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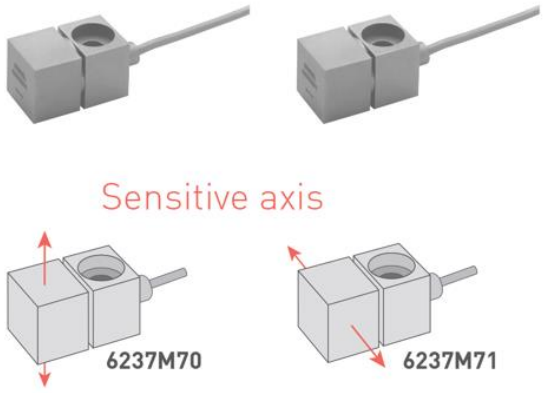
MEGGiTT

DATA SHEET

Extreme High Temperature Piezoelectric Accelerometer (EHTPE)

Model 6237M70/6237M71



01 Description

The Meggitt Model 6237M70 and 6237M71 piezoelectric accelerometers are designed specifically for use in extremely high temperature environments such as aircraft and ground-based gas turbines. These accelerometers are designed for continuous operation at +1200°F (+650°C) with long Mean Time Between Failure (MTBF). The small size and light weight of these accelerometers permit installation in cramped locations with minimal structural support. The accelerometer is a self-generating device that requires no external power source for operation.

Models 6237M70/M71 incorporate Meggitt's crystal in a shear design. The 6237M70 and 6237M71 differ in their internal design and in the direction of the sensitive axis. The 6237M70 has its sensitiveaxis located in line with the mounting screw, while the 6237M71 is oriented perpendicular, or transverse, to the mounting screw. The sensing elements and integral shield are isolated from the case. These accelerometers feature an integral hardline cable with a standard length of 120 inches (3.05 meters). Other cable lengths are also available on special order.

Model number definition:
6237MXX-ZZZ
6237MXX= basic model number
ZZZ = cable length in inches

02 Key features and benefits

- +1200°F (+650°C) operation
- Integral hardline cable
- Single bolt mount
- Ground Isolated

03 Applications

- Gas Turbine Testing
- Test cell

04 Contact

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EXTREME HIGH TEMPERATURE PE ACCELEROMETER, Model 6237M70/6237M71

05 Specifications

The following performance specifications are typical values, referenced at +75°F (+24°C) unless otherwise noted.

Dynamic characteristics	Units	6237 M70/M71
Charge sensitivity, ±5%	pC/g (pC / m/s²)	10 (1.02)
Frequency response [1]		See typical amplitude response
Resonance frequency	kHz	11
Amplitude response [2]		
±5%	Hz	1 to 3000
±1 dB	Hz	1 to 5000
Temperature response [3]		
+600°F (+315°C) max/min	%	+15 / +2
+1000°F (+537°C) max/min	%	+22 / +5
+1200°F (+650°C) max/min	%	+22 / +5
Transverse sensitivity	%	≤ 5
Amplitude linearity		
per 500 g, 0 to 2000 g	%	1
Electrical characteristics		
Output polarity		Acceleration directed into base of unit produces positive output
Resistance at +1200˚F (+650˚C) [4]	kΩ	≥ 10
Isolation at +1200˚F (+650˚C)	kΩ	≥ 500
Hardline cable resistivity		
two places at +1200˚F (+650˚C)	kΩ-ft (kΩ-m)	100 (30.5)
Capacitance		
transducer (excluding cable)	pF	60
hardline cable capacitance	pF/ft (pF/m)	100 (328) (center conductor to inner shield)
Grounding		Signal return isolated from case
Environmental characteristics		
Temperature range		
transducer/hardline cable [5]		-67˚F to +1200˚F (-55˚C to +650˚C)
Connector		-67˚F to +500˚F (-55˚C to +260˚C)
Humidity		
transducer/cable		Open to environment via vent hole in splash protected area
connector		Epoxy sealed, non-hermetic
Sinusoidal vibration limit	g pk (m/s² pk)	500 (4900)
Shock limit	g pk (m/s² pk)	2000 (19 600)
Physical characteristics		
Dimensions		See outline detail
Weight (excluding cable)	oz (gm)	1.1 (30)
Case material		Inconel
Hardline cable [6]		Triaxial, 0.095 inch (2.4 mm) diameter
Connector [7]		Coaxial receptacle
Mounting torque	lbf-in (Nm)	18 (2)
Calibrations		
Charge sensitivity	pC/g	
Frequency Response	%	50 Hz to 2000 Hz
Transverse sensitivity	%	
Capacitance (@1000Hz)	pF	

Accessories

SUPPLIED: EH471 MOUNTING SCREW, 10-32 X .75 in, 12 PT
OPTIONAL: Model 1001-ZZZ cable assembly, for under +550˚F (288°C)
OPTIONAL: Model 1772-2 Remote charge converter
OPTIONAL: Thermal Isolator Pad EM3241, EH875 Mounting Screw [reduces temp 200˚F (93°C) for approximately 30 minutes)

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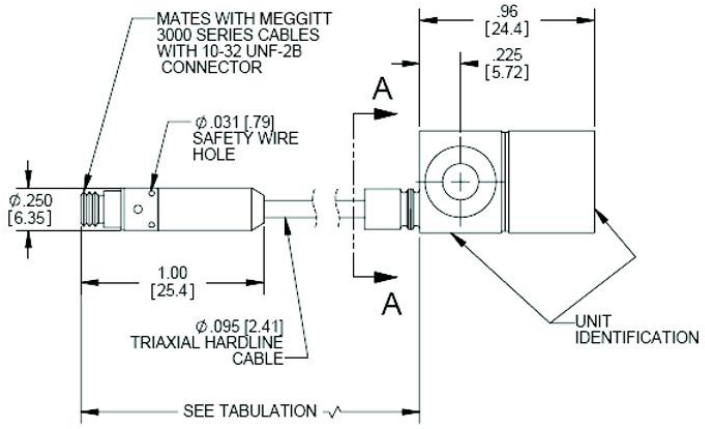
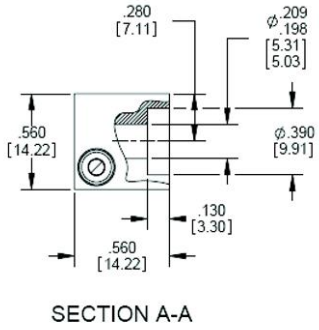
06 Outline details



TABULATION	
CABLE LENGTH	TOLERANCE
UP TO 72 [1829]	±2.00 [51]
73 [1854] TO 144 [3658]	± 4.00 [102]
OVER 144 [3658]	± 4.00 [102] PER 144 [3658] OR PORTION THEREOF



SECTION A-A

Notes:

1. Frequency response is controlled by the resonance characteristics of the transducer. Estimated calibration errors are ±1.5% to 900 Hz and 2.5% from 900 Hz to 5000 Hz.
2. Low-end response of the transducer is a function of its associated electronics.
3. Spurious high frequency discharge may be exhibited by this device for several minutes after exposure to temperature transients of greater than+100°F (+38°C) per minute.
4. The electrical resistance of piezoelectric materials decreases with an increase in temperature and can approach 10 000Ω at +1200°F (+650°C).
5. For cable lengths of less than 12 inches (0.30 m), the maximum operating temperature is +500°F (+260°C). The temperature charge deviation at+500°F (+260°C) is typically +8%.
6. Hardline triaxial cable is Inconel jacketed, mineral oxide insulated.
7. Coaxial connector with 10-32 threads is designed to mate with Meggitt 1001 cable assemblies. Receptacle must be handled with care.