

Isotron® POD accelerometer

Model 46A



Hex mount with
POD sensor assembly

Cube mount with
POD sensor assembly

Triax mount with
POD sensor assemblies

Tri-Hex mount with
POD sensor assemblies

Cube adhesive mount
with POD sensor
assembly

The Endevco Model 46AXX POD accelerometer is a general purpose accelerometer designed for versatility in mounting configuration. The POD accelerometer sensor assemblies are available in five sensitivities and are threaded for easy installation in any of the POD mounts. The POD mounts are available in five configurations – hex mount, cube mount, triax mount, tri-hex mount, and cube adhesive mount. The POD accelerometer sensor assemblies may be mixed and matched in any of the POD mounts. The POD sensor assembly and mounting bases have lock wire holes to prevent the POD accelerometer from loosening during vibration for extra safety.

The hex and cube mounts are for traditional single axis measurements. The triaxial mount allows the user to select the same or different sensitivities on each orthogonal axis. For users that do not know the correct accelerometer sensitivity for the test, the tri-hex mount is ideal. The tri-hex mount allows the user to thread three different POD accelerometer sensor assemblies in a single mount.

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.

Patent pending.

Key features

- Versatility in mounting configurations and sensitivities
- Single and triaxial mounting configurations
- Mix and match sensitivities in any configuration
 - 10 mV/g
 - 25 mV/g
 - 100 mV/g
 - 500 mV/g
 - 1000 mV/g
- Stud or adhesive mount
- Case isolated and case grounded mounts
- IEEE P1451.4 TEDS capable

Our measurement product competencies:

Piezoelectric accelerometers | Piezoresistive accelerometers | **Isotron accelerometers** | Variable capacitance accelerometers | Pressure transducers | Acoustic sensors | Electronic instruments | Calibration systems | Shakers | Modal hammers | Cable assemblies

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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	46A13	46A14	46A16	46A18	46A19
Range	g pk	±500	±200	±50	±10	±5
Voltage sensitivity						
±5%	mV/g	10	25	100		
±10%	mV/g				500	1000
Frequency response						
Resonance frequency						
Typical	kHz	35	35	35	30	30
Minimum	kHz	30	30	30	25	25
Amplitude response						
±5%	Hz			1 to 10000		
±10%	Hz			1 to 12000		
Phase response						
±5°	Hz			1 to 10000		
Sensitivity deviation over temperature						
-67°F to +257°F (-55°C to +125°C)	%	≤5	≤5	≤5	≤10	≤10
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						
1 Hz to 10 kHz	µg rms	300	200	100	60	40
Spectral						
1 Hz	µg/√Hz	250	150	80	30	30
10 Hz	µg/√Hz	30	25	10	5	5
100 Hz	µg/√Hz	6	4	3	1.3	1.3
1000 Hz	µg/√Hz	3	2	2	0.6	0.4
Grounding method						
POD only						
POD installed in aluminum mount						
POD installed in titanium mount						
Power requirements						
Supply voltage						
Minimum, reduced range [1]	Vdc			+18		
Minimum, full range [2]	Vdc			+20		
Minimum [3]	Vdc			+24		
Maximum	Vdc			+30		
Supply current	mA			+2 to +20		
Warm-up time [4]	S	2	3	5	10	15
Digital communication (TEDS) device				DS2431X+U		

Environmental characteristics

Temperature range, operating [5]	°F (°C)			-67 to +257 (-55 to +125)		
Humidity				Hermetically sealed		
Vibration limit (sinusoidal motion) [6]	g rms			600		
Shock limit [7]	g pk			5000		

Physical characteristics POD sensor

Dimensions				See outline drawing		
Weight	gm (oz)			3.5 (0.12)		
POD sensor case material				Titanium		
Connector				10-32 coaxial		
Installation torque, sensor in mount	lbf-in (Nm)			25 (2.8)		

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Calibration data supplied

Sensitivity	mV/g	
Frequency response (POD sensor only)	%	50 Hz to 10000 Hz
DC output bias voltage	Vdc	

Physical characteristics mounts

		-1	See outline drawing	-2
Dimensions				
Hex mount (part number 43071)	gm (oz)	4.5 (0.16)		7.6 (0.27)
Cube mount (part number 43072)	gm (oz)	10.5 (0.37)		16.6 (0.62)
Cube adhesive mount (part number 43043)	gm (oz)	6 (0.21)		10.1 (0.36)
Triax mount (part number 42626)	gm (oz)	15 (0.53)		25.2 (0.89)
Tri-hex mount (part number 42627)	gm (oz)	12.2 (0.43)		20.4 (0.72)
Mount material		Hard anodized aluminum		Titanium
Mounting stud torque, recommended				
10-32 and M6 studs	lbf-in (Nm)		18 (2)	
M5 stud	lbf-in (Nm)		13 (1.5)	
1/4-28 stud	lbf-in (Nm)		30 (3.5)	

Model number definition

46A XX

Denotes nominal sensitivity

13 = 10 mV/g

14 = 25 mV/g

16 = 100 mV/g

18 = 500 mV/g

19 = 1000 mV/g

Basic model number

Accessories

Product	Description	46AXX
43071-1	Hex mount, anodized aluminum	Optional
43071-2	Hex mount, titanium	Optional
43072-1	Cube mount, anodized aluminum	Optional
43072-2	Cube mount, titanium	Optional
43043-1	Cube adhesive mount, anodized aluminum	Optional
43043-2	Cube adhesive mount, titanium	Optional
42626-1	Triaxial mount, anodized aluminum	Optional
42626-2	Triaxial mount, titanium	Optional
42627-1	Tri-hex mount, anodized aluminum	Optional
42627-2	Tri-hex mount, titanium	Optional
C-001-AC-002-ZZZZ [8]	Cable assembly 10-32 to BNC	Optional
42676-1	Mounting stud 10-32 to 10-32	Optional
42676-2	Mounting stud 10-32 to 1/4-28	Optional
42676-4	Mounting stud 10-32 to M5	Optional
42676-3	Mounting stud 10-32 to M6	Optional

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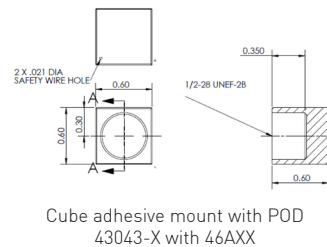
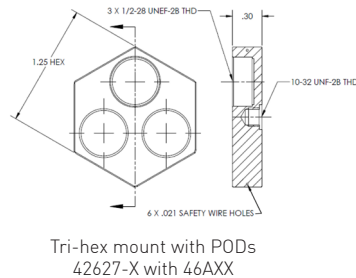
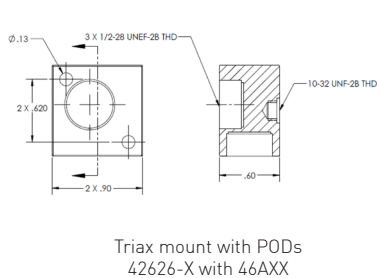
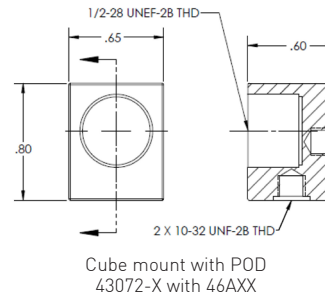
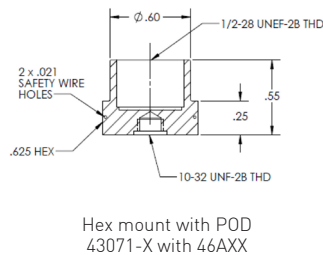
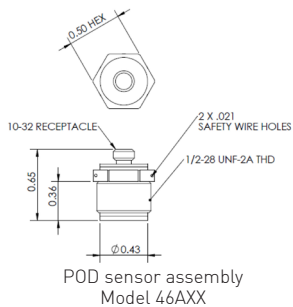
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Notes

1. Available full scale range reduced approximately 40% at this voltage at room temperature.
2. Specified full scale range at this voltage at room temperature.
3. Specified full scale range at this voltage over entire operating temperature range.
4. DC bias within 10% of final value.
5. TEDS device operational temperature range is -40°F to +185°F (-40°C to +85°C). TEDS device will survive full operational temperature range of accelerometer.
6. Destructive limit.
7. 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.
8. ZZZZ designates cable assembly length in inches.
9. Maintain high levels of precision and accuracy using Endevco's factory calibration services. Call Endevco's inside sales force at 800-982-6732 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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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.

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