Piezoresistive Accelerometer

ENDEVCO MODEL 7270AM6

Model 7270AM6

- **Near-Field Shock**
- **Mechanical Filter**
- **6000 to 60 000 g Full Scale**
- **DC Response**
- **Rugged**



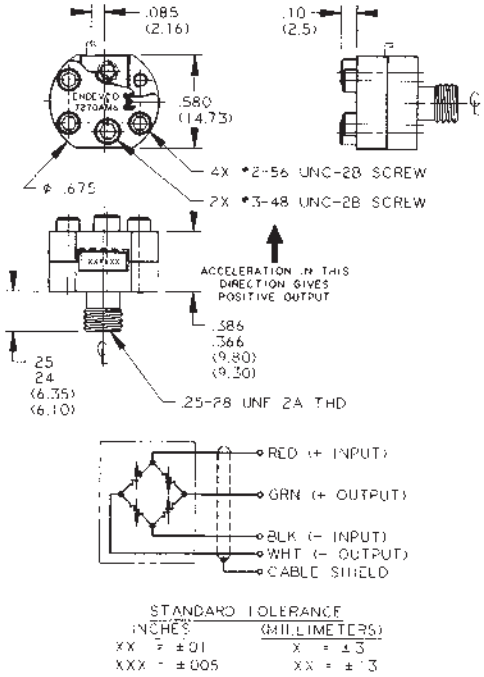
Actual size

DESCRIPTION

The ENDEVCO® Model 7270AM6 series of piezoresistive accelerometers are rugged units with built-in mechanical filters designed for shock measurements. The mechanical filter assembly is designed to mitigate the high frequency content of a shock pulse in order to protect the accelerometer sensor from high g, high frequency inputs that would otherwise exceed the over-range limits. The Model 7270A-XXM6 is available in ranges of 6000 to 60 000g Full Scale.

Developed by Sandia National Laboratories, the mechanical isolator consists of an aluminum housing lined with two layers of elastomer filter that cushions the Model 7270A Piezoresistive Accelerometer. With the elastomer on both sides of the accelerometer, the response is the same to both positive and negative accelerations. The mechanical filter used in the Model 7270A-XXM6 features a damped output with a linear phase shift. The unit is usable over the frequency range from DC to 10 kHz for the temperature range of -30 to +150°F (-34 to +66°C).

The Endevco Model 136 Three-Channel Signal Conditioner, OASIS 2000 Computer-Controlled System or Model 4430A Bridge Signal Conditioner are recommended as signal conditioner and power supply.



U.S. Patents 4,498, 229, 4,605,919 and 4,689,600

SPECIFICATIONS

PERFORMANCE CHARACTERISTICS: All values are typical at +75°F (+24°C), 100 Hz and 10 Vdc excitation unless otherwise stated. Calibration data, traceable to the National Institute of Standards (NIST), is supplied.

	Units	-6KM6	-20KM6	-60KM6
RANGE [1]	g pk	±6000	20 000	±60 000
SENSITIVITY	µV/g	30 +20/-15	10 ±5	3 +2/-1.5
AMPLITUDE RESPONSE [2] ±5%	kHz	0 to 10	0 to 10	0 to 10
NON-LINEARITY (% of reading, to full range)	% Max	±2, up to acceleration corresponding to the recommended range. Measurement uncertainties prevent stating this as a specification limit above 10 000 g.		
TRANSVERSE SENSITIVITY	% Typ	5	5	5
ZERO MEASURAND OUTPUT	mV Max	±100	±100	±100

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SPECIFICATIONS—continued

PERFORMANCE CHARACTERISTICS--continued

	Units	-6KM6	-20KM6	-60KM6
THERMAL ZERO SHIFT				
From -30°F to +150°F (-34°C to +66°C)	mV Max	±50	±50	±50
THERMAL SENSITIVITY SHIFT				
From -30°F and +150°F (-34°C and +66°C)	% Max	±10	±10	±10
OVERRANGE LIMIT	g pk	±18 000	±60 000	±100 000
WARM-UP TIME	Minutes Max	2	2	2
	Seconds (Typ)	(15)	(15)	(15)

ELECTRICAL	
EXCITATION	10.0 Vdc, 12 Vdc maximum
INPUT RESISTANCE	650 ±300 ohms
OUTPUT RESISTANCE	650 ±300 ohms
INSULATION RESISTANCE	100 megohms minimum at 100 Vdc; between sensor, cable shield and case
PHYSICAL	
CASE, MATERIAL	Stainless Steel (17-4 PH CRES)
ELECTRICAL, CONNECTIONS	Integral cable, 4 conductor No. 36 AWG Teflon® insulated leads, braided shield, flourocarbon jacket
IDENTIFICATION	Manufacturer's logo, model number and serial number
MOUNTING/TORQUE [1]	75 lbf-in (8.4 Nm)
WEIGHT	8.4 grams excluding cable (cable weighs 3.6 grams/meter)
ENVIRONMENTAL	
ACCELERATION LIMITS	±100 000 g half sine pulse or three times the recommended range, in any direction, whichever is smaller. Pulse duration should be the greater of 20 microseconds or five periods of the resonance frequency
TEMPERATURE	
Operating	-30°F to +150°F (-34°C to +66°C)
Storage	-65°F to +250°F (-54°C to +121°C)
HUMIDITY	Unaffected. Unit is epoxy sealed
ALTITUDE	Unaffected
CALIBRATION DATA SUPPLIED	
SENSITIVITY [5]	µV/g at 5000 g

ACCESSORY

31290	WRENCH

OPTIONAL ACCESSORIES

25034	4 CONDUCTOR SHIELDED CABLE
32103	TRI-AXIAL MOUNTING BLOCK

NOTES

1. Loctite should be applied to mounting stud before installation. Recommended mounting torque should be applied to bottom half of unit.
2. 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.

INTERTECHNOLOGY INC.
1-800-465-1600
1 Scarsdale Road
Don Mills, ON M3B 2R2
Tel: 416-445-5500
Fax: 416-445-1170
E-Mail: sales@intertechnology.com