

Piezoelectric Accelerometer

**ENDEVCO
MODEL
2221F**

Model 2221F

- High Temperature Operation (+260°C)
- Hermetically Sealed
- 360° Cable Orientation
- Lightweight
- Aerospace and Flight Testing



Actual size

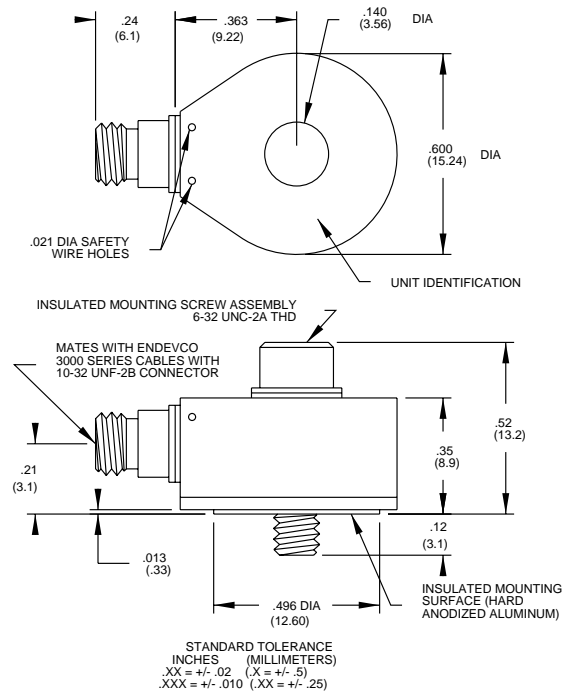
DESCRIPTION

The ENDEVCO® Model 2221F piezoelectric accelerometer is designed specifically for high temperature vibration measurement on small structures and objects.

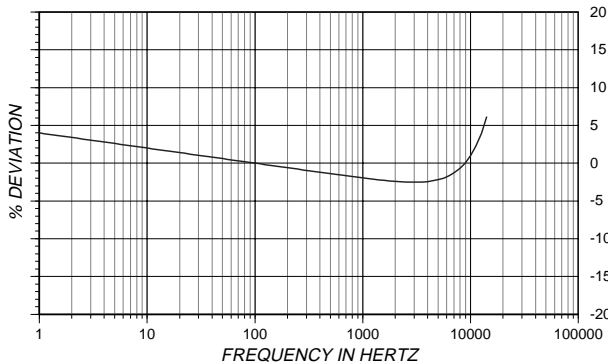
The unit is hermetically sealed and it is ideal for use in extreme environmental conditions. Its light weight (11 gm) effectively minimizes mass loading. The accelerometer is a self-generating device that requires no external power source for operation.

The Model 2221F features ENDEVCO's PIEZITE® Type P-8 crystal element, operating in annular shear mode. This unit exhibits excellent output sensitivity stability over time. Signal ground is connected to the outer case of the unit and, when used with an isolated mounting screw, the accelerometer is electrically isolated from ground. A low-noise coaxial cable is supplied for error-free operation. The transducer has a centrally located thru bolt, allowing for 360° cable orientation. The unit may also be adhesively mounted if the application permits.

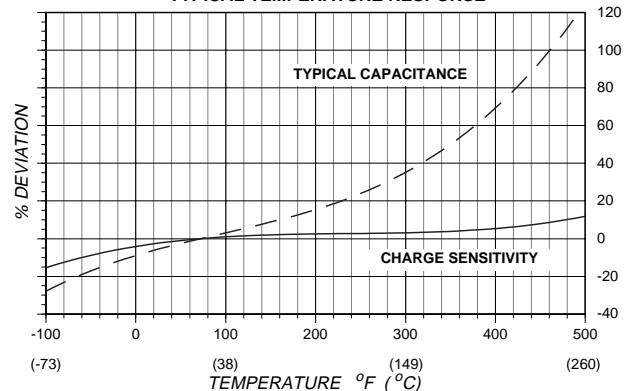
ENDEVCO Signal Conditioner Models 133, 2775A or OASIS 2000 Computer-Controlled System are recommended for use with this high impedance accelerometer.



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	10.0
MINIMUM	pC/g	7.5
FREQUENCY RESPONSE		See Typical Amplitude Response
RESONANCE FREQUENCY	kHz	45
AMPLITUDE RESPONSE [1]		
±5%	Hz	1 to 10 000
±1dB	Hz	.5 to 12 000
TEMPERATURE RESPONSE		See Typical Curve
TRANSVERSE SENSITIVITY	%	≤ 3
AMPLITUDE LINEARITY [2]	%	1
Per 400 g, 0 to 2000 g		

ELECTRICAL CHARACTERISTICS

OUTPUT POLARITY		Acceleration directed into the base of the unit produces positive output
RESISTANCE	GΩ	≥ 10
ISOLATION	MΩ	10
CAPACITANCE	pF	900
GROUNDING		Signal return is connected to case. Case is isolated from mounting surface by insulated screw assembly

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	3000
BASE STRAIN SENSITIVITY	equiv. g pk/μ strain	0.02
THERMAL TRANSIENT SENSITIVITY	equiv. g pk/°F (°C)	0.004 (0.007)

PHYSICAL CHARACTERISTICS

DIMENSIONS		See Outline Drawing
WEIGHT	gm (oz)	11 (0.39)
CASE MATERIAL		Stainless Steel
CONNECTOR		Coaxial, 10-32 male thread
MOUNTING TORQUE	lbf-in (Nm)	8 (1)

CALIBRATION

SUPPLIED:		
FREQUENCY RESPONSE	%	20 Hz to 10 000 Hz
	dB	10 kHz to 50 kHz
CHARGE SENSITIVITY	pC/g	
MAXIMUM TRANSVERSE SENSITIVITY	%	
CAPACITANCE	pF	

ACCESSORIES

Model 3090C-120 (10 ft)	CABLE ASSEMBLY
P/N 10207	INSULATED MOUNTING SCREW, 6-32
P/N EHM49	ALLEN WRENCH, 7/64 INCH
Model 2987	ADHESIVE MOUNTING ADAPTER

OPTIONAL ACCESSORIES

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. 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.

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