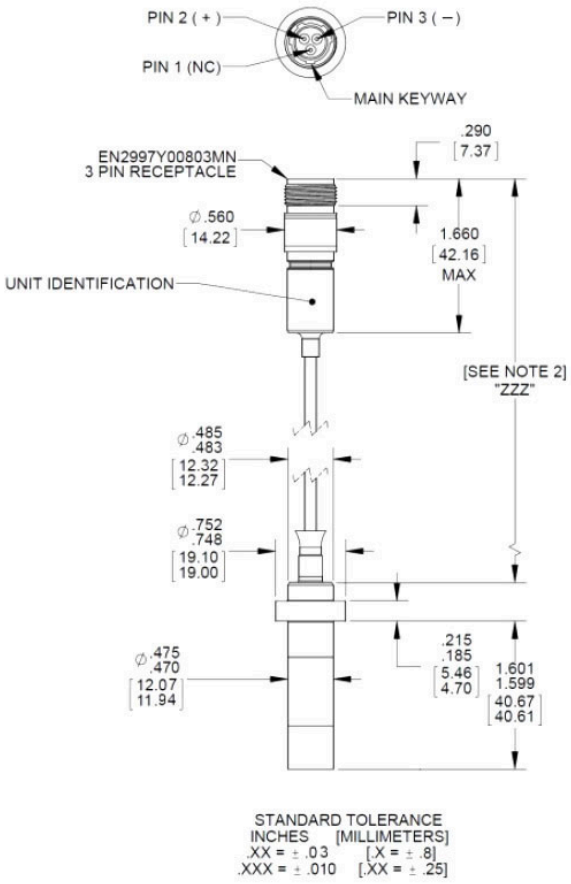
Piezoelectric dynamic pressure sensor

Model 522M37A



Key features

- +986°F (+530°C) operation; +1040°F (+560°C) intermittent operation
- Small dynamic pressure measurements even under high static pressure
- Balanced differential output
- Hermetically sealed
- Integral hardline cable
- All Inconel and stainless steel construction

Description

Meggitt model 522M37A is a high quality piezoelectric pressure sensor designed to measure small dynamic pressure fluctuations, even in the presence of high static pressure. The sensor can also operate at very high temperatures; up to +938°F continuously and up to +1040°F intermittently.

Model 522M37A features an all welded, Inconel and stainless steel construction with a metal-sheathed, mineral-insulated integral hardline cable. Output is via an integral three-pin (one pin not used) receptacle. The output signal is a balanced, differential signal. A differential input charge amplifier is appropriate for use with this sensor.

Common applications include: gas turbine combustion monitoring, high pressure steam and propulsion system testing.

Recommended compatible cables are the 6917M169-ZZZ, 6917M170-ZZZ and 6917M171-ZZZ or equivalent (ZZZ designates cable length in inches) which are low noise, twisted pair cable assemblies terminating to pigtail, BNC and PC06A-8-2P connector respectively.

Piezoelectric dynamic pressure sensor
Model 522M37A

Specifications

The following performance specifications conform to ISA-RP-37.2 and are typical values, referenced at +75°F (+24°C), 4 mA, and 100 Hz, unless otherwise noted. Calibration data, traceable to National Institute of Standards and Technology (NIST), is supplied.

Dynamic characteristics	**Units**	**522M37A**
Measurement range	psi	± 500
Sensitivity	pC/psi	17 ± 20%
Resonance frequency, minimum	kHz	20
Sensitivity deviation over temperature		
-67°F to +986°F (-55°C to +530°C)	%	± 10 typical
Vibration sensitivity	pC/g	0.05 typical
Electrical characteristics		
Output signal type		Balanced differential
Resistance		
Room temperature, +75˚F (+24˚C)		
Internal (between pins 2 and 3)	Ω	1 G minimum
Insulation (between pins 2 or 3 and case)	Ω	100 M minimum
Maximum temperature, +986°F (+530°C)		
Internal	Ω	50 k minimum
Insulation	Ω	10 k minimum
Capacitance (between pins 2 and 3)	pF	165 + 65 pF/ft
Environmental characteristics		
Temperature range, operating		
Transducer and hardline cable		
Continuous	°F (°C)	-67 to +986 (-55 to +530)
Maximum intermittent exposure [1]	°F (°C)	+1040 (+560)
Receptacle [2]	°F (°C)	-67 to +500 (-55 to +260)
Humidity		Hermetically sealed
Maximum static pressure	psi	400
Minimum bend radius of hardline cable	inch	0.3
Physical characteristics		
Dimensions		See outline drawing
Weight	grams (oz)	18 (0.64) + 13 (0.46)/ft typical
Material		
Transducer		Inconel alloy
Hardline cable and receptacle		Stainless steel
Calibration data supplied		
Sensitivity	pC/psi	
Internal resistance	Ω	
Insulation resistance	Ω	
Capacitance	pF	

Piezoelectric dynamic pressure sensor

Model 522M37A

Notes

1. Intermittent temperature exposure is defined as 5 minutes over a 30 minute period.
2. For short cable lengths, provision must be made to ensure receptacle is not exposed to temperatures greater than +500°F (+260°C). Minimum cable length is 12 inches. Cable length "ZZZ"is in inches and is determined by model dash number, i.e. 522M37A-120 has a cable length of 120 inches.

522M37A – ZZZ

- ZZZ: Integral hardline cable length in inches
- 522M37A: Basic Model Number