

# Industrial Accelerometer

## Model 5221-HF

- High Frequency Vibration Measurement
- API 670 Compatible
- Ground Isolated Faraday Shielding
- Resonance Suppression Circuitry



**ENDEVCO  
MODEL  
5221-HF**

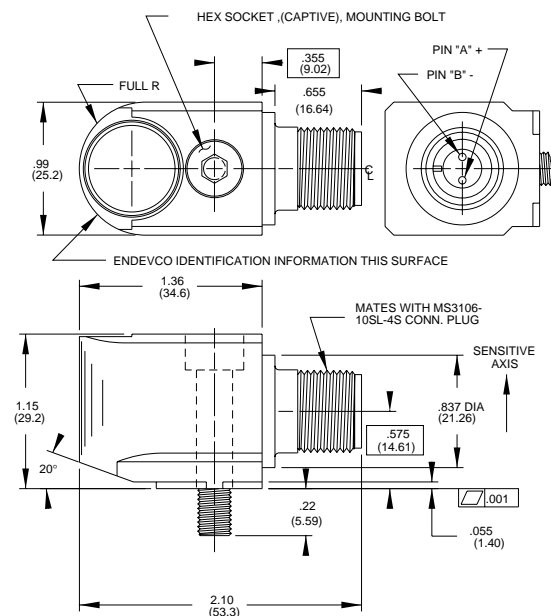


### DESCRIPTION

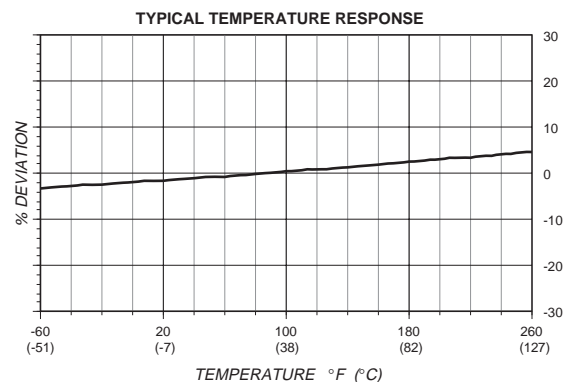
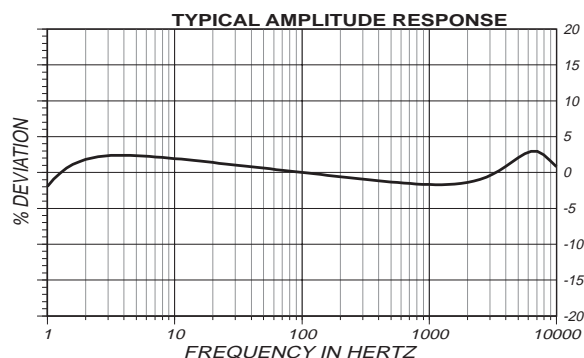
The ENDEVCO® Model 5221-HF series low profile piezoelectric accelerometer complies with the requirements of API 670 and is designed specifically for vibration measurement in the rugged environments of industrial machinery monitoring. This accelerometer incorporates an internal hybrid signal conditioning to provide a low impedance output. Model 5221-HF offers a very wide dynamic range and an extremely low noise floor. The Model 5221-HF incorporates an active 2-pole low-pass filter for resonance suppression. Signal ground is isolated from the mounting surface and outer case to prevent ground loops, and the sensor is hermetically sealed to ensure long-term operation with excellent stability.

The Model 5221-HF series features ENDEVCO's PIEZITE® Type P-8 crystal element, operating in shear mode, in an electrically isolated sensor and charge amplifier unit. Model 5221-HF is provided with both a 1/4-28 UNRF and M6 x 1-6g mounting bolts to accommodate either english or metric mounting threads.

The following performance specifications conform to ISA-RP-37.2 (1-64) and are typical values, referenced at +24°C (+75°F), 24 Vdc supply, 4 mA constant current and 100 Hz, unless otherwise noted. Calibration data, traceable to National Institute of Standards and Technology (NIST), is supplied.



DYNAMIC CHARACTERISTICS		Units
RANGE		g pk
VOLTAGE SENSITIVITY ±10%		mV/g
FREQUENCY RESPONSE		
RESONANCE FREQUENCY (Typical)		kHz
AMPLITUDE RESPONSE [1] [2]		
± 10%	Hz	1 to 10 000
± 3dB	Hz	0.5 to 18 000
TEMPERATURE RESPONSE		See Typical Curve
at -58°F to +248°F (-50°C to +120°C)	%	±10
TRANSVERSE SENSITIVITY	%	≤ 5
AMPLITUDE LINEARITY		
to 80 g peak	%	≤ 1



CERTIFIED  
ISO 9001



APPLIES TO CALIFORNIA FACILITY

# Industrial Accelerometer

## SPECIFICATIONS

The following performance specifications conform to ISA-RP-37.2 (1964) and are typical values, referenced at +75°F (+24°C), 24 Vdc supply, 4 mA, and 100 Hz, unless otherwise noted. Calibration data, traceable to National Institute of Standards and Technology (NIST), is supplied.

OUTPUT CHARACTERISTICS	Units	
OUTPUT POLARITY		Acceleration directed into base produces positive output
DC OUTPUT BIAS VOLTAGE	Vdc	
All with 80 g peak vibration input:		
at 75°F (24°C)		11.5 to 12.5
at -58°F to +211°F (-50°C to +99°C)		10.0 to 13.5
at +212°F to +248°F (+100°C to +120°C)		≤ ±100 mV/°C
		≤ ±56 mV/°F
All without vibration input:		
at 75°F (24°C)		12.5 to 13.5
at -58°F to +211°F (-50°C to +99°C)		11.0 to 14.0
at +212°F to +248°F (+100°C to +120°C)		≤ ±100 mV/°C
		≤ ±56 mV/°F
OUTPUT IMPEDANCE	Ω	50
FULL SCALE OUTPUT VOLTAGE	V	± 8
RESIDUAL NOISE		
2.5 Hz to 25 kHz at 24°C typical (max)	μg rms	300 (600)
at 120°C typical (max)	μg rms	300 (600)
1.0 Hz at 24°C typical (max)	μg	30 (60)
at 120°C typical (max)	μg	40 (80)
GROUNDING		Signal ground isolated from case and connected to Faraday shield
ISOLATION	MΩ	>10
-58°F to +248°F (-50°C to +120°C)		

## POWER REQUIREMENT

SUPPLY VOLTAGE	Vdc	+22 to +30
SUPPLY CURRENT	mA	+2 to +10
OVER VOLTAGE PROTECTION	Vdc	> 40
WARM-UP TIME	sec	≤ 1
To within 10% of final bias		
REVERSE POLARITY PROTECTION		Provided

## ENVIRONMENTAL CHARACTERISTICS

TEMPERATURE RANGE		-58°F to +248°F (-50°C to +120°C)
HUMIDITY		Hermetic sealed
SINUSOIDAL VIBRATION LIMIT	g pk	500
SHOCK LIMIT	g pk	5000
BASE STRAIN SENSITIVITY	equiv. μg pk/μ strain	.002

## PHYSICAL CHARACTERISTICS

DIMENSIONS		See Outline Drawing
WEIGHT (without cable)	oz (gm)	145 (5.1)
CASE MATERIAL		316L Stainless Steel
MATING PLUG		MS3106-10SL-4S or MS3456L-10SL-4S
MOUNTING TORQUE	in-lbs (N-m)	24 (2.9)

## CALIBRATION

SUPPLIED:	
SENSITIVITY	mV/g

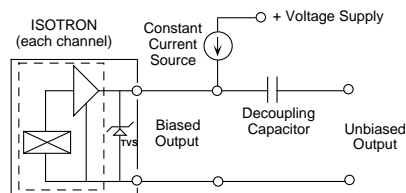
ACCESSORIES	INCLUDED
MODEL 32257	1/4-28 UNRF Captive Mounting Bolt, Modified Shank
MODEL 32265	M6 x 1-6g Captive Mounting Bolt, Metric, Modified Shank

ACCESSORIES	OPTIONAL
MODEL 6923M9	Cable Assembly (MS3456L-10SL-4S Connector), single shield
MODEL 6923M16	Cable Assembly (MS3456L-10SL-4S Connector), double shield

## NOTES

- Also available with low-end corner frequency down to 0.08 Hz
- Frequency response verified on subassembly due to shaker loading effects of final assembly.

- Maintain high levels of precision and accuracy using Endevco's factory calibration services. Call Endevco's inside sales force at 800-982-6732 for recommended intervals, pricing and turn-around time for these services as well as for quotations on our standard products.



Continued product improvement necessitates that Endevco reserve the right to modify these specifications without notice. Endevco maintains a program of constant surveillance over all products to ensure a high level of reliability. This program includes attention to reliability factors during product design, the support of stringent Quality Control requirements, and compulsory corrective action procedures. These measures, together with conservative specifications have made the name Endevco synonymous with reliability.