Evolving Solution Builder in Industrial, Building and Life Automation

The azbil Group provides its customers with timely solutions via an integrated structure that extends from planning and development to maintenance and service, capable of responding rapidly to customer needs. We supply the best solution, tailored to the customer’s needs, to building management, factories and plants process automation, and even down to life line, gas and water, measurements in residential area.

Driven by the Group philosophy of “human-centered automation”, the azbil Group strives to utilize its measurement and control technologies to realize safety, comfort and fulfillment in people’s lives and societies whilst contributing to higher energy efficiency and the global environment protection.

Under azbil, the Group strives to realize safety, comfort and fulfillment in people’s lives and contribute to global environment preservation through “human-centered automation.” To realize this,

We create value together with customers at their site.
We pursue our unique value based on the idea of “human-centered.”
We think towards the future and act progressively.
At the Fieldbus Foundation’s 2012 General Assembly in São Paulo, Brazil, the continued growth of FOUNDATION™ fieldbus worldwide was never more evident. In his keynote address to attendees, Petrobras’ Director of Automation, Ronaldo Magalhaes, described his company’s huge investment in our technology. Petrobras has announced some of the most ambitious capital spending plans of any major global oil company, with an expected $224 billion investment to develop an estimated five billion barrels of reserves through 2015. Most of this money will be spent in the upstream sector.

Just as FOUNDATION fieldbus is going to be a big part of Petrobras’ future automation strategy, it has gained strong acceptance throughout Latin America, India and other developing regions. A new study by the ARC Advisory Group entitled Fieldbus Solutions in the Process Industries: Worldwide Outlook indicates that FOUNDATION technology continues to lead the market in digital fieldbus communications for the process industries. According to the study, FOUNDATION fieldbus accounted for nearly three-quarters of the total digital process fieldbus marketplace in 2011.

The advancement of industrial automation, as implemented by FOUNDATION fieldbus, is further evidenced by key initiatives such as the Field Device Integration (FDI) project. Supported by the leading automation industry trade consortiums, equipment suppliers and end users, this effort is aimed at a uniform device integration solution across all host systems, devices and communication protocols. The FDI draft specification has been published, and the next steps include completion of conformance test concepts and validation/review of the specifications within the participating organizations.

In addition, the Fieldbus Foundation is now gearing up to conduct a major demonstration of our FOUNDATION for Remote Operations Management (ROM) solution at multiple end user sites around the world. Three major companies — Reliance Industries, Petrobras and Saudi Aramco — have agreed to host live field demonstrations. Additional companies are expected to take part in the project.

At the Fieldbus Foundation, we take a lot of pride in the work we do testing and registering fieldbus products, including host systems, field devices, and physical layer components such as power supplies and device couplers. As of February 2012, we registered our 500th unique product — a linking device from Softing. Combined with our many re-registered products, that makes 759 total product registrations.

We have also enhanced our global seminar program to take the mystery out of FOUNDATION fieldbus and help end users and systems integrators realize the true life-cycle benefits of the technology. Whether you are a new user contemplating your first fieldbus project, an experienced user trying to get the most out of your installation, or a systems integrator wanting to implement fieldbus successfully, these seminars are designed for you. The best part is that through the support of our many sponsors, we are able to hold these seminars at no charge.

Lastly, you may have noticed that the Fieldbus Foundation has unveiled a new marketing theme: “In a World of Choices, FOUNDATION Brings it All Together.” I believe this theme clearly defines our organization’s direction — and the outlook for our technology.

The future is no doubt promising!

All the best,

Richard J. Timoney
President & CEO
Fieldbus Foundation
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to measure the level of solids
SITRANS LR560: high frequency radar
for a world of applications

High frequency 78 GHz radar. What does this mean for your operations?

More reliable readings. Higher frequency creates better signal reflections, and this 2-wire, FMCW radar transmitter with intelligent echo processing does just that. Even in challenging solids applications; even into your silo’s cone area.

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AG-181 SYSTEM ENGINEERING GUIDELINES AVAILABLE

The Fieldbus Foundation offers our AG-181 FOUNDATION Fieldbus System Engineering Guidelines to help end users get on the “Fast Track to Fieldbus.” This comprehensive document describes how FOUNDATION fieldbus devices are specified, installed, configured, commissioned, and maintained.

To download the AG-181, please visit:  
www.fieldbus.org/About/FoundationTech/Resources

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Fieldbus Foundation Conducts 2012 General Assembly in Brazil

Annual event showcases FOUNDATION™ technology adoption in developing regions

Nearly 250 of the world’s leading FOUNDATION™ fieldbus suppliers and end users met in São Paulo, Brazil, to attend the 2012 Fieldbus Foundation General Assembly. This important annual automation industry event took place March 6-8 at the Sheraton São Paulo WTC Hotel.
The General Assembly included a comprehensive, end user-oriented agenda that included fieldbus project case studies and tabletop exhibitions from leading automation vendors across the globe and a demonstration of the new FOUNDATION for Remote Operations Management (ROM) technology.

Following the theme “In a World of Choices, FOUNDATION™ Brings it All Together,” the General Assembly focused on the key benefits of the Fieldbus Foundation’s solution for today’s industrial operations. FOUNDATION technology provides an all-digital communication infrastructure for process automation, with powerful multivariable measurement capabilities, robust device diagnostics, and the ability to integrate wireless devices across multiple networks. The block structure of FOUNDATION fieldbus is also unique, and provides true distributed functionality for implementing control in the field, improved data management, and alarm and alert management.

As part of the event, the Fieldbus Foundation’s End User Advisory Council (EUAC) met on Tuesday, March 6, to discuss and offer direction for FOUNDATION technology. The session on Wednesday, March 7, featured a keynote address by Ronaldo Magalhaes, automation director at Petrobras, who shared many of his positive experiences and lessons learned from the huge investment that Petrobras has made in FOUNDATION fieldbus. Petrobras has announced some of the most ambitious capital spending plans of any major global oil company, with an expected $224 billion in capital spending to develop an estimated five billion barrels of reserves through 2015. Most of this money will be spent in the upstream sector. FOUNDATION fieldbus is going to be a big part of the Petrobras automation strategy moving forward. Fieldbus Foundation President and CEO Richard Timoney and Chairman of the Board Dr. Gunther Kegel each gave brief addresses, both of which highlighted the importance of FOUNDATION fieldbus in rapidly developing economies such as Brazil.

The Wednesday session also included FOUNDATION technology updates and presentations by key process end users. Alexandre Pereira Lopes from Braskem shared his company’s experiences with FOUNDATION fieldbus. He offered excellent suggestions on how to get the most out of the diagnostic data that is provided in fieldbus devices, as well as some application-specific examples. Alexandre Santana of Deten Quimica talked about their extensive use of High Speed Ethernet (HSE) and control in the field. Additionally, Clélio Alves of Petrobras discussed the implementation of a FOUNDATION fieldbus project from an engineering perspective.

On Thursday, March 8, the Fieldbus Foundation conducted its annual for-members-only business meeting.

According to Timoney, São Paulo was selected as the site for this year’s General Assembly because of its status as one of the world’s fastest growing industrial regions and the overwhelming demand for FOUNDATION technology within the area. “Brazil has been experiencing rapid growth in automation projects utilizing FOUNDATION technology and is arguably the central hub of the process automation industry in all of Latin America,” he said. “Petrobras, Brazil’s largest oil producer, has been integrating FOUNDATION fieldbus into their plants for some time, and is in the midst of a large expansion project utilizing the technology.”

Timoney noted that the 2012 General Assembly program highlighted the advantages of FOUNDATION fieldbus as a world-class solution for improving plant asset management, reliability, and economic performance. He said, “FOUNDATION technology is advancing to meet the needs of the process industries, including developments such as FOUNDATION for Remote Operations Management, FOUNDATION for Safety Instrumented Functions (SIF), Control in the Field (CiF), field diagnostics, and wireless.”

Timoney added, “Analog and digital device networks provide communication capabilities, but stop there. Fully digital FOUNDATION technology is about much more than just communication. It is a forward-looking automation solution providing a foundation for outstanding operations: from engineering, to operations and maintenance. FOUNDATION fieldbus allows you to view your process in high definition; manage information effectively; and optimize people, processes and technology.”
Sponsor Activities at the General Assembly

YOKOGAWA

Yokogawa participated in the 2012 General Assembly as a Tier I sponsor and provided an ISA100.11a wireless pressure transmitter and a wireless gateway for the FOUNDATION for Remote Operations Management multi-vendor demonstration. Yokogawa greatly supports ISA100.11a as well as FOUNDATION technology, and believes seamless integration of these two technologies provides significant benefits for users. In addition, Yokogawa demonstrated its FOUNDATION fieldbus solutions with the network-based control system STARDOM, SCADA package FAST/TOOLS, plant asset management system PRM, and FOUNDATION fieldbus devices, at the company’s kiosk.

At this year’s General Assembly, R. STAHL focused on customized solutions for hazardous location installations of device couplers. One exhibit showed an integrated, Zone 1 certified window in a device coupler enclosure, enabling maintenance staff to look inside and to check diagnostics LEDs without the need to open the enclosure. Other options include hazardous location connectors or maintenance switches to de-energize a high-power trunk for live maintenance of the equipment. R. STAHL’s wide product range of certified installation material includes enclosures in GRP, stainless steel or aluminum — offering utmost flexibility for all installation requirements.

Pepperl+Fuchs’ participation at the General Assembly was an excellent opportunity to meet with end users and display the company’s products for FOUNDATION fieldbus applications. This portfolio covers the complete fieldbus physical layer, including a new line of field junction boxes, exclusive fieldbus remote I/O for discrete and analog signals, flexible advanced diagnostics architectures, and a variety of power conditioner solutions.
The Fieldbus Foundation unveiled its FOUNDATION™ for Remote Operations Management (ROM) solution at a media event held Thursday, December 1, at the Fieldbus Center at Lee College, Baytown, Texas. Representatives of the control & instrumentation trade press learned how FOUNDATION technology would transform the industrial remote operations market by providing a single integrated infrastructure built specifically for process automation.

continued on next page
The Fieldbus Foundation’s FOUNDATION™ for ROM initiative is intended to develop a unified digital infrastructure for asset management in remote applications ranging from tank farms and terminals to pipelines, offshore platforms, and even original equipment manufacturer (OEM) skids. The technology enables fieldbus connectivity to remote I/O and the leading industrial wireless protocols, including WirelessHART® and ISA 100.11a. It provides an interface to these wireless technologies and uses Electronic Device Description Language (EDDL) and function blocks to ensure interoperability with FOUNDATION for ROM devices.

The media event featured FOUNDATION for ROM technology presentations and demonstrations, followed by a tour of the Fieldbus Center at Lee College, one of the Fieldbus Foundation’s FOUNDATION Certified Training Program (FCTP) partner sites. The Fieldbus Center facility is dedicated to training the next generation of process automation operators and technicians.

Fieldbus Foundation Global Marketing Manager Larry O’Brien commented, “FOUNDATION for ROM is important because it is the first example of being able to integrate ISA 100.11a, WirelessHART®, wired HART, and wired H1 protocols into a single standard environment. More importantly, it is one that does not sacrifice diagnostic capabilities of the existing wireless devices. Instead, we map these capabilities into our block structure to provide a standard environment for data management, quality, and more, eliminating today’s solutions which are highly customized and much more costly to maintain throughout the plant lifecycle.”

O’Brien continued, “Remote operations management is one of the fastest growing segments of the process automation business. However, it is also caught up in the turbulence of business challenges, technological change, personnel issues, and the need for operational excellence. With FOUNDATION for ROM, industrial operations can implement a true predictive and proactive maintenance strategy for remote assets that could not previously support one. Data from devices on multiple networks, both wired and wireless, are tightly integrated into the FOUNDATION fieldbus infrastructure, providing a single environment for management of diagnostic data, alarms and alerts, data quality, control-in-the-field capability, and object-oriented block structure.”

Within the FOUNDATION automation architecture, the H1 (31.25 kbit/s) and HSE (100 Mbit/s) fieldbus networks provide a distributed function block capability with HSE serving as a larger pipeline with increased speed and throughput. The FOUNDATION for ROM solution expands these capabilities by establishing open, non-proprietary specifications for an interface to wireless field device networks, a wired HSE backhaul, and a wireless HSE backhaul integrating various wireless sensor networks such as WiFi, satellite, cellular, etc. As part of this solution, FOUNDATION for ROM provides a way to bring large concentrations of discrete and analog field I/O back to the control room using HSE communication. This is key to improved integration of critical functional areas, including machinery health monitoring, safety interlocks, fire & gas detection systems, and video surveillance.

The FOUNDATION for Remote Operations Management initiative provides a unified digital infrastructure for asset management in remote applications ranging from tank farms and terminals to pipelines and offshore platforms.
within the FOUNDATION fieldbus infrastructure to manage device data and information in a unified infrastructure specifically built for the requirements of remote applications—from oil and gas field applications to water treatment facilities, offshore platforms, and even OEM skid-mounted equipment.

Remote diagnostics via FOUNDATION fieldbus provides significant improvement in labor costs by avoiding the need to send maintenance personnel on unnecessary trips to the field to check or diagnose problems with instrumentation without the benefit of remote diagnostic data. In the oil & gas industry, for example, the use of FOUNDATION fieldbus and the remote access to devices it affords can reduce the exposure and risks faced by operations personnel in the hazardous environment of an offshore platform or safety zone.

Access to high-quality process and equipment health data ultimately increases a user’s profitability by minimizing downtime and increasing production, which results from well-informed operational, maintenance, and management decisions. Experience has shown that a comprehensive remote operations management solution enables industrial organizations to respond faster to market
conditions, increase efficiency, reduce downtime, and achieve higher production availability. It also minimizes the costs and risks associated with remote site visits — enabling fewer core personnel to meet the operational requirements of numerous facilities from a single secure location.

The following companies participated in development of the FOUNDATION for ROM technical specifications:

- ABB,
- Azbil/Yamatake,
- Aniotek,
- Advanced Process Automation Technologies,
- Apprion,
- Belden/Hirschmann,
- Boeing,
- BP,
- Byres Security Inc./Tofino,
- Chevron,
- Cisco,
- Cooper Industries/MTL,
- EF Johnson,
- Emerson Process Management,
- Endress+Hauser,
- ExxonMobil,
- Fieldbus Diagnostics,
- Fieldbus Inc.,
- General Electric,
- Geode Network Technologies,
- HART Communication Foundation,
- Herman Storey Consulting,
- Hodson Consulting,
- Honeywell,
- Industrial Automation Networks Inc.,
- International Society of Automation,
- Invensys Process Systems,
- Maximum Control Technologies,
- National Instruments,
- OPUS Consulting,
- Pepperl+Fuchs,
- Phoenix Contact,
- PROFIBUS Nutzerorganisation e.V.,
- R. STAHL,
- RuggedCom,
- Saudi Aramco,
- Shell Global Solutions,
- Siemens,
- Smar,
- Softing,
- Turck,
- Westlock Controls,
- Wi-Fi Sensors Inc., and
- Yokogawa.

The FOUNDATION for Remote Operations Management preliminary specification is available free for review by Fieldbus Foundation members, and can be accessed in the Preliminary Specifications area of Fieldbus Forums at www.fieldbus.org.

Leading automation suppliers like Yokogawa have been actively involved in the FOUNDATION for ROM project, especially in development of ISA100.11a wireless gateway specifications and profiles for the wireless HSE backhaul. This technology provides open scalable integration for process and assets in plants.

R. STAHL is a supplier of Zone 1 & Division 1 remote I/O, and therefore has been heavily involved in the FOUNDATION for ROM project from the very beginning. It was recently selected as project leader of the FOUNDATION for ROM working group. With its IS1 as the world’s first explosion-protected remote I/O running the new FOUNDATION for ROM functionalities, R. STAHL will participate in the upcoming demo installations all over the world. The IS1 system was in operation during the Press Day event and at the 2012 General Assembly in Brazil.

Involvement by Foundation Members

YOKOGAWA

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Update: FOUNDATION™ Development Services Provider Program

Softing named first qualified participant in new DSP program

Softing Industrial Automation GmbH, an independent and global provider of hardware and software for industrial automation and automotive electronics, is the first company qualified under the Fieldbus Foundation’s new FOUNDATION™ Development Services Provider (DSP) program.

The DSP program helps automation vendors get started with FOUNDATION product development by making it faster — and easier — to bring fieldbus equipment to market.

The Fieldbus Foundation launched the FOUNDATION DSP program to assist automation equipment suppliers preparing to design and manufacture products employing FOUNDATION fieldbus technology. The program is intended to provide access to qualified development services providers with the know-how to make fieldbus solutions a reality. Qualified DSP participants have been evaluated to ensure they have the tools, training and experience necessary to support a wide range of FOUNDATION fieldbus development projects. Services that can be qualified in the FOUNDATION DSP program include H1 and High Speed Ethernet fieldbus device development services, as well as host system services.

Fieldbus Foundation Manager — Fieldbus Products, Stephen Mitschke, commented, “A growing number of Fieldbus Foundation members want to enter the expanding FOUNDATION fieldbus technology market. However, some organizations may view fieldbus device development as a daunting task when they have little experience or knowledge of digital bus technology. Due to limited resources, they may be required to outsource a portion of the development process. This is where the FOUNDATION DSP solution steps in.”

Mitschke added, “From small developers looking for assistance on a few key components, to multi-million-dollar companies seeking a partner to develop an entire FOUNDATION-ready device, FOUNDATION DSP can help streamline product R&D. Best of all, the program can ensure a strong ROI by reducing staffed man-hours and maximizing the efficiency of product development.”

Dr. Ernst Flemming, business development manager, Softing Industrial Automation GmbH, said, “For Softing, as the leading provider of fieldbus-enabled products, it is key to be known to manufacturers who are interested in utilizing FOUNDATION technology. The Fieldbus Foundation’s Development Services Provider program is an excellent platform to increase our visibility in this market. The stringent rules that apply to the program ensure that only high-quality technology providers participate in the program. We very much appreciate the recognition at such a high quality level and look forward to seeing the first results shortly.”

FOUNDATION DSP program participants and their development tools/services will be featured in a special section of the Fieldbus Foundation’s Web site (www.fieldbus.org). Participants are also authorized to display the official FOUNDATION DSP logo in their marketing materials.
Yokogawa’s InsightSuiteAE service solutions show you how to operate your plant assets at optimum efficiency while keeping maintenance costs to a minimum.

One such solution is field digital baseline tuning. With this service, we can help you maximize the effectiveness of your FOUNDATION™ fieldbus devices by making all asset conditions clearly identifiable at a glance, improving asset availability, and enabling a planned, predictive, and condition-based maintenance (CBM) approach.
Fieldbus Foundation’s 2012
Global Events Schedule

Where to find seminars, road shows and technology exhibitions

No matter where you are located, it’s easy to find an event related to FOUNDATION fieldbus. The Fieldbus Foundation has planned an expanded worldwide program of fieldbus educational seminars, road shows, technology exhibitions and other informative activities. These events serve the needs of process automation end users, device developers, engineering firms and other interested stakeholders. Make plans now to attend an event in your area.

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For the latest event information, please visit the Fieldbus Foundation’s website at [www.fieldbus.org](http://www.fieldbus.org).
Two of the industry’s most respected research firms have released studies showing the continued strong adoption rate for FOUNDATION™ fieldbus across the global process fieldbus market. Increasingly, automation end users are choosing the technology for a diverse range of projects — from Greenfield construction to plant upgrades and control system migrations.
ARC Advisory Group, a well-known manufacturing research and advisory firm based in Dedham, Mass., has released a study entitled Fieldbus Solutions in the Process Industries: Worldwide Outlook, which indicates FOUNDATION™ fieldbus continues to lead the market in digital fieldbus communications for the process industries.

According to the ARC report, FOUNDATION fieldbus accounted for nearly three-quarters of the total digital process fieldbus marketplace in 2011. ARC also predicts ongoing expansion of the market for process fieldbus products and solutions, with continued double-digit growth over the next five years.

FOUNDATION fieldbus provides an all-digital communication infrastructure for process automation, with powerful multivariable measurement capabilities and device diagnostics, and the ability to integrate wireless devices across multiple networks. The unique block structure of FOUNDATION fieldbus provides true distributed functionality for implementing CiF, improved data management, and alarm and alert management. FOUNDATION technology is well equipped to take advantage of the growth opportunities in fieldbus technology over the next decade.

“Fieldbus technology has made further inroads into the culture of process automation, despite the negative impact that the global recession had on the market,” said ARC analyst Kevin Crisafulli, adding that “manufacturers are beginning to understand that the real value of fieldbus savings and increasing efficiency are more closely related to operating expenditures, which will drive growth going forward.”

Commenting on the report, Fieldbus Foundation global marketing manager Larry O’Brien said, “Thanks to the efforts of our supplier partners and the stringent testing and registration process at the Fieldbus Foundation, there is a wide range of products, systems, and components to choose from. With FOUNDATION fieldbus expanding into more and more application segments such as FOUNDATION for Remote Operations Management and FOUNDATION for Safety Instrumented Functions, we are easily looking at a market opportunity in the billions of dollars on an annual basis for the foreseeable future. FOUNDATION fieldbus remains the popular choice among end users as an all-digital process automation solution that brings very positive returns to the bottom line,” he added. “The technology allows you to see your process in high definition; manage information in real time; and optimize people, processes, and technology.”

Frost & Sullivan, a leading global industrial research firm, has also issued a new market size and forecast report for fieldbus-related products and services. Unlike the ARC study, this report is limited to the fieldbus market in Southeast Asia. Nevertheless, Frost & Sullivan projects the same sustained growth in fieldbus for the process
industries. According to the report, the fieldbus market in Southeast Asia “earned revenues of US $170.1 million in 2010 and [the report] estimates this to reach US $252.0 million in 2017.”

Frost & Sullivan indicates that the chemicals, food and beverage, material handling and automotive industries are major users of fieldbus systems, as process industries find FOUNDATION technology’s ability to connect devices in a seamless web extremely useful.

Krishnan Ramanathan, the analyst at Frost & Sullivan who authored the report, states that “FOUNDATION fieldbus enables 10% higher throughput, 30% greater capacity without an increase in personnel, and 20% better efficiency. Plant automation projects also benefit from reductions in selection, engineering and construction, as well as start-up and overhead costs.”

Ramanathan concluded, “As the population increases and automation companies develop technologies that are faster, safer and economical in the long run, fieldbus technologies will find acceptance in the market. This demand is not restricted to industries that generate energy but also to emerging industries that focus on cleaner forms of energy such as solar power.”

A copy of the ARC study is available at www.arcweb.com.

A copy of the Frost & Sullivan study may be obtained at www.frost.com.
FOUNDATION™ Training Opportunities
On the Rise

Educational facilities recognize demand for qualified technology instruction

Getting started with FOUNDATION™ technology is easy — a wide range of fieldbus instructional opportunities is now available across the globe. A growing number of educational facilities are developing certified training programs to keep pace with the adoption of fieldbus-based control strategies in today’s plants, mills and factories.

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Avoid the number one pitfall of FOUNDATION™ fieldbus networks: All power and communications are vulnerable to a single broken twisted wire pair.

Designed for plant-critical fieldbus segments, TRUNKSAFE™ maintains all process communications without interruption, even if the network cable is broken or shorted.

With TRUNKSAFE, now you can take full advantage of fieldbus technology without worrying about simple cable failures.

Learn more at: www.miinet.com/moorehawke
Industrial facilities have an urgent need for better educated and better trained engineers and operators. Advanced technologies like FOUNDATION™ fieldbus put all kinds of new and powerful information into the hands of plant personnel. This provides opportunities and challenges.

Another problem is that plant workers are aging. As operators and engineers are approaching retirement, industrial organizations need well-trained people to fill their shoes.

In 2009, the Fieldbus Foundation established the FOUNDATION Certified Training Program (FCTP), a comprehensive initiative benefiting the entire industrial automation community — particularly in today’s challenging economy and employment market. The FCTP establishes uniform standards for fieldbus educational curricula and instructors, and defines acceptable levels of learning for students of the technology.

Certified training ensures professionals with a strong knowledge of FOUNDATION principles, a consistent understanding of fieldbus fundamentals, and a proven ability to implement fieldbus-based control systems. All FCTP sites offer certificates showing a student’s competency within that certification level.

FCTP-approved training facilities have a close working relationship with the Fieldbus Foundation, and as such, continually receive updates on FOUNDATION fieldbus as it continues to improve and develop capabilities. These sites are always on the leading edge of the technology.

Through the FCTP, training facilities, curricula and instructors are all audited to ensure they meet program requirements. Certified sites are required to maintain multiple FOUNDATION fieldbus hosts and devices onsite to demonstrate competence with fieldbus technology. They must also demonstrate to auditors that their course material adheres to set instructional standards.

What are the benefits of certified training over vendor-specific training?

• Students can choose a certified training program from approved educational sites around the globe.

• Students are assured that each certified training program adheres to FOUNDATION technology standards and is approved by the Fieldbus Foundation.

• Students are able to market themselves as having an FCTP certificate to potential employers. They are also eligible to be listed on the Fieldbus Foundation website as a certified FOUNDATION professional.

• Students can be listed on the Fieldbus Foundation website by certificate achieved.

The FCTP offers three types of certification:

• FOUNDATION Certified Professional
• FOUNDATION Certified Support Specialist
• FOUNDATION Certified Technical Specialist

The FOUNDATION Certified Professional certificate is geared towards engineers, designers, main instrumentation controls contractors, and startup/commissioning specialists wanting to increase their knowledge base on the design, planning, and implementation of fieldbus systems.

The FOUNDATION Certified Support Specialist certificate is appropriate for sales professionals, end user management, and plant operating staff wanting to be knowledgeable enough to communicate intelligently about fieldbus technology.

The FOUNDATION Certified Technical Specialist certificate is designed for maintenance technicians, supervisors, and contract service support specialists who install, maintain, repair/replace and troubleshoot fieldbus systems.

Additional information regarding certified fieldbus training is always available from the Fieldbus Foundation at www.fieldbus.org.

Certified Training is currently available at the following sites:
Honeywell solutions make your people, assets and processes more efficient.

The open standards of FOUNDATION Fieldbus are integrated transparently with the Experion® Process Knowledge System (PKS), offering a high performance, advanced fieldbus solution. Whether your project requires commissioning fewer than 20 devices or thousands of devices, Honeywell offers unsurpassed experience and expertise in defining the Experion fieldbus solution that best suits your needs, while reducing installation costs, decreasing commissioning time and lowering maintenance expenses.

Honeywell

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Field Device Integration Effort Gains Momentum

Development moves ahead with publication of preliminary FDI specifications

Process control systems and field devices are notorious for not communicating well with each other. But for industries such as oil & gas production, chemicals, mining and metals, pulp processing and power generation, the reasons to integrate these assets are well established: to reduce capital and operating expenses, minimize downtime, increase operator effectiveness, and simplify maintenance strategies.

continued on next page
There have been plenty of attempts to integrate instrumentation technologies over the years. Unfortunately, the efforts have proven to be costly, hard to maintain, and nearly impossible to upgrade, and tend not to work as well as envisioned.

Now that is changing, thanks to the dedicated efforts of the Field Device Integration (FDI) Cooperation Project.

Supported by a “who’s who” of automation industry trade consortiums, equipment suppliers and end users, the FDI Cooperation Project is aimed at a uniform device integration solution for the process industries across all host systems, devices and communication protocols. It is based on rigorous use case requirements, incorporates the best aspects of each member technology, and eliminates redundancies where they may exist. The FDI solution is specifically intended to preserve backward compatibility and operating system independence.

Development work on FDI is being supported by five major automation foundations — Fieldbus Foundation, FDT Group, HART Communication Foundation, Profinet International, and OPC Foundation — who have formed FDI Cooperation LLC, a joint company committed to developing a single technology for the management of information from all intelligent devices throughout all areas of the plant.

The mission of the group is to:

- Complete the standardization of FDI under the International Electrotechnical Commission (IEC),
- Manage the FDI specification,
- Finalize FDI tool kits for system and device manufacturers,
- Promote and provide high quality technology support for FDI, independent of and common to the respective communication protocols,
- Preserve end user and automation manufacturer investments by providing state-of-the-art technology that is fully backward-compatible, and
- Ensure stability, interoperability, and compatibility of FDI-based products.

FDI technology will provide a scalable solution that users can deploy in applications from simple configuration to complex management of the most sophisticated field devices for tasks associated with all phases of their lifecycle from configuration, commissioning, and diagnostics to calibration. FDI is a truly unified approach addressing end user requirements across the spectrum, and will essentially eliminate the need for different solutions for different devices.

Recent progress on the FDI solution was the focus of a press conference at the 2012 ARC Forum in Orlando, Florida. At the event, the Fieldbus Foundation, Profinet, and HART explained that although they all use Electronic Device Description Language (EDDL) as a core technology, each varies the technology slightly. The FDI Cooperation has harmonized EDDL across communication protocols, enabling single cross protocol FDI design and test tools, including a common Electronic Device Description (EDD) Interpreter. The completion of EDDL harmonization greatly facilitates the second step and the ultimate goal of FDI: harmonization.
MTL Redundant Fieldbus Barriers... maximum protection for your critical loops

Fieldbus Barriers are widely adopted in FOUNDATION™ fieldbus networks to connect to intrinsically safe instruments in Zone 1 hazardous areas. The new Redundant Fieldbus Barrier from MTL ensures that your critical fieldbus loops are protected against hardware failure, maximizing plant up-time and avoiding lost production.

So you can now get the benefits of heavily loaded segments and long trunk cable lengths with the security of physical layer redundancy and immediate fault notification.

- Unique, patented redundant configuration for super-high system availability
- Complete enclosure systems for up to 6 intrinsically safe spur connections
- Failure alarm direct to host control system via integrated fieldbus device
- Supports full feature set of class-leading 9370-FB Series
- Live-pluggable system components, without ‘gas free’ constraints
- Optional, integrated surge protection for trunk and spurs

The FieldPlus™ range of products deliver an unrivaled source for system specifiers and all parties involved in the design, installation and commissioning of fieldbus networks.

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Break free.
Push Performance without constraints.

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between EDDL and FDT technologies.
In November 2011 at the NAMUR meeting in Germany, FDI device packages were used for the first time to integrate FOUNDATION™ fieldbus, HART, and Profibus field devices from various manufacturers within a process control system. Typical applications, such as parameter assignment, configuration, diagnostics, and maintenance were demonstrated. The purpose of the working prototype was to verify the FDI concepts, apply the standard host components in a system context, and demonstrate FDI functionality.

The first draft of the FDI specification has been published. The next steps of the project include completion of:

• Conformance test concepts,
• Validation and review of the FDI specifications within the foundations, and
• FDI standard host components, such as EDD engine, and User Interface (UI) engine by the FDI Cooperation.

For more information, visit the FDI Cooperation website at www.fdi-cooperation.com.

Major Suppliers Contribute to FDI Effort

**Emerson Process Management** is a strong supporter of the FDI initiative. Emerson is represented on the Board of Managers and the Emerson representative holds the office of Secretary. Emerson also has multiple representatives in the technology working groups. Finally, Emerson has volunteered to develop the software to read and transfer the information from the FDI Device Packages for the HART, FOUNDATION fieldbus, and Profibus protocols. The Device Package is the essence of FDI.

**Yokogawa** has been involved in the FDI Cooperation Project since the very early stages of activity and has worked as a key member of its tools and components architecture team. In September 2011, Yokogawa was invited to join FDI’s Board of Managers. It is also an official industry partner. Yokogawa contributes to FDI tools development by being responsible for reference host implementation — the base environment of FDI device package evaluation. The company proactively participates in FDI standardization activity to maintain and enhance customer benefits.

All major automation industry foundations support the FDI Cooperation Project.
Module-based architecture – for single loop Integrity

Modular fieldbus components
For reliable connectivity from the process controller to your field devices, choose Phoenix Contact’s line of modular fieldbus components.

Our redundant fieldbus power supplies feature:
- Swappable plugs, providing high availability
- ACB (Automatic Current Balancing) technology
- High power output: 500 mA @ 28 V DC

Field junction box assemblies are approved for installation in Div. 2/Zone 2 areas and field device connectivity in Div. 1/Zone 0 or 1 hazardous location, using modular device couplers.

These Phoenix Contact products go beyond providing short circuit and energy limiting – their compact module width and single sided spur wiring allow size and weight optimization.

Learn more about our modular fieldbus components – call 1-800-322-3225 or visit www.phoenixcontact.net/processfieldbus.

Conventional process control withholds valuable information. PlantPAX turns it into intelligence.

Listen. Think. Solve:

Optimize the use of resources, energy, manpower, and equipment. With the PlantPAX™ process automation system. This flexible, scalable plant-wide solution, based on a single open platform, features advanced control and diagnostics. It provides business-level intelligence. And reveals hidden costs. Connect productivity to cost recovery.

Visit http://www.rockwellautomation.com/solutions/process/
An overview of the largest — and newest — FOUNDATION™ fieldbus projects

From oil & gas refineries on the U.S. Gulf Coast and paper mills in Canada, to offshore platforms around Latin America and petrochemical plants across Europe and the Middle East, FOUNDATION™ technology is improving the business results of industrial end users and owner/operators around the world.

FOUNDATION fieldbus makes headlines with large new plants that incorporate tens of thousands of devices, but it’s also making inroads in modernization applications around the world. There is a large installed base of old process automation systems in desperate need of refreshing, and many end users are choosing FOUNDATION fieldbus as part of these projects as they develop their automation strategy for the coming decades. One reason is that FOUNDATION technology is adaptable, and has changed to accommodate new developments in the world of information technology as they are adopted by the process industries.

The first commercial FOUNDATION fieldbus applications were undertaken in 1997. Since that time, millions of fieldbus devices have been sold and installed, and countless person-years of project expertise and best practices have been accumulated.

Today, 68 percent of all new industrial automation projects in the process industries globally utilize FOUNDATION fieldbus in some fashion. While many Greenfield sites incorporate the technology, an ever-increasing number of control system modernization and migration projects are also benefiting from FOUNDATION technology.

FOUNDATION fieldbus is now controlling the largest plants in the world, in some of the most critical processes:

Qatar Shell GTL Ltd., Qatar

Pearl GTL is the world’s largest, fully integrated gas-to-liquids (GTL) plant. A joint project by Qatar Petroleum (QP) and Royal Dutch Shell, this facility converts natural gas into clean-burning naphtha and transport fuels, as well as smaller by-products of the process. The Pearl GTL operation needed comprehensive process instrumentation and gas analytics designed to provide relevant data directly from the heart of the plant. This would allow the process control system to run processes at optimal productivity and efficiency.

Thanks to FOUNDATION technology, Pearl GTL expects to transform data derived from fieldbus device diagnostics into focused, actionable intelligence. Applications will collect and organize data from a variety of sources, as well as analyze and identify processes and equipment systems and faults. The right personnel can be notified of potential failures to avoid incidents.

Reliance Petroleum Ltd., India

Reliance Petroleum Ltd., a subsidiary of Reliance Industries Ltd., constructed a second refinery adjacent to an existing Reliance refinery at Jamnagar, Gujarat, India. The new facility has a crude processing capacity of 580,000 barrels per day, while the associated polypropylene plant has a capacity of 0.9 million metric tons per annum (MTPA). This operation ranks among the top 10 global refineries.

Because the refinery is so large and complex, Reliance wanted to be sure it could operate at an optimal level as quickly and as long as possible between outages. This was a primary driver for the use of smart field devices, and in particular FOUNDATION fieldbus. With refining processes stabilized at capacity, Reliance can now explore the asset management capabilities delivered through FOUNDATION technology, with the expectation of reaping significant OPEX benefits.

Duke Energy Carolinas, LLC, United States

At its Oconee nuclear station, Duke Energy chose FOUNDATION technology as a robust, scalable, long-term control solution with widespread industry support. Unlike analog technology, which is now reaching obsolescence, fieldbus is a state-of-the-art automation platform that will be serviceable well into the future. Fieldbus also is more process-oriented than typical manufacturing networks.

CNOOC and Shell Petrochemicals Company Ltd. (CSPC), China

The CSPC petrochemicals complex is a joint venture between Shell Nanhai B.V. and CNOOC Petrochemicals Investment Limited (CPIL). The complex employs real-time device management and diagnostics software connected to 16,000 FOUNDATION fieldbus devices. The system continu-
ously monitors the health of field instrumentation, resulting in increased reliability and fewer suspect measurements. With this preventive maintenance capability, plant operators can have greater confidence that their facility will perform as expected.

**Petrobras, Brazil**

Petrobras, Brazil’s national petroleum company, recognized that FOUNDATION fieldbus provided an open, decentralized digital control architecture to reduce process downtime and subsequent losses at its offshore facilities. Petrobras has announced some of the most ambitious capital spending plans of any major global oil company, and FOUNDATION technology is going to be a big part of its automation strategy moving forward.

**Ashland Chemical, United States**

At its 1,4-butanediol (BDO) plant in Lima, Ohio, Ashland decided that a process control system utilizing FOUNDATION fieldbus H1 and High Speed Ethernet (HSE) networks with flexible function blocks was the best answer to maintaining quality production. The fieldbus equipment was installed on a filter purge system incorporating analog control, discrete input/output (I/O) and control distributed to the lowest level where practical. FOUNDATION fieldbus’ function block structure supports control in the field, which is an enabler for single-loop integrity and higher process availability.

**Nederlandse Aardolie Maatschappij BV (NAM), The Netherlands**

The NAM gas field is located in Groningen province, in the far northeastern corner of The Netherlands. A recent upgrade project at the field made extensive use of FOUNDATION technology. The combination of fieldbus networking and advanced asset management strategies helps keep track of thousands of valves and instruments. When problems arise, maintenance engineers can get a quick picture of what is happening with the equipment.

**Suncor Energy, Canada**

The Athabasca Oil Sands in Northern Alberta, Canada, are the largest oil reserves in the world, and Suncor Energy Inc. is the original and single largest investor in the region. At Suncor’s Firebag in-situ operations, FOUNDATION fieldbus has proven to be an excellent tool for asset management and predictive maintenance for plant instrumentation. Currently, there are over 8,000 fieldbus devices in service at the Firebag facilities.

**Shell Deer Park Refining Company (SDPRC), United States**

Shell Oil believes FOUNDATION technology is the key to reduced operations and maintenance costs, increased plant performance and efficiency, and resistance to obsolescence at its facilities worldwide. Thanks to a fieldbus-based control solution, the company achieved a significant performance improvement in reliability and unit utilization at its Deer Park refinery in Pasadena, Texas.

**PEMEX, Mexico**

PEMEX, Mexico’s state-run oil company, upgraded the instrumentation at its General Lazaro Cardenas refinery with FOUNDATION fieldbus. The project replaced 30-year-old pneumatic instruments with interoperable fieldbus devices delivering rich diagnostic information about equipment health and status.

**Celulosa Arauco, Chile**

Celulosa Arauco y Constitución S.A., one of the world’s largest forestry companies, employed FOUNDATION technology when constructing its Valdivia pulp mill in Chile. Fieldbus devices opti-
mized process monitoring and control at the site, and were the answer for implementing a proactive maintenance strategy.

**Shin-Etsu, The Netherlands**

Shin-Etsu is the largest PVC manufacturer in the world. Vinyl chloride monomer is piped from the company’s manufacturing plant at Rotterdam, The Netherlands, to a facility in Pernis where PVC is produced. Shin-Etsu’s initial FOUNDATION fieldbus installation consisted of 35 fieldbus segments in a Zone 2 hazardous area, using control in the field. With FOUNDATION technology, plant personnel were able to eliminate wiring and termination failures, which had been identified as the main cause of maintenance problems.

**LUKOIL, Russia**

LUKOIL successfully modernized its refinery by installing FOUNDATION fieldbus. The plant produces 12 million tons of petroleum per year. It has installed fieldbus at a lube oil blending facility, a water treatment plant, and a hydrogen rectification plant with over 3,000 devices. The use of FOUNDATION technology enabled LUKOIL to lower its maintenance costs and manage assets in response to market demand.

Additionally, a number of recent projects employing FOUNDATION technology have been announced. These include:

**Azerbaijan International Operating Company, Azerbaijan**

The Azerbaijan International Operating Company is automating a new offshore oil platform in the Azerbaijan sector of the Caspian Sea. The Chirag Oil Project will enable additional oil to be recovered from the Azeri-Chirag-Guneshli field. It will employ FOUNDATION fieldbus communications, digital automation systems, asset management software, and intelligent field devices to provide process control and access to management information. A network of intelligent transmitters and valve positioners will deliver continuous process and equipment health information to identify potential problems before they affect operations.

**Yunnann Chihong Zinc & Germanium, China**

The Yunnann Chihong Zinc & Germanium processing plant in China’s Yunnan province will increase its production capacity to over a million tons annually over the next five years. The facility will incorporate a digital automation system with FOUNDATION fieldbus devices and advanced plant asset management. Thanks to predictive field diagnostics to enable early detection of potential issues and proactive maintenance planning, the new automation solution will help improve smelting efficiency and reduce energy consumption in the lead ISA furnace process and zinc pyrometallurgy process, as well as increase efficiency in sulfur dioxide emission control and waste heat recovery.

**Bien Dong Petroleum Operating Company, Vietnam**

Bien Dong Petroleum Operating Company (BDPOC), a subsidiary of Vietnam Oil and Gas Group (PetroVietnam), will utilize an integrated process control system for its new central processing platform in Vung Tau, Vietnam. This platform will help meet Vietnam’s increased gas demands by providing two billion cubic meters of gasoline each year and up to 20,000 barrels of condensate daily. Using the integrated controls, BDPOC expects to improve its gasoline production and storage capacities, and at the same time, save on maintenance costs.
SES (ZaoZhuang) New Gas Company Ltd., China

SES (ZaoZhuang) New Gas Company Ltd. has constructed a new coal gasification facility in Shandong Province, China, which uses proprietary U-GAS® technology to produce 20,000 normal cubic meters of synthetic gas per hour. This fuel is supplied to the adjacent Hai Hua Coal Company as feedstock for its methanol plant, as well as its coke ovens and internal power generation system.

SES New Gas engineers established strict requirements for accurate process control, and optimal loop control and predictive maintenance utilizing intelligent field devices. Plant designers felt the predictive diagnostics of FOUNDATION fieldbus devices would help reduce commissioning time and guarantee long-term stable operation for overall production efficiency.

Changxing Glass, China

Changxing Glass, a subsidiary of Zhejiang Glass Co., Ltd., operates one of the largest and most sophisticated float glass production lines in China. The company needed an effective automation solution to ensure a quick startup with minimal risk and a full-capable, reliable operation. It selected FOUNDATION fieldbus and an advanced asset management application to improve efficiency, reduce workloads and accelerate startup in an extreme high-temperature environment.

By utilizing FOUNDATION technology, Changxing Glass achieved a 15% reduction in field devices and 60% savings in cable installation. Best of all, its new glass production facility was able to start up 20 days ahead of schedule.

Jiangxi Copper Corporation, China

Jiangxi Copper Corporation is a large, integrated enterprise in China’s non-ferrous metals industry with operations in copper mining, milling, smelting and processing. It is the largest copper producer in China, as well as a major sulfur, gold, and silver producer.

Jiangxi Copper’s Guixi smelting plant faced the challenge of increasing production throughput while improving availability and product quality. The facility turned to FOUNDATION technology as a solution for managing plant assets to optimize its reliability and availability. Fieldbus devices provide powerful information to enable predictive maintenance and lower maintenance costs by up to 30%.

Doosan Power Systems, United Kingdom

Doosan Power Systems anticipates that its new carbon capture demonstration facility will be the largest in Europe, capturing 100 metric tons of carbon dioxide per day. This operation will make use of FOUNDATION technology in conjunction with high-density temperature transmitters in temperature-profiling applications used to diagnose the health and efficiency of key plant assets.

City of Oviedo, Florida, United States

The municipal water system of Oviedo, Florida, recently installed a FOUNDATION fieldbus-based system, devices, and plant asset management application on one of its water treatment facilities. Reduced engineering costs and the need for on-site instrument checks were the primary reasons for choosing FOUNDATION technology. The fieldbus control solution allows operators and engineers at the engineering office to continually monitor the status of all field devices, eliminating the need for visual on-site checks. It also reduces the amount of engineering that needs to be done when a transmitter is replaced.
**Fieldbus Product Highlights**

**PLANT LIFE CYCLE OPERATION MANAGEMENT? ASK THE PROFESSIONAL**

More stabilized and sustainable plant operation with secured, high-level safety is required in industrial sectors to satisfy planned production as well as to solve the global issues such as energy conservation and environmental protection. Azbil delivers a variety of solutions to this challenging problem under the unique concept “Plant Life Cycle Operation Management.” In every life stage of the plant, beginning with engineering for the new project, commissioning, production and maintenance, Azbil helps customers with the most suitable digital field technologies and services, especially for control valves and field instruments, not only to minimize downtime but also to achieve best performance of operations.

Control valves and measurement instruments must be in required conditions all the time as “sensing and heartbeat” functions of the plant. Azbil’s latest proposal is to organize these living body elements in the field through monitoring and diagnosis. Ask Azbil what the Innovative Field Organizer (IFO) and the most recent Control Valve Advanced Diagnostic Solution “PLUG-IN Valstaff” are!

AZBIL • www.azbil.com

**SELF-CONFIGURING Foundation FIELDBUS FIELD INDICATORS — 8-CHANNEL RID14 AND RID16**

Endress+Hauser’s indicators RID14 and RID16 offer the latest way of displaying Foundation fieldbus variables — a pure display function.

- Plug and see: the new listener mode does not require any function block connection despite communicating normally on the fieldbus.
- For flexible integration and universal applicability the function block connection can be used.

The Listener Mode supports quick commissioning, causes less traffic on the bus and saves costs as no function blocks are needed. The advanced diagnostic block delivers clear maintenance instructions and explanations for alarms and current device status to support commissioning or failure elimination. Besides LAS capability and two ISEL blocks, there are arithmetic, integrator and PID blocks available as well. The device is ITK 5.2.0 conformant and is fully integrated into all major FOUNDATION fieldbus systems. The indicators feature a large, backlit, high-contrast LC display with bargraph, online sensor status for predictive maintenance and plain text field for TAG or unit. Various housing forms and materials (e.g. glass reinforced plastic, aluminium or stainless steel) are designed to IP67/NEMA4x. Intrinsically safe and explosion-proof versions are available with ATEX, FM, CSA or IEC Ex certification.

ENDRESS+HAUSER • www.endress.com/lp/pcw/ad_lp_RID14_RID16

**YOKOGAWA’S PLANT ASSET EFFECTIVENESS OPTIMIZATION SERVICE IMPROVES PLANT PERFORMANCE**

Yokogawa’s InsightSuiteAE, a key solution services for the Yokogawa VigilantPlant Asset Excellence initiative, aims to improve operation and maintenance, and to maximize the reliability and availability of plant assets by achieving real utilization of Field Digital Technology.

With expanding FOUNDATION fieldbus technology, the information which can be obtained from field devices is drastically increased. Appropriate system and experiential knowledge is very important to fully utilize huge amounts of information. Yokogawa’s solution, InsightSuiteAE, provides the best tools and consulting services to customers for further utilization of field digital information.

InsightSuiteAE prioritizes field digital information for ease of use and provides support to establish maintenance workflows based on it.

- **Plant Resource Manager (PRM)** — PRM is a tool that provides online access to all field devices via a field digital network so that you can carry out essential management tasks such as changing device parameters.
- **Field Asset KPI Report** — Based on information gathered from field devices, KPI reports are generated that help to visualize which device or process interface is likely to experience an abnormality.
- **Consulting Services** — Using accumulated know-how and expertise, Yokogawa offers baseline tuning of field digital based system and consulting services to correct problems identified in KPI reports. Consulting reports present proposals on how to make use of device information, which may include use of PRM to optimize daily maintenance workflows.

YOKOGAWA • www.yokogawa.com/vps/sisv/vps-asset-en.htm

**TRULY INTEGRATED CONTROL AND INSTRUMENTATION ... ONLY FROM ABB**

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Fieldbus Product Highlights

**EMERSON ANNOUNCES NEW OPTIONS FOR ROSEMOUNT® SINGLE-LEAD GUIDED WAVE RADAR (GWR) LEVEL TRANSMITTERS FOR CHALLENGING APPLICATIONS**

Emerson Process Management has enhanced the single probe offering of the Rosemount® 5300 Series Guided Wave Radar (GWR). The new options include a thicker rod for longer measurement lengths and a Hastelloy C-276 probe and wetted parts for applications in corrosive, hot and high pressure environments. The new, thicker 13mm probe is designed for an extended measurement range and is available in stainless steel for standard operating temperatures and pressures. The new Hastelloy C-276 probe and wetted parts option make the transmitter ideal for use in corrosive, hot and high pressure environments.

**EXPERION® PKS — THE KNOWLEDGE TO MAKE IT POSSIBLE**

**Improved Performance** — Experion® PKS is the only automation solution that captures personnel knowledge and workflows to deliver sustainable efficiencies, merging disparate functions and systems for timely information access and better decision-making.

**Project Implementation** — Honeywell offers unsurpassed project execution and service capabilities through more than 2,700 engineers and designers through a global network of more than 50 design centers, proven methodologies and tools to consistently deliver on time and on budget.

**Lifecycle Investment Protection** — Experion helps customers cost-effectively manage their control and safety infrastructure in the face of constantly evolving technology with extended lifecycle support, flexible and easy migration paths, and virtualized migration capability.

**THE LARGEST FOUNDATION FIELD BUS INSTALLATION IN THE WORLD CHOSE THE FOXBORO I/A SERIES® SYSTEM. THERE’S A REASON.**

The robust I/A Series System excels at meeting demanding requirements for uptime, system speed, size and longevity. Our fieldbus solutions offer faster startups, easier device commissioning, and truly open support to manage any device from any vendor. The result is a high availability solution with superior device management, making it easier to engineer and start-up a plant in a fraction of the time.

**NCS-TT106 TEMPERATURE TRANSMITTER, IT’S READY FOR YOU!**

As one of the leading suppliers of premium industrial communication products (FOUNDATION fieldbus, Profibus PA, HART and Modbus), Microcyber has developed an NCS-TT106 Temperature Transmitter with FOUNDATION fieldbus and Profibus PA. It supports multiple temperature sensors and has become a fieldbus temperature transmitter with high performance.

- Head-mounted with B type housing (DIN 43729)
- High accuracy: ±0.1 °C (Pt100, Pt1000)
- Thermal resistance supports 2-wiring, 3-wiring and 4-wiring

**REDUNDANT FOUNDATION FIELD BUS PHYSICAL LAYERS**

One difficulty still remains with fieldbus technology: all segment communications and power integrity are vulnerable to a single broken, twisted wire pair. The MooreHawke TRUNKSAFE Fault-Tolerant Fieldbus System provides a cost-effective, yet highly reliable, strategy to maintain continuous communications between field devices and a host system in the event of any single point failure on a FOUNDATION fieldbus physical layer.

**NEW REDUNDANT FIELDBUS BARRIERS FROM MTL**

Fieldbus Barriers are widely adopted in FOUNDATION fieldbus networks to connect to intrinsically safe instruments in Zone 1 hazardous areas. The new Redundant Fieldbus Barrier from MTL ensures that your critical fieldbus loops are protected against hardware failure, maximizing plant up-time and avoiding lost production. So you can now get the benefits of heavily loaded segments and long trunk cable lengths with the security of physical layer redundancy and immediate fault notification.
Fieldbus Product Highlights

**PEPPERL+FUCHS INTRODUCES NEWEST VERSION OF ITS ADVANCED DIAGNOSTIC MODULE DTM SOFTWARE**

Advanced Diagnostic Modules (ADM) monitor the quality of fieldbus communication for FOUNDATION fieldbus H1 and PROFIBUS PA networks, and Diagnostic Manager software includes a number of updates that dramatically speed fieldbus commissioning and take the guesswork out of troubleshooting for ADM users. The most significant improvement is a built-in expert system that automatically learns the communications behavior of a segment during commissioning, and over time is able to diagnose any situation on the basis of past experience. Additional updates of significance include: automated tag reading to enable reading and documenting tags and device IDs in combination with any FOUNDATION fieldbus host, and an improved oscilloscope which offers more trigger events and automatically captures up to 10 shots in a row; each bit and telegram is identified with type and value, as well as source and destination address.

**PHOENIX CONTACT RELEASES NEW SOLUTIONS FOR FOUNDATION FIELDBUS**

Phoenix Contact has added two new families to its ever-growing process infrastructure portfolio. A new line of preconfigured junction boxes makes it easy to connect and protect process instruments, and a redundant fieldbus power supply can prevent downtime in critical applications. In the field, FB-…-SS stainless steel and FB-…-AL aluminum enclosure assemblies include internal components for trunk connection, termination, surge protection and flexible shielding for easy connection. The user can snap in the necessary type and number of modular device couplers, FB-2SP or FB-ISO, based on the hazardous area and isolation requirements. This reduces installation costs by avoiding unused capacity and minimizing enclosure size. At the same time, a one-to-one coupler to instrument relationship increases operational integrity.

**INTEGRATE FOUNDATION FIELDBUS TECHNOLOGY TO THE PlantPAx PROCESS AUTOMATION SYSTEM**

The PlantPAx system from Rockwell Automation allows use of devices from many vendors. This flexibility includes fully integrating FOUNDATION fieldbus to any ControlLogix® platform through linking devices 1788-EN2FFR and 1788-CN2FFR. These modules, which provide a direct link from Ethernet/IP or ControlNet to the FOUNDATION fieldbus H1 device level network, enable seamless data distribution and execution of process control with devices from multiple sources.

**DISCRETE I/O SIGNALS FOR FOUNDATION FIELDBUS H1**

Enabling an effective connection of Ex i discrete signals in a FOUNDATION fieldbus environment, R. STAHL’s explosion-protected Digital I/O Coupler for the ISbus system ensures a direct and consistent integration of simple sensors and actors. The coupler can be used to connect proximity switches, contacts, indicator lights and a wide range of solenoid valves. Up to 4 intrinsically safe solenoid valves including two position feedback signals each can thus be directly integrated into a FOUNDATION fieldbus H1 network. Extensive function block support ensures solutions benefit from advanced functions such as AI for frequency signals, CI for counters, and logic transducer blocks for logical input/output combinations.

**SITRANS LR560 IS THE FIRST 78 GHz RADAR LEVEL TRANSMITTER FOR CONTINUOUS LEVEL MEASUREMENT OF SOLIDS**

Sitrans LR560, Siemens’ newest radar transmitter for solids level measurement, is proving itself in industries across the globe. As the first radar level transmitter to operate at a 78 GHz frequency, Sitrans LR560 is unmatched on the market. Add to that a growing list of accolades, including finalist for the Canadian Manufacturers and Exporters Association (CME) 2011 Awards for New Technology and Processing Magazine’s Breakthrough Product of the Year for 2011. The 78 GHz transmitter emits an exceptionally short wavelength and has a narrow 4-degree beam angle, which provides exceptional signal reflection even from solids with a steep angle of repose. Sitrans LR560 reduces installation challenges and costs, as its small size allows it to fit in almost any silo opening without modifications. The transmitter requires little to no upkeep. The Sitrans LR560 can be connected directly to your system via FOUNDATION fieldbus, HART, or Profibus PA.

**SOFTING’S FF-CIT GUARANTEES FAST AND COST-EFFICIENT CONFIGURATION OF FOUNDATION FIELDBUS NETWORKS AND FIELD DEVICES**

The FF-CIT (FOUNDATION Fieldbus Configuration and Integration Toolset) is a complete and field-proven library of functions for the configuration of FOUNDATION fieldbus networks and field devices. FF-CIT allows the creation of “schedules” by using the FOUNDATION fieldbus-typical function blocks. In the current 4.2 version, the FF-CIT supports multi alarms and the advanced diagnostic profile FF-912, which is based on the NAMUR recommendation NE-107. The integration of FF-CIT guarantees the fastest possible time-to-market. At the same time, the final products will meet the latest FOUNDATION fieldbus host profile 61b.

**SOFTING**

www.softing.com
Foundation Fieldbus – we put the pieces in place.

The right skills to optimize your projects.

It's powerful and versatile, but getting the most from your Foundation™ fieldbus architecture is a major challenge. At Endress+Hauser, we complement our wide product offering with top industry expertise and experience. This enables you to realize your project's potential and achieve the return on investment you expect. Independent of the DCS we offer you solutions integration for condition monitoring, asset management and control in the field. We deliver improved plant performance and better business results and reduce hassle and risk. Nothing puzzling about that.

www.automation.endress.com/fieldbus
Analog and digital device networks provide communication capabilities, but stop there. FOUNDATION™ technology is about much more than just communication. It is a forward-looking automation infrastructure for outstanding operations: from engineering, to operations and maintenance.

- Fully digital technology providing transmission of multiple process variables and incorporating NAMUR NE107 recommendations for managing diagnostic data.

- Object-oriented block structure allowing for implementation of control in the field, improved data management, and support of alarms and alerts.

- FOUNDATION for Remote Operations Management (ROM) integrates both ISA 100.11a and WirelessHART® devices, remote I/O, and other network technologies specifically for remote applications across a High Speed Ethernet wireless backhaul network.

- FOUNDATION for Safety Instrumented Functions (SIF) provides much-needed digital diagnostics for process safety systems and devices.

Learn more about today's world-class solution for industrial automation.

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9005 Mountain Ridge Drive • Bowie Bldg., Suite 200
Austin, Texas 78759 USA • Tel: 512.794.8890 • Fax: 512.794.8893
www.fieldbus.org • E-mail: info@fieldbus.org