

PiezoStar® Accelerometer

Type 8765A250M5

Miniature, Voltage Triaxial Accelerometer

Type 8765A250M5 triaxial accelerometer measures shock and vibration in three orthogonal axis. Type 8765A250M5 is a miniature 6,4 gram center hole triaxial accelerometer with a ± 250 g measurement range and 20 mV/g sensitivity.

- Low mass
- PiezoStar sensing element
- High temperature operation
- Hermetically sealed, miniature design
- New miniature 4-pin connector
- Very low sensitivity variations over temperature
- Low base strain sensitivity
- Low impedance voltage output
- Conforming to CE

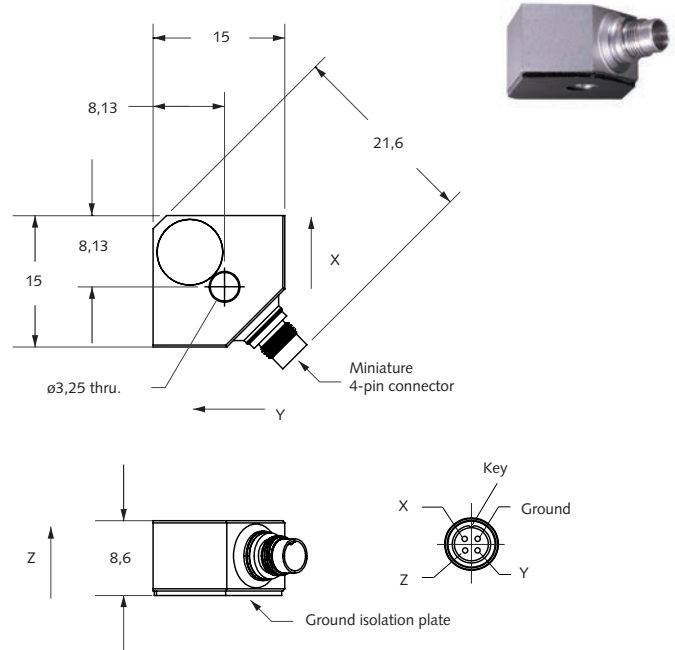
Description

Type 8765A250M5 is a miniature IEPE triaxial accelerometer designed for high temperature applications. The triaxial design permits simultaneous shock and vibration measurements in three perpendicular axes: X, Y and Z.

Kistler's PiezoStar element design provides a wide operating frequency range along with extremely low sensitivity to thermal transients. The accelerometer operates from $-55 \dots 165$ °C using a welded hermetic and ground isolated housing with a miniature 4-pin ceramic insulated connector for reliable measurements and long time stability especially at higher operating temperatures. Type 8765A250M5 accelerometer also uses Kistler PiezoStar Crystals and high gain integral hybrid microelectronics providing very low sensitivity variation over the operating temperature range, compared to quartz and ceramic element designs.

Application

The extremely low weight of Type 8765A250M5 accelerometer is highly attractive where mass loading of test structure is a major concern. Applications include automotive under the hood and under the vehicle testing and subsystem vibration testing for aerospace applications. The accelerometer is ground isolated and optional Kistler shielded cables are known for offering high measured signal integrity for the intended applications. In addition, the center-hole mounting permits flexibility for 360° orientation of the cable which allows a wide selection of locations for mounting. Type 8765A250M5 also offers high sensitivity over a wide frequency range resolving a wide range of vibration measurements.



Mounting

Reliable and accurate measurements require that the mounting surface be clean and flat. The sensor can be attached to the structure with wax, adhesive or supplied mounting screw. The operating instruction manual for Type 8765A... provides detailed information regarding mounting surface preparation.

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Technical Data

Specification	Unit	Type 8765A250M5
Acceleration range	g	±250
Acceleration limit	gpk	±500
Threshold (noise 40 μ Vrms), nom.	grms	0,002
Sensitivity, ± 10 %	mV/g	20
Resonant frequency mounted, nom.	kHz	>50
Frequency response, ± 5 %	Hz	1 ... 9 000
Amplitude non-linearity	%FSO	±1
Time constant, nom.	s	1
Transverse sensitivity, nom. (max. 5)	%	2,5

Environmental

Base strain sensitivity @ 250 $\mu\epsilon$	g/ $\mu\epsilon$	0,015
Shock limit (1 ms pulse)	gpk	5 000
Temperature coefficient of sensitivity	%/ $^{\circ}$ C	-0,004
Operating temperature range	$^{\circ}$ C	-55 ... 165

Output

Bias, nom.	VDC	11
Impedance	Ω	≤ 100
Voltage full scale	V	±5

Power Supply

Voltage	VDC	18 ... 30
Constant current	mA	2 ... 20

Construction

Sensing element	Type	PiezoStar
Case/base	material	Titanium
Degree of protection case/connector (EN 60529)		IP68
Connector	Type	mini 4-pin pos.
Ground isolated		yes
Mass	grams	6,4
Mounting ($\varnothing 3,3$ hole)	Type	cap screw

1 g = 9,80665 m/s², 1 Inch = 25,4 mm, 1 gram = 0,03527 oz, 1 lbf-in = 0,113 N·m

Included Accessories

- Mounting wax
- #4-40x1/2" isolated mounting screw
- 2,5x12 mm isolated mounting screw

Type

8432
8446AE2
8446AM3

Optional Accessories

- Mini 4-pin neg. to 4-pin pos., 0,5 meter
- Mini 4-pin neg. to 3x BNC (max. length 10 m)
- Cable, break out, 4-pin neg. to 3x BNC pos.
- Adhesive mounting base, 4-40 thd.
- Adhesive mounting base, M2,5 thd.

Type

1784A...K02
1784A...K03
1756B
8462K01
8462K02

Ordering Code

Range	Type 8765A
±250 g, high temperature	250M5






Measure	Connect	Amplify	Output	Analyze
 Type 8765A250M5 Low impedance	 Typ 1784A... Mini, 4-pin neg. 3x BNC pos.	 Type 51... Power supply/ signal conditioner	 Type 1511 BNC pos. BNC pos.	 not supplied

Fig. 1: Measuring chain