Field Communication Insider

Control reader, Field Communication Insider is an e-newsletter featuring the latest news and developments in the application of HART, FOUNDATION Fieldbus and FDI technology around the world. To ensure that you continue to receive Field Communication Insider, please add pstudebaker@putman.net to your address book and subscribe here.

Phoenix Contact Fieldbus Diagnostics Module

If you have space for a deck of cards in FOUNDATION Fieldbus junction box, then Phoenix Contact has the Fieldbus Diagnostics Module (FDM) to keep constant watch of your installation. The FB DIAG/FF/LI product offers all standard physical layer diagnostics and supports NAMUR NE 107. No software license required, and installation is easy with just a three wire connection. Your host system identifies the module at power up. Learn more.

FieldComm Group Holds Successful 2017 General Assembly

Held Oct. 16-20 at the Hilton Long Beach Hotel, the event focused on the latest developments in HART, WirelessHART, FOUNDATION Fieldbus, and FDI technologies. Read more.

Plant of the Year Award Goes to Shell Prelude

Annual award recognizes the people, companies and plant sites around the world that are using the advanced capabilities of FOUNDATION Fieldbus, HART and WirelessHART technology in real-time applications for improved operations, maintenance and asset productivity. Read more.

New Video Describes Field Device Integration from A to Z

Presented in an engaging and easy-to-understand “whiteboard” style, the video helps viewers understand the basic principles of this key automation industry standard. Read more.

FDI Named Best Technology at Mumbai Automation Expo

Selected by a prominent judging panel of industry executives and experts, FDI was chosen as the award winner from a pool of more than 500 exhibitors. Read more.

Updated FDI Specifications and Tools Now Available
Version 1.1 of the FDI Technical Specifications and Version 1.2.1 of the FDI Development Tools allow suppliers to develop a broader range of products with fewer tools and better capabilities. Read more.

Latest Registered FOUNDATION Fieldbus and HART Products
The number of FOUNDATION Fieldbus and HART products registered by the FieldComm Group continues to grow. Read more.

WirelessHART: Advantages for New Installations
For plants with existing wired and wireless infrastructure, the choice hinges on a straight comparison of the two technologies and the application of the solution that makes sense. Read more.

New product news you might be interested in:

- FCI Offers HART Compact Thermal Flow Meters
- Moore Industries Provides Smart HART Temperature Transmitters
- ProComSol Delivers Mobile HART Communicator iOS App
- Yokogawa Announces New Magnetic Flowmeter Series

People for Process Automation
Endress+Hauser is a leading supplier of industrial measurement and automation equipment. It has a comprehensive FOUNDATION Fieldbus and HART instrument portfolio covering flow, level, pressure, analysis and temperature as well as system components. Endress+Hauser supports FDI, which is expected to become the leading integration technology for process automation in the future. Solutions and field-based services around field network engineering, asset management, calibration and maintenance ensure that your plant is quickly commissioned and operates reliably, safely and cost effectively. Learn more.

Upcoming Events

North America
ARC Industry Forum
Orlando, Florida
Feb. 12-15, 2018
» More Information
Europe, Middle East, Africa (EMEA)

2018 events to be announced

Asia Pacific

End User Seminar

Seoul, Korea
December 2017

» More Information

2018 events to be announced

India

FieldComm Group Working Group Meeting

Bangalore
Feb. 19-23, 2018

» More Information

SPONSORS
FieldComm Group Holds Successful 2017 General Assembly

Held Oct. 16-20 at the Hilton Long Beach Hotel, the event focused on the latest developments in HART, WirelessHART, FOUNDATION Fieldbus, and FDI technologies.

By FieldComm Group

Nov 25, 2017

Members of the global industrial automation industry converged on Long Beach, California, to take part in FieldComm Group's 2017 General Assembly. Held October 16-20 at the Hilton Long Beach Hotel, the event focused on the latest developments in HART, WirelessHART, FOUNDATION Fieldbus, and FDI technologies.

This year’s General Assembly was comprised of four separate activities:

1. End User Seminar (Oct. 16) - FieldComm Day Event
2. Annual Business Meeting (Oct. 17) - Member-only Meeting on FieldComm Group Business Affairs (including financials and board elections)
4. Board of Directors Meeting (Oct. 19) - Closed meeting of the Board Members of FieldComm Group
The General Assembly attracted more than 200 attendees and featured a tabletop exhibition of the latest products from the world’s major automation equipment suppliers. Representations from leading end-user companies were also on-hand for the event.

Based on the theme “Engage Today to Empower Tomorrow,” the General Assembly’s FieldComm Day End User Seminar addressed the state of digital transformation in the industrial sector. Leading experts looked at current automation technology advancements, including implementation of FOUNDATION Fieldbus- and HART-based solutions for process plant operations.

The End Users Seminar began with an address by FieldComm Group President and CEO Ted Masters. His presentation, entitled “Instruments, Systems, and Protocols in the Age of the IIoT,” examined the importance of having well-trained personnel that can take advantage of existing plant capabilities today to empower the workforce and plant as a whole to lead the industry tomorrow. Masters described how digital technology augments, but cannot replace an invested and capable workforce.

Other seminar presentations included:

Alex Kaiser, Head of Product Management, CodeWrights – “NAMUR Open Architecture – Embracing the future, while respecting the past”

Sean Vincent, Director of Technical Services, FieldComm Group – “What’s in a Checkmark? Value of Registered Products”

Achim Laubenstein, Director of FDI Technology; and Nick Garrett, Marketing Project Manager, FieldComm Group – “Simplifying Device Integration with FDI”
Mike Clark, Director, BusCorp Inc. –  
“Plant Reliability and the Smart Instrument Paradox”

Martin Zielinski, Director of HART and Fieldbus Technology, Emerson Automation Solutions –  
“Embracing High Speed & Emerging Standards”

Stephen Mitschke, Programs Director, FieldComm Group; and Marcos Peluso, Distinguished Technologist, Emerson Process Management –  
“Usability Enhancements Simplify Configuration”

Talon Petty, Marketing & Business Development Manager, FieldComm Group –  
“2017 Plant of the Year Winner Illustrates Technology Value”

The Technical Working Group meeting enabled marketing and technical professionals to review the strategic direction of FieldComm Group. The gathering helped build consensus on protecting the technology investments made by automation end users and suppliers.

For more information, please visit the FieldComm Group website.
Plant of the Year Award Goes to Shell Prelude

Annual award recognizes the people, companies and plant sites around the world that are using the advanced capabilities of FOUNDATION Fieldbus, HART and WirelessHART technology in real-time applications for improved operations, maintenance and asset productivity.

By FieldComm Group

Nov 25, 2017

FieldComm Group has named the Shell Prelude Floating Liquefied Natural Gas (FLNG) plant/ship of Royal Dutch Shell as its 2017 Plant of the Year. This annual award recognizes the people, companies and plant sites around the world that are using the advanced capabilities of FOUNDATION Fieldbus, HART and WirelessHART technology in real-time applications for improved operations, maintenance and asset productivity.

This is the second Plant of the Year award presented to a Shell facility; the citation was given to Shell Scotford, Alberta, Canada, in 2011.

The Shell Prelude FLNG is scheduled to begin regular operations off the coast of Australia in 2018. The 488m x 71m vessel's 14 production facilities, rising eight stories above the deck, will extract and process for transport about 3.6 million tons per year (Mtpa) of liquefied natural gas (LNG) during its 25-year lifespan.

Shell Prelude FLNG’s process applications employ:

- More than 8,000 FOUNDATION Fieldbus devices, including 2,500 valve positioners, located on all control and monitoring devices, and connected only to the DCS;
- More than 4,500 HART devices connected to the DCS and PLCs via HART multiplexers, and used predominantly on devices connected to safety instrumented systems (SIS) and fire and gas (F&G) systems;
- WirelessHART on some specific applications.
The use of the advanced diagnostics and rationalized device alerts has enabled predictive and targeted maintenance execution on the Shell vessel. While still in a start-up phase, Prelude is operating vast amounts of utility and marine systems, and the benefits of an intelligent instrument management system are already being realized.

At the height of recent commissioning efforts, Prelude's staff was performing more than 500 loop checks per week, and checking multiple streams of complex functions. The vessel's utilities plant was also running 24/7, which made maintenance challenging. Thanks to using templates for its parameters, Prelude's staff and contractors achieved:

- Total time savings of 80% for device commissioning and loop checking across all devices using device templates;
- Time savings for the valve positioner loop check procedure was more than 80% for the full loop test;
- Tested all device types during the factory acceptance test (FAT) in less than three days, compared to previous test using traditional methods, which took more than two days to test just three device types; and,
- Human error during the FAT was quickly identified allowing for fast correction

"In a nutshell, proactive maintenance was embedded from Day 1 on this project, rather than adding it as a work process on a running facilities," explained Rong Gul, senior automation engineer and subject matter expert (SME) for smart instrumentation and instrument asset management with Shell Global Solutions. "FAT preparation and testing, training, templating, selection of smart instrumentation, rigid work processes, and a management and maintenance organization firmly supporting the technology are mandatory to make proactive maintenance succeed."

Previous Plant of the Year award recipients include: Nucor Steel (USA), Dow Chemical (USA), Monsanto (USA), Shell (Canada), MOL (Hungary), Mitsubishi Chemical (Japan), PVSDA (Venezuela), Statoil (Norway), Sasol Solvents (South Africa), BP (USA), Clariant (Germany), and DuPont (USA).

To read more about Shell Prelude or articles on previous award winners, please visit the FieldComm Group website.
A new video produced by FieldComm Group answers the question, “What is Field Device integration (FDI)?” Presented in an engaging and easy-to-understand “whiteboard” style, the video helps viewers understand the basic principles of this key automation industry standard.

FieldComm Group’s Director of Marketing, Paul Sereiko, narrates the FDI video. He addresses important topics such as:

- Device and system integration
- FDI Device packages
- FDI Host systems
- FDI/OPC UA interface
- IIoT/Industry 4.0 applications
- Digital transformation of process plants
In 2011, a non-profit organization, the FDI Cooperation LLC, was created to manage the standardization process for a converged device integration technology. In 2015, after being standardized as IEC 62769-1, the FDI Cooperation transferred ownership, management and enhancement of the standard to FieldComm Group and PROFINET International.

FieldComm Group’s mission is to drive adoption of FDI technology to become the global standard for field device integration, independent of underlying device protocols. FDI brings standardization to the packaging and distribution of all the software and tools necessary to integrate a device with a host system.

All of the major host system suppliers and instrument vendors representing nearly 80% of field instrument supply have licensed technology development kits for FDI. This activity and support provides confidence to end-users that FDI technology will be supported worldwide.

FDI project is a prime example of how users, manufacturers, and user organizations can trustfully and successfully communicate and cooperate. FDI will significantly simplify the integration task in process industries. And this cooperation will become even more relevant in the context of Industry 4.0.

To view the FDI video, please visit the FieldComm Group YouTube page.
FDI Named Best Technology at Mumbai Automation Expo

Selected by a prominent judging panel of industry executives and experts, FDI was chosen as the award winner from a pool of over 500 exhibitors.

By FieldComm Group

Nov 25, 2017

FieldComm Group’s field device integration technology standard, FDI, received the Best Technology Booth award at the Mumbai Automation Expo 2017. Now in its 12th year, Automation Expo is the largest automation focused exhibition in India, drawing over 500 exhibitors from 25 countries.

Selected by a prominent judging panel of industry executives and experts, FDI was chosen as the award winner from a pool of over 500 exhibitors. While announcing the award, Mr. B.R. Mehta, Senior Vice President of Reliance Industries, stated, “In the future we will no longer need to worry about the protocol that we use on the plant floor because FDI will enable simplified integration of all protocols to DCS, asset management, and mobile systems.”

Ted Masters, President of FieldComm Group, said, “FDI enables a seamless evolution from existing device description languages to a new standard, which adds capability and radically simplifies getting field device data into hosts and the cloud. We are thrilled to receive recognition by a panel of industry executives and experts from the Automation Fair for this exciting new technology.”

For more information about FDI, please visit the FieldComm Group website.
Updated FDI Specifications and Tools Now Available

Version 1.1 of the FDI Technical Specifications and Version 1.2.1 of the FDI Development Tools allow suppliers to develop a broader range of products with fewer tools and better capabilities, while enhancing security and integration capability for their customers.

FieldComm Group has announced the availability of Version 1.1 of the FDI Technical Specifications and Version 1.2.1 of the FDI Development Tools. These specifications and tools allow suppliers to develop a broader range of products with fewer tools and better capabilities, while enhancing security and integration capability for their customers.

FDI solves the problem of integrating field devices with the multitude of networks, operating systems, and control systems used in the process industries. Leading process industry foundations, including FieldComm Group, PROFIBUS International, and the OPC Foundation, jointly developed the standard.

The updated FDI developer resources provide an additional step forward on unifying devices and systems on a single integration standard to fulfill the promise of “One Device. One Package. All Tools.” The enhanced technology bundle includes: FDI Technical Specifications, FDI Integrated Development Environment, and FDI Common Host Components. The features provided in these updates include:

- **Cyber Security Updates** – includes UIP sandboxing and time stamping for device package signatures
- **Additional Protocol Support** – includes ISA100.11a, and HART-IP and WirelessHART
- **Generic Protocol Extension** – enables FDI extensibility to any protocol
- **Support for DD Development within FDI IDE** – includes FOUNDATION Fieldbus and HART
The FDI specification update provides additional cyber security measures by enabling time stamping on FDI Device Package signatures and sandbox environments for UIPs. Sandboxing is not only a valuable tool for cyber security, but also for overall system integrity as it isolates third-party code to a tightly controlled set of resources in a system to ensure no bugs in software code can impact the performance of the overall system it is operating within. Both additional features serve to ensure FDI meets the stringent security requirements of plant operations in the era of the Industrial Internet of Things (IIoT).

Additionally, support is now provided for three additional protocol profiles – ISA100.11a, HART-IP and WirelessHART, and Generic Protocol Extension. The tools are also capable of creating and testing standalone EDDs for HART and FOUNDATION Fieldbus, thus allowing manufacturers to develop the widely used EDD technology in the same development environment as modern FDI Device Packages. This reduces software maintenance costs and engineering training costs associated with disparate technology development tools.

Achim Laubenstein, FieldComm Group’s director of integration technology, said, “The FDI Technology bundle version 1.1 of our specifications and 1.2.1 of our tools represent continued hard work by technical experts around the world who are creating more robust, user-oriented capabilities that exceed the rigorous demands of plant environments faced with modernizing installations without compromising security or reliability.”

He added, “FDI broadly integrates systems and instruments, while providing robustness and security to the enterprise.”

For more information about FDI, please visit the FieldComm Group website.
# Latest Registered FOUNDATION Fieldbus and HART Products

By FieldComm Group  
Nov 25, 2017

## New Registered Devices

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<td>Logix 3820</td>
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<td>FOUNDATION</td>
<td>Flowserve Corporation</td>
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<td>Smart Transmitter with HART modem IC (DAC8740H)</td>
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**Updated Registered Devices**

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<td>HART</td>
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<td>Flowmeter</td>
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<td>HART</td>
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<td>Micro Motion</td>
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<tr>
<td>HART</td>
<td>Micro Motion</td>
<td>Coriolis Transmitter</td>
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<tr>
<td>HART</td>
<td>VEGA-Grieshaber</td>
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<td>VEGAPULS 64</td>
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## Updated Electronic Device Description (EDD)

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<td>Flowserve Corporation</td>
<td>Positioner</td>
<td>Logix 3400MD</td>
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</table>
Today, automation professionals in a process plant have a choice to make for new installations: wired or wireless? For plants with existing wired and wireless infrastructure, the choice hinges on a straight comparison of the two technologies and the application of the solution that makes sense.

The International Electrotechnical Commission (IEC) approved WirelessHART in March 2010 as IEC 62591, and ISA-100 was approved in September 2014 as IEC 62734. For the purposes of this article, wireless refers only to wireless sensor systems, and not to other wireless technologies such as 802.11 Wi-Fi.

WirelessHART is a self-organizing mesh technology in which field devices form robust wireless networks to dynamically mitigate obstacles in the process environment. Other wireless technologies employ similar strategies, with varying degrees of effectiveness.

Wireless technologies do not require communication wiring and related infrastructure. Some wireless devices require power wiring, but the vast majority of deployments utilize battery power, and thus operate completely without wires. Wireless networks communicate data back to host systems securely and reliably, and can be applied to both control and monitoring applications.
A WirelessHART installation requires, first of all, a wireless instrument transmitting data according to the IEC 62591 WirelessHART standard. If a transmitter does not have WirelessHART, a wireless adapter can be installed on most existing two- or four-wire devices.

With WirelessHART, each wireless device transmits to a gateway managing a specific wireless field network. Typically, the gateway is assigned to a process unit. Each gateway manages its own wireless field network and can have an assigned HART tag like any HART device. Each wireless field network in a plant has a unique network ID to prevent devices from attempting to join the wrong network.

WirelessHART devices can communicate through each other to send messages to the gateway, forming a self-organizing “mesh.” The mesh extends the range of a device beyond that of its own radio. For example, a wireless device may be several hundred feet away from the gateway with obstacles between, but power-efficient “hops” through neighboring devices closer to the gateway ensure a reliable, extended range. The gateway connects to the DCS via a wired or wireless high-speed link, typically Ethernet.

The chief advantage of wireless systems is that they can be installed virtually anywhere in an efficient, timely, and cost-effective manner. Battery-powered transmitters require no wired infrastructure or local power supply, so they can be far away from a process unit’s wired fieldbus and power wiring. They can also be installed in locations where supplying power and cabling would be too expensive or hazardous. This flexibility means that there are benefits to using wireless in both Greenfield capital projects and existing Brownfield facilities.

Greenfield capital projects typically want to make 10 to 20 percent of traditionally wired signals wireless. Engineering, procurement, and construction contractors and plant owners see strategically incorporating wireless as beneficial in terms of reducing physical fixed infrastructure. They also use wireless technology to manage schedule risk and cost escalation/containment and to reduce space requirements and weight.

Wireless can reduce schedule and cost impacts because there is always the potential for scope creep and additional I/O as projects progress. The later in the project a change comes, the greater the risk of jeopardizing the project schedule and budget. Wireless can usually accommodate these changes better than fieldbus.

Quite often, additional measurements are eliminated from the design of a new or retrofit project because those signals are deemed too costly to implement during the capital expenditure phase of a project. If those measurements are needed later, adding wired instrumentation can be much more costly than wireless solutions. On these types of Brownfield projects, wireless solutions are a good way of supporting operational excellence programs to improve plant productivity and reliability and compliance to emerging environmental and safety legislation.

A plantwide wireless network can be installed with minimal disruption to fixed infrastructure such as wiring, conduits, and cable trays. For example, a major chemical company in Europe implemented a plantwide wireless infrastructure to enable operational expenditure programs. The first application was an energy project to monitor steam traps. The company installed wireless acoustic transmitters to listen for acoustic signatures and monitor temperature—both
vital signs related to steam trap operation. The steam trap monitors took only two days to install, and they generated a complete return on investment (ROI) in six weeks through detection and remediation of previously unknown losses.

In another application, a global contractor reported that adopting wireless solutions cut commissioning time by 50 percent. It also streamlined the design and engineering process, saving 10 hours per measurement point. Using wireless helped them maintain the project schedule and improved their ability to manage change on the project.

A third leading wireless application is fixed asset inspections per IEC 60079 Part 17, which requires plants to continuously monitor electrical equipment in hazardous areas. This directive obliges maintenance personnel to manually check instrument cable glands, cables, terminal field junction boxes, safety barriers, trunking, ducting, pipes, and conduit for leaks, corrosion, tightness, and similar problems. Wireless transmitters do not require wired infrastructure, thus eliminating this costly maintenance task.

The low-power nature of WirelessHART devices allows them to operate for several years without replacing the battery. Configurable update rates conserve battery life by choosing the most appropriate rate for a particular application, typically within a range of 1 second to 1 hour. Most applications today are “monitoring” and therefore only need infrequent updates. WirelessHART transmitters can in certain circumstances be used in real-time control applications, but this requires higher update rates, in some cases necessitating wired power.

Many projects have a very attractive ROI when using wireless due to the elimination of installation and maintenance costs. In these situations, wireless can quickly deliver an investment payback, with ongoing benefits.

Wireless will become more popular because it can monitor anything, anywhere. Also, it can be easily installed in both new and old plants. Industry-leading process plants will install both wired and wireless infrastructure and use whichever is most efficient and effective in each situation.
FCI Offers HART Compact Thermal Flow Meters

The ST51A, ST75A and ST75AV thermal mass flow meter design combines all new surface-mount, lead-free RoHS compliant electronics with highly accurate, repeatable all-welded, equal-mass flow sensors.

By FieldComm Group

Nov 24, 2017

Fluid Components International’s (FCI) compact thermal flow meter line has been expanded with a new electronics design that features the addition of HART, Version 7 and digital bus communication.

The ST51A, ST75A and ST75AV thermal mass flow meter design combines all new surface-mount, lead-free RoHS compliant electronics with highly accurate, repeatable all-welded, equal-mass flow sensors.

In addition to HART bus communications, standard ST51A, ST75A and ST75AV outputs are dual 4-20 mA that meets NAMUR NE43 and features a 500 Hz pulse. The electronics are housed in an IP67-rated, dual-cable port transmitter enclosure available in aluminum or a new stainless steel version. The transmitter can be mounted directly to the flow sensor or remotely mounted up to 100 feet (30 meters) away.

For more information, visit the FCI website.
Moore Industries Provides Smart HART Temperature Transmitters

These transmitters provide an isolated and linear 4-20mA output proportional to input and configure easily to accept a direct signal input from a wide array of sensors and analog devices.

By FieldComm Group

Nov 24, 2017

The THZ3 and TDZ3 mark the next generation of Smart HART temperature transmitters from Moore Industries. They feature our industry-leading durability and reliability combined with new features that increase usability and functionality including a new dual sensor input.

These transmitters provide an isolated and linear 4-20mA output proportional to input and configure easily to accept a direct signal input from a wide array of sensors and analog devices. You can build custom curves with up to 128 points for non-standard or special inputs.

Dual sensor input means that you get backup and fail-over protection because the transmitters allow either of the sensors or inputs to be designated as the primary measurement and the secondary input acting as a backup sensor in case of primary sensor failure. Unlike other dual input transmitters the THZ3 and TDZ3 offer auto-recovery after a fail-over event by automatically re-designating the new sensor as the PV without operator intervention.

The THZ3 and TDZ3 come with Device Intelligence, a series of features for smarter control and monitoring including sensor drift, corrosion detection, smart range alarms and a high availability option.

For more information, please visit the Moore Industries website.
ProComSol Delivers Mobile HART Communicator iOS App

By FieldComm Group

Nov 24, 2017
A full-featured HART Communicator App for your iPhone or iPad is now available from ProComSol, Ltd. Because the App uses the Device Descriptors (DD) for the connected HART instrument, all instrument parameters including Methods are available to the user. The full DD library is included.

For more information, please visit the ProComSol website.
Yokogawa's new magnetic flowmeter “ADMAG Total Insight” is equipped with diagnostic functions that contribute to preventive maintenance of the plant. And, the “ADMAG TI Verification Tool” provides a health check report via HART protocol.

For more information, please visit the Yokogawa website.