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The official email newsletter of the PTO in North America

Issue 21, July 2008

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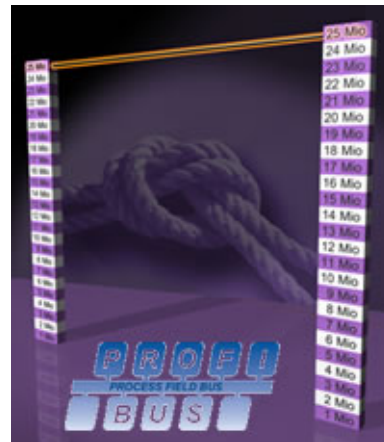
GENERAL NEWS

RAISING THE BAR ... YET AGAIN! PI (PROFIBUS & PROFINET International) can bask in yet another success! Current market figures confirm that in April 2008, the number of installed PROFIBUS nodes in manufacturing and process plants broke the 25 million barrier.

PTO Executive Director Mike Bryant said: "The installed base grew by 5 million nodes in 2007, a 25% year-over-year growth rate! Almost certainly we now have more devices in the field than all other rival fieldbus systems combined and PROFIBUS now dominates all sectors of industrial automation.

"The total value of the PROFIBUS market is estimated at 50 billion US dollars, with every indication that this will continue to grow. We fully expect PROFIBUS to exceed 30 million nodes by the beginning of 2009.

"This market success attests to the hard work of all PI staff and member companies," Bryant added. "We remain committed to promoting the growth of the world's most successful fieldbus system, while paving the way for a smooth transition to PROFINET. The availability of both PROFIBUS and PROFINET on the market means that for today's end users - the sky's the limit!"



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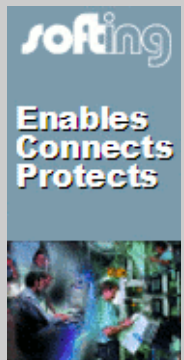
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ONE DAY TRAINING EVENTS: The PTO and PROFI Interface Center training classes continue to roll out across North America. If you'd like to attend one here is a summary of upcoming events :

UPCOMING VENUES		
PROFIBUS	Process	PROFINET
Atlanta, GA July 16th		
	Chicago, IL August 21st	Scottsdale AZ Aug. 4th Dev Workshop Aug. 5th
San Antonio, TX Sept 19th	Long Beach, CA Sept 25th	Louisville, KY Sept 30th
Denver, CO Oct 30th	Philadelphia, PA	Tampa, FL Oct 23rd

Topics cover PROFIBUS, PROFIBUS in the Process Industry and PROFINET. If you are interested in attending, bookmark a link above - [or this page](#) - and check back frequently for updates. Attendees receive a certificate for 5.5 Professional Development Hours (PDH) and PTO raffles a week-long Certified Network Engineer Class (a \$2695 value) at each PROFINET event! There's more on the web [here](#).

FOR PROFINET DEVELOPERS: Keen to develop PROFINET products? Then why not attend one of our PROFINET Developer Workshops? Each **free** half-day workshop is timed to take place immediately after our free PROFINET Training events, attendance at which is mandatory for the workshop. More information about PROFINET is presented, with added focus on PROFINET development tools. Nine PROFINET tool providers introduce their products. These are: Altera Corporation, Grid Connect, Inc., Hilscher North America, Inc., HMS Industrial Networks, Inc., IXXAT, Siemens Energy & Automation, Real Time Automation, Softing North America and Molex. Expert help is also on hand for immediate deeper consultations. Each tool has a unique approach and the workshop will help you find the one that best suits your needs.

ADDED BONUS: Free access to a [Certified PROFINET Engineers Course](#) is available to all manufacturers of control devices attending the Scottsdale Development Workshop on August 5th. [Register today!](#)

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PROCESS WEBINARS: If we're not coming to a city near you with one of our training classes (see above) then our brand new webinar series may be perfect for you. 'PROFIBUS in the Process Industries' is the theme of our first four events. [More information here](#). Previous Industrial Ethernet and PROFINET webinars are [archived here](#).

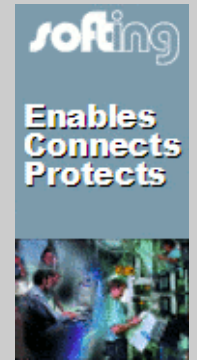
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PTO GENERAL ASSEMBLY MEETING IN AUGUST: The 14th annual PTO General Assembly Meeting is coming up August 5 through 7. This member event provides news from the technical working groups, and marketing news too. As usual there will be user stories and organizational reports. New this year is a 'Collaboration Corner' that will provide an update on PTO's collaboration with other organizations in common standardization efforts. Tom Burke of the OPC Foundation will speak on the EDDL Cooperation Team (ECT) and Ron Helson of the HART Communication Foundation will provide updates on the Wireless Cooperation Team (WCT). We'll also hear from the AS-interface USA organization on how that technology complements PROFIBUS and PROFINET. Security will be addressed in both wired and wireless applications by experts in those fields. Although the registration deadline has passed, members interested in attending should call the PTO office right away (480 483 2456) to see if room can be found. Additional information can be found [on the website here](#). Watch this page too for additional announcements of new topics.



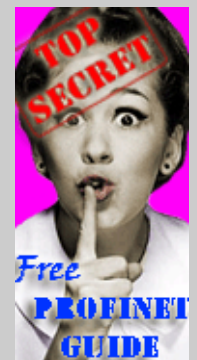
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FREITAG ELECTED IN TOKYO: A two-day meeting of Chairman from 11 Regional PI Associations from around the world took place in Tokyo in May at the prestigious le Meridien Pacific hotel next to Shinjima Station. As well as technology updates and regional reports, intensive discussions about strategy were held, resulting in some interesting new directions for PI to consider. Acting PI Chairman Mike Bryant (right, left) from the PTO in North America introduced Joerg Freitag (right, right) from PNO in Germany, who was voted in as the new Chairman of PI. [Interview with Joerg Freitag](#) here.

[MORE WORLD NEWS HERE](#)

PROFINET SETS EVEN MORE STANDARDS: IEEE 1588, which standardizes Precision Time Protocol for Ethernet-based communication, now includes the relevant parts of the PROFINET IO specification, which were passed on March 27, 2008. The PROFINET IO 'Media Redundancy Protocol' (MRP) is now included in IEC 62439, which was passed on April 11, 2008.

PROFIBLOG ON THE MOVE: Carl Henning, PTO's Deputy Director continues with his revelations in [PROFIBlog](#). Since going to Hannover Fair in April Carl appears to have been on the road continuously - a boon it seems for blogging because writing inspiration often strikes when sitting in an airport or on a plane. Topics touched on recently include OPC (Is it Dead?), network diagnostics, wireless, and of course PROFINET and the many educational classes Carl is involved with. Catch up with [PROFIBlog here](#).

PROFIBUS AND PROFINET IN ACTION

Three case studies caught our eye this time:

1. An Australian paints company wanted to build a new plant at Erskine Park in Sydney. The engineering team took the bold step of reviewing process instrumentation suppliers during their conceptual stage, and decided to future-proof their new plant by implementing **PROFIBUS**. [Full story here](#).



2. A luxury yacht is being fitted with the most modern energy-saving and efficient systems for controlling just about everything on board - from reefing the sails thru oil tank levels to navigation lights, fire alarms and heating/cooling systems. **PROFINET** brings the right networking solution, with crucial weight and space savings. [Full story here](#).



3. A Brazilian floating oil dock is being fitted with **PROFIBUS** for a telecommand system for valves. Three docks are used for loading the tanker ships taking oil and gas to the foreign and domestic markets. There are approximately 60 valves, divided among three PROFIBUS networks. [Full story here](#).

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PTO Executive Director Bryant (left) congratulates Freitag on his election as Chairman of PI.

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WORLD NEWS

JAPAN: Tokyo was the venue for a major meeting of Regional PI Associations in May during which [Joerg Freitag](#) was elected as the new Chairman. Our picture shows the Japanese Chairman Mr. Motoyoshi and his wife, with PI representatives. **FRANCE:** FRANCE PROFIBUS held its annual road show in three cities this year: Rennes, Paris and Lyon. PROFIBUS and PROFINET networks for industrial applications were extensively covered and solutions for machines, the factory and multi-site production were demonstrated. **IRELAND:** PROFIBUS Ireland exhibited at the annual ISA Ireland exhibition in April. A range of products from PROCENTEC and Comsoft was shown, together with two prototype products under development by PROFIBUS Ireland - a PC-based Master Class 2, which

provides diagnostics information as OPC tags, and a system that provides raw telegrams to a remote client. **UK:** Practical examples and demonstrations of PROFIBUS and PROFINET system health monitoring and diagnostics were presented at the annual PROFIBUS and PROFINET User Conference in June. The two-day conference, was accompanied by a set of workshops providing a hands-on practical approach. **CHINA:** In March PROFIBUS/PROFINET experts from around the world attended the 'Chinese PROFIBUS and PROFINET Experts Days 2008' organized by the China Association for Mechatronics Technology & Application (CAMETA) to promote PROFIBUS & PROFINET technology. Separate events took place in Beijing, Shanghai and Xi'an. Almost 500 delegates attended. **SOUTH EAST ASIA:** Thanks to sponsors Excel Marco Singapore, Gecma / MTL, Siemens Malaysia, TDS Technology Singapore, TURCK Singapore, PROFIBUS SEA attended the Offshore Asia 2008 and the PIA Exhibition in Vietnam and showed the latest technology for process automation with PROFIBUS .

[Top](#)**NEW PRODUCTS**

I/O SYSTEM: WAGO Corporation's 750-370 PROFINET I/O Fieldbus Coupler connects the WAGO-I/O-SYSTEM as a slave device on a PROFINET I/O network. It features an integrated two-port Ethernet switch that allows users to daisychain up to 15 buscouplers. The ports also permit users to keep an existing network topology or easily create a new line or branch topology without additional networks components. The 750-370 is DIN-rail mountable and utilizes CAGE CLAMP Spring Pressure Connection Technology for fast, easy and reliable connections. The PROFINET Buscoupler can support all 750 and 753 Series I/O modules, accommodate up to 64 modules on one node and integrate with the 300+ digital, analog and specialty modules found in the WAGO-I/O-SYSTEM. [WAGO](#) or info.us@wago.com.

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I/O MODULE + CPU: Siemens has added CPU functionality to the Simatic ET200S product family. The IM151-8 PN/DP CPU handles control tasks and communications functions via PROFINET. The IM151-8 PN/DP has the performance power of a Simatic S7-300 CPU 314, and users can implement distributed structures via PROFINET. The PROFINET communication interface has three ports for linear bus topologies. Programming functions are on board and can be expanded with a PROFIBUS DP master. The new module supports RT (Real Time) and IRT (Isochronous Real Time) and can control up to 128 IO devices. The module is also available in a fail-safe version. Distributed configurations with both standard and fail-safe modules can be deployed. **SIEMENS**.

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PROFIBUS USING ControlLogix: Training Company Automation Training has announced a 'PROFIBUS using ControlLogix' Course module. The module covers all aspects of using PROFIBUS with ControlLogix and the Woodhead SST PROFIBUS card. An overview is first provided on the terminology and advantages of PROFIBUS. The hardware side is then reviewed including cabling, connectors and termination. Details about the SST PROFIBUS scanner card and the SST Configuration Tool then give the student the knowledge to configure and use the SST card. Finally, helpful diagnostic troubleshooting tips are given for fixing errors on the network. Lessons are provided for the SST PROFIBUS Scanner, the SST Configuration Tool and Diagnostics based thereon. www.automationtraining.us

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DIAGNOSTIC MONITOR: Softing has announced a new PROFIBUS PA Diagnostic Monitor. The tool makes Softing the only vendor that has a complete set of fieldbus diagnostic tools, says Softing! The BC-230-PB is designed to analyze the operation of a live PROFIBUS PA segment without interfering with its operation. It is powered by the fieldbus so no battery or external power source is required. It provides: automatic segment test with an OK/BAD indication, without operator intervention; short circuit detection between signal wires and/or cable shield; reports via USB to a PC for display as Excel chart and more. [SOFTING](#)



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PROFIBUS PA KIT: The Fieldbus Kit 2 (FBK-2) is an off-the-shelf solution for rapidly developing PROFIBUS PA field devices. It's designed to seamlessly integrate with an existing analog/HART slave device to create a complete fieldbus product. The FBK-2 is small enough (40x40 mm) to fit into most existing device housings AND provides a serial Modbus/RTU interface and a HART interface to bridge existing devices into the PA world. Since the hardware is ready-to-use, no additional costs for fieldbus physical-layer testing are incurred. FBK-2 is qualified for ATEX and Zone 1 use (Outputs may enter Ex-Zone 0 areas.) [SOFTING](#)



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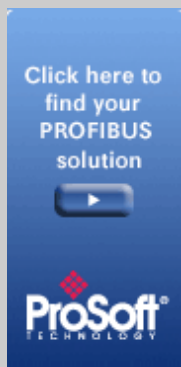
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INTERVIEW WITH ...

JOERG FREITAG

New Chairman of PI and PNO.



Freitag was introduced as the new Chairman at a recent meeting of 11 Regional PI Associations (they are the regional offices representing PROFIBUS and PROFINET around the world) held in Tokyo during May. PTO Executive Director Mike Bryant, who had filled the PI role temporarily, proposed Joerg to the meeting, which elected him unanimously. Our always-intrepid editor posed the following questions afterwards:

Q: What do you think are the next major steps for PI?

A: Most of the great technical issues have been settled so we must capitalize on the great progress made with PROFIBUS by building and delivering the support needed to grow PROFINET into the most successful Industrial Ethernet. We must continue to support members internationally and look outwards to see where we can give help in other ways too.

Q: Does PI, your other responsibility, present any different challenges?

A: Not really. The team effort based in Karlsruhe radiates worldwide, with cooperative efforts taking place internationally to push our technologies onwards. I believe this team effort is one of the unique features of our organization and part of my job now is to encourage and develop it further. You can actually watch this happening with the fantastic international network of Regional PI Associations, Test Centers, Competence Centers and Training Centers still growing, and all pulling together with a common aim - to make PROFIBUS and PROFINET successful. The figure of \$50 billion has been mentioned as the total value of the PROFIBUS market to date. None of that could have been achieved without teamwork.

Q: The uptake of Ethernet technologies has been slower than expected, hasn't it?

A: In some ways yes, but we never thought that Ethernet was going to rise rapidly simply because it was new technology. Users need significant added value to make major changes to their automation networks. More than four years ago, my predecessor Edgar Küster said that the next phase of the fieldbus evolution was going to be 'picking the low hanging fruits', by which he meant that the market had been won and all our vendors had to do was build excellent PROFIBUS products and sell and support them in a professional manner ... which they have done! We have been surprised however by the almost unstoppable success of PROFIBUS. In 2007, for example, we sold more PROFIBUS devices than in any previous year. The trend is not slowing and sales of 25 million nodes will be achieved shortly. PROFINET is beautifully tied in with PROFIBUS to ensure that those expensively-acquired investments are not thrown away. PROFINET and PROFIBUS are a strategic partnership, and that is a unique feature for us.

**Q: What significance do you attach to the announcement that 1.14 million PROFINET nodes have been sold?**

A: The figure of 1 million is the important milestone that we needed to pass to reinforce the credibility of PROFINET. It proves we have achieved the success we promised. PROFINET is widely spread now and, because we're not delivering a single device but a system architecture, we can now see the future much more clearly. This is the breakthrough moment for PROFINET, and the rate at which it continues to rise in popularity will now increase. We confidently expect to reach 3 million installed nodes by 2010.

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Q: The 'notary' method of counting the nodes has come as a surprise to some people. What led you to employ this method of counting PROFINET numbers?

A: We needed to find a way to remove the uncertainties, and we also needed to wait until sufficient vendors could collaborate. After much discussion we decided to include only the devices that truly impact on an automation network - IO, drives, etc. Thus, we needed to know device sales, which is obviously sensitive information, so we looked for a neutral third party to help. Once all the pieces were in place we were ready. We hope the market can see that we are being open and realistic, and that by delivering genuine market numbers we have set a benchmark by which all Industrial Ethernet vendors can be measured.

Q: PI is also involved in other technologies besides PROFIBUS and PROFINET. What do these mean for the organization?

A: A body such as PI, once it's grown to a certain point, has to take responsibility for more than just its own interests. It's part of life and we try hard to take the responsibility seriously. We have always supported international Standardization and now we find ourselves filling gaps such as helping to bring FDT and EDD together within the FDI (Field Device Integration) project. We collaborate extensively with other bodies in similar positions - HART, FF, OPC and the FDT Group for example.



Q: What other initiatives are you involved in?

A: The TCI (Tool Calling Interface) project was thrust on us by large end users who wanted a common engineering solution for the diverse configuration tools they had to deal with. IO-Link is particularly interesting because it's complementary communications technology and now that the integration issues have been settled this market can move forward. Our collaboration in international efforts to establish wireless standards is also continuing and we see this as particularly important, given that the process market has made its choice but the far larger factory market has not.

Q: Your efforts in emerging technology areas are another success story I believe.

A: In process automation our PA technology dominates because of our ability to handle 'hybrid' networks so well. The number of PROFIBUS PA devices increased by 120,000 to 750,000 in 2007, bringing the total number of installed PROFIBUS nodes in the process industries to 4 million, which corresponds to an additional 700,000 nodes in 2007. Motion Control is another major success for us. Also, Safety: the number of established PROFIsafe nodes increased by 180,000 to 410,000 in 2007, which equates to 41,000 systems - an increase of 15,000 across the year. All these figures convey how strong our deliverables really are.

Q: Finally, what message would you like to offer to end users about PROFIBUS and PROFINET?

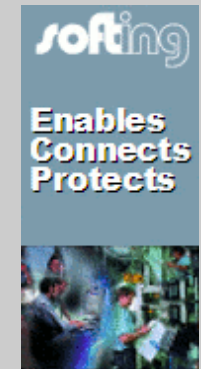
A: PROFIBUS will be 20 years old in 2009! Since 1989 we have aimed to deliver strong and relevant technical solutions tightly focused on real end user needs. We have kept to that vision and the result is that a level of trust has been built up between ourselves, our vendor members and end users that underpins our market success. We won't deviate from that strategy, and I promise to continue supporting the market in the same ways, and to my fullest capabilities.

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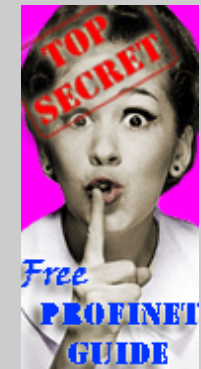
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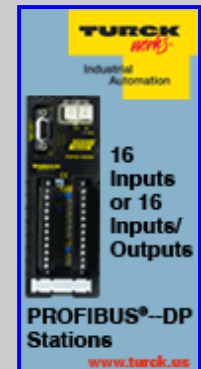
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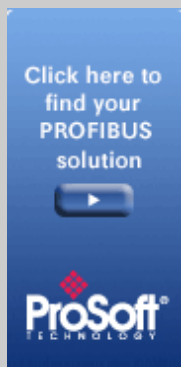
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CASE STUDIES

AUSTRALIA / PAINT: BlueScope Steel set up their first Colorbond paintline facility in 1966 at Port Kembla and, over the years, demand for its roofing, guttering, fences, sheds and warehouses has shown phenomenal growth. With demand pushing capacity limits in 2003, the company decided to locate a new plant at Erskine Park in Sydney, as the city's western region had become the single biggest consumer of Colorbond products in Australia.



An internal feasibility group to determine capital expenditure was set up in 2004, comprising engineers each with at least ten years experience, at one of BlueScope's paintline facilities at Acacia Ridge, Port Kembla and Western Port. This group knew first hand many of the problems that might be encountered during construction and commissioning of a greenfield paint plant and undertook a 12-month feasibility study, focusing on reducing these problems, for submission to the BlueScope Board.

The team took the bold and unusual step of reviewing process instrumentation suppliers during their conceptual stage, and they decided to future-proof their new plant by implementing PROFIBUS fieldbus technology throughout the project. "We wanted to do some front-end engineering before submissions. Thus, when approval came, there would be a greater degree of certainty around what the Board was approving," explains Shannon Ballard, Project Engineer. Interoperability, ease of engineering integration, troubleshooting and future scalability were all contributing factors in BlueScope's selection of the technology.

Although the spend on instrumentation is relatively small compared with the overall project cost, the BlueScope team acknowledged that having accurate and reliable process data is critically important if the process plant is to function efficiently. The team had witnessed projects where instruments were chosen from a variety of vendors, and there was little vendor ownership regarding product selection, installation, commissioning and training. The team also knew that incorrectly selected instruments that are improperly installed have a negative flow-on effect through the whole plant life.

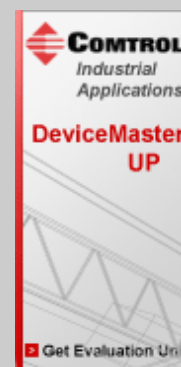
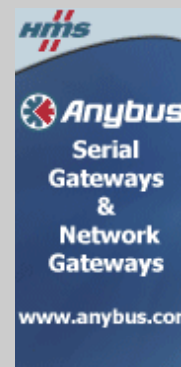
With this in mind, BlueScope shortlisted three vendors that it felt could be potential instrumentation partners. Leading European company Fata Hunter was appointed mechanical paintline equipment supplier to the project, sourcing their equipment from nine different countries. BlueScope provided them with their preferred instrumentation vendor list, but because Endress+Hauser had the broadest range of products, the highest level of PROFIBUS competence, and a worldwide presence, it won MIV (Main Instrument Vendor) status and supplied almost all the measuring devices for the project. The first Colorbond product was painted on 15 August 2007, approximately 20 months after construction started.

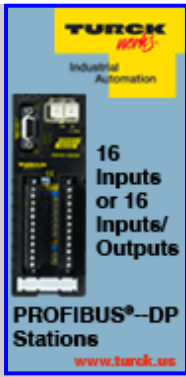
The plant comprises a paintline facility producing 120,000 tonnes per annum; a wastewater treatment plant; a regenerative thermal oxidizer, a significant rainwater capture and re-use system with total capacity in excess 800,000 litres, and cooling towers.

To eliminate all potential environmental risks emerging from the use of solvent-based paints, BlueScope implemented what is believed to be the world's best practice in air emission control for this type of plant – a Regenerative Thermal Oxidizer (RTO). The plant runs at virtually zero gas emission because the RTO uses the thermal energy in the solvent – which is a fuel – to self-combust. This is recycled through a heat exchanger back into the ovens. "So once the system is heated up, we pull back on our gas systems and just use the solvents to fuel the ovens," explains Ballard.

A range of Endress+Hauser instrumentation linked by PROFIBUS PA networks was used for the

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measurement and control processes. The instruments include: magnetic and vortex flow meters and flow switches; temperature switches, sensors, and thermocouples; Cerabar M and Deltabar S pressure and DP transmitters; Micropilot M radar and Levelflex M guided microwave level products; analytical products including pH and conductivity sensors, and all the devices are linked by PROFIBUS PA technology to the plant's automation system - supplied by Rockwell - via a Prosoft interface.

PROFIBUS technology has provided BlueScope with the data needed to make better management decisions over the long-term, and provide flexibility for future expansion.

The BlueScope team is currently reviewing Endress+Hauser's Fieldcare and partnering it with W@M – the Web based Asset Management tool. If implemented, this will allow BlueScope to diagnose the health of, and monitor the performance of, their process instruments 24/7, as well as make all the manuals, certificates, spare parts lists available online. [ENDRESS+HAUSER AUSTRALIA](#) or info@au.endress.com



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NETHERLANDS / MARINE: eL-Tec Elektrotechnologie, in Hatterm in the Netherlands, is building an alarm system for a luxurious sailing yacht, the 52 meter 'Boreas'. The company has a lot of experience in control and monitoring systems for ships but up to now has used separate control and service systems. For this ship, a more powerful and extensive system was needed, so the engineering team explored new possibilities. The answer lay with S-MAX, a powerful Phoenix Contact PLC with an integrated touch-screen service panel (HMI) and a PROFINET interface.



Four S-MAX controllers are deployed in the 'Boreas'. Using PROFINET these exchange data transparently with equipment such as the motor management and fire alarm systems. PROFINET is certified for shipping and handles the data transported between the PLC and the I/O modules and the normal Ethernet data simultaneously in real-time. The system has the required reaction speed and supports very fast visualization. With the HMI integrated into S-MAX costs and programming hours are much reduced.



The monitoring system controls all vital functions of the ship – the motor, the valves in the bilge pump, fuel and ballast tanks, fresh water tanks, the heating and cooling installations, fire alarms, battery system, the navigation lights and the deck lights.

The simplest, and the most complicated, systems are handled with PROFINET IO, from the dimming of the lights in the accommodation area to the hydraulic system for reefing and hoisting the sails. Everything is done with a strong emphasis on energy saving. An important reason for choosing PROFINET was the savings realized in cabling. The whole system communicates via one PROFINET fiber network, which delivers a big commercial advantage together with considerable weight savings – important in ship design.

The ship is divided into six segments, each with its own managed PROFINET switch which connects to the I/O devices around the ship. A separate glass fiber cable has been installed which will only be used for this system, and the whole network is tightly secured against interference.

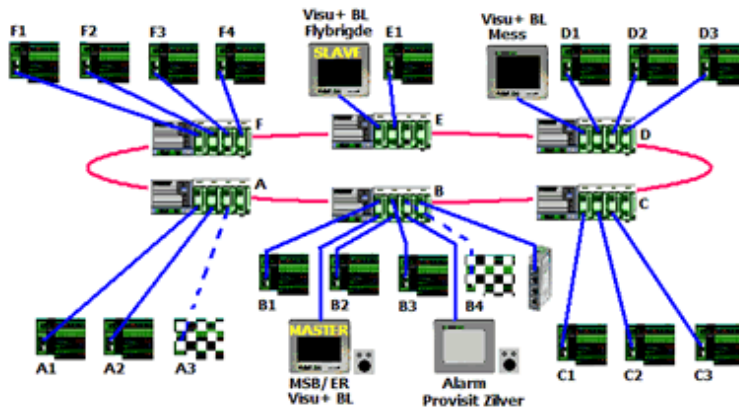
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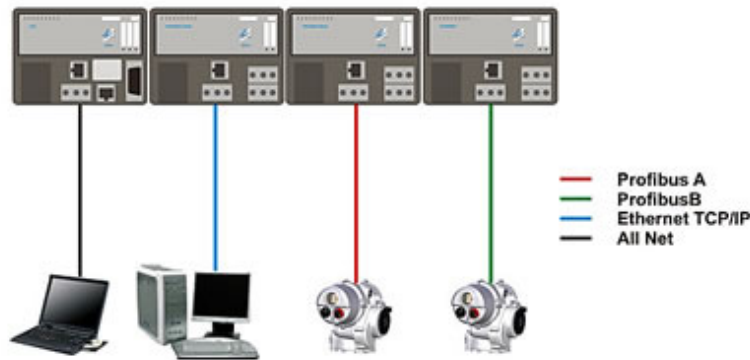
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The yacht will sail around the world, so eL-Tec has proposed that a fully redundant system be installed. The primary system would then have a back up, which PROFINET supports easily. If the customer agrees, eL-Tec will also implement the software needed to let its support engineers in Hassen help the crew remotely solve any problems that arise via the internet. [PHOENIX CONTACT](#)

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BRAZIL / OIL TERMINAL: In partnership with the company Automind – Automação Industrial Ltda., ALTUS is supplying PROFIBUS remote systems from the Ponto Series to roll out a telecommand system for valves with electric actuators at the floating REMAN pier in Manaus. Three docks are being installed for loading the tanker ships taking oil and gas from the Arará hub in Urucu to the foreign and Northern/Northeastern domestic markets. In all, the system has approximately 60 valves, divided among three PROFIBUS networks.



The remote systems will be supplied with classified area Ex-d. protection and tropicalized electronic boards. The distribution of the remote systems will be allocated in accordance with the valve placements. Each will be used to control the opening torque of the valves from 0-100%, in maintenance mode and automatic remote operation, as well as diagnostic functions. The entire valve sequencing and alignment will be done with an iFix SCADA, to be interconnected to the remote system using an Ethernet TCP/IP network.

Owing to the difficult placement of the fixtures and electric ducts on the floating pier and the need to increase network availability, the remote system will have two PROFIBUS DP-V1 masters, operating in parallel.

In performance tests the communication network reached transmission rates of 12 Mbits, which generated an update of 120 operands close to 240 bytes per master in 0.48ms per housekeeping.

The application led to improvements in operations by way of better asset management using predictive maintenance. The resources for predictive and remote parameterization maintenance

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offered by PROFIBUS DP were fundamental to the implementation of the system. [ALTUS](#) or weiser@altus.com.br

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