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 control_enews@putman.net to your address book and subscribe here.

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.

WirelessHART® Continues Explosive Growth

The process industries have a reputation for slow adoption, but given the volume of content related to WirelessHART in this issue, we question the validity of that claim. Read more.

Nominees Sought for 2015 Plant of the Year Award

FieldComm Group is actively seeking qualified nominees for the 14th Annual Plant of the Year Award. Learn more.
MOL Refinery Realizes Key Benefits with WirelessHART®
At the MOL Group’s Danube Refinery in Százhalombatta, Hungary, the goal was set to profit with HART technology in 2002, and—only three years later—overhaul maintenance systems with a new, unified AMS strategy. The combination of the two technologies changed the way MOL runs maintenance, and the way they look at diagnostic data. Read more.

HART® at the Speed of Ethernet
The growing importance of predictive maintenance, the increasing possibilities of centralized field device configuration and modern asset management solutions has resulted in increased use of digital communication protocols such as FOUNDATION™ Fieldbus and HART. Read more.

The Bullet - Low-Cost Option to Complex Cable Installations
Pepperl+Fuchs’ globally-certified BULLET enables new and existing wired HART field devices to communicate with host applications through WirelessHART technology, and can be inserted anywhere on the 4-20 mA loop. A wired HART field device retrofitted with the Bullet communicates analog process variables over the existing wiring to the existing DCS with no wiring changes. Built for the harsh conditions in process plants, the Bullet is the only WirelessHART adapter with explosion-proof housing. Learn more.

New product news you might be interested in:
- AwiaTech Announces WirelessHART Stack Licensing & Development Program
- Azbil Offers Pressure Transmitter With Advanced Diagnostics
- Emerson Introduces Industry’s First Wireless Pressure Gauge
- Endress+Hauser FieldCare Package Improves DTM Handling
- Endress+Hauser Smart Adapter Adds WirelessHART to Field Devices
- Pepperl+Fuchs FDH-1: Universal Tool for Mobile Fieldbus Diagnostics

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.

Developer Workshops Planned for 2016
Automation vendors supplying intelligent products, including devices, systems and applications, can realize significant benefits from attending a FieldComm Group Developer
Workshop.

Upcoming Events

**Americas**

Device Integration - Writing EDD and FDI Package Workshop
Austin, Texas USA
April 4-7, 2016
More Information

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

Device Integration - Writing EDD and FDI Package Workshop
Düsseldorf, Germany
March 30 - April 1, 2016
More Information

**Asia-Pacific**

2016 events to be announced soon
More information

**Oceania**

2016 events to be announced soon
More information

**Moore Industries White Paper: Extracting HART Data from Smart Instruments**

The “Extracting HART Data from Smart Instruments” white paper from Moore Industries details how the use of a HART interface module, such as Moore Industries’ HIM, can serve as a simple and cost-effective method for gathering HART information that can be used for monitoring instrument status, diagnostic data, alarms, calibration values and alert messages. Read more.
WirelessHART continues explosive growth

Source: Paul Sereiko, FieldComm Group

Mar 29, 2016

Note: In this issue, we introduce an occasional editorial section where senior FieldComm Group staff will share insights and thoughts on the field communications industry.

While reviewing this issue of Field Communication Insider I couldn’t help but be struck by the amount of content devoted to WirelessHART. This issue’s end user feature is WirelessHART-related, and the HART-IP technology story outlines the benefits enabled when used with WirelessHART. And three new products from Awiatech, Emerson and Endress+Hauser use WirelessHART technology.

This month member company Awiatech becomes the third supplier of the WirelessHART development tools and embedded software. As a veteran of three wireless companies, I appreciate the work involved in creating a stack and wish them the best for their exciting new offering.

I did a bit of digging and discovered that there are now over 50 WirelessHART products or services listed in the FieldComm Group product registration site manufactured by 14 different suppliers. After checking out Emerson’s Smart Wireless page, I learned that Emerson has over 26,000 WirelessHART-based networks deployed globally with nearly six billion operating hours!

The process industries are not known as early adopters. But given the amazing uptake of WirelessHART in the market, and the tremendous buzz around the Industrial Internet of Things here in the states, and Industrie 4.0 in Europe, I can’t help but wonder if that reputation is ill founded.
Nominees sought for 2015 Plant of the Year Award

Source: FieldComm Group

Mar 29, 2016

FieldComm Group is actively seeking qualified nominees for the 14th Annual Plant of the Year Award. End users and manufacturers from all world areas are encouraged to enter their plant or customer’s plant for this prestigious award.

The FieldComm Group Plant of the Year is the only international award presented to end user companies in the process automation industry to recognize the exceptional and valuable application of FOUNDATION™ Fieldbus and/or HART® Communication technologies. Nominations will be accepted until May 16, 2016. Nomination forms and program details are available at go.fieldcommgroup.org/award.

“Selection of the Plant of the Year is based on a plant’s use of our field communication and integration technologies – not on the size or location of the installation. We are seeking a plant that has taken the capabilities of FOUNDATION Fieldbus, HART or WirelessHART® enabled instruments beyond configuration and calibration,” says Ted Masters, FieldComm Group President and CEO. “Or, the plant that is using real-time device diagnostics and process information integrated with control, information, asset management, safety systems or any other system to lower operating costs, reduce unplanned downtime and improve operations.”

This globally recognized award has been expanded to include all communication and integration technologies supported by the FieldComm Group. Previous recipients include Nucor Steel, Dow Chemical (USA), Monsanto (USA), Shell (Canada), MOL (Hungary), Mitsubishi Chemical (Japan), PDVSA (Venezuela), Statoil (Norway), Sasol (South Africa), Clariant (Germany), and DuPont (USA). A complete list of recipients and their success stories are available at go.fieldcommgroup.org/award.

For more information, visit the FieldComm Group website.
MOL Refinery realizes key benefits with WirelessHART

Source: Gábor Bereznai and Gyula Ötvös, MOL

Mar 29, 2016

At the MOL Group’s Danube Refinery in Százhombatta, Hungary, we set out to profit with HART technology in 2002, and only three years later, decided to overhaul our maintenance systems with a new, unified asset management system (AMS) strategy. The combination of the two technologies changed the way MOL runs maintenance, and the way we look at diagnostic data.

The MOL Danube Refinery received the HART Plant of the Year Award in 2010 for its demonstrated creativity in the use of HART devices. The refinery made the decision to install HART-enabled intelligent field instruments as part of a maintenance strategy to increase operational availability. In this article, we would like to highlight how we started to utilize WirelessHART and its possible future at the Danube Refinery.

MOL subsequently enhanced its asset management capabilities by employing the power of WirelessHART® technology. This approach provides access to valuable diagnostic information for enabling predictive maintenance strategies. Field-level data can also provide huge amounts of valuable information if mined and brought up to higher levels and put into perspective. Users can visualize and evaluate the data, and ultimately take action based on the information to prevent shutdowns, lower operating costs, reduce maintenance expenses, and become more predictive in how plants are run.

The first WirelessHART system at the Danube Refinery, consisting of four wireless thermal transmitters in Crude Distillation Unit 3 (CDU3) and a gateway station to receive their signals, was installed in 2009. Our system has been dynamically expanding; currently, six wireless gateways receive signals from a total of 32 devices throughout the refinery. The technology was tested in an arc-welding environment in the early phase, and both the WirelessHART transmitter and the gateway functioned faultlessly. Also, we
tested several manufacturers’ products on the same network and determined they could work together without any problem.

In 2015, the use of wireless technology was included as a new chapter in MOL standards specifying the technical requirements for installation and use in the field for different applications. According to that chapter, wireless technology has been approved for diagnostic and measurement purposes at MOL. Wireless technology is typically employed for measuring temperature and corrosion rates. The system has the benefit of moderate installation cost, fast set-up and flexible upgradability. Approved WirelessHART applications maybe expanded in the future based on further testing and experience.

Additionally, the Danube Refinery is seeking to apply wireless technology in the course of system integration. In several cases we have witnessed that existing field instruments equipped with 4-20 mA and HART communication have advanced intelligence and diagnostic features, but the available Distributed Control System (DCS) input-output (I/O) interface is not HART-enabled, which prevents communication from reaching the Field Instrument Maintenance System (FIMS).

The replacement of I/O interfaces would be rather costly and could only be completed during planned unit shutdowns. That is when we use WirelessHART Upgrade Modules (also called WirelessHART adapters) connected to field instruments to transmit HART communication to a particular gateway. With the TCP/IP option, fitting gateways into the FIMS is extremely flexible and simple, and gives us access to important information.

In 2016 or 2017, MOL plans to launch a FIMS Upgrade project at the refinery level, when we will integrate an additional 100 control valve positioners of key importance to the maintenance system using the aforementioned methodology—thus realizing the on-line performance diagnostics of these critical assets and further improving our preventive maintenance practices. The refinery will also leverage the value of robust diagnostic data at the enterprise level, with information delivered by the facility's SAP system for staff review on a daily basis.

*MOL is an integrated, independent, international oil and gas corporation, headquartered in Budapest,*
Hungary. MOL has operations in over 40 countries and employs almost 29,000 people worldwide. MOL exploration and production activities are supported by more than 75 years experience in the hydrocarbon field. At the moment, there are production activities in eight countries and exploration assets in 13 countries. The Group operates four refineries and two petrochemicals plants, under integrated supply chain management, in Hungary, Slovakia and Croatia. It also owns a network of over 1,700 service stations across 11 countries in Central & South Eastern Europe.
HART at the speed of Ethernet

Source: Article submitted by Softing Industrial Automation

Mar 29, 2016

This article originally appeared in Control Engineering Europe, Nov. 2015

The growing importance of predictive maintenance, the increasing possibilities of centralized field device configuration and modern asset management solutions has resulted in increased use of digital communication protocols such as FOUNDATION™ Fieldbus and HART®.

At the same time the use of WirelessHART® is now established around the world for use in process applications with some plants having up to 1,000 wireless transmitters distributed and managed over multiple gateways.

When WirelessHART gateways need to be implemented or HART multiplexers need to be added to an existing infrastructure, HART-IP™ ensures tight, efficient integration.

An IMS Research study from February 2013 reported that use of Industrial Ethernet in the process industry would almost double from 2011 to 2016. In response to this trend, the FieldComm Group released the HART-IP Ethernet protocol specification, which offers integration of WirelessHART gateways and HART multiplexers into the control systems of legacy or new process plants. The HART protocol can be run over Ethernet, Wi-Fi, or other network media without sacrificing the detailed device setup or diagnostics information of existing networks. HART-IP allows simplified vertical data integration from the field device through to the control room. In addition to providing access to the process variables of a device, the protocol also supports device parameterization and advanced diagnostics. Together, WirelessHART and HART-IP will play an important role in enabling the Internet of Things in process plants in the future.

System Integration

System integration using traditional PLC protocols is increasingly reaching its limits. It can be time consuming and not is suitable for modern device data management. Traditional hardwired transmitters often deliver only a single variable – the process value. Mapping a single variable per device from a PLC or RTU Modbus register to process visualization software is manageable. However, WirelessHART devices provide multiple measurements, control signals, and feedback; often two, three, or even four dynamic variables per device, each with an associated status. For example, two or more sensors on a temperature transmitter, pressure and differential pressure from a pressure transmitter, noise and temperature from an acoustic transmitter, vibration, acceleration, and temperature from a vibration...
transmitter. Mapping all the dynamic variables for these multi-variable devices in Modbus registers or OPC groups and items today would be time consuming and error prone.

In many plants, the number of WirelessHART devices in use exceeds the capacity of a single WirelessHART gateway. Plant-wide applications therefore require a WirelessHART gateway in each plant area or segment. These gateways then need to be integrated into the control system. Data also has to be available to applications beyond the control room.

HART and WirelessHART transmitters are intelligent devices that should support centralized configuration as well as diagnostics monitoring and battery power monitoring. A handheld field communicator can be used for device configuration and troubleshooting, but is impractical for plant-wide deployment. Intelligent device management software is a better solution for plant-wide networks. Modbus registers and OPC items work for process variables, but are not suitable for intelligent device management (IDM) software as part of asset management systems.

The HART-IP solution

With the growing importance of WirelessHART, and with increasing digitization at the field level in process plants, more users and system providers are moving their focus to HART-IP, which has been part of the FieldComm Group (previously HART Communication Foundation) Network Management Specification since June 2012. HART-IP enables complete plant-wide, large-scale solutions and provides a high degree of interoperability between devices and applications. The protocol can be run over IP-based networks such as Ethernet and Wi-Fi, and works over UDP and TCP using IPv4 or IPv6. The HART-IP application layer is based on the same application layer commands as 4-20 mA/HART and WirelessHART. Industrial Ethernet offers a range of benefits compared to serial data transmission. Process data and IT data, for example, can be transmitted over a common medium. There is a large address space with an almost unlimited number of participants available and by cascading switches large network expansions are possible. Furthermore, larger amounts of data can be transferred efficiently and the combination of different transmission media is possible.
HART-IP works over standard Ethernet (IEEE 802.3), both copper and fiber, as well as Wi-Fi (IEEE 802.11) equipment so it is suitable for use with standard infrastructure components such as LAN switches, routers, access points, cables and connectors. In addition, HART-IP can utilize existing network structures with redundant Ethernet media as well as mesh or ring topologies, or Power over Ethernet (PoE). Various speeds like 10 Mbit/sec, 100 Mbit/sec and 1 Gbit/sec are supported.

IP-based communication enables multiple protocols to share the same network, each protocol with a specific application. So, HART-IP can coexist with IT protocols and other industrial Ethernet-based protocols. There is no need for dedicated infrastructure. The use of multiple clients and servers is also supported, enabling multiple controllers and software applications to access the data in one or more gateways or multiplexers over the same network.

HART-IP can be employed for devices using Ethernet and for HART-IP backhaul networks in WirelessHART gateways and HART multiplexers. It is used in Intelligent Device Management (IDM) software as part of asset management systems, as well as in OPC servers to access data in WirelessHART and 4-20 mA/HART field devices. Specialized applications, such as steam trap monitoring software and machinery health monitoring software, are already using HART-IP to get device data and it is expected that, in the future, control systems and automation solutions will provide HART pass-through over HART-IP. HART-IP devices for seamless vertical integration in the plant are also conceivable.

There are many legacy devices in plants that do not have Ethernet connectivity. These devices will continue to use 4-20 mA/HART, fieldbus or WirelessHART. It is not anticipated that HART-IP will take the place of these protocols at the device level. Indeed, it would not be suitable because the distances reached by copper Ethernet are too short; fiber optic Ethernet provides no power; Power over Ethernet (PoE) so far is not intrinsically safe; there are thousands of transmitters and valves in a plant so the number of LAN switches mounted in field junction boxes would be impractical; Fiber optic Ethernet makes device removal/connection for replacement and calibration impractical; and TCP/IP requires IT department involvement for cyber security.

Predominantly, it is expected that HART-IP will be used within the plant perimeter. If the protocol is used beyond the plant perimeter, such as across the public Internet, or if HART-IP “spills over the fence” such as in the case of using Wi-Fi, then security measures should be employed to protect the data during transport (firewalls, VPN tunneling, Secure Socket Layer, and remote authentication). The standard encryption protocols will continue to evolve and HART-IP is designed to adapt to new versions.

**Conclusion**

HART-IP is the most suitable backhaul network for WirelessHART gateways and HART infrastructure components since the application layer is the same, and therefore time-consuming and error-prone data mapping is eliminated.
HART-IP is easy to deploy because it uses the Ethernet infrastructure already available in most plants. Existing intelligent device management software can be upgraded to the latest version supporting HART-IP and the underlying WirelessHART gateways.

HART-IP might not revolutionize the entire process industry. But it will make a significant contribution to promoting and, above all, simplifying the exchange of data and information in process plants.

For more information, visit the FieldComm Group website.
AwiaTech announces WirelessHART Stack Licensing & Development Program

Source: FieldComm Group

Mar 29, 2016

AwiaTech has announced the release of the AwiaTech WirelessHART Stack Licensing Program and Rapid Development Program. The AwiaTech WirelessHART Stack is used in FieldComm Group registered products and conforms to the latest HART v7.5 Specification, making it fully interoperable with registered WirelessHART devices and systems. The stack runs on top of various open hardware platforms and is a cost-effective solution to migrate an existing HART 5 device to WirelessHART.

Key benefits of the AwiaTech WirelessHART stack include:

- Used in HART Registered™ products
- Low power consumption
- Modular design to run on open hardware platforms
- Standard FSK application layer for quick and easy integration with other FSK HART modules

A stack license includes: unlimited copies of devices for a single device type, complete source code project template with WirelessHART stack binary library, reference hardware design schematic for main/child PCB boards, device descriptor (DD) source code, and a sample device for quick-start development.

The AwiaTech WirelessHART Rapid Development Program offers HART device suppliers a simple, fast, and cost-effective migration solution to migrate an existing HART 5 device to WirelessHART enabled in just a few days.

For more information, visit the AwiaTech website.
Azbil offers pressure transmitter with advanced diagnostics

Source: FieldComm Group

Mar 29, 2016

Azbil's AT9000 Advanced Transmitter is a pressure transmitter that features high performance, excellent stability and advanced diagnostics. The unique characterization and composite semi-conductor sensors realize high accuracy up to 0.04% F.S. The proven sensor technology enables long-term stability up to 0.1% of URL per 10-years.

The advanced diagnostics include pressure frequency index diagnostic, which can be used for impulse-line clogging detection, and standard deviation diagnostic.

The AT9000 is available for HART and FOUNDATION Fieldbus communications. The HART model is available for HART5 and HART7. The ITK of FOUNDATION Fieldbus is model 6.1.

For more information, visit the Azbil website.
Emerson introduces industry’s first Wireless Pressure Gauge

Source: FieldComm Group

Mar 29, 2016

Emerson Process Management has introduced the industry’s first WirelessHART pressure gauge. The Rosemount Wireless Pressure Gauge enables remote collection of field data, keeping operators updated on changing field conditions and improving personnel safety by reducing manual operator rounds and field exposure.

Emerson’s new Rosemount Wireless Pressure Gauge utilizes field-proven piezoresistive sensor technology to deliver reliable pressure readings. With the flexibility to accommodate changing process conditions, the Wireless Pressure Gauge also gives up to 150X overpressure protection compared to traditional gauges, which provides for a safer field environment by using two layers of process isolation.

Bourdon tube gauges have traditionally been a mainstay for taking pressure readings in the field, but are limited to visual indication of process conditions when an operator is present. Bourdon tubes also use moving parts, which can break or wear over time due to use and vibration, causing inaccurate readings or process to spill.

The Wireless Pressure Gauge eliminates mechanical gauge common weak points by removing the components that inhibit the device from reporting/displaying pressure and providing up to a 10-year life, which reduces maintenance cost and time.

For more information, visit the Emerson Process Management Website.
Endress+Hauser FieldCare Package improves DTM Handling

Source: FieldComm Group

Mar 29, 2016

FieldCare, Endress+Hauser’s universal device configuration and management tool, now features an improved Installation Manager that allows single DTMs to be selected and installed. DeviceCare, which configures Endress+Hauser devices only, has several improvements, among them automatic connection of the MACtek Bluetooth HART Modem, more DTM catalog functionality and the ability to use DTMs offline.

The accompanying DTM library, which covers HART, PROFIBUS DP/PA, FOUNDATION Fieldbus, Modbus RS485, EtherNet/IP and all Endress+Hauser interfaces, has been updated with those devices that have received new firmware and new devices. A list of devices is to be found in the manufacturer Information.

In addition to the latest version of FieldCare, DeviceCare and the DTM library, the new FieldCare Package 1.27 also contains the latest iDTM library for third-party HART and FOUNDATION Fieldbus devices without native DTMs.

For more information, visit the Endress+Hauser website.
Endress+Hauser Smart Adapter adds WirelessHART to Field Devices

Source: FieldComm Group

Mar 29, 2016

Endress+Hauser’s SWA70 WirelessHART Adapter allows signals from connected 4-20 mA/HART field devices to be transmitted via wireless to a WirelessHART Fieldgate. Powered by either a battery pack or power supply unit, and available for use in both hazardous and non-hazardous areas, it is suitable for applications such as:

- Parallel transmission of process information from an existing wired installation for inventory monitoring or other monitoring tasks
- Collection of process information from rotating or mobile installations
- Integration of new measuring points into existing systems
- Applications with environmental limitations to cabling (e.g., electromagnetic fields or limited accessibility)

The flexible adapter concept has the advantage of being vendor-independent and compatible with all 4-20 mA/HART field devices. In addition to being mounted directly, the adapter can be remotely connected to the field device, thus increasing signal performance. Available with polyester, aluminum and 316L stainless steel housings, it can be used in many applications and environments. When operating in multi-drop mode, one adapter can be connected to up to four HART field devices.

For more information, visit the Endress+Hauser website.
Universal Tool for Mobile Fieldbus Diagnostics

Source: FieldComm Group

Mar 29, 2016

The new FieldConnex fieldbus diagnostic handheld device from Pepperl+Fuchs makes commissioning and troubleshooting a fieldbus installation easier than ever. The FDH-1 can check any fieldbus segment quickly and easily with the simple press of a button.

The FieldConnex® fieldbus diagnostic handheld is a mobile device that makes it easy to install and use the fieldbus infrastructure, even within a hazardous location. In quick check mode, the handheld can be operated without any previous knowledge. The user simply connects the handheld at any point on the segment and checks the physical layer with a single push of a button. If the quality of the installation is optimal, the handheld reports "no fault." In the event of deviations, the device displays "maintenance required" or "out of specification." FDH-1’s integrated expert system detects if a fault is present, where it’s located, what type of fault, and how to correct it.

The handheld simulates faults that can occur, such as increasing noise and decreasing signals. Communication of the individual field devices and of the entire segment can be checked. This quality test is new and unique, going beyond the required conformity check. It can be accessed easily at the push of a button and ensures the stability of the fieldbus installation.
The FDH-1 tests the entire system exactly as it is installed. By clipping the FDH-1 to the wiring using test clips or plugs, there is no need to change the wiring after the test. This minimizes errors. FDH-1 offers greater reliability in fieldbus diagnostics, saves time and costs, and an evaluation can be performed during ongoing operation in hazardous areas. The FDH-1 can be operated in Zone 1, and the current circuit can be routed into Zone 0.

For more information, visit the Pepperl+Fuchs website.
FieldComm Group developer workshops planned for 2016

When it comes to developing process control systems or instrumentation employing FOUNDATION™ Fieldbus, HART®, Field Device Integration (FDI®) or Electronic Device Description (EDD) technologies, some companies choose to “go it alone.” But without accurate and in-depth training of key design personnel, they risk the outcome of their product introduction.

Automation vendors supplying intelligent products, including devices, systems and applications, can realize significant benefits from attending a FieldComm Group Developer Workshop. According to Sean Vincent, Director Technical Services, training is offered at multiple levels for professionals ranging from sales & marketing personnel seeking basic knowledge of a particular technology, to development engineers, hardware designers and others requiring a “deep dive” to assist with new product development.

“FieldComm Group serves as the caretaker for the leading intelligent field communication protocols and integration standards in the automation industry. If you are developing a product or tool in compliance with one of these technologies, it is important to receive instruction from recognized domain knowledge experts,” said Vincent.

Developer Workshops are held at FieldComm Group headquarters in Austin, Texas, USA, as well as at a certified third-party site in Düsseldorf, Germany. Training can also be conducted at a company’s facility if required. Participants attend lectures and have an opportunity for hands-on exposure to final products. In fact, developers are able to work on their specific product development during the training course.

A choice of developer training is available: Introduction to HART Protocol (2 days), HART Fundamentals and QA Testing (4 days), Introduction to FOUNDATION Fieldbus (1 day), Advanced Principles of FOUNDATION Fieldbus (3 days), and Device Integration-Writing EDD and FDI Packages (4 days).

In many cases, companies taking part in the workshops are able to optimize their product offering based on the instruction they receive, and avoid design errors leading to poor performance and customer
issues.

“FieldComm Group makes every effort to tailor workshop content to an attendee’s specific objectives, or the type of product under development, to help them succeed,” said Vincent. “We offer insights so they can understand the nuances of the technology in a way that may not be possible by just reading the specification.”

He added, “Our workshops also have value for seasoned developers in need of a fresh, outside perspective, or those wanting to learn about our new tool for FDI – the integration standard that the entire industry will be transitioning to in the coming years.

“By participating in our training, developers utilizing FOUNDATION Fieldbus, HART, FDI or EDD get answers to their questions much faster, prepare their design team much better, and develop an understanding of what’s needed to build a superior product.”

The Developer Workshop schedule for 2016 is as follows:

**Spring 2016 – Düsseldorf, Germany**
- Device Integration – Writing EDD and FDI Device Package Workshop: April 25-28
- FOUNDATION Fieldbus Introduction: June 14
- FOUNDATION Fieldbus Advanced Principles: June 15-17
- HART Introduction: June 20-21
- HART Fundamentals: June 20-23

**Fall 2016 – Austin, Texas, USA**
- HART Introduction: Oct. 3-4
- HART Fundamentals: Oct. 3-6
- FOUNDATION Fieldbus Introduction: Oct. 11
- FOUNDATION Fieldbus Advanced Principles: Oct. 12-14
- Device Integration – Writing EDD and FDI Device Package Workshop: Oct. 18-20

**Fall 2016 – Düsseldorf, Germany**
- FOUNDATION Fieldbus Introduction: Sept. 6
- FOUNDATION Fieldbus Advanced Principles: Sept. 7-9
- Device Integration – Writing EDD and FDI Device Package Workshop: Sept. 12-15
- HART Introduction: Nov. 7-8
- HART Fundamentals: Nov. 7-10

For more information, visit the [Training Workshop](#) page on the FieldComm Group website.