KISTLER
measure. analyze. innovate.

PiezoStar® Accelerometer

Type 8712B...

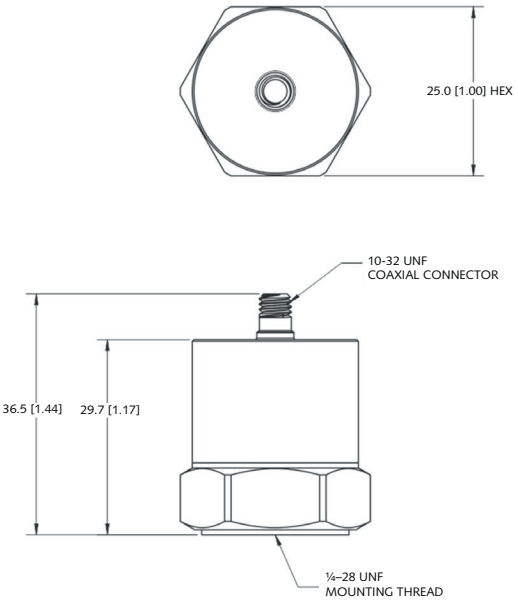
High Sensivity, Voltage Mode Accelerometer

High 1,000 mV/g sensitivity accelerometer measures low amplitude vibrations down to 100 µg on large structures. Featuring a rugged, welded, hermetic construction, the Type 8712B… accelerometer is ideally suited for accurate long term measurements while subjected to adverse environments down to cryogenic temperatures.

- Low impedance, voltage mode
- Very high sensitivity
- PiezoStar accuracy and stability
- Cryogenic temperature ranges
- Hermetically sealed
- Conforming to CE

Type 8712B5D0CB

Dimensions



Dimensions are shown in mm [in], unless otherwise noted.

Description

Utilizing Kistler's exclusive PiezoStar® element and K-Shear® design, the accelerometer exhibits very low sensitivity to base strain, thermal changes and transverse acceleration. The unique PiezoStar sensing elements afford the ultimate in long-term stability, which ensures repeatable and accurate measurements for many years. In addition to the PiezoStar shear elements contained within the housing, a Piezotron® micro-electronic circuit converts the high impedance charge signal emanating from a pair of elements into a voltage signal. The low impedance voltage output minimizes noise pick-up and eliminates the need for highly insulated low noise cables. This low temperature variant using a specific Piezotron allows sensor usage down to cryogenic temparatures (–196 °C [–320 °F]).

Application

Type 8712B… is ideally suited for applications involving low amplitude vibrations over a wide frequency range. Examples include microvibration testing at cryogenic temperature in Space applications, seismic applications, or any low amplitude vibration testing on heavy structures.

Mounting

Reliable and accurate measurements require that the mounting surface be clean and flat. The sensor can be attached to the structure by a single ¼–28 mounting stud. The operating instruction manual for Type 8712B… provides detailed information regarding mounting surface preparation, as well as careful handling instruction. Please refer to it in order to follow the requirements.

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Technical Data

Type	Unit	8712B5D0CB
Dynamic		
Acceleration range	g	±5
Frequency response, ±5 %	Hz	0.5 ... 3,000
Frequency response, ±10 %	Hz	0.2 ... 5,000
Sensitivity, @100 Hz, 2 g_{rms}	mV/g	1,000±10 %
Resonant frequency, mounted	kHz	≥14
Transverse sensitivity, typ. (max.)	%	1.0 (3)
Amplitude linearity	%FSO	±1
Electrical		
Output		
Bias, nom.	VDC	11
Impedance	Ω	≤100
Current	mA	2
Voltage, F.S., nom.	VDC	±5
Threshold (1 Hz ... 10 kHz), nom.	g_{rms} (μV_{rms})	0.0001 (100)
Noise density typ.		
1 ... 10 Hz	$\mu V_{rms}/\sqrt{Hz}$	16.8
10 ... 100 Hz	$\mu V_{rms}/\sqrt{Hz}$	3.2
100 ... 1,000 Hz	$\mu V_{rms}/\sqrt{Hz}$	1.3
Time constant (nom.)	s	2
Supply current	mA	2 ... 18
Source voltage	VDC	22 ... 30
Ground isolation	MΩ	with accessories
Environmental		
Acceleration limit	g	±50
Shock limit (1 ms pulse width), max.	g	500
Operating temperature range	°C [°F]	–196 ... 125 [–320 ... 260]
Temperature coeff. sensitivity	%/°C [%/°F]	0.06 [0.03]
Base strain sensitivity @250 με	g	0.0008
Physical		
Weight	grams	72
Case material		Titanium
Construction	Type	Hermetic
Sensing element	Type	PiezoStar®
Mounting torque	N·m [lbf-in]	2.0±0.2 [18±2]

1 g = 9.80665 m/s², 1 in = 25.4 mm, 1 Gram = 0.03527 oz, 1 lbf-in = 0.113 N·m

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Accessories Included	Type
• Mounting stud, ¼–28 to 10-32	8410
• Mounting stud, ¼–28	8412
• Mounting stud, ¼–28 to M8	8421

Ordering Key

Type 8712B... □ □ □

Measuring Range

±5 g	**5D0**

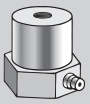
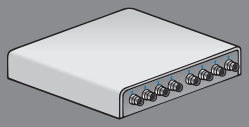
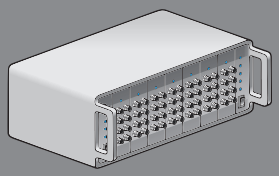
Temperature Range

Cryogenic temperature down to –196 °C [–320 °F]	**C**

Sensor Base Isolation

None	**B**

Measuring Chain

Measuring	Connecting	Amplifying/Acquiring
Type 8712B... 	Type 1761B... 	**Kistler LabAmp Type 5165A...** Signal Conditioning & Data Acquisition (Analog & Digital Output)  **OR** IEPE Compatible Data Acquistion Unit (customer supplied) 

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