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June 2009

Fieldbus Facts Online is brought to you by the Fieldbus Foundation, an international, not-for-profit corporation consisting of automation industry leaders dedicated to providing the "Freedom to Choose" and the "Power to Integrate."

Featured This Month



**FOUNDATION Fieldbus ...
we put the pieces in place**



Endress+Hauser 
People for Process Automation

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FOUNDATION BRIEFS

Reliance exec looks in-depth at 'world's largest' FOUNDATION fieldbus refinery project

-- An interview with **B.R. Mehta, Senior Vice President, Reliance Industries Ltd.**



Celebrated as one of the world's largest refinery installations of FOUNDATION technology to date, the new Reliance Industries Ltd. complex in Jamnagar, Western India, Group is also India's largest private sector enterprise, with businesses in the energy and materials value chain. In this month's issue of Fieldbus Facts Online, B.R. Mehta, the company's senior vice president, takes an in-depth look at this remarkable project, describing the installation, its mission, and its purpose in this exclusive interview.

FFO: Mr. Mehta, please describe Reliance Industries' FOUNDATION fieldbus installation at part of the Jamnagar Export Refinery Project (JERP).

B.R. Mehta: Reliance built the world's most modern refinery in the late 1990s and operated it most efficiently over the last 10 years, accumulating huge domain knowledge and operation expertise. When Reliance management decided to build a new refinery in Jamnagar, Western India, under Reliance Petroleum Ltd., the aim of the automation technology was to create next-generation control systems using rich intelligence property of the refining process and the latest in technology to achieve operational excellence which will have no parallel in the world.

The mission of the automation was to provide:

- Operational excellence in monitoring, controlling, and managing the process and the business;
- Optimum level of integration between process control, operation support, and business support systems; and
- Showcase the corporate image of Reliance Industries providing next-generation control systems.

The new refinery, with a capacity of 580,000 barrels-per-day (bpd), together with Reliance's neighboring 660,000 bpd existing refinery, form the world's largest refining complex with a 1.24 million bpd capacity. With the commissioning of the new refinery, Jamnagar becomes the "refining hub" of the world.



After the successful commissioning of our new refinery, Reliance will focus on achieving the highest standards of safety and reliability at the facility. The refinery was designed keeping in mind changing crude and product dynamics. Therefore, it has the inherent capability of delivering superior returns even in challenging market conditions.

The new Jamnagar refinery deploys the latest state-of-the-art technologies, and FOUNDATION fieldbus is one of them. Project highlights include:

- Crude processing capacity of 580,000 bpd;
- A polypropylene plant with a capacity of 0.9 mtpa (million tonnes per annum);
- Completion target of 36 months;
- Highest health, safety, and environment standards;
- First and largest project in India to implement FOUNDATION technology;
- More than 13,000 tags connected to Fieldbus;
- More than 3,600 segments in the project;
- 1,200 temperature multiplexers on Fieldbus;
- All selected devices carrying the FOUNDATION "checkmark" logo;
- Type testing done for all devices and function blocks used on the project; and
- Host system using FDT/DTM technology.



FFO: What were the key considerations in Reliance's selection of FOUNDATION technology?

B.R. Mehta: We looked at three major aspects in the selection of automation technology for JERP. These included:

- Future of process automation;
- Proven technology; and
- Openness.

Our team of experts from operation, maintenance, and projects visited all major DCS vendor tech laboratories as well as various sites in China. We had references from other large end-users like Shell in terms of technology advancement. Based on feedback from our supplier visits and references, as well as the experience of other major users, we concluded that FOUNDATION fieldbus technology is well proven.

We also learned that FOUNDATION fieldbus is non-proprietary, open, and interoperable, and involves continuous vendor innovation. The infrastructure is neutral and standards-based, and provides end-users with a common framework to implement and manage the latest advanced control strategies.

We also considered the market availability of Fieldbus devices and products. We asked ourselves, "Are there enough suppliers supporting this technology?" "Are all required device types covered?" "Are there devices registered in compliance with the FOUNDATION standard?" "Will this technology be supported in the Indian market in due course?"

In terms of interoperability, we asked, "How easy is it to activate devices on the system (such as connecting and powering up devices, establishing communications with the host, configuration from the host engineering tool, recognition in the system structure, and host access to measured values and diagnostics)?" In addition, we asked, "How easy is it to interchange field devices of the same type from different suppliers?" And "how easy is it to remove, insert, and commission devices on line?"

Based on all of these considerations, our team of highly experienced engineers decided to go for FOUNDATION fieldbus technology.

FFO: Did your company have previous experience with Fieldbus-based controls?

B.R. Mehta: We had first implemented FOUNDATION technology on a Reliance Life Sciences project on a small scale, with about 800 devices. Our engineering contractor had implemented the technology on a much larger scale. We are also implementing Fieldbus on Reliance's KGD-6 project, which has approximately 200 segments and 1,200 devices.

FFO: Did you consider other solutions, such as Profibus and HART, and if so, why were they not chosen?

B.R. Mehta: No other solutions were considered.

FFO: Describe how the Fieldbus system will be implemented for plant automation (that is, number of segments, nodes, etc).

B.R. Mehta: The challenges we faced were many, as FOUNDATION fieldbus is relatively new to India as well as were detail engineering contractors. Our engineering is carried out by Bechtel from many different engineering centers, including London, Houston, Toronto, China, Delhi, Mumbai, and Jamnagar. We also have other contractors, such as Foster Wheeler for coker and Aker Kvaerner for PP, carrying out engineering from separate engineering centers.

The engineering methodology adopted by Reliance included:

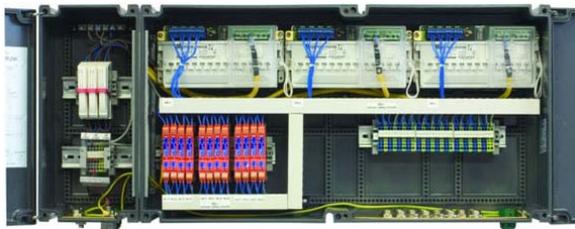
- Early involvement of all parties, including operations and maintenance;
- Dedicated specification for FOUNDATION fieldbus implementation;
- System and device selection/evaluation team with engineering contractor;
- Fieldbus device HIST test carried out on each type of device used on the project;
- Fieldbus system design training for all involved personnel;
- Fieldbus template development on IA system and testing of each device; and
- FAT of Fieldbus devices and system by connecting available devices on a segment and loading each segment to its full capacity.

In addition, Reliance employed a dedicated FOUNDATION fieldbus specification for JERP to:

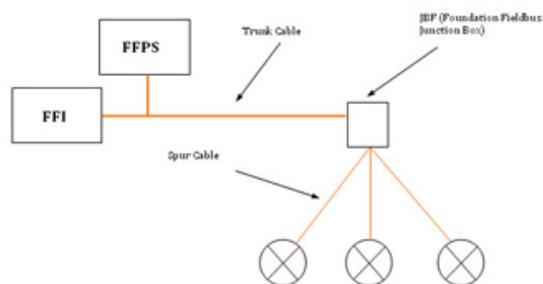
- Ensure consistency across the entire JERP;

- Minimize design effort at various design centers;
- Simplify the overall Fieldbus implementation process across various engineering contractors and engineering centers;
- Minimize testing- and commissioning-related problems; and
- Ensure project-common FOUNDATION fieldbus hardware components, including junction boxes, power supplies, and field barriers.

Fieldbus technology was applied to all major loops going to the DCS in various units. We standardized on a two-type combination of field barrier boxes. This included a 1-off-4 channel barrier box for segments limited to 4 devices maximum, and a 3-off-4 channel barrier box for segments limited to 12 devices maximum. JERP used a design with up to 8 devices per segment.



Reliance has adopted a tree topology. The current refinery is using the I.S. concept for all field devices. To be very near to the current system for design, we have used a high-power trunk up to the field barriers, with all spurs being I.S. The high-power trunk allows us to install more instruments per segment. Our project maximum is 8 devices per segment. This will provide for maintainability with power for all devices and spurs.



All trunks have surge protection at both ends (that is, in the marshaling cabinet and the Fieldbus spur junction box). Surge protection for each instrument is considered in areas with a high susceptibility to lightning strikes. This includes tank farms, columns, jetties, etc., as well as any area

where instrumentation is not significantly shielded by the plant steelwork and pipe racks.

Segment design considerations include:

- Level 1

Definition: Failure of level 1 loop will result in a shutdown of an entire unit, damage to non-spared vital or essential equipment. Level 1 valves and their associated measurement devices should reside on a segment that is only used for Level 1 control. The segment will have one Level 1 valve and associated transmitter, or a maximum of two valves and associated transmitter if they are part of the same loop. Necessary consideration will be given to assigning valves to different barriers in the junction box.

- Level 2

Definition: Failure of a Level 2 loop will result in an entire unit shutdown, but process dynamics will allow for quick unit recovery. Level 2 valves are used only for Level 2 control. The segment will have one Level 2 valve and associated transmitter, or a maximum of three valves (split range valves of a single loop) and associated transmitters if they are part of the same loop. Necessary consideration will be given to assigning valves to different barriers in the junction box.

- Level 3

Definition: Failure of a Level 3 loop will not result in any short-term risk of total unit shutdown. Level 3 valves can reside on segments with up to two other Level 3 valves, but not on a segment with a Level 1 or Level 2 valve. Reasonable reliability can be achieved with backfilling, particularly on Level 3 segments with miscellaneous monitoring loops and local indicators.

- Level 4 (no control)

Level 4 (monitoring only) segments containing monitoring devices are not used for control across segments.

Reliance did not consider the use of FOUNDATION technology in seven areas:

- Emergency shutdown systems;
- Fire and gas control systems;
- Fast loops such as compressor controls (anti-surge);
- Various packages such as heaters and compressors;
- Loops with execution time faster than 300 ms;
- Burner management systems; and
- Analyzer systems.

More than 3,600 segments are distributed across the refinery and PP units, with more than 13,000 connected devices. We have also used more than 1,200 temperature MUX in the system, where 8 TC/RTD elements per MUX are connected to the system.

FFO: What are the expected benefits from this FOUNDATION fieldbus installation?

B.R. Mehta: Our expectations for FOUNDATION technology include:

- Interoperable products and systems;
- Elimination of proprietary protocols;
- Technology innovation by manufacturers;

- Device diagnostics;
- Lower installation costs;
- More information from valves;
- Multiple inputs from one device;
- New instrumentation that is easier to add to later;
- Reduced wiring;
- Fewer terminations;
- Reduced commissioning time;
- Ability to implement control in the field;
- Reduced control room space; and
- Improved instrument diagnosis.

FFO: What are your company's future plans for adopting FOUNDATION technology?

B.R. Mehta: Our specifications are based on FOUNDATION fieldbus, and so far our experience in handling the technology is very good. Based on feedback received from other plants worldwide, we believe the major benefit is in asset management, which we are yet to derive as we have commissioned the plants very recently. Our next goal will be to get maximum benefit out of our installation and take full advantage of our FOUNDATION fieldbus system. We will also be using this technology in our future plants based on our success rate in current applications.

FFO: Do you have any advice for other process industry end-users considering the use of Fieldbus?

B.R. Mehta: I have just listed some of the important benefits realized from a comparison of legacy systems versus FOUNDATION technology. These include, for example:

- Fieldbus signals are digital, and therefore more immune to noise;
- The requirement for damping to filter out noise is eliminated;
- Fieldbus automatically detects all connected devices and includes them on a live list, and addresses are automatically assigned, eliminating any possibility of duplicate addressing;
- Traditional I/O uses 16- or 32-channel cards, thus are costly and a weak point. Module failure can cause all associated loops to crash;
- Accidental removal during fault-finding will affect all 16 or 32 I/O; minimizing the components reduces failure probability;
- Fieldbus has no requirement to manually configure alarms to detect transmitter failure or broken signal cable; the technology builds in this automatic safety function;
- Fieldbus uses engineering units, not scaled ranges, thereby measuring actual process variables, not scaled or a percentage of 4-20 mA; this eliminates the need for range configuration;
- With fieldbus, conflict in ranges is not possible;
- Analog-to-digital conversion is eliminated, thus improving accuracy and reliability;
- Dual measurement of parameters is possible from a single instrument; and
- Fieldbus enables failure prediction due to increased data availability.

When we adopt new technology, there are always unresolved points that must be looked into at various stages of the project. We also are closely watching points in the development of Fieldbus systems, such as:

- How to achieve faster commissioning of Fieldbus loops on site;
- Mismatches in device files tested at the lab versus devices supplied;

- Untested device type delivered to the site;
- Alarm management implementation;
- How to realize maximum value from asset management;
- OPC stability of many connected systems to the DCS; and
- Training staff members in commissioning of Fieldbus systems.

FFO: What else is needed to make FOUNDATION fieldbus the technology-of-choice of automation end-users?

B.R. Mehta: The Fieldbus technology community must assist end-users in identifying the benefits of Fieldbus-based control solutions and provide a forum for the exchange of information among solution providers, consultants, and end-users. The Fieldbus Foundation must assist end-users in implementation of FOUNDATION fieldbus and encourage adoption of the technology in various industry sectors on a vendor-neutral basis. This includes establishing communication between various end users in various countries and coordinating among local foundation members activities such as technical seminars, training courses, and so forth. End-users also need access to "how-to" articles and application case studies from other countries.

Finally, I suggest that all automation vendors supporting FOUNDATION fieldbus participate in major trade exhibitions to demonstrate the interoperability and interchangeability of their Fieldbus solutions.

B.R. Mehta has more than 36 years experience in the refinery and petrochemicals industries. He has worked on engineering projects in the field of control systems and instrumentation for the Patalganga, Hazira, and Jamnagar Refinery & Petrochemicals complexes during his 24 years with the Reliance group. Before joining Reliance, he spent two years at the Agro Chemical & Food Co. in Kenya as chief instrumentation engineer, and 11 years at Indian Petrochemicals Ltd. in Vadodara, India, as an instrumentation engineer.

Mehta is the nominated pro-temp chairman of the Fieldbus Foundation End User Council—India and a member of the foundation's End User Advisory Council (EUAC) worldwide. He has been chairman of the Instrumentation Experts Club in Mumbai, India, for the past seven years, and he sits on the Board of Governors for Automation 2010.

For more information on the installation, visit the Reliance Industries [Website](#).

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Fieldbus Foundation joins Applied Control Technology Consortium

The Fieldbus Foundation, through its EMEA Operations, has joined the Applied Control Technology Consortium (ACTC). ACTC, based in Glasgow, Scotland, is wholly owned and managed by Industrial Systems and Control Ltd., a specialized control engineering consultancy with close ties to the Industrial Control Centre at the University of Strathclyde, Scotland.



Through this membership, the ACTC will undertake a program of formal, quantitative evaluations of the performance, reliability, and maintainability benefits associated with FOUNDATION technology. Control in the Field (CIF) in different industrial application scenarios will be the first area of study.

CIF is a key function offered by FOUNDATION fieldbus technology to end users in process control applications whereby the control function may be performed locally at a sensor/actuator without requiring data to be transmitted back to a central distributed control system (DCS) or programmable logic controller (PLC).

The project will use theoretical and simulation-based analyses to assess the improved control performance offered by CIF from the elimination of control-related data transmissions to the central control system, reduction in time delays, and improved determinism, compared to using conventional fieldbus systems where control calculations are performed within the DCS. Several other perceived benefits of CIF will be highlighted, including the improved reliability and availability of simpler control loops, improved network availability, and reduced CAPEX and OPEX costs.

The collaborative project between the Fieldbus Foundation and ACTC recognizes the mutual value of a technical study into CIF. When the project is completed, ACTC member companies—many of which are large end users of control technologies—will be invited to participate in additional field studies and trials.

“The Fieldbus Foundation is committed to the on-going education of end users and potential end users of the benefits that FOUNDATION technology brings to fieldbus applications,” noted Travis Hesketh, vice-chairman, Fieldbus Foundation EMEA Operations. “It is clearly understood that CIF is a key function of FOUNDATION technology, but to have a formal, third-party evaluation of the deliverable benefits is very exciting. We are looking forward to an on-going working relationship with ACTC and further collaborative projects.”

Future updates may be found on the Fieldbus Foundation [Website](#).

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GLOBAL NEWS & EVENTS

North American seminars help end users 'achieve operational excellence'

The Fieldbus Foundation is offering free FOUNDATION fieldbus educational seminars at various North American locations in 2009. The events, based on the theme “Achieving Operational Excellence with FOUNDATION Technology,” are intended for end users, system integrators, and engineering firms seeking to learn about the economic benefits of the FOUNDATION automation architecture. Topics include:



- Open, scalable integration/segment design and layout;
- Process integrity/SIL and SIF; and
- Business intelligence/maintenance and troubleshooting.

Attendees may earn professional development hours (PDH). Lunch is included.

According to Fieldbus Foundation Marketing Manager Bill Tatum, the 2009 seminar program has attracted standing-room-only attendance at its initial events. In Coatzacoalcos, Mexico, more than 180 participated, while the Baton Rouge, Louisiana, event drew 90 attendees. Two recent seminars in Alberta, Canada (Calgary and Edmonton) attracted more than 160.

“Due to challenging economic conditions, this is an ideal time for plant personnel to obtain training in FOUNDATION fieldbus,” continued Tatum. “With the current slowdown, plant workers may be free to receive instruction on new, advanced automation solutions such as fieldbus. Our seminars explain the latest developments in FOUNDATION technology, including field diagnostics and host registration, enabling industrial operations to achieve operational excellence through increased efficiency, improved asset management, reduced downtime, and expanded throughput.”

Seminars remaining in 2009 include:

- Oct. 15 – Long Beach, CA
- Nov. 3 – Pasadena, TX
- Nov. 5 – Houston, TX

For seminar updates and more information, visit the [Fieldbus Foundation Website](#).

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2009 Fieldbus technology events planned around the world

The Fieldbus Foundation is planning many informational and educational events around the world in the new year. Make plans now to attend an event in your area.

LOCATION	DATE	EVENT and CONTACT INFORMATION
EVENTS IN NORTH AMERICA		
Long Beach, California, USA	Oct. 15, 2009	FOUNDATION Fieldbus End User/EPC Seminar More information to come
Pasadena, Texas, USA	Nov. 3, 2009	FOUNDATION Fieldbus End User/EPC Seminars More information to come
Houston, Texas, USA	Nov. 4, 2009	FOUNDATION Fieldbus End User/EPC Seminars More information to come
Las Vegas, Nevada, USA	Dec. 8-10, 2009	Power Gen 2009 More information to come
EMEA (EUROPE, MIDDLE-EAST, AFRICA) EVENTS		
MOL Danube Refinery, Szazhalombatta, Hungary	Sept. 9, 2009	FOUNDATION Fieldbus End User/EPC Seminars Click here for more information online Click here to email for more information
Brands Hatch, Kent, UK	Oct. 13, 2009	FOUNDATION Fieldbus End User/EPC Seminars More information to come
Bahrain	October 2009	Multaqa 2009-FOUNDATION Fieldbus End User Conference More information to come
Frankfurt, Germany	November 2009	FOUNDATION Fieldbus End User/EPC Seminar More information to come
Russia (various locations)	To be determined	FOUNDATION Fieldbus End User/EPC Seminars More information to come
SEMINARS IN SOUTH EAST ASIA		
Singapore	August 2009	FPSO (Offshore) Exhibition More information to come
Thailand	To be determined	FOUNDATION Fieldbus End User Seminar More information to come
Malaysia	To be determined	FOUNDATION Fieldbus End User Seminar More information to come

Jakarta, Indonesia	To be determined	FOUNDATION Fieldbus End User Seminar More information to come
Vietnam	To be determined	FOUNDATION Fieldbus End User Seminar More information to come
The Philippines	To be determined	FOUNDATION Fieldbus End User Seminar More information to come
SEMINARS IN INDIA		
Mumbai, India	June 19, 2009	FOUNDATION Fieldbus End User Council Meeting Click here for more information online Click here to email for more information
Mumbai, India	Sept. 16-19, 2009	Automation 2009 More information to come
Chennai, India	Mid-December 2009	FOUNDATION Fieldbus End User Seminar More information to come
Surat, India	To be determined	FOUNDATION Fieldbus End User Seminar More information to come
SEMINARS IN EAST ASIA		
Kunming, China	July 16, 2009	FOUNDATION Fieldbus End User Seminar More information to come
Tokyo, Japan	September 2009	FOUNDATION Fieldbus End User Seminar More information to come
Shanghai, China	Oct. 20-23, 2009	Miconex 2009 More information to come
Beijing, China	November 2009	FOUNDATION Fieldbus End User Seminar More information to come
Tokyo, Japan	Nov. 18-20, 2009	JEMIMA M&C Exhibition More information to come
Osaka, Japan	To be determined	FOUNDATION Fieldbus End User Seminar More information to come
Korea	To be determined	FOUNDATION Fieldbus End User Seminar More information to come

[Click here](#) for a complete list of events.

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TECHNOLOGY NEWS

Fieldbus Foundation, Prolist sign copyright agreement



Prolist International will publish FOUNDATION fieldbus parameter names and definitions in its standardized process control device/system specifications and database under a new copyright agreement between the organization and the Fieldbus Foundation.

Headquartered in Leverkusen, Germany, Prolist International is a not-for-profit organization of corporate (automation manufacturers and end-users) and university members. It succeeds the Project Group "Lists of Properties" (Prolist), supported by NAMUR, the international process industries' end-user group, and

Zentralverband Elektrotechnik- und Elektronikindustrie e.V. (ZVEI), the German electrical and electronic manufacturers' association. NAMUR and ZVEI have collaborated to define and record properties and lists of properties (LOPs) for process control/automation devices and systems.

Prolist International seeks to reduce engineering and transaction costs for procurement and sales in the area of process control technology, including integration of the workflows of all parties involved in plant lifecycle management. The effort is based on machine-readable descriptions of the properties of process automation components that are relevant for engineering purposes.

Praising the Fieldbus Foundation's involvement with Prolist International, Rich Timoney, Fieldbus Foundation president and CEO, said. "The Fieldbus Foundation is pleased to take part in Prolist through this copyright agreement. We support the long-term goal of Prolist, which is to optimize processes throughout the entire plant lifecycle at every point where information systems exchange data on process control devices. This endeavor," he continued, "will help companies reduce transaction costs by an electronic data exchange format which vendors, owner/operators, and EPC firms can use for communications."

Timoney added, "As the world's leading process industry fieldbus solution, FOUNDATION technology is key to the global adoption of the Prolist initiative. Ultimately, we believe this effort will result in the establishment of an international standard in cooperation with the International Electrotechnical Commission (IEC) and International Society of Automation (ISA)."

Supported by a "who's who" of major process automation suppliers and end-users, Prolist International is creating lists of properties (eSpec Sheets) covering all classes of process control devices. It is also developing an easy-to-use Web server for creating and maintaining instrumentation eSpec Sheets, and application tools for handling files and creating an XML-exchange format supported by SAP.

Prolist working results are published as LOPs in the NAMUR Recommendation NE 100 "Use of Lists of Properties in Process Control Engineering Workflows," which provides a method for standardizing the descriptions of process control and instrumentation equipment and supports data exchange between systems in a customer-supplier relationship. More information is available on the Prolist International [Website](#).

For future updates on the agreement, visit the Fieldbus Foundation [Website](#).

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END USER INFORMATION

Saudi Aramco picks MTL Fieldbus solution for oil and gas plant

MTL will supply a range of custom FOUNDATION fieldbus wiring components for a major Saudi Aramco oil and gas plant in Khursaniyah, Saudi Arabia. Included are 4-, 8-, 10-, and 12-way Megablock wiring hubs with built-in spur short circuit protection and F800 series power supplies with F809F diagnostics modules mounted in 316L stainless steel

أرامكو السعودية
Saudi Aramco



custom junction boxes for Zone 2 installation.

"The choice of MTL for this project was made easier by the fact that their FOUNDATION fieldbus solutions were already approved by Saudi Aramco and already proven in many Aramco sites," said Brian Parkes, lead control systems engineer at Bechtel. "But, of course, the final decision recognized that MTL-Relcom products fulfilled the technical and commercial requirements of the project and theirs was ultimately the most competitive solution."

MTL will supply Fieldbus junction boxes, related documentation, drawings, project management, and expediting services. In addition, Bechtel-Technip JV has also signed an agreement for MTL to provide technical services during the start-up and commissioning stages of the plant.

More information on these products and solutions is available on the [MTL Website](#).

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PRODUCTS & SOLUTIONS

ABB Instrumentation positioner is modular, electronically configurable

Designed for mounting to pneumatic linear or rotary actuators, the TZIDC-120 positioner from ABB Instrumentation is electronically configurable via FOUNDATION fieldbus. It features a small and compact design, modular construction, and an excellent cost-performance ratio. Fully automatic determination of the control parameters and adaptation to the final control element yield considerable time savings and an optimal control behavior.



An I/P module with subsequent pneumatic amplifier controls the pneumatic actuator. It proportionally converts the permanent electrical positioning signal from the CPU into a pneumatic signal used to adjust a 3/3-way valve. Air flow for pressurizing or depressurizing the actuator is continuously adjusted for outstanding control. When reaching the setpoint, the valve closes in center position to minimize air consumption. Four pneumatic versions are available: single-acting or double-acting actuators, each with "fail-safe" or "fail-freeze" function.

The positioner includes a built-in operating panel with a 2-line LCD, and four pushbuttons for optimal local configuration, commissioning, and operational monitoring. The appropriate configuration also can be implemented via fieldbus communications. The device is ATEX, FM, CSA, GOST, and IECEx approved.

For more information, visit the [ABB Website](#).

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Emerson's DeltaV system with AMS Suite completes host profile registration



Emerson Process Management's DeltaV digital

automation system with AMS Suite: Intelligent Device Manager has passed the Host Profile Registration Process as part of the Fieldbus Foundation's new Host Registration Program. The registration process tests to ensure robust interoperability and integration between different manufacturers' host systems and devices.

The Fieldbus Foundation's testing process is intended to benefit both automation suppliers and end users by promoting consistency in the multi-vendor FOUNDATION fieldbus environment. The DeltaV system with AMS Device Manager passed the Host Registration Program (HRP) in which the foundation conducts functional testing with a test device and specialized Device Descriptions (DDs) and Capabilities Files (CFs). The host profile must support this clear set of required features.

"We congratulate the Fieldbus Foundation for advancing its host testing into a complete registration program, and we are pleased that our DeltaV system with AMS Device Manager is one of the first registered hosts," said John Berra, chairman of Emerson Process Management. "Open interoperability continues to be a clear win for our customers, and always part of our practice."

For more information, visit the Emerson Process Management [Website](#).

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Endress+Hauser's new fieldbus hybrid I/O block facilitates I/O integration

Endress+Hauser extends the I/O integration capabilities of its Fieldbus-based control system ControlCare. Using standard FOUNDATION fieldbus High Speed Ethernet technology, it is now possible to embed remote I/O signals originating from distributed I/O



gateways (traditional I/O, Profibus, or Modbus) and controllers. Standard FOUNDATION fieldbus Flexible Function Blocks (FFBs) can be programmed by the user in any IEC 61131-3 language, providing a flexible solution for logic control.

New ControlCare release 2.04.xx allows local, Profibus, and Modbus I/O to be directly integrated into a control strategy without the need for external blocks or links. The number of I/O controlled by FFBs also has been greatly increased. Both measures reduce engineering effort and enable faster macrocycles.

The new release includes a completely revised FOUNDATION fieldbus function block manual that features many examples of block configuration and use.

Visit the Endress+Hauser [Website](#) for more information.

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Moore Industries, MooreHawke offer Fieldbus whitepapers, more

An extensive selection of fieldbus and instrumentation



whitepapers and articles is offered by Moore Industries and its fieldbus division MooreHawke on the company Website.

Titles among the dozens of online resource materials provided include:

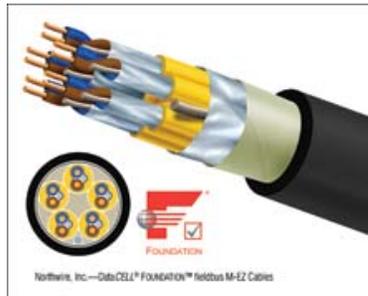
- Installing Fieldbus in Real Life Applications—For the first time, automation engineers are coming face-to-face with real fieldbus applications. Although Fieldbus is a wonderful technology with many benefits, its installation requires considerations over and above typical 4-20mA projects.
- Intrinsically-Safe Fieldbus for Hydrocarbon Processing Plants—For about 30 years, it has been a given within the oil and gas industry that intrinsic safety (IS) is the natural technique for explosion-proof protection of electronic instruments. Fieldbus users now want complex processing and digital communications to and from many devices in intrinsically safe applications. The key is delivering enough power to a large number of field devices.
- Implementing FOUNDATION Fieldbus Networks in Hazardous Areas—Many engineers today find themselves questioning which bus technology to implement in their facilities. As if that topic isn't difficult enough to resolve, the subject is further complicated by implementing your chosen bus in a hazardous area.

For more information and a complete listing of articles and whitepapers, visit the Moore Industries/MooreHawke [Website](#).

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Northwire cables promote fast, simple cabinet wiring

Northwire's DataCell FOUNDATION fieldbus M-EZ (Marshal-EZ) cables enable fast, simple installation into marshaling cabinets without shrink tubing. They are engineered with up to 24 individually foil-shielded pairs that have an extruded PVC binder over each pair—all contained within a single cable.



Easy to strip and install, the cables offer superior ground system integrity and eliminate the potential for cross continuity between shields. FF-844 certified DataCell FOUNDATION fieldbus M-EZ cables are ITC /PLTC-rated for exposed-run applications. They pass crush and impact tests for metal-clad cable and allow users to do without the conduit. The line includes arctic-rated and marine shipboard-listed versions, suitable for temperatures to -60 C. CSA, ABCD armored cables are also offered.

Options include single- or multi-paired bus cables; individually or overall foil-shielded pairs with drain; overall tinned copper braid for low-frequency noise immunity; 16 AWG for longer runs, and 18 AWG in single-shielded, twisted-pair spur cables or multi-pair cable; and several jacket and inner-conductor colors with optional ground wire. Characteristic impedance Z_0 is $100\Omega \pm 10\Omega$ at 31.25 kHz.

Other versions are available off-the-shelf in bulk quantities. Contact Northwire for information and samples at 1-715-294-2121.

For more product information, visit the Northwire [Website](#).

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Pepperl+Fuchs Smartplant symbol library adds Fieldbus infrastructure components

Pepperl+Fuchs increases the capability of its time-saving planning software, FieldConnex Smartplant Symbol Library, with a new add-on. The software tool helps Smartplant Instrumentation users plan and document Fieldbus infrastructures.



Designed for EPCs and plant builders planning fieldbus segments or needing to keep their documentation current, FieldConnex Smartplant Symbol Library extends Smartplant planning software with FieldConnex fieldbus infrastructure components so that users may plan more economically and efficiently. The library includes verified standard symbols for all components of the FieldConnex fieldbus infrastructure. It incorporates all custom connections to major DCS systems including Emerson, Honeywell, Invensys, and Yokogawa. These systems interface via special plugs and connectors with FieldConnex Power Hubs.

Smartplant Instrumentation software is used for planning, maintaining, and documenting electrical installations. It supports a fast, consistent, and targeted planning process and stores all relevant installation data in a central database. The common data source contains all information about the electrical system and now includes the fieldbus infrastructure. System support throughout the complete life cycle means time savings in planning, simplified versioning, and accurate as-built information.

[Click here](#) to learn more about the FieldConnex Smartplant Symbol Library. Visit the Pepperl+Fuchs [Website](#) for other product information.

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R. Stahl advanced power supply integrates features for physical layer diagnosis

R. Stahl adds a new, innovative power supply for FOUNDATION fieldbus H1 applications to its ISbus Fieldbus Power Supply System. Advanced Fieldbus Power Supply features a wide range of additional diagnostic functions for monitoring fieldbus segments. The power supply generates a warning message if the transmission quality in the bus deteriorates so that users can intervene before a segment fails. Priced roughly 10% more than the simple Fieldbus Power Supply, the high-performance version enables complete, continuous plant monitoring without a significant increase in investment costs.



Advanced Fieldbus Power Supply continuously reads the physical parameters (physical layer) of the fieldbus, such as voltage and current on the trunk, communication level, noise level, asymmetries, and jitter. If any parameter deteriorates by a predetermined value that can be easily adjusted on the device, the system signals a warning through a yellow LED and simultaneously transmits the warning message to the control system via a potential-free relay contact. Situations that exceed or fall below the fieldbus specification are indicated by a red LED and the relay contact.

The power supply can be connected to a PC through a serial interface to read out data if detailed information about physical layer parameters is required. Like the basic version, Advanced Fieldbus Power Supply System supplies the fieldbus with 28 V and 500 mA and enables a 1-A supply via a parallel connection of two devices in the "boost" mode. An optional redundant supply is available to ensure redundant diagnosis. The units can be installed on a DIN rail or bus-carriers, and operated in mixed installations with basic models.

The advanced model incorporates a completely new, integrated physical layer diagnosis concept to allow for integrated, cost-efficient monitoring of fieldbus installations, rendering complex and costly separate diagnosis modules unnecessary.

For more information, visit the [R. Stahl Website](#).

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Rockwell adds process device configuration to asset management software

Process device configuration using FDT Technology is now part of Rockwell Automation's FactoryTalk AssetCentre [asset management software](#). The new capabilities further help



manufacturers in process industries centrally manage and maintain production environments. Process device configuration helps increase reliability of intelligent instrumentation, including those using the Fieldbus Foundation protocol, and simplifies regulatory reporting compliance efforts. It also improves product quality in applications where conditions are tied directly to such process parameters as temperature, pressure, or flow.

[FactoryTalk AssetCentre](#) process device configuration uses FDT technology to standardize the communication interface between field devices and systems. Because processing facilities rely on a wide variety of devices, using an industry standard that addresses a broad spectrum of device technologies is important. Using Factory Talk AssetCentre V 2.31, users can remotely connect and conduct instrument diagnostics, view and edit device configurations, and quickly swap out or reconfigure devices with the last-known good configuration. The process device configuration functionality provides a common asset management platform that works within a multivendor field device environment to drive maintenance efficiency improvements.

The latest version of the FactoryTalk AssetCentre asset management software also includes calibration management capabilities and [disaster recovery](#) support for Rockwell Automation and third-party controller, operator interface, and robotic assets. All new features also are integrated with Rockwell Automation PlantPAX process automation system capabilities.

For more information, visit the [Rockwell Automation Website](#).

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