

# Piezoelectric Accelerometer

中国

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**ENDEVCO**  
**MODEL**  
**2271A/**  
**AM20**

## Model 2271A/AM20

- Low Temperature Operation
- Hermetically Sealed
- Flat Temperature Response (-269°C)
- Ground Isolated
- Vibration at Cryogenic Temperatures



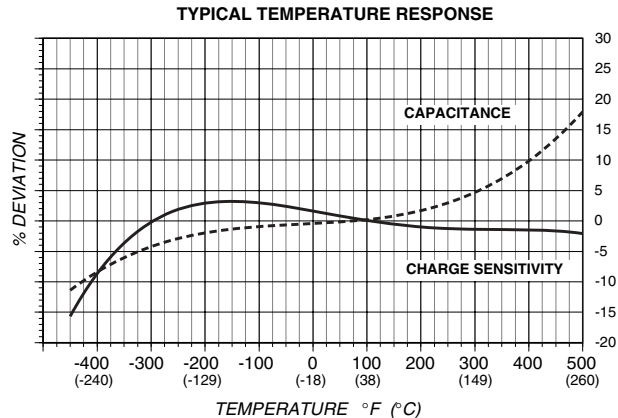
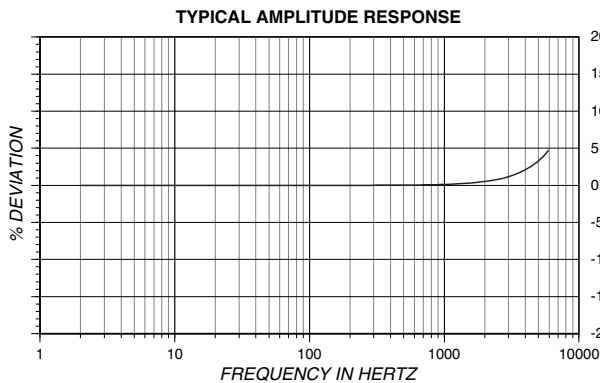
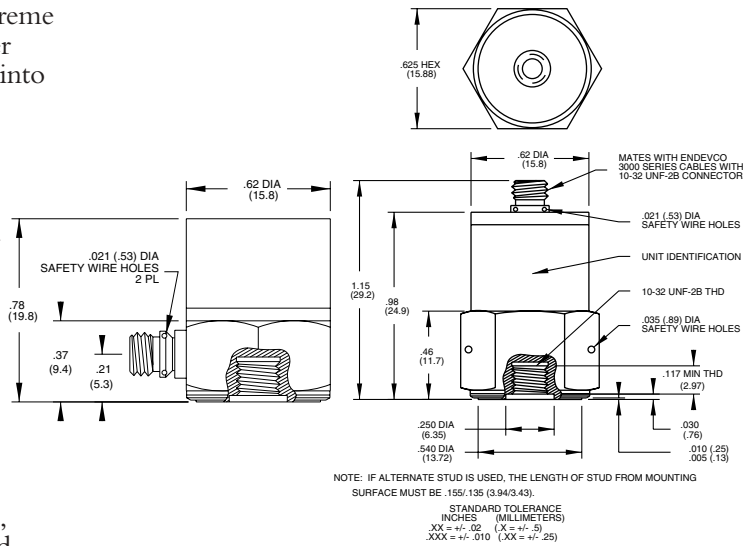
Actual size

### DESCRIPTION

The ENDEVCO® Model 2271A/AM20 is a wide-temperature-range piezoelectric accelerometer designed to measure vibration in cryogenic-temperature applications. The unit is hermetically sealed and is ideal for use in extreme environmental conditions. This accelerometer offers an unusually flat temperature response into a wide temperature range. The accelerometer is a self-generating device that requires no external power source for operation.

Model 2271A/AM20 features ENDEVCO's PIEZITE® Type P-10 crystal element operating in compression mode. This unit exhibits excellent output sensitivity stability over time. Signal ground is isolated from the outer case of the unit. The 2271A features a 10-32 side-connector and the 2271AM20 has a 10-32 top connector. A low-noise coaxial cable is supplied for error-free operation.

ENDEVCO Signal Conditioner Models 133, 2775A or OASIS 2000 Computer-Controlled System are recommended for use with these high impedance accelerometers.



# Piezoelectric Accelerometer

## 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.

DYNAMIC CHARACTERISTICS	Units	
CHARGE SENSITIVITY		
TYPICAL	pC/g	11.5
MINIMUM	pC/g	10
FREQUENCY RESPONSE		
RESONANCE FREQUENCY	kHz	27
AMPLITUDE RESPONSE [1]		
±5%	Hz	2 to 4000
±1dB	Hz	.5 to 6000
±1dB (AM20)	Hz	.5 to 7000
TEMPERATURE RESPONSE		
See Typical Curve		
TRANSVERSE SENSITIVITY		
≤ 3 (≤ 1 on special order)		
AMPLITUDE LINEARITY [2]		
1		
Per 1000 g, 0 to 10 000 g		

## ELECTRICAL CHARACTERISTICS

OUTPUT POLARITY		Acceleration directed into base of unit produces positive output.
RESISTANCE	GΩ	≥ 10
ISOLATION	GΩ	1
CAPACITANCE	pF	2000
GROUNDING		Signal return isolated from case

## ENVIRONMENTAL CHARACTERISTICS

TEMPERATURE RANGE [3]		-452°F to +500°F (-269°C to +260°C)
HUMIDITY		Hermetically Sealed
SINUSOIDAL VIBRATION LIMIT	g pk	1000
SHOCK LIMIT	g pk	10 000
BASE STRAIN SENSITIVITY	equiv. g pk/μ strain	0.002
ELECTROMAGNETIC SENSITIVITY	equiv. g rms/gauss	0.0003

## PHYSICAL CHARACTERISTICS

DIMENSIONS		See Outline Drawing
WEIGHT	gm (oz)	27 (0.95)
CASE MATERIAL		Stainless Steel
CONNECTOR		10-32 UNF-2A Thd mates with Endevco Model 3090C Cable or equivalent
2271A Side-Connector		
2271AM20 Top-Connector		
MOUNTING TORQUE	lbf-in (Nm)	18 (2)

## CALIBRATION

SUPPLIED:		
FREQUENCY RESPONSE	%	20 to 6000 Hz
	dB	6 kHz to 40 kHz
SENSITIVITY		
	pC/g	
MAXIMUM TRANSVERSE SENSITIVITY		
	%	
CAPACITANCE		
	pF	

## ACCESSORIES

Model 3090C-120 (10 ft) CABLE ASSEMBLY  
 Model 2981-12 MOUNTING STUD, 10-32 to 10-32  
 EHM464 HEX KEY WRENCH

## OPTIONAL ACCESSORIES

Model 2981-3 ADAPTER STUD, 10-32  
 Model 2981-4 MOUNTING STUD, 10-32 to M5  
 Model 2771AM3 IN-LINE CHARGE CONVERTOR FOR USE WITH CONSTANT CURRENT SOURCE  
 Model 2950 TRIAXIAL MOUNTING BLOCK

- Short duration shock pulses, such as those generated by metal-to-metal impacts, may excite transducer resonance and cause linearity errors. Send for TP290 for more details.
- Exposure to rapid temperature change greater than 100°F (38°C) per minute may cause the device to produce spurious high frequency discharges for several minutes.
- 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.

## NOTES

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

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.

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