

# VOLTAGE OUTPUT PIEZOELECTRIC ACCELEROMETER

## MODEL 2402A

- Low-g Seismic Measurements
- Very High Sensitivity at 10 V/g
- Low Impedance Voltage Output
- 0.040 mg Resolution
- Stud Mounted

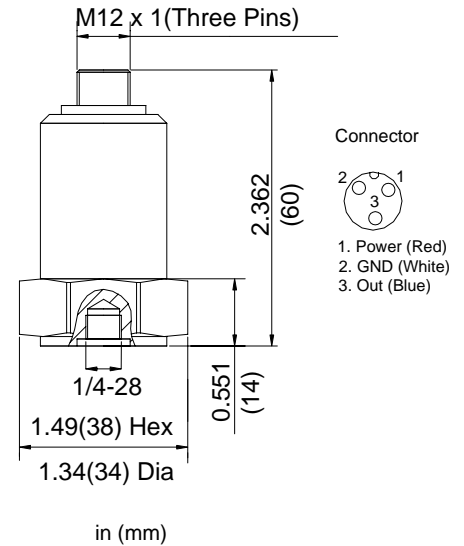


actual size

### Description

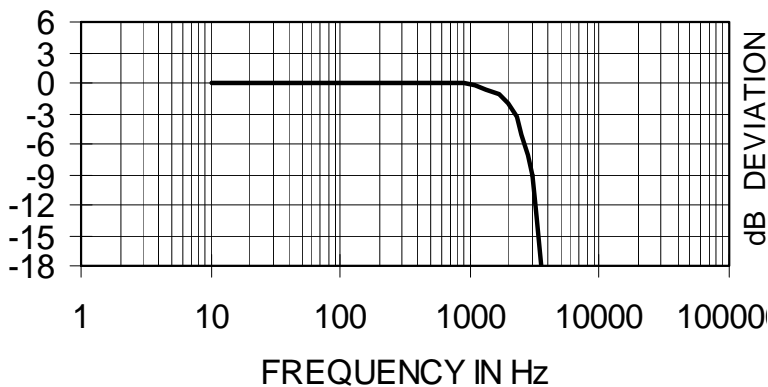
The VIP Sensors Model 2402A is a stud mounted piezoelectric (PE) accelerometer designed for vibration measurements up to 1 g. It offers a very high sensitivity of 10 V/g with a resolution as small as 40 micro-g. It interfaces directly to data acquisition systems without specialized current signal conditioner required by typical IEPE (PE with integral electronics) transducers. The accelerometer requires a DC voltage source to power its integral electronics, and provides  $\pm 10V$  peak output signals. Its connector has three pins: Power, Output and Ground.

The Model 2402A design is a welded stainless steel construction that is hermetically sealed against external contamination. Signal return is isolated from the outer case of the unit. The accelerometer features a M12 3-pin top connector.

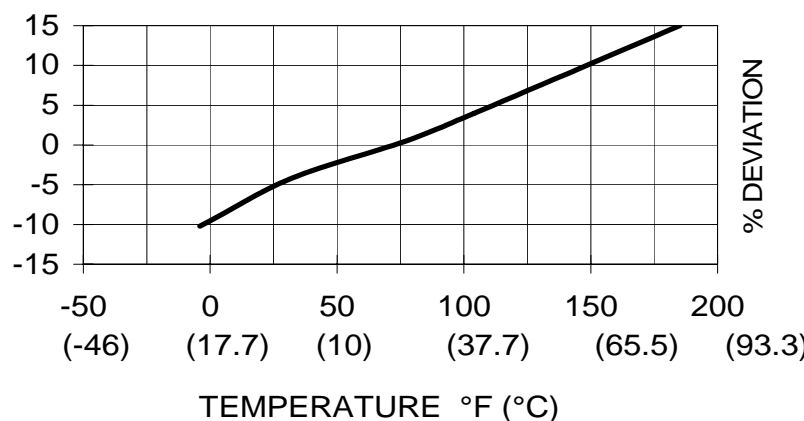


in (mm)

### Typical Amplitude Response



### Typical Temperature Response



# VOLTAGE OUTPUT PIEZOELECTRIC ACCELEROMETER

# MODEL 2402A

## 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.

	UNITS	
<b>DYNAMIC CHARACTERISTICS</b>		
Range	g (m/s <sup>2</sup> )	1 (9.8)
Voltage Sensitivity, typical	mV/g (mV/m/s <sup>2</sup> )	10,000 (1019.7)
Transverse Sensitivity	%	≤ 5
Frequency Response		See Typical Amplitude Response
Resonance Frequency	Hz	3,500
Amplitude Response		
± 5 %	Hz	0.5 – 800
± 1 dB	Hz	0.2 – 1,000
Temperature Response		See Typical Temperature Response
Amplitude Linearity	%	< 1
<b>ELECTRICAL CHARACTERISTICS</b>		
Output Polarity		Acceleration directed from base into the transducer defined as positive
Power Source		
Voltage Excitation	Vdc	+24 to +30
Current Consumption	mA	2 maximum
Bias Voltage	V	0
Output Voltage	V peak	≤ 10
Output Impedance	Ω	< 200
Noise	mg (mm/s <sup>2</sup> )	< 0.04 (<0.39)
Grounding		Signal return isolated from case
<b>ENVIRONMENTAL CHARACTERISTICS</b>		
Temperature Range		-4°F to 176°F (-20°C to +80°C)
Humidity		Hermetically sealed, welded construction
Shock Limit	g pk (m/s <sup>2</sup> pk)	500 (4903.3)
Base Strain	equiv. g /μstrain	0.0002
Magnetic Field Sensitivity	equiv. g rms /gauss (T)	1.5E-5 (1.5)
Thermal Transient Sensitivity	equiv. g /°C	0.01
<b>PHYSICAL CHARACTERISTICS</b>		
Weight	oz (grams)	8.8 (250)
Case Material		Stainless Steel
Mounting		¼-28 threaded hole
Piezoelectric Material		PZT-5
Structure		Annular Shear
Output Connector		M12 (three-pin) receptacle, top mounting

### ACCESSORIES

**Included:**

9504-10 Mounting Stud ¼-28 / ¼-28  
Calibration Sheet

**Optional:**

9030 Cable, M12 three-pin connector

### NOTES

- Short duration shock pulses, such as those generated by metal-to-metal impacts, may excite transducer resonance and cause linearity errors.