



# More Precision








optoNCDT 1750 // Universal laser displacement sensor



The universal laser sensor for industry & automation

optoNCDT 1750



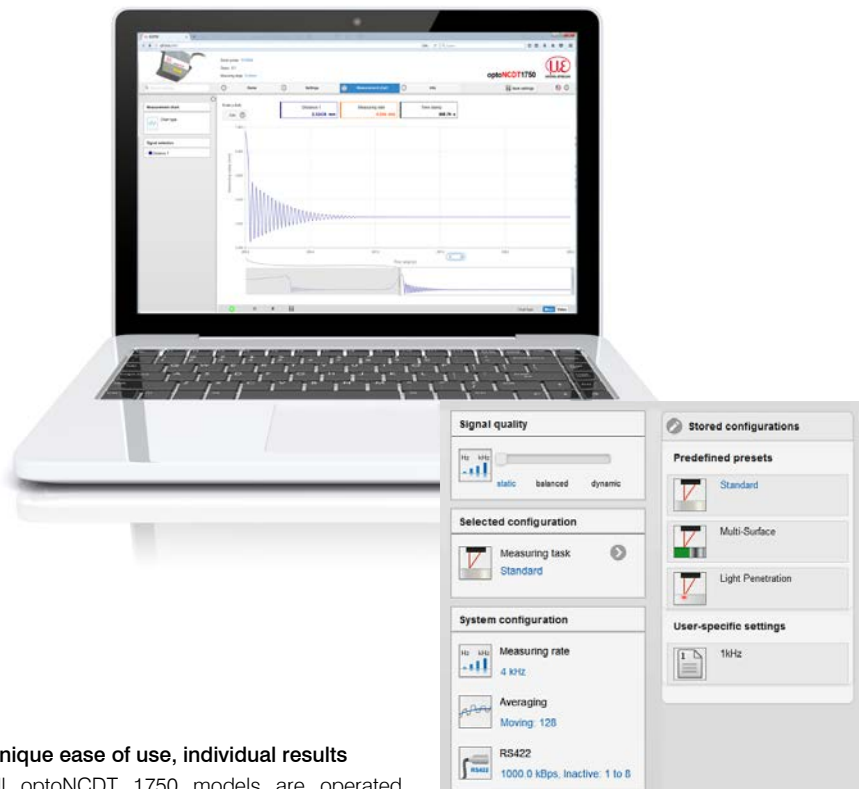
-  **Compact design with integrated controller**
-  **Measuring rate up to 7.5kHz**  
312Hz, 375Hz, 1000Hz
-  **Analog and digital output**
-  **Trigger input/teach-in/zero-setting/mastering/synchronization**
-  **Configuration via web interface or Plug & Play**
-  **Application-specific presets and individual sensor settings**
-  **Real Time Surface Compensation**

The optoNCDT 1750 is a powerful laser triangulation sensor which is used in high speed, precise measurements in industrial applications. New evaluation algorithms and enhanced components provide highest accuracy and dynamics. The high-performance optical system generates a small light spot onto the target which enables to even detect smallest components reliably.

The pigtail cable and the internal controller reduce the sensor installation effort to a minimum. Due to its extremely compact size, the sensor can also be integrated into restricted installation spaces. The optoNCDT 1750 provides a real-time surface compensation feature (RTSC) which compensates for the amount of reflection from the target surface during continuous exposure and in real-time. The exposure time or the amount of light produced by the laser is optimally matched to the reflection characteristics of the target surface which enables reliable measurements even on changing surfaces.

### Highest precision for industrial applications

Different output signals enable to integrate the sensor into plant or machine control systems. As well as analog voltage and current outputs, a digital RS422 interface provides distance information from the sensor. Due to the selectable setting and evaluation possibilities, the optoNCDT 1750 meets the requirements for use in industrial applications with high dynamics.



### Unique ease of use, individual results

All optoNCDT 1750 models are operated using an intuitive web interface. The settings for the measurement task can be quickly selected using predefined presets. Using the 'Standard', 'Changing surfaces' (from Q4 2017) and 'Material with penetration' (from Q4 2017) settings, precise measurement results are easily achieved without any complex optimization. The quality slider enables the sensor to be adapted to static and dynamic processes.

Up to eight user-specific sensors settings can be stored and exported in the setup manage-

ment. Loading these individual sensor settings enables extremely fast parameter set up e.g. for high volume applications. The optoNCDT offers an extended web interface which provides many additional functions. The video signal display, the signal peak selection and a freely adjustable signal averaging enable the experienced user to optimize the measurement task. The ROI function (region of interest) allows e.g. for interfering signals in the background to be filtered out.

Model	ILD 1750-2	ILD 1750-10	ILD 1750-20	ILD 1750-50	ILD 1750-100	ILD 1750-200	ILD 1750-500	ILD 1750-750
Measuring range	2mm	10mm	20mm	50mm	100mm	200mm	500mm	750mm
Start of measuring range	24mm	30mm	40mm	45mm	70mm	70mm	200mm	200mm
Midrange	25mm	35mm	50mm	70mm	120mm	170mm	450mm	575mm
End of measuring range	26mm	40mm	60mm	95mm	170mm	270mm	700mm	950mm
Linearity	1.6µm	6µm	12µm	30µm	60µm	160µm	350µm	670µm
	≤ ±0.08% FSO	≤ ±0.06% FSO				≤ ±0.08% FSO	≤ ±0.07% FSO	≤ ±0.09% FSO
Repeatability <sup>2)</sup>	0.1µm	0.4µm	0.8µm	2µm	4µm	8µm	20µm	30µm
Measuring rate	continuously adjustable between 0.3 ... 7.5kHz							
	adjustable in 6 steps: 7.5kHz / 5kHz / 2.5kHz / 1.25kHz / 625Hz / 300Hz							
Light source	Semiconductor laser <1mW, 670nm (red)							
Permissible ambient light (with 2.5kHz)	10,000lx							
Laser safety class	Class 2 according to DIN EN 60825-1 : 2015-07							
Spot diameter	SMR	80µm	110µm	320µm	570µm	740µm	1300µm	1500µm
	MMR	35µm	50µm	45µm	55µm	60µm	1300µm	1500µm
	EMR	80µm	110µm	320µm	570µm	700µm	1300µm	1500µm
Temperature stability <sup>1)</sup>	0.025% FSO/°C	0.01% FSO/°C						
Operating temperature	0°C ... +50°C							
Storage temperature	-20°C ... +70°C							
Control inputs/outputs	1x HTL/TTL Laser on/off; 1 x HTL/TTL Multifunction input Trigger in / slave in / (zero setting / mastering / teach 2x error output (error & limit value): npn, pnp, push pull) 1x RS422 synchronization input (trigger in, sync in, master/slave, master/slave alternating)							
Measurement value output	analog	4...20mA; 0 - 5V / 0 - 10V; 16bit; freely scalable within the measuring range						
	digital	RS422 / 18bit						
Operation	Button	Select & function buttons for interface selections, mastering (zero), teach, presets, quality slider, frequency selection, factory settings						
	Web interface	Application-specific presets; peak selection, video signal; freely selectable averaging possibilities; data reduction; setup management <sup>2)</sup>						
Power supply	11-30V DC, 24V P< 3W							
Sensor cable	Standard	0.25m pigtail with 14-pole ODU connector						
	Option	Extension: 3 / 10m						
Synchronization	possible for simultaneous or alternating measurements							
Protection class	IP65							
Vibration	2g / 20 ... 500Hz							
Shock	15g / 6ms							
Weight (with 25cm cable)	approx. 550g						600g	

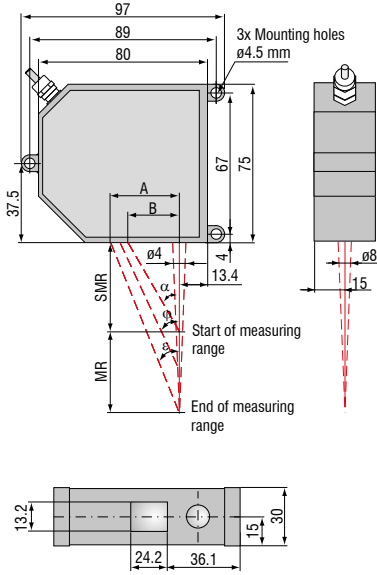
FSO = Full Scale Output; The specified data apply to a white, diffuse reflecting surface (reference: ceramics)

<sup>1)</sup> based on digital output

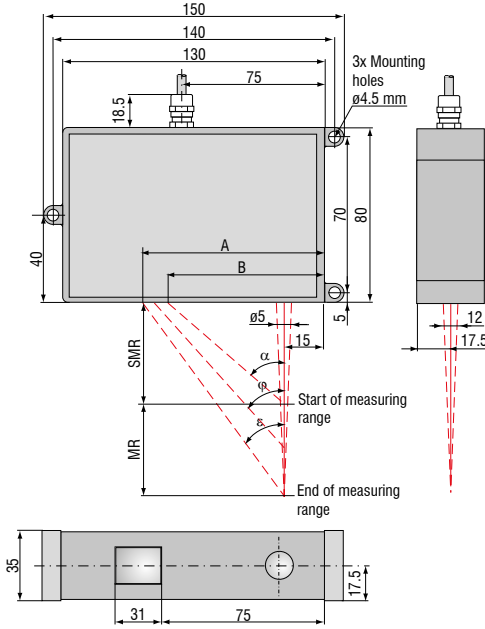
<sup>2)</sup> Connection to PC via IF2001/USB (optionally available)

SMR = Start of measuring range; MMR = Midrange; EMR = End of measuring range

optoNCDT 1750 (2/10/20/50/100/200mm)



optoNCDT 1750 (500/750mm)



(Dimensions in mm, not to scale.)

MR	SMR	$\alpha$	$\varphi$	$\varepsilon$	A	B
2	24	35°	40°	44.8°	25.8	16.8
10	30	34.3°	35.2°	35.6°	28.7	20.5
20	40	28.8°	27.5°	26.7°	30.1	22.0
50	45	26.5°	23.0°	18.3°	31.5	22.5
100	70	19.0°	15.4°	10.9°	32.6	24.1
200	70	19.0°	9.78°	6.97°	33.1	24.1
500	200	19.3°	9.8°	7.0°	101	85
750	200	19.3°	7.7°	5.0°	101	85

Connector (sensor side)



Connector (sensor cable)

