

DAQ: The New Reality

An Introduction to Data Acquisition with Analog Sensors & In-Vehicle Networks

Overview

The collection of Vehicle Network data alongside analog inputs has become a standard requirement for in-vehicle testing. Couple this with the fact that more and more complex sensors and supporting devices are now being offered with an optional CANbus interface, the world of over-the-road data acquisition can be a challenge.

This one-day training event covers the basic principles and practices of in-vehicle data acquisition using both analog and CANbus-based sensors along with Vehicle Networks. (e.g.: CANbus, LIN, FlexRay, etc.) Attendees will gain understanding and direction on addressing the challenges of in-vehicle data acquisition with both analog and Vehicle Network recordings.

Join Us!

Date: Friday, June 10th from 9am – 5pm
Location: Hyatt Place - Suburban Collection Showplace
46100 Grand River Avenue Novi, MI 48374
Cost: \$750 per person. ***Includes lunch & refreshments***
Early Bird SPECIAL OFFER: \$300 before June 1st
REGISTER TODAY! Email: shenry@hi-techniques.com
Phone: (608) 221-7500
Payment: Credit card or purchase order

Who should attend?

Technicians, Engineers and their Managers who need to have a basic understanding of in-vehicle data acquisition that includes both analog and Vehicle Network data.

Instructor



A native of the UK, Dave Gallop has a BSc in Agricultural Engineering from Cambridge and spent 7 years working in the Test Group of Renault before joining SoMat as one of the original employees. In his 23 years with SoMat, Dave held a number of different positions in Product Development, Applications Support, Training and Product Management. Dave has been with Hi-Techniques since 2014.

AM Session: The Basics of Stand-Alone DAQ

1. Why do we collect data?
 - The most important part of any data acquisition project is what? The data!
2. What about hardware choices?
 - The importance of the right resolution and signal conditioning (SARS vs $\Sigma\Delta$)
 - Operating systems (stressing the importance of the data)
3. What are you measuring & why?
 - What is reasonable to measure?
 - Sensors matter, but how do I choose?
 - Measurement Types
 - Thermal
 - Displacement/Length
 - Acceleration/Velocity
 - Force/Load
 - Flow/Pressure
 - Voltage, Current & Resistance
 - Relationships between measurement types
 - Derivations from basic measurement types
4. Where is the data going from here?
 - Delivering the right data
 - Delivering the right format – Do all roads lead to Excel?
5. Who is your customer (internal or external) & what do they expect to see?
 - Data review & reports

PM Session: Vehicle Networks & CAN Basics

6. The history of CAN and in-vehicle networking
7. The users of CAN:
 - Who?
 - What?
 - Why?
8. The makeup of a vehicle network:
 - Transistors to controller
9. CAN messages: An abstract approach
10. Frames and composition:
 - What you need to know
 - What you may want to know
11. CAN nodes & non-native network devices:
 - Attaching other CAN devices
 - Real-world DAQ with the Echelon
12. Creating databases for broadcast information
13. Making requests on the network:
 - How?
 - When?
 - Why?
14. Reverse engineering a vehicle network:
 - A real world example using Echelon