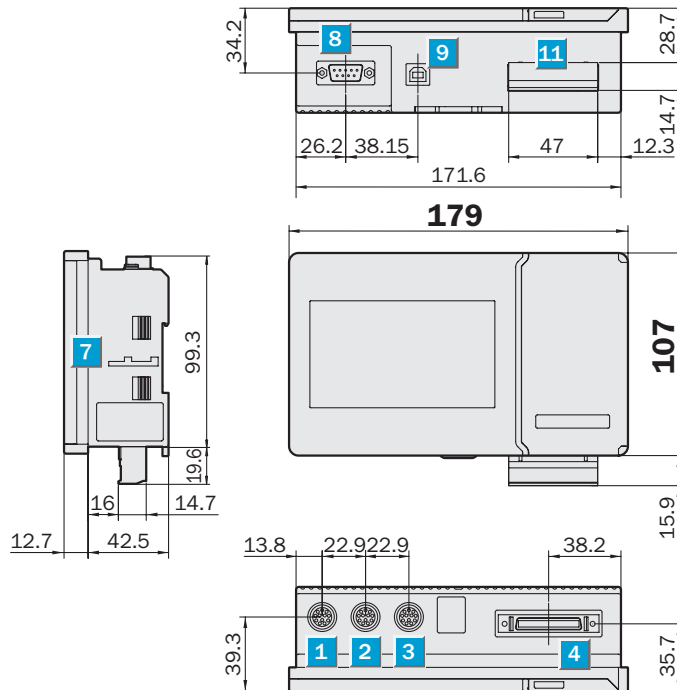
Order information			
Type	Order no.	Type	Order no.
OD5-25T01	6035975	OD5-85T20	6035979
OD5-25W01	6035976	OD5-85W20	6035980
OD5-30T05	6035977	OD5-350W100	6035981
OD5-30W05	6035978	OD5-500W200	6035982



	Measurement ranges
	25 ± 1 / 30 ± 5 / 85 ± 20/
	350 ± 100/500 ± 200 mm
<b>Displacement sensor</b>	

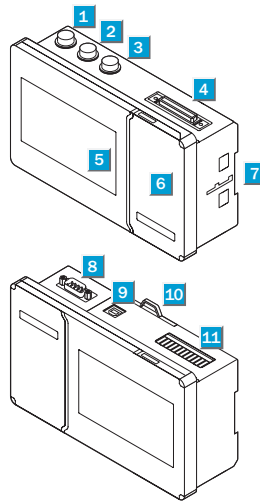
- Optimum reliability thanks to improved measurement algorithm and different light spot geometries
- Highest accuracy
- Numerous functions with simple operation
- Stand-alone integration of the sensor heads possible (via RS 422)

## Dimensional drawing



## Adjustments possible

All types



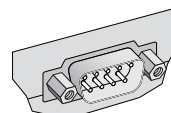
- 1** Sensor head A connection port
- 2** Sensor head B connection port
- 3** Sensor head C connection port
- 4** Terminal board 50-pin extern (see accessories)
- 5** LCD display
- 6** Operation panel
- 7** For panel mounting bracket (recommended window size 173 x 102 mm)
- 8** RS 232C interface
- 9** USB interface
- 10** Fastening handle DIN Rail
- 11** Terminal board (detachable)

## Connection terminal board

All types

P1 [V]	—	Port 1 voltage output
GND	—	GND
P2 [V]	—	Port 2 voltage output
GND	—	GND
P3 [V]	—	Port 3 voltage output
P1 [mA]	—	Port 1 current output
GND	—	GND
P2 [mA]	—	Port 2 current output
GND	—	GND
P3 [mA]	—	Port 3 current output
0V GND	—	0 V input (common GND)
24 V	—	24 V input

## Connector pinning RS 232C

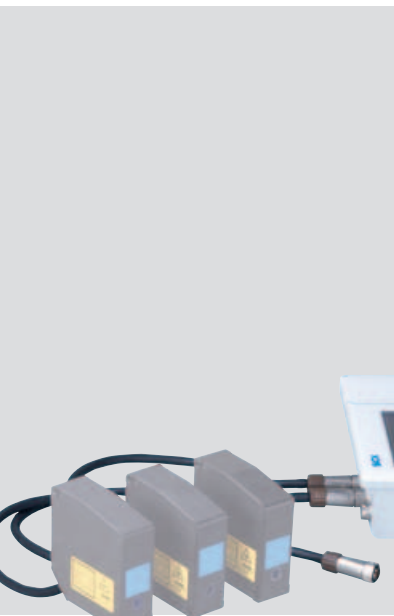


## Male connector, 9-pin

- 1 ( ) DCD – Data Carrier Detect
- 2 ( ) RXD – Receive Data
- 3 ( ) TXD – Transmit Data
- 4 ( ) DTR – Data Terminal Ready
- 5 ( ) SG – Signal Ground
- 6 ( ) DSR – Data Set Ready
- 7 ( ) RTS – Request to Send
- 8 ( ) CTS – Clear to Send
- 9 ( ) RI – (Ring Indicator)

## Accessories

Cables and connectors



Technical data		AOD5-	P1	N1								
<b>Response time</b> <sup>1)</sup>	0.1 ms/0.8 ms											
<b>Output rate</b> <sup>1)</sup>	10 kHz/1.25 kHz											
<b>In- and outputs</b>	PNP											
	NPN											
<b>Outputs</b>												
3 Analogue voltage outputs	-10 ... +10 V <sup>2)</sup>											
3 Analogue current outputs	4 ... 20 mA <sup>3)</sup>											
5 Switching outputs <sup>4)</sup>	Max. 100 mA/24 V DC <sup>5)</sup>											
3 Alarm outputs <sup>4)</sup>	To indicate failed measurements											
<b>Data interface</b>	RS 232											
	USB											
<b>Inputs</b>												
4 Bank inputs <sup>4)</sup>	External memory bank selection											
5 Hold inputs <sup>4)</sup>	Holding the measurement											
3 Laser OFF inputs <sup>4)</sup>	Laser off											
4 Zero reset inputs <sup>4)</sup>	To reference the measurement											
<b>Display type</b>	LCD colour display											
<b>Additional features</b>	Arithmetic calculations											
	Averaging functions											
	Frequency filters											
	Autom./manual sensitivity setting											
	Timer functions											
	16 Memory banks											
	Hold functions											
	Anti interference mode <sup>6)</sup>											
	Glass thickness measurement <sup>7)</sup>											
	<b>Supply voltage V<sub>s</sub></b>	12 ... 24 V DC ± 10 %										
<b>Power consumption</b> <sup>8)</sup>	450 mA/24 V											
<b>Enclosure rating</b>	IP 20											
<b>VDE protection class</b>	⊠											
<b>Ambient temperature</b>	Operation -10 °C ... +45 °C <sup>9)</sup>											
	Storage -20 °C ... +60 °C											
<b>Vibration resistance</b>	10/s ... 55/s <sup>10)</sup>											
<b>Shock resistance</b>	20 G (196 m/s <sup>2</sup> )											
<b>Weight</b>	Approx. 550 g (incl. terminals)											
<b>Material</b>	Housing	Polycarbonate										
	Terminal board	Nylon 66										
<b>Connection type</b>	Terminal board											

<sup>1)</sup> Depending on connected sensor head without averaging and with manual sensitivity setting

<sup>2)</sup> Output impedance 100 Ω

<sup>3)</sup> Load impedance max. 300 Ω

<sup>4)</sup> With use of external 50-pin terminal (accessories)

<sup>5)</sup> Residual voltage max. 1.8 V

<sup>6)</sup> For sensor heads A and B

<sup>7)</sup> With V alignment, e.g., OD5-25 ...

<sup>8)</sup> When connected with 3 sensor heads. Including analogue current output.

<sup>9)</sup> Non-condensing

<sup>10)</sup> Double amplitude 1.5 mm, 2 h for xyz axes

#### Order information

##### OD5 Amplifier unit

Type	Order no.
AOD5-N1	6035984
AOD5-P1	6035985

##### Accessories, extension cable

Type	Order no.	Cable length
DSL-1212-G02M	6035986	2 m
DSL-1212-G05M	6035987	5 m
DOL-1212-G05M	6035988	5 m
TERM-AOD5	6035989	Spare part
IO-EXP-AOD5	6035990	

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