

sensor & calibration tips



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Greetings!

Welcome to Issue #62

Around this time of year, the temperature is changing...and this month's Sensors & Calibration Tips issue focuses on proficiency in calibration; whether it's paying attention to room temperature during calibration or using a daily verification accelerometer. Read on for the details, and thanks for joining us this month!

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Tip of the Month: Use a Daily Verification Accelerometer

We recommend using a precision quartz accelerometer, like the PCB Model 353B03, as a dedicated, stable calibration verification accelerometer. Keep this unit under tight control and use it to validate your calibration system performance on a daily basis. This process also provides you with reliable data for evaluating any uncertainties or drift in your system measurements.

Technical Exchanges

[Shock & Vibration Exchange](#)
(Formerly SAVIAC)

November 4-8
Booth #608

[SAE Brazil International Noise and Vibration Colloquium](#)

November 25-27
Florianopolis, Brazil

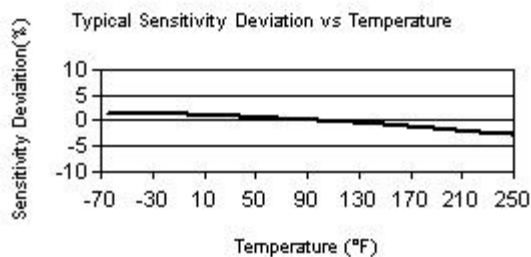
[Power Gen International](#)

December 11-13
Orlando, FL

How Temperature Affects Accelerometer Calibration (By Marco Peres, STP Product Group Manager, The Modal Shop)

Often, when we talk about accelerometer calibration, we are referring essentially to the measurement of sensor sensitivity as a function of frequency.

Most sensor characteristics, including its calibrated sensitivity, are specified under laboratory conditions and controlled temperatures in the 20-25°C range.



Temperature influence can be a critical factor when it comes to applications where the accelerometer will be used in a low- or high-temperature environment or in a climate chamber where...

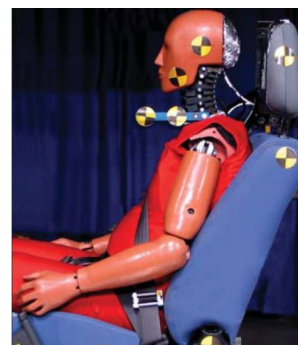
[Click to read more](#)

<http://www.modalshop.com/calibration/.asp?ID=785>

Shock and Vibration Calibration of Accelerometers (By Marco Peres, The Modal Shop, and Robert D. Sill, PCB Piezotronics)

Accelerometers are inertial transducers that can sense mechanical motion and convert it into an electrical quantity that may be conveniently measured or recorded.

Shock accelerometers are specifically designed to withstand and measure extreme, high-amplitude,



Quick Links

[PTB](#)

[NIST](#)

[ISO TC 108](#) - Mechanical vibration, shock and condition monitoring

[ISO TC 108/SC 3](#) - Use and calibration of vibration and shock measuring instruments

[ISO TC 108/SC 6](#) - Vibration and shock generating systems

[SAVE \(Formerly SAVIAC\)](#)

[Vibration Institute](#)

[Equipment Reliability Institute \(ERI\)](#)

[TMS Video Vault](#)

[Learn More Calibration](#)

Previous Newsletters

[Sensor & Calibration Tips #61](#) - Tackling Tire Testing; Calibration Videos

[Sensor & Calibration Tips #60](#) - Lab Lessons Learned, Series 2; International Standard of Units Reference

Select Newsletter Articles by Topic

[Function and Structure of Accelerometers](#)

[Similarities Between Charge and ICP Operation](#)

[Selecting Accelerometers for Mechanical Shock](#)

[Master List of Topics \(T.O.C.\)](#)

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short-duration accelerations often associated with transients. Such accelerations characteristically exceed the range limit found on other typical vibration accelerometer designs.

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<http://www.modalshop.com/calibration.asp?ID=789>

Blast from the Past: Proficiency Testing for Calibration



For those who may be new to our newsletter, we wanted to highlight an article from a previous "Sensor & Calibration Tips": [Proficiency Testing for Calibration Uncertainties](#).

Proficiency testing is a comparison between two or more laboratories to check for correlation of results. In accelerometer calibration, this is done by multiple laboratories calibrating the same accelerometer and comparing the results. This can be organized by individual labs which are known to each other or by a third party, such as the system manufacturer, where all participants would remain anonymous.

In either case, a sensor with stable sensitivity should be used to minimize effects the sensor has on the study. An accelerometer with quartz design is the ideal material for the sensing element because of its superior long-term stability.

[Click to read more](#)

<http://www.modalshop.com/calibration.asp?ID=225>

Thanks for joining us for another issue of Sensor & Calibration Tips. As always, please, speak up and [let us know what you like](#). We appreciate all feedback: positive, critical or otherwise. Take care!

Sincerely,

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