Future Direction of Foundation Fieldbus

May 23, 2012

Hisashi Sasajima
V.P. Fieldbus Foundation
1. FOUNDATION Technology Gains Momentum
2. Major Recent Installations and Success Cases
   • FOUNDATION Technology Controls The World’s Largest Plants, Most within the Past Few Years
   • FPSO (Floating Production, Storage and Offloading system)
3. Situation of Foundation Technology
   • Devices, Hosts, & Registration
4. Future Technology Roadmap
   • FOUNDATION for Remote Operations Management
   • FDI: Field Device Integration Initiative and LLC
   • SIF (Safety Instrumented Functions)
5. Foundation Certified Training Program (FCTP)
Fieldbus Foundation Overview

**Mission**

The Fieldbus Foundation is a global not-for-profit corporation consisting of leading process end users and automation companies. Within the Fieldbus Foundation, end users, manufacturers, universities and research organizations work together to develop an automation infrastructure that provides process integrity, business intelligence and open scalable integration in a managed environment.

**History**

The Fieldbus Foundation was established in September, 1994 as a not-for-profit trade consortium.

The Foundation's history is one of growth and achievement, as fieldbus-based control solutions have gained widespread acceptance in the global automation marketplace, today.
Fieldbus Foundation History
(Technology Developments)

<Important Milestones>

- **May 1995**: Completion of H1 draft preliminary specifications
- **Oct. 1996**: Demonstration of H1 technology at customer site
- **Sept. 1998**: Registration of the first H1 fieldbus products
- **Sept. 1999**: Completion of High Speed Ethernet (HSE) specifications
- **May 2001**: Registration of the first HSE linking devices
- **May 2005**: Demonstration of HSE and Flexible Function Blocks (FFBs)
- **May 2008**: Demonstration of SIF Technology at Shell Global Solutions
- **June 2008**: Host Profile(6xa) Registration started
- **Dec. 2008**: ITK and SIF Specifications (v1.3) Released
- **Nov. 2011**: HSE/Remote IO Specification Completed

<International Standardization>

- **Sept. 1992**: ANSI/ISA SP50 Fieldbus Standards
- **Dec. 1999**: IEC61151 Industrial communication networks-Specification
- **Sept. 2006**: IEC61804-3 EDDL
- **Dec. 2007**: IEC61784 Industrial communication networks-Profiles
EUAC Composition

- Wes Meger
  - Canada
- Rong Gul
  - EMEA
- B.R. Mehta
  - India
- Herman Storey
  - US
- Board Liaison
  - Tim Madden
- Staff Support
  - Stephen Mitschke
- Advisor
  - Rich Timoney
- Chair
  - John Rezabek
- Luay Al-Awami
  - Middle East
- Satoru Nunokawa
  - Japan
- Duncan Turner
  - Australia
Foundation Certified Training Sites (FCTP) in Asia Pacific
Fieldbus Foundation promotes digital interoperable vendor-neutral automation with 500 members/affiliates.
By the Numbers

- 675+ registered products
- 11 registered hosts
- 6,000 control systems
- 1,000,000+ devices in service
Registered Devices

439 Unique Registered Devices
236 Re-Registrations
675 Total Registrations
Registered Devices & Hosts

- 675+ Devices
- 11 Hosts

From 9 Companies:
- ABB
- Azbil
- Emerson
- GE
- Honeywell
- Invensys
- Siemens
- Supcon
- Yokogawa
We Test & Register Everything from Cable to Host

Host Profile and ITK Testing

Host Profile Testing

- Foundation-SIF Host
- Integrated Host
- Operations
- Maintenance
- Engineering
- Power Supplies
- Couplers & Terminators
- HSE Network Cable
- H1 Network Cable
- HSE Devices
- ITK Testing
- Visitor Host
- Bench Host
- Host Profile and ITK Testing
- ITK Testing
Fieldbus Survey: Adoption and Challenges

- Survey construction is complete.
- Will be distributed through ARC and major media outlets
- ARC will host the survey and help us analyze the results
- Based on past survey responses, we should get several hundred responses from end users, systems integrators
- Why are users and systems adopting fieldbus? If not, why not?
- What are the primary challenges faced by users?
- 1.2 million devices sold
- Over 6,000 systems installed worldwide
- Total market for fieldbus products and services is over $2 billion, and growing faster than the overall process automation market.
• FOUNDATION fieldbus leads the process fieldbus market, accounting for close to 74 percent of digital fieldbus solutions for the process industries
• CAGR of over 13 percent in digital fieldbus solutions over the next five years

![Bar chart showing total shipments of fieldbus solutions for process industries from 2011 to 2016.](chart.png)
• Economy has Recovered and so Has the Fieldbus Projects Business
• FOUNDATION Technology is controlling the world’s largest plants and refineries
• Many Large Grassroots Projects in the Heavy Process Industries Incorporating FOUNDATION Technology
• Many Project Opportunities in FPSO
• FOUNDATION Technology Increasingly Incorporated into Migration & Modernization Projects
• Reliance Jamnagar Refinery, India
• Shanghai SECCO Refinery, China
• CSPC Nanhai Refinery, China
• Petro-Rabigh Mega-Project, Saudi Arabia
• Drax: Largest Coal Fired Power Plant in UK
• NAM Groningen Gas Field: Largest Gas Producer in Netherlands
• FPSO: PSVM (Plutao, Saturno, Venus and Marte) development by BP in Angola’s offshore Block 31 oilfield
1. Reliance Jamnagar Export Refinery (JERP)
   - World largest refinery: 1,240,000 bpd (Expansion of existing 660 bpd, additional 580,000 bpd capacity).
   - More than 3600 Segments, 32,000 Devices
2. **Shanghai SECCO Refinery** (上海赛科石油化工有限责任公司)

- BP/SINOPEC Shanghai Petrochemical Corporation (SPC) Joint Venture
- 2,300,000 t Petrochemical Complex (2463 Segments, 23,000 Devices, 8,200 Control Loops)
- OPEC Savings by Maintenance Management Solutions
3. CSPC Nanhai Refinery

- Shell and CNOOC joint project
- Refining & Petrochemical Complex with 16,000 FF Devices
- 800,00 t Ethylene Complex, Styrene Monomer 560,000 t
- Online Process/ Device Diagnostics
4. Petro-Rabigh Mega-Project, Saudi Arabia
   • Saudi Aramco/Sumitomo Chemical Joint Project
• Drax: Largest Coal Fired Power Plant in the UK
• NAM Groningen Gas Field: Largest Gas Producer in Netherlands
• Molson Coors: Using FF for Energy Optimization
• Duke Power: Using FF in a Nuclear Application
• Novo Nordisk: FF for Multiple Applications in Life Sciences
• Faster Integration of Skids
• Faster Commissioning
• Easier Validation
• Reduced Cost to Both End User and OEM
• The developments is based on clustered subsea production wells, 2000 m water depth, tied-back to an external turret moored converted FPSO.

• The topsides comprises of process modules for fluid reception, separation, treatment, dehydration, metering and export of the crude oil to export tankers. Utilities modules are provided for power generation, air compression, etc. and an accommodation module is located towards the stern of the vessel.

• The project fully leverages the potential benefits of FOUNDATION™ fieldbus technology.

Integrated, Control and Safety System (ICSS)
- **Fieldbus Intrinsically Safe Concept (FISCO)**
  - Highest levels of operational safety in hazardous areas
  - Fully live-workable IS circuits throughout the FOUNDATION™ field network
- **Performance and online diagnostics.**
- **Control in the field device (valve)**
- **Pre-assembled FF Junction Boxes for devices.**
- **Surge protection for the network trunk.**
- **Spur short-circuit protection in the wiring hub.**

**Benefits of FOUNDATION Fieldbus in FPSO**

<table>
<thead>
<tr>
<th>Fieldbus</th>
<th>Conventional</th>
</tr>
</thead>
<tbody>
<tr>
<td>191 instruments</td>
<td>191 instruments</td>
</tr>
<tr>
<td>24,000 feet of wire</td>
<td>1,500,000 feet of wire</td>
</tr>
<tr>
<td>22 homeruns</td>
<td>191 homeruns</td>
</tr>
<tr>
<td>Costs:</td>
<td>Costs:</td>
</tr>
<tr>
<td>Wire - $18,400</td>
<td>Wire - $301,000</td>
</tr>
<tr>
<td>Wiring blocks – $19,100</td>
<td>Marshaling - ?</td>
</tr>
<tr>
<td>Connectors – $17,400</td>
<td>Junction Boxes - ?</td>
</tr>
<tr>
<td>Miscellaneous – $7300</td>
<td>Miscellaneous - ?</td>
</tr>
<tr>
<td>TOTAL - $62,200</td>
<td>TOTAL - &gt; $301,000</td>
</tr>
</tbody>
</table>

The Integrated Control and Safety System (ICSS) includes DCS oriented Integrated Production Control System, Safety Instrumented System (SIS) and integrated information system.

The ICSS provides a single interface for operators to start, control, and monitor all facilities from a central control room (CCR).

Fieldbus architecture fits well with modular construction approach of FPSOs.
Business Case

- Fieldbus control strategies are able to **lower capital costs**
- Systems can be extended or altered ‘hot’, reducing down-time

- **Self-safety** techniques built into devices
- Easily extended systems with ‘plug and play’ devices

- Lower capital costs
- Reduce installation costs
- Decrease time-to-market
- Decrease operating expenses
- Reduce maintenance requirements
• According to ARC, the installed base of process automation systems reaching the end of their useful life is $65 billion. Most of these are 20 years old or older.

• FOUNDATION Fieldbus is being chosen by more major end users as they begin to modernize their installed base.

• Users want to avoid a functional replacement.

Nobody Wants to Replace this with “More of the Same”
FOUNDATION for Remote Operations Management

REMOTE OPERATIONS MANAGEMENT
Our Future Direction: Helping Users Realize Foundation™ Benefits

- **See**
  - Your Process in High Definition

- **Manage**
  - Information in Real Time with a Standard Infrastructure

- **Optimize**
  - People Processes Technology

Registered Devices
Registered Hosts
Development Tools
Certified Training
Solution Providers
End User Best Practices

Foundation for Operational Excellence
See Your Process in High Definition

- Diagnostic Data from FOUNDATION Fieldbus Devices is Miles Ahead of Other Technologies
- Incorporation of NAMUR NE 107 Diagnostics
- Transmission of multiple process variables
- User layer!
- Physical layer diagnostics
- Distinguishing Device Problems from Process Problems
The old Remote Operations Management Model

- Systems collect historical data
- End users analyze the data using their tools and their intellect
- End user make decisions about the future based on their conclusions and historical data
- Steady state environment
- “Coordination comes from a central location in a rigid, hierarchical fashion”: ARC Advisory Group
- Hard wired
- Large degree of customization is often the case
- Run to failure
Introducing FOUNDATION for Remote Operations Management

- Provides a wireless and wired infrastructure for remote assets and applications, all within FOUNDATION fieldbus
- Integrates Wired Infrastructure, Remote I/O, ISA100.11a and WirelessHART®
- Incorporate remote operations data into FOUNDATION Fieldbus infrastructure for data management with direct access to device diagnostics
- FOUNDATION for ROM has the potential to transform remote operations, providing greater reliability and reduced costs.
Application Example

Control Room

Remote Process

Wireless Backhaul Enables Access To Remote Sensors Using Standard Wireless Technologies

HSE Wired and Wireless Backhaul

FOUNDATION for ROM Device

I/O

H1

HART

Wireless
What are FOUNDATION for ROM Products?

- More than a simple protocol translation gateway
- Capability Can be Embedded into Existing RTUs, Controllers, etc.
- Will be Tested & Registered with Fieldbus Foundation
The Business Value of FOUNDATION for ROM for End Users

- Enables real time operations management and more effective use of remote experts
- Enables Predictive Maintenance Strategy
- Fewer Personnel
- Reduced engineering and operational costs
- Familiar & comprehensible to a good DCS engineer
- Highly configurable
- Increased Reliability & Availability
- Open and Interoperable Standard
- Less Customization
- Greener

Source: Aramco
FOUNDATION for ROM Device Consolidates Diagnostic Data from Different Networks….
And Transmits That Data Across the Wired or Wireless Backhaul to a Central Location/s

HSE Wireless Backhaul

Host System
Central Control Room
Remote Monitoring Station
Etc.
Device Diagnostics Example

- **Failure**
- **Function Check**
- **Out of Specification**
- **Maintenance Required**

- **Device Memory Error**
- **Device Internal Temperature High**
- **Calibration Has Drifted**
- **Plugged Impulse line**

**H1 + HSE**
Managing Diagnostic Data from Multiple Networks in a Single Infrastructure

• Easier audit trail and reporting
• Data is time-stamped
• FOUNDATION Fieldbus devices can indicate data quality -- whether signals communicating setpoints, PVs, etc. have good, bad or uncertain quality.
• Structured data and data quality means improved handling of failures when one does happen.
• Failure is alarmed, handled by control algorithm
### NAMUR NE 107 Diagnostics Capability

<table>
<thead>
<tr>
<th>Status signal</th>
<th>Color</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal; valid output signal</td>
<td><img src="#" alt="Green" /></td>
<td><img src="#" alt="Green" /></td>
</tr>
<tr>
<td>Maintenance required; still valid output signal</td>
<td><img src="#" alt="Blue" /></td>
<td><img src="#" alt="Maintenance" /></td>
</tr>
<tr>
<td>Out of specification; signal out of the specified range</td>
<td><img src="#" alt="Yellow" /></td>
<td><img src="#" alt="Warning" /></td>
</tr>
<tr>
<td>Function check; temporary non-valid output signal</td>
<td><img src="#" alt="Orange" /></td>
<td><img src="#" alt="Function Check" /></td>
</tr>
<tr>
<td>Failure; non-valid output signal</td>
<td><img src="#" alt="Red" /></td>
<td><img src="#" alt="Failure" /></td>
</tr>
</tbody>
</table>
A Single Environment for Information in Context & Data Quality

Remote Processes

- Maintenance
- Process Control
- Fire & Gas Detection
- Custody Transfer
- Machinery Health Monitoring
- Safety Interlocks
- Engineering

Data Management & Quality
An Open Standard for Remote Operations Management

- FOUNDATION Technology is a Standard. Standards Promote Choices
- Administered by an Open Foundation, Vendor Neutral
- Products are Tested and Registered
- Standards Based Solutions are More Easily Replicated and Administered
Application Examples: Oil and Gas Fields

- Enables Integrated Operations

Source: CAP Gemini
Application Examples: Pipelines

- API Monitoring, Custody Transfer

Source: Moxa
Application Examples: Tank Farms

- Overfill Protection, Integration of Fire & Gas Detection
Application Examples: Mining, Hydro Fracking

- Coordination of widely dispersed automation assets
- Oil sands
- Concentrating data from multiple wellheads
- Smaller environmental footprint
Application Examples: Pharma

- Faster Integration of Multiple Skid Mounted Mobile Units
- Faster Commissioning
- Easier Validation
- Reduced Cost to Both End User and OEM

**FOUNDATION Fieldbus Instrumentation on a Skid Mounted Fermenter**
*Source: PharmaManufacturing.com*
## Technical Specification Development Program

### Basic Control
- Analog Input
- Analog Output
- Bias & Gain
- Control Selector
- Discrete Input
- Discrete Output
- Manual Loader
- PD Control
- PID Control
- Ratio Control

### Advanced Control
- Analog Alarm
- Arithmetic
- Deadtime
- Device Control
- 8 Channel Discrete Input/Output
- Flexible Function Block
- Input Selector
- Integrator
- Lead/Lag
- Setpoint Ramp Generator
- Signal Characterizer
- Splitter
- Timer

### Remote Operations Management
- Large Point Count Remote Devices
- 64 Channel Discrete Input/Output
- 16 Channel Analog Input/Output
- Wired HART® Connectivity
- Wireless Connectivity
  - Wireless HSE Backhaul
  - Wireless Field Devices
  - *WirelessHART®
  - ISA100.11a

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**NEW**
FOUNDATION for ROM Development Phases
FOUNDATION for ROM Development Teams

HSE Remote I/O
HSE-RIO Team

- Large Point Count Device
- Multi-channel I/O
- Wired HART Block

Fieldbus Foundation – ISA Cooperation
ISA100.15 Working Group

Wireless HSE Backhaul

FOUNDATION for ROM Device

Conventional I/O

Wired HART

H1

WirelessHART

ISA100.11a

Wireless Sensor Integration Team
**Configuration**
1. User configures Expected Tags in Association Block
2. ROM Device instantiates appropriate Transducer Blocks
   e.g. RIO, HART, WirelessHART, ISA100.11a
3. ROM Device changes TB Tag to Expected Tag
4. TB are connected to FBs.
5. FB links and device diagnostics are configured

**Operation**
- Real-time process data published as configured
  - Control
  - HMI
  - Asset Management
- Device diagnostics are reported as configured
  - Control
  - HMI
  - Asset Management
  - Maintenance

---

**Foundation for ROM Development – HSE RIO**

- **Association Block (AB)**
  - AB_001; Expd_Tag=TIC_334
  - AB_002; Expd_Tag=TIC_335
  - AB_003; Expd_Tag=TIC_336
  - AB_nnn; Expd_Tag=TIC_nnn

- **TB Tag = “TIC_336”**

- **FB Tag = “Tank_1”**

- **Data + Status**
  - Device Diagnostics

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Fieldbus Foundation
End User Seminar
HCMC, Vietnam
June 12, 2012
Device Diagnostics

- Utilizes advanced diagnostic capabilities of intelligent devices
- 4 standard “status signals” categories are available
- Mapping of diagnostics in status signals configurable by user
- Enables condition-based maintenance – automatic work orders
- Optimizes maintenance functions
- Detailed information available on demand
Media Day Demo December 2011 Lee College, Baytown Texas
Specification Development Timeline

2008
✓ Draft Preliminary Specifications – Conventional I/O, HART, WirelessHART

2009
✓ Wireless Backhaul Networking Team Kickoff
✓ Validation Team Kickoff Meeting
✓ First Laboratory Prototypes – Conventional I/O

2010
✓ First Laboratory Prototypes – HART
✓ First Laboratory Prototypes – Wireless Backhaul
✓ First Laboratory Prototypes - WirelessHART
✓ ISA100.11a Development Team Kickoff
✓ Preliminary Specifications – Conventional I/O

2011
✓ Final Specifications – Conventional I/O
✓ Preliminary Specifications – Wired and WirelessHART
✓ Wireless Backhaul Architecture Model Approval by ISA100.15
✓ FOUNDATION for ROM Media Event at Lee College

2012
✓ FOUNDATION for ROM Demo Working Group Kickoff
✓ Final Specifications - Wired and WirelessHART
✓ ISA100.11a Draft Preliminary Specification
✓ FOUNDATION for ROM Media Event at Jemima - Japan
Live Field Demos Being Planned Starting in 2013

- Petrobras
- Reliance Refining
- Saudi Aramco
- Two more sites to be identified
**Supplier Sponsors for Field Demos**

<table>
<thead>
<tr>
<th>Company Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Process Automation Technologies (APAT)</td>
</tr>
<tr>
<td>Azbil (Yamatake)</td>
</tr>
<tr>
<td>BEKA Associates</td>
</tr>
<tr>
<td>Emerson Process Management</td>
</tr>
<tr>
<td>Festo Brasil Ltda.</td>
</tr>
<tr>
<td>MTL</td>
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<tr>
<td>Phoenix Contact</td>
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<tr>
<td>Reliance Jamnagar</td>
</tr>
<tr>
<td>R. STAHL Schaltgerate GmbH</td>
</tr>
<tr>
<td>Smar International Corporation</td>
</tr>
<tr>
<td>Westlock Controls Corporation</td>
</tr>
<tr>
<td>Yokogawa Electric Corporation</td>
</tr>
</tbody>
</table>
FDI Cooperation LLC
With the Device Integration, a Host can get access (from a central location) to the Device functions and information. With devices getting more complex, the device integration becomes a must.
A Common Approach
FDI is supported by Manufacturers and Foundations

- ABB
- Emerson
- Endress + Hauser
- Honeywell
- Invensys
- Siemens
- Yokogawa
- FDT Group
- Fieldbus Foundation
- HART Communication Foundation
- OPC Foundation
- PROFIBUS/PROFINET International
Typical architecture and EDDL

EDDL enables the device specific interaction between an engineering station and field devices.

EDDL is a descriptive technology.

Host systems interpret the EDDL file contents and provide according human interfaces.
Device Access beyond hierarchies

Ethernet (Plant Level)
- Back-Up Maintenance Quality
- ERP
- MES

Router

Ethernet (Cell Level)
- Machine
- On site Maintenance

Ethernet (Cell Level)
- Machine
- Machine

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FDI Cooperation LLC

- Founded 26 Sept 2011
- Three year lifetime
- FDI Specifications
- IEC Standardization

Common FDI Tools

- EDD Engine
- UI Engine
- Integrated Development Environment
- Field Device Test Tools
- Host System Test Tools
FDI Cooperation Principles

- Features based on Use Cases and Requirements
- Harmonized EDDL
- Host System Independent
- Support FOUNDATION fieldbus, HART, PROFIBUS and PROFINET
- Open to other industrial networks
- Support Nested communications through heterogeneous networks
- Support Information exchange between FDI Host and generic OPC UA Client
- FDI Packages must be compatible with FDT2.0+
Target: A single Device Driver

FDI Device Package Standard

- Device Definition (Parameters)
- Business logic (Rules)
- User Interface (Structure)
- User Interface Plugin
- Device Applications
- Product Manuals
- Images
- Electronic Certifications
- Protocol specific Files (CFF)
- Integrity
- Authenticity

Electronic Device Description Language (EDDL)
Microsoft .NET/WPF for Workstation Platform

Defined File Name Convention
e.g. acme.5930pressure.1.0.0.foundation_h1.fdlx

WPF: Windows Presentation Foundation
Fieldbus Foundation Tool Migration

DD Services

FDI Engine
- EDD Engine Built on DD Services
- Includes UI Engine components
- Supports legacy DD formats

FDI DD IDE
- Licensed per technology
- Based on Eclipse
- Supports legacy DD formats
- Package Builder
- Integrated Package Test Tool

DD Integrated Development Environment (IDE)

WPF: Windows Presentation Foundation
Generic FDI Architecture

Within FDI (e.g. Within the Device Package) may be used only the harmonized EDDL

- **FDI Standard**
- **Device Package Development**
- **Certification/Registration**
- **Control System**

**Standard**
- FDI
- Harmonized EDDL (IEC 61804-3)
- PROFIBUS
- Foundation Fieldbus
- HART
- UIP

**Device Package Development**
- Foundation Fieldbus HART Harmonized EDDL (IEC 61804-3)
- PROFIBUS
- UIP

**Certification/Registration**
- EDD
- UIP

**Control System**
- FDI Client
  - UID
  - UIP
- OPC UA
- FDI Server
  - EDD Engine
- OPC UA
- Comm. Server
IEC Standardization

May 2011:
- DKE K956 has agreed to start FDI standardization and has sent New work item Proposal (NP) to IEC

July 2011:
- IEC has sent out NP to worldwide national committees

October 2011:
- Unanimous agreement by national committees of IEC
- Experts from 6 countries available
- IEC SC65E/WG7 will be responsible for FDI

Beginning of 2012
- Committee Draft (CD) will be available

2014
- Publication of IEC standard
FOUNDATION™ for Safety Instrumented Functions (SIF)
SIF End User Demonstration Participants

End User Demonstration Sites
- BP – Gelsenkirchen, Germany – Honeywell Logic Solver
- Chevron – Houston, TX – Emerson Logic Solver
- Saudi Aramco – Dhahran – Triconex Logic Solver and Yokogawa Logic Solver
- Shell Global Solutions – Amsterdam – HIMA Logic Solver

Other Providers
- Fieldbus Diagnostics
- Risknowlogy
- RuggedCom
- Softing
- TÜV Rheinland
- TÜV SÜD

Logic Solver Components
- Emerson
- HIMA
- Honeywell
- Invensys - Triconex
- Yokogawa

Equipment and Systems
- Logic Solver Engineering Workstation
- Asset Management
- Basic Process Control System
- Valve
- BIFFI
- Emerson
- Westlock
- Azbil

SIF Protocol
- H1 Network
- Moore
- MTL
- P+F

Monitoring
- Logic Solver
- Level
- Pres
- Temp
- Smar
- Siemens Milltronics
- ABB
- E+H
- Yokogawa
Control Valve Stroke Test (Partial Stroke Test)
Fieldbus Foundation Social Media Strategy

On Line Today

http://www.youtube.com/user/FieldbusFoundation

http://twitter.com/#!/FOUNDATIONField

http://www.linkedin.com/groups/Fieldbus-Foundation

http://twitter.com/#!/FOUNDATIONField

http://foundationfieldbus.blogspot.com/
Thank You