VIP SENSORS
VIBRATION IMPACT AND PRESSURE

Quality *Innovations* *Customer Satisfaction*

PIEZOELECTRIC ACCELEROMETER

MODEL 1012A

- **Shock Measurements**
- **Small Size, Light Weight (5 grams)**
- **Broad Frequency Response Range**
- **No External Power Required**
- **Integral Cable**
- **Stud Mounting**

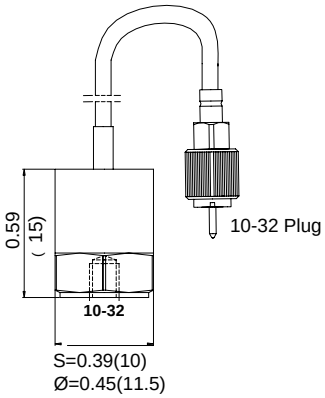
actual size

Description

The VIP Sensors Model 1012A is a miniature piezoelectric accelerometer for vibration and shock measurements. Its light weight effectively minimizes mass loading. The accelerometer is a self-generating device that requires no external power source for operation.

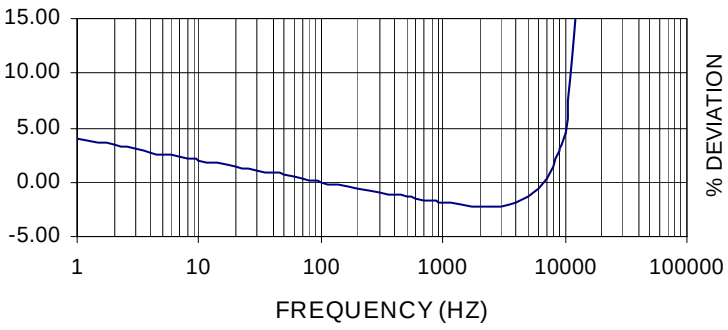
The Model 1012A exhibits a broad frequency response range and a high resonance frequency. It utilizes a piezoelectric crystal material that exhibits stable output sensitivity over the operating temperature range. Low-noise, flexible coaxial cables are used for error-free operation.

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

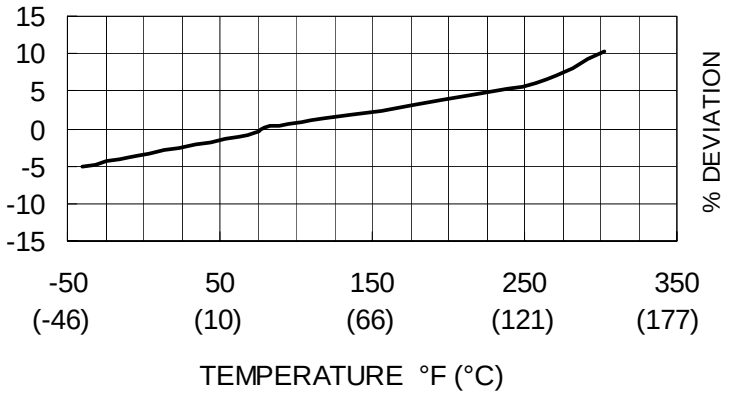


in (mm)

Typical Amplitude Response



Typical Temperature Response



VIP Sensors
California, USA

Ph (949) 429 3558
Fx (949) 528 0126

info@vipsensors.com
www.vipsensors.com

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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	13 (10 minimum)
Transverse Sensitivity	%	≤ 5
Frequency Response		See Typical Amplitude Response
Resonance Frequency	Hz	35,000
Amplitude Response [1]		
± 5 %	Hz	5 – 10,000
± 1 dB	Hz	1 – 15,000
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	1,200
Grounding		Signal ground connected to case
ENVIRONMENTAL CHARACTERISTICS		
Temperature Range		-40°F to 302°F (-40°C to +150°C)
Humidity		Hermetically sealed
Shock Limit	g pk	2,000
Base Strain	equiv. g pk/μ strain	0.005
Magnetic Field Sensitivity	equiv. g rms/gauss (/T)	2E-5 (2)
Thermal Transient Sensitivity	equiv. g pk/°F (/°C)	0.0072 (0.004)
PHYSICAL CHARACTERISTICS		
Weight	oz (grams)	0.18 (5) without cable
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 plug, integral cable, 10 ft (3.3 m)

ACCESSORIES

Included:

9504-8 Mounting Stud 10-32/10-32
Calibration Certificate

Optional:

9505-8 Mounting Stud, Isolated 10-32/10-32
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

1. Low end response of the transducer is a function of its electronics.