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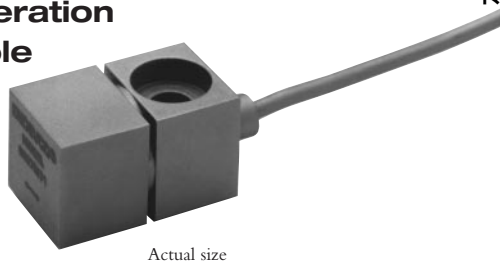
Piezoelectric Accelerometer

北京赛斯维测控技术有限公司
北京市朝阳区望京西路48号
金隅国际C座1002
电话：+86 010 8477 5646
传真：+86 010 5894 9029

ENDEVCO MODEL 6237M70/ M71

Model 6237M70/M71

- +1200°F (+650°C) Operation
- Integral Hardline Cable
- Single Bolt Mount
- Ground Isolated
- Gas Turbine Testing



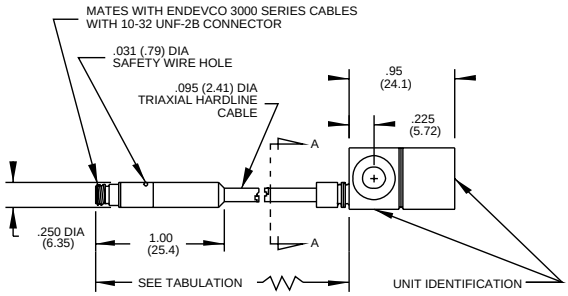
Actual size

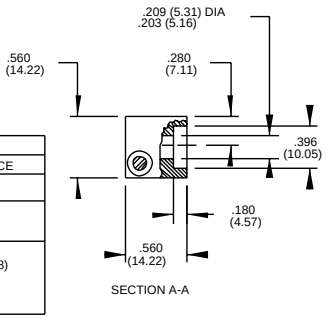
DESCRIPTION

The ENDEVCO® Model 6237M70 and 6237M71 piezoelectric accelerometers are designed specifically for use in extremely high temperature environments such as those experienced on aircraft gas turbines. These accelerometers are designed for continuous operation at +1200°F 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 ENDEVCO's PIEZITE® Type P-15 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 sensitive axis 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. Other cable lengths are also available on special order.

ENDEVCO Signal Conditioner Model 2721B is recommended for use with this high impedance accelerometer.

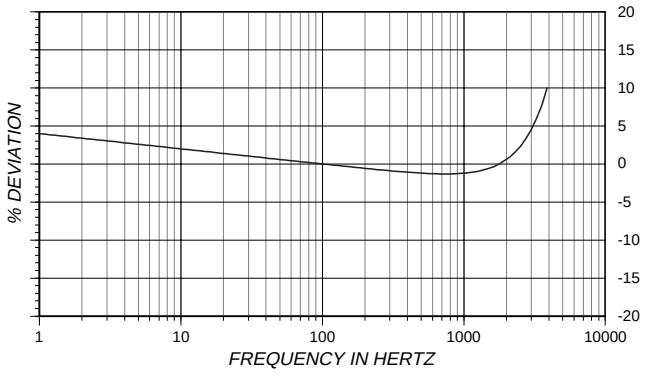




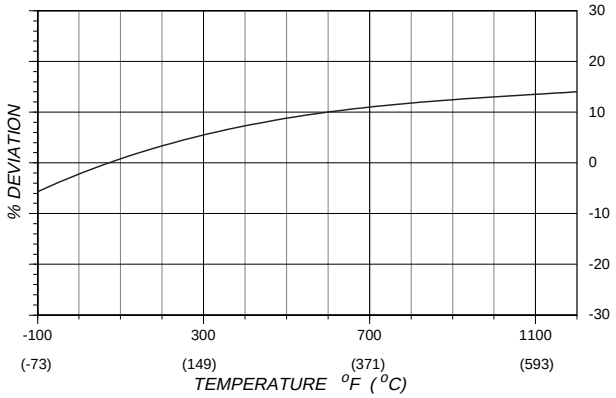
TABULATION	
CABLE LENGTH	TOLERANCE
UP TO 72 (1829)	+/- 2.00 (51)
73 (1854) TO 144 (3658)	+/- 4.00 (102)
OVER 144 (3658)	+/- 4.00 (102) PER 144 (3658) OR PORTION THEREOF

STANDARD TOLERANCE
INCHES (MILLIMETERS)
.XX = +/- .02 (.X = +/- .5)
.XXX = +/- .010 (.XX = +/- .25)

TYPICAL AMPLITUDE RESPONSE



TYPICAL TEMPERATURE RESPONSE



ENDEVCO MODEL 6237M70/ M71

Piezoelectric Accelerometer

SPECIFICATIONS

The following performance specifications conform to ISA-RP-37.2 (1964) and are typical values, referenced at +75°F (+24°C) and 100 Hz, unless otherwise noted. Calibration data, traceable to National Institute of Standards and Technology (NIST), is supplied.

DYNAMIC CHARACTERISTICS	Units	
CHARGE SENSITIVITY, ±5%	pC/g	10
FREQUENCY RESPONSE [1]		See Typical Amplitude Response
RESONANCE FREQUENCY	kHz	11
AMPLITUDE RESPONSE [2]		
±5%	Hz	2 to 3000
±1dB	Hz	1 to 5000
TEMPERATURE RESPONSE [3]		See Typical Curve
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 at center socket of receptacle
RESISTANCE [4]		
At +1200°F (+650°C)	kΩ	≥ 10
ISOLATION		
At +1200°F (+650°C)	kΩ	≥ 500
HARDLINE CABLE RESISTIVITY Two places at +1200°F (+650°C)	kΩ-ft	100
CAPACITANCE		
TRANSDUCER (Excluding cable)	pF	60
HARDLINE CABLE CAPACITANCE Center conductor to inner shield	pF/ft (pF/m)	100 (328)
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	500
SHOCK LIMIT	g	2000

PHYSICAL CHARACTERISTICS		
DIMENSIONS		See Outline Drawing
WEIGHT (Excluding cable)	gm (oz)	30 (1.1)
CASE MATERIAL		Inconel
HARDLINE CABLE		Triaxial, 0.095 inch diameter, Inconel jacketed, mineral oxide insulated
CONNECTOR		Coaxial receptacle with 10-32 UNF threads designed to mate with ENDEVCO 3000 Series Cable Assembly or equivalent. Receptacle must be handled with care
MOUNTING TORQUE	lbf-in (Nm)	18 (2)

CALIBRATION	
SUPPLIED:	
CHARGE SENSITIVITY	pC/g
TRANSVERSE SENSITIVITY	%
CAPACITANCE	pF

ACCESSORY

P/N EH471 MOUNTING SCREW, 10-32 x 0.75 in, 12 pt

OPTIONAL

MODEL 3090C-XXX CABLE ASSEMBLY

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. Maintain high levels of precision and accuracy using Endevco's factory calibration services. Call Endevco's inside sales force at 800-982-6732 for recommended intervals, pricing and turn-around time for these services as well as for quotations on our standard products.

Continued product improvement necessitates that Endevco reserve the right to modify these specifications without notice. Endevco maintains a program of constant surveillance over all products to ensure a high level of reliability. This program includes attention to reliability factors during product design, the support of stringent Quality Control requirements, and compulsory corrective action procedures. These measures, together with conservative specifications have made the name Endevco synonymous with reliability.

ENDEVCO CORPORATION, 30700 RANCHO VIEJO ROAD, SAN JUAN CAPISTRANO, CA 92675 USA (800) 982-6732 (949) 493-8181 fax (949) 661-7231
www.sensorway.cn
Email:applications@endevco.com