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Official Newsletter of PROFIBUS International www.profibus.com

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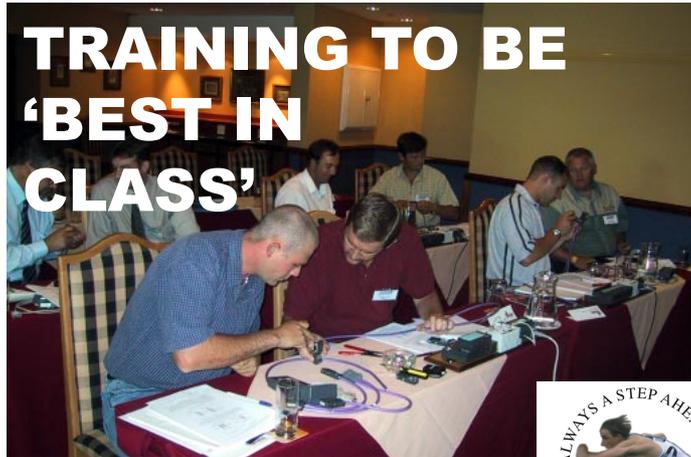
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TRAINING TO BE 'BEST IN CLASS'



If training, education and personal development are keys to the future, PROFIBUS will surely remain at the very top of the industrial automation world for many years. In this issue we look at how an 'outbreak' of international educational and support opportunities can ensure that everyone involved with PROFIBUS can easily be 'best in class'.



A Web-based Training Course (see Page 2) has just been announced by the PROFIBUS Nutzerorganization (PNO), making PROFIBUS education available globally at your desk! In January, Manchester Met-

ropolitan University (MMU) toured South Africa with their Installer's Courses (picture above, see also Page 4), while the PROFIBUS Center in the Netherlands tells us they are now collaborating with the PROFIBUS Interface Center in Johnson City USA, to deliver integration training in all aspects of the PROFIBUS protocol. Meanwhile, of course, Regional PROFIBUS Associations around the world continue to organize seminars, workshops and shows.

STOP PRESS: MMU's Installer's Course has been accredited by PROFIBUS International and will shortly be available in French and German for delivery worldwide.

EVEN MORE ABOUT PROFIBUS TRAINING AT ...

www.profibus.com

where you'll also find news, events, views, technical information, diary dates and much more.

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

TRADE FAIR PROGRAMME DEMONSTRATES PROFIBUS CAN COVER ALL OF INDUSTRIAL AUTOMATION

PROFIBUS Nutzerorganisation invites you to visit PROFIBUS at:

Hanover Fair

April 7 to 12, 2003, Hanover

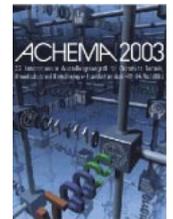
HANNOVER MESSE is the world's largest trade fair, showcasing a unique blend of inter-related, leading-edge technologies. PROFIBUS will be at Hall 11, Booth A41 and will take part in the Industrial Communication Forum (ICF), also in Hall 11



ACHEMA

May 19 to 24, 2003, Frankfurt

The World Forum for the Process Industries covers Chemical Engineering, Environmental Protection and Biotechnology. PROFIBUS will be at Hall 10.2, Booth F3-J6.



Why not participate?

Take the chance to show your products and services on the PROFIBUS booths at Hanover Fair and Achema. Contact germany@profibus.com for a quote, with detailed descriptions and first pictures of the booths.

PI NEWS

WEB BASED TRAINING

Imagine a classroom where the learning never ends, and students are never late. Cost-effective online learning allows information to be packaged in a more accessible, customized, learner-centric format. This leads to reduced training costs, easier access to educational materials, increased opportunities for collaboration, and greater accountability. PNO has developed a new **Web-Based Training (WBT)** programme for PROFIBUS that helps you to benefit from the numerous advantages offered

by e-learning. The PROFIBUS WBT

is designed to optimize your learning performance, so that you can familiarize yourself with the basics of

PROFIBUS technology in the most comfortable way.

The PROFIBUS WBT is designed for integrators as well

as maintenance and operation staff, and it teaches all aspects of the PROFIBUS protocol, up to PROFIBUS DP-V2.

The PROFIBUS WBT is available from March in German and English on www.profibus.com as a licence for single persons. The members' price is Euro 99 for a one-year licence. Company licences may be obtained from germany@profibus.com

IN OUR NEXT ISSUE: 'PROFIBUS IN ACTION'

A wide range of applications stories and case studies have been sent to us in recent weeks. These will be featured in our 'case study special', to be published April 2003.

There's still room for more! If you have a case study that you think the world would like to read, then send it to us today. See Page 6 for details.

NEW 'RAPID WAY TO PROFIBUS'



A revised version of Manfred Popp's book about PROFIBUS has been published. 'The new rapid way to PROFIBUS DP-V0/V1/V2' is aimed at device developers, plant builders, installers and system integrators. It gives a highly-practical introduction to PROFIBUS.

Topics like acyclic data

transfer to DP-V1, isochronous mode, data exchange broadcast, time stamp, up- and download, redundancy, plus IEC 61158 and IEC 61784, are all explained. The book, which includes a description of PROFIdrive and PROFIsafe, has 264 pages and is available in German and English - Members' price: Euro 24; non-members price: Euro 48. Order from **your local PROFIBUS Organisation** or info@profibus.com

PA ON THE UPSWING ... PLANT-WIDE



The number of process-oriented systems completely equipped with PROFIBUS PA is increasing rapidly. This was just one of the conclusions drawn from the PROFIBUS PA Road Shows during November 2002, in Hanover, Cologne, Frankfurt and Salzburg.

According to users, the decision to install PROFIBUS is justified by lower planning costs, less documentation, more compact installations and reduced cabling, also lower total life-cycle costs and user-friendliness. Less planning reduces time spent, AND documentation - reportedly by a factor of eight to ten, because measuring circuit drawings are no longer necessary.

Other benefits include ease of maintenance and better maintenance information, allowing for continuous asset management. Better long-term stability, remote access to field devices, direct connection of hazardous (Ex-) devices and simple approval using the FISCO model.

Another important argument is the availability of PA devices for practically all applications. According to users, over 95% of all instrumentation requirements can be met today using PA devices.

FIRST PROFINET PRODUCTS CERTIFIED

Certification of PROFINet products has been started following the adoption of the test specification by PROFIBUS International, ComDeC in Fürth has been accredited as the first PROFINet test lab. Certification of other test labs is in progress.



» GENERAL NEWS



Two new PROFIBUS Competence Centers (PCC) have been established, to support manufacturers and end-users in Germany and Austria.

PCCs are centres of technical expertise. Their know-how is assured by a "Quality of Services" Agreement and qualified Expert Reports.

Softing: Softing was actively involved in the creation of the first PROFIBUS specification. As early as 1988, Softing took

over the first protocol implementation on behalf of the PROFIBUS founding consortium. Since then, Softing has continually contributed to the further development of PROFIBUS, expanded its experience and its portfolio of compliant products (e.g. interface cards, gateways, tools, servers, drivers, training, technologies and services, and support). Now, Softing has decided to apply to become a PROFIBUS Competence Center. Taking part in many PROFIBUS working groups and supporting the further development of PROFIBUS for many years, Softing is an excellent partner for this task and it was an easy decision for the PNO to support the application. **PCC SOFTING AG:** pcc@softing.com

www.profibus.com

is a unique resource for all kinds of automation information. Visit often.

Infraserv: Infraserv Hoechst, in Frankfurt/Main, is one of the leading service providers for the chemical and pharmaceutical industries, offering products and services for energy, logistics, facility management, environment protection, security, technical services, sales support, training and consulting.

Dr. Stefan Stieler, Head of MSR and Analyser Technology, Infraserv Hoechst's MSR Group, has 3 years experience of fieldbus technology. "Our test laboratory has done tests on PROFIBUS and on Remote I/O systems, with the focus on the end-users' demands," he said. "Our results have been presented in several publications, and at the NAMUR Annual General Meeting in 2000 we recommended the use of PROFIBUS. It is a logical consequence for us to support the introduction and use of PROFIBUS at the Hoechst Industriepark in Frankfurt and to become a PROFIBUS Competence Center." **Infraserv Hoechst PCC:** sven.seintsch@infraserv.com

» INTEGRATORS CORNER

DEVELOPMENT

PROFIBUS Center Netherlands and the PROFIBUS Interface Center USA are jointly organising training courses for PROFIBUS DP, DP-V1 and PA product development.



During the 2 day long, English language, course PROFIBUS ASICs, HW & schematic design, software drivers, design considerations and the certification process are thoroughly clarified, and by the end trainees will be capable of developing worthy PROFIBUS products independently. Dates are 3 and 4 March 2003 (The Hague, Netherlands) and 25 and 26 March 2003 (Norgross-Atlanta, USA). The trainers are normally involved in PROFIBUS product development and certification. www.profibuscenter.nl/ppd or info@profibuscenter.nl

ENGINEERING

Although PROFInet may not be in widespread use yet it's never too early to start, believes Hilscher North America, and they can offer substantial assistance covering: PROFInet Stacks for Windows CE, I/O test boards, a PROFInet Proxy, PC/104 interface modules, a single-chip solution for linking to a PROFInet network, Engineering Tools and an OPC Server for accessing data from PROFInet components. Hilscher's own PROFInet development of devices and applications means comprehensive support can be provided. **Hilscher:** +1 630 836 8677 or pmarshall@hilscher.com

DESIGN

Process Computer Technology (PCT) is now offering design and consulting services for adding PROFIBUS master or slave capabilities to OEM products. Clients can have the proven team at PCT design PROFIBUS interfaces. All software is coded in industry-standard C/C++ and is completely documented.



PCT hardware uses off the shelf components configured for ease of assembly, test, troubleshooting and maintenance. PCT can work with clients on every phase of development and can also manufacture circuit boards. **Process Computer Technology:** +1 713 861 4808, bwerner@pct-inc.com

» GENERAL NEWS

Two separate reports reached us about this international venture. We combined them to tell the story. Is it the first of many such collaborations?

The Southern African PROFIBUS User Group launched an initiative to offer local vendors and end users an accredited Certified PROFIBUS Installers Training Course, collaborating with Mr. Andy Verwer, PROFIBUS specialist and lecturer at the Manchester Metropolitan University (MMU) in England.

Nearly forty Certified Installers were trained in a series of courses delivered during January 2003. The trip was organised as a collaborative venture between The PROFIBUS Group in the UK and the Southern Africa PROFIBUS User Group. Training commenced at the Zevenwacht Wine Estate in Cape Town, followed by another session in Durban. Training in Johannesburg took place at the SAB World of Beer Conference Centre (see picture right!). A total of 38 students attended.

"The course offered exactly what is needed in our country, providing good interaction and an excellent platform for the installer", said



Mr. Alan Wynn, Managing Director of Vega Instruments. "Mr. Verwer was a most competent lecturer, who offered ample theoretical as well as practical information."

The one-day Installer Course teaches the layout, installation and testing of complete PROFIBUS networks. It uses a hands-on approach and highlights how to avoid the most common, and costly, installations pit-



falls. High standards of competency are ensured by written and practical tests. The course is accredited by PROFIBUS International and candidates who pass gain a valuable and widely-recognised qualification.

The courses are extremely hard work for the students and tutor. However in good South African style, less demanding events were organised at the end of each day, including wine and cheese



tasting, curry and beer tasting and of course a traditional South African braai.

Companies now boasting Engineers with official PROFIBUS Installers Certification are: African Products; Amplats; Bürkert Contromatic; CHI Control; De Beers Debtech; Endress + Hauser; Festo; Grinaker LTA; Lapp Cable; Metso Automation; Moeller Electric; Mondi; Sasol Synfuels; Siemens; SIMS International;



Vega Instruments; WIKA Instruments and Yokogawa SA.

"As a result of the overall success of the event, the PROFIBUS User Group in Southern African will be hosting another two weeks of training in early October of this year, when we will be training another 60 engineers," said Mr. Tony Jacobsen, Chairman of the Group.

Many of the newly qualified African Installers plan to visit Manchester during the summer to undertake the Certified PROFIBUS Engineer course, which is a one week in-depth course covering what goes 'under the bonnet' of a PROFIBUS network. **MMU: +44 161 247 6273 or a.verwer@mmu.ac.uk**

INSTALLERS' TRAINING ACCREDITED FOR WORLDWIDE DELIVERY

The Certified PROFIBUS Installers Course developed at Manchester Metropolitan University has been accredited by PROFIBUS international for delivery worldwide. The one-day course is currently being translated into German and French, Since the first course in October 2001, more than 70 UK engineers have graduated. Kognosys: +44 1489 589574 or www.kognosys.co.uk/catalog.htm

» PRODUCT GALLERY

OPERATOR INTERFACE

MI4 display and operator panels let you match devices to PROFIBUS systems easily. Now, a new 8MB-memory card is available, which allows the user to download projects directly from a PC in only three seconds. All application functions are carried out via active fields or touch zones. There are three classes of operator devices available, plus the option of the Moeller hand held unit, giving you the option of portability. **Moeller:** www.moeller.co.uk.



INTERFACE HAS HART MAILBOX

The MTL8000 Process I/O system for Zone 2 or Division 2 hazardous areas has received a timely boost with the availability of the 8502-BI-DP PROFIBUS Turbo BIM (Bus Interface Module) which supports a HART mailbox and can poll channels for HART data. Since the HART update time is a few seconds, it does not require to be updated with every PROFIBUS cycle. Thus, all HART data can be monitored via the LAN using one I/O channel. **MTL: Tel: 01582 723633; Fax: 01582 422283; E-mail: rhighton@mtl-inst.com; www.process-io.com**



DUAL AS-i GATEWAYS

These new PROFIBUS/AS-i Gateways have graphical displays for two AS-i networks. Switching between two PROFIBUS/AS-i Links is very easy: only the GSD file has to be changed while the I/O display stays the same. On-Board Diagnostics are included. AS-i slaves can be addressed and AS-i Safety Diagnostics data for a Safety Monitor can be read and displayed. In critical situations the AS-i communication can be checked using the gateway's Scope functionality. **Bihl + Wiedemann: www.bihl-wiedemann.com/englisch/catalog/1249511071.html**

WEIGHT CONTROLLER

A PROFIBUS interface has been added to the 3000 Series Multi-Scale Weight Controller, Filler/Dispenser and Master Display. PROFIBUS allows the fast transfer of time-critical application information at speeds up to 12 Mbs. A single PROFIBUS network card representing a single node will interface with all four channels of the HI 3030 multi-scale weight controller. Up to 15 additional multi-scale controllers, totalling up to 64 different scales can be linked to a single node using other fieldbuses. **Hardy Instruments: hardyinfo@hardyinst.com or +1 800 821 5831 or www.hardyinstruments.com**



INCH-WIDE I/O

New, BusWorks 900PB Series, 12 channel I/O modules interface analog and discrete I/O signals directly to a PROFIBUS DP network. Priced at under \$30 per channel each module is only an inch wide. They are ideal for on/off monitoring and control. Inputs and outputs can be mixed on one unit. Input modules transmit discrete level data to other network devices or controllers. Output modules can activate alarms or provide on/off switching. **Acromag: +1 248 624-1541 or www.acromag.com.**



ETHERNET ENABLED DATA ACQUISITION

Pro AMCube is an Asset Management Box, or platform-independent information server with internet access implemented on an industrial PC.

The core module extracts actual measurement values, set-points, and parameters, as well as structural information from an underlying fieldbus to enable remote control and maintenance. Up to four PROFIBUS PA segments are supported. The run-time environment and infrastructure system enable access for any TCP/IP-based client. Interfaces to web services are also available. **ifak system: +49 3 91 54 45 63 0 or www.ifak-system.com**



OPC SERVER, AND AN EXPLORER

The new S7 OPC Server provides fast and easy access to data in S7-300 and S7-400 controllers via PROFIBUS. Using STEP7 semantics, any OPC Client can access I/O data, flags, timers, counters etc. in several controllers at the same time. It communicates via the S7 protocol via all Softing PROFIBUS cards. Separately, Softing's new PROFIBUS Configurator can scan a PROFIBUS network and register connected devices with their corresponding device identifications. The configurator contains GSD files for numerous device types and files are automatically assigned during scanning. The Configurator also allows the creation of the namespace for the latest Softing PROFIBUS OPC Server, which enables any OPC Client to access DP, DP-V1 or PA devices. **Softing: +49 89 45 65 6 379 or www.softing.com.**



POSITIONER

The Foxboro Eckardt Intelligent Positioner SRD991 with PROFIBUS PA is now also available with a full-text graphical LCD. This new feature allows a menu-driven easy operation and start-up in several menu languages. The diagnostic messages as well as values like valve position, digital setpoint or even the base current can be displayed on the LCD. **Foxboro Eckardt: +49 211 5966 372 or www.foxboro-eckardt.com or karsten.fischer@invensys.com**



'NEW GENERATION' CARDS

This new generation of PCI and CompactPCI PROFIBUS interface cards embed an AMD SC520 processor (equivalent to a Pentium 100 MHz) and a new PCI chipset for boosting (up to 5 times) data exchange with applications. In addition to the Windows XP/2000/NT environments, Woodhead Connectivity provides solutions for operating systems such as Windows CE and NT Embedded, VxWorks, Linux, QNX and VenturCom RTX. Implementation is made easier thanks to the Remote Configuration functionality enabling configuration and initialization from a remote Windows station over an Ethernet TCP/IP connection. **Woodhead Connectivity: +1 519 725 5136 or cbrown@mySST.com or www.woodheadconnectivity.com**



STOP PRESS: IEC ballots are taking place on PROFIBUS and PROFINET as part of IEC 61158-series Ed.3 / IEC 61784-1 communication systems, and the PROFIBUS PA Profile and EDDL as part of IEC 61804-2. PROFIBUS members are asked to support these votes through their National Committees. The results of the voting will be published in our next issue.

» **AROUND THE WORLD**

» **REGIONAL ASSOCIATIONS**

News from the Regional PROFIBUS Associations. If you have a report please send it to the editor at the address given bottom right of this page.

NORWAY

On March 4-7 there will be an exhibition in Oslo, focused on Process Automation. The Norwegian PROFIBUS community will be there with one of the largest booths (64m²) showing PROFIBUS PA, PROFInet and PROFIsafe. There will also be seminars in which PROFIBUS will play a significant role. On Tuesday March 4 will be a series of presentations, the main tread being the PROFIBUS PA roadshow presented in Europe last autumn. The presentations will cover Tool Kits, Installation Technology, Maintenance, Servicing, Diagnosis, Integration, Open Engineering, cost savings and benefits. Siemens, Endress + Hauser, Pepperl+Fuchs and ABB will be among the speakers. Wednesday March 5 is dedicated to Industrial-IT and there will be a PROFInet presentation by Hilscher. For more info, visit www.pa-messen.no where there is a short description in English. The PROFIBUS Norway annual meeting (general assembly) will be held on the evening of March 3rd.

JAPAN

The new test laboratory for certification tests of PROFIBUS devices in Japan, located in Tokyo and called 'Japanese PROFIBUS Organization Tokyo Test Laboratory (JPO-TTL)', began operations in January 2003. Together with the test lab in China, two test labs



are now ready in the Asian market to test PROFIBUS devices for certification. This underlines the growing importance of the Asian market. Mr. Masahiko Imoto, Deputy Chairman of JPO, is the head of the Japanese test lab. "We are going to have four products tested in the first three months", says Mr. Imoto. "The establishment of the test lab will accelerate the promotion of PROFIBUS in Japan and Asia. PROFIBUS is the only fieldbus organization to have two test labs in Asia." Worldwide, seven test labs offer certification tests for PROFIBUS DP, PA and PROFInet. A full list of test labs can be found on www.profibus.com. Certified products are highlighted in the online PROFIBUS Product Guide on www.profibus.com

USA

The PROFIBUS Trade Organization, in cooperation with the PROFIBUS Interface Center, is conducting a series of one-day technical seminars, complete

Are YOU on the PROFibus???
FREE! PROFIBUS Technical Seminars and Multi-vendor Product Fair, 2003
 The PROFIBUS Trade Organization, in cooperation with the PROFIBUS Interface Center, is conducting a series of one-day technical seminars, complete with product displays from several industrial manufacturing product vendors. The seminars will include presentations on the following topics:

- Basics of PROFIBUS**
 - Operation
 - Master/Slave
 - Interference
 - Configuration
 - Parameterization
 - Diagnosis
- Bus Protection & Wiring**
 - Installation & Grounding
 - Segmentation/Star of Segments
- Modbus/ASCII & Systems**
 - Modbus/ASCII
 - Use of BT200
 - Use of Diagnostic Register
 - Use of Bus Monitor
- PROFIBUS PA (Process)**
 - Automation
 - Cable Construction
 - Installation & Grounding
 - Configuration
 - Run-Time Parameterization
- PROFIBUS**
 - NETX TS-02 Standard
 - What is PROFIBUS?
 - How does it work?
- PROFIBUS**
 - What is PROFIBUS?
 - How does it work?
- PROFIBUS**
 - What is PROFIBUS?
 - How does it work?

Agenda

8:30 am - 9:00 am	Registration	11:00 am - 11:30 am	Product Displays
9:00 am - 9:30 am	PROFIBUS PA	11:30 am - 12:00 pm	PROFIBUS PA
9:30 am - 10:00 am	PROFIBUS	12:00 pm - 12:30 pm	PROFIBUS
10:00 am - 10:30 am	PROFIBUS	12:30 pm - 1:00 pm	PROFIBUS
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9:00 pm - 9:30 pm	PROFIBUS	11:30 pm - 12:00 am	PROFIBUS
9:30 pm - 10:00 pm	PROFIBUS	12:00 am - 12:30 am	PROFIBUS
10:00 pm - 10:30 pm	PROFIBUS	12:30 am - 1:00 am	PROFIBUS
10:30 pm - 11:00 pm	PROFIBUS	1:00 am - 1:30 am	PROFIBUS
11:00 pm - 11:30 pm	PROFIBUS	1:30 am - 2:00 am	PROFIBUS
11:30 pm - 12:00 am	PROFIBUS	2:00 am - 2:30 am	PROFIBUS
12:00 am - 12:30 am	PROFIBUS	2:30 am - 3:00 am	PROFIBUS
12:30 am - 1:00 am	PROFIBUS	3:00 am - 3:30 am	PROFIBUS
1:00 am - 1:30 am	PROFIBUS	3:30 am - 4:00 am	PROFIBUS
1:30 am - 2:00 am	PROFIBUS	4:00 am - 4:30 am	PROFIBUS
2:00 am - 2:30 am	PROFIBUS	4:30 am - 5:00 am	PROFIBUS
2:30 am - 3:00 am	PROFIBUS	5:00 am - 5:30 am	PROFIBUS
3:00 am - 3:30 am	PROFIBUS	5:30 am - 6:00 am	PROFIBUS
3:30 am - 4:00 am	PROFIBUS	6:00 am - 6:30 am	PROFIBUS
4:00 am - 4:30 am	PROFIBUS	6:30 am - 7:00 am	PROFIBUS
4:30 am - 5:00 am	PROFIBUS	7:00 am - 7:30 am	PROFIBUS
5:00 am - 5:30 am	PROFIBUS	7:30 am - 8:00 am	PROFIBUS
5:30 am - 6:00 am	PROFIBUS	8:00 am - 8:30 am	PROFIBUS
6:00 am - 6:30 am	PROFIBUS	8:30 am - 9:00 am	PROFIBUS
6:30 am - 7:00 am	PROFIBUS	9:00 am - 9:30 am	PROFIBUS
7:00 am - 7:30 am	PROFIBUS	9:30 am - 10:00 am	PROFIBUS
7:30 am - 8:00 am	PROFIBUS	10:00 am - 10:30 am	PROFIBUS
8:00 am - 8:30 am	PROFIBUS	10:30 am - 11:00 am	PROFIBUS
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9:00 am - 9:30 am	PROFIBUS	11:30 am - 12:00 pm	PROFIBUS
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10:30 am - 11:00 am	PROFIBUS	1:00 pm - 1:30 pm	PROFIBUS
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10:00 pm - 10:30 pm	PROFIBUS	12:30 am - 1:00 am	PROFIBUS
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7:00 am - 7:30 am	PROFIBUS	9:30 am - 10:00 am	PROFIBUS
7:30 am - 8:00 am	PROFIBUS	10:00 am - 10:30 am	PROFIBUS
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9:00 am - 9:30 am	PROFIBUS	11:30 am - 12:00 pm	PROFIBUS
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10:30 am - 11:00 am	PROFIBUS	1:00 pm - 1:30 pm	PROFIBUS
11:00 am - 11:30 am	PROFIBUS	1:30 pm - 2:00 pm	PROFIBUS
11:30 am - 12:00 pm	PROFIBUS	2:00 pm - 2:30 pm	PROFIBUS
12:00 pm - 12:30 pm	PROFIBUS	2:30 pm - 3:00 pm	PROFIBUS
12:30 pm - 1:00 pm	PROFIBUS	3:00 pm - 3:30 pm	PROFIBUS
1:00 pm - 1:30 pm	PROFIBUS	3:30 pm - 4:00 pm	PROFIBUS
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2:00 pm - 2:30 pm	PROFIBUS	4:30 pm - 5:00 pm	PROFIBUS
2:30 pm - 3:00 pm	PROFIBUS	5:00 pm - 5:30 pm	PROFIBUS
3:00 pm - 3:30 pm	PROFIBUS	5:30 pm - 6:00 pm	PROFIBUS
3:30 pm - 4:00 pm	PROFIBUS	6:00 pm - 6:30 pm	PROFIBUS
4:00 pm - 4:30 pm	PROFIBUS	6:30 pm - 7:00 pm	PROFIBUS
4:30 pm - 5:00 pm	PROFIBUS	7:00 pm - 7:30 pm	PROFIBUS
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6:00 pm - 6:30 pm	PROFIBUS	8:30 pm - 9:00 pm	PROFIBUS
6:30 pm - 7:00 pm	PROFIBUS	9:00 pm - 9:30 pm	PROFIBUS
7:00 pm - 7:30 pm	PROFIBUS	9:30 pm - 10:00 pm	PROFIBUS
7:30 pm - 8:00 pm	PROFIBUS	10:00 pm - 10:30 pm	PROFIBUS
8:00 pm - 8:30 pm	PROFIBUS	10:3	