

## K-Shear<sup>®</sup> Accelerometer

Type 8712A5M1

### High Sensitivity, Voltage Mode Accelerometer

High 1000 mV/g sensitivity accelerometer measures low amplitude vibrations on large structures. Featuring a rugged all welded, hermetic construction with an electrical ground isolation, the accelerometer Type 8712A... is ideally suited for accurate long term measurements while subjected to adverse environments.

- Low impedance voltage mode
- Very high sensitivity
- Quartz shear accuracy and stability
- High immunity to thermal transients
- Ground isolated
- Welded hermetic construction
- Conforming to CE

#### Description

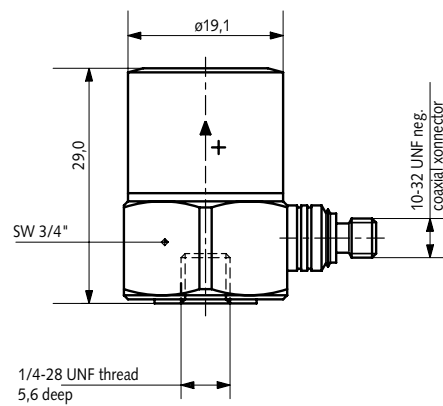
Utilizing Kistler's exclusive K-Shear design, the accelerometer exhibits very low sensitivity to base strain, thermal transients and transverse acceleration. In addition to the shear quartz elements contained within the housing, a Piezotron<sup>®</sup> micro-electronic circuit converts the high impedance charge signal emanating from a pair of elements into voltage signal. The low impedance voltage output minimizes noise pick-up and eliminates the need for highly insulated low noise cables. The electrically isolated base prevents potential ground loop problems. Quartz sensing elements afford the ultimate in long-term stability which ensures repeatable and accurate measurements for many years.

#### Application

The Type 8712A... is ideally suited for applications involving low amplitude vibrations over a wide frequency range. Examples include heavy structures, suspension building and machines. For permanent installation, Kistler offers a cable with a connector that can be factory welded (Type 1939) to the connector Type 8712A... . See the ordering key for details.

#### 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 1/4-28 mounting stud. The operating instruction manual for the Type 8712A... provides detailed information regarding mounting surface preparation.



**Technical Data**

Specification	Unit	Type 8712A5M1
Acceleration range	g	±5
Acceleration limit	gpk	±50
Transverse acceleration limit	gpk	±100
Threshold (noise 400 µVrms), nom.	grms	0,0004
Sensitivity, ±5 %	mV/g	1 000
Resonant frequency mounted, nom.	kHz	24
Frequency response, ±5 %	Hz	0,5 ... 8 000
Amplitude non-linearity	%FSO	±1
Time constant, nom.	s	1
Transverse sensitivity, nom. (max. 3)	%	1,5

**Environmental**

Base strain sensitivity @ 250 µε	g/µε	<0,002
Shock limit (1 ms pulse)	gpk	1 000
Temperature coefficient of sensitivity	%/°C	-0,06
Operating temperature range	°C	-55 ... 100
Storage temperature range	°C	-75 ... 150

**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	stainless steel
Degree of protection case/connector (EN 60529)		IP68
Connector	Type	10-32 neg.
Ground isolated		yes
Mass	grams	51
Mounting (1/4-28 thdx5,6)	Type	stud
Mounting torque	N·m	2

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**

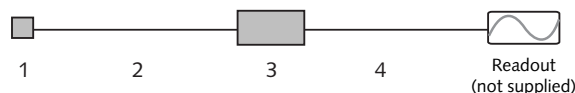
	Type
• Mounting stud 1/4-28 to 10-32	8432
• Mounting stud 1/4-28	8412
• Mounting stud 1/4-28 to M8; shipped only outside N.A.	8421

**Ordering Key**



**Measuring Chain**

	Type
1 Low impedance sensor	8712A...
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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