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November 2009

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Foundation Briefs

First FOUNDATION H1 device couplers registered

Interoperability got a boost recently with the registration of the first FOUNDATION fieldbus H1 device couplers. The Fieldbus Foundation announced that MooreHawke, a division of Moore Industries, and Pepperl+Fuchs have passed the registration process, which gives automation end users greater assurance of the interoperability of independently manufactured fieldbus physical layer components.

The Fieldbus Foundation's FOUNDATION Device Coupler Test Specification (FF-846-1.1) defines a suite of vendor self-tests for fieldbus device couplers with spur short-circuit protection. The tests cover device coupler requirements as specified in the FF-816 FS 1.5 physical layer profile, as well as the IEC 61158-2: 2003 standard. The registration process includes tests beyond the scope of these standards which determine if a device coupler is fit for its intended purpose: preventing spur short-circuits from disrupting a fieldbus network.

The initial device coupler registration program addresses two classes of devices: FOUNDATION device couplers and FOUNDATION wiring blocks. Device couplers are a critical component of an H1 fieldbus network, enabling connection of multiple field devices to the segment. These units are characterized by ports for trunk-in, trunk-out, and one or more spurs with the requirement of spur short-circuit protection. Registered device couplers must be network-powered (dc/dc conversion is not included). Wiring blocks are simple devices with a minimum of one trunk input and one spur output. Registered wiring blocks may contain surge protection circuits, integral terminators, or indicating LEDs, but cannot provide spur short-circuit protection.

"With the initiation of device coupler registration," said Stephen Mitschke, Fieldbus Foundation manager-fieldbus products, "the Fieldbus Foundation is helping to ensure robust and reliable fieldbus physical layer performance. Registration signifies that a coupler is suitable for any fieldbus installation. End users can now have even greater confidence in FOUNDATION-based automation systems thanks to our rigorous suite of device coupler test cases."

Among the first devices to complete the registration process are MooreHawke's registered Trunkguard Series 200 (TG200) and Series 300 (TG300) fieldbus device couplers. They utilize patented "automatic segment termination" technology, which eliminates the most common installation error: segment failure from under- or over-termination. This approach also ensures that local parts of a fieldbus segment will continue to function, even if remote parts are accidently disconnected. The TG200 Series is offered in 4, 8, 10, and 12 output (spur) configurations; the TG300 Series comes in 4 and 8 spur models.

The Trunkguard Fieldbus device coupler provides electronic and fully auto-resetting spur short-circuit protection that prevents segment failure caused by single device faults. It uses a "fold-back" technique so that any spur attempting to draw more than 48 mA is automatically switched off and not permitted any current flow until the fault is removed. During a short, only 4 to 5 mA are used, eliminating segment failures caused by overloading the segment power supply. When the short is removed, Trunkguard automatically reconnects the spur to the fieldbus segment.

The Trunkguard Series 300 device coupler (TG300) simplifies the use of Exd/flameproof fieldbus devices in Zone 2 and Zone 1 by allowing "live" access for maintenance and eliminating the need for expensive Exd/flameproof junction boxes. It enables fast and easy

implementation of fieldbus systems by connecting multiple devices to a main fieldbus trunk in FOUNDATION fieldbus H1 networks.

Also among the first devices to complete the registration process is Pepperl+Fuchs' registered R2-SP-N device coupler, available in five models with a choice of 4, 6, 8, 10, or 12 outputs (spurs). Each spur limits a short-circuit condition, ensuring that the remaining segment is only adversely affected by a fault condition at one spur. Energy limitation Ex nL (non-incendive) or Ex ic (intrinsically safe) at the spur is implemented with selected FieldConnex power supplies. The high-power trunk concept allows for maximum cable lengths and number of devices, which can be installed or maintained while the system is energized. In addition, use of a trunk "T-connector" enables exchange and modification of one segment protector without impacting other parts of the same fieldbus segment.

Pepperl+Fuchs' Modular Segment Protector is a device coupler for fieldbus according to IEC 61158-2. A trunk module connects the unit to the segment and has two outputs (spurs) connecting one field device to the trunk line. Expansion modules with four spurs snap side-by-side on a DIN rail with a system plug for interconnection. The segment protector provides a certified Ex nL energy limitation at each spur connection. This unit, along with the field devices, can be installed in Zone 2/Div. 2 with devices maintained while the system is energized.

A list of registered FOUNDATION fieldbus products is available on the Fieldbus Foundation Website.

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Global News & Events

More than 365 attend Fieldbus end user events in Middle East

The Fieldbus Foundation Middle East Marketing Committee (FFMEMC) applauded the success of its recent series of end user seminars, which welcomed more than 365 delegates. End users, engineering consultants, system integrators, and ISA members attended the events, held across the region over four days from Oct. 25 to 28, 2009 in Al Khobar, Saudi Arabia; Doha, Qatar; Muscat, Oman; and Abu Dhabi, United Arab Emirates. The seminars followed the format of previous events, which were designed to fit into engineers' busy schedules, beginning with a focused agenda at 5:00 pm and concluding with a complimentary dinner.

FFMEMC and ISA groups across the region have a close working relationship, enjoying support from ISA Saudi Arabia chapter and ISA Qatar chapter in hosting and promoting the events in Al Khobar and Doha. Luay Al Awami, president of the ISA Saudi Arabia chapter, reported unprecedented attendance of local ISA members at the Al Khobar meeting with more 120 delegates present. He attributed the high number to the importance of FOUNDATION fieldbus to the instrumentation and control community in Saudi Arabia and the high level of interest in the technology, and its role in asset optimization and active projects.

The Qatar event drew more than 80 attendees and was the first of its kind, combining technology presentations and end-user applications. Nilangshu Dey, president of the ISA Qatar chapter, noted the benefit of the seminars to end users in Qatar and the need for more events of this kind.

The seminars followed the theme "FOUNDATION Fieldbus—Technology Update Seminar." The agenda included updates on technical developments and progress of FOUNDATION fieldbus and its benefits in terms of process integrity, business intelligence, and open scalable integration. It also provided presentations on FOUNDATION fieldbus for Safety Instrumented Functions (FF-SIF) and the benefits of OPEX savings and asset optimization through the implementation of FOUNDATION fieldbus. Key members of the Fieldbus Foundation End-User Council—Middle East (FFEUC-ME) shared applications experiences from an end-user and engineering contractor perspective and participated in Q&A discussions. Of particular note were the account in Doha by Sathar Vadhooth, Qatar Petroleum, about the implementation of FOUNDATION fieldbus in a QP production facility and Hamad S. Bahareth's review of FF-SIF and the demonstration at Saudi Aramco's Dhahran site.

End-user events coordinated by the FFMEMC and FFEUC-ME provide excellent forums for sharing knowledge, experiences, and requirements. Q&A discussion

sessions and close-out sessions, in particular, offer delegates opportunities for feedback. Close-out discussions at the Muscat event, led by Salim Al Hinai, Petroleum Development Oman, and at the Abu Dhabi event, led by Majid Al Braik, ADMA OPCO, were particularly valuable. FFMEMC and FFEUC-ME continue to make every effort to meet the requirements of Middle East end users, recognizing the need for more end user events in the region and for local certified end-user training facilities.

Majid Al Braik, ADMA OPCO, and chairman of the FFEUC-ME, said, “The events organized by the marketing committee and end user council are so well supported because end users in the Middle East have a great interest in implementing FOUNDATION technology in their projects due to the features it offers, including control in the field, interoperability, and ease of integration with other fieldbus technologies. The resultant improvements to plant performance and cost effective design are critical for future competitiveness. Prospective end users are therefore keen to understand how they, too, can implement these benefits.”

ABB, Emerson Process Management, Endress+Hauser, Honeywell, Invensys, Pepperl+Fuchs, Metso, MooreHawke, MTL, R.Stahl, Turck, and Yokogawa were among those sponsoring the events.

For more information, visit the Fieldbus Foundation Website.

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Multaqa 2009: Qatar to host fifth annual end-user council conference

Plans for Multaqa 2009, the 5th FOUNDATION Fieldbus Middle East End User Council Conference, are underway. The event will take place Dec. 15-16, 2009 at the Hotel Ramada Plaza in Doha, Qatar. It will be hosted by the Fieldbus Foundation Middle East Marketing Committee (FFMEMC), which has just completed coordinating a busy seminar season, in close cooperation with the Fieldbus Foundation End User Council—Middle East (FFEUC-ME).

The two-day conference will offer end users, system integrators, and engineers an extensive program of talks by end users and implementers of FOUNDATION technology and fieldbus technical presentations by worldwide experts. Topics are expected to include business cases for FOUNDATION fieldbus, project implementation experiences, FOUNDATION Fieldbus for Safety Instrumented Functions (FF-SIF), wireless systems, CAPEX and OPEX savings, asset management, commissioning experiences, maintenance, and interoperability issues and diagnostics.

A table-top exhibit will feature products and devices from event sponsors and give attendees the opportunity to discuss applications with Fieldbus Foundation member companies. Sponsors include ABB, Emerson Process Management, Endress+Hauser, Hirschmann, Honeywell, Invensys, Krohne, Pepperl+Fuchs, Metso, MooreHawke, MTL, Rockwell Automation, R.Stahl, Softing, Turck, and Yokogawa.

The new FFEUC-ME committee, established last June, is helping organize the event. It includes Chairman Majid Al Braik, ADMA OPCO; Vice-Chairman Nilangshu Dey, Qatar Petroleum; Treasurer Fahad Al Hamad, Saudi Aramco; Secretary Indira Molina, ADCO; and Communications Officer Djamel Bari, ADMA OPCO. The group is guided by three objectives:

- Educate and assist end users across the Middle East in FOUNDATION technology and its benefits;
- Provide a forum to exchange information among Middle East end users; and
- Assist the FFMEMC in establishing FOUNDATION fieldbus training centers across the Middle East region to benefit its end users.

Anticipating Multaqa 2009, Chairman Majid Al Braik said, “The FFEUC-ME includes many end users, including representatives of key oil and gas and petroleum companies throughout the Middle East region. End user forums such as Multaqa are critical events that allow a multi-directional flow of information between the developers of FOUNDATION fieldbus, implementers and prospective implementers of the technology, and the suppliers of equipment and systems that facilitate the implementation of the technology.”

Visit the Fieldbus Foundation Website for more information about Multaqa 2009 and Middle East activities.

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UK marketing committee schedules half-day supplier training sessions

The Fieldbus Foundation UK marketing committee (FFUKMC) will hold a series of training events across the UK to meet the ongoing need for FOUNDATION fieldbus education within the Fieldbus Foundation's own member companies.

The half-day events will target employees within the supplier community and offer a basic overview of FOUNDATION fieldbus technology, its implementation, applications, and overall plant integration. The training is intended in particular for sales representatives and engineering staff who interact with users or potential users of FOUNDATION technology and their companies' fieldbus systems, devices, or interfaces.

Each event costs £10 per person and includes lunch. The agenda will cover:

- An introduction to FOUNDATION fieldbus
- Making FOUNDATION fieldbus work
- Making FOUNDATION fieldbus reliable
- Asset management
- Business intelligence
- Future developments

John Hartley, chairman of the FFUKMC, expressed enthusiasm about the new training events. "It's vital that companies do all that they can to support their sales and engineering staff," said Hartley. "The greater the knowledge employees have about fieldbus products and the technology behind them, the more effectively they can perform in front of current and prospective customers. Workforces can be very fluid with new staff coming through on a regular basis—employee training must be a constant consideration for management. With courses scheduled across the UK, all interested parties have an opportunity to attend."

Supplier community training events are scheduled for:

- North Region: Dec. 1, 2009 at Endress+Hauser, Manchester
- Scotland: Feb. 2, 2010 at Honeywell, Newhouse

For more information about the training sessions, or to make a reservation, contact Charlotte Gear by telephone at +44 (0)161 286 5000 or by email.

For more information about the Fieldbus Foundation UK marketing committee and its activities throughout the UK, visit the UK section of the Fieldbus Foundation Website or email the committee.

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Fieldbus Foundation plans educational events worldwide

The Fieldbus Foundation is planning many informational and educational events around the world in the remainder of 2009. Make plans now to attend an event in your area.

LOCATION	DATE	EVENT and CONTACT INFORMATION
EMEA (EUROPE, MIDDLE-EAST, AFRICA) EVENTS		
Manchester, UK	Dec. 1, 2009	North Region Supplier Community Training Click here for more information
Doha, Qatar	Dec. 15-16, 2009	Multaqa 2009

		5th Middle East End-User Council Conference Click here for more information
SEMINARS IN SOUTH EAST ASIA		
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		
Surat, India	Q2 2010	ISA / FOUNDATION Fieldbus Event More information to come
Mumbai, India	Sept. 16-19, 2010	Automation 2010 More information to come
SEMINARS IN EAST ASIA		
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

For more information, visit the Fieldbus Foundation Website.

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Technology News

New ARC whitepaper cites benefits of CIF with FOUNDATION fieldbus

The benefits of control in the field (CIF) with FOUNDATION fieldbus is the topic of a new ARC Advisory Group whitepaper. According to the Dedham, MA, manufacturing research and advisory firm, CIF strategies supported by FOUNDATION technology improve process control performance by allowing for superior reaction to deterministic disturbances in industrial plant operations. The Fieldbus Foundation will conduct a press briefing about the release of the whitepaper on Nov. 25 at SPS/IPC/DRIVES 2009 in Nuremberg, Germany.

In the whitepaper, The Business Value Proposition of Control in the Field, ARC describes the incorporation of a function block structure and other supporting functions in FOUNDATION fieldbus providing a complete automation infrastructure for operational excellence. Embedded control functionality in FOUNDATION devices is a key enabler for achieving high availability control and a stepping-stone towards single-loop integrity

Results from testing and real-world applications demonstrate that CIF with FOUNDATION technology has the potential to deliver a 30% improvement in control performance with very fast, fast, and medium-speed process dynamics. CIF can also provide up to three-times higher control loop availability than a conventional DCS.

Fieldbus Foundation President and CEO Rich Timoney noted that the new whitepaper provides valuable insights for automation end users seeking to maximize the benefits of FOUNDATION technology. “As reported by ARC, FOUNDATION fieldbus provides business value in three key areas—process integrity, business intelligence, and open and scalable integration of information across process manufacturing plants,” said Timoney. “FOUNDATION fieldbus control in the field ensures tighter control and higher availability. It is a critical element in providing significantly enhanced process integrity for many applications and control loops. This enables process industry end users to increase revenue and profits, which are the drivers for investing in new technologies. Thanks to recent, comprehensive studies of control in the field, end users now have the first definitive proof that FOUNDATION -based CIF strategies yield significant operational improvements, which result in bottom-line business benefits.”

Shell Global Solutions International (SGSI) has performed extensive evaluation of CIF. A company statement said, “Control in the field using FOUNDATION fieldbus technology is recommended by SGSI for simple and cascading loops, not for complex loops. Major benefits identified by SGSI are reduced process controller loading, reduced network traffic enabling more loops per segment, as well as very fast loop response.”

With control at the device level, process automation functions are truly distributed and there is no single point of failure in the control system above the H1 (field device) level. If there is a malfunction in the HMI and a loss of visibility into the process, controllers, or any other component in the system and the control loop, including intelligent field devices, actuators and positioners, and the network, remain unaffected.

Field-level control also enables greater flexibility in plant automation strategies. For example, controllers are free to handle higher-level control functions such as advanced control and optimization. FOUNDATION fieldbus allows for "dynamically instantiable function blocks,” meaning that function blocks can be activated in different components of the system as they are required. In addition, a large library of different block types can be used aside from basic PID, such as switches, alarms, etc.

According to ARC Analyst Larry O’Brien, principal author of the whitepaper, CIF improves control loop performance due to its ability to offer faster sample rates and shorter latencies in the read-execute-write cycle of control loops. Although the advantages of increased integrity, flexibility, and reliability can be attributed to all control in the field loops, control loop performance benefits can be most significant in fast process loops, including many flow and pressure loops and some temperature, pH, position, and speed loops. The improved flow and pressure control provided by CIF means that the performance of slower loops could also be improved because of the complex interactions of control loops in process plants.

Industrial Systems and Control Ltd. (ISC), a specialized control engineering consultancy with links to the Industrial Control Centre at the University of Strathclyde, Scotland, recently issued a study titled Control in the Field: Analysis of Performance Benefits. In the first of a series of studies on the benefits of CIF, ISC examined the differences in timing and sequencing associated with CIF with a fieldbus system versus a fieldbus system employing control in the host (DCS) to establish typical latencies and sample rates that limit control performance. Many different scenarios and process dynamics were tested.

As described in the ARC whitepaper, ISC found that in typical fast process applications, CIF can improve performance over control implemented in the DCS. Improvements in response time of between 10% and 30% were recorded, in addition to improvements in disturbance rejection of up to 20%.

The whitepaper concludes that the performance improvements of CIF must ultimately be linked to a business value proposition, which is the measure of value for the implementation of any new technology in the plant. Additional benefits above and beyond control performance include reducing product variability, speed of grade changes, reduced time to startup, increased availability, and energy savings.

Download a free copy of the ARC whitepaper from the Fieldbus Foundation Website.

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Products & Solutions

Endress+Hauser self-configuring indicators display up to eight fieldbus variables

RID14 and RID16 indicators from Endress+Hauser display up to eight FOUNDATION fieldbus variables, operating as a pure display or via function block connection.

A new listener mode allows plug-and-view operation with no function block connection. The indicator configures itself automatically, according to publishing device address, but also can be configured manually by the user. For flexible integration and universal applicability, the indicator can be connected via function block and has two input selector blocks, an arithmetic block, an integrator block, and a PID block on board.

The listener mode supports quick commissioning, causes less traffic on the bus, and saves engineering effort. The advanced diagnostic block delivers clear maintenance instructions and explanations for alarms and current device status to support commissioning or trouble-shooting. The device has LAS capability, conforms to ITK 5.2.0, and is fully integrated into all major FOUNDATION fieldbus systems.

The indicators feature a large, backlit, high contrast LCD with bar graph, online sensor status for predictive maintenance, and plain text field for TAG or unit. Various housing forms and materials are designed to IP67/ NEMA4x. Intrinsically safe and explosion-proof versions are available with ATEX, FM, CSA, or IEC Ex certification.

For more information, visit the Endress+Hauser Website.

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MooreHawke Trunksafe device couplers earn multiple FM approvals

Trunksafe TS200 Fault-Tolerant Fieldbus System from MooreHawke, the fieldbus division of Moore Industries, now has three major Factory Mutual (FM) certifications. The Trunksafe device coupler series, including models TS206 and TS20W, has acquired ATEX-Type N, IECEx-Type N, and cFMus-general/ordinary location and non-incendive FM certifications. The Trunksafe system provides a cost-effective and highly reliable strategy to maintain continuous communications between field devices and a host system in the event of any single point failure (such as any open single wire) on a FOUNDATION fieldbus H1 segment.

“Trunksafe is the industry’s first fault-tolerant fieldbus system intended for use in both critical and non-critical processes,” said Moore Industries Director of Engineering Tina Lockhart. “Now, customers with hazardous location process segments can have complete confidence in Trunksafe’s capabilities to protect their process.”

Copies of the FM certificates are available as downloadable pdfs on the MooreHawke Website in the Interface Solution Product Certification Summary.

Additional product information is also available by visiting the MooreHawke Website.

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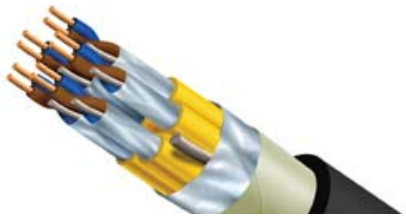
Northwire cables promote fast, simple cabinet wiring



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 Z0 is 100Ω ±10Ω at 31.25 kHz.

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

For more product information, visit the Northwire Website.

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Rockwell Automation targets six areas to strengthen PlantPAx system

Rockwell Automation outlined six key areas of focus for its PlantPAx process automation system at its Process Solutions User Group (PSUG) conference, held Nov. 8-9 in Anaheim, California. The company said it is building on investments to extend and enhance its process technologies, solutions, and services; and it is helping manufacturers better optimize and integrate process applications into their global enterprise and drive greater productivity.

To leverage this competitive advantage and further enhance its process control portfolio, Rockwell Automation concentrated on six key areas. They are:

- Core process control capabilities
- Design productivity
- Process networks and field device integration
- Asset management
- Process safety and critical control
- Operations productivity

“The Rockwell Automation PlantPAx system allows end users to adopt a common control platform for their entire enterprise,” said Steve Pulsifer, global director, process market development, Rockwell Automation. “End users find that using a common control and visualization platform introduces significant performance management and optimization opportunities and significantly reduces life cycle costs.”

Visit the Rockwell Automation Website for more information on the PlantPAx process automation system.

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Softing FOUNDATION fieldbus communication DTM offers out-of-the-box connectivity

A new FOUNDATION fieldbus communications DTM (FF commDTM) from Softing provides all necessary functionality to seamlessly integrate the company’s USB interface device for FOUNDATION fieldbus H1 networks (FFusb) with any FDT container application. Softing is a technological leader in providing key components for FOUNDATION fieldbus and Profibus PA devices.

Traditionally, the configuration and parameterization of field devices is performed by a central control system. This approach is progressively complemented with current and new computer technology. For example, today’s notebook computers with their inherent portability can perform device parameterization and immediate diagnostics directly in the field, significantly reducing the time needed to commission and troubleshoot a network.

The new high-performing FF commDTM provides out-of-the-box connectivity for all standard FDT container applications like fdtCONTAINER, FieldCare, PACTware, and other FDT frame applications. In addition, Softing's FFusb interface module includes a documented API that enables software engineers to fully integrate the USB device with proprietary software packages such as configuration tools or control systems.

For more information, visit the Softing Website.

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New Yokogawa low-power autonomous controller key for remote asset management

New Stardom low power autonomous controller FCN-RTU from Yokogawa Electric Corp. is a key for remote asset management. Registered as Integrated Host Class system, it brings FOUNDATION fieldbus to remote applications where infrastructure is inadequate and conditions are inhospitable and hazardous. FOUNDATION technology enables diagnosis and calibration of devices from the centralized location, which lowers operation expenditure (OPEX) by reducing periodic patrol to the site and unexpected device failure.

FCN-RTU has a number of design features that make it well-suited for geographically distributed applications such as well-head control. These include:

Hardware features:

- Low power consumption CPU with power fail-safe file system
- Flexible power supply module (wide voltage range from 10-30 V dc for solar power applications)
- Variety of communication choices (three RS-232 serial ports and one RS-422/485 port)
- Explosion protection (FM non-incendive, ATEX Type "n," and CSA)

Software features:

- AGA calculation (gas flow rate calculation)
- Field-proven libraries for regulatory control
- Autonomous features (embedded Web server, logging functions)
- International Standard Programming Language (all five IEC61131-3 languages for control functions and Java languages)

For more information, visit the Yokogawa Website.

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