ENDEVCO
AN AMPHENOL COMPANY

PERFORMANCE SPECIFICATION
TRIAXIAL ACCELEROMETER
65HT-XX

Document Number	Rev	Date	Entered by	Description of Change	Change Accountable Engineer	ECO
76678	NR	8/30/22	NAD	Initial Release of 65HT-XX Triaxial Accelerometer Performance Specification	DAM	53075

1.0 DESCRIPTION

The ENDEVCO Model 65HT is a miniature high temperature triaxial accelerometer designed for monitoring application. The ENDEVCO Model 65HT is packaged in a 10 mm cube of welded titanium construction. The ENDEVCO Model 65HT uses ruggedized sensors which withstand shock levels greater than comparable cantilever beam accelerometers.

Interface to the ENDEVCO Model 65HT triaxial accelerometer is made via side connector Microtech style 4-pin receptacle. Power to the ENDEVCO Model 65HT, in the form of a constant current, travels through the same pins as the low impedance output signals.

The following performance specifications conform to ISA-RP-37.2 (1964) and are typical values, referenced at +75°F (+24°C), 4 mA, and 100 Hz, unless otherwise noted. Calibration data, traceable to National Institute of Standards and Technology (NIST), are supplied.

		Units	Range Dash Number -05	-1	-10
2.0	**DYNAMIC CHARACTERISTICS**				
2.1	RANGE	g	±10000	±5000	±500
2.2	VOLTAGE SENSITIVITY				
2.2.1	Typical	mV/g	0.5	1	10
2.2.2	Tolerance	%	±10	±10	±10
2.3	FREQUENCY RESPONSE				
2.3.1	Amplitude, ±5% (Z axis) (X, Y axis) ±1 dB (refer to typical curve, Figure 1)	Hz		1 to 6000 1 to 5000 0.5 to 8000	
2.3.2	Phase, ±5°	Hz		@ 3	
2.3.3	Resonance (refer to typical curve, Figure 2)	Hz		40000	
2.4	TEMPERATURE RESPONSE (refer to typical curve, Figure 3)				
2.4.1	Sensitivity Deviation, < 5%			+32°F to +104°F (0°C to +40°C)	

		Units	Range Dash Number -05	-1	-10
2.4.2	Sensitivity Deviation, < 18%		-4°F to +347°F (-20°C to 175°C		
2.5	TRANSVERSE SENSITIVITY [1]	%	<5		
2.6	AMPLITUDE LINEARITY	%	<1		
3.0	**OUTPUT CHARACTERISTICS**				
3.1	OUTPUT POLIARITY		See arrows on outline drawing		
3.2	DC OUTPUT BIAS VOLTAGE [2]	Vdc	+12.0 to +13.5 at room temperature 8 to 16 over temperature range		
3.3	OUTPUT CONNECTION		See connection diagram		
3.4	OUTPUT IMPEDANCE				
3.4.1	1 mA to 2 mA	Ω	<300		
3.4.2	3 mA to 4 mA	Ω	<100		
3.5	FULL SCALE OUTPUT	Vpk	±5		
3.6	NOISE (Floor)				
	Broadband (2 Hz to 10 kHz)	μG rms	≤8000	≤4000	≤600
	Spectral:	μg/√ Hz			
	1 Hz		≤4000	≤3500	≤500
	10 Hz		≤600	≤350	≤70
	100 Hz		≤120	≤70	≤ 10
	1 kHz		≤80	≤40	≤4
3.7	GROUNDING		Signal ground is connected to the case		
4.0	**POWER REQUIREMENT**				
4.1	CURRENT REQUIREMENT	mA	+1 to +4		
4.2	VOLTAGE SUPPLY	Vdc	+23 to +30		
4.3	WARM-UP TIME (time to reach 10% of final bias)	sec	<2		
5.0	**ENVIRONMENTAL CHARACTERISTICS**				
5.1	TEMPERATURE RANGE				
	Operating		-65°F to +347°F (-55°C to +175°C)		
	Storage		-65°F to +347°F (-55°C to +175°C)		
5.2	HUMIDITY		Welded construction		

		Units	Range Dash Number		
			-05	-1	-10
5.3	SINUSOIDAL VIBRATION LIMIT (Without damage)	g pk	±10000	±5000	±5000
5.4	SHOCK LIMIT [3] (Without damage)	g pk	15000 Max.	10000 Max.	10000 Max.
5.5	BASE STRAIN SENSITIVITY at 250μ strain	eq. g/μstrain	<0.001		
5.6	THERMAL TRANSIENT SENSITIVITY	eq. g/°F	0.02		
6.0	**PHYSICAL CHARACTERISTICS**				
6.1	DIMENSIONS		0.39 inch (10 mm) cube		
6.2	WEIGHT	oz (gram)	0.17 (5)		
6.3	CASE MATERIAL		Titanium, commercially pure Cp4		
6.4	CONNECTOR [4]		4-pin Microtech-style, side mounted		
6.5	MOUNTING [5]		Adhesive or M2.5 thread		
6.6	RECOMMENDED MOUNTING TORQUE	in-lbs	8		
7.0	**CALIBRATION**				
7.1	SUPPLIED, each axis				
7.1.1	Sensitivity	mV/g			
7.1.2	Transverse Sensitivity	%			
7.1.3	Frequency Response	Hz	20 to 6000 (Z axis) 20 to 5000 (X, Y axis) [9]		
8.0	**ACCESSORIES**				
8.1	SUPPLIED				
	3027AVM13-84 [6] [7] [10]		Cable Assemblies		
	3027AM3-36 [7] [10]				
	EH755		Screw, Cap, Hex Socket, M2.5 - .45 x 6 mm		
	EH761		Screw, Set, Hex Socket, M2.5 - .45 x 6 mm		
	32279 [10]		Mounting Wax		

8.2 OPTIONAL

3027AVM13-XXX	Cable Assembly
3027A-120	Cable Assembly, 4 Conductor, Silicone Jacket
40965	Mounting Block
41013	Mounting Clip
40840	Mounting Base, Lower

9.0 **NOTES:**

[1] 3% maximum transverse sensitivity is available on request.

[2] 22 Vdc minimum must be available to the accelerometer to ensure full scale operation at the temperature extremes.

[3] 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.

[4] Microtech DR-4S-4 receptacle mates with Endevco Model 3027AM3 and 3027AVM13.

[5] Be careful not to apply abusive forces when removing the accelerometer from a structure. Hammer taps and wrench 'snaps' often impart permanent damage to the case and internal sensors.

[6] The 3027AVM13 cable assembly should be used in applications where the accelerometer is used near its upper temperature extreme, 347°F (175°C). The supplied cable assembly, the 3027AVM13, is rated for use up to only 347°F (175°C).

[7] The 3027AM3 cable assembly should be used as a 185°F (85°C) extension cable for model 3027AVM13.

8 Due to calibration method used, X axis will show reverse polarity.

[9] Due to calibration method used, X, Y axis will only be able to calibrate up to 5000 Hz.

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

11 Model Number Definition:

65HT – XX – R

- R — Indicates replacement part (omit if units are not replacements).
- XX — Denotes typical sensitivity
  - -05 = 0.5 Mv/g
  - -1 = 1 Mv/g
  - -10 = 10 Mv/g
- 65HT — Basic Model Number

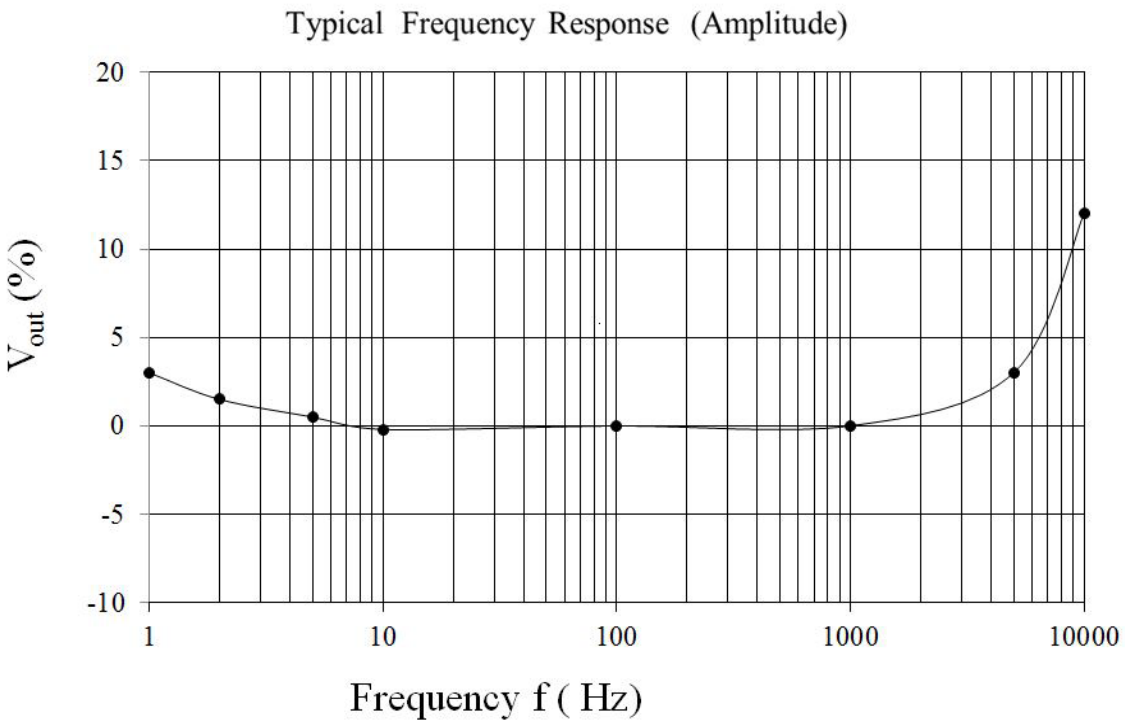

FIGURE 1

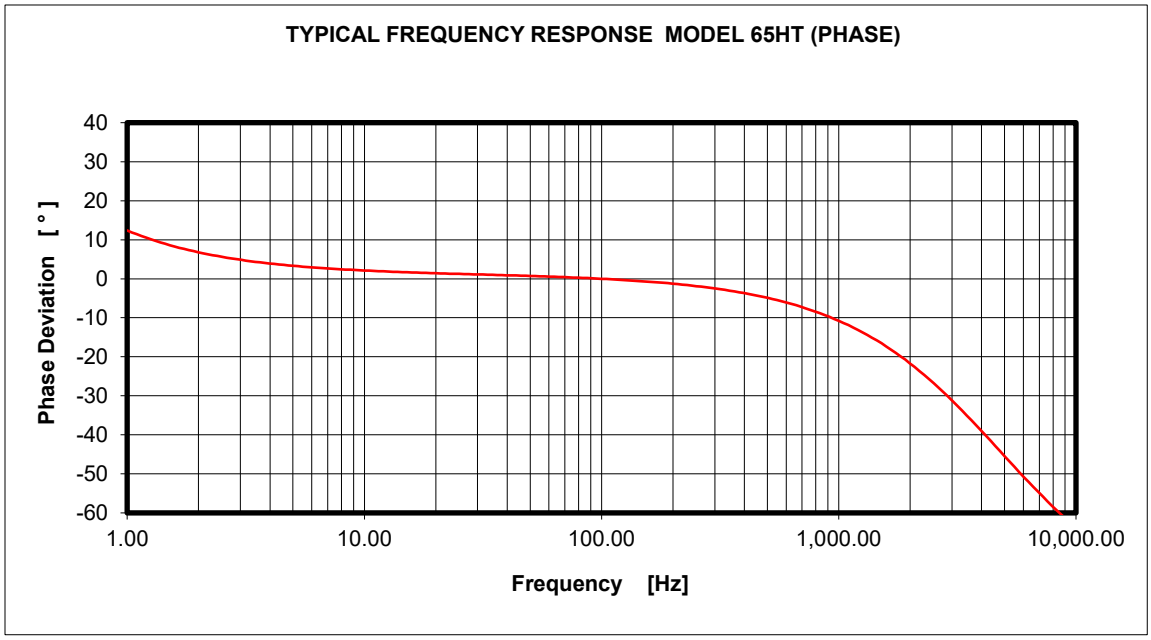

FIGURE 2

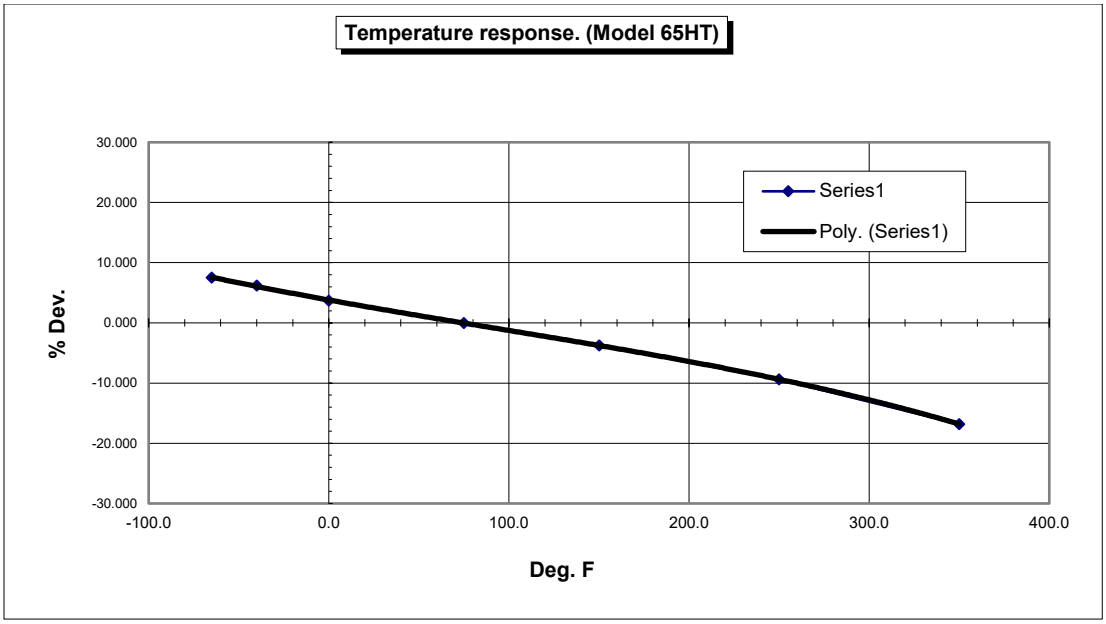

FIGURE 3

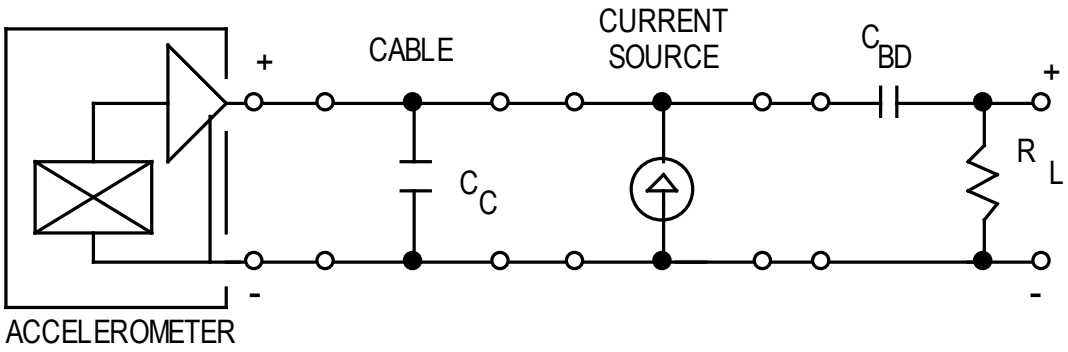

FIGURE 4
Connection Diagram Each Axis

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. R_L should not be less than 100 KΩ.

Bias decoupling capacitor (C_{BD}) and load resistor (R_L) can be determined from:

$$f_{-3dB} = \frac{1}{2 \pi R_L C_{BD}}$$ where f_{-3dB} is the lowest frequency of interest.