



Extreme Temperature Charge Accelerometers

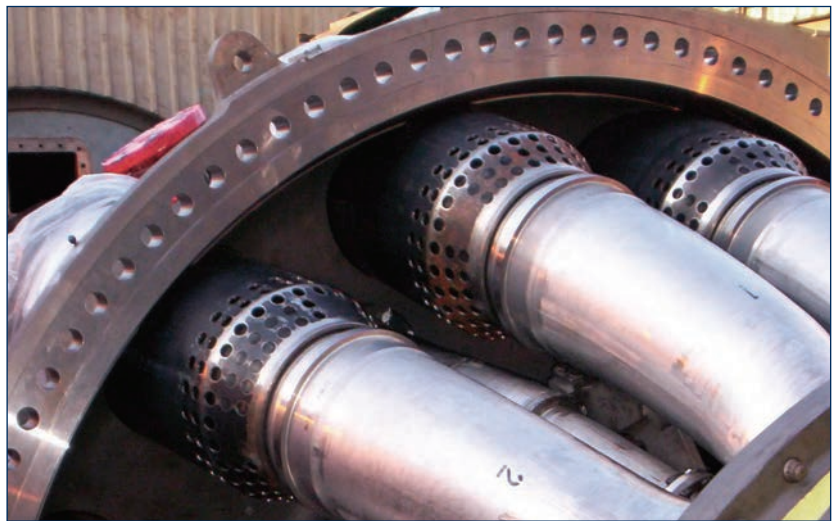
Designed to withstand application challenges of extreme heat environments such as gas turbines.

Highlights

- Provide critical vibration data in extreme temperature environments to prevent failures and reduce downtime.
- Withstand extreme temperatures with UHT-12™ crystal and hermetically-sealed, all-welded, super alloy housing.
- Operate in shear mode geometry for stable operation in the presence of thermal transients and base bending.
- Option of sensitive axis in the direction of the mounting screw or 90 degrees to the mounting screw.

Sensor Dimensions

- Commissioning of Nuclear Power Plants
- Condition Monitoring of Aviation Gas Turbines
- Gas Turbine Bearing Health Monitoring
- Machinery Protection in Extreme Temperature Environments



IMI Sensors has developed Series 357A9X and 357E9X, two families of extreme temperature charge accelerometers, to be used in gas turbine applications for vibration monitoring. The new models can operate in temperatures up to 1200 °F (649 °C) with the use of a UHT-12™ piezoelectric element and an industrial Nickel 600 housing.



1200°F
(649 °C)

Extreme Temperature Charge Accelerometers
Series 357A9X and 357E9X



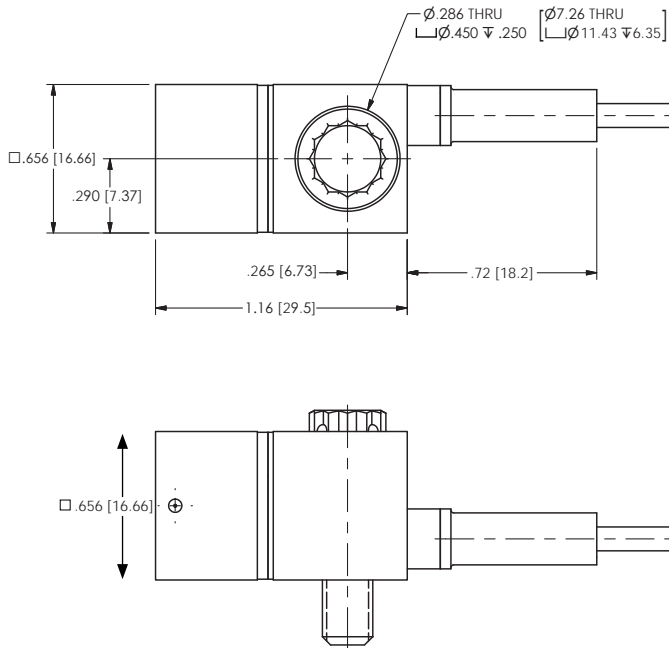
Technical Specifications

Model Number	357E90	357E91	357E92	357E93	357A94	357A95
Performance						
Sensitivity ($\pm 10\%$)	5 pC/g		2.3 pC/g		3.3 pC/g	
	0.51 pC/(m/sec ²)		0.23 pC/(m/sec ²)		0.34 pC/(m/sec ²)	
Measurement Range	± 1000 g pk					
	± 9800 m/sec ² pk					
Frequency Range ($\pm 5\%$)	3 kHz					
Frequency Range (± 1 dB)	5 kHz					
Resonant Frequency	≥ 14 kHz	≥ 13.5 kHz			≥ 15 kHz	
Non-Linearity	$\leq 2.5\%$				$\leq 1.0\%$	
Transverse Sensitivity	$\leq 5\%$					
Environmental						
Overload Limit (Shock)	± 2000 g pk					
	± 19600 m/sec ² pk					
Temperature Range (Continuous)	-67 to +1200 °F					
	-55 to +649 °C					
Temperature Range (Extreme)	-67 to +1400 °F					
	-55 to +760 °C					
Temperature Range (Cable Termination)	-67 to +900 °F					
	-55 to +482 °C					
Radiation Exposure Limit (Integrated Neutron Flux)	1E10 N/cm ²					
Radiation Exposure Limit (Integrated Gamma Flux)	1E8 Rad					
Electrical						
Output Polarity	Negative				Differential	
Capacitance	990 pF	1000 pF		520 pF		
Insulation Resistance (At 70 °F)	≥ 100 Mohm					
Insulation Resistance (At 1200 °F)	≥ 10 kohm					
Electrical Isolation (Case)	Signal Isolated from Case					
Physical						
Sensing Geometry	Shear					
Sensing Element	UHT-12™					
Axis of Measurement (Compared to Direction of Mounting Screw)	Parallel	Perpendicular	Parallel	Perpendicular	Parallel	Perpendicular
Housing Material	Nickel 600					
Sealing (Sensor Housing)	Hermetic					
Sealing (Connector)	Welded Hermetic					
Mounting	Through Hole					
Mounting Thread	1/4-28 Male		10-32 Male			
Cable Type	Integral MI Hardline Cable					
Cable Length	10 ft					
	3 m					
Cable Termination	0.25" \varnothing 10-32 Coaxial Jack				0.46" \varnothing 7/16-27 2-Pin	
Size (Height x Length x Width)	0.66 x 1.16 x 0.66 in		0.56 x 0.95 x 0.56 in			
	16.7 x 29.5 x 16.7 mm		14.2 x 24.1 x 14.2 mm			
Weight (Without cable)	1.8 oz		1.6 oz			
	50 gm		45 gm			

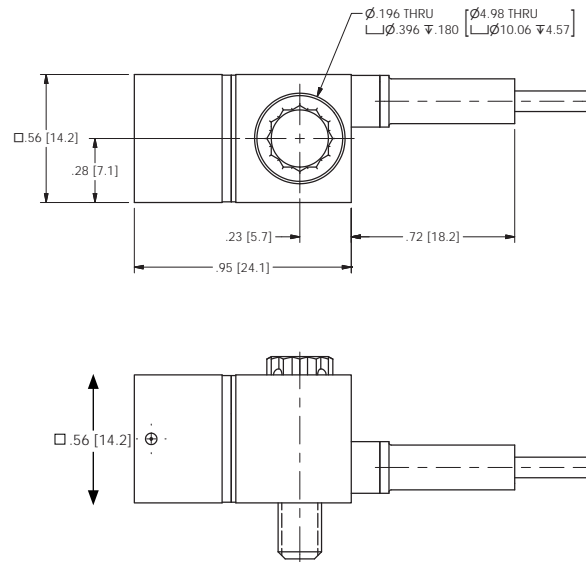


Sensor Dimensions

Models 357E90 & 357E91

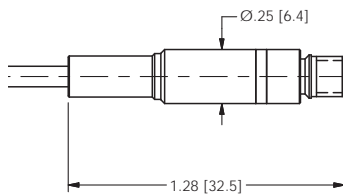


**Models 357E92 & 357E93
Models 357A94 & 357A95**

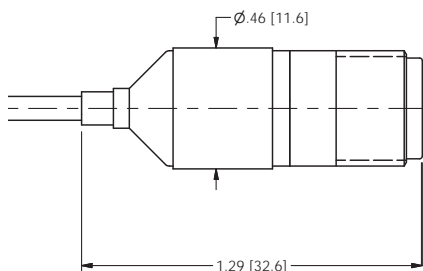


Connector Dimensions

**Models 357E90 & 357E91
Models 357E92 & 357E93**

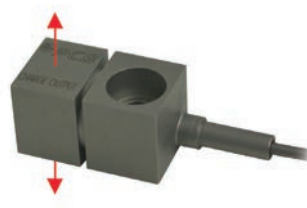


Models 357A94 & 357A95



Arrows Depict Sensitive Axis

Model 357E90



Model 357E91



Models 357E92 & 357A94



Models 357E93 & 357A95





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IMI-357E9X-0318

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