MICRO-EPSILON

More Precision

optoNCDT 1900-6 / 1900-6LL // High-precision laser displacement sensor

Laser sensors for displacement, distance and position
optoNCDT 1900-6 / 1900-6LL

- Measuring rate up to 10 kHz
- Analog (U/I) / RS422 / PROFINET / EtherNet/IP
- Advanced-Surface-Compensation
- Repeatability <0.1 µm
- Ideal for series and OEM applications
- Highest immunity to ambient light
- High resistance to shocks and vibrations

optoNCDT – Laser sensors for displacement, distance and position

optoNCDT sensors have set milestones for industrial laser displacement measurement. Whether for displacement, distance or thickness measurement, Micro-Epsilon laser sensors are considered one of the best in their class. These laser sensors are used e.g. in measurement and monitoring tasks in factory automation, electronics production, robotics and vehicle construction.

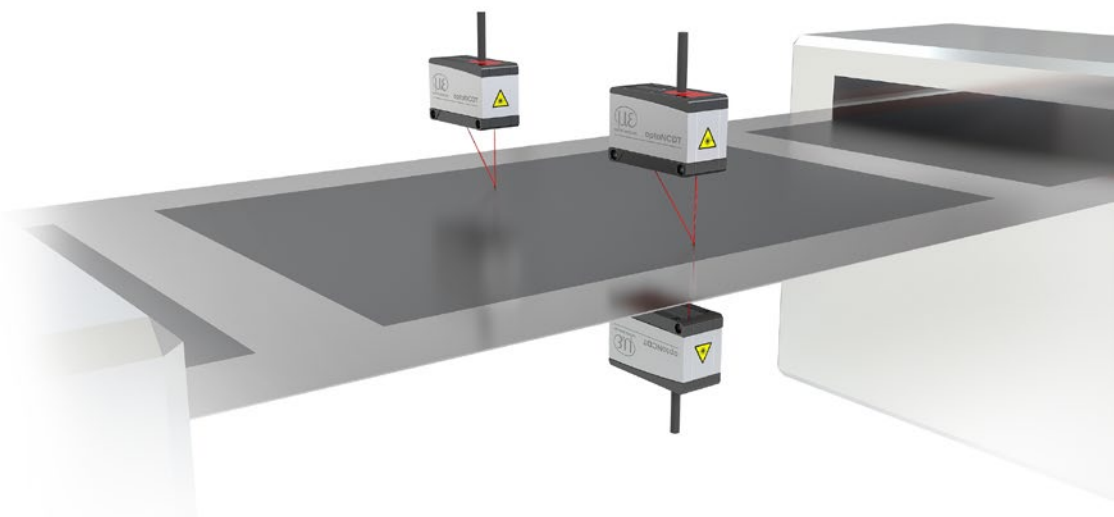
The optoNCDT 1900 is the latest model of Micro-Epsilon laser sensors. This innovative sensor is used for dynamic displacement, distance and position measurements and impresses with high speed, design and accuracy. The integrated high-performance controller enables fast and highly precise processing and output of measurement values. The innovative optoNCDT 1900 laser triangulation sensor is used whenever maximum precision is combined with the latest technology, e.g., in Advanced Automation, the automotive industry, 3D printing and coordinate measuring machines.

Optimised for thickness measurement with electrode coating

The new measuring range of 6 mm with a small laser line is specially designed for battery production purposes.

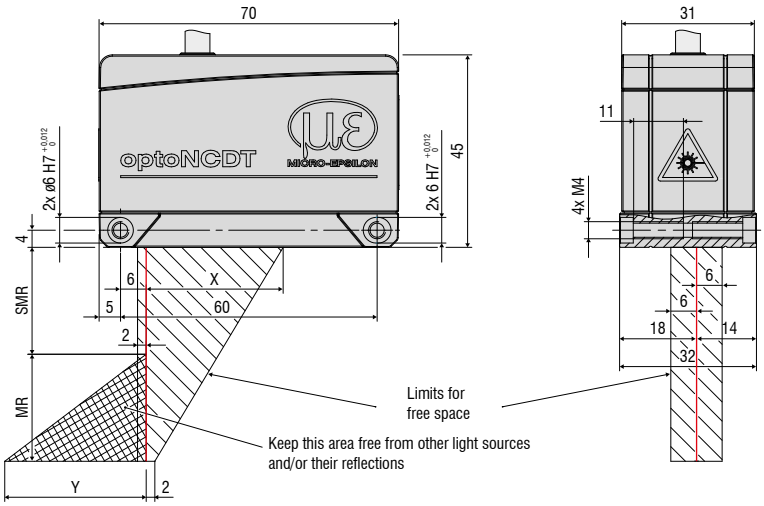
The laser sensor is the preferred choice in the battery industry for thickness measurements of the electrode coating. The electrode coating is a dried paste (the so-called slurry). The compound is applied to both sides of the aluminum film (for the cathode) or the copper film (for the anode). Subsequent drying and calendering forms a partially very porous surface. Specially designed for measurements on rough surfaces, the small laser line is ideal for this application. The values obtained for the coating application are used for quality assurance.

Both its high accuracy and its very compact size make the sensor ideally suitable for this type of measurement tasks.



Model		ILD1900-6	ILD1900-6LL
Measuring range		6 mm	6 mm
Start of measuring range		17 mm	17 mm
Mid of measuring range		20 mm	20 mm
End of measuring range		23 mm	23 mm
Measuring rate [1]		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 [2]		< ±1.8 µm	< ±1.2 µm
		< ±0.03 % FSO	< ±0.02 % FSO
Repeatability [3]		< 0.25 µm	
Temperature stability [4]		± 0.005 % FSO / K	
Light spot diameter (±10 %) [5]	SMR	85 x 105 µm	100 x 600 µm
	MMR	57 x 60 µm	50 x 565 µm
	EMR	105 x 120 µm	100 x 525 µm
	Smallest diameter	57 x 60 µm with 20 mm	50 x 565 µm with 20 mm
Light source		Semiconductorlaser < 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 (24V)	
Signalt 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 [6] / EtherNet/IP [6]	
Analog output		4 … 20 mA / 0 … 5 V / 0 … 10 V (16 bit; freely scalable within the measuring range)	
Switching output		2x switching outputs (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 (suitable connection cable see Accessories)	
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)		30 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 [7]: 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
SRM = 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)
[1] Factory setting: measuring rate 4 kHz, median 9; modifying the factory setting requires the IF2001/USB converter
[2] Relates to digital output
[3] Typical value with measurements at 4 kHz and median 9
[4] Relates to digital output in mid of measuring range
[5] Light spot diameter determined using a point-shaped laser with Gaussian fit (full $1/e^2$ width)
[6] Connection via interface module
[7] Connection to PC via IF2001/USB



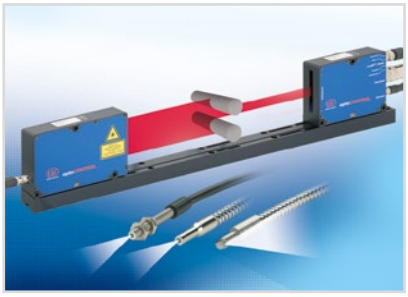
MR	SMR	X	Y
6	17	27	9

Sensors and Systems from Micro-Epsilon

Sensors and systems for displacement, distance and position

Sensors and measurement devices for non-contact temperature measurement

Measuring and inspection systems for metal strips, plastics and rubber



Optical micrometers and fiber optics, measuring and test amplifiers

Color recognition sensors, LED analyzers and inline color spectrometers

3D measurement technology for dimensional testing and surface inspection

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