

K-Shear[®] Accelerometer

Type 8792A...

Through Hole Mounting, Voltage Triaxial Accelerometer

The 8792A... triaxial accelerometer family of models measures vibration in three mutually perpendicular axes. They are available in four measuring ranges from $\pm 25 \dots \pm 500g$ and feature a housing through hole allowing a single bolt to attachment to the test structure.

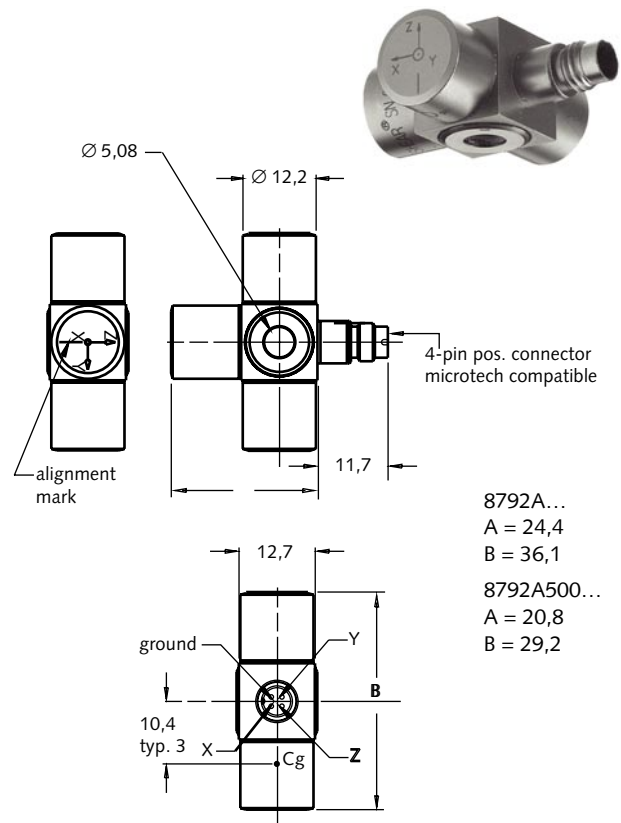
- Low impedance, voltage mode output
- Quartz shear sensing elements
- High immunity to thermal transients
- Ultra-low base strain sensitivity
- Wide frequency range
- Ground isolated
- Low profile design
- Conforming to CE

Description

The 8792A... series of quartz shear triaxial accelerometers are rugged, low impedance voltage mode sensors. They are available in four ranges from 25 ... 500g with sensitivities from 10 ... 200mV/g. This triaxial design allows simultaneous shock and vibration measurements in three mutually perpendicular axes: X, Y and Z.

Kistler's K-Shear design provides a wide operating frequency range along with extremely low sensitivity to thermal transients, base strain and transverse acceleration. Quartz sensing crystals ensure the long-term stability not achievable with other sensing materials. Three Piezotron[®] microelectronic circuits convert the charge signal from each quartz element into a useable high level voltage signal at a low impedance output allowing the use of low-cost cables. An advantage of the low impedance output is the ability to drive long cable lengths with low-noise susceptibility.

The welded, stainless steel construction is hermetically seals the accelerometer when subjected to adverse environments and the ground isolated base design eliminates ground loops.



Application

The accelerometers measure simultaneously the three components of the acting acceleration enabling any model to be used for general purpose vibration measurement in a laboratory or industrial environment. The single center mounting hole allows for convenient attachment and alignment of the X and Y axis.

Accessing TEDS Data

Accelerometers with a "T" suffix are variants of the standard version incorporating the "Smart Sensor" design. Viewing an accelerometer's data sheet requires an Interface/Coupler such as Kistler's Type 5134B... or 5000M04 with TEDS Editor software. The Interface provides negative current excitation (reverse polarity) altering the operating mode of the PiezoSmart sensor allowing the program editor software to read or add information contained in the memory chip.

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Technical Data

Type	Unit	8792A25	8792A50	8792A100	8792A500
Acceleration Range	g	±25	±50	±100	±500
Acceleration Limit	gpk	±50	±100	±200	±1000
Threshold nom.	grms	0,002	0,004	0,006	0,01
Sensitivity, ±5%	mV/g	200	100	50	10
Resonant Frequency mounted, nom.	kHz	54	54	54	54
Frequency Response, ±5%	Hz	1 ... 5000	0,5 ... 5000	0,5 ... 5000	1 ... 5000
Amplitude Non-linearity	%FSO	±1	±1	±1	±1
Time Constant nom.	s	1	2	1,5	1
Transverse Sensitivity nom., (max. 3)	%	1,5	1,5	1,5	1,5
Long Term Stability	%	±1	±1	±1	±1
Environmental:					
Base Strain Sensitivity @ 250µε	g/µε	0,005	0,005	0,005	0,005
Shock Limit (1ms pulse) gpk	2000	2000	2000	5000	
Temperature Coeff. of Sensitivity	%/°C	-0,06	-0,06	-0,06	-0,06
Temperature Range Operating	°C	-54 ... 100	-54 ... 100	-54 ... 100	-54 ... 120
Temperature Range Storage	°C	-75 ... 120	-75 ... 120	-75 ... 120	-75 ... 150
Output:					
Bias nom.	VDC	11	11	11	11
Impedance	Ω	<100	<100	<100	<100
Voltage full scale	V	±5	±5	±5	±5
Current	mA	2	2	2	2
Source:					
Voltage	VDC	20 ... 30	20 ... 30	20 ... 30	20 ... 30
Constant Current	mA	2 ... 18	2 ... 18	2 ... 18	2 ... 18
Impedance min.	kΩ	100	100	100	100
Construction:					
Sensing Element	type	Quartz Shear	Quartz Shear	Quartz Shear	Quartz Shear
Housing/Base	material	St. Stl.	St. Stl.	St. Stl.	St. Stl.
Sealing-housing/connector	type	Hermetic	Hermetic	Hermetic	Hermetic
Connector	type	4-pin pos.	4-pin pos.	4-pin pos.	4-pin pos.
Ground Isolated min.	MΩ	10	10	10	10
Weight	grams	29	29	29	27
Mounting (10-32 x 3/4" thread)	type	cap screw	cap screw	cap screw	cap screw

 1 g = 9,80665 m/s², 1 Inch = 25,4 mm, 1 gram = 0,03527 oz, 1 lbf-in = 0,1129 Nm

Mounting

Reliable and accurate measurements require that the mounting surface be clean and flat. The sensor can be attached to the structure with a single 10-32 x 0.75 socket head cap screw. The Operating Instruction Manual for the 8792A... provides detailed information regarding mounting surface preparation.

Accessories Included

- socket cap head screw, 10-32 x 0.75" long 431-0475-003
- socket cap head screw, M5 x 20mm long 431-0494-001

Type

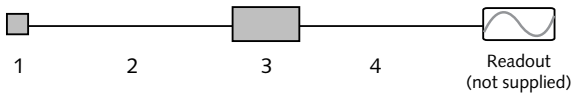
Optional Accessories

- Extension cable, 4-pin pos., Microtech equivalent to 4-pin neg., Microtech equivalent 1578A...
- 4-pin Microtech cable neg. to 3x BNC pos. 1756B...
- Cable, BNC pos. to BNC pos 1511

Type

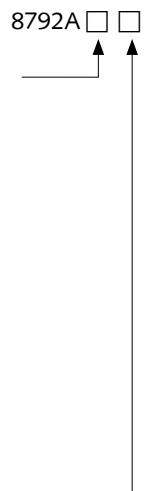
Measuring Chain

- | | | |
|---|---|----------|
| 1 | Low impedance sensor | 8792A... |
| 2 | Sensor cable, 4-pin neg. to 3x BNC pos. | 1756B... |
| 3 | Power supply/Signal conditioner | 5134B... |
| 4 | Output cable, BNC pos. to BNC pos. | 1511 |



Ordering Key

Range	
±25g	25
±50g	50
±100g	100
±500g	500



TEDS Templates

Standard	-
Default, IEEE 1451.4 V0.9 Template 0 (UTID 1)	T
IEEE 1451.4 V0.9 Template 24 (UTID 116225)	T01
LMS Template 117, Free format Point ID	T02
LMS Template 118, Automotive Format (Field 14 Geometry = 0)	T03
LMS Template 118, Aerospace Format (Field 14 Geometry =1)	T04
P1451.4 v1.0 template 25 - Transfer Function Disabled	T05
P1451.4 v1.0 template 25 - Transfer Function Enabled	T06

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