

# K-Shear<sup>®</sup> Accelerometer

Type 8720A500

## Low Profile, General Purpose, Voltage Accelerometer

Small, relatively light weight general purpose accelerometer for vibration measurements in a wide range of applications. Available in an off ground, adhesive mount configuration, this low profile accelerometer features a rugged, hermetically sealed construction.

- Low impedance, voltage mode
- Quartz shear sensing element
- Ultra low base strain
- Ultra low thermal transient response
- Lightweight, small size
- Ground isolated, hermetically sealed
- Conforming to CE

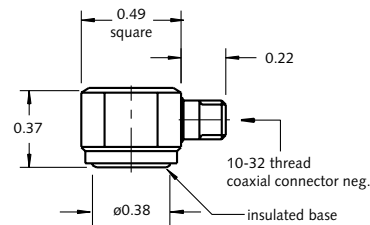
### Description

The light weight, low profile Type 8720A500 uses Kistler's uniquely designed K-Shear quartz sensing element. Operating in the shear mode with precisely cut quartz plates allows this accelerometer to exhibit ultra low sensitivity to thermal transients, base strain and transverse motion. Long-term stability and measurement accuracy is achieved by use of a quartz crystal sensing element.

An internal microelectronic Piezotron<sup>®</sup> signal conditioning circuit converts the charge developed in the quartz element as a result of the accelerometer being subjected to a vibration into a useable, high level voltage output signal at a low impedance level. The accelerometer case is constructed of titanium and is hermetically sealed to insure years of reliable operation. The ground isolated base is designed for adhesive mounting and exceptional flatness insures maximum high frequency sensitivity.

### Application

The low gram weight of this accelerometer makes it ideal for modal analysis and measurements on light structures. The small size and low profile allows for installation on items with limited mounting space such as printed circuit boards.



### Mounting

The Type 8720A500 can be attached to the test structure by adhesive or wax. The accelerometer's side connector facilitates connector orientation in confined areas. Reliable and accurate measurements require that the mounting surface be clean and flat. The operating instruction manual for the accelerometer Type 8720A500 provides detailed information regarding mounting surface preparation.

**Technical Data**

Specification	Unit	Type 8720A500
Acceleration range	g	±500
Overload	gpk	±1000
Transverse acceleration limit	gpk	±500
Threshold (noise 130 µVrms) nom.	grms	0.01
Sensitivity, ±5 %	mV/g	10
Resonant frequency mounted nom.	kHz	54
Frequency response, -5 %, 10 %	Hz	1 ... 10000
Amplitude non-linearity	%FSO	±1
Time constant nom.	sec	1
Transverse sensitivity nom. (max. 3)	%	1.5

**Environmental**

Base strain sensitivity @ 250 µε	g/µε	0.04
Random vibration max.	grms	2000
Shock limit (1 ms pulse)	gpk	5000
Temperature coeff. 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	4
Impedance min.	kΩ	100

**Construction**

Sensing element	Type	quartz-shear
Case/base	material	Titanium
Degree of protection case/connector (EN 60529)		IP68
Connector	Type	10-32 neg.
Ground isolated		yes
Mass	grams	4.9
Mounting	Type	adhesive/wax

1 g = 9.80665 m/s<sup>2</sup>, 1 Inch = 25.4 mm, 1 gram = 0.03527 oz, 1 lbf-in = 0.113 N-m

**Included Accessories**

- Mounting wax

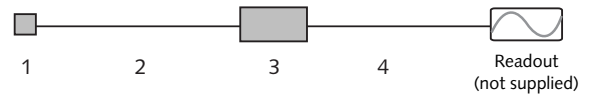
Type  
8432

**Ordering Key**



**Measuring Chain**

- |  |               |
|--|---------------|
| 1 Low impedance sensor                 | Type 8720A500 |
| 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          |



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