

# INTEGRAL ELECTRONICS (IEPE) PIEZOELECTRIC ACCELEROMETER

# MODEL 2012A

- Measurement Range to 100 g
- Ground Isolation
- Low Impedance Output
- Top Connector
- Stud Mounted



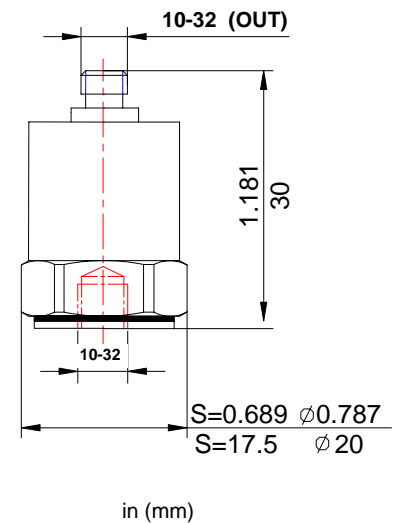
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### Description

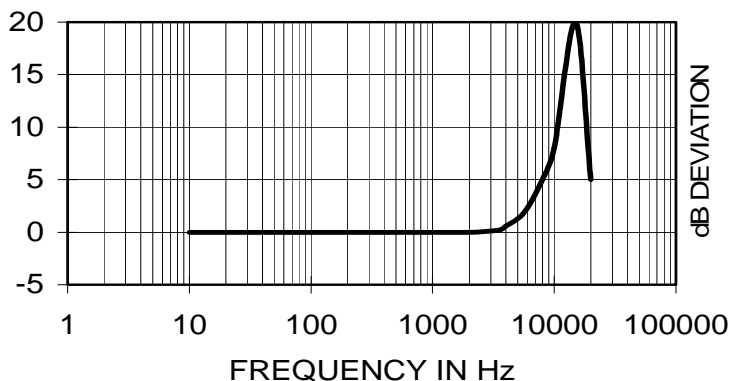
The VIP Sensors Model 2012A is a stud mounted piezoelectric accelerometer designed for general vibration measurement on structures and objects. It offers a measurement range to 100 g with a sensitivity of 50 mV/g. The accelerometer transmits its low impedance voltage output through the same cable that supplies the constant current power.

The Model 2012A design is sealed against external contamination. Signal return is isolated from the outer case of the unit. The accelerometer features a 10-32 top connector that is used with coaxial cable for error-free operation.

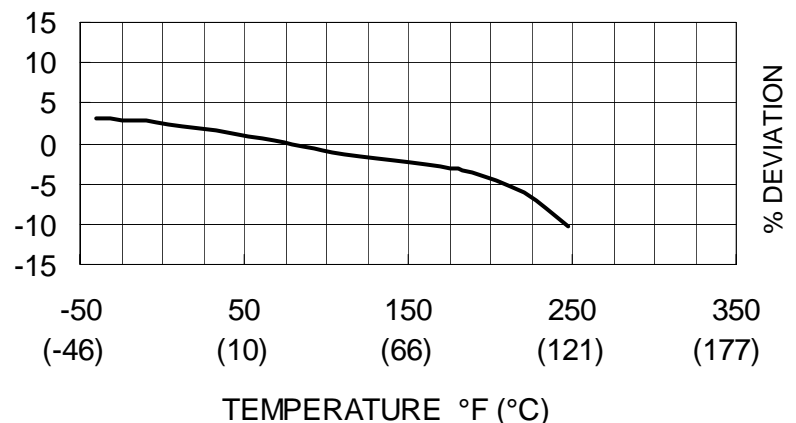
VIP Sensors Signal Conditioner Models 5005, 5100 and 5102 are recommended for use with this low impedance accelerometer.



### Typical Amplitude Response



### Typical Temperature Response



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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.

	UNITS	
<b>DYNAMIC CHARACTERISTICS</b>		
Range	g (m/s <sup>2</sup> )	100 (980.7)
Voltage Sensitivity, typical	mV/g (mV/m/s <sup>2</sup> )	50 (5.10)
Transverse Sensitivity	%	≤ 5
Frequency Response		See Typical Amplitude Response
Resonance Frequency	Hz	15,000
Amplitude Response		
± 5 %	Hz	1 – 3,500
± 1 dB	Hz	0.3 – 4,000
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 (Constant Current)	VDC	+12 to +28
Supply Current	mA	2 to 10
Bias Voltage	V	7 ±1
Full Scale Output Voltage (peak)	Vp	≤ 5
Output Impedance	Ω	< 100
Noise	mg (mm/s <sup>2</sup> )	< 0.8 (< 7.8)
Grounding		Signal return isolated from case
<b>ENVIRONMENTAL CHARACTERISTICS</b>		
Temperature Range		-4°F to 248°F (-20°C to +120°C)
Humidity		Epoxy sealed
Shock Limit	g pk (m/s <sup>2</sup> pk)	1,000 (9807)
Base Strain	equiv. g /μstrain	0.0002
Magnetic Field Sensitivity	equiv. g rms /gauss (T)	2E-5 (2)
Thermal Transient Sensitivity	equiv. g /°C	0.008
<b>PHYSICAL CHARACTERISTICS</b>		
Weight	oz (grams)	0.9 (26)
Case Material		Stainless Steel
Mounting		10-32, torque 2 N-m (18 lbf-in)
Piezoelectric Material		PZT-5
Structure		Annular Shear
Output Connector		10-32 receptacle, top mounting

### ACCESSORIES

**Included:**

9005L10 Coaxial Cable 10-32/BNC, 10ft (3.3 m)  
 9504-8 10-32/10-32 Mounting Stud  
 Calibration Sheet

**Optional:**

9006L10 Coaxial Cable 10-32/10-32, 10 ft (3.3 m)  
 9505-1 M5/10-32 Isolated Mounting Stud

### NOTES

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