More Precision.

capaNCDT
High resolution capacitive displacement sensors and systems.
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 \( \leq 4m \)):
- 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
High resolution measurement system
capaNCDT 6500

Controller RS6500 8-channel rack

Controller RS6500C 2-channel rack

CPM6011 capacitive pre-amplifier

DL6500/6510 front cover

DL6510:
connector CP6001
LED: offset
LED: status
BNC: analog output

DL 6500:
connector sensor
LED: range
Poti: gain
Poti: lin
Poti: offset

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.

x=cable length 1 ... 25m (standard 5m)
<table>
<thead>
<tr>
<th><strong>Controller type</strong></th>
<th>DT6500</th>
<th>DT6500 with pre-amplifier CPM6011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution static</td>
<td>0.000075 % FSO</td>
<td>0.0006 % FSO</td>
</tr>
<tr>
<td>Resolution dynamic</td>
<td>0.002 % FSO (8.5kHz)</td>
<td>0.015 % FSO (8.5kHz)</td>
</tr>
<tr>
<td>Data rate analog output</td>
<td>8.5kHz</td>
<td>8.5kHz</td>
</tr>
<tr>
<td>Bandwidth adjustable</td>
<td>20Hz; 1kHz; 8.5kHz</td>
<td>20Hz; 1kHz; 8.5kHz</td>
</tr>
<tr>
<td>Bandwidth digital output</td>
<td>1kHz (max. 8 channels / 2kHz max. 4 channels / 7.8kHz max. 1 channel</td>
<td></td>
</tr>
<tr>
<td>Linearity</td>
<td>±0.05 % FSO</td>
<td>±0.2 % FSO</td>
</tr>
<tr>
<td>Max. sensitivity deviation</td>
<td>±0.05 % FSO</td>
<td>±0.1 % FSO</td>
</tr>
<tr>
<td>Repeatability</td>
<td>0.0003 % FSO</td>
<td>0.001 % FSO</td>
</tr>
<tr>
<td>Long term stability</td>
<td>±0.002 % FSO / month</td>
<td>±0.02 % FSO / month</td>
</tr>
<tr>
<td>Synchronous operation</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Insulator measurement</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Temperature stability</td>
<td>± digital: 5ppm/°C analog: 10ppm/°C</td>
<td>80ppm</td>
</tr>
<tr>
<td>Temperature range (operation)</td>
<td>+10 ... +60°C</td>
<td>+10 ... +60°C</td>
</tr>
<tr>
<td>Temperature range (storage)</td>
<td>-10 ... +75°C</td>
<td>-10 ... +75°C</td>
</tr>
<tr>
<td>Supply</td>
<td>230 VAC</td>
<td>230 VAC</td>
</tr>
<tr>
<td>Output</td>
<td>0...10 V (max. 10mA short circuit proof); offset ≤10V ... 0V</td>
<td></td>
</tr>
<tr>
<td>Sensors</td>
<td>suitable for all sensors</td>
<td></td>
</tr>
<tr>
<td>Sensor cable standard</td>
<td>≤1m</td>
<td>≤1m</td>
</tr>
<tr>
<td>Sensor cable (matched)</td>
<td>up to 4m</td>
<td>up to 2m</td>
</tr>
</tbody>
</table>

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