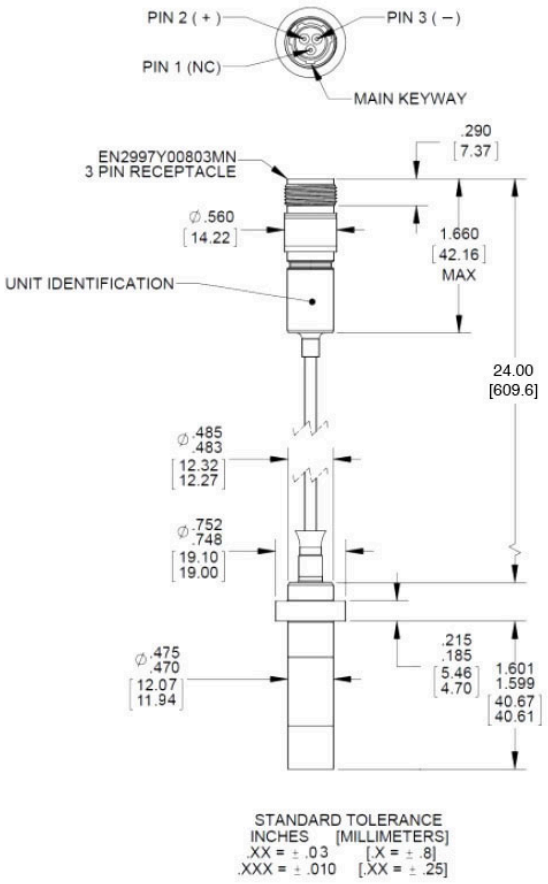
Piezoelectric dynamic pressure sensor

Model 522M35A



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 522M35A 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 522M35A features an all welded, Inconel and stainless steel construction with a 24 inch 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. The unit with its mating cable is certified EExnA II T1-20°C <Tamb <399°C for use in explosive environments.

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.

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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**	**522M35A**
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)	250 (8.8)
Material		
Transducer		Inconel alloy
Hardline cable and receptacle		Stainless steel
Calibration data supplied		
Sensitivity	pC/psi	
Internal resistance	Ω	
Insulation resistance	Ω	
Capacitance	pF	

Notes

1. Intermittent temperature exposure is defined as 5 minutes over a 30 minute period.