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PI Network

PI (PROFIBUS & PROFINET International) is basking in yet another success! Current market figures confirm that the number of installed PROFIBUS nodes in manufacturing and process plants has broken the 25 million barrier!

Barely one year ago PI broke the 20 million node barrier. Thus the installed base has increased by 25% in just a single year, and the annualized rate of growth is now running at 5 million!

"With more than 25 million installed devices – probably more than all other rival systems combined – PROFIBUS now dominates all sectors of industrial automation, including process," said Jörg Freitag (PI Chairman, see below). "The total value of the PROFIBUS market is estimated at 50 billion US dollars, with every indication that this will remain a growing market for some time. We fully expect PROFIBUS to exceed 30 million nodes by the beginning of 2009".

A key factor in the success of PROFIBUS is the outstanding quality assurance and certification system of PI. The PROFIBUS certification Test by independent accredited test laboratories ensures that the tested devices comply with the respective specifications, a fact that reassures users and manufacturers alike and gives them the utmost confidence

FREITAG IS NEW PI CHAIRMAN

Jörg Freitag (Chairman of the Board of Directors of PROFIBUS Nutzerorganisation e.V.; Germany) was



in their investment decisions. Customers value not only the comprehensive range of PROFIBUS products, but also the large number of manufacturers, which gives them the freedom to select providers optimally suited to their requirements. This market success attests to the continuous activities of PI, which is

totally committed to promoting the continual growth of the world's most successful fieldbus system, while at the same time 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!

elected PI (PROFIBUS & PROFINET International) Chairman at the 20th PI meeting held in Tokyo at the end of May 2008. He will be supported by Deputy Chairman Mike Bryant, Executive Director of PROFIBUS Trade Organization (PTO) USA, who had already been reconfirmed in office in September 2007 and elected for another three-year term of office. The responsibilities of the Chairmen include determining the worldwide marketing strategy of PI and in particular coordinating international projects. Freitag is most notably campaigning for a further expansion of the global PI network, with the focus on emerging markets. "The close network of PROFIBUS and PROFINET experts in the RPAs (Regional PI Associations),

test labs and competence and training centers guarantees first-class support in the dissemination and application of our technologies," he said. "We will be intensifying our activities in view of the lucrative prospects for future business and the considerable level of economic growth in emerging markets." Another PI target is to reinforce the leading position of PROFIBUS on the international automation market. With more than 25 million installed devices (see story above), PROFIBUS is already undisputed market leader for fieldbus systems. PI is repeating this success with PROFINET, the standard for industrial Ethernet systems, capitalizing on the experience and installed base of PROFIBUS.



PI News

DEVELOPING PROFINET PRODUCTS

PNO presented in June a 2-day workshop for developers of PROFINET products. The event took place in Frankfurt and was held in English. The objective of the workshop was to inform about the development possibilities of PROFINET products. For this purpose, leading technology companies presented their range of solutions for development support.

The main topics were PROFINET in the system environment; Topology; Fast Start-Up ; TCI (Tool Calling Interface) ; iPar-Server; Device exchange without engineering system; IRT concept; Conformance Classes; GSD preparation; Certification; Experiences from current implementations; Advice for product development.

MORE INTERNATIONAL THAN EVER

From 4th to 6th June 2008 the annual meeting of the PI Competence Centers (PICC) and PI Training Centers (PITC) took place at CSMT Gestione Scarl, the Italian PI Competence Center (PICC). With more than 50 participants from 15 countries this year's meeting was more international than ever. For the first time representatives from

the new PICCs of Brazil and Australia attended. Up to now 37 accredited PICCs offer world-wide technology support. The annual meetings ensure a uniform high level of training and knowledge and encourage and support know-how transfer and swapping of experiences.

PROFIsafe and PROFINET were the main topics of this year's meeting. In a PROFINET Demo Workshop participants were able to exchange experiences of PROFINET tools and implementations. The performance analysis results of the institute INIT (Prof. Jasperneite) and his associated researches were also explained. A further topic on the agenda was FDI (Field Device Integration): PICC itm (Technical University Munich) presented the key facts of this new integration technology.

Several PICCs were given the opportunity to present their organizations' training facilities, as well as their tools and software.

After the Competence Center event a meeting of the PI Training Centers (PITC) took place. Today, 16 accredited PITCs offer certified training world-wide. Their training materials as well as their examination questions and training systems have to comply with uniform specifications laid down centrally. Among other topics an audit checklist and a template for an emergency plan were on the agenda of this meeting.

NEW DEVICE PROFILE FOR LAB DEVICES

PI is - to date - the only fieldbus association to have delivered a communications standard for laboratory equipment.

The device profile 'LabDevices' was developed in collaboration with equipment manufacturers and laboratory operators, and was specifically tailored to the requirements of laboratory processes.

Work on the 'Lab Devices' profile complies both with the specifications in DIN 12900, part 3 (device profiles for laboratory apparatus) and with the related PROFIBUS 'Process Devices' (PA

profile) that has already proven its worth over a number of years.

The profile facilitates uniform and consistent data capture and data management, leading to significant increases in efficiency. In addition, the profile enables production facilities to network tightly with production-related laboratories.

Users also benefit from the ability to control equipment functions, and from available diagnostic information. Preventive maintenance, leading to higher availability and reduced maintenance costs, is just one of the advantages here.

First PROFIBUS devices meeting the new profile are now coming onto the market.

PI MEETS IN TOKYO

In May 2008, representatives from 12 countries joined the JPO (Japanese PI Organization) at the annual PI Meeting in Tokyo.



"When I joined the JPO 10 years ago, it was small and I could not imagine that we could host a PI meeting", says Mr. Motoyoshi, chairman of JPO (pictured above with Cha Young-Sik of the Korean Regional PI Association).

"Now JPO has 85 members and it is the 4th or 5th biggest RPA in the world," he continued. "I appreciate everyone who has supported JPO for 10 years. During the Tokyo meeting we elected the new PI chairman, Mr. Freitag (see Page 1). I believe that PI and JPO have started a new decade with this appointment."

JPO actively provides 'best conditions' for PROFIBUS and PROFINET in Japan. For many years, PROFIBUS has been taking an excellent position in the Japanese market, which is shown by its growing market share. Continuous marketing activities including roadshows, seminars, trade shows, translations, press, PR, plus the support of Japanese companies, are key reasons for this success. Japanese companies have already decided to support PROFINET too. (see report in **PROFINETS 52 / 2006**).

Following the PI Meeting, the PI Board (Jörg Freitag, Germany; Michael Bryant, USA) took the opportunity to hold discussions with representatives from the Japanese industry and the press.





New Products

OPTOCOUPERS

NEC Electronics Europe has five new high-performance optocouplers for industrial and motor control. The PS9301 insulated-gate bipolar transistor (IGBT) gate drive coupler with output of 0.6 amperes and the high-speed PS8302, PS9303, PS9313 and PS9317 couplers are packaged in a 6-pin shrink dual inline package (SDIP) that reduces the on-board footprint to half of a conventional 8-pin DIP. The high-speed couplers mark an industry first by offering a communication speed of 1 megabit per second (Mbps) and guaranteed operation up to 110 degrees Celsius (°C). The PS9317 is even faster, offering a bit rate of 10 Mbps. **NEC ELECTRONICS EUROPE:** <http://www.eu.necel.com/opto>.

PROFINET CONTROLLER

The new RFC 470 PN 3TX from Phoenix Contact completes the company's control system portfolio in the higher performance range. The DIN rail-mountable compact control system provides up to five direct inputs and three direct outputs and has been designed for universal applications in machines and systems. The RFC 470 PN 3TX is programmed and parameterized with PC Worx software. Since even large data quantities can be stored in a pluggable parameterization memory, the control system can be replaced with another device easily and without losing data. Status messages of the control system and fieldbus system are easily displayed on the RFC 470 PN 3TX via the TFT diagnostics display. As part of the concept of IT-powered automation, the RFC 470 PN 3TX provides open automation and IT interfaces for communication. In addition to an Interbus master and a PROFINET IO controller interface, three 10/100 Mbps Ethernet interfaces ensure easy integration of the control system into plant networks. Productivity can thus be increased significantly.

PHOENIX CONTACT



IO-LINK UPDATES

MESCO has updated its IO-Link Slave Stack. All specification options are now included such as Service PDU for transferring large amounts of application specific data, the Interleave Mode for up to 32 byte process input and output data transfer, and Extended Diagnostics/Events. The package consists of documented Source Code written in ANSI-C, an application example and detailed development documentation with a hardware porting description. Slave evaluation boards and a complete IO-Link StarterKit are already available. The StarterKit now contains all required components for the development, test and commissioning of IO-LINK devices. Key components include the slave firmware stack, hardware modules plus schematics both for Master and Slave Devices, an IO-Link monitor and environment for test and commissioning. The kit will be released in November at the SPS/IPC/DRIVES fair. **MESCO:** +49 7621 89031 42 or info@mesco-systems.com



INDUSTRIAL PC GETS PROFINET

Siemens has equipped the mainboards of its ruggedized industrial PC family with a PROFINET interface. Based on ERTEC 400 the PC now incorporates a three-port switch and supports isochronous real time operations. It also enables simultaneous real-time and IT communication on one line using TCP/IP. Integrating the interface relieves the processor of communication tasks and increases system performance. It also saves an expansion slot. Three ports allow flexible deployment of linear or ring topologies and facilitate the connection of PLCs, distributed I/O and drives. Alternatively, they can be used for visualization. WinAC RTX 2008 already uses the new communication facilities and the network can be configured with Step 7 or NCM-PC. **SIEMENS.**



PROFIBUS DIAGNOSTICS

Trebing & Himstedt has a new OPC Server for PROFIBUS DP, by which diagnostic information from devices on a PROFIBUS network can be made available and displayed in a uniform, standardized way. Access via Ethernet through the ETHERNET-PROFIBUS-INTERFACE (xEPI) allows plant-wide monitoring of multi-master and multi-strand systems. Information on failed devices, master system status, alarms and device diagnoses in plaintext can be integrated, and saved, in the respective systems for the purposes of maintenance, alerting and production data acquisition. The Server also enables continuous monitoring of bus physics. **TREBING & HIMSTEDT:** +49 385 39572 0 or info@t-h.de



TOPOLOGY SCANNER

The new ProfiTrace 2.1 can generate the topology of a PROFIBUS network without shutting down the installation! The Topology Scan is a new feature of ProfiTrace 2. It generates a clear network drawing that contains the location of the devices and length of the cable that links them. This new feature makes ProfiTrace the most complete PROFIBUS tool available. More and more end-users and manufacturers are standardizing on ProfiTrace as the default troubleshooting tool for their enterprises. **PROCENTEC:** info@procentec.com



MORE PRODUCTS ON-LINE

Our on-line Product Guide has over 2500 product entries. Search on keywords, text or profile.

Applications

FRANCE / COGNAC: 'Line 11', the most important line at Hennessy's La Vignerie bottling plant for VS and VSOP cognac, has been fitted with a redundant PROFINET CBA network linking sub-systems based on PROFIBUS and SIMATIC S7-300 PLCs.

Control 'components' on Line 11 interact by exchanging up to 200 data words over the network with a guaranteed cycle time of 50 ms. This facilitates a connection to the corporate Ethernet, enabling easy integration with individual modules of the Hennessy SAP ERP management system.



Line 11 consists of three conveyor systems and eight production machines based on PROFIBUS and each controlled with S7-300 PLCs, fitted with CPU 315-2 PN/DP interfaces to connect them to a redundant PROFINET ring via SCALANCE X204-2 switches. The first conveyor also has an X202-2IRT switch, which controls ring redundancy and self-restoration.

Configuring information exchange is straightforward. With PROFINET CBA, engineers can insert, swap or connect individual machines simply by dragging and dropping them in a graphical display – leading to significant time savings not only during the design phase but also when setting up the communications. The CBA solution has also achieved high reliability and improved efficiency. **SIEMENS**



Applications

BELGIUM / WATER

EXTRACTION: ITC has completely renewed the operation of its water extraction activities, choosing Phoenix Contact to supply the control units and decentralized modules that control various wells and pumps. The exchange of data between the modules and the PLC are done via PROFINET using an existing Ethernet infrastructure.

ITC (Imperial Tufting Company) in Tielt, Belgium is part of the Balta Group, one of the leading manufacturers of floor coverings worldwide. ITC specializes in tufted and printed polyamide wall-to-wall carpeting. With almost 700 employees, ITC produces 27 million m² of carpeting per annum.

Water is one of its most important raw materials as the company uses it for the manufacture of powder-based paint. Water is extracted from 28 wells distributed throughout the

company. Previously, these were controlled by a 25 year old central control unit, which used masses of cables and did not comply with current standards. ITC therefore set about looking for a new partner to supply a modern PLC-based system.

Water extraction at ITC is now controlled by an ILC 350 from Phoenix Contact, with twelve slaves keeping track of and operating a number of wells each. The slaves exchange I/O data via PROFINET with the master PLC, which activates pumps on the basis of input signals such as low buffer tank water levels, a lost signal, a sudden drop in pressure in the duct and various other alarm conditions.

With the Phoenix Contact system, a malfunction is detected immediately by a reader in a slave and directly signaled through to the central control unit, which then alerts intervention teams by sending out e-mails and SMS messages.



Günther Bonte, head of the Electrical Department at ITC, said: "In the factory, we have a classic Ethernet network running between the various offices,

of our earlier investment in these switches. We did consider facilitating communications between the PLCs using classic Ethernet. However that was more complex to program. PROFINET is easier to integrate given that the ILC control unit from Phoenix Contact has a direct PROFINET connection. We are not using the full real time potential of PROFINET but the benefits have been worthwhile nevertheless."

PHOENIX CONTACT



Günther Bonte, ITC: "Thanks to PROFINET, we have been able to reap even more benefits from our investments in Ethernet switches."

distributed throughout the entire factory site. We use that network for our office applications. A few years ago, we replaced all our office hubs with Ethernet switches and optical fiber. Therefore, switches were already available in the vicinity of all wells. The connection of a short cable between the switch and the I/O port was all that was necessary. Thanks to PROFINET, we have been able to reap the benefits

Member News

TRAINING IN THE USA

PROCENTEC and Grid Connect recently organized a



PROFIBUS Troubleshooting & Maintenance training course in Atlanta, USA. For 2 days 17 participants were trained in solving problems in PROFIBUS installations using the latest tools such as ProfiTrace 2. More and more factories in the USA are using PROFIBUS as their standard automation system and there is a big demand for training. Another session will be organized in October 2008. **PROCENTEC:** dbooma@procentec.com





PI World

UK

UK reports that its recent Conference was another unqualified success, with over 70 delegates attending two days of seminars, workshops and presentations. Chairman Bob Squirrell attributes the success to two factors: "First we focused on Users ... and it worked," he said. "User attendance was up - particularly from the Process and Water industries - and they really enjoyed themselves, finding it very informative and with a good balance of presentations, workshops and exhibitors. Several commented on the networking opportunities too." More feedback can be found at the **Conference website**. The 2008 presentations can be **downloaded from here**. Continued Squirrell: "We also had the ideal venue at Stratford Manor, which was affordable, friendly, informal and with exactly the right facilities. Already this year's speakers are chomping at the bit to be invited to speak next year and exhibitors are signing up ahead of schedule—we're already 1/3rd sold!" The UK Conference will be back at Stratford Manor again in 2009, this time a week earlier (16th and 17th June) so "maybe we'll avoid the Wimbledon/Glastonbury/Ascot weather phenomenon," said Squirrell. Already E+H, P+F, Wago, Siemens, Burkert, BEKA and ABB are signed up. See also **Call for Papers** and Exhibitor **Space Reservation Form**.

CHINA

The China PROFIBUS User Organization (CPO) attended the 12th International Exhibition of Modern Factory/Process Technology and Equipment (2008 FA/PA) held by the China Association for Mechatronics Technology & Application (CAMETA) on June 10~13, 2008 in Beijing, China. The Fair was a good platform for CPO members to show PROFIBUS &



PROFINET technologies and products. Companies who have developed their own products were also present on the booth, showing products certified by PNO. Companies attending included Beijing DS Fieldbus Technology Ltd., Beijing Huakong Technology Co., Ltd., Shanghai Welltech Automation Co., Ltd., TIANJIN INSTRUMENTS GROUP CO., LTD., Microcyber Inc, China PROFIBUS/PROFINET Technology Training Center and the China Silian Instrument Group Co., Ltd.

BRAZIL

Cesar Cassiolato, (pictured right) from SMAR has been re-elected as President of the Brazil Latin America Regional PROFIBUS Association. Cassiolato has been President for two years and from 2002 to 2006 was Vice-President.



Between 2006 and 2008 he and fellow RPA directors Marco Aurélio Padovan from SENSE and Jomar Misseno from SIEMENS, (both re-elected until 2010) have increased the membership of the PROFIBUS Association by 40%. They also founded the first PROFIBUS Competence Center of Latin America. The RPA has the technical support of Leandro Torres and Marcus Vinicius Ribeiro, both Smar managers.

"Keep getting new members in the universities, system integrators and manufacturers, develop the user



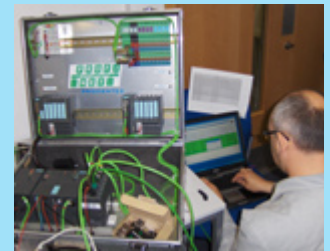
group, increase RPA activities in Latin America and collaborating with the expansion of PROFIBUS technology, are my main goals as President", says Cassiolato. The official certification of the Brazilian PROFIBUS Competence Center is another challenge, besides the development of a PROFIBUS Training Center for Brazil. "The Brazilian market has shown a significant increase in the use of PROFIBUS so a PROFIBUS Training Center here will be able to qualify professionals and maintain the

FIRST UK PROFIBUS ENGINEERS CERTIFIED

In May 2008, the first Certified PROFIBUS Engineer training course in the UK took place in Manchester at the PI Competence Center at Manchester Metropolitan University. Nine participants passed the exam to achieve 'Certified Engineer' status.

Over a period of 3 days participants were trained in the disciplines covering engineering, component selection, Ethernet basics, installation, testing and troubleshooting.

An interesting practical assignment was to hook up all the available devices in the training center to create one large system. The participants



then had to form a team and design/program the network using all the skills they had learned during the training classes. Many common administrative issues came up, such as double IP addresses and device names.

Finally, participants successfully created a PROFIBUS installation with two controllers and multiple devices from different manufacturers. PROFIBUS segments were also incorporated using proxies.

quality of services offered by industry", said Cassiolato. Seminars, workshops, customers and users training have been offered by the Brazilian PROFIBUS Association since 2000 and more than 3500 customers and students have participated. Over 21000 PROFIBUS Technical Descriptions have been distributed. (It's available from: www.PROFIBUS.com.br) An electronic magazine called 'Profinews Brazil' with news about the technology, case studies, technical articles, etc. is published every two months and can be **downloaded here**.

SOUTHERN AFRICA

The Automation Training Council in South Africa, established as a joint effort between the Southern African German Chamber of Commerce and Industry and the PROFIBUS User Group of Southern Africa, has now trained 61 students since August 2007. In addition, 9 lecturers at South African educational institutes have benefitted. In effect, this means that 7 local educational institutions now have a base of cutting-edge lecturers. This all has been made possible by initial funding from the German Federal Ministry of

Co-operation and Development through its agency SEQUA. Local companies—Siemens, ABB, Lapp Cable and IDX Online—have also supported the initiative, with in excess of R560,000 raised to match the SEQUA funding, which includes equipment supplied to training institutions. Dieter Dilchert, initiator of the Automation Training Council and former Chairman said: "It is encouraging to see that the German industry is prepared to throw its weight behind South African skills upliftment for disadvantaged students, especially in this case where cutting-edge technology is naturally associated with German technology." Dieter invites more companies and organizations to contribute to this opportunity to make a valuable contribution to the much needed skills development process in South Africa. Dieter says: "If your plant runs on PROFIBUS, or you are considering the technology, you can only benefit by contributing to this initiative, as it opens up opportunities for very bright and talented students to become immediately employable." Training courses have been run in Johannesburg and Durban. The next is scheduled for Port Elizabeth at the end of August 2008. DIETER DILCHERT: 082 456 0903 or dieter@solarcon.co.za



PI World

NORTH AMERICA

The PTO's 14th annual General Assembly Meeting (GAM) in Scottsdale, August 6th/7th attracted 70 delegates,



including over 50 from North American member companies. A great series of presentations had been organized, with 'User Experiences' (of both PROFIBUS and PROFINET) interspersing technical updates and marketing presentations. Executive Director Mike Bryant (pictured above) explained that the 25 million PROFIBUS nodes now installed were probably only the start: "30 million is easily achievable now," he said, "and who knows where it will end? At current rates even 50



million is within our grasp. What a great foundation that is for PROFINET, which is now also taking off nicely."

A special feature this year was 'Collaboration Corner' in which the PI's role in international efforts to bring key automation technologies closer together was explained. Ron Helson of the HART Communication Foundation described WirelessHART and how the Wireless Cooperation Team (WCT), of which PI is a part, is developing an interface to allow fieldbus technologies like PROFIBUS and PROFINET to easily and quickly bring WirelessHART data directly into automation networks.

Among the end user presentations was one by Merat Zarrei of the De Kalb County Water Authority in Georgia,

pictured right, who described how his decision to deploy PROFIBUS plant-wide had resulted in "dramatic" savings in manpower, time and costs.

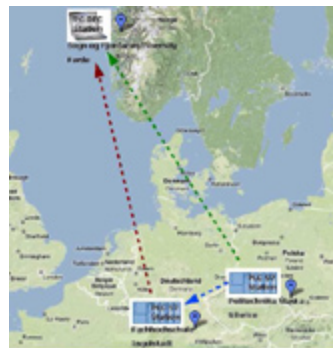


PROFIBUS in Mining (actually on the big machines used in mining applications) was the topic of another end user presentation, this time from Todd Preder of the Professional Control Corporation (pictured above).



POLAND

The Polish RPA has reported on a successful experiment to set up a PROFINET system straddling three countries. Poland, neighboring Germany and Norway hosted the experiment, with three universities collaborating. The goal of the project was to show that it is possible to create distributed industrial systems using a PROFINET CBA network connected over the internet. A PLC in the Fachhochschule at Ingolstat Germany was connected directly to a small pick and place robot and was able to control this robot locally. In Poland, a second PLC was used to control this robot thanks to a connection over PROFINET CBA. In Norway, a SCADA station visualized movements of the robot and measured any delays in transmitting data across the internet. Tests showed that acyclic data transfer could be accommodated within 1000 ms. This means that, taking into



account the non-deterministic character of the Internet network, direct control can be considered useful only for slow-changing and soft-realtime processes. However, PROFINET CBA through the Internet can be used for visualization and parameterization

ITALY

On 23. July 2008 the 2nd PROFIBUS Product Developer Training Class took place in BRESCIA (Italy)

at the PROFIBUS Competence Center (PICC) at CSMT Gestione Technological Center in the Campus of the Brescia University. The event was organized by CSMT Gestione and Prof. Dr. Paolo Ferrari, in cooperation with Mr. Luigi Bernadelli of VIPA Italia and Mr. Lothar Schroettel of profichip GmbH. The course started with an introduction to VIPA and insights



into the business activities of CSMT Gestione. Mr. Bernadelli from VIPA Italia then showed an overview of the VIPA Product range and the SPEED7-PLC. Around 45 engineers learned how to undertake a PROFIBUS product development project.

SWEDEN

"PROFIBUS PA, now also with redundancy, Asset Management and PROFINET in Process Automation, saves money and increases productivity" – that's the subject for seminars to be given by the Swedish RPA at the PROCESSTEKNIK Conference in Gothenburg (7/10 – 9/10). PI Sweden will also have a booth at the fair 'PROCESSTEKNIK' which is running parallel with the Conference sessions. Meanwhile, the Swedish web site is undergoing an 'extreme makeover'. "The goal is that you should reach every aspect of PROFIBUS and PROFINET with no more than 3 mouse clicks," said Lars Larsson, the Swedish



Chairman. The web site will include news, organizational details and a section with technological explanations using more than 150 illustrated pages – all, of course, in Swedish! **Visit the Swedish web site here.**

YOUR STORIES WELCOME
If you're a member of a Regional PI Association you can have your PROFIBUS and PROFINET stories published free in PROFINEWS. We particularly welcome product news and case studies. Successes and achievements can also be reported.

PI Network

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