



Best Calibration Practices: Interactive Workshop

Co-hosted by **Beamex**

18 August 2016

Space Center Houston
Houston, Texas, USA

SCHEDULE

Time	Title	Presenter
7:45 AM	<i>Breakfast & registration</i>	
8:30 AM	Welcome	Greg Sumners
8:45 AM	Calibration – from the past to the future	William Mostia
9:45 AM	To calibrate or not to calibrate...	Hunter Vegas
10:45 AM	<i>Break</i>	
11:00 AM	Defining calibration intervals and setting tolerances	Ned Espy
11:45 AM	<i>Lunch including Space Center Plaza Exhibit, Orion Artifacts</i>	
12:45 PM	Pressure calibration hands-on workshop	
2:00 PM	Planning, scheduling and organizing calibration for maintenance outages	Faran Rolingson
2:45 PM	<i>Break</i>	
3:00 PM	Temperature calibration hands-on workshop	
4:00 PM	Open forum: complex calibrations	Roy Tomalino
5:00 PM	Closing remarks: A tout a l'heure	Greg Sumners

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PRESENTATION DESCRIPTIONS

Calibration – from the past to the future

William L. Mostia, P.E., ISA Fellow, SIS-TECH Fellow

Metrology and calibration go back at least to the time of the Egyptians and the Pyramids. Modern metrology began in the late 1800's, beginning with the Industrial Revolution. The need for accurate and consistent measurements and calibration to these measurements began accelerating as a result of World War I and later WW II with the new technologies that came out of the wars and in particular the transportation industries (planes, trains, & automobiles) and the developing process industries, particularly the petrochemical industry. The process industry began using mechanical instrument and manual controls and evolved rapidly to develop measurement and control technologies based on pneumatics, electrical, electronic, digital, and microprocessor based instruments and controls, all of which require some form of calibration, and interesting enough all these technologies are still around. But the one thing has been constant is change and technology waits for no one and brings new abilities along with new challenges and opportunities.

This presentation will provide a brief history of measurement and calibration and discuss some of the challenges and opportunities facing calibration as we move into the 21st Century. Some of the challenges and opportunities that will be discussed are intelligent instruments and the digital world, accuracy, Safety Instrumented Systems (SIS), Instrument Reliability Network (IRN), cloud computing, augmented reality, the Industrial Internet of Things (IIOT), and cybersecurity. Along the way the presenter will provide a firsthand view from 40+ years' experience in the process industry and in instrumentation.

To calibrate or not to calibrate....

Hunter Vegas, Project Engineering Manager

How many times have you been sent out to calibrate the same instrument again and again and still have production complain it isn't reading correctly? As an instrument maintainer it is clearly important to know how to calibrate but it is just as important to know when calibration will NOT solve the problem. Learn to recognize the various situations and indicators which tell you the issue has nothing to do with calibration at all.

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PRESENTATION DESCRIPTIONS

Defining calibration intervals and setting tolerances **Ned Espy, Technical Director**

Most calibration professionals follow long-established procedures that have not evolved alongside their facility's instrumentation technology. Years ago, maintaining a performance specification of $\pm 1\%$ of span was difficult, but today's instrumentation can easily exceed that level on an annual basis. In some instances, old test equipment that does not meet new technology specifications is being used. In this scenario, everyone thinks they are doing a good job, but in reality, the measurements are poor, and the plant maybe at risk. This presentation focuses on establishing base line performance testing where analysis of testing parameters (mainly tolerances, intervals and test point schemes) can be analyzed and adjusted to meet optimal performance.

Pressure calibration hands-on workshop **Multi-instructor led exercises**

In a typical process plant, over 60% of instrument applications involve pressure. Pressure instrumentation maintenance is a critical and daily task, yet proper procedures for managing and calibrating these instruments are often overlooked or not understood. Learn how to use a documenting calibrator with built in HART communication to easily calibrate pressure transmitters. Discover how, with advanced technology, pressure switches can be calibrated with the push of one button. This hands-on workshop will walk you through pressure calibrations, step by step, including re-ranging, calibrating, and trimming.

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PRESENTATION DESCRIPTIONS

Planning, scheduling and organizing calibration for maintenance outages **Faran Rolingson, Senior Control Engineer**

Maintenance outages can only be successful when the outage work is planned, scheduled and organized efficiently. The ultimate objective is to perform the work correctly and efficiently while managing inevitable and unpredictable variables, in order to avoid delays and meet deadlines, all while maintaining a safe environment. It is important to remember that even planned maintenance outages are a dynamic process and the execution of calibration is a critical component.

The success of calibration during a maintenance outage depends on an understanding of the dynamics of the outage, as well as the calibration process itself. These two components go hand in hand. At Alabama Power, the calibration program is driven by a well-defined standard of excellence that requires a seamless flow of data and documentation of each asset to meet traceability requirements. During this presentation, Faran will explain how he manages calibration during planned maintenance outages to meet objectives and achieve Alabama Power's standard of excellence.

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Temperature calibration hands-on workshop Multi-instructor led exercises

Temperature is the most common and frequently measurable variable in the process industry. It influences many physical features of matter and has a significant impact on quality, energy consumption and environmental emissions. Still, proper procedures for managing and calibrating temperature instruments are often overlooked or not understood. Learn how to use a documenting calibrator with built in HART communication to easily calibrate temperature transmitters. Afterwards, learn how to calibrate a temperature switch using a dry block. This hands-on workshop will teach you how to perform temperature calibration step by step, including re-ranging, calibrating, and trimming.

Open forum: complex calibrations Roy Tomalino, Professional Services Engineer

This open forum is designed to be a conversation between the audience and the experts with 30+ years of combined calibration experience. Come prepared to ask your toughest questions to the experts. Stump the chumps!