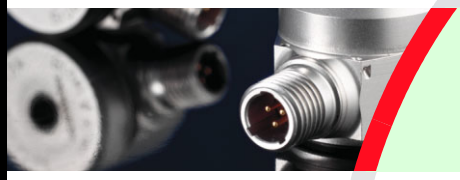


PRODUCT DATA

Piezoelectric Accelerometer
DeltaTron® Triaxial Seat Accelerometer — Types 4515-B and 4515-B-002

USES
- Field measurement of human whole-body vibration
- Test and measurement of passenger and work vehicles

FEATURES
- Complies with ISO 2631, ISO 7096, and ISO 10326–1
- Removable triaxial accelerometer built into rubber pad
- Low impedance output
- High resolution (100 mV/g) with <0.4 mg residual noise
- Transducer Electronic Data Sheet (TEDS)

- Exceptional lower limiting frequency

Description
Accelerometer Type 4515-B is specially designed for the measurement of whole-body vibration. It consists of a triaxial accelerometer housed in a semi-rigid nitrile rubber disc and complies with ISO 7096, ISO 2631 and ISO 10326–1. It can be placed under a seated person, on a vibrating surface with a suitable weight on top, or strapped onto the body. It detects vibration in directions along the body, back-to-front, and side-to-side.

Type 4515-B includes Transducer Electronic Data Sheet (TEDS), which contains sensor- and application-specific information, including frequency response. The built-in accelerometer is mounted inside the rubber pad by means of a clip facilitating easy removal, calibration, and subsequent remounting.

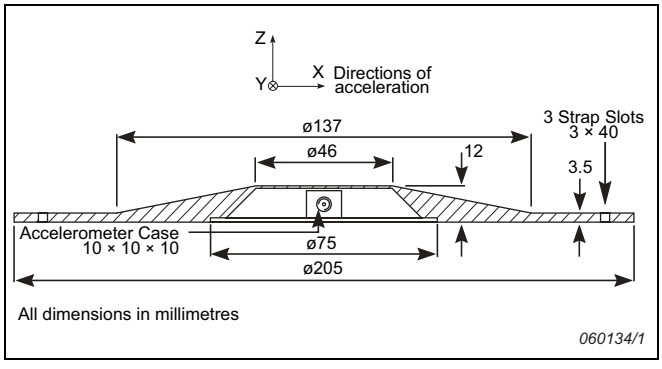
For Type 4515-B, the 3 m integral cable terminates in 3 × 10–32 UNF connectors. Furthermore, 3 × JP-0145 adaptors (10–32 UNF to BNC) are supplied for flexible connectivity.

Type 4515-B-002 terminates in a 4-pin LEMO connector.

Characteristics
Type 4515-B has a DeltaTron® built-in preamplifier providing a low-impedance output. The sensitivity is expressed in voltage per unit acceleration (mV/ms^{-2}).

The OrthoShear® design used in Type 4515-B is built around a common seismic mass. This uni-mass design results in a very compact triaxial accelerometer with excellent low-frequency response. All the axes have the same point of reference and the design also ensures accurate and consistent measurements, even when the accelerometer is exposed to complex vibration patterns.

Calibration
Prior to mounting the accelerometer in the rubber pad it is individually calibrated, providing an 800-point, high-resolution calibration (magnitude and phase) giving a unique characterisation and securing the integrity of the typical frequency response of the seat pad.



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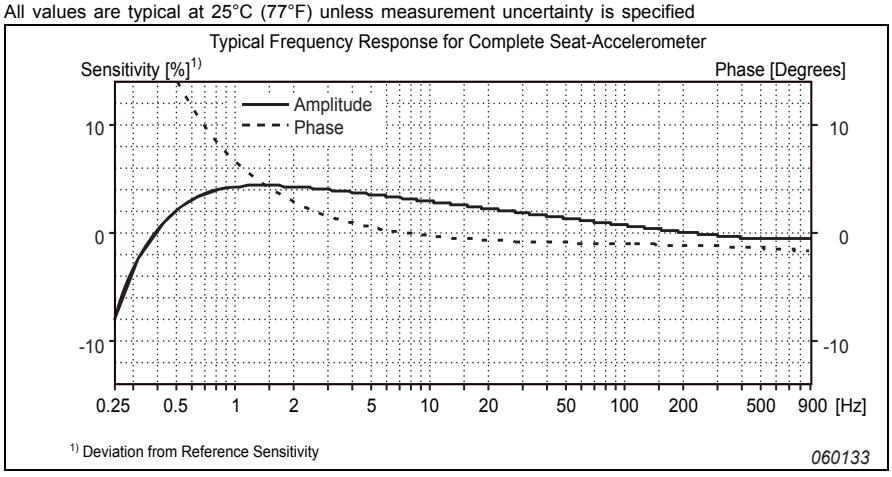
Specifications – DeltaTron® Triaxial Seat Accelerometers Types 4515-B and 4515-B-002

	Units	4515-B, 4515-B-002
Dynamic Characteristics		
Voltage Sensitivity (@ 160 Hz)	mV/ms^{-2} (mV/g)	10 ± 5% (100 +3/–7%)
Measuring Range	ms^{-2} (g)	± 500 (± 50)
Frequency Response		See typical amplitude response
Mounted Resonance Frequency	Hz	>2700
Amplitude Response ±10%	Hz	0.25 to 900
Residual Noise	mg	<0.4
Transverse Sensitivity [1]	%	<5
Electrical Characteristics		
Output Impedance	Ω	<30
DC Output Bias Voltage	V DC	+13 ±1
Grounding	V	Case Insulated
Power Requirements (Note: All three axes must be powered during operation)		
Supply Voltage (Unloaded)	V DC	24 to 30
Constant Current Supply	mA	2 to 10
Warm-up Time (90% of Stabilized Bias)	s	10
Environmental Characteristics		
Temperature Range	°C (°F)	–10 to +70 (–14 to +158) –60 to +100 for short periods
Humidity		Hermetic
Max. Operational Sinusoidal Vibration (peak)	ms^{-2} (g)	5000 (500)
Max. Operational Shock (peak)	ms^{-2} (g)	50000 (5000)
Thermal Transient Sensitivity	Equiv. ms^{-2}/°C (g/°F)	0.1 (0.005)
Magnetic Sensitivity (50 Hz–0.03 Tesla)	$ms^{-2}T(g/T)$	20 (2)
Physical Characteristics		
Dimensions		See outline drawing
Weight	gram	345 (14.1)
Base Disc		Nickel-plated Brass
Seat Pad Material		Oil-resistant Nitrile Rubber, Hardness ~80 IRHD
Cable		Integral Cable, 3 m
Connector	4515-B	3 × 10–32 UNF
	4515-B-002	4-pin LEMO
Mounting		Strapped, adhesive or pressed

[1] The transverse sensitivity measurement is associated with approximately 4% uncertainty from electrical noise of the test equipment

All values are typical at 25°C (77°F) unless measurement uncertainty is specified



Compliance with EMC Directive and Low Voltage Directive of the EU

Compliance with the EMC requirements of Australia and New Zealand

Ordering Information

Type 4515-B includes the following accessories:
- Carrying box
- Calibration chart
- Straps for body mounting
- 3 × 10–32 to BNC adaptors

Type 4515-B-002 includes the following accessories:
- Carrying box
- Calibration Chart
- Straps for body mounting

OPTIONAL ACCESSORIES[a]
- JJ-0032: Extension Connector 10–32 UNF
- AO-0527: Cable with 4-pin to 3 × 10–32 UNF Connectors, 85°C (185°F)
- UA-2074: Replacement Rubber Pad for 4515-B including 5 m Cable
- JP-0145: BNC to 10–32 UNF Plug Adaptor

CALIBRATION
- 4515-CAI Triaxial IEPE Seat Accelerometer, Accredited Initial Calibration
- 4515-CAF Triaxial IEPE Seat Accelerometer, Accredited Calibration
- 4515-CFF Factory Standard Calibration

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

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