

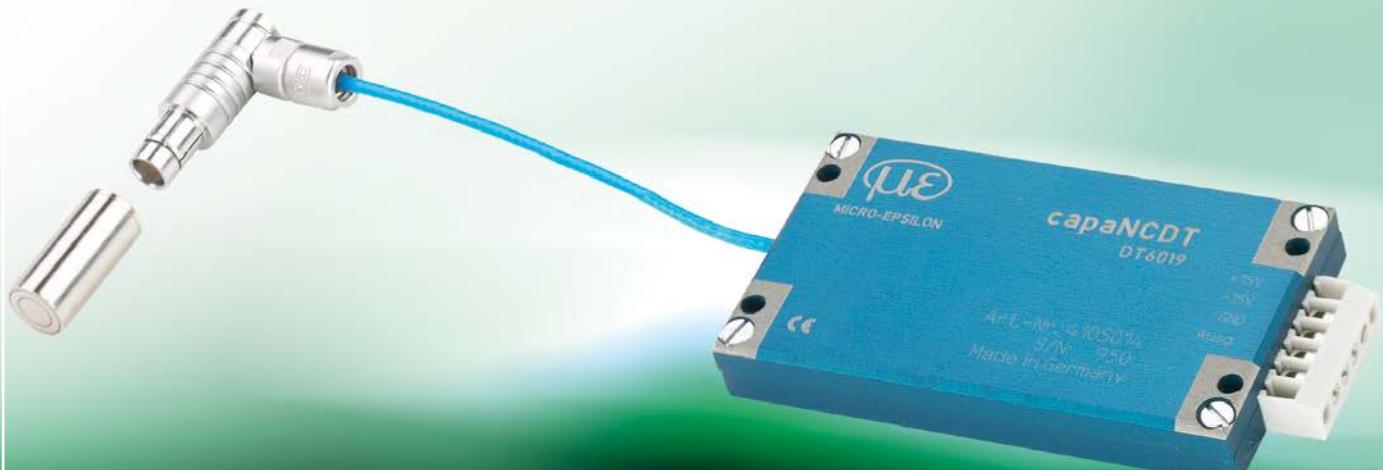


# More Precision.

**capa**NCDT

High resolution capacitive displacement sensors and systems.





- Smallest capacitive controller in the world
- Low power consumption
- Excellent stability

### System structure

The capaNCDT capacitive measuring system is a single-channel system that uses SMD technology with integrated sensor connection cable and is specially developed for integration with machines and systems. The extremely compact design and economical price are intended for OEM applications. All electrically conducting materials can be used as targets. The capacitive measuring principle ensures high stability, high accuracy and precise measurements. Typical applications are found in positioning, wear measurements, gap measurements, displacement, roundness and others.

The compact design of the controller enables space-saving installations in restricted spaces. The measuring system requires an extremely low supply current, which makes it perfect for integration in battery powered systems.

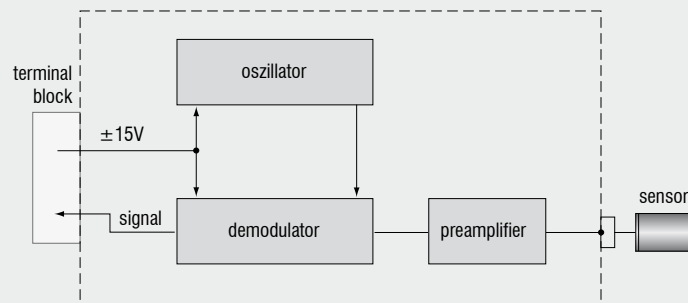
### A measuring system consists of:

- Controller DT6019 with integrated cable
- Sensor with female connector  
(except CS005)

### Block diagram

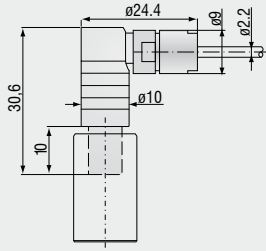
Power supply:  $\pm 12\text{VDC} \dots \pm 18\text{VDC}$

Output: 0-10 V

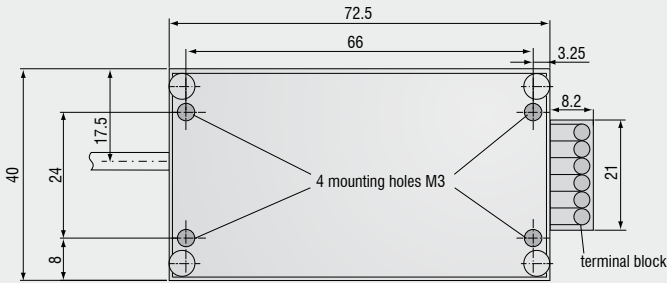
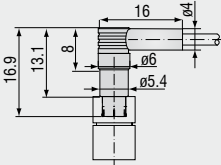


<b>Controller type</b>	<b>DT6019</b>
Resolution static	0.015 % FSO
Resolution dynamic	0.1 % FSO (500Hz)
Bandwidth	0.5kHz
Linearity	<1 % FSO
Max. sensitivity deviation	<0.5 % FSO
Long term stability	≤0.05% FSO / month
Synchronization	no
Insulator measurement	no
Temperature stability	<0.05% FSO / °C
Temperature range (operation)	+10 °C ... +50°C
Temperature range (storage)	-10 °C ... +75°C
Supply	±12...±18VDC
Power consumption	-7 / +8mA
Output	0 ... 10V (within measuring range), short circuit proof
Weight	60g
Suitable for sensors	any Micro-Epsilon capacitive probes with triax connector, except CS005

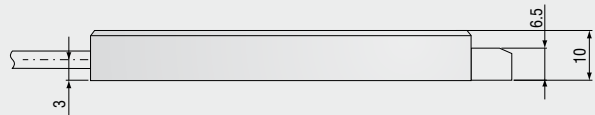
DT6019-B with 90° connector for sensors CS1 - CS10



DT6019-C with 90° connector for sensors CS02, CS05, CS08



DT6019 single channel controller

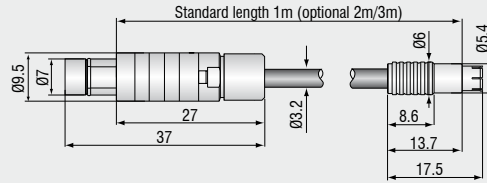


# Sensor cable

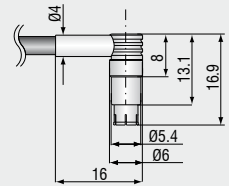
Sensor and pre-amplifier electronics are connected using a special triax active shielded RF sensor cable. Cable lengths of 2m, 3m or 4m are optionally available but require special tuning of the pre-amplifier.

cable length	Connector type C: cable for sensors CS005 / CS02 / CS05 / CS08	
	2x straight connectors	1x straight / 1x 90° connector
standard 1m	CC1C	CC1C/90
2m	CC2C	CC2C/90
3m	CC3C	CC3C/90

**Sensor cable CCx,xC**

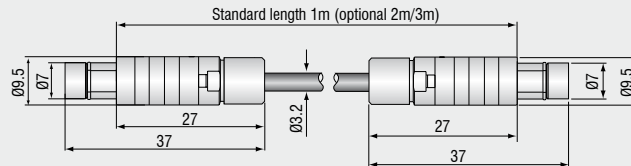


**Sensor cable CCx,xC/90**

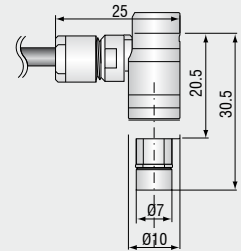


cable length	Connector type B: cable for sensors CS1 / CS1HP / CS2 / CS3 / CS5 / CS10	
	2x straight connectors	1x straight / 1x 90° connector
standard 1m	CC1B	CC1B/90
2m	CC2B	CC2B/90
3m	CC3B	CC3B/90

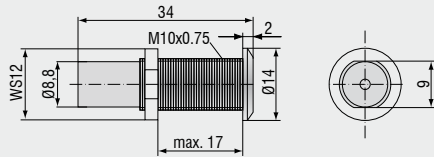
**Sensor cable CCx,xB**



**Sensor cable CCx,xB/90**

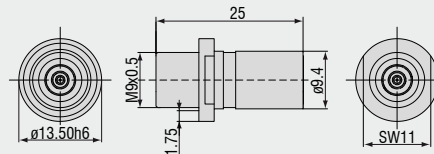


**0323050**  
Vacuum feed through WSH



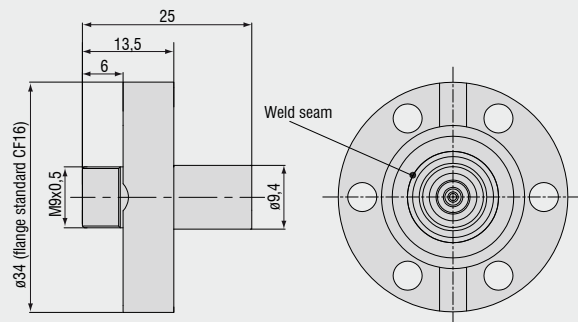
Max. leak rate  $1 \times 10^{-7}$  mbar · l s<sup>-1</sup>  
Compatible with connector type B

**0323346**  
UHV/B Vacuum feed triax weldable



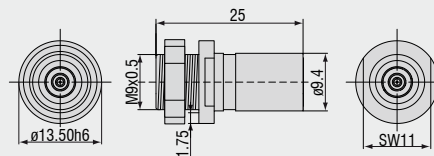
Max. leak rate  $1 \times 10^{-9}$  mbar · l s<sup>-1</sup>  
Compatible with connector type B

**0323349**  
UHV/B Vacuum feed triax with flange CF16



Max. leak rate  $1 \times 10^{-9}$  mbar · l s<sup>-1</sup>  
Compatible with connector type B

**0323370**  
UHV/B Vacuum feed triax screwable



Max. leak rate  $1 \times 10^{-9}$  mbar · l s<sup>-1</sup>  
Compatible with connector type B

## Accessories

	capaNCDT	6019	6100	6200	6300/6310	6350	6500
<b>MC2.5</b> Micrometer for sensor calibration, range 0 - 2.5mm, Resolution 0.1µm. Suitable for sensors CS005 to CS2			•	•	•	•	•
<b>MC25D</b> Digital micrometer for sensor calibration, range 0 - 25mm, adjustable offset (zero). Suitable for all sensors.	•		•	•	•	•	•
<b>SWH.0S.650.CTMSV</b> Vacuum feed through			•	•	•	•	•
<b>UHV</b> Vacuum feed through			•	•	•	•	•
<b>PC3/8</b> Power- and output cable, 3m, 8-pin			•		•	•	
<b>PC6200-3/4</b> Power-/trigger cable, 3m				•			
<b>SC30</b> Synchronisation cable, 0.3m			•				
<b>ESC30</b> Synchronisation cable, 0.3m, necessary for multi channel applications						•	
<b>PSCC30</b> Power-/synchronisation cable, necessary for multi channel applications					•		
<b>SCAC3/4</b> Signal output cable, necessary for multi channel applications				•	•		
<b>PS2020</b> Power supply for DIN rail mounting Input 230VAC (115VAC) Output 24VDC / 2.5A; L/W/H 120x120x40mm			•	•		•	
<b>PS300/15</b> Power supply; output ±15V / 1A Input 90 - 264VAC					•		

## Dielectric Constants for Common Materials

Material	Constant
Air	1.0006
Acrylic (Plexiglass)	2.7 - 4.5
Acrylonitrile Butadiene Styrene (ABS)	2.87
Acetal resin (Delrin)	3.6
Alumina	9.3 - 11.5
Asbestos	3.0 - 4.8
Bakelite	3.5 - 5.0
Beeswax	2.6 - 3.0
Celluloid	3.3 - 11
Epoxy Resin (Cast)	3.6
Formica	3.6 - 6
FR-4	4.3 - 5.0
Glass	5 - 10
Glycerine (15 °C)	56
Mica	3 - 6
Micarta	3.2 - 5.5
Neoprene	6 - 9
Nylon	4.0 - 5.0
Paper (clean)	3.0
Paraffin paper	2.5 - 3.5
Paraffin Wax	2.1 - 2.5
Petroleum	2
Phenol resin	4.9
Polyamide	2.5 - 2.6

Polycarbonate (Lexan®)	2.9 - 3.0
Polyester film (Mylar)	2.83 - 4.5
Polyethylene	2.27 - 2.5
Polypropylene	2.25
Polystyrene	2.4 - 2.6
Polyvinyl Chloride (PVC)	2.8 - 3.4
Porcelain	5.1 - 6.0
Pure Water	81
Pyrex Glass	4.3 - 5.0
Quartz	4.2
Rubber	2.5 - 35
Rubber Cement	2.7 - 2.9
Silicon	11.0 - 12.0
Silicone Oil	2.2 - 2.9
Silicone Rubber	3.2 - 9.8
Silk	2.5 - 3.5
Styrene (ABS)	2.8
Teflon (PTFE)	2.1
Teflon (glass weave)	2.2 - 2.8
Transformer oil	4
Vacuum	1.0000
Water (Distilled)	76.5 - 80
Wax	2.4 - 6.5
Wood	2.5 - 8

Please contact us for further information.

## 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, fiber optic sensors and fiber optics



Color recognition sensors, LED analyzers and color online spectrometer