MICRO-EPSILON

capaNCDT 6139 Non-contact capacitive displacement measuring system for OEM

The capaNCDT 6139 is a capacitive displacement measurement system for OEM applications. The values for accuracy, resolution and bandwidth meet the highest demands. Flexible system configuration, compact sensor design and the non-contact measurement principle enable easy integration and adaptation to the relevant application. The measurement system features a very good priceperformance ratio.
The capaNCDT 6139 system operates according to the „capacitive displacement measurement“ principle. It is based on the principle of an ideal plate capacitor. The sensor together with the target positioned opposite, both form the two electrodes. By employing the guard ring capacitor principle, the sensor is linear when used with any metal.

Application

The capaNCDT 6139 has been designed for OEM applications in the industrial field. The compact sensor and a flexible system construction ensure very economical use in OEM applications, e.g.

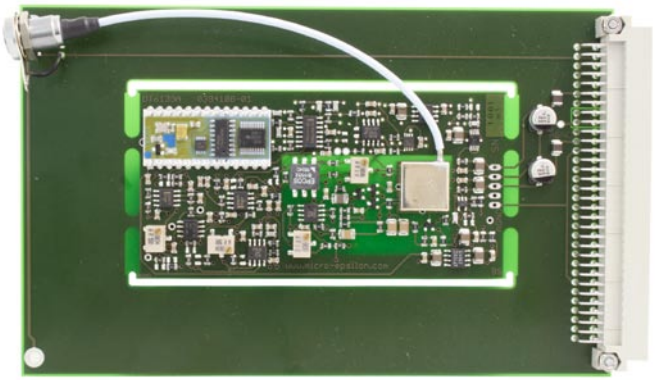
- Piezo-actuators
- z-leveling
- x- and y- positioning
- Axial shaft vibration
- Thermal expansion

Tri-Electrode technology with active guarding

Due to the unique design of the MICRO-EPISLON Tri-Electrode sensor probes in conjunction with the active guarding technology the capaNCDT 6139 system enables extreme signal stability and immunity.

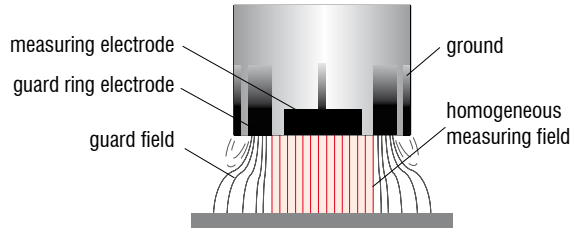
Features

- Non-contact measurement of any electrical conductive target
- Extreme resolution 2.5 nm
- Bandwidth (2 kHz -3 dB)
- Excellent repeatability 5 nm
- Compact sensor design (ø10 mm)
- Controller electronics for integration in customer specific housing
  - eurocard 100 x 160 mm
  - external housing 50 x 100 mm
- Ideal for small measuring range, e.g. 200 µm

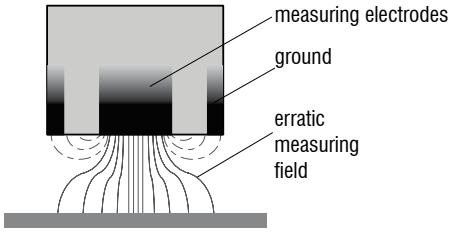


Active guarding for stable measuring results

MICRO-EPSILON capaNCDT sensor



Common capacitive sensor



capaNCDT 6139 Technical data

Electronics		DT 6139
Sensor		CS 1 (01)
Measuring range		200 µm
Reference distance		80 µm
Linearity	calibrated [1]	±0.1 µm
	uncalibrated [2]	±0.4 µm
Resolution	static	0.0025 µm
	dynamic (1 kHz)	0.1 µm
Repeatability	static	0.005 µm
Sensor outer diameter		10 mm
Sensor cable	length	0.6 m ; 1 m ; 1.6 m
Min. diameter of target		10 mm
Temperature stability sensor	zero	0.06 µm/°C
	sensitivity	30 ppm/°C
Temperature stability electronics		≤0.005 % FSO/°C
Long term stability		≤0.04 % FSO/month
Sensitivity		50 mV/µm
Output	voltage	0 … 10 VDC (within measuring range)
Power supply		±15 VDC/±50 mA
Bandwidth		2 kHz (-3 dB)
Temperature range	sensor + sensor cable	-50 to +150 °C (-60 to +300 °F)
	electronics	+10 to +50 °C (+40 to +122 °F)
Electronics		Euro size card 100 x 160 mm Shaped 50 x 100 mm
Electromagnetic Compatibility (EMC)		EN 50081-1 / EN 50082-2
Protection class		IP 40 (Electronics+Sensor)

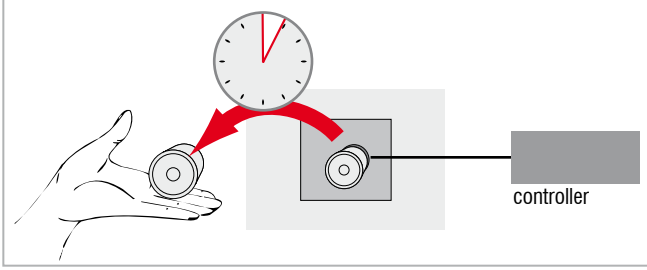
FSO = Full Scale Output
[1] Electronics and Sensor are matched (factory calibrated)
[2] Sensors can be changed without any adjustment (Plug and play)

Instant sensor swap without recalibration

The unique MICRO-EPSILON capacitive technology allows changing any capaNCDT sensor in seconds! Replacing sensors with different measuring ranges and any capaNCDT controller without recalibration. A sensor swap with capaNCDT needs no more than 5 seconds, while other capacitive systems are not designed for replacing components without the need of individual calibration and linearization.

Instant sensor swap within 5 seconds!

Replace any capaNCDT controller and any capaNCDT sensor within seconds without recalibration!



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