

More Precision



optoNCDT ILD5500-10DR

The optoNCDT ILD5500 sensors represent the high-performance class of laser triangulation sensors from Micro-Epsilon. They impress with their high measuring rate of up to 150 kHz, or 20 kHz for the EtherCAT version, over the full measuring range, while featuring a compact design with no external controller.

The DR version with a measuring range of 10 mm is specially designed for reflective surfaces such as mirror-like wafers, glossy plastics, mirror glass or polished metals. The sensor must be mounted at an angle of 22.5° so that the angle of incidence of the laser equals the angle of reflection. This ensures high measurement accuracy and signal stability.



General technical data		ILD5500-10DR(202)	ILD5500-10DR-EtherCAT(203)
Measuring rate ^[1]		0,25 kHz ... 150 kHz	0,25 kHz ... 20 kHz
Light source		Laser 670 nm	
Laser class		Class 2 in accordance with IEC 60825-1: 2022-07	
Supply voltage		12 ... 30 VDC	
Power consumption		max. 5 W	
Signal input		Laser on/off, sync in, trigger/MFI in, 1 encoder (A+, A-, B+, B-, Index) 2 encoders (A+, A-, B+, B-)	Laser on/off
Digital interface ^[2]		Ethernet (32 bit), RS422 (32 or 18)	EtherCAT
Analog output		4 ... 20 mA / 0 ... 5 V / 0 ... 10 V	No analog output available
Switching output		1 or 2 switching outputs (error & limit value): npn, pnp, push pull	
Connection		Sensor with 3 m integrated cable with open ends and RJ45 connector; or integrated pigtail 0.3 m with 24-pin M16 plug	integrated pigtail 0.3 m with 12-pin M12 plug; optional extension to 3 m / 6 m / 9 m / 15 m (see accessories for suitable connection cables)
Mounting		Support points with locating holes for centering sleeves for reproducible clamping of the sensor 2 x M4 direct or M3 bolt connection	
Temperature range	Storage	-20 ... 70 °C (non-condensing)	-20 ... 70 °C (non-condensing)
	Operation	0 ... 50 °C (non-condensing)	0 ... 45 °C (non-condensing)
Shock (DIN EN 60068-2-27)		15 g / 6 ms in 3 axes	
Vibration (DIN EN 60068-2-6)		50 g / 20 ... 500 Hz / max. displacement 3.6 mm	
Protection class (DIN EN 60529)		IP67	
Material		Aluminum housing	
Weight		approx. 310 g (incl. pigtail); < 600 g (sensor with 3 m OE)	
Control and indicator elements ^[3]		Select & Function buttons: interface selection, mastering (zero), teaching, presets, quality slider, frequency selection, factory setting; web interface for setup: application-specific presets, peak selection, video signal, freely selectable averaging, data reduction, setup management, expert mode; 2 x color LEDs for power / status	Select key: factory settings, switching the operation mode; web interface for setup: application-specific presets, peak selection, video signal, freely selectable averaging possibilities, data reduction, setup management; 1 x color LED for power / status; 3 x color LEDs for "STATE", "RUN/SF", "ERR/BF"
Permissible extraneous light ^[4]		≥ 200,000 lx	

^[1] Factory setting: 4 kHz

^[2] EtherNet/IP require connection via interface module IF2035 (see accessories)

^[3] Access to web interface requires connection to PC

^[4] ≥ 200,000 lx with background suppression | Default settings with 20 kHz measurement frequency: 50,000 lx

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Model		ILD5500-10DR & ILD5500-10DR-EtherCAT (203)
Measuring range		10 mm
Start of measuring range		23 mm
Mid of measuring range		28 mm
End of measuring range		33 mm
Linearity ^[1] ^[2]		1,5 μm
		0,015 % FSO
Repeatability ^[3]		< 0,008 μm
Light spot diameter ^[4]	SMR	120 x 250 μm
	MMR	70 x 45 μm
	EMR	100 x 170 μm
	smallest $\varnothing$	47 x 30 μm with 35,6 mm $\pm$ 0,6 mm
Temperature stability ^[5]		$\pm$ 0.005 % FSO / K

^[1] Value valid only for the standard measurement range; value for median 9 + moving average 4096; Ethernet, 150 kHz, at the center of the measurement range, on a white, diffusely reflecting surface (Micro-Epsilon reference ceramic for optoNCDT sensors)

^[2] Value valid with customer-side two-point linearization to the measurement object; without two-point linearization, the linearity for the DR variant is 0.06% of full scale

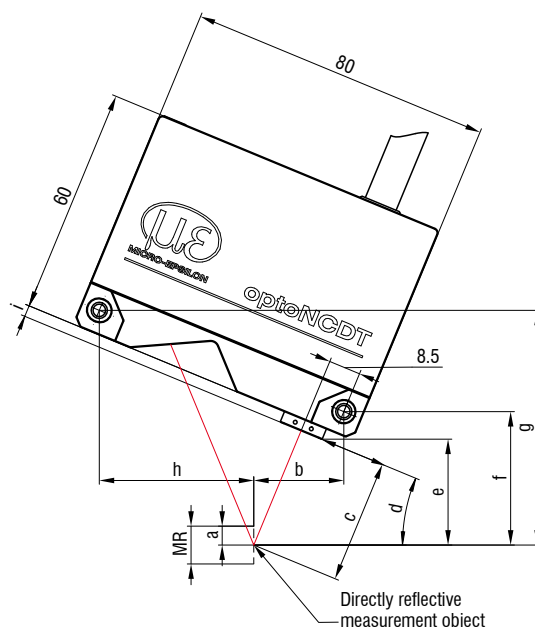
^[3] Value applies only to the standard measuring range; value for median 9 + moving average 4096; Ethernet, 150 kHz, in the mid of the measuring range, on white, diffuse reflecting surfaces (Micro-Epsilon reference ceramic for optoNCDT sensors)

^[4] $\pm$ 20 %; SMR = start of measuring range; MMR = mid of measuring range; EMR = end of measuring range; light spot diameter determined with point-shaped laser with Gaussian fit (full $1/e^2$ width)

^[5] Related to digital output in the mid of the measuring range; the specified value is only achieved by mounting on a metallic sensor holder. Good heat dissipation from the sensor to the holder must be ensured; this value is valid in the range from 20 to 50 °C

Dimensions

(in mm, not to scale)



	MR	a	b	c	d	e	f	g	h	i
Unit	mm	mm	mm	mm	°	mm	mm	mm	mm	mm
ILD5500-10DR	10	5	23.8	32.7	22.5	28	35.3	62.1	40.9	3