

PRODUCT DATA

Piezoelectric Accelerometer DeltaTron[®] Accelerometer — Type 8344

Features

- Low-level measurement
- Low noise
- High sensitivity
- TEDS
- 10–32 UNF output side connector
- Hermetically sealed

Description

Type 8344 is a piezoelectric DeltaShear[®] accelerometer with integral electronics. It can be mounted on a test object with a M5-threaded steel stud. The transducer is hermetically sealed and has a Transducer Electronic Data Sheet (TEDS) containing sensor and application-specific information, including frequency response compensation.

Characteristics

This piezoelectric accelerometer features a built-in DeltaTron preamplifier, so it must be supplied with a constant current and treated as a voltage source. The sensitivity is expressed in terms of voltage per unit acceleration (mV/g).

The DeltaShear design involves three piezoelectric elements and three masses arranged in a triangle around a triangular centre post that is bolted to the housing. The ring pre-stresses the

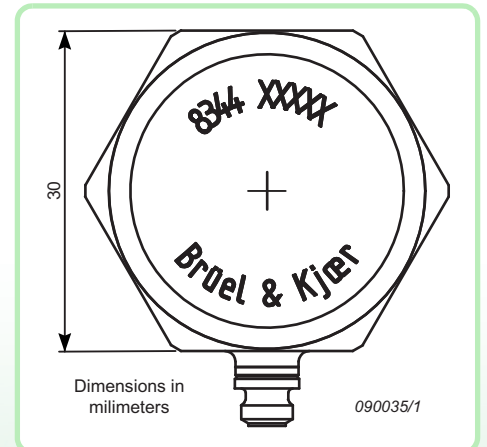
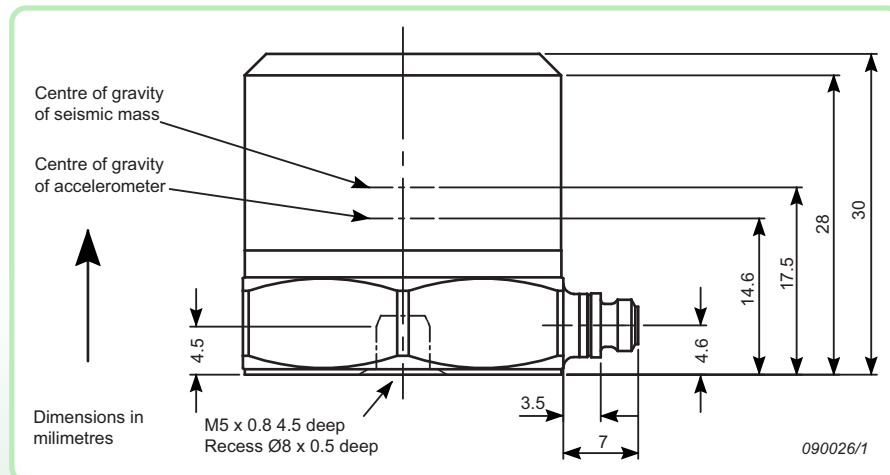


piezoelectric elements to give a high degree of linearity. The signal is collected between the housing and the clamping ring and then amplified by the built-in DeltaTron preamplifier. The piezoelectric element used is a PZ27 lead zirconate titanate element. The housing material is stainless steel.

Calibration

Each transducer is individually calibrated using state-of-the-art random FFT technology, providing 1600-point high-resolution calibration (magnitude and phase), ultimately giving a unique characterisation and securing the integrity of the vibration measurement.

The sensitivity given in the included calibration chart has been measured at 159.2 Hz and an acceleration of 10 g. For 99.9% confidence level, the accuracy of the factory calibration is $\pm 2\%$.



Specifications – DeltaTron Accelerometer Type 8344

	Unit	8344*
Dynamic Characteristic		
Voltage Sensitivity (@ 159.2 Hz and 4 mA supply current)	mV/ms ⁻² (mV/g)	250±20% (2500±20%)
Measuring Range	ms ⁻² peak (g peak)	±26 (2.6)
Frequency Range (±10% limit) Amplitude Response	Hz	0.2–3000
Frequency Response		See individual Frequency Response on calibration chart
Mounted Resonance Frequency	kHz	>10
Transverse Sensitivity (@ 30 Hz, 100 ms ⁻²)	%	<5 of the sensitivity of the axis in question
Transverse Resonance Frequency	kHz	3.5
Polarity		Polarity of the electrical signal is positive for an acceleration in the direction of the arrow on the drawing
Electrical Characteristics		
Bias Voltage (at full temperature and current range)	V _{de}	13 ± 1
Power Supply Constant current Unloaded Supply Voltage	mA V	2 to 20 +24 to +30
Output Impedance	Ω	<30
Start-up Time	s	<30
Residual Noise (RMS) Broadband noise (0.2 Hz to 3 kHz) Spectral: 1 Hz 10 Hz 100 Hz 1000 Hz	μV (μg) ms ⁻² /√Hz (μg/√Hz)	113(45) 1.1 × 10 ⁻⁴ (11) 7.75 × 10 ⁻⁶ (0.78) 7.75 × 10 ⁻⁷ (0.078) 3.46 × 10 ⁻⁷ (0.035)
Signal Grounded		Connected to case
Environmental Characteristics		
Operating Temperature Range	°C (°F)	-50 to +100 (-58 to +212)
Temperature Coefficient of Sensitivity	%/°C	+0.05
Temperature Transient Sensitivity (3 Hz LLF, 20 dB/decade)	ms ⁻² /°C	0.001
Base Strain Sensitivity (at 250 με in base plane)	Equiv. ms ⁻² /με (g/με)	0.002 (0.0002)
Magnetic Sensitivity (50 Hz, 0.038 T)	ms ⁻² /T (g/T)	0.5 (0.05)
Max. Non-destructive Shock	ms ⁻² peak (g peak)	3500 (350)
Humidity		100% RH non-condensing
Physical Characteristics		
Case Material		Stainless steel AISI 316-L
Sensing Element		Piezoelectric, Type PZ 27
Construction		DeltaShear
Sealing		Hermetically sealed
Weight (excluding cable)	gram (oz.)	176 (6.2)
Electrical Connector		10–32 UNF
Mounting		M5
Mounting Torque	Nm (lbf-in)	Max. 3.5 (31), Min 0.5 (4.4)
Dimensions		See outline drawing

* All values are typical at 25°C (77°F) unless otherwise specified



Ordering Information

Type 8344 Includes the following accessory:

- Calibration Chart

Optional Accessories*	
AO-0038-D-xxx	Teflon® super low-noise cable, 10–32 UNF to 10–32 UNF. -75 °C to +250 °C.
AO-0531-D-xxx	PVC coaxial single-screen cable. 10–32 UNF to BNC. -20 °C to +70 °C
QA-0068	Tap for M5 thread
JP-0145	Plug adaptor, BNC to 10–32 UNF
UA-0186	Extension connector for 10-32 UNF cables, set of 25
QS-0007	Tube of cyanoacrylate adhesive
YJ-0216	Beeswax for mounting
Type 4294-002	Calibration Exciter
Calibration Services	
8344-CFF	Factory Standard Calibration including programming of TEDS
8344-CAF	Accredited Calibration including programming of TEDS
8344-CAI	Accredited Initial Calibration including programming of TEDS
8344-CTF	Traceable Calibration including programming of TEDS

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

 Compliance with EMC Directive and Low Voltage Directive of the EU
 Compliance with the EMC requirements of Australia and New Zealand

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