ME800 datasheet

FLUSH DIAPHRAGM, PIEZORESISTIVE CERAMIC DIFFERENTIAL PRESSURE SENSOR

Metallux differential pressure sensors are made with a ceramic base plate and a flush diaphragm and work following the piezoresistive principle.
The Wheatstone bridge is screen printed on one side of the flush ceramic diaphragm which is, in turn, glued to the sensor body. The bridge can be protected by additional coating allowing the sensor to be exposed directly to water or liquid media.
Because of the Al2O3 ceramic excellent chemical resistance, the other side of the sensor does not need any additional protection.
Metallux differential pressure sensors feature an optional screen-printed PTC in order to measure the temperature drift of the fluid. The measurement can also be used to compensate the temperature drift of the Wheatstone bridge to achieve high accuracy readings.

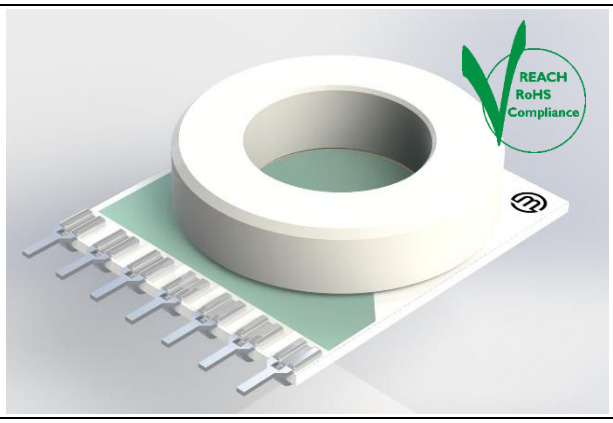
FEATURES

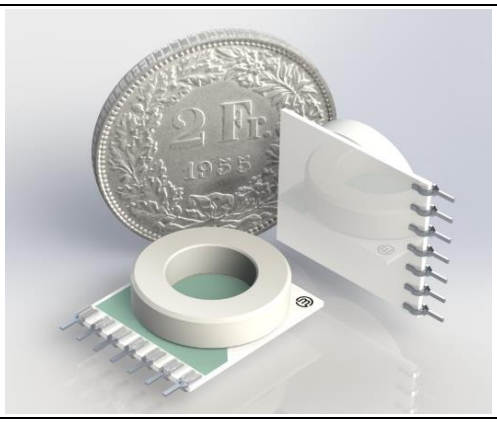
Differential pressure measurement

Fast temperature measurement

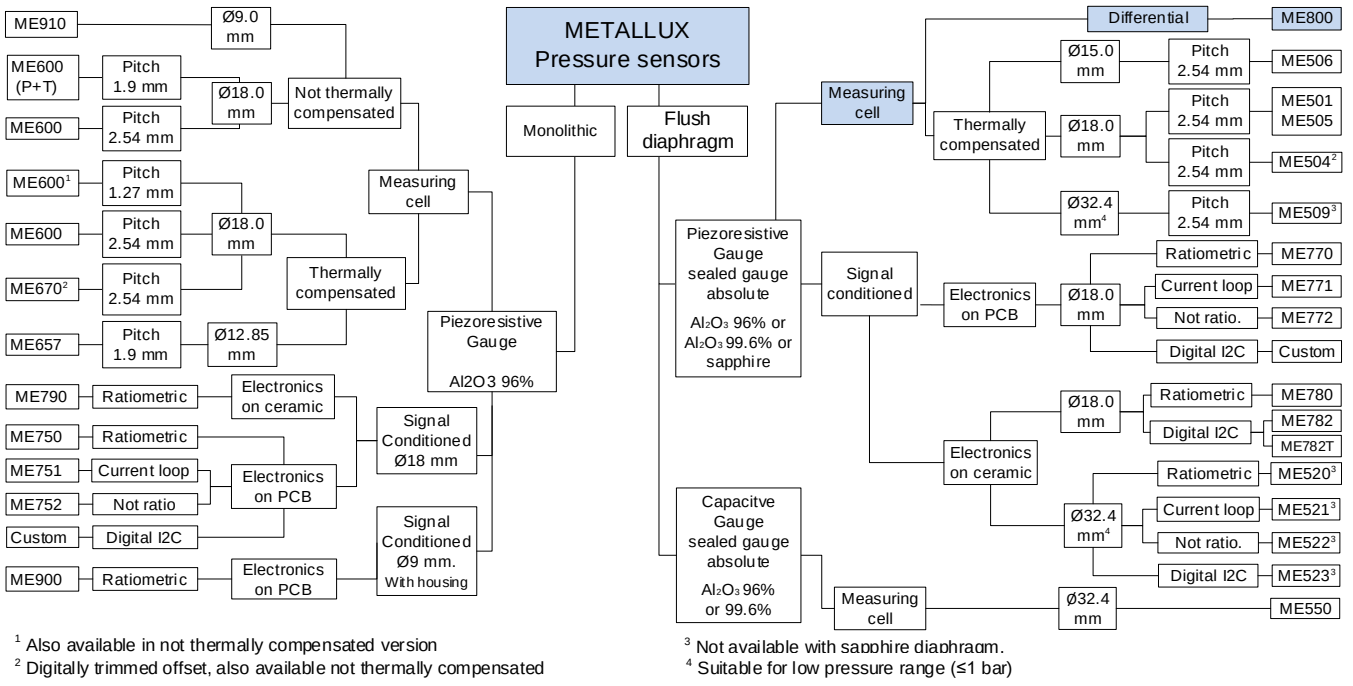
Simple and reliable structure

Analog output





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

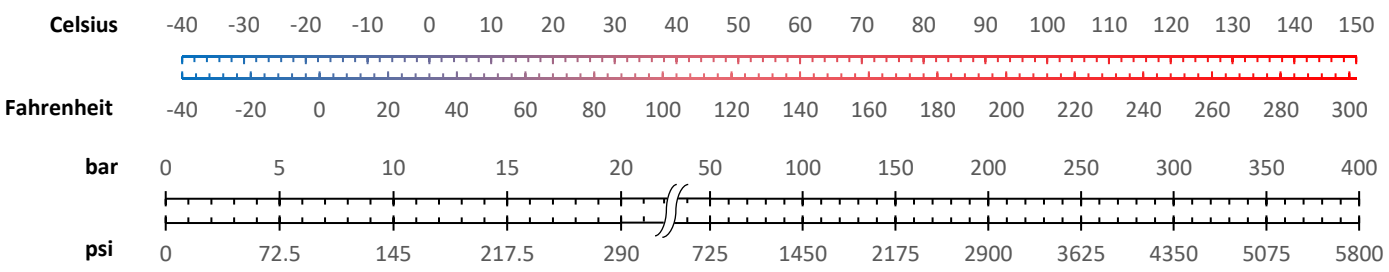
Parameters	Units	Description
Sensor type	-	Differential
Technology	-	Piezoresistive
Material	-	Ceramic Al_2O_3 96%
Weight	g	≤ 5
Response time	ms	≤ 1
Supply voltage range	VDC	2...30
Offset	mV/V	-0.1± 0.1 (Other nominal values available on request)
Current consumption	mA	≤ 1.5 @ 10V
Operating temperature	°C	-20...+105(-4°F...+221°F) [1]
PTC value	Ω	2200 ± 30%
TCR of PTC	ppm	3050 ± 250
Storage temperature	°C	-40...+125(-40°F...+257°F) [1]
Bridge impedance	kΩ	10 ± 30%
Compliant with	-	REACH, RoHS, Conflict Minerals free

Nominal pressure FSO	bar	4	10	16	25	40
	psi [2]	*58*	*145*	*232*	*362*	*580*
Overload pressure	bar	6	20	30	50	80
	psi [2]	*87*	*290*	*435*	*725*	*1160*
Burst pressure	bar	8	35	50	75	120
	psi [2]	*116*	*507*	*725*	*1088*	*1740*
Vacuum capability	bar	-1	-1	-1	-1	-1
	psi [2]	*-14.5*	*-14.5*	*-14.5*	*-14.5*	*-14.5*
Total thickness	mm	4.35	4.48	4.60	4.73	4.9
	in	*0.171*	*0.176*	*0.181*	*0.186*	*0.193*
Sensitivity [3]	mV/V	2.0...4.0	2.0...4.0	2.0...4.0	2.0...4.0	2.0...4.0
Accuracy [4] (typ./max.)	%FS	±0.4/±1.0	±0.4/±1.0	±0.4/±1.0	±0.4/±1.0	±0.4/±1.0
Thermal offset shift (typ./max)	%FS/K	± 0.02 / ± 0.06 ± 0.05 / ± 0.15	+25 °C...+85 °C (+77 °F...+185 °F) -20°C...+25°C (-4 °F...+77°F)/ +85°C....+105°C (+185°F...+221°F)			Not compensated
Thermal span shift	%FS/K	Min. -0.03	Typ. -0.016	Max. 0	-20 °C...105 °C (-4 °F...221 °F)	
Reliability tests[5]	-	1 million 0 bar to Pnom pressure cycles 500h 85°C/85%RH@10V			500 hours burn-in @125°C 250 thermal cycles -40°C/+135°C	

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

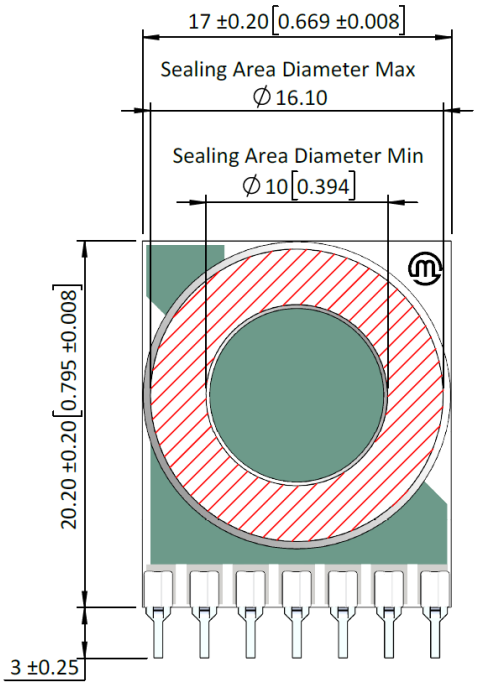
1. Temperature limits depend on connection type, see box "Other types available" on page 3
2. Psi values for reference only.
3. The sensitivity of each production batch is constant, within the indicated range and with minimal dispersion.
4. Accuracy = $\sqrt{\text{NonLinearity}^2+\text{Hysteresis}^2+\text{NonRepeatability}^2}$, terminal based.
5. All technical characteristics will remain within indicated ranges performing the above-mentioned reliability tests. Test performed on sensors without additional coating (Parylene)

Conversion tools

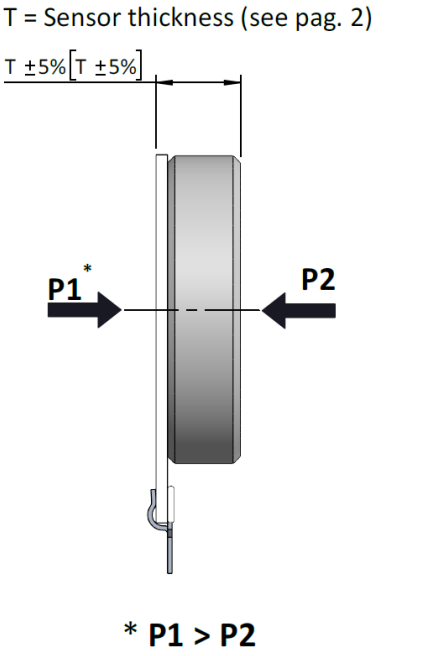


Mechanical drawings and electrical schematics

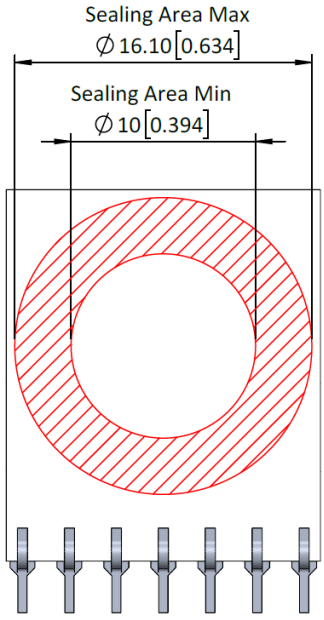
Top view



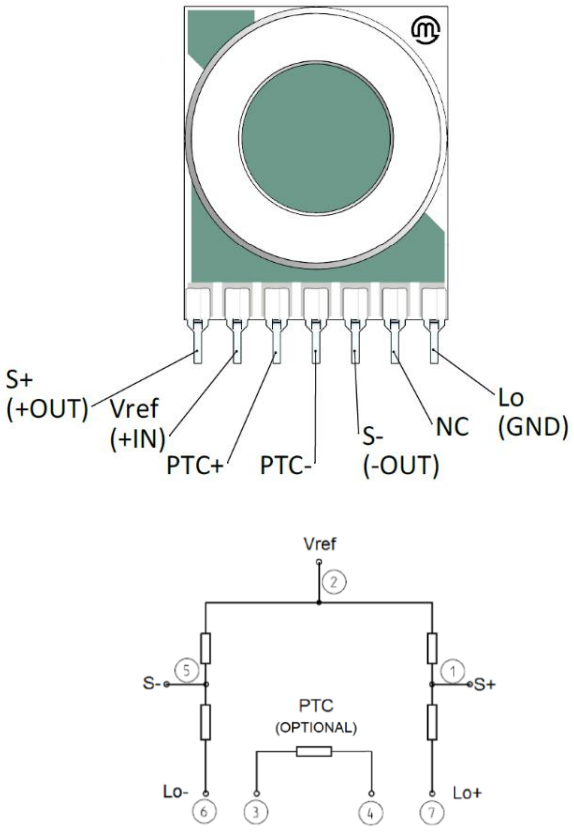
Side view



Bottom view



Schematic



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

Ordering code

	ME800	_ _ _	_	_	
Pressure range					
	0...4 bar	004			
	0...10 bar	010			
	0...16 bar	016			
	0...25 bar	025			
	0...40 bar	040			
	Others on request (enquiry for customization)	999			
Temperature sensor on board					
	Without		0		
	PTC		1		
	Others on request (enquiry for customization)		9		
Termination type					
	Pins – 3 mm			0	
	Others on request (enquiry for customization)			9	
Additional coating					
	Without				0
	Parylene coating				1
	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)