ME910 datasheet

MONOLITHIC, PIEZORESISTIVE CERAMIC PRESSURE SENSOR

Metallux ME910 monolithic pressure sensors are made with a ceramic cell and work following the piezoresistive principle. The Wheatstone bridge is screen printed directly on one side of the ceramic diaphragm by means of Thick Film technology. The diaphragm's opposite side can be exposed directly to the medium to be measured. Because of the Al_2O_3 ceramic excellent chemical resistance (aggressive gases, most of solvents and acids, etc.), no additional protection is normally required. Thanks to the reinforced outer area (monolithic structure), the sensor can be mounted directly in a plastic or metallic case by using O-ring. Pin termination on two lines allow an easy and more stable electronics mounting. ME910 sensors are designed in such a way so that temperature changes and pressure overloads do not cause loss in reliability. Metallux ME910 sensors ensure optimal linearity across the entire range of measurement and minimize effects of hysteresis. Its diameter of only 9mm makes ME910 sensors suitable for miniaturized systems.

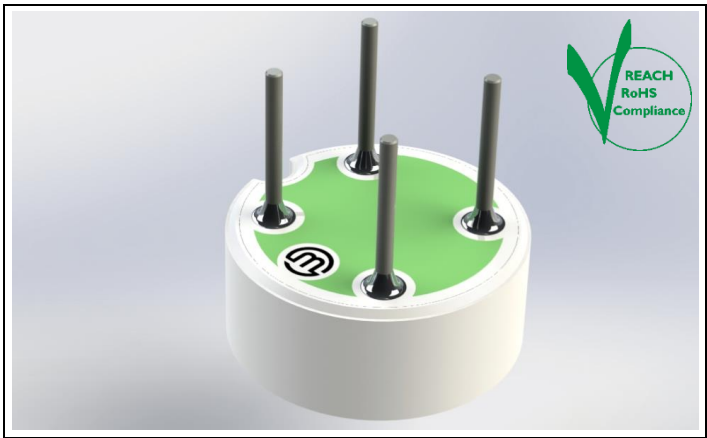
FEATURES

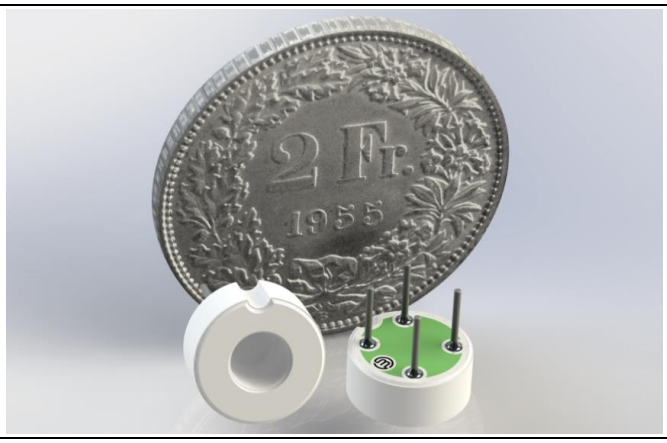
Excellent resistance to corrosion and abrasion

9mm diameter cell

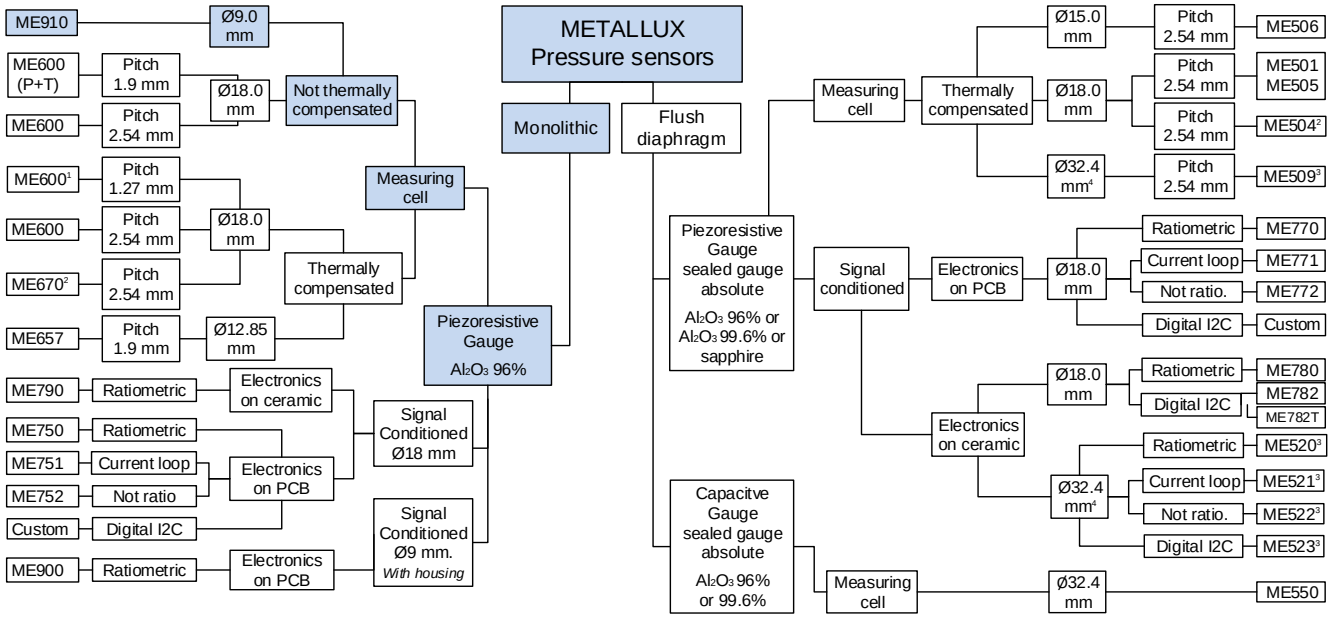
Miniaturized systems

Customizable





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

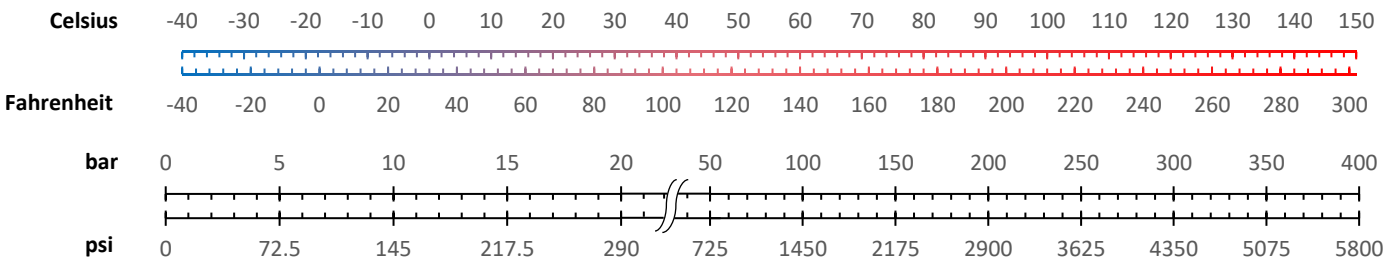
Parameters	Units	Description
Sensor type	-	Monolithic, gauge
Technology	-	Piezoresistive
Material	-	Ceramic Al_2O_3 96%
Weight	g	≤ 1
Response time	ms	≤ 1
Supply voltage range	VDC	2...30
Offset	mV/V	0.0 ± 5.0
Current consumption	mA	≤ 1.3 @ 10V
Operating temperature	°C	-40...+125 (-40 °F...+257 °F) [1]
Storage temperature	°C	-40...+135 (-40 °F...+275 °F) [1]
Bridge impedance	kΩ	10 ± 30%
Compliant with	-	REACH, RoHS, Conflict Minerals free

Nominal pressure FSO	bar	10	20	50	100
	psi [2]	*145*	*290*	*725*	*1450*
Overload pressure	bar	*25*	35	100	160
	psi [2]	*362*	*507*	*1450*	*2320*
Burst pressure	bar	35	40	120	180
	psi [2]	*507*	*580*	*1740*	*2610*
Vacuum capability	bar	-1	-1	-1	-1
	psi [2]	*-14.5*	*-14.5*	*-14.5*	*-14.5*
Sensitivity [3]	mV/V	1.5...3	2...3.5	2.7...4.7	3....5
Accuracy [4] (typ./max.)	%FS	0.25/0.50	0.25/0.50	0.25/0.50	0.25/0.50
Thermal offset shift (typ./max)	%FS/K	±0.04/±0.10	±0.03/±0.08	±0.03/±0.08	±0.03/±0.08
Thermal span shift	%FS/K	Min. -0.030	Typ. -0.016	Max. 0	-40 °C...125 °C (-40 °F...257 °F)
Reliability tests[5]	-	250 thermal cycles -40°C/+125°C@10V 500 hours burn-in @150 °C (302 °F)			500 hours @85°C(185°F) & 85 %RH 1 million 0 bar to P_{nom} pressure cycles

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

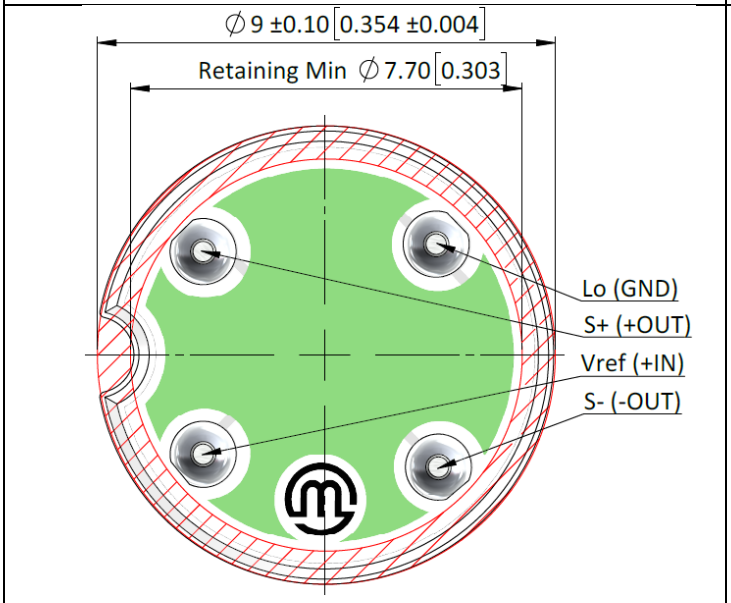
1. Temperature limits depend on connection type, see box “Other types available” on page 3
2. Psi values for reference only.
3. The sensitivity of each production batch is constant, within the indicated range and with minimal dispersion.
4. Accuracy $=\sqrt{\text{NonLinearity}^2+\text{Hysteresis}^2+\text{NonRepeatability}^2}$, terminal based.
5. All technical characteristics will remain within indicated ranges performing the above-mentioned reliability tests.

Conversion tools

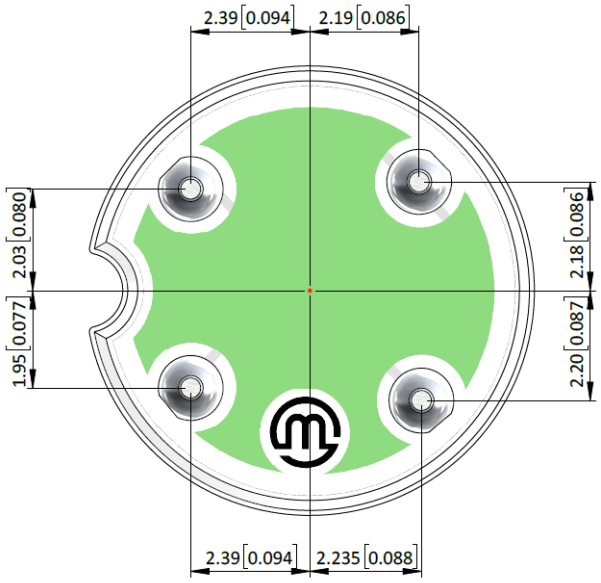


Mechanical drawings and electrical schematics

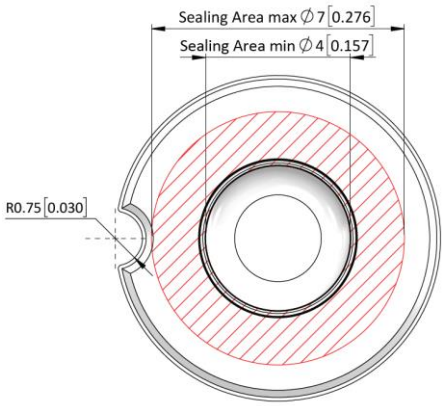
Top view



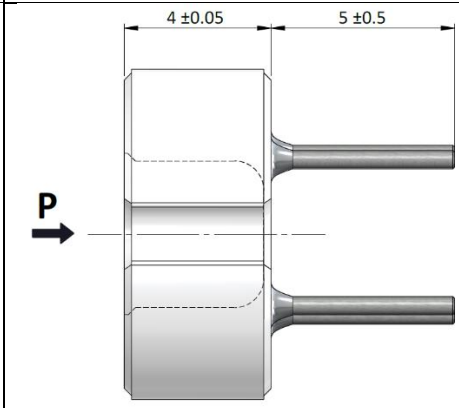
Pins position



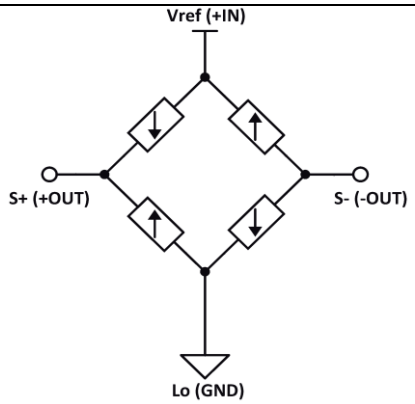
Bottom view



Side view



Schematic



All quotes are in mm [inches] – General tolerance ISO 2768-1 M

Ordering code

	ME910	___	_	_
Pressure range				
	0...10 bar	010		
	0...20 bar	020		
	0...50 bar	050		
	0...100 bar	100		
	Others on request (enquiry for customization)	999		
Offset				
	0.0 ± 5.0 mV/V		0	
	Others on request (enquiry for customization)		9	
Termination type				
	Pins - 5mm			0
	Others on request (enquiry for customization)			9

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