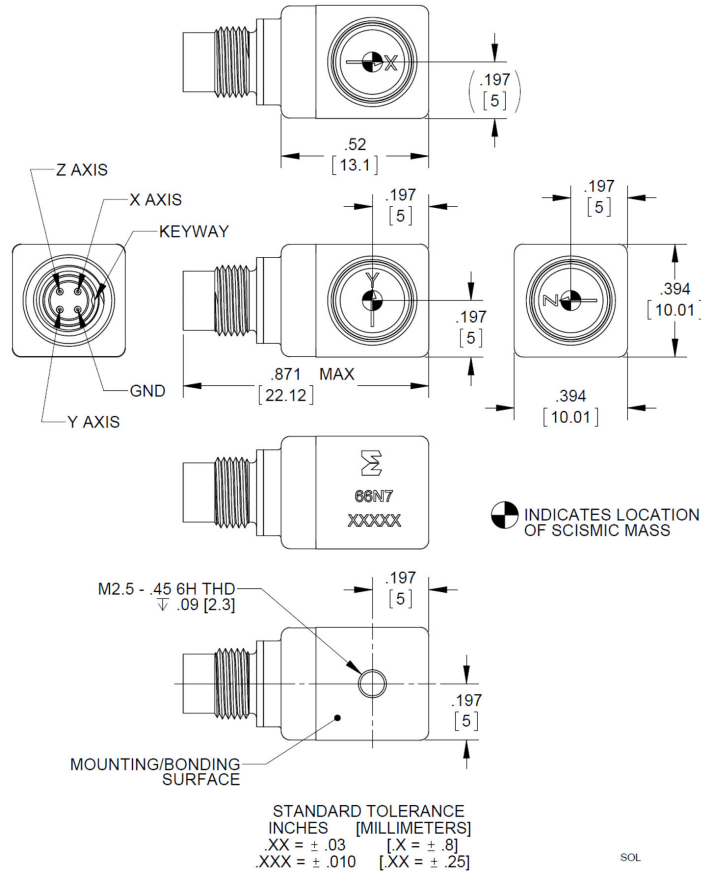


TEDS accelerometer Model 66N7



Key features

- Triaxial IEPE accelerometer
- IEEE P1451.4 TEDS v0.9
- Small, lightweight
- Single connector, cable
- Hermetically sealed
- 2.25 mV/g nominal sensitivity
- 66N7-R available as replacement sensor

Endevco model 66N7 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 66N7 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.

TEDS accelerometer

Model 66N7

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	66N7
Range	g	±1800
Voltage sensitivity		
Nominal	mV/g	2.25
Minimum	mV/g	2
Maximum	mV/g	2.77
Frequency response		
Resonance frequency		
Typical	kHz	50
Minimum	kHz	40
Amplitude response [1]		
±5%	Hz	1 to 4000
±1 dB	Hz	0.4 to 7000
±3 dB	Hz	0.2 to 12000
Phase response		
<5°	Hz	3 to 1000
Sensitivity deviation over temperature		
At -67°F (-55°C)	%	8
At +276°F (+125°C)	%	-10
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
-67°F to +257°F (-55°C to +125°C)	Vdc	+8.0 to +16
Output impedance	Ω	<50
Noise floor		
Broadband		
0.5 Hz to 10000 Hz	mg rms	12
Spectral		
1 Hz	mg / √Hz	10
10 Hz	mg / √Hz	1.6
100 Hz	mg / √Hz	0.2
1000 Hz	mg / √Hz	0.08
Grounding		Signal ground is connected to the case
Power requirements		
Supply voltage	Vdc	+23 to +30
Supply current	mA	+2 to +10
Warm-up time [3]	sec	<20
Recovery time [4]	ms	1000
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 [5]	g pk	1000
Shock limit [6]	g pk	10000
Base strain sensitivity at 250μ strain	eq. g/μstrain	<0.0003
Thermal transient sensitivity	equiv. g pk/°F	0.005
Electromagnetic noise	equiv g/Gauss	0.0014
Physical characteristics		
Dimensions		See outline drawing
Weight	oz (gram)	0.17 (5.0)
Case material		Titanium, commercially pure
Connector [7]		4-pin Microtech-style, side mounted
Mounting [8]		M2.5 thread
Mounting torque	Lbf-in (Nm)	10 (1.1)
Calibration data supplied, each axis		
Sensitivity	mV/g	
Transverse sensitivity, maximum	%	
Frequency response	%	20 Hz to 4000 Hz, dB to 7000 Hz
Bias	Vdc	

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Accessories

Product	Description	66N7	66N7-R
3027AM3-120	Triaxial cable +85°C, 3 BNCs at instrumentation end, 10 feet [9]	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. DC bias within 10% of final value.
4. Time interval between the moment the sensor is saturated and the moment bias returns within 10% of final value.
5. Destructive limit.
6. 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.
7. Microtech DR-4S-4 receptacle mates with Endevco model 3027AM3-ZZZ and model C-003-XX-YYY-ZZZZ cables.
8. 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.
9. 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).
10. 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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