



Very High Temperature, Differential Charge Accelerometers

Designed to withstand application challenges of high heat environments.

Highlights

- Withstand very high temperatures with piezoelectric 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
- Differential output for reduced noise
- Provide critical vibration data in high temperature environments to prevent failures and reduce downtime

Typical Applications

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

Hazardous Area Approvals:

(EX357C71 and EX357C72 only)

ATEX

- Ex ia IIC T4
- Ex ia IIC T1
- Ex nL IIC T4
- Ex nL IIC T1



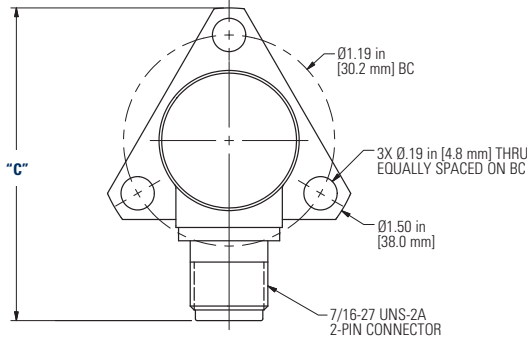
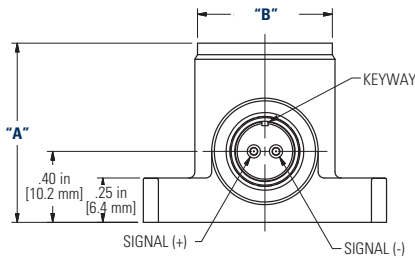
IMI® has developed a family of Very High Temperature, Differential Charge Accelerometers to be used in high heat applications for vibration monitoring. The new models can operate in environments with a continuous temperature up to 900 °F (482 °C) with the use of a shear mode geometry piezoelectric element and an industrial Nickel 625 housing.



CE

**Very High Temperature,
Differential Charge Accelerometer**
Models 357A100 and (EX)357C7X

Very High Temperature, Differential Charge Accelerometers



Value "A"	
357A100	0.75 in (19.1 mm)
(EX) 357C71	1.01 in (25.7 mm)
(EX) 357C72	1.40 in (35.6 mm)
357C73	1.57 in (39.9 mm)
Value "B"	
357A100	0.69 in (17.5 mm)
357C7X	0.75 in (19.1 mm)
Value "C"	
357A100	1.88 in (47.7 mm)
357C7X	1.76 in (44.8 mm)

Technical Specifications

Performance	357A100	(EX)357C71	(EX)357C72	357C73
Sensitivity ($\pm 5\%$)	5 pC/g .51 pC/(m/sec ²)	10 pC/g 1.02 pC/(m/sec ²)	50 pC/g 5.10 pC/(m/sec ²)	100 pC/g 10.20 pC/(m/sec ²)
Measurement Range	± 200 g pk ± 1962 m/sec ² pk	± 1000 g pk ± 9810 m/sec ² pk	± 500 g pk ± 4905 m/sec ² pk	± 300 g pk ± 2943 m/sec ² pk
Frequency Range ($\pm 5\%$)	5 kHz	4 kHz	2.5 kHz	2 kHz
Resonant Frequency	20 kHz	≥ 25 kHz	≥ 13 kHz	≥ 11 kHz
Non-Linearity	$\leq 1\%$	$\leq 1\%$	$\leq 1\%$	$\leq 1\%$
Transverse Sensitivity	$\leq 5\%$	$\leq 5\%$	$\leq 5\%$	$\leq 5\%$
Environmental				
Overload Limit (Shock)	± 1000 g pk ± 9810 m/sec ² pk	± 2000 g pk ± 19620 m/sec ² pk	± 2000 g pk ± 19620 m/sec ² pk	± 1000 g pk ± 9810 m/sec ² pk
Base Strain Sensitivity	N/A	0.033 g/ $\mu\epsilon$ 0.32 (m/sec ²)/ $\mu\epsilon$	0.033 g/ $\mu\epsilon$ 0.32 (m/sec ²)/ $\mu\epsilon$	0.033 g/ $\mu\epsilon$ 0.32 (m/sec ²)/ $\mu\epsilon$
Temperature Range (Operating)	-65 to +900 °F -54 to +482 °C	-65 to +900 °F -54 to +482 °C	-65 to +900 °F -54 to +482 °C	-65 to +900 °F -54 to +482 °C
Hazardous Area Approval	N/A	ATEX (EX only)	ATEX (EX only)	N/A
Radiation Exposure Limit (Integrated Neutron Flux)	1 E10 N/cm ²	1 E10 N/cm ²	1 E10 N/cm ²	1 E10 N/cm ²
Radiation Exposure Limit (Integrated Gamma Flux)	1 E8 rad	1 E8 rad	1 E8 rad	1 E8 rad
Electrical				
Output Polarity	Differential	Differential	Differential	Differential
Capacitance (Pin to Pin)	120 pF	525 pF	990 pF	1860 pF
Capacitance (Pin to Casing)	32 pF	26 pF	26 pF	26 pF
Insulation Resistance (Pin to Pin at Room Temperature)	$> 10^9$ ohm	$> 10^9$ ohm	$> 10^9$ ohm	$> 10^9$ ohm
Insulation Resistance (Pin to Casing at Room Temperature)	$> 10^9$ ohm	$> 10^9$ ohm	$> 10^9$ ohm	$> 10^9$ ohm
Insulation Resistance (Pin to Pin at High Temperature)	> 100 kohm	> 100 kohm	> 100 kohm	> 100 kohm
Physical				
Sensing Geometry	Shear	Compression	Compression	Compression
Sensing Element	UHT-12™	Ceramic	Ceramic	Ceramic
Housing Material	Nickel 625	Nickel 625	Nickel 625	Nickel 625
Sealing	Hermetic	Hermetic	Hermetic	Hermetic
Mounting	Through Holes	Through Holes	Through Holes	Through Holes
Electrical Connector	7/16-27 2-pin	7/16-27 2-pin	7/16-27 2-pin	7/16-27 2-pin
Electrical Connector Position	Side	Side	Side	Side
Size (Height x Diameter)	0.75 in x 0.69 in 19.1 mm x 17.5 mm	1.01 in x 0.75 in 25.7 mm x 19.0 mm	1.40 in x 0.75 in 35.6 mm x 19.0 mm	1.57 in x 0.75 in 39.9 mm x 19.0 mm
Weight	2.32 oz 66 gm	2.60 oz 75 gm	3.15 oz 90 gm	3.80 oz 110 gm



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IMI Sensors designs and manufactures a full line of accelerometers, sensors, vibration switches, vibration transmitters, cables and accessories for predictive maintenance, continuous vibration monitoring, and machinery equipment protection. Products include rugged industrial ICP® accelerometers, 4-20 mA industrial vibration sensors and transmitters for 24/7 monitoring, electronic and mechanical vibration switches, the patented Bearing Fault Detector, high temperature accelerometers to +1300 °F (+704 °C), 2-wire Smart Vibration Switch, and the patented Reciprocating Machinery Protector. CE approved and intrinsically safe versions are available for most products.

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