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THE TIME IS RIGHT!

To learn all about PROFIBUS and PROFINET

Across the world, device vendors, OEMs and end users are under pressure to find better, faster, more efficient ways of making things. Never has this pressure to improve manufacturing been greater.

So why not take the time to visit the best automation fair in Europe - SPS/IPC/Drives - and learn more about the latest automation technologies, especially PROFIBUS and PROFINET? It's one of the best opportunities you'll have in 2009!

SPS/IPC/DRIVES is always packed with great ideas, products, seminars, workshops, demonstrations ... and lots more. This year it'll be more vital than ever to attend.

PROFINET and PROFIBUS technologies will be there in strength of course and PI will again have a large booth designed to show the best offerings from member companies. There'll be a chance to see PROFInergy

explained. Also on display will be:

- PROFINET
- PROFIsafe
- PROFIBUS PA
- PROFIdrive
- IO-LINK

The booth will feature multi-vendor demos of all these technologies, with some of the best products,



services and solutions you'll find in the automation world working together!



Multi-vendor product walls featured strongly on last year's booth, including the longest PROFINET wall ever seen. These demonstrate vividly the breadth of product offering (= choice for end users) and interoperability (= competition) that drives performance up and prices down. Above is the PROFIsafe wall, again the most ambitious ever seen at any Fair, with PROFIsafe guru Wolfgang Stripf (right) explaining things to a visitor.

Experts will be on hand to answer questions and explain everything you need to know to deploy and use the world's most popular fieldbus and the world's best Industrial Ethernet solution.

The PROFIBUS and PROFINET booth will be a major meeting point for representatives from member companies, PI Competence Centers, PI Training Centers and Regional PI Associations. In other words, everyone who's anyone in the world of automation will be present - so why not come talk to them?

There's also a joint forum, organized by PI and the Interbus Club, at which expert speakers will present technology topics once every hour. And of course, the 20th anniversary of PROFIBUS will be celebrated during the show, too!

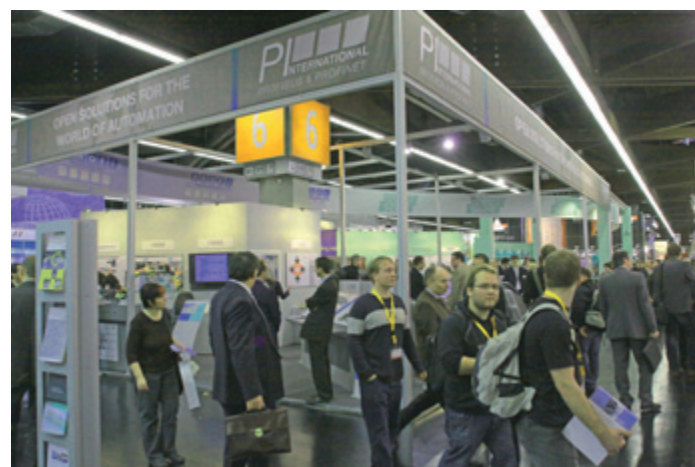
WHERE? Nuremberg, Germany

WHEN? November 24 - 26, 2009

WHICH HALL? Hall 6

WHICH BOOTH? Booth 210.

We look forward to seeing you there!



PI News

A BRIEF HISTORY OF (PROFIBUS) TIME

by Geoff Hodgkinson, Editor

The universe as we know it began in 1989 ... the networking universe that is! For that's the date when PROFIBUS was established as a communications solution (= fieldbus) for the exciting new world of digital instrumentation and systems.

In those far off days the world was a much bigger place, with less contact between users, vendors, universities, standards-making bodies and countries than today. Around the world there were many projects aimed at meeting the fieldbus need, with different organizations working at the same

time on similar solutions.

Some focused on process automation, some on factory automation, and some on specific industries such as mining and aviation. It was early days and many lessons were learned as vested interests struggled to bring their solutions to market hoping to beat their competitors for market share.

In Europe, PROFIBUS DP was

among the first to gain international recognition, becoming standardized under EN 50170 in 1996. At the same time, the North American ISA organization was trying to formalize a USA-originated solution that eventually led to Foundation Fieldbus. It was oriented towards high end process automation, a market sector characterized by high system engineering and device values and relatively slow automation cycle times. By contrast, other solutions including PROFIBUS recognized that digital communications were going to lean more towards the needs of factory automation - a market where high volumes, high speeds and short cycle times dominate.

Thus was created a cultural conflict that became known as the 'fieldbus wars', the result of which led to the 'wisdom of Solomon' decision by the IEC in 1998 to accept 'at least two solutions'. Eight were eventually adopted ... and the number has risen since! While frustrating for users who

preferred a single technology to be dictated (that was never going to be possible given the diverse domains and interests), this opened the future to end user choice. 'Let the market decide' became the war cry and the time was ripe for PROFIBUS International (PI as it is called today) to get to work.

An embryonic PI was already in existence, with Switzerland having taken the honor of hosting the first Regional PROFIBUS Association (RPA) outside of Germany. More countries soon followed as the push to have PROFIBUS accepted globally gathered speed.

The successful growth of the PI network (today there are 25 RPAs) is a key reason for the success of PROFIBUS. Out of it came a community of individuals and organizations with one common

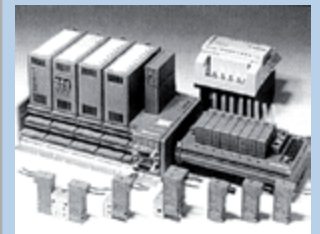
goal - to ensure PROFIBUS took the lion's share of the world's automation market.

PNO in Germany can take much of the credit because of its support for this effort - even if at times it had to accept different ways of doing business - especially the business of international marketing! A team of people, most of whom are still involved, came together to collectively drive things.

Regular meetings, consistently powerful marketing tools (such as this newsletter) and unique ideas contributed by members of the community, ensured that diversity became a positive force. Critical

'NEW' PLC!

Here's the first ever 'new product' photo published in PROFINEWS - in December 1994. Product stories were few and far between at the time, and photos were as rare as hen's teeth! Diagrams were favored. Thankfully, vendors have since improved their marketing! Frequency converters, valves and even gateways had started to arrive in support of the PLCs and remote IO devices that were the pioneers. The product below was described as the '680i small PLC', available with up to 64 IO and with FMS and DP protocols! It was from Kuhnke, who surely deserve some kind of award for having included this photo with their press release?



mass came in 1997 by when more than 1 million nodes were in use.

In some regions, particularly Europe, market development was straightforward. In others - notably North America - serious competition was faced and it has taken considerable effort to achieve success there. In key Far Eastern markets acceptance relied on other factors such as standardization. Each challenge has been successfully met

so that today, even in the most competitive markets, PROFIBUS has become a dominant technology in industrial automation.

It's been interesting watching how success occurs. Initially, the major international vendors act as evangelists. Then come other signs of success in a country or region, for example when local vendors introduce PROFIBUS products. Then, the PI marketing effort is strengthened by their efforts, adding market confidence until critical mass is achieved.



The very first issue of PROFINEWS - published in September 1994. 'Our PROFIBUS future' was written by Ed Hoffmann (pictured) who was PNO Chairman at the time. He wrote enthusiastically about "the world's most readily available, standard fieldbus technology." Something called PROFIBUS-ISP (just being launched and later to be known as PROFIBUS PA) also got mentioned, and Ed observed that there is "ample evidence that users want the benefit of fieldbus today!" As always in business, significant opportunities await suppliers who meet user needs first, he said. "Only your involvement is needed to realize the potential." No change there then!

PI 20 Years
PROFIBUS • PROFINET

A third level is also important - that of education, training and support. Again it's been interesting to watch certain organizations and individuals establishing new projects and even companies to reinforce the activities of device vendors. This has certainly proved critical at times for PROFIBUS and may even be important for automation as a whole because some may become the automation majors of the future. (Perhaps there's a fourth level too ... when companies supporting competing technologies launch their own PROFIBUS products, but we'll leave that for others to cover!)

sources reckon that 70-80% of automation users still do NOT employ digital networks, in which case there are many years of growth ahead. On the other hand, Industrial Ethernet is growing in importance and it's likely that PROFIBUS will be impacted sooner or later. PI has introduced PROFINET to take account of this trend. It can easily be used with PROFIBUS so PI members can benefit whatever market preferences prevail.

It's also fair to say that PROFIBUS has reached a level of market acceptance - and has such widespread support - that market growth will continue for years.

PROFstats

- 50 billion:** An estimate of the value of the PROFIBUS market in USD.
- 30 million:** The number of PROFIBUS nodes installed today.
- 3 Million:** The number of PROFINET nodes expected to be installed by end of 2010.
- 1 million:** The number of PROFIsafe nodes installed today.
- 1400:** The number of PI members globally.
- 620:** The number of Certified PROFIBUS/PROFINET Network Engineers in North America.
- 500:** The number of automation experts working on PROFIBUS and PROFINET.
- 90%:** The networked safety market share of PROFIsafe.
- 51%:** Global market share of PROFIBUS and PROFINET.
- 47:** The number of PI Competence Centers globally.
- 25:** The number of Regional PI Associations globally.
- 16:** The number of PI Training Centers globally.
- 10:** The number of PI Test Labs globally.
- 2:** PROFIBUS and PROFINET, twin technologies that are easily used together.
- 1:** PI, the only global automation organization you need.



A major step forward came when the Chinese automation market opened up to PROFIBUS technology. Standardization was the key to marketplace acceptance.

The latest region to join the PI community is India. An RPA there is still in formation but the indicators described above are emerging faster than usual. Expect some interesting developments there, particularly on the device front.

How far can the success of PROFIBUS extend? Well, expert

This 'momentum', reinforced by the conservatism of automation (how many 4-20mA instruments are still being used?), will probably ensure that PROFIBUS remains popular for decades - a truly remarkable achievement.

So what factor has been the most important for PROFIBUS success? Well, it's clear that

'community' plays a big role. PI has the support of companies large and small, but the difference has been the people. And they've done an excellent job of educating the marketplace via that world-wide community infrastructure.

Recognition must also be given to the efforts of PI Technical Committees and Working Groups to optimize PROFIBUS technologies. Early examples include the PROFIBUS DP solution (for distributed IO) and the IEC61158-2 compliant PROFIBUS PA (for process). Being easily integrated for dual use the two act as an elegant solution to the twin application

domain issue. PROFIsafe and PROFIdrive are other examples, together with the international collaborations such as the EDDL and Wireless Cooperation Teams which include third party automation organizations. Here, size has mattered because of the manpower and experience the PI organization is able to muster.

But I think the real secret of success is more subtle, and without it no amount of technology or 'community effort' could have been possible (witness the efforts of competitors to catch up). And that's a leader with the ability to inspire, drive, support, persuade, involve, listen and even coerce in the right proportions. Plus the vision to see where things have to go of course.

These are ingredients that few people possess. But PI has been lucky enough to have felt the touch of some who have been able to lead from the front while allowing room for the community to respond in its own ways. Who are they? I won't name them here but most readers will understand my thinking. Perhaps then you can join me in paying tribute, even if their names do stay hidden!

KEY DATES

1987: Beginning of the open 'fieldbus' project in Germany.

1988: PROFIBUS logo created!

1989: PNO established in Karlsruhe.

1992: First RPA established, in Switzerland.

1993: PROFIBUS DP in DIN 19245.

1994: Certification for PROFIBUS DP established.

1994: PTO established in North America.

1995: PROFIBUS PA introduced.

1995: Foundation of PROFIBUS International (PI)

1996: PROFIBUS in EN 50170

1997: PROFIdrive published.

1997: 1 Million PROFIBUS devices.

1999: PROFIsafe published.

1999: First PI Competence Centers.

2000: CERN becomes 1000th member of PI.

2001: PROFINET CBA published.

2002: PROFIBUS DP-V2 in IEC 61158/ IEC 61784.

2003: 10 Million PROFIBUS devices.

2003: PROFINET IO published.

2004: PROFINET IO with IRT published.

2004: 1000th PROFIBUS certificate goes to Phoenix Contact.

2005: 15 Million PROFIBUS devices.

2006: PI becomes PROFIBUS & PROFINET International.

2006: First PI Training Centers established.

2007: PROFIsafe in IEC 61784-3-3.

2007: 1 Million PROFINET and 20 Million PROFIBUS devices.

2007: PROFIdrive in IEC 61800-7.



Product News

MASS FLOW

Bronkhorst High-Tech has a new 'multi-bus' mass flow controller. It contains all the functions needed for measurement and control, including alarm, totalizing and diagnostics. It has analog I/O signals and also an RS232 connection plus PROFIBUS interface. **BRONKHORST HIGH-TECH** or **SALES@BRONKHORST.COM**



COMMISSIONING SERVICE

Trebing + Himstedt is now offering a commissioning service for their xEPI 2 Diagnostic Unit, which can identify network malfunctions, display them via web browser and trigger email alerts. Users receive professional support for the unit's installation and start-up. The service includes a first review and analysis of the network, plus advice and an introduction to operations. **TREBING + HIMSTEDT**



BLUETOOTH FOR PROFINET

A Bluetooth Ethernet or PROFINET/PROFIsafe connection can be set up in less than one minute using two FL BT EPA Ethernet port adapters. The user only needs to select a predefined operating mode to have both wireless modules configure themselves automatically. Configuration and control can be via web browser, the application program via Ethernet, or via a function block. The adapter can find new access points or other Bluetooth modules. **PHOENIX CONTACT**



STUDENTS' TOOL

PROCENETEC has created a simplified version of ProfiTrace 1 specifically for technical schools and students. Called ProfiTrace EDU,



the device provides technical schools and universities with an affordable tool that can help create more graduates fit to be employed in industrial automation. With ProfiTrace, students can see what is happening on the bus cable and fully understand industrial data communication. The price has been globally defined to around EUR 200. **PROCENETEC** or **INFO@PROCENETEC.COM**

QUANTUM DP-V1 MASTER

The PROFIBUS DP-V1 Master Communication Module (PTQ-PDPMV1) enables Schneider Electric Quantum processors to access field data from up to 125 PROFIBUS DP slaves. Field Device Tool (FDT) and Device Type Manager (DTM) standardize the interface between systems and field devices to simplify configuration and to assist in asset management. For applications that cannot afford downtime, Hot Standby allows the PROFIBUS network to be controlled by two Quantum/Unity processors so that should the primary power source fail, the secondary module will switch into primary mode in less than 300 milliseconds. The module supports 1536 bytes of acyclic I/O data transfer. **PROSOFT TECHNOLOGY**



Member News

NEW ASIA OFFICE

Netherlands-based PROCENETEC has established a regional PROCENETEC Competence Center, responsible for developing and supporting automation industries in South Asia, South East Asia and Oceania for the range of PROCENETEC products and services.

"We are very excited about this new operation," says Dennis van Booma, General Manager for PROCENETEC in The Netherlands. "PROCENETEC has achieved a unique position in providing superb products, training and services for PROFIBUS and PROFINET technology over the past 12 years. Our new Singapore operation will allow us to better support regional needs so we can provide quicker response to customers in the Asian region."

The new organization will be under the management of Henk Schaake (right), who has been involved in PROFIBUS technology since the mid 90s. Schaake has worked several years in Singapore prior to this appointment and currently acts as Advisor to the Board for PROFIBUS. A key position within



the team is taken by Dominique Chabauty (right), who will be responsible for marketing and technical matters. He currently holds the position of President within the PROFIBUS Association South East Asia. **PROCENETEC PTE** or **SINGAPORE@PROCENETEC.COM**



CERTIFICATION OF PA ENGINEERS

E+H continues to offer high quality PROFIBUS PA training courses, with Certified Engineer status the end result. Courses include hands-on experience of wiring up and commissioning a DP/PA segment and integrating real PROFIBUS field devices into real PROFIBUS DCSS. Troubleshooting with cutting edge tools and an exam are also involved, in which students have to gain 70% correct answers on the theoretical part and prove that they can deal with real plant issues. The next Certified PROFIBUS PA Engineer course (in German) will take place at Endress+Hauser Process Solutions AG in Reinach, Switzerland, from 3rd to 6th November 2009. Next year the company will be offering Certified PROFIBUS Installer courses too. **ENDRESS+HAUSER** or +41 61 715 7378

PI News

PROFInergy

Work continues on a vendor-neutral energy savings profile called PROFInergy, aimed at providing a standardized network-enabled method of optimizing energy usage in large manufacturing plants, particularly in automotive manufacture.

AIDA, the Automation Initiative of German Automobile Manufacturers, asked PI to provide suitable network mechanisms for PROFINET. Saving energy can be achieved in many ways. The most obvious is a general mains switch off, when

production ceases and the factory lights go out. This simple way of saving energy is possible during idle times, such as weekends or factory holidays but what happens during shorter breaks? Here, the equipment continues running and consumes energy, even in the absence of value-adding activities.

Over an extended time period, switching off a device for even 30 seconds can be worthwhile in certain cases, such as for lasers. But it's possible to go further: in today's automotive industry, several car models often run on the same production lines. So, for example, it might be possible to respond to

fluctuations in sales by selectively shutting down model-specific portions of the plant. This degree of selectivity is not easily achieved.

The decision to use PROFINET facilitates new and forward-looking energy management policies for AIDA. Future energy management strategies will depend on the network for implementation. Standardized network commands will instruct devices to move into various energy-saving modes.

PROFInergy is now in final review. Presentations of its scope will be given at SPS/IPC/Drives in Nuremberg, November 24th - 26th. (see story page 1).



Applications

FRANCE / BIODIESEL: Cargill is a US family business set up in 1865, which now employs more than 160,000 people in 67 countries. Cargill France has a two thousand plus workforce across fifteen sites and buys between 10 and 15 per cent of France's grain and oil-bearing seed output – eight to ten million tons of produce a year – to supply its food plants and for export.

Cargill recently brought an ultra-modern rape seed crusher into service at its plant in the French town of Montoir-de-Bretagne (Loire-Atlantique). The unit can handle up to 600,000 tons of rape seed a year and some 75 per cent of the oil produced is carried by pipeline straight to the neighboring Diester Atlantique factory, where it is converted into biodiesel. This biofuel is then sold on to oil refiners, who blend it with petrol-diesel to create a retail fuel that is 6 per cent non-fossil, in line with national guidelines.

For every liter of diesel produced, 2.4kgs of rape seed is required and 1.5 kgs of rape cake (crushed rape seed material) is left over. The 350,000 tons of this cake produced by the factory each year are sold to local animal feed producers.

Damien Steylaers, Project Leader at Cargill said: 'We wanted to build a plant whose productivity, safety and technology were all optimal. With that aim in mind, we teamed up with Endress+Hauser for the machinery and for connection of the machines to PROFIBUS communications networks. We didn't have much problem specifying the instruments because we were



able to refer to the Best Practices defined for each type of system, thanks to Endress+Hauser's collaboration with numerous plants around the world. The really new element of this project was PROFIBUS."

Cargill had already used PROFIBUS in Russia and wanted to use it at Montoir too. In all, 300 PROFIBUS instruments for



flow, pressure, level, temperature and analysis were specified and supplied by Endress+Hauser.

"Connection to the network calls for specialist knowledge," said Steylaers, "so we wanted Endress+Hauser to take care of network design and validation, plus technical approvals of both the DP and the PA networks." Endress+Hauser also took care of all PLC hardware configurations, GSD file checks and communication testing and commissioning. They advised on the localization of sensors at

the factory and carried out pre-configurations in the workshop. They also facilitated support and training.

Steylaers continued: "We've been using the system for a few months now, and are very happy with it. The ease of installation, the centralization of the sensor data and the diagnostic options are all big pluses."

The functional condition of the equipment is monitored using a dedicated maintenance PC running FieldCare software based on Endress+Hauser's FDT technology. Steylaers again: "We can keep an eye on the whole factory from it. The data from the sensors enables us to anticipate issues with our processes and intervene quickly where necessary. We operate a preventive maintenance regime. A reliability engineer identifies aspects of the process that could be improved in order to keep our instruments and equipment in optimal condition. We always try to do maintenance on a planned basis, so that we aren't hit by unexpected stoppages."

Cargill plans maintenance activities using a Maximo maintenance management system supported by W@M – a Life Cycle Management package.

With a single click, Cargill's maintenance personnel can access all sensor settings and check on the various life cycle phases. Instrument specifications, complete references, certificates, a list of spare parts, installation instructions, a commissioning report, calibration certificates and maintenance reports can all be accessed.

W@M additionally highlights the instrument maintenance options available. If a particular sensor is no longer in production, for example, this is flagged up on a maintenance criticality matrix display. FieldCare is a familiar component of W@M.

"Operational within two weeks, no problems worth mentioning, and a top quality end product!", concludes Damien Steylaers. "The success of a project of this size depends on seamless collaboration and the constant availability of specialists. Over a period of years we have always found Endress+Hauser to be a reliable partner company. They understand how we work; we understand how they work."

INFO@FR.ENDRESS.COM



PI World

UK

The PROFIBUS Group has launched an on-line newsletter. 'PROFINETS UK' delivers a wealth of information on the UK Group's activities, including events, training and support for users of the world's most successful fieldbus, PROFIBUS and associated technologies such as PROFINET and PROFI-safe. If you'd like to be kept up to date with news of the UK's annual Conference and the many seminars, training courses, on-site training and certification opportunities on offer from the PROFIBUS Group in conjunction with its members then this newsletter is for you. [VISIT THE ARCHIVE SITE](#) or [SIGN UP SAFELY](#).

JAPAN

The Japanese PROFIBUS Organization (JPO) has translated the book 'Industrial Communication with PROFINET' by Mr. Manfred Popp into Japanese. Because Industrial Ethernet is the one of the hot topics in the automation world, people are becoming more and more interested in PROFINET. JPO translated the previous version of the book (The Rapid Way to PROFINET) in 2005. However, the technology has since been improved and more new and important functions have been added. Therefore, an update to the book



was requested by the market. JPO believes the new book will help the understanding of PROFINET in Japan and expects more companies to start developing PROFINET devices soon.

JAPAN@PROFIBUS.COM

DENMARK

In September, PROFIBUS Denmark participated in Scandinavia's largest industrial fair, HI2009 in Herning, Jutland. Seven members were involved on the booth, which was a part of a theme-stand having the headline: 'Industrial fieldbus systems'.



Ole Krogshede (Max Fodgaard), Peter Hesse (HH-automation) and Michael Nielsen (Siemens) on the booth at HI 2009 in Denmark.

Participants included Max Fodgaard, GreenMatic, Beckhoff, Siemens, Sick, HH-automation and TEC. A small conference area was integrated where booth participants delivered lectures each day. We also used the opportunity to present the new PI logo, on a column on the booth (see picture)



as well as on members' polo-shirts. Last but not least we marked the 20th birthday of PROFIBUS with coffee and a cake. DENMARK@PROFIBUS.COM

INDIA

The formation of an Indian PI Association (IPA) has gathered momentum with the visit of Dolf van Eendenburg, the Chairman of PI Netherlands & Belgium, on behalf of PI. Dolf was in Mumbai and Pune in September to hold discussions about the proposed IPA constitution and participation of IPA in upcoming fairs. The first fair, in December, is part of Hannover Messe India Show. It has been shifted from Bangalore to the Industrial hub Mumbai. The 2010 September fair Automation was also discussed. Dolf attended various



meetings with end users, consultants and manufacturers along with Dileep Miskin of UL Group. In September UL Group held a group meeting with eminent personalities representing manufacturers, end users, consultants, OEM's and Universities, during which they shared their views on establishing the IPA. Universities are emerging as a key part of the IPA since they will open opportunities for students and teachers to participate in the development of the new PROFIBUS devices. UL Group is taking the lead on the legal formalities and has confidence that these will be addressed by mid of November so the official formation of IPA can be done then. Aspiring members will have a chance to participate in the IPA booth at Hannover Messe India where there will be a multi-vendor demonstration wall to show to the users the vast range of available PROFIBUS devices and systems. This wall will be built by the PICC at UL Group. UL Group is also planning two courses of two days each on PROFIBUS troubleshooting and maintenance in the first week of November. Details on the IPA and courses from INDIA@PROFIBUS.COM or [UL GROUP](http://ULGROUP)

NORTH AMERICA

Seminars, presentations, workshops and air travel continue to characterize the life of PTO folks, and the value of their efforts continues to rise accordingly. At a recent event there was a tremendous showing from the Water and Wastewater community and it was clear engineers and managers need to upgrade to PROFIBUS in order to interface with evolving systems and build a stable architecture for future upgrades. The PROFI Interface Center's (PIC) has unveiled [A NEW WEBSITE](#), intended to further improve service and support to North American customers for PROFIBUS and PROFINET.

USA@PROFIBUS.COM

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PI Network

Australia - Mr. John Immelman
Tel: +61 3 9761 5599; Fax: +61 3 9761 5525
Email: australia@profibus.com
www.aus.profibus.com

Belgium - Mr. Herman Looghe
Tel: +32 2 706 80 00; Fax: +32 2 706 80 09
Email: belgium@profibus.com
www.be.profibus.com

Brazil - Mr. Cesar Cassiolato
Tel: +55 16 3946 3519; Fax: +55 16 3946 3595
Email: brazil@profibus.com
www.br.profibus.com

China - Mr. Tang Jiyang
Tel: +86 10 62 02 92 18; Fax: +86 10 62 01 78 73
Email: china@profibus.com
www.cn.profibus.com

Czech Republic - Mr. Zdenek Hanzalek
Tel: +420 2 2435 7610; Fax: +420 2 2435 7610
Email: czechrepublic@profibus.com
www.cz.profibus.com

Denmark - Mr. Jacob Hagen
Tel: +45 4453 1293;
Email: denmark@profibus.com
www.dk.profibus.com

Finland - Mr. Taisto Kajanen
Tel: +35 8 9 5307259; Fax: +35 8 9 5307360
Email: finland@profibus.com
www.sf.profibus.com

France - Mr. Eric Lobet
Tel: +33 1 48 58 30 24; Fax: +33 1 48 58 50 53
Email: france@profibus.com
www.fr.profibus.com

Germany - Mr. Jörg Freitag
Tel: +49 721 96 58590; Fax: +49 721 96 58589
Email: germany@profibus.com
www.de.profibus.com

Ireland - Mr. Hassan Kaghazchi
Tel: +353 61 202 107; Fax: +353 61 202 582
Email: ireland@profibus.com
www.ir.profibus.com

Italy - Mr. Antonio Augelli
Tel: +39 030 3384030; Fax: +39 030 396999
Email: italy@profibus.com
www.it.profibus.com

Japan - Mr. Shinichi Motoyoshi
Tel: +81 3 54 23 86 28; Fax: +81 3 54 23 87 34
Email: japan@profibus.com
www.jp.profibus.com

Korea - Mr. Cha Young Sik
Tel: +82 2 523 5143; Fax: +82 2 523 5149
Email: korea@profibus.com
www.rk.profibus.com

Middle East - Mr. S C Sanu
Tel: +971 4 398 2760; Fax: +971 4 398 2761
Email: middle.east@profibus.com
www.protime.com

Netherlands - Mr. Dolf van Eendenburg
Tel: +31 33 469 0507; Fax: +31 33 461 6638
Email: netherlands@profibus.com
www.nl.profibus.com

Norway - Mr. Ivar Sorlie
Tel: +47 2272 8972; Fax: +47 904 05509
Email: norway@profibus.com
www.no.profibus.com

Poland - Mr. Dariusz Germanek
Tel: +48 32 208 41 36; Fax: +48 32 208 41 39
Email: poland@profibus.com
www.profibus.com

Russia - Mrs. Olga Sinenko
Tel: +7 095 742 68 28; Fax: +7 095 742 68 29
Email: russia@profibus.com
www.rus.profibus.com

Slovakia - Mr. Richard Balogh
Tel: +421 7 6029 1411; Fax: +421 2 6542 9051
Email: slovakia@profibus.com
www.sk.profibus.com

South-East Asia - Mr. Volker Schulz
Tel: +65 6490 6464; Fax: +65 6490 6465
Email: southeastasia@profibus.com
www.sea.profibus.com

Southern Africa - Mr. Edwin Bauer
Tel: +27 11 617 2045;
Email: southernafrica@profibus.com
www.rsa.profibus.com

Sweden - Mr. Peter Bengtsson
Tel: +46 4 51 49 460; Fax: +46 4 51 89 833
Email: sweden@profibus.com
www.se.profibus.com

Switzerland - Ms. Karin Beyeler
Tel: +41 32 672 03 25; Fax: +41 32 672 03 26
Email: switzerland@profibus.com
www.ch.profibus.com

UK - Mr. Bob Squirrel
Tel: +44 20 8144 9597; Fax: +44 870 141 7378
Email: uk@profibus.com
www.uk.profibus.com

USA & CANADA - Mr. Michael Bryant
Tel: +1 480 483 2456; Fax: +1 480 483 7202
Email: usa@profibus.com
www.us.profibus.com

Addresses of PI Competence Centers and Test Labs can be found at www.profibus.com and www.profinet.com

Editor: Geoff Hodgkinson
St Johns Park, Exbourne, Devon. EX20 3RD
Tel: +44 (0) 1837 851253 or +44 (0)7831 138 318
geoff@ggh.co.uk

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