

MTE8000 series – Small package pressure transmitters

The MTE8000 pressure transmitters allow for high media compatibility with corrosive liquids and gases. The transmitters are based on piezoresistive ceramic pressure sensor elements and feature compact stainless steel housings. They are calibrated and temperature compensated and offer different amplified analog output signals. All MTE8000 pressure transmitters can be modified according to customer specific requirements.



Features

- Pressure ranges from:
- 250 mbar to 20 bar; 5 psi to 300 psi gage⁽¹⁾ or absolute⁽²⁾ pressure
- Various voltage devices and current output options
- Field interchangeable
- Rugged stainless steel housing
- For many industrial gases and liquids

Media compatibility

Wetted materials:
Stainless steel 1.4404 (316L)⁽³⁾, ceramic Al_2O_3 ,
NBR (FKM)
Housing:
Stainless steel 1.4404 (316L), protection class
IP 67 (according to DIN EN 60529, NEMA 6)⁽¹⁾

Applications

- Industrial machines
- Industrial measurement
- Industrial control
- HVAC
- Medical devices

Certificates

- EMC according to EN 61000-6-2:2019
- Quality Management System according to EN ISO 9001:2015
- RoHS and REACH compliant
- CE-Conformity according to 2014/30/EU

Specification notes

(1) IP 67 protection is given when the connector is locked. For proper function the gage port is vented to the atmosphere through the connector/cable assembly. Thus the cable end must have access to the ambient pressure.

(2) Available for pressure ranges from 1 bar (15 psi) absolute upwards only.

(3) When using devices with optional nickel plated fittings, consider the media compatibility of the fittings also.

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Maximum ratings

Parameter	Output	Min.	Typ.	Max.	Unit
Supply voltage V_s ⁽⁴⁾					
MTEB(M)8...0 / MTEP8...0	0...10 V	12		32	V
MTEB(M)8...7 / MTEP8...7	0...5 V	8		32	
MTEB(M)8...4 / MTEP8...4 ⁽⁵⁾	4...20 mA	7		32	
Maximum load current (voltage)					
				1	mA
Temperature limits					
Storage					
		-40		+85	
Operating (media)					
		-25		+85	°C
Electronic (ambient)					
		-25		+85	
Compensated					
		0		+70	
Vibration ⁽⁶⁾					
	5...2000 Hz			10	
Mechanical shock ⁽⁷⁾					
	11 ms			50	g

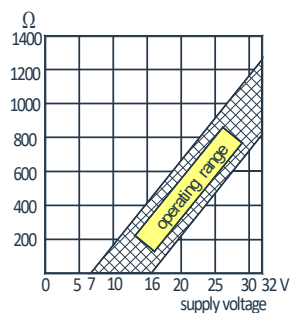
Pressure sensor characteristics

Part no.	Operating pressure	Unit	Proof pressure ⁽⁸⁾	Burst pressure	Unit
MTEM8250	0...250				
MTEM8350	0...350	mbar			
MTEM8500	0...500		2	3	
MTEB8001	0...1				
MTEB8N01	-1...1				
MTEB8P01	0...-1		4	6	bar
MTEB8002	0...2				
MTEB8005	0...5	bar	10	15	
MTEB8010	0...10		15	25	
MTEB8016	0...16				
MTEB8020	0...20		35	65	
MTEP8005	0...5				
MTEP8010	0...10		29	43	
MTEP8015	0...15				
MTEP8N15	-15...15				
MTEP8P15	0...-15	psi	58	87	psi
MTEP8030	0...30				
MTEP8100	0...100		217	362	
MTEP8200	0...200				
MTEP8300	0...300		507	942	

Load Limitation

4...20 mA output version

$$R_L \text{ max} = (V_s - 7 \text{ V}) / 20 \text{ mA}$$



Specification notes

- (4) Reverse polarity protection
- (5) The minimum supply voltage is directly proportional to the load resistance seen by the transmitter. For more details see the load limitation diagram.
- (6) According to IEC 60068-2-64.
- (7) According to IEC 60068-2-27.
- (8) Proof pressure is the maximum pressure which may be applied without causing damage to the sensing element.

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Common performance characteristics

($V_S=15\text{ V} \pm 0.1\text{ V}$, $T_A=25\text{ °C} \pm 1\text{ °C}$, RH=50% $\pm 10\%$)

Parameter		Min.	Typ.	Max.	Unit
Thermal effects ⁽⁹⁾ (0...70°C)	Offset	devices up to 1 bar / 15 psi	± 0.03	± 0.06	%FSO / °C
		all others	± 0.02	± 0.04	
Non-linearity (BSL), hysteresis ⁽¹⁰⁾ and repeatability	MTE...8N...		± 0.2	± 0.5	%FSO
	all others		± 0.1	± 0.3	
Long term stability ⁽¹¹⁾			± 0.1		%FSO
Output noise	(0 < f < 1 kHz)		± 0.1		
Response time	(10...90%)	devices up to 350 mbar / 5 psi	35		ms
		all others	5		
D/A resolution				11	bit
Power supply rejection	Offset		± 0.01		%FSO / V
	Span		± 0.02		

Individual performance characteristics

($V_S=15\text{ V} \pm 0.1\text{ V}$, $T_A=25\text{ °C} \pm 1\text{ °C}$, RH=50% $\pm 10\%$)

0...10 V output ($R_L > 100\text{ k}\Omega$)

Parameter		Min.	Typ.	Max.	Unit
Zero pressure offset	MTE...8N...	4.9	5	5.1	V
	all others		0	0.1	
Full scale span (FSS) ⁽¹²⁾	MTE...8N...	4.9	5	5.1	V
	all others	9.9	10	10.1	
Current consumption	(no load)		6		mA

0...5 V output ($R_L > 100\text{ k}\Omega$)

Parameter		Min.	Typ.	Max.	Unit
Zero pressure offset	MTE...8N...	2.45	2.5	2.55	V
	all others	0	0	0.05	
Full scale span (FSS) ⁽¹²⁾	MTE...8N...	2.45	2.5	2.55	V
	all others	4.95	5.0	5.05	
Current consumption	(no load)		6		mA

4...20 mA output ($R_L > 100\Omega$)

Parameter		Min.	Typ.	Max.	Unit
Zero pressure offset	MTE...8N...	11.9	12.0	12.1	mA
	all others	3.9	4.0	4.1	
Full scale span (FSS) ⁽¹²⁾	MTE...8N...	7.9	8.0	8.1	mA
	all others	15.9	16.0	16.1	

Specification notes

- (9) Thermal effects tested and guaranteed from 0...70°C relative to 25°C. All specifications shown are relative to 25°C. Signal is clamped at 0 V.
- (10) Non-linearity refers to Best Straight Line fit (BSL). Hysteresis is the maximum output difference at any point within the operating pressure range for increasing and decreasing pressure.

(11) Long term stability is the change in output after one year.

(12) Span is the arithmetic difference in transmitter output signal measured at zero pressure and the maximum operating pressure.

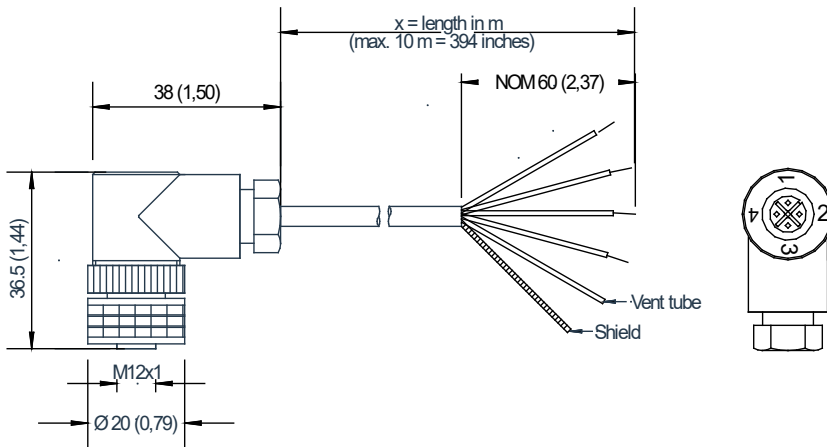
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Recommended accessories

(not included in delivery)

M12-Version

- ZP000112-B: Mating Connector (without cable)
 ZK000101-x: Connector/cable assembly (x=cable lengths in m, max. 10m)



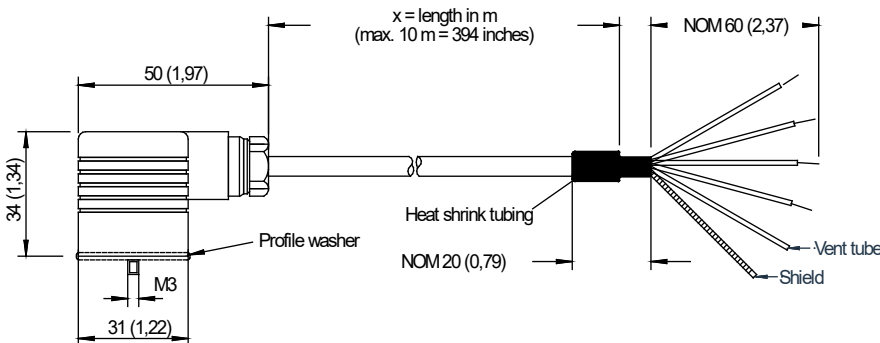
Note:
 For proper function of all gage devices the vent tube must have access to the ambient atmosphere.

Pin	Flying lead end
1	brown
2	green
3	white and bare
4	yellow

dimensions in mm (inches)

DIN-Version

- ZP004020 : Mating Connector DIN EN 175301-803A (without cable)
 ZP004030 : Profile washer
 ZK000110-x: Connector/cable assembly (x=cable lengths in m, max. 10m)



Note:
 For proper function of all gage devices the vent tube must have access to the ambient atmosphere.

Pin	Flying lead end
1	brown
2	yellow
3	green
	white and bare

dimensions in mm (inches)

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Ordering information

Series	Pressure range	Pressure mode	Pressure connection	Output signal	Sealing	Electrical connection
MTEM8250	0...250 mbar	G Gage ⁽¹⁾	Y G 1/8" male	0 0...10 V	N NBR	M M12x1 (A-coded)
MTEM8350	0...350 mbar	A Absolute ⁽²⁾	Q G 1/4" male DIN 3852-E	7 0...5 V	V FKM (Viton)	D DIN EN 175301-803A ⁽¹³⁾
MTEM8500	0...500 mbar		[M] [1/8" NPT male, SS 1.4404 (316L)] ⁽¹⁴⁾	4 4...20 mA		
MTEB8001	0...1 bar		[N] [1/4" NPT male, SS 1.4404 (316L)] ⁽¹⁴⁾			
MTEB8N01	-1...1 bar					
MTEB8P01	0...-1 bar					
MTEB8002	0...2 bar					
MTEB8005	0...5 bar					
MTEB8010	0...10 bar					
MTEB8016	0...16 bar					
MTEB8020	0...20 bar					
MTEP8005	0...5 psi					
MTEP8010	0...10 psi					
MTEP8015	0...15 psi					
MTEP8N15	-15...15 psi					
MTEP8P15	0...-15 psi					
MTEP8030	0...30 psi					
MTEP8100	0...100 psi					
MTEP8200	0...200 psi					
MTEP8300	0...300 psi					

Example: MTEB8N01GY4NM

Custom pressure ranges and other fittings are available on request. MOQ applies. Please contact First Sensor.

Specification notes

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(2) Available for pressure ranges from 1 bar (15 psi) absolute upwards only.

(13) Only available for pressure connection "Q".

(14) Only available on request.