Freedom to Choose. Power to Integrate.

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On behalf of the Fieldbus Foundation, I’d like to thank those in the control industry who have joined us in supporting FOUNDATION fieldbus. During the past decade, the fieldbus end user community has grown to include many of the world’s leading industrial manufacturers. And almost every major supplier of plant automation equipment has now implemented our technology.

Adoption of FOUNDATION fieldbus is increasing at an unprecedented rate — and for good reason. Fieldbus-based solutions provide end users with the freedom to choose best-in-class control products meeting specific application requirements — and the power to integrate those tools into their enterprise model.

The previous year saw impressive gains for the FOUNDATION Fieldbus and its members. Key milestones included:

- **Market Growth**
  - The results of a research study showed strong growth for FOUNDATION fieldbus throughout the process control market. More than 635,000 FOUNDATION-compliant devices, and 10,000 fieldbus systems, have been shipped or installed to date.
  - Growth is occurring across all global market areas, including Asia, Australia, Africa and Europe, and in all industries, including power, pharmaceutical, mining and pulp & paper.

- **EDDL Cooperation**
  - The OPC Foundation joined the FOUNDATION Fieldbus, HART Communication Foundation and PROFIBUS Nutzorganisation e.V. as a member of the ECT (EDD Cooperation Team). OPC has standardized on EDD as the core data element of its emerging Unified Architecture Standard. The leading global user groups also formed a joint team that will support on-going maintenance of EDD, including assurance that current and future enhancements to the technology are included in international standards.

- **SIS Approval**
  - FOUNDATION fieldbus was adopted as the communications standard for the New Sampling Sensor Initiative (NeSSI). FOUNDATION fieldbus for Intrinsically Safe (IS) operation was also incorporated into the NeSSI Generation II Draft Specification.
  - After more than two years of investigation, members of the Center for Process Analytical Chemistry (CPAC) and the NeSSI committee concluded that FOUNDATION fieldbus is the right network communication architecture to achieve the goals of the NeSSI project, including the need for intrinsically safe operation.

- **Expanded Training**
  - In response to increased end user adoption of FOUNDATION fieldbus, the Fieldbus Foundation added two certified fieldbus training sites: Yanshan Simulation Training Center (operated by SINOPEC Corp.) in Beijing, China; and Tri-State University in Angola, Indiana, USA. Also new in 2005: a FOUNDATION fieldbus seminar program offering instructional workshops in key locations worldwide.

- **HSE/FFB Demonstration**
  - ISP, a major global producer of industrial chemical products, hosted a field demonstration of FOUNDATION fieldbus High Speed Ethernet (HSE) and Flexible Function Block (FFB) technology at its Lima, Ohio, USA, 1,4-butanediol (BDO) plant. The live event showed how automated process plants can move beyond outdated legacy systems in favor of a distributed fieldbus architecture enabling robust, reliable control at the field level.

- **Global Marketing**
  - The Foundation’s European, Middle East, Africa Executive Advisory Council was established to provide leadership of marketing activities supporting the adoption of fieldbus-based products and systems by the region’s end users. The group of senior executives is committed to accelerating the growth in adoption of the technology across all industries.

In this publica tion, you can learn more about the performance improvements — and business benefits — offered by FOUNDATION fieldbus. Find out how this versatile enabling technology is providing end users worldwide with the “Freedom to Choose” and the “Power to Integrate.”

All the best,

Rich Timoney
President & CEO
Fieldbus Foundation
The clear path to optimum control and asset intelligence: extremely reliable instrumentation networked with digital visibility

**Challenge:**
I want to select the best field networking technology that will give my plant a competitive edge.

**Solution:**
For every opportunity to renew and/or add field installations, Yokogawa recommends FOUNDATION fieldbus™. Our FOUNDATION fieldbus™ solutions provide you with the maximum opportunity to improve your asset utilization throughout the plant lifecycle, leveraging reliable instrumentation and predictive digital intelligence.

Intelligent and Stable Field Devices
Yokogawa field devices are FOUNDATION fieldbus™ ready and deliver accurate process measurement and advanced diagnostic information with low installed cost and near-zero maintenance. Web-enabled technology allows these devices to continually upgrade their capabilities online.

Integrated Plant Resource Manager (PRM)
Yokogawa PRM enables you to manage your field assets centrally and with ease, integrating device information and device diagnostic information across different protocols and multiple suppliers. Maintenance is made easy and cost effective with PRM watching your assets on your behalf.

CENTUM CS 3000 R3 Fieldbus Host System
Yokogawa host systems are designed to help you harness the true power of FOUNDATION fieldbus™. CS 3000 scales easily from single-node system to a one-million-tag super large system, hosting the wealth of digital field information. The 99.99999% availability track record and Vnet/IP 1GB Ethernet control network brings you a powerful combination of system reliability and openness.

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Understanding The Benefits Of High Speed Ethernet

HSE provides backbone for integrated architecture

The Fieldbus Foundation answered the market’s demand for an open, integrated control architecture with its High Speed Ethernet (HSE) technology. Running at 100 Mbps, HSE combines with the Foundation’s existing H1 (31.25 kbit/s) fieldbus protocol to provide a complete, complementary fieldbus solution. H1 for continuous control, and HSE for high-performance control applications and plant information integration.

End users with continuous and time-critical plant automation applications are the main beneficiaries of the HSE development. HSE enhances access to Foundation fieldbus H1 technology in continuous control environments, while providing expanded capabilities in the high-speed process automation and hybrid/batch arenas.

HSE is an international standard (IEC 61158) providing tight integration and a free exchange of information across the plant enterprise. The HSE solution is superior to proprietary, Ethernet-based technologies since it provides end users with full access to data, high reliability, low costs, and ease of use.

A closer look at the technology

Within the Foundation fieldbus architecture, HSE functions as a high-speed backbone for device, subsystem and enterprise integration. It supports the entire range of fieldbus capabilities, including standard function blocks and Device Descriptions (DDs), as well as new application-specific Flexible Function Blocks (FFBs) for advanced process and discrete/ hybrid/batch applications.

HSE’s primary functions include:
- Control network (controller to controller, and controllers to data servers)
- Remote I/O network (I/O subsystem to controller)
- Hybrid/batch integration (system to system)

HSE provides the same benefits as H1 fieldbus, but at the control level instead of the device level. It supports interoperability between disparate controllers and gateways in the same way that H1 supports interoperability between transmitters and positioners from different suppliers. Because HSE controllers use the fieldbus function block diagram language based on the graphical IEC 61131-3 standard, the control strategy in these controllers can be programmed from a common system tool.

According to Jonas Berge, Singapore operations director for Smar International, HSE is the only choice for true device interoperability. “Some users believe that anything with TCP/IP and Ethernet can interoperate with any other Ethernet and TCP/IP device,” said Berge. “Because there are thousands of protocols over Ethernet and TDV, most of these products are not interoperable. What is needed is a standard application layer — that is what HSE provides.”

Eugenio da Silva Neto, ControCare product manager for Endress+Hauser Process Solutions AG, has a similar view of HSE. “HSE is an open and enabling technology that provides vertical and horizontal integration, as well as interoperability at the control level,” da Silva Neto said. “It is the only open, Ethernet-based technology that really supports distributed/decentralized control. Therefore, there is no competition for HSE except proprietary solutions from system vendors.”

A key component in the Foundation fieldbus architecture, the HSE linking device is designed to connect, H1 fieldbus segments and provide access to the HSE backbone at either 100 Mbps or 1 Gbps. The linking device allows H1 devices to connect to transmission ports on the linking device to communicate peer-to-peer without the need for host system intervention.

FFBs, another unique feature of HSE technology, are intended for advanced process and discrete control, and integration of remote I/O and other subsystems. FFBs provide two primary functions of interest to users. First, they allow the HSE devices to be programmed for logic, using the IEC 61131-3 languages. Second, they enable complex package unit logic to be encapsulated and displayed as a single block. The use of FFBs also enhances the ability to move control functionality to the field — a unique and important characteristic of Foundation fieldbus. This strategy eliminates the need for proprietary unit controllers in many applications, and in doing so, decreases equipment costs and space requirements. Distributing control to the field also minimizes the effects of any loss or failure of supervisory control.

Robust, reliable performance

HSE technology was designed “from the ground up” to support fault-tolerant networks and linking devices used in mission-critical monitoring and control applications. All or part of an HSE network and devices can be made redundant to achieve the level of fault tolerance required for a particular application.

HSE also supports Intrinsically Safe (I.S.) requirements in hazardous environments through its optional use of fiber optic media. A fiber optic line connects the Ethernet network with HSE linking devices located in protective enclosures near hazardous areas of the process. With the linking devices handling unit and batch control functions in the field, the user is able to reduce the need for rack-mount I/O equipment and controllers.

Berge believes that the robust, reliable performance of HSE is the driving force behind its growing acceptance among new users seeking open process control environment that allows for integration of their plant’s automation systems, subsystems, applications and devices. They want solutions providing the “Freedom to Choose” and the “Power to Integrate” across the enterprise — without the need for proprietary or specialized hardware and software to effectively interconnect devices supplied by different vendors.
global adoption. He said, “The process control industry has very high demands for availability that are not met with single Ethernet, or even a ring topology. Only HSE offers a standard solution with ‘DCS’ style redundancy with two separate networks. Thus, it provides the fault tolerance that end users need and won’t find elsewhere.”

Greater flexibility and lower costs

To achieve superior cost-performance and maximum flexibility, HSE employs Commercial Off The Shelf (COTS) Ethernet components and wired fiber optic media can be used to run the HSE backbone through noisy or hazardous environments. Although HSE was developed for control networks running at 10 Mbps, it can support network speeds of 1 Gbit/s or higher, if needed. HSE’s use of COTS Ethernet, as well as standard Ethernet wire and fiber optic media, allows Ethernet networks of any topology or size to be created. The HSE architecture utilizes standard Ethernet protocols and is designed for efficient, high-speed communication of multiple H1 fieldbus messages across the backbone.

In addition to serving as a control backbone, the HSE open network architecture enables integration of plant data servers such as those based on OPC and Microsoft’s Distributed Interfet Application for Manufacturing Network Architecture (DNA). This permits plant information to be available to Enterprise Resource Planning (ERP), asset management systems, data warehouses, and other application software packages. The HSE Internet-based control integration solution enables companies to interconnect manufac- turing operations at different locations around the world. Da Silva Neto noted: “HSE rep-

HSE-H1 & HSE Bridging

HSE-H1 & HSE Bridging

100 Mbit/s Backbone

Asset Management

Control In The Field

• PID

• Cascade

• On/off

• Ratio

Advanced Alarming

• Intrins蒋 Safety

• Entity Model

• FTSSC Model

• Local Time Stamping

Data Warehouse

Data Mining

Flexible Function Blocks

Hybrid/Batch

Process Bus Interfacing

Remote I/O

Configuration Diagnostics

Diverse end users around the world have realized the advantages of plantwide integration with Foundation fieldbus. The technology, integrated with OPC, forms an open, interoperable infrastructure for both Brownfield and Greenfield projects — improving process performance and delivering significant Operating Expense (OPEX) and Capital Expense (CAPEX) savings. In a wide range of industries, H1+HSE fieldbus provides a solution suitable for variable-speed drives, remote I/O sub-systems for discrete I/O bulk, flow computers, tank computers, local operator displays, etc.

Petropbras, Brazil’s national petroleum company, has been a strong proponent of HSE from the beginning. Petropbras adopted new fieldbus-based controls as part of a modernization project on its Maruza offshore platform. According to Carlos Henrique W. Moura, Petropbras technical consultant, Foxboro’s technology proved to be the best solution for reducing production downtime, enabling interoperability of field instruments, and integrating control and supervisory systems across the enterprise.

Rezabek remarked, “What Foxboro fieldbus has given us is a vendor-neutral DCS. When control resides in the field devices, the user is tied to his system vendor only by the extent to which they support the functions available. The distinct advantages of imple-

Fieldbus Report

HSE ensured interoperability at higher levels, making it possible to integrate linking devices and gateways.”

Rhodia, a leading global chemi-

ical producer, has realized similar benefits from Foxboro fieldbus. “Truly distributed field control, an open and modular architecture, and extensive diagnostic capabil-

ities allowed us to implement significant process improve-

ments,” said Hamilton Roberto Baito, Rhodia asset management specialist. “This, in addition to the reliability of the technology, resulted in considerable savings in our maintenance costs.”

John Rezabek, lead control engineer for ISP Chemicals in Lima, Ohio, has considerable ex-

perience implementing HSE-based controls at his company’s world-

class BDO manufacturing facility. Rezabek considers H1+HSE tech-

nology to be the “real DCS” sought by end users in the process industries.

“End users realize advantages

End users are the main beneficiaries of the HSE development.

2005. PRM provides user-defined, advanced diagnostics enabling plants to implement real-time device management, as well as define, access, and utilize predictive maintenance strategies for Foxboro fieldbus devices independent of the DCS.

Representatives of the automation trade press gathered at ISP Chemicals in Lima, Ohio, to view a live HSE control system demonstration.

Within the Foundation fieldbus architecture, HSE functions as an open platform for device, sub-system and enterprise integration. It supports the entire range of fieldbus capabilities.

“End users seek to integrate across multiple vendor offerings — delivering a best-in-class, fully interoperable plant automation solution.”
Top 10 Myths About FOUNDATION Technology

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Everything you need to know about fieldbus

The diversification of fieldbus implementation is impressive: current adopters include 9 of the top 10 oil & gas companies, 24 of the top 25 pharmaceutical manufacturers, 23 of the top 25 chemical producers, 15 of the top 20 pulp & paper companies, and 10 of the top 20 food & beverage companies.

Myth #1: FOUNDATION fieldbus is not accepted outside of North America

Fact: Since its introduction in 1994, FOUNDATION fieldbus has gained exceptional industry support. More than 10,000 fieldbus control systems, and hundreds of thousands of fieldbus devices, are now in service around the world. Fieldbus projects in Europe, Asia and South America account for a majority of the technology’s total installed base. Two of the fastest growing areas for fieldbus adoption are China and the Middle East. China has several of the largest installations to date, including multiple sites with over 15,000 registered devices in service.

Myth #2: FOUNDATION fieldbus is only suitable for Greenfield projects

Fact: FOUNDATION fieldbus is utilized on automation projects of all sizes, including both new and retrofit installations. According to an ARC Advisory Group survey, a significant number of end users are installing small, medium and even very large fieldbus systems consisting of over 2,000 I/O points. Shell, a major adopter of FOUNDATION technology, reportedly has over 120,000 installed fieldbus I/O — 31% of these devices replaced conventional (Brownfield) instruments.

Myth #3: FOUNDATION fieldbus increases installation costs

Fact: FOUNDATION fieldbus delivers significant savings in total installation costs. Fieldbus systems reduce hardware requirements and lowers installation turns. The technology also reduces termination and fewer screwdriver turns. The technology also reduces instrument wiring, which means less termination and fewer screwdriver turns. The technology also reduces installation costs to be less than conventional systems, and 81% ranked fieldbus installation costs to be less than conventional instrumentation utilizing remote I/O.

An ARC study found that 56.6% of end users ranked the installed cost of fieldbus to be less than conventional systems, and 81% ranked fieldbus costs to be less than conventional systems over a five-year period.

Myth #4: FOUNDATION fieldbus is not a Technology of Choice

Fact: FOUNDATION fieldbus is the digital “technology of choice” throughout the process industries.

Myth #5: FOUNDATION fieldbus is only a choice for petrochemical industries

Fact: FOUNDATION fieldbus is now the digital “technology of choice” throughout the process industries.

Myth #6: FOUNDATION fieldbus is not a choice for Greenfield projects

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Myth #7: FOUNDATION fieldbus is a choice only for petrochemical industries

Fact: FOUNDATION fieldbus is now the digital “technology of choice” throughout the process industries.

Myth #8: FOUNDATION fieldbus is not a choice for Greenfield projects

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Myth #10: FOUNDATION fieldbus is not a choice for Greenfield projects

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Myth #5

**FOUNDATION fieldbus makes engineering more difficult**

**Fact:** FOUNDATION fieldbus reduces system complexity by simplifying enterprise, control and remote I/O networking, enabling a common engineering approach across the plant. Plus, fieldbus multi-drop wiring schemes are much simpler than conventional 4-20 mA control technology. Some end users report commissioning time savings as high as 75% compared with conventional analog technology by switching to FOUNDATION fieldbus.

Myth #6

**FOUNDATION fieldbus systems are susceptible to failure**

**Fact:** Loop protection in fieldbus systems has improved greatly in recent years. Most modern wiring blocks have some form of short circuit protection. This allows devices to be added and removed without affecting the rest of the link. An accidental shorting of one device affects only that device. To isolate and protect their fieldbus networks, end users can employ either segment barriers, single-point repeaters or spur limiters. New solutions, such as a "fieldbus hub" (multi-port repeater) with a redundant trunk, could be developed to provide increased protection in the future. In a multi-year reliability study conducted by British Nuclear Fuels, FOUNDATION fieldbus was found to be at least as reliable as conventional instrumentation and HART protocol instrumented systems.

Myth #7

**FOUNDATION fieldbus is impractical for control in the field**

**Fact:** Plants installing FOUNDATION fieldbus are free to implement batch and logic control at the field level. The technology enables primary PID and secondary PID (cascade) functions, as well as feedforward and lead/lag, to reside in the smart control valve positioner/controller. This restores single-loop integrity to the process — limiting the consequence of failure to a single control device. At the new Shanghai SECCO complex, one of the largest integrated petrochemical facilities in the Far East, over 15,000 FOUNDATION-compliant devices have been installed — and 80% of the control loops are done in the field.

Myth #8

**FOUNDATION fieldbus hosts do not accept all devices**

**Fact:** Most all of the major host suppliers around the world supply FOUNDATION fieldbus-compliant hosts systems.

Recent enhancements to EDDL technology eliminated the need for proprietary device support files and, in turn, proprietary testing and device “certification” for such files. Fieldbus control systems are no longer required to have short lists of devices they support. The Fieldbus Foundation’s Host Interoperability Support Test (HIST) also reduces system integration risks, since manufacturers’ hosts are independently tested to be able to handle the characteristics of different devices. Visit the Fieldbus Foundation’s website at www.fieldbus.org for a complete listing of fieldbus-compliant hosts.

Myth #9

**FOUNDATION fieldbus does not handle discrete I/O**

**Fact:** FOUNDATION fieldbus members provide a variety of discrete devices for remote I/O, relay, on/off valves, valve couplers, electric actuators, etc. Indeed, on/off signals in bulk are an integral part of the FOUNDATION fieldbus solution. The technology is well suited for hybrid control.

Myth #10

**FOUNDATION fieldbus diagnostics are the same as HART**

**Fact:** Although HART and other digital protocols provide device diagnostics, they may be executed less frequently since the devices must conserve power. Likewise, many advanced diagnostics, such as plugged impulse line detection, require significant bandwidth only provided by FOUNDATION fieldbus.

Hundreds of thousands of registered FOUNDATION fieldbus devices are now in service around the world. The steel industry is one area where fieldbus installations are growing at a rapid pace. For example, Yamatake’s Magnew3000 Plus electromagnetic flowmeter is used for blast furnace cooling water leak detection.

**If you could predict tomorrow’s stock prices, you’d be golden.**

**If you could predict tomorrow’s problems in your plant, ditto.**
FIELDBUS Report

FOUNDATION Fieldbus Dominates Middle East

New projects demonstrate growing adoption rate

Control industry observers agree: Foundation fieldbus adoption is on the rise! The technology attracted early adopters in the U.S. refining industry during the 1990s, and has since gained a strong foothold in European pharmaceutical plants, South American oil & gas operations, Asian chemical complexes, and other expanding industrial markets across the globe.

During recent years, the Middle East has become a hotbed of fieldbus activity. Major installations, including Grassroots and modernization projects, have been undertaken at hydrocarbon processing facilities from Oman and Qatar, to Saudi Arabia and Bahrain.

End User Council supports industry in the region

To support the growing base of fieldbus users in the Middle East region, the Fieldbus Foundation established the Foundation fieldbus End User Council – Middle East (FFEUC-ME). The organization is the latest addition to the foundation’s worldwide End User Councils (EUCs), and joins existing councils in Australia, Canada, China, Europe, Italy, Japan, Latin America, New Zealand, North America, Singapore, South America, United Kingdom and the United States.

According to Fieldbus Foundation President and CEO Richard Timoney, the Middle East EUC enables end users to contribute to the success of Foundation fieldbus in one of the world’s fastest growing industrial regions. “We were pleased to assist the automation community in the Middle East in establishing an End User Council,” said Timoney. “This part of the world is adopting fieldbus at an unprecedented rate, and we want to provide our full support to those implementing the technology.”

Technology specified for projects of all sizes

FFEUC-ME Organizing Member Jim Sprague believes the Foundation fieldbus installed base in the Middle East will grow at a dramatic pace in the coming years. “As end users become more familiar with fieldbus, there is the potential to utilize the technology for every new project in this area,” he said. “Some of the major petroleum producers are already specifying Foundation fieldbus for all their projects.”

Sprague credits Foundation fieldbus’ ability to provide Capital Expense (CAPEX) savings for its justification on Grassroots projects. He predicts that Operating Expense (OPEX) reductions will be the driving force behind future installations.

Since safety systems make up 30-50% of the total instrument point count on most hydrocarbon installations, the development of Foundation Safety Instrumented System (SIS) solutions providing CAPEX wiring savings, as well as higher diagnostic coverage, will definitely be of interest to members of his EUC, added Sprague.

Users offer advice for improving acceptance

At the recent “Multaqa 2005” event in Bahrain, more than 180 visitors were on hand to hear fieldbus technical presentations and discuss the outlook for digital control strategies in the petroleum industry. Attendees were generally enthusiastic about their fieldbus experiences, but offered recommendations for improving acceptance of the technology (the Fieldbus Foundation’s End User Advisory Council is currently working to address these issues). For example, they suggested that the Fieldbus Foundation develop recommended practices for a Factory Acceptance Test (FAT) outlining objectives, test procedures, and required tools. Another proposal called for the development of guidelines for personnel involved in the construction of a fieldbus project, or working in a maintenance or operations role after project completion.

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Industry Cooperation Advances EDDL

“Technology of choice” offers powerful new features

The Fieldbus Foundation recently signed an addendum to its agreement with the HART Communication Foundation, PROFIBUS Nutzerorganisation e.V., and OPC Foundation to further develop Electronic Device Description Language (EDDL). The leading global user groups have formed a joint maintenance team to expand support for EDDL technology enhancements.

EDDL is a test-bed language for describing the digital communication characteristics of intelligent devices and binary parameters in an Operating System (OS) and Human Machine Interface (HMI)-neutral environment. EDDL enables a host system manufacturer to create a single engineering environment that eliminates the need for custom software drivers for each device type.

Leading organizations join together

In early 2004, the EDDL specifications of the Fieldbus Foundation, HART and Profibus organizations were unified in the International Electrotechnical Commission (IEC) 61804-2 international standard. More than 15,000,000 field devices based on EDDL have been installed worldwide.

The EDDL maintenance team, as a contribution to the IEC, will advance maintenance of Electronic Device Description (EDD) technology. This includes specifying compliance tests and developing a general test procedure. A steering committee consisting of representatives of the user groups will oversee the project.

Fieldbus Foundation President and CEO Richard Timoney believes the cooperation project will protect industry investments in EDDL by enabling additional enhancements to the IEC standard. “The Fieldbus Foundation strongly supports the effort to advance IEC 61804-2, which harmonized and extended the contents of the Foundation’s Fieldbus, HART and Profibus EDDL specifications,” Timoney said.

“The EDDL standard assists suppliers fac ed with developing intelligent instrumentation that is compatible with multiple protocols. The technology streamlines the device development process and lowers the cost of bringing new products to market.”

Stephen Mitschke, the foundation’s director of fieldbus products, said that EDDL technology enables end users to achieve unsurpassed levels of interoperability and device integration, delivering the freedom to choose top-of-the-line control systems from a variety of platforms and environments, from large HMIs to the small handheld.

With EDDL, device developers do not need to deal with the burden of designing and programming a graphic display system to run under a variety of platforms and environments.

"The customer simply copies their new I/A Series基金会 General Assembly, is a plug-in solution that manages Foxboro field devices by extending the I/A Series configuration and maintenance environment. The software combines EDDL and FDT technologies — EDDL provides the Device Description (DD) and FDT encapsulates it into a universal manager for each device model.

"The customer simply copies in the EDDL device descriptor, and instantly an extensible template is created," said Charlie Piper, fieldbus product manager at Foxboro Automation. The reusable engineering content of the templates reduces time to configure and commission devices, and provides ease of use for those who are not device experts. Template customization of on-line views into device parameters is another plus, while inheritance ripples template characteristics to each actual device database. The product also allows users to open Device Type Managers created by device vendors to the FDT standard — a plus for diagnostic analysis of Commission field devices. The user gets the best of both Enhanced EDDL and FDT technologies.

With EDDL, device developers also do not need to deal with the burden of designing and programming a graphic display system to run under a variety of platforms and environments.
TÜV Rheinland Approves Safety Instrumented Systems

Foundation protocol now supports SIL3 protection

In January 2006, the Fieldbus Foundation announced that TÜV Rheinland Industry Service GmbH, Automation, Software and Information Technology, a global, independent and accredited testing agency, had granted Protocol Type Approval for its Safety Instrumented Systems (SIS) specifications.

The Foundation’s SIS specifications are in compliance with International Electrotechnical Commission (IEC) 61508 standard (functional safety of electrical/electronic/programmable electronic safety-related systems) requirements up to, and including, Safety Integrity Level 3 (SIL3).

Move clears way for standards-based devices

With the TÜV Protocol Type Approval, Foundation fieldbus technology has been extended to provide a comprehensive solution for safety instrumented systems in a wide range of industrial plant applications. The specifications enable manufacturers to build Foundation fieldbus devices in compliance with IEC 61508. Third-party test agencies such as TÜV will certify that these devices are suitable for use in safety instrumented systems. End users will be able to choose devices meeting the requirements of IEC 61511 (functional safety: safety instrumented systems for the process industry sector) from multiple suppliers, instead of being restricted to devices designed specifically for a proprietary safety system platform. IEC 61511 is also available as an ANSI/ISA Standard: ANSI/ISA-84.00.01-2004.

Cooperative effort achieves major milestones

The SIS project was initiated by end users and approved by the Fieldbus Foundation’s board of directors in October 2002. Companies participating in the project include: ABB, BF Chervon, Cooper Crouse-Hinds GmbH, DuPont, Emerson Process Management, E+H Process Solutions, ExcomMobile, Fieldbus Diagnostics, Fieldbus Inc., Flowserve, HIMA, Hynhmann, Honeywell, ICE-Pros Inc., Inversys/Triconex, Magnetrol, Metro Automation, MTL, Relcom, R&M Industrieservice, Rockwell Automation, Rotork Control Systems, Saudi Aramco, Shell Global Solutions, Smar, Softing, TopWall, TÜV, TycoWestlock and Yokogawa.

Westlock Controls’ senior software engineer, Vijaykumar Soni, stated, “Our participation in the project team has allowed Westlock to be in the forefront of the development of products utilizing this exciting technology.” He further noted, “Westlock understands the potential of the technology to provide the industries we service with best-in-class solutions for their SIS applications.”

The development team achieved its first major milestone at the end of 2003 with TÜV approval of the overall system concept. The development team met with external experts at a meeting hosted by Shell Global Solutions in Amsterdam, The Netherlands, in March 2004 to review the initial specifications. Comments from this review were resolved and the management team developed the top-level project plan for laboratory validation testing.

During the test phase, conducted at the Rheinhold & Mahla (R&M) Industrieservice facility in Frankfurt, Germany, each prototype supplier independently implemented the foundation’s safety instrumented systems specifications. In parallel, the test team separately developed test cases and prepared expected test results.

Specifications meet the demands of plant safety

According to the Fieldbus Foundation’s director of technology development, David A. Glazer, extensive laboratory testing and application analysis has verified that the foundation’s safety instrumented systems technology meets the needs of industrial end users, who regard these systems as critical to their overall plant operating strategy. “TÜV Type Approval will help meet the growing worldwide demand for commercial, standards-based, safety instrumented system products incorporating Foundation fieldbus technology,” said Glazer. “End users can now adopt the powerful diagnostics available with Foundation fieldbus, and at the same time, maintain the protection in a SIL3 environment. No changes were required to the existing H1 protocol to add the safety instrumented systems protocol extensions, clearly indicating the value of the comprehensive, forward-thinking design of Foundation technology.”

End users anxious for fieldbus safety solutions

Process industry leaders have voiced their support for Foundation fieldbus SIS technology. Many end users are anxious to move away from proprietary safety system platforms in favor of open, interoperable, fieldbus-based safety solutions.

Saudi Aramco, a key global oil & gas producer, has been at the forefront of efforts to spur development of Foundation fieldbus safety products. Patrick James, engineering specialist for Saudi Aramco’s Process Instrumentation Division, said, “FF-SIS offers the potential to provide close integration of the complete emergency shutdown loop. This close integration reduces the installation cost. In addition, integration improves the capabilities of field devices in providing self-diagnostic information, which is communicated directly to the safety logic solver. At Saudi Aramco, we see this as a breakthrough in the advancement of Safety Instrumented System design.”
System Integration

Makes it run like clockwork

To ensure that your plant runs smoothly, our accredited Fieldbus Laboratory exhaustively tests our instruments in several different control systems. Your benefit: optimal fit and no risk integration.

Interoperability

In addition to being certified by the appropriate user organisation, our instruments are also tested in a multi-vendor environment before market release.

Integration

We integrate our instruments into major host systems, e.g. ABB, Emerson, Honeywell, Rockwell, Siemens and Yokogawa.

Functionality

Optimum device operation is ensured by DDs, system configuration, and terminators.

Support

Our Fieldbus Laboratory offers customer courses, service and support in all aspects of fieldbus technology.

For FOUNDATION Fieldbus we will test on site, we test costs in the field capability.”

Chenode Kobiella
Manager Fieldbus Laboratory

www.products.endress.com/system-integration

“Customers report reduced time for commissioning with fieldbus technology, not even counting other benefits reaped from application of intelligent field devices,” said Andreas Hennecke, product marketing manager, Pepperl+Fuchs Group.

Different tools for different tests

Fieldbus diagnostic tools can be divided into several distinct classifications. There are devices for physical layer testing and protocol testing, as well as tools for initial fieldbus system checkout/configuration, and for monitoring the control system and devices while they are in operation.

With the growth of FOUNDATION fieldbus technology, suppliers are now offering a broad range of diagnostic tools meeting different requirements and characteristics in the modern fieldbus environment, said Reicorn President Marc Graube.

“There are diagnostic tools in development that continuously monitor the performance of the physical layer and provide warnings or alarms when something is amiss. This is very useful in critical plants, but relatively expensive for other applications.”

Honeywell Fieldbus Product Manager John Yeap said the system supplier perspective: “Traditionally, the DCS has done device management and provided diagnostics about what the devices are doing in the field — and that’s totally appropriate. However, there is also a lot of effort going on between device vendors and system vendors to make sure that the diagnostic information coming from power conditioning systems makes its way to the DCS. We want to integrate that information.”

New techniques for physical layer monitoring

Graube indicated that Reicorn is involved in the design and manufacture of wiring components and test equipment for the physical layer of FOUNDATION fieldbus networks. For example, the company’s F809F Wiring Validator can be used for testing fieldbus wiring. The F809F puts a DC voltage and fieldbus signals on the fieldbus segments on a power conditioner and communicates that interface to the F809F, which will provide an on-line monitoring tool.

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Fieldbus Report

Isolation Techniques With Segment Barriers

Solutions for isolating and protecting fieldbus networks

For the typical FOUNDATION fieldbus end user, field barriers are one solution for using Intrinsically Safe (I.S.) field devices in Zone 1 or Division 1 environments. There are, of course, other isolation techniques on the market, such as the Fieldbus Intrinsically Safe Concept (FISCO), and a number of different tools in their toolbox.

Leading suppliers speak out

Pepperl+Fuchs, MTL Instruments, MooreHawke, R. STAHL, and Turck are leading suppliers of installation solutions for FOUNDATION fieldbus systems. Problem is, there are those who promise advanced diagnostics for their fieldbus systems. Problem is, you have to use their devices—and only their devices to get any benefit. Well forget it. Push performance past the usual threshold with the I/A Series® system. Emerson's 375 Field Communicator is a new breed of field maintenance tool with capabilities for surpassing older hand-holds. Dewey said, “Emerson’s 375 Communicator is totally integrated with our AMS® Suite: Intelligent Device Manager. Instrument data collected in the field using the communicator can be uploaded to the permanent database of the AMS software. Together, they enable maintenance personnel to more effectively manage an entire population of field devices.”

Honeywell’s Yost believes it is important to manage assets at both a device and process level. “Our asset management solutions realize improved diagnostics around fieldbus devices and the rest of the process. This integrated approach adds value to the rich data available from Focuscare field devices,” he said. “Including symptom fault models also takes this wealth of information and can correlate if faults showing up in multiple places will combine to cause a larger problem.”

In MTL’s view, users prefer to have a choice between field barriers and technologies such as FISCO. MTL offers both solutions on the basis that not all applications are best served by field barriers alone—for example, when there is a preference for an intrinsically-safe network throughout the field wiring, or if the wiring hub needs to be located in Division 1. MooreHawke regards field barriers as an effective way to overcome the challenges associated with I.S. fieldbus that FISCO cannot solve. The company currently offers an I.S. isolation solution providing 350 mA per segment, but plans to develop a field barrier offering later this year. R. STAHL dispensed with a purely I.S. solution by using a field device coupler for FISCO field devices on a non-I.S. fieldbus trunk, and combining it with an explosion-protected remote I/O system for Zone 1 and 2 environments that allow end users to operate fieldbus and standard/HART devices on one network. Turck considers FISCO to be the safest—and simplest—method for applying electrical instrumentation in classified areas. In Turck’s opinion, FISCO takes the documentation and calculation intense process of traditional I.S. out of the equation. “High-power trunk” improves power supply performance

Andreas Hennecke, Pepperl+Fuchs product marketing manager, commented: “Pepperl+Fuchs favors the ‘high-power trunk’ over FISCO or other traditional I.S. approaches. The company offers the FISCO Power Supply as an option on its 375 Fieldbus Communicator. The power supply can be used to power FISCO devices and provides a non-I.S. communication link to the bus. This allows end users to operate FISCO devices on a non-I.S. fieldbus trunk, providing the benefits of intrinsically safe service.”

There are those who promise advanced diagnostics for their fieldbus systems. Problem is, you have to use their devices—and only their devices to get any benefit. Well forget it. Push performance past the usual threshold with the I/A Series® system.

The difference is Know-How.

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FISCO Fieldbus

Today, there is a choice of fieldbus isolation techniques on the market, such as the Fieldbus Intrinsically Safe Concept (FISCO), and an even broader selection in Zone 2 and Division 2 applications. Without actually having to be locally in the field for commissioning or troubleshooting, Trending capabilities detect decaying data signals and alarm users before communications failure. A simple to use DTM takes the complexity out of the fieldbus physical layer.

An integrated approach to device management

Regardless of the rich diagnostic data provided by intelligent field devices, plant personnel utilize portable tools to perform some critical maintenance and troubleshooting functions when there is no online monitoring available. Certain tasks may be best undertaken at the device in the field using a handheld communicator.

According to Alan Dewey, Emerson product manager, the 375 Field Communicator is a new breed of field maintenance tool with capabilities for surpassing older hand-helds. Dewey said, “Emerson’s 375 Communicator is totally integrated with our AMS® Suite: Intelligent Device Manager. Instrument data collected in the field using the communicator can be uploaded to the permanent database of the AMS software. Together, they enable maintenance personnel to more effectively manage an entire population of field devices.”

Honeywell’s Yost believes it is important to manage assets at both a device and process level. “Our asset management solutions realize improved diagnostics around fieldbus devices and the rest of the process. This integrated approach adds value to the rich data available from Focuscare field devices,” he said. “Including symptom fault models also takes this wealth of information and can correlate if faults showing up in multiple places will combine to cause a larger problem.”

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methods of Ex-protection. With this approach, the FieldComEx™ Power Hub supplies the main fieldbus trunk with up to 500 mA via the power supply. As there is more energy available on the trunk, more field devices can be connected to one standard power supply in comparison to a more expensive FISCO power supply.”

Hennecke continued, “Field devices are connected via ‘spur’ cable to an active fieldbus barrier, preferably only one device per spur. These barriers galvanically isolate spurs from the trunk, and provide energy limitation for live working without a hot work permit. Pepperl+Fuchs’ Segment Protector™ offers energy limitation and short-circuit protection at each spur. This prevents a faulty device or spur causing the entire segment to disappear.”

Isolation between fieldbus segments is “imperative”

Phil Saward, MTL product manager, offered this opinion: “Isolation between fieldbus segments is necessary to prevent cross-talk in the event of multiple ground faults across segments. MTL implements this by supporting galvanic isolation at AC main voltages between segments in all of its fieldbus power supply systems.”

He added, “With regard to fieldbus barriers, MTL’s 9301-FB and 9302-FB products have isolation between trunk and spurs. The purpose of this isolation is to avoid the need for a high-integrity I.S. earth connection at the fieldbus barrier, which would be difficult to implement. After all, industry standard wiring hubs such as the MTL-Relcom Megablock Series operate very reliably without isolation between trunk and spur, or between spurs.”

End users migrating from intrinsic safety technology

Mike O’Neill, Moorhouse international sales director, sees the market moving away from intrinsic safety technology as fieldbus becomes more predominant. O’Neill said, “I.S. offered a ‘hot’ working capability in the days of force-balance transmitters, when opening a live device in the field was a requirement. However, maintenance and resetting of field devices is carried out remotely, and the complications of I.S. design are no longer justified.”

“Plants are employing non-incendive in Division 2 and explosion-proof in Division 1 — both simple and inexpensive technologies that are easily understood.”

A practical answer to explosion-protected remote I/O

André Frisch, R. STAHL product manager, instrumentation, said his company’s Ibus product line is a versatile solution for explosion-protected Foundation fieldbus devices. Frisch said, “Utilizing the Ibus concept, I.S. field devices can be operated in accordance with the FISCO standard on a non-I.S. safe fieldbus trunk with new Ex e/i x field device couplers. Non-I.S. safe field devices can also be connected to the fieldbus. The field device couplers are suitable for installation in Zone 1, Zone 2 and Division 2 environments.”

FISCO: A simple solution for fieldbus in hazardous areas

According to Turck’s fieldbus specialist, the FISCO approach is particularly well suited for use with FISCO technology because of the low power requirements of fieldbus devices. FISCO is application-specific for fieldbus segments to be used in hazardous areas.

Jim Masterson, Turck’s vice president, process automation and industrial safety, continued, “The Turck Multibarriers provide ‘superior galvanic isolation channel-to-channel.’ Multibarriers allow the use of a bus segment for an explosion hazardous area with the same segment structures as in a non-I.S. area without the danger of potential transfers. The supply of energy to the physical layer is implemented in a non-explosion hazardous area — the control room.

Regardless of the isolation technology, end users should carefully select suppliers for their experience with fieldbus technology and explosion protection to achieve the highest reliability and fastest, trouble-free commissioning of their process plants.

End users expect their physical layer component supplier to have a number of different tools in their toolbox.
Projects benefit from improved performance and reliability

Fieldbus is enjoying growing acceptance across the process industry for a good reason. Early adopters quickly learned that Fieldbus is the answer to any company’s need for a cost-effective system that increases plant availability, and improves production efficiency.

In the oil & gas industry, petroleum producers have found Fieldbus technology to work in the most demanding environments. Fieldbus control systems are installed on many offshore facilities, where mission-critical applications demand utmost robustness and reliability.

In the Philippines, Shell Philippines Exploration B.V. (SPEX) utilized Emerson’s PlantWeb® architecture and Fieldbus technology for automation of its Malampaya Deepwater Gas Project. The Malampaya project includes the largest integrated deck offshore platform in the Asia/Pacific region. It delivers natural gas from an offshore gas processing platform through a 504-km long gas pipeline to a gas treatment plant in Tabangao, Batangas.

The Malampaya project incorporated Foundation Fieldbus for both offshore and onshore process automation. The Fieldbus-based control system enabled extended diagnostics in intelligent field devices to deliver critical process and equipment information that contributed to process safety, efficiency and reliability.

In South America, Petrobras undertook a control modernization on its Merluza platform. Smar’s SYSTEM302 enterprise automation solution was at the heart of the upgrade. The project implemented a new condensate fiscal measurement skid with natural gas metering runs compliant with AGA standards. The Fieldbus control system linked field devices to High Speed Ethernet (HSE) linking devices and redundant flow computers executing fiscal gas flow and condensate measurements.

The new FOUNDATION Fieldbus-based control system ensured that the Merluza platform meets strict AGA specifications, including precise calibration of operational measurements on natural gas runs, and accurate gas and condensate measurements in a test separator.

In the North Sea, Shell UK Exploration and Production (Shell Expro) employed Yokogawa’s FOUNDATION Fieldbus technology to reduce operating costs and upgrade the control systems on the Brent Alpha platform.

Fieldbus proved to be an extremely cost-effective and reliable solution with low life cycle costs and a high total value of ownership.

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Adoption rate on the rise in Europe and Middle East

In Europe, leading end users such as Bayer, BP, Clariant, DSM, MOL, Novartis, Shell and Shin-Etsu have chosen FOUNDATION fieldbus for a wide range of mission-critical control applications. These companies are realizing the unique operational improvements — and business benefits — enabled by the technology.

While other bus protocols have a strong following in the European marketplace, FOUNDATION fieldbus installations are growing in the oil & gas, chemical and pharmaceutical industries, as well as markets for other high-value products. In countries like Russia, Poland, Norway, Sweden, Denmark, Finland and Germany, FOUNDATION fieldbus is gaining acceptance in many areas of process automation.

Today, European projects account for a significant share of all FOUNDATION fieldbus installations worldwide. Europe also leads in foundation representation, with 39% of the membership, followed by North and South America with 37% and Asia/Pacific with 24%.

To support the European automation community, the Fieldbus Foundation established a Centre of Excellence at the Rheinhold & Mahla (R&M) facility in Frankfurt, Germany. The R&M site is fully certified to provide comprehensive fieldbus-related services to end users, as well as an extensive schedule of fieldbus training courses.

In addition, the Foundation conducted its 2005 General Assembly in Vienna, Austria. It also established a Europe, Middle East & Africa (EMEA) Advisory Council dedicated to providing leadership of marketing activities supporting fieldbus adoption in the region. The council is comprised of senior executives of European-based companies responsible for the EMEA region of the world.

In the Middle East, FOUNDATION fieldbus has made inroads across the map. Most fieldbus installations are concentrated in Saudi Arabia, Oman and Iran. Smaller systems are installed in Egypt, Qatar and Iraq. It is estimated that at least 40 FOUNDATION fieldbus projects have been undertaken in the region. Approximately 15,000 fieldbus devices are now in service.

To date, most fieldbus adoption in the Middle East is in Grassroots projects. Technology growth is primarily in the petroleum industry (oil refining, production and distribution), as well as in petrochemicals (Aromatics, Olefins and NGL). Future growth is expected in the water and electric utility industries.

Major Middle East end users include Saudi Aramco, PDO, OGC, ORC and the Iranian National Petrochemical Company. Saudi Aramco, in particular, is very supportive of FOUNDATION fieldbus, completing more than 10 fieldbus installations and standardizing on the technology for future automation projects.
Don’t delay — advanced digital control is here!

A

round the world, manufacturers are implementing Foundation fieldbus in a wide range of plant automation applications. But where can companies go to find training so their personnel can make the most of this enabling technology?

The answer is found with a spin of the globe! Opportunities for fieldbus instruction now abound at certified training centers from the United States and Canada, to The Netherlands, Singapore, China and Japan. On-site training courses are also offered at plants and factories around the world.

Who should conduct fieldbus courses?

Companies getting started with fieldbus often ask, “Who is the best source for technology training: the host system supplier, an instrument vendor, or an independent training center specializing in digital technology?”

According to Chuck Carter, director of the Fieldbus Center at Lee College, certified fieldbus training centers are best suited to deliver fieldbus instruction. “Instead of duplicating the efforts of the training centers, we stand behind them with systems and support,” he said. “End user implementation benefits from a comprehensive training program that helps them to take advantage of all fieldbus technology has to offer.”

Carter believes fieldbus brings significant value to operations, maintenance, engineering, lab and management users if those groups are fully familiarized with the technology on the front end. He said, “Fieldbus is best applied when it is fully understood by the company.”

Michael Clark, certified fieldbus instructor for the Southern Alberta Institute of Technology (SAIT), cautions end users not to delay training their plant personnel. “In some cases, involvement comes early as project planners make the proactive decision to acquire fieldbus training before entering into the specification and design phases of their project,” Clark said. “Frequently, however, those who wait to acquire training lament their project delays and concede that hindsight is indeed 20/20.”

Where is certified instruction provided?

In North America, the Fieldbus Center (Baytown, Texas) offers fieldbus courses for both end users and suppliers. The Center features a $1 million pilot plant replicating working conditions typically found in process plants. Another option is SAIT (Calgary, Alberta, Canada), which certifies system integrators and Installation, Commissioning & Maintenance (IC&M) professionals on fieldbus technology. In addition, TSU (Angola, Indiana), which hosts a Foundation fieldbus Center of Excellence; and by STC-Brielle (Brielle, The Netherlands), a modern simulation and training center located in close proximity to the Rotterdam-Europoort industrial complex.

In Asia/Pacific, training is provided at Singapore Polytechnic (Singapore), home of a Foundation fieldbus Center of Excellence; SINOPEC Yanshan (Beijing, China), a multi-discipline facility serving end users, suppliers and system integrators; and Waseda University (Tokyo, Japan), a training site founded as part of the institution’s Industrial Open Network Laboratory.

End User Training: Get On The Fast Track Today

Pilot plants provide realistic training environments where students can gain hands-on experience using fieldbus technology.

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OpenRail is the next generation of Hirschmann’s proven RAI and MICE Ethernet switches. OpenRail consists of the RS20 (Rail) and MS20 (Modular) switches (these have 100 megabit uplinks and are available in 4, 8, 16 and 24-port densities). For Gigabit uplinks, OpenRail offers the similarly-configured RS30 and MS30 switches.

Start with any of these and pick from a long list of features and options to custom-tailor your solution. There are over 1,000 variations available, allowing for the perfect application fit! Please visit www.hirschmann-usa.com or call for a more personal introduction to OpenRail.

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Looking Back At A Fieldbus Success Story

Deten marks 10 years as first commercial installation

On December 9, 1994, Deten Química started up the world’s first commercial Foundation fieldbus installation at its petrochemical complex in Brazil. At that time, the project received worldwide attention. It marked the first time a control system was designed and installed in a commercial plant following both the IEC/ISA S50 Physical Layer standard and the Fieldbus Foundation’s specifications.

Working with its automation supplier, Smar International, Deten implemented a system consisting of 63 field devices distributed in four fieldbus segments to perform all 43 control loops in the field. This was a very important “proof of concept” to Deten — and to the entire instrumentation and control community. Valuable knowledge was acquired from this installation, from fieldbus drawing and design terminology, to training requirements for operators and instrument technicians.

During the two years following its original installation, Deten fully embraced fieldbus technology and upgraded its entire facility. Over 1,000 fieldbus instruments were installed, distributing the majority of control loops among field devices.

The fieldbus history at Deten is unique because it broke many paradigms. It was the first fieldbus installation, first field control architecture, first redundant fieldbus solution, first PLC fieldbus integration, and first shutdown system with fieldbus. Many of the guidelines widely adopted by the industry today were first implemented and tested at Deten.

A decade of results from fieldbus

Deten’s experience is the best testimonial about how end users can benefit from Foundation fieldbus. “The technology is powerful and very reliable. It provides considerable savings in diagnostics, maintenance and configuration costs,” said Alexandre Pessoa da Santana, instrument engineer at the Deten Química facility.

Installation, commissioning and start-up time are other areas where fieldbus proved to be superior to traditional control technologies.

The Deten 1 startup phase, with over 600 fieldbus devices, four operator workstations and seven PLC cards, took just 23 days. Deten 2 installation, commissioning and startup were completed in 25 days.

At the Química plant, better system reliability also provided extended operation time — and virtually eliminated corrective maintenance. Today, the only preventive maintenance task necessary is the calibration procedure required for ISO 9000.

System evolution delivered additional benefits

For Deten, the evolution of Foundation fieldbus to incorporate High Speed Ethernet (HSE) opened many new opportunities to implement fieldbus projects. Integration with other protocols, such as Modbus TCP using an HSE gateway, significantly extended the range of potential applications.

Another important development was the advent of OPC technology and the implementation of fieldbus servers with the complete elimination of proprietary software. The combination of Foundation fieldbus and OPC enabled a true open, distributed control system architecture.

After 10 years of operation in its initial fieldbus installation, Deten commenced with a system upgrade. A total of 250 field devices were upgraded to Foundation fieldbus communications stacks. PLC fieldbus interface modules were also upgraded to recent Foundation fieldbus technology.

In addition, computer fieldbus H1 cards were replaced by Foundation fieldbus linking devices. The original fieldbus H1 cards were installed in the computer ISA slots, and the change to the H1 linking devices was very important from a spare parts availability perspective.

The use of HSE and linking devices provided Deten with an open platform to freely select “best in class” suppliers — from field devices with Foundation fieldbus to the HMI packaging using OPC technology.

Looking ahead to continued success

Going forward, Deten’s decision to upgrade its control architecture with Foundation fieldbus HSE will enhance its business results even further. This upgrade started in 2003, and system diagnostic capabilities have improved considerably.

Deten is pleased with the benefits of Foundation technology. The company has elevated its bottom line by reducing capital and operating expenses, and by lowering installation, commissioning, startup and maintenance costs.

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Fieldbus Highlights

Emerson Adds Fieldbus Capability to Rosemount® Analytical Multivariable Transmitter

MooreHawke Innovates TRUNKGUARD Fieldbus Device Couplers

Fieldbus Product Highlights

Emerson Process Management announces the and feature partnerships. Auto-Segment Termination and unique short-circuit protection. On detection of excess current on a fieldbus spur, they utilize a fold-back technique which locks in a small 2mA load — just enough to turn on an LED light — and then removes the device from the segment. Once the short is removed, the coupler automatically resets the device on the network. To reduce specification and installation time, TRUNKGUARD Fieldbus Device Couplers are available in a variety of ready-to-install fieldbus enclosures complete with cable glands. Enclosure options include GRP (Glass Reinforced Polyester) and stainless steel, with glands for armoured or non-armoured cable.

MooreHawke • www.mii.net.com/moorehawke

Highlights

Product

Fieldbus

Fieldbus

Fieldbus

Fieldbus

Fieldbus

Fieldbus

Fieldbus

Fieldbus
Yokogawa Introduces Multi-channel Oxygen Analyzer

The Qumption Model AV550 is a new multi-channel oxygen analyzer: its intuitive color touch screen operation, powerful process diagnostic tools, and advanced communication capabilities make power boiler oxygen trim automation simple, predictable and reliable. It is packed with features that minimize plant downtime and technical support for the oxygen measurement.

The modular design of the Qumption is easily expandable to accept up to eight zirconia detectors. Channel cards can be removed or installed without powering off the analyzer. Qumption outputs the average oxygen concentration calculated from a user-selected group of zirconia detectors. Any detector that is in alarm, calibration, or not in service, is automatically removed from the averaged output.

This feature is especially useful when plant maintenance schedules require frequent calibrations.

Foxboro RTT15 Temperature Transmitters provide highly reliable, stable, and accurate temperature measurements using either RTD or thermocouple sensors. The Foxboro Fieldbus version supports average, difference, and redundant measurements, using a choice of two-wire RTDs or thermocouples or a combination of a two- or three-wire RTD with a thermocouple. This transmitter is part of the Foxboro family of products for diverse temperature requirements with a standard five-year warranty. This combination of high functionality, performance, and reliability at a very affordable price results in exceptional value to the user.

MTL-Relcom Reduces Hardware Risks

Adopting the newest technology doesn’t mean that risks have to be taken when selecting hardware. MTL and Relcom have been supplying the fieldbus market for over 20 years and have the industry’s largest installed base of physical layer components. Third-generation power supplies and wiring components, and a decade of fieldbus experience, mean users can specify with confidence. Nobody offers as much proven experience in the field as MTL-Relcom. Need to know more? Visit www.mtl-relcom.com.

Fieldbus Integration with Experion® PKS

The recently released Experion® PKS 3030 Foxboro Fieldbus Interface module brings the best of Foxboro fieldbus system integration forward into a compact footprint with increased capacity. This innovative module brings forward unique integration capabilities, such as link schedule optimization, code download support, integrated device and asset management, and transparent support for alarms and events. Capable of scaling and managing any system size, Foxboro’s Fieldbus integration is supported with globally integrated engineering and project management solutions.

Quick Migration from Existing Architectures to Foundation Fieldbus

Softing’s Fieldbus Kit (PKS) provides the quickest solution to integrate Foxboro fieldbus H1 and PROFIBUS PA technologies into new or existing process instruments. The PKS hardware contains the fieldbus protocol software, making it easy to integrate this functionality into existing architectures. In addition, Softing can assist you in customizing the software to handle device-specific properties and also can offer you training, creation of device description files, pre-configuration testing, and application support.

ABB’s System 800xA Foundation Fieldbus Device Integration Provides Plantwide Process Improvements

System 800xA seamlessly integrates fieldbuses and field devices into the extended automation system environment, enabling system level engineering, operational, and maintenance of field equip-ment. Its architecture supports process availability requirements with redundancy at all levels and allows for installation of devices in all plant environments, including hazardous areas. Only ABB delivers the extended functionality that gives you the visibility and control that you need to run your plant more efficiently — saving you precious time, resources and money.

Fieldbus Integration with Experion®

Foxboro RTT15 Temperature Transmitters provide highly reliable, stable, and accurate temperature measurements using either RTD or thermocouple sensors. The Foxboro Fieldbus version supports average, difference, and redundant measurements, using a choice of two-wire RTDs or thermocouples or a combination of a two- or three-wire RTD with a thermocouple. This transmitter is part of the Foxboro family of products for diverse temperature requirements with a standard five-year warranty. This combination of high functionality, performance, and reliability at a very affordable price results in exceptional value to the user.

MTL-Relcom Reduces Hardware Risks

Adopting the newest technology doesn’t mean that risks have to be taken when selecting hardware. MTL and Relcom have been supplying the fieldbus market for over 20 years and have the industry’s largest installed base of physical layer components. Third-generation power supplies and wiring components, and a decade of fieldbus experience, mean users can specify with confidence. Nobody offers as much proven experience in the field as MTL-Relcom. Need to know more? Visit www.mtl-relcom.com.

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Honeywell’s “Four Generation” Automation System

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TURCK Delivers Connectivity, Interfacing and Sensing Components

TURCK offers a complete range of connectivity, interfacing and sensing components that bring consistency and efficiency to your installations and get your plant online faster. New and notable products include: 8-bit series modules with slim 18 mm housings providing a wide range of functions necessary for measurement and control applications; a multi-segment Foxboro fieldbus power conditioner that provides up to 500 mA of conditioned power to each source; and 8-bit I/O sensors designed with potted-in-cable or quick disconnects for exceptional versatility in both valves and damper applications in locations classified as hazardous. Users can find these and more products by requesting TURCK’s new Process Brochure BA410 today.

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Yamatake Relases Hybrid Smart Positioner, VP3000 Alphaplot

The VP3000 Alphaplot model VP3024/204 offers a unique function that is realized by the hybrid technology. The model VP3024/204 adopts two signals — an analog and Foxboro fieldbus signals for diagnostic purposes. The VP3020 and control valve maintenance system, called Valsafe, provide Stick Slip detection which is a dynamic diagnosis.

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ABB® System 800xA Foundation Fieldbus Device Integration Provides Plantwide Process Improvements

System 800xA seamlessly integrates fieldbuses and field devices into the extended automation system environment, enabling system level engineering, operational, and maintenance of field equipment. Its architecture supports process availability requirements with redundancy at all levels and allows for installation of devices in all plant environments, including hazardous areas. Only ABB delivers the extended functionality that gives you the visibility and control that you need to run your plant more efficiently — saving you precious time, resources and money.

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Asset Development Manager
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