



S E R I E S 3 5 6 A 4 X

## MINIATURE TRIAxIAL ICP® ACCELEROMETERS WITH TEDS

- Small size and lightweight
- TEDS IEEE 1451.4 enabled
- Wide frequency bandwidth
- High resonant frequency
- Hermetically sealed titanium housing
- Ground isolated (J) models available
- High Temperature (HT) models available

CE



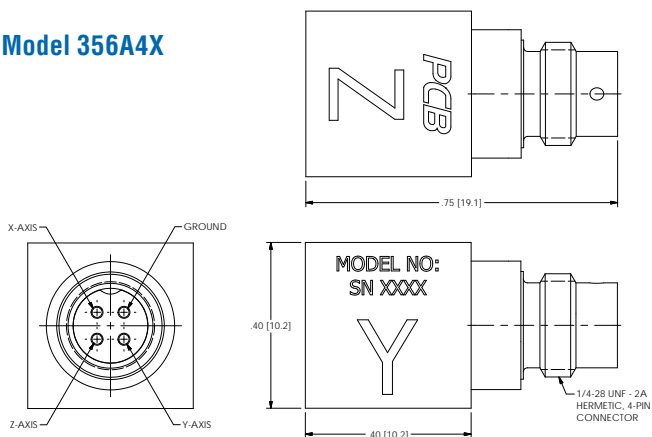
Models 356A43, 356A44 and 356A45 are miniature and lightweight triaxial ICP® accelerometers that are TEDS IEEE 1451.4 enabled. The accelerometers are hermetically sealed and packaged in a 0.4 inch (10.16 mm) titanium cube that weighs 0.15 ounces (4.2 grams). The TEDS feature self identifies these accelerometers and describes the type, operation and their attributes making them extremely easy for the operator to track. Ground isolated (J) models reduce electrical noise and potential for ground loops. High temperature (HT) models have extended operating temperatures up to 325 °F (163 °C).

### TYPICAL APPLICATIONS

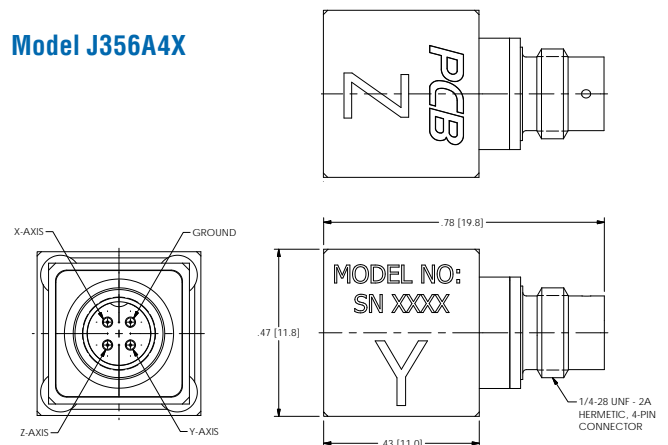
- Modal and structural analysis
- NVH studies on automotive parts
- Space restricted installations
- Drop testing and package testing
- Small component qualification testing
- General purpose vibration testing

SPECIFICATIONS	356A43 J356A43		356A44 J356A44		356A45 J356A45	
	English	SI	English	SI	English	SI
Performance						
Sensitivity Tolerance ( $\pm 10\%$ )	10 mV/g	1.02 mV/(m/s <sup>2</sup> )	50 mV/g	5.1 mV/(m/s <sup>2</sup> )	100 mV/g	10.2 mV/(m/s <sup>2</sup> )
Measurement Range	$\pm 500$ g pk	$\pm 4905$ m/s <sup>2</sup> pk	$\pm 100$ g pk	$\pm 981$ m/s <sup>2</sup> pk	$\pm 50$ g pk	$\pm 490$ m/s <sup>2</sup> pk
Frequency Range ( $\pm 5\%$ )	0.7 – 7000 Hz					
Frequency Range ( $\pm 10\%$ )	0.4 – 10000 Hz					
Resonant Frequency	$\geq 30$ kHz					
Broadband Resolution (1 to 10000 Hz)	0.0008 g rms	0.008 m/s <sup>2</sup> rms	0.0006 g rms	0.006 m/s <sup>2</sup> rms	0.0005 g rms	0.005 m/s <sup>2</sup> rms
Non-Linearity	$\leq 1\%$					
Transverse Sensitivity	$\leq 6\%$					
TEDS Compliant (IEEE 1451.4)	Yes					
<b>Environmental</b>						
Overload Limit (Shock)	$\pm 5000$ g pk	$\pm 49050$ m/s <sup>2</sup> pk	$\pm 5000$ g pk	$\pm 49050$ m/s <sup>2</sup> pk	$\pm 5000$ g pk	$\pm 49050$ m/s <sup>2</sup> pk
Temperature Range (Operating)	-65 to +250 °F	-54 to +121 °C	-65 to +200 °F	-54 to +93 °C	-65 to +185 °F	-54 to +85 °C
<b>Electrical</b>						
Excitation Voltage	20-30 VDC					
Constant Current Excitation	2-20 mA					
Output Impedance	$\leq 200$ Ohm					
Output Bias Voltage	8 to 12 VDC					
Discharge Time Constant	0.8 to 2.4 sec					
Settling Time (within 10% of bias)	$\leq 5$ sec					
Spectral Noise (1 Hz)	300 $\mu\text{g}/\sqrt{\text{Hz}}$	2943 ( $\mu\text{m}/\text{s}^2$ )/ $\sqrt{\text{Hz}}$	300 $\mu\text{g}/\sqrt{\text{Hz}}$	2943 ( $\mu\text{m}/\text{s}^2$ )/ $\sqrt{\text{Hz}}$	300 $\mu\text{g}/\sqrt{\text{Hz}}$	2943 ( $\mu\text{m}/\text{s}^2$ )/ $\sqrt{\text{Hz}}$
Spectral Noise (10 Hz)	50 $\mu\text{g}/\sqrt{\text{Hz}}$	491 ( $\mu\text{m}/\text{s}^2$ )/ $\sqrt{\text{Hz}}$	50 $\mu\text{g}/\sqrt{\text{Hz}}$	491 ( $\mu\text{m}/\text{s}^2$ )/ $\sqrt{\text{Hz}}$	50 $\mu\text{g}/\sqrt{\text{Hz}}$	491 ( $\mu\text{m}/\text{s}^2$ )/ $\sqrt{\text{Hz}}$
Spectral Noise (100 Hz)	35 $\mu\text{g}/\sqrt{\text{Hz}}$	343 ( $\mu\text{m}/\text{s}^2$ )/ $\sqrt{\text{Hz}}$	35 $\mu\text{g}/\sqrt{\text{Hz}}$	343 ( $\mu\text{m}/\text{s}^2$ )/ $\sqrt{\text{Hz}}$	35 $\mu\text{g}/\sqrt{\text{Hz}}$	343 ( $\mu\text{m}/\text{s}^2$ )/ $\sqrt{\text{Hz}}$
Spectral Noise (1 kHz)	8 $\mu\text{g}/\sqrt{\text{Hz}}$	79 ( $\mu\text{m}/\text{s}^2$ )/ $\sqrt{\text{Hz}}$	8 $\mu\text{g}/\sqrt{\text{Hz}}$	79 ( $\mu\text{m}/\text{s}^2$ )/ $\sqrt{\text{Hz}}$	8 $\mu\text{g}/\sqrt{\text{Hz}}$	79 ( $\mu\text{m}/\text{s}^2$ )/ $\sqrt{\text{Hz}}$
Electrical Isolation	$1 \times 10^9$ ohm (J option only)					
<b>Physical</b>						
Sensing Element	Ceramic					
Sensing Geometry	Shear					
Housing Material	Titanium					
Sealing	Hermetic					
Weight	0.15 oz	4.2 g	0.15 oz	4.2 g	0.15 oz	4.2 g
Electrical Connector	1/4 – 28 4-pin (side)					
Mounting	Adhesive					
	356A43, 356A44, 356A45			J356A43, J356A44, J356A45		
Size (height x width x length)	0.4 x 0.4 x 0.75 in (10.2 mm x 10.2 mm x 19.1 mm)			0.47 x 0.43 x 0.78 in (11.8 mm x 11.0 mm x 19.8 mm)		

### Model 356A4X

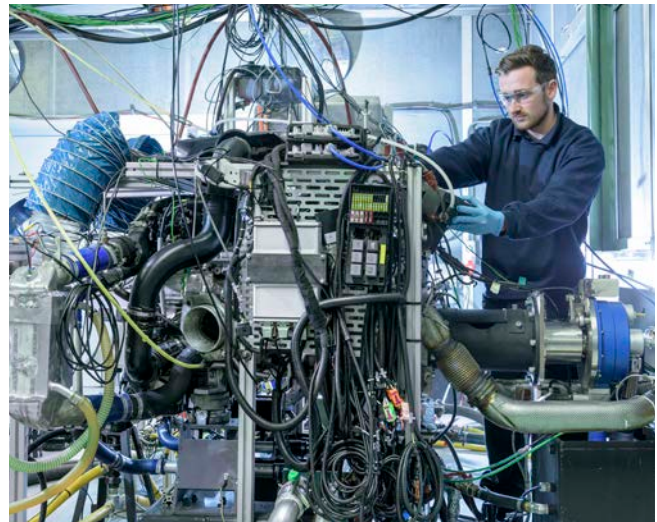
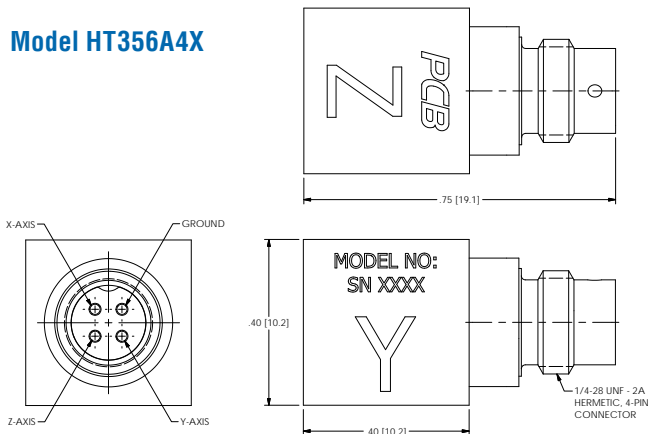


### Model J356A4X



SPECIFICATIONS	HT356A43		HT356A44	
	English	SI	English	SI
<b>Performance</b>				
Sensitivity Tolerance ( $\pm 10\%$ )	10 mV/g	1.02 mV/(m/s <sup>2</sup> )	50 mV/g	5.1 mV/(m/s <sup>2</sup> )
Measurement Range	$\pm 500$ g pk	$\pm 4905$ m/s <sup>2</sup> pk	$\pm 100$ g pk	$\pm 981$ m/s <sup>2</sup> pk
Frequency Range ( $\pm 5\%$ )	1.6 – 7000 Hz		12 – 7000 Hz	
Frequency Range ( $\pm 10\%$ )	1.1 – 10000 Hz		9 – 10000 Hz	
Resonant Frequency	$\geq 30$ kHz		$\geq 30$ kHz	
Broadband Resolution (1 to 10000 Hz)	0.0008 g rms	0.008 m/s <sup>2</sup> rms	0.001 g rms	0.001 m/s <sup>2</sup> rms
Non-Linearity	$\leq 1\%$		1%	
Transverse Sensitivity	$\leq 6\%$		$\leq 6\%$	
TEDS Compliant (IEEE 1451.4)	Yes		Yes	
<b>Environmental</b>				
Overload Limit (Shock)	$\pm 5000$ g pk	$\pm 49050$ m/s <sup>2</sup> pk	$\pm 5000$ g pk	$\pm 49050$ m/s <sup>2</sup> pk
Temperature Range (Operating)	-65 to +325 °F	-54 to +163 °C	-65 to +325 °F	-54 to +163 °C
<b>Electrical</b>				
Excitation Voltage	20-30 VDC		20-30 VDC	
Constant Current Excitation	2-20 mA		2-20 mA	
Output Impedance	$\leq 200$ Ohm		$\leq 200$ Ohm	
Output Bias Voltage	8 to 16 VDC		12 to 16 VDC	
Discharge Time Constant	0.3 to 0.9 sec		0.04 to 0.2 sec	
Settling Time (within 10% of bias)	$\leq 5$ sec		$\leq 5$ sec	
Spectral Noise (1 Hz)	300 $\mu\text{g}/\sqrt{\text{Hz}}$	2943 ( $\mu\text{m}/\text{s}^2$ )/ $\sqrt{\text{Hz}}$	200 $\mu\text{g}/\sqrt{\text{Hz}}$	1962 ( $\mu\text{m}/\text{s}^2$ )/ $\sqrt{\text{Hz}}$
Spectral Noise (10 Hz)	50 $\mu\text{g}/\sqrt{\text{Hz}}$	491 ( $\mu\text{m}/\text{s}^2$ )/ $\sqrt{\text{Hz}}$	200 $\mu\text{g}/\sqrt{\text{Hz}}$	1962 ( $\mu\text{m}/\text{s}^2$ )/ $\sqrt{\text{Hz}}$
Spectral Noise (100 Hz)	35 $\mu\text{g}/\sqrt{\text{Hz}}$	343 ( $\mu\text{m}/\text{s}^2$ )/ $\sqrt{\text{Hz}}$	30 $\mu\text{g}/\sqrt{\text{Hz}}$	294 ( $\mu\text{m}/\text{s}^2$ )/ $\sqrt{\text{Hz}}$
Spectral Noise (1 kHz)	8 $\mu\text{g}/\sqrt{\text{Hz}}$	79 ( $\mu\text{m}/\text{s}^2$ )/ $\sqrt{\text{Hz}}$	10 $\mu\text{g}/\sqrt{\text{Hz}}$	98 ( $\mu\text{m}/\text{s}^2$ )/ $\sqrt{\text{Hz}}$
<b>Physical</b>				
Sensing Element	Ceramic		Ceramic	
Sensing Geometry	Shear		Shear	
Housing Material	Titanium		Titanium	
Sealing	Hermetic		Hermetic	
Weight	0.15 oz	4.2 g	0.15 oz	4.2 g
Electrical Connector	1/4 – 28 4-pin (side)		1/4 – 28 4-pin (side)	
Mounting	Adhesive		Adhesive	
Size (height x width x length)	0.4 x 0.4 x 0.75 in	10.2 x 10.2 x 19.1 mm	0.4 x 0.4 x 0.75 in	10.2 x 10.2 x 19.1 mm

### Model HT356A4X



## MODEL 410C01 SINGLE CHANNEL ICP® SIGNAL CONDITIONER

DIN RAIL MOUNT (35MM) FOR ELECTRICAL SYSTEM ENCLOSURES

- Delivers excitation power for ICP® sensors
- Provides peak track hold and waveform analog output signals, 0 to 10 volts
- Offers AC or DC signal coupling and choice of 7 gain settings
- Setup configurable via USB or ethernet communications



## MODEL 482C24 FOUR CHANNEL, ICP® SIGNAL CONDITIONER

GENERAL PURPOSE BENCHTOP UNIT WITH AC/DC COUPLING

- Rear mounted BNC connections with unity gain
- AC line power, 100 - 240 VAC 50/60 Hz standard
- Selectable gain from x0.1 to x200
- Range of models with more advanced features: in/out filters, ethernet, integral display (482C16)



PCB CABLE ASSEMBLIES FOR ICP® TRIAXIAL SENSORS						
Cable Material & Type	Electrical Connectors, 1/4-28 4-socket plug (sensor end first)	Cable Model by Length				
		5 ft	10 ft	20 ft	30 ft	50 ft
		(1.5 m)	(3.0 m)	(6.1 m)	(9.1 m)	(15.2 m)
034 Blue, 4-conductor shielded FEP cable, low noise	4-socket plug to pigtails	034A05	034A10	034A20	034A30	034A50
	4-socket plug to 1/4-28 4-pin jack (extension cable)	034AY005CA	034AY010CA	034AY020CA	034AY030CA	034AY050CA
	4-socket plug to (3) 10-32 plugs (labeled X, Y, Z)	034F05	034F10	034F20	034F30	034F50
	4-socket plug to (3) BNC plugs (labeled X, Y, Z)	034G05*	034G10*	034G20*	034G30*	034G50*
	4-socket plug (IP-68) to (3) BNC plugs (labeled X, Y, Z)	034W05*	034W10*	034W20*	034W30*	034W50*
010 Dark blue, 4-conductor shielded FEP cable	4-socket plug to pigtails	010P05	010P10*	010P20*	010P30*	010P50
	4-socket plug to 1/4-28 4-pin jack (extension cable)	010AY005CA	010AY010CA	010AY020CA	010AY030CA	010AY050CA
	4-socket plug to (3) 10-32 plugs (labeled X, Y, Z)	010F05	010F10	010F20	010F30	010F50
	4-socket plug to (3) BNC plugs (labeled X, Y, Z)	010G05*	010G10*	010G20*	010G30*	010G50*
078 Light blue twisted shielded pair, Polyurethane cable	4-socket plug to 1/4-28 4-pin jack (extension cable)	078AY005CA	078AY010CA	078AY020CA	078AY030CA	078AY050CA
	4-socket plug to (3) 10-32 plugs (labeled X, Y, Z)	078F05	078F10	078F20	078F30	078F50
	4-socket plug to (3) BNC plugs (labeled X, Y, Z)	078G05*	078G10*	078G20*	078G30*	078G50*
	4-socket plug (IP-68) to (3) BNC plugs (labeled X, Y, Z)	078W05*	078W10*	078W20*	078W30*	078W50*

\*Stocked models.