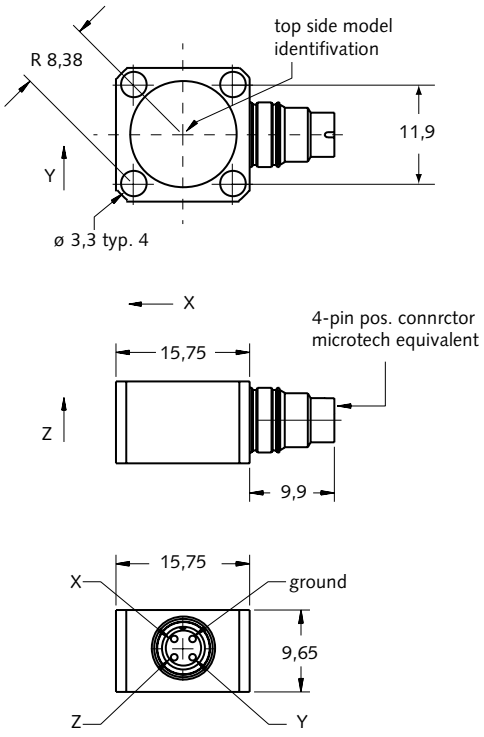
KISTLER
measure. analyze. innovate.

K-Shear® Accelerometer

Type 8793A...

Low Profile, Voltage Mode Triaxial Accelerometer

The 8793A... triaxial accelerometer family of models measure shock and vibration in three mutually perpendicular axis. They are available in two extended operating temperature ranges; the 8793A...M5 for high temperature 165°C operation and the 8793A...M8 for low temperature -195°C cryogenic operation. The 8793A...M3 extends the low end frequency response of the basic 8793A... down to 1 Hz.



- Low impedance voltage mode
- Low profile design
- Quartz shear accuracy and stability
- High (+165°C) and low (-195°C) temperature versions
- Hermetically sealed
- Conforming to CE

Description

Contained within the housing of the 8793A... Accelerometer are three individual shear sensitive quartz elements oriented such that they only respond to a vibration component occurring in the x, y and z axis. Each sensing element is internally connected to a Piezotron™ microelectronic circuit that converts the charge signal from the quartz piezoelectric element into a low impedance voltage output signal.

Kistler's K-Shear sensing elements are hermetically sealed in a stainless steel housing and provide long term stability, a wide operating frequency range along with extremely low sensitivity to thermal transients and transverse acceleration.

Application

The accelerometer measures simultaneously the three components of the acting acceleration (i.e., shock or vibration), permitting the resulting vector to be determined, magnitude and direction. Because of its low weight, the sensor is especially useful for measuring on small and lightweight structures, where mass loading must be kept at a minimum. It can also be used for drop tests and finds application in a wide variety of vehicle vibration studies, modal analysis, product development and aerospace testing.

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.

8793A_000-261e-02.07

KISTLER
measure. analyze. innovate.

Technical Data

Type	Unit	8793A500
Acceleration Range	g	±500
Acceleration Limit	gpk	±1000
Transverse Acceleration Limit	gpk	±1000
Threshold nom. (noise 200µVrms)	grms	0,002
Sensitivity, ±5%	mV/g	10
Resonant Frequency mounted, nom.	kHz	>80
Frequency Response, ±5%	Hz	2,5 … 10000
Amplitude Non-linearity	%FSO	±1
Time Constant nom.	s	0,5
Transverse Sensitivity nom., (max. 3)	%	1,5
Long Term Stability	%	±1
Environmental:		
Base Strain Sensitivity @ 250µε	g/µε	0,015
Shock Limit (1ms pulse)	gpk	5000
Temperature Coeff. of Sensitivity	%/°C	-0,03
Temperature Range Operating	°C	-54 … 120
M5	°C	-54 … 165
M8	°C	-195 … 120
T	°C	-40 … 120
Temperature Range Storage	°C	-55 … 125
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 … 18
Impedance min.	kΩ	>100
Construction:		
Sensing Element	type	Quartz Shear
Housing/Base	material	St. Stl.
Sealing-housing/connector	type	Hermetic
Connector	type	4-pin pos.
Weight	grams	11
Mounting (screw)	type	4-40 UNC-2A
Mounting Torque	Nm	0,45 … 0,56

1 g = 9,80665 m/s², 1 Inch = 25.4 mm, 1 gram = 0,03527 oz, 1 lbf-in = 0,113 Nm

Mounting

Reliable and accurate measurements require that the mounting surface be clean and flat. The sensor can be attached to the structure with supplied screws. The operating instruction manual for the 8793A… provides detailed information regarding mounting surface preparation.

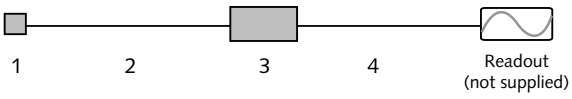
Accessories Included	Type
• (4) cap screws 4-40 UNC-2A x 0.5 in. long	431-0375-005
• (4) cap screws M2,5 x 12mm long	431-0475-004

Ordering Key

Range	8793A□□
±500g	?

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

Measuring Chain		Type
1	Low impedance sensor	8793A…
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



8793A_000-261e-02.07