

# K-Shear® Accelerometer

Type 8794A...

## Low Profile, Integral Cable Triaxial Accelerometer

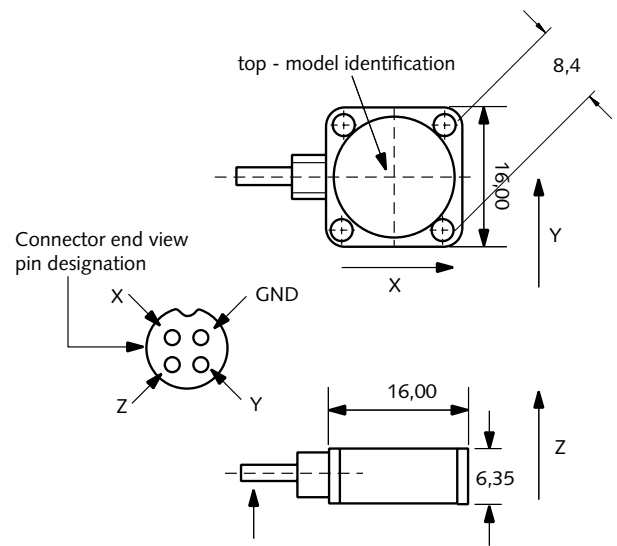
The 8794A... triaxial accelerometer family of models measure shock and vibration in three mutually perpendicular axes. The standard 8794A... accelerometer is available in two additional versions; an 8794A...M5 which extends the operating temperature range up to 330°F and a 8794A...M3 that extends the low end frequency response of the standard model down to 1 Hz.

- Low impedance voltage mode
- Low profile design
- Quartz shear accuracy and stability
- High temperature (330°F) version available
- Conforming to CE

### Description

The 8794A... triaxial accelerometer models measures shock and vibration in three mutually perpendicular axes. Their quartz sensing elements are contained in a unique flat package and housed in a welded, stainless steel case with the integral cable epoxy sealed to the case. Kistler's K-Shear design provides a wide operating frequency range along with extremely low sensitivity to thermal transients and transverse acceleration. Quartz sensing elements ensure long-term stability and are superior to other sensing materials.

Each of the three sensing elements is internally connected to a Piezotron™ microelectronic circuit that converts the charge signal from the quartz piezoelectric elements into a useable high level voltage signal at a low impedance output allowing the use of a low-cost cable. Cable wires are soldered to terminals outside the case and covered by a epoxy molded strain relief cover. This electrical connection provides the advantages of an integral cable but permits replacement of damaged output wires.



4 conductor shielded cable 1,82m. long with 76,2mm of jacket and shielding removed and wires braided and terminated with a 4-pin pos. connector

### 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, and product development. The low profile design provides an aerodynamic advantage for in-flight flutter and vibration testing.

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**Technical Data**

Type	Unit	8794A500
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
M3	Hz	1 ... 10000
Amplitude Non-linearity	%FSO	±1
Time Constant nom. (M3)	sec	0,5 (1)
Transverse Sensitivity nom., (max.) (M3)	%	1,5 (3) 2
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	-75 ... 120
M3	°C	-55 ... 120
M5	°C	-55 ... 165
Temperature Range Storage	°C	-75 ... 120
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	Welded/Epoxy
Connector	type	4-pin pos.
Weight (M3)	grams	7,6 (9)
Mounting (thread)	type	4-40
Mounting Torque	Nm	0.45 ... 0.56

1 g = 9,80665 m/s<sup>2</sup>, 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 four supplied screws. The Operating Instruction Manual for the 8794A... provides detailed information regarding mounting surface preparation.

**Accessories Included**

- (4) mounting screws M2,5 x 10 mm long **Type** 431-0475-001
- (4) mounting screws 4-40 x 9,5 mm long **Type** 431-0475-002

**Optional Accessories**

- Extension cable, 4-pin pos. to 4-pin neg. **Type** 1578A...

**Ordering Key**

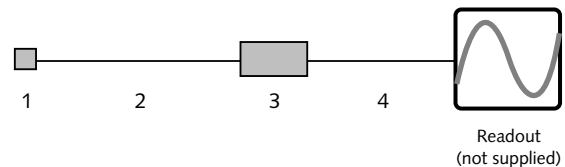
Measuring Range	8794A	<input type="checkbox"/>	<input type="checkbox"/>
±500	500		

**Variants**

Standard	-
Long time constant	M3
High temperature	M5

**Measuring Chain**

- |   |  |                      |
|---|--|----------------------|
| 1 | Low impedance sensor                     | <b>Type</b> 8794A... |
| 2 | Breakout cable, 4-pin neg to 3x BNC pos. | 1756B...             |
| 3 | Power supply/Signal conditioner          | 51...                |
| 4 | Output cable, BNC pos. to BNC pos.       | 1511                 |



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