

PIEZOELECTRIC ACCELEROMETER

MODEL 1011A

- **Small Size, Light Weight (1.2 grams)**
- **Frequency Response to 15 KHz**
- **Resonance Frequency at 50 KHz**
- **Good for Shock Measurements**
- **No External Power Required**
- **Adhesive Mounting**

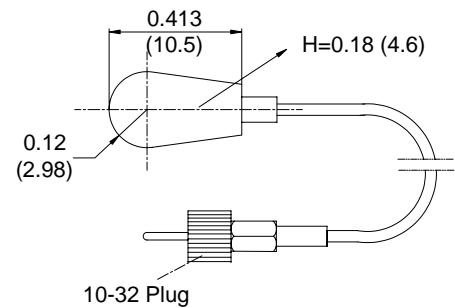


Description

The VIP Sensors Model 1011A is a miniature piezoelectric accelerometer for vibration measurement on mini-structures and small objects. Its light weight of 1.2 grams (without the integral low-noise cable) effectively minimizes mass loading. The accelerometer is a self-generating device that requires no external power source for operation.

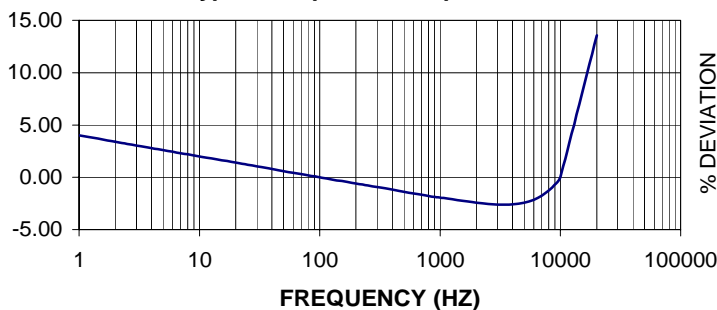
The Model 1011A exhibits a broad frequency response range and a high resonance frequency. It utilizes a piezoelectric crystal material that exhibits stable output sensitivity over the operating temperature range. Low-noise, flexible coaxial cables are used for error-free operation.

VIP Sensors Signal Conditioner Models 5002 and 5005 are recommended for use with this high impedance accelerometer.

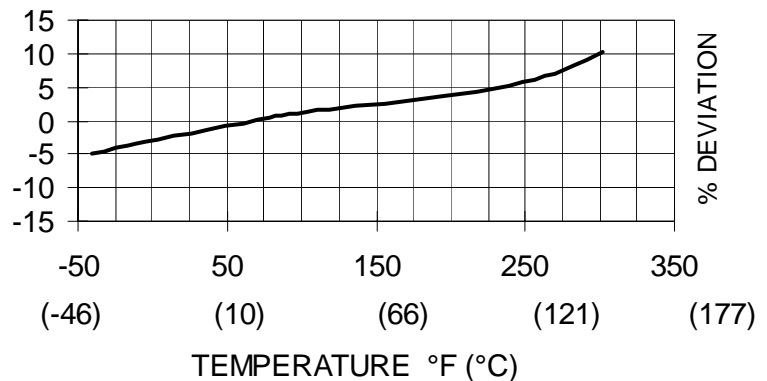


in (mm)

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	
DYNAMIC CHARACTERISTICS		
Axial Sensitivity	pC/g	1.2 (0.9 minimum)
Transverse Sensitivity	%	≤ 5
Frequency Response		See Typical Amplitude Response
Resonance Frequency	Hz	50,000
Amplitude Response [1]		
± 5 %	Hz	10 – 15,000
± 1 dB	Hz	5 – 20,000
Temperature Response		See Typical Temperature Response
Amplitude Linearity	%	< 1
ELECTRICAL CHARACTERISTICS		
Output Polarity		Acceleration directed from the base into the transducer is defined as positive
Resistance	GΩ	>1
Capacitance	pF	500
Grounding		Signal ground connected to case
ENVIRONMENTAL CHARACTERISTICS		
Temperature Range		-40°F to 302°F (-40°C to +150°C)
Humidity		Epoxy sealed
Shock Limit	g pk	20,000
Base Strain	equiv. g pk/μ strain	0.005
Magnetic Field Sensitivity	equiv. g rms/gauss (T)	5E-6 (0.5)
Thermal Transient Sensitivity	equiv. g pk/°F (°C)	0.09 (0.05)
PHYSICAL CHARACTERISTICS		
Weight	oz (grams)	0.04 (1.2) without cable
Case Material		Stainless Steel
Mounting		Adhesive
Piezoelectric Material		PZT-5
Structure		Ring Shear
Output Connector		10-32 plug, integral cable, 10 ft (3.3 m)
ACCESSORIES		
Included:		Optional:
Calibration Certificate		9604 Cable Adapter 10-32/10-32 (extend cable length)
		9006-120 Cable, Low Noise 10-32/10-32, 10 ft (3.3 m)

NOTES

- Low end response of the transducer is a function of its electronics.
- Adhesives such as petro-wax, hot-melt glue, and cyanoacrylate epoxy (super glue) may be used to mount the accelerometer temporarily to the test structure.