

PERFORMANCE SPECIFICATION  
 TRIAXIAL ACCELEROMETER  
 2230EM1

Document Number	Rev	Date	Entered by	Description of Change	Change Accountable Engineer	ECO
76171	NR	2/16/22	NAD	Release of 2230EM1 Triaxial Accelerometer Performance Specification	DAM	52599

 1.0 **DESCRIPTION**

The ENDEVCO® Model 2230EM1 is a small triaxial piezoelectric accelerometer designed specifically for vibration measurement in three orthogonal axes on small structures and objects. The transducer features three M3 receptacles for output connection, and is flange mounted using #4 or 3mm screws. Its light weight (22.5gm) effectively minimizes mass loading effects.

The Model 2230EM1 features ENDEVCO's PIEZITE® Type P-8 crystal elements, operating in annular shear mode, which exhibit excellent output sensitivity stability over time. This piezoelectric accelerometer self-generates its high impedance output and requires no external power for operation. Signal ground is connected to the case and mounting surface of the unit. A low-noise, flexible coaxial cable is required for error-free operation.

The following performance specifications conform to ISA-RP-37.2 (1-64) 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	Each Axis
2.0	<b><u>DYNAMIC CHARACTERISTICS</u></b>		
2.1	CHARGE SENSITIVITY		
	Typical	pC/g	3.0
	Minimum	pC/g	2.0
2.2	FREQUENCY RESPONSE		See Typical Curve
2.2.1	Resonance Frequency		
	Typical	kHz	21
	Minimum	kHz	16
2.2.2	Amplitude Response [1]		
	± 5%	Hz	1 to 5,000
	±1 dB (ref.)	Hz	1 to 10,000
2.3	TEMPERATURE RESPONSE		See Typical Curve
	At -67°F (-55°C) max/min	%	-18 / -5
	At +350°F (+177°C) max/min	%	+20 / -5
2.4	TRANSVERSE SENSITIVITY	%	≤ 5
2.5	AMPLITUDE LINEARITY	%	1 per 500 g, 0 to 2000 g

	Units	Each Axis
<b>3.0</b>	<b><u>ELECTRICAL CHARACTERISTICS</u></b>	
3.1		Acceleration in the direction of the axis arrow produces positive output.
3.2	GΩ	≥ 10
	MΩ	≥ 25
3.3	pF	770
3.4	GROUNDING Signal return connected to case.	
<b>4.0</b>	<b><u>ENVIRONMENTAL CHARACTERISTICS</u></b>	
4.1		-67°F to +500°F (-55°C to +260°C)
4.2		Hermetically sealed
4.3	g pk	1000
4.4	g pk	2000
4.5	equiv. g rms/gauss	0.01
<b>5.0</b>	<b><u>PHYSICAL CHARACTERISTICS</u></b>	
5.1		See Outline Drawing
5.2	gm (oz)	22.5 (0.79)
5.3		304L Stainless Steel
5.4		M3 X 0.5 6H thread
5.5	lbf-in (Nm)	13.5 (1.5)
<b>6.0</b>	<b><u>ACCESSORIES</u></b>	
6.1	SUPPLIED Cable Assembly [3][4] Screw, Cap, 4-40 X .375	3053V-120, 3X EDVEH409, 2X
6.2	OPTIONAL Cable Assembly Cable Assembly	3053VM1-120, 3X 3091-118, 3X

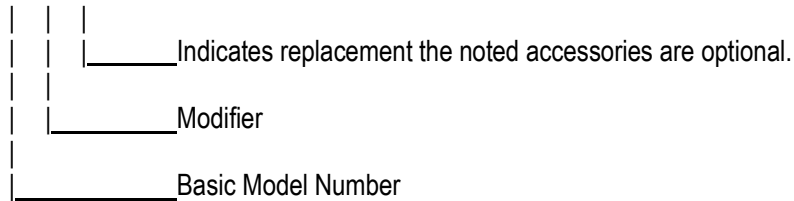
7.0 **CALIBRATION**

7.1	SUPPLIED		
	Charge Sensitivity	pC/g	
	Capacitance	pF	
	Maximum Transverse Sensitivity	%	
	Charge Frequency Response	%	20 to 10,000 Hz

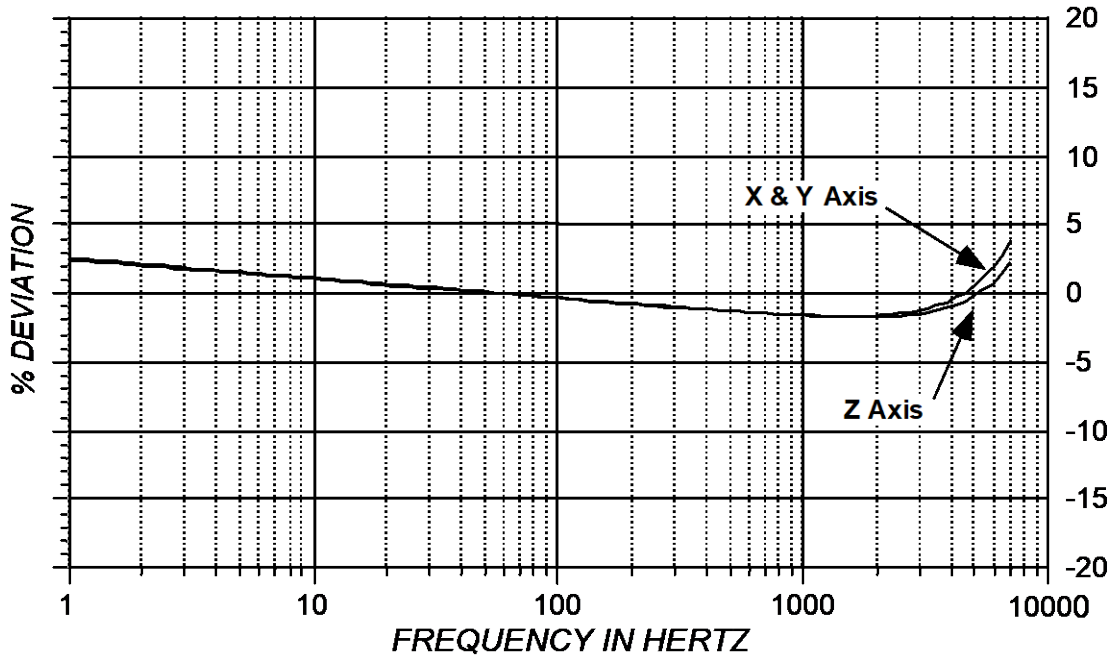
8.0 **NOTES**

- [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 zero shift, which will result in erroneous velocity or displacement data after integration.
- [3] Flexible cable, such as the supplied 3053V, should be used to minimize cable-strain errors.
- [4] For "-R" assemblies the noted accessories are optional.

5 2230E M1 -R (Model number definition)



**TYPICAL AMPLITUDE RESPONSE, MODEL 2230EM1**



**TYPICAL TEMPERATURE RESPONSE, MODEL 2230EM1**

