

PERFORMANCE SPECIFICATION
 ACCELEROMETER
 773A-XXX-Y-ZZZ
 RoHS COMPLIANT

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78781	A	4/7/26	NAD	SPEC UPDATE	HX	56562

1.0 DESCRIPTION

The ENDEVCO® Model 773A is a Tri-axial low g DC Accelerometer that utilizes unique variable capacitance microsensors. This Accelerometer is designed for measurement of relatively low level accelerations in automotive ride quality, motorsports and high speed rail applications where measurement of whole body motion immediately after the accelerometer is subjected to a shock motion and in the presence of severe vibrational inputs is required. 773A meet the requirements for IP67.

The 773A Accelerometer is available with a choice of two power options. One option (U) allows for operation from 7V to 36V. The second option (R) allows for operation at a regulated excitation voltage of 5V. The Accelerometer features various full scale g ranges including $\pm 8g$, $\pm 15g$, $\pm 50g$, $\pm 100g$, $\pm 200g$ and provides single-ended output with a 2.5V output bias voltage and differential output with a 0V output bias voltage.

2.0 ELECTRICAL CHARACTERISTICS

All specifications assume $+75^{\circ}F$ ($+24^{\circ}C$), +5 Vdc excitation (for 773A-XXX-R-ZZZ) or +15 Vdc excitation (for 773A-XXX-U-ZZZ) unless otherwise stated. The following parameters are 100% tested.

	<u>Units</u>	<u>Range Dash Number</u>				
RANGE	g	-8	-15	-50	-100	-200
2.1 SENSITIVITY	mV/g	250 ± 10	133 ± 5	40 ± 2	20 ± 1.0	10 ± 1.0
2.2 FREQUENCY RESPONSE ($\pm 5\%$, ref 100 Hz) max	Hz	0-450	0-450	0-750	0-1200	0-1200
FREQUENCY RESPONSE ($\pm 1dB$, ref 100 Hz) typical	Hz	0-1000	0-1500	0-1800	0-2000	0-2000
REQUENCY RESPONSE ($\pm 3dB$, ref 100 Hz) typical	Hz	0-1200	0-2500	0-3000	0-5000	0-5000
2.3 ZERO MEASURAND OUTPUT	mV					
Single-Ended		2500 ± 75	2500 ± 75	2500 ± 75	2500 ± 75	2500 ± 75
Differential		± 75	± 75	± 75	± 75	± 75

3.0 TYPICAL PERFORMANCE

The following parameters are established from testing of sample units.

3.1 TRANSVERSE SENSITIVITY (Typical)	%	3.0	3.0	3.0	3.0	3.0
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		<u>Units</u>	<u>Range Dash Number</u>				
			<u>-8</u>	<u>-15</u>	<u>-50</u>	<u>-100</u>	<u>-200</u>
3.2	THERMAL ZERO SHIFT (MAX) -40°C to +100°C, ref. 24°C (-40°F to +212°F, ref. 75°F)	%FSO [1]	±2.0	±2.0	±2.0	±2.0	±2.0
3.3	THERMAL SENS SHIFT (MAX) -40°C to +100°C, ref. 24°C (-40°F to +212°F, ref. 75°F)	%	±2.0	±2.0	±2.0	±2.0	±2.0
3.4	COMBINED NON-LINEARITY (BFSL) AND HYSTERESIS (Typical)	%FSO	±0.5	±0.5	±0.5	±0.5	±0.5
3.5	NATURAL FREQUENCY, TYP	Hz	X 4800	4800	8000	14000	14000
			Y 4800	4800	8000	14000	14000
			Z 3500	3500	6000	10500	10500
3.6	THRESHOLD (RESOLUTION) [2]	equiv. g's.	0.0016	0.003	0.01	0.02	0.04
3.7	WARM-UP TIME (to within 1% of final output value)				30 ms		
4.0	<u>ELECTRICAL</u>						
4.1	EXCITATION VOLTAGE For option "R" supply voltage For option "U" supply voltage				5 Vdc 7 to 36 Vdc		
4.2	CURRENT DRAIN				14 mA max		
4.3	OUTPUT IMPEDANCE				100 ohms max		
4.4	LOAD				10K ohms resistance minimum 50 pF capacitance maximum		
4.5	RESIDUAL NOISE				100 µVrms typ, 200 µVrms max; 0.5Hz to 100 Hz 500 µVrms typ, 1.0 mVrms max; 0.5Hz to 10 kHz		
4.6	MAXIMUM EXCITATION VOLTAGE WITHOUT DAMAGE For option "R" supply voltage For option "U" supply voltage				7 Vdc 45 Vdc		
4.7	INPUT VOLTAGE PROTECTION				REVERSE POLARITY PROTECTED (For "U" option only)		
4.8	INSULATION RESISTANCE Case to leads shorted together Shield to leads shorted together				100 Meg Ohms minimum at 50 Vdc		

5.0	<u>PHYSICAL</u>	
5.1	WEIGHT (typical)	9 grams (without cable) plus cable at 20 grams/meter
5.2	CASE MATERIAL	Anodized aluminum alloy.
5.2.1	CABLE TYPE	Integral Cable, 8 conductor (6 used) 28 AWG , PFA insulated leads, SPC shield, black PFA jacket, OD 0.128" Max.
5.3	MOUNTING/TORQUE	2 lb-in (0.23 N-m)
6.0	<u>ENVIRONMENTAL</u>	
6.1	ACCELERATION LIMITS (in any direction)	
6.1.1	Vibration	20 g rms random 20-2000 Hz
6.1.2	Shock	10000g (0.15 mS haversine pulse)
6.2	TEMPERATURE	
6.2.1	Operating Range	-40°F to +257°F (-40°C to +125°C) (-55°C is optional, see note [3])
6.2.2	Storage Range	-40°F to +257°F (-40°C to +125°C)
6.3	Humidity	IP67
7.0	<u>CALIBRATION DATA</u>	
7.1	SENSITIVITY	Measured at 1g and 100 Hz for the -8 Measured at 10 g and 100Hz for the -15 -50, -100 and -200
7.2	FREQUENCY RESPONSE	Measured at 1g, 20 to 1000 Hz for the -8 Measured at 10 g, 20 to 5000 Hz for the -15 , -50,-100 and -200
7.3	ZERO MEASURAND OUTPUT	Measured at room temperature
8.0	<u>ACCESSORIES</u>	
	2X #2-56 (1/2" length) Socket Head Cap Screw (EDVEH597)	
	2X Washer (EDVEHW200)	
	1X Hex Wrench (EDVEHM178)	

9.0 **NOTES**

[1] Full scale output (FSO) is nominally 4 volts

[2] THRESHOLD = [2X MAX. RESIDUAL NOISE; .5 TO 100Hz] Divide SENSITIVITY

[3] Sensor can function for limited excursions to -55°C, but is not rated for continuous operation at that temperature.

[4] Model Number Definition:

