PERFORMANCE SPECIFICATION
ACCELEROMETER
7250B-NM

Document Number	Rev	Date	Entered by	Description of Change	Change Accountable Engineer	ECO
79702	NR	10/15/24	DAM	Initial Release of Performance Specification Accelerometer, 7250B-NM	DAM	55225

1.0 DESCRIPTION

The ENDEVCO® Model 7250B-NM is a subminiature, piezoelectric accelerometer designed specifically for noise measurement. This unit is hermetically sealed for use in extreme environments and to ensure long-term operation with excellent stability. This accelerometer offers high resonance frequency and wide bandwidth, the light weight (1.8 gm) effectively eliminates mass loading effects. The 7250B-NM features a 6-40 coaxial connector, requiring a specifically designed coaxial cable for error free operation.

The Model 7250B-NM features ENDEVCO's PIEZITE® Type P-8 crystal element, operating in annular shear mode. This accelerometer incorporates an internal hybrid signal conditioner in a two-wire system, which transmits its low impedance voltage output through the same cable that supplies the constant current power. Signal ground is connected to outer case of the unit and, when used with an isolated mounting screw/washer, it is electrically isolated from ground. The centrally located mounting bolt permits 360° cable orientation; however, the unit may also be adhesively mounted. A model number suffix indicates acceleration sensitivity in mV/g; i.e., 7250B-NM features output sensitivity of 0 mV/g and is intended for noise measurement only.

The following performance specifications conform to ISA-RP-37.2 and are referenced at +75°F (+24°C), 4 mA, and 100 Hz, unless otherwise noted.

		Units	Range Dash Number -NM
2.0	**DYNAMIC CHARACTERISTICS**		
2.1	RANGE	g	NA
2.2	VOLTAGE SENSITIVITY	mV/g	0
2.3	FREQUENCY RESPONSE		NA
2.3.1	Resonance Frequency	kHz	NA
2.3.2	Amplitude Response	Hz	NA
2.4	TEMPERATURE RESPONSE		NA
2.4.1	At -67°F (-55°C) max/min	%	NA
2.4.2	At +257 (+125°C) max/min	%	NA

		Units	Range Dash Number
2.5	TRANSVERSE SENSITIVITY	%	NA
2.6	AMPLITUDE LINEARITY	%	NA
3.0	**OUTPUT CHARACTERISTICS**		
3.1	OUTPUT POLARITY		NA
3.2	DC OUTPUT BIAS VOLTAGE	Vdc	+11.0 to +14.0
3.2.1	-67°F to +257°F (-55°C to +125°C)	Vdc	+7.5 to +14.0
3.3	OUTPUT CONNECTION		See Connection Diagram
3.4	OUTPUT IMPEDANCE	Ω	≤ 200
3.5	FULL SCALE OUTPUT VOLTAGE	V	NA
3.6	RESIDUAL NOISE 1 Hz to 10 kHz	equiv. g rms	0.001
3.9	GROUNDING		Signal ground connected to case. Isolation achieved via isolated mounting washer or isolated screw.
4.0	**POWER REQUIREMENT**		
4.1	SUPPLY VOLTAGE	Vdc	+18 to +28
4.2	SUPPLY CURRENT	mA	+2 to +20
4.3	WARM-UP TIME To 10% of final bias level	sec	< 3
5.0	**ENVIRONMENTAL CHARACTERISTICS**		
5.1	TEMPERATURE RANGE		-67°F to +257°F (-55°C to +125°C)
5.2	HUMIDITY		Hermetically sealed
5.3	SINUSOIDAL VIBRATION LIMIT	g pk	2000
5.4	SHOCK LIMIT	g pk	10000
		Units	Range Dash Number
5.5	BASE STRAIN SENSITIVITY		
5.5.1	Screw Mounted	equiv. g pk/μ strain	NA

5.5.2	Adhesive Mounted	equiv. g pk/μ strain Units	NA Range Dash Number
5.6	THERMAL TRANSIENT SENSITIVITY	equiv. g pk/°F	NA
5.7	ELECTROMAGNETIC SENSITIVITY	equiv. g rms/gauss	NA
5.8	ACOUSTIC SENSITIVITY At 155 dB SPL	g	NA
5.9	SENSITIVITY STABILITY	%/yr	NA
6.0	**PHYSICAL CHARACTERISTICS**		
6.1	DIMENSIONS		See Outline Drawing
6.2	WEIGHT		
6.2.1	Without Mounting Screw	gm (oz)	1.8 (0.06)
6.2.2	With Mounting Screw	gm (oz)	2.3 (0.08)
6.3	CASE MATERIAL		Titanium
6.4	CONNECTOR		6-40 threaded receptacle
6.5	MOUNTING TORQUE	lbf-in (Nm)	5 (0.57)
7.0	**ACCESSORIES**		
7.1	SUPPLIED 3091F-120 EDVEHM178 EDV12746		 Cable Assembly, 1X Allen Wrench, 1X Insulated Mounting Screw Kit, 1X
7.2	OPTIONAL EDVEH96 EDVEHW95 EDVEHN64		 Cap Screw Hex Socket, 2-56 X 3/8, 1X Washer, 1X Nut, 2-56, 1X
8.0	**CALIBRATION**		
8.1	SUPPLIED- none		
8.1.1	SENSITIVITY	mV/g	NA
8.1.2	Maximum Transverse Sensitivity	%	NA
8.1.3	Frequency Response	dB	NA

9.0 **NOTES**

[1] 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.

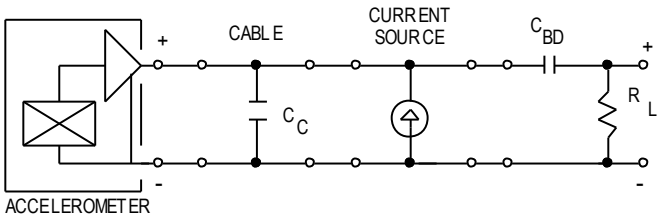
[2] Model Number Definition:

7250B – NM

Noise Measurement

Basic Model Number

CONNECTION DIAGRAM, EACH CHANNEL



- Range is dependent on the sensitivity of the unit and bias, and the compliance voltage of the constant current power source. The positive range is limited to the difference between the compliance voltage and the unit's bias, divided by the unit's sensitivity. The negative range is limited to approximately 2 volts less than the bias voltage divided by the unit's sensitivity.

- Cable capacitance C_C will load the accelerometer output, affecting frequency response, and is dependent on the magnitude of constant current, as shown in Load Capacitance vs. Frequency Plot.

- Bias decoupling capacitor C_{BD} and load resistor R_L can be determined from: where f is the lowest frequency of interest.

$$f_{-3\,dB} = \frac{1}{2\pi R_L C_{BD}}$$

THEORETICAL LOAD DIAGRAM

(for 5V output and 20 kΩ Load Minimum)