# PROFIBUS & PROFINET

## **ISSUE 52, SEPT 2006**

Official Newsletter of

W L K

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# GENERAL ASSEMBLY BRINGS FOCUS ONTO FUTURE

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The 2006 PTO (North American PROFIBUS organization) General Assembly meeting took place in Scottsdale, AZ, in August. Over 50 members and representatives listened to wide ranging discussions about technical and marketing issues, and the future strategy of the PTO and its parent organization, PI.

PTO Chairman and PI Deputy Chairman Mike Bryant (pictured) said that being market leader posed some challenges: "We must watch out for new technologies and paradigm shifts, and we must never forget that our competition is always biting at our heels," he said "Complacency could be our biggest enemy."

The broadening technical scope of the organization - now ranging from sensors to IT - means we have to adapt. "PROFIBUS will continue to be the most successful fieldbus ever," he said, going on to predict that 30,000,000 PROFIBUS devices will be installed by 2011.

He warned: "PROFIBUS growth will eventually flatten so we must face those challenges now."

Mike also predicted a shakeout of Ethernet solutions within 5 years, with just 3 serious contenders remaining and said that PROFINET has moved from being a fieldbus technology to an 'automation technology', with all that entails.

He concluded by announcing a new mission statement for PI, the international organization of which PTO is part: "We are and will remain the world's leading automation organization for communication solutions, serving our users, our members and the press with the best solutions, benefits and information."

For more details and less formality visit the **PROFIblog for Day 1** and the **PROFIblog for Day 2** There's also an experimental podcast by Carl Henning. Or, read the latest North American newsletter **here**.

## NEXT STOP ... SPS/IPC/DRIVES

TERNATIONAL

PI would like to invite you see the very latest and best of PROFIBUS and PROFINET at what is fast becoming one of the best events in the worldwide automation calendar ... the SPS/ IPC/DRIVES show in Nuremberg, which this year is taking place from November 28th to 30th.



Interbus and PNO will be exhibiting side by side once again with a joint booth and hospitality suite. On the PNO side about 40 co-exhibitors will lead you through topics such as IO-Link, PROFIBUS and PROFINET.



One of the highlights will be a huge PROFINET presentation, but there will be something for everyone, whether end user, manufacturer, developer, integrator, maintenance engineer, or 'decider'. PNO will answer all questions and deliver what for you could be a crucial insight into the exciting and dynamic world of PROFIBUS and PROFINET automation. **More here** 

## SUPPORTING PROFINET

Three major Japanese Companies

- Toshiba, Hitachi High-Tech Trading and Fuji Electric Systems - expressed support for PROFIBUS and PROFINET as JPO members at a recent Japanese press event. Toshiba said that PROFIBUS fits its target because it covers both factory and process automation while Fuji Electric

has promised future support for PROFINET in its system. **More on back page** 

# PROCESS Management Academy

PI will support the Process Management Academy at Neuss, Germany, Jan 22-24, 2007. The event is organised by ARC Advisory Group. PROFINEWS 53 will give details. **More here.** 

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# **PI** News

## CERTIFICATION: WHAT IT MEANS

PROFINET and PROFIBUS devices of different types and manufacturers perform different tasks in the automation process. In order to do this correctly, they must exchange information over the bus as specified in the corresponding standards.

Basis for the certification is the framework for testing and certification of PROFIBUS / PROFINET products and the test specifications as well as the relevant standards. The documents can be found here at 'Downloads' on the PI Website. Thus, users can get the necessary security for error-free functionality during the common operation of devices of different manufacturers. Similarly, the certification ensures the standard compliant behavior within a PROFIBUS or PROFINET network, as defined by IEC 61158. Both PROFIBUS

and PROFINET devices are checked in a certification test, which is performed by experts in special PI Test Labs (PITLs). Only certified devices guarantee worldwide conformity in an automation facility with products



certification is strongly recommended by Pl and demanded by many end-users. For PROFINET products, certification is mandatory.

# THE PROCESS OF CERTIFICATION

The certification process (see graphic) is designed to ensure reliable, interoperable and safe operation for users and is similar for PROFIBUS and PROFINET

## PNO WELCOMES CHINESE FRIENDS

In August, 2006, both Zhang Wei and Zhang Dandan, two members of staff from the Chinese PROFIBUS User Organization (CPO), were invited by PNO in Germany for one month to learn about the workflow of PNO and exchange ideas. They received not only a warm welcome from PNO but also much detailed information about training and other aspects of PNO. The staff of CPO learned about the success of PNO and PI in terms of

workflow, technology promotion and events organization, experience that will prove highly beneficial to CPO and its members. This will enable CPO to better develop the Chinese market, strengthen the leadership of CPO in the PROFIBUS world and extend the influence of PROFIBUS and PROFINET in the Chinese market. devices. Details of the PROFIBUS certification can be found **here**.

The device manufacturer first contacts a PI Test Lab (PITL) for a certification test. The defined test cases are practically oriented and reflect the industrial requirements. Therefore, only those test cases are checked which might arise daily in a real installation.

The certification test is structured as follows: Test of the hardware automated state machine test; simulation of diagnostics and alarms; interoperability test; inspection of the GSD file. Once a device has passed all tests, the manufacturer can request certification from PI.

#### SUPPORT, TOOLS AND USEFUL LINKS

> PITLs for PROFINET

> PITLs for PROFIBUS

> PI has accredited a global network of PI Competence Centers, where engineering support like product development, trouble shooting or similar is offered, seminars and training courses are held, and experts answer technical questions.

# > PICC for PROFINET and PROFIBUS

> Helpful software and free tools like an XML Viewer, Ethereal (Wireshark), a test tool for PROFINET CBA, a Component Editor, a GSD-Editor, an I&M Functions Demotool, etc. can be found on PI's website here.

#### WHERE TO FIND CERTIFIED PRODUCTS

> Certified products are listed in PI's online product guide here.

# Questions Answered

More questions? Use the free Forum at http:// forum.profibus.com

**Q:** Can you summarise the differences between Industrial Ethernet and PROFINET?

A: PROFINET is based on Industrial Ethernet. Only in those parts where Industrial Ethernet is not able to provide satisfactory results was it necessary to extend standards to meet the requirements of end users (e.g. for real time behavior). PROFINET is standardized under IEC61158. With PROFINET, it is extremely easy to match an application to an automation task: PROFINET IO is optimized for fast data exchange with decentralized peripherals; PROFINET CBA (Component Based Automation) shows its strength when an automation plant is seen as just a collection of functions, enabling modules of functionality (i.e. components) to be easily and quickly connected together; components can also be re-used as often as needed. cutting engineering time dramatically.

**Q:** Software implementation of PROFIBUS DP. Possible?

A: As PROFIBUS is standardized in IEC61158 it is no problem to implement PROFIBUS DP in software running at up to 1.5Mbs. Using higher transmission rates you will run into problems. But, because of the low costs of existing PROFIBUS ASICs it is much more time saving to use an available ASIC. In combination with an existing software interface PROFIBUS is from the user's viewpoint just a dualported memory where the user can read and write the required data.

**Q:** Is PA Profile V3.0 GSD a specific GSD File, or is it built into the manufacturer's GSD?

A: A PA Profile 3.0 GSD is a basic GSD for all devices which are possible to run in a profile mode. There are different profiles available like Temperature, Level or Flow. These GSD-Files are specified in the 'PROFIBUS Profile for Process Control Devices, Version 3.0'. You can find the profile GSD-Files on the PI Website here

# PICC World

## PICCs AND PITLs MEET IN Switzerland

PI Competence Centers (PICCs) and PI Test Labs (PITLs) from Switzerland, China, Czech Republic, France, Germany, Ireland, Italy, Japan, the Netherlands, Poland, South Africa, US, and United Kingdom sent delegates to the recent Competence Center and Test Labs Meetings at Winterthur, Switzerland.

Technical presentations were

given on PROFIBUS and PROFINET, IO-Link, PROFINET for Process Automation, Explosion Safety, Installation, Troubleshooting, and other issues.

Quality assurance was an important topic of the meetings: quality of services agreements guarantee that a PICC has the know-how and equipment to provide competent advice and services, and that qualified training courses are offered. Strict regulations for the PITLs form the basis of PI's device certification system (see Page 2) and ensure that the certification tests fulfil the same standards worldwide.

Close cooperation between PICCs and PITLs ensures that information is exchanged quickly and regularly, and that all centers worldwide offer the best support. Many people believe that this close cooperation in PI's global network (that is the Regional Associations, Competence Centers, Test Labs, and of course over 1,400 member companies worldwide) is the real differentiator for our technology.

Soon, choosing a seminar will be even easier: PI has decided to



certify PI Training Centers. The next PROFINEWS will tell you more about this new aspect of PI's global support network.

# ITALY PICC BEGINS CERTIFIED TRAINING SOON

INN.TEC Srl., the Italian PROFIBUS and PROFINET Competence Center, has traditionally offered PROFIBUS and PROFINET training courses for both beginners and experts. At the end of 2006, it will begin offering the globally-recognized 'Certified PROFIBUS Engineer' training course in collaboration with PROCENTEC Netherlands. A valuable certificate is gained after successfully passing an



exam at the end of the course.

INN.TEC. continues its normal activities of engineering support, product development and troubleshooting. More than 30 companies contacted INN.TEC. in the last year, to access knowhow and practical experience.

INN.TEC. will be at BIAS2006 on 20th – 23rd September (Pad/ Stand(s): 11/F41 G50). BIAS is the most important automation fair in Italy. Visitors will meet the experts from the Italian PICC and will see the products that are distributed: the ProfiTrace family, ProfiHub and Nettest II.

The PROFIBUS and PROFINET laboratory of INN.TEC. Srl. is located at the University of Brescia, Department of Electronic for Automation. Inn. Tec. +39 030 3384030 or www.inntec.it or info@inntec.it

## NORTH AMERICAN PICC: NEW NAME, EVEN BROADER SUPPORT

The PROFIBUS Interface Center recently changed its name to the 'PROFI Interface Center' to more accurately portray current activities, which include both PROFIBUS and PROFINET technologies now.

The PIC is still quite active in PROFIBUS support. PROFINETcentered activities have increased rapidly during the past year. Telephone support is provided as well as occasional field trips.

The PIC has increased support for PROFINET IO developers, including for ASICs and Development Kits. Also available now is a PROFINET IO Development Kit, for PROFINET IO devices using standard Ethernet ASICs. More information on ASICs and kits can be found **here**.

The PIC continues to publish its Connection newsletter twice per year. This year an additional issue on PROFIsafe was produced to coincide with a training event preceding the PTO GA Meeting in August (see page 1).

The majority of time is spent on promotional activities, mostly focused training events for areas such as Automation, Process, Installers, Certified Network Engineer for PROFIBUS and PROFINET. There are also Customer In-House PROFIBUS and PROFINET Events. PROFINET IO Developers Classes and InHouse Industrial Ethernet Classes are on the increase. PROFIsafe Developers Classes and PROFIsafe Seminars are popular. On-Site Installation and Troubleshooting Visits are also handled. A total of 68 events took place, which 1641 people attended. The PIC also develops its own tools, for example PROFINETCommander.

The PIC team consists of Ron Mitchell, Mike Hales, Karsten Schneider, Hunter Harrington, and John Swindall. "It's been a very busy year and we anticipate an equally busy next year," says Ron. "If you have any PROFIBUS or PROFINET questions, need to schedule customized training or simply need installation advice, please e-mail us at

profibus@sea.siemens.com"

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## **PHOENIX** PROFINET COMPETENCE CENTER

The main area of activity of the PHOENIX PROFINET Competence Center is the service: As well as telephone consultations, on-site servicing and training courses are taking place, the training course topics being PROFINET basics in theory and practice.

The practical part takes place at training stations using PROFINET components from different manufacturers.



An extra feature is the PROFINET starter kit for each participant. The PROFINET starter kit components is used for further training or as the basis for a project preparation.

However, service personnel are trained in on-site workshops regarding those topics important for them. Here, training comprises the efficient usage of the diagnostics via Diag+, network diagnostics including the visualization of network topology and a device exchange using the integrated LLDP function. Phoenix Contact: +49 5235 3-19954 dvogel@phoenixcontact.com

www.automation.phoenixcontact.com

MORE INFORMATION ABOUT **PICCs AND PITLs** 

# New Products

#### INTERFACES

PBpro is a singlechannel PCI card with its own micro-controller supporting PROFIBUS data



Mbs. It's designed for use with both 3.3V PCI systems and classical 5V systems and complies with the 'low profile' format defined in PCI 3.0. A special feature is a very large buffer memory. Changing from PROFIboard PCI to PBpro PCI is very easy, says its maker. Softing: +49 89 45656 0 or info.automation@softing.com or www.softing.com

#### **USB ADAPTER**

This adapter provides the tools required to quickly and easily create a reliable connection « between a laptop or PC and PROFIBUS devices. PROFIBUS DP Master/ Slave DP-V0 Class 1 & 2 and DP Master DP-V1 Class 1 & 2 are supported, as is FDT 1.2 for engineering tools such as PACTware or FieldCare. It's a quick and easy solution to configure, set parameters, diagnose and troubleshoot PROFIBUS devices. Also new is the IP20 BradControl Block I/O system which comprises a network adapter and up to 32 expansion modules for up to 512 channels. Woodhead: www.woodhead.com

## SPUR LINE REPEATER

PROCENTEC has launched the ProfiHub B5 for IP20 applications.

ProfiHub is a network component for PROFIBUS DP to implement long multi-device spur lines and backbone structures with star/tree segments. It has the functionality of 5 isolated repeaters. This allows network structures with extended spur lines and a maximum of 31 devices with a length equal to the main bus. ProfiHub B5 has a metal housing and is 'perfect' for EMC sensitive environments, says its makers. Procentec: www.procentec.com/ profihub or jnat@procentec.com

## **FIBER-OPTIC PROFINET IO**

IM 151-3 PN FO with integrated POF interfaces uses SC RJ cabling and makes it possible to

interface the SIMATIC ET 200S product family to a fiber-optic PROFINET network. This, in turn, makes it possible to operate standard modules and, for the first time, fail-safe PROFIsafe modules on the ET 200 with a direct FO connection. Existing modules can still be used, protecting user investments. An integrated 2-port switch enables line topologies. Siemens:

klaudia.trkaj@siemens.com or www.siemens.com/profinet

#### **DP SLAVE**

ProSoft Technology's **PROFIBUS DP-V0 Slave** Module seamlessly integrates PROFIBUS DP Master devices with ControlLogix networks directly over the backplane. The MVI56-PDPS module

possesses auto baud detection at all valid PROFIBUS DPV0 rates, userconfigurable data mapping capabilities and DP port operation for optimal power and ease of use. This single-slot module supports extended diagnostic data, up to 244 bytes of I/O data, with 400 byte maximum, freeze/sync capabilities, 125 node addresses and multiple modules in a single rack. Prosoft:

www.prosoft-technology.com

## LINUX PROFINET IO

Two Linux adaptations for PROFINET IO are available from

InES (Institute of Embedded Systems), based on the Siemens PROFINET IO Stack V2.1. The first is designed for powerful platforms and the second can be ported to low-cost platforms. PROFINET Isochronous Real Time is supported. Both utilize the most recent Linux Kernel (Gentoo). InES: +41 52 267 75 09 or mth@zhwin.ch. Separately, a board-

level product called SINUS has been developed based on the Linux platforms for implementing device applications in a short time frame. BIC Siemens: +41 585 583 123 or

patrick.vonlanthen@siemens.com or www.siemens.ch

## **PROFIBUS IO**

Ci-800DP Series Fieldbus devices offer application



such as Remote Process Cluster transmitters, Remote Thermocouple Cluster transmitters, & Remote Digital I/O. Each has a basic compact I/O module with an integrated PROFIBUS DP Slave port. Modules are software configurable and expandible.

Canopus: can\_inst@vsnl.com

#### TEMPERATURE

Ascon Corporation has introduced DeltaDue temperature modules with an optional DX DIN rail mount PROFIBUS Gateway Manager. The DX module stores a backup copy of connected modules and operator parameters. All modules feature 'hot swap' capability and true single loop integrity. Thus, when a replacement module is inserted, the DX module can instantly download all configuration and operator parameters to the new module without operator or engineer intervention. Ascon Corporation: www.asconcorp.com

# TRAINING

Canada-based Automation Training has just added a 2 Day PROFIBUS DP course to its schedule. It's available on Siemens Step 7 as well as AB-ControlLogix Woodhead's SST communications networks. On successful completion, the student shall be able to describe the function and capabilities of PROFIBUS, install simple networks including interface modules, software and cables, configure remote IO, apply some communication blocks and troubleshoot and repair networks. Automation Training: www.automationtraining.ca

# New Products Online

More than 2400 PROFINET and **PROFIBUS** products can be found online here in our product guide.





# Applications

## USER EXPERIENCES IMPRESS AT GENERAL ASSEMBLY

End user presentations at the PTO General Assembly meeting in August (see also Page 1) covered applications in tobacco



and, believe it or not, the theater. Michael Darnell, (left) of system integrator and PTO member

Prism Systems, spoke enthusiastically about PROFINET's 'component based' capabilities, which were put to good use in a plant making hundreds of different cigar products. The plant is highly automated mechanically but lacked 'electrical' automation, so the owners decided to bring things up to date and create a 'show place' for the industry, all to a tight time scale.

The plant comprises many identical machines and was ideally suited to the componentbased approach, whereby one automation module (it can be a machine, a fieldbus network or a single device) is defined as a 'component', placed in a computer library and then reused as often as needed.

Using simple click and drag techniques components are placed into an on-screen drawing and the communications paths are configured by simply joining up the inputs and outputs on-screen, a procedure that saves huge amounts of engineering time and effort.

The plant uses 21 PLCs, with extensive PROFIBUS and AS-Interface networks. The benefits, said Michael, are shown by simple mathematics: using conventional programming, it takes 80 hours to develop code for each machine and 4 hours to replicate it for each other machine, resulting in over 300 hours of effort for the 63 machines in the plant, plus a modification time of 10 hours every time something has to be changed. Using the componentbased approach, the code takes the same time but replication is reduced to minutes, giving a total of about 90 hours. Furthermore, each modification takes only minutes and only has to be performed once because it is automatically made available to all the others. Among the advantages are easier project management and the ability to test and prove programs offsite.

The 4500 man-hour project was implemented in 5 months and showed a reduction of 20% in labor hours and 30% in labor costs. "With component-based PROFINET," said Michael, "we were able to 'eat the elephant' easily!"



Jim Tomlinson (above) of the MGM Grand Hotel and Casino in Las Vegas fascinated the audience with a detailed explanation of how PROFIBUS and PROFIsafe are used in the Cirque du Soleil show 'KA'. The show involves non-stop action, both on-stage and front of house, with complex motion of stage parts and flying apparatus. 32 PLCs, 186 drives and 206 coordinated axes are employed. Safety is tightly integrated via PROFIsafe and, once begun, the show rarely stops even if a major problem develops ... "we just slow it

BRAZIL/ SUGAR+ETHANOL: The Alto Alegre Sugar and Ethanol Plant, Floresta unit, in Presidente Prudente city had an unusual challenge: apply new technology where efficiency was already high. Ethernet proved to be an answer, using Smar System302 function blocks and linking device technology which establishes local or external links with other Ethernet field devices.

38 field devices using 4 to 20 mA / HART were replaced by PROFIBUS PA devices, including



The new DF73 Master Controller headed the PROFIBUS PA architecture and field devices were distributed in six PROFIBUS PA networks, using Pepperl+Fuchs couplers, gateways and powerlinks. All devices were configured by PROFIBUS View, the Smar configuration tool. System 302's Process View is now the plant's supervisory system and all field devices were configured and commissioned using a new tool called Instrument Panel.

After startup, the user found the plant operated at the same high efficiency as before, but that other

down a bit until things come back on track," said Jim.

12 months advance testing of the KA system took place at a Canadian base before the show was set up in Las Vegas.

This user experience was a stunning demonstration of the power of PROFIBUS and we hope to bring you a more detailed case study shortly.

very useful characteristics had become available:

>> maintenance is no longer limited to control loops.

>> New information about field devices is reached.

>> Device replacement time and plant downtime are reduced.

In addition, the simplicity of the installation is helping keep up efficiency. It also brings easy maintenance and reduced footprint.

Wilson de Souza Castro Jr., Instrumentation Manager from Alto says that the update time of field data is reduced through the use of OPC. "This is another successful application where an already-efficient plant could achieve further benefits using System302 features and Smar Technical Support Services. Alto Alegre Sugar and Ethanol Mill is

getting the best of its process day by day. Smar should be very proud", said Wilson.



Applications Online More PROFINET and PROFIBUS case studies are online here.



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#### CHINA:

On Sept. 4, 2006, CPO (Chinese **PROFIBUS User** Organization) held a successful



press conference in Beijing on technology updates for PROFIBUS & PROFINET, as part of PI's Road Show in Asia. More than 60 media and journalists attended, including 3 major national TV stations! The conference was hosted by Mrs. Wang Jun, the Secretary General of CAMETA (China Association for Mechatronics Technology and Application). Keynote speakers included Mr. Edgar Kuester, Chairman of PI (PROFIBUS & PROFINET International), Mr. Lee BaiHuang, the Chairman of CPO and Mr. Tang Jiyang, Director of CPCC (China PROFIBUS Competence Center), who gave presentations on IO-Link, PROFIsafe and PROFINET.

#### JAPAN

The Japanese PROFIBUS Organization (JPO) organized a press



conference in Tokyo on Sept 7th at which Mr. Küster of PI explained how PROFINET will cover process applications in the future. Mr. Motoyoshi of JPO described the status of PROFIBUS and PROFINET. Seven members of the media were present. One major topic was the announcement that three major Japanese companies have expressed their support for PROFIBUS and PROFINET as JPO members. These are Toshiba, Hitachi High-Tech Trading and Fuji Electric Systems. Toshiba explained that PROFIBUS fits its targets because it covers both factory and process automation. Hitachi explained the expected benefits of using PROFIBUS and PROFINET in its system while Fuji Electric reported on its marketing of PROFIBUS during the past 2 years and promised future support for PROFINET in its systems.

#### NETHERLANDS

On 27 June over one hundred quests from the process industry converged on the Carlton Oasis hotel in Spijkenisse to enjoy a breakfast courtesy of PROFIBUS Netherlands, PI and eleven associated companies. The aim was to learn about latest developments. One speaker was Dr. Hasso Drahten, general manager of NAMUR, a major international organisation for

process industry users which focuses on the specification and testing of field equipment. NAMUR has made a number of recommendations relating to

fieldbuses. Herman Suselbeek spoke on behalf of WIB, a similar international organisation which works closely with SWE, EXERA in France, SIREP/EI in UK and NAMUR itself. He compared EDDL (Electronic Device Description Language) with FDT/DTM (Field Device Tool/Device Type Manager). In his presentation, Dolf van Eendenburg emphasised the

#### SOUTH AFRICA

The PROFIBUS User Group of SA (PUGSA) recently held a technology

update on wireless communications in

Johannesburg. Engineers and Technicians from around the country attended, completely filling the main auditorium. The speakers were Josef Schmitzer of Siemens, Peter Engelhardt of Phoenix Contact and Thomas Schildknecht CEO of Schildknecht, Discussions centred on PROFIBUS, PROFINET and PROFIsafe. The speakers made a particular effort to emphasise the important differences between current commercial wireless networking solutions and the very special needs of industrial wireless communications Immunity to interference, determinism and reliability were also subject of robust debate as delegates familiarised themselves with the potential of wireless communications. A number of

importance of Lifecycle Costs as a criterion in opting for PROFIBUS. The benefits were explained using three practical examples: the new Gargill production plant in Russia, the Grolsch brewery in Hengelo and the new production control at Triton Kappa in Coevorden. The breakfast ended with a lively discussion! Guests used red and green cards to respond to controversial statements such as



'Important investments are frustrated by managers with a bean counter mentality'. (The audience agreed with that one

wholeheartedly!) Once again, it was stressed, long-term profits are being missed through short-term thinking. The PROFIBUS Breakfast was organized in association with ABB, Bayer Technology Services, Endress & Hauser, Imtech Automation Services, Krohne, MTL, Samson, Siemens, Turck and WIB International Instrument User's Association

key applications were presented. Hosting the function on behalf of PUGSA were Dieter Dilchert of Lapp Cable/Integrate & Autom8 and Edwin Bauer of ABB

#### UK

PROFIBUS UK has announced a new seminar for technicians and engineers involved in the design, operation and maintenance of modern process plants. Addressing key practical aspects arising from the use of digital fieldbus communications in process and hybrid industries, it covers the use of PROFIBUS PA in applications such as Pulp and Paper, Chemicals, Utilities, Pharmaceuticals and Oil and Gas. A downloadable registration form can be found here. Meanwhile, a call for papers has been issued for the Third International PROFIBUS Conference which will be held at Coombe Abbev on June 26/27 2007. 'How to' papers are sought, for PROFIBUS and PROFINET. Contact: uk@profibus.com

# **PI Network**

Australia - Mr. John Immelman Tel: +61 3 9761 5599; Fax: +61 3 9761 5525 Email: australia@profibus.com www.aus.profibus.com

Belgium - Mr. Herman Looghe Tel: +32 2 706 80 00; Fax: +32 2 706 80 09 Email: belgium@profibus.com www.be.profibus.com

Brazil - Mr. Cesar Cassiolato Tel: +55 16 3946 3519: Fax: +55 16 3946 3595 Email: brazil@profibus.com www.br.profibus.com

China - Mrs. Wang Jun Tel.: +86 10 62 02 92 18; Fax: +86 10 62 01 78 73 Email: china@profibus.com www.cn.profibus.com

Czech Republic - Mr. Zdenek Hanzalek Tel.: +420 2 2435 7610; Fax: +420 2 2435 7610 Email: czechrepublic@profibus.com www.cz.profibus.com

Denmark - Mr. Kim Husmer Tel.: +4540789636; Fax: +4544077736 Email: denmark@profibus.com www.dk.profibus.com

Finland - Mr. Taisto Kaijanen Tel: +35 8 9 5307259; Fax: +35 8 9 5307360 Email: finland@profibus.com www.sf.profibus.com

France - Mrs. Christiane Bigot Tel:+33145746322;Fax:+33145740333 Email: france@profibus.com www.fr.profibus.com

Germany - Mr. Peter Wenzel/Mr. Volker Oestreich Tel: +49 721 96 58590; Fax: +49 721 96 58589 Email: germany@profibus.com www.de.profibus.com

Ireland - Mr. Hassan Kaghazchi Tel: +353 61 202 107; Fax: +353 61 202 582 Email: ireland@profibus.com www.ir.profibus.com

Italy - Mr. Maurizio Ghizzoni Tel: +39 030 3384030; Fax: +39 030 396999 Email: pni@profibus.com www.it.profibus.com

Japan - Mr. Shinichi Motoyoshi Tel: +81 3 54 23 86 28; Fax: +81 3 54 23 87 34 Email: japan@profibus.com www.jp.profibus.com

Korea - Mr. Cha Young Sik Tel: +82 2 523 5143; Fax: +82 2 523 5149 Email: korea@profibus.co www.rk.profibus.com

Netherlands - Mr Dolf van Eendenburg Tel: +31 33 469 0507; Fax: +31 33 461 6638 Email: netherlands@profibus.com www.nl.profibus.com

Norway - Mr. Ivar Sorlie Tel: +47 2272 8972; Fax: +47 904 05509 Email: norway@profibus.com www.no.profibus.com

Poland - Mr. Dariusz Germanek Tel: +48 32 371365; Fax: +48 32 372680 Email: poland@profibus.com www.profibus.com

Russia - Mrs. Olga Sinenko Tel: +7 095 742 68 28; Fax: +7 095 742 68 29 Email: russia@profibus.com www.rus.profibus.com

Slovakia - Mr. Richard Balogh Tel: +421 7 6029 1411, Fax: +421 2 6542 9051 Email: slovakia@profibus.com www.sk.profibus.com

South-East Asia - Mr. Volker Schulz Tel: +65 6490 6464; Fax: +65 6490 6465 Email: southeastasia@profibus.com www.sea.profibus.com

Southern Africa - Mr. Dieter Dilchert Tel: +27 11 201 3200; Fax:+27 11 609 5950 Email: southernafrica@profibus.com www.rsa.profibus.com

Sweden - Mr. Peter Bengtsson Tel: +46 4 51 49 460; Fax: + 46 4 51 89 833 Email: sweden@profibus.com www.se.profibus.com

Switzerland - Ms. Karin Beyeler Tel: +41 32 672 03 25; Fax: +41 32 672 03 26 Email: switzerland@profibus.com www.ch.profibus.com

UK - Mr. Bob Squirrell Tel: +44 20 7871 7413; Fax: +44 870 141 7378 Email: uk@profibus.com www.uk.profibus.com

USA & CANADA - Mr. Michael Bryant Tel: +1 480 483 2456; Fax: +1 480 483 7202 Email: usa@profibus.com www.us.profibus.com

Addresses of PI Competence Centers and Test Labs can be found at www.profibus.com and www.profinet.com

Editor: Geoff Hodakinson 1 West St. Titchfield, Hants, UK PO14 4DH, Tel: +44 (0) 1329 846166; Fax: +44 (0) 1329 512063 geoff@ggh.co.uk

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