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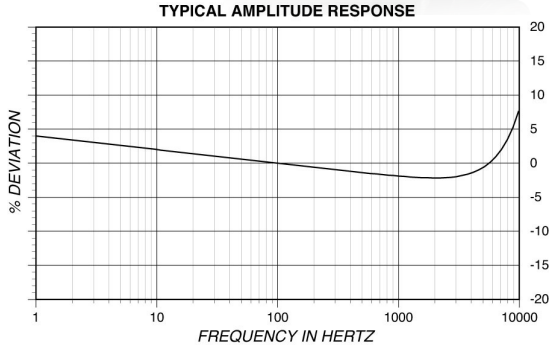
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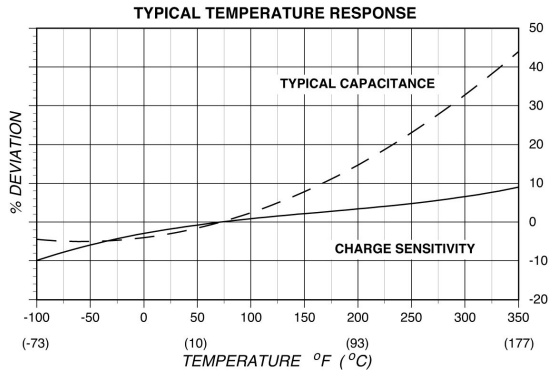
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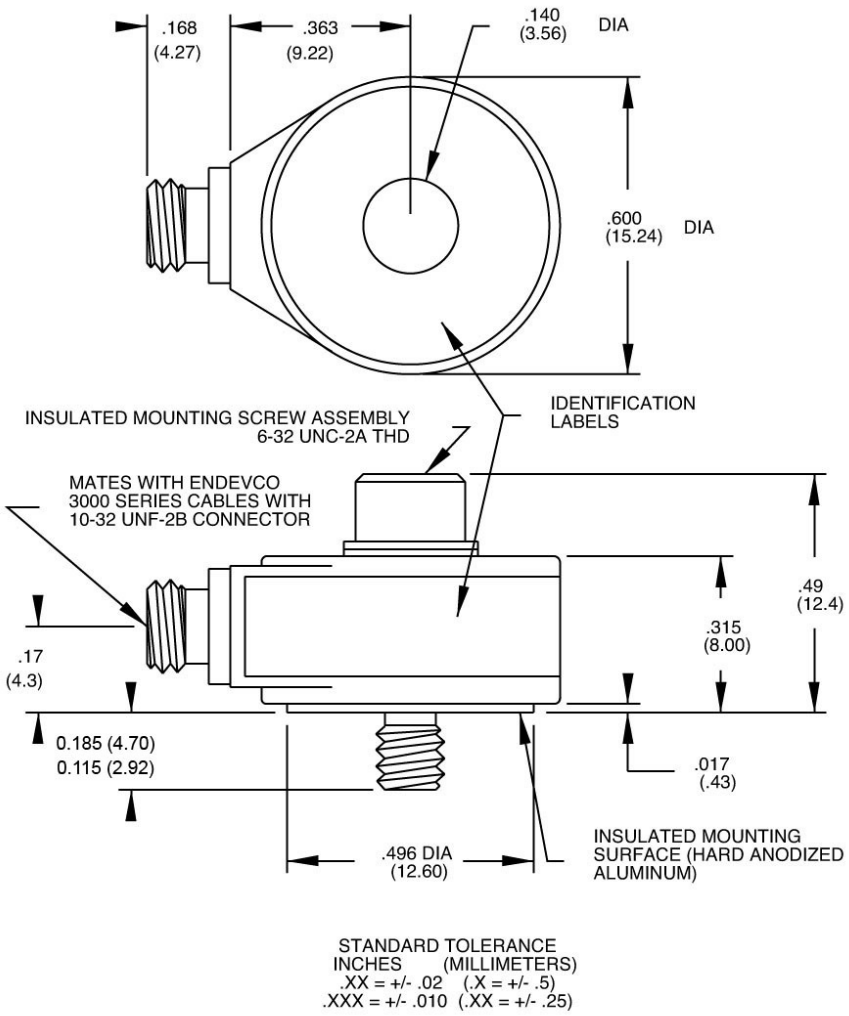
Model 2221D

Piezoelectric accelerometer









Key features

- 2221D-R available as replacement sensor
- High output, 17 pC/g
- Light weight (12 gm)
- 360° cable orientation
- Low profile
- Vibration measurement on small structures

Description

The Endevco® model 2221D is a piezoelectric accelerometer designed specifically for vibration measurement on small structures and objects. The unit is epoxy sealed and it is ideal for use in a controlled environment. Its light weight (12 gm) effectively minimizes mass loading. The accelerometer is a self-generating device that requires no external power source for operation.

The model 2221D features Endevco's Piezite® type P-8 crystal element operating in annular shear mode. This device exhibits excellent output sensitivity stability over time. Signal ground is connected to the outer case of the unit. 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 adhesive mounted if the application permits.

Endevco signal conditioner models 133, 2771C, 2775B, or Oasis 2000 computer-controlled system are recommended for use with this high impedance accelerometer.

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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**	**Value**
Charge Sensitivity		
Typical	pC/g	17.0
Minimum	pC/g	13.5
Frequency response		See typical amplitude response
Resonance frequency (typical)	kHz	32
Amplitude response (1)		
±5%	Hz	1 to 6000
±1 dB (ref)	Hz	0.1 to 10 000
Temperature response		See typical curve
-67˚F (-55˚C) max/min	%	-17 / 3
-350˚F (+177˚C) max/min	%	+19 / -1
Transverse sensitivity	%	≤ 3
Amplitude linearity	%	1
Per 250 g, 0 to 2500 g		
Output characteristics		
Output polarity		Acceleration into the base of the unit produces positive output
Resistance	GΩ	≤ 10 ≥ 10
+350˚F (+177˚C)	GΩ	≥ 1
Isolation	MΩ	10
Capacitance	pF	900
Grounding		Signal return connected to case. Case isolated from mounting surface by insulated screw assembly
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 [2]	g pk	5000
Base strain sensitivity	eq. g/μ strain	0.01
Thermal transient sensitivity	eq. g pk/˚F (/ ˚C)	0.004 (0.007)
Accoustic sensitivity 140db SPL	g	0.007
Physical characteristics		
Dimensions		See outline drawing
Weight	gm (oz)	12 (0.42)
Case material		Stainless Steel
Connector		Coaxial 10-32 thread
Mounting torque	lbf-in (Nm)	8 (1)
Calibration		
Supplied:		
Charge sensitivity	pC/g	
Maximum transverse sensitivity	%	
Capacitance	pF	
Frequency response	%	20 Hz to 8000 kHz
db		8000 Hz to 40 kHz

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Accessories

Product	Description	2221D	2221D-R
3090C-120	Cable assembly, 10 ft	Included	Optional
EHM49	Allen wrench 7/64 inch	Included	Optional
2987	Cementing stud	Included	Optional
10207	Mounting screw assembly	Included	Optional
2984M3	Adapter stud 10-32	Optional	Optional
2984M4	Insulated adapter stud 10-32	Optional	Optional
2771C	In-line charge converter	Optional	Optional
133	Signal conditioner	Optional	Optional
2775B	Signal conditioner	Optional	Optional
4990A-1	OASIS 2000 computer-controled system	Optional	Optional

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 impact, may excite transducer resonance and cause linearity errors. Read TP290 for more details.

Ordering information

1. Maintain high levels of precision and accuracy using Endevco's factory calibration services. Call Endevco's inside sales force at 866-ENDEVCO for recommended intervals, pricing and turn-around time for these services as well as for quotations on our standard products.

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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. 083019

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