Welcome to Issue #87

Hall&#65533;! ("Hello" in Swedish.) This is the last "Dynamic Sensors & Calibration Tips" of 2014. It has been a great year here with much growth and the addition of many new team members. We hope it has been a great year for you as well. We are looking forward to bringing you more technical articles in 2015, so please **let us know what you want us to write about**! Send us any technical questions you have and we will get you answers from the experts at The Modal Shop and the metrology community. Have a great holiday season and we'll be back with you next year!

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Tip of the Month: When to Utilize a Resistor

When calibrating velocimeters with self-generating outputs, pay attention to the input impedance requirements. Oftentimes, a resistor must be placed in parallel with the data acquisition system for proper calibration. The value of the resistor must take into account: 1) the required input impedance of the sensor and; 2) the input impedance of the data acquisition system using the equation for adding resistors in parallel.

Technical Exchanges

SIAT Expo (Symposium on International Automotive Technology)
January 21-24, 2015
Pune, India

How Do You Calibrate the Calibration System?
By Eric Seller, Calibration Application Engineer

One question that frequently comes up with calibration systems is "how do you calibrate the calibration system?" This article explores the typical system components, answers the question of whether they need to be calibrated, and provides details as to why.

Reference Standard?

Yes. The reference standard makes up the cornerstone of vibration calibration traceability. The output of the reference sensor calibration is expressed in mV/m*s^-2 (or mV/g for us non-native-metric-system users), meaning that the reference standard traces to three of the seven SI base units of measure (second, Ampere and meter).

Shaker/Exciter?

No. The shaker/exciter simultaneously applies an input to the reference standard (known) and test article (unknown). Traceability is therefore accomplished through the reference standard; however, it is advisable to...

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modalshop.com/calibration.asp?ID=1029

Eddy Current Probes Produce An Alarming Trend
By Mike Scott, Portable Vibration Calibration Product Manager

IMAC XXXIII
February 2-5, 2015
Orlando, FL

NCSLI Technical Exchange Half-Day Seminar
The Modal Shop, Inc.
8 am - 12 pm
February 12, 2015
Raleigh, NC

Dynamic Sensors & Calibration Techniques Seminar
The Modal Shop, Inc.
10 am - 3 pm
March 3, 2015
Los Angeles/Torrance, CA

Dynamic Sensors & Calibration Techniques Seminar
The Modal Shop, Inc.
10 am - 3 pm
March 5, 2015
San Jose, CA

Measurement Science Conference
March 18-20, 2015
Anaheim, CA

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)
Equipment Reliability Institute (ERI)
TMS Video Vault
Learn More Calibration

Previous Newsletters

Dynamic Sensors & Calibration #86
How Does Test Level Affect Sensitivity?; Calibrating Bently Nevada Velomitors with ICP Signal Conditioning

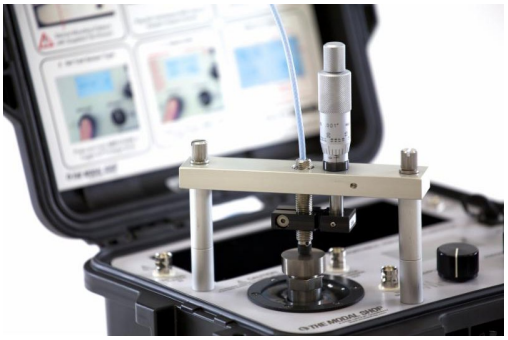
Dynamic Sensors & Calibration #85
Why the Word 'Hermetic' is Important to Your Piezoelectric Sensors; FAQ: When an Accelerometer Fails Calibration

Select Newsletter Articles by Topic

Function and Structure of Accelerometers

Similarities Between Charge and

Eddy current probes (a.k.a. proximity probes) are non-contact displacement sensors that protect some of the world's most critical rotating equipment, like gas and steam turbines, from catastrophic failure related to excess vibration. By measuring the distance between probe tip and shaft, using changes in the magnetic field, users can effectively plot the motion of the shaft and determine if fault conditions exist such as imbalance and misalignment. Keeping turbines running and properly scheduling maintenance during planned outages is paramount to the success of the plant.



The probe system consists of the probe itself with typical 5-, 8- or 11-mm encapsulated probe tip, an extension cable and a probe driver or signal conditioner. The probe impedance changes proportional to distance from the shaft or target, however, probe impedance alone is not linear. It is the job of the probe driver to linearize these impedance changes and produce a reliable voltage signal relating distance to voltage. Since impedance is critical to this measurement, cable length and type must be precisely matched to the probe driver.

Unfortunately, Eddy current probe cable installation error is one of the top reasons for failure of the vibration protection system. Making matters worse...

Click to read full article.
modalshop.com/calibration.asp?ID=1025

Blast from the Past: Vibration Transducer Calibration FAQ

Q: Why Calibrate a Vibration Transducer?

A: The pervasiveness of vibration and shock sensors continues to grow at an exponential rate. You can find these sensors everywhere, from aerospace labs and automotive test bays, to smart structures providing condition monitoring systems and active control. While these sensors continue to improve the performance of people, products and processes, this growing nation of test and automation is also growing a calibration liability. Considering the work involved with calibrating all these sensors, the question typically follows, "Do we really need to calibrate all these sensors?"

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modalshop.com/calibration.asp?ID=326

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

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feedback: positive, critical or otherwise. Take care!

Sincerely,

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