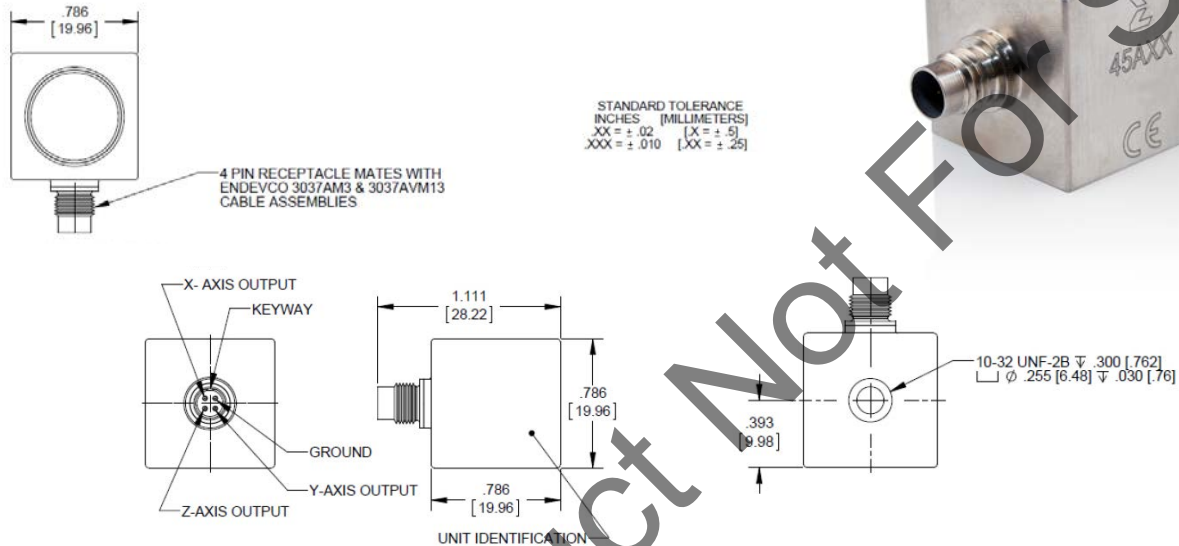


# Triaxial IEPE accelerometer

## Model 45A



### Key features

- General purpose, single axis, 20 mm<sup>3</sup> IEPE accelerometer
- Single, threaded 1/4-28 4 pin connector
- Wide frequency bandwidth
- Hermetically sealed
- High output available (500mV/g and 1000 mV/g)
- IEEE P1451.4 TEDS capable

### Description

Model 45A is a cost effective general purpose triaxial IEPE accelerometer designed for use in a variety of applications. It features a single threaded 1/4-28 4 pin connector, and is hermetically sealed against environmental contamination.

45A 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.

45A is available in two sensitivities designated by a two digit suffix. The 45A18 has a sensitivity of 500 mV/g, while the 45A19 has a sensitivity of 1000 mV/g. 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.

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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..

Specifications			
Dynamic characteristics	Units	45A18	45A19
Range	g	±10	±5
Sensitivity ±10%	mV/g	500	1000
Frequency response			
Resonance frequency			
Typical	kHz		28
Minimum	kHz		21
Amplitude response			
±5% y, z-axis	Hz		0.5 to 6000
±5% x-axis	Hz		0.5 to 3000
±1dB y, z axis	Hz		0.3 to 7500
±1 dB x-axis	Hz		0.3 to 5500
Phase response <5°	Hz		5 to 1500
Sensitivity deviation vs temperature			
At -67°F (-55°C)	%		-5
At +257°F (+125°C)	%		15
Transverse sensitivity	%		≤5
Amplitude linearity	%		<1
<b>Electrical characteristics</b>			
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	50	40
Spectral			
1Hz	µg/√Hz	15	11
10 Hz	µg/√Hz	4	3
100 Hz	µg/√Hz	1	1
1000 Hz	µg/√Hz	0.5	0.4
Grounding method		Signal ground is connected to case	
Power requirements			
Supply voltage [1]	Vdc		+24 to +30
Supply current	mA		+2 to +20
Warm-up time [2]	s		3
Digital communication (TEDS) device		DS2431X+U	
<b>Environmental characteristics</b>			
Temperature range, operating [3]		-67°F to +257°F (-55°C to +125°C)	
Humidity		Hermetically sealed	
Vibration limit (sinusoidal motion) [4]	g	500	
Shock limit [5]	g pk	5000	
Base strain sensitivity at 250 µstrain	g/µstrain	0.001	
Electromagnetic noise	equiv g/100 gauss	0.005	
<b>Physical characteristics</b>			
Dimensions		See outline drawing	
Weight	gram (oz)	40 (1.41)	
Case material		Titanium	
Connector		1/4-28 4 pin	
Mounting method		Threaded stud	

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Physical characteristics cont'd	Units	45A18	45A19
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)
Calibration data supplied	Units	45A18	45A19
Sensitivity	mV/g		
Frequency response			
Amplitude response	%		20 Hz to 6 kHz, y and z axis 20 Hz to 3 kHz, x axis
DC output bias voltage	Vdc		

Accessories						
Options	Description	45AXX	45AXX-1032	45AXX-2528	45AXX-M5	45AXX-M6
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
42676-1	Mounting stud 10-32 to 10-32	Optional	Included	Optional	Optional	Optional
42676-2	Mounting stud 10-32 to 1/4-28	Optional	Optional	Included	Optional	Optional
42676-4	Mounting stud 10-32 to M5	Optional	Optional	Optional	Included	Optional
42676-3	Mounting stud 10-32 to M6	Optional	Optional	Optional	Optional	Included
42673-1	Isolated mounting stud 10-32to 10-32	Optional	Optional	Optional	Optional	Optional
42673-2	Isolated mounting stud 10-32 to 1/4-28	Optional	Optional	Optional	Optional	Optional
42673-3	Isolated mounting stud 10-32 to M6	Optional	Optional	Optional	Optional	Optional
42673-4	Isolated mounting stud10-32 to M5	Optional	Optional	Optional	Optional	Optional
42673-1	Isolated adhesive mounting adapter	Optional	Optional	Optional	Optional	Optional

## Notes

- Applications requiring a supply voltage of 20V, the full scale output voltage will be  $\pm 5V$  (at room temperature). Applications requiring a supply voltage of 18V, the full scale output voltage will be  $\pm 3V$  (at room temperature).
- DC bias within 10% of final value.
- TEDS device operational temperature range is  $-40^{\circ}F$  to  $+185^{\circ}F$  ( $-40^{\circ}C$  to  $+85^{\circ}C$ ). TEDS device will survive full operational range of accelerometer.
- Destructive limit.
- 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.
- ZZZ or ZZZZ designates cable assembly length in inches.
- 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.

45A - 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:  
 - 18 = 500 mV/g  
 - 19 = 1000 mV/g

Basic model number



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