











## Laser Triangulation Displacement Sensors

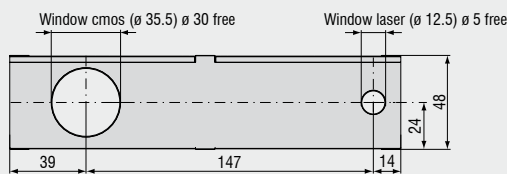




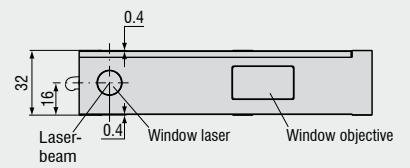
-  **High accuracy and long standoff distances**
-  **Three models with measuring ranges from 10mm to 50mm**
-  **Measurement rate up to 10kHz**
-  **Real Time Surface Compensation**
-  **Analogue and digital output**
-  **Adjustable filter functions (firmware)**
-  **Calibration certificate included**
-  **Configuration via software [www.micro-epsilon.com/download](http://www.micro-epsilon.com/download)**

In contrast to conventional laser sensors, the Long-Range series allows accurate measurements to be taken at much longer stand off distances than normal. This is an important advantage, especially if the sensor cannot be mounted close to the target due to the environment the target is within. The long stand off is particularly useful if you need to look through a window at a target in a pressure chamber or similar vessel. A special CCD line and the Real Time Surface Compensation enable the sensor to be used even on changing surfaces.

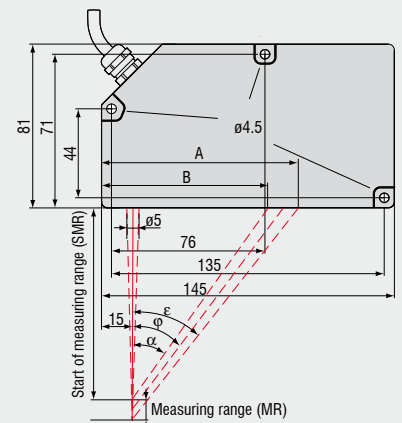
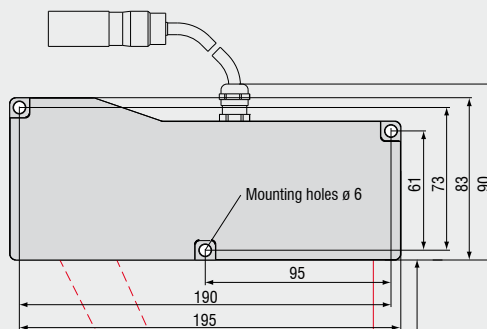
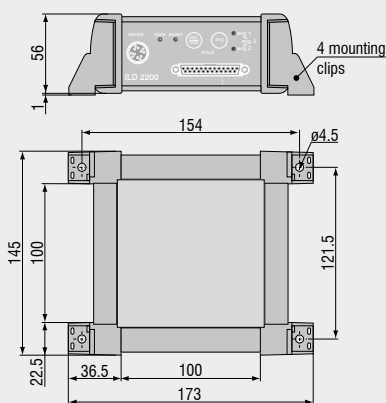
optoNCDT 1710-50 (50mm)



optoNCDT 2210 (10/20mm)



Controller optoNCDT 2210



| MR | SMR | α     | φ     | ε     | A    | B    |
|----|-----|-------|-------|-------|------|------|
| 10 | 95  | 34.6° | 36.9° | 38.8° | 99.4 | 80.6 |
| 20 | 90  | 36.1° | 36.9° | 37.5° | 99.4 | 80.6 |

Measuring range 50

| Model                               |                       | ILD 1710-50  | ILD 2210-10                             | ILD 2210-20   |
|-------------------------------------|-----------------------|--|---|---|
| Measuring range                     |                       | 50mm   | 10mm                                    | 20mm  |
| Start of measuring range            |                       | 550mm  | 95mm                                    | 90mm  |
| Midrange                            |                       | 575mm  | 100mm                                   |   |
| End of measuring range              |                       | 600mm  | 105mm                                   | 110mm   |
| Linearity                           |                       | 50µm<br>≤0.1% FSO  | 3µm                                     | 6µm<br>≤0.03% FSO                                   |
| Resolution                          | dynamic <sup>1)</sup> | 5µm<br>0.01% FSO   | 0.5µm                                   | 1µm<br>0.005% FSO                                   |
| Measuring rate                      |                       | 2.5kHz / 1.25kHz / 625Hz / 312.5Hz (adjustable)                              |   | 10kHz   |
| Permissible ambient light           |                       | 10.000lx   |   | 30.000lx  |
| Spot diameter                       | SMR                   | 400 x 500µm  | 130µm                                   | 200µm   |
|                                     | MMR                   | 400 x 500µm  | 60µm                                    | 60µm  |
|                                     | EMR                   | 400 x 500µm  | 130µm                                   | 200µm   |
| Light source                        |                       | semiconductor laser <1mW, 670nm (red)  |   |   |
| Laser safety class                  |                       | class 2 acc. DIN EN 60825-1 : 2001-11 / Class 2 (IEC 60825-1) Class II (FDA) |   |   |
| Protection class                    |                       | IP 65  | sensor: IP 65 controller: IP 50         |   |
| Temperature stability               |                       | 0.01 % FSO/°C  |   |   |
| Operation temperature               |                       | 0 ... 50°C   |   |   |
| Storage temperature                 |                       | -20 ... 70°C   |   |   |
| Output                              | analogue              | 4 ... 20mA (0 ... 10V)   |   | ±5V (-10V ... +10V)                                 |
|                                     | digital               | RS 422 / USB (optional with cable PC1700-3/USB)                              |   | RS422 / 687.5kBaud                                  |
|                                     | switching outputs     | 1 x error or 2 x limit (each programmable)                                   |   | -   |
| Switch Input                        |                       | laser ON-OFF / zero  |   | -   |
| Operation                           |                       | via touch screen on sensor or via PC with ILD 1700 tool                      |   | -   |
| Power supply                        |                       | 24VDC (11 ... 30VDC), max. 150mA   |   | 24VDC (±15%), max. 500mA                            |
| Sensor cable length                 |                       | standard: 0.25m - integrated   |   | standard: 2m - integrated option: 5m/10m on request |
| Synchronisation                     |                       | possible for simultaneous or alternating measurements                        |   | -   |
| Controller                          |                       | -  | functions: auto zero / signal averaging |   |
| Electromagnetic compatibility (EMC) |                       | EN 50081-1 and EN 50082-2  |   |   |
| Vibration                           |                       | 2g / 20 ... 500Hz  |   |   |
| Shock                               |                       | 15g / 6ms  |   | 15g / 6ms / 3 axis                                  |
| Weight                              | sensor                | ~800g  |   | ~500g   |
|                                     | 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

<sup>1)</sup> series 1710-50: at 2.5 kHz without averaging, series 2210: at 10 kHz without averaging

### 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
- Vacuum suitability
- Reduced mass
- Increased shock and vibration resistance

## High performance sensors made by Micro-Epsilon



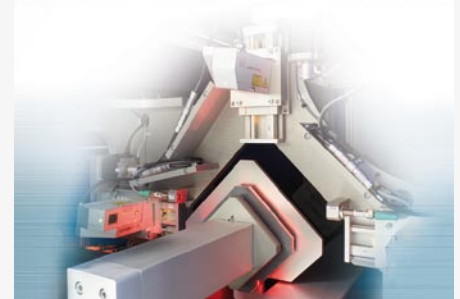
### Sensors and systems for displacement, position and dimension

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