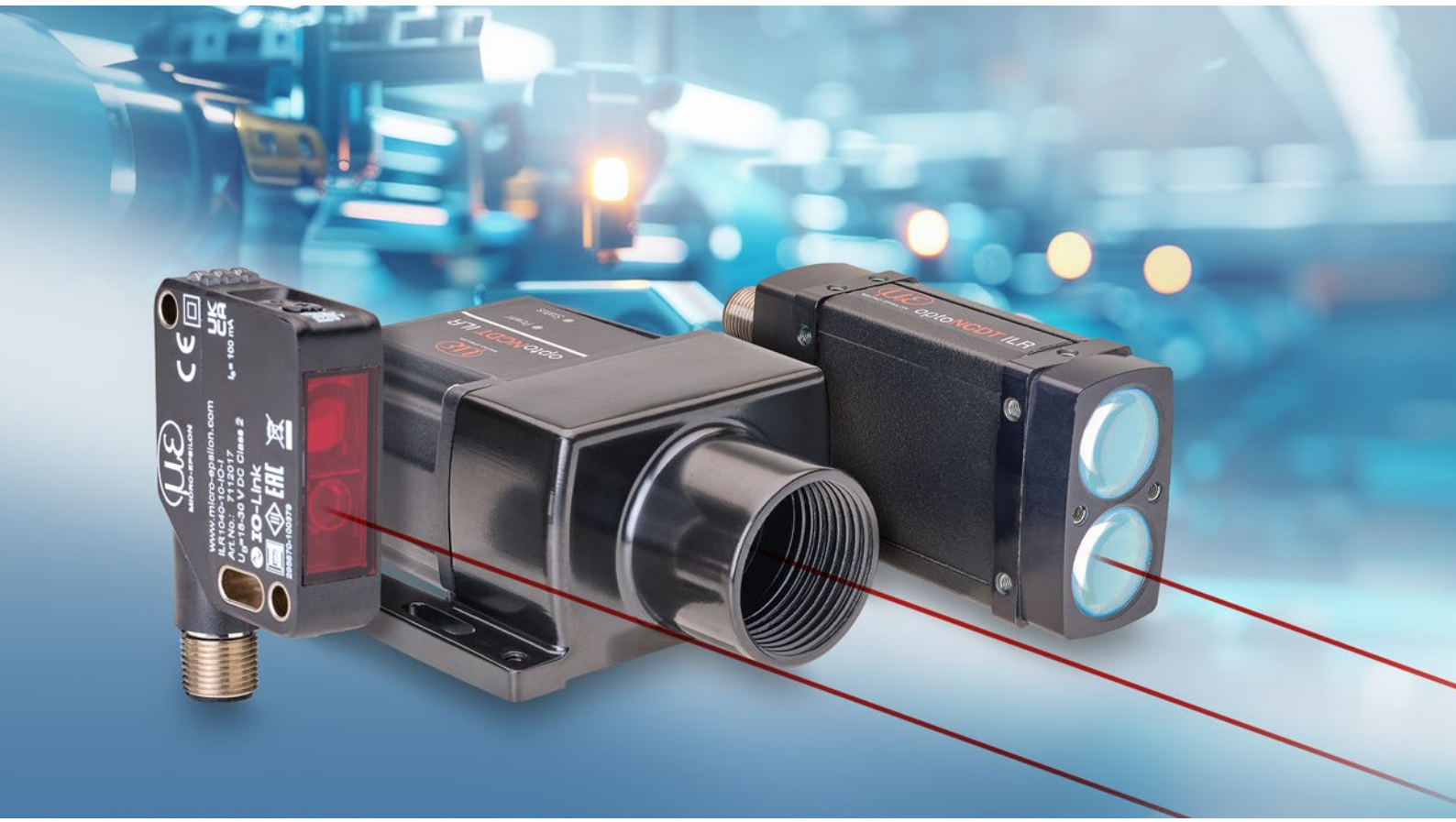
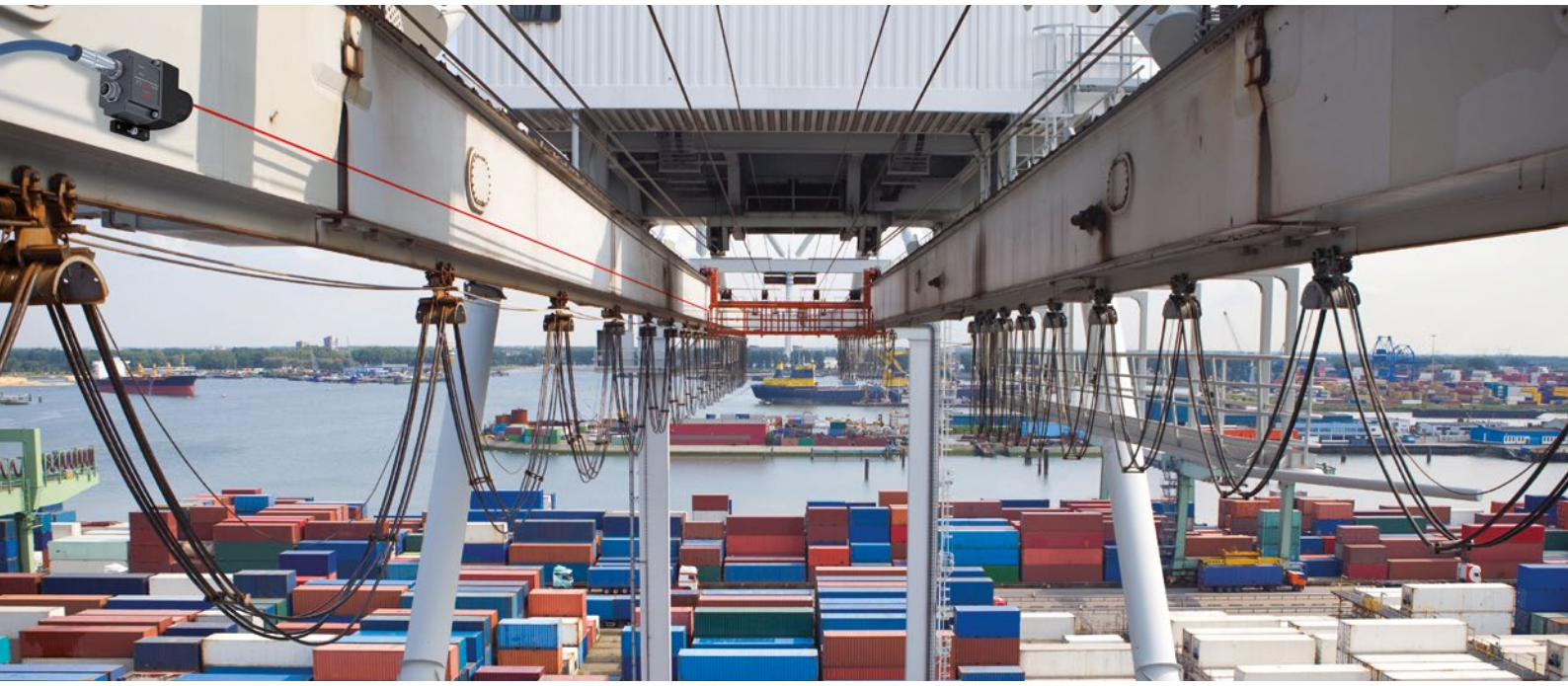
MICRO-EPSILON

More Precision

optoNCDT ILR // Laser-optical distance sensors



Laser distance sensors
optoNCDT ILR



Laser distance sensors

Optoelectronic ILR sensors are used for non-contact distance measurements. Their large measuring range enables measurements on critical surfaces such as, e.g., hot metals from a safe distance or to regulate large travel displacements. Wear-free measurements and thus a long service life are possible due to the non-contact measuring principle. Depending on the application, three sensor series are available focusing on different aspects (e.g., accuracy, measurement speed). These sensors are designed for operation with and without reflector and are thus very flexible to use. Due to their robust and compact design, ILR sensors are used indoors and outdoors in various measurement tasks, both for static and moving measuring objects. The exact positioning of the sensor can be easily achieved by means of switchable sighting lasers or permanently visible measuring lasers.

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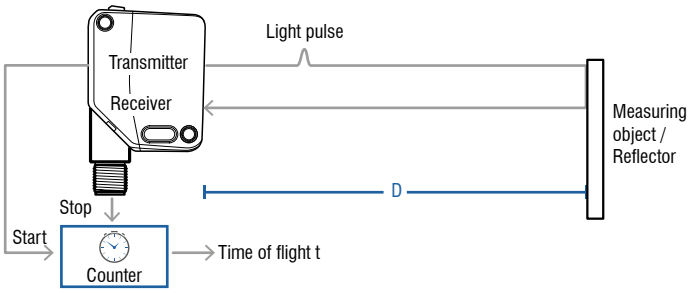
The measuring principles at a glance
optoNCDT ILR

Time-of-flight principle

The ILR104x and 1171 sensors operate according to the time-of-flight measuring principle. A laser diode in the sensor produces short laser pulses that are projected onto the target. The light reflected from the target is recorded by the sensor element. The time of flight of the light pulse to the target and back determines the measurement distance. The integrated electronics in the sensor calculates the distance based on the time of flight and conditions the signal for analog and digital output. In addition, optoNCDT ILR sensors are less sensitive to ambient light.

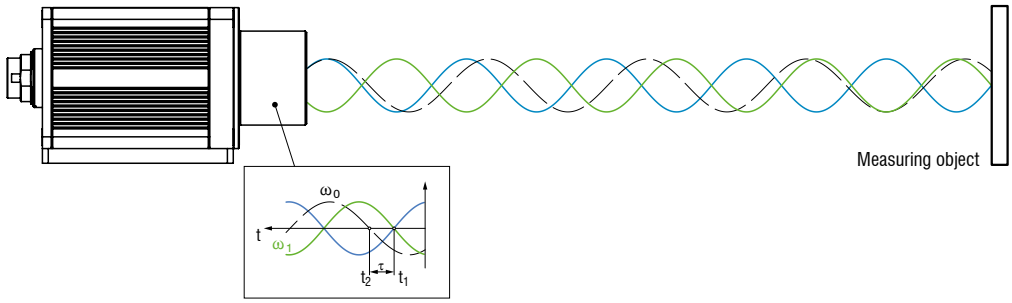
Time-of-flight measurement		
Signal characteristics		Short, high-energy pulses
Measurement speed		High
Stray light		Resistant



Phase comparison measuring principle

The ILR3800 sensors operate according to the phase comparison principle. High frequency modulated laser light with low amplitude is transmitted to the target. Depending on the distance of the object, the distance changes the phase relationship between transmitted and received signal. Sensors of this principle work very precisely over measuring ranges up to 150 meters.

Phase comparison method		
Signal characteristics		Continuous low-energy waves
Accuracy		High
Adverse weather		Low influence



Advantages and outstanding features
optoNCDT ILR

Compact sensors with integrated controller

The optoNCDT ILR laser sensors are extremely compact and equipped with a fully integrated controller. This makes mounting and wiring quick and easy. These laser sensors can therefore be easily integrated even in confined installation spaces. All laser distance sensors from Micro-Epsilon are equipped with Class 1 or Class 2 lasers. No special protective measures are required for these laser classes, which therefore pose a low risk.

- Very high measuring rate up to 40 kHz
- Ideal for high-speed measurements
- Laser class 1

Analog **RS422** **RS232**

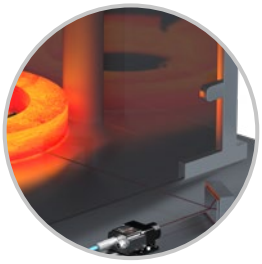
- Rotatable cable outlet for easy integration
- Available in protection classes IP67/IP69/IP69K
- Laser class 1

Analog IO-Link inside

- Very high signal stability on various surfaces
- Optional accessories:
  Mounting plate for quick and easy alignment
- Laser class 2

IO-Link inside EtherNet/IP

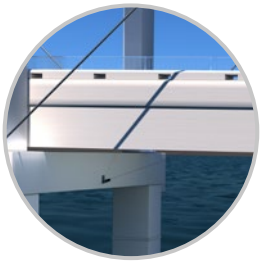
Analog **RS422** PROFINET



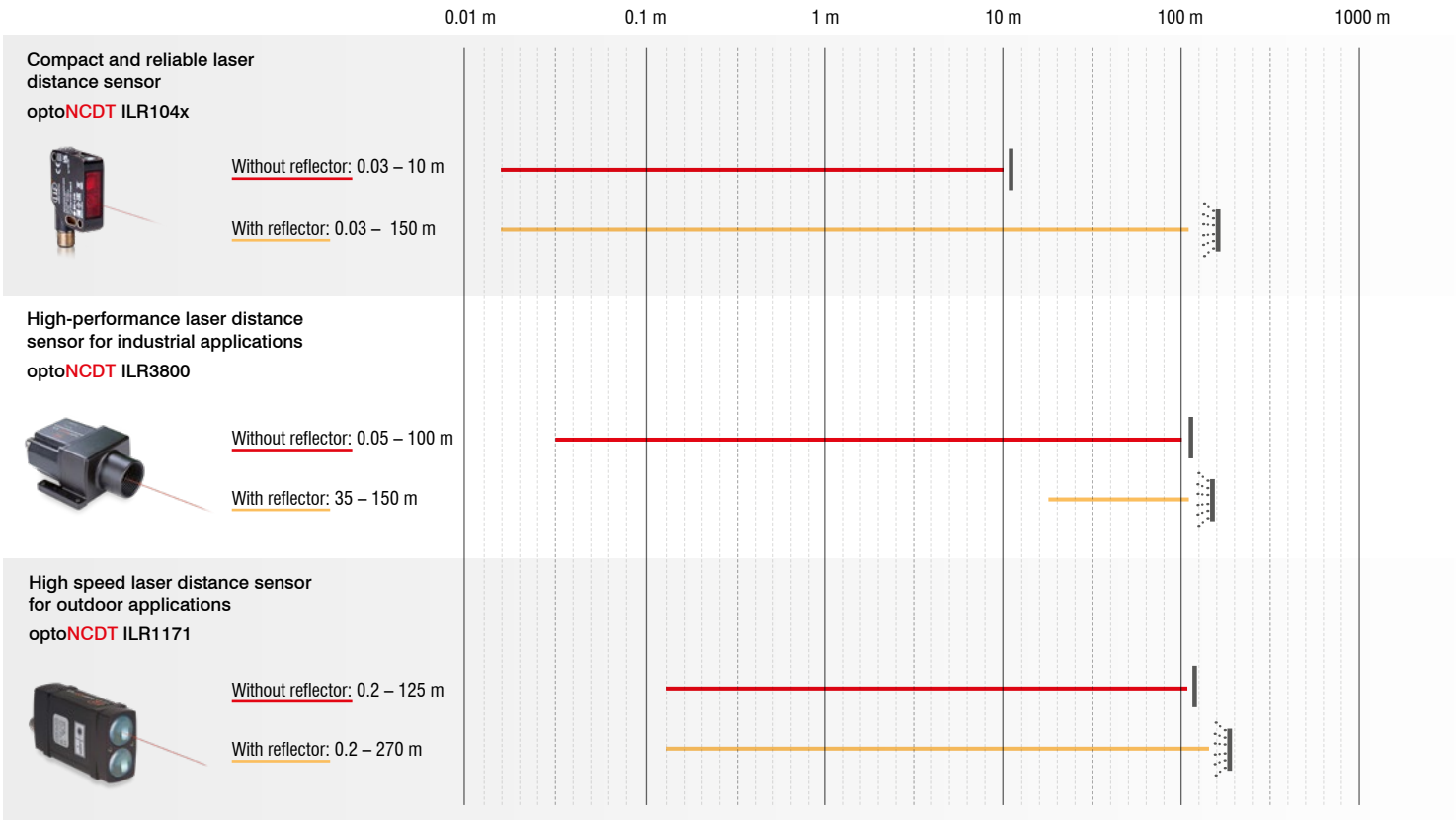
Highest ambient light compensation

Excellent shock and vibration resistance

Robust and durable sensor design



High temperature stability



Applications in various industries

Logistics

Wind power

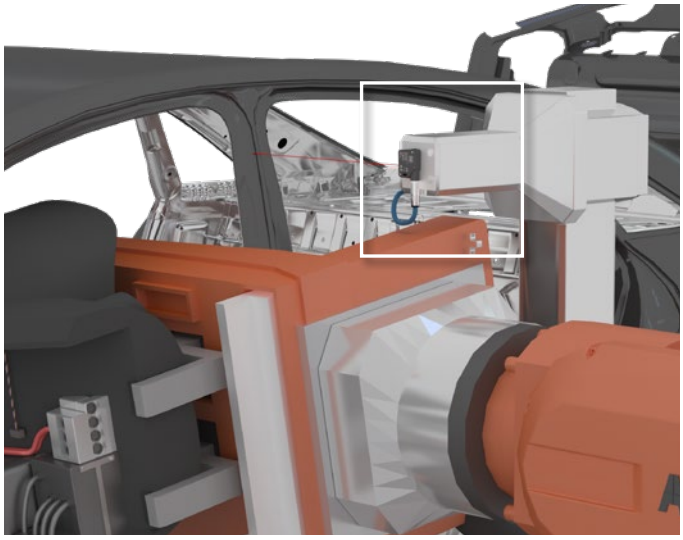
Steel industry

Mobile machinery

Automotive

Statics monitoring

Application examples
optoNCDT ILR



Distance measurement for robot positioning

Automated assembly of cockpits requires the exact positioning of the car bodies. A robot guides the cockpit into the vehicle between the A and B pillars. The correct position at which the car body should stop is determined by optoNCDT ILR1040 time-of-flight laser sensors. They are particularly suitable for these and other comparable applications due to their short response time. The sensor is located on the same side as the assembly robot.

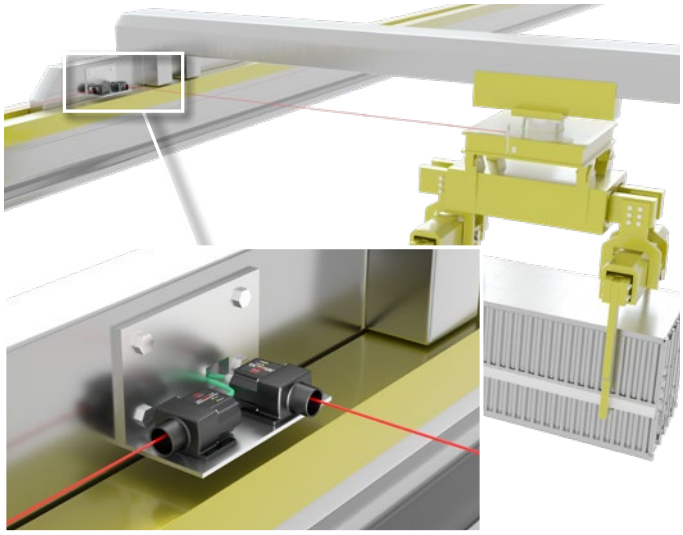
Sensor: optoNCDT ILR1040

Diameter measurement of coils

Steel strip coils are mainly used in the processing industry, e.g., the automotive industry. When unwinding the coils, the diameter is continuously monitored by the ILR3800-IO in order to be able to determine the changeover time of the coil at an early stage.

The IO-Link interface allows for the sensor to be integrated into automation systems. This enables precise and wear-free control of the production process.

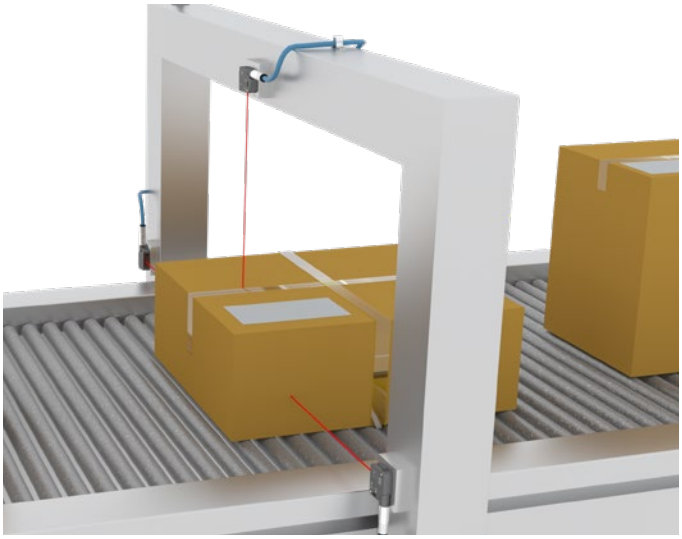
Sensor: optoNCDT ILR3800-100-IO



Position control of indoor cranes

Single girder overhead traveling cranes, double girder bridge cranes and overhead traveling cranes are used in almost every logistics and production plants. The control of the crane system is based on the measurement values of highly accurate ILR3800 laser distance sensors from Micro-Epsilon, which are designed for large distances as well as fast distance changes. One sensor detects the change in distance of the main girder, and the second the movement of the trolley.

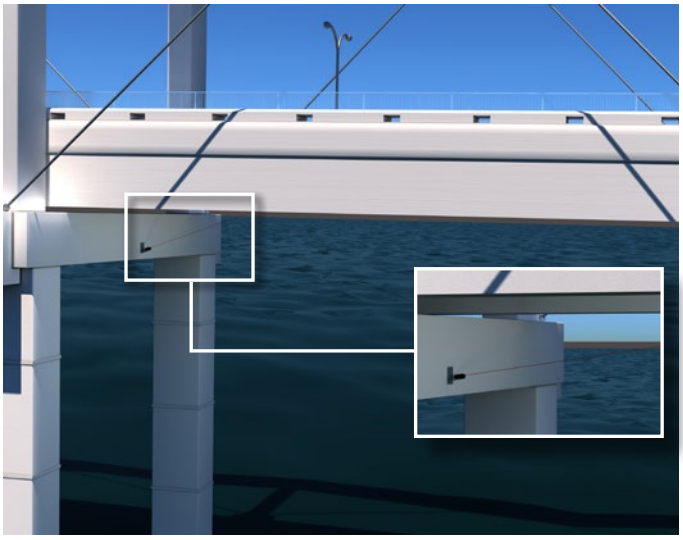
Sensor: optoNCDT ILR3800 or ILR1041-150-IO



Measurement and position detection of packages

Automation systems such as modern packaging machines require comprehensive information provided by the sensor technology directly from the machine. The detection of the exact position and size of the packages is carried out by the ILR1040 laser distance sensors from Micro-Epsilon. Thanks to laser class 1, they can be used directly without further protective measures. The short response time allows different testing and automation functions of the packaging machine.

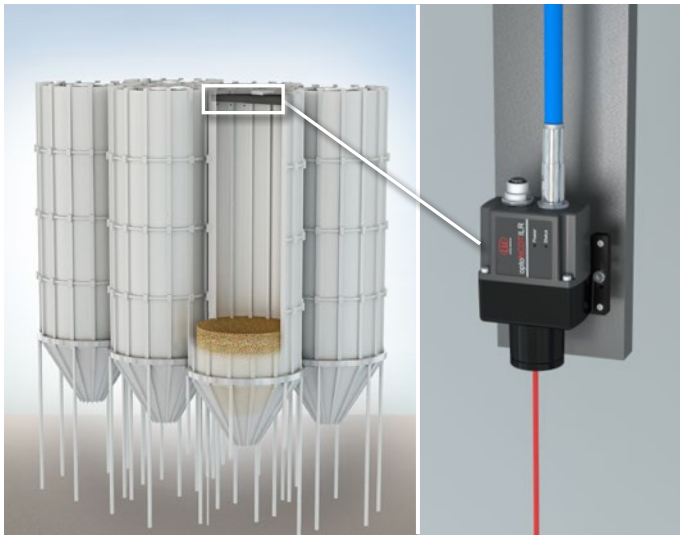
Sensor: optoNCDT ILR1040



Structural monitoring of bridges

Continuous structural monitoring is necessary to extend the service life of bridges. For this purpose, ILR3800 sensors are attached to the bridge pier and adjusted so that they detect the main girder centrally between the supports. In this application, the ILR3800 sensor detects the distance anomalies. Due to its integrated heating and IP67 protection class, the ILR3800-100-H can be used in a temperature range from -40 °C to +55 °C.

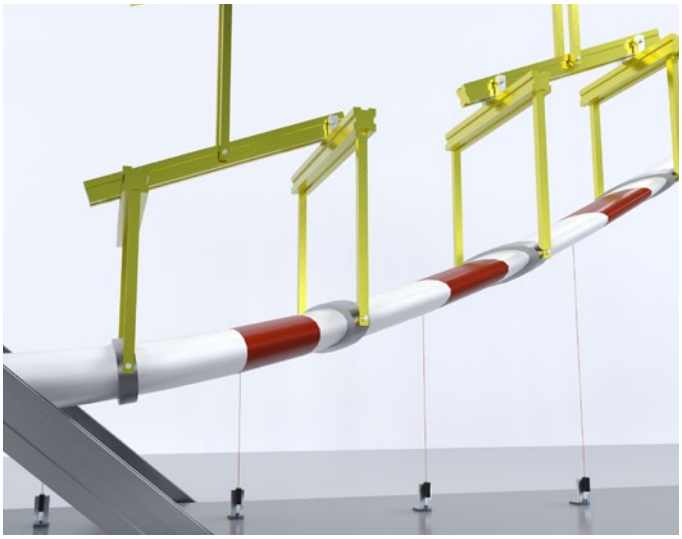
Sensor: optoNCDT ILR3800-100-H



Filling level measurement in silos

Laser distance sensors from Micro-Epsilon continuously detect the filling level in silos. For smooth production and logistics processes, precise quantity measurements at storage locations for bulk goods or plastic granulates, for example, is a decisive factor. These ILR3800 sensors are mounted on the ceiling of the silo and measure continuously down to the silo bottom. This reliable and automated detection of filling levels avoids production downtimes due to missing material.

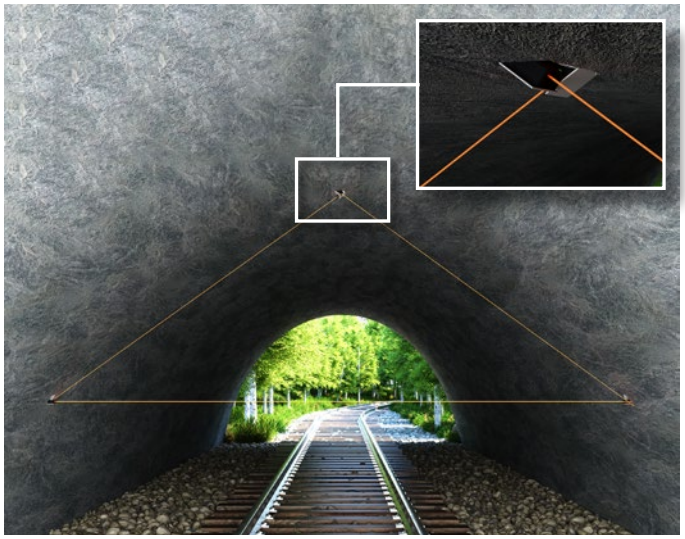
Sensor: optoNCDT ILR3800-100-H



Fatigue testing of rotor blades on wind turbines

Due to their growth in size and the increasing expansion of wind turbines, the demands on their technical reliability are also constantly increasing. Rotor blades are comprehensively tested and validated before commissioning. Several ILR1171 sensors detect the deformation of a rotor blade clamped in a test fixture, which is subjected to both static and dynamic loads.

Sensor: optoNCDT ILR1171



Monitoring of tunnel deformation

The deformation of tunnels is monitored by means of deformation measurements, among other things. Tunnels are subject to complex forces and exposed to demanding environmental conditions that can cause structural stresses and deformations. Four ILR3800 sensors continuously measure the distances to the tunnel side walls.

Sensor: optoNCDT ILR3800-100-H

IO-Link – the communication standard for automation technology

- Quick and easy device replacement
- Fast commissioning
- Compatible with all common fieldbus and automation systems
- Globally standardized according to IEC 61131-9

Smart key technology for Industry 4.0

IO-Link is an open, standardized, fieldbus-independent digital interface (IEC 61131-9) that enables bidirectional communication between sensors and actuators down to the lowest field level. This makes it a key component of intelligent automation solutions and accelerates the implementation of Industry 4.0 through consistent data availability.

Its fieldbus neutrality allows IO-Link to be easily integrated into established automation landscapes such as PROFINET, EtherNet/IP, or Modbus. It acts as an efficient bridge between analog sensors and modern network control.

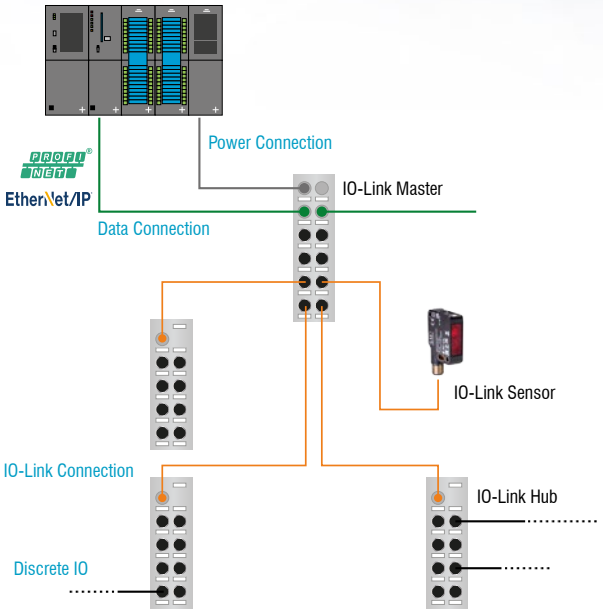
IO-Link – briefly explained

An IO-Link master can consist of 2, 4, 8, or 16 bidirectional IO-Link ports. These ports can be connected to an IO-Link hub or an IO-Link device (sensor, actuator) via a point-to-point connection using data lines. With the intermediate IO-Link hubs, signals from the sensors/actuators connected are forwarded directly to the IO-Link master. An IO-Link hub can also have 2, 4, 8, or 16 ports. This increases efficiency and connectivity. The sensors can be integrated into existing IO-Link systems as slaves.

Micro-Epsilon: IO-Link-compatible products

IO-Link is a globally standardized, fieldbus-independent interface that enables end-to-end communication down to the lowest field level, thus supporting Industry 4.0 applications. Micro-Epsilon offers, among other things, the optoNCDT ILR3800-IO and ILR1040-IO laser distance sensors, which are characterized by high precision and robust design.

Other Micro-Epsilon product groups already feature IO-Link. Micro-Epsilon is thus expanding its portfolio with future-proof, flexibly integrable sensor solutions for networked automation.



Key advantages of IO-Link

❶ **Standardized, fieldbus-independent communication**
The open standard (IEC 61131-9) offers easy integration and future-proof applications in heterogeneous automation environments

❷ **Easy installation & minimal cabling**
IO-Link works with standard cables, reducing installation efforts, costs, and EMC requirements

❸ **Automatic parameterization & quick device changes**
Smooth sensor replacement, devices are recognized automatically

❹ **Transparent diagnostics and smart maintenance**
In addition to process data, devices also provide status and diagnostic data. Remote diagnosis is possible.

❺ **Higher plant availability and process optimization**
Real-time data enables production optimization, fewer downtimes, and higher energy efficiency

❻ **High future viability**
Manufacturer independence, and sound standardization ensure robust and open-source implementation of Industry 4.0 solutions.

Ease of use
optoNCDT ILR

sensorTOOL: Easy operation and configuration

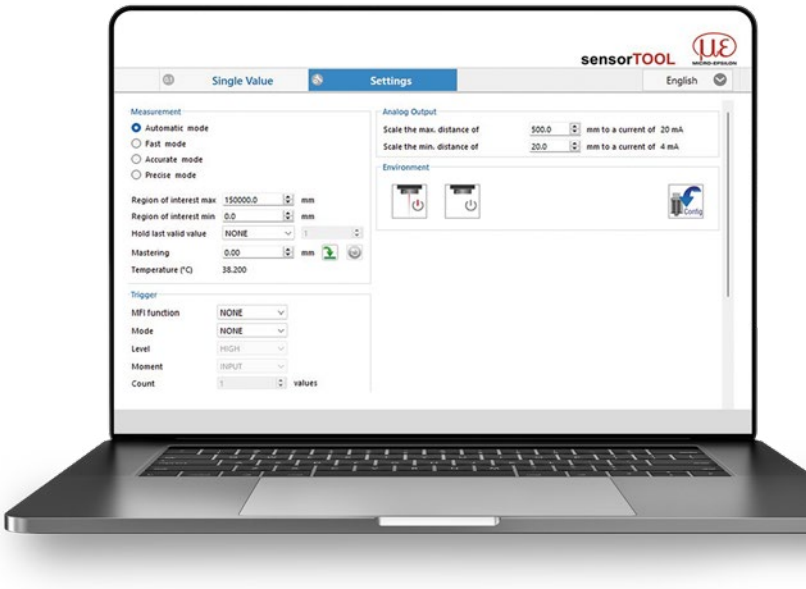
The optoNCDT ILR3800 and ILR1171 sensors can be connected to the sensorTOOL and parameterized via numerous interface modules (IF2001/USB, IF2004/USB, and IF2008/ETH). In addition to sensor parameterization, it also enables the display, storage, and export of measured values.

Features

- Data display and scaling via Ethernet and sensorTOOL
- CSV export
- Easy installation without PC admin rights

Measurement modes for ILR3800

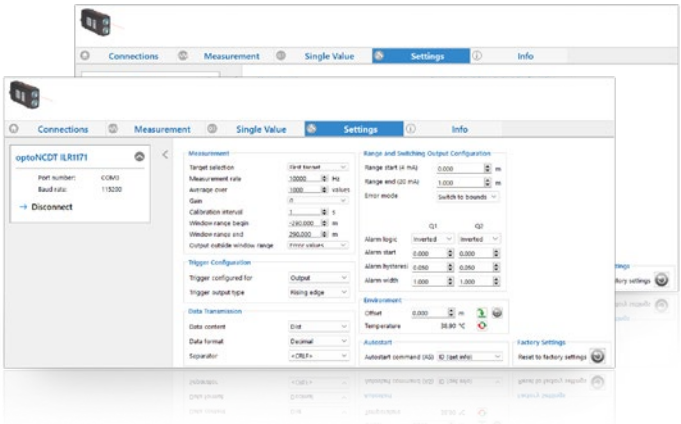
- **AUTOMATIC**: For dark, reflective and distant targets – this measurement mode optimizes the measurement frequency of the sensor and therefore provides the best results, even in difficult conditions.
- **FAST:** For fast measurements on moving objects and distance jumps – this measurement mode detects object movements up to 1.6 m/s.
- **ACCURATE:** For high accuracy and tolerance in distance changes.
- **PRECISE:** For highest accuracy – this measurement mode provides precise distance values on well reflecting targets.
- **DYNAMIC:** Optimized for applications with fast and large distance changes – ideal for moving processes in logistics and automation.



Settings for ILR1171

The Settings tab offers users a wide range of options for customizing the measurement parameters.
For example, the measurement frequency can be precisely adjusted to the respective requirements in order to achieve an optimal balance.

In addition, the range and switching output configurations for the 4 mA and 20 mA interfaces can be flexibly adjusted, enabling seamless integration into different control environments. In addition, the evaluation range can be defined and signal processing configured to optimize measurement results and reliably suppress interference signals. In this way, the settings area provides a central and user-friendly platform for adapting the measuring system precisely to the respective application situation.



Compact and reliable laser distance sensor
optoNCDT ILR104x

- Measuring ranges without reflector: 10 m
  With reflector: 60 m and 150 m
- Ideal for series applications in the automation industry
- Laser class 1
- Robust design IP67 / IP69 / IP69K
- Fast response time
- Compact & lightweight design

NEW *Now with 150 m measuring range*

Compact and reliable sensor

The optoNCDT ILR104x laser distance sensors are designed for industrial distance measurements. These sensors achieve measuring ranges up to 10 meters without reflector film, 60 and 150 meters with reflector film. They feature a high protection class and resistance to ambient light. Due to their rotatable cable outlet and their compact design, these sensors can also be installed in difficult-to-access and narrow places.

The optoNCDT ILR104x sensors can be put into operation quickly and easily via the IO-Link interface. Operation of the sensor is supported by keys and LEDs.

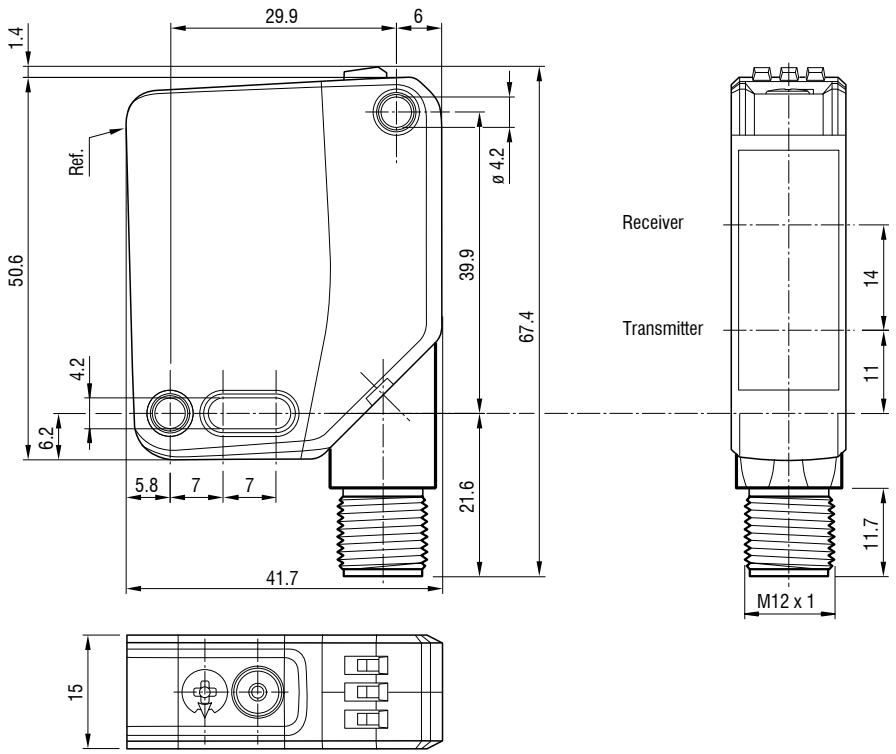
Time-of-flight principle

The ILR104x distance sensors use the time-of-flight measuring principle for accurate, reliable, clear and reproducible results. They achieve precise measurement results regardless of surface texture, dark object colors or ambient light. The ILR104x series sensors use a class 1 laser.

Versatile use

The compact sensors are designed for automation and are used for presence detection and collision monitoring, for example. Their robust plastic housing with IP69K protection class, the 50,000 lx ambient light resistance and a wide temperature range of -30 to +60 °C make these sensors the ideal choice for numerous applications.

Dimensions:

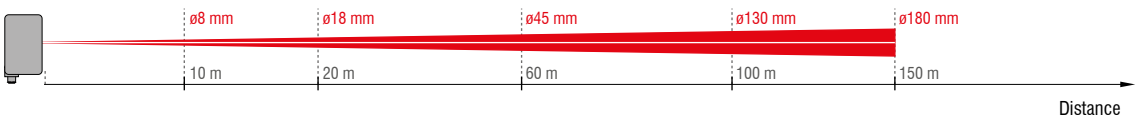


(dimensions in mm, not to scale)

Model		ILR1040-10-IO-I	ILR1040-10-IO-U	ILR1041-60-IO-I	ILR1041-60-IO-U	ILR1041-150-IO-I	ILR1041-150-IO-U
Measuring range [1]	Start of measuring range	0.03 m	0.03 m	-	-	-	-
	End of measuring range	10 m	10 m	-	-	-	-
	Start of measuring range with reflector film ILR-RF250	-	-	0.2 m	0.2 m	0.2 m	0.2 m
	End of measuring range with reflector film ILR-RF250	-	-	60 m	60 m	150 m	150 m
Measuring rate		adjustable up to 333 Hz					
Max. travel speed		10 m/s					
Resolution		1 mm					
Linearity [2]		typ. ± 20 mm					
Repeatability [3]		< 3 mm				< 6 mm	
Light source		Semiconductor laser < 1 mW, 660 nm (red) 2mrad 4ns					
Laser class		Class 1 in accordance with DIN EN 60825-1:2014					
Typ. service life		85.000 h					
Permissible ambient light		50,000 lx @ 2.5 m standard white 90 %, 10,000 lx @ 2.5 m black 6 %					
Supply voltage		18 ... 30 VDC					
Power consumption		25 mA					
Digital interface		IO-Link 1.1 (via C/Q pin 4)					
Analog output		4 … 20 mA (12-bit DA)	0 ... 10 V (12-bit DA)	4 … 20 mA (12-bit DA)	0 ... 10 V (12-bit DA)	4 … 20 mA (16-bit DA)	0 ... 10 V (16-bit DA)
Switching output		Q1 (max 100 mA) push-pull output (configurable) reverse polarity protected, overvoltage-proof					
Connection		Supply & signal: M12 x1 , 4-pin					
Mounting		Through bores					
Temperature range	Storage	-40 … +70 °C					
	Operation	-30 … +60 °C					
Protection class (DIN EN 60529)		IP67 / IP69 / IP69K					
Material		PC (polycarbonate)					
Weight		37 g					
Control and indicator elements		3x LED for power, switching status and teach-in; 5-position rotary switch for selecting the operating modes; teach-in button					
Special features		Operating mode: single measurement, external triggering, distance tracking, continuous measurement					

[1] The specified data apply at a constant room temperature of 20 °C with continuous sensor operation.
Measurements were taken on a white, diffusely reflective surface (reference ceramic). Reflector film RF250
[2] Statistical spread 2σ
[3] Incl. thermal influence

Light spot diameter



The ILR104x sensors use a semiconductor laser of class 1.
Devices in this laser class require no special safety precautions.
They work with a semiconductor laser with a wavelength of 660 nm (visible/red)
Laser power is <1 mW.

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
- INTERFACE 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.

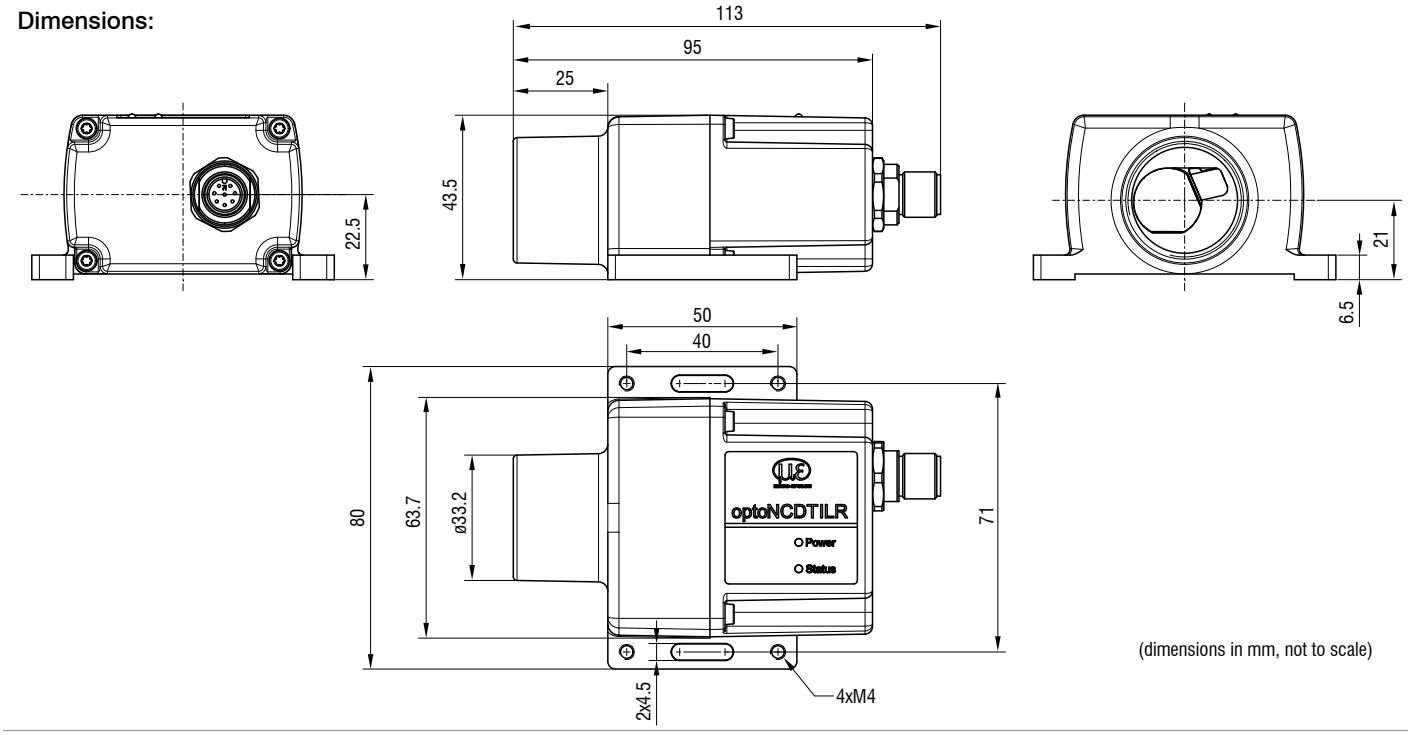
ILR3800-IO with IO-Link

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:

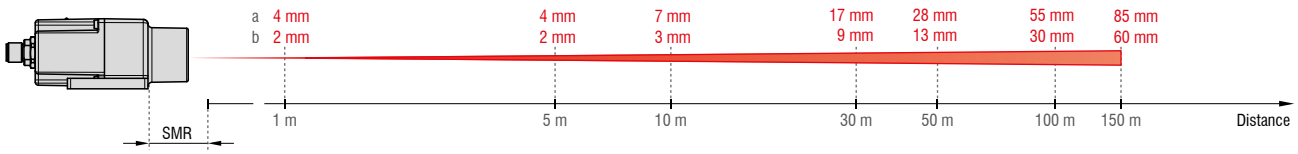


(dimensions in mm, not to scale)

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.

Fast laser distance sensor for outdoor applications
optoNCDT ILR1171

- Measuring range up to 125 m, (with reflector 270 m)
- Laser class 1
- IP67 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 impresses with its high signal intensity for stable measurements.

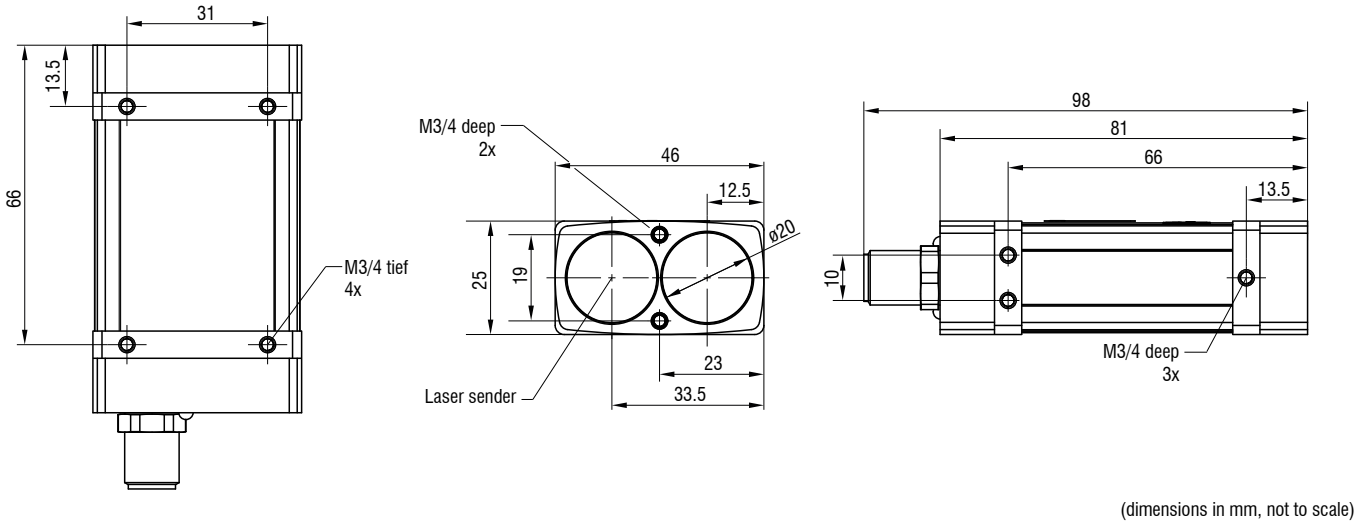
Time-of-flight principle

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.

Versatile fields of application

The optoNCDT ILR1171 is fitted with an integrated heater for outdoor use. The RS422 and RS232 interfaces ensure reliable and fast data transmission.

Dimensions:

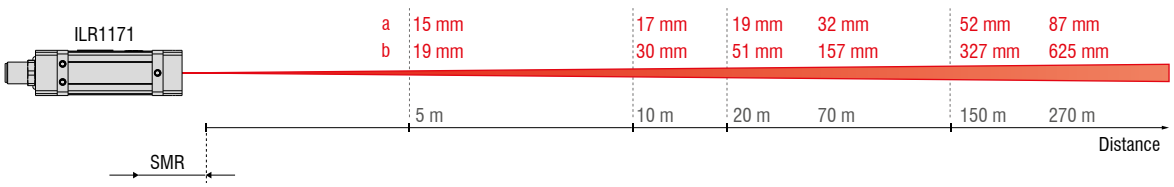


(dimensions in mm, not to scale)

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 in these laser classes require no special safety precautions.

Connection possibilities
optoNCDT ILR

ILR104x

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

ILR3800-IO

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

ILR3800
ILR3800-H

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

Power supply unit PS2020
(Optional for DIN rail mounting)

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

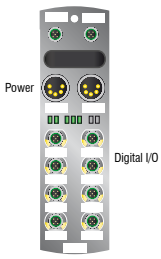
Supply and output cables

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

ILR1171

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



IO-Link master

PROFINET / EIP / EtherCAT

PLC

4-channel USB converter
IF2004/USB

USB

PC

Interface module for
Ethernet connection
IF2008/ETH

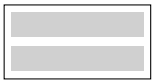
Ethernet

PC

Dual Processing Unit

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 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

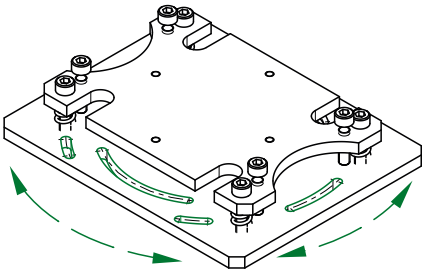
Particularly suitable for dusty and dirty environments to prevent deposits on the lens. Connection via a 6 mm hose. Recommended pressure: 3 bar.

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

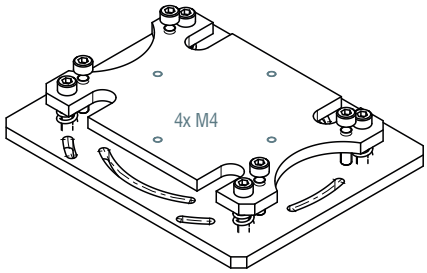
Mounting plate

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.

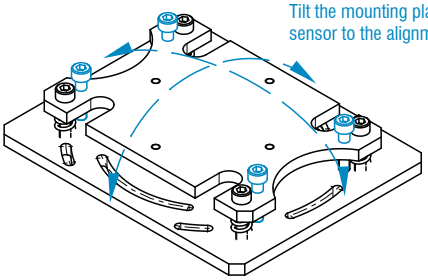
Sensor	Article	Description
optoNCDT ILR3800	Art. no.: 7966076 ILR-MP3800 Mounting plate	Optional; for easy sensor mounting



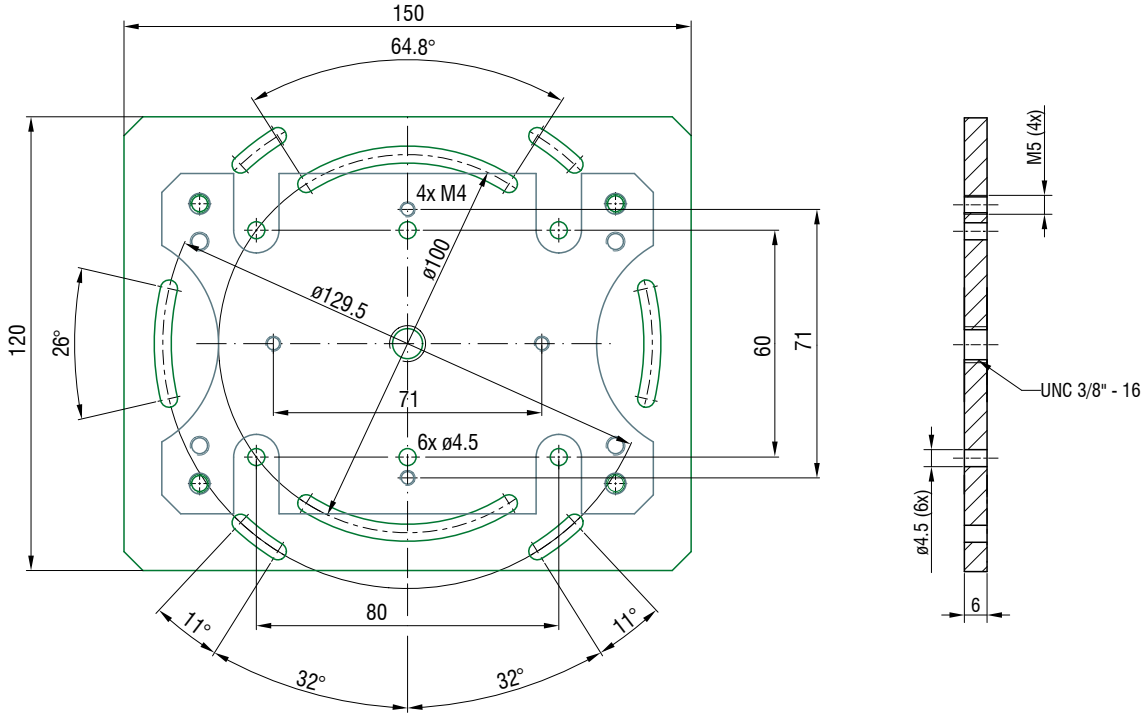
The sensor can optionally be mounted using a mounting plate.



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



Tilt the mounting plate with sensor to the alignment plate

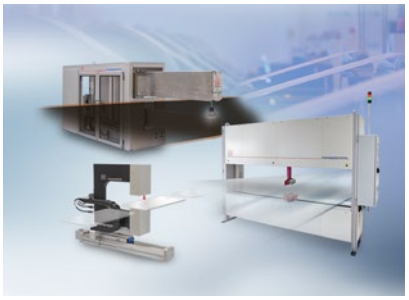


(dimensions in mm, not to scale)

Sensors and Systems from Micro-Epsilon

Sensors and systems for displacement, distance and position

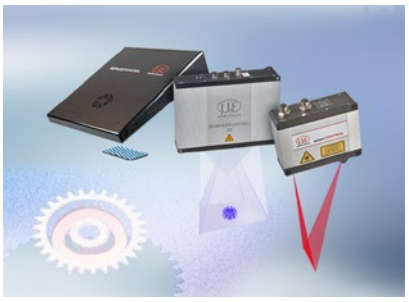
Sensors and measurement devices for non-contact temperature measurement



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

Modifications reserved / Y9761278-F022086GKE

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