



Laser Triangulation Displacement Sensors

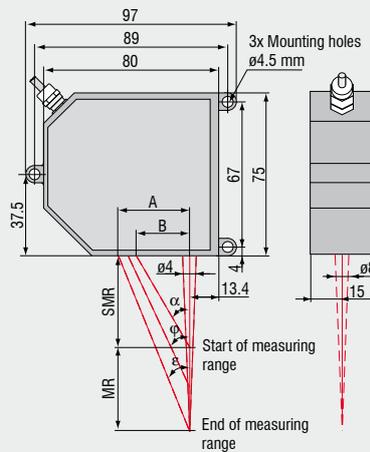




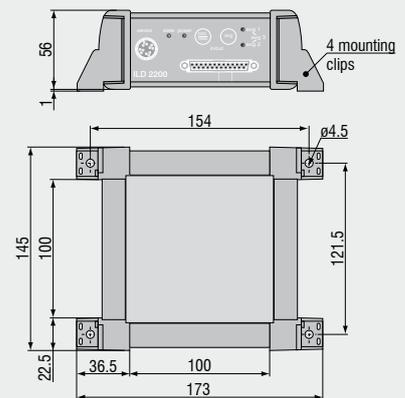
-  **Laser line averages across shiny metallic or structured surfaces**
-  **Four models with measuring ranges from 2mm to 50mm**
-  **Sensor head and separate controller**
-  **20kHz measurement rate over the full working range**
-  **Real Time Surface Compensation**
-  **Analogue and digital output**
-  **Adjustable filter functions (firmware)**
-  **Calibration certificate included**
-  **Configuration via software www.micro-epsilon.com/download**

The optoNCDT 2220LL series uses a small laser line, instead of a spot, to provide accurate measurement against shiny metallic surfaces all at high speed. The optoNCDT 2220LL provides a 20kHz measurement rate across its entire measurement range for any type of situation. The use of the laser line allows the sensor to perform an average across the line which makes it possible to measure rough surfaces with greater accuracy than before. The sensor can also be used for measuring directly reflecting surfaces without the need to angle the sensor. The high measurement rate and excellent resolution allow measurements to be taken on very fast applications with challenging or reflecting surfaces.

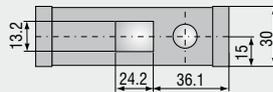
optoNCDT 2220LL (2/10/20/50mm)



Controller



MR	SMR	α	φ	ε	A	B
2	24	35.0°	40.0°	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
50	45	26.5°	23.0°	18.3°	31.5	22.5



(Dimensions in mm, not to scale. All CAD files are available online.)

Model		ILD 2220-2LL	ILD 2220-10LL	ILD 2220-20LL	ILD 2220-50LL
Measuring range		2mm	10mm	20mm	50mm
Start of measuring range		24mm	30mm	40mm	45mm
Midrange		25mm	35mm	50mm	70mm
End of measuring range		26mm	40mm	60mm	95mm
Linearity		1µm ≤0.05% FSO	3µm	6µm ≤0.03% FSO	15µm
Resolution ^{1) 2)} (at 20 kHz without averaging)		0.03µm	0.15µm	0.3µm	0.8µm
			0.0015% FSO		
Measuring rate		20kHz			
Permissible ambient light		30.000lx			
Spot diameter	SMR	85 x 240µm	120 x 405µm	185 x 485µm	350 x 320µm
	MMR	24 x 280µm	35 x 585µm	55 x 700µm	70 x 960µm
	EMR	64 x 400µm	125 x 835µm	195 x 1200µm	300 x 1940µm
Light source		semiconductor laser <1mW, 670nm (red)			
Laser safety class		class 2 acc. DIN EN 60825-1/A1 12.99 / IEC 825-1/A1 12.99 / FDA			
Protection class		sensor: IP 65 / controller: IP 50			
Temperature stability		0.025 % FSO/°C	0.01 % FSO/°C		
Operation temperature		0 ... +50°C			
Storage temperature		-20 ... +70°C			
Output		analogue: ±5V digital: RS 422 / 691.2kBAud			
Power supply		24VDC (±15%), max. 500mA			
Sensor cable length		standard: 2m - integrated option: 5m/10m			
Controller		functions: auto zero / signal averaging dimensions: 143mm x 145mm x 52mm - without mounting clips			
Electromagnetic compatibility (EMC)		EN 55011/12.1998 and EN 50082-2/ 02.1996			
Vibration		2g / 20 ... 500Hz			
Shock		15g / 6ms / 3 axis			
Weight		sensor: ~550g controller: ~1000g			

FSO = Full Scale Output

All specifications apply for a diffusely reflecting matt white ceramic target

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

¹⁾ for measurements against high glossy surfaces (targets), resolution depends on the material

²⁾ resolution digital output 16bit

Custom Sensor Modifications

For applications where the above standard sensors do not meet your requirements, it may be possible to supply a sensor with modified specification. Please contact us for further information.

Options

- Non standard measuring range and stand off
- Custom housing or mounting geometry
- Measuring rate 2.5 / 5 / 10 / 20kHz
- Non standard signal interfaces
- Special cable length of electrical connector
- 90° beam deflection
- Vacuum suitability
- Reduced mass
- Increased shock and vibration resistance

High performance sensors made by Micro-Epsilon



Sensors and systems for displacement, position and dimension

Eddy current sensors
Optical and laser sensors
Capacitive sensors
Inductive sensors
Draw-wire sensors
Optical micrometers
2D/3D profile sensors
Image processing



Sensors and measurement devices for non-contact temperature sensors

Online instruments
Handheld devices



Measuring systems for quality control

for plastic and film
for tire and rubber
for web material
for automotive components
for glass