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Piezoelectric Accelerometer

ENDEVCO MODEL 2273AMI/ AM20

Model 2273AM1/AM20

- **High-Temperature Operation (+399°C)**
- **Radiation-Hardened**
- **Top/Side-Mounted Connectors**
- **Requires No External Power**
- **Reactor and Loose-Parts Testing**



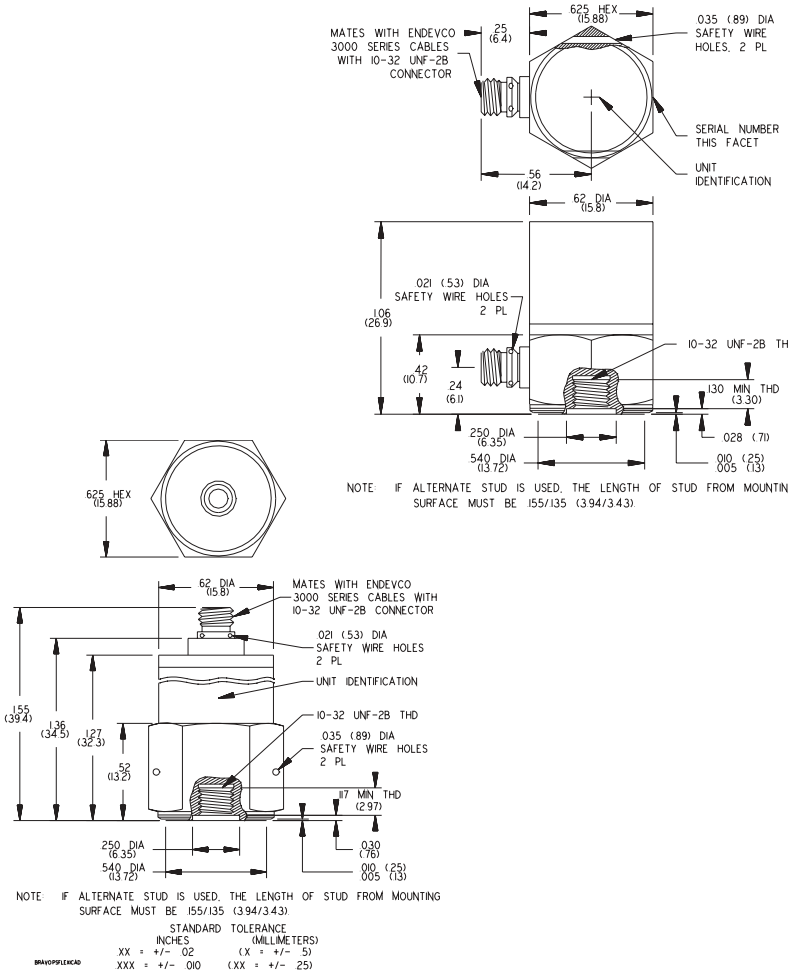
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DESCRIPTION

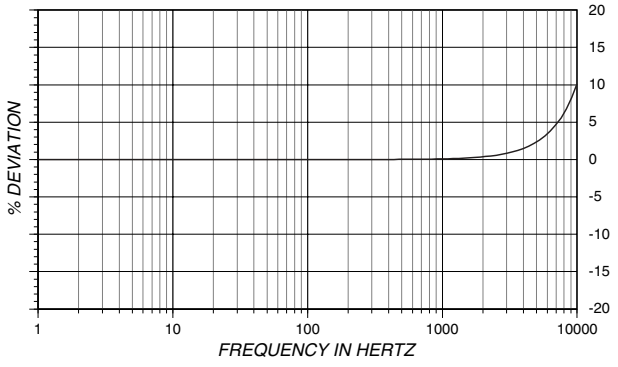
ENDEVCO® piezoelectric accelerometer Models 2273AM1 and 2273AM20 are specially designed for use in nuclear-reactor-vibration and loose-parts-monitoring systems. The 2273AM1 and 2273AM20 are differentiated only by the location of their connectors, the AM1 being side mounted and the AM20 utilizing a top-mount configuration. The accelerometer is a self-generating device that requires no external power source for operation.

The 2273AM1/AM20 feature ENDEVCO's PIEZITE® Type P-14 sensing elements in our patented ISOBASE® construction, providing a flat temperature response over the range of -65°F to +750°F (-55°C to +399°C). Their ISOBASE construction provides mechanical isolation of the seismic system from the mounting base, resulting in very low strain sensitivity. The case is made of Inconel and provides for hermeticity through welding and glass-to-metal fusion at the connector.

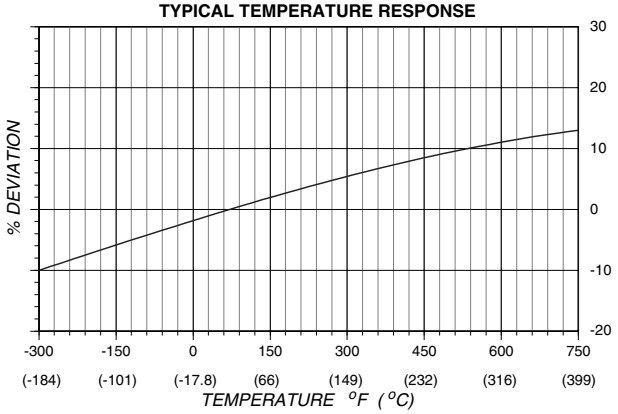
ENDEVCO Signal Conditioner Models 133, 2721B, 2775B, 2771B, 6634C or 68221 are recommended for use with these accelerometers.



TYPICAL AMPLITUDE RESPONSE



TYPICAL TEMPERATURE RESPONSE



ENDEVCO
MODEL
2273AMI/
AM20

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	pC/g	10
FREQUENCY RESPONSE		See Typical Amplitude Response
RESONANCE FREQUENCY	kHz	27
AMPLITUDE RESPONSE [1]		
±5%	Hz	20 to 5000
±1dB	Hz	1 to 6000
TEMPERATURE RESPONSE		See Typical Curve
TRANSVERSE SENSITIVITY	%	≤ 3
AMPLITUDE LINEARITY	%	1
Per 1000 g, 0 to 3000 g		

ELECTRICAL CHARACTERISTICS		
OUTPUT POLARITY		Acceleration directed into base of unit produces a positive output
RESISTANCE	GΩ	≥ 1
At +700°F (+399°C)	MΩ	≥ 10
ISOLATION	GΩ	≥ 1
CAPACITANCE	pF	660, Typical
GROUNDING		Signal return isolated from case

ENVIRONMENTAL CHARACTERISTICS		
TEMPERATURE RANGE		-67°F to +750°F (-55°C to +399°C)
HUMIDITY		Hermetically sealed
SINUSOIDAL VIBRATION LIMIT	g	500
SHOCK LIMIT [2]	g	3000
BASE STRAIN SENSITIVITY	equiv. g pk/μ strain	0.002
RADIATION		
INTEGRATED GAMMA FLUX	rad	Up to 6.2×10^{10}
INTEGRATED NEUTRON FLUX	N/cm^2	Up to 3.7×10^{18}

PHYSICAL CHARACTERISTICS		
DIMENSIONS		See Outline Drawing
WEIGHT	gm (oz)	32 (1.1)
CASE MATERIAL		Inconel
CONNECTOR [3]		Coaxial receptacle with 10-32 UNF threads designed to mate with Endevco 3075M6-XXXX Cable Assembly or equivalent
MOUNTING TORQUE	lbf-in (Nm)	18 (2)

CALIBRATION		
SUPPLIED:		
CHARGE FREQUENCY RESPONSE	%	20 to 5000 Hz
	dB	5000 Hz thru resonance
CHARGE SENSITIVITY	pC/g	
MAXIMUM TRANSVERSE SENSITIVITY	%	
CAPACITANCE	pF	
RESISTANCE	MΩ	
TEMPERATURE RESPONSE		At +75°F [ref], +400°F, +700°F (+24°C [ref], +204°C, +371°C)

ACCESSORIES

3075M6-120 (10 ft)	CABLE ASSEMBLY, 900°F
2981-12	MOUNTING STUD, 10-32 to 10-32
EHM464	HEX KEY WRENCH

OPTIONAL ACCESSORIES

2981-4	MOUNTING STUD, 10-32 to M5
30846	PIN RETENTION ALIGNMENT KIT
3075M21-XXX	ARMOR-BRAIDED CABLE ASSEMBLY, 900°F

NOTES

1. Low-end response of the transducer is a function of its associated electronics.
2. In shock measurements, minimum pulse duration for half-sine or triangular pulses should exceed 0.2 ms to avoid excessive high frequency ringing.
3. Repeated insertion of mating cable may result in a loss of pin retention and intermittent output. Use Endevco 30846 Pin Retention Alignment Kit to bring socket to original shape.
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.

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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