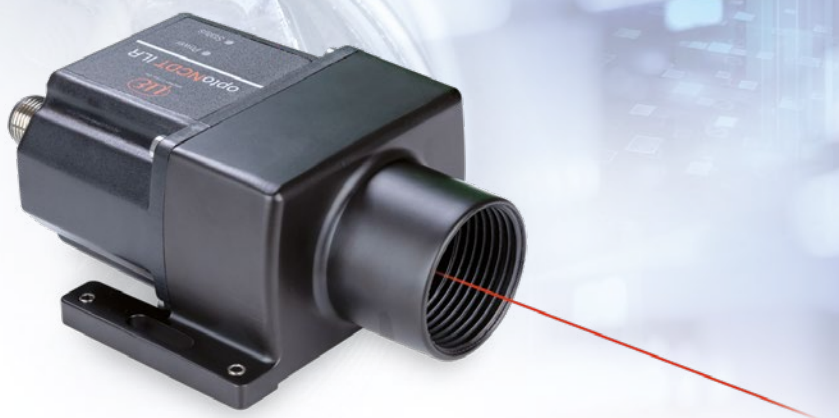
MICRO-EPSILON

More Precision

optoNCDT ILR // Laser-optical distance sensors

High-performance laser distance sensor for industrial applications
optoNCDT ILR3800-100

- Large measuring range up to 100 m (150 m with reflector)
- Ideal for OEM serial integration
- Laser class 2
- Highest signal stability on numerous surfaces
- Compact & lightweight design
- INTERFACE Analog / USB / RS422 / PROFINET / EtherNet/IP
- Optionally with integrated heating for outdoor applications



With the optoNCDT ILR3800-100, 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 measuring mode, even dark, partially reflective and distant targets can be detected precisely and reliably. A simple and fast alignment of the sensor is made possible by the integrated mounting plate with 4 set screws.

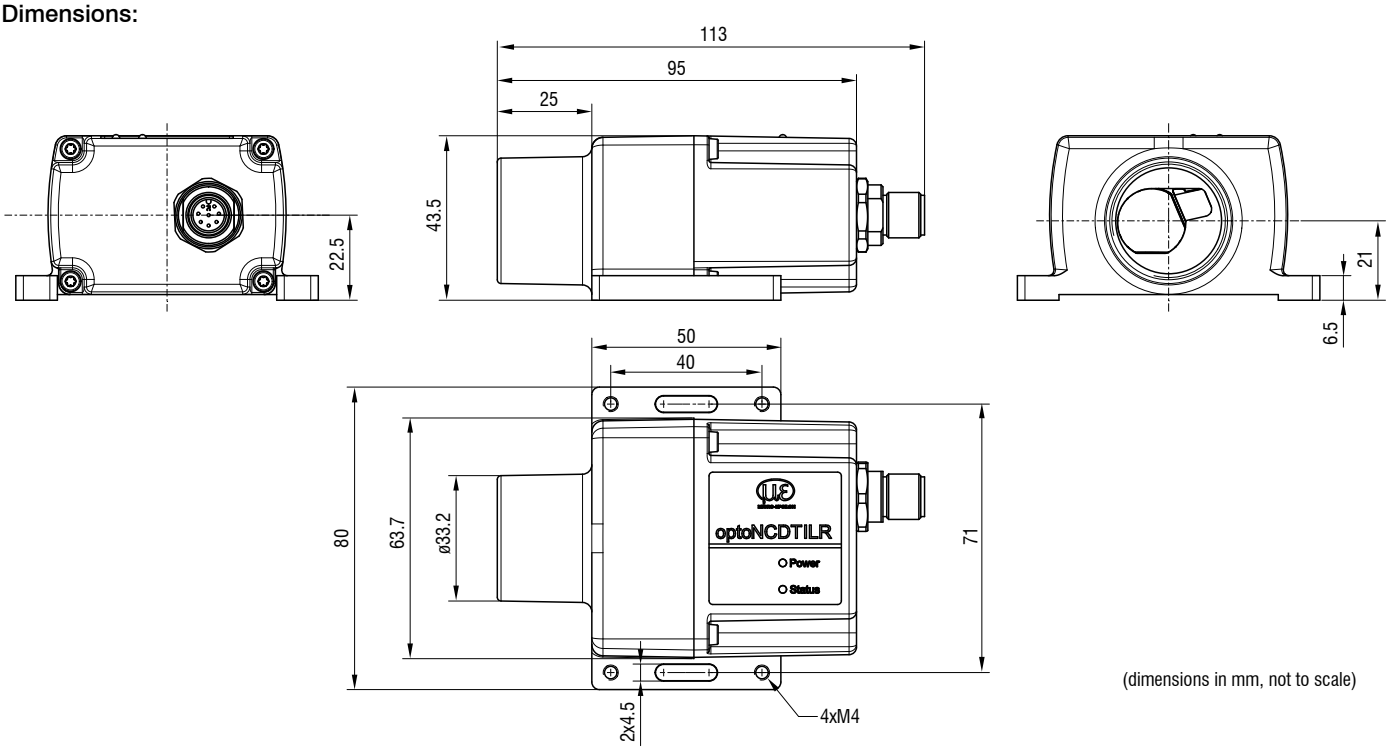
The ILR3800-100 sensors provide reliable results even under harsh conditions. They are protected against dust and splash water thanks to the robust design in the IP67-certified aluminum housing.

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.

ILR3800-100-H with integrated heating

The ILR3800-100-H option has an integrated heating and cooling element that enables operation in the temperature range of -40 to +55 °C. This allows the sensors to be used permanently outdoors.

Dimensions:

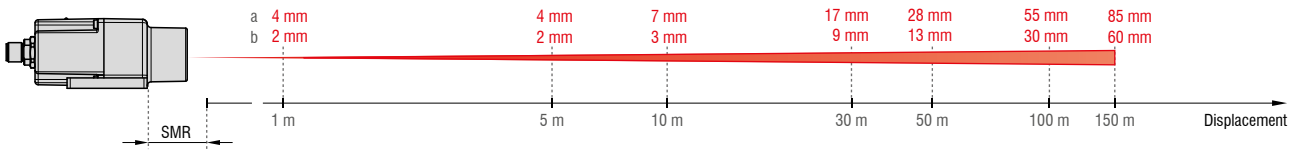


(dimensions in mm, not to scale)

Model			ILR3800-100	ILR3800-100-H
Measuring range [1]	Black 6 %	Start of measuring range	0.05 m	
		End of measuring range	30 m	
	Gray 40 %	Start of measuring range	0.05 m	
		End of measuring range	70 m	
	White 80 %	Start of measuring range	0.05 m	
		End of measuring range	100 m	
	Reflector film	Start of measuring range	35 m	
		End of measuring range	150 m	
Measuring rate			20 Hz	
Resolution			0.1 mm	
Linearity			< ± 1mm [2]	
Repeatability [3]			< 300 µm	
Temperature compensation			-10 ...+50 °C	-40 … +55 °C
Light source			Semiconductor laser < 1 mW, 655 nm (red)	
Typ. service life			50,000 h	
Laser class			Class 2 in accordance with DIN EN 60825-1: 2022-07	
Permissible ambient light			50,000 lx	
Supply voltage			10 … 30 VDC	24 … 30 VDC
Power consumption			< 1.5 W (24 V)	< 10 W (24 V)
Signal input			Trigger	
Digital interface			RS422 / USB/ PROFINET/ EtherNet/IP [4]	
Analog output			4 ... 20 mA (16 bit, freely scalable within the measuring range)	
Connections			Supply/signal: M12 screw/plug connection 8-pin A-coded	
Mounting			Screwing and adjustment on sensor base plate	
Temperature range		Storage	-25 … +70 °C (non-condensing)	
		Operation	-10 … +50 °C (non-condensing)	-40 … +55 °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)			IP67	
Material			Aluminum housing and plastic cap	
Weight			207 g	217 g
Control and indicator elements			2x LED for power, signal strength = status	

[1] Depends on target reflectivity, ambient light influences and atmospheric conditions
[2] Measured in the range of 0.05 … 20 m; statistical spread 2σ
[3] Measurement frequency of 20 Hz, moving average 10
[4] Connection via interface module (see accessories)

Oval light spot diameter



The ILR3800-100 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.

Connection possibilities
optoNCDT ILR

ILR104x

Supply and output cables

29011586	PC1040-10	Supply-/output cable, 10 m
29011587	PC1040-2	Supply-/output cable, 2 m
29011588	PC1040/90-2	Supply-/output cable, 2 m
29011589	PC1040-5	Supply-/output cable, 5 m
29011590	PC1040/90-5	Supply-/output cable, 5 m
29011590	PC1040-10	Supply-/output cable, 10 m
29011591	PC1040/90-10	Supply-/output cable, 10 m
29011592	PC1040-20	Supply-/output cable, 20 m
29011593	PC1040/90-20	Supply-/output cable, 20 m

ILR2250-100-IO

Supply and output cables

29011362	PC2250-5 IO-Link	Supply-/output cable, 5 m
29011363	PC2250-10 IO-Link	Supply-/output cable, 10 m
29011364	PC2250-15 IO-Link	Supply-/output cable, 15 m

ILR3800-100
ILR3800-100-H

Supply and output cables

29011609	PCF3800-30/IF2004	Supply-/output cable, 30 m

(The IF2008-Y adapter cable is required to connect 4x ILR sensors to the IF2004).

Connection cables

29011624	PCE3800-20/IF2008ETH	Connection cable, 20 m
29011623	PCE3800-10/IF2008ETH	Y-connection cable, 10 m
29011622	PCE3800-10/IF2008ETH	Connection cable, 10 m
29011621	PCE3800-5/IF2008ETH	Connection cable, 5 m
29011620	PCE3800-2/IF2008ETH	Connection cable, 2 m

Power supply unit PS2020
(Optional for DIN rail mounting)

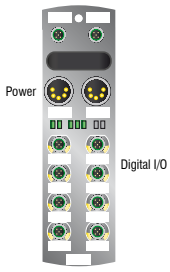
Supply and output cables

29011513	PC3800-2	Supply-/output cable, 2 m
29011514	PC3800/90-2	Supply-/output cable, 2 m
29011515	PC3800-5	Supply-/output cable, 5 m
29011516	PC3800/90-5	Supply-/output cable, 5 m
29011517	PC3800-10	Supply-/output cable, 10 m
29011518	PC3800/90-10	Supply-/output cable, 10 m
29011519	PC3800-20	Supply-/output cable, 20 m
29011520	PC3800/90-20	Supply-/output cable, 20 m
29011521	PC3800-30	Supply-/output cable, 30 m
29011522	PC3800/90-30	Supply-/output cable, 30 m

ILR1171

Supply and output cables

29011401	PC1171-2	Supply-/output cable, 2 m
29011402	PC1171-5	Supply-/output cable, 5 m
29011403	PC1171-10	Supply-/output cable, 10 m



IO-Link master

4-channel USB converter
IF2004/USB

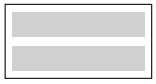
USB

PC

Interface module for
Ethernet connection
IF2008/ETH

Ethernet

PC



Display

Interface module for Industrial
Ethernet connection
IF2035-PROFINET
IF2035-EIP
IF2035-EtherCAT

PROFINET / EIP / EtherCAT

PLC

Interface module from
RS422 to USB
IF2001/USB

USB

PC

Optional accessories
optoNCDT ILR

Reflector film

The sensor measures the distance to moving and stationary objects. The measurable distance can be increased by using a reflective film suitable for the sensor. However, the minimum distance from the sensor to the reflector film must be maintained. The center of the laser spot must be in the center of the reflector over the entire measuring range. Target (reflector) and sensor can only be tilted by at most 5° relative to one another.

Sensor	Item	Dimensions
optoNCDT ILR140x	Art. no.: 7966001 ILR-RF250 Reflector film	250 x 250 mm
optoNCDT ILR2250	Art. no.: 7966058 ILR-RF210 Reflector film	210 x 297 mm
optoNCDT ILR3800	Art. no.: 7966058 ILR-RF210 Reflector film	210 x 297 mm
optoNCDT ILR1171	Art. no.: 7966001 ILR-RF250 Reflector film	250 x 250 mm

Protective glass

The sensor can be protected from external influences by using a protective glass.

Sensor	Item	Description
optoNCDT ILR2250	Art. no.: 7966061 ILR-PG2250 Protective glass	Optical glass, with anti-reflection coating and high transmission
optoNCDT ILR3800	Art. no.: 7966080 ILR-PG3800 Protective glass	

Filter glass

Filter glasses enable measurement on highly reflective surfaces. However, this reduces the maximum laser power. Ask your regional sales contact before you use the filter glass.

Sensor	Item	Description
optoNCDT ILR2250	Art. no.: 7966063 ILR-NDF2250 Filter glass 0.75 Art. no.: 7966066 ILR-NDF2250 Filter glass 0.5 Art. no.: 7966068 ILR-NDF2250 Filter glass 0.9	Optical gray filter
optoNCDT ILR3800	Art. no.: 7966081 ILR-NDF3800 Filter glass 0.75 Art. no.: 7966082 ILR-NDF3800 Filter glass 0.5 Art. no.: 7966083 ILR-NDF3800 Filter glass 0.9	

Air purge collar

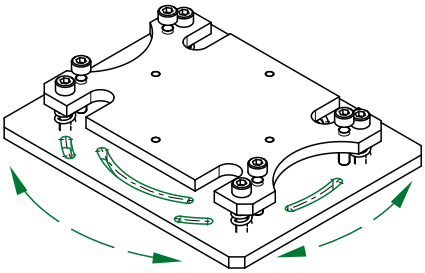
A compressed-air purge collar reliably prevents the deposition of dust and particles on the lens surface, ensuring that the optical performance remains consistently high. In addition, this reduces the cleaning effort and extends the service life of the system.

Sensor	Item	Description
optoNCDT ILR2250	Art. no.: 7966062 ILR-FBV2250 Air purge collar	Screwable compressed-air purge collar for cleaning the optical path
optoNCDT ILR3800	Art. no.: 7966087 ILR-FBV3800 Air purge collar	

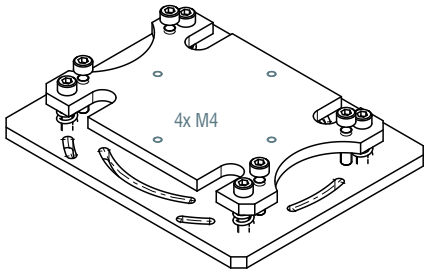
Mounting plate

The sensor can optionally be fixed using an aluminum plate for mounting. This ensures a secure hold and easy alignment of the sensor. Its robust design is suitable even for harsh industrial environments.

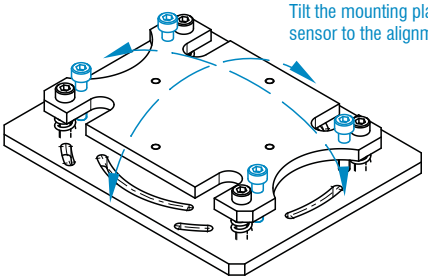
Sensor	Item	Description
optoNCDT ILR3800	Art. no.: 7966076 ILR-MP3800 Mounting plate	Optional; for easy sensor mounting



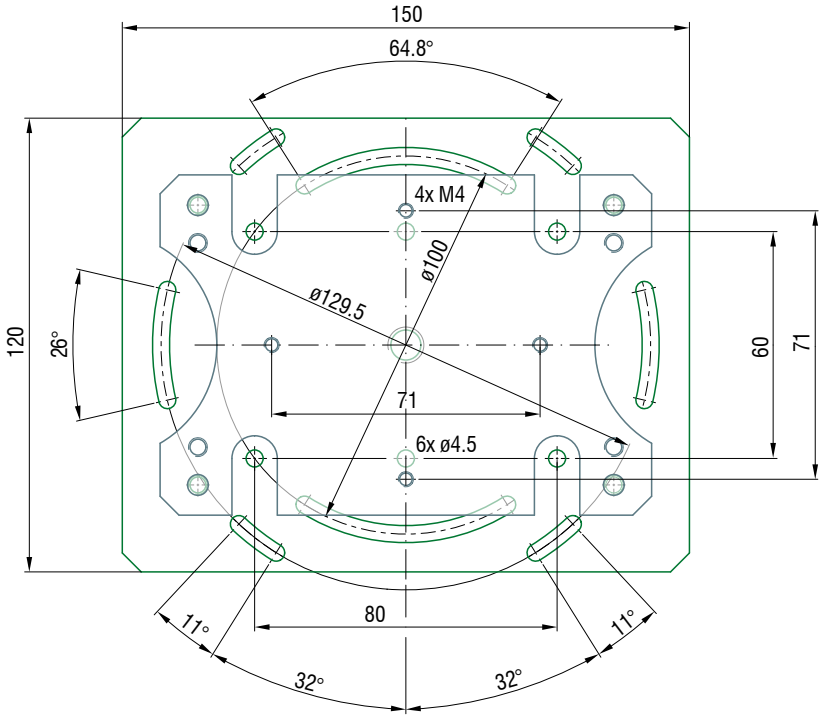
The sensor can optionally be mounted using a mounting plate.



4 mounting threads M4 for sensor mounting, optional: sensor rotated by 90°.



Tilt the mounting plate with sensor to the alignment plate

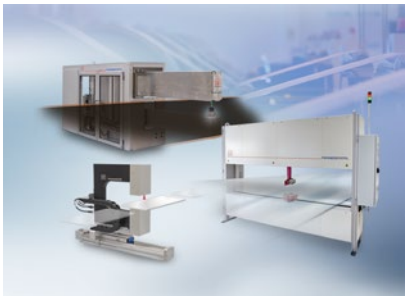


(dimensions in mm, not to scale)

Sensors and Systems from Micro-Epsilon

Sensors and systems for displacement, distance and position

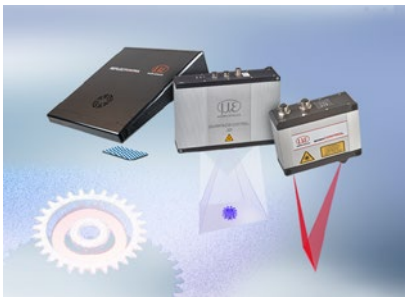
Sensors and measurement devices for non-contact temperature measurement



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

MICRO-EPSILON

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