

# Piezoelectric Accelerometer

**ENDEVCO  
MODEL  
2223D**

## Model 2223D

- Triaxial
- Light Weight (41 gm)
- Ground Isolated
- 12 pC/g
- General Purpose and Package-Testing



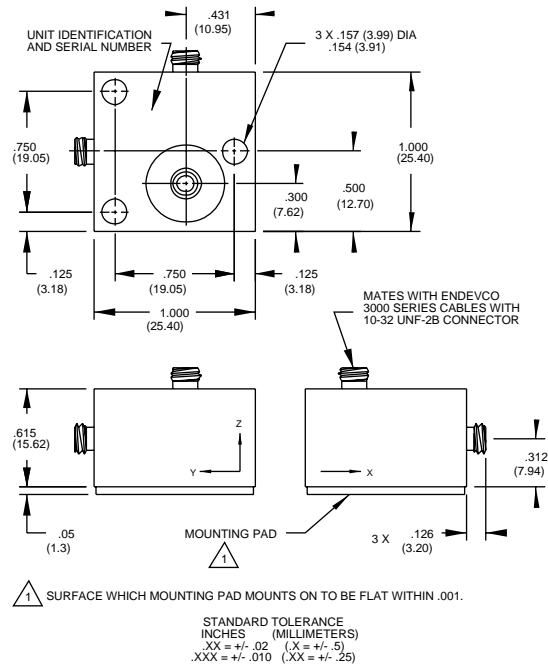
Actual size

### DESCRIPTION

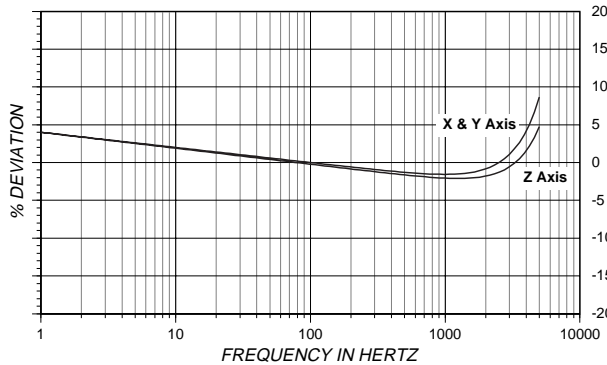
The ENDEVCO® Model 2223D is a triaxial piezoelectric accelerometer designed specifically for vibration measurement of three orthogonal axes on small structures and objects. Its light weight (41 gm) effectively minimizes mass loading. All three individual sensors are isolated from each other and from the mounting surface by a hard anodized isolator. The accelerometer is a self-generating device that requires no external power source for operation.

The Model 2223D features ENDEVCO's PIEZITE® Type P-8 crystal element operating in annular shear mode. This device exhibits excellent output sensitivity stability over time. Low-noise coaxial cables are supplied for error-free operation.

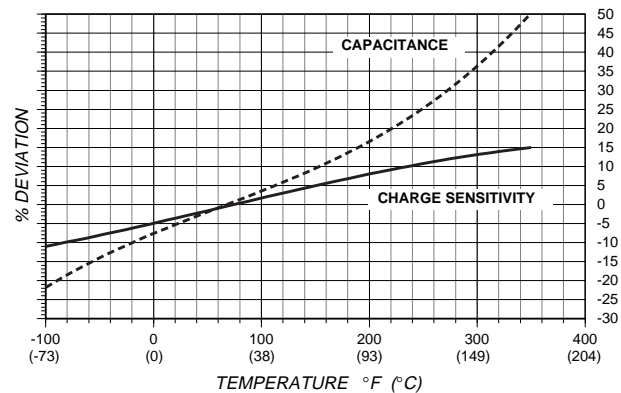
ENDEVCO Signal Conditioner Models 133, 2775A or OASIS 2000 Computer-Controlled System are recommended for use with this high impedance accelerometer.



TYPICAL AMPLITUDE RESPONSE



TYPICAL TEMPERATURE RESPONSE



# 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	12
MINIMUM	pC/g	9.5
FREQUENCY RESPONSE	See Typical Amplitude Response	
RESONANCE FREQUENCY		
X and Y Axis	kHz	14
Z Axis	kHz	28
AMPLITUDE RESPONSE [1]		
±5% (x,y)	Hz	1 to 3000
±5% (z)	Hz	1 to 6000
±1dB (x,y)	Hz	.5 to 3000
±1dB (z)	Hz	.5 to 6000
TEMPERATURE RESPONSE	See Typical Curve	
TRANSVERSE SENSITIVITY	%	≤ 5
AMPLITUDE LINEARITY [4]	%	1
Per 250 g, 0 to 1000 g		

## ELECTRICAL CHARACTERISTICS

OUTPUT POLARITY	Markings on unit indicate direction of positive output for each axis	
RESISTANCE	GΩ	≥ 10
ISOLATION [2] [3]	MΩ	≥ 1
CAPACITANCE	pF	800
GROUNDING [2] [3]	Signal return isolated from mounting surface	

## ENVIRONMENTAL CHARACTERISTICS

TEMPERATURE RANGE	-67°F to +350°F (-55°C to +177°C)	
HUMIDITY	Epoxy sealed, non-hermetic	
SINUSOIDAL VIBRATION LIMIT	g pk	1000
SHOCK LIMIT	g pk	2000 in any direction
BASE STRAIN SENSITIVITY	equiv. g pk/μ strain	0.002
THERMAL TRANSIENT SENSITIVITY	equiv. g pk/°F (°C)	0.002 (0.004)
ELECTROMAGNETIC SENSITIVITY	equiv. g rms/gauss	0.01

## PHYSICAL CHARACTERISTICS

DIMENSIONS	See Outline Drawing	
WEIGHT	gm (oz)	41 (1.5)
CASE MATERIAL	Aluminum alloy, hard anodize	
CONNECTOR	10-32 NF-2A thread, mates with Endevco 3000 Series Cable	
MOUNTING TORQUE	lbf-in (Nm)	8 (1)

## CALIBRATION

SUPPLIED:		
CHARGE SENSITIVITY	pC/g	All three axes
MAXIMUM TRANSVERSE SENSITIVITY	%	All three axes
FREQUENCY RESPONSE		
X and Y axis	%	20 to 3000 Hz
Z axis	%	20 to 6000 Hz
	dB	Through resonance

## ACCESSORIES

Model 3090C-120(10 ft) CABLE ASSEMBLY, Three each  
P/N 14891 INSULATED SCREW, 4-40 x 7/8 in

## OPTIONAL ACCESSORIES

Model 2771AM3 IN-LINE CHARGE CONVERTOR FOR  
USE WITH CONSTANT CURRENT  
SOURCE

## NOTES

- Low-end response of the transducer is a function of its associated electronics.
- The three sensing elements are electrically isolated from each other and from the mounting surface. The X axis signal ground is connected to the transducer case to provide electrostatic

- shielding for all three sensors.
- Insulated mounting screws (3 supplied, 4-40 x 7/8 in) must be used to ensure transducer isolation from the mounting surface.
- 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.
- 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.