

PRODUCT DATA

Triaxial DeltaTron[®] Accelerometers with TEDS — Types 4525-B and 4525-B-001

Types 4525-B and 4525-B-001 are general purpose designs with a useful upper frequency limit higher than 10 kHz. A sensitivity of 10 mV/g is available for high vibration levels and a 100 mV/g version for high-resolution measurements.

The units are lightweight triaxial DeltaTron accelerometers with small dimensions, enabling measurements on light structures and mounting in confined spaces. The all-titanium, hermetically sealed construction enables use in most environments.

USES

- General purpose
- Structural analysis
- Automotive body and power train
- Acoustic fatigue testing

Description

The accelerometer design features three individually powered, built-in preamplifiers, each working on a two-wire principle. The sensitivity is expressed in terms of voltage per unit acceleration, mV/ms⁻² (mV/g). The connector is a hermetic, four-pin receptacle. The accelerometers utilise a planar shear principle with the sensing elements mounted around a centre post. This design exhibits good characteristics regarding base strain and temperature variations.

Recommended Mounting

In order to achieve a flat frequency response from 1 Hz to 10 kHz on all three axes, the unit should be mounted on the intended surface (z-axis as main direction) either adhesively or by stud mounting via the tapped M3 hole.

Calibration

The transducers are 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. Field checking and system calibration are straightforward using Hand-held Vibration Calibrator Type 4294.



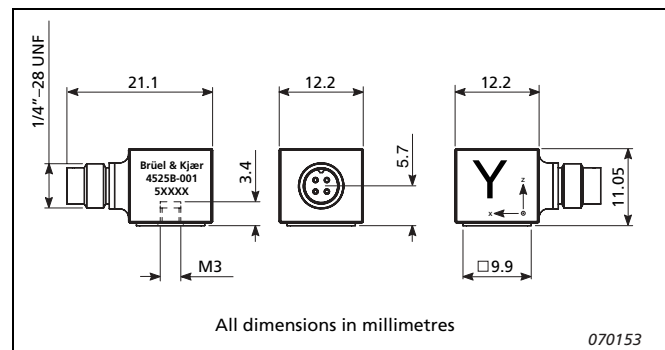
FEATURES

- Triaxial measurements to 10 kHz
- Transducer Electronic Data Sheet (TEDS)
- High sensitivity-to-weight ratio
- Light weight (6 grams)
- Titanium construction
- Hermetically sealed

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Supplied calibration values:

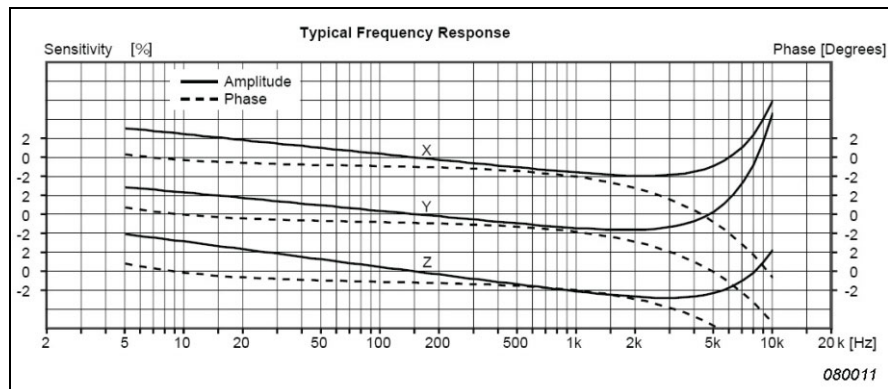
- Sensitivity @ 159.2 Hz
- Maximum transverse sensitivity verification
- Amplitude and phase response (5 Hz to 10 kHz)



Specifications – Triaxial Deltatron® Accelerometers Types 4525-B and 4525-B-001

		Units	4525-B	4525-B-001
Dynamic Characteristics				
Voltage Sensitivity (@ 159.2 Hz)		mV/ms ⁻² (mV/g)	1 + 12/-8% (10 ± 10%)	10 + 12/-8% (100 ± 10%)
Measuring Range		ms ⁻² (g)	±5000 (±500)	±500 (±50)
Mounted Resonance Frequency [1]		kHz	x, y, z: 30	
Amplitude Response ±10% [1]		Hz	x, y, z: 1 to 10000	
Amplitude Response ±10% [2]		Hz	z: 1 to 10000 x, y: 1 to 5500	
Amplitude Response ±10% with REq-X [3]		Hz	z: 1 to 15000 x, y: 1 to 10000	
Residual Noise		mg	x, y, z: 0.8	x, y, z: 0.5
Transverse Sensitivity		%	<5	
Electrical Characteristics				
DC Output Bias Voltage	At room temperature	V _{DC}	12.5 ± 10%	
	In specified temp. range	V _{DC}	8 to 16	
Output Impedance		Ω	<40	
Grounding			Case grounded	
Power Requirements				
Supply Voltage		V _{DC}	18 to 30	
Supply Current		mA	2 to 20	
Warm-up Time		s	<10	
Environmental Characteristics				
Temperature Range		°C (°F)	-54 to +121 (-65 to +250)	-54 to +110 (-65 to +230)
Humidity			Hermetic sealed	
Shock Limit		ms ⁻² (g)	50000 (5000)	
Base Strain Sensitivity		Equiv. g/μ strain	0.01	
Magnetic Sensitivity		g/T	0.75	0.5
Temperature Sensitivity		%/°C	0.16	
Thermal Transient Sensitivity		g/°C	0.01	
Physical Characteristics				
Dimensions			See outline drawing	
Weight		gram	6	
Case Material			Titanium	
Connector			Hermetic 4-pin receptacle 1/4"–28 UNF	
Mounting			M3 tapped hole or adhesive	

Note: All values are typical at 25°C (77°F) unless measurement uncertainty is specified
 [1] Mounted on intended surface (z-direction perpendicular to mounting surface)
 [2] Verified amplitude response during calibration with reduced useful frequency response on x- and y-axes due to mounting on non-intended mounting surface
 [3] REq-X applied on z-axis; applying REq-X on x- and y-axes is not recommended



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

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Local representatives and service organisations worldwide

CE Compliance with EMC Directive and Low Voltage Directive of the EU

Note: Susceptibility to radiated RF disturbances (10 V/m):
 4525-B: below 0.3% of measurement range
 4525-B-001: below 1.7% of measurement range

✓ Compliance with the EMC requirements of Australia and New Zealand

Ordering Information

Types 4525-B and 4525-B-001 include the following accessories:

- Carrying Box
- Calibration Chart
- M3 mounting stud with flange, length 3.5 mm

OPTIONAL ACCESSORIES^a

- AO-0526-D-050 Teflon triaxial cable 4-pin to 3×BNC connectors, 90°C, 5 m
- AO-0527-D-050 Teflon triaxial cable, 4-pin to 3×10–32 UNF connectors, 90°C, 5 m
- AO-0534-D-050 Teflon triaxial cable, 4-pin to 3×BNC connectors, 125°C, 5 m
- AO-0528-D-050 Teflon triaxial cable, 4-pin to 4-pin connector, 90°C, 5 m
- WB-1453 DeltaTron Triaxial Power Supply
- QS-0007 Tube of cyanoacrylate adhesive
- DB-4093 Adhesive insulated mounting base, M3 tapped hole, 9.5 mm hex
- UA-1221 Set of 10 steel studs with flange, length 3.5 mm
- UA-1193 Set of 10 insulated studs, 200°C
- UA-1075 Set of 5 mounting magnets and insulation discs

SERVICE

- 4525-B-CAF Triaxial IEPE Accelerometer, Accredited Calibration
- 4525-B-CAI Triaxial IEPE Accelerometer, Accredited Calibration Performed as initial
- 4525-B-CTF Triaxial IEPE Accelerometer, Traceable Calibration

a. For additional accessories and cable lengths see www.bksv.com

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