









More Precision

optoNCDT ILR // Laser-optical distance sensors



High-performance laser distance sensor for industrial applications

optoNCDT ILR3800

-  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
- INTER FACE** Analog / USB / RS422 / PROFINET / EtherNet/IP
-  Optionally with integrated heating for outdoor applications



NEW
Now with IO-Link

With the optoNCDT ILR3800, 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 DYNAMIC preset is specially designed for dynamic measurements and reacts particularly quickly to sudden changes in distance. It optimizes the sensor settings for a high reaction speed in order to detect fast movements precisely.

The ILR3800 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. Their compact design combined with low weight opens up new fields of application, particularly in factory and plant automation.

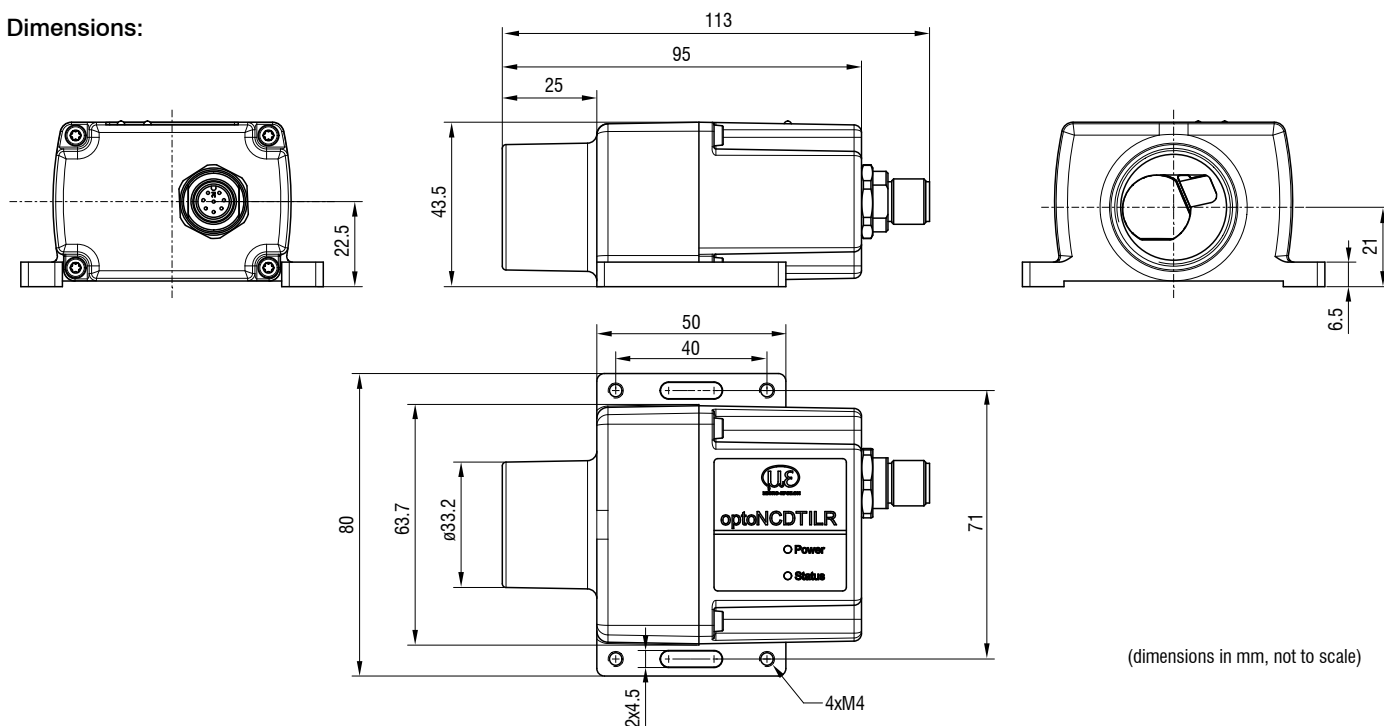
ILR3800-IO with IO-Link

The ILR3800-IO model has an IO-Link interface. The IO-Link communication standard simplifies data communication while reducing the commissioning time of the sensor.

ILR3800-H with integrated heating

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

Dimensions:



Model		ILR3800-100	ILR3800-100-H	ILR3800-100-IO
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	-10 ... +50 °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	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/ PROFINET/ EtherNet/IP ^[4]		IO-Link 1.1; process data, parameter set up and diagnostics
Analog output		4 ... 20 mA (16 bit, freely scalable within the measuring range)		-
Connections		Supply/signal: M12 screw/plug connection 8-pin A-coded		Supply/signal: 12 pin M4 screw/plug connection
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)	-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)		IP67		
Material		Aluminum housing and plastic cap		
Weight		207 g	217 g	207 g
Control and indicator elements		2x LED for power, signal strength = status		

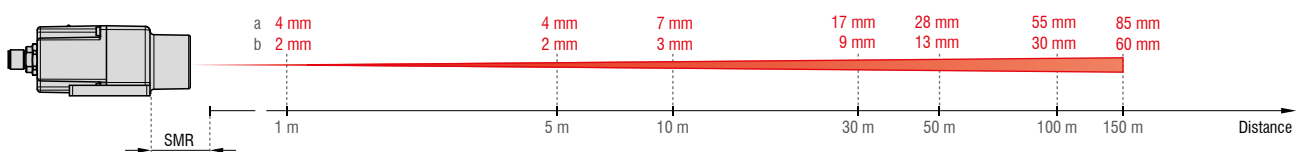
^[1] Depends on target reflectivity, ambient light influences and atmospheric conditions

^[2] Measured in the range of 0.05 ... 20 m; statistical spread 2 σ

^[3] Measurement frequency of 20 Hz, moving average 10

^[4] Connection via interface module (see accessories)

Oval light spot diameter



The ILR3800 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 in this laser class require no special safety precautions.

Connection possibilities optoNCDT ILR



ILR104x



ILR3800-IO



ILR3800
ILR3800-H



Power supply unit PS2020
(Optional for DIN rail mounting)



ILR1171

Supply and output cables

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

Supply and output cables

29011669	PC3800-5 IO-Link	Supply and output cable, 5 m
29011670	PC3800-10 IO-Link	Supply and output cable, 10 m
29011671	PC3800-15 IO-Link	Supply and output cable, 15 m
29011672	PC3800-20 IO-Link	Supply and output cable, 20 m

Supply and output cables

29011609	PCF3800-30/IF2004	Supply and output cable, 30 m
29011682	PCF3800-100/IF2004	Supply and output cable, 10 m (to connect 4 ILRs to the IF2004, the IF2008-Y adapter cable is required.)
2901528	IF2008-Y adapter cable	

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

Supply and output cables

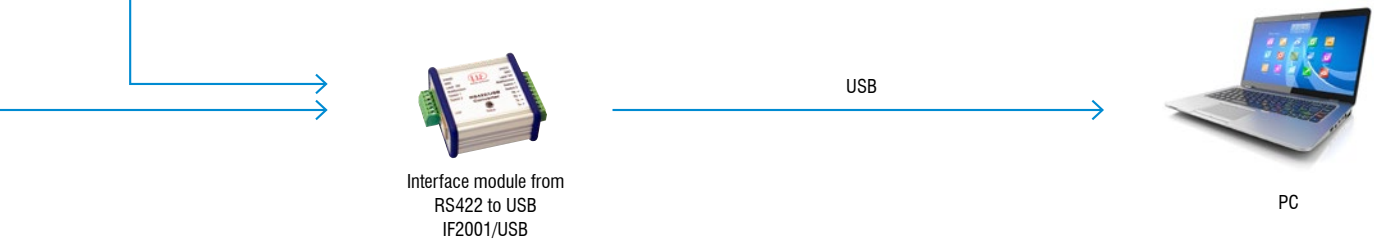
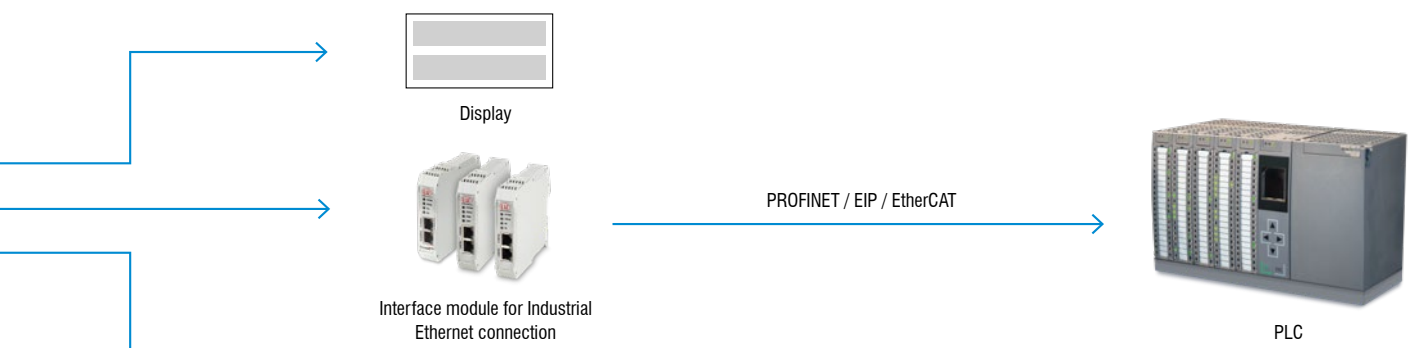
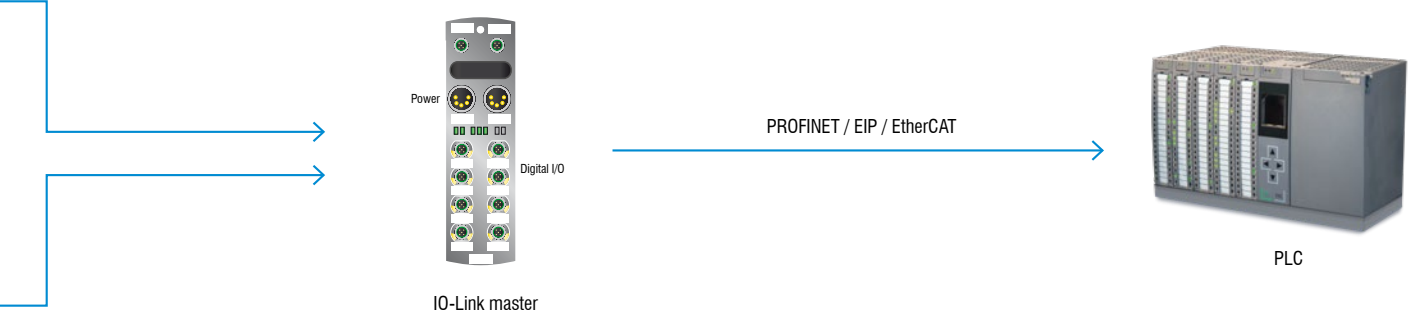
29011737	PC3800-2/DPU	Supply and output cable, 2 m
29011738	PC3800-5/DPU	Supply and output cable, 5 m
29011739	PC3800-10/DPU	Supply and output cable, 10 m

Supply and output cables

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

Supply and output cables

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



Optional accessories

optoNCDT ILR

Reflector film and target plate

The sensor measures the distance to moving and stationary objects. The reflector film is used to extend the measuring range.

The following aspects should be considered:

- The minimum distance between sensor and reflector film must be observed.
- The laser spot must be centered on the reflector over the entire measuring path.
- The sensor and reflector may be tilted at a maximum angle of 5° to each other.

Reflective films work with targeted retroreflection, whereas a white target plate works with diffuse reflection. With a white target plate, the measuring range can be used up to 100 m – without restrictions in the close range.

Depending on the application, a reflective film or a white target plate can be used:

- optoNCDT ILR1041-x: Reflector film is absolutely necessary to use the measuring range. Measurement is not possible without reflector film.
- optoNCDT ILR1040-x: The use of a white target plate is recommended.

Sensor	Article	Dimensions
optoNCDT ILR104x	Art. no.: 7966001 ILR-RF250 Reflector film	250 x 250 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
optoNCDT ILR	Art.-no.: 7966091 ILR-TB250 White target plate	250 x 250 mm



Protective glass

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

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



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	Article	Description
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	Optical gray filter



Compressed-air purge system

Particularly suitable for dusty and dirty environments to prevent deposits on the lens. Connection via a 6 mm hose. Recommended pressure: 3 bar.

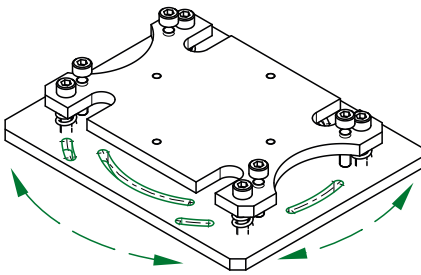
Sensor	Article	Description
optoNCDT ILR3800	Art.-no.: 7966089 ILR-DLS3800 Compressed-air purge system	For cleaning or permanently keeping the optical path clear.



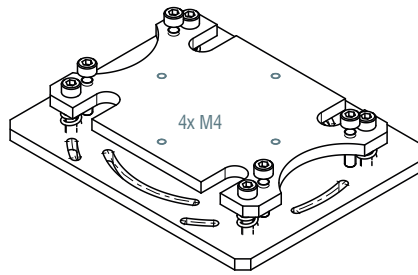
Mounting plate

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

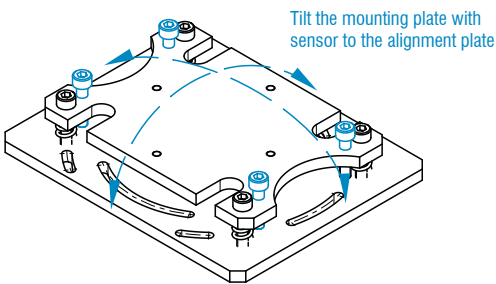
Sensor	Article	Description
optoNCDT ILR3800	Art. no.: 7966076 ILR-MP3800	Mounting plate Optional; for easy sensor mounting



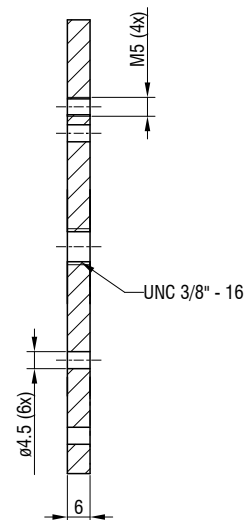
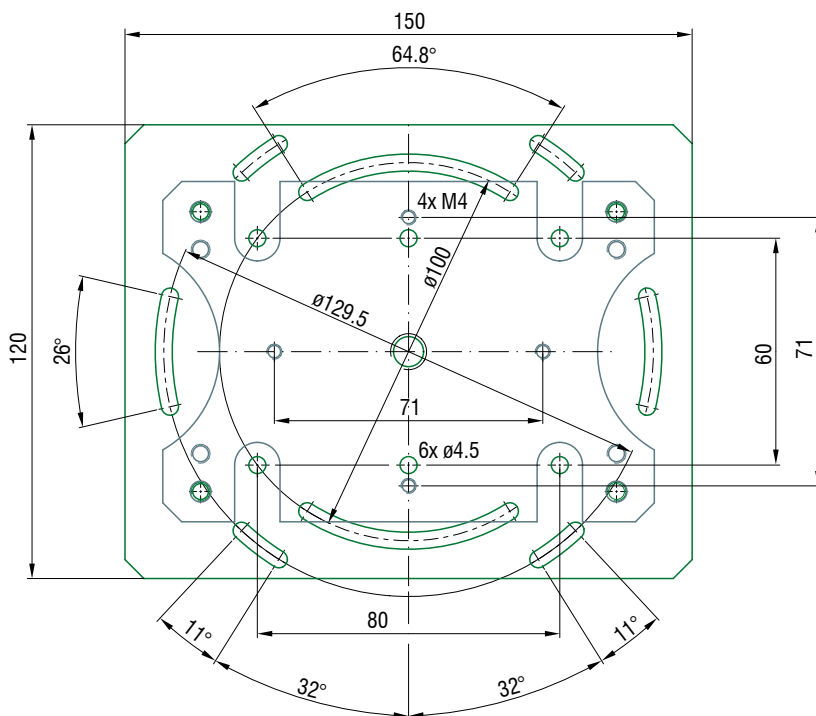
The sensor can optionally be mounted using a mounting plate.



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)

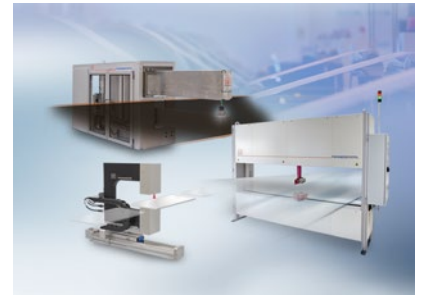
Sensors and Systems from Micro-Epsilon



Sensors and systems for displacement, distance and position



Sensors and measurement devices for non-contact temperature measurement



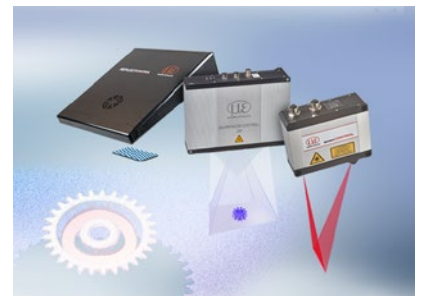
Measuring and inspection systems for metal strips, plastics and rubber



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