

Metallux ME550 pressure sensors are made with a ceramic base plate and a flush diaphragm and work following the capacitive principle, in which the pressure measurement is given by the variation of capacitance due to deformation of a capacitor's plates. The moving capacitor plate is screen printed on the flush ceramic diaphragm which is, in turn, glued to the sensor's body. The capacitor plate faces the inside where a cavity is made and the diaphragm's opposite side can therefore be exposed directly to the medium to be measured. Sensor's vent hole is protected against humidity and dirt by a special filter glued to the ceramic cell (PCS).

The wide diameter (32.4 mm) and the use of the capacitive technology make the ME550 a sensor suitable for measuring very low pressures, as low as 60 mbar.

Nevertheless, ME550 sensors feature a high burst pressure, making them quite reliable in many applications.

Because of the Al₂O₃ ceramic excellent chemical resistance (aggressive gases, most of solvents and acids, etc.), no additional protection is normally required. Metallux ME550 sensors can be provided in the gauge or absolute versions.

FEATURES

High resistance to corrosion and abrasions

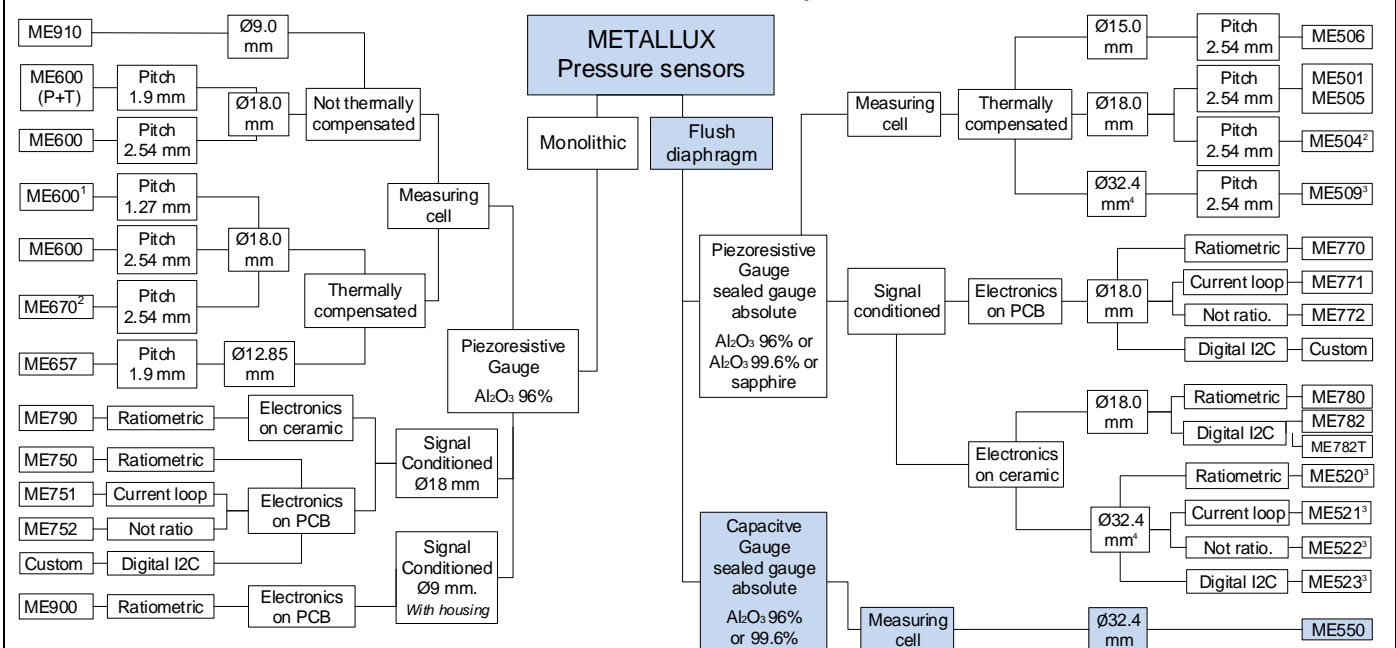
High sensitivity at very low pressure

High burst pressure

High immunity to disturbances



Pressure sensors family tree



¹ Also available in not thermally compensated version
² Digitally trimmed offset, also available not thermally compensated

³ Not available with sapphire diaphragm.
⁴ Suitable for low pressure range (≤ 1 bar)

Technical characteristics

Parameters	Units	Description
Sensor type	-	Flush diaphragm, absolute (A) or gauge (R)
Technology	-	Capacitive / ratio
Base material	-	Ceramic Al ₂ O ₃ 96%
Diaphragm material	-	Ceramic Al ₂ O ₃ 96% or ≥ 99.6%
Weight	g	≤ 20 (ceramic cell only)
Response time	ms	≤ 10
Capacity (Cx and Cr)	pF	50 - 80
Offset	-	Cx/Cr = 1 ± 0.07
Life Cycles	-	> 1'000'000
Operating temperature	°C	-40...+135 (-40 °F...+275 °F)
Storage temperature	°C	-40...+150 (-40 °F...+302 °F)
Compliant with	-	REACH, RoHS, Conflict Minerals Free

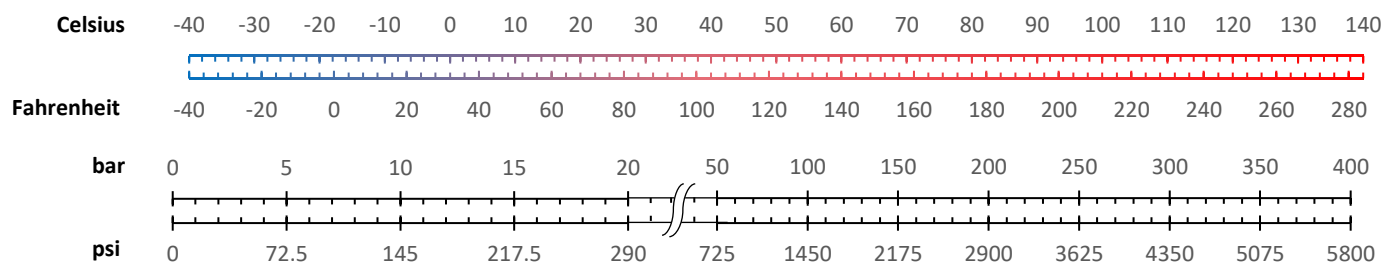
Nominal pressure FSO	bar	0.060	0.160	0.400	1	2	5	10	20
	psi ¹	0.9	2.3	5.8	14.5	29.0	72.5	145.0	290.0
Overload pressure	bar	2	4	6	8	15	25	35	60
	psi ¹	29	58	67	116	217	362	507	942
Vacuum capability	bar	-0.200	-0.300	-0.500	-0.800	-1.00	-1.00	-1.00	-1.00
	psi ¹	-2.9	-4.3	-7	-14	-14	-14	-14	-14
Pressure type	-	R	R	R	A / R	A / R	A / R	A / R	A / R
Total thickness	mm	5.23	5.28	5.41	5.51	5.63	5.85	5.90	6.34
	in	0.206	0.208	0.213	0.217	0.222	0.230	0.232	0.249
Sensitivity ²	-	0.15 - 0.45	0.15 - 0.45	0.15 - 0.45	0.15 - 0.45	0.15 - 0.45	0.15 - 0.45	0.15 - 0.45	0.15 - 0.45
Non-Linearity (max.)	%FS	±12.0	±12.0	±12.0	±12.0	±12.0	±12.0	±12.0	±12.0
Hysteresis (max.)	%FS	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1
Stability (max)	%FS	±0.2	±0.2	±0.2	±0.2	±0.2	±0.2	±0.2	±0.2
Reliability tests ³	-	1000 hours @85 °C (185 °F) & 85 %RH		500 thermal shocks -40°C...+150 °C (-40 °F... +302 °F)		1000 hours burn-in @150 °C (302 °F)			
				1 million 0 bar to P _{nom} pressure cycles					

Tests performed at 25°C in Metallux housings, unless otherwise specified. Different housings may affect performances.

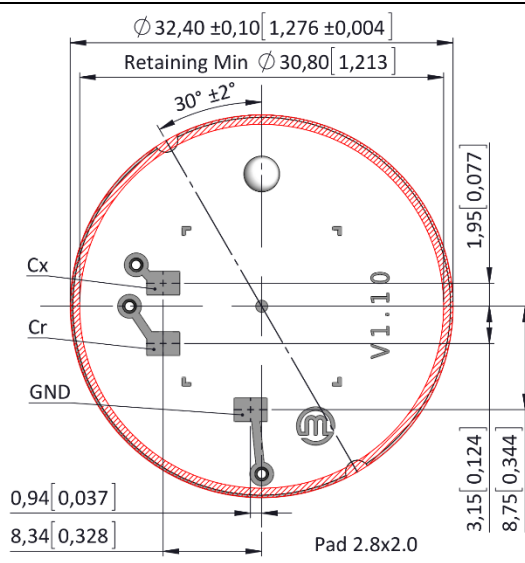
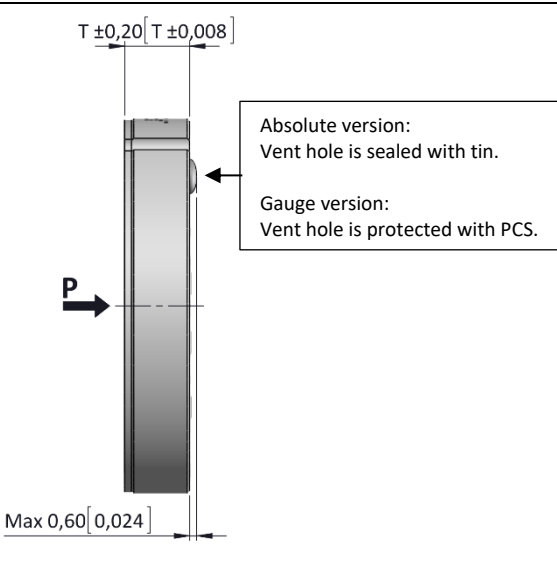
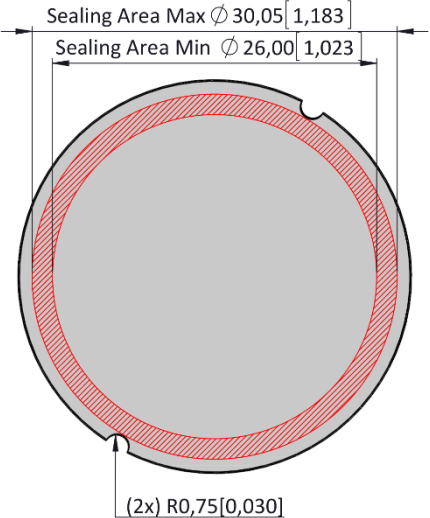
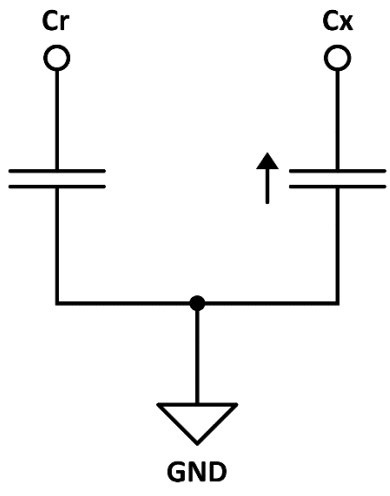
1. Psi values for reference only.
2. Sensitivity = Cx/Cr 100% – Cx /Cr 0%
3. All technical characteristics will remain within indicated ranges performing the above-mentioned reliability tests.



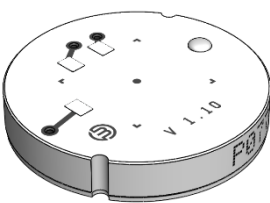
Conversion tools



Mechanical drawings and electrical schematics

Top View	Side View
 <p>(3x) Pads 2.8 x 2.0 [0,11x0,078]</p>	 <p>Absolute version: Vent hole is sealed with tin. Gauge version: Vent hole is protected with PCS.</p>
Bottom View	Schematics
 <p>(2x) R0,75 [0,030]</p>	
<p>All quotes are in mm [inch] – General tolerance ISO 2768-1 M</p>	

Electrical terminations

<p>Example: type 0, pretinned soldering pad</p>  <p><i>Max. tin thickness:</i> 0.4 [0.015] <i>Op. Temp:</i> -40°C...+135°C (-40 °F...275 °F)</p>	<p>Other type available on request</p> <p>Type 1, pins L = 13 ± 0.5 mm [0.51 ± 0.02] Type 2, wires 50.8 ± 2 [2 ± 0.08]</p>
<p>All quotes are in mm [inch] – General tolerance ISO 2768-1 M</p>	

Ordering code

	ME550	-	----	-	-	-
Sensor type	Absolute	A				
	Gauge	R				
Pressure range	0...60 mbar [0...0.9 psi] [-/R]		0600			
	0...160 mbar [0...2.3 psi] [-/R]		1600			
	0...400 mbar [0...5.8 psi] [-/R]		4000			
	0...1 bar [0...14.5 psi] [A/R]		1001			
	0...2 bar [0...29 psi] [A/R]		2001			
	0...5 bar [0...72.5 psi] [A/R]		5001			
	0...10 bar [0...145 psi] [A/R]		1002			
	0...20 bar [0...290 psi] [A/R]		2002			
Others on request (please specify)		9999				
Diaphragm material	Al ₂ O ₃ 96%			0		
	Al ₂ O ₃ ≥ 99.6%			1		
	Others on request (please specify)			9		
Electrical termination	Pretinned soldering pad				0	
	Pins, 13 mm				1	
	Wires				2	
	Others on request (please specify)				9	
Venting hole pipe	Without					0
	Standard metal pipe ϕ 1.2mm x 6 mm height					1



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To be disposed of according to local regulations (OTRif 16 02 97 for Switzerland, CER 16 02 16 for European Union)