

**dynamic sensors & calibration tips**

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**Welcome to Issue #78**

Greetings from sunny Florida! In the USA it's "Spring Break" time and over the next few weeks millions of Americans flock to the warm weather states like Florida, Texas and California for a week of warmth after a long winter's chill. Hopefully, you've made some fun plans for this change of season, too. Last week I had the chance to visit the Salvador Dali Museum in St. Petersburg, Florida. The modern master was not only an amazing painter, but also had passion for science, photography, theater, film and fashion...and he got me thinking. What will it take to bring dynamic vibration sensing to the modern era?

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**Tip of the Month:  
Through-Hole Stud  
Mounting  
Accelerometers**

The main advantage of a through-hole (or clearance hole) accelerometer mounting configuration is to allow for easy (full 360-degree positioning choice) of orientation for the signal output connector. This ability to flexibly orient the signal connector can be critical when stud mounting an accelerometer in confined spaces like automobile frames or manufacturing machinery.

**Technical Exchanges**

[SAE World Congress & Exhibition](#)  
April 8-10

**USB Smart Sensor for Vibration**



This month I have a favor to ask of you...I would really appreciate a reply email from you. But first a question: Have you ever wondered why there isn't a simple "plug-and-play" piezoelectric

accelerometer? I have...and for a very long time. Ever since purchasing my first Apple Macintosh in 1985, I marveled at how easy it was to record and manipulate sound files. If a Mac (or even a PC) could take sound data so easily, why did we need to make the remarkably similar vibration "instrumentation" world so complicated? The answer is...we don't anymore! Here I am, asking again, for the favor mentioned above: [Please send me an email](#) with your feedback on a new concept vibration sensor. My goal is to hear back from more than 50% of the regular readership of this newsletter. I will share the results of your responses in an upcoming "Dynamic Sensors & Calibration Tips" issue.

The details on the USB ICP digital accelerometer are so simple that the preliminary specification speaks for itself. The vibration sensor is compatible with USB and various Windows sound card drivers. Just plug it into a PC and in the Windows environment it...

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**University of North Dakota Uses Shaker in Unmanned Aerial Vehicle Testing**

William H. Semke, professor at the University of North

Detroit, MI

[Dynamic Sensors & Calibration Seminar and Open House](#)

May 14  
Cincinnati, OH

[NCSLI Washington/Oregon/Western Canada Regional Meeting](#)

May 20-21  
Seattle, WA

[Successful Measurement of Dynamic Force, Pressure and Acceleration](#)

By Pat Walter  
May 20-22  
Buffalo, NY

[Successful Measurement of Dynamic Force, Pressure and Acceleration](#)

By Pat Walter  
May 27-28  
Vancouver, BC, Canada

[SAAMI Ballistic Pressure Sensor Training](#)

By Bob Metz  
June 18  
Buffalo, NY

[Sensors Expo](#)

June 24-26  
Chicago, IL

**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**

[Dynamic Sensors & Calibration #77](#)

Why is it Important to Calibrate my Microphones?: KU Leuven Designs Impedance Tube Alternative

[Dynamic Sensors & Calibration #76](#)

Harvard Uses Shaker to Simulate Bumblebee Vibration Frequency; Dynamic Calibration Seminars

**Select Newsletter Articles**

Dakota's School of Engineering and Mines, is currently working with a team of graduate and undergraduate students in ongoing experiments conducting modal testing on small unmanned aerial vehicles (sUAV).



These sUAVs use Automatic Dependent Surveillance-Broadcast (ADS-B) transponders to track cooperative aircraft that also have the same system. So sUAVs can then recognize each other in the sky. The problem is, this system doesn't recognize "uncooperative" objects -- meaning objects that are not sUAVs. To help with this, the University of North Dakota team has fitted its test vehicles with phased array radar systems...

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[modalshop.com/calibration.asp?ID=920](http://modalshop.com/calibration.asp?ID=920)

**Blast from the Past: ISO 16063-11 Laser Interferometer Method Overview**



Primary accelerometer calibration is at the root of traceability for virtually every accelerometer calibration chain in the world: commercial, government, military, academic or vendor. Acceleration calibration via laser interferometry is a primary method because it is an absolute method comparing the measured vibration from a

sensor under test to a constant of nature -- the wavelength of laser light.

The ISO 16063-11 standard discusses three alternative methods for primary calibration. Each method requires increasingly more complexity in hardware as well as...

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[modalshop.com/calibration.asp?ID=191](http://modalshop.com/calibration.asp?ID=191)

Thanks for joining us for another issue of "Dynamic Sensors & 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,

## 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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Michael J. Lally  
The Modal Shop, Inc.  
A PCB Group Company  
[mike.lally@modalshop.com](mailto:mike.lally@modalshop.com)

