sensor & calibration tips

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Dear Brittni,

Welcome to Issue #59

Greetings once again to the dynamic sensing and metrology community. I want to remind you that The Modal Shop, as part of The PCB Group, is hosting a free training seminar on Dynamic Calibration next week in Sacramento, California. The seminar will be held on August 2, following the NCSLi Workshop and Symposium, which is July 29 to August 2. If you are able to make it, please join us for the exhibition and/or the technical seminar. If you aren't able to make Sacramento, and have interest in hosting a TMS Calibration Technical Exchange in your facility or region, please let us know... We are always traveling and would love to work out a stop in your area.

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Tip of the Month

Impact testing is often the easiest excitation method for structural testing, but be sure to investigate various impact locations to ensure all resonant frequencies of interest are adequately excited. Selecting to excite at a node of a mode will not excite that resonance and will cause it to be absent in the measurements from any response accelerometer.

Technical Exchanges

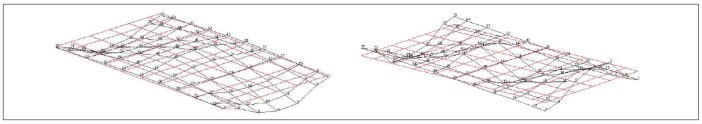
Experimental Techniques - University of Cincinnati SDRL
August 8-10
August 13-15
Cincinnati, OH

Accelerometer Calibration - TMS
August 2
Sacramento, CA

Successful Measurement of Dynamic Force, Pressure &

Lab Lessons Learned from Student Testing

Here is an application note by Purdue University Professor, Doug Adams, sharing a number of educational experiences his students have learned "the hard way."



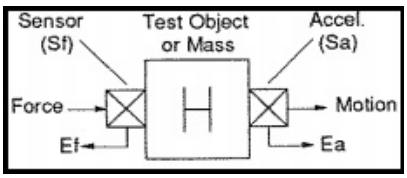
Modal deflection shapes for windowed panel

Working on an aircraft fuselage with various test methods, readers can either nod their heads in knowing agreement as they read the chronicles of these students, or perhaps take some tips from their reading to prevent trouble in future testing situations.

Click here to read more
http://www.modalshop.com/calibration.asp?ID=763

Principle of Dynamic Calibration

This is another section of a classic application note by PCB Piezotronics co-founder, R.W. (Bob) Lally. This concise applicable application note covers the core of sensor calibration. It may have been written in the 70's, but it is still a useful resource for teaching young engineers the basic behaviors of measurement systems.



Click here to read more
http://www.modalshop.com/calibration.asp?ID=764

Blast from the Past - More Contributors to Uncertainty

Acceleration - PCB
August 7-9
Buffalo, NY

Accelerometer Calibration - TMS
Late August
Detroit, MI

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
ISO TC 108/SC 6 - Vibration and shock generating systems
SAVIAC
Vibration Institute
Equipment Reliability Institute (ERI)
TMS Video Vault
Learn More Calibration

Previous Newsletters

sensor & cal tips #58 - Significance of Low Frequency Calibration; Technical Exchange Around the Country

sensor & cal tips #57 - Double vs Single Ended Transfer Standard Reference Accel; Video Tutorial on Transverse Motion

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.)

PCB Group Companies

The Modal Shop website
PCB Piezotronics website
IMI website
Larson Davis website
PCB Load & Torque website
SimuTech website

For those who may be new to our newsletter, we wanted to highlight an article from a previous sensor & calibration tips - "More Contributors to Uncertainty"...

There are many factors contributing to accelerometer calibration uncertainty.

Consider the equation for accelerometer calibration, Vref/Vsut = Sref/Ssut, which states the ratio of the accelerometer output (both reference and sensor-under-test) voltages must be equal to the ratio of their respective sensitivities. Because of the ratio nature of the voltage measurement, it is easy to see that if an external factor effects the voltage measurement...

Click here to read more
http://www.modalshop.com/calibration.asp?ID=218

Technical Exchanges Around the Country

The University of Cincinnati's Structural Dynamics Research Lab (UC-SDRL) will be hosting the annual Experimental Techniques Seminar Series, featuring equipment from both TMS and PCB. The first session will discuss Structural Measurements and the second session will cover Modal Analysis. The sessions include a lecture style presentation and hands-on experimental lab work.

In addition to these sessions at the University, PCB Piezotronics and The Modal Shop have served the sound and vibration community for over 40 years, and continue their commitment to innovation and customer education.

In a similar way, The Modal Shop offers free 1/2 day technical seminars around the country on vibration metrology. Sessions focus on dynamic sensor types, calibration theory and standards, measurement uncertainty budgets, calibration methods, and much more.

PCB Piezotronics offers courses on dynamic shock, vibration, pressure and force measurement theory and practice. The previously sold-out courses are taught by Texas Christian University professor, Dr. Pat Walter, at PCB in Buffalo, NY.

Click here to find an exchange near you
http://www.modalshop.com/calibration.asp?ID=736

Thanks again for your time and interest in sensing and dynamic calibration.

Remember, we mean it when we say, we'll be glad to "**stop by**" and help you with your measurement, calibration or training needs. Let us know what you are looking for and we'll be glad to help make it work. Take care this month...

Sincerely,

Michael J. Lally
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