

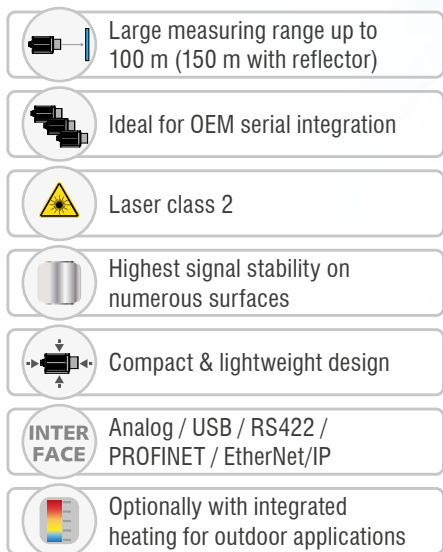


More Precision

optoNCDT ILR // Laser-optical distance sensors



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



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.

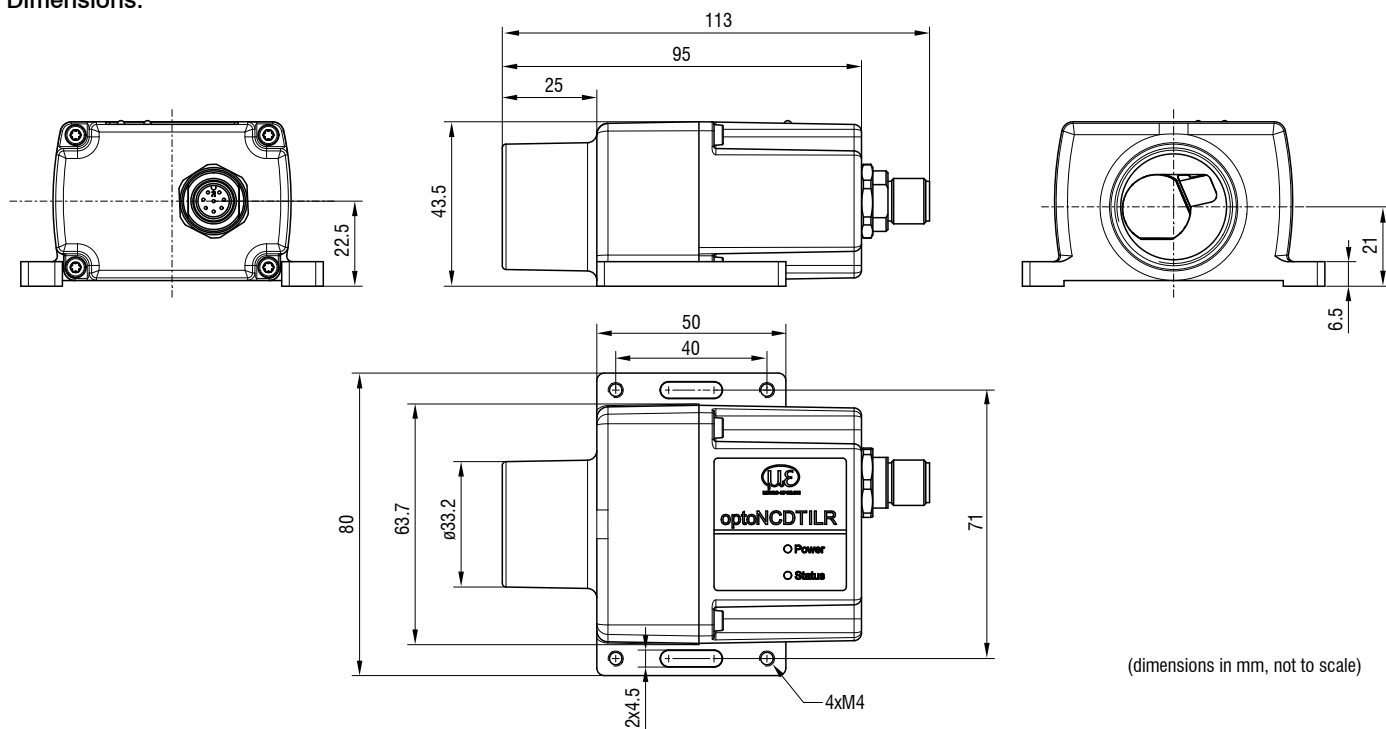
The ILR3800-100 sensors provide reliable results even under harsh conditions. They are protected against dust and splash water thanks to the robust design in the IP67-certified aluminum housing.

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:



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			

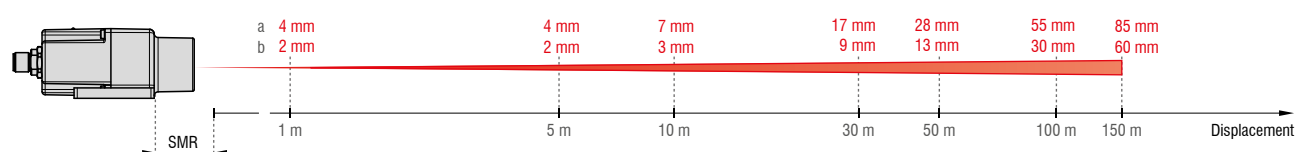
^[1] Depends on target reflectivity, ambient light influences and atmospheric conditions

^[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.

High speed sensor for outdoor applications

optoNCDT ILR1171-125

-  Measuring range up to 125 m, (with reflector 270 m)
-  Distance and speed measurements
-  Laser class 1
-  Robust design IP67
-  Very high measuring rate for fast applications
-  Optionally with integrated heating for outdoor applications



The optoNCDT ILR1171 is a laser-based distance sensor for non-contact and precise distance and displacement measurements from 0.2 m up to 125 m. The measuring range can be extended to 270 m with a reflector film. The sensor is designed for very large measuring ranges, with and without reflector. Due to the very high measuring rate of the sensor, moving objects can be measured easily. Even in poor visibility conditions, the ILR1171-125 impresses with its high signal intensity for stable measurements.

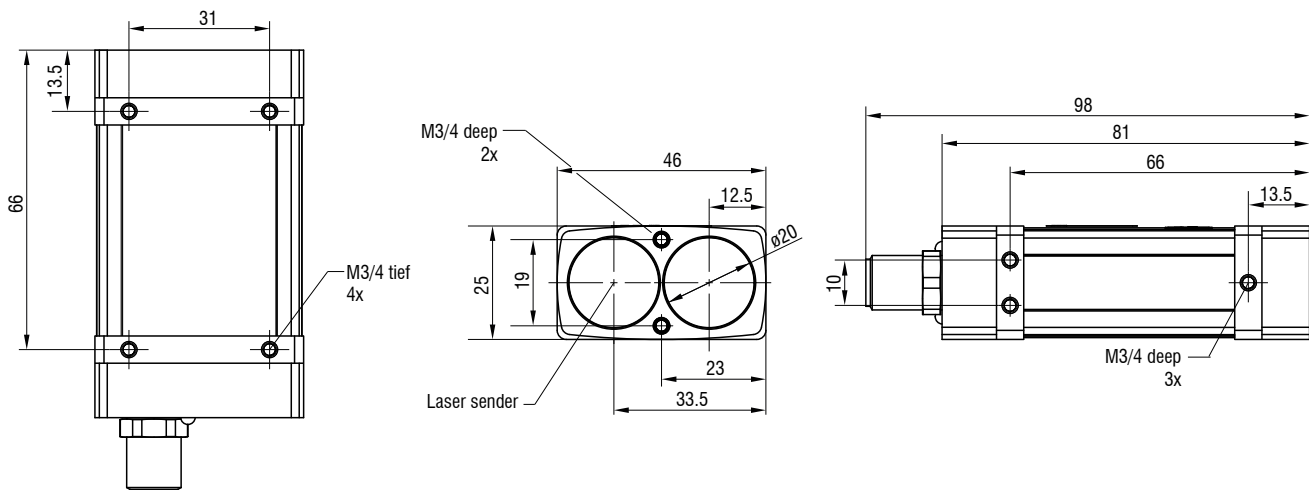
Versatile fields of application

The optoNCDT ILR1171-125 is fitted with an integrated heater for outdoor use. A pilot laser is also integrated for mounting and adjustment. This makes it easier to align the sensor over long distances, for example when monitoring buildings. The RS422 and RS485 interfaces ensure reliable and fast data transmission.

Time-of-flight principle

The sensor operates according to the laser pulse runtime principle and is therefore particularly well suited to applications with large distances. Commissioning of the sensor is straightforward due to a variety of interfaces and easy installation options. The actual measuring range depends on the reflectivity and the surface quality of the object to be measured.

Dimensions:



(dimensions in mm, not to scale)

Model		ILR1171-125
Article number		7112027
Measuring range ^[1]	Black 10 %	70 m
	Gray 40 %	100 m
	White 80 %	125 m
	Reflector film ^[2]	270 m
Start of measuring range		0.2 m ^[3]
Measuring rate		40 kHz
Resolution		1 mm
Linearity		< ±60 mm ^[4]
Repeatability ^[5]		<25 mm
Temperature stability		< 20 ppm / K
Light source		Semiconductor laser < 1 mW, 905 nm (red)
Laser class		Class 1 in accordance with IEC 60825-1: 2022-07
Permissible ambient light		50,000 lx
Supply voltage		10 ... 30 VDC
Power consumption		< 3 W (24 V)
Signal input		Trigger
Digital interface		RS232 / RS422
Analog output		4 ... 20 mA (16 bit, freely scalable within the measuring range)
Switching output		Q1 / Q2 (configurable); trigger
Connection		Supply/signal: 12 pin M12 screw/plug connection
Mounting		Mounting holes
Temperature range	Storage	-40 ... +70 °C (non-condensing)
	Operation	-20 ... +60 °C (non-condensing)
Shock (DIN EN 60068-2-29)		30 g / 6 ms in 6 directions, 3 shocks each
Vibration (DIN EN 60068-2-6)		1 g / 10 ... 2000 Hz in 3 axes, 2 cycles each
Protection class (DIN EN 60529)		IP67
Material		Aluminum housing
Weight		approx. 140 g
Control and indicator elements		2x LEDs for power and signal
Special features		Measurement-specific operating modes

^[1] Depends on the reflectivity of the target, ambient light interference and atmospheric conditions

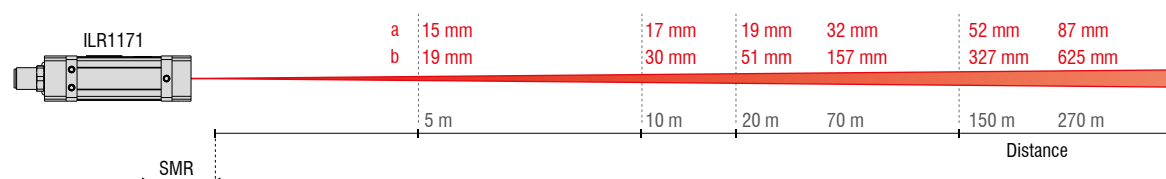
^[2] ILR-RF250 reflector film 250 x 250 mm; art. 7966001

^[3] 0.5 m for measurement with reflector film

^[4] Linearity in the ranges of ≤ 1 m and ≥ 70 m is ±100 mm

^[5] Repeatability in the ranges ≤ 1 m and ≥ 70 m is ±50 mm

Light spot diameter



The optoNCDT ILR 1171 sensors use a semiconductor class 1 laser (operating mode) and a semiconductor class 2 laser (setup mode). Devices of this laser classes 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
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(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