



## Welcome to our next issue (#9)-

The team at The Modal Shop and PCB Group have been sending out monthly training/tips for dynamic sensors for about a year now! We are pleased so many people have found the information useful in helping them improve their measurements and their end products. If you are new to our newsletter, please enjoy this short communication, share it with a colleague and have a look at the archive links below where you'll find all the back issues with their wealth of information. We're glad to have you on board!

[Join Our Mailing List!](#)

### Tip of the Month

#### Use of a daily verification accelerometer

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

### Quick Links

[NCSL](#)  
[NIST](#)

[The Modal Shop website](#)  
[PCB Piezotronics website](#)

### Newsletter Archive

[sensor & cal tips #1](#) - Basics of Accelerometer Function; How Standards Link Together

[sensor & cal tips #2](#) - Shear, Compression, Flexure; ISO 16063

### Seismic accelerometer...

...for low frequency measurements



Piezoelectric accelerometers are well suited for seismic vibrations studies. They are completely self contained and self generating from an inertial frame of reference. This eliminates the challenges with relative vibration found in optical/laser methods, as well as dual ended attachment coil based methods, such as LVDT's. The second most common challenge with seismic measurements is the low excitation levels of seismic events. In terms of acceleration, the g level falls off in an inverse square relationship for a constant displacement as frequency decreases, thus seismic events typically exhibit small acceleration levels.

[Read the rest of the article on seismic sensors here...](#)

([http://www.modalshop.com/test\\_calibration.asp?ID=212](http://www.modalshop.com/test_calibration.asp?ID=212))

### Uncertain about your calibration?

One of the most commonly debated issues among calibration professionals and often least understood by sensor users is the concept of measurement uncertainties.



To the novice user, the manufacturer's stated calibration is simply accepted as gospel. However, a closer inspection of the calibration certificate reveals that the calibration lab is actually providing an INTERVAL, within which the value for the device is

Overview

[sensor & cal tips #3](#) - Accelerometer Transduction Types (PE, PR, VC); Laser Primary Calibration

[sensor & cal tips #4](#) - Quartz v Ceramic; Piggyback Calibration

[sensor & cal tips #5](#) - Similarities between ICP & Charge, Shock calibration method

[sensor & cal tips #6](#) - Ideal v Real World Accelerometer Behaviors; Primary v Transfer Calibration

[sensor & cal tips #7](#) - The Trouble with Cables; How to Maintain Calibration Integrity

[sensor & cal tips #8](#) - What is ISO17025 all about? What makes a good modal array accelerometer?

"certain" to lie and typically includes a statistical probability distribution statement. This omnipresent and expected interval is typically expressed in a tolerance term of plus or minus some level of percent... aka uncertainty.

[Click here to read the rest of the article about uncertainties and how they effect your measurement accuracy...](http://www.modalshop.com/test_calibration.asp?ID=213)  
([http://www.modalshop.com/test\\_calibration.asp?ID=213](http://www.modalshop.com/test_calibration.asp?ID=213))

We appreciate your interest and are glad to be providing regular information to help you in your dynamic testing and calibration needs. If you have any questions you would like answered or have a topic you would like to see covered, please contact us and we'll be glad to help out. Your question may even be featured in a future newsletter...

Sincerely,



Michael J. Lally  
The Modal Shop  
A PCB Group Company

[Forward email](#)