

# Piezoelectric Accelerometer

**ENDEVCO  
MODEL  
2228C**

## Model 2228C

- Triaxial
- Ground Isolated
- Light Weight (15 gm)
- Requires No External Power
- Vibration Measurement in Three Orthogonal Axis

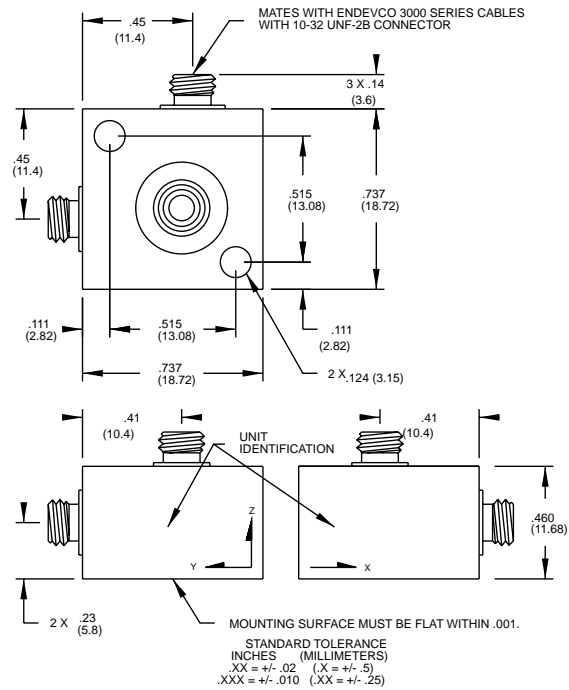


### DESCRIPTION

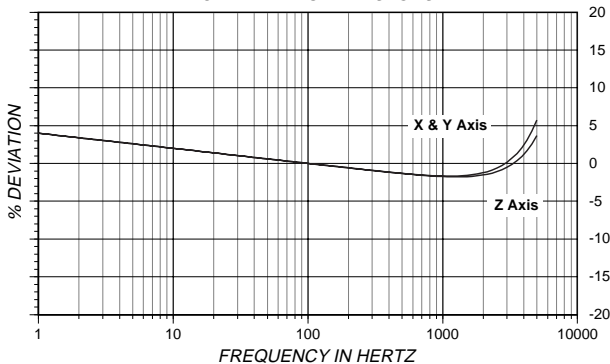
The ENDEVCO® Model 2228C is a small triaxial piezoelectric accelerometer designed specifically for vibration measurement in three orthogonal axes on small structures and objects. The transducer features three 10-32 receptacles for output connection and can be screw or adhesively mounted. Its light weight (15 gm) effectively minimizes mass loading. The accelerometer is a self-generating device that requires no external power source for operation.

The Model 2228C features ENDEVCO's PIEZITE® Type P-8 crystal elements, operating in annular shear mode, this unit exhibits excellent output sensitivity stability over time. Signal ground is isolated from the mounting surface of the unit. Low-noise, flexible coaxial cables are supplied for error-free operation.

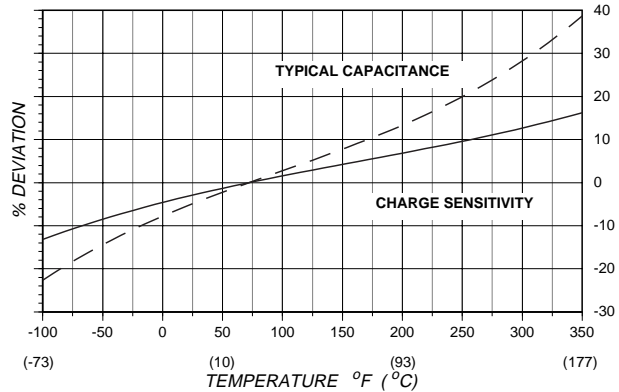
ENDEVCO Signal Conditioner Models 133, 2775A or OASIS 2000 Computer-Controlled System are recommended for use with this high impedance accelerometer.



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	2.8
MINIMUM	pC/g	2.2
FREQUENCY RESPONSE		
RESONANCE FREQUENCY	kHz	21 (Typical)
AMPLITUDE RESPONSE [1]		
±5%	Hz	1 to 4000
±1dB	Hz	.5 to 4000 (x,y) .5 to 5000 (z)
TEMPERATURE RESPONSE		
See Typical Curve		
TRANSVERSE SENSITIVITY	%	≤ 5
AMPLITUDE LINEARITY [2]	%	1
Per 500 g, 0 to 2000 g		

## ELECTRICAL CHARACTERISTICS

OUTPUT POLARITY	Acceleration applied in the direction of the arrow the unit produces positive output	
RESISTANCE	GΩ	≥ 10
ISOLATION	MΩ	≥ 10
Signal ground to each signal ground and to mounting surface		
CAPACITANCE	pF	400
GROUNDING		
Each sensor is isolated from the anodized aluminum case		

## 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
ELECTROMAGNETIC SENSITIVITY	equiv. g rms/gauss	0.01

## PHYSICAL CHARACTERISTICS

DIMENSIONS		
See Outline Drawing		
WEIGHT	gm (oz)	15 (0.53)
CASE MATERIAL		
Aluminum alloy case, nickel alloy sensors		
CONNECTOR		
Mates with Endevco 3060 Series Cable		
MOUNTING/TORQUE	lbf-in (Nm)	8 (1)

## CALIBRATION

SUPPLIED:		
CHARGE SENSITIVITY	pC/g	
CAPACITANCE	pF	
MAXIMUM TRANSVERSE SENSITIVITY		
%		
CHARGE FREQUENCY RESPONSE	%	20 to 4000 Hz
	dB	thru resonance (Z axis only)

## ACCESSORIES

Model 3060A-120 (10 ft) CABLE ASSEMBLY, Three Each [3]  
P/N EH156 4-40 X 5/8 SOCKET HEAD CAP SCREWS,  
TWO EACH  
P/N EHW79 NO. 4 FLAT WASHER, TWO EACH  
P/N EHM464 HEX WRENCH

## 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.
- 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.
- Flexible cable, such as the supplied 3060A, should be used to minimize cable-strain errors.

- Adhesives such as petro-wax, hot-melt glue, and cyanoacrylate epoxy (super glue) may be used to mount the accelerometer temporarily to the test structure. An adhesive mounting kit (P/N 31849) is available as an option from Endevco. To remove an epoxy-mounted accelerometer, first soften the epoxy with an appropriate solvent and then twist the unit off with the supplied removal wrench. Damage to sensors caused by inappropriate removal procedures are not covered by Endevco's warranty.
- 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.