

K-Shear Accelerometer

Type 8704B5000

Dual-purpose, voltage mode accelerometer

The Type 8704B5000 rugged, lightweight dual purpose accelerometer measures vibration or mechanical shock in a wide range of applications. High level vibration measurements or impulse/impact levels up to 5,000 g can be made with this welded, hermetically sealed accelerometer.

- Low impedance, voltage mode
- Quartz-shear sensing elements
- Ultra-low base strain
- Ultra low thermal transient response
- Hermetically sealed
- Conforming to CE

Description

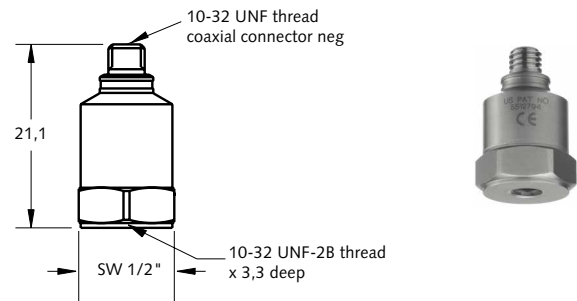
The accelerometer Type 8704B5000 accurately measures mechanical shock or vibration up to 5,000 g. The unique K-Shear sensing system is insensitive to base strain, transverse acceleration and thermal transients. Quartz shear cut, sensing crystals ensure long-term stability not achievable with other sensing materials.

The sensor is constructed in a hermetically sealed, welded, titanium case. The 10-32 thread top connector features a robust design to provide years of reliable operation under conditions where repeated shock and vibration is encountered.

The built-in Piezotron electronic impedance converter, provides a high signal level at a low impedance output allowing the use of inexpensive coaxial cable. The accelerometer can be powered by a Kistler 5100 series coupler/signal conditioner or by any industry standard IEPE (Integrated Electronic Piezo-Electric) sensor power source.

Application

The Type 8704B5000 can be used for general purpose vibration measurements in a laboratory or for environmental product shock testing in vehicle, automotive, metal-to-metal impacting, shipping package design and survivability.



Mounting

A threaded 10-32 UNF stud provides positive attachment of the accelerometer to the test structure. Reliable and accurate measurements require that the mounting surface be clean and flat. The operating instruction manual for the accelerometer Type 8704B5000 provides detailed information regarding mounting surface preparation.

Technical data

Specification	Unit	Type 8704B5000
Acceleration range	g	±5,000
Overload	g_{pk}	±10,000
Threshold (noise, 130 μV_{rms}), nom.	g_{rms}	0,13
Sensitivity, ±5 %	mV/g	1
Resonant frequency mounted, nom.	kHz	54
Frequency response, ±5 %	Hz	1 ... 10,000
Amplitude non-linearity nom.	%FSO	±1
Time constant	s	1.5
Transverse sensitivity, nom. (max. 5)	%	1.5
Long-term stability	%	±1

Environmental

Base strain sensitivity @ 250 $\mu\epsilon$	$g/\mu\epsilon$	0.01
Shock limit (1 ms pulse)	g_{pk}	10,000
Temperature coefficient of sensitivity	%/°F	-0.03
Operating temperature range	°F	-65 ... 250
Storage temperature range	°F	-100 ... 300

Output

Bias, nom.	VDC	11
Impedance	Ω	<100
Voltage full scale	V	±5
Current	mA	2

Source

Voltage	VDC	20 ... 30
Constant current	mA	2 ... 20
Impedance, min.	k Ω	100

Construction

Sensing element	type	quartz-shear
Case/base	material	Titanium
Degree of protection case/connector	type	Hermetic
Connector	type	10-32 neg.
Ground isolated		with pad
Mass	grams	7.1
Mounting (10-32 thd. x 0.13 dp)	type	stud

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

- 10-32 mounting stud
- Mounting stud, 10-32 to M6;

Type
8402
8411

Ordering key

Range

±5,000 g 5000

Type 8704B

Measuring chain

- | | Type |
|--|----------|
| 1 Low impedance sensor | 87... |
| 2 Sensor cable, 10-32 pos. to BNC pos. | 1761B... |
| 3 Power supply/signal conditioner | 51... |
| 4 Output cable, BNC pos. to BNC pos. | 1511 |

