

sensor & calibration tips



www.modalshop.com

www.pcb.com

Your one-stop sound & vibration shop

Greetings!

Welcome to issue #21-

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

Stay Smooth

"Apparent" transverse sensitivity can also be created when an accelerometer is mounted crooked or out of alignment with the parallel surface of the measurement frame of reference. Lapping or filing the base of a sensor by hand to remove burrs or other imperfections can change the alignment of the base with the sensing element causing increased transverse output. Sensors should always be sent back to the manufacturer if reworking is required.

Quick Links

[NCSL](#)
[IMEKO](#)
[NIST](#)
[PTB](#)

[Ray W. Herrick Lab at Purdue University](#)

[Purdue University Center for Systems Integrity](#)

[The Modal Shop Electrodynamic Exciters](#)

[Vibration Institute](#)

[The Modal Shop website](#)

ICP® Triaxial Accelerometers Aid Vehicle Field Diagnostics



The uses for vibration measurement and monitoring continue to explode as products and processes get "smarter". Smart sensors measure shock and vibration signatures in applications as varied as; Helicopter

Health Usage & Maintenance Systems (HUMS) to Weapons Impact Detection with Input Vector Prediction to Vehicle Component Flaw Detection. In each application, there is a need for instrumentation that is rugged, reliable and easy to operate. For these reasons, ICP Accelerometers are regularly imbedded into prognostic systems at Purdue University's CSI (Center for Systems Integrity). Recently, triaxial accelerometers have even been used to create an [instrumented "speed bump"](#) to dynamically monitor and identify critical vehicle problems prior to mission deployment...

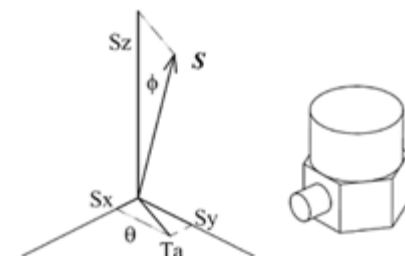
[Click to read news about the smart sensor](#)

[bump](http://www.isa.org/Content/ContentGroups/News/2009/April39/Smart_speed_bump_moves_vehicles_faster.htm)(http://www.isa.org/Content/ContentGroups/News/2009/April39/Smart_speed_bump_moves_vehicles_faster.htm)

New Transverse Methods of Calibration

Here is one of the latest developments that has been submitted with the other standardized techniques in ISO 16063-31 (Revision of ISO 5347-11:1993)

Titled: Testing of Transverse Vibration Sensitivity. The technique, championed by PCB Sr. Scientist, Bob Sill, has been edited by committee for standardization consideration. This clever apparatus tests rapidly and uses two orthogonal shakers to drive an orbital motion



[PCB Piezotronics website](#)
[IMI website](#)

Newsletter Archive

[sensor & cal tips #17](#) -

Improving your accel calibration reference measurement at low frequencies; ICP® options

[sensor & cal tips #18](#) - Why calibrate; Accelerometer selection considerations

[sensor & cal tips #19](#) - Linearity and the small world

[sensor & cal tips #20](#) - Low frequency calibration; Cable considerations

[Archived sensor & cal tips](#) - all the back issues

while employing air bearings to constrain it to a single plane. The following white paper (presented at SAVIAC's 77th Shock & Vibration Symposium in Monterey CA, Nov. 2006) describes [new planar techniques](#) as well as the added benefits of traditional techniques. The latest developments from TMS include new methods of [laser primary accelerometer calibration](#) and [ultra low frequency calibration](#) by optical encoder reference. These and other developments are core R&D of the PCB Group at three separate facilities: The PCB Piezotronics Technology headquarters in Depew, New York, the Group's Advanced Design Center in San Clemente, California and at The Modal Shop's calibration laboratories in Cincinnati, Ohio.

[Click to read more about new transverse methods](#)

(<http://www.modalshop.com/filelibrary/U-028%20Sill%20Transverse%20Sensitivity.pdf>)

We appreciate your interest and are glad to be providing you information on a regular basis to help with 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.

Sincerely,



Michael J. Lally
The Modal Shop
A PCB Group Company
mike.lally@modalshop.com

[Forward email](#)