533A

Tri-axial water-proof IEPE accelerometer

Description

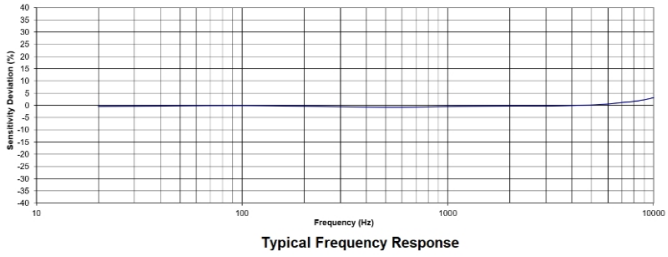
Model 533A is an IEPE triaxial accelerometer designed for industrial applications. The accelerometer uses shear piezo electronical element which provides a wide operating frequency range. The IEPE sensor combines outstanding crystals and low noise integral microelectronics to achieve very low sensitivity variation over the operating temperature range, compared to other sensing element designs. The shear element technology also ensures high immunity to base strain errors. The accelerometer uses a welded stainless steel construction and a light weight connector or integral cable assembly for lower mass and wider frequency operation. Model 533A can be mounted by screw through the center hole benefit of flexible cable exit. Excellent frequency response, both amplitude and phase, provide the user with a triaxial accelerometer ideally suited for structural and component testing, drop tests and general laboratory vibration work. The miniature size of this accelerometer enables the test engineer or technician to measure the accelerations of three orthogonal axes of vibration simultaneously on lightweight structures. All variations provide reliable measurements and long-term stability.

Features

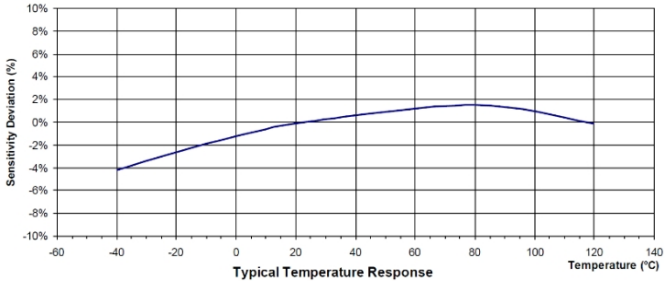
- Tri-axial measurement
- Case Isolated
- Internally Shielded
- Through hole mounting
- Hermetic seal
- Annular shear mode
- Wide temperature range
- Wide frequency response

Application

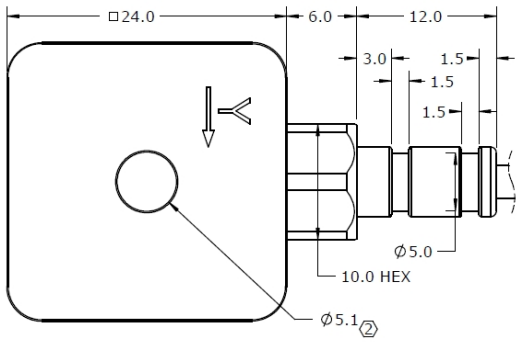
- Vibration monitoring
- Shock testing
- Road testing
- Modal analysis
- Aircraft testing

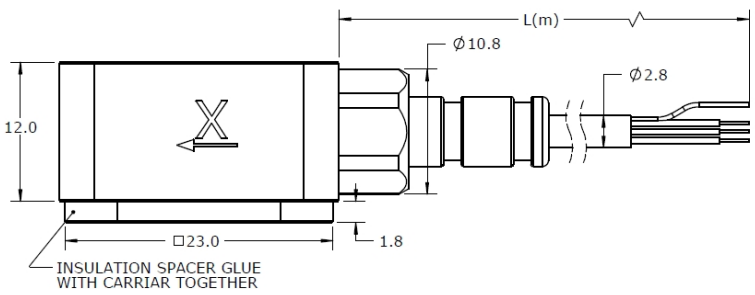


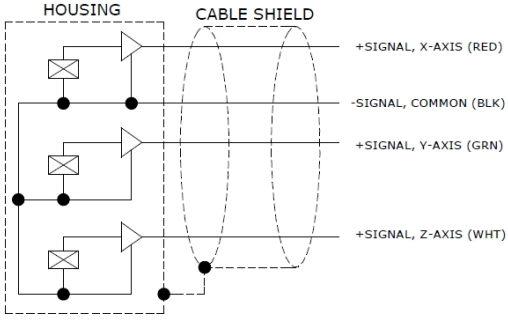
Typical Frequency Response



Typical Temperature Response







Specification

Typical at +24°C (+75°F), 24Vdc, 4 mA and 100Hz, unless otherwise stated.

Part Number	533A-10	533A-20	533A-50	533A-100	533A-200	533A-250	533A-500	
Measurement Range	10	20	50	100	200	250	500	g
Sensitivity, ±10%	500	250	100	50	25	20	10	mV/g
Frequency Response, ±10%	5-2000	2.5-3000	1-3000	1-3000	1-3000	1-3000	1-3000	Hz
Frequency Response, ±3dB	3-5000	2-6000	0.5-6000	0.5-6000	0.5-6000	0.5-6000	0.5-6000	Hz
Resonant Frequency	38	38	38	38	38	38	38	kHz
Transverse Sensitivity	<5	<5	<5	<5	<5	<5	<5	%
Temperature Response, -55 to +125°C	±10	±10	±10	±10	±10	±10	±10	%
Non-Linearity	±1	±1	±1	±1	±1	±1	±1	%FSO
Residual Noise (2 Hz to 30 KHz)	0.0002	0.0003	0.0004	0.0005	0.0005	0.0005	0.0012	Equiv. g RMS
Shock Limit	5000	5000	5000	5000	5000	5000	5000	g

Parameters	Value	Units
Bias Voltage (Room Temperature)	8 to 12	Vdc
Bias Voltage (-55°C To 125°C)	6 to 13	Vdc
Output Impedance	<100	Ω
Full Scale Output Voltage	±5	V
Insulation Resistance (@100Vdc)	>100	MΩ
Supply (Compliance) Voltage	18 to 30	Vdc
Supply Current	2 to 10	mA
Operating & Storage Temperature	-55 to +125°C	°C
Humidity	Hermetically Sealed	
Case Material	Stainless steel	
Sensing Element	Piezo Ceramic	
Weight	30	Grams
Mounting Torque	18 (2)	lb-in (N-m)

Accessories

Calibration certificate included.

Part Number	Description	Availability
PM0111	M5x25 socket cup head screw with insulation tube	Included
PM0242	M5 insulation flat washer	Included
IN-03	3 channels IEPE signal conditioner	Optional
IN-91	Portable vibration analyzer	Optional
IN-3062	8 channels data acquisition system	Optional

Measurement configuration

Sensor	Signal conditioner	BNC cable	Data acquisition	Computer
				

Ordering information

533	A	-	50	-	3
Model	Output signal	-	Range	-	Cable length
533	A=IEPE output	-	10=10g 20=20g 50=50g 100=100g 200=200g 250-250g 500=500g	-	3=3 meters

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