MICRO-EPSILON

More Precision

**optoNCDT ILR2250-100** // Laser distance sensor for industrial applications
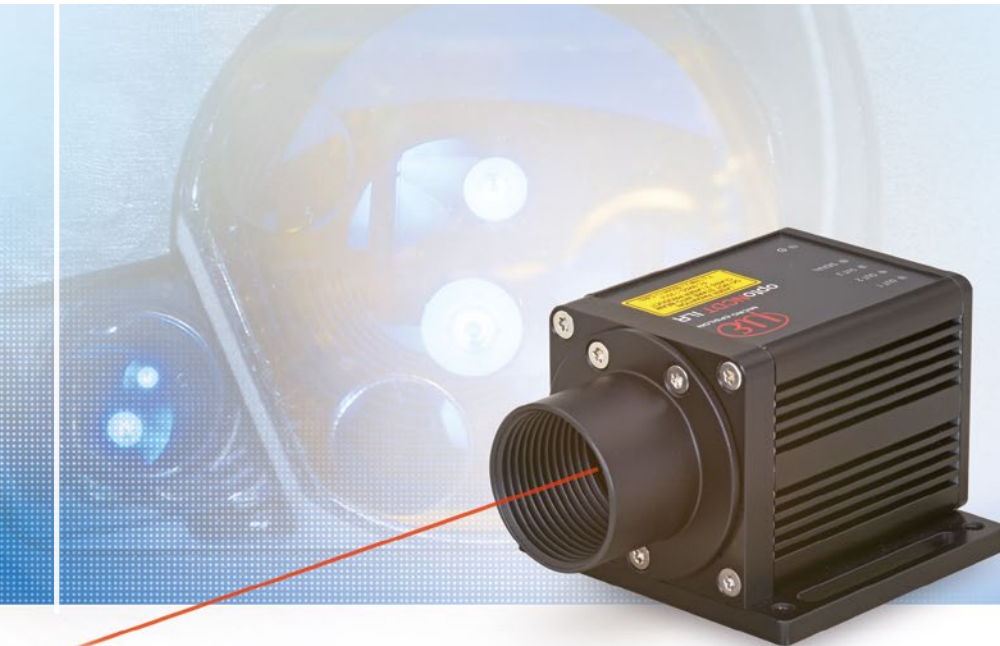
| | Large measuring range up to 100 m (150 m with reflector) |
| | Ideal for OEM serial integration |
| | Extremely stable measurement |
| | Highest signal stability on numerous surfaces |
| | Compact & lightweight design |
| INTER FACE | Analog / USB / RS422 / PROFINET / EtherNet/IP / IO-Link |
| | Now also with integrated heating for outdoor applications |

With the optoNCDT ILR2250-100, Micro-Epsilon presents a new powerful laser distance sensor. The sensor is designed for operation with or without reflector film, which is used depending on the distance and ambient conditions. The sensor measures large distances up to 100 m without contact and provides best results even on challenging (dark, structured or weakly reflecting) surfaces. The measuring range can be extended up to 150 m by attaching a reflector film to the measuring object.

Thanks to the integrated AUTO measurement mode, precise and reliable measurements can be made even on dark, partially reflecting and distant targets. A simple and fast alignment of the sensor is made possible by the integrated mounting plate with 4 threaded pins.

The ILR2250-100 laser distance sensors provide reliable results even under harsh conditions. They are protected against dust and splashes of water thanks to the robust design in an IP65 certified die-cast aluminum housing. Compact size combined with low weight opens up new fields of application particularly in factory and plant automation, as well as in drone applications for distance measurement from the air.

### NEW: ILR2250-100-IO with IO-Link
The ILR2250-100-IO model is equipped with an IO-Link interface. The IO-Link communication standard simplifies data communication while reducing the commissioning time of the sensor.
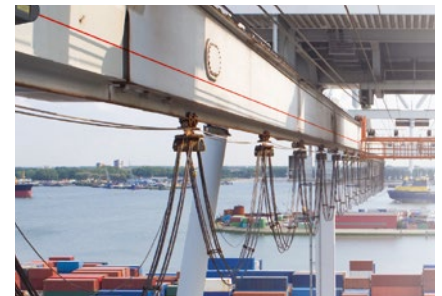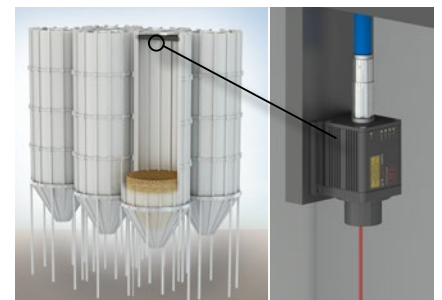
Acquisition of coil diameters
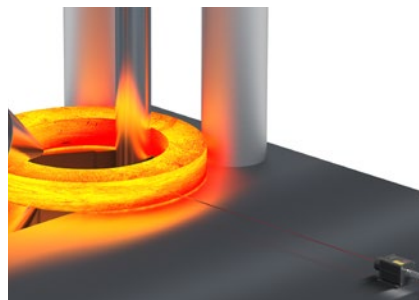
Diameter measurement of rings during rolling

### New: ILR2250-100-H with integrated heater
The ILR2250-100-H option has an integrated heating and cooling element that enables operation in the temperature range from -40 to +65 °C. This allows the sensors to be used permanently outdoors.

Position measurement on gantry cranes

Filling level measurement in silos

| Model | | ILR2250-100 | ILR2250-100-H | ILR2250-100-IO |
|---|---|---|---|---|
| Article number | | 7112015 | 7112015.200 | 7112016 |
| | | SMR | | EMR |
| Measuring range [1] | black 6 % | 0.05 m | | 30 m |
| | gray 40 % | 0.05 m | | 70 m |
| | white 80 % | 0.05 m | | 100 m |
| | Reflector film [2] | 35 m | | 150 m |
| Measuring rate | | 20 Hz | | |
| Resolution | | 0.1 mm | | |
| Linearity | | < ±1 mm [3] | | |
| Repeatability [4] | | < 300 μm | | |
| Temperature compensation | | -10 … +50 °C | -40 … +65 °C | -10 … +50 °C |
| Light source | | Semiconductor laser < 1 mW, 655 nm (red) | | |
| Typ. service life | | 50,000 h | | |
| Laser safety class | | Class 2 according to DIN EN 60825-1: 2015-07 | | |
| Permissible ambient light | | 50,000 lx | | |
| Supply voltage | | 10 … 30 VDC | 24 … 30 VDC | 10 … 30 VDC |
| Power consumption | | < 1.5 W (24 V) | < 10 W (24 V) | < 1.5 W (24 V) |
| Signal input | | Trigger | | - |
| Digital interface | | RS422 / USB [5] / PROFINET [5] / EtherNet/IP [5] | | IO-Link 1.1; process data, parameter set up and diagnostics |
| Analog output | | 4 ... 20 mA (16 bit, freely scalable within the measuring range) | | - |
| Switching output | | Q1 / Q2 / Q3 (configurable) | | Q1 / Q2 / Q3 (configurable) included in IO-Link process data |
| Connection | | Supply/signal: 12-pin M16 screw/plug connection (see accessories for connection cable) | | Supply/signal: 5-pin M12 screw/plug connection (adapter cable included in delivery) |
| Mounting | | Screwing and adjustment on sensor base plate | | |
| Temperature range | Storage | -25 ... +70 °C (non-condensing) | | |
| | Operation | -10 … +50 °C (non-condensing) | -40 … +65 °C (non-condensing) | -10 … +50 °C (non-condensing) |
| Shock (DIN EN 60068-2-29) | | 15 g / 6 ms in 3 axes, in 3 directions, 1000 shocks each | | |
| Vibration (DIN EN 60068-2-6) | | 15 g / 10 … 500 Hz in 3 axes, 10 cycles each | | |
| Protection class (DIN EN 60529) | | IP65 | | |
| Material | | Aluminum housing | | |
| Weight | | approx. 265 g | approx. 270 g | approx. 265 g |
| Control and display elements | | 5x LEDs for power, signal strength and switching outputs | 5x LEDs for power, signal strength, heating and switching outputs | 5x LEDs for power, signal strength and switching outputs |
| Features | | 4 measurement-specific operating modes via sensorTOOL | | 4 measurement-specific operating modes via IO-Link |

SMR = Start of measuring range, EMR = End of measuring range
The specified data apply for a consistent room temperature of 20 °C, sensor is continuously in operation. Measured on white, diffuse reflecting surface (reference ceramic))
[1] Depends on the reflectivity of the target, ambient light interference and atmospheric conditions
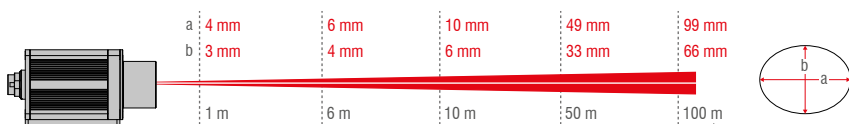[2] ILR-RF210 reflector film 210 x 297 mm; art. 7966058
[3] Measured in the range of 0.05 … 20 m; statistical spread 2σ
[4] Measurement frequency of 20 Hz, moving average 10
[5] Connection via interface module (see accessories)

EtherNet/IP

PROFINET®

Analog

RS422

IO-Link inside

**Oval spot diameter ILR2250-100**



| | 1 m | 6 m | 10 m | 50 m | 100 m |
|---|---|---|---|---|---|
| a | 4 mm | 6 mm | 10 mm | 49 mm | 99 mm |
| b | 3 mm | 4 mm | 6 mm | 33 mm | 66 mm |

The ILR2250 sensor works with a semiconductor laser at a wavelength of 655 nm (visible/red). Laser power is <1 mW.
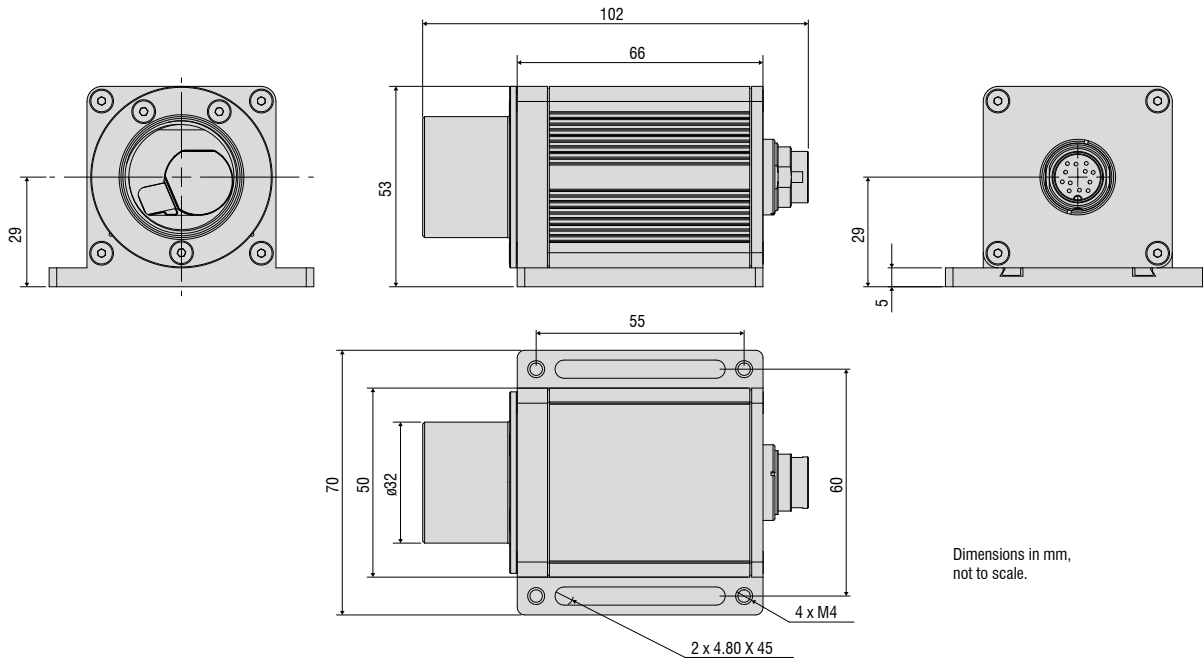The sensors fall within laser class 2. Devices of this laser class require no special safety precautions.

## Dimensions



Dimensions in mm,
not to scale.

102
66
53
29
55
70
50
ø32
60
29
5
4 x M4
2 x 4.80 X 45

## Pin assignment

### ILR2250-100 / ILR2250-100-H



12-pin cable connector
(ODU Mini-Snap, B series, size 2, coding 0)
View on solder side

**Pin assignment for power supply and signal**

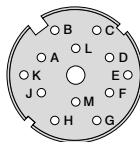| Pin | Assignment | Color (cable: PC2250-x) |
|-----|------------|-------------------------|
| A | RS422 Rx+ | White |
| B | RS422 Rx- | Brown |
| C | TRIG | Green |
| D | Analog output IOUT | Yellow |
| E | RS422 Tx+ | Gray |
| F | RS422 Tx- | Pink |
| G | Supply voltage +UB | Red |
| H | Switching output 1 | Black |
| J | Signal ground | Purple |
| K | Switching output 2 | Gray/pink |
| L | Supply ground | Red/blue |
| M | Switching output 3 | Blue |
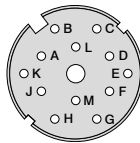


### ILR2250-100-IO



Sensor side
12-pin cable connector (adapter cable for IO-Link)
View on solder pin side

**Pin assignment for power supply and signal**

| Pin | Assignment | Color (cable: PC2250-0,3) |
|-----|------------|---------------------------|
| A | Not assigned | |
| B | Not assigned | |
| C | Not assigned | |
| D | Not assigned | |
| E | Not assigned | |
| F | Not assigned | |
| G | Supply voltage +UB | Brown |
| H | SIO Standard Input/Output | Black |
| J | Not assigned | |
| K | Not assigned | |
| L | Supply ground | Blue |
| M | Not assigned | |





Adapter side
5-pin cable connector (adapter cable, class B port)
View on solder pin side

**Pin assignment for power supply and signal**

| Pin | Assignment | Color (cable: PC2250-0,3) |
|-----|------------|---------------------------|
| 1 | Supply voltage +UB | Brown |
| 2 | Not assigned | White |
| 3 | Supply ground | Blue |
| 4 | SIO Standard Input/Output | Black |
| 5 | Not assigned | |
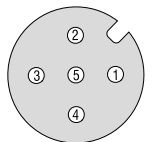




### Adapter cable (included in delivery)

12-pin cable connector

5-pin connector
according to IO-Link standard