

# INTEGRAL ELECTRONICS (IEPE) PIEZOELECTRIC ACCELEROMETER

## MODEL 2017A

- Small Size, Light Weight (5.3 grams)
- 10 and 100 mV/g Sensitivity Ranges
- Frequency Response 1 Hz to 5 KHz
- Adhesive Mounting

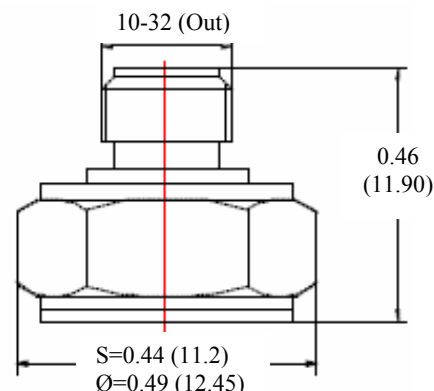


### Description

The VIP Sensors Model 2017A is a small integral electronics piezoelectric (IEPE) accelerometer for vibration measurement on small structures and objects. Its light weight of 5.3 grams effectively minimizes mass loading. It features a high signal-to-noise ratio, output sensitivities of 10 and 100 mV/g, and a wide bandwidth. The accelerometer transmits its voltage output signal through the same cable that supplies the constant current power.

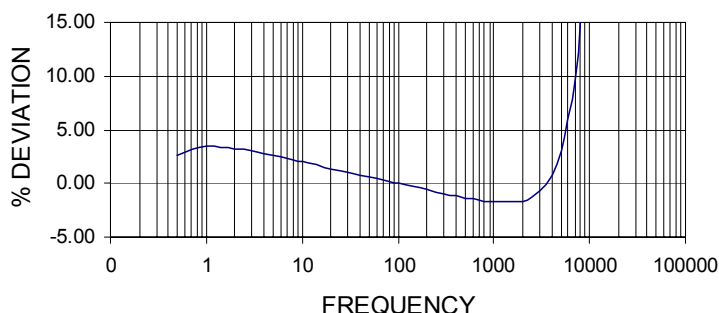
The Model 2017A design is sealed against external contamination. Signal ground is connected to the outer case of the unit. When used with an isolated mounting stud, the accelerometer is electrically isolated from ground. The accelerometer features a 10-32 top connector that is used with coaxial cable for error-free operation.

VIP Sensors Signal Conditioner Models 5005, 5100, 5102 and 5103 are recommended for use with this low impedance accelerometer.

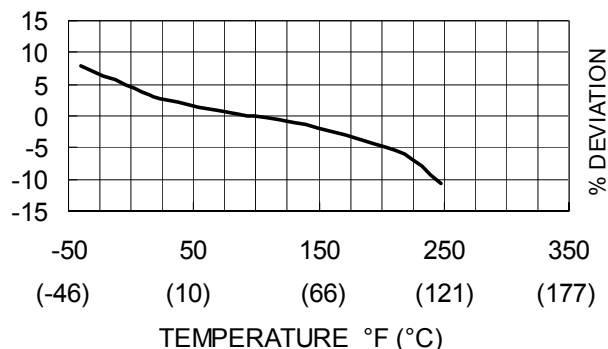


in (mm)

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	-S10	-S100
<b>DYNAMIC CHARACTERISTICS</b>			
Range	g (m/s <sup>2</sup> )	500 (4903.3)	50 (490.3)
Voltage Sensitivity, typical	mV/g (mV/m/s <sup>2</sup> )	10 (1.02)	100 (10.2)
Transverse Sensitivity	%		≤ 5
Frequency Response		See Typical Amplitude Response	
Resonance Frequency	Hz		20,000
Amplitude Response			
± 5 %	Hz		1 – 5,000
+ 1 dB	Hz		0.5 – 6,000
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		+18 to +28
Supply Current	mA		2 to 10
Bias Voltage	V		11 ± 1
Full Scale Output Voltage (peak)	Vp		≤ 5
Output Impedance	Ω		< 300
Noise	mg (mm/s <sup>2</sup> )	< 0.8 (< 7.8)	< 0.08 (< 0.78)
Grounding		Signal ground connected to case	
<b>ENVIRONMENTAL CHARACTERISTICS</b>			
Temperature Range		-40°F to 248°F (-40°C to +120°C)	
Humidity		Epoxy sealed	
Shock Limit	g pk (m/s <sup>2</sup> pk)	2,000 (19,613)	
Base Strain	equiv. g /μstrain	0.0002	0.002
Magnetic Field Sensitivity	equiv. g rms /gauss (°T)	2E-5 (2)	2E-4 (2)
Thermal Transient Sensitivity	equiv. g /°C	0.008	0.008
<b>PHYSICAL CHARACTERISTICS</b>			
Weight	oz (grams)		0.19 (5.3)
Case Material			Stainless Steel
Mounting			Adhesive
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)  
Calibration Sheet

#### Optional:

9006L10 Coaxial Cable 10-32/10-32, 10 ft (3.3 m)  
9505-15 Isolated Adhesive Mounting Plate

### NOTES

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