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# More Precision

**optoNCDT 1900** // Laser displacement sensor for advanced automation





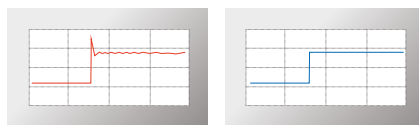
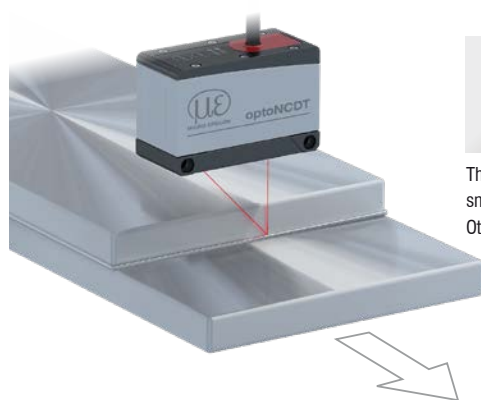
- Unique combination of size, speed and accuracy
- Ideal for dynamic and high resolution measurements
- Highest ambient light resistance in its class
- Advanced Surface Compensation for high speed measurements on changing surfaces
- Stable aluminum die-cast housing
- New installation system enables repeatable sensor alignment in ideal measuring position

### Next-generation laser sensors

The optoNCDT 1900 is the latest model of Micro-Epsilon laser sensors. This innovative sensor is used for dynamic displacement, distance and position measurements offering a unique combination of high speed, compact design and accuracy. The integrated high-performance controller enables fast and highly precise processing and output of measurement values. The innovative optoNCDT 1900 laser triangulation sensor is used whenever maximum precision is required with the latest technology. It solves measurement tasks in the fields of automation, car manufacturing, 3D printing and in coordinate measuring machines.

### Highest stability based on intelligent signal optimization

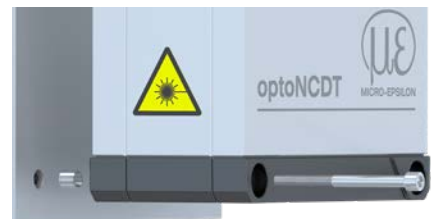
For the first time, a two-step measurement value averaging feature is available to optimize the signal. This enables a smooth signal at edges and steps. Especially for high speed measurements of moving parts, measurement averaging enables a precise signal course.



The two-step measurement value averaging enables smooth signal courses when measuring edges (right). Otherwise, interfering signals occur (left).

### Simple installation and initial operation

Mounting the sensor using fitting sleeves automatically aligns the sensor in the correct position. This enables both easy sensor replacement and even higher precision in solving measurement tasks. Thanks to its small dimensions, the laser sensor can also be integrated in confined spaces.

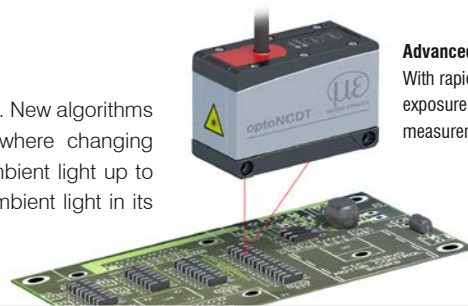


### Patented installation

Easy mounting and high repeatability with the sensor replacement

### Advanced Surface Compensation The intelligent exposure control for demanding surfaces

The optoNCDT 1900 is equipped with an intelligent surface control feature. New algorithms generate stable measurement results even on demanding surfaces where changing reflections occur. Furthermore, these new algorithms compensate for ambient light up to 50,000 lux. Therefore, this is the sensor with the highest resistance to ambient light in its class which can even be used in strongly illuminated environments.



**Advanced Surface Compensation**  
With rapidly changing surfaces, the exposure control enables reliable measurement results.

Model	ILD1900-10	ILD1900-25	ILD1900-50
Measuring range	10 mm	25 mm	50 mm
Start of measuring range	20 mm	25 mm	40 mm
Mid of measuring range	25 mm	37.5 mm	65 mm
End of measuring range	30 mm	50 mm	90 mm
Measuring rate <sup>1)</sup>	continuously adjustable between 0.25 ... 10 kHz 7 adjustable stages: 10 kHz / 8 kHz / 4 kHz / 2 kHz / 1.0 kHz / 500 Hz / 250 Hz		
Linearity <sup>2)</sup>	< ±2 μm	< ±5 μm < ±0.02 % FSO	< ±10 μm
Repeatability <sup>3)</sup>	< 0.4 μm	< 0.8 μm	< 1.6 μm
Temperature stability <sup>4)</sup>	±0.005 % FSO / K		
Light spot diameter (±10 %) <sup>5)</sup>	SMR	115 x 150 μm	200 x 265 μm
	MMR	60 x 65 μm	70 x 75 μm
	EMR	120 x 140 μm	220 x 260 μm
	smallest diameter	60 x 65 μm with 25 mm	65 x 70 μm with 35 mm
Light source	Semiconductor laser < 1 mW, 670 nm (red)		
Laser safety class	Class 2 in accordance with DIN EN 60825-1 : 2015-07		
Permissible ambient light	50,000 lx		
Supply voltage	11 ... 30 VDC		
Power consumption	< 3 W (24 V)		
Signal input	1 x HTL/TTL laser on/off; 1 x HTL/TTL multi-function input: trigger in, slave in, zero setting, mastering, teach-in; 1 x RS422 synchronization input: trigger in, sync in, master/slave, master/slave alternating		
Digital interface	RS422 (18 bit) / PROFINET <sup>6)</sup> / EtherNet/IP <sup>6)</sup>		
Analog output	4 ... 20 mA / 0 ... 5 V / 0 ... 10 V (16 bit, freely scalable within the measuring range)		
Switching output	2 x switching output (error & limit value): npn, pnp, push pull		
Synchronization	possible for simultaneous or alternating measurements		
Connection	integrated cable 3 m, open ends, min. bending radius 30 mm (fixed installation); or integrated pigtail 0.3 m with 17-pin M12 plug; optional extension to 3 m / 6 m / 9 m / 15 m possible		
Temperature range	Storage	-20 ... +70 °C (non-condensing)	
	Operation	0 ... +50 °C (non-condensing)	
Shock (DIN EN 60068-2-27)	15 g / 6 ms in 3 axes		
Vibration (DIN EN 60068-2-6)	20 g / 20 ... 500 Hz		
Protection class (DIN EN 60529)	IP67		
Material	Aluminum housing		
Weight	approx. 185 g (incl. pigtail), approx. 300 g (incl. cable)		
Control and display elements	Select & function keys: interface selections, mastering (zero), teach, presets, quality slider, frequency selection, factory settings; web interface for setup <sup>7)</sup> : application-specific presets, peak selection, video signal, freely selectable averaging possibilities, data reduction, setup management; 2 x color LEDs for power / status		

FSO = Full Scale Output

SMR = Start of measuring range, MMR = Mid of measuring range, EMR = End of measuring range

The specified data apply to a white, diffuse reflecting surface (Micro-Epsilon reference ceramic for ILD sensors)

<sup>1)</sup> Factory setting: measuring rate 4 kHz, median 9; modifying the factory setting requires the IF2001/USB converter (see accessories)

<sup>2)</sup> Relates to digital output

<sup>3)</sup> Typical value with measurements at 4 kHz and median 9

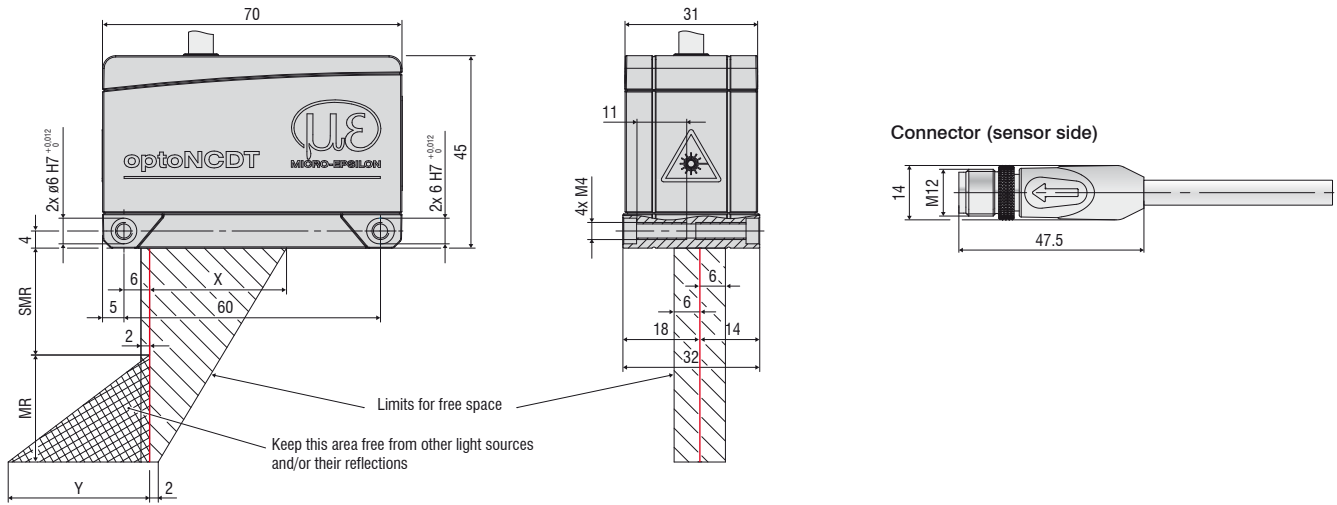
<sup>4)</sup> Relates to digital output in mid of measuring range

<sup>5)</sup> Light spot diameter determined using a point-shaped laser with Gaussian fit (full 1/e<sup>2</sup> width)

<sup>6)</sup> Connection via interface module (see accessories)

<sup>7)</sup> Connection to PC via IF2001/USB (see accessories)

optoNCDT 1900 (10/25/50 mm)



MR	SMR	X	Y
10	20	33	14
25	25	33	33
50	40	36	45

