

Model 2272 Piezoelectric accelerometer

Features

- Long term stability
- Hermetically sealed
- Operational to -452°F (-269°C)
- Requires no external power
- Vibration measurement at extreme temperature

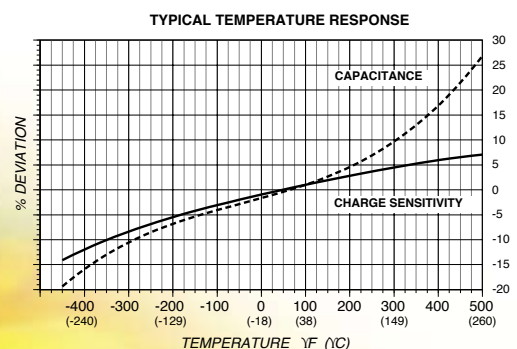
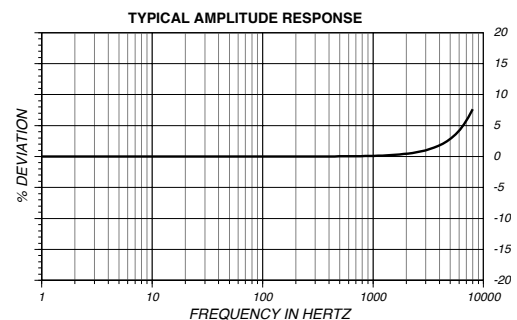
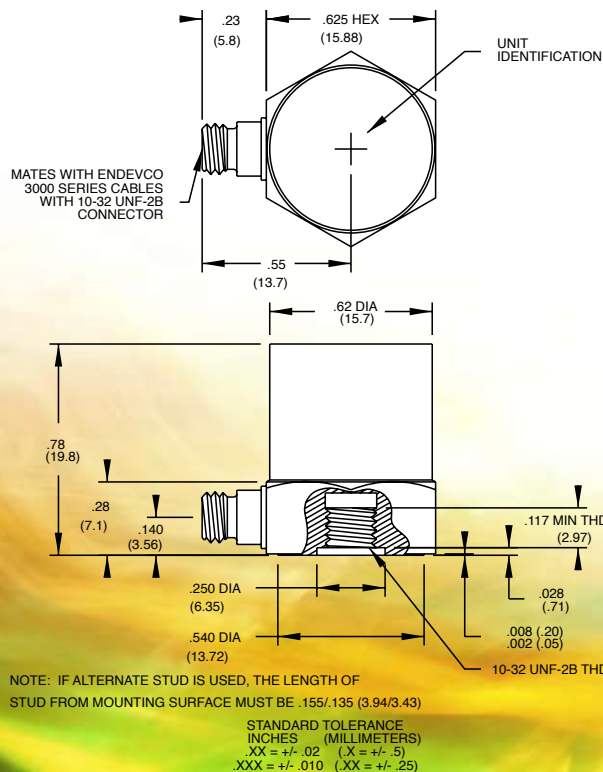


Description

The Endevco® model 2272 is a piezoelectric accelerometer designed specifically for vibration measurement at temperature extremes. The unit is hermetically sealed for use in harsh environments and features long term stability. Its unique sensing elements offer an unusually flat temperature response over a broad range. The accelerometer is a self-generating device that requires no external power source for operation.

The model 2272 features Endevco's Piezite® Type P-10 crystal element, operating in compression mode. This unit exhibits excellent output sensitivity stability over time. Signal ground is connected to the outer case of the unit. When used with an isolated mounting stud, the accelerometer is electrically isolated from ground. The accelerometer features a 10-32 UNF-2A side-connector. A low-noise coaxial cable is 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.



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Endevco

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	2272
Charge sensitivity		
Typical	pC/g	13
Minimum	pC/g	10.4
Frequency response	See typical amplitude response	
Resonance frequency	kHz	30
Amplitude response [1]		
±5%	Hz	1 to 5000
±1dB	Hz	.5 to 7000
Temperature response	See typical curve	
Transverse sensitivity	%	≤ 3 (≤ 1 on special order)
Amplitude linearity [2]		
Per 1000 g, 0 to 2000 g	%	1

Electrical characteristics

Output polarity	Acceleration directed into the base of the unit produces positive output
Resistance	GΩ ≥ 10
Capacitance	pF 2700
Grounding	Signal ground connected to case

Environmental characteristics

Temperature range [3]	-452°F to +500°F (-269°C to +260°C)
Humidity	Hermetically sealed
Sinusoidal vibration	g pk 1000
Shock limit	g pk 2000
Base strain sensitivity	equiv. g pk/μ strain 0.04
Thermal transient sensitivity	equiv. g pk/°F [1/°C] 0.08 (0.144)
Electromagnetic sensitivity	equiv. g rms/gauss 0.0002

Physical characteristics

Dimensions	See outline drawing
Weight	gm (oz) 27 (0.95)
Case material	Stainless steel
Connector	10-32 UNF-2A Thd, mates with Endevco 3000 series cable
Mounting torque	lbf-in (Nm) 18 (2)

Calibration

Supplied:	
Charge sensitivity	pC/g
Capacitance	pF
Maximum transverse sensitivity	%
Charge frequency response	%
	dB
	20 Hz to 5000 Hz
	5000 Hz thru resonance

Included accessories

Model 3090DV-120	cable assembly
Model 2981-12	mounting stud, 10-32 to 10-32
P/N EHM64	hex key wrench

Optional accessories

Model 2981-4	mounting stud, 10-32 to M5
Model 2771AM3	in-line charge converter for use with constant current source
Model 2950	triaxial mounting block
Model 2980B	mounting stud, isolated

Optional calibration

CS330	cryogenic temperature response
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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. Exposure to rapid temperature changes greater than 100°F (38°C) per minute may cause the device to produce spurious high frequency discharges for several minutes.
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 turnaround time for these services as well as for quotations on our standard products. 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.