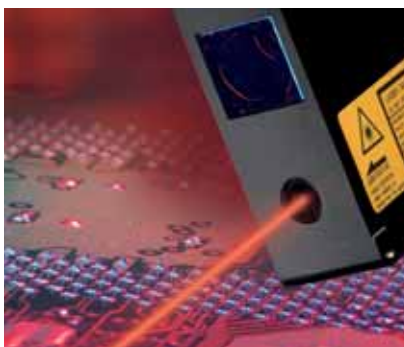


**OD Max and OD Max Transparent
displacement sensors – highly accurate,
non-surface dependent distance measurement**





- Highest measuring accuracy
- Non-surface dependent measurements:
matt ... shiny, as well as light ... dark
- Easiest solution for customer-specific applications, thanks to integrated calculations based on values from 2 sensors
- Diverse interfaces

OD MAX AND OD MAX TRANSPARENT SERIES

Highly accurate, non-surface dependent distance measurement

OD MAX series →

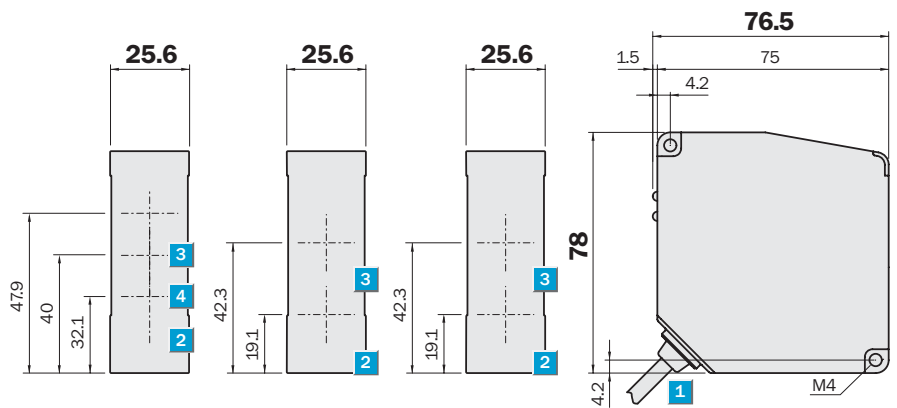
Displacement sensor OD Max, standard, sensor head

	Measurement ranges 25 ± 1 / 30 ± 5 / 85 ± 20 / 350 ± 100 mm
Displacement Sensor	

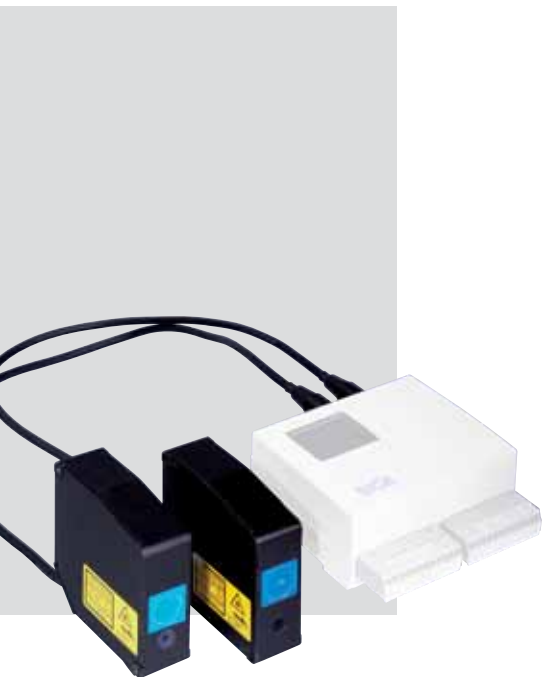
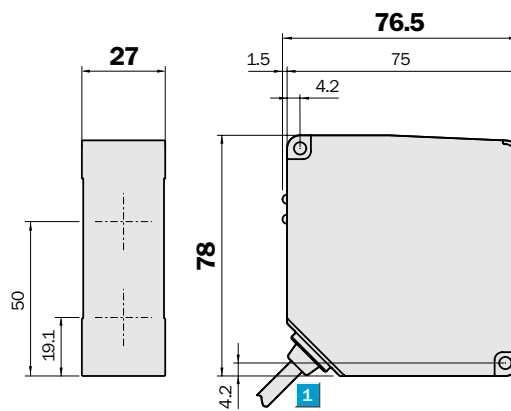
- Highest measuring accuracy
- Non-surface dependent measurements: Standard: matt ... shiny, as well as light ... dark
- Transparent: Transparent materials
- Calculation using 2 sensors values
- Diverse interfaces

Dimensional drawing

OD25-01T1 OD30-05T1 OD85-20T1



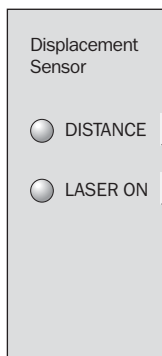
OD350-100T1



- | | |
|---|--|
| 1 Cable ø 5 mm/0.5 m with 10-pin connector | 4 Optical axis - light spot (at 25 mm due to V-Optics with 17.5°) |
| 2 Optical axis - sender | 5 Distance indicator LED |
| 3 Optical axis - receiver | 6 Laser on LED |

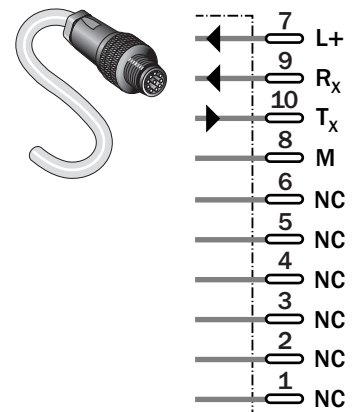
Adjustments possible

All types



Connection types

All types 10-pin



Accessories
Cables and connectors

Technical Data		OD-	25-01T1	30-05T1	85-20T1	350-100T1					
Light source	Red laser diode 1 (II) ¹⁾		■								
	Red laser diode 2 (II) ²⁾			■	■	■					
Measuring range	25 ± 1 mm		■								
	30 ± 5 mm			■							
	85 ± 20 mm				■						
	350 ± 100 mm					■					
Resolution ³⁾	0.1 μm		■								
	1 μm			■							
	5 μm				■						
	50 μm					■					
Reproducibility ⁴⁾	0.3 μm		■								
	3 μm			■							
	15 μm				■						
	150 μm					■					
Accuracy	± 2 μm ⁵⁾		■								
	± 10 μm ⁶⁾			■							
	± 40 μm ⁶⁾				■						
	± 200 μm ⁶⁾					■					
Temperature drift	± 0.05 % FS ⁷⁾ /°C		■	■	■	■					
Measuring frequency	10 kHz		■	■	■	■					
Supply voltage V _S	Supplied from the amplifier unit		■	■	■	■					
Enclosure rating	IP 67		■	■	■	■					
VDE protection class	III		■	■	■	■					
Ambient temperature T _A	Operation -10 °C ... +45 °C ⁸⁾		■	■	■	■					
	Storage -20 °C ... +60 °C		■	■	■	■					
Ambient light limit	max. 3.000 lx (fluorescent light)		■	■	■	■					
	max. 10.000 lx (sun light)		■	■	■	■					
Vibration resistance	10/s ... 55/s ⁹⁾		■	■	■	■					
Shock resistance	50 G (500 m/s ²)		■	■	■	■					
Weight	250 g (including 50 cm cable)		■	■	■	■					
Material	Sensor head housing: Diecast aluminium		■	■	■	■					
Cable extension	0.5 m pig tail with connector ¹⁰⁾		■	■	■	■					
On AOD-P/N1	Standard, materials such as metal		■	■	■	■					
On AODG-P/N1	Transparent/mirror		■								

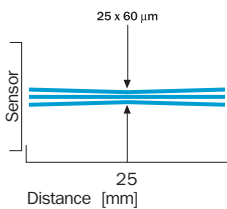
¹⁾ Wavelength 650 nm, max. output 390 μW
²⁾ Wavelength 650 nm, max. output 1 μW
³⁾ Averaging: 256/4096 (OD25) measurement; Object: 90% remission; Distance: middle distance

⁴⁾ With constant environmental conditions; Averaging: 256/1096 (OD25) measurements; Object: 90% remission
⁵⁾ On Glass; Parallel alignment of the active sensor surface to the object surface; Equivalent ± 0.1 % of Full Scale

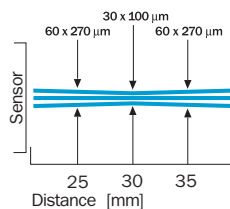
⁶⁾ Equivalent ± 0.1 % of Full Scale for 6 ... 90 % remission
⁷⁾ Full Scale:
 OD25-01T1 = 2 mm
 OD30-05T1 = 10 mm
 OD85-20T1 = 40 mm
 OD350-100T1 = 200 mm

⁸⁾ Non-condensing
⁹⁾ Double amplitude 1.5 mm, 2 h for XYZ-axes
¹⁰⁾ Extendable by cable to max. 10 m

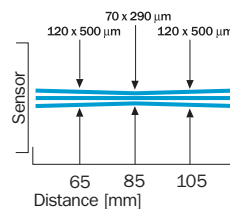
OD25-01T1: Light spot diameter



OD30-05T1: Lightspot diameter



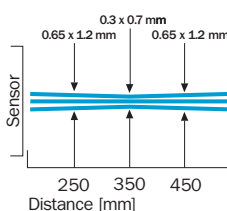
OD85-20T1: Lightspot diameter



Order information

Type	Order no.
OD25-01T1	6030977
OD30-05T1	6028959
OD85-20T1	6028958
OD350-100T1	6028957

OD350-100T1: Lightspot diameter



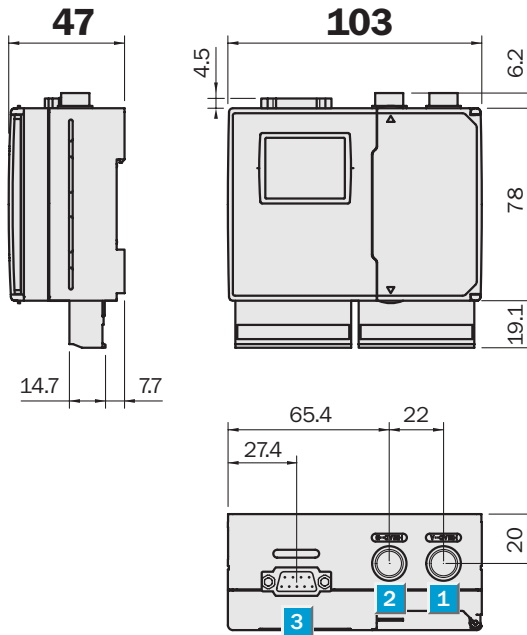
Displacement sensor OD Max standard, amplifier unit

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

Displacement Sensor

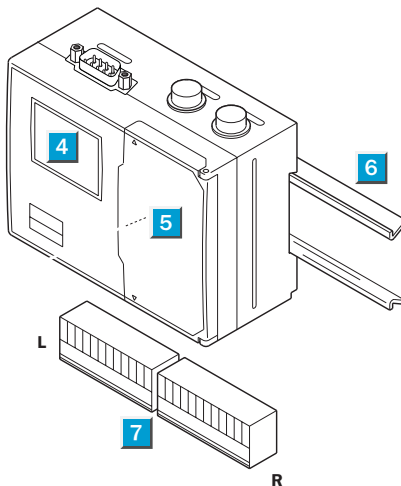
- Highest measuring accuracy
- Non-surface dependent measurements: Standard: matt ... shiny, as well as light ... dark
- Transparent: Transparent materials
- Calculation using 2 sensors values
- Diverse interfaces

Dimensional drawing

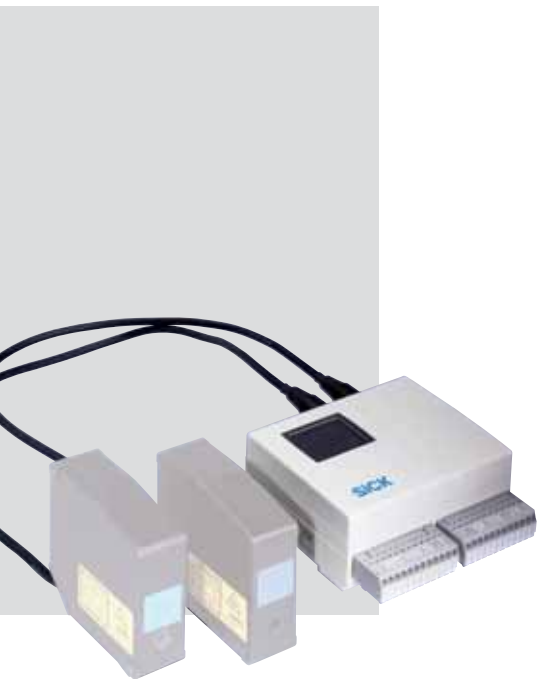


Adjustments possible

All types

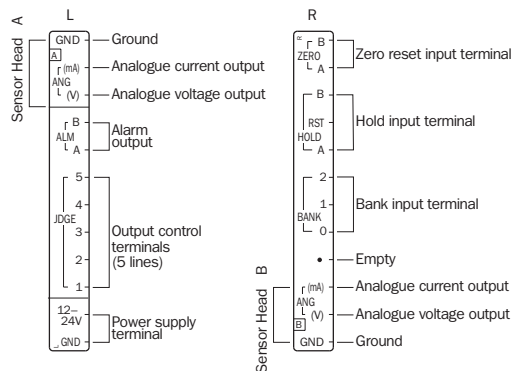


- 1 Sensor head A connection port
- 2 Sensor head B connection port
- 3 RS 232C interface
- 4 LCD display
- 5 Operation panel
- 6 DIN rail
- 7 Terminal board (detachable)

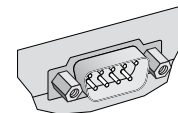


Connection terminal board

All types



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		AOD-	P1	N1	G-P1	G-N1						
Response time ¹⁾	0.5 ms											
Output rate	10 kHz											
In- and outputs	PNP											
	NPN											
Outputs												
2 Analogue voltage outputs ³⁾	-5 ... + 5 V ⁴⁾											
2 Analogue current outputs ³⁾	4 ... 20 mA ⁵⁾											
5 Switching outputs ⁶⁾	Max. 100 mA/24 V DC ⁷⁾											
2 Alarm outputs	To indicate failed measurements											
Data interface	RS 232C (male)											
Inputs												
3 Bank inputs	External memory bank selection											
3 Hold inputs	Holding the measurement/Laser off											
2 Zero reset inputs	To reference the measurement											
Display type	LCD colour display											
Additional features	Arithmetical calculations											
	Averaging functions											
	Frequency filters											
	Autom./manual sensitivity setting											
	Timer functions											
	8 Memory banks											
	Hold functions											
	Supply voltage V _S	12 ... 24 V DC ± 10 %										
Power consumption ²⁾	6 W											
Enclosure rating	IP 20											
VDE protection class	III											
Ambient temperature T _A	Operation -10 °C ... +45 °C ⁸⁾											
	Storage -20 °C ... +60 °C											
Vibration resistance	10/s ... 55/s ⁹⁾											
Shock resistance	20 G (196 m/s ²)											
Weight	240 g (including terminal board)											
Material	Housing	Polycarbonate										
	Terminal board	Nylon 66										
Connection type	Terminal board											
With OD30, 85, 350	Standard, materials such as metal											
With OD25	Transparent/mirror											

¹⁾ Without averaging and manually selected sensitivity

²⁾ 1 for each sensor head, or 1 for the calculation result.

³⁾ Output impedance max. 1 kΩ, Resolution 1 mV

⁴⁾ Output impedance max. 300, Resolution 1.5 μA

⁵⁾ For the calculation result

⁶⁾ Residual voltage max. 1.8 V

⁷⁾ When connected with 2 sensor heads. Including analogue current output.

⁸⁾ Non condensing

⁹⁾ Double amplitude 1.5 mm, 2 h for XYZ axes

Order information

OD Max™ Amplifier unit

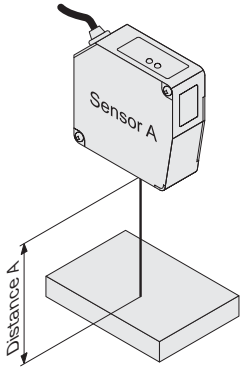
Type	Order no.
AOD-P1	6028960
AOD-N1	6028961
AODG-P1	6030978
AODG-N1	6030979

Accessories, extension cable

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

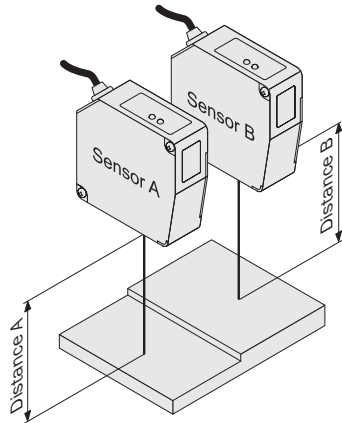
Calculation functions

Distance measurement



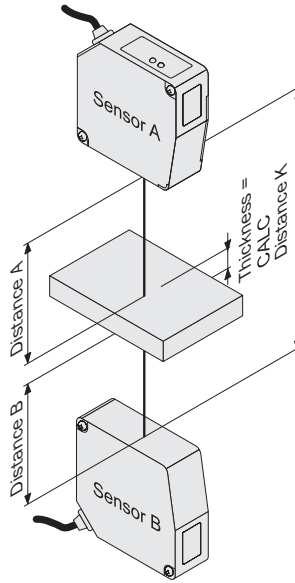
$CALC = A$

Evenness measurement



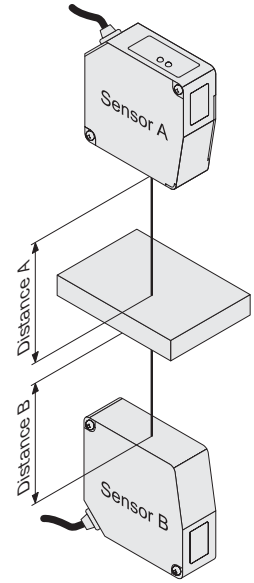
$CALC = A - B$

Thickness measurement



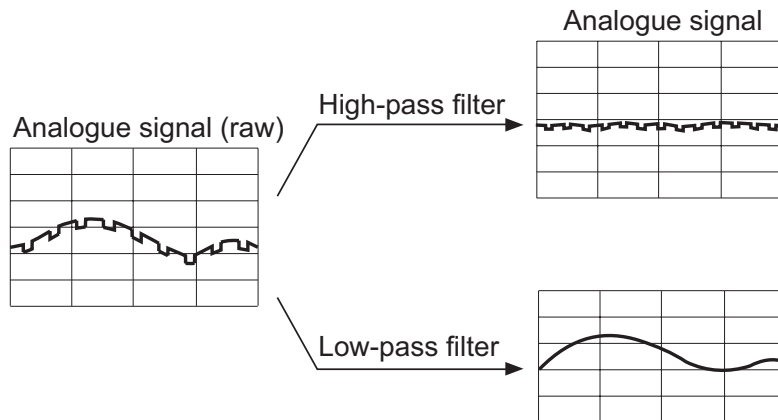
$CALC = K - A - B$

Centricity measurement



$CALC = A - B$

Frequency filter

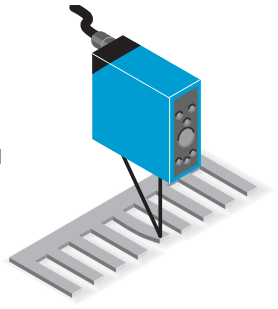
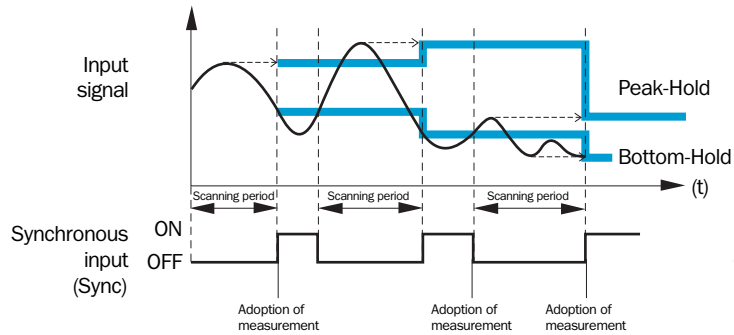


Time behavior graphs

Measuring/Hold function (ODC/OD Max)

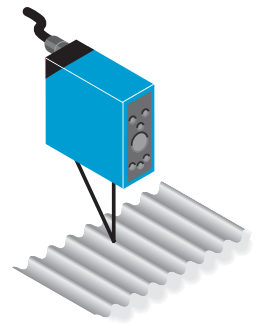
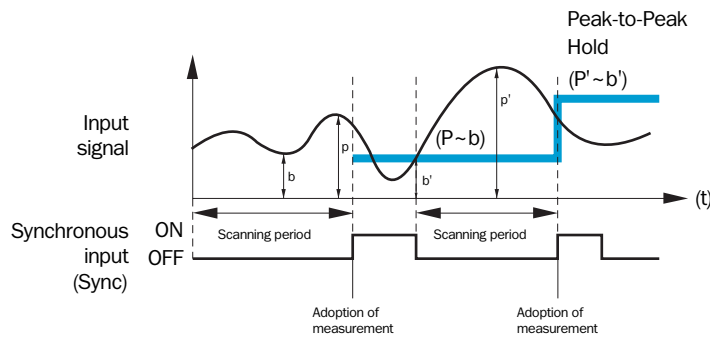
Peak-Bottom-Hold

The "Peak-(Bottom-)Hold" function is used for measuring the highest (lowest) value during a specific time period.



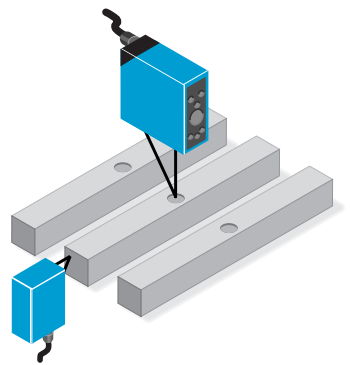
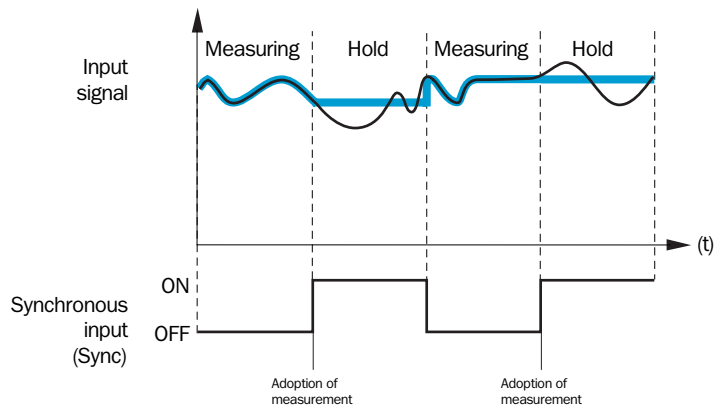
Peak-to-Peak-Hold

The "Peak-to-Peak" function is used for measuring the difference between the highest and lowest values during the preset time period.



Sample/Hold

The "Sample-and-Hold" function is used for measuring the value during a specific time period.



Automatic Peak-Bottom-Hold

The "Automatic Peak- and Bottom-Hold" function is used for measuring the highest (lowest) value from the beginning of the measurement.

