

Metallux ME600 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 Al₂O₃ 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. ME600 sensors are designed in such a way so that temperature changes and pressure overloads do not cause loss in reliability. Metallux ME600 sensors ensure optimal linearity across the entire range of measurement and minimize effects of hysteresis.

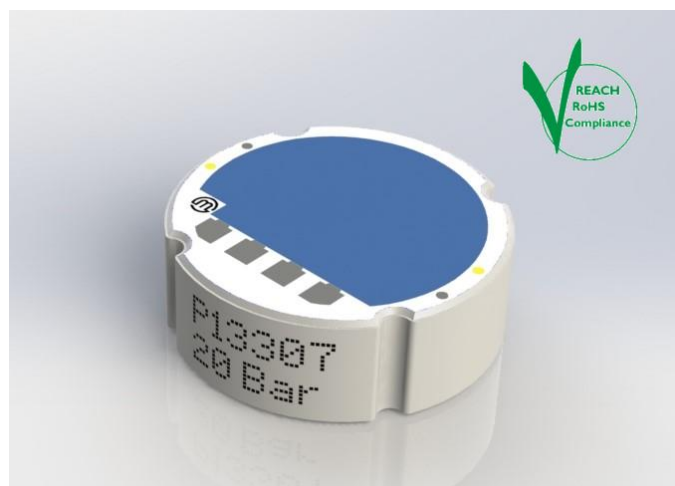
FEATURES

Excellent resistance to corrosion and abrasion

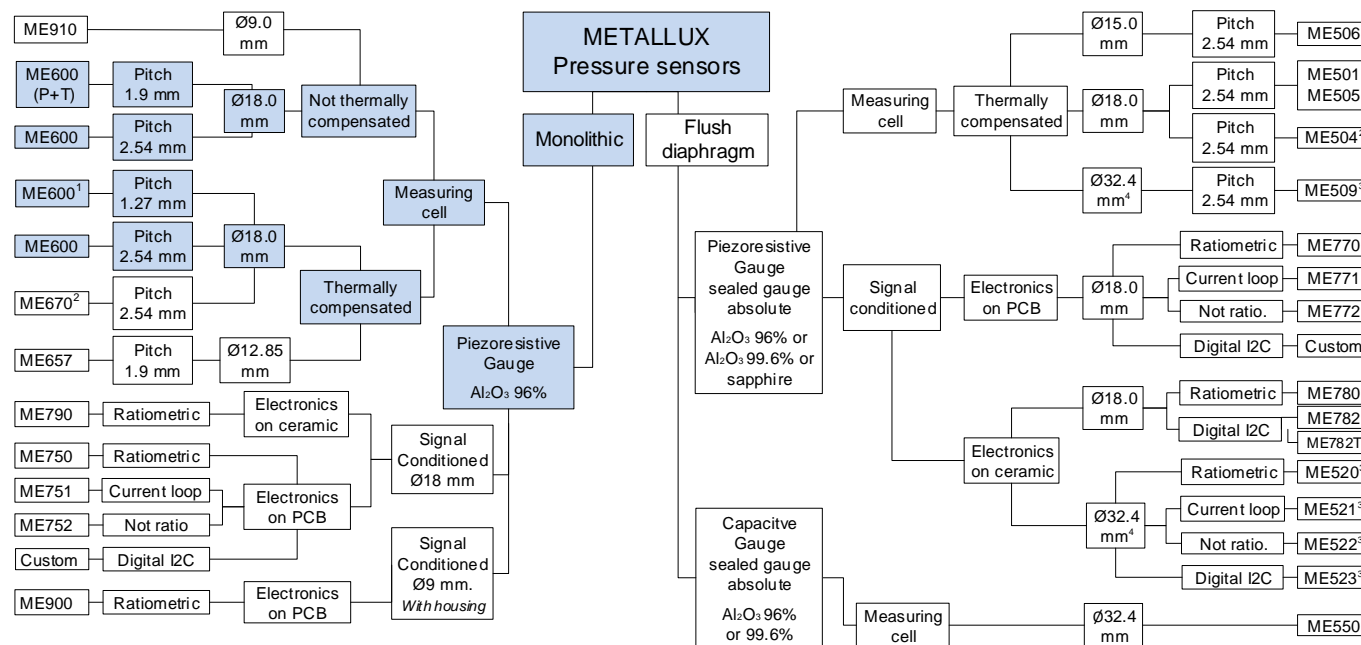
Optimized for high pressure applications

Easy mounting

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)

ME600 datasheet

Technical characteristics

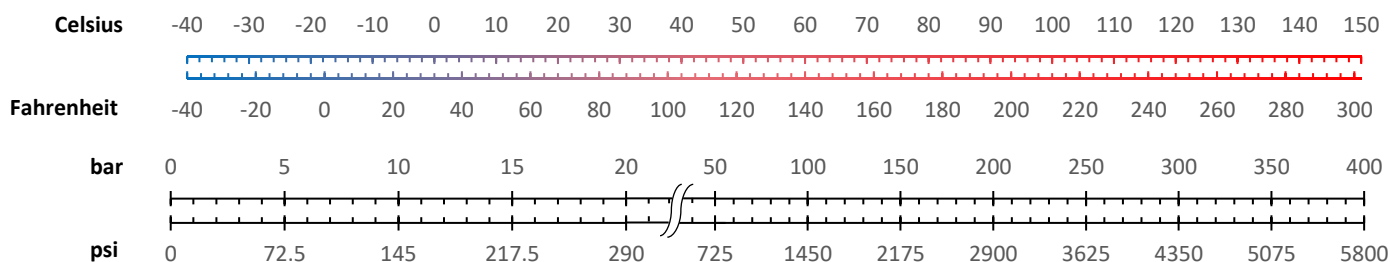
Parameters	Units	Description
Sensor type	-	Monolithic, gauge
Technology	-	Piezoresistive
Material	-	Ceramic Al ₂ O ₃ 96%
Weight	g	≤ 5 (ceramic cell only)
Response time	ms	≤ 1
Supply voltage range	VDC	2...30
Offset	mV/V	See ordering code, other available on request
Current consumption	mA	≤ 1.3 @ 10V
Operating temperature	°C	-40...+135 (-40 °F...+275 °F) ¹
Storage temperature	°C	-40...+150 (-40 °F...+302 °F) ¹
Bridge impedance	kΩ	11 ± 30%
Compliant with	-	REACH, RoHS, Conflict Minerals free

Nominal pressure FSO	bar	2	5	10	20	50	100	200	250	400	600
	psi ²	29	73	145	290	725	1450	2900	3625	5800	8700
Overload pressure	bar	4	10	20	40	100	200	300	375	500	750
	psi ²	58	145	290	580	1450	2900	4350	5440	7250	10875
Burst pressure	bar	8	20	35	60	140	300	400	500	650	850
	psi ²	116	290	507	870	2030	4350	5800	7250	9425	12325
Vacuum capability	bar	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
	psi ²	-14.5	-14.5	-14.5	-14.5	-14.5	-14.5	-14.5	-14.5	-14.5	-14.5
Sensitivity ³	mV/V	1.8...3.4	2.0...3.5	2.4...4.0	2.8...4.2	2.7...4.0	2.0...3.2	1.8...3.3	1.5...3.0	1.5...3.0	1.5...2.5
Accuracy ⁴ (typ./max.)	%FS	0.15/0.5	0.15/0.30	0.15/0.30	0.15/0.30	0.25/0.60	0.50/1.00	0.50/1.00	0.50/1.00	0.60/1.20	0.60/1.20
Cavity diameter	mm	9.7	9.7	9.7	9.7	9.7	5.6	5.6	5.6	5.6	5.6
Thermal offset shift (typ./max.)	%FS/K	± 0.025 / ± 0.05		+25 °C...+85 °C (+77 °F...+185 °F)		Not compensated					
		± 0.005 / ± 0.02		+25 °C...+85 °C (+77 °F...+185 °F)		Compensated					
Thermal span shift	%FS/K	Min. - 0.030	Typ. -0.016	Max. 0	-40 °C...+135 °C (-40 °F... / ... +275 °F)						
Reliability tests ⁵	-	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 accuracy and thermal performances.

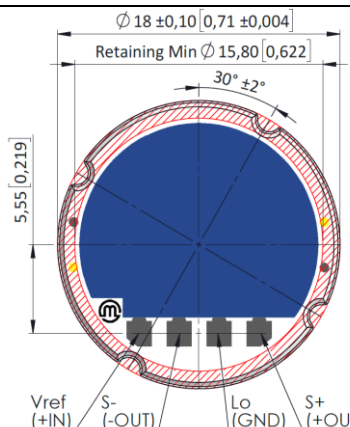
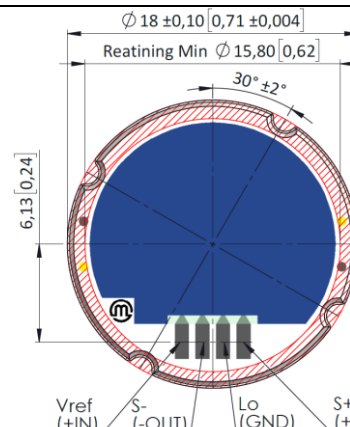
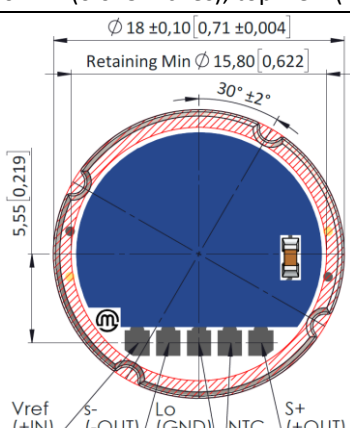
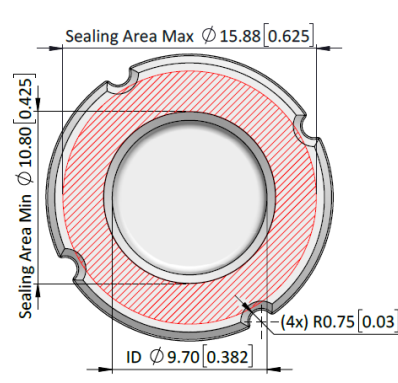
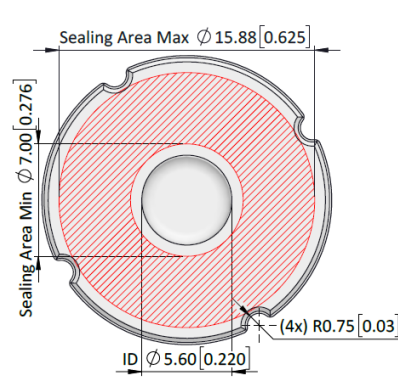
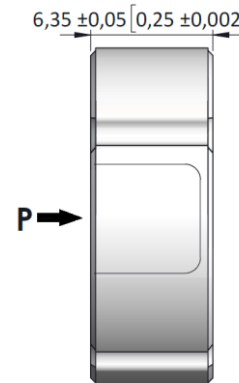
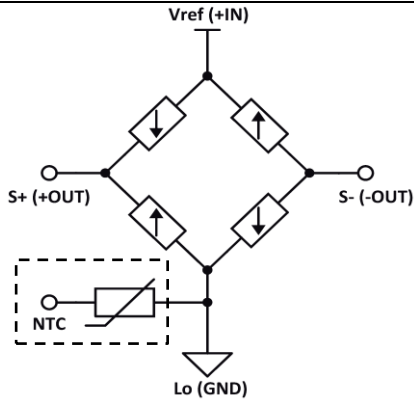
1. Temperature limits depend on connection type, see box "Other types available" on page 4.
2. Psi values for reference only.
3. The sensitivity of each production batch is constant, within the indicated range and with minimal dispersion.
4. Accuracy = $\sqrt{\text{NonLinearity}^2 + \text{Hysteresis}^2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

Conversion tools



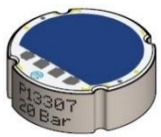
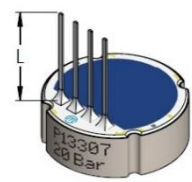
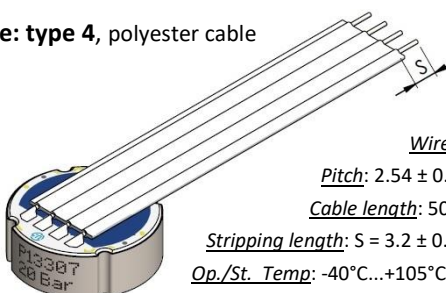
ME600 datasheet

Mechanical drawings and electrical schematics

<p>Pitch 2.54 mm (0.100 inches), top view</p> 	<p>Pitch 1.27 mm (0.050 inches), top view</p> 	
<p>Pitch 1.90 mm (0.075 inches), top view (with NTC)</p> 	<p>Notes</p> <p>Pad dimensions :</p> <p>2.54 mm pitch version : 1.60 x 1.60 [0.063 x 0.063], option not available with temperature sensor mounted</p> <p>1.27 mm pitch version : 0.87 x 2.00 [0.034 x 0.079] , option not available with temperature sensor mounted</p> <p>1.90 mm pitch version : 1.50 x 1.60 [0.059 x 0.063], only with temperature sensor mounted</p>	
<p>Bottom view (Pnom < 100 bar)</p> 	<p>Bottom view (Pnom ≥ 100bar)</p> 	<p>Side view</p> 
<p>Schematic</p> 	<p>Notes</p> <p>Temperature sensor options :</p> <p>Type 1, NTC SMD 10 kΩ ±1%, β = 3435 K</p> <p>Type 2, PT100 SMD 100 Ω +3850 ppm/K F0.3 or 0.1</p> <p>Type 9, customization on request</p> <p>Note: temperature sensor response time depends on housing and measured fluid</p>	
<p>All quotes are in mm [inches] – General tolerance ISO 2768-1 M</p>		

ME600 datasheet

Electrical terminations

<p>Example: type 0, pre-tinned soldering pads</p>  <p><i>Pitch:</i> 2.54 ± 0.05 [0.1 ± 0.002] <i>Maximum tin thickness:</i> 0.4 [0.016] <i>Op./St. Temp:</i> $-40^{\circ}\text{C} \dots +135^{\circ}\text{C}$ ($-40^{\circ}\text{F} \dots 275^{\circ}\text{F}$)</p>	<p>Example: type 2, pins $L = 13,0 \pm 0,5$ [$0,35 \pm 0,02$]</p>  <p><i>Pitch:</i> 2.54 ± 0.05 [0.1 ± 0.002] <i>Pin section:</i> 0.51×0.25 [0.02×0.01] <i>Pin length:</i> $L = 9.0 \pm 0.5$ [0.35 ± 0.02] <i>Op./St. Temp:</i> $-40^{\circ}\text{C} \dots +135^{\circ}\text{C}$ ($-40^{\circ}\text{F} \dots 275^{\circ}\text{F}$)</p>
<p>Example: type 4, polyester cable</p>  <p><i>Wire section:</i> AWG24 <i>Pitch:</i> 2.54 ± 0.05 [0.1 ± 0.002] <i>Cable length:</i> 50.8 ± 2 [2 ± 0.08] <i>Stripping length:</i> $S = 3.2 \pm 0.7$ [0.13 ± 0.028] <i>Op./St. Temp:</i> $-40^{\circ}\text{C} \dots +105^{\circ}\text{C}$ ($-40^{\circ}\text{F} \dots 221^{\circ}\text{F}$)</p>	<p>Other types available</p> <p>Type 1, pins $L = 9 \pm 0.5$ [0.51 ± 0.02] (only for pitch 2.54 mm) Type 3, silicone single wire, 50.8 mm, Op./St. Temp: $-20^{\circ}\text{C} \dots +135^{\circ}\text{C}$ Type 5*, PVC flat cable, 50.8 mm, Op./St. Temp: $-20^{\circ}\text{C} \dots +105^{\circ}\text{C}$ Type 6, NOMEX™ flat cable, 50.8 mm, Op./St. Temp: $-20^{\circ}\text{C} \dots +125^{\circ}\text{C}$ Type 9, customization on request</p> <p><i>*PVC flat cables always have 1.27 mm pitch, independently from pads' pitch</i></p>
<p>All quotes are in mm [inch] – General tolerance ISO 2768-1 M</p>	

Ordering code

	ME600	---	-	-	-	-
Pressure range	0...2 bar	002				
	0...5 bar	005				
	0...10 bar	010				
	0...20 bar	020				
	0...50 bar	050				
	0...100 bar	100				
	0...200 bar	200				
	0...250 bar	250				
	0...400 bar	400				
	0...600 bar	600				
	Others on request (please specify)	999				
Offset	-0.1 ±0.1 mV/V [negative]		0			
	0.0 ±0.1 mV/V [neutral]		1			
	+0.1 ±0.1 mV/V [positive]		2			
	Others on request (please specify)		9			
Temperature compensation	Not compensated [TCO ≤ ±0.05 %FS/K]		0			
	Compensated [TCO ≤ ±0.02 %FS/K]		1			
	Compensated and selected [TCO ≤ ±0.01 %FS/K]		2			
	Others on request (please specify)		9			
Temperature sensor on board (not available with thermal offset shift compensated versions)	Without			0		
	NTC SMD [RES0635 – NTC 10K 1% 0603 3435K]			1		
	PT100 SMD [RES1058 – PTS0603 + 3850ppm/K F0.3]			2		
	Others on request (please specify)			9		
Termination pitch	2.54 mm [Not available if temp. sensor is mounted]				0	
	1.90 mm [Only with temperature sensor mounted]				1	
	1.27 mm [Not available if temp. sensor is mounted]				2	
	Others on request (please specify)				9	
Termination type	Pre-tinned pads [2.54/1.90/1.27]					0
	Pins - 9mm [2.54/1.90/-]					1
	Pins - 13mm [2.54/-/-]					2
	Silicone single wires 52 mm [2.54/1.90/1.27]					3
	POLYESTER Flat Cable 50.8 mm [2.54/-/-]					4
	PVC Flat Cable 50.8 mm [2.54/1.90/1.27]					5
	NOMEX™ cable 50.8 mm [2.54/1.90/-]					6
	Others on request (please specify)					9