

# Calibration Chart for DeltaTron® Accelerometer Type 8344



TEDS = V1.0

Serial No.: ...30807.....

Reference Sensitivity <sup>1)</sup> at 159.2 Hz ( $\omega = 1000 \text{ s}^{-1}$ ), 20 ms<sup>-2</sup> RMS, mA supply current and 22.7 °C: ...242.9... mV/ms<sup>-2</sup> (...2382... mV/g)

Frequency Range: Amplitude ( $\pm 10\%$ ): 0.2 Hz to 3 kHz  
 Resonant Resonance Frequency: > 10 kHz

Inverse Sensitivity: Maximum (at 30 Hz, 100 ms<sup>-2</sup>): < 5% re Reference Sensitivity

Inverse Resonance Frequency: 3.5 kHz

Calculated values for TEDS <sup>2)</sup>:  
 Resonance frequency: 10.2... kHz  
 Quality factor @  $f_{res}$ : 7.49...  
 Amplitude slope: -1.5...%/decade  
 High pass cut-off frequency: 0.021... Hz  
 Low pass cut-off frequency: 1430... kHz

Measuring Range:  $\pm 26 \text{ ms}^{-2}$  peak ( $\pm 2.6 \text{ g}$  peak)

Polarity of the electrical signal is positive for an acceleration in the direction of the arrow on the drawing.

## Electrical:

Bias Voltage: at 25°C and 4 mA: 13 V  $\pm$  1 V  
 Power Supply requirements: Constant Current: T < 100°C: + 2 to + 20 mA  
 Unloaded Supply Voltage: + 24 V to + 30 V  
 Output Impedance: < 30  $\Omega$   
 Start-up time (to final bias  $\pm 10\%$ ): < 30 s  
 Inherent Noise (RMS): Spectral:  
 1 Hz: 0.46x10<sup>-4</sup> ms<sup>-2</sup>/√Hz (4.6  $\mu\text{g}/\sqrt{\text{Hz}}$ )  
 10 Hz: 2.7x10<sup>-6</sup> ms<sup>-2</sup>/√Hz (0.27  $\mu\text{g}/\sqrt{\text{Hz}}$ )  
 100 Hz: 6.7x10<sup>-7</sup> ms<sup>-2</sup>/√Hz (0.067  $\mu\text{g}/\sqrt{\text{Hz}}$ )  
 1000 Hz: 2.5x10<sup>-7</sup> ms<sup>-2</sup>/√Hz (0.025  $\mu\text{g}/\sqrt{\text{Hz}}$ )

## Environmental:

Temperature Range: - 50 to + 100°C (- 58 to + 212°F)  
 Temperature Coefficient of Sensitivity: + 0.05%/°C  
 Temp. Transient Sensitivity (3 Hz Low. Lim. Frq. (-3 dB, 6 dB/oct)): 0.001 ms<sup>-2</sup>/°C  
 Magnetic Sensitivity (50 Hz, 0.038 T): 0.5 ms<sup>-2</sup>/T  
 Acoustic Sensitivity (154 dB SPL): 0.001 ms<sup>-2</sup>  
 Base Strain Sensitivity (at 250  $\mu\text{e}$  in base plane): 0.002 ms<sup>-2</sup>/ $\mu\text{e}$   
 Max. Non-destructive Shock: Axial: 3500 ms<sup>-2</sup> peak (350 g peak)  
 Humidity: 100 % RH non-condensing

## Mechanical:

Case Material: Stainless Steel AISI 316-L  
 Sensing Element: Piezoelectric, Type PZ 27  
 Construction: Delta Shear®  
 Sealing: Hermetically sealed  
 Weight: 176 gram (6.2 oz)  
 Electrical Connector: 10-32 UNF  
 Mounting Thread: M5. Depth 4.5 mm  
 Mounting Surface Flatness: < 3  $\mu\text{m}$   
 Mounting Torque: Max. 3.5 Nm (31 lbf-in). Min. 0.5 Nm (4.4 lbf-in)

This calibration is obtained on a modified Brüel & Kjær Calibration System Type 9610 System No. 0157.10 and is traceable (amplitude only) to the National Institute of Standards and Technology, USA and Physikalisch-Technische Bundesanstalt, Germany.

Expanded uncertainty 5 Hz to 4 kHz: 1.0%, 4 kHz to 7 kHz: 1.4% and 7 kHz to 10 kHz: 2.0% is determined in accordance with EAL-R2. A coverage factor  $k=2$  is used. This corresponds to a coverage probability of 95% for a normal distribution.

Product Electronic Data Sheet according to IEEE P1451.4. Built-in ID-information not included.

Deviation from Reference Sensitivity.

For further information, please see <http://www.bksv.com> and Product Data Sheet BP 1288 and 1849.

## Mounting Technique:

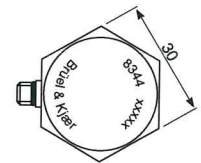
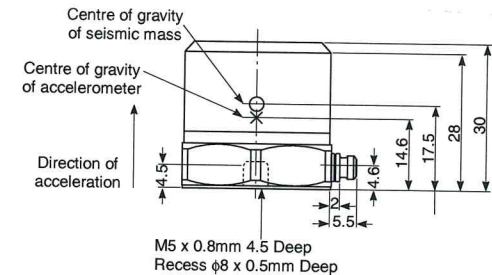
Examine the mounting surface for cleanliness and smoothness.

If necessary, machine surface to a flatness < 10  $\mu\text{m}$  and a roughness < 2  $\mu\text{m}$ .

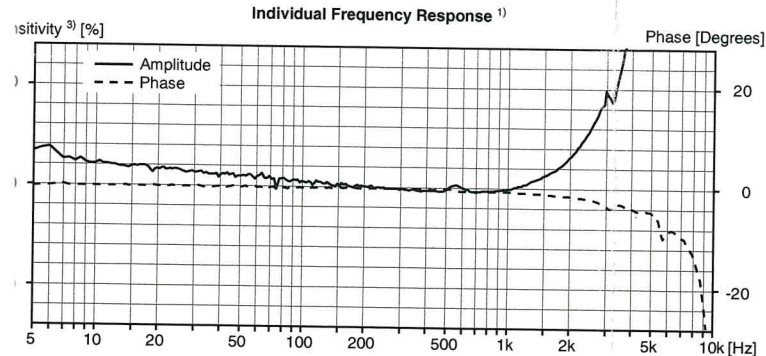
Fasten the accelerometer using the appropriate stud. Take care not to exceed the recommended mounting torque and that the stud does not bottom in the mounting hole.

A thin film of oil or grease between the accelerometer and the mounting surface helps achieve good contact and improves mounting stiffness.

See also ISO 5348. For other types of mounting, see the Brüel & Kjær handbook "Piezoelectric Accelerometers and Vibration Preamplifiers" (available from your local Brüel & Kjær representative).



All dimensions in millimetres



Date 09 dec 2020, 12:50 Operator BLK

Specifications obtained in accordance with ANSI S2.11-1969 and parts of ISO 5347.

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