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Connecting the World of Process Automation

FIELD COMMUNICATION INSIDER

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11/19/2019

Amanda, *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.

In This Issue: Impact of Today's Information Models

Initiatives all over the world such as Industrie 4.0, Industrial Internet of Things (IIoT), Open Process Automation Forum (OPAF) and the NAMUR Open Architecture (NOA) are working on concepts for digital transformation and new automation system architectures. Information models are key in all of these approaches to make device information available to any kind of application in a well-structured and transparent way.

FieldComm Group, OPC Foundation and PROFIBUS/PROFINET International have taken the initiative to jointly standardize and specify the information model for process automation devices – PA-DIM. The work is being performed in the working group structure of FieldComm Group with dedicated representatives from the cooperating organizations.

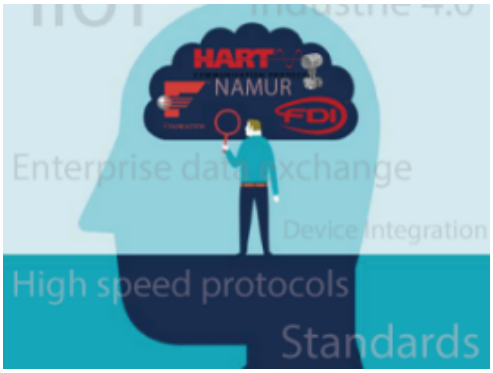
For the installed base of process automation devices, the PA-DIM is supported by Field Device Integration (FDI) technology. The FDI architecture foresees an OPC Unified Architecture (UA) information model represented through an OPC UA server. The structure of the FDI Information Model is being created from the Electronic Device Description (EDD), which is part of the FDI Package and describes all device-related information, business logic and user interfaces.

By using the FDI Information Model server, existing plants can be enhanced to expose information from HART, FOUNDATION Fieldbus or fieldbus devices through OPC UA and the standardized PA-DIM to any kind of OPC UA client. Information from existing field devices will be mapped to the PA-DIM by FDI mechanisms.

PA-DIM will be extended with new sub-models, standardizing security aspects and user interface information for comprehensive device configuration.

Read more about Information Models in this issue.

NEWS



New FieldComm Group Webinar Focused on Smart Device Data

A new webinar “The Value of Smart Devices—What You Don't Know Could Cost You,” is now available on demand.

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2019 General Assembly Meeting Planned for Berlin

FieldComm Group invites members to attend the 2019 General Assembly Meeting, to be held Dec. 9-13 in Berlin, Germany.

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Attend Our 2019 General Assembly

Learn more.

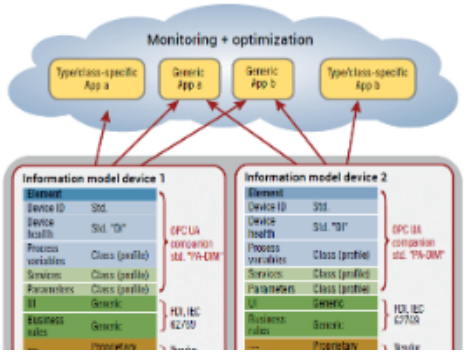
FieldComm Group™
Connecting the World of Process Automation

TECHNOLOGY

Information Models: Critical to the Process Industries

To ensure interoperability and seamless access to device information, it is necessary to standardize on the form and basic contents of the information models for certain device classes independent of a speci c communication protocol.

READ MORE



Learn How Advanced Software Eases Integration

Software systems like Field Device Integration (FDI), based on OPC UA, support a new level of innovation with data modeling that allows disparate protocols to behave uniformly at the application software level.

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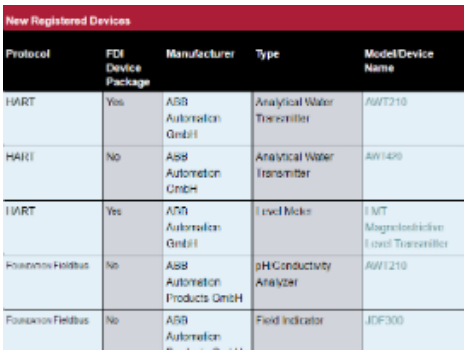
Latest Registered Foundation Fieldbus and HART Products

The number of Foundation Fieldbus and HART products registered by the FieldComm Group continues to grow. Here's a list of the latest registered and updated products.

READ MORE



New Registered Devices

Protocol	FDI Device Package	Manufacturer	Type	Model/Device Name
HART	Yes	ABB Automation GmbH	Analytical Water Transmitter	AWT210
HART	No	ABB Automation GmbH	Analytical Water Transmitter	AWT420
HART	Yes	ABB Automation GmbH	Level Meter	LMT Magnetostrictive Level Transmitter
Foundation Fieldbus	No	ABB Automation Products GmbH	pH/Conductivity Analyzer	AWT210
Foundation Fieldbus	No	ABB Automation	Field Indicator	JDF300

APPLICATIONS

Optimizing Corrosion Monitoring with Wireless Technology

Today, re ners can opt for permanently installed, wireless ultrasonic wall-thickness-monitoring sensors for corrosion monitoring. The units generate, on a continuous basis, the data required to make proper decisions and provide this information directly to plant personnel.

READ MORE

PRODUCTS

New product news you might be interested in:

- Emerson and Cisco Introduce Industrial Wireless Networking Solution
- Endress+Hauser Offers Gammapilot FMG50 Transmitter for Non-invasive Measurement
- Moore Industries SSX and SST Safety Isolators Provide Isolation and Conversion for Digital HART® Signals
- Full-featured HART Communicator Mobile App from ProComSol Now Available
- Siemens: Stranded Field Data Can Only be Rescued by Harmonized Information Models
- Yokogawa Delivers New Plant Asset Management Solution

CALENDAR

North America

ARC Industry Forum

Orlando, USA
Feb. 3, 2020
» More Information

Europe

2019 FieldComm Group General Assembly Meeting

Berlin, Germany
Dec. 9, 2019
» More Information

HART Fundamentals Workshop

Device Integration: Writing EDD and FDI Package Workshop

Düsseldorf, Germany
March 18-20, 2020
» More Information

HANNOVER MESSE Exhibition

Hannover, Germany
April 20, 2020
» More Information

Asia Pacific

Technical Seminar at Waseda University [HART]

Shinjuku, Japan
Dec. 5, 2019

Düsseldorf, Germany
March 16-17, 2020
» More Information

» More Information

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Data Acquisition

New FieldComm Group Webinar Focused on Smart Device Data

By FieldComm Group
Nov 14, 2019

Intelligent devices continue to promise to revolutionize control system configuration, diagnostics and maintenance, but bridging the literal and cultural gaps between legacy and modern systems has limited their use in many facilities.

Moderated by Jim Montague, Senior Editor, Control Magazine, and featuring Mike Boudreaux, Director, Connected Services, Emerson, and Aaron Severa, Product Manager, Pepperl+Fuchs, this webinar explains how automation end-users can effectively integrate legacy and new process automation systems, make full use of existing FOUNDATION Fieldbus and HART data, and gain a better understanding for standardization.

Register to view the webinar at the Control Magazine website.

Fieldbus

2019 General Assembly Meeting Planned for Berlin

By FieldComm Group
Nov 14, 2019

All FieldComm Group members are invited to attend the 2019 General Assembly Meeting, to be held Dec. 9-13 at the Westin Grand Berlin Hotel in Berlin, Germany. The General Assembly will include the annual member meeting, German member meeting, four days of working group meetings, a Build an FDI Device Package workshop and FDI PlugFest, and two social gatherings. These events are free of charge for members to attend.

Working Group meetings provide an opportunity for marketing and technical professionals to meet over multiple days and contribute to the development of specifications, tooling, market education, and the strategic direction of FieldComm Group.

The annual member meeting will provide members with an update on the overall state of the organization, including board of directors election and company financials.

The German member meeting will offer a consolidated place for marketing and technical personnel of member companies to learn about and act upon relevant technology initiatives, product market preparedness based on industry needs, and upcoming trends and deliverables.

The Build an FDI Device Package workshop will instruct participants on building a functioning basic FDI Device Package. The FDI PlugFest, to be jointly hosted by FieldComm Group and PROFIBUS/PROFINET International, is intended to improve the interoperability of FDI Device Packages and FDI Host Systems being developed and released into the market. Registration is required to participate in the PlugFest.

For more information and registration, please visit the FieldComm Group website..

Fieldbus

Information Models: Critical to the Process Industries

By FieldComm Group
Nov 15, 2019

The enormous instrumentation installed base in the process industries requires a digital transformation solution, which can make use of information from devices communicating via current field communication solutions. Each of these existing communication protocols employs different software structures, or information models, to represent the same information.

To ensure interoperability and seamless access to device information, it is necessary to standardize on the form and basic contents of the information models for certain device classes independent of a specific communication protocol—thus enabling seamless instrumentation information flow throughout the enterprise.

Read our Process Automation Device Information Model whitepaper.

Fieldbus / **Software**

Learn How Advanced Software Eases Integration

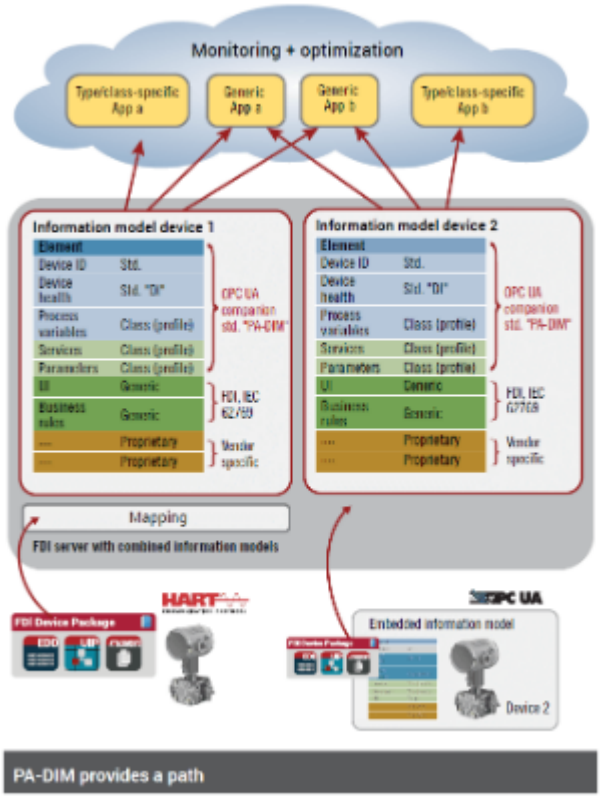
By FieldComm Group
Nov 15, 2019

A protocol- and system-independent software architecture is needed to secure the benefits of digitalization, Industrie 4.0, the Industrial Internet of Things (IIoT), and similar initiatives. These efforts require devices and systems that can cross-file and do other tasks, which in turn, necessitates IIoT interoperability and the ability to describe those devices and systems.

The interoperable, scalable and secure OPC Unified Architecture (UA) is a promising candidate for this job because it can work with companion specifications, and it networks with different partners, including FieldComm Group.

Software systems like Field Device Integration (FDI), based on OPC UA, support a new level of innovation with data modeling that allows disparate protocols to behave uniformly at the application software level. FieldComm Group maintains tools and components for the important FDI initiative.

Read the full article.



PA-DIM provides a path

Fieldbus

Latest Registered FOUNDATION Fieldbus and HART Products

By FieldComm Group
Nov 15, 2019

New Registered Devices				
Protocol	FDI Device Package	Manufacturer	Type	Model/Device Name
HART	No	ESP Safety	Gas detector	TGAES RX A
HART	No	JSC EPF SIBNA	Flowmeter	DRG.M & DRS
FOUNDATION Fieldbus	No	KROHNE Masstechnik	FMCW radar level transmitter	OPTIWAVE x400/x500
FOUNDATION Fieldbus	No	Noah Actuation Co., Let.	Electrical actuator	NA_ACTUATOR
HART	No	SHENYANG LANSHEN INSTRUMENT CO., LTD.	Electromagnetic flowmeter	Leon Meter
HART	No	SIC	Temperature transmitter	TTS

HART	No	Uniphos Envirotronics	Gas transmitter	Uniphos-501 DT
HART	No	VZLJOT	Magnetic flowmeter	TER

Updated Registered Devices

Protocol	FDI Device Package	Manufacturer	Type	Model/Device Name
HART	No	Endress+Hauser	Flowmeter	Promass 300/500
HART	No	MSA	Gas detector	IR5500/Ultima OPIR-5
HART	Yes	Schneider Electric/Foxboro	Vortex flowmeter	Vortex 84C

Updated DD Files

Protocol	FDI Device Package	Manufacturer	Type	Model/Device Name
HART	Yes	ABB	Level transmitter	LST300 Compact ultrasonic level transmitter
HART	No	Gasensor	Combustible gas detector	Ultra-IR800
HART	No	KOSO	Actuator	KGP5000
HART	No	PR Electronics	Temperature transmitter	PR 5437/6437
HART	No	Rosemount	Temperature transmitter	248 Temperature

New Physical Layer Components

Protocol	FDI Device Package	Manufacturer	Type	Model/Device Name
FOUNDATION Fieldbus	No	LEONI Kerpen GmbH	FOUNDATION Fieldbus, Cable, FF-844, EN 50288-7, 18 AWG or 1.0mm^2, armored or non-armored - 1-36 STP	ICON BUS olefin STP PVC or LSZHA (series 511 or B11)

Fieldbus

Optimizing Corrosion Monitoring with Wireless Technology

By FieldComm Group
Nov 15, 2019

Many refineries rely on equipment well past its original design life. These assets, some of which now have been in operation for double that time, face an ever-increasing risk of failure due to internal corrosion attack.

Corrosion in refineries often is caused by contaminants in produced hydrocarbons that, over time, lead to deterioration of pipe and vessel walls. Loss of equipment integrity can result in unplanned downtime and costly repairs or, in the worst case, a catastrophic event posing major risk to personnel, the environment and stakeholder value.

Exacerbating the problem, many refineries no longer process the specific type of oil, such as sweet crude, they originally were designed to handle. The changing nature of oil feedstock magnifies corrosion problems in aging refineries.

Refiners have two principal mitigation strategies against corrosion: upgrading the metallurgy of many or all the susceptible areas, often to expensive high-nickel alloys or titanium; or using chemical corrosion inhibition treatment.

Both strategies should include online corrosion monitoring at critical locations to verify the state of the metallurgy upgrade or the inhibitor distribution and effectiveness. Alternatively, online corrosion monitoring can validate that the existing mitigation strategy is performing adequately.

Refineries can turn to two methods to measure corrosion: probes and ultrasonic sensors.

Corrosion probes, which have been in use since the 1960s, rely on an intrusive element with a sacrificial tip that sits in the process fluid. As the sacrificial tip corrodes, its electrical resistivity changes. The corrosion of the sacrificial tip is used to infer the level of corrosion being experienced by the surrounding equipment.

While simple to use, corrosion probes suffer from two disadvantages:

1. The center line measured corrosion at the tip may not match the corrosion rate at the pipe wall.
2. The tip often corrodes away after two to three years while many refineries now operate five or more years between major turnarounds.

Traditional ultrasonic manual inspection techniques only provide a snapshot of equipment integrity. Typically, personnel take measurements every six months to five years. Such long intervals between measurements pose a significant safety risk because a serious event can happen in a matter of hours or days. These traditional methods can't provide the accuracy, quality and frequency of data necessary to find problems, so mitigation can't be optimized without interrupting operations.

Today, refiners instead can opt for permanently installed, wireless ultrasonic wall-thickness-monitoring sensors for corrosion monitoring. The units generate, on a continuous basis, the data required to make proper decisions and provide this information directly to plant personnel. These ultrasonic sensors, part of a *Wireless*HART network, are non-intrusive, so their installation cost is low, and can be mounted almost anywhere. Wireless data retrieval eliminates the need for cables, further decreasing installation and ongoing operating costs. Moreover, power packs should last until the next plant turnaround (typically, nine years' service is achievable). The simplicity of installation and long power-pack life make ultrasonic sensors well suited for use in remote locations only accessible during turnarounds.

Giving plant personnel access to this kind of corrosion information enables them to make the right decisions at the right time about when and where to carry out critical maintenance to support safer and more-economic operations.

Installing non-intrusive corrosion sensors, a wireless network and PC-based software to process the data doesn't require a multi-day project mandating asset shutdown. Actually, deploying a real-time wireless corrosion monitoring system at strategic locations on the outside of equipment only takes a matter of hours without any interruption to refinery operations.

For more information, please visit the HART Technology page on the FieldComm Group website.

Wireless

Emerson and Cisco Introduce Industrial Wireless Networking Solution

By FieldComm Group
Nov 15, 2019

Emerson and Cisco have partnered to introduce a next-generation industrial wireless networking solution that fundamentally transforms data management to improve plant productivity, reliability and safety.

The new Emerson Wireless 1410S Gateway with the Cisco Catalyst® IW6300 Heavy Duty Series Access Point combines the latest in wireless technology with advanced *Wireless*HART® sensor technology, delivering reliable and highly secure data, even in the harshest industrial environments.

To help enable new digital transformation strategies, this industrial networking solution combines Emerson's expertise in industrial automation and applications with Cisco's innovations in networking, cybersecurity and IT infrastructure. Driven by the demand for greater productivity, lower maintenance costs and improved worker safety, industrial manufacturers are accelerating investment in robust IoT sensor networks combined with scalable operational analytics tools to improve organizational collaboration and decision making. In these

This next-generation wireless access point provides enhanced Wi-Fi bandwidth necessary for real-time safety monitoring, including Emerson's Location Awareness and wireless video. These applications enhance personnel safety practices, improve plant security and help ensure environmental compliance. A reliable and fast connection between devices and people streamlines decision making by providing real-time analytics. It also enables a mobile workforce to virtually come together, collaborate and resolve critical issues in a timely manner.

For more information, please visit the Emerson website.

Level

Endress+Hauser Offers Gammapilot FMG50 Transmitter for Non-invasive Measurement

By FieldComm Group
Nov 15, 2019

For processes operating above 400°C (752°F) or 300 bar (4350 psi), non-invasive gamma instrumentation is often the only viable method for point or continuous level measurement. It can also be used for interface, density, concentration and flow measurement.

As a leading supplier of gamma measurement systems, Endress+Hauser addressed customer issues and developed the new Gammapilot FMG50 as the first loop-powered transmitter of its kind. This alone brings energy savings of over 95% with regard to its 4-wire predecessors. A further improvement is the ability to operate at 80°C (176°F), reducing the need for expensive water cooling.

Designed for use in the oil & gas, chemical, mineral extraction and metal industries, Gammapilot FMG50 has been developed according to IEC 61508 for SIL2 and SIL3 applications. It also has German WHG certification for use in water-overfill applications.

Supporting HART 7, the transmitter is equipped with Heartbeat Technology, ensuring that regular proof testing can be done automatically. For maintenance, NAMUR 107 diagnostics sorts alerts into four categories: maintenance required, out of specification, function check and failure. Cause and remedy information ensures that any instrument issues can be solved quickly and easily.

For more information, please visit the Endress+Hauser website.

Safety Instrumented Systems

Moore Industries SSX and SST Safety Isolators Provide Isolation and Conversion for Digital HART® Signals

By FieldComm Group
Nov 15, 2019

SSX and SST Safety Isolators and Splitters from Moore Industries 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 a SIS from basic process control or monitoring systems so that disconnections or other failures don't impact the safety system. It also has 1500Vrms 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.

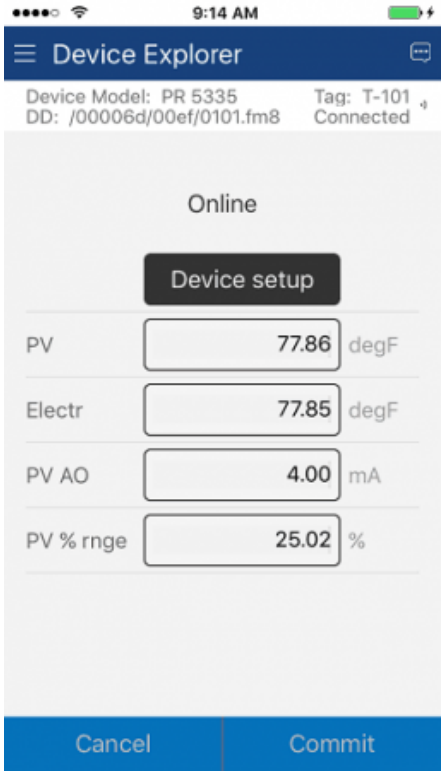
For more information, please visit the Moore Industries website.

Mobility

Full-featured HART Communicator Mobile App from ProComSol Now Available

By FieldComm Group
Nov 15, 2019

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



For more information, please visit the ProComSol website.

Data Acquisition / Fieldbus

Siemens: Stranded Field Data Can Only be Rescued by Harmonized Information Models

By FieldComm Group
Nov 15, 2019

In the light of the digital transformation, process intelligence has been extended from the process automation layer to the field level. This has sparked the motivation to opt for more openness and homogeneity when it comes to information models that help to retrieve the valuable process data from the field level and make them available to the IT world. One of the concepts is the NAMUR Open Architecture, aiming to create synergies between OT and IT world by truly open, interoperable and scalable solutions for the process industry.

SIEMENS

Today, roughly 90% of all data generated in the field are classified as stranded data because they cannot be accessed by core process control applications. To realize innovative monitoring and optimization applications, however, these data need to be accessible – without having to interfere with the core process control. Protocols such as OPC UA provide extensible information models that can be individually tailored as well as the needed security for the data transfer. The success of the NOA concept is hence highly dependent on a joint approach by all device manufacturers to agree on a common data model to unearth the treasures hidden in the field.

For more information, please visit the Siemens website.

Asset Management / Fieldbus

Yokogawa Delivers New Plant Asset Management Solution

By FieldComm Group
Nov 15, 2019

Plant Resource Manager (PRM) by Yokogawa is a plant asset management solution that enables digital transformation in IIoT-era applications. PRM will effectively digitalize and analyze big data from all remote assets, support predictive maintenance and optimize process operations. PRM allows users to:

- Remotely configure assets and visualize their status via FOUNDATION Fieldbus, HART or various protocols
- Monitor remote device performance versus KPIs
- Process information for maintenance and operations transformations

For more information, please visit the Yokogawa website.