PROFINEWS

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PROFIBUS PROCESS FIELD BUS

in this issue

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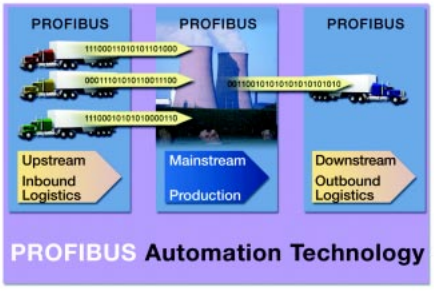
ITEMS SHOWN IN GREEN REFERENCE INDUSTRIAL ETHERNET AND PROFINET

GROWTH RATE REACHES 30%

'Universal' fieldbus now supports 12.6 million devices

The number of newly installed PROFIBUS devices increased from 2 million in 2003 to 2.6 million in 2004. Year on year this represents 30% growth, putting PROFIBUS well on the way to its target of 20 million devices by the end of 2007.

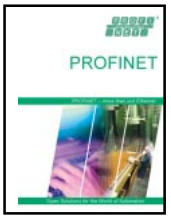


With 12.6 million devices installed globally, PROFIBUS now has nearly twice as many nodes as its nearest competitor. Taking all other technologies into account, the PROFIBUS total almost exceeds them all put together, a "major achievement in the face of some stiff competition from the best suppliers in the world," says PROFIBUS International Chairman Edgar Küster.

In process the situation is even more marked: almost 2.1 million PROFIBUS devices are in use, including at least 400,000 process field instruments. This is 4-5 times as many as any other fieldbus and, says Küster, is because PROFIBUS is the only fieldbus that can fit both the IEC 61158 requirement - where IS and power on the bus is needed - and the discrete-like sectors upstream and downstream of the main process, where PROFIBUS DP is ideally suited.

"No other fieldbus can do what PROFIBUS can do," said Küster at the recent Hanover Fair. "PROFIBUS is the only universal solution for all areas of production and process automation. The international network of regional PROFIBUS organizations and competence centers is also extremely important. PROFIBUS products cover almost every application and there's extensive freedom of choice. The current broad acceptance by the chemical industry and process engineering is a further indication of the excellent quality and certification processes that distinguish PROFIBUS."

94 PRODUCTS



This new flyer carries details of the 94+ PROFINET products and services now available from PI member companies. Download it from **www.profibus.com > DOWNLOADS**

SECOND ARC WHITE PAPER

This new White Paper from ARC shows in even greater detail why PROFIBUS is such a good fit in the process industries. It includes lots of technical justifications together with four classic hybrid applications. It's a 'Must Read' if you're in process. **www.profibus.com > DOWNLOADS**

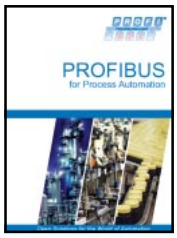
PROFINET MOTION CONTROL SHOWN AT HANNOVER

Once again the PROFIBUS booth was one of the busiest at Hannover Fair. Sited alongside INTERBUS, with a PROFINET 'bridge' between them featuring **PROFINET in a motion control demo**, it highlighted the key role that PROFIBUS and PROFINET are playing in automation. A video of **PROFINET with IRT** running on a MAN Roland printing machine was also shown.

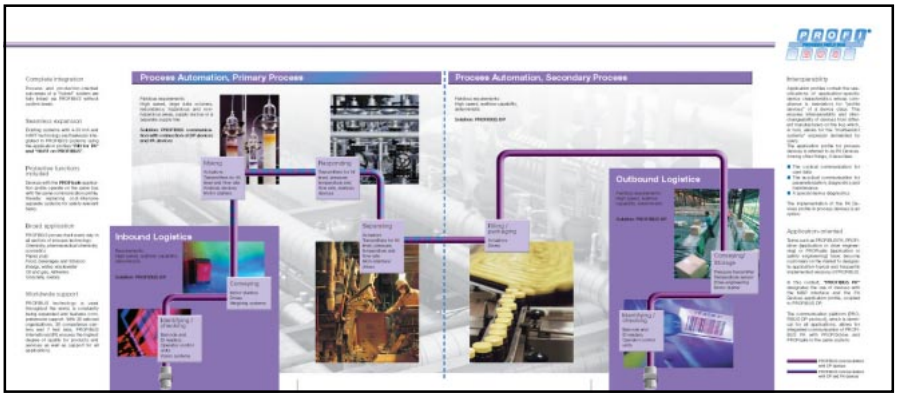
The PROFIBUS Nutzer Organization held its tri-ennial elections: **Edgar Küster** of Siemens, **Prof. Klaus Bender** of itm and **Klaus-Peter Lindner** of Endress + Hauser were re-elected to the Board for a further three year period. For the Advisory Board, **Dr Thomas Albers** of WAGO, **Friedrich Keglowich** of Sick and **Dr. Hans-Peter Lerch** of Bosch-Rexroth were re-elected and new members **Christoph Behler** of Mitsibushi, **Jürgen George** of Pepperl+Fuchs and **Dieter Staniczek** of FESTO were elected to serve for the next 3 year period.

PI NEWS

NEW BROCHURE EXPLAINS WHY PROFIBUS IS 'PERFECT FOR PROCESS'



PI has published a new 6 page color brochure describing why PROFIBUS is an excellent fit for applications throughout process plants, where 'hybrid' structures of continuous and discrete production segments are typical. The center spread (below) shows graphically why this is so: with its systemwide uniform communication and application-specific profiles, PROFIBUS satisfies all needs, from inbound logistics, via process automation, to outbound logistics. Furthermore, it offers full IEC 61158 compatibility, including IS and power-on-the-bus.



The brochure includes full written authentication of the exact advantages in each plant segment. If you are 'in process' and on the point of deciding which fieldbus to use you must read this publication. Download it from **www.profibus.com > DOWNLOADS**

I&M FUNCTIONS TO BECOME MANDATORY

Slave PROFIBUS DP devices having an MS1/MS2 channel for which a new ident-number is assigned, must now implement I&M (Identification and Maintenance) functions. This is checked when the device is certified and a new certificate issued. **For slave devices tested after October 1st, 2005, implementation of the I&M Functions will be mandatory.** For existing certified slave devices which use the MS1/MS2 channel, it is recommended to implement the I&M functions subsequently and re-certify the device. I&M is not required for PROFIBUS DP master devices, because there's no standardized access from DP masters to the I&M of DP slaves.

BREAKFAST WITH BASF

'PROFIBUS in Process Automation' was the headline for a breakfast presentation at BASF in Ludwigshafen, Germany, on March 16, 2005 when about 100 end-user decision makers from BASF attended. Both the audience and delegates from the presenting and sponsoring companies (ABB, abacon, ARCA, CEAG, E+H, Krohne, Pepperl+Fuchs, Samson, Siemens, Trebing+Himstedt, Turck and Weidmüller) thought the event was a great success. Speakers included Dr. Heusser (BASF) and Edgar Küster (PI Chairman). Dr. Matthias Römer (Endress+Hauser, PROFIBUS PA Marketing Working Group) presented latest trends in marketing and technology. Dr. Mannsberger (BASF) and Mr. Baumeister (Lang und Peitler) introduced the PROFIBUS PA installation at the new BASF odor plant. Finally, Mr. Schwibach (BASF, NAMUR) summarized the fieldbus requirements of process automation users and gave a clear positive statement for PROFIBUS PA. The next breakfast presentation is planned for week 41 at Bayer in Leverkusen.

Dr. Matthias Römer (left) and Dr. Erhard Heusser (middle) with PI Chairman Edgar Küster (right)

WEB-BASED TRAINING NOW FREE OF CHARGE!

A completely reworked Web Based Training (WBT) system from PROFIBUS International is now available free of charge to anyone from the PROFIBUS web site.

In English and German, WBT provides a great one-day introductory course and is also a very useful continuing education option for people engaged in PROFIBUS development. It's based on 'system building blocks': training is divided into six sections which address major fundamentals including the Master/Slave principle, the transmission technology, the protocol architecture and the PROFIBUS DP communications protocol. Answers are provided for common questions such as: What is PROFIBUS and how do participants in a network communicate? WBT also provides practical information about device installation.

For process automation, in addition to explaining the 'PA Devices' application profile, the automation of a hybrid system is demonstrated. In the 'Engineering' chapter the user experiences how to manage PA devices and how to put a system into operation using engineering tools.

Learning is self-directed and participants are tested at the end. Participants are not bound by time or location: the only requirements are a willingness to learn and Internet access. **Access WBT here**.

APPLICATIONS

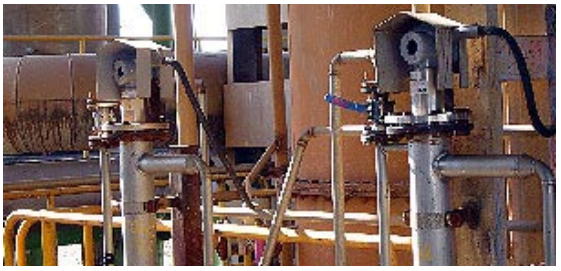
BRAZIL/ SUGAR, ALCOHOL

Maracaí Sugar & Alcohol Mill, part of the Nova America Group, has recently commissioned a full automation solution to achieve performance improvements in their alcohol and sugar production processes. Using PROFIBUS, the application involves classified areas and as a result is considered to be one of the most important automation projects in this market sector.

GANA (Automation Group of Nova America) studied the choice of fieldbuses before the automation project was defined and PROFIBUS was selected for the project.

The solution is based on GE Fanuc Series 9030 PLCs. All transmitters and valve positioners (a total of 116 field devices) are from Smar. The field devices include pressure, level, flow and temperature transmitters, converters and, one of the most important field devices in this segment, the DT303 Density/Concentration transmitter, responsible for online measurements of density, concentration, brix, INPM, percentage of solids, etc. All configuration work was done with the Simatic PDM tool.

PROFIBUS DP networks are up to 450m long. PROFIBUS PA networks are 250m on average although there is one segment of 400m. One IM157 and one DP/PA coupler connect each PA network using Intrinsically Safe Barriers with seven field devices per barrier. 116 PROFIBUS PA devices and 132 AS-interface valves from Sense, P+F and Murr complete the configuration. The use of IS barriers is not unusual in this market segment.



According to Maracaí important points in choosing PROFIBUS were the advanced diagnostics and system tools. GANA rated PROFIBUS as the best option for the PLC platform. Any doubts about using new technology were soon dispelled by the reliability and interoperability of PROFIBUS. Said Fabiano André Lourenço, Instrumentation Supervisor and Paulo Roberto Vidal, Automation Leader: “We knew that Smar would support the startup and that operations would be excellent. This is one of the most important plants in the sugar and alcohol world and we are satisfied with the results” **Contact: cesarcass@smar.com.br**

CHINA/ AUTOMOTIVE

The Changan Automobile Manufacturing Factory used to produce 6 different models, with an annual output of 80,000 cars. Due to many limitations which resulted in high failure rates and low production efficiencies, the production line became a bottleneck while making new automobile models.

With PROFIBUS technology applied in the general assembly line, the efficiency of Changan Automobile Manufacturing Factory was increased greatly, with annual production increased to 200,000/year. The Factory is now capable of handling multi-tasks and multi-modelled automobiles to meet rapidly increasing demand.

The control system of the general assembly line originally employed a traditional control model based on PLC systems from Mitsubishi. Signals were connected to the PLC by I/O cables with all the fault alarm signal displaying via BCD code. Operators were limited to actions such as start-up, stop and the emergency stop.

PROFIBUS provided an integrated alternative solution that could also work with the de-centralized structure needed for modern automation. Using decentralized I/O at the field device locations effectively reduces costs to a minimum. An ‘open’ communication interface also allows users a great choice of I/O devices.

PROFIBUS has made key data accessible at the field level. It also provides abundant diagnostics for the operators for trouble shooting and therefore reduces the time needed for problem solving.

A three-tier automation structure was adopted, including the integrated fieldbus, a control bus and 100/1000M Ethernet.

The monitoring task of the control system is not just limited to a single machine, but has to take in the plant as a whole. The PLC-and PC-based information management system has control over the information management, planning, monitoring and automation of the entire production line.

To achieve the integration of all functions, key technologies such as multimedia, fieldbus, high speed Ethernet, industrial control, communication and visual imaging are widely used.

The control system’s integration with data information not only makes data accessible but also includes in the database of the plant all necessary production data and provides production-related informational guidance to other plants and accessory departments. Bar code tracking reduces mistakes and increases efficiency. The bottleneck problem was solved by improved diagnostics, better control synchronization and intelligent merge and diverge.

The commissioning of the system was successfully conducted in August 2004 and the plant has been working smoothly ever since. The upgrade has been widely accepted and is highly recommended by users. With PROFIBUS enabling tight integration of control and field devices, plus improved production management, the system accomplished the full integration of mechanics and electronics and increased the overall automation level of the production. **Contact: china@profibus.com**

PRODUCT NEWS

OPTOCOUPLERS

Agilent Technologies has introduced the industry's first 3.3 V, 15 MBd, multi-channel and bi-directional digital optocouplers for use in industrial applications. Patented manufacturing technology for stacking LEDs provides the integration breakthrough necessary to allow OEMs to reduce part count, board space and system costs. The integration of two, three and four optocouplers is achieved through stacking LED die and an insulating layer on a silicon substrate. 10 MBd is the minimum operating speed. Dual-, triple- and quad-channel versions will be available. Bi-directional capability simplifies signal routing on PC boards. Reduced part count and board space are further benefits.

Agilent: +65 6377 1688 or semiconductorsupport@agilent.com

ControlLogix CONNECTIVITY

Available late summer 2005, the MVI56-PDPMV1 in-rack module provides a user-friendly connectivity solution by which ControlLogix users can easily interface up to 125 PROFIBUS DP slaves. The module acts as a PROFIBUS scanner, providing high-speed transfer of Input and Output data between PROFIBUS devices and the ControlLogix memory table over the backplane. It supports the DPV1 specification and all standardized baud rates up to 12 Mbps. The MVI56-PDPMV1 has been designed to address the expanding interest in PROFIBUS in industrial applications such as water/wastewater, power, oil & gas, SCADA and DCS applications. **Prosoft Technologies: +1 661-716-5100 or prosoft@prosoft-technology.com or www.prosoft-technology.com**

ANALYZER

PROFItrace is the most powerful troubleshooting and maintenance tool available for PROFIBUS DP and PA. It uses USB connectivity and is the latest in a line of busmonitor technology. The analyzer has advanced algorithms plus a smart link between the protocol and electrical measurements. This outstanding tool boosts the capabilities of maintenance and engineering personnel. **Grid Connect: www.factorycomm.com/profitrace.html.**

PROFIsafe ON PROFIBUS AND PROFINET

ET 200pro is the first distributed I/O system worldwide with IP65/67 protection and safety-relevant Industrial Ethernet based on the PROFIsafe profile. Actuators and sensors are connected via fail-safe input and output modules. Standard and fail-safe modules can be integrated in PROFIBUS or PROFINET networks. ET 200pro solves automation tasks with safety requirements up to SIL 3 (EN 61508) or Category 4 (EN 954-1). Step 7 is used for simple planning, configuration and parameterization. **Siemens: www.siemens.com/et200pro**

HUNDREDS OF OTHER PRODUCTS!

There are more than 2000 products in the online PROFIBUS product guide. Go to www.profibus.com > PRODUCTS to find the right one for your application.

www.profibus.com is one of the world's best fieldbus resources. Bookmark it today.

APPLICATIONS

USA/ DIE CASTING

THT Presses, the world's leading manufacturer of electric motor rotor casting machines, has used PROFIBUS in the design of a 1000-ton vertical die cast machine for high integrity aluminum castings.

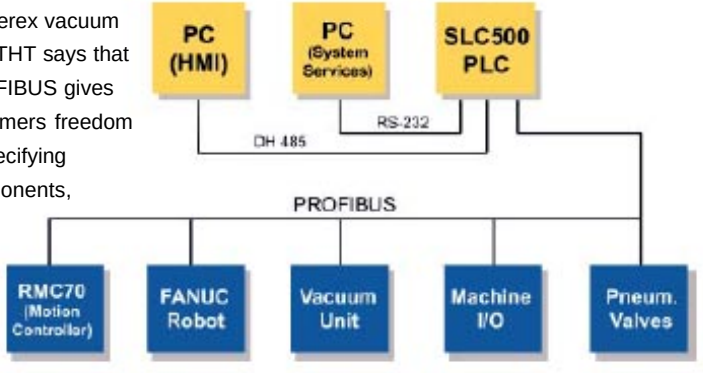
The new machine is rated on clamp tonnage (1000 tons) and shot force (1000 tons). The largest casting that can be made is about 100 pounds. In the machine, aluminum in a semi-solid state is injected into the die from a 20-inch diameter shot sleeve that is mechanically coupled to a 26-inch diameter (bore) hydraulic cylinder with a 6-inch stroke.

Using PROFIBUS, machine operators can set process setpoints from their HMI and gather data in a PC-based data acquisition system. PROFIBUS at 12Mbits-per-second also enables realtime data acquisition.

In one installation, PROFIBUS provides a connection to a Fanuc 6-axis robot that sprays release agent on the die, shot sleeve and piston (see Figure). PROFIBUS also interfaces to a hot-oil system built in Austria (for heating the die) that sends temperature setpoints and diagnostics information to the system controller. PROFIBUS also connects to a Fonderex vacuum unit. THT says that PROFIBUS gives customers freedom in specifying components, particularly the PLC.

An optional electronic control system for 'shot-end' control offers THT's customers the ability to enhance the quality of castings by enabling active profiling of the shot stroke, controlling the exact position and velocity of the cylinder through the injection cycle. This ensures uniformity and high quality output, which can be maintained even as environmental conditions change. The THT engineers also wanted the ability to control the pressure exerted on the shot load as well, to further improve productivity.

For closed loop hydraulic control of the shot cylinder, THT selected an RMC70 Series motion controller from Delta Computer Systems. By combining PROFIBUS communications and Delta's precision hydraulic motion controller, THT is confident that the new machine will produce castings that are more uniform and that have a shortened development cycle.



AROUND THE WORLD

USA

Tim Black of Wonderware has been appointed to the Board of the PROFIBUS Trade Organization. Black is Wonderware's product manager for extensibility products and has been with Wonderware since 2003. He will take over from his colleague, Scott Kiser. PTO has also announced a series of road shows, covering both PROFIBUS and PROFINET, in various locations across North America. The list is long - visit **www.us.profibus.com** for details, or email **lynne.froehlich@profibus.com**

UK

The very latest PROFIBUS technology will be unveiled on June 21 & 22 at the PROFIBUS International Conference, Coombe Abbey, Coventry, Warwickshire.

This will be an opportunity for delegates to hear about the future of PROFIBUS, PROFINET, PROFIdrive, PROFIsafe and PROFIBUS PA, also to get 'hands-on' with products. The Conference features parallel sessions - a main Conference for experienced delegates and Hands-on Primers for novices. The schedule will allow everyone a good chance to hear the presentations of their choice and to view the demonstrations and exhibits. PROFIBUS UK holds regular training and education events, the details of which can be obtained from **uk@profibus.com**

POLAND

A PROFINET Workshop was organized in February by PROFIBUS Polska at the Villa Verde at Zawiercie. About 60 participants from companies and universities from all over Poland attended and now further workshops are planned for 2005 .

The Workshop agenda included presentations by Piotr Ostrowski on PROFIBUS Polska, technology presentations on PROFIBUS and PROFINET by Dariusz Germanek, and PROFINET CBA and IO configuration and programming by Wojciech Kus. Company Presentations of products, solutions and applications were given by Helukabel, Siemens, MDJ, Biuro Inzynierskie and the Politechnika Slaska. **poland@profibus.com**

IRELAND

PROFIBUS Ireland will enjoy its first public outing at the ISA Ireland exhibition in Cork on 26th April 2005. PROFIBUS Ireland has a dozen members, among them ABB, Endress+Hauser, Irish Distillers and Mitsubishi Electric. PROFIBUS and PROFINET will be demonstrated, including the latest in PROFIBUS diagnostics tools. The booth will also showcase a speed control system consisting of a PLC, a VSD on PROFIBUS, and a three-phase motor coupled to a generator to provide load changes. Speed feedback will be measured using a distributed I/O module on PROFINET, with the values gated back to the PROFIBUS network. This will demonstrate distributed control AND a distributed application involving two networks. The SCADA system will use a web-server on the PLC and be accessed by Intranet or Internet to change set points, do trending etc. **ireland@profibus.com**

NEW PROFINET LITERATURE

JAPANESE BOOK

The PROFINET Book by Manfred Popp and Dr Karl Weber has been translated into Japanese. It is available from JPO. Please contact Motoyoshi Shinichi at japan@profibus.com

ENGLISH BROCHURE

This brochure is available free of charge from the PROFIBUS web site. It outlines what PROFINET is all about and is a great first-line introduction. Get it from **www.profibus.com > DOWNLOADS**

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