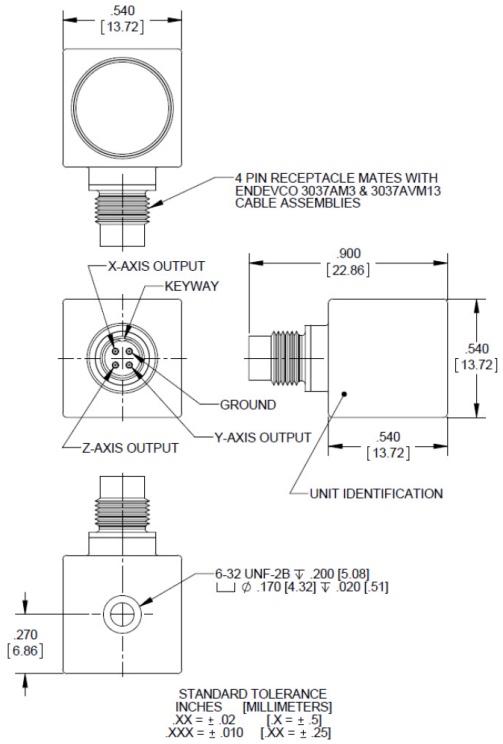
Endevco®

Isotron® accelerometer

Model 44A



Key features

- General purpose triaxial Isotron® accelerometer
- Single, threaded 1/4-28 4 pin connector
- Wide frequency bandwidth
- Hermetically sealed
- Small 14mm cube size
- Lightweight 13 grams
- IEEE P1451.4 TEDS capable

Model 44A is a cost effective general purpose triaxial Isotron accelerometer designed for use in a variety of applications. 44A is a 14 mm cube shaped Isotron accelerometer, featuring a single threaded ¼-28 4 pin connector. The unit is hermetically sealed against environmental contamination.

Model 44A features an annular shear ceramic crystal which exhibits excellent output stability over time. The accelerometer incorporates an internal hybrid circuit with TEDS in a two-wire IEPE system which transmits its low impedance voltage output through the same cable that supplies the constant current power. Signal ground is connected to the outer case of the unit. Isolated mounting studs are available. Polarity inversion protection for the hybrid circuit is inherent in the circuit design.

44A is available in four sensitivities designated by a two digit suffix. The 44A13 has a sensitivity of 10 mV/g, the 44A14, 44A15 and 44A16 have sensitivities of 25 mV/g, 50 mV/g and 100 mV/g respectively. The customer may select the mounting stud size included standard with the unit. The available stud sizes are 10-32, 1/4-28, M5 and M6. The stud size is designated following a dash after the model number.

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 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), is supplied.

Dynamic characteristics	**Units**	**44A13**	**44A14**	**44A15**	**44A16**
Range	g	±500	±200	±100	±50
Sensitivity					
±10%	mV/g	10	25	50	100
Frequency response					
Resonance frequency					
Typical	kHz		25		
Minimum	kHz		18		
Amplitude response					
±5% y, z-axis	Hz		0.5 to 5000		
±5% x-axis	Hz		0.5 to 3000		
±1dB all axes	Hz		0.3 to 6000		
Phase response					
±5°	Hz		5 to 1500		
Sensitivity deviation over temperature					
-67°F to +257°F (-55°C to +125°C)	%		5 to 15		
Transverse sensitivity	%		≤5		
Amplitude linearity	%		<1		
Electrical characteristics					
Output polarity			Acceleration directed into base produces positive output		
DC output bias voltage					
Room temperature +75°F (+24°C)	Vdc		+11.4 to +13.0		
-67°F to +257°F (-55°C to +125°C)	Vdc		+8.0 to +15.5		
Output impedance	Ω		<100		
Noise floor					
Broadband					
1Hz to 10 kHz	µg rms	200	80	80	50
Spectral					
1Hz	µg/√Hz	140	64	60	38
10 Hz	µg/√Hz	17	8	10	6
100 Hz	µg/√Hz	4	2	2	1
1000 Hz	µg/√Hz	2	0.8	0.8	0.5
Grounding method			Signal ground connected to case		
Power requirements					
Supply voltage [1]	Vdc		+24 to +30		
Supply current	mA		+2 to +20		
Warm-up time [2]	s	2	3	5	10
Digital communications (TEDS) device			DS2431x+u		
Environmental characteristics					
Temperature range, operating [3]			-67°F to +257°F (-55°C to +125°C)		
Humidity			Hermetically sealed		
Vibration limit (sinusoidal motion) [4]	g		1000		
Shock limit [5]	g pk		5000		
Base strain sensitivity at 250 µstrain	g/µstrain		0.001		
Electromagnetic	equiv g pk/µstrain		0.005		
Physical characteristics					
Dimensions			See outline drawing		
Weight	gram (oz)		13 (0.46)		
Case material			Titanium		
Connector			1/4-28 4 pin		
Mounting method			Threaded stud		
Mounting stud torque, recommended					
10-32 and M6 studs	lbf-in (N-m)		18 (2)		
M5 stud	lbf-in (N-m)		13 (1.5)		
1/4-28 stud	lbf-in (N-m)		30 (3.5)		
Calibration data supplied					
Sensitivity	mV/g				
Frequency response					
Amplitude response	%		20 Hz to 5 kHz, y and z axis		
	%		20 Hz to 3 kHz, x axis		
DC output bias voltage	Vdc				

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Model number definition

44A XX -YYY

- Mounting stud option
  No dash number = No stud included
  - 1032 = 10-32 stud
  - 2528 = 1/4-28 stud
  - M5 = M5 stud
  - M6 = M6 stud
- Denotes nominal sensitivity:
  - 13 = 10 mV/g
  - 14 = 25 mV/g
  - 15 = 50 mV/g
  - 16 = 100 mV/g
- Basic model number

Accessories

Product	Description	44AXX	44AXX-1032	44AXX-2528	44AXX-M5	44AXX-M6
C-003-CA-005-ZZZZ [6]	Cable assembly 4 pin to 3 BNC	Optional	Optional	Optional	Optional	Optional
3027AM3-ZZZ [6]	Cable assembly 4 pin to 3 BNC	Optional	Optional	Optional	Optional	Optional
3027AVM13-ZZZ	Cable assembly 4 pin to 4 pin	Optional	Optional	Optional	Optional	Optional
42677-1	Mounting stud 6-32 to 10-32	Optional	Included	Optional	Optional	Optional
42677-2	Mounting stud 6-32 to 1/4-28	Optional	Optional	Included	Optional	Optional
42677-4	Mounting stud 6-32 to M5	Optional	Optional	Optional	Included	Optional
42677-3	Mounting stud 6-32 to M6	Optional	Optional	Optional	Optional	Included
42674-1	Isolated mounting stud 6-32 to 10-32	Optional	Optional	Optional	Optional	Optional
42674-2	Isolated mounting stud 6-32 to 1/4-28	Optional	Optional	Optional	Optional	Optional
42674-3	Isolated mounting stud 6-32 to M6	Optional	Optional	Optional	Optional	Optional
42674-4	Isolated mounting stud 6-32 to M5	Optional	Optional	Optional	Optional	Optional
42675-2	Isolated adhesive mounting adapter	Optional	Optional	Optional	Optional	Optional

Notes

1. Applications requiring a supply voltage of 20V, the full scale output voltage will be ±5V (at room temperature). Applications requiring a supply voltage of 18V, the full scale output voltage will be ±3V (at room temperature).
2. DC bias within 10% of final value.
3. TEDS device operational temperature range is -40ºF to +185ºF (-40ºC to +85ºC). TEDS device will survive ful operational range of accelerometer.
4. Destructive limit.
5. 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.
6. ZZZ or ZZZZ designates cable assembly length in inches.
7. 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.

Contact

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