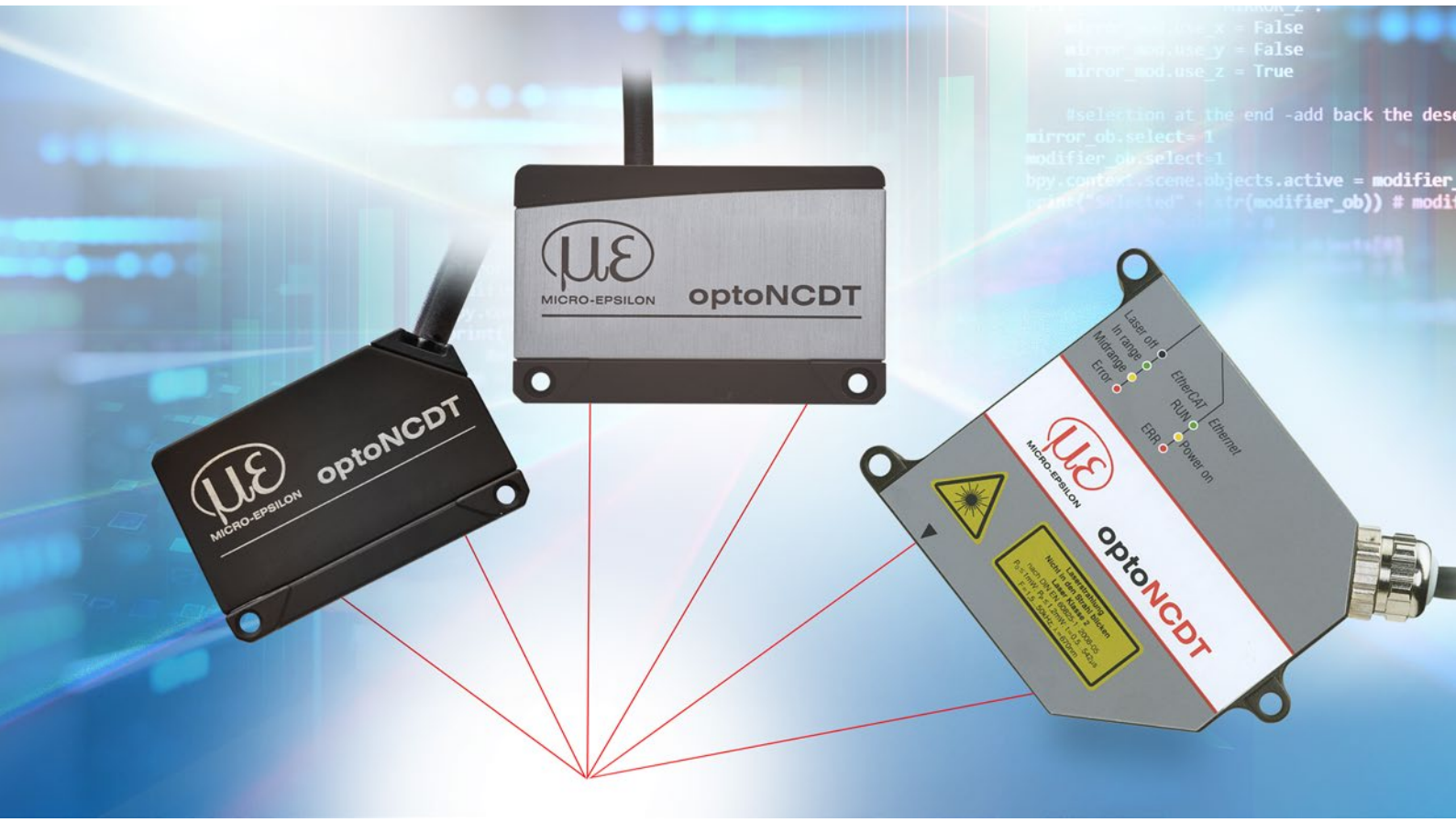
MICRO-EPSILON

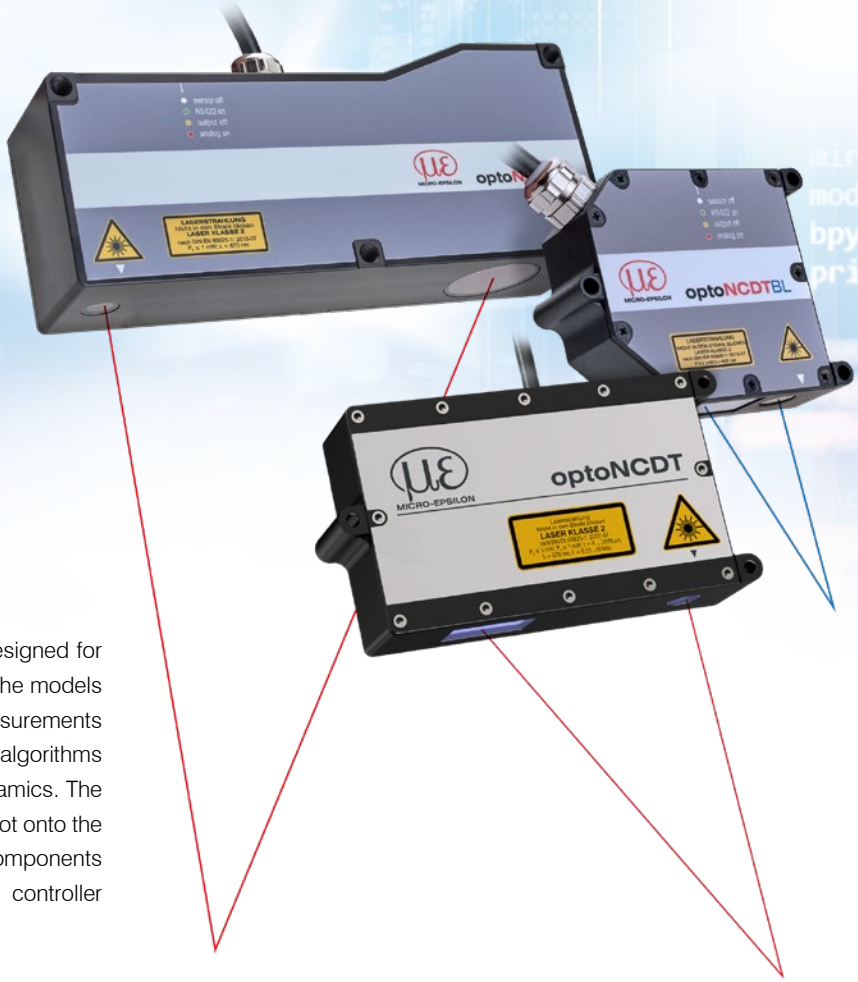
More Precision

optoNCDT // Laser displacement sensors (triangulation)



Powerful laser sensors for special applications
optoNCDT 17x0 / optoNCDT 1910

- Adjustable measuring rate up to 10 kHz
- Analog (U/I) / RS422 / PROFINET / EtherNet/IP
- Fast surface compensation
- High repeatability
- Ideal for large measurement distances



The optoNCDT 1910 and 1750 series laser sensors are designed for fast and precise measurements in industrial applications. The models are used for demanding surfaces and impress in measurements where large distances are required. Innovative evaluation algorithms and improved components enable high accuracy and dynamics. The high-performance optical system generates a small light spot onto the target which enables the detection of even the smallest of components reliably. The pigtail cable in conjunction with the internal controller reduces the installation effort for the sensors to a minimum.

The intelligent exposure control for demanding surfaces

The optoNCDT 1750 sensors feature real-time surface compensation. The real-time surface compensation feature (RTSC) determines the amount of reflection from the target surface during continuous exposure and in real-time. The exposure time or the amount of light produced by the laser is optimally matched to the reflection characteristics of the target surface. This enables extremely reliable measurements even on reflecting surfaces. The optoNCDT 1910 sensors use Advanced Surface Compensation and are also highly resistant to ambient light.

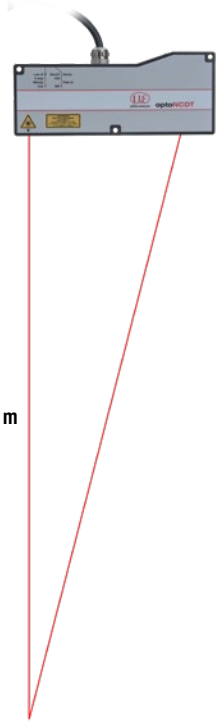
Ideal for industrial applications

Different output signals enable the integration of the sensor into plant and machine control systems. As well as analog voltage and current outputs, a digital interface provides distance information from the sensor. Due to the universal setting and evaluation possibilities, the sensors meet all the requirements for use in industrial applications.

Model	Technology	Measuring range	Repeatability	Linearity
optoNCDT 1750BL		2 - 750 mm	0.8 µm	from 0.06 %
optoNCDT 1750-DR		2 - 20 mm	0.1 µm	0.08 %
optoNCDT 1760		1000 mm	from 7.5 µm	0.10 %
optoNCDT 1910		500 / 750 mm	from 20 µm	0.07 %

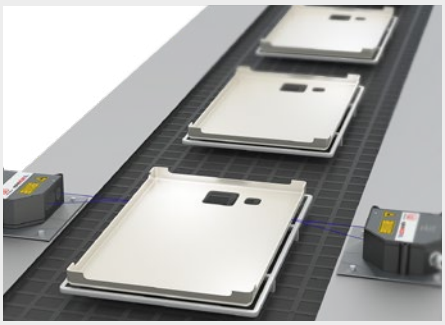
Large distance and large measuring range

The optoNCDT long-range models are used to cover a large measuring range or to measure from a large distance to the target. The long-range laser sensors combine high accuracy and large measuring distances.

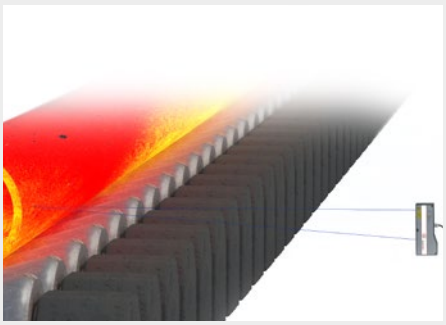


Application examples

Geometry testing of reflective glass parts



Position check of plastic components



Position measurement of red-hot glowing pipes

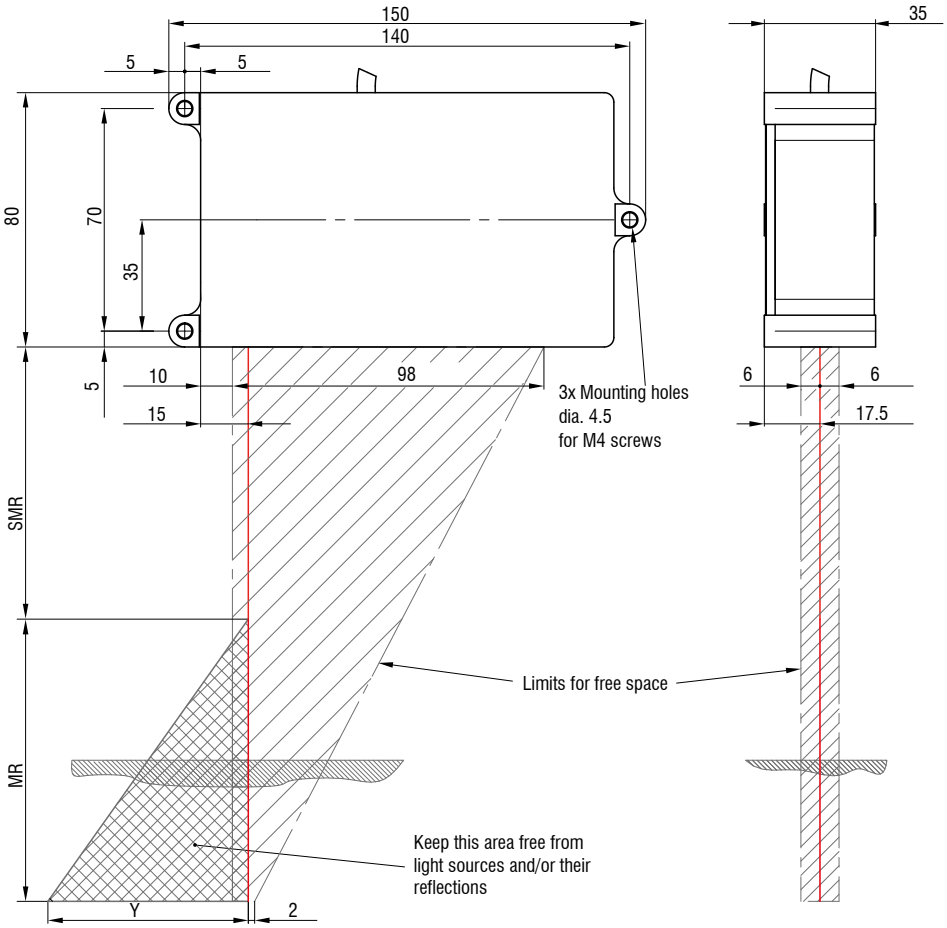
Technical data
optoNCDT 1910 Laser sensors for large measuring ranges

optoNCDT 1910

Model		ILD1910-500	ILD1910-750
Measuring range		500 mm	750 mm
Start of measuring range		200 mm	200 mm
Mid of measuring range		450 mm	575 mm
End of measuring range		700 mm	950 mm
Measuring rate [1]		continuously adjustable between 0.25 … 9.5 kHz or 7 adjustable stages: 9.5 kHz / 8 kHz / 4 kHz / 2 kHz /1.0 kHz / 500 Hz / 250 Hz	
Linearity [2]		< ±0.07 % FSO	±0.08 % FSO
		±350 µm	±600 µm
Repeatability [3]		20 µm	30 µm
Light spot diameter [4]		800 x 800 µm	1100 x 1100 µm
Light source		Semiconductor laser ≤ 1 mW, 670 nm (red) with laser class 2	
Laser class		Class 2 in accordance with IEC 60825-1: 2014 (Class 3 available on request)	
Permissible ambient light [5]		10,000 lx	
Supply voltage		11 … 30 VDC	
Power consumption		< 3 W (24 V)	
Signal input		1 x HTL/TTL laser on/off; 1 x HTL/TTL multi-function input: trigger in, slave in, zero setting, mastering, teach-in; 1 x RS422 synchronization input: trigger in, sync in, master/slave, master/slave alternating	
Digital interface [6]		RS422 (18 bit) / EtherCAT / PROFINET / EtherNet/IP	
Analog output		4 ... 20 mA / 0 … 5 V / 0 … 10 V (16 bit, freely scalable within the measuring range)	
Switching output		2x switching outputs (error & limit value): npn, pnp, push pull	
Connection		integrated pigtail 0.3 m with 17-pin M12 plug; optional extension to 3 m / 6 m / 9 m / 15 m possible (suitable connection cable see Accessories)	
Temperature range	Storage	-20 … +70 °C (non-condensing)	
	Operation	0 … +50 °C (non-condensing)	
Shock (DIN EN 60068-2-27)		15 g / 6 ms in 3 axes	
Vibration (DIN EN 60068-2-6)		2 g / 20 … 500 Hz	
Protection class (DIN EN 60529)		IP65	
Material		Aluminum housing	
Weight		approx. 600 g (incl. pigtail)	
Control and indicator elements [7]		Select & function keys: interface selections, mastering (zero), teach, presets, quality slider, frequency selection, factory settings; web interface for setup: application-specific presets, peak selection, video signal, freely selectable averaging possibilities, data reduction, setup management; 2 x color LEDs for power / status	

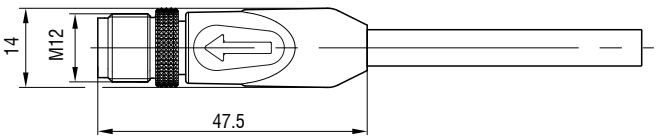
[1] Factory setting 4 kHz, median 9, modifying the factory setting requires the IF2001/USB converter (see accessories)
[2] FSO = Full Scale Output; data related to the digital output and valid for white, diffusely reflecting surfaces (Micro-Epsilon reference ceramic for ILD sensors)
[3] Typical value with measurements at 4 kHz and median 9
[4] ±15 %; light spot diameter determined with point-shaped laser with Gaussian fit (full $1/e^2$ width)
[5] Illuminant: light bulb
[6] For EtherCAT, PROFINET and EtherNet/IP, connection via interface module is required (see accessories)
[7] Access to web interface requires connection to PC via IF2001/USB (see accessories)

Dimensions
optoNCDT 1910



MR	SMR	Y
500	200	180
750	200	270

Connector (sensor side)



Accessories for optoNCDT 1750/1760/1910

Power supply unit

PS2020 (power supply 24 V / 2.5 A, input 100 - 240 VAC, output 24 VDC / 2.5 A, mounting onto symmetrical standard rail 35 mm x 7.5 mm, DIN 50022)

Protective housings

see page 60

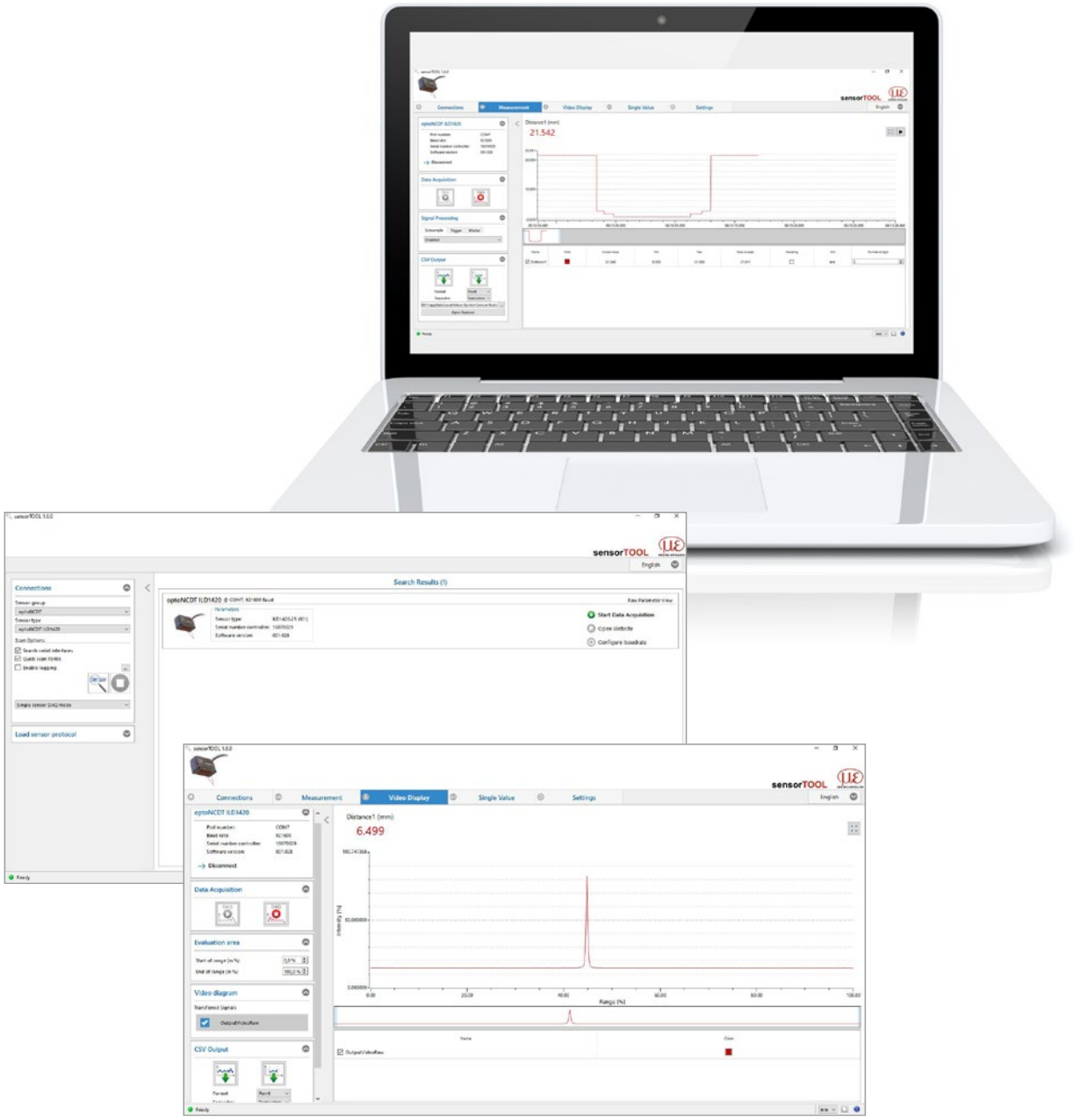
Article designation

ILD17x0-	50	LL	CL3R
			Laser class No indication: class 2 (standard) CL3R: class 3R (on request, only ILD1910)
		Laser type No specification: Red laser dot (standard) BL: Blue Laser DR: Direct Reflection	
	Measuring range in mm		

Series
ILD1750: Laser sensors for industrial applications
ILD1760: Precise laser sensor for measuring ranges up to 1000 mm
ILD1910: Compact long-range sensors for measuring ranges 500 / 750 mm

sensorTOOL

The Micro-Epsilon sensorTOOL is a powerful software that is used to operate one or more optoNCDT sensors. The sensorTOOL can be used to access the sensor connected to the PC, display its complete data stream and save it in a file (in Excel-compatible CSV format). The sensor is configured via its web interface.



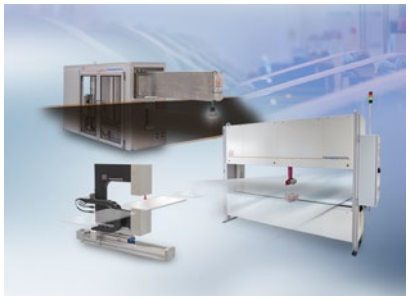
Free download

All software tools, drivers and documented driver DLL for easy integration of the sensors into existing or internally-generated software are available free of charge under www.micro-epsilon.de/download

Sensors and Systems from Micro-Epsilon

Sensors and systems for displacement, distance and position

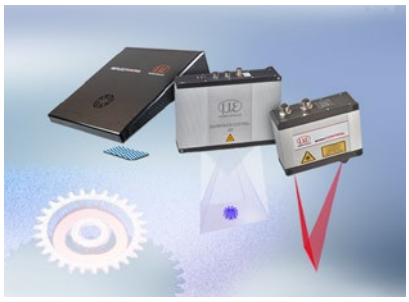
Sensors and measurement devices for non-contact temperature measurement



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 / Y9761188-N092066GKE

MICRO-EPSILON

MICRO-EPSILON Headquarters
Koenigbacher Str. 15 · 94496 Ortenburg / Germany
Tel. +49 (0) 8542 / 168-0 · Fax +49 (0) 8542 / 168-90
info@micro-epsilon.com · **www.micro-epsilon.com**