

# PIEZOELECTRIC COMPARISON ACCELEROMETER

## MODEL 1020A

- Back-to-Back Calibration Accelerometer
- Flat Amplitude Response
- Resonance Frequency at 40 KHz
- Stable Thermal Characteristics



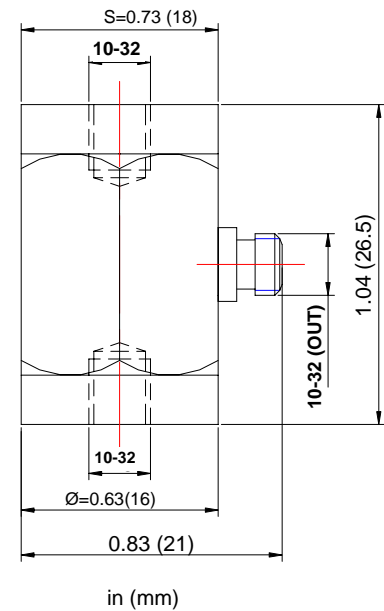
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### Description

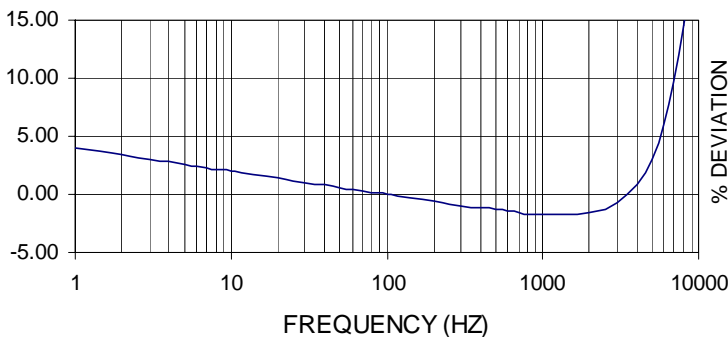
The VIP Sensors Model 1020A is a back-to-back comparison calibration accelerometer used for performing comparison calibrations of other accelerometers. The frequency response range (to 8 KHz) makes it very useful for calibrating a broad range of test accelerometers. The accelerometer is a self-generating device that requires no external power source for operation.

The Model 1020A design is a welded, stainless steel construction that is hermetically 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 side connector that is used with low-noise coaxial cable for error-free operation.

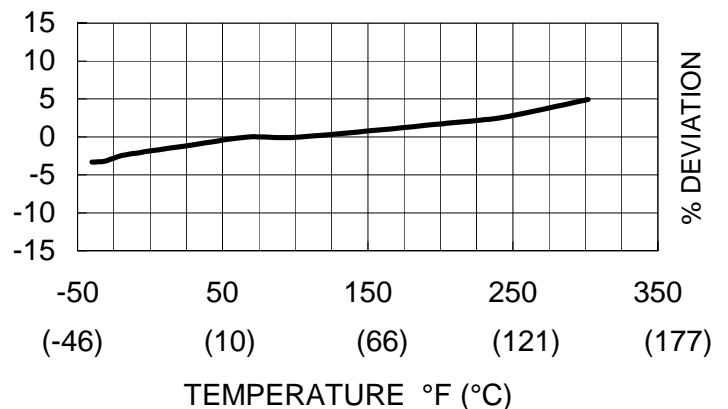
VIP Sensors Signal Conditioner Models 5002 and 5005 are recommended for use with this high impedance accelerometer.



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>		
Axial Sensitivity(20±5°C)	pC/g	1.3 (1.0 minimum)
Transverse Sensitivity	%	≤ 3
Frequency Response		See Typical Amplitude Response
Resonance Frequency	Hz	40,000
Amplitude Response		
± 5 %	Hz	1 – 6,000
± 1 dB	Hz	0.5 – 8,000
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
Resistance	GΩ	>1
Capacitance	pF	360
Grounding		Signal ground connected to case
<b>ENVIRONMENTAL CHARACTERISTICS</b>		
Temperature Range		-40°F to 302°F (-40°C to +150°C)
Humidity		Hermetically sealed, welded construction
Shock Limit	g pk	1,000
Base Strain	equiv. g pk/μ strain	0.0005
Magnetic Field Sensitivity	equiv. g rms/gauss (T)	1.5E-5 (1.5)
Thermal Transient Sensitivity	equiv. g pk/°C (°F)	0.05 (0.09)
<b>PHYSICAL CHARACTERISTICS</b>		
Weight	oz (grams)	0.9 (25)
Case Material		Stainless Steel
Mounting		10-32, torque 2 N-m (18 lbf-in)
Piezoelectric Material		Quartz
Structure		Center Compression
Output Connector		10-32 receptacle, side mounting
<b>ACCESSORIES</b>		
<b>Included:</b>		
9006-120	Cable, Low Noise 10-32/10-32, 10 ft (3.3 m)	
9504-8	Mounting Stud 10-32/10-32, x2	
<b>Optional:</b>		
9505-8	Mounting Stud, Isolated 10-32/10-32	
9604	Cable Adapter 10-32/10-32 (extend cable length)	
Calibration Sheet		

### NOTES

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