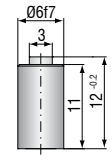
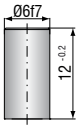
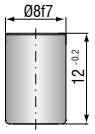
MICRO-EPSILON

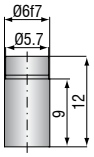
More Precision

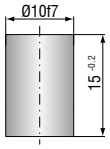
capaNCDT // Capacitive displacement sensors and systems











Sensor type		CS005	CS02	CS05	CSE05	CS08
Article No.		6610083	6610051	6610053	6610102	6610080
Measuring range	reduced	0.025 mm	0.1 mm	0.25 mm	0.25 mm	0.4 mm
	nominal	0.05 mm	0.2 mm	0.5 mm	0.5 mm	0.8 mm
	extended	0.1 mm	0.4 mm	1 mm	1 mm	1.6 mm
Linearity [1]		≤ ±0.15 µm	≤ ±0.4 µm	≤ ±0.15 µm	≤ ±0.5 µm	≤ ±0.4 µm
		≤ ±0.3 % FSO	≤ ±0.2 % FSO	≤ ±0.03 % FSO	≤ ±0.1 % FSO	≤ ±0.2 % FSO
Resolution [1] [2]	static 2 Hz	0.0375 nm	0.15 nm	0.375 nm	0.375 nm	0.6 nm
	dynamic 8.5 kHz	1 nm	4 nm	10 nm	10 nm	16 nm
Temperature stability	Zero [5]	-60 nm/K	-60 nm/K	-60 nm/K	-60 nm/K	-60 nm/K
	Sensitivity	-0.5 nm/K	-2 nm/K	-5 nm/K	-5 nm/K	-8 nm/K
Temperature range	Operation	-50 … +200 °C	-50 … +200 °C	-50 … +200 °C	-50 … +200 °C	-50 … +200 °C
	Storage	-50 … +200 °C	-50 … +200 °C	-50 … +200 °C	-50 … +200 °C	-50 … +200 °C
Humidity [3]		0 % … 95 % r.H.	0 % … 95 % r.H.	0 % … 95 % r.H.	0 % … 95 % r.H.	0 % … 95 % r.H.
Dimensions		Ø6 × 12 mm	Ø6 × 12 mm	Ø8 × 12 mm	Ø6 × 12 mm	Ø10 × 15 mm
Active measuring area		Ø1.3 mm	Ø2.3 mm	Ø3.9 mm	Ø3.9 mm	Ø4.9 mm
Guard ring width		0.8 mm	1 mm	1.4 mm	0.8 mm	1.6 mm
Minimum target diameter		Ø3 mm	Ø5 mm	Ø7 mm	Ø6 mm	Ø9 mm
Weight		2 g	2 g	4 g	2 g	7 g
Material	Housing	NiFe [4] (magn.)	NiFe (magn.)	NiFe (magn.)	NiFe (magn.)	NiFe (magn.)
Connection		type C	type C	type C	type C	type C
Mounting		clamping	clamping	clamping	clamping	clamping

FSO = Full Scale Output
[1] Valid with reference controller, relates to standard measuring range
[2] RMS value of the signal noise
[3] Non condensing
[4] Titanium version available
[5] Sensor mounted in the mid of clamping area

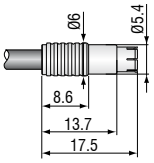
Sensors

The sensors are designed as guard ring capacitors. They are connected to the signal conditioning electronics with a triaxial cable. The sensor cable is connected to the sensor using a high quality connector. All standard sensors can be used within a maximum deviation of 0.3 % without recalibration. Individually matched special sensors are produced on request.

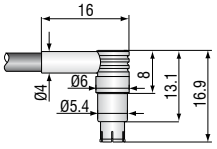
Measuring range expansion / reduction

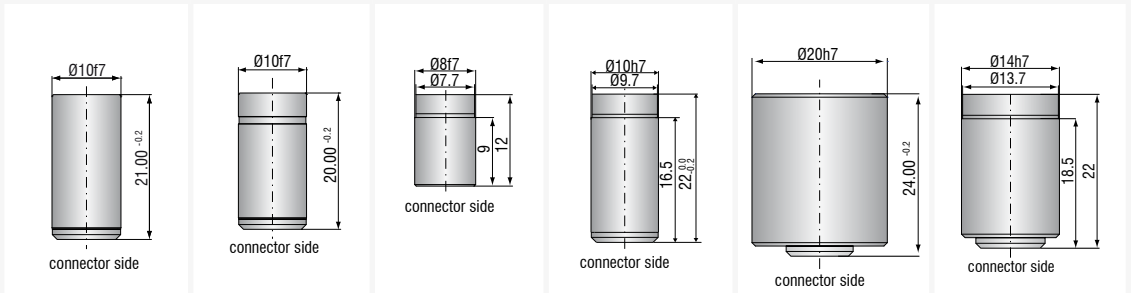
The capaNCDT controller can optionally be configured so that the standard measuring ranges of the sensors are reduced by half or expanded by the factor of 2. The reduction increases the accuracy while the measuring range expansion reduces the accuracy.

Connector type C



Connector type C/90





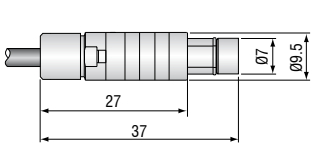
Sensor type		CS1	CS1HP	CSE1	CSE1,25	CS2	CSE2
Article No.		6610054	6610074	6610103	6610161	6610052	6610104
Measuring range	reduced	0.5 mm	0.5 mm	0.5 mm	0.625 mm	1 mm	1 mm
	nominal	1 mm	1 mm	1 mm	1.25 mm	2 mm	2 mm
	extended	2 mm	2 mm	2 mm	2.5 mm	4 mm	4 mm
Linearity [1]		≤ ±1.5 µm	≤ ±1.5 µm	≤ ±1 µm	≤ ±1.25 µm	≤ ±1 µm	≤ ±2 µm
		≤ ±0.15 % FSO	≤ ±0.15 % FSO	≤ ±0.1 % FSO	≤ ±0.1 % FSO	≤ ±0.05 % FSO	≤ ±0.1 % FSO
Resolution [1] [2]	static 2 Hz	0.75 nm	0.75 nm	0.75 nm	0.9 nm	1.5 nm	1.5 nm
	dynamic 8.5 kHz	20 nm	20 nm	20 nm	25 nm	40 nm	40 nm
Temperature stability	Zero [5]	-170 nm/K	-60 nm/K	-60 nm/K	-65 nm/K	-170 nm/K	-170 nm/K
	Sensitivity	-32 nm/K	-10 nm/K	-10 nm/K	-50 nm/K	-64 nm/K	-64 nm/K
Temperature range	Operation	-50 … +200 °C	-50 … +200 °C	-50 … +200 °C	-50 … +200 °C	-50 … +200 °C	-50 … +200 °C
	Storage	-50 … +200 °C	-50 … +200 °C	-50 … +200 °C	-50 … +200 °C	-50 … +200 °C	-50 … +200 °C
Humidity [3]		0 % … 95 % r.H.	0 % … 95 % r.H.	0 % … 95 % r.H.	0 % … 95 % r.H.	0 % … 95 % r.H.	0 % … 95 % r.H.
Dimensions		Ø10 × 21 mm	Ø10 × 20 mm	Ø8 × 12 mm	Ø10 x 22 mm	Ø20 × 24 mm	Ø14 × 22 mm
Active measuring area		Ø5.7 mm	Ø5.7 mm	Ø5.7 mm	Ø6.5 mm	Ø7.9 mm	Ø8.0 mm
Guard ring width		1.5 mm	1.5 mm	0.9 mm	1.6 mm	4.4 mm	2.7 mm
Minimum target diameter		Ø9 mm	Ø9 mm	Ø8 mm	Ø10 mm	Ø17 mm	Ø14 mm
Weight		8 g	8 g	3.5 g	8.2 g	50 g	20 g
Material	Housing	1.4404 [4] (non-magn.)	NiFe (magn.)	NiFe (magn.)	1.4404 (non-magn.)	1.4404 [4] (non-magn.)	1.4404 (non-magn.)
Connection		type B	type B	type C	type B	type B	type B
Mounting		clamping	clamping	clamping	clamping	clamping	clamping

FSO = Full Scale Output
[1] Valid with reference controller, relates to standard measuring range
[2] RMS value of the signal noise
[3] Non condensing
[4] Titanium version available
[5] Sensor mounted in the mid of clamping area

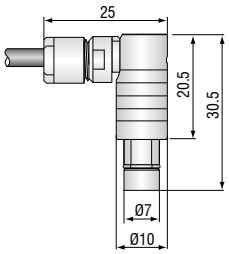
Mounting cylindrical sensors

All sensors can be installed as both freestanding and flush units. The sensors can be clamped or fastened using a collet.

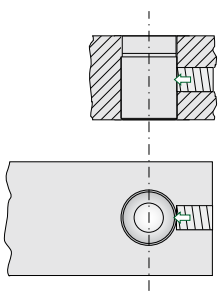
Connector type B



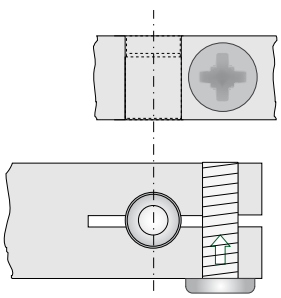
Connector type B/90

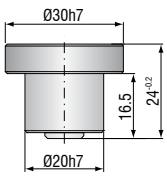


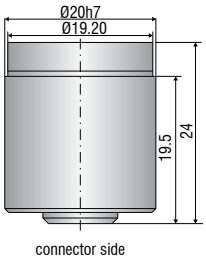
Mounting with set screw (plastic)

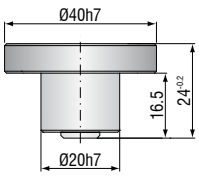


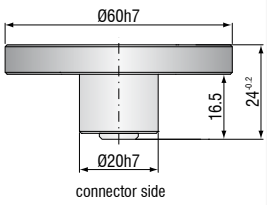
Mounting with collet







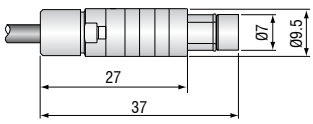




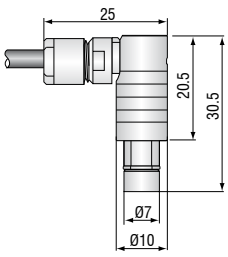
Sensor type		CS3	CSE3	CS5	CS10
Article No.		6610055	6610170	6610056	6610057
Measuring range	reduced	1.5 mm	1.5 mm	2.5 mm	5 mm
	nominal	3 mm	3 mm	5 mm	10 mm
	extended	6 mm	6 mm	10 mm	20 mm
Linearity [1]		≤ ±0.9 µm	≤ ±3 µm	≤ ±2.5 µm	≤ ±15 µm
		≤ ±0.03 % FSO	≤ ±0.1 % FSO	≤ ±0.05 % FSO	≤ ±0.15 % FSO
Resolution [1] [2]	static 2 Hz	2.25 nm	2.25 nm	3.75 nm	7.5 nm
	dynamic 8.5 kHz	60 nm	60 nm	100 nm	200 nm
Temperature stability	Zero [5]	-170 nm/K	-95 nm/K	-170 nm/K	-170 nm/K
	Sensitivity	-96 nm/K	-85 nm/K	-160 nm/K	-320 nm/K
Temperature range	Operation	-50 … +200 °C	-50 … +200 °C	-50 … +200 °C	-50 … +200 °C
	Storage	-50 … +200 °C	-50 … +200 °C	-50 … +200 °C	-50 … +200 °C
Humidity [3]		0 % … 95 % r.H.	0 % … 95 % r.H.	0 % … 95 % r.H.	0 % … 95 % r.H.
Dimensions		Ø30 × 24 mm	Ø20 x 24 mm	Ø40 × 24 mm	Ø60 × 24 mm
Active measuring area		Ø9.8 mm	Ø10 mm	Ø12.6 mm	Ø17.8 mm
Guard ring width		8 mm	4.6 mm	11.6 mm	19 mm
Minimum target diameter		Ø27 mm	Ø20 mm	Ø37 mm	Ø57 mm
Weight		70 g	50 g	95 g	180 g
Material	Housing	1.4404 (non-magn.)	1.4404 (non-magn.)	1.4404 [4] (non-magn.)	1.4404 [4] (non-magn.)
Connection		type B	type B	type B	type B
Mounting		clamping	clamping	clamping	clamping

FSO = Full Scale Output
[1] Valid with reference controller, relates to standard measuring range
[2] RMS value of the signal noise
[3] Non condensing
[4] Titanium version available
[5] Sensor mounted in the mid of clamping area

Connector type B



Connector type B/90

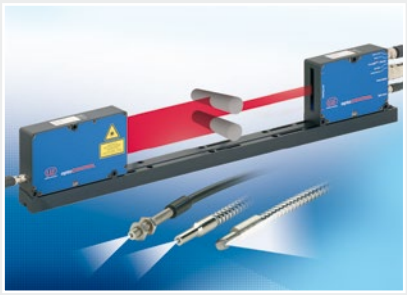


Sensors and Systems from Micro-Epsilon

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



Optical micrometers and fiber optics, measuring and test amplifiers

Color recognition sensors, LED analyzers and inline color spectrometers

3D measurement technology for dimensional testing and surface inspection

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