



The official email newsletter of the PTO in North America

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DEBUNKING THE MYTHS




In the [PROFiblog](#) Carl Henning hit paydirt recently by focusing on 'FUD'. Don't know what that is? Well, it stands for 'Fear, Uncertainty and Doubt' - a standard tactic used by salesmen to deflect a customer from competitors' products by creating fear, uncertainty and doubt about them. FUD is really what this Myth Buster feature is all about, so we shouldn't be surprised by the recent upsurge. Here are some examples ...

Myth 1: ["PROFINET is not routable leading to performance issues + PROFINET does not use TCP/IP"](#) (amazing isn't it that this is still being Pollied, despite our previous efforts!)

Response 1: PROFINET does use TCP/IP – just not for everything. PROFINET uses TCP/IP for configuration and parameterization, for example. PROFINET uses TCP/IP (or, optionally, RT) for peer-to-peer integration. PROFINET IO using PROFINET real-time is not routable because it is a Layer 2 protocol. PROFINET CBA (Component Based Automation for peer-to-peer) can use TCP/IP and is therefore routable. Performance is not an issue as a recent independent study confirms.

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Myth 2: PROFINET needs "Proprietary" hardware (Polly is truly alive and well!)

Response 2: PROFINET RT (Real Time) does not require any special hardware – proprietary or otherwise. It achieves its superior determinism by simply bypassing TCP/IP. It is happily transported through standard switches and standard WiFi. PROFINET IRT (Isochronous Real Time), used mostly for motion control, uses exactly the same bypass method but with the additional feature of reserving Ethernet bandwidth. This is entirely independent of the Ethernet stack so there is no 'corruption' (another frequent claim about PROFINET). There is nothing proprietary about PROFINET! Anyone can buy the spec from IEC and implement PROFINET in software or hardware. Several vendors of chips have done so and you can buy their (non-proprietary) hardware from NEC, Siemens, Hilscher, and shortly, from others too. For example, PTO member ICC Designs has just announced PROFINET interfaces for Toshiba and Mitsubishi motion control products using the Digi Connect ME - which is based around an ARM7 processor using ICC Design's own PROFINET software! These, and many other solutions, support competing Industrial Ethernet protocols too - how much more un-proprietary can you get? Grrrr!

Read the [full FUD](#) here. [Remind yourself about Polly](#) here.

GENERAL NEWS

HOW PROFIBUS COMPARES TO FOUNDATION FIELDBUS! James Powell has written a comprehensive comparison of PROFIBUS and FOUNDATION Fieldbus as used in process control applications. Real costs are compared, together with various engineering and performance factors, making this a 'must read', essential publication if you are considering using fieldbus in process automation. James concludes that:

- PROFIBUS devices are less expensive
- You can fit far more PROFIBUS devices on one link
- PROFIBUS links are less expensive
- PROFIBUS is easier



"Use FF only when you need control in the field!" says James, "otherwise PROFIBUS is the far more economical solution!". [Read James' White Paper here](#). It's also available as an MP3 file from the same location.

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PROFINET IS BEST ... CONFIRMED! A recent university study sponsored by the German government compared the real time performances of Industrial Ethernet solutions, in particular PROFINET and EtherCAT. Since EtherCAT's main claim to fame is its speed it was surprising to find that in all but the smallest systems PROFINET was faster! This is because EtherCAT requires line topologies whereas PROFINET can use line, star, or tree. Larger systems benefit from a mixture of line and star (that is, tree), benefiting PROFINET.

PROFINET also benefits because PROFINET Ethernet telegrams can be sent directly from the source to the target while EtherCAT telegrams must travel through every node. At SPS/IPC/Drives additional advancements to PROFINET were announced that will erase EtherCAT's performance advantage even in small line-based systems. The study results were reported in a paper entitled 'Limits of Increasing the Performance of Industrial Ethernet Protocols' at the 12th IEEE Conference on Emerging Technologies and Factory Automation.

The project also revealed that PROFINET will profit from the evolution of Ethernet (such as increasing bit rates to 1Gbit/s) more than other systems, which makes PROFINET the fastest and most universal real-time Ethernet system, offering the openness for TCP/IP and IT communication at the same time, guaranteeing a high degree of security for the future.


The project was supported by the German Federal Ministry of Education and Research and undertaken by the Institute Industrial IT of the University of Applied Science of Lippe and Höxter (inIT).




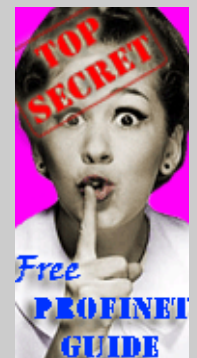
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LEARN MORE ABOUT PROFIBUS AND PROFINET IN 2008: Webinars, Workshops, Free Training, and Certified Training are all planned for 2008. There will be many times and places to extend your knowledge of PROFIBUS and PROFINET:

- 8 new webinars
- 6 archived webinars
- 9 PROFIBUS one-day training events
- 8 PROFIBUS in Process one-day training events
- 10 PROFINET one-day training events
- 4 PROFINET Developer Workshops
- 5 PROFINET PROFItch Certified Network Engineer classes
- 6 PROFIBUS PROFItch Certified Network Engineer classes

And this is just the North American schedule! If you are outside of North America, please see your local PROFIBUS and PROFINET organization's schedule or start [here](#). In North America, you can start [here](#). PTO staff will also be speaking at ISA and various PTO members' events during the year.

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FREE WEBINARS IN 2008: The webinar program leads off with a four-part series on PROFIBUS in the Process Industries. Other topics include PROFIsafe, Industrial Ethernet Security, Motion Control, and a PROFIBUS DP Overview. [Details at us.profibus.com](#). Six webinars are archived for viewing at your convenience, including a three-part introduction to Industrial Ethernet, a PROFINET overview, Industrial Wireless Networking and Industrial Ethernet Diagnostics. [Register and view these webinars online](#). New and archived webinars are available at no charge.

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ONE-DAY TRAINING EVENTS IN 2008: There are 27 free classes planned throughout the US and Canada. If you are not using a fieldbus today you NEED to ATTEND. If you are using another fieldbus that is slow and hard to use, you need to come see how easy PROFIBUS and PROFINET are. If you need to understand all the fuss about Industrial Ethernet, you need to come to a PROFINET class. If you need to know how wireless and asset management and safety fit into all this, you NEED TO ATTEND. Past attendees said this about the classes:

- "I would have paid for this class."
- "Presenters were very good: good delivery, good knowledge."
- "This was the best one-day class I have ever attended."
- "I came knowing very little about PROFIBUS and left with enough understanding to start the work I need to do."

The classes are sponsored by PTO members who compete with each other but cooperate to ensure that the classes can continue. They don't even get to present; it really is a training class! This year's sponsors include Comtrol, Endress+Hauser, Foxboro, GE Fanuc, Grid Connect, Inc., Hilscher North America, Inc., HMS Industrial Networks, Inc., IXXAT, Inc., Molex, Phoenix Contact, ProSoft, R Stahl, Real Time Automation, RTA, Siemens Energy & Automation, Softing North America, Turck, and WAGO.

At the free PROFINET classes we raffle a seat in the PROFINET Certified Network Engineer training class (a \$2,695 value). Attendees of all classes receive a hard copy handout and a CD of the presentations, installation guides, white papers, brochures, and more.

Monitor the [home page](#) of the PTO website and [this news page](#) for schedule updates. More detailed information and a link to registration starts [here](#).

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PROFINET DEVELOPER WORKSHOPS IN 2008: After four of the PROFINET one-day training events we have added a half-day PROFINET Developer Workshop. Workshops are intended for manufacturers of control devices who are considering adding PROFINET to their products. Development tools that speed time to market are presented. There is plenty of time for one-on-one interaction for attendees to discuss their needs with the development tool providers who include Altera Corporation, Grid Connect, Hilscher North America, HMS Industrial Networks, IXXAT, Molex, Siemens Energy & Automation, Real Time Automation and Softing North America. More detailed information and a link to registration starts [here](#).

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PROFITECH CLASSES IN 2008: For those who need a deeper understanding of the technologies there are the full-week PROFItch classes leading to certification. Two curricula are offered: PROFIBUS and PROFINET. Attendees who pass the theoretical and practical exams will be named Certified Network Engineers and be listed on the international PROFIBUS and PROFINET website.

One recent attendee commented: "It certainly was a deserved certificate and all others in the class felt the same. We were tested on comprehension and not so much for what we remembered." For others' comments [download the brochure](#) or see additional details [on the web](#). This [online news item](#) provides an overview of the 2008 schedule.

We also offer one-day Installers Classes. These are not listed on the schedule because they are usually held at a user's site on demand. If you are interested in those please [contact us](#).

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ABB JOINS! ABB, which has been actively working with the PNO in Germany since 1989 and is a member of the PNO Advisory Board there, has joined the PTO in North America. "We are pleased to welcome ABB as a new member," said Michael Bryant, Executive Director of PTO. "ABB has strongly demonstrated its commitment to helping customers take advantage of the benefits offered by intelligent devices and integrated networks in its global activities; we are looking forward to working with them here." ABB supports PROFIBUS and other fieldbus protocols in its numerous product and technology offerings for industrial and utility customers all over the world. Its vast portfolio of products and solutions for process and manufacturing automation includes control systems, instrumentation, analytics, robotics, drives, motors, motor control centers, positioners, actuators, low voltage controls, switchgear, interface products and numerous other intelligent devices.

CATALOG PROMOTES 177 PROFINET PRODUCTS: The latest version of the PROFINET products flyer lists 177 products and services from over 30 vendors. Many of the products were shown on the special PROFINET wall at SPS/IPC/Drives ([see below](#)). The flyer can be [downloaded here](#).

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FREITAG ELECTED TO PNO: PNO Germany, PTO's sister body, has elected Jörg Freitag to the German Board of Directors. Freitag studied electrical engineering at the Friedrich-Alexander-Universität Erlangen, Nuremberg, and has since worked more than 10 years for Siemens, acquiring extensive knowledge of automation technology and industrial communication. His close working relationship with [Edgar Küster](#) enabled him to gain a deep insight into PROFIBUS and PROFINET. Jörg already has a close working relationship with PTO: attendees of the last two General Assembly meetings will remember Jörg's informative presentations about PROFINET adoption and applications.



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SPS/IPC/DRIVES SHOW IN NUREMBERG: The SPS/IPC/Drives show is much larger than comparable North American events (45,000 visitors compared to ISA's 8,500 attendees!). In fact, the whole ISA Expo would fit in one of this fair's 9 halls. The biggest news of the fair was from the PI press conference during which the results of the recent university

study sponsored by the German government were discussed, comparing the performance of PROFINET and EtherCAT ([see above](#)). On the booth, more visitors than ever got an insight into the power and breadth of PROFIBUS and PROFINET solutions, the highlight of which was a PROFINET wall with over 100 products from more than 20 companies. Further demonstrations of PROFIdrive and TCI, as well as presentations on PROFIsafe, IO-Link and the ease of use of PROFIBUS, completed the range of technologies at the show.



This PROFINET 'wall' was a principle feature of the booth.

WORLD NEWS

JAPAN: JPO attended the Measurement & Control Show 2007 and the System Control Fair 2007 in November in Tokyo with a multi vendor demo system (45 products from 25 vendors), including PROFINET products from 5 vendors. The number of PROFIBUS applications has increased, says JPO, as users prefer the bus speed, simple engineering and the cost reductions. JPO has completed the translation of the PROFIBUS PA book into Japanese. A PROFIBUS PA Competence Center has been established and JPO plans to have a PI Test Lab for PA devices soon. **NETHERLANDS:**

PROFIBUS Nederland held its recent General Meeting of Members in the Lower House of the Dutch Parliament building in The Hague. Members attended a compelling lecture by the CDA Member of Parliament Roland Kortenhorst who contended that if the industry wishes to find a willing ear for its interests, then it must communicate more effectively with politicians. More often than not, he said, the industry's messages focus too much on technical details when society is more interested in the social benefits and the consequences for health, environment and welfare. **SOUTH AFRICA:** The PROFIBUS User Group in South Africa (PUGSA) is helping to tackle skills shortages in the country. PUGSA ran its first automation training sessions recently as part of the Automation Training Council's (ATC) initiative. Recently, the first successful students were awarded their Certificates at a special banquet hosted by the Southern African German Chamber of Commerce and Industry and



organized in honor of the visit of Mrs Angela Merkel, the Chancellor of Germany. The first six students and four lecturers who were trained were presented with their certificates in the presence of government officials. The skills shortage in South Africa has led to the Southern African German Chamber of Commerce and Industry joining forces with PUGSA to run a Broad-Based Black Economic Empowerment (BBBEE) initiative in industrial automation.

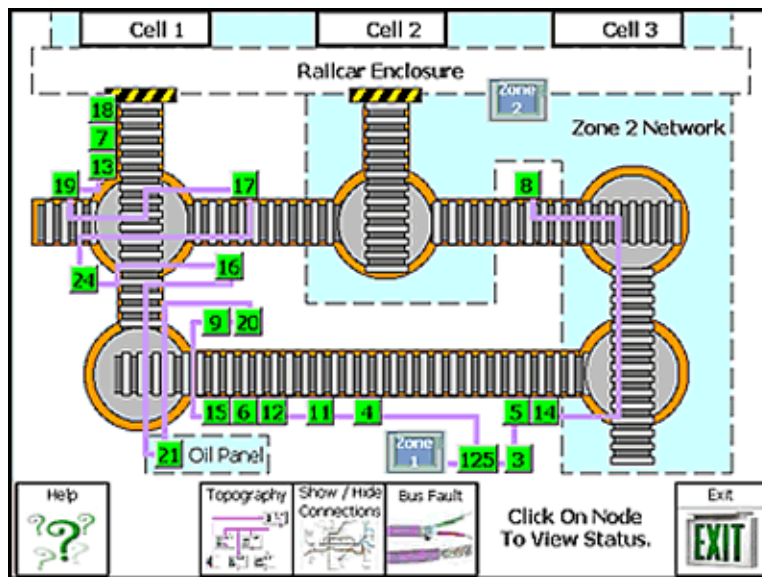
BRAZIL: In October 2007 the first PROFIBUS Product Developer Training took place in SAO CARLOS at the new PROFIBUS Competence Center (PCC) in EESC - University of São Paulo.

CHINA: A one-day PROFIBUS Product Development Seminar was held jointly by CPO Technology Working Group (WG2) and Profichip in November, in Beijing. CAMETA, the organization representing PI in China, also participated in the first training sessions with the ProfiTrace2 analyzer.

CAMETA will standardize on this tool for troubleshooting and maintenance. **UK:** The UK PROFIBUS Group has put out another [call for papers](#) for its User Conference in June 2008. The program will contain a mixture of presentations, demonstrations and hands-on practical sessions suitable for first-time users and those with extensive working experience. In addition, it will cover latest developments. **ITALY:** PNI successfully employed a new presentation concept at the SAVE automation and instrumentation exhibition in Verona in October by splitting its booth into two parts: one for exhibitors and one for seminars. In total, there were 39 seminars, with more than 900 registered participants!

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CASE STUDIES



UK / DIESEL ENGINES: In order to reduce machine downtime at their Darlington, UK, engine plant, Cummins contracted Cleveland Systems Engineering to install PROFIBUS diagnostics software and hardware in two of their Siemens S7-300 systems. The upgrade allowed immediate indication of the location and type of fault present within the PROFIBUS network, greatly reducing production downtime. The upgrade was carried out concurrently with a full PROFIBUS rewire using highly oil resistant cable, selected because of the harsh environmental conditions on the line. The hardware on these networks comprises Siemens ET200X remote I/O, Moby RFID devices, direct on-line motor starters and frequency converters. A Siemens PROFIBUS diagnostic repeater was added to each PLC. The engine test facility is used to run every engine manufactured under load conditions in one of three automated test cells. The section as a whole incorporates seven Siemens 300 series PLC's, each with a HMI and PROFIBUS networks. The diagnostics upgrades were installed in the two PLC's controlling the conveyor system which feeds the three test cells with engines. The diagnostic repeater in this application is used for its bus determining and line diagnostic capabilities. The repeater can detect, locate and diagnose the location of bus faults to within 1 meter as well as being able to detect the network topology. All of this information is available for extraction into the user program. The status of each node and the repeaters line diagnostics are accessed from the user program by means of the Siemens function block, FB125. This, along with an interface on the HMI, brings real time fault diagnosis to the user. The screens on the HMI were custom designed to include cable and node layout mimics, as well as node slot information to help pinpoint faulty modules or cables in event of a breakdown. The four screens when used together offer all the information required to diagnose the disturbance within minutes. [Cleveland Systems Engineering](#)

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BRAZIL / BIOFUELS: Brazil has made great progress in consolidating the technical production of

biofuel from sugar cane. By 2012, the ethanol market is expected to be worth US\$15 billion. Digital networks are used extensively and today over 50% of new sugar and ethanol plants use PROFIBUS. New projects include Tropical Bioenergia S.A., which has approximately 1000 PROFIBUS nodes connected to Smar DFI302 DF73 controllers with System302-7, a hybrid control system with decentralized architecture, which enabled this facility to quickly double production. In September 2007, Santa Elisa Distillery and Smar signed a contract for the complete automation of 4 new plants. This distillery is owned by the Santelisa-Vale Group, one of the major sugar-ethanol producers. The deal involves the supply of System302-7 plus all instrumentation using PROFIBUS. It also includes the infrastructure of a Center of Integrated Operations (COI) similar to the successful Santa Elisa COI. Included are more than 3200 Smar PROFIBUS PA field instruments and 4 supervision and control systems that include 21 DF73 DPV1 CPUs per unit. AS-i technology is used

Biofuels Scenario Today	Forecast Scenario in 2012/13
350 Mills	412 Mills
475 million tons of cane	750 million tons of cane
30 million tons of sugar	38 million tons of sugar
<ul style="list-style-type: none"> • 10 million tons for domestic market • 20 million tons for export 	<ul style="list-style-type: none"> • 11 million tons for domestic market • 27 million tons for export
20 billion liters of ethanol	38 billion liters of ethanol
<ul style="list-style-type: none"> • 17 billion liters for domestic market • 3 billion liters for export 	<ul style="list-style-type: none"> • 27.5 billion liters for domestic market • 10.5 billion liters for export

for on-off valves and sensors. Two of the units – Ituiutaba and Itumbiara - are scheduled to start grinding in July 2008 and the other two - Campina Verde and Platina - in May 2009. Another facility – Usina Tropical, in Edéia, Goiás state – is part of the deal. It was contracted in June 2007, with project and conditions similar to the other four plants. All projects are integrated by Studio, a System302-7 component that makes it possible to easily manage the software. One fourth of the primary energy used in Brazil comes from biomasses, a unique situation in the world. The position today, and the projected situation for 2012/13 are shown in the table. [SMAR](#)

FINALLY - check out our new [White Paper](#) on PROFIBUS in a Brazilian Sugar Plant.

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NEW PRODUCTS

PORTABLE PROTOCOL STACK: Softing's new portable protocol stack is based on the latest PROFINET IO specification and is available in Controller and Supervisor formats. The protocol software supports Conformance Class A and B and includes the following components:



- Access Kit: a powerful, flexible abstraction layer between the controller application and the PROFINET IO stack.
- Porting Layer: handles memory allocation, task and thread management, and access to the Ethernet peripheral. This is the only component that must be ported to the target hardware.
- Protocol Software: an independent component representing the actual implementation of protocol services which is embedded between the Access Kit and the Porting Layer.

As of today the software has been successfully ported to the Intel x86, ARM 7/9, Motorola Power PC and others. OSs include Win32, VxWorks, Linux, eCos and netOS. Softing recommends the ERTEC chip and its own RT Controller board for deploying the stack. [Softing](#)

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PROFINET INTERFACES FOR TOSHIBA AND MITSUBISHI DRIVES: Industrial Control Communications has released PROFINET IO Interfaces for Toshiba VF-AS1 and G9 adjustable speed drives and Mitsubishi 700 series Inverters. Both are fully IEEE 802.3 10/100BaseT Ethernet compliant and support multiple simultaneous IE protocols. They use shielded RJ45 connector and standard CAT5-type 8-conductor unshielded twisted-pair (UTP) patch cables. Configuration and parameter monitoring/control are supported via embedded web servers and standard web browsers. Configuration files are stored in XML format and can be transferred to/from a PC via FTP for easy backup and configuration copying. Configuration files can be viewed and edited via standard text editors, XML editors or web browsers. As new firmware becomes available, the units can be upgraded in the field by the end-user. [Industrial Control Communications](#).



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PCI EXPRESS PROFIBUS INTERFACE: Use of PCI Express bus computers is now available through BradCommunications' SST interface card. It comes with two network channels, allowing one computer to communicate with up to two PROFIBUS networks simultaneously. PROFIBUS DP Masters and DP Slaves are supported as well as Master Class 1 and Class 2 DP-V1 through the use of a Windows API. All standard PROFIBUS baud rates are supported as well as device configuration and diagnostics through FDT using CommDTM. Also included are Microsoft Windows Vista, NT4, 2000 and XP operating system drivers, OPC Server v3.0 and DP configuration software with enhanced diagnostics. [Woodhead](#).



NOTE: Woodhead Industries has been acquired by Molex Incorporated. The Woodhead and Brad product lines will continue to be promoted under the Molex name.

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NETWORK TESTER: Softing has a new version of its PB-T3 PROFIBUS Electrical Tester. It includes support for German, English, French, Italian and Chinese (simplified) languages and is a powerful, yet simple tool used to determine the signal quality of connected devices. The Tester analyzes the physical layer and visually displays the signal quality for each device and the location of faults, helping users to quickly find and correct errors. The included PROFIBUS master simulator enables PB-T3 to verify the integrity of PROFIBUS networks without having the actual controller on-line. [Softing](#).



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FIBER OPTIC CONVERTERS: Phoenix Contact has extended its PSI-MOS fiber optic product line with converters in 1300 nm technology. The proven features of PSI-MOS can now be used for network distances of up to 24 km with multimode glass fiber and up to 33 km with singlemode glass fibers. The integrated monitoring of received power evaluates the quality of the connection at start-up and a pre-warning function alerts the user before network loss. [Phoenix Contact](#).



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