

# Piezoelectric Accelerometer

## Model 2230E, 2230EM1

- Miniature High Temperature Triaxial (+260°C)
- Light Weight (17 gm)
- Case Grounded
- High Temperature, Aerospace/Industrial/Automotive

**ENDEVCO  
MODEL  
2230E/  
2230EM1**



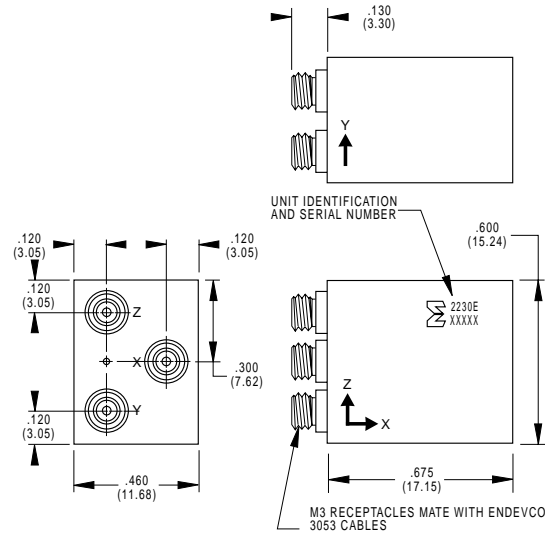
Actual size

### DESCRIPTION

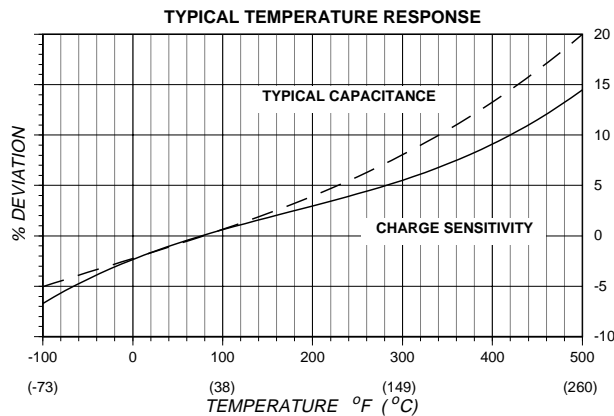
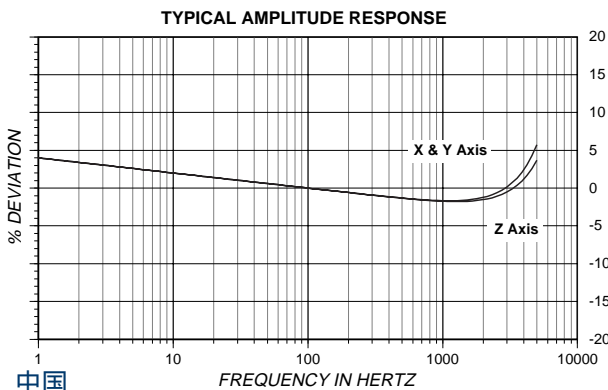
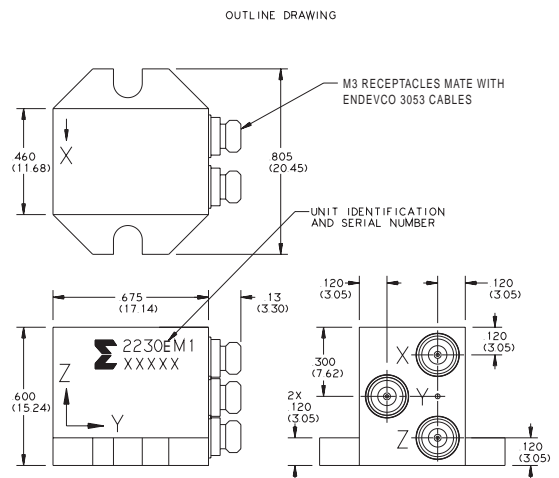
The ENDEVCO® Model 2230E/2230EM1 is a miniature triaxial piezoelectric accelerometer designed specifically for vibration measurement in three orthogonal axes on small structures and objects. The transducer features three M3 receptacles for output connection. The 2230E is designed to be mounted with adhesive. The 2230EM1 is mounted with two supplied cap screws. Its light weight (17 gm) effectively minimizes mass-loading effects. The accelerometer is a self-generating device that requires no external power source for operation.

The Model 2230E/2230EM1 features ENDEVCO's PIEZITE® Type P-8 crystal elements, operating in annular shear mode, which exhibit excellent output sensitivity stability over time. Signal ground is connected to case and mounting surface of the unit. Low-noise, flexible coaxial cables are supplied for error-free operation.

ENDEVCO Signal Conditioner Models 133, 2771B, 2775B or OASIS 2000 Computer-Controlled System are recommended for use with this high impedance accelerometer.



Actual size



中国

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# ENDEVCO MODEL 2230E/ 2230EM1

## 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	3.0
FREQUENCY RESPONSE		See Typical Amplitude Response
RESONANCE FREQUENCY	kHz	21
AMPLITUDE RESPONSE [1]		
±5%	Hz	1 to 7 000 (2230E) 1 to 5 000 (2230EM1)
±1dB	Hz	1 to 10 000
TEMPERATURE RESPONSE		See Typical Curve
TRANSVERSE SENSITIVITY	%	≤ 5
AMPLITUDE LINEARITY [2]	%	1 Per 500 g, 0 to 2000 g

### ELECTRICAL CHARACTERISTICS

OUTPUT POLARITY		Acceleration in the direction of axis arrow produces positive output.
RESISTANCE	GΩ	≥ 10 <sup>9</sup> at +500°F (+260°C) ≥ 25 MΩ
CAPACITANCE	pF	770
GROUNDING		Signal return connected to case.

### ENVIRONMENTAL CHARACTERISTICS

TEMPERATURE RANGE		-67°F to +500°F (-55°C to +260°C)
HUMIDITY		Hermetically Sealed
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)	17 (0.6), 22 (0.8) 2230EM1
CASE MATERIAL		304L stainless steel
CONNECTOR		M3 x 0.5 6H Thread, mates with Endevco 3053 cables
MOUNTING TORQUE (2230EM1)	lbf-in (Nm)	13.5 (1.25)

### CALIBRATION

SUPPLIED:		
CHARGE SENSITIVITY	pC/g	
CAPACITANCE	pF	
MAXIMUM TRANSVERSE SENSITIVITY	%	
CHARGE FREQUENCY RESPONSE	%	20 Hz to 10 000 Hz

### ACCESSORIES

EH409 (2230EM1)	MOUNTING SCREWS, 4-40 (2X)
3053V-120	VERSAFLEX CABLE ASSEMBLY (3X)

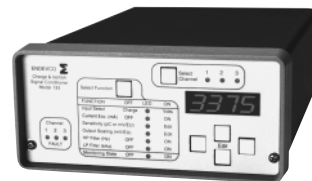
- Maintain high levels of precision and accuracy using Endevco's factory calibration services. Call Endevco's inside sales force at 800-982-6732 for recommended intervals, pricing and turn-around time for these services as well as for quotations on our standard products.

### OPTIONAL ACCESSORIES

Model 2771BM1-1	IN-LINE CHARGE CONVERTOR FOR USE WITH CONSTANT CURRENT SOURCE
3053H-XXX	HYPERFLEX CABLE ASSEMBLY

### 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.



Three-channel signal conditioner, Model 133

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.

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