PROFINEWS
PROFIBUS & PROFINET

Official Newsletter of PInternational

PROFIBUS GAINS HIGHEST CHINESE FIELDBUS STANDARD

PROFIBUS has become the first fieldbus to achieve China's highest national standard level. **GB/T 20540.1-2006 - GB/T 20540.6-2006** was formally presented to PI and the Chinese PROFIBUS Organization at a ceremony in late November attended by Mr. Su Zhongmin, (pictured above), Assistant Administrator of SAC (**S**tandardization **A**dministration of **C**hina).

A special banner was also handed over, symbolising the close relationship between PROFIBUS and the Chinese Standardization authorities. This was shown to the German press by PI Chairman Edgar Küster (see right) at a breakfast press conference held at the Nuremberg SPS/IPC/Drives fair in November (see also page 3).

National regulations and standards play an important role in the Chinese market. Different sectors of industry have different standards; for example, 'JB' for the machine-building industry. The GB/T standard applies industry-wide. A GB/Z, which offers non-binding, temporary status similar to the IEC TR (Technical Report), is available

for new technologies, and has to meet the conditions to be converted into a binding GB/T national standard within 3 years or become automatically invalid.

PROFINET has achieved GB/Z status (GB/Z 20541.1/2 -2006).

PROFIBUS and PROFINET are the leading communication systems in the Chinese automation market, where they are currently being used in chemical, pharmaceutical, food, beverage and tobacco industries, as well as in water and waste water, and the oil, gas and refining sectors.

A PI Competence Center and Test Laboratory has been set up and running at CAMETA since 2002. A second PI Competence Center has now been set up at the ITEI (Instrumentation Technology & Economy Institution) in Beijing, a test laboratory for fieldbus technologies authorized by the state.

OUR OWN DOMAIN NAME!

PROFINEWS now has its own web domain – making it even easier and quicker to access this newsletter.

www.profinews.com

Bookmark this address today! Also, why not recommend it to your customers and other contacts? PROFINEWS is a MUST!

CALLING ALL PARROTS!

An unusual, whimsical view of Industrial Ethernet, with particular reference to PROFINET, is delivered by this new 40pp pocket-sized booklet, published jointly by PI and PTO in North America.

Entitled '*PROFINET, or the story of Pretty Polly, Sweet SUE and the White Knight*', the brochure starts with a rebuttal of the myths that circulate about PROFINET. 'Pretty Polly' demolishes the arguments of the 'parrots' who continuously repeat these myths without thinking.

'Sweet SUE' clears the air further with more truth-telling, this time about Standard Unmodified Ethernet and the hard-to-support claim that by itself it's superior to other Industrial Ethernet solutions.

The third section portrays PROFINET as the 'White Knight' charging to the rescue of automation users everywhere with an industrial standard based definitively on IEEE 802.3 yet bringing advantages in just about every type of application.

Striking, often humorous, hand-painted images support the text, which is written in a simple style with education its main purpose. Even hardened analysts have praised this attempt to straighten out the issues in such an unusual way.

Download 'Pretty Polly, Sweet SUE and the White Knight' here. Get a personal hard copy here.

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PI News

5000+ OUTSIDE OF EUROPE

PI has calculated that, during 2006, more than 5000 delegates attended official PROFIBUS and PROFINET events such as Road Shows and Seminars *outside of Europe*!

PROFINET WORKSHOPS

In 2006 the PNO offered four workshops for the 'Development of PROFINET products', to inform interested companies about the development paths of PROFINET IO and PROFINET CBA. Leading technology companies presented options for development support. More PROFINET workshops will be held next year, the first on January 23, 2007, in Zürich, Switzerland. **Contact info@profibus.com.**

"MEET THE EXPERTS" IN PROCESS AUTOMATION

In October about 120 delegates attended the Congress Center in Basle, Switzerland, to hear about the news and trends in Process Automation. Six speakers overviewed installation concepts, net components and their contribution to plant availability, diagnosis, Asset Management and more. The audience, predominantly users, was particularly interested in the last presentation, a field report from Degussa AG. The event ended with a lively discussion.

In October about 90 delegates took part in a similar event at Höchst. The next is planned for January 30, 2007 in Antwerp. **Contact info@profibus.com**

New Brochures

THREE FOR TECHNOLOGY

'Must have' brochures, whichever area of industry you are in.

PROFIDRIVE

In rowing, power and synchronicity are the key to success. The same is true of today's solutions in the drives sector, where isochronous communication between distributed drives and the processes running on them is a fundamental requirement. The **PROFIdrive drive profile** is making a significant contribution to meeting this requirement.

PROFINET

The innovative power and cooperation of over 1,400 member companies has made PROFIBUS the most successful fieldbus worldwide. PROFINET users can also benefit from this advantage because existing PROFIBUS technologies can be totally integrated into PROFINET. **Download it here**.

PROFINET PRODUCTS

This flyer describes around **150 products and services** for PROFINET. It's the biggest list yet, and all devoted to PI's Industrial Ethernet solution.

LANGUAGE CHOICE

JAPANESE

The ARC White Paper "PROFIsafe: Networked Safety for Process and Factory Automation" is available in Japanese. This is the third ARC White Paper to be translated by JPO (PI's Japanese Organisation). Here are the links:

> **PROFIsafe**: Networked Safety for Process and Factory Automation

> **The Value Proposition of PROFIBUS in the Process Industries**

> **PROFINET**: An All-Encompassing Industrial Ethernet Solution

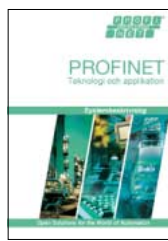or visit JPO's web site **here**.

SPANISH

The **PROFIsafe brochure** is available here.

The translated **PROFIBUS PA brochure** is here.

SWEDISH

The **PROFINET System Description** is available here.

PROFIBUS Questions Answered

Q: I'm developing a modular PROFIBUS device. It should support up to 15 modules and DP-V0. My problem is that the device specific diagnostics do not allow enough diagnostic data. As far as I understand it, only a maximum of 63 bytes is allowed. Is it possible to have more?

A1: *You can send up to 244 bytes of diagnostic data to the PROFIBUS master, with the exception of 6 bytes used for the header. So 238 bytes are available.*

A2: *Use DP-V1. Support of alarms and diagnostics is better and you may use diagnostics for each device separately. PROFIBUS Guideline Part 3 "Diagnosis, Alarms and Time Stamping" Order# 3.522 has further information.*

Q: Can a slave be implemented using a µC and RS-485 circuitry?

A: *For PROFIBUS Slave Devices you have to implement a µC communicating with an additional slave ASIC (SPC3 or VPC3+C), or use the Slave ASIC DPC31 (with integrated µC) stand alone. Additionally, you need a physical connection to the PROFIBUS network by means of an optically isolated RS485 line driver.*

Q: I need to change my DP cable routing but the current cable length is not sufficient and it's not advisable to remove the cables. Is there a cable connector available in the market like the PA cable connector? If so, does it affect network speed?

A1: *Use a PROFIBUS repeater, placed at the maximum length for the segment. Behind this you can then use another full length PROFIBUS segment. This repeater will not affect your bus speed because it is just like a hub on Ethernet.*

For more answers to typical PROFIBUS questions use the free Forum at http://forum.profibus.com

DID YOU KNOW

... that more than 15,000,000 PROFIBUS devices are now in use around the world? And, over 10% of them are in China?

PROFINET Questions Answered

Q: Do I need a memory card or similar for PROFINET field devices in order to avoid loss of the device name when the device is exchanged?

A: No, a memory card is not obligatory, if the controller supports topology based configuration. In that case, the topology is preset by the configuration, or set automatically when the installation is done in a proper way. If a field device is replaced by another one of the same type, the IO controller assigns the original name to the replacement device if the replacement device is connected at the same position and has stored either no name or the correct name. Should the IO controller not support topology based configuration and device exchange, a memory card is required. This is also the case when different devices are installed at one port, or if the device is installed behind a router.

Q: What possibilities does PROFINET offer for diagnostics?

A: PROFINET offers a wide range of standardized diagnostic functions, with channel-related reports, thus ensuring clear identification of the source of error. Events can be announced as alarms or diagnosis, which the GSD of the manufacturer translates into plain-text messages. Alarms are critical events which are reported to the higher-level system and have to be acknowledged. Diagnoses are announced for preventive status messages. All diagnoses are SNMP readable.

Q: Can I use IT-services like HTTP, FTP, SNMP with PROFINET field devices?

A: Yes, because every PROFINET device has an IP address, and each of the above-mentioned services has its own port address. E.g. SNMP: Port 161.

For more answers to typical PROFINET questions use our free on line Forum

About PROFINEWS

PROFINEWS is published 6 times a year and is promoted globally as well as being published online at www.profinews.com. Member companies can have their stories published free of charge by emailing them to **profinews@profibus.com**

PI News

TRAINING CENTERS ACCREDITED

PI accredited the first PI Training Centers (PITC) during the recent SPS/IPC/ DRIVES exhibition. PITCs are committed to a consistent global quality and training standard. A Quality of Services Agreement defines the criteria for PITCs, including certification of instructors, the training contents and equipment required, audits and accreditation of the training institution, etc. PITCs offer 'Certified Installer' or 'Certified Engineer' training courses, where participants can achieve a recognised professional qualification in industrial networking.

PROCESS MANAGEMENT ACADEMY

PROFIBUS has become a sponsor of ARC Advisory's Process Management Academy, a prestigious industry event being held in January 2007 at Neuss in Germany. **More here**.

SPS/IPC/ DRIVES WAS A MAJOR SUCCESS

A large booth shared with the Interbus Club and featuring a forum theater and a common lounge, saw PROFIBUS and PROFINET technology given massive coverage at SPS/IPC/Drives. Attracting over 43,000 visitors, this fair is now one of the leading automation events in Europe, perhaps even the world.

A press conference on Day 2 saw three announcements from PI, including the news that PROFIBUS has become the first fieldbus to achieve Chinese national GB/T status (see Page 1).

Other announcements included the news that the Tool Calling Interface (TCI) specification has been completed after less than a year's work. TCI offers a vendor independent way of calling proprietary and open engineering tools, thereby providing a consistent interface for end users. The automotive industry particularly needs this capability because of the diversity of tools they have to use, notably with drives. TCI can integrate EDD and FDT technologies too.
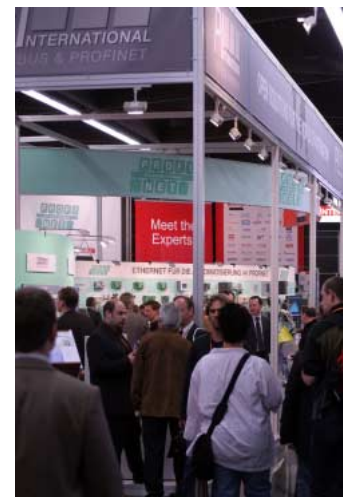
PI also announced the release of the 'PROFINET and MES Maintenance Operations' guideline, which describes interface functions that support MES systems. These provide consistent communication with PROFINET from the field level up to top management, making it easier to switch from preventative maintenance to condition monitoring in systems and machines. NAMUR NE107 recommendations are followed.

The PI booth also featured an 8m PROFINET wall (shown below), packed with dozens of products. This attracted much attention and seemed to finally convince sceptics that PROFINET is not only here to stay but that its scope and performance is way ahead of any other Industrial Ethernet solution.

PI INTERNATIONAL

New Products

CONTROLLER

MPI12x is a new Multi Point Interface Controller. It has a PROFIBUS DP Slave core, 4kByte integrated SRAM and a configurable 8 Bit µController interface. Supply voltage is 3.3V, with 5V tolerant inputs. The package is the PQFP44 (RoHS compliant). **PROFICHIP: +49 9132 744 200 or www.profichip.com**

SERIAL INTERFACE

SPI 3 allows fast and economical integration of serial devices into PROFIBUS networks. It offers a choice of protocols including ASCII, 3964R, RK512 and MODBUS. SPI 3 allows fast and easy parameterization and configuration, especially for MODBUS. **Trebing & Himstedt: +49 (0)385 39572-0 or info@t-h.de or www.t-h.de**

SAFE ENCODERS

CRD and TMD encoders are now available with the PROFIsafe protocol. CRD features an electro-optical sensor system with a resolution of 13 bits per 360° and a measurement range of 4096 revolutions. TMD features an electromagnetic sensor system with Hall elements activated by a rotating magnet. The maximum measurement range is 32768 revolutions. **TWK-CONSULT: +49 0211 632067 or info@twk.de**

TRANSCEIVERS

These DUAL port 10/100Mb/s High Speed connectivity devices for PROFINET feature Electrostatic Discharge (ESD) protection, IEEE 802.3u compliance, Flex-Port switching and Enhanced System Diagnostics. **National Semiconductor: www.ethernet.national.com**

CABLES

New cables for PROFIBUS DP include a 150 ohm twinax cable incorporating a 22 AWG solid bare copper conductor, foil shield and a tinned copper braid. There's also a 22 AWG stranded cable for additional flexibility plus a continuously corrugated aluminum armored cable for harsh environments. Finally, there's a PROFIBUS PA 18 AWG stranded twisted pair cable for SP-50 Type A fieldbus specifications. **Belden: 1.800.BELDEN.1 or www.belden.com**

OPTOCOUPLERS

ACPL-072L is claimed to be the industry's fastest 3.3 V/5 V CMOS-compatible optocoupler. It's capable of 25 Megabaud and offers an extended operating temperature range. Common-mode rejection is 10 kV/microsecond minimum, providing 3.7kV isolation voltage in a SO-8 package. **Avago: www.avagotech.com/optocouplers**

M23 CONNECTORS

A new range of M23 stainless steel connectors enables contacts to be clicked in from the side instead of the back, making assembly easier and much faster to debug or repair all without tools. **rde Connectors & Cables: 1-800-511-7184 or reinhard@rde-usa.com**

ANALYZER

The NEW *buscheck* analyzer for PROFIBUS supports system start-up, and also helps analyze and correct network errors. A 'quick mode' allows users without much protocol knowledge to evaluate network status. Connection is via USB and there's an interface for both DP and MBP bus physics, so traffic can be compared on both sides of a segment coupler. **Softing: +49 (0)89 45656 0 or info.automation@softing.com or www.softing.com**

MANIFOLDS

The Freeline solenoid valve system eliminates the need for manifolds to be installed inside rated enclosures in wash-down processes, whilst still allowing all the benefits of a distributed architecture. It offers protection ratings of IP65 and IP67 and is the only system to allow digital I/O to be combined with solenoid valves in this protection class without the need for a surrounding enclosure. **Burkert Fluid Control Systems: www.burkert.com**

PROFINET COUPLER

This PROFINET coupler facilitates quick and easy implementation of a cross-plant, deterministic I/O data interface between two PROFINET networks, with safe isolation. In overlapping security areas, fail-safe signals are transmitted via PROFIsafe. Simple configuration saves time and a familiar engineering interface means users can make optimum use of existing know-how. **Siemens: +49 911 895 4839 or www.siemens.com/profinet**

SCANNER

Woodhead has a new PROFIBUS scanner for ControlLogix and Honeywell PlantScape controllers. It includes a CommDTM interface enabling it to configure and diagnose DTM field devices using FDT tools. This gives access to slaves simultaneously and provides a full scan list function, a set slave address function and access to the Scanner through the Allen-Bradley Remote Link Library. The tool is able to use the RLL feature for remote monitoring and downloading of changes to the PROFIBUS configuration through RSLinx via Ethernet. The new release supports DP-V1 and all baud rates, enhancing the Scanner's use in PROFIBUS PA networks too. **Woodhead Industries: www.woodhead.com**

PROFINET I/O

WAGO has announced a PROFINET real time programmable controller. The 750-840 series can be used as a stand-alone PLC or as an intelligent slave in a distributed/decentralized control network. Programming is performed with the WAGO-I/O-PRO CAA, which supports all 5 programming languages. Compatibility with other 750 and 753 Series I/O modules offers access to over 200 digital, analog, and special function I/O modules. **WAGO: +1 262 255 6333 or info.us@wago.com or www.wago.com**

REPEATER

This new repeater system allows easy and cost-optimized realization of structured PROFIBUS installations. It operates as a PROFIBUS Hub, enabling branch, line, star and tree structures. The isolated segmentation of PROFIBUS and the possibility of redundant structures increase the availability of the network and significantly increase network length and speed. Copper or FO technology is available. **Phoenix Contact: www.profibus.phoenixcontact.com**

GATEWAY MANAGER

DeltaDue control modules with the DX DIN rail mount Gateway Manager provide a complete 'blind' system with configuration and parameter backup and a PROFIBUS gateway. The module can store a backup of connected DeltaDue configurations and parameters. Modules feature 'hot swap' capability and true single loop integrity. Additionally, the DX module allows for the connection of multiple Master devices. **Ascon Corporation: +1 630 482 2950 or info@asconcorp.com or www.asconcorp.com**

Applications

SINGAPORE/ WATER: On the diamond-shaped island of Singapore, the Changi Water Reclamation Plant is the cornerstone of the new Deep Water Sewerage System.

Schneider Electric was chosen as the Main Plant PLC provider and uses 160 ProSoft Technology PROFIBUS DP-V1 modules to help run and monitor end devices.

The main reason for ProSoft Technology's involvement is PROFIBUS. With the global support available from PI member companies PROFIBUS integration into the Plant Overall System Architecture provides a wide choice of high speed communication via PROFIBUS DP, plus 'power over the bus' with PROFIBUS PA, so very large networks covering all aspects of automation are possible.

The island-wide project also needs low maintenance costs, remote diagnostics and it had to be integrated in with an asset management system, with fast, reliable real-time communication, and easy integration into PLCs from Siemens, Schneider Electric, Allen Bradley, and PC-based solutions.

The key to ProSoft Technology's involvement was intelligent field device management using FDT/DTM, PROFIBUS DP-V1, Hot Standby and the ability to work with Schneider Electric's UNITY and Concept processors.

ProSoft Technology has supported the PROFIBUS protocol in the Quantum line. "Schneider Electric is very strong in the process industry but not so much so in their experience with PROFIBUS and FDT/DTM technology integration," said Wally Gastreich, Lead Engineer for ProSoft Technology. "We were able to help them expedite time-to-market and get the customer acceptance and final buy-in."

Singapore's Deep Tunnel Sewerage System brings waste water to the Changi Water Reclamation Plant for further clarification & bio-treatment, then sends it to the new water plant to produce clean water that is healthy and safe for direct consumption. The sludge goes through a drying process and is transformed into biologically-stable products that can be used as fertilizers.

The Water Reclamation Plant is equipped with 160 ProSoft Technology PROFIBUS DP-V1 Master modules. The water treatment project has a long list of field devices in a wide-ranging PROFIBUS network that includes many different types of measuring instruments, including Magnetic Flow Meters, Thermal Mass Flow Meters, Pressure and Differential Pressure Level Transmitters, Radar/Ultrasonic Transmitters, Dissolved Oxygen Analyzers, Temperature Transmitters and Electric Actuators.

The PROFIBUS DP slave devices are mainly from vendors such as Siemens, Yokogawa, Vega, ABB, and Schneider Electric. Using Intelligent Field Device Management (FDT/DTM), ProSoft Technology has helped Schneider Electric to integrate PROFIBUS networks into its PLCs.

The PTQ-PDPMV1 is a newly developed ProSoft Technology module that functions as a PROFIBUS DP-V1 Master. Developed on Quantum backplane transfer technology the module sends information back and forth through the Quantum processor and collects all the necessary information on the configured PROFIBUS DP network. Built using the Siemens ASIC ASPC2 Step E with an Infineon C165 Microprocessor, the module's firmware is flash-upgradeable and allows for slave messaging, extended diagnostics and alarm handling, and notification.
Prosoft:
www.prosoft-technology.com

Applications Online

More PROFINET and PROFIBUS case studies are online here

PI World

ACTIVE IN FAR EAST …

The first ever 'Chinese Certified PROFIBUS Technician' training session was held in Beijing in November. Organized by CAMETA and Dutch PICC PROCENTEC it attracted 30 participants from 13 companies. Everyone passed the theory exam. Course participants will now be able to evaluate large PROFIBUS projects, including troubleshooting and maintenance.

"This is the first time that such a high level certified training course has been conducted in China and it will definitely accelerate the acceptance of PROFIBUS in Asia," said PROCENTEC's Dennis van Booma. More training sessions are planned for next year.
 www.cameta.org.cn/cameta/

… AND EUROPE

The Finnish RPA and the Dutch PICC have led the first Finnish Certified PROFIBUS Engineer training session in Finland, at the AEL institute in Helsinki. For 4 days participants were trained in PROFIBUS technology and almost everybody passed the exam! The next session will take place in May 2007.

Finally, a group of 18 technicians from Holmen Paper Madrid (Spain) was trained on-site by PROCENTEC in fault finding for their PROFIBUS DP networks. The Holmen plant recycles old paper using a completely automated plant based on PROFIBUS. A 2-day practical and theoretical course on how to use standard tools was given.
finland@profibus.com

PI World

NORWAY

Norway has established its first PI Competence Center at AD Elektronik AS. Kai Atle Myrvang from AD Elektronikk was Chairmen of PROFIBUS i Norge, the Norwegian RPA, for many years. Now, as a PICC, he will focus on providing technical support for vendors and users in Norway. The PICC is in foundation since September. Seminars and workshops as well as technical support for PROFIBUS are offered, and plans are in hand to extend the focus to PROFINET soon. **Contact: +47 6497 6060 or kai@ade.no.**
More about PICCs here.

KOREA

PROFIBUS Center Korea operates training courses for PROFIBUS fundamentals every quarter. Since the accreditation of the 'PROFIBUS Center Korea' at the end of 2004 there have been several courses, with an average of 6-8 engineers attending. The course on November 16/17 (pictured below) attracted 12 participants. Students are mostly

from device manufacturers, users, dealers and universities. The course will be continued in 2007 with a strengthened curriculum, and it is expected that the Center can become a certified training center in the future, covering the Asia region. Further details from Mr. Cha Young-Sik : **chays@profibus.co.kr or +82-2-523-5143 or www.profibus.co.kr**

UK

PROFIBUS UK has issued a Call for Papers for its annual PROFIBUS User Conference to be held at Coombe Abbey, Warwickshire on 26th and 27th June 2007. The conference will concentrate on the issues of implementation, maintenance and management of PROFIBUS and PROFINET systems. **More from www.profi-bus.co.uk**

SINGAPORE

The PROFIBUS Road Show - 'Getting The Message Through' - underlines clearly the benefits of the leading fieldbus standard PROFIBUS. Sponsors include ABB, Endress+Hauser, Excel Marco, FESTO, Lapp Kabel, Mettler Toledo, MTL Asia, Pepperl+Fuchs, Siemens, Softing, Turck, Vega and Weidmueller. The Road Show started with the ICA2006 Fair in Kuala Lumpur. It travels to Indonesia, Vietnam and the Philippines, returning to OSEA in Singapore and then continuing in 2007 in Singapore, Malaysia and Thailand. The focus of the conference and workshops is on installation and diagnostic guidelines, integrated safety solutions with PROFIBUS, and Asset Management. These functions were shown 'live' at ICA2006. PROFIBUS South East Asia Vice President Juergen Ekert and member companies presented the latest market information and application experience, including the recent White Paper from ARC Advisory in which David W. Humphrey concluded that: "To maximize long-term value, users should evaluate the benefits of fieldbus as they apply to whole processes – not just islands of automation. Process industry users can benefit from PROFIBUS' unique value proposition in its ability to integrate process instrumentation seamlessly with intelligent devices like motor control centers, remote I/O and variable speed drives. Unlike other fieldbus solutions, PROFIBUS allows for direct integration of HART devices. PROFIBUS offers a unique value proposition to users in the hybrid industries."
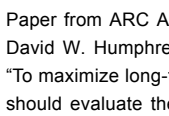
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CHINA

The Reorganization Meeting of the China Association for Mechatronics Technology & Application (CAMETA) was held in Beijing in October. The meeting announced that Mr. Jiyang Tang (above) is the new President of the Chinese PROFIBUS User Organization (CPO). Mr. Tang is the Director of the Chinese PROFIBUS Competence Center (CPCC), Director of Chinese PROFIBUS Product Testing Lab (CPPTL) and General Manager of Beijing D & S Fieldbus Technology Co. He is one of the best-known PROFIBUS experts in China and has been part of CPO since 1997. **china@profibus.com**

NORTH AMERICA

Carl Henning's PTO blog continues to attract attention. His recent blog on the SPS/IPC/Drives event in Nuremberg, which both he and PTO Executive Director Mike Bryant attended, made some pointed pictorial comparisons between competitors' booths and PI's. **Read Carl's blog here**. The 'Pretty Polly. Sweet Sue and the White Knight' document which offers some interesting insights into the Industrial Ethernet market place, was published jointly by PTO and PI in November. (See Page 1). Mike is one of the 'stars' of a new full-screen movie produced by Siemens Energy & Automation titled "SAFETY: Uncover the Competitive Advantage". The movie, premiered in Chicago early December, features PROFIBUS, PROFINET and PROFIsafe and will be shown in 45 cities from January 2007. Featuring a who's-who cast of safety experts and leading-edge companies it provides the opportunity to learn strategies to meet changing industry safety standards, control operating costs through risk mitigation and improve productivity by making safety a forethought in the design process rather than an afterthought. **www.safetythemovie.com**.