

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



Detailed technical data

Features

System part	Sensor head
Measuring range	24 mm ... 26 mm ¹⁾
Repeatability	0.02 μm ²⁾
Linearity	± 1.6 μm ²⁾
Response time	≥ 0.1 ms ^{3) 4)}
Measuring frequency	≤ 10 kHz ^{1) 4)}
Output time	≥ 0.1 ms
Emitted beam	
Light source	Laser, red
Typ. light spot size (distance)	100 μm x 700 μm (25 mm)
Key laser figures	
Normative reference	IEC 60825-1:2014, EN 60825-1:2014
Laser class	1 ⁵⁾ 6)
Special task	Thickness measurement of transparent material
Additional function	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
Thickness measurement of transparent material	0.3 mm ... 2 mm
General notes	
Note on use	OD Precision sensor head can be used in combination with AOD5-P/N1 or stand-alone via RS-422

¹⁾ 6 % ... 90 % remission; at default settings.

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

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

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

⁵⁾ Wavelength: 650 nm, max. output: 390 μW.

⁶⁾ Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

Safety-related parameters	
MTTF _D	101 years
DC _{avg}	0%

- 1) 6 % ... 90 % remission; at default settings.
- 2) Measurement at 90% remission (ceramic, white), or mirror for OD5-25x; averaging set to: 256 or 4096 for OD5-25x; constant ambient conditions.
- 3) Time needed for automatic sensitivity adjustment is calculated as: sampling period x 20. At default setting 100 μs (10kHz) this is <= 2ms.
- 4) Default setting for OD5-350x100 and OD5-500x200 = 0.8 ms, or 1.25 kHz, all others = 0.1 ms/10 kHz.
- 5) Wavelength: 650 nm, max. output: 390 μW.
- 6) Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

Interfaces

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

- 1) Optional over evaluation unit AOD5.
- 2) A maximum of three current and three voltage outputs are possible via the AOD5 evaluation unit.
- 3) Output resistance 100 Ω, min. load 10 k Ω.

Electronics

Supply voltage U_B	DC 12 V ... 24 V ¹⁾
Warm-up time	≤ 5 min
Display	LEDs, 4" color display on optional evaluation unit
Enclosure rating	IP67
Protection class	III
Connection type	Cable with male connector, 0.5 m

- 1) DC 12 V (-5 %) ... DC 24 V (+10 %).

Mechanics

Dimensions (W x H x D)	29 mm x 78 mm x 75 mm
Housing material	Metal (Aluminum)
Window material	Glass
Weight	250 g ¹⁾

- 1) Includes 0.5 m cable.

Ambient data

Ambient temperature, operation	-10 °C ... +50 °C
Ambient temperature, storage	-20 °C ... +60 °C
Relative air humidity (non-condensing)	35 % ... 85 %
Temperature drift	± 0.01 % FS/K (FS = Full Scale = Measuring range of sensor)
Typ. Ambient light immunity	Artificial light: ≤ 3,000 lx Sunlight: ≤ 10,000 lx
Vibration resistance	10 Hz ... 55 Hz (amplitude 1.5 mm, x-, y-, z-axis 2 hours each)
Shock resistance	50 G (x, y, z axis 3 times each)

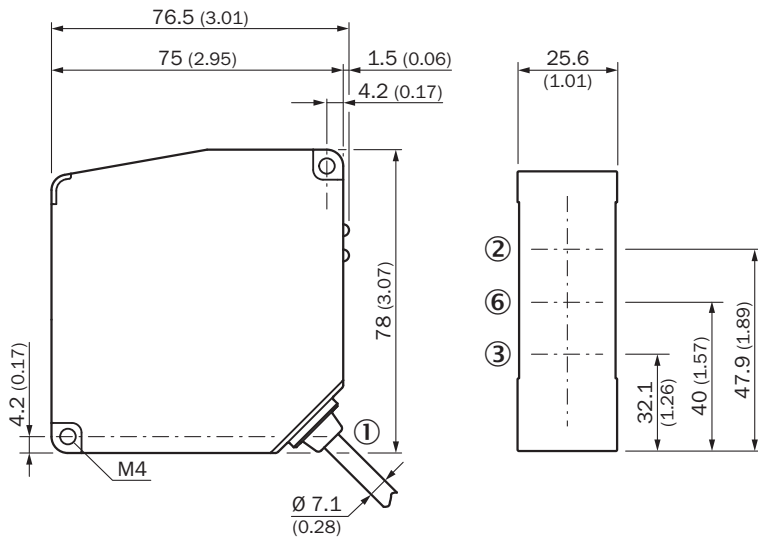
Certificates

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

Classifications

ECLASS 5.0	27270801
ECLASS 5.1.4	27270801
ECLASS 6.0	27270801
ECLASS 6.2	27270801
ECLASS 7.0	27270801
ECLASS 8.0	27270801
ECLASS 8.1	27270801
ECLASS 9.0	27270801
ECLASS 10.0	27270801
ECLASS 11.0	27270801
ECLASS 12.0	27270916
ETIM 5.0	EC001825
ETIM 6.0	EC001825
ETIM 7.0	EC001825
ETIM 8.0	EC001825
UNSPSC 16.0901	41111613

Dimensional drawing OD5-25xxx



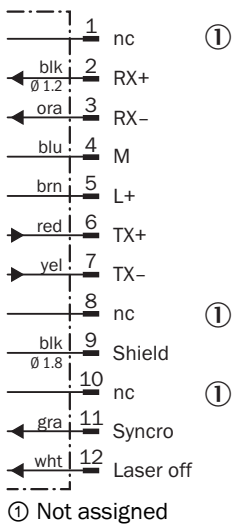
Dimensions in mm (inch)

- ① Cable Ø 7.1 mm, 0.5 m with connector, 12-pin
- ② optical axis, receiver
- ③ optical axis, sender
- ⑥ Optical axis, light spot (at 25 mm due to V-Optics with 17.5°)

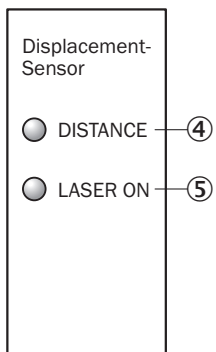
Connection type Hirose 12-pin male connector for sensor head



Connection diagram

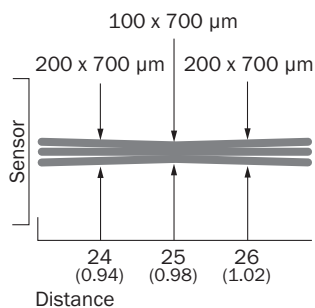


Adjustment possible



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

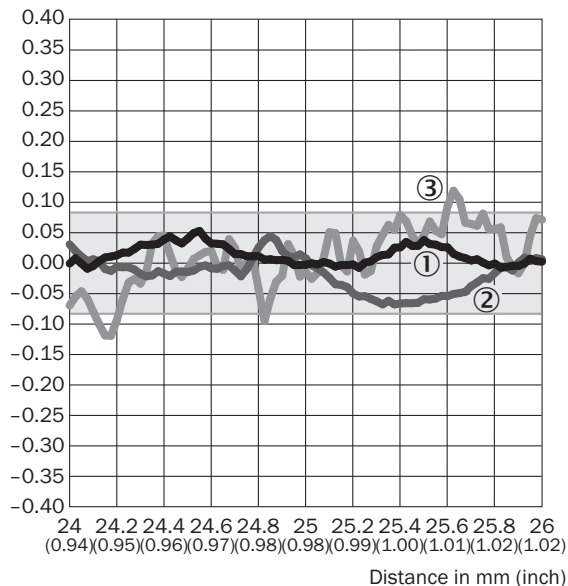
Light spot size OD5-25W01



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

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"> Description: RS-422, shielded Connection type head A: Female connector, M12, 12-pin, straight Connection type head B: Male connector, M12, 12-pin, straight Signal type: RS-422 Cable: 2 m, 9-wire, twisted pair, PVC Note: OD Precision specific 	YFHRSB-020XXXMRSE	6035986
	<ul style="list-style-type: none"> Description: Shielded Connection type head A: Female connector, M12, 12-pin, straight Connection type head B: Flying leads Cable: 5 m, 9-wire, PVC Note: For stand-alone operation Application: Uncontaminated zones, Zones with chemicals 	DOL-1212-G05M	6035988
	<ul style="list-style-type: none"> Description: RS-422, shielded Connection type head A: Female connector, M12, 12-pin, straight Connection type head B: Male connector, M12, 12-pin, straight Signal type: RS-422 Cable: 5 m, 9-wire, twisted pair, PVC Note: OD Precision specific 	YFHRSB-050XXXMRSE	6035987
	<ul style="list-style-type: none"> Description: Shielded Connection type head A: Male connector, 50-pin, straight Connection type head B: Flying leads Cable: 3 m, 50-wire, PVC Connection systems: Flying leads Note: In- and output expansion cable for AOD5-P/N1 (OD Precision) 	IO-EXP-AOD5	6035990
	<ul style="list-style-type: none"> Description: Unshielded Connection type head A: Male connector, 12-pin Connection type head B: Terminal connector, 12-pin Connection systems: Spring terminal Note: Terminal strip for AOD5-P/N1 (OD Precision) 	TERM.-AOD5	6035989
integration modules and adapters			
	<ul style="list-style-type: none"> Description: Evaluation unit: OD Precision, 5 x PNP 	AOD5-P1	6035985
	<ul style="list-style-type: none"> Description: Evaluation unit: OD Precision, 5 x NPN 	AOD5-N1	6035984

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