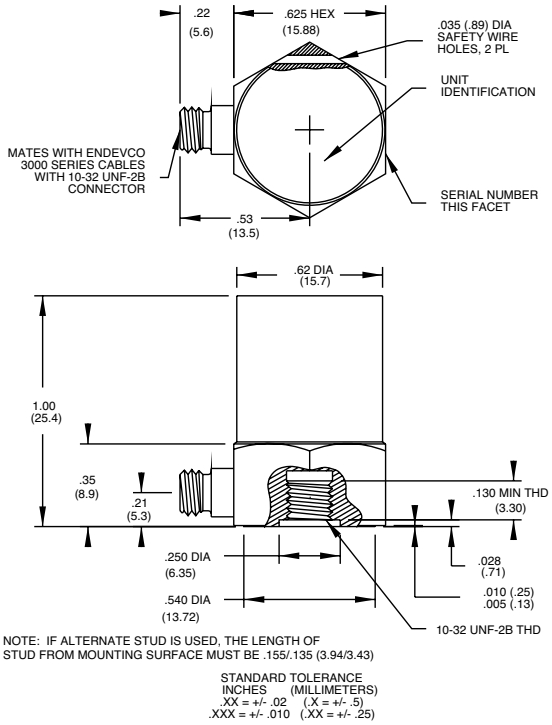
Endevco

Model 2276
Piezoelectric accelerometer

Features

- NEW! 2276-R available as replacement sensor
- High temperature operation (+482°C)
- Radiation hardened
- Inconel construction
- Requires no external power
- Nuclear and high temperature applications

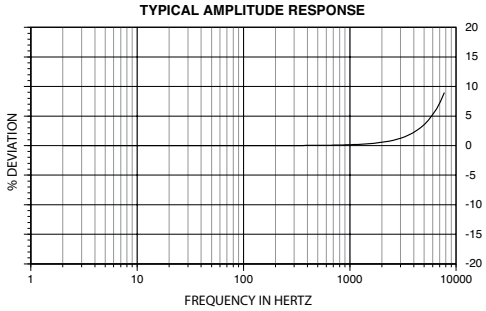


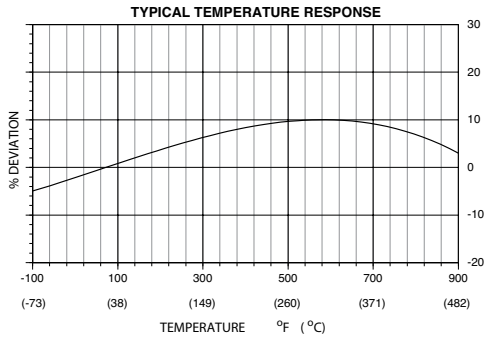
Description

The Endevco® model 2276 is a precision piezoelectric accelerometer for shock and vibration measurement of structures subjected to very high temperatures. It is capable of operation in nuclear environments during the presence of Gamma and Neutron radiation. This accelerometer features a side mounted 10-32 receptacle and hex base construction with a 10-32 or M5 center stud mount. The accelerometer is a self-generating device that requires no external power source for operation.

The 2276 features Endevco's Piezite® type P-14 sensing element in our patented Isobase® construction, to provide for flat charge temperature response over the range of -67°F to +900°F (-55°C to +482°C). In addition, Isobase® construction provides mechanical isolation of bending motion from the mounting base. The unit is constructed using Inconel, and provides for hermeticity through welding and glass-to-metal fusion at the connector. Signal return is connected to case.

Endevco signal conditioner model 2721B is recommended for use with this accelerometer. The 2771C remote charge convertor is also compatible for applications using this high impedance accelerometer





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smart engineering for
extreme environments

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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	9.0
Frequency response		See typical amplitude response
Resonance frequency	kHz	27
Amplitude response [1]		
±5 %	Hz	1 to 5000
±1 dB	Hz	1 to 7000
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 the base of unit produces positive output
Resistance	GΩ	≥ 1
at +900°F (+482°C) [2]	KΩ	≥ 100
Capacitance	pF	660
Grounding		Signal return connected to case

Environmental characteristics		
Temperature range		-67°F to +900°F (-55°C to +482°C)
Humidity		Hermetically sealed
Sinusoidal vibration limit	g pk	500
Shock limit [3]	g pk	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)	30 (1.1)
Case material		Inconel
Connector [4]		10-32 coaxial connector
Mounting torque	lbf-in (Nm)	18 (2)

Calibration		
Supplied:		
Frequency response	%	20 Hz to 5000 Hz
	dB	5000 Hz through resonance
Sensitivity	pC/g	
Maximum transverse sensitivity	%	
Mounted resonance frequency	kHz	
Capacitance	pF	

Accessories

Product	Description	2276	2276-R
2981-12	Mounting stud, 10-32 to 10-32	Included	Included
3075M6-120	Cable assembly, high temperature, 10ft	Included	Optional
EHM464	Hex key wrench	Included	Optional
3090C-120	Cable assembly, for under +500°F, 10ft	Optional	Optional
2981-4	Mounting stud, 10-32 to M5	Optional	Optional
30846	Pin retention alignment kit	Optional	Optional
2981-3	Adaptor stud, 10-32	Optional	Optional
2721B	Charge amplifier	Optional	Optional
2771C	In-line charge convertor	Optional	Optional

Notes:

1. Low-end response of the transducer is a function of its associated electronics.
2. Because of low resistance at high temperatures, the signal conditioner must be capable of operating with the specified source resistance.
3. 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.
4. Repeated insertion of mating cable may result in a loss of pin retention and intermittent ouput. Use Endevco 30846 pin retention alignment kit to bring socket to original shape.
5. Maintain high levels of precision and accuracy using Endevco's factory calibration services. Call Endevco's inside sales force at 1-800-982-6732 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.

(800) 982-6732 • (949) 493-8181 fax (949) 661-7231 • www.endevco.com • Email: applications@endevco.com
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