



The advanced Industrial Ethernet solution for automation, motion control and IT integration

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## IN THIS ISSUE

### [DEBUNKING THE MYTHS](#)

### [FREE 2006 PROFIBUS TRAINING COURSES KICK OFF](#)

### [NEW CERTIFICATION TRAINING COURSES](#)

### [PROFIBUS FIGURES EXPECTED TO PASS 15 MILLION](#)

### [NEC SECOND SOURCES ERTEC CHIP](#)

### [LIFT OFF FOR GLOBAL WEB SITE](#)

### [LIFT OFF FOR NEW NORTH AMERICAN WEB SITE](#)

### [88% SAY TIGHTLY INTEGRATED AUTOMATION NETWORKS ARE THE PRIORITY IN PROCESS](#)

### [EVERYTHING ON ONE BUS IN PROCESS PLANTS](#)

### [NEW PRODUCTS](#)

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## DEBUNKING THE MYTHS

We take a closer look at some myths surrounding  
PROFIBUS and PROFINET ... and *expose the perpetrators!*

**MYTH 1: PROFINET is PROFIBUS on Ethernet! (White Paper at [www.odva.org](http://www.odva.org))**

**RESPONSE:** PROFINET is NOT PROFIBUS on Ethernet - it's MUCH more. It eases peer-to-peer integration; it facilitates vertical integration; it simplifies implementing motion control; it handles more devices and more user data; it leverages IT standards and diagnostics.

**MYTH 2: PROFINET is non-standard Ethernet**

**RESPONSE:** This myth originates with a large North American Industrial Ethernet vendor and gets perpetuated by clever people who really ought to check their facts! PROFINET uses standard IEEE802.3 Ethernet, with TCP/IP for IT connectivity and complete compatibility with TCP/IP for realtime tasks. Standard duplex switches can be used throughout a PROFINET realtime network. PROFINET is also a unicast protocol, which means communications are point-to-point and precise, unlike other Industrial Ethernet protocols we could mention that multicast and so need an IGMP Snooping option to avoid flooding the network! Like other Industrial Ethernet protocols, PROFINET enhances standard Ethernet with Application Layer extensions to suit the automation domain. (The Application Layer is the same layer that email and web browsers operate in.) PROFINET provides the isochronous realtime (IRT) needed for Motion Control. This also uses standard Ethernet. Part of the



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bandwidth is reserved for IRT with the balance allowing standard TCP/IP traffic. This technique puts PROFINET way ahead of all the others in Motion Control ... and without compromising Ethernet or TCP/IP compatibility! Printers, displays, video systems, and other TCP/IP devices work normally on a PROFINET IRT network. It's a 21st century way of doing things that is, frankly, world-beating! Perhaps the myths are needed because the other protocols are afraid of the power, simplicity and elegance of PROFINET? Then again, maybe they're just jealous!

More from [www.profinet.com](http://www.profinet.com)

[Debunk previous myths here](#)



[top](#)

**FREE 2006 PROFIBUS TRAINING COURSES KICK OFF:**

The 2006 series of FREE PROFIBUS seminars and workshops was kicked off recently. Classes have been successfully concluded in Detroit, Houston, Cincinnati, Philadelphia, Toronto, and Montreal. Hundreds of attendees now see the financial benefits of using a fieldbus and the technical benefits of using PROFIBUS and PROFINET. In Detroit, they were amazed at the number of exhibitors who sponsored the event (14). In Houston, they realized that the exhibitors were competitors who banded together to ensure that users learned more about fieldbuses in general and PROFIBUS in particular. In Cincinnati, they learned of the individual exhibitors' PROFINET products by visiting their exhibits during breaks, lunch, and the hosted reception. Almost everyone who completed a Course Evaluation said the length was "Perfect." Their comments included: "This was the best one-day class I've attended... ever." "I had time to ask all my questions and the instructors were very knowledgeable with their answers." Class space is still available. Exhibit space is still available. [Visit this page](#) for the latest class additions and for links to registration. Class descriptions can be found beginning [here](#).



[Even more here.](#)

[top](#)

**NEW CERTIFICATION TRAINING COURSES:**

PTO and the PROFi Interface Center (PIC) have added a PROFIBUS Installer's Class and a PROFINET Certified Network Engineering Class to their training program. This year marks the sixth anniversary of the PROFiTech certification program and more than 300 attendees have been designated Certified PROFIBUS Network Engineers in that time.



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“PROFItech certification training teaches users the appropriate installation, operation and maintenance of PROFIBUS and PROFINET products and networks,” said Carl Henning, deputy director of the PTO. “The industry is moving toward more advanced communication for plantwide operations and PROFItech classes teach users exactly what they need to know about implementing network communication in their facilities.”

At the one-day PROFIBUS Installer’s Class, participants receive hands-on training of PROFIBUS DP networks and learn how to avoid common networking problems. Course material includes PROFIBUS DP basics, system design and maintenance, fiber optic installation and more. Participants receive 6 Personal Development Hours (PDH credit hours) of advanced training from qualified instructors. The PROFINET Certified Network Engineering Class delivers hands-on training of the installation, operation and maintenance of PROFINET products and networks. This class provides a mix of protocol theory and hands-on problem-solving exercises. Topics covered are Ethernet basics, PROFINET IO and PROFINET CBA, network monitoring and diagnostics, security and more. Participants receive 24 PDH credit hours and upon graduation receive an official PROFINET Certified Engineer Certificate. Also included in the program is a complete set of course materials, breakfast, lunch, a PIC-hosted dinner, and a certification listing on the PROFIBUS International (PI) website.

Other PROFItech courses offered include a PROFINET IO Development Class and a PROFIBUS Certified Network Engineering Class. Prerequisites for all classes include a background in industrial automation and familiarity with basic communication terms and features.

Mr. Henning concluded: “PROFItech now offers more comprehensive training to all areas of PROFIBUS and PROFINET systems. Certification ensures that users are knowledgeable and well-equipped to manage their facilities.” To find a complete schedule or to register for the PROFItech Certification Training Program visit the PTO website at [www.us.profibus.com](http://www.us.profibus.com) or call 480-483-2456.

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[top](#)

**PROFIBUS FIGURES EXPECTED TO PASS 15 MILLION:** Based on the numbers of chips sold, the expected increase in installed PROFIBUS nodes in 2005 indicates that the total may now be well past 15,000,000, increasing the lead PROFIBUS has as the world’s most widely used fieldbus. In the same period, the total number of PROFIBUS nodes in the process industries probably reached close to 3,000,000!

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[top](#)

**NEC SECOND SOURCES ERTEC CHIP:** Semiconductor giant NEC has announced that it will start selling the ERTEC switch chips used for PROFINET IRT applications. ERTEC chips are designed to support the critical isochronous realtime capability for advanced Motion Control. ERTEC 400, a four port version for controllers, is available now. ERTEC 200, a two port version for field devices, is expected in Q2 2006. The ERTEC chips include a powerful ARM9 processor and support data transmission rates up to 100 megabits per second. As well as IRT, they enable the wiring-intensive star topologies typical of Ethernet to be

replaced by bus structures similar to fieldbuses - a real boon for Industrial Ethernet users. Real-time communication allows control of up to 150 axes at a cycle time of 1 millisecond, with 6 megabytes per second of simultaneously transferable standard TCP/IP data. Development kits will also be available from NEC.

[top](#)

**LIFT OFF FOR GLOBAL WEB SITE:** 2006 began with two revamped global web sites being unveiled - at [www.profibus.com](http://www.profibus.com) and [www.profinet.com](http://www.profinet.com). The sites combine to feature color-coded access to PROFIBUS (blue), PROFINET (green) and PI (silver) information, making navigation much easier. PI is the new name for the old PROFIBUS International, the umbrella organization representing PROFIBUS and PROFINET worldwide in 24 countries.



[top](#)

**LIFT OFF FOR NEW NORTH AMERICAN WEB SITE:** A new web site has just gone live at [www.us.profibus.com](http://www.us.profibus.com), focused on North American PROFIBUS and PROFINET activities. You can find out what courses are taking place and in which cities, and register online too. Register there also to receive regular copies of this PTO email newsletter. [Read more about the new site here](#)



[top](#)

**88% SAY TIGHTLY INTEGRATED AUTOMATION NETWORKS ARE THE PRIORITY IN PROCESS:** Market analyst ARC's 2005 fieldbus user survey shows conclusively that 'control in the field' is NOT the most important fieldbus attribute! In fact, it's the least important attribute! The survey took data from over 200 process fieldbus users from across the globe - with more or less equal contributions from Europe and North America, and a well-balanced sample from across the process industries. What the survey reveals is that confidence in fieldbuses has grown substantially in the 2 years since the last survey was done, and that fieldbuses as a whole are now used widely, even in mission critical applications. This is an important step forward for all fieldbuses, said PI chairman Edgar Kuester, pictured below. In terms of return on investment, more and more users find that using fieldbuses is profitable. Such experiences have increased considerably in the past two years. Approx. 27% of users see a return

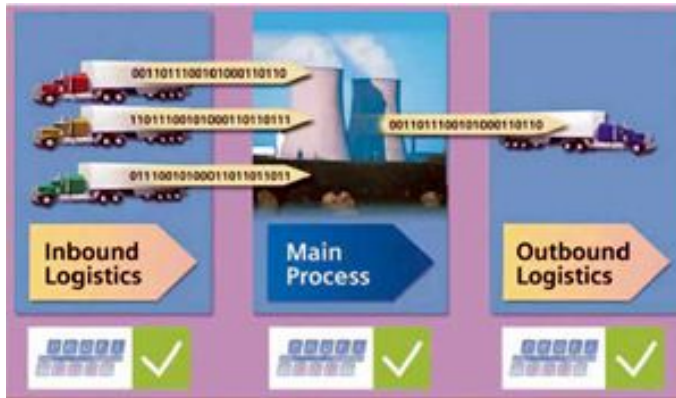
on investment within the first six months and 18% within the next six months. 61% said they are directly planning new fieldbus systems. The survey also reveals that 88% of respondents think that closely-coupled process and discrete automation networks are 'extremely important', 'important' or 'very important'. PROFIBUS was designed specifically for this hybrid need, says Kuester, "and our DP and PA solutions fit the need perfectly." Added Kuester: "What's also interesting is the trend in the number of people who think 'control in the field' is not so important. In 2003 it was 9%, today it's 23%. This suggests that it's increasingly seen as a nice-to-have feature whose cost and complexity outweigh its practicality."



[top](#)

### EVERYTHING ON ONE BUS IN PROCESS PLANTS:

PROFIBUS is the only field bus that can be used in all areas of hybrid process plants where discrete applications and process control are combined. All sectors of the manufacturing and process industries and



all applications from inbound to outbound quality check were taken into account from the beginning, allowing PROFIBUS to be used universally. PROFIBUS enjoys this unique position thanks to its modular design, combining uniform communication technology with the relevant application profiles and appropriately adapted physical transmission media to form integrated solutions. This universality, combined with modern technologies and the support of hundreds of device manufacturers, has made PROFIBUS the clear market leader in industrial communication! A comprehensive explanation of this unique fieldbus is contained in an article [published here](#).

[top](#)

### NEW PRODUCTS

**IPC MODULES:** WAGO Corporation announces the addition of PROFIBUS master capabilities to its 758 Series programmable controllers, a.k.a. WAGO-I/O-IPC. The 758 Series controllers are a 'new breed of programmable controller' that combine the ruggedness and reliability of a PLC with the added functionality of PC based features. In addition to being a PROFIBUS master, the on board Ethernet ports allow for connectivity to the rest of the enterprise. By offering this combination, WAGO is able to fulfill both control and enterprise level communication in one package. The 758 Series offers a 266 MHz, multi-tasking, battery backed CPU, with a built-in web server and 32 MB RAM/32 MB flash memory. It's DIN-rail mounted to accept 750/753 Series granular I/O modules. It uses an IEC 61131-3 programming environment and includes USB ports, Digital Video Interface (DVI), 2 independent Ethernet ports (10/100 BaseT), RS-232 serial port, and CompactFlash interface. There's also a built-in visualization, OPC server and fieldbus configuration tool all in one development package. **WAGO: 1-800-DIN-RAIL, info.us@wago.com or [www.wago.us](http://www.wago.us)**



**PROFINET TO SERIAL GATEWAY:** HMS Industrial Networks has announced the Anybus Communicator for PROFINET. The Communicator is an intelligent protocol converter that is used to connect automation devices to PROFINET via a serial interface. Typical applications are PROFINET connections for barcode or RFID scanners, weigh scales, frequency inverters and motor starters, etc. It's DIN rail mounted and supports RS-232, RS-485 and RS-422 signal levels at baud rates up to 57 kbit/s. For RS-232, one Anybus Communicator is needed to connect one field device to PROFINET. Using the RS-485 interface, up to 31 field devices can be connected via one Communicator and, in this case, the cost of the PROFINET connection can drop to less than \$20 per device. Modbus is supported and it can also be easily adapted to manufacturer-specific protocols using Windows-based configuration software. **HMS Industrial Networks: 773-404-3486 or us-sales@hms-networks.com or [www.anybus.com](http://www.anybus.com)**



**IP67 I/O MODULES:** BradControl Classic I/O modules for PROFIBUS provide a reliable solution for connecting industrial controllers to I/O devices in harsh environments. Rated to IP67, they are able to withstand areas where liquids, dust or vibration may be present. A unique feature is the integration of the BradConnectivity Ultra-Lock connection system, a 'push to lock' method that provides a fast, simple and secure connection between the I/O module and I/O devices. Other features include the support of both PNP and NPN inputs and current sourcing outputs. Built-in diagnostic tools include highly visible LEDs which provide maintenance personnel with the ability to easily determine I/O, module and network status. PROFIBUS slave DP-V0 is supported in accordance to EN 50170. [Woodhead](#)



### PROFIBUS SCANNER FOR

**ControlLogix:** The BradCommunications SST PROFIBUS scanner for ControlLogix now has the added support of the Remote Link Library (RLL) software allowing remote monitoring and download of changes to PROFIBUS configurations. This is done by routing data from the SST PROFIBUS DP Master Configuration software through Rockwell Automation's RSLinx software via Ethernet to the Allen-Bradley ControlLogix backplane. Another new feature is the support of PROFIBUS DP-V1 and additional 31.25 / 45.45 kbit/s baud rates, enhancing its use in PROFIBUS PA networks through a segment coupler. [Woodhead](#)



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