



ME75x/MEP75x datasheet



MONOLITHIC PIEZORESISTIVE CERAMIC PRESSURE TRANSDUCER

Swiss technology at your service

Metallux ME75x and MEP75x are monolithic pressure sensors made with 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 and signal conditioning electronics are added to generate 0.5...4.5 V ratiometric output (ME750), current loop 4...20 mA (ME751) or 0...10 V non ratiometric output (ME752). Also available in customized version I²C output.

Pressure and temperature calibration are done electronically with the on-board ASIC and can be performed in bar (ME75x) or in psi (MEP75x). Electronics provide offset and span correction when temperature changes. Aging detection and compensation are constantly performed. This new method guarantees good precision and long-term stability.

The Metallux ME75x family meets EMI requirements. The ASIC stores production lot specific data for sensor traceability and allows custom calibration.

Due to the excellent chemical immunity of the the Al₂O₃ ceramic, the ME75x sensors are suitable for nearly all aggressive media.

FEATURES

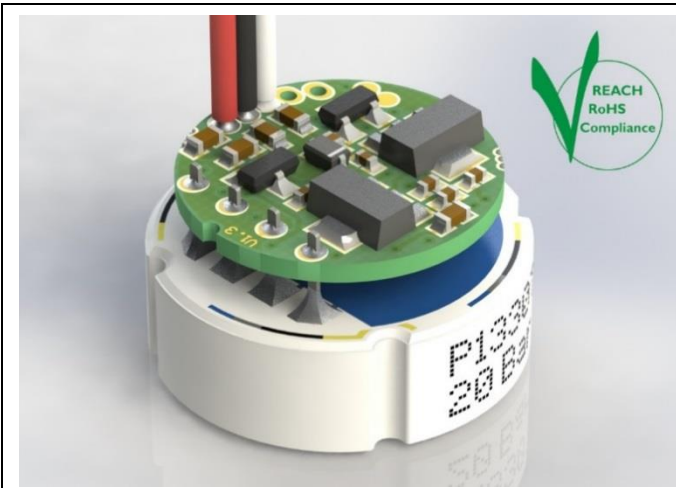
Excellent resistance to corrosion and abrasion

Signal conditioning

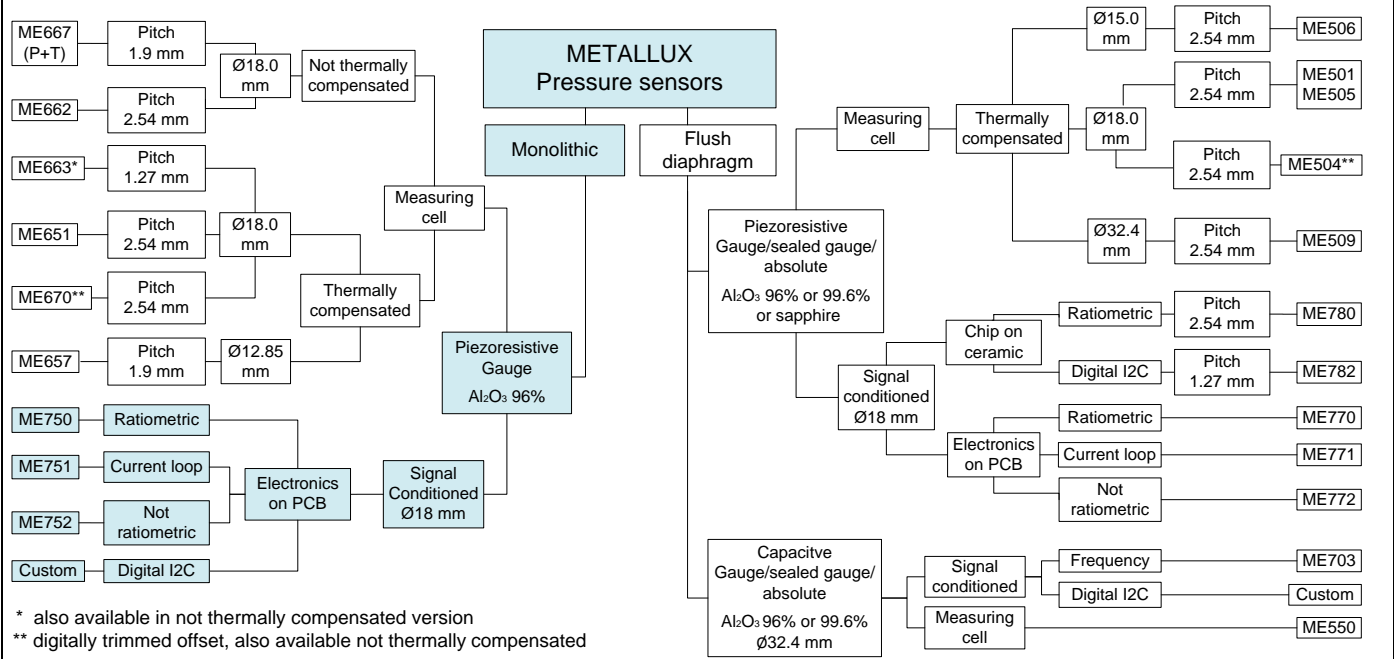
EMI certified

Thermally compensated

Zero stress mounting software



Pressure sensors family tree





Technical characteristics

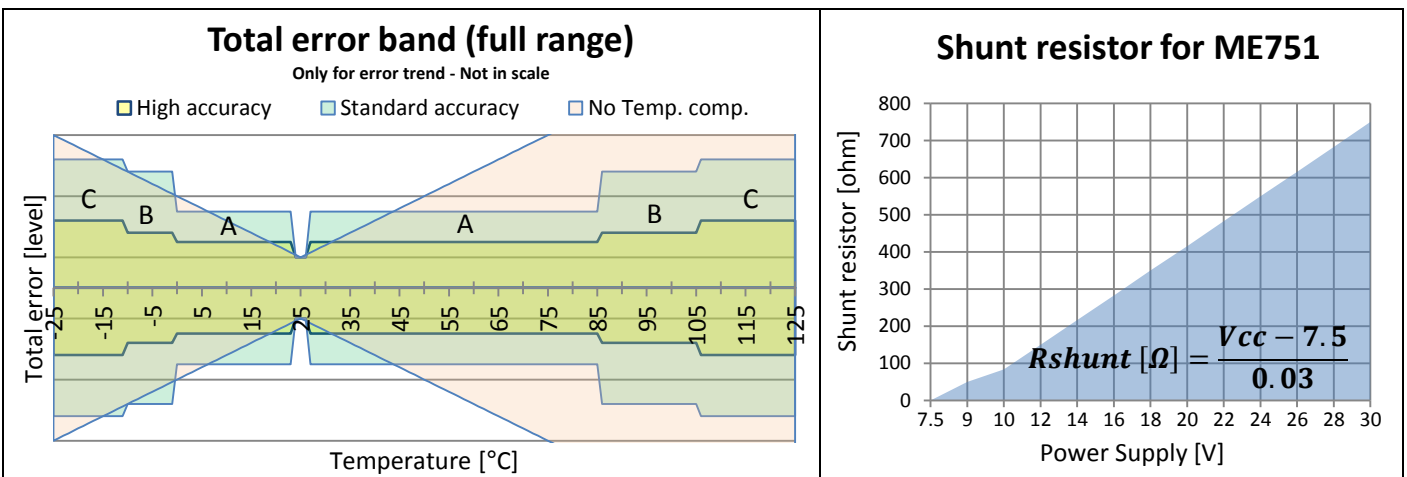
Parameters	Units	ME750 / MEP750	ME751 / MEP751	ME752 / MEP752
Output	-	Ratiometric	Current loop	Non ratiometric
Output range	-	0.5...4.5 [V]	4...20 [mA]	0...10 [V]
Sensor type	-	Monolithic, gauge		
Technology	-	Piezoresistive with electronic signal conditioning		
Material	-	Ceramic Al ₂ O ₃ 96%		
Weight	g	≤ 8 (with standard wires)		
Response time	ms	≤ 5		
Supply voltage	VDC	4.5...5.5	9...35	12...35
Max current ¹	mA	6 (R _{LOAD} ≥ 2 kΩ)	4...20	8 (R _{LOAD} ≥ 2 kΩ)
Operating temp.	°C	-25...+125 (-13 °F...+257 °F)		
Storage temp.	°C	-40...+135 (-40 °F...+275 °F)		
Compliant with	-	REACH, RoHS, Conflict Minerals free		
EMC / ESD	-	Radiated Electromagnetic field		IEC/EN 61000-4-3(2006)
		Electrical fast transient burst		IEC/EN 61000-4-4(2004)
		RF conducted disturbance		IEC/EN 61000-4-6(2006)

Pressure range		ME75x / MEP75x																
Nominal pressure ²	ME / MEP	bar	1.6	2	2.5	4	5	6	10	16	20	25	40	50	100	200	250	400
		psi ³	20	30	50	60	100	115	150	300	400	500	750	1000	1500	3000	4000	5000
Overload pressure		bar	4	4	10	10	10	10	20	40	40	40	100	100	150	300	375	500
		psi	58	58	145	145	145	145	290	580	580	580	1450	1450	2175	4350	5440	7250
Burst pressure		bar	8	8	20	20	20	20	35	60	60	60	140	140	300	400	500	650
		psi	116	116	290	290	290	290	507	870	870	870	2030	2030	4350	5800	7250	9425
Vacuum capability		bar	-0.8	-0.8	-0.9	-0.9	-0.9	-0.9	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
		psi	-11.6	-11.6	-13.1	-13.1	-13.1	-13.1	-14.5	-14.5	-14.5	-14.5	-14.5	-14.5	-14.5	-14.5	-14.5	-14.5

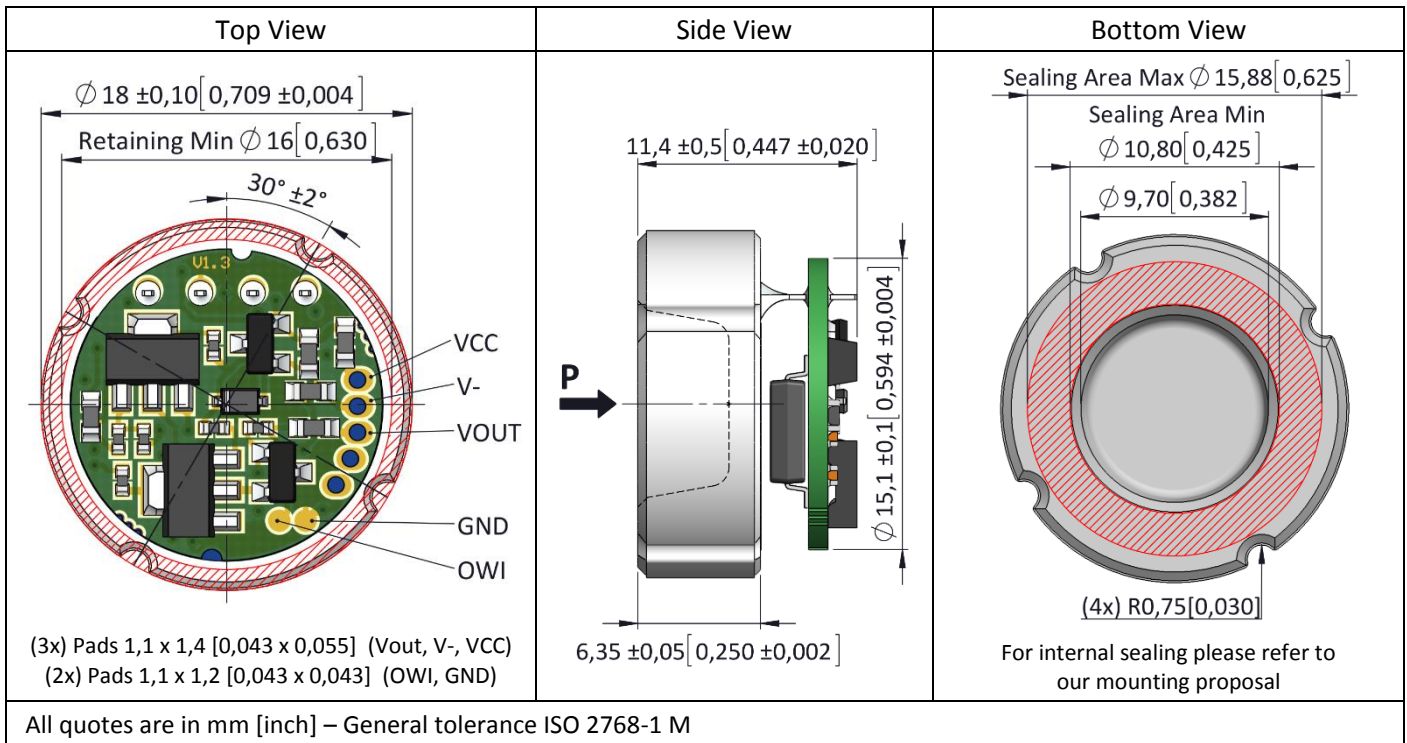
Accuracy ⁴ [%FS]	Calibration with high accuracy																							
25°C (77 °F)	1.5	1.0														1.5								
A) 0...85°C (32...185 °F)	1.5				1.4				1.6				1.8				2.4				2.4			
B) -10...105°C (14...221 °F)	1.8				1.7				1.8				2.2				2.6				2.6			
C) -25...125°C (-13...257°F)	2.2				2				2.2				2.5				3.5				3.5			
Accuracy ⁴ [%FS]	Calibration with standard accuracy																							
25°C (77 °F)	1.5	1.0														1.5								
A) 0...85°C (32...185 °F)	2.5				2.4				2.6				2.8				3.4				3.4			
B) -10...105°C (14...221 °F)	3.8				3.7				3.8				4.2				4.6				4.6			
C) -25...125°C (-13...257°F)	4.2				4.0				4.2				5.5				5.5				5.5			
Accuracy ⁴ [%FS]	Calibration without thermal compensation																							
25°C (77 °F)	1.5	1.0														1.5								
-25...125 °C (-13...257°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.

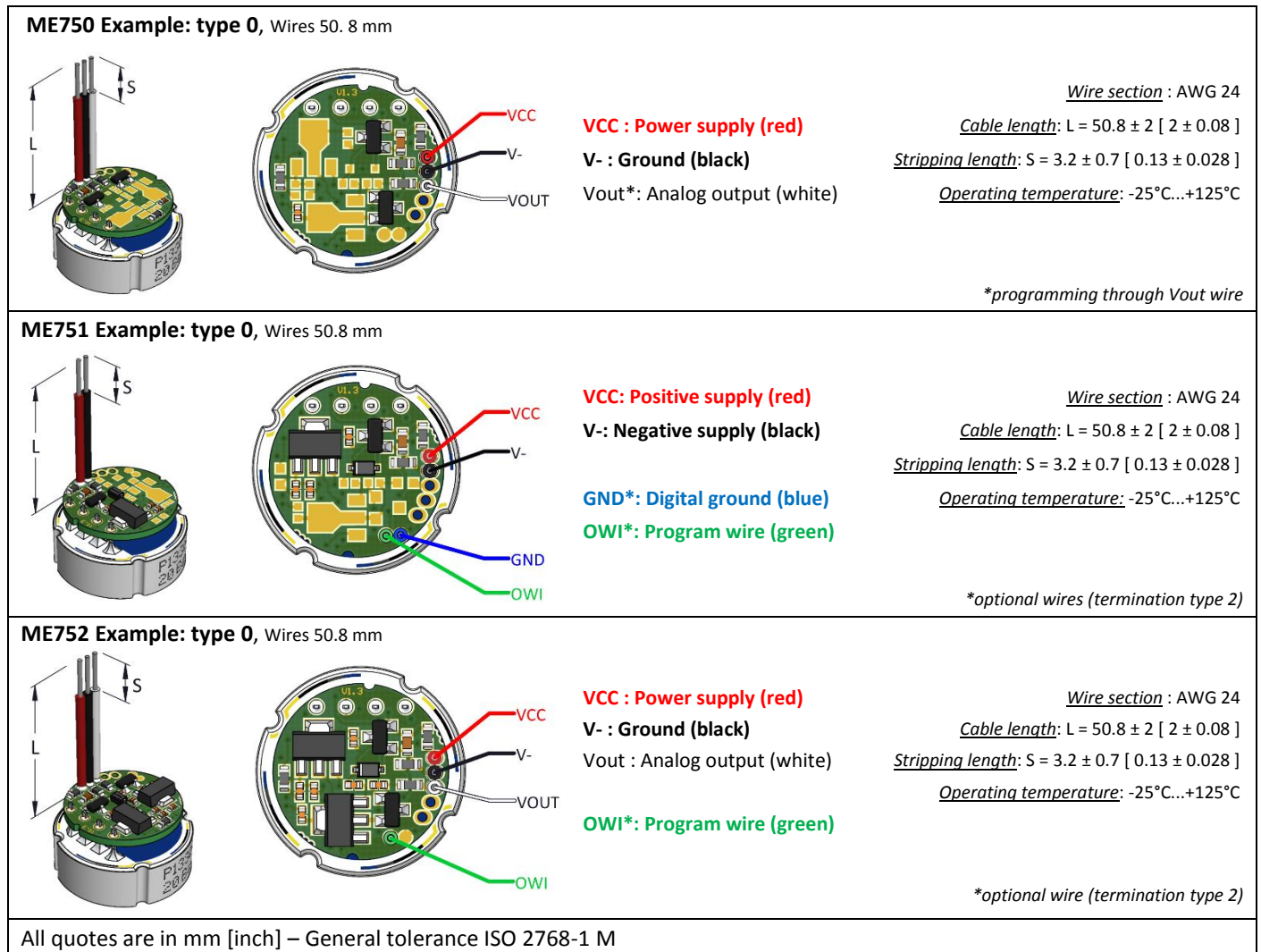
1. During calibration or auto-zero, current consumption is < 30 mA
2. Pressure ranges not shown specifically in the technical chart have performance of the nearest listed pressure range.
3. Psi values are not the exact conversion of bar value. Psi ranges are defined to cover different standard values.
4. Accuracy includes room temperature error of non-linearity, hysteresis and non-repeatability, offset and span deviation PLUS thermal span shift and thermal offset shift. Accuracy calculation is performed in Metallux housings; accuracy excludes temperature hysteresis which primarily depends on mechanical conditions (housing, o-ring, etc) of actual application.



Mechanical drawings



Electrical terminations





Ordering code

	ME	-	75	-	---	-	-	-
Pressure unit	bar							
	psi							
		blank						
Output signal	Ratiometric	0.5...4.5 [V]		0				
	Current loop	4...20 [mA]		1				
	Non ratiometric	0...10 [V]		2				
Pressure range	ME	MEP		ME - MEP				
	0...1.6 bar	or	0...20 psi	1p6 - 020				
	0...2 bar	or	0...30 psi	002 - 030				
	0...2.5 bar	or	0...50 psi	2p5 - 050				
	0...4 bar	or	0...60 psi	004 - 060				
	0...5 bar	or	0...100 psi	005 - 100				
	0...6 bar	or	0...115 psi	006 - 115				
	0...10 bar	or	0...150 psi	010 - 150				
	0...16 bar	or	0...300 psi	016 - 300				
	0...20 bar	or	0...400 psi	020 - 400				
	0...25 bar	or	0...500 psi	025 - 500				
	0...40 bar	or	0...750 psi	040 - 750				
	0...50 bar	or	0...1000 psi	050 - 1k0				
	0...100 bar	or	0...1500 psi	100 - 1k5				
	0...200 bar	or	0...3000 psi	200 - 3k0				
	0...250 bar	or	0...4000 psi	250 - 4k0				
	0...400 bar	or	0...5000 psi	400 - 5k0				
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	Wires 50.8 mm					0		
	Pre-tinned soldering pads					1		
	Wires 50.8 mm+ program wires (only current loop and non ratiometric)					2		
	Others on request (please specify)					9		
Additional coating	Without						0	
	Parylene coating						1	
	Others on request (please specify)						9	

Conversion tools

