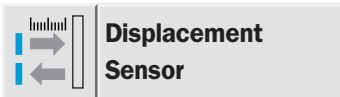
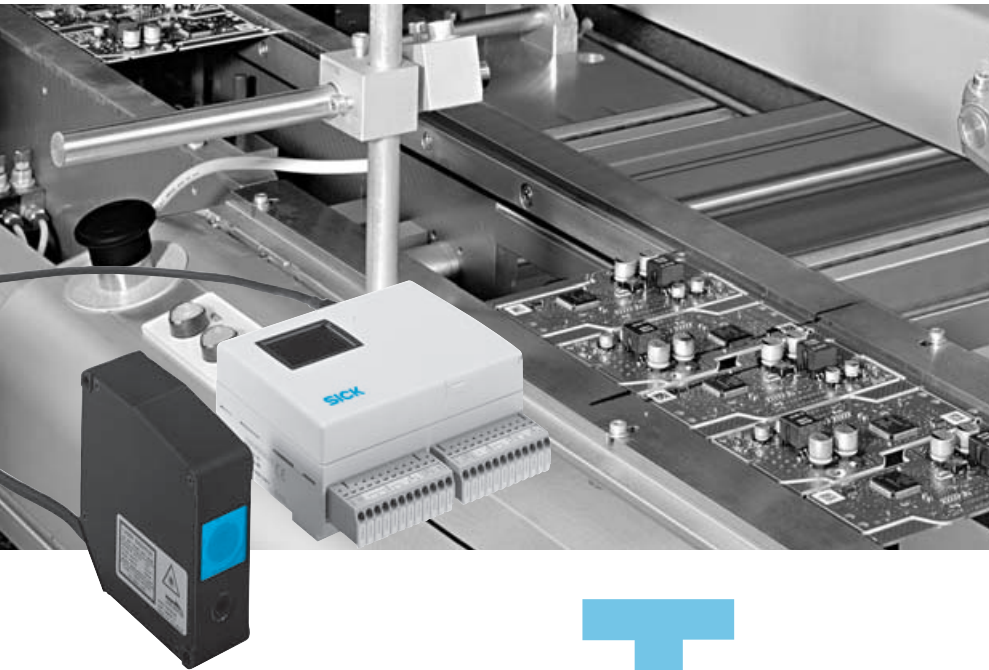


# OD Max: Highly precise distance measurement



thickness or the evenness can be achieved. This is due to the in the system integrated arithmetical functions.

Based on the highly sophisticated CMOS technology and the fast measuring frequency in combination with the automatic setting of the sensitivity the system is capable of reliably measuring almost all materials. Therefore the sensor can also be used in most branches. Possible industries are for example the automotive, electronics, semiconductor, robotics and automation industry. Additionally to this the area of application within those branches is also diverse. For example process control, quality control or the identification of parts are possible applications.

In terms of the sensor heads three variants with the medium working distances of 30 mm, 85 mm or 350 mm are available. Regarding the amplifier unit a PNP and a NPN version are available.

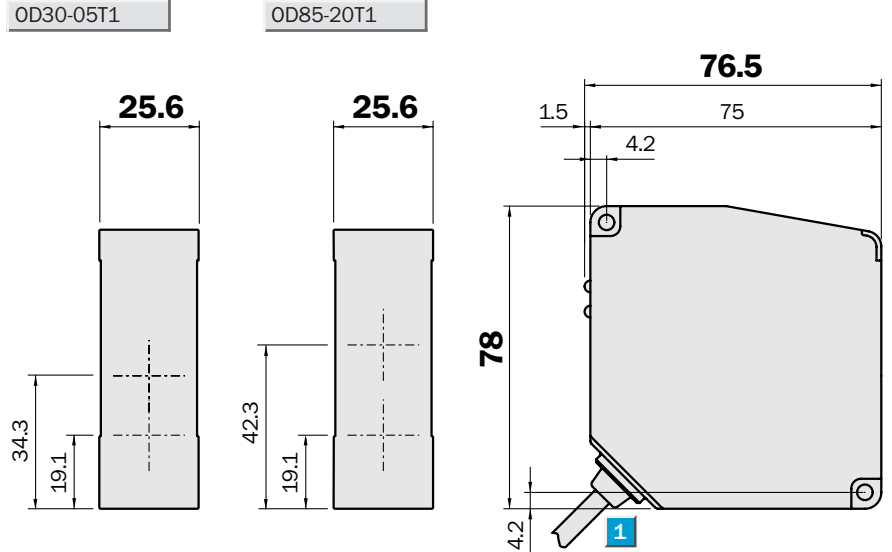
**T**he OD Max is an highly precise sensor system for distance measurement being made up of one or two sensor heads and an amplifier unit. The – compared to existing systems – by factor 10 improved accuracy of the system (to  $\pm 0.1\%$  of full scale) opens up unknown possibilities within the sector of sensor and automation technology. Apart from the sheer measurement of the distance also a variety of different applications like e.g. measurement of the



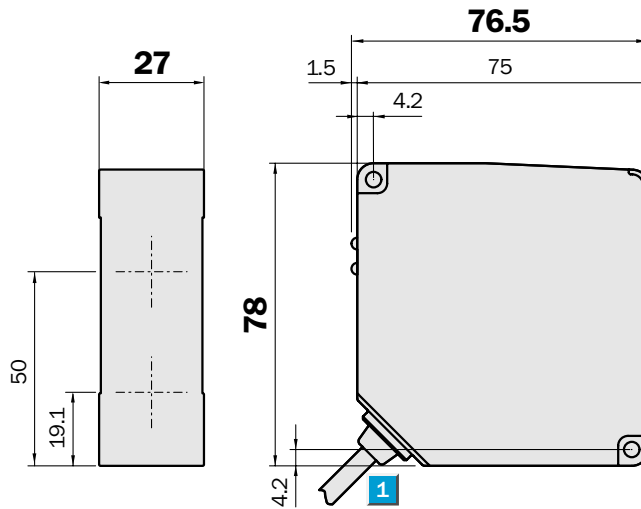
	<b>Measurement range</b>
	<b>30 ± 5 / 85 ± 20 /</b>
	<b>350 ± 100 mm</b>
<b>Displacement Sensor</b>	

- Laser Technology
- CMOS Technology: object independent measuring from shiny to dark
- High measurement accuracy
- High-End-System: 1 or 2 sensor heads per amplifier unit
- 4 analogue outputs and 5 switching outputs
- RS 232C interface

### Dimensional drawing



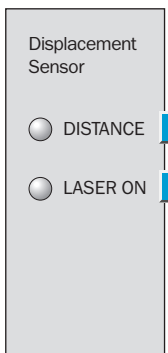
### OD350-100T1



- 1** Cable Ø 5 mm/0.5 m with 10-pin connector
- 2** Distance indicator LED
- 3** Laser on LED

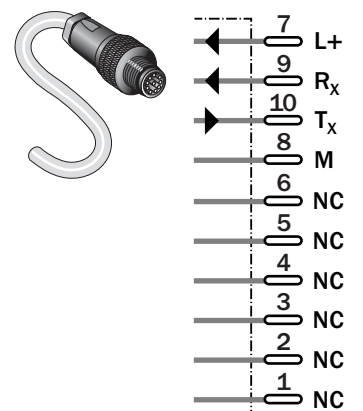
### Adjustments possible

All types



### Connection types

All types | 10-pin



<b>Accessories</b>
Connectors

Technical Data		OD	30-05T1	85-20T1	350-100T1						
<b>Measuring range</b>	30 ± 5 mm		■								
	85 ± 20 mm			■							
	350 ± 100 mm				■						
<b>Light source</b>	Red laser diode 2 (II) <sup>1)</sup>		■	■	■						
<b>Measuring frequency</b>	10 kHz		■	■	■						
<b>Resolution <sup>2)</sup></b>	1 µm		■								
	5 µm			■							
	50 µm				■						
<b>Reproducibility <sup>3)</sup></b>	3 µm		■								
	15 µm			■							
	150 µm				■						
<b>Accuracy <sup>4)</sup></b>	± 10 µm		■								
	± 40 µm			■							
	± 200 µm				■						
<b>Supply voltage V<sub>S</sub></b>	Supplied from the amplifier unit		■	■	■						
<b>Temperature drift</b>	±0.01 % FS <sup>5)</sup> /°C		■	■	■						
<b>Enclosure rating</b>	IP 67		■	■	■						
<b>VDE protection class</b>	III		■	■	■						
<b>Ambient temperature T<sub>A</sub></b>	Operation -10 °C ... +45 °C <sup>6)</sup>		■	■	■						
	Storage -20 °C ... +60 °C		■	■	■						
<b>Ambient light limit</b>	max. 3.000 lx (fluorescent light)		■	■	■						
	max. 10.000 lx (sun light)		■	■	■						
<b>Vibration resistance</b>	10/s ... 55/s <sup>7)</sup>		■	■	■						
<b>Shock resistance</b>	50 G (500 m/s <sup>2</sup> )		■	■	■						
<b>Weight</b>	250 g (including 50 cm cable)		■	■	■						
<b>Material</b> Sensor head housing	Diecast aluminium		■	■	■						
<b>Cable extension</b>	0.5 m pig tail with connector <sup>8)</sup>		■	■	■						

<sup>1)</sup> Wavelength 650 nm, max. output 1 mW

<sup>2)</sup> Averaging: 256 measurements  
object: white ceramic  
distance range: average distance

<sup>3)</sup> With constant conditions of the environment

<sup>4)</sup> Equivalent ± 0.1 % of Full Scale for 6 ... 90 % remission

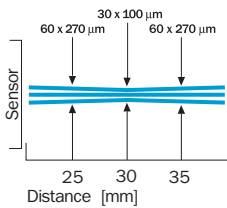
<sup>5)</sup> Full Scale:  
OD30-05T1 = 10 mm  
OD85-20T1 = 40 mm  
OD350-100T1 = 200 mm

<sup>6)</sup> Non-condensing

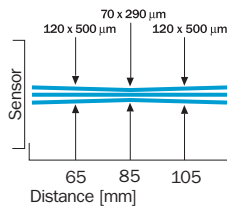
<sup>7)</sup> Double amplitude 1.5 mm, 2 h for XYZ axes

<sup>8)</sup> Extendable by cable to max. 10 m

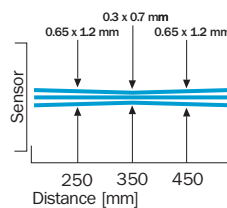
**OD30-05T1: Lightspot diameter**



**OD85-20T1: Lightspot diameter**



**OD350-100T1: Lightspot diameter**



**Order information**

Type	Order no.
OD30-05T1	6028959
OD85-20T1	6028958
OD350-100T1	6028957

Technical Data		AOD-	P1	N1								
<b>In- and outputs</b>	PNP											
	NPN											
<b>Response time</b> <sup>1)</sup>	0.5 ms											
Output rate	10 kHz											
<b>Supply voltage</b> $V_S$	12 ... 24 V DC $\pm$ 10 %											
Power consumption <sup>2)</sup>	6 W											
<b>Outputs</b>												
2 Analogue voltage outputs <sup>3)</sup>	-5 ... + 5 V <sup>4)</sup>											
2 Analogue current outputs <sup>3)</sup>	4 ... 20 mA <sup>5)</sup>											
5 Switching outputs <sup>6)</sup>	Max. 100 mA/24 V DC <sup>7)</sup>											
2 Alarm outputs	To indicate failed measurements											
<b>Data interface</b>	RS 232C (male)											
<b>Inputs</b>												
3 Bank inputs	External memory bank selection											
3 Hold inputs	Holding the measurement/Laser off											
2 Zero reset inputs	To reference the measurement											
<b>Additional features</b>												
	Arithmetical calculations											
	Averaging functions											
	Frequency filters											
	Autom./manual sensitivity setting											
	Timer functions											
	8 Memory banks											
	Hold functions											
<b>Display type</b>	LCD colour display											
<b>Enclosure rating</b>	IP 20											
<b>VDE protection class</b>	III											
<b>Ambient temperature</b> $T_A$	Operation -10 °C ... +45 °C <sup>8)</sup>											
	Storage -20 °C ... +60 °C											
<b>Vibration resistance</b>	10/s ... 55/s <sup>9)</sup>											
<b>Shock resistance</b>	20 G (196 m/s <sup>2</sup> )											
<b>Weight</b>	240 g (including terminal board)											
<b>Material</b>	Housing	Polycarbonate										
	Terminal board	Nylon 66										
Connection type	Terminal board											

<sup>1)</sup> Without averaging and manually selected sensitivity

<sup>2)</sup> When connected with 2 sensor heads. Including analogue current output.

<sup>3)</sup> 1 for each sensor head, or 1 for the calculation result.

<sup>4)</sup> Output impedance 100  $\Omega$ , resolution 1 mV

<sup>5)</sup> Load impedance max. 300  $\Omega$ , resolution 1.5  $\mu$ A

<sup>6)</sup> For the calculation result

<sup>7)</sup> Residual voltage max. 1.8 V

<sup>8)</sup> Non-condensing

<sup>9)</sup> Double amplitude 1.5 mm, 2 h for XYZ axes

#### Order information

##### OD Max™ Amplifier unit

Type	Order no.
AOD-P1	6028960
AOD-N1	6028961

##### Accessories, extension cable

Type	Order no.	Cable length
DSL-1210-G02M	6028943	2 m
DSL-1210-G05M	6028944	5 m

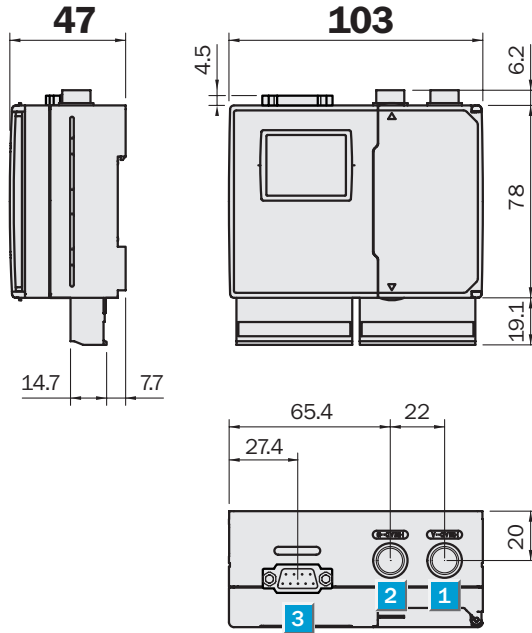
# Displacement sensor OD Max, amplifier unit

**Measurement range**  
 $30 \pm 5 / 85 \pm 20 /$   
 $350 \pm 100 \text{ mm}$

**Displacement Sensor**

- Laser Technology
- CMOS Technology: object independent measuring from shiny to dark
- High measurement accuracy
- High-End-System: 1 or 2 sensor heads and amplifier unit
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- RS 232C interface

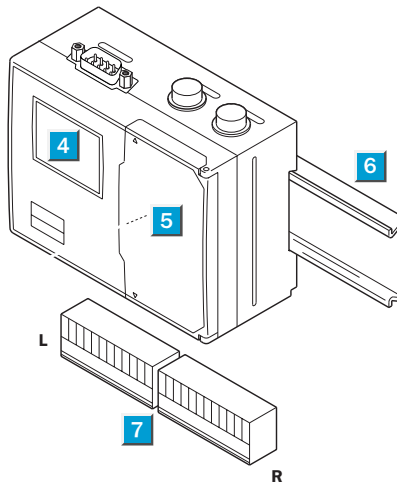
## Dimensional drawing



## Adjustments possible

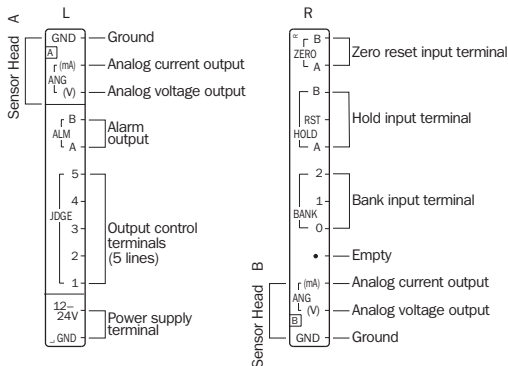
AOD-P1
AOD-N1

- 1 Sensor head A connection port
- 2 Sensor head B connection port
- 3 RS 232C interface
- 4 LCD display
- 5 Operation panel
- 6 DIN rail
- 7 Terminal board (detachable)

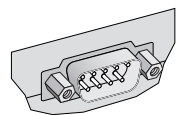


## Connection terminal board

AOD-P1
AOD-N1



## Connector pinning RS 232C



## Female 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

Connectors