PERFORMANCE SPECIFICATION
ACCELEROMETER
2271A

Document Number	Rev	Date	Entered by	Description of Change	Change Accountable Engineer	ECO
77318	NR	2/8/23	NAD	Initial Release of Performance Specification of 2271A	DAM	53519

1.0 DESCRIPTION

The ENDEVCO® Model 2271A is a wide-temperature-range piezoelectric accelerometer designed to measure vibration even in cryogenic-temperature applications. The unit is hermetically sealed for use in extreme environments and to ensure long term stability. The accelerometer offers an unusually flat temperature response into a wide temperature range.

The Model 2271A features ENDEVCO's PIEZITE® Type P-10 crystal element operating in the compression mode which exhibits excellent output sensitivity stability over time. This piezoelectric accelerometer is self-generating and requires no external power for operation. Signal ground is isolated from the outer case of the unit. The 2271A features a 10-32 side connector. A low-noise coaxial cable is required for error-free operation.

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	
2.0	**DYNAMIC CHARACTERISTICS**		
2.1	CHARGE SENSITIVITY		
2.1.1	Typical	pC/g	11.5
2.1.2	Minimum	pC/g	10.0
2.2	FREQUENCY RESPONSE		See Typical Curve
2.2.1	Resonance Frequency		
2.2.1.1	Typical	kHz	27
2.2.1.2	Minimum	kHz	24
2.2.2	Amplitude Response [1] ± 5% ±1 dB (ref.)	 Hz Hz	 1 to 4000 1 to 8000
2.3	TEMPERATURE RESPONSE [3]		See Typical Curve
2.3.1	At -300°F (-184°C) max/min	%	+7/-10

		Units	
2.3.2	At +500°F (+260°C) max/min	%	+4/-8
2.4	TRANSVERSE SENSITIVITY	%	≤ 3 (≤ 1 on special order)
2.5	AMPLITUDE LINEARITY Per 1000 g, 0 to 10000 g	%	1
3.0	**ELECTRICAL CHARACTERISTICS**		
3.1	OUTPUT POLARITY		Acceleration directed into base of unit produces positive output.
3.2	RESISTANCE	GΩ	≥ 10
3.2.1	At +500°F (+260°C)	MΩ	≥ 100
3.2.2	Isolation	GΩ	1
3.3	CAPACITANCE	pF	2000
3.4	GROUNDING		Signal return isolated from case.
4.0	**ENVIRONMENTAL CHARACTERISTICS**		
4.1	TEMPERATURE RANGE		-452°F to +500°F (-269°C to +260°C)
4.2	HUMIDITY		Hermetically Sealed
4.3	SINUSOIDAL VIBRATION LIMIT	g pk	1000
4.4	SHOCK LIMIT [2]	g pk	10000
4.5	BASE STRAIN SENSITIVITY	equiv. g pk/μ strain	0.002
4.6	ELECTROMAGNETIC SENSITIVITY	equiv. g rms/gauss	0.0003
5.0	**PHYSICAL CHARACTERISTICS**		
5.1	DIMENSIONS		See Outline Drawing
5.2	WEIGHT	gm (oz)	27 (0.95)
5.3	CASE MATERIAL		Stainless Steel
5.4	CONNECTOR		10-32 UNF-2A Thd mates with Endevco 3000 Series cable assembly or equivalent.

		Units	
5.5	MOUNTING TORQUE	lbf-in (N·m)	18 (2)
6.0	**ACCESSORIES**		
6.1	SUPPLIED		
	3090DV-120 (10 ft) [4] 92981-12 EHM464 [4]	Cable Assy, 1x Mounting Stud, 10-32, Hex ID, 1x Hex Key Wrench, 1x	
6.2	OPTIONAL		
	2981-3	Adapter Stud, 10-32, 1x	
7.0	**CALIBRATION**		
7.1	SUPPLIED		
7.1.1	Frequency Response	% dB	20 to 6000 Hz 6 kHz to 40 kHz
7.1.2	Sensitivity	pC/g	
7.1.3	Maximum Transverse Sensitivity	%	
7.1.4	Capacitance	pF	

8.0 **NOTES**

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

[2] Shock pulses of short duration may excite transducer resonance. Shock level above the sinusoidal vibration limit may produce temporary zeroshift which will result in erroneous velocity or displacement data after integration.

[3] Spurious high frequency discharge may be exhibited by this device for several minutes after exposure to temperature transients of greater than +100°F (+38°C) per minute.

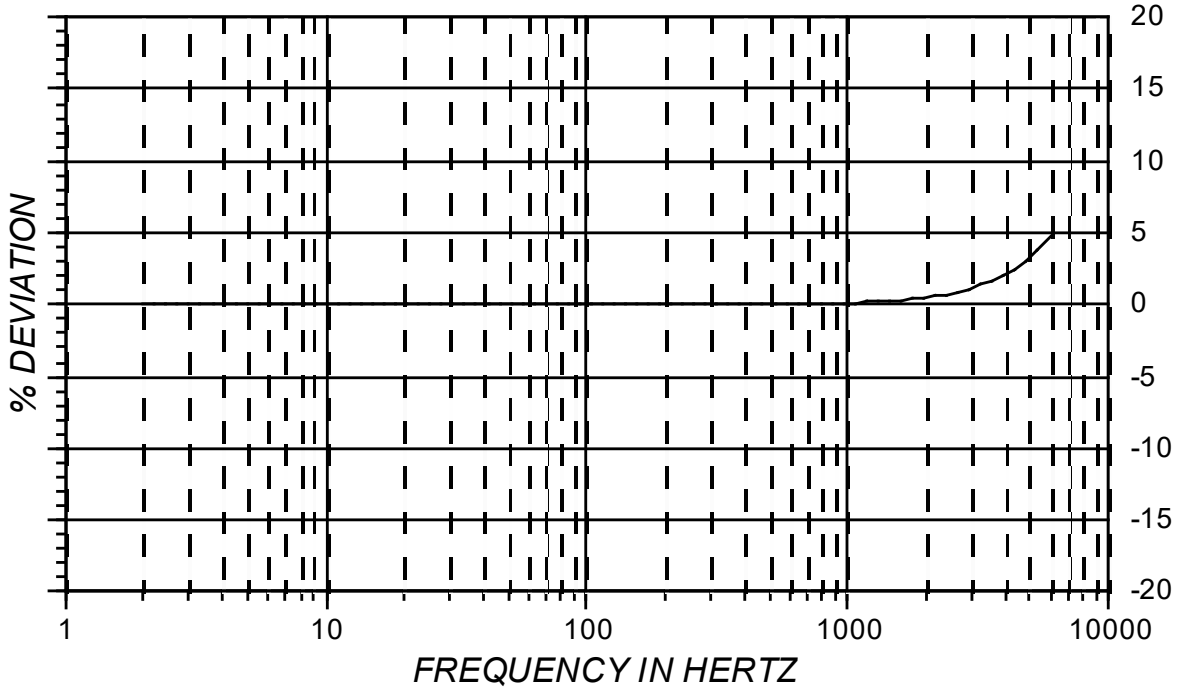
[4] For the "-R" assemblies the noted accessories are optional.

5 Model Number Definition

2271A – R

- R: Indicates replacement unit only available on 2271A units (omit if units are not replacements).
- 2271A: Basic Model Number

TYPICAL AMPLITUDE RESPONSE



TYPICAL TEMPERATURE RESPONSE