

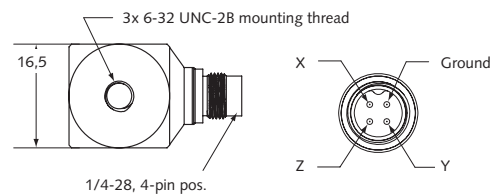
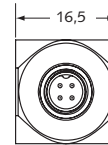
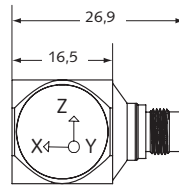
# PiezoStar® Accelerometer

Type 8766A...

## IEPE Triaxial Accelerometer Cube

Type 8766A... triaxial accelerometer has a  $\pm 50$  g measuring range and measures simultaneous shock and vibration in three orthogonal axes.

- PiezoStar sensing element
- High temperature operation
- TEDS option
- Hermetic, titanium construction
- Very low temperature sensitivity
- Low base strain sensitivity
- Low impedance voltage output
- Low 16 gram mass
- Conforming to CE



### Description

Type 8766A... is an IEPE triaxial accelerometer designed for high temperature applications. Type 8766A... accelerometer uses Kistler's PiezoStar shear element design which provides wide operating frequency range and extremely low sensitivity to temperature changes. The IEPE sensor combines PiezoStar crystals and high gain integral hybrid microelectronics to achieve very low sensitivity variation over the operating temperature range, compared to other sensing element designs. The Kistler shear element technology also ensures high immunity to base strain errors. The accelerometer uses a welded titanium construction for low mass and an industry standard 4-pin connector for reliable measurements and long-term stability especially at high operating temperatures.

### Application

Applications include automotive under the hood and under the vehicle testing as well as subsystem vibration testing for aerospace applications.

### Mounting

Reliable and accurate measurements require that the mounting surface be clean and flat. The sensor can be attached to the structure with wax, adhesive or supplied mounting screw. Type 8766A... has three 6-32 UNC-2B threaded holes for flexible stud mounting on a test object, fully utilizing each mounting side of the cube design. In addition, the three threaded holes provide reliable mounting for calibration of each orthogonal axis. The instruction manual for Type 8766A... provides detailed information regarding mounting surface preparation.

### 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**

Specification	Unit	Type 8766A50...
Acceleration range	g	±50
Acceleration limit	gpk	±100
Threshold, nom.	grms	<0,001
Sensitivity, ±10 %	mV/g	100
Resonant frequency mounted, nom.	kHz	>20
Frequency response, ±5 %		
Type 8766A50	Hz	0,5 ... 5 000
Type 8766A...M5	Hz	0,5 ... 5 000
Time constant, nom.		
Type 8766A50	s	2
Type 8766A...M5	s	1
Amplitude non-linearity	%FSO	±1
Transverse sensitivity, nom. (max. 3)	%	1,5

**Environmental**

Base strain sensitivity @ 250 µε	g/µε	0,001
Random vibration, max.	grms	2 000
Shock limit (1 ms pulse)	gpk	5 000
Temperature coefficient of sensitivity	%/°C	-0,004
Operating temperature range		
Type 8766A50	°C	-55 ... 120
Type 8766A...M5	°C	-55 ... 165
Type 8766A...T <sup>1)</sup>	°C	-55 ... 120

**Output**

Bias, nom.	VDC	11
Impedance	Ω	<100
Voltage full scale	V	±5
Current	mA	2

**Power Supply**

Voltage	VDC	20 ... 30
Constant current	mA	2 ... 18

**Construction**

Sensing element	Type	PiezoStar
Case/base	material	titanium
Degree of protection case/connector (EN 60529)		IP68
Connector	Type	4-pin pos.
Ground isolated		with pad
Mass	grams	16
Mounting (6-32 thdx3,3 dp)	Type	stud

1 g = 9,80665 m/s<sup>2</sup>, 1 Inch = 25,4 mm, 1 gram = 0,03527 oz, 1 lbf-in = 0,113 N-m

1) TEDS Data retention and data communications may be degraded for temperatures exceeding -40 ... 110 °C. Analog operation over the operating temperature is unaffected to 125 °C.

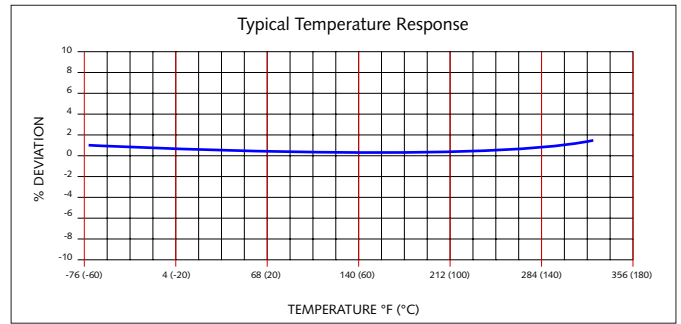


Fig. 1: Typical Temperature Response

**Included Accessories**

- 6-32 to 10-32 adapter screw
- Mounting wax

**Type**  
8430K03  
8432

**Optional Accessories**

- Breakout cable, 4-pin neg. to 3x BNC pos.
- Adhesive ground isolated, hex, mounting base with 10-32 thd. hole
- Magnet mounting base with 10-32 thd. hole

**Type**  
1756B...  
8436  
8452A

**Ordering Key**

Range	Type 8766A
±50 g	50

**TEDS Templates**

Standard	-
High temperature, 165 °C (330 °F)	M5
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

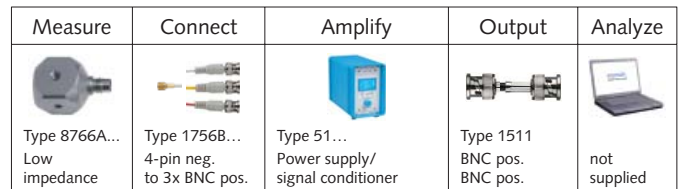


Fig. 2: Measuring chain

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