MICRO-EPSILON

More Precision.

capaNCDT

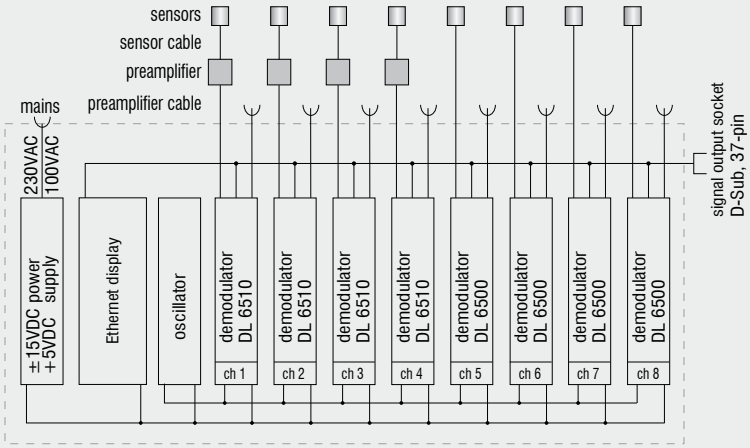
High resolution capacitive displacement sensors and systems.

- **Multi-channel system**
- **Sub-nanometre precision resolution**
- **Virtually independent of temperature**
- **Material-independent for conductive materials**
- **As benchtop unit and as card carrier for a 19-inch format**
- **Also measures against insulators**
- **Integrated calculation function for thickness measurements**
- **Numerous filters, averaging, trigger functions, measured value storage, digital linearisation**
- **Suitable for all sensors**

System structure

The capaNCDT 6500 can be used for multi-channel operation and is modular in its design. Up to eight sensors can be connected to the signal conditioning electronics (Euro-size cards) via a pre-amplifier module.

For the DL6500 version, the pre-amplifier is integrated in the housing and is used for cable lengths up to 4m. For cable lengths above 4m, the DL6510 version is used together with an external pre-amplifier CP6001 or CPM6011.



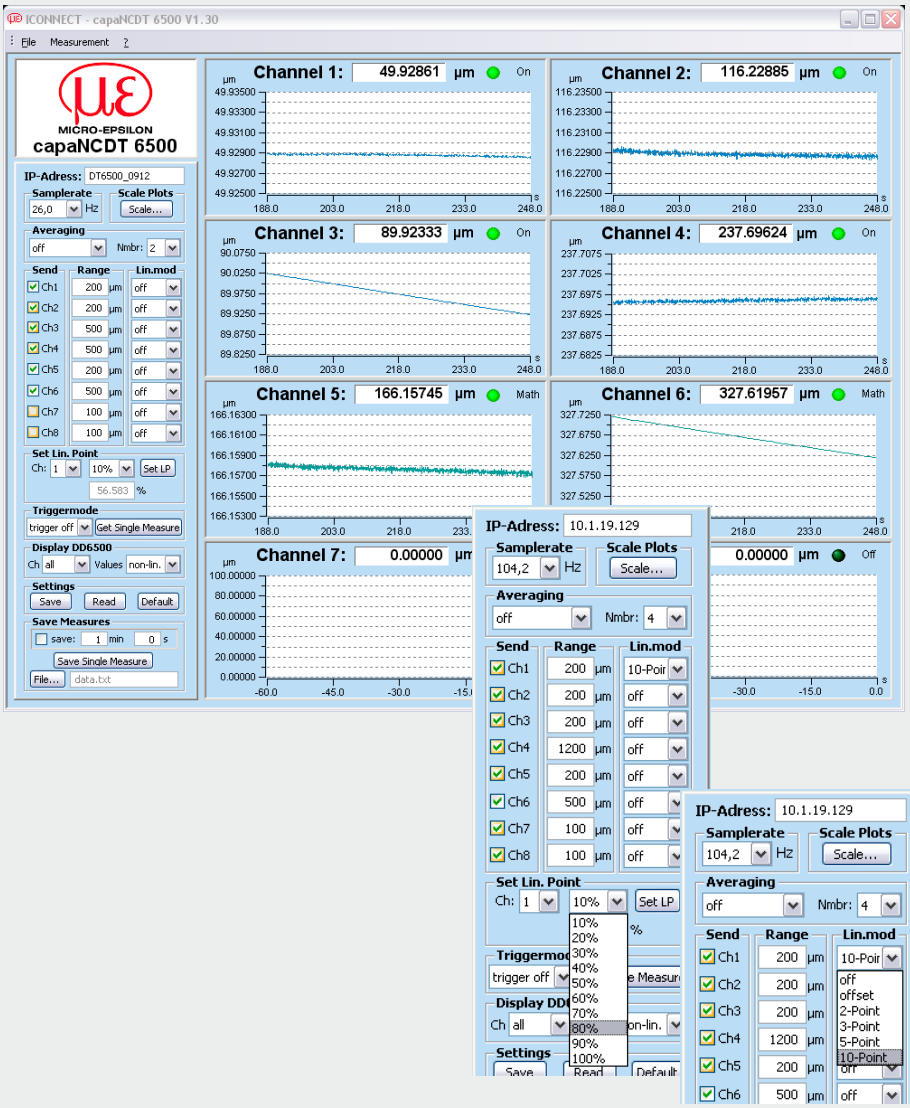
A measuring system with n measurement channels consists of:

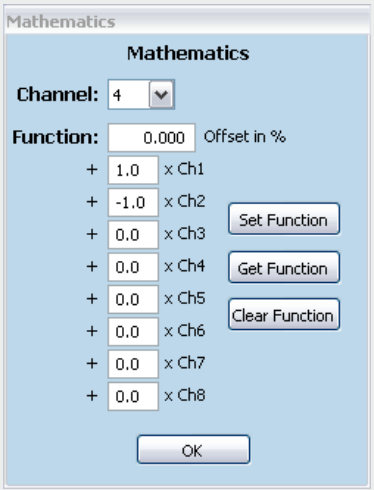
1. controller RS6500 with power supply, display, ethernet, oscillator and analog output
2. n x demodulator modules DL6510 (DL6500 with integral pre-amplifier)
3. n x pre-amplifier connecting cables
4. n x pre-amplifier modules CP6001
5. n x sensor cables
6. n x sensors

DL6510: One item of position 2 to 6 is needed for each channel.
DL6500: One item of position 2, 5 and 6 is needed for each channel.
In the case of a distance from the sensor to the controller > 4m,
a DL6510 demodulator with external pre-amplifier must be used.

Software

Digital values can be visualised and processed using the software supplied.





Calculation Functions
The digital values can be arithmetically linked in numerous ways.

10-point Linearisation
Linearisation of the digital values with up to 10 points. The linearisation only acts on the digital signals and is performed directly in the DT6500.

System configuration

System capaNCDT 6500 (with integral pre-amplifier for cable lengths ≤4m):
- RS6500 Rack
- Demodulator
- Sensor cable
- Sensor

System capaNCDT 6510 (with external pre-amplifier for cable lengths >4m):
- RS6500 Rack
- Demodulator
- Sensor cable
- Sensor
- Pre-amplifier
- Pre-amplifier cable

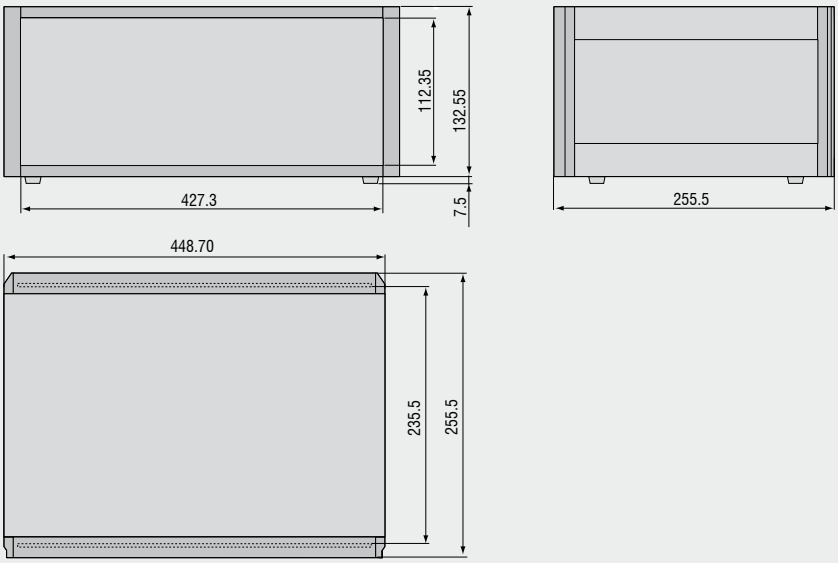
Pre-amplifier CPM6011
External pre-amplifier
for standard measurements

Pre-amplifier CP6001
External pre-amplifier
for high precision measurements

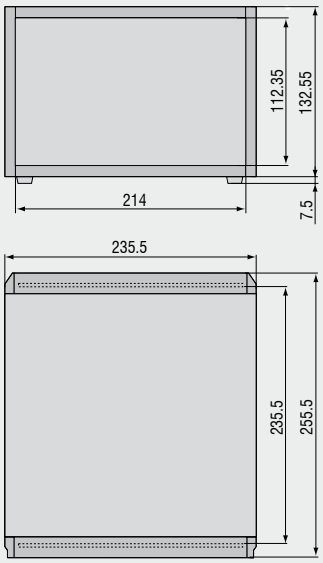
RS6500C 2 channel rack

RS6500 8 channel rack

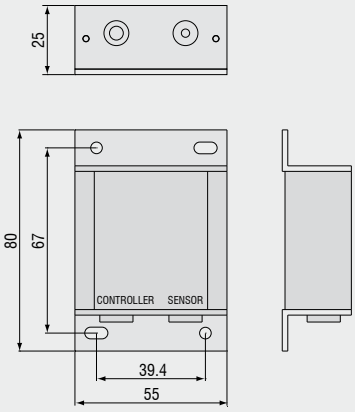
Controller RS6500 8-channel rack



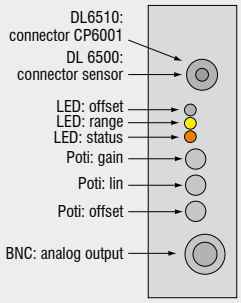
Controller RS6500C 2-channel rack



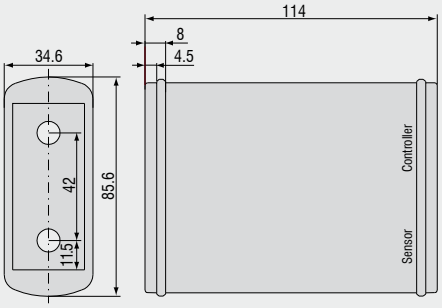
CPM6011 capacitive pre-amplifier



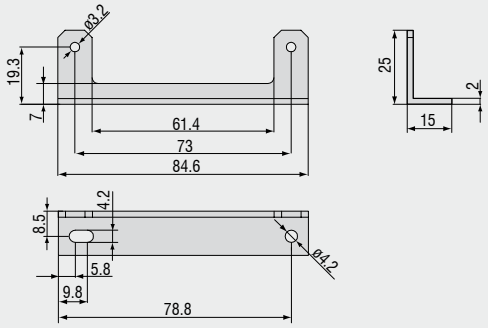
DL6500/6510 front cover



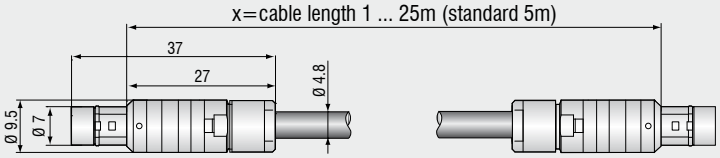
CP6001 capacitive pre-amplifier



Mounting adapter CP6001



Pre-amplifier cable CA5 / CAx



Sensor cable

Sensor and pre-amplifier are connected using a special, double-shielded sensor cable. The cables are also available in lengths up to 4m; however, this requires special tuning of the pre-amplifier.

Controller type	DT6500	DT6500 with pre-amplifier CPM6011
Resolution static	0.000075 % FSO	0.0006 % FSO
Resolution dynamic	0.002 % FSO (8.5kHz)	0.015 % FSO (8.5kHz)
Data rate analog ouput	8.5kHz	8.5kHz
Bandwidth adjustable	20Hz; 1kHz; 8.5kHz	20Hz; 1kHz; 8.5kHz
Bandwidth digital output	1kHz (max. 8 channels / 2kHz max. 4 channels / 7.8kHz max. 1 channel	
Linearity	±0.05 % FSO	±0.2 % FSO
Max. sensitivity deviation	±0.05 % FSO	±0.1 % FSO
Repeatability	0.0003 % FSO	0.001 % FSO
Long term stability	±0.002 % FSO / month	±0.02 % FSO / month
Synchronous operation	yes	yes
Insulator measurement	yes	no
Temperature stability	± digital: 5ppm/°C analog: 10ppm/°C	80ppm
Temperature range (operation)	+10 ... +60°C	+10 ... +60°C
Temperature range (storage)	-10 ... +75°C	-10 ... +75°C
Supply	230 VAC	230 VAC
Output	0…10 V (max. 10mA short circuit proof); offset ≤10V ... 0V	
	4…20 mA (load max. 500Ω)	
	optional: 0...20mA (load max. 500Ω)	
	Ethernet 24 Bit	
Sensors	suitable for all sensors	
Sensor cable standard	≤1m	≤1m
Sensor cable (matched)	up to 4m	up to 2m

2982011 EMR2P CP6001
extended measuring range (factor: 2) in combination with DL6510

2982013 RMR 1/2P CP6001
reduced measuring range (factor: 1/2) in combination with DL6510

2982015 ECL2P CP6001
special tuning for 2m sensor cable in combination with DL6510

2982017 ECL3P CP6001
special tuning for 3m sensor cable in combination with DL6510

2982026 ECL4P CP6001
special tuning for 4m sensor cable in combination with DL6510

2982028 ECL2P CPM6011
special tuning for 2m sensor cable in combination with DL6510

2982019 EMR2C DL6500
extended measuring range (factor: 2)

2982020 RMR 1/2C DL6500
reduced measuring range (factor: 1/2)

2982021 ECL2C DL6500
special tuning for 2m sensor cable

2982023 ECL3C DL6500
special tuning for 3m sensor cable

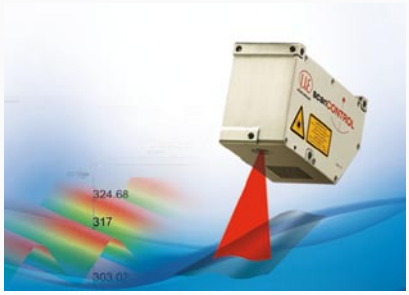
2982025 ECL4C DL6500
special tuning for 4m sensor cable

2982033 EMR2P CPM6011
extended measuring range (factor: 2)

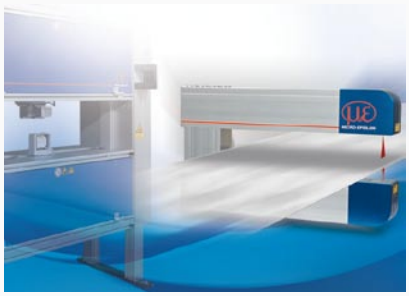
High performance sensors made by Micro-Epsilon

Sensors and systems for displacement and position

Sensors and measurement devices for non-contact temperature measurement



2D/3D profile sensors (laser scanner)



Measurement and inspection systems for quality assurance

Optical micrometers and optical fibers

Color recognition sensors and LED analyzers

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