

Quartz Accelerometer

Type 8002K

Vibration Standard

Type 8002K is a high precision accelerometer for shock and vibration measurements in laboratory applications. Its excellent performance is derived from an ultra-stable crystalline quartz sensing element.

- High impedance, charge mode
- Quartz stability and repeatability
- Wide operating temperature range

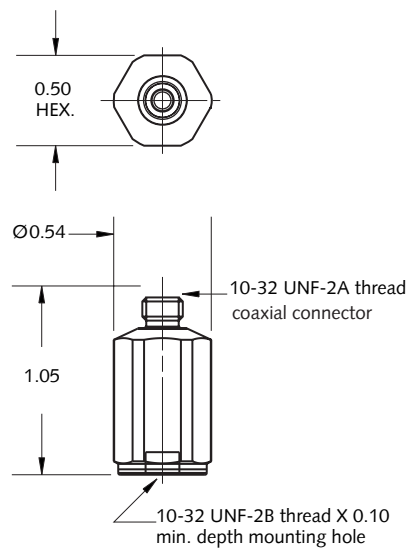
Description

Contained within the housing is a piezoelectric assembly consisting of a seismic mass preloaded to a quartz element stack. The force acting on the quartz measuring element is proportional to the acceleration in accordance with Newton's Law: $F=ma$. This element, in turn, gives an electrical charge signal proportional to the force, and therefore, to the acceleration. The charge signal is conducted through a low noise coaxial cable, such as the 1631 series, then converted and amplified to a proportional output voltage in a charge amplifier (such as Type 5010).

The 8002K accelerometer is a special version with emphasis on transverse sensitivity and amplitude non-linearity. The 8002K along with a 5022 Charge Amplifier form Kistler's 8802 Laboratory Vibration Reference Standard.

Application

The 8002K is primarily a reference accelerometer, used in Kistler's high precision 8802 Vibration Reference Standard system.



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...), the system is CE compliant.

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Technical Data

Type	Units	8002K
Acceleration Range	g	±1000
Acceleration Limit	g _{pk}	±2000
Transverse Acceleration Limit	g _{pk}	±500
Threshold nom.	g _{rms}	0.02
Sensitivity, ±10%	pC/g	-1
Resonant Frequency mounted, nom.	kHz	40
Frequency Response, -1%, +5%	Hz	≈0 ... 6000
Amplitude Non-linearity	%FSO	±0.5
Insulation Resistance	Ω	≥10 ¹³
Capacitance, nom.	pF	90
Transverse Sensitivity nom.	%	≤2
Long Term Stability	%	0.5
Environmental:		
Base Strain Error @250g/με	g/με	0.12
Temperature Coefficient of Sensitivity	%/°F	-0.02
Temperature Range Operating	°F	-95 ... 250
Temperature Range Storage	°F	-202 ... 390
Construction:		
Sensing Element	type	quartz/ compression
Housing/Base	material	stainless steel
Sealing-housing/connector	type	welded/epoxy
Connector	type	10-32 UNF- 2A THD. coaxial
Weight	grams	20
Mounting Torque	lbf-in	18

1 g = 9.80665 m/s², 1 inch = 25.4 mm, 1 gram = 0.03527 oz, 1 lbf-in = 0.1129 Nm

Mounting

Mounting is accomplished by inserting a Type 8402 stud into 10-32 UNF threaded hole in the object to be measured. Orthogonal measurements in three principal axes can be accomplished by utilizing a Type 8502 triaxial mounting cube.

Accessories Included

- mounting stud with a 10-32 UNF thread

Type

8402

Optional Accessories

- mounting stud 10-32 to M6
- triaxial mounting cube

Type

8411

8502

Ordering Key

Measuring Range

±1000g

