

## in this issue

Official Newsletter of PROFIBUS International

[www.profibus.com](http://www.profibus.com)

### CONTENTS

#### PI NEWS

(PAGE 1, 2, 3, 5)

- ▶ THE 10,000,000 STORY ROLLS AROUND THE WORLD
- ▶ PROFINET: AND WHY IT WILL BE ANOTHER WORLD-BEATER ALONGSIDE PROFIBUS
- ▶ WEB-BASED TRAINING NOW FREE
- ▶ THE HYBRID POWER OF PROFIBUS - ARC EXPLAINS
- ▶ THE RAPID WAY IN JAPANESE

#### AROUND THE WORLD

(PAGE 5)

- ▶ UK
- ▶ USA
- ▶ NETHERLANDS

#### PRODUCT GALLERY

(PAGE 3)

- ▶ VALVE ISLAND
- ▶ DISTANCE MEASUREMENT
- ▶ REAL TIME LINUX
- ▶ HART INTEGRATION + GATEWAY DTM
- ▶ PROFINET ENGINEERING
- ▶ PA PROBE FOR PROFITrace
- ▶ DISCRETE MAU

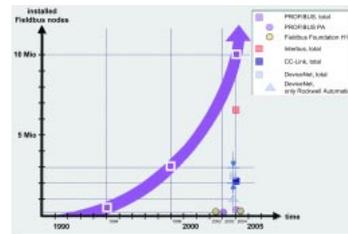
#### APPLICATIONS

(PAGE 3, 4)

- ▶ BELGIUM/ BULK CHEMICALS
- ▶ AUSTRALIA/ MINING
- ▶ BRAZIL/ PHTHALIC ANHYDRIDE

## THE 10,000,000 STORY ROLLS AROUND THE WORLD

**PI Press Tour** PROFIBUS INTERNATIONAL has continued the roll-out of the announcement that more than 10,000,000 devices are now installed worldwide - including 1, 600,000 in process automation - making PROFIBUS



the most popular fieldbus ever!

Press tours in South Africa, Japan and China are the latest on the list, with PI Chairman Edgar Küster participating in all three locations in recent weeks. See separate stories below for more details. The press tours will continue around the world too, as explained below.

### JAPAN



Edgar Küster, the Chairman of PROFIBUS International, visited Tokyo on June 9th to present the 10 million story to the Japan press

(see picture). Nine industrial newspapers and magazines joined the conference. Fieldbus in general is not widely used in Japan, therefore the Japanese press were impressed with the dominant position of PROFIBUS in automation markets. As well as the growing number of PROFIBUS installations, the news that PI has already embraced the trend towards industrial Ethernet with PROFINET was well received.

### SOUTHERN AFRICA

Coinciding with the first Regional PROFIBUS Association meeting to be held in South Africa, this press conference welcomed 10 editors. The attendees found the subject very interesting reports PI Chairman Edgar Küster, and first positive results have been published in the South African trade and technical press.

### CHINA



Press conferences were held in Shanghai and Beijing during mid June, with about 150 people at each location!

In Shanghai, attendees included Mr ZhuSendi, Vice President of China Machinery Industry

Federation, director general of CAMETA, Mr CaoZhenquan, Vice Chairman of Shanghai Association for Science & Technology, and Mr HuJialun, Vice Chief Engineer of Shanghai Association for Science and Technology. There was 45 minutes of questions after the main presentation.

In Beijing, 20 editors plus TV attended. In the audience were Mr CaiWei, Vice President of China Machinery Industry Federation, Mr LiBaihuang, Chairman of China PROFIBUS Association.



## AND IT WON'T STOP HERE

International press events will continue as follows:

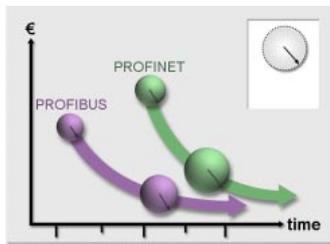
- ▶ European press tour with ARC's David Humphrey in Europe to explain the hybrid power of PROFIBUS
- ▶ PROFIBUS Trade Organization's 10th Anniversary celebrations in Scottsdale, AZ, in August, to show first PROFINET IO products,
- ▶ a press conference at ISA EXPO in Houston, October, to update the ERTEC chip situation
- ▶ a press conference at SPS/IPC/Drives in Nuremberg in November, to update PROFINET and PROFIBUS developments.

(For your convenience we have linked the above headlines to their respective pages. Just click the 'hot spot')

# PROFINET - AND THE REASON IT WILL BE ANOTHER WORLD BEATER ALONGSIDE PROFIBUS

## Part 1: Market Overview

Market momentum and innovation will drive PROFINET success, believes PROFIBUS International, (PI) the umbrella body responsible for PROFIBUS.



*PROFINET costs will initially be higher, making PROFIBUS the more attractive option in most applications. However, PROFINET costs will fall over time and functionality will rise*

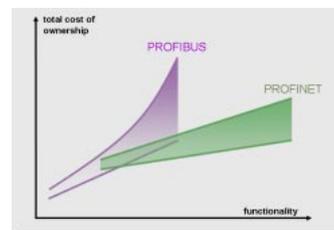
25 Regional PROFIBUS Associations, more than 1000 member companies and over 2500 PROFIBUS-compliant products (including 230+ PROFIBUS PA DEVICES) mean that the investment in PROFIBUS, equipment, services, products, skills and training, is so large that nothing can stop PROFIBUS surging forward for many years. In fact, PI believes, the market for PROFIBUS products will double by 2008,

before experiencing the onset of 'technology fade'. Even then, PROFIBUS will remain in widespread use AND be a favored automation solution for another decade.

PROFINET costs will be higher than PROFIBUS for a considerable time, so only those applications demanding the special characteristics of PROFINET will adopt this technology in the short term. The integration of PROFIBUS into a PROFINET environment via a proxy solution is the much more likely direction that users will take.

However, costs will fall and functionality will rise so the adoption of PROFINET will

*Total cost of ownership is one factor determining which communications environment will be used. High functionality applications will lean more naturally towards PROFINET*

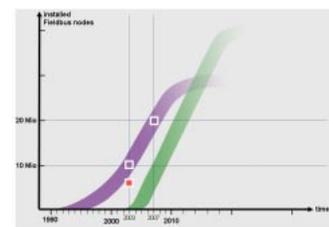


accelerate.

## Ethernet everywhere

Ethernet is creeping into our lives from many business directions.

This is inevitable, given that Ethernet is already dominant in IT and it has been widely used in automation for many years anyway. Ethernet in the industrial market offers many benefits ... but it also poses many challenges - such as Real Time behaviour, Safety and Security or Power on the Bus and Intrinsic Safety for



*PROFINET use will accelerate faster than PROFIBUS did at the same phase, and grow faster too. If, as expected, PROFIBUS doubles its installed base in the next 4 years then cross-over will occur around 2010*

Process automation. Other aspects that are taken for granted today - for example application profiles - must also be transferred, which takes time.

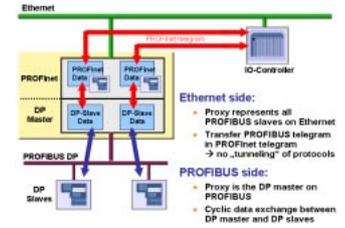
## 19 Working Groups

In developing PROFINET one of the first challenges was to learn exactly what people expected Ethernet to do!

Over 170 engineers from 50 companies in automation are working together in 19 Working Groups to create a solution that not only protects existing PROFIBUS investments but also brings key new advantages.

## Embracing, not displacing, PROFIBUS

To fully protect existing users and legacy equipment PI has developed a 'proxy' solution to enable existing and future fieldbus systems to be easily integrated into a PROFINET architecture. A 'proxy' is

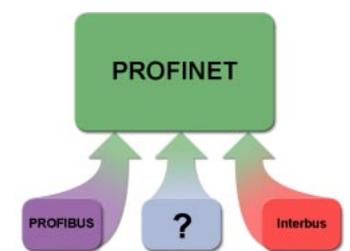


*The proxy connection method allows any fieldbus to fit into a PROFINET environment with ease*

effectively a black box containing a PROFIBUS master and a standardized PROFINET interface. Sitting between the PROFIBUS sub-network and PROFINET, it acts as a transparent link so that, to all intents and purposes, the PROFIBUS devices are operating within the PROFINET environment.

## Power in combination

Interestingly, other fieldbus networks can be connected into PROFINET using the same technique. In fact, the Interbus Club recently became the first outside organization to commit to using PROFINET as their Ethernet solution. PI has invited other fieldbus organizations to join the PROFINET movement too.



*Interbus is the first third party to commit to PROFINET. Who will be next?*

Thus, to PROFIBUS's 10 Million installed base can be added the 6.5 Million Interbus nodes, strengthening PROFINET's claim to be the most likely winner of the Ethernet stakes.

*In Part 2, September 2004: What is PROFINET? How three communication domains combine with two automation strategies to offer plenty of extra benefits.*

## WEB-BASED PROFIBUS TRAINING NOW FREE!

Free web-based training is available from [www.profibus.com](http://www.profibus.com) to give you an introduction to the communication part of PROFIBUS and make you familiar with the fundamental characteristics of PROFIBUS.

On the site you can learn:

- » how to estimate the field of application and limits of PROFIBUS
- » about bus access procedures
- » how data exchange works
- » engineering, by example
- » the configuration of PROFIBUS communication by way of a typical example

To join: go to [www.profibus.com/wbt/index2.html](http://www.profibus.com/wbt/index2.html)

## ▶ PRODUCT GALLERY

### VALVE ISLAND

Kuhnke has a new fieldbus multi-pole valve island called LPP Valve Island 770. Featuring IP65 protection it can contain 22 solenoid coils in a customized arrangement.

**Kuhnke: +49 45 23 4 02 0 or sales@kuhnke.de**



### DISTANCE MEASUREMENT

The DME 5000 line of laser distance sensors is ideal for automated storage and retrieval systems (ASRS), the horizontal and vertical positioning of cranes, for linear positioning of rail or transfer cars, and other applications where precise distance measurement is required. Short-range, mid-range and long-range versions are available. All parameters can be monitored locally during setup and operations. An Encoder Profile allows seamless integration with encoder systems. **SICK: www.sickusa.com**

### REALTIME LINUX SUPPORT

Steinhoff now offers standard and real-time RTAI Linux for Softing's range of PROFIBUS DP MASTER boards. The configurator works under LINUX, QNX6 and MS Windows and allows the import of GSD files and extremely easy access to slave data with a resolution of 2mS for standard LINUX and 1mS for RTAI LINUX. Steinhoff also offers a Python-based platform-independent configurator for importing GSD files. **Steinhoff Automation: +49 6431 529366 or www.steinhoff-automation.com or jutta.m.steinhoff@steinhoff-automation.com**



### HART INTEGRATION + GATEWAY DTM

'HART over PROFIBUS' cooperation between Emerson Process Management and Trebing & Himstedt have been extended to ABB S900, MTL8000 1/1 and Turck Excom Remote I/O products. This allows even more HART devices to benefit from Asset Management functionality by integration of 'HART over PROFIBUS' components into the AMS Device Manager software. This is done centrally from an engineering station through an Ethernet-PROFIBUS-Interface (EPI) with up to 12 PROFIBUS segments. Separately, Trebing & Himstedt have also developed a DTM for the Simatic DP/PA Link device. This can be implemented into all FDT frame applications conforming to FDT specification 1.2. The DTM facilitates configuration, parameterization and calibration as well as commissioning, diagnosis and maintenance. **Trebing & Himstedt: +49 385 39572 23 or www.t-h.de or lstillier@t-h.de**

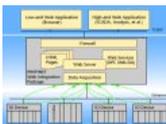
### PROFINET ENGINEERING

Softing can now offer extensive engineering services for PROFINET as well as software and hardware components.

By September a pre-release version of the WebIntegration package will be available. The system component provides access to process, device and plant information from

various visualization, diagnostic, monitoring and asset management applications. The data are acquired using the PROFINET protocol. Applications can access the information via HTML pages or OPC XML DA. Additionally, in the form of portation and integration services for PROFINET CBA (Component Based automation), both OEMs and integrators as well as machine-builders can use all the know-how and experience of Softing. Training courses about PROFINET technology address potential manufacturers of PROFINET devices and cover the basic theory as well as the specifications in more detail.

Participants get to implement, configure, commission and operate a PROFINET application. **Softing: +49 89 45656 332 or www.softing.com or frank.iwanitz@softing.com**



### PA PROBE FOR PROFITrace

PROFIBUS Center Netherlands has added a PA probe for their PROFITrace diagnostic tool. It's a small but 'high-tech' extension to the existing DP probe analyser that makes it possible to do measurements directly on the PA bus. With this probe you can use PROFITrace on both DP and PA networks. **PROFIBUS Center Netherlands: dboom@profibuscenter.nl or www.profibuscenter.nl**



### DISCRETE MAU

The functional replacement of the discontinued SIM1 and  $\mu$ SAA22Q ASICs for a Medium Attachment Unit (MAU) can now be supplied as a discrete circuitry design. Allowing for the implementation of the PROFIBUS PA physical layer according to IEC 61158-2, the design utilizes standard components to ensure complete independence from ASIC suppliers. The package provides 31.25kbps communication for bus powered Manchester coded devices and supports all send and receive functions as well as the high-impedance decoupling of auxiliary energy from the fieldbus. It is optimized for low power consumption and easy implementation of Intrinsic Safety. Circuit schematic, bill of material (BOM), design and test documents plus limited support during implementation come as part of the package. **Mesco Systems: www.mesco-systems.com or +49 7621890310 or info@mesco-systems.com**



## ▶ APPLICATIONS

### BRAZIL/ PHTHALIC ANHYDRIDE



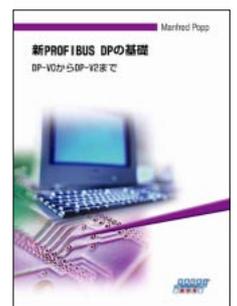
Smar has supplied more than 100 field devices for a PROFIBUS PA process automation solution in the largest Phthalic Anhydride producer of Latin America located in Brazil. PETROM, located in Mogi das Cruzes City, in Sao Paulo State, employs 190 workers

approximately and with the new investments the plant will have an annual production capacity of Phthalic Anhydride of 80,000 tons, 90,000 tons of Plasticizers and 3,600 tons of Fumaric Acid. We'll cover the full story in our next issue.

## ▶ NEWS

### RAPID WAY IN JAPANESE

The Japanese PROFIBUS Organization (JPO) has translated one of the most useful books about PROFIBUS into the Japanese language. "The New Rapid way to PROFIBUS DP", written by Manfred Popp, is now available from JPO priced 6300 Yen (48 Euro) for members and 9450 Yen (72 Euro) for non-members. Mail fee is extra. See back page for contact details.



» APPLICATIONS

**BELGIUM/ BULK CHEMICALS**



The company Oiltanking specializes in the storage and distribution of bulk chemicals, gases and oils. Its Antwerp-based terminal has a storage capacity of some 500,000m<sup>3</sup>. The terminal has



6 piers and a number of pipeline connections to adjacent chemical companies. Since 2002 a new investment has been operational for the storage and distribution of Butane, Octene and Dodecene, which are used by an adjoining production plant.

On the strength of its many years experience within Oiltanking, the company EGEMIN and its department 'Bulk Storage and Distribution' in particular, was

considered the ideal partner for the successful realisation of this project. Given the hazardous nature of the products stored and the rigorous regulations governing their storage, Pepperl+Fuchs was called in to contribute to the project, with its expertise and products in the field of intrinsically safe interfacing and valve position feedback.

In the tankpits (Ex Zone), intrinsically safe instruments are used which are locally connected to the Intrinsically Safe Remote I/O System IS-RPI from Pepperl+Fuchs. These IS-RPI cabinets can be installed in Zone 1. Via PROFIBUS DP all signals are transmitted to the EVITA (Egemin Vertically Integrated Tank terminal Automation) system.

Mr. Bart Callaerts (Business Development Manager at Egemin)

said: "... the reduced cabling and the standardisation made possible by the above-described technique has enabled significant cost savings to be made."

Next, Oiltanking will work with the same partners for the construction of 4 new Butene tanks (11.000 m<sup>3</sup>). [twesters@de.pepperl-fuchs.com](mailto:twesters@de.pepperl-fuchs.com)



**AUSTRALIA/ MINING**



Adjusting the 'target plate' of the Prosonic M level sensor

BHP Billiton's Cannington mine - the world's largest and lowest-cost producer of silver and lead - has recently implemented a PROFIBUS fieldbus strategy in its new split flotation and zinc cleaner projects.

Ore is mined 680 m underground. Rocks roughly 180 mm in diameter are milled to 120 micron in a fully autogenous mill, and then to 80 micron

in a tower mill. The fines (< 6 micron) are conveyed in a slurry to the split flotation plant where methylisobutylcarbon (MIBC) is added as a frothing agent. During passage through the flotation cells, Aerophine (3418A) is dosed to 'collect' the silver, and sodium ethyl xanthate (SEX) is dosed to 'collect' the lead.

More than 75 Endress+Hauser PROFIBUS PA instruments are used. Prosonic FMU 40 ultrasonic level sensors, together with target plates, are used to measure the froth level in the flotation cells. Promass A (DN2) Coriolis flowmeters are installed for dosing the Aerophine since that is based on mass ratioing, while Promag A magmeters are used for dosing the SEX. There are over 20 large-diameter Promags monitoring the slurry flows on the zinc regrind circuit. Cerabar M pressure transmitters, together with a range of Omnigrad temperature and Deltabar dp Tx, measure the mass airflow into the aerator.

All devices are linked into the Allen-Bradley PLC 5 and Contrologix PLCs with PROFIBUS PA, coupled through Siemens Link modules and SST DP/PA interface cards.

Although the capital cost was slightly higher, this was offset by

significant labor savings. The flexibility of being able to add further devices easily is an ongoing benefit. The fault-finding capability of PROFIBUS

has allowed instruments such as the Prosonic M ultrasonic level device to be used in difficult applications.

Cannington has recently installed the newly released Fieldgate FXA 720, the PROFIBUS DP-Ethernet gateway. This enables electrical tradespersons to access the data 'published' by the instruments, and to trouble-shoot from anywhere on the network. **Endress+Hauser: 1300 363 707 or [info@au.endress.com.au](mailto:info@au.endress.com.au) [www.endress.com.au](http://www.endress.com.au)**



Above: the old wiring; below: the new!

## ▶ AROUND THE WORLD

### UK

The PROFIBUS UK international conference took place in June, at Ragley Hall in Warwickshire, (near Stratford). Over 100 delegates from more than 20 companies attended the 3 day event, with Day 1 being devoted to the annual PROFIBUS Competence Center meeting. Day 2 saw the Conference proper take place, with George Turnbull



(pictured) giving a keynote speech about Open Control. Multiple



stream sessions then covered just about every aspect of PROFIBUS, from development of products to maintenance in the field. PROFINET implementation was also covered in depth. Day 3 followed a similar theme to Day 2. During the evenings, delegates had the chance to be introduced to Shakespeare via King Lear and many also attended a medieval Feast in Warwick Castle. The event was a big

success and has since attracted many plaudits. The full Conference Proceedings will be published for download from the website at [www.profibus.co.uk](http://www.profibus.co.uk). Visitors there will also find delegate and exhibitor reports, plus details of next year's event on June 21 and 22nd 2005.

*Ron Mitchell, from the PROFIBUS Interface Center in Johnson City was among the many overseas contributors*



### USA

The PROFIBUS Trade Organization is 10 years old! Mike Bryant and the rest of the staff in Scottsdale are now busy arranging the biggest and best General Assembly meeting of their careers. "Two days of presentations, strategy sessions and South West hospitality is promised ... all designed to strengthen your PROFIBUS connection" is how the promotional leaflet describes it!

There are actually 3 days of events! Day 1 is focused on PROFINET, with an Ethernet technical seminar in the morning and a PROFINET technical seminar in the afternoon. Days 2 and 3 contain the PROFIBUS content and cover everything from the promotional campaigns under way through to web site plans and case studies. Members of the USA technical press will be present so there will be plenty of opportunity to spin company or product news to them during the 3 days. A Pool Party at Casa de Bryant completes proceedings on Thursday evening.

### NETHERLANDS

Dutch technology talent is on its way to USA! Two days before the 10 celebrations of PROFIBUS Trade Organization in Scottsdale, August, (see left) PROFIBUS Netherlands is running a PROFIBUS Device Development class at the PTO offices. The

seminar is intended for companies who want to develop PROFIBUS DP and PA products. ASICs, software, schematics, GSD files and certification are explained. Dates are August 2 and 3. More information from [dbooma@profibuscenter.nl](mailto:dbooma@profibuscenter.nl) or [www.profibuscenter.nl/ppd](http://www.profibuscenter.nl/ppd)

## THE HYBRID POWER OF PROFIBUS - ARC EXPLAINS



A white paper authored by David Humphrey of US market analysts ARC

Advisory Group praises PROFIBUS' superior value proposition over all other fieldbuses due to its tightly integrated solutions for factory and process automation.

Using a common protocol, PROFIBUS DP and PROFIBUS PA (profile for process automation with Intrinsically Safe capability according to IEC61158-2) work together to provide a world-class automation solution, as evidenced globally in many process plants.

Approximately 330,000 PROFIBUS PA devices are installed, slightly more than our competitor. However, most, if not all, process plants need a fieldbus outside the process area - for applications such as conveyors, bulk handling, bottling, etc - so both solutions have to use a high speed bus. PROFIBUS DP makes a perfect partner, whichever intrinsically safe solution is chosen, and PI estimates that 1.3 Million PROFIBUS devices are used in process plants as a result.

The ARC paper gives supporting argumentation, including case studies on three plants. Download it here

## ▶ REGIONAL ASSOCIATIONS

**Australia** - Mr. Andrew Janiak  
Tel: +61 3 9761 5599; Fax: +61 3 9761 5525  
Email: [australia@profibus.com](mailto:australia@profibus.com)  
[www.aus.profibus.com](http://www.aus.profibus.com)

**Belgium** - Mr. Herman Looghe  
Tel: +32 2 706 80 00; Fax: +32 2 706 80 09  
Email: [belgium@profibus.com](mailto:belgium@profibus.com)  
[www.be.profibus.com](http://www.be.profibus.com)

**Brazil** - Mr. Paulo Camargo  
Tel: +55 11 3833 4958; Fax: +55 11 3833 4183  
Email: [brazil@profibus.com](mailto:brazil@profibus.com)  
[www.br.profibus.com](http://www.br.profibus.com)

**China** - Mrs. Wang Jun  
Tel: +86 10 62 02 92 18; Fax: +86 10 62 01 78 73  
Email: [china@profibus.com](mailto:china@profibus.com)  
[www.cn.profibus.com](http://www.cn.profibus.com)

**Czech Republic** - Mr. Zdenek Hanzalek  
Tel: +420 2 2435 7610; Fax: +420 2 2435 7610  
Email: [czechrepublic@profibus.com](mailto:czechrepublic@profibus.com)  
[www.cz.profibus.com](http://www.cz.profibus.com)

**Denmark** - Mr. Kim Husmer  
Tel: +45 40 78 96 36; Fax: +45 44 65 96 36  
Email: [denmark@profibus.com](mailto:denmark@profibus.com)  
[www.dk.profibus.com](http://www.dk.profibus.com)

**Finland** - Mr. Taisto Kajanen  
Tel: +35 8 9 5307259; Fax: +35 8 9 5307360  
Email: [finland@profibus.com](mailto:finland@profibus.com)  
[www.sf.profibus.com](http://www.sf.profibus.com)

**France** - Mrs. Christiane Bigot  
Tel: +33 1 45 74 63 22; Fax: +33 1 45 74 03 33  
Email: [france@profibus.com](mailto:france@profibus.com)  
[www.fr.profibus.com](http://www.fr.profibus.com)

**Germany** - Mr. Peter Wenzel/Mr. Volker Oestreich  
Tel: +49 721 96 58590; Fax: +49 721 96 58589  
Email: [germany@profibus.com](mailto:germany@profibus.com)  
[www.de.profibus.com](http://www.de.profibus.com)

**Ireland** - Mr. Tony Donnelly  
Tel: +353 45 868615; Fax: +353 45 868182  
Email: [ireland@profibus.com](mailto:ireland@profibus.com)  
[www.ir.profibus.com](http://www.ir.profibus.com)

**Italy** - Mr. Maurizio Ghizzoni  
Tel: +39 030 3384030; Fax: +39 030 396999  
Email: [pni@profibus.com](mailto:pni@profibus.com)  
[www.it.profibus.com](http://www.it.profibus.com)

**Japan** - Mr. Shinichi Motoyosi  
Tel: +81 3 3570 3034; Fax: +81 3 3570 3064  
Email: [japan@profibus.com](mailto:japan@profibus.com)  
[www.jp.profibus.com](http://www.jp.profibus.com)

**Korea** - Mr. Ahn Young-in  
Tel: +82 2 523 5143; Fax: +82 2 523 5149  
Email: [korea@profibus.com](mailto:korea@profibus.com)  
[www.rk.profibus.com](http://www.rk.profibus.com)

**Netherlands** - Mr. Dolf van Eendenburg  
Tel: +31 33 469 0507; Fax: +31 33 461 6638  
Email: [netherlands@profibus.com](mailto:netherlands@profibus.com)  
[www.nl.profibus.com](http://www.nl.profibus.com)

**Norway** - Mr. Kai Atle Myrvang  
Tel: +47 909 88640; Fax: +47 904 05509  
Email: [norway@profibus.com](mailto:norway@profibus.com)  
[www.no.profibus.com](http://www.no.profibus.com)

**Poland** - Mr. Dariusz Germanek  
Tel: +48 32 371365; Fax: +48 32 372680  
Email: [poland@profibus.com](mailto:poland@profibus.com)  
[www.pl.profibus.com](http://www.pl.profibus.com)

**Russia** - Mrs. Olga Sinenko  
Tel: +7 095 742 68 28; Fax: +7 095 742 68 29  
Email: [russia@profibus.com](mailto:russia@profibus.com)  
[www.ru.profibus.com](http://www.ru.profibus.com)

**Slovakia** - Mr. Richard Balogh  
Tel: +421 7 6029 1411; Fax: +421 2 6542 9051  
Email: [slovakia@profibus.com](mailto:slovakia@profibus.com)  
[www.sk.profibus.com](http://www.sk.profibus.com)

**South-East Asia** - Mr. Vidyut Gandhi  
Tel: +65 6665 2741; Fax: +65 6566 6438  
Email: [southeastasia@profibus.com](mailto:southeastasia@profibus.com)  
[www.sea.profibus.com](http://www.sea.profibus.com)

**Southern Africa** - Mr. Tony Jacobsen  
Tel: +27 11 262 8000; Fax: +27 11 262 8062  
Email: [southernafrica@profibus.com](mailto:southernafrica@profibus.com)  
[www.rsa.profibus.com](http://www.rsa.profibus.com)

**Sweden** - Mr. Peter Bengtsson  
Tel: +46 4 51 49 460; Fax: +46 4 51 89 833  
Email: [sweden@profibus.com](mailto:sweden@profibus.com)  
[www.se.profibus.com](http://www.se.profibus.com)

**Switzerland** - Ms. Karin Beyerle  
Tel: +41 32 672 03 25; Fax: +41 32 672 03 26  
Email: [switzerland@profibus.com](mailto:switzerland@profibus.com)  
[www.ch.profibus.com](http://www.ch.profibus.com)

**Thailand** - Mr. Peter Price  
Tel: +66 2 715 4570; Fax: +66 2 715 4841  
Email: [thailand@profibus.com](mailto:thailand@profibus.com)  
[www.th.profibus.com](http://www.th.profibus.com)

**UK** - Mr. Bob Squirrel  
Tel/Fax: +44 845 456 3203  
Email: [uk@profibus.com](mailto:uk@profibus.com)  
[www.uk.profibus.com](http://www.uk.profibus.com)

**USA & CANADA** - Mr. Michael Bryant  
Tel: +1 480 483 2456; Fax: +1 480 483 7202  
Email: [usa@profibus.com](mailto:usa@profibus.com)  
[www.usa.profibus.com](http://www.usa.profibus.com)

**Editor:** Geoff Hodgkinson  
1 West St, Titchfield, Hants, UK PO14 4DH.  
Tel: +44 (0) 1329 846166; Fax: +44 (0) 1329 512063  
Email: [geoff@ggh.co.uk](mailto:geoff@ggh.co.uk)

**Published by:** PROFIBUS International  
Haid-und-Neu-Str. 7  
D-76131 Karlsruhe, Germany