

# Piezoelectric Accelerometer

**ENDEVCO  
MODEL  
7221A**

## Model 7221A

- 360° Cable Orientation
- Hermetically Sealed
- To +400°F (+204°C)
- Requires No External Power
- General Purpose, Aerospace Applications



Actual size

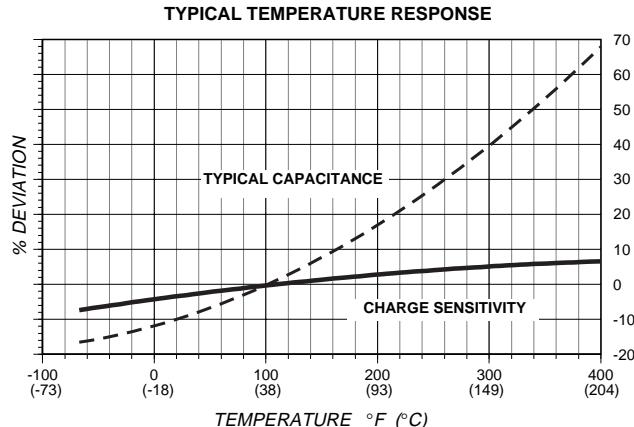
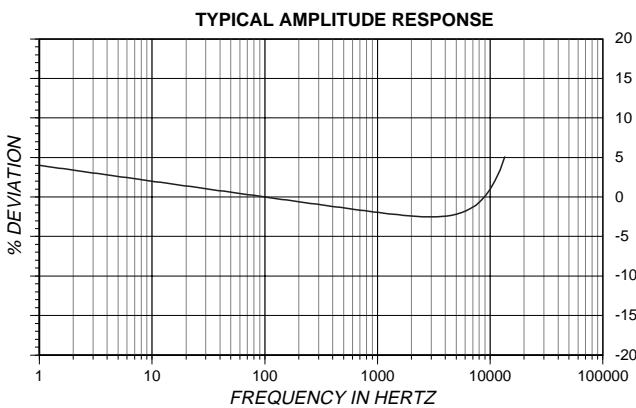
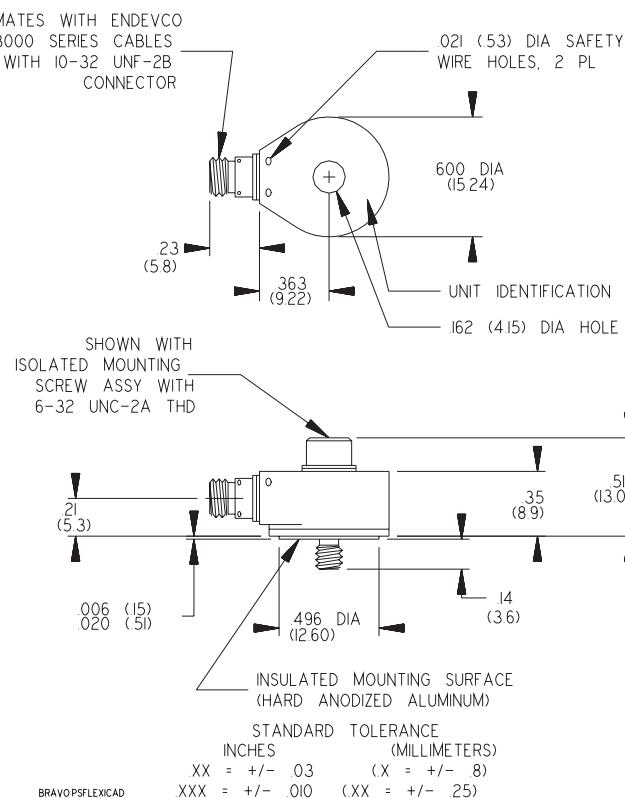


## DESCRIPTION

The ENDEVCO® Model 7221A is a small, piezoelectric accelerometer designed specifically for general vibration measurement. The accelerometer offers wide bandwidth and operational temperature range, it is also hermetically sealed for high reliability. Its light weight (10.5 gm) effectively minimizes mass loading effects on small structures. This accelerometer is a self-generating device that requires no external power source for operation.

The Model 7221A features ENDEVCO's PIEZITE® Type P-8 crystal element, operating in annular shear mode, which exhibits low base strain sensitivity and excellent output stability over time. Signal ground is connected to the outer case of the unit. When used with an isolated mounting screw, it is electrically isolated from ground. The centrally located mounting bolt permits 360° cable orientation, a very desirable feature in many applications. The supplied low-noise coaxial cable is required for error-free operation.

ENDEVCO Signal Conditioner Models 133, 2775A or OASIS 482A, 433, 428 are recommended for use with this accelerometer.



# 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		
TYPICAL	pC/g	10
FREQUENCY RESPONSE		See Typical Amplitude Response
RESONANCE FREQUENCY	kHz	45
AMPLITUDE RESPONSE [1]		
± 5%	Hz	1 to 10 000
± 1dB	Hz	.1 to 12 000
TEMPERATURE RESPONSE		See Typical Curve
TRANSVERSE SENSITIVITY	%	≤ 5
AMPLITUDE LINEARITY [2]	%	1
Per 350 g, 0 to 2000 g		

## ELECTRICAL CHARACTERISTICS

OUTPUT POLARITY		Acceleration directed into base produces positive output.
RESISTANCE	GΩ	≥ 20
ISOLATION	MΩ	≥ 10
CAPACITANCE	pF	850
GROUNDING		Signal ground connected to case and isolated from mounting surface by insulated screw assembly.

## ENVIRONMENTAL CHARACTERISTICS

TEMPERATURE RANGE		-67°F to + 400°F (-55°C to +204 °C)
HUMIDITY		Hermetically sealed
SINUSOIDAL VIBRATION LIMIT	g pk	1000
SHOCK LIMIT	g pk	5000
BASE STRAIN SENSITIVITY	equiv. g pk/μ strain	0.04
THERMAL TRANSIENT SENSITIVITY	equiv. g/F (°C)	0.004 (0.007)

## PHYSICAL CHARACTERISTICS

DIMENSIONS		See Outline Drawing
WEIGHT	gm (oz)	10.5 (0.37)
CASE MATERIAL		Stainless steel
CONNECTOR		10-32 receptacle, mates with Endevco 3000 series cable.
MOUNTING TORQUE [3]	lbf-in (Nm)	10 (1.1)

## CALIBRATION

SUPPLIED:		
CHARGE SENSITIVITY	pC/g	
CAPACITANCE	pF	
MAXIMUM TRANSVERSE SENSITIVITY	%	
FREQUENCY RESPONSE	%	20 Hz to 10 kHz

## ACCESSORIES

Model 3090C-120 (10 ft)	CABLE ASSEMBLY
P/N 10207	ISOLATED MOUNTING SCREW ASSY, 6-32
P/N EHM49	ALLEN WRENCH, 7/64 INCH

## OPTIONAL ACCESSORIES

Model 2987	ADHESIVE MOUNTING ADAPTOR
Model 2771AM3	IN-LINE CHARGE CONVERTOR FOR USE WITH CONSTANT CURRENT SOURCE
Model 2950M3	TRIAXIAL MOUNTING BLOCK

## NOTES

1. Low-end response of the transducer is a function of its associated electronics.
2. Short duration shock pulses, such as those generated by metal-to-metal impacts, may excite transducer resonance and cause linearity errors. Send for TP290 for more details.
3. Mounting torque for use with optional mounting screws, or

4. equivalent 6-32 screw.
4. 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.



Optional In-Line Charge Convertor, Model 2771AM3

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.