More Precision

capaNCDT // Capacitive displacement sensors and systems
System design
The capaNCDT 6110 single channel capacitive electronics is compatible with all Micro-Epsilon capacitive sensor ranges. The analog measuring system stands out due to its compact design together with high performance. Due to the miniaturized design and its ease of use, the capaNCDT 6120 is ideally suited to integration in machines and facilities. The flexible 9-36 V power supply, enables the capaNCDT 6110 series to also be used in mobile applications. The capaNCDT 6110 stands out due to its excellent price/performance ratio, which makes it particularly suitable for high volume applications.

A measuring system consists of:
- Capacitive displacement sensor
- Sensor cable
- Controller
- Supply and signal output cable

Accessories:
- Power supply

- Compact and robust construction
- High temperature stability
- Nanometer repeatability
- Suitable for all conductive materials
- 24 V (9 – 36 V) standard power supply for industrial applications
- Ideal for OEM applications
- Suitable for practically all sensors
<table>
<thead>
<tr>
<th>Controller type</th>
<th>DT6110</th>
<th>DT6110/ECL2</th>
<th>DT6112</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution static</td>
<td>0.01 % FSO</td>
<td>0.01 % FSO</td>
<td>0.01 % FSO</td>
</tr>
<tr>
<td>Resolution dynamic</td>
<td>0.015 % FSO (1 kHz)</td>
<td>0.015 % FSO (1 kHz)</td>
<td>0.03 % FSO (20 kHz)</td>
</tr>
<tr>
<td>Bandwidth</td>
<td>1 kHz (-3 dB)</td>
<td>1 kHz (-3 dB)</td>
<td>20 kHz (-3 dB)</td>
</tr>
<tr>
<td>Linearity (typ.)</td>
<td>≤ ± 0.05 % FSO</td>
<td>≤ ± 0.05 % FSO</td>
<td>≤ ± 0.1 % FSO</td>
</tr>
<tr>
<td>Sensitivity deviation</td>
<td>≤ ± 0.1 % FSO</td>
<td>≤ ± 0.1 % FSO</td>
<td>≤ ± 0.1 % FSO</td>
</tr>
<tr>
<td>Long-term stability</td>
<td>&lt; 0.05 % FSO/month</td>
<td>&lt; 0.05 % FSO/month</td>
<td>&lt; 0.05 % FSO/month</td>
</tr>
<tr>
<td>Synchronous operation</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Insulator measurement</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Temperature stability</td>
<td>200 ppm</td>
<td>200 ppm</td>
<td>200 ppm</td>
</tr>
<tr>
<td>Temperature range (during operation)</td>
<td>Sensor: -50 ... +200 °C, Controller: +10 ... +60 °C</td>
<td>Sensor: -50 ... +200 °C, Controller: +10 ... +60 °C</td>
<td>Sensor: -50 ... +200 °C, Controller: +10 ... +60 °C</td>
</tr>
<tr>
<td>Temperature range (storage)</td>
<td>-10 ... +75 °C</td>
<td>-10 ... +75 °C</td>
<td>-10 ... +75 °C</td>
</tr>
<tr>
<td>Supply</td>
<td>24 VDC/55 mA (9 – 36 V)</td>
<td>24 VDC/55 mA (9 – 36 V)</td>
<td>24 VDC/55 mA (9 – 36 V)</td>
</tr>
<tr>
<td>Output</td>
<td>0 ... 10 V (short-circuit-proof), optional: ± 5 V, 10 ... 0 V</td>
<td>0 ... 10 V (short-circuit-proof), optional: ± 5 V, 10 ... 0 V</td>
<td>0 ... 10 V (short-circuit-proof), optional: ± 5 V, 10 ... 0 V</td>
</tr>
<tr>
<td>Sensors</td>
<td>suitable for all sensors</td>
<td>suitable for all sensors</td>
<td>suitable for all sensors</td>
</tr>
<tr>
<td>Sensor cable</td>
<td>CC cable ≤ 1 m, CCm cable = 1.4 m, CCg cable = 2 m</td>
<td>CC cable ≤ 2 m, CCm cable = 2.8 m, CCg cable = 4 m</td>
<td>CC cable ≤ 1 m, CCm cable = 1.4 m, CCg cable = 2 m</td>
</tr>
</tbody>
</table>

FSO = Full Scale Output

1) RMS noise related to mid of measuring range
**Accessories**

Cable with connector type C

- **Description**: Low-outgassing cable up to 4 m length, for applications in clean rooms
- **Temperature stability**: -100 °C to +200 °C
- **Outer diameter**: 3.1 mm ±0.1 mm

Cable with connector type B

- **Description**: Low-outgassing cable up to 4.2 m length, for applications in clean rooms, UHV and EUV
- **Temperature stability**: -100 °C to +200 °C
- **Outer diameter**: 2.1 mm ±0.1 mm

Cable with connector type C/90

- **Description**: Robust cable up to 8 m length, for industrial applications
- **Temperature stability**: -20 °C to +80 °C (permanent)
- **Outer diameter**: 3.1 mm ±0.1 mm

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<table>
<thead>
<tr>
<th>Cable with connector type C</th>
<th>Cable with connector type B</th>
<th>Cable with connector type C/90</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Design</strong></td>
<td><strong>for sensors CS005 / CS02 / CS05 / CSE05 / CS08 / CSE1</strong></td>
<td><strong>for sensors CS1 / CS1HP / CSE1,25 / CS2 / CSE2 / CS3 / CSE3 / CS5 / CS10</strong></td>
</tr>
<tr>
<td><strong>Model</strong></td>
<td><strong>2 x straight connector</strong></td>
<td><strong>2 x straight connector</strong></td>
</tr>
<tr>
<td><strong>Standard 1 m</strong></td>
<td>•</td>
<td>CCxCCC</td>
</tr>
<tr>
<td><strong>1.4 m</strong></td>
<td>•</td>
<td>CCxCCC</td>
</tr>
<tr>
<td><strong>2 m</strong></td>
<td>•</td>
<td>CCxCCC</td>
</tr>
<tr>
<td><strong>2.8 m</strong></td>
<td>•</td>
<td>CCxCCC</td>
</tr>
<tr>
<td><strong>3 m</strong></td>
<td>•</td>
<td>CCxCCC</td>
</tr>
<tr>
<td><strong>4 m</strong></td>
<td>•</td>
<td>CCxCCC</td>
</tr>
<tr>
<td><strong>4.2 m</strong></td>
<td>•</td>
<td>CCxCCC</td>
</tr>
<tr>
<td><strong>6 m</strong></td>
<td>•</td>
<td>CCxCCC</td>
</tr>
<tr>
<td><strong>8 m</strong></td>
<td>•</td>
<td>CCxCCC</td>
</tr>
</tbody>
</table>

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**Sensor cable with connector type C**

- **Standard length**: 1 m
- **Outer diameter**: Ø3.1 ±0.1 (CC / CCg)
- **Bending radius**: 3x cable diameter during installation; 7x cable diameter for movement; 12x cable diameter recommended at continuous movement

**Connector type C/90**

- **Outer diameter**: Ø3.1 ±0.1 (CC / CCg)
- **Bending radius**: 3x cable diameter during installation; 7x cable diameter for movement; 12x cable diameter recommended at continuous movement

**Sensor cable with connector type B**

- **Standard length**: 1 m
- **Outer diameter**: Ø3.1 ±0.1 (CC / CCg)
- **Bending radius**: 3x cable diameter during installation; 7x cable diameter for movement; 12x cable diameter recommended at continuous movement

**Connector type B/90**

- **Outer diameter**: Ø3.1 ±0.1 (CC / CCg)
- **Bending radius**: 3x cable diameter during installation; 7x cable diameter for movement; 12x cable diameter recommended at continuous movement

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**Accessories**

- **MC2,5**: Micrometer for sensor calibration, range 0 - 2.5 mm, Resolution 0.1 µm. Suitable for sensors CS005 to CS2
- **MC25D**: Digital micrometer for sensor calibration, range 0 - 25 mm, adjustable offset (zero). Suitable for all sensors.
- **HV/B**: Vacuum feed through triaxial
- **UHV/B**: Vacuum feed through triaxial for ultra-high vacuum
- **PC6200-3/4**: Power-trigger cable, 4 pin, 3 m
- **SCAC3/4**: Signal output cable, (necessary for multi-channel applications), 4 pin, 3 m
- **SCAC3/5**: Signal output cable, analog, 5 pin, 3 m
- **SC6000-1,0**: Synchronization cable, 5 pin, 1 m
- **CA5**: Preamplifier cable 5 pin, 5 m
- **PS2020**: Power supply for DIN rail mounting; Input 230 VAC (115 VAC); Output 24 VDC / 2.5 A; L/W/H 120x120x40 mm
HV/B Vacuum feed through (Art.-no. 0323050)

UHV/B Vacuum feed triax weldable (Art.-no. 0323346)

UHV/B Vacuum feed triax with flange CF16 (Art.-no. 0323349)

UHV/B Vacuum feed triax screwable (Art.-no. 0323370)

SCAC3/4 Signal output cable (Art.-no. 2902104)

SCAC3/5 Signal output cable (Art.-no. 2902112)

PC6200-3/4 Power-/trigger cable (Art.-no. 2901881)

SC6000-1,0 Synchronization cable (Art.-no. 2903473)

CAS Preamplifier cable (Art.-no. 2903180)
Sensors and Systems from Micro-Epsilon

- Sensors and systems for displacement, distance and position
- Optical micrometers and fiber optics, measuring and test amplifiers
- 3D measurement technology for dimensional testing and surface inspection
- Sensors and measurement devices for non-contact temperature measurement
- Color recognition sensors, LED analyzers and inline color spectrometers
- Measuring and inspection systems for metal strips, plastics and rubber

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