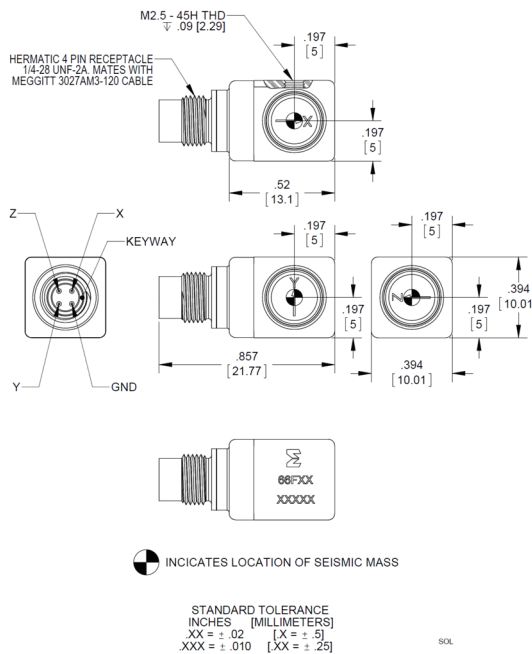


Endevco®

TEDS accelerometer Model 66F50 / F11 / F12



Key features

- Triaxial IEPE accelerometer
- IEEE P1451.4 TEDS v0.9
- Small, lightweight
- Single connector, cable
- Hermetically sealed
- Three sensitivity options available – 5, 10 and 100 mV/g
- 66F50-R, 66F11-R, 66F12-R available as replacement sensor

Endevco model 66FXX is a miniature triaxial piezoelectric accelerometer with integral hybrid electronics with transducer electronic data sheet (TEDS) capability. The accelerometer is packaged in a 10 by 10 by 13 mm case of welded titanium construction. One of the key design characteristics is the low unit-to-unit phase deviation at low frequency, ideal for modal analysis of large rigid bodies.

Model 66FXX features Endevco's Piezite crystal elements, which exhibit excellent output stability over time. This accelerometer incorporates three stand-alone, low noise internal hybrid charge converters, each operating in a two-wire system. Its low impedance voltage outputs are connected to the same cables that supply the required constant current power. TEDS contains sensor specific information which can dramatically reduce set-up time in multi-channel measurements. TEDS enables the signal conditioner to communicate digitally with the accelerometer's TEDS, compliant to IEEE P1451.4.

The model number suffix identifies the range and sensitivity, where 66F50 indicates a 5 mV/g sensitivity, 1000 g range unit, 66F11 indicates a 10 mV/g sensitivity, 500 g range unit, and 66F12 indicates a 100 mV/g sensitivity, 50 g range unit.

This product is fully compliant to the European Union's Low Voltage Directive, 2006/95/EC and EMC Directive 2004/108/EC and is eligible to bear the CE Mark.

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Specifications

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.

Dynamic characteristics	Units	66F50	66F11	66F12
Range	g	±1000	±500	±50
Voltage sensitivity				
Nominal	mV/g	5	10	100
Minimum	mV/g	4	8	80
Maximum	mV/g	6	12	120
Frequency response				
Resonance frequency				
Typical	kHz	55	60	45
Minimum	kHz	50	55	40
Amplitude response [1]				
±5%, z- and y-axis	Hz	1 to 4000	1 to 10000	3 to 8000
±5%, x-axis	Hz	1 to 4000	1 to 8000	3 to 6000
±1 dB, z- and y-axis	Hz	0.4 to 7000	0.4 to 14000	1.5 to 10000
±1 dB, x-axis	Hz	0.4 to 7000	0.4 to 11000	1.5 to 8000
±3 dB, z- and y-axis	Hz	0.2 to 12000	0.2 to 24000	0.7 to 15000
±3 dB, x-axis	Hz	0.2 to 12000	0.2 to 20000	0.7 to 14000
Phase response				
<5°	Hz	3 to 1000	3 to 1500	10 to 1500
Sensitivity deviation over temperature				
At -67°F (-55°C)	%	8	-4	-3.5
At +257°F (+125°C)	%	-10	7	4.5
Transverse sensitivity	%		<5	
Amplitude linearity	%		<1	
Electrical characteristics				
Output polarity	Acceleration in the direction of the arrow produces positive output			
DC output bias voltage [2]				
Room temperature, +75°F (+24°C)	Vdc	+11.3 to 14.0	+11.3 to +14.0	+11.3 to +14.0
-67°F to +257°F (-55°C to +125°C)	Vdc	+8 to +16	+7.5 to +16	+7.5 to +16
Output impedance				
2 – 3 mA	Ω		<300	
4 – 20 mA	Ω		<100	
Noise floor				
Broadband				
0.5 Hz to 10000 Hz	mg rms	6	0.8	0.4
Spectral				
1 Hz	mg / √Hz	5	0.5	0.3
10 Hz	mg / √Hz	0.8	0.08	0.05
100 Hz	mg / √Hz	0.12	0.015	0.01
1000 Hz	mg / √Hz	0.04	0.006	0.004
Grounding	Signal ground is connected to the case			
Power requirements				
Supply voltage	Vdc		+20 to +30 [3]	
Supply current	mA		+2 to +20 [4]	
Warm-up time [5]	sec		<20	
Recovery time [6]	ms	1000	1000	2000
Digital communication (TEDS) device			DS2431X+u	
Environmental characteristics				
Temperature range				
Operating	°F (°C)		-67 to +257 (-55 to +125)	
TEDS communication	°F (°C)		+32 to +185 (0 to 85)	
Humidity			Hermetically sealed	
Sinusoidal vibration limit [7]	g pk		1000	
Shock limit [8]	g pk		10000	
Base strain sensitivity at 250μ strain	eq. g/μstrain	<0.0003		
Thermal transient sensitivity	equiv. g pk/°F	0.005	0.005	0.002
Electromagnetic noise	equiv g/Gauss	0.00014	0.00023	0.00014
Physical characteristics				
Dimensions			See outline drawing	
Weight	oz (gram)		0.17 (5.0)	
Case material			Titanium, commercially pure	
Connector [9]			4-pin Microtech-style, side mounted	
Mounting [10]			M2.5 thread	
Mounting torque	Lbf-in (Nm)		10 (1.1)	
Calibration data supplied, each axis				
Sensitivity	mV/g			
Transverse sensitivity, maximum	%			
Frequency response, y- and z-axis	%	20 Hz to 4000 Hz	20 Hz to 10000 Hz	20 Hz to 8000 Hz
Frequency response, x-axis	%	20 Hz to 4000 Hz	20 Hz to 8000 Hz	20 Hz to 6000 Hz
Bias	Vdc			

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Accessories

Product	Description	66FXX	66FXX-R
3027AM3-120	Triaxial cable +85°C, 3 BNCs at instrumentation end, 10 feet [11]	Included	Optional
EH755	Screw, cap, hex soc, M2.5 – 0.45 x 6mm	Included	Included
EH761	Screw, set, hex soc, M2.5 – 0.45 x 6 mm	Included	Included
32279	Mounting wax	Included	Optional
133	Signal conditioner	Optional	Optional
C-003-CA-005-0120	General purpose triaxial cable +200°C, 3 BNCs at instrumentation end, 10 feet	Optional	Optional

Notes

1. Due to mounting method, a reverse polarity will show on the x-axis calibration certificate. The x-axis 5% upper corner may be lower by no more than 20% from the z-axis.
2. 22 Vdc minimum must be available to the accelerometer to ensure full scale operation at the temperature extremes.
3. Supply voltage requirement of 20V - 30V at -55°C to +100°C, 23V - 30V at -55°C to +125°C.
4. Supply current requirement of 2mA - 20mA at -55°C to +100°C, 2mA - 10mA at -55°C to +125°C.
5. DC bias within 10% of final value.
6. Time interval between the moment the sensor is saturated and the moment bias returns within 10% of final value.
7. Destructive limit.
8. Destructive limit. Shock is a one-time event. Shock pulses of short duration may excite transducer resonance. Shock level above the sinusoidal vibration limit may produce temporary zero shift that will result in erroneous velocity or displacement data after integration.
9. Microtech DR-4S-4 receptacle mates with Endevco model 3027AM3-ZZZ and model C-003-XX-YYY-ZZZZ cables.
10. 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.
11. Supplied cable assembly, the 3027AM3-120, is only rated for use up to only +185°F (+85°C). Alternate cable should be used in applications where the accelerometer is used near its upper temperature extreme, +257°F (+125°C).
12. Maintain high levels of precision and accuracy using Endevco's factory calibration services. Call Endevco's inside sales force at 866-ENDEVCO for recommended intervals, pricing and turn-around time for these services as well as for quotations on our standard products.

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Continued product improvement necessitates that Endevco reserve the right to modify these specifications without notice. Endevco maintains a program of constant surveillance over all products to ensure a high level of reliability. This program includes attention to reliability factors during product design, the support of stringent Quality Control requirements, and compulsory corrective action procedures. These measures, together with conservative specifications have made the name Endevco synonymous with reliability. 090919