

PERFORMANCE SPECIFICATION
 PIEZOELECTRIC ACCELEROMETER
 2222C-X

Document Number	Rev	Date	Entered by	Description of Change	Change Accountable Engineer	ECO
76895	NR	9/15/22	NAD	Initial Release of 2222C-X Piezoelectric Accelerometer Performance Specification	DAM	53147

1.0 DESCRIPTION

The ENDEVCO® Model 2222C-X is an extremely small, adhesively mounted piezoelectric accelerometer designed specifically for vibration measurement on mini-structures and small objects. Its light weight, 0.5 gm without the low-noise replaceable cable, effectively minimizes mass loading effects.

The Model 2222C-X features ENDEVCO's PIEZITE® Type P-8 crystal element, operating in the radial shear mode, which exhibits 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 isolated from the mounting surface of the unit by a hard anodized layer. A specially designed low-noise coaxial cable is required for error-free operation. Unit and cable removal tools are included in the package to ensure proper removal in the field.

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.

		<u>UNITS</u>	
2.0	<u>DYNAMIC CHARACTERISTICS</u>		
2.1	CHARGE SENSITIVITY		
2.1.1	Typical	pC/g	1.4
2.1.2	Minimum	pC/g	1.0
2.2	FREQUENCY RESPONSE		See Typical Curve
2.2.1	Resonance Frequency		
2.2.1.1	Typical	kHz	32
2.2.1.2	Minimum	kHz	25
2.2.2	Amplitude Response [1]		
	± 10%	Hz	1 to 8000
	±1 dB (ref.)	Hz	1 to 10000
2.3	TEMPERATURE RESPONSE		See Typical Curve
2.3.1	-67°F (-55°C) max/min	%	-15 / 0

		<u>UNITS</u>	
2.3.2	+350°F (+177°C) max/min	%	+15 / 0
2.4	TRANSVERSE SENSITIVITY	%	≤5
2.5	AMPLITUDE LINEARITY Per 200 g, 0 to 2000 g	%	1
3.0	<u>ELECTRICAL CHARACTERISTICS</u>		
3.1	OUTPUT POLARITY		Acceleration directed into the base of the unit produces positive output.
3.2	RESISTANCE (With 3093A-12 Cable)	GΩ	≥ 10
3.2.1	At +350°F (+177°C) (With 3093A-12 Cable)	GΩ	≥ 0.5
3.3	ISOLATION	MΩ	≥ 1 at 100 Vdc
3.4	CAPACITANCE	pF	470
3.5	GROUNDING		Signal return isolated from mounting surface.
4.0	<u>ENVIRONMENTAL CHARACTERISTICS</u>		
4.1	TEMPERATURE RANGE		-100°F to +350°F (-73°C to +177°C)
4.2	HUMIDITY [2]		Sealed by silicone compound
4.3	SINUSOIDAL VIBRATION LIMIT [3]	g pk	1000
4.4	SHOCK LIMIT [4]	g pk	10 000
4.5	BASE STRAIN SENSITIVITY	equiv. g pk/μ strain	0.04
4.6	THERMAL TRANSIENT SENSITIVITY	equiv. g pk/°F (°C)	0.05 (0.09)
5.0	<u>PHYSICAL CHARACTERISTICS</u>		
5.1	DIMENSIONS		See Outline Drawing
5.2	WEIGHT		
5.2.1	Sensor	gm (oz)	0.5 (0.018)
5.2.2	Cable (12" long)	gm (oz)	3.7 (0.13)
5.3	CASE MATERIAL		Aluminum, hard anodized

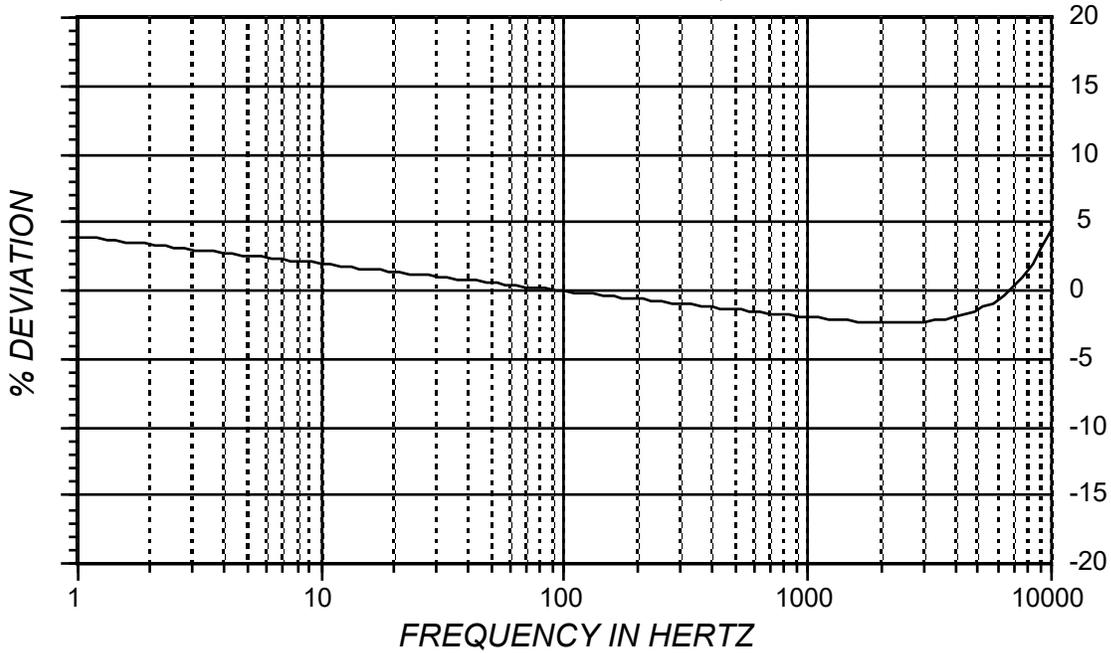
UNITS

5.4	CONNECTOR		3093-12 Cable Assembly
5.5	MOUNTING [5]		Adhesive
6.0	<u>ACCESSORIES</u>		
6.1	SUPPLIED		
6.1.1	Removal Tool	1 x	Model 2943B [6]
6.1.2	Cable Assembly	1 x	Model 3090C-120 (10 ft)
6.1.3	Wrench	1 x	P/N 16205 [6]
6.1.4	Mounting Wax	1 x	P/N 32279 [6]
6.2	OPTIONAL		
6.2.1	Cable Assembly	1x	3095A
6.2.2	Mounting Block	1x	2961
6.2.3	Cable Assembly	1x	3090C-XXX [6]
7.0	<u>CALIBRATION</u>		
7.1	SUPPLIED		
7.1.1	Charge Frequency Response	%	20 to 10 000 Hz
7.1.2	Charge 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] Removing cable exposes accelerometer interior to environment. See Instruction Manual before replacing cable assembly.
- [3] When exposed to high g, low frequency vibration, the cable must be tied down as close to the accelerometer as possible to prevent cable whip which will cause cable failure.
- [4] 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.
- [5] Cyanoacrylate adhesives are recommended for temporary mounting applications. To remove the accelerometer, soften the adhesive with the appropriate solvent and use the removal tool supplied with each accelerometer. Striking or applying excessive torque to break the glue bond will cause permanent damage to the transducer.
- [6] For -R units, the accessories noted are optional.
- [7] Model Number Definition:
2222C -R
| |_____ Indicates replacement unit. (Omit if unit is not a replacement)
|_____ Basic Model Number

TYPICAL AMPLITUDE RESPONSE, MODEL 2222C



TYPICAL TEMPERATURE RESPONSE, MODEL 2222C

