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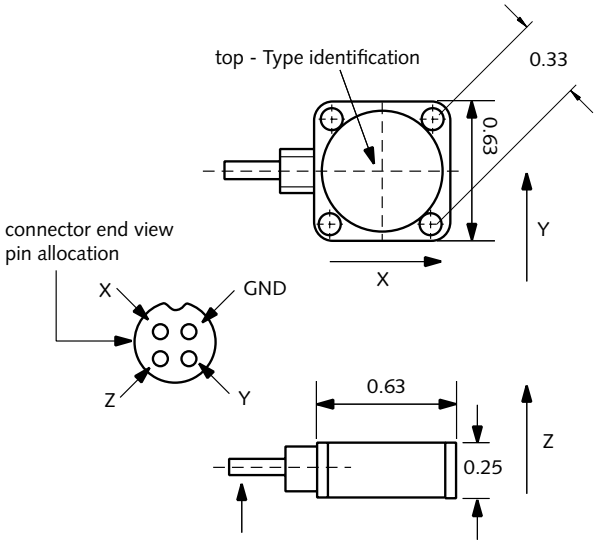
K-Shear® Accelerometer

Type 8794A...

Low Profile, Integral Cable Triaxial Accelerometer

The triaxial accelerometer Types 8794A… measure shock and vibration in three mutually perpendicular axes. The standard accelerometer Type 8794A… is available in two versions; Type 8794A500M5 has an extended operating temperature range.

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



4 conductor shielded cable 6 ft. long
with 3" of jacket and shielding removed
and wires braided and terminated with
a 4-pin pos. connector

Description

The triaxial accelerometer Type 8794A… 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.

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.

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 Type 8794A… provides detailed information regarding mounting surface preparation.

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Technical Data

Specification	Unit	Type 8794A500
Acceleration range	g	±500
Acceleration limit	gpk	±1000
Transverse acceleration limit	gpk	±1000
Threshold (noise 200 µVrms) nom.	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 @ 250 µε	g/µε	0.015
Shock limit (1 ms pulse)	gpk	5000
Temperature coeff. of sensitivity	%/°F	–0.02
Operating temperature range	°F	–100 … 250
Type 8794A500M5	°F	–65 … 330
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	2 … 18
Impedance, min.	kΩ	100
Construction		
Sensing element	Type	quartz-shear
Case/base	material	stainless steel
Degree of protection case/connector	Type	welded
Connector	Type	4-pin pos.
Ground isolated		yes
Mass	grams	7.6
Mounting (ø0.13 hole)	Type	cap screw
Mounting torque	lbf-in	4.4

1 g = 9.80665 m/s², 1 Inch = 25.4 mm, 1 gram = 0.03527 oz, 1 lbf-in = 0.113 N·m

Included Accessories	Type
• 4 mounting screws M2.5x10 mm long	431-0475-001
• 4 mounting screws 4-40x3/8" long	431-0475-002

Optional Accessories	Type
• Extension cable, 4-pin pos. to 4-pin neg.	1578A...

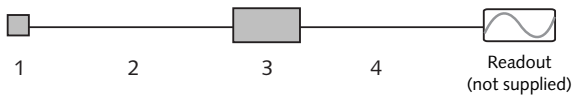
Ordering Key

Type 8794A □□

Range	
±500 g	**500**

Variants	
Standard	–
High temperature	**M5**

Measuring Chain	Type
1 Low impedance sensor	87...
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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