METALLUX
Swiss technology at your service

ME900/MEP900 datasheet

MONOLITHIC PIEZORESISTIVE CERAMIC PRESSURE TRANSDUCER

Metallux ME900 are ready to use monolithic pressure transducers made with 9 mm diameter ceramic cell mounted in dedicated housing. ME900 works following the piezoresistive principle, where the Wheatstone bridge is screen printed directly on one side of the ceramic diaphragm by means of thick film technology and signal conditioning electronics are added to generate 0.5...4.5 V ratiometric output.
Pressure and temperature calibration is done electronically with the on-board ASIC and can be performed in bar or in psi.
Electronics provide offset and span correction when temperature changes. Aging detection is constantly performed. This new method guarantees precision and long-term stability.
The Metallux ME900 meets EMC requirements. The ASIC stores production lot specific data for sensor traceability and allows custom calibration.
Due to the excellent chemical resistance of the the Al_2O_3 ceramic, the ME900 sensors are suitable for nearly all aggressive media.

FEATURES

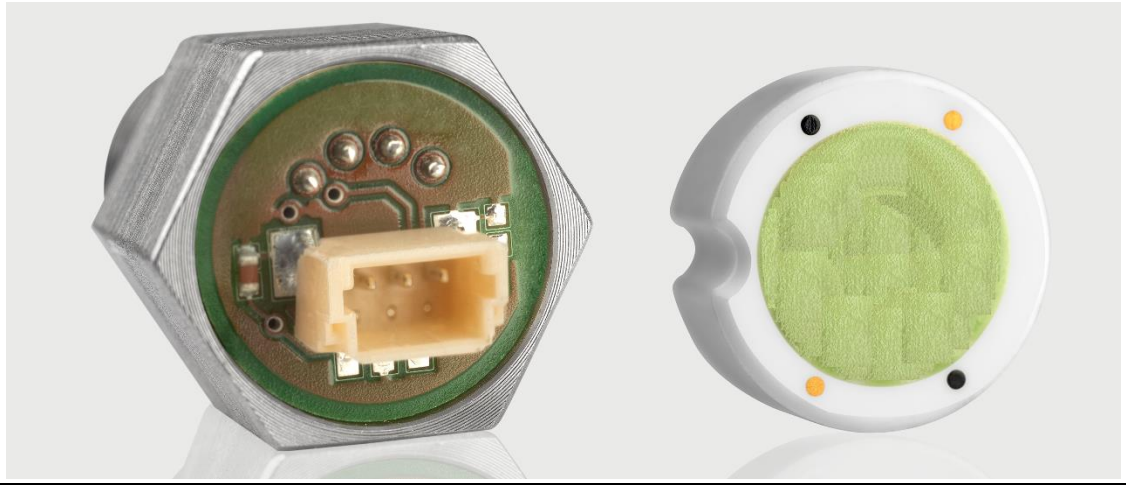
9 mm diameter cell

Ready to mount

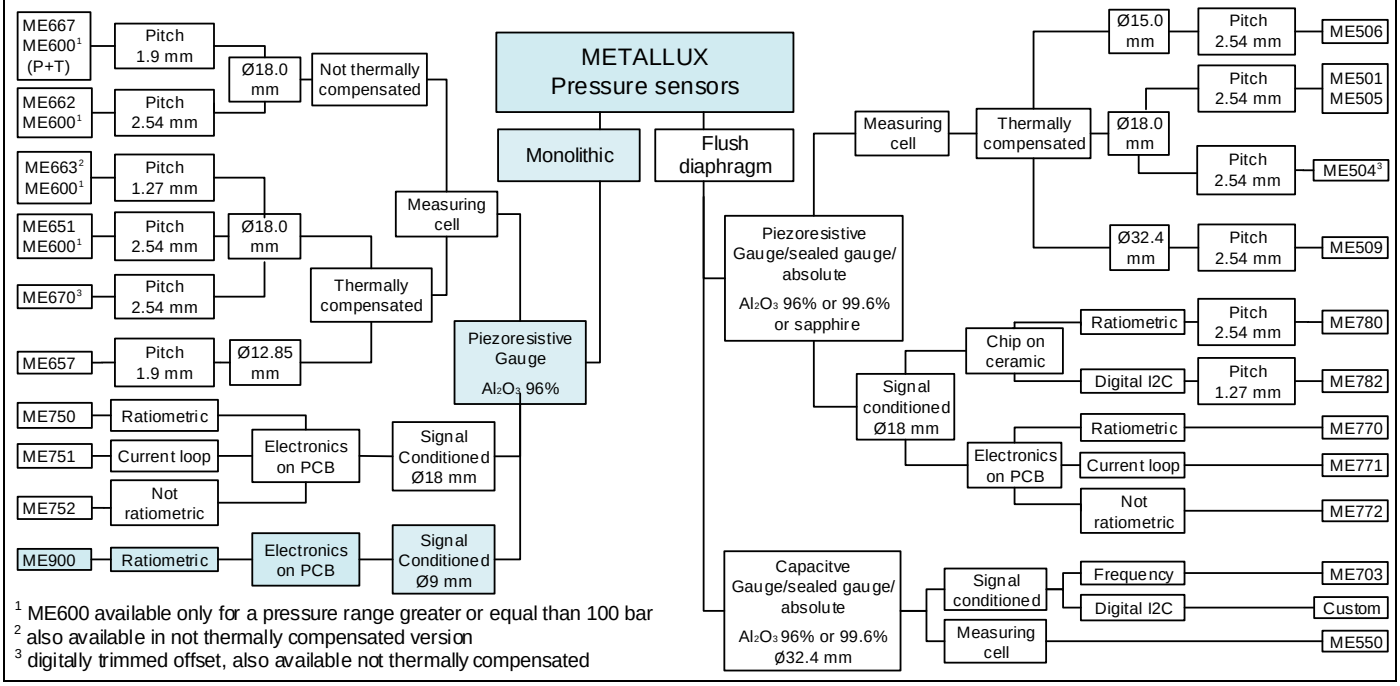
Stainless steel housing

Signal conditioning, on-board connector

EMC compliant



Pressure sensors family tree



[1] ME600 available only for a pressure range greater or equal than 100 bar
[2] also available in not thermally compensated version
[3] digitally trimmed offset, also available not thermally compensated

Technical features

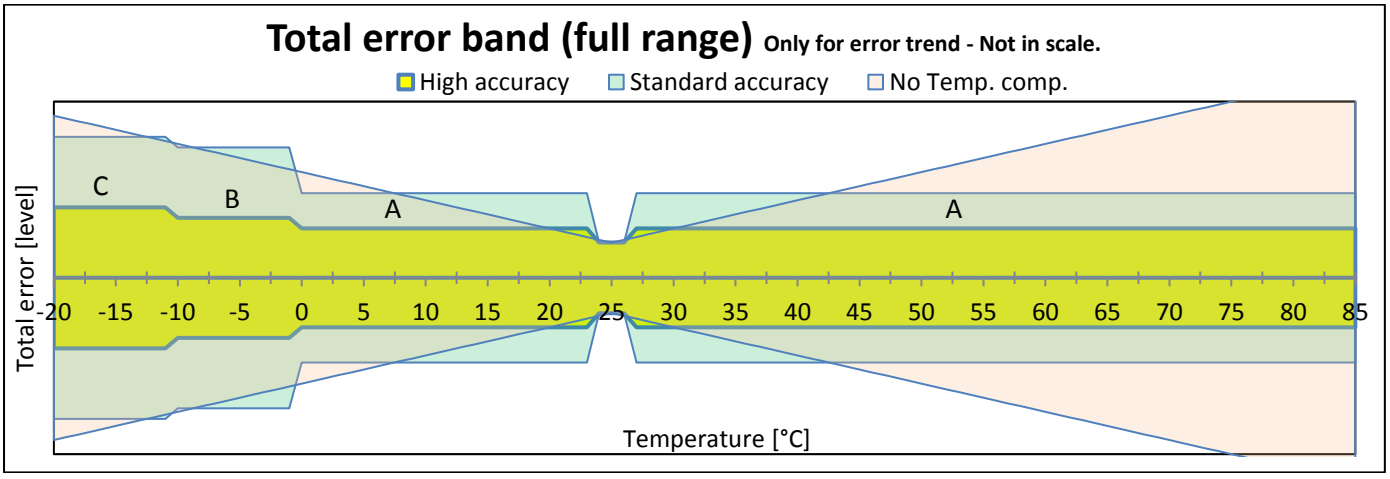
Parameters	Units	ME900 / MEP900
Output	-	Ratiometric
Output range	-	0.5...4.5 [V]
Sensor type	-	Monolithic, gauge
Technology	-	Piezo-resistive with electronic signal conditioning
Material	-	Sensor : ceramic Al_2O_3 96% - Gasket : FKM – Housing : stainless steel AISI 316
Weight	g	≤ 8 (without cable)
Response time	ms	≤ 5
Supply voltage	VDC	4.5...5.5
Max current[1]	mA	6 (R_{LOAD} ≥ 2 kΩ)
Operating temp.	°C	-20...+85 (-4 °F...+185 °F)
Storage temp.	°C	-25...+90 (-13 °F...+194 °F)
Compliant with	-	REACH, RoHS, Conflict Minerals free
EMC / ESD [2]	-	Electrostatic discharge EN 61326-1(2013) / IEC/EN 61000-4-2(2009) Radiated electromagnetic field EN 61326-1(2013) / IEC/EN 61000-4-3(2006) Electrical fast transient burst EN 61326-1(2013) RF conducted disturbances EN 61326-1(2013) / IEC/EN 61000-4-6(2014)

Pressure range			ME900 / MEP900		
Nominal pressure[2]	ME	bar	10	20	50
	MEP	*psi*[3]	*150*	*300*	*750*
Overload pressure		bar	20	40	100
		psi	*290*	*580*	*1450*
Burst pressure		bar	35	60	150
		psi	*507*	*870*	*2175*
Vacuum capability		bar	-1	-1	-1
		psi	*-14.5*	*-14.5*	*-14.5*

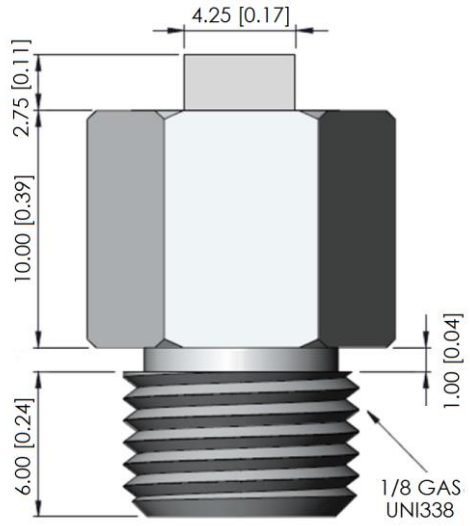
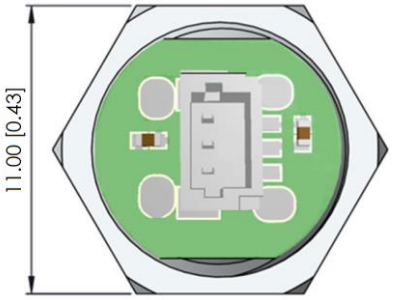
Accuracy [4] [%FS]		Calibration with high accuracy	
25°C	(77 °F)	1.0	1.0
A) 0...85°C	(32...185 °F)	1.4	1.6
B)-10...0°C	(14...32 °F)	1.7	1.8
C)-20...-10°C	(-4...14 °F)	2.0	2.2
Accuracy [4] [%FS]		**Calibration with standard accuracy**	
25°C	(77 °F)	1.0	1.0
A) 0...85°C	(32...185 °F)	2.4	2.6
B)-10...0°C	(14...32 °F)	3.7	3.8
C)-20...-10°C	(-4...14 °F)	4.0	4.2
Accuracy [4] [%FS]		**Calibration without thermal compensation**	
25°C	(77 °F)	1.0	
-20...85 °C	(-4...185 °F)	Max ± 0.08 %FS/K (Ceramic cell thermal offset shift + thermal span shift) + Accuracy at 25°C	

Unless indicated, all data are based on a reference temperature of 25°C.

1. During calibration or auto-zero, current consumption is < 30 mA
2. Housing must be grounded
3. Pressure ranges not shown specifically in the technical chart have performance of the nearest listed pressure range.
4. Psi values are not the exact conversion of bar value. Psi ranges are defined to cover different standard values.
5. Accuracy includes room temperature error of non-linearity, hysteresis and non-repeatability, offset and span deviation PLUS thermal span shift and thermal offset shift.



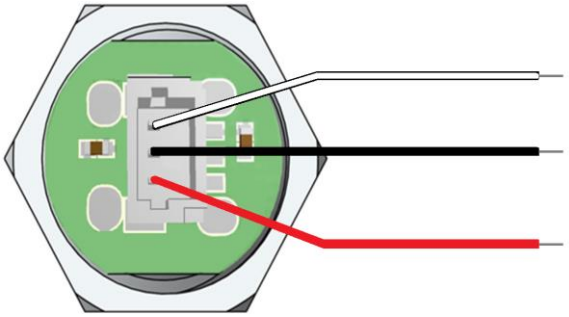
Mechanical drawings

Side view	Top view
	
	Connector : JST BM03B-SRSS-TBT

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

Electrical terminations

ME900 Example: type 0, Connector plus 70 mm cable



Vout*: Analog output (white)

V- : Ground (black)

VCC : Power supply (red)

Wire section : AWG 28

Cable length: L = 70.0 ± 5.0 [2.76 ± 0.2]

Stripping length: S = 5.0 ± 2.0 [0.20 ± 0.08]

Operating temperature: -20°C...+85°C

**programming through Vout wire*

Ordering code

	ME	_	900	_ _ _	_	_
Pressure unit						
	bar	blank				
	psi	P				
Pressure range						
	ME	MEP		ME – MEP		
	0...10 bar	or 0...150 psi		010 – 150		
	0...20 bar	or 0...300 psi		020 – 300		
	0...50 bar	or 0...750 psi		050 – 750		
	Others on request (please specify)			999 – 999		
Calibration						
	High accuracy				0	
	Standard accuracy				1	
	No temperature compensation (calibration done at room temperature)				2	
	Not calibrated, not compensated (electrical test only)				3	
	Others on request (please specify)				9	
Termination type						
	Connector plus 70 mm cable					0
	Only connector					1
	Others on request (please specify)					9