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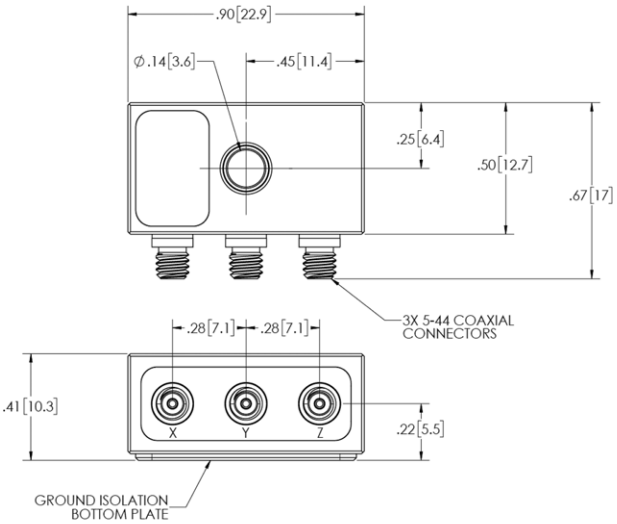
Ceramic Shear Accelerometer

Type 8248A3

High temperature, charge mode, triaxial accelerometer

Designed for long-term, high operational temperature stability at 260°C, the 8248A3 accelerometer simultaneously measures shock and vibration in three orthogonal axes.

- High impedance, charge mode
- Ceramic Shear sensing element
- High Temperature (260°C)
- Low transverse sensitivity
- Long-term stability at extended temperatures



Description

The Type 8248A3 high temperature, triaxial accelerometer is housed in a rectangular-shaped package with a center through-hole for seamless orientation of the sensor. Laser-etched markings on all sides clearly identify the three axes. A ceramic shear sensing element produces a charge output that can be easily converted into a useable analog voltage signal via a charge amplifier. Kistler's shear technology assures high immunity to base strain, thermal transients and transverse accelerations. Other outstanding features include high frequency response, lightweight and hermetic sealing. It is recommended that low noise transducer cables be used between the sensor and charge amplifier, such as the Kistler Type 1766AK03SP, or Type 1766AK04SP.

Internal of this hermetically sealed accelerometer, is a shear mode, ceramic sensing element, providing a significant charge output. Type 5050B… In-Line Charge Amplifier is recommended for use with the 8248A3. The Type 5050B… is a lower cost alternative to the laboratory amplifier allowing the measurement system to take on the appearance of the traditional voltage mode accelerometer and power supply/coupler.

Application

The Type 8248A3 is recommended for general vibration measurements in high temperature and in confined areas. Applications for this accelerometer include vehicle vibration and NVH testing, general laboratory, environmental testing where low impedance sensors are limited by temperature range. It can also be used in ESS, and modal analysis applications.

CE Compliant Information

Because high impedance, charge mode accelerometers contain no electronics, CE certification to the EMC Directive is not appropriate. When a high impedance accelerometer is used with a CE certified signal conditioner (i.e., charge amplifier....), it is said that this system is CE compliant.

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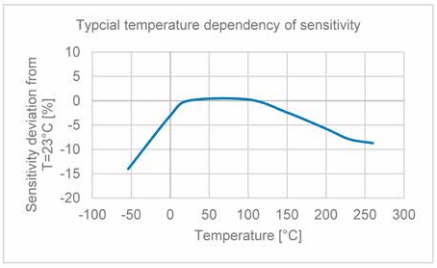
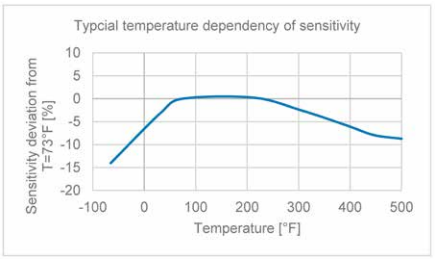
Technical data

Type unit	8248A3	
Acceleration range	g	±2,000
Sensitivity, at 100 Hz, 10g rms	pC/g	–3.0 ± 20%
Amplitude linearity up to 1,500 g up to 2,000 g	% F.S.O % F.S.O	±1 ±2
Resonant frequency, nom.	kHz	26
Frequency response		
± 5%, min.	Hz	8,000
± 10%, min.	Hz	9,000
± 10%, typ.	Hz	11,000
Insulation resistance/Ground Isolation	Ω	≥ 1 x 10^8
Capacitance	pF	450
Transverse sensitivity, typ.	%	5
Environmental:		
Base strain sensitivity @ 250με, typ.	g/με	0.003
Shock, max.	g	5,000
Temp. Coef. of Sens., typ.,		





Temperature range, operating	°C	–54... 260
Construction:		
Case	material	Titanium
Construction	seal	Hermetic
Connector	type	3 x 5-44 Coaxial
Weight	grams	10.4
Mounting	type	Center through-hole
Mounting torque	in-lbf (N·m)	6.5±0.7 (0.7±0.07)

1 g = 9.80665 m/s², 1 inch = 25.4 mm, 1 gram = 0.03527 oz, 1 lbf-in = 0.113 Nm

Mounting

Reliable and accurate measurements require that the mounting surface be clean and flat. The accelerometer can be attached to the structure utilizing the center through-hole and supplied screws or adhesive. The Operating Instruction Manual for the Type 8248A3 provides detailed information regarding mounting surface preparation.

Accessories included

- Mounting Kit (Imperial Thread) 8446AE5
  - (1) PEEK Washer
  - (1) Stainless Steel No. 6 Washer
  - (1) Stainless Steel Screw 6-32 x 5/8"
- Mounting Kit (Metric Thread) 8446AM5
  - (1) PEEK Washer
  - (1) Stainless Steel No. 6 Washer
  - (1) Stainless Steel Screw M3x0.5 x 16 mm
- ISO 17025 Calibration Certificate

Optional cables

- 5-44 pos. to 10-32 pos. 1766AK03SP
- 5-44 pos. to BNC pos. 1766AK04SP

Ordering key

Measuring Range	8248A ☐
–3.0pC/g, 260°C	3

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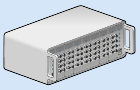
Charge output sensor and IEPE converter

	Measuring	Connecting	Amplifying		Acquiring	Analyzing
Charge input sensor	Type 82... 5-44 Neg.	Type 1766AK03SP 5-44 Pos. to 10-32 Pos.	Type 5050B... 10-32 Neg. to BNC Neg.	Type 1511A... BNC Pos. to BNC Pos.	IEPE compatible DAQ	Laptop
						

Charge output and Kistler LabAmp

	Measuring	Connecting	Amplifying and acquiring		Analyzing
Charge/IEPE sensors	Type 82... 5-44 Neg.	Type 1766AK04SP 5-44 Pos. to BNC Pos.	Type 5165A... BNC Neg. to Ethernet Port OR BNC Neg.	Ethernet cable OR Type 1511A... BNC Pos. to BNC Pos. for analog output	Laptop