

## Model 7702A Piezoelectric accelerometer

### Features

- To +550°F (+288°C), temperature compensated
- Hermetically sealed
- Top connector, 5/8" and 3/4" hex
- MIL-STD 740-2 applications
- Requires no external power
- Isoshear®
- Low base strain sensitivity

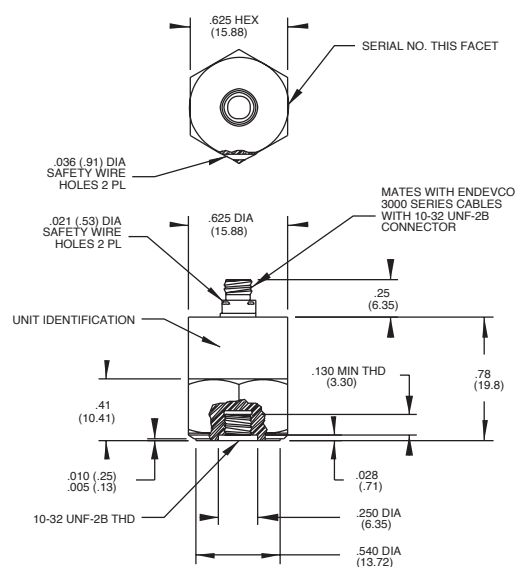
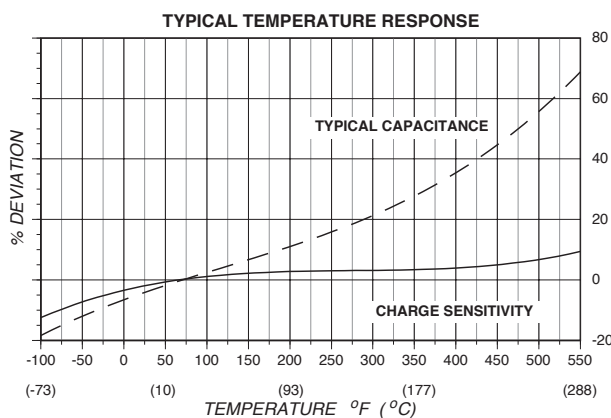
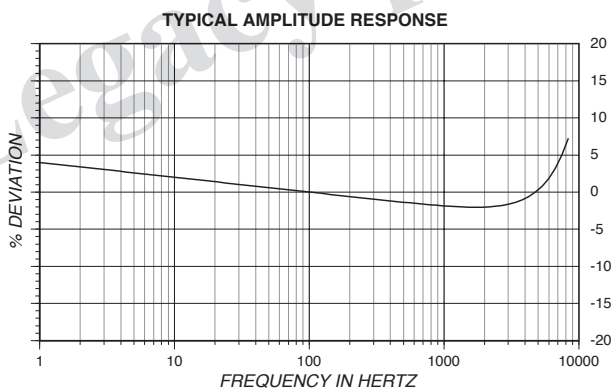


### Description

The Endevco model 7702A-XXXX stud mounted, Isoshear piezoelectric accelerometer is designed for general vibration measurements on structures and objects. The Isoshear design is extremely stable and insensitive to such environmental inputs as base bending and thermal transients. This line of accelerometers has been tested in a radiation environment up to 1E8 rads without performance degradation. They are also capable of accurate vibration measurement up to +550°F (+288°C). These units are hermetically sealed against external contamination. The accelerometer is a self-generating device that requires no external power source for operation.

The model 7702A-XXXX features Endevco's Piezite® type P-8 crystal element, operating in shear mode. 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 top-connector. A low noise coaxial cable is supplied for error-free operation. The model number suffix indicates acceleration sensitivity in pC/g; i.e., 7702A-50 features output sensitivity of 50 pC/g.

Endevco signal conditioner models 133, 2775A or OASIS 2000 Computer-controlled system are recommended for use with this high impedance accelerometer.



STANDARD TOLERANCE  
INCHES (MILLIMETERS)  
XX = +/- .02 (X = +/- .5)  
XXX = +/- .010 (XX = +/- .25)

# Model 7702A

## Piezoresistive 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	-17	-50
<b>Charge sensitivity</b>			
Typical	pC/g	17	50
Minimum	pC/g	15	45
<b>Frequency response</b>		See typical amplitude response	
<b>Resonance frequency</b>	kHz	45	26
<b>Amplitude response [1]</b>			
±5%	Hz	1 to 10 000	1 to 6000
±1dB	Hz	0.5 to 15 000	0.5 to 8000
<b>Temperature response</b>		See typical curve	
<b>Transverse sensitivity</b>	%		≤ 3
<b>Amplitude linearity [2]</b>	%	1/625g	1/250g
Per 250 g, 0 to 2000 g			
<b>Electrical characteristics</b>			
<b>Output polarity</b>		Acceleration directed into base of unit produces positive output at center socket of receptacle	
<b>Resistance</b>	GΩ	≥ 10	≥ 10
<b>Capacitance</b>	pF	2800	2800
<b>Grounding</b>		Signal return connected to case	
<b>Environmental characteristics</b>			
<b>Temperature range [3]</b>		-67°F to +550°F [-55°C to +288°C]	
<b>Humidity</b>		Hermetically sealed	
<b>Sinusoidal vibration limit</b>	g pk	2500	2000
<b>Shock limit</b>	g pk	12 000	10 000
<b>Base strain sensitivity</b>	equiv. g pk/μ strain	0.004	0.0016
<b>Electromagnetic sensitivity</b>	equiv. g rms/gauss	0.0002	0.0002
<b>Thermal transient sensitivity</b>	equiv. g pk/°F (°C)	0.01 (0.018)	0.004 (0.007)
<b>Radiation</b>			
Integrated gamma flux	rad		Up to 10 <sup>8</sup>
Integrated neutron flux	N/cm <sup>2</sup>		Up to 10 <sup>10</sup>
<b>Physical characteristics</b>			
<b>Dimensions</b>		See outline drawing	
<b>Weight</b>	gm (oz)	25 (0.9)	25 (0.9)
<b>Case material</b>		Stainless steel	
<b>Connector</b>		Coaxial receptacle with 10-32 UNF threads designed to mate with Endevco model 3000 series cable	
<b>Mounting torque</b>	lbf-in (Nm)	18 (2)	
<b>Calibration</b>			
<b>Supplied:</b>			
<b>Charge frequency response</b>	%	20-30K Hz	20 to 6000 Hz 6000 Hz through resonance
<b>Charge sensitivity</b>	pC/g		
<b>Maximum transverse sensitivity</b>	%		
<b>Capacitance</b>	pF		

### 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. Charge output is temperature compensated.
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.

### Accessories

- |                         |   |
|-------------------------|---|
| Model 3090C-120 (10 ft) | Cable assembly for use to +550°F (+288°C) |
| Model 2981-3            | Mounting stud, 10-32 to 10-32             |

### Optional accessories

- |                          |   |
|--------------------------|---|
| Model 3075M6-120 (10 ft) | Cable assembly for use above +500°F (+260°C)                  |
| Model 2981-4             | Mounting stud, 10-32 to M5                                    |
| Model 2771AM3            | In-line charge convertor for use with constant current source |
| Model 2950               | Triaxial mounting block                                       |