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.

Avoid costly downtime, detect faults early
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NEWS

2017 General Assembly: Automation Industry Stakeholders Converge on Long Beach
This annual event, attended by automation industry experts and end users from across the globe, will offer a valuable opportunity to learn about the latest developments in HART, WirelessHART, FOUNDATION Fieldbus and FDI technologies. Read more.

Survey to Determine Latest Trends in Digital Technology Implementation
The editors of Control are asking end users, system integrators, and original equipment manufacturers (OEMs) about the types of digital protocols they are deploying, the kinds of applications where they are being used, and the challenges encountered in implementing these technologies. Read more.

FieldComm Group to Participate in Smart Industry 2017 Conference
Conference attendees will gain insights into how new industrial technologies and IIoT can help them run operations more efficiently, find unexpected growth opportunities, and gain a competitive advantage. Read more.

Newest Member Company: Digi International
Leading global provider of machine-to-machine (M2M) and Internet of Things (IoT) connectivity products and services, is the newest member of FieldComm Group. Digi is seeking to connect and
collaborate with other member companies that are using HART in their sensors and machines. Read more.

IIoT-based Digitization: FDI and OPC UA Drive Open Information Integration
We explore the ongoing collaboration between FieldComm Group and the OPC Foundation to advance open information integration and enterprise data exchange, as well as how the Field Device Integration and OPC Unified Architecture standards play a key role in IIoT-based digitization. Read more.

Guidelines offer best practices and recommendations for a complete FOUNDATION fieldbus installation, from engineering and design through commissioning, startup, operations, and maintenance. 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.

Enlist today for WirelessHART Bootcamp!
Innovative program will enable enrollees to gain an understanding of topics such as mesh networking basics, WirelessHART system design, WirelessHART and wired systems, network security, and integrating WirelessHART into the organization. Read more.

Application Snapshot: Improving Asset Management
Automation end users are employing the industrial internet of things (IIoT) to realize value from a multitude of wireless sensors throughout their plants. Read more.

New product news you might be interested in:
- Endress+Hauser Offers Analytical Transmitter with Heartbeat Technology
- Endress+Hauser’s 113 GHz: Best Fit Radar Frequency for Every Application
- FCI Provides New Air/Gas Flow Meters for Large Diameter Pipes/Stacks/Ducts
- Moore Industries Delivers Economical and Versatile HIX/HIT HART Isolators
- Moore Industries Safety Isolators Intended for Digital HART Signals
- Yokogawa Announces New Field Device Maintenance Software
- Yokogawa Offers Hygienic Gauge Pressure Transmitter

Connect HART instruments to an FOUNDATION network
Fint is launching its new series of DIN rail-mounted protocol converters — a straightforward and affordable way for system integrators and instrument manufacturers to enter the FOUNDATION Fieldbus arena, either from Modbus or HART. They are easy to set up and you may connect four instruments to each converter. Learn more.

Non-intrusive process temperature measurement

For increased cost-efficiency, Emerson’s Rosemount X-well Technology can cut the cost of each temperature measurement point by 29%. Engineered without thermowells, this non-intrusive solution reduces engineering design time by 65% and installation time by 70%. Easy. Reliable. Accurate. Learn more.

CALENDAR

Upcoming Events

**North America**

**Smart Industry Conference**

Chicago, Illinois USA  
September 2017  
» More Information

**Emerson Exchange**

Minneapolis, Minn., USA  
October 2  
» More Information

**FieldComm Group General Assembly**

Long Beach, Calif., USA  
October 16-20, 2017  
» More Information

**Rockwell Users Group and Automation Fair**

Houston, Texas, USA  
November 13-16, 2017  
» More Information

**Asia Pacific**

**Miconex 2017**

Shanghai, China  
September 26, 2017  
» More Information

**SICE 2017 Annual Conference**

Kanazawa, Japan  
September 19-22, 2017  
» More Information

**End User Seminar**

Bangkok, Thailand  
October 2017  
» More Information

**JEMIMA M&C 2017**

Tokyo, Japan  
November 2017  
» More Information

**End User Seminar**

Seoul, Korea  
December 2017  
» More Information

**Europe, Middle East, Africa (EMEA)**

**Namur Annual General Meeting**
Bad Neuenahr, Germany
October 9-10, 2017
» More Information

SPS IPC Drives

Nuremberg, Germany
November 2017
» More Information

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You received this email because you are subscribed to Field Communication Insider from Putman Media. If you prefer not to receive emails from Putman Media you may unsubscribe or set your email preferences.
Registration is currently open for FieldComm Group’s 2017 General Assembly, to be held October 16-20 at the Hilton Long Beach Hotel in Long Beach, California. This annual event, attended by automation industry experts and end users from across the globe, will offer a valuable opportunity to learn about the latest developments in HART, WirelessHART, FOUNDATION Fieldbus and FDI technologies.

The General Assembly is open to FieldComm Group members and non-members, and is 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)
3. Technical Working Groups (Oct. 17-20) - Technical persons from around the world gather to continue supporting and growing the technologies. This meeting is held of FieldComm Group membership and technology developers.
FieldComm Group President and CEO Ted Masters said, “The 2017 General Assembly will present our organization’s unified vision for digital transformation and a smarter industry. It will provide an opportunity to catch up on the latest innovations in FDI, HART and FOUNDATION Fieldbus technology while sharing experiences with other professionals — allowing attendees to take insights and direction back to run their facilities more efficiently and effectively than ever before.”

FieldComm Group’s General Assembly is attended by automation industry experts and end users from across the globe.

The General Assembly’s FieldComm Day End User Seminar will offer an overview of developments in digital transformation throughout industrial automation. This includes updates by leading experts on the latest technology advancements, as well as presentations by major end users who have installed FOUNDATION Fieldbus- and HART-based solutions in their plant operations.

Technical Working Group meetings occur three times per year and provide an opportunity for marketing and technical professionals to meet over multiple days and contribute to the strategic direction of FieldComm Group.

The 2017 General Assembly’s program reflects the dramatic increase in adoption of digital automation solutions. Leading technology experts from around the world will be on hand, as will FieldComm Group’s board of directors and staff.

*For information on the End User seminar, please visit the FieldComm Group General Assembly End User Seminar Registration page.*

*For information on the Technical Working Group meeting, please visit our Eventbrite Registration page.*
Survey to Determine Latest Trends in Digital Technology Implementation

By FieldComm Group
Sep 13, 2017

Control magazine, a leading publication covering developments in process automation, including current news, successful applications, and the basic skills and knowledge base that provide the profession's foundation, is conducting a survey to determine the latest trends in implementation of digital automation technologies such as FOUNDATION Fieldbus and HART.

The editors of Control are asking end users, system integrators, and original equipment manufacturers (OEMs) about the types of digital protocols they are deploying, the kinds of applications where they are being used, and the challenges encountered in implementing these technologies.

FieldComm Group’s Director of Marketing, Paul Sereiko, commented, “The latest market survey will no doubt provide further evidence of increasing trust in digital automation solutions and the growing number of installed systems. Solutions like FOUNDATION Fieldbus and HART have demonstrated and proven performance globally.”

Sereiko added, “We believe it will be evident when looking at results from this study that the acceptance of FieldComm Group technologies has spread to a wider range of industries and end users, and their lifecycle benefits are becoming more apparent.”

To participate in the Control magazine study, please visit the Survey page.
FieldComm Group will demonstrate how its open standards like FOUNDATION Fieldbus, HART, WirelessHART and FDI (Field Device Integration) help enable the Industrial Internet of Things (IIoT) at the Smart Industry 2017 conference, to be held Monday, September 18, at the Swissotel in Chicago.

FieldComm Group technologies provide the means to connect and integrate digital information — and have for over 20 years. FOUNDATION Fieldbus, HART and WirelessHART devices can be the basis for digitization supporting IIoT initiatives. At the same time, the FDI standard greatly simplifies device integration and takes account of the various tasks over the entire lifecycle for both simple and complex devices, including configuration, commissioning, diagnosis and calibration.

Attendees at the Smart Industry 2017 conference will gain insights into how new industrial technologies and IIoT can help them run operations more efficiently, find unexpected growth opportunities, and gain a competitive advantage.
Leading industry technologists, early manufacturer adopters, and solution providers will be available to answer implementation questions, help devise digitization plans, and provide best practices and strategies.

For more information, please visit the Smart Industry 2017 website.
Digi International, (NASDAQ: DGII), a leading global provider of machine-to-machine (M2M) and Internet of Things (IoT) connectivity products and services, is the newest member of FieldComm Group.

Founded in 1985, Digi connects millions of sensors, valves, and components that make critical infrastructures function. The Minnetonka, MN, company helps customers create next-generation connected products, and deploy and manage critical communications infrastructures in demanding environments with high levels of security, reliability and performance. It provides the essential layer of M2M communications — the remote monitoring and management that critical applications depend on.

Digi introduced the Digi Connect Sensor in 2016. Prior to the launch, the company received feedback that adding the HART communication protocol to its product would greatly enhance its marketing and product value. This includes the ability to report & alarm on sensor health, and not just report sensor data.

Digi is seeking to connect and collaborate with other FieldComm member companies that are using HART in their sensors and machines. There are plans to implement HART technology in Digi’s cellular routers and gateways with I/O. The combination of valves, sensors and other devices that support HART with Digi’s wireless technology is a natural fit for the Industrial IoT, including applications found in oil and gas, water/wastewater, utilities, medical, transportation and retail.

For more information, please visit the Digi International website.
In the era of the Industrial Internet of Things (IIoT) and Industrie 4.0, device and system integration will be paramount to seamless operation. This article concerns the ongoing collaboration between FieldComm Group and the OPC Foundation to advance open information integration and enterprise data exchange. It describes how the Field Device Integration (FDI) and OPC Unified Architecture (OPC UA) standards play a key role in IIoT-based digitization, and in moving field data into the cloud via open platforms such as Microsoft Azure.

Introduction

The IIoT and Industrie 4.0 are everywhere, and they’re redefining manufacturing with an unprecedented level of impact. While the interoperability of IIoT-based devices and systems will no doubt be subject of ongoing discussion over the next few years, there are already well-established standards in industrial and manufacturing environments that can accelerate the shift to outcome-based models.

For example, OPC UA is a platform-independent, service-oriented architecture that provides standard models for secure and reliable information exchange in industrial automation. Developed by the OPC Foundation, it an established standard for integration and interoperability between factory-level devices, supervisory and control systems, manufacturing execution systems (MES), and enterprise applications such as Enterprise Resource Planning (ERP) and Supply Chain Management (SCM). As a vendor-neutral international standard, OPC UA is also published as the IEC 62541 specification.

Challenges of a connected world
With the breadth of the legacy installed base across the global industrial landscape, together with the familiarity of OPC technologies in the manufacturing ecosystem, it stands to reason that OPC UA will accelerate digital transformation through next-generation IIoT applications.

One of the biggest challenges in this endeavor is the sheer number of different devices and applications existing from legacy systems all the way through modern industrial assets and to the future. Automation suppliers are struggling to address the IIoT, and doing so, develop products and solutions enabling customers to have all their data and information in a multi-vendor, multi-platform environment.

IIoT and Industrie 4.0 are all about streamlining manufacturing to the highest degree, but they rely on more than just simple connectivity and communication between disparate equipment assets. These initiatives require a complete understanding of the data from both a syntax and semantic perspective. The volume of data that end-users acquire from the multitude of plant systems is tremendous, and analysts believe it's only going to increase over the coming years due to the number of devices and applications that will soon be connected.

Industrie 4.0 promotes cooperation amongst automation suppliers and their customers to address the demands of asset management, preventative maintenance, and streamlined runtime operation. Organizations like NAMUR, the German chemical industry association, have long focused on asset management and standardized device configuration in a multi-vendor environment. Standardization of devices, including their data and metadata, not only makes configuration easier, but also solves the complex problem of training new plant operators. Training is a significant cost for any manufacturer, and having suppliers agree on data formats makes everyone's life easier.

The Information Technology (IT) and Operations Technology (OT) worlds were traditionally disconnected, which prevented industrial organizations from sharing key information between the two realms. But despite the growing convergence of IT and OT, users really don't want all the raw data from devices in the OT world to be forced on IT systems. They would rather perform complex analytics on the data at the sensor level to obtain only important information, and then move it into cloud-based applications. The information integration between the IT and OT world depends on reliable high-speed data acquisition systems in the OT world acquiring the data, and then leveraging adaptable configurable analytical software transforming the data into useful information for the IT systems.

There is a current trend whereby intelligent decisions are made about plant assets and process automation with the assistance of enterprise tools. Common tasks such as preventative maintenance and tracking information to know when machinery needs repair can increase efficiency and lower the cost of operations. By having the right data and information, personnel can anticipate problems long before they occur and take appropriate corrective actions to keep the plant up and running.

*Collaboration on integration strategies*
Today, the industrial automation ecosystem continues to expand through the cooperation of industry organizations that possess deep subject matter experience and knowledge. These organizations are leveraging their know-how and data models using the OPC UA common framework for open collaboration between disciplines in the connected enterprise.

Standards organizations that understand the requirements of IIoT and Industrie 4.0 are working together to promote data interchange across heterogeneous domains and industries – something essential to help enable a fully digital industrial economy. The goal is to standardize on the complex data and information of the respective organizations to provide an infrastructure for secure, reliable information integration and interoperability between previously disconnected devices and applications.

Driven by the ever-increasing demands for process automation data from information systems, a wide range of automation industry stakeholders are beginning to develop their desired architectures for more open interfaces. They seek to break down proprietary architecture barriers between field devices and ultimately cloud-based computing platforms.

In view of this trend, the architects of FDI partnered with the OPC Foundation to include in the design of FDI the OPC UA technology that defines field devices and field device integration in the context of FDI technology. Specifically, the technologies share the same information model that defines the context of field devices in process automation. The goal is to ensure that as systems evolve an open pathway to field device information is assured.

FieldComm Group, which is responsible for ongoing development of FDI technology, has collaborated with the OPC Foundation to provide a solution allowing data and metadata from intelligent device networks to be consumed by generic applications and, more importantly, to have this data converted into information that can be communicated into the IT world and leveraged by cloud-based applications.

According to the OPC Foundation’s President and Executive Director, Thomas J. Burke, there is increased recognition throughout the automation sector of the importance of reliable interoperability and seamless information integration. “Without question, measurement and control technology will keep advancing at a rapid pace, and as such, there is a need to adapt to change and leverage new innovations as quickly as possible,” Burke said. “Having a solid infrastructure and abstract data modeling architecture will enable devices and applications that don't exist today to be seamlessly plugged into existing assets. The value of legacy systems and their integration into the manufacturing applications of the future cannot be overestimated. Our work with FieldComm Group and other standards organizations will ensure that we have an effective strategy for taking data from sensors and other devices, converting it into useful information, and then pushing it into SAP and Microsoft applications and vice-versa, truly realizing bi-directional communication for IT-based applications to push data back down into the OT world.”

Burke continued, “It has been rewarding to collaborate with FieldComm Group on crucial technology initiatives. Our organizations have a common strategy and vision. We understand the value of implementing the best specification and certification processes, and providing technology to our respective communities to bring world-class products to market.”

FieldComm President and CEO Ted Masters has a similar outlook on leveraging the information that comes from intelligent field devices, and believes the FDI standard provides a proven solution allowing end-users to better manage their assets by having standardized device configurations that are independent of the vendors and networking technologies involved with their respective installations.
“FDI meets the demand for a universal, standardized and interoperable technique to comprehensively describe automation components. It is vital for everyday purposes like device configuration, device replacement, maintenance, diagnostics or audit trails – all essential building blocks in a modern field device management system,” Masters said. “At one time, every supplier handled device configuration differently, and if you wanted to make a change, it required a huge amount of engineering overhead, as well as an additional training burden. By having standardization, this issue becomes a lot simpler. No longer are companies required to devote costly engineering hours to do complex conversion between different vendors’ equipment.”

Masters added, “With FDI, the true potential of decentralization, transparency, integration and a central view of all data and functions can be fully realized.”

**Creation of a companion specification**

In automation systems with field instruments from a variety of different vendors, there is a need to reduce the effort for installation, version management and device operation. This requirement can only be met with an open and standardized device integration solution. For this reason, FieldComm Group has specified a standard architecture for device integration that is based on IEC 61804-Electronic Device Description Language (EDDL) for the description of devices and OPC UA.

**Typical use cases for this solution include:**

- Interaction between FDI Clients and FDI Servers
- Integration of new communication protocols (i.e., FDI communication servers)
- Access to device information by non-FDI-aware OPC UA Clients, such as archiving tools, maintenance tools, asset management, or ERP systems

FieldComm Group and the OPC Foundation cooperated on a companion specification defining how the information of a field device – described by an Electronic Device Description (EDD) document – is mapped to OPC UA Objects, Methods and Variables. The information model is primarily based on the OPC UA for Devices specification; in fact, most of the OPC UA for Devices model has been driven by FDI requirements.

FieldComm Group’s Director of Integration Technology, Achim Laubenstein, stated, “FDI technology manages information from intelligent field devices during their entire lifecycle – from configuration, commissioning and diagnostics to calibration, making one-off solutions for different devices obsolete. The standardization of field device
information facilitates the development of native OPC UA applications that support the OPC UA device information model.

In addition to the device model, FDI defines how communication topologies of the automation system, representing the entire communication infrastructure, should be represented in an OPC UA Address Space. The comprehensive set of services provided by OPC UA enables the “how” of system integration.

The FDI communication server information model is used for integration of non-native field protocols, and as such, supports the integration of communication with devices in heterogeneous, hierarchical networks, as well as the use of any communication hardware.

Burke commented on the collaborative development process: “The hardest part of the work on the OPC UA information model was getting agreement and standardization on the data and metadata across different vendors’ devices,” Burke said. “FieldComm Group has been doing this for years, and provides a very rich data and information model that suppliers incorporate directly into their FOUNDATION Fieldbus, HART and WirelessHART products.”

Most recently, FieldComm Group and the OPC Foundation have collaborated on an OPC UA Server interface to the FDI Server. Major global automation suppliers that are active in both organizations are driving this effort.

The OPC UA architecture is built into Industrie 4.0, and there are multiple test beds under development within the industrial Internet community. One of the major test beds will show how OPC UA is directly incorporated into the FDI Server to provide seamless information integration into the IT world via the OPC UA interfaces.

Cloud-based solution for plant data

FieldComm Group’s Integration Working Group is enhancing the FDI/OPC UA information model specification to provide semantics for machine-readable information. This specification will allow cloud-based applications to process field device information without extra configuration.

Industrial organizations will now gain seamless information integration into computing platforms like the Microsoft Azure cloud by leveraging the OPC UA companion specification. This capability will significantly enhance compatibility and interoperability in the new digital world, said Erich Barnstedt, principle software engineering lead at Microsoft.

“Microsoft is the only technology provider with the ability to transform the OPC UA data model and offer it in the cloud,” Barnstedt said. “This is achieved by enabling both OPC UA Client/Server and Publisher/Subscriber connections to the cloud. Applications that used to run on-premise can now run globally in the cloud without having to change the interface. By mapping FieldComm Group’s data model to OPC UA, it is now possible to use robust services available for OPC UA through the Azure cloud.”

Microsoft’s Azure IoT Suite is intended to connect devices and other assets; capture the diverse and voluminous data they generate; integrate and orchestrate the flow of that data; and manage, analyze and present it as usable information to people who need to make better decisions. There is a cloud bridge, which is essentially a software component acting as an OPC Client towards one or several OPC UA Servers and relaying data to a cloud-based messaging gateway.

Thanks to the latest technology developments, enterprise intelligence can be deployed to reinforce the use of data and establish analytics-based decisions. Such digital transformation involves reengineering workflows around enhanced and consistent information, and changing data management paradigms.

Outlook for the future
FieldComm Group and the OPC Foundation are committed to developing complete infrastructures and solutions for seamless information integration in industrial automation applications. Both organizations recognize they must provide standards that help solve real-world problems and create new opportunities. This includes ongoing enhancements to the FDI standard, and potentially incorporating other organizations’ networking technologies into a common integration architecture.

Conclusion

Proprietary solutions in industrial automation are quickly becoming a thing of the past. The engineers and end-users of today – primarily driven by their experiences with consumer electronics – no longer will be satisfied with products from different vendors not interoperating together in a seamless manner. This expectation now requires multi-vendor and multi-platform information integration from the sensor to the cloud. The days of the IT and OT worlds not communicating are also waning, with both sides seeking to convert data and metadata from plant assets into meaningful information. The activities of FieldComm Group working with the OPC Foundation will help make this a reality.

For more information, please visit the FDI Technology Overview page on the FieldComm Group website.
It’s a good idea to rely on an authoritative information source when implementing advanced technology like FOUNDATION Fieldbus. That’s why members of the industrial automation industry turn to FieldComm Group’s AG-181 System Engineering Guidelines for best practices and recommendations for a complete FOUNDATION fieldbus installation, from engineering and design through commissioning, startup, operations, and maintenance. The guide includes recommendations on topics from selecting cable to wiring installation, grounding, implementing plant asset management systems, and best practices for project management.

First published in 2003, and updated periodically thereafter, the AG-181 Guide includes sections covering the Fieldbus Intrinsically Safe Concept (FISCO) fieldbus design rules, cable length, surge protection, segment scheduling, and the use of existing instrument wiring.

According to Talon Petty, FieldComm Group Marketing and Business Development Manager, the FOUNDATION Fieldbus System Engineering Guidelines is “one of the automation industry’s best-kept secrets” that belongs in the library of almost every process control engineer. It is a highly valuable resource for the growing number of end users, system integrators and engineering firms involved in the implementation of FOUNDATION Fieldbus.
“One of the things we try to do at FieldComm Group is put information into the hands of those who need it around the world. We want people to become proficient in the use of our technology, from engineering and design to installation, maintenance, and operations,” said Petty. “Our System Engineering Guidelines document contains the distilled wisdom of many of the world’s leading fieldbus technology experts, from those in the engineering and construction world to end users, systems integrators, educators, and suppliers. It offers many good pointers on how to do your fieldbus project right the first time, and is an essential part of the toolbox of any FOUNDATION fieldbus professional. If you already have the older version, the latest update will look more streamlined and contains several new sections, as well as rewrites of old sections.”

The AG-181 System Engineering Guidelines is separated into 11 sections, each covering different aspects of the fieldbus project lifecycle. Specific topics include: General Considerations, Fieldbus Definitions, Fieldbus Project Requirements, Host System Requirements, Software Configuration, Field Device Requirements, Segment Components, Network/Segment Design Guidelines, Site Installation Guidelines, Acceptance Testing, and Documentation Requirements.

Petty indicated that the System Engineering Guidelines document provides accurate and current fieldbus information in a vendor-neutral format, and is revised periodically to reflect changes to FOUNDATION technology. He said, “There is no better guide to implementing FOUNDATION fieldbus available today.”

To obtain the FOUNDATION fieldbus System Engineering Guidelines (Document Reference No. AG-181), please visit FieldComm Group’s FOUNDATION Fieldbus Documents and Downloads page. The document can be downloaded in PDF format.
# Latest Registered FOUNDATION Fieldbus and HART

By FieldComm Group  
Sep 13, 2017

## New Registered Devices

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Updated Electronic Device Description (EDD)

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Enlist today for WirelessHART Bootcamp!

By FieldComm Group
Sep 13, 2017

Are you looking to increase your knowledge of WirelessHART technology? If so, you should sign up for WirelessHART Bootcamp, a multi-week online educational program led by FieldComm Group staff and associates. This innovative program will enable enrollees to gain an understanding of topics such as mesh networking basics, WirelessHART system design, WirelessHART and wired systems, network security, and integrating WirelessHART into the organization.

WirelessHART Bootcamp consists of six one-hour sessions with specific learning objectives and evaluations. Guest speakers take part in some sessions to provide relevant expertise.

To register for online instruction, or for more information, please visit the WirelessHART Bootcamp page on the FieldComm Group website.
The Industrial Internet of Things (IIoT) is much more advanced than the commercial IoT, primarily due to the prevalence of connected sensors in the industrial world, which are the “things” in the IoT. Hundreds of millions of connected wired and wireless pressure, level, flow, temperature, vibration, acoustic, position, analytical, and other sensors are installed and operating in the industrial sector, and millions more are added annually, increasing value with additional monitoring, analysis, and optimization.

Sensors connect to a variety of higher-level software platforms, both on- and offsite. On-site connections are often via a local intranet, creating an Industrial Intranet of Things. Offsite connections are usually made through the Internet, often via a cloud-based storage system.

The IIoT is here today, and automation end users are employing it to realize value from a multitude of wireless sensors throughout their plants.

Higher-level software platforms include control and monitoring, asset management, and specialized data analysis systems. At remote data-analysis centers, sophisticated Big Data analytics are performed by dedicated experts to reveal patterns, problems, and solutions.
The IIoT connects sensors to analytic and other systems to automatically improve performance, safety, reliability, and energy efficiency by:

1. Collecting data from sensors (things) much more cost-effectively than ever before because sensors are often battery-powered and wireless
2. Interpreting this data strategically using Big Data analytics and other techniques to turn the data into actionable information
3. Presenting this actionable information to the right person, either plant personnel or remote experts, and at the right time
4. Delivering performance improvements when personnel take corrective action.

For example, IIoT technology was implemented by a major US refiner to connect vibration, acoustic, level, position, and other sensors to an asset management system via both a wired fieldbus network (FOUNDATION Fieldbus) and a wireless network (WirelessHART). The wireless network connects instruments to the refinery’s control and monitoring systems via a wireless mesh network consisting of wireless instruments and access points.

Sensor data is sent to asset management software with specialized data analysis applications for valves and smart meters. The software analyzes sensor data and transforms it into actionable information. Control room operators view this information on human machine interfaces (HMIs), and mobile workers view it on handheld industrial PCs connected to a plantwide Wi-Fi network.

Capital expenditures were reduced because wireless cut sensor installation costs, and ongoing operational benefits included increased capacity and avoided capital investments through wireless tank monitoring. The asset management software allowed consistent setup and reduced commissioning costs, along with reduced call-outs through the use of alarm management software. Safety was improved by automating vibration monitoring in hard-to-reach locations, which were previously checked via manual rounds, and energy was saved with wireless steam trap monitoring.

The refining operation now has WirelessHART infrastructure in place for data collection, analysis, and distribution. This existing infrastructure makes it quick and inexpensive to add more wireless sensors to deliver further operational improvements.

For more information, please visit the HART Technology page on the FieldComm Group website.
Endress+Hauser Offers Analytical Transmitter with Heartbeat Technology

By FieldComm Group
Sep 13, 2017

Endress+Hauser’s Liquiline M CM42 is a robust transmitter for pH/ORP, conductivity or oxygen measurement that can be used in hygienic, explosion-hazardous and functional safety applications. Thanks to plug & play Memosens sensors, it is simple to commission and set up. It also indicates when a sensor has to be cleaned, calibrated or replaced.

In addition to advanced diagnostics according to NE 107/FF 912 (categorization of diagnostic data with cause & remedy information), the latest release of the ITK6-comform FOUNDATION Fieldbus version now features Heartbeat Technology, which considerably simplifies maintenance procedures.

Heartbeat Technology keeps a constant watch on the device and collects and analyzes relevant process data. Thus, it is possible to view the device’s overall status, calibration data, key performance indicators and any diagnostic messages that are currently active. The calibration data includes a trend chart, allowing service personnel to optimize the measurement and make qualified decisions on preventive maintenance tasks.
Heartbeat Technology also supports automatic verification and documentation of the measuring point without interruption of the process. This requires no expert knowledge and saves many hours of detailed work as well as downtime.

*For more information, please visit the Endress+Hauser website.*
With the introduction of the Micropilot FMR60, FMR62 and FMR67, Endress+Hauser has completed its portfolio of radar instruments. The new versions, which have been developed as per the IEC 61508 safety-by-design concept, are the first instruments on the market with 80 GHz technology.

Furthermore, like many Endress+Hauser flowmeters, they are the first level instruments to support Heartbeat Technology. Heartbeat allows that the measuring point can be verified and documented in situ without interrupting plant operation. Additionally it supports permanent process and device diagnostics and supplies information for predictive maintenance.

The Micropilot FMR6x series offers a wide range of Ex-approvals and is available with a HART 7 communication interface. Improved radar signal focusing and dynamic algorithms provide reliable, stable measurements at measuring ranges up to 125 m (410 ft) with accuracies as high as ±1 mm (±0.04 inches). Measurements are unaffected by baffles or obstacles on the tank walls and due to innovative antenna design, build-up and condensate also have no effect. Interactive commissioning software makes setup and configuration fast and easy. With its 113 GHz radar portfolio (1 GHz + 6 GHz + 26 GHz + 80 GHz models) Endress+Hauser can provide the best fit frequency for every application.

For more information, please visit the Endress+Hauser website.
Fluid Components International’s (FCI’s) breakthrough MT100 Series Multipoint Flow Meters are ideal for optimizing boiler or furnace combustion air feed line flow, stack emissions monitoring (US EPA CEMS compliance), flue gas/scrubber balancing, HVAC duct air flow control and any air/gas flow applications in pipe diameters 20 inches (500 mm) and larger, and square/rectangular ducts. These flow meters feature FieldComm Group registered and certified HART and FOUNDATION Fieldbus bus communications and DD files.

Utilizing FCI’s industry-leading thermal dispersion technology, the MT100 Series instruments provide direct mass flow measurement via simple insertion of a mast style flow element with multiple sense points or multiple, single point flow elements. The flow elements have no moving parts or orifices to break, clog or foul, resulting in superior, long-term reliable operation with virtually zero maintenance. MT100s feature wide flow range with 100:1 turndown; accuracy to ± 0.75% of reading; ± 0.5% of full scale; temperature service up to 850°F (454 °C); multiple analog and digital outputs; large graphical, color LCD touch-type display; data logging; and calibration self-checks and diagnostics to provide a complete solution for process flow control or emissions reporting.

For more information, please visit the FCI website.
Moore Industries Delivers Economical and Versatile HIX/HIT HART Isolators

By FieldComm Group
Sep 13, 2017

Moore Industries’ HIX and HIT HART Isolators provide highly economical solutions to common and costly problems that plague many of today’s “smart” process loops. Protect and enhance your HART investment with the 2-wire (loop powered) HIX or the 4-wire (line-mains powered) HIT. Unlike standard isolators that block or strip off the HART signal, the HIX and HIT allow HART data to pass bi-directionally while providing the isolation and noise immunity your plant needs.

Safely share the HART output of one transmitter with a secondary control or recording device. This allows for redundancy without further burden on – or risk to – a process loop.

Minimize stocking requirements at your facility by standardizing on these HART pass through isolators. Other isolators will block the HART signal on newer loops with HART transmitters and upgraded DCS smart input cards that need to have access to HART data.

Perform equipment maintenance without loop downtime with area isolation. Placing current-driven or HART devices on isolated legs of a loop makes it possible to remove those instruments from the circuit without affecting the primary process loop.

For more information, please visit the Moore Industries website.
Moore Industries' SSX and SST Safety Isolators and Splitters provide reliable isolation and signal conversion for HART data in functionally safe process control settings. Part of Moore Industries’ FS FUNCTIONAL SAFETY SERIES, the two-wire (loop powered) SSX and four-wire (line/mains powered) SST have been certified by exida for single use in Safety Instrumented Systems up to SIL 2. They were designed and built from the ground up to the strict IEC 61508:2010 standards for safety-related applications.

The SSX and SST protect safety systems by isolating an SIS from basic process control or monitoring systems so that disconnections or other failures don’t impact the safety system. They also have 1500 Vrms of isolating capability to protect safety I/O cards and systems from surges, spikes and transients in the field. Standard 20V/m RFI and EMI protection stops damages caused by radio frequencies and electromagnetic interference.

While most isolators “strip off” HART data, the SSX and SST pass along HART data to asset management systems, programming devices or host systems. In addition, the SSX stops ground loop noise and solves “bucking” power supply problems caused when two devices try to source power to the same loop.

For more information, please visit the Moore Industries website.
Yokogawa has upgraded its “FieldMate” device maintenance software. This enhanced software provides some functions that support “Pressure Transmitter Calibration” to confirm offline data as “Trend Graph” and “Device Alarm History View” for HART field devices.

For more information, please visit the Yokogawa website.
Yokogawa Offers Hygienic Gauge Pressure Transmitter

By FieldComm Group
Sep 13, 2017

Yokogawa’s hygienic gauge pressure transmitter doesn’t use any type of filling liquid, eliminating the risk of contamination to the process fluid. It is well suited to the requirements of the food, beverage and pharmaceutical industries. It also features quick response, and remote setup and monitoring via HART communication.

For more information, please visit the Yokogawa website.