

PRODUCT DATA

Piezoelectric Accelerometer Miniature DeltaTron[®] Accelerometers — Type 4521

FEATURES AND USES

- Hermetically sealed
- Insulated case
- Measurements in confined spaces
- Light weight (<3 grams)
- Through-hole mounting (free cable orientation)
- Low noise
- Low profile
- Flight-test applications

Description

Type 4521 is supplied with a mounting screw kit and is mounted via a through-hole, enabling 360° freedom in orientation of the cable. It is hermetically sealed, enabling measurements to be carried out under difficult environmental conditions. Its low weight makes the transducer an excellent choice for measurements on delicate structures and small objects. Type 4521 features a standard M3 side connector. It has a hard-anodized mounting surface providing electrical isolation from the test object.

Characteristics

This piezoelectric accelerometer features built-in preamplifiers. The sensitivity is expressed in terms of voltage per unit acceleration (mV/g).

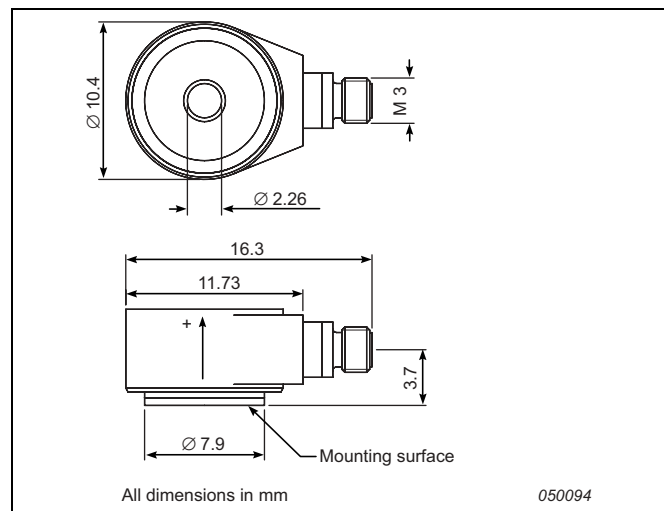
In the Shear design, the piezoelectric element undergoes shear deformation as in the DeltaShear[®] design. Two rectangular slices of piezoelectric material are arranged on each side of a rectangular centre post. This design gives a high degree of linearity, and excellent immunity to base bending and temperature fluctuations. The signal is collected and amplified in the built-in amplifier. The housing material is titanium and the sensing element is quartz.



Calibration

The transducer is individually calibrated using state-of-the-art, random FFT technology, providing an 800-point high-resolution calibration (magnitude and phase) ultimately giving a unique characterisation and securing the integrity of the vibration measurement.

The sensitivity given on the calibration chart has been measured at 159.2 Hz with a 95% confidence level, using a coverage factor $k = 2$.



Specifications – Miniature DeltaTron® Accelerometers Type 4521

	Units	4521	
Dynamic Characteristics			
Voltage Sensitivity (@ 160Hz)	mV/g	10 ±10%	
Measuring Range	g	±500	
Frequency Response		See typical amplitude response	
Mounted Resonance Frequency	kHz	35	
Amplitude Response ±10%	Hz	1 to 9000	
Residual Noise	mg	7	
Transverse Sensitivity	%	<5	
Electrical Characteristics			
Output Impedance	Ω	<100	
DC Output	At room temperature	V	8.5 to 11.5
Bias Voltage	In specified temperature range	V	8 to 16
Power Supply		mA	2 to 20
Start-up Time		s	<1
Grounding			Case insulated
Environmental Characteristics			
Temperature Range	°C (°F)		-51 to +121 (-60 to +250)
Humidity			Hermetically sealed
Max. Operational Shock (peak)	g pk		5000
Base Strain Sensitivity	Equiv. g/μ strain		0.006
Thermal Transient Sensitivity	Equiv. g/°C (g/°F)		0.26 (0.16)
Magnetic Sensitivity	g/T		0.5
Thermal Sensitivity	%/°C (°F)		0.11 (0.06)
Physical Characteristics			
Dimensions			See outline drawing
Weight	gram (oz.)		2.7 (0.1)
Case Material			Titanium
Connector			M3 thread
Mounting			Insulated M2 screw
Mounting Torque (Max.)	Nm		0.3

Ordering Information

Type 4521 includes the following accessories:

- Carrying Box
- Calibration Chart
- Insulated M2 mounting screw, length 10 mm (0.4")

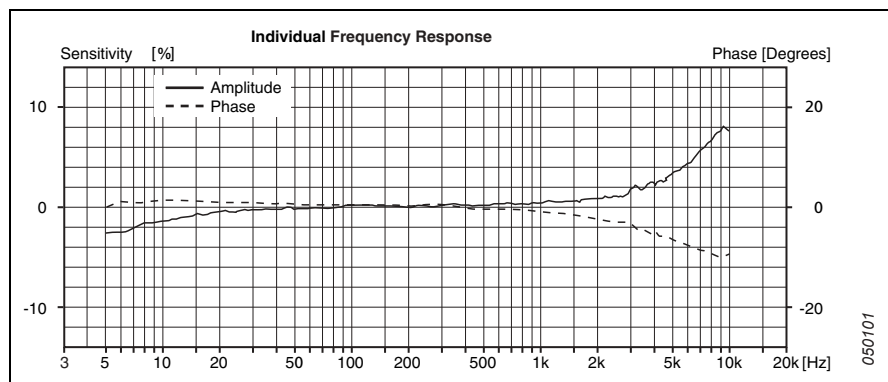
OPTIONAL ACCESSORIES*

- AO 0641: PVC insulated flexible cable, M3 to BNC, 5 m (16.4 ft), -5 to +70°C (+23 to +158°F)
- AO 0283: 260°C Teflon® low-noise cable, 10–32 UNF/M3, length 1.2 m (4 ft)
- AO 0339: Flexible low-noise cable, 10–32 UNF/M3, length 1.2 m (4 ft)
- UA 0186: Extension connector for 10–32 UNF cable, set of 25
- JP 0145: 10–32 UNF to BNC connector adaptor
- UA 2055 : Isolated 2–56 UNF mounting screw, length 9.5 mm (0.37"), set of 10
- UA 2069: Insulated M2 mounting screw, length 10 mm (0.4"), set of 10

SERVICE

- 4521-CAF: Miniature IEPE Accelerometer, Accredited Calibration
- 4521-CAI: Miniature IEPE Accelerometer, Accredited Calibration Performed as initial
- 4521-CTF: Miniature IEPE Accelerometer, Traceable Calibration
- 4521-CTI: Miniature IEPE Accelerometer, Traceable Calibration Performed as initial
- 4521-EW1: Miniature IEPE Accelerometer, Extended Warranty, one year extension

* Additional accessories and cables are available (see www.bksv.com)



COMPLIANCE WITH STANDARDS



Compliance with EMC Directive and Low Voltage Directive of the EU



Compliance with the EMC requirements of Australia and New Zealand

Brüel & Kjær reserves the right to change specifications and accessories without notice

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