







PIEZOELECTRIC ACCELEROMETER

MODEL: CA-YD-139D

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

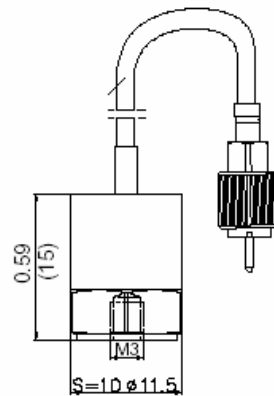


actual size

Description

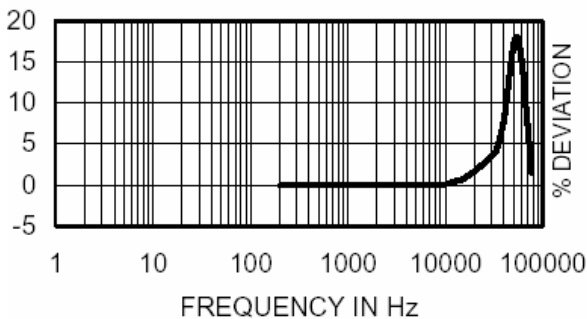
The Sensors Model 139D is a miniature piezoelectric accelerometer for vibration and shock measurements. Its light weight effectively minimizes mass loading. The accelerometer is a self-generating device that requires no external power source for operation.

The Model 139D 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.

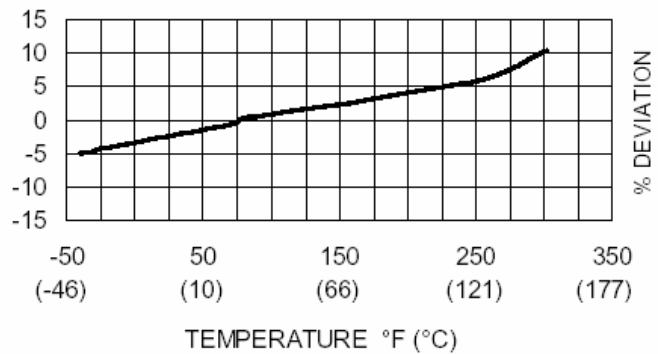


in (mm)

Typical Amplitude Response



Typical Temperature Response



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 (I/T)	2E-5 (2)
Thermal Transient Sensitivity	equiv. g pk/°F (I/°C)	0.0072 (0.004)
PHYSICAL CHARACTERISTICS		
Weight	oz (grams)	0.18 (5) without cable
Case Material		Stainless Steel
Mounting		M3, 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:

9504-3 M3/10-32 Mounting Stud
 Calibration Certificate

Optional:

9504-5 M3/M3 Mounting Stud
 9505-3 M3/10-32 Isolated Mounting Stud

NOTES

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