

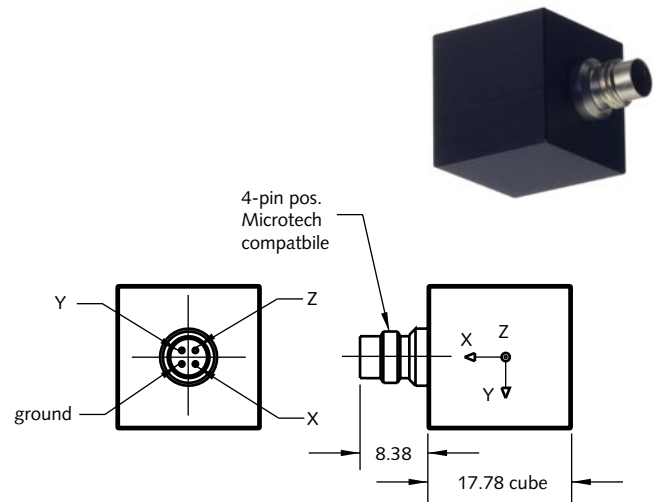
PiezoBeam® Accelerometer

Type 8690C...

Light Weight, Voltage Mode Triaxial Accelerometer

High sensitivity triaxial accelerometers that simultaneously measure vibration in three, mutually perpendicular axis (x, y and z). Designed primarily for modal analysis applications, the triaxial accelerometer can also find selective use as a general purpose vibration sensor in thermally stable environments

- Low impedance, voltage mode
- High sensitivity
- Low cost, lightweight triaxial design
- High accuracy and stability
- Choice of ranges and sensitivities
- Ground isolated
- Conforming to CE



Description

Internal of the PiezoBeam accelerometer is a uniquely configured sensing element consisting of a ceramic beam supported by a center post that when bending occurs as a result of being subjected to vibration, the cantilevered beam element yields an electrical charge. The charge signal is converted by the internal charge amplifier to a proportional high level voltage signal at a output impedance of less than 500 ohms.

The lightweight units reduce mass loading on thin-walled structures in multichannel general vibration measurements or modal applications. This series of triaxial sensors, with an integral four-pin connector, is designed for simplified installation in confined areas. Each unit may be mounted on any of three surfaces.

The 8690C triaxial series offer outstanding phase response, as well as wide frequency range. They are constructed of hard, anodized aluminum which provides ground isolation and environmentally sealed with epoxy.

The accelerometers will operate directly from the internal power source found in most FFT analyzers, from several Kistler Piezotron® power supply couplers or any industry standard IEPE (Integrated Electronic Piezo Electric) compatible power source.

Application

This light weight, triaxial accelerometer series is ideally suited for multiple channel modal vibration measurement on aerospace vehicle, air frame, flight flutter and automotive structural 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.

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Technical Data

Type	Unit	8690C5	8690C10	8690C50
Acceleration Range	g	±5	±10	±50
Acceleration Limit	gpk	±8	±16	±80
Threshold nom.	grms	0,00012	0,00028	0,001
Sensitivity, ±5%	mV/g	1000	500	100
Resonant Frequency mounted, nom.	kHz	9	22	22
Frequency Response, ±5%	Hz	1 ... 3000	1 ... 5000	1 ... 6000
Phase Shift, <5°	Hz	4 ... 2000	4 ... 2000	4 ... 4000
Amplitude Non-linearity	%FSO	±1	±1	±1
Time Constant nom.	s	1	1	1
Transverse Sensitivity max.	%	1	1	1
Long Term Stability	%	±1	±1	±1
Environmental:				
Base Strain Sensitivity @ 250µε	g/µε	<0,001	<0,001	<0,001
Shock Limit (0,2ms pulse)	gpk	5000	10000	10000
Temperature Coeff. of Sensitivity	%/°C	-0,04	0,08	0,08
Temperature Range Operating	°C	0 ... 65	0 ... 65	0 ... 65
Temperature Range Storage	°C	-23 ... 95	-23 ... 95	-23 ... 95
Output:				
Bias nom.	VDC	11	11	11
Impedance	Ω	<500	<500	<100
Voltage full scale	V	±5	±5	±5
Current	mA	2	2	2
Source:				
Voltage	VDC	20 ... 30	20 ... 30	20 ... 30
Constant Current	mA	2 ... 18	2 ... 18	2 ... 18
Impedance min.	kΩ	>100	>100	>100
Construction:				
Sensing Element	type	Ceramic Bimorph/Bender	Ceramic Bimorph/Bender	Ceramic Bimorph/Bender
Housing/Base	material	Al. Hard Anodized	Al. Hard Anodized	Al. Hard Anodized
Sealing-housing/connector	type	Epoxy	Epoxy	Epoxy
Connector	type	4-pin pos.	4-pin pos.	4-pin pos.
Ground Isolated min.	MΩ	10	10	10
Weight	grams	11,2	11,2	11,2
Mounting (thread/stud)	type	Wax/Adhesive	Wax/Adhesive	Wax/Adhesive

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

Mounting

The cube shape configuration of the triaxial accelerometer allows for the unit to be attached to the test surface using any available side. Attachment can be by wax or by adhesive. Reliable and accurate measurements require that the mounting surface be clean and flat. The Operating Instruction Manual for the 8690C... series provides detailed information regarding mounting surface preparation.

Accessories Included

- Mounting wax

Type

8432

Optional Accessories

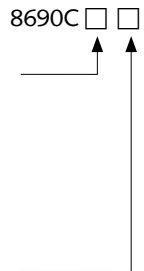
- Mounting clip, black derlin

Type

8476

Ordering Key

Range	
±5g	5
±10g	10
±50g	50

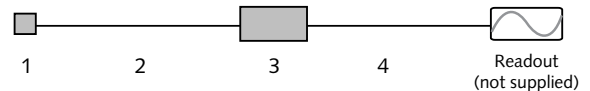


TEDS Templates

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 | 8690C... |
| 2 Sensor cable, 4-pin neg. to 3 x BNC pos.. | 1756B... |
| 3 Power supply/Signal conditioner | 5134B... |
| 4 Outout cable, BNC pos. to BNC pos. | 1511 |



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