

sensor & calibration tips



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Your one-stop sound & vibration shop

Greetings,

Welcome to issue #31-

Well, it looks like we (the world at large) have made it through the worst of the recession. Through it all, our goal remains to provide a few "bite size" pieces of information each month to keep you up on the latest in the industry. Please have a look (like thousands of your industry colleagues do each month!), and share it with a co-worker. We all need to keep learning. Follow the archive links below to where you'll find all the back issues with their wealth of information.

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Tip of the Month

Consider evaluating several years worth of trend data for a given sensor asset in addition to comparing results of an individual calibration to a specification sheet. This ensures that the sensor asset's sensitivity is *stable* in addition to being within specification. If, for example, a certain accelerometer (100 mV/g nominal sensitivity) measures 104 mV/g one year and 96 mV/g the next, it can easily be passed within manufacturer's tolerance (typically +/- 5% of nominal), but the large shift (~8% sensitivity shift is well outside typical laboratory calibration system uncertainties of a few percent) indicates the sensor should be removed from circulation and performance investigated for special/extraordinary causes of this shift.

Quick Links

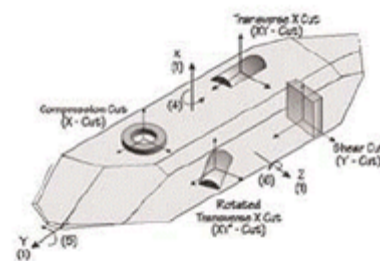
[NCSL](#)
[IMEKO](#)
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Placebo Transducers: A tool for data validation

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For any testing in which the environmental operating conditions of a transducer vary with time and/or location, several requirements must be fulfilled before measurement

uncertainty analysis is justified. Included among the requirements are good measurement system design practices, such as adequate low- and high-frequency response and data-sampling rates, appropriate anti-aliasing filter selection, proper grounding and shielding, and much more. In addition to these requirements, data validation must be performed to establish that each transducer responds only to the environmental stimulus for which it is intended. For piezoelectric transducers, "placebo" (IEST-RP-DTE011.1) transducers enable data validation to be accomplished...



[Click to read more about Placebo Transducers](#)

<http://www.modalshop.com/calibration.asp?ID=323>

Back to Basics

The beginning of the year is often a time for reorientation and a quick refresher on the basics of any operation. Accelerometer calibration is one such discipline that relies on "the basics" as fundamental to accurate operation and reporting. Small mistakes in these three critical areas can lead to



[NIST](#)

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

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

[ESTECH](#) - Reno, NV (May 3-6)

[Sensors](#) - Rosemont, IL (June 7-9)

[NCSLI](#) - Providence, RI (July 25-29)

[SAVIAC](#)

[Vibration Institute](#)

[The Modal Shop website](#)

[PCB Piezotronics website](#)

[IMI website](#)

[Larson Davis website](#)

Newsletter Archive

[sensor & cal tips #28](#) - Details on ICPR and Tools for composite damage detection

[sensor & cal tips #29](#) - Measurement uncertainty; PCB accelerometers on Mythbusters

[sensor & cal tips #30](#) - Pyroshock Uncovered; Proficiency Testing

[Table of Contents](#) - all the back issues

significant errors in the outcomes of the calibration process...

[Click to read more about the basics of calibration](#)

<http://www.modalshop.com/calibration.asp?ID=324>

Last month, I shared that The Modal Shop is celebrating its 20th Anniversary in 2010. As part of our celebration, my "baby" daughter (now graduated from University!) is putting up a Facebook page to celebrate our journey. Look for more information next month and remember, we're here to serve you with all your dynamic sensor and calibration needs.

Sincerely,



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