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# sensor & calibration tips



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Your one-stop sound & vibration shop

Greetings,

## Welcome to issue #34-

Please have a look (like thousands of your industry colleagues do each month!), and share it with a co-worker. I will also start a blog soon so that it will be easy to comment and share ideas. Friend our [Facebook](#) fan page now. 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

Validate the performance and traceability of all calibration equipment used for measurements with appropriate recalibration intervals, established and maintained based upon manufacturers' recommendations and historical trend data showing the stability of the reference.

## Quick Links

[NCSL](#)

[IMEKO](#)

[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

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

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

[SAVIAC](#)

[Vibration Institute](#)

## Newsletter Archive by Topic

[Function and Structure of Accelerometers](#)

[Accelerometer Internal Structure](#)

## Measurements Matter!

Last week, Thursday, May 20th, was the celebration of "World Metrology Day" in recognition of the importance of measurement and calibration sciences. The [celebration web site](#)



*Great Belt Bridge in Denmark*

features the Great Belt Bridge and details some of the [exact measurement and construction challenges required as part of the fabrication](#). As leaders of the dynamic measurement industry, we all carry the responsibility of understanding the sensing/measuring process and of providing "good data" leading to "good results". One particular ritual that does an extremely good job of conveying this message and its incumbent responsibility is the [Calling of the Engineer](#) Ceremony in Canada and its counterpart, the [Order of the Engineer](#) in the USA. Though it has no actual connection, legend has it that the [ceremonial ring](#) worn by each engineer inducted, is made from the iron of a collapsed bridge and is a continual reminder to the practicing engineer of the enormous social responsibility inherent in the commitment to good research, design and fabrication. Here at The Modal Shop and PCB Group, we take the time to renew our commitment to quality dynamic measurement tools and [sharing the education](#) necessary to apply and understand good measurement practices.

## Fundamentals of Modal Analysis

Though the vibration and structural test field is rich in history and application, there is a shortage of good primers to educate the latest crop of young engineers. One of the best examples that I have for

[Transduction Types: PE, PR, VC](#)

[Sensing Elements: Quartz vs Ceramic](#)

[Similarities Between Charge and ICP Operation](#)

[Specification and Behavior of Accelerometers](#)

[The Trouble with Cables](#)

[Discharge Time Constant](#)

[Common Options for ICP Accelerometers](#)

[Accelerometer Selection Considerations](#)

#### Newsletter Archive by Issue

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

[sensor & cal tips #31](#) - Back to Basics; Placebo Transducers

[sensor & cal tips #32](#) - Piezoelectric Transduction; Do I really need to calibrate?

[sensor & cal tips #33](#) - Forced ranking; The decline in quality

#### PCB Group Companies

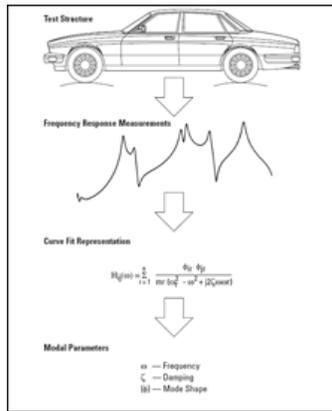
[The Modal Shop website](#)

[PCB Piezotronics website](#)

[IMI website](#)

[Larson Davis website](#)

[PCB Load & Torque website](#)



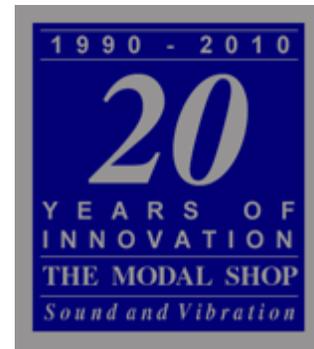
reference is the Fundamental of Modal Analysis written by the team at Hewlett Packard in the days back before the Agilent spinoff. This primer provides a great balance

between introductory overview and necessary detail to understand the common challenges of the test engineer in the structural testing/modal analysis field. [Click here to download 56 pages of modal analysis fundamental content](#) which spans topics from simple descriptions of structural dynamics, to the Fast Fourier Transform (FFT) to Multiple input Multiple output (MIMO) testing to improving measurement accuracy to an overview of Modal Parameter Estimation.

**2010 celebrates our 20th Anniversary.** Become a fan of our [Facebook page](#) and see pictures of "Modal Shoppers" (and maybe some of your colleagues) from our past conferences, applications and celebrations. As you'll see in the pictures, we're here to serve you with all your dynamic sensor and calibration needs.

Sincerely,

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[Forward email](#)