



THE WORKING STANDARD FIELD BUS NOW

Our PROFIBUS Future



Welcome to the first issue of PROFI-News, which the PROFIBUS User Organization will publish regularly to bring you news of the world's most readily available, standard, fieldbus technology.

PROFIBUS manufacturers worldwide report extraordinary increase in turnover and PROFI-News will bring you details of their successes. Applications still focus mainly on Europe but PROFIBUS is being used in the USA, Canada, South Africa, Australia and other countries, proving its worldwide impact. Recent events have demonstrated that PROFIBUS is well positioned to assist the penetration of fieldbus solutions.

The newly-established Fieldbus Foundation (FF) seeks to unify the work of InterOperable Systems Project Foundation (ISP-F) and WorldFIP but will introduce a delay in the elaboration of fieldbus standards. In the meantime the achievements of ISP-F are at the disposal of PROFIBUS so the Managing Board and the Enlarged Council have decided to extend the PROFIBUS family by introducing PROFIBUS-ISP. The specifications for this will be published during October 1994 as PROFIBUS Part 4 and then PROFIBUS vendors will move rapidly towards integrated products for hazardous areas operation.

Communications software, ASICs and test systems will be immediately available and PNO members have promised that PROFIBUS-ISP products - Distributed Control Systems as well as Field Devices - will be available by June 1995. The result is that users can take full advantage now in whatever market they wish to operate.

The PROFIBUS User Organisation will work closely with FF. In this way, and in many other ways too, PROFIBUS will continue to make an important contribution to the future of fieldbus technology.

PROFIBUS provides a working standard solution now. As always in business, significant opportunities await suppliers who meet user needs first. There is ample evidence that users want the benefits of fieldbus today. PROFIBUS can meet this demand, and only needs your involvement to realise its potential.

Need I say more?

Ed Hoffmann, Chairman, PNO Germany

12 MBaud ASICs launched

The operating speed for PROFIBUS has been increased to 12 MBaud with the launch of second generation ASICs from Siemens Automation Group in Nuremberg. Siemens has also integrated parts of the ISP protocol into the ASIC and will be making volume quantities of the chip available to developers and suppliers in autumn 1994.

Additional communication functions have been incorporated to enhance performance

in field and cell bus systems. Cables and connectors used previously in systems with a transmission speed up to 1.5MBaud can still be used in the new 12 MBaud solutions. New repeaters bridge distances up to 1 Km.

Major PROFIBUS vendors are ready to announce products incorporating the new chips shortly. Siemens will start using the 12 MBaud chips in Simatic PLCs by early 1995. In 1995 the technology will

be applied to Simoreg and Simovert drive systems, and to the Simadyn control system.

Note about User Group names

The PROFIBUS User Groups are independently organised around the world and they sometimes use different names. PNO - Profibus User Organization - is the most common, but this issue mentions others such as PNI (Italy) and PTO (USA). All support PROFIBUS users in the same way.

Around the World of PROFIBUS

ITALY PNI, PROFIBUS Network Italia, the Italian PROFIBUS User Group was established on July 20th 1994. It includes 13 companies and Mr Maurizio Ghizzoni has been appointed President. At the end of September a press conference will take place at the University Politecnico of Milan to announce the formation of PNI and explain its purposes. During BIMU (29 September to 4th October), the most important Italian exhibition of machine tools, PROFIBUS panels will be shown on the stands of Siemens, Festo and Omron where visitors can obtain information and documentation about PROFIBUS.

FRANCE PROFIBUS is 'well accepted technology' in France, according to Jean Louis Hude, Vice President of PEP Modular Computers. Users like PROFIBUS because it is established and proven, he says. PNO members are highly active in France and PEP has recently supplied its PROFIBUS VME products to GEC Alsthom for controlling high voltage switch gear.

SWITZERLAND The PNO in Switzerland is the second largest in Europe with 46 members and involves itself in many activities. During September 22 member companies will be jointly demonstrating PROFIBUS products at the SAW exposition in Basle.

Continued on page 3

Standards progress

PROFIBUS (DIN 19245) is a strong supporter of standardised solutions for reasons of complete customer confidence, such as interoperability, vendor choice and price competition.

DIN19245 is the longest-established fieldbus standard in the world and now PROFIBUS is being included in a new EuroNorm standard EN 50170 expected by early 1995, making it a front runner for industry-wide acceptance throughout Europe. In North America, VITA is proposing PROFIBUS for ANSI standardization, with ratification expected shortly.

PROFIBUS in action

Deep Diving

PROFIBUS is being used to control submersible Remote Operated Vehicles built by Subsea Offshore Ltd for survey, inspection and intervention applications in the oil and gas industries.

A ROV is typically operated from a rig or support vessel and is powered, controlled and recovered by its umbilical cable, which can be up to 2000m in length. VMEbus products communicating over PROFIBUS networks are being supplied by PEP Modular Computers to handle operations at both ends of the umbilical.

The operator(s) control(s) the ROV from a console on the surface,

responding to sensors and video data passed up a fibre optic cable. PEP units in the console receive signals from the operator controls and similar units control the ROV in response to instructions from the surface. The operator has control over the motion of the vehicle and also various tools such as robot arms. In the vehicle, motor controllers, hydraulic servo valves and sensor outputs are multiplexed to the surface console. PROFIBUS data packets are passed up and down the umbilical over either a twisted pair or one of the fibre optic channels. Because of the length of the cable, the level of noise and the fact that

signals go through slip rings (yes, even the fibre optic signals!) Subsea convert the PROFIBUS signals to FSK or fibre optic prior to transmission, and then back again at the other end.

PEP products were chosen for their ability to handle the PROFIBUS signals using standard hardware modules which offer full PROFIBUS functionality using C libraries under OS-9.

PROFIBUS provides the high data rates required and further offers selectable data rates. Above all, the solution provides complete data integrity. The PROFIBUS network is also easy to expand. **CIRCLE 01**

Rocketing Ahead



P&L Automatisk of Sweden have used PROFIBUS for controlling rocket launches at the European Rocketbase Esrange, at Kiruna, Sweden.

PROFIBUS was chosen because it is vendor-independent and a safe investment for the future. P&L developed the software for the rocket control program,

graphics software and the software for communicating with the PROFIBUS equipment. The control program included drivers for PROFIBUS and ramp control algorithms.

Esrange looked at several fieldbus solutions before deciding to use PROFIBUS because of the widespread support and the many proven products on the market. In the near future more functions will be controlled using PROFIBUS. **CIRCLE 02**

Reading Quietly

Landis and Gyr and Siemens have together supplied the Bibliothèque Nationale de France with a PROFIBUS system for building automation covering 244,000 square metres and including 600 PROFIBUS nodes.

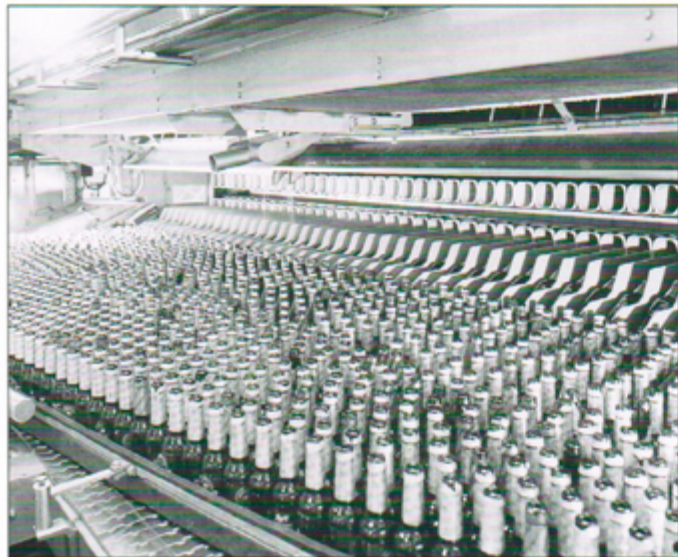
PLCs control all operational aspects of the building, including the production and distribution of 16MW of heating and 4MW of electricity. PROFIBUS networks connect more than 400 air handling units and over 2000 terminal controllers.

PROFIBUS was chosen because it provides an economic, high performance solution that is secure and flexible, enabling easy updates. **CIRCLE 04**

VHS Video

PROFIBUS-DP AND FMS applications feature in a 15 minute video produced by PNO. Over 80 products at the Hannover Fair 94 are also shown. In German and English languages versions. **CIRCLE 05** or contact any User Group office.

Bubbling Over



Siemens Simatic PLCs and Danfoss drives communicating via PROFIBUS are bringing the benefits of distributed networking to a new bottling line at Marston's Brewery in Burton on Trent, UK.

The plant produces the world-famous Pedigree bitter and handles up to 200,000 bottles in a seven hour shift. Two

networks containing 16 and 8 Danfoss variable frequency inverters are involved, each networked over a single cable to a Simatic PLC. One network controls the empty bottle conveying area, the other controls the filling plant.

In the empty bottle line the trend to thinner glass and the need to replace a 17 year old

conveyor demanded that a more sophisticated system be introduced. A pressureless combiner is now used requiring sophisticated control, with differential speeds feeding bottles cleanly into the filler and labeller.

In the filling line, several

different routes are available for bottles and as these are not operated simultaneously drives must be switched between conveyors, involving motors of differing sizes and characteristics.

"All this is made possible using sophisticated speed algorithms and frequency converters, with data passed over

the networks to handle the continual changing of speeds," says Elson Automation of Burton on Trent who installed the systems. Elson have had experience of four PROFIBUS networks running for over a year with no failures.

Pre-set drive parameters are downloaded over the network and closed-loop control algorithms then modulate base speeds. The benefits include the ability to handle many devices from a single I/O port, which allows a more compact PLC and a significant reduction in cabling. Other benefits include better plant diagnostics including preventive maintenance. PROFIBUS also makes upgrading extremely simple. The aim is to interconnect both networks and other equipment into a single SCADA system. **CIRCLE 03**

Around the World of PROFIBUS

GERMANY The PNO headquarters will move to Karlsruhe on October 1st 1994. Its new location will be the Technology Centre, which offers an excellent infrastructure with fast access to extensive PROFIBUS know-how at the University. Michael Volz, Operations Manager, will be based at the new office. The address is: Haid-und-Neu-Strasse 7, D-76131 Karlsruhe, Germany. Tel: ++ 721 9658 590 Fax: ++ 721 9658 589

UK Syntel, on behalf of the PROFIBUS Group, is negotiating with a major University to establish a Centre of Excellence for PROFIBUS. This will feature a working PROFIBUS NETWORK incorporating products from major suppliers. The Centre will provide technical support and provide a 'first stop' for PROFIBUS. Syntel has also announced that it is migrating all its VME, SBC and Industrial Controller products to PROFIBUS. **CIRCLE 06**

BELGIUM PROFIBUS Belgium was established in April and covers the Belgian and Luxembourg territories. Members have decided to take a stand at the EURELEC '94 Fair, 20-23 September, Brussels, where visitors will be able to evaluate the performance of PROFIBUS in the field of heterogeneous communication. A common network will connect 13 systems in master/slave and multi-master configurations, including PLCs, a PC, a measurement system, pneumatic valves, a variable speed drive and intelligent motor protection from multi-vendor sources.

SWEDEN P&L Automatisk of Sweden, a specialist automation consultancy, has developed a training package for industrial communications systems including PROFIBUS. The package runs interactively on a PC and includes software for simulating communication processes and controlling models via PROFIBUS. **CIRCLE 07**

USA Mike Bryant, Chairman of the PROFIBUS Trade Organization (PTO) in North America, has just completed a countrywide seminar tour aimed at convincing users that PROFIBUS is the right choice. Mike says the reception he received was excellent and feels that the tide is now turning towards PROFIBUS. The PTO has recently been approached by a major fieldbus organization about using PROFIBUS.

GERMANY PNO Germany is holding a PROFIBUS-DP workshop in Frankfurt on October 26th 1994. The seminar language will be German. Aimed principally at vendor companies, the workshop will provide a detailed technical overview of PROFIBUS-DP together with an explanation of certification procedures for PROFIBUS-DP. Basic implementations will be demonstrated by hardware and software component suppliers. DM240 for members, DM480 for non members. Tel: ++ 721 9658 590

SOUTHERN AFRICA Egon Hillermann, PNO Chairman, reports a great deal of interest in PROFIBUS and a growing number of installations. The office is

seeking to increase membership and has started an advertising campaign entitled "Don't Miss the Bus". End users, vendor companies and academics are being encouraged to join.

Would you like to receive a regular copy of PROFINEWS?
CIRCLE 16 on the Reply Card

Product guide on disk ...

An electronic product guide in the German language of PROFIBUS products and services is now available on disk by subscription. A Windows browser is provided for searching electronically for particular PROFIBUS solutions. The disk is available from any PNO office and the subscription includes quarterly updates. **CIRCLE 08**

... and in print

An English language Directory called The PROFIBUS Book will be published in November by GGH Marketing Communications. Containing technical information about PROFIBUS and a full listing of certified PROFIBUS products, The PROFIBUS Book will be in full colour and available FREE on request. It will also contain international supplier contacts. To receive your FREE copy **CIRCLE 09** or contact Bob Squirrell, The PROFIBUS Book. Tel/Fax: +44 (0)329 846166 email: profibus@gghcomms.demon.co.uk

Over 300 products, 200,000 nodes

Bosch, Siemens, ABB, Endress+Hauser, PEP Modular Computers, Klöckner-Moeller, OMRON, Festo and Danfoss are among those who have pledged ongoing support for PROFIBUS. In a series of press conferences held in North America and Europe, PROFIBUS User Groups worldwide

pointed out that over 300 PROFIBUS products can now be openly purchased and that with over 200,000 installed nodes PROFIBUS is already the most widely accepted fieldbus solution. New nodes are coming on line at the rate of over 30% per annum.

USA Competency Centre

A PROFIBUS Competency Centre is to be established in Johnson City, Tennessee, USA, with the aim helping vendors and users in North America 'get connected'. In addition to technical and applications support it will be a source for ASICs and interface boards and will provide

assistance in licensing products using PROFIBUS technology. On-site working network demonstrations are planned incorporating products from various vendors. The Centre, operated by Siemens, should open in October and may also become a PROFIBUS Certification site.

Available PROFIBUS Products include:

Drives
AC Drives
DC Drives

Sensor/ Actuators
Binary I/O
Analogue I/O
Regulators
Timers
Counters
Ident Systems
Pneumatic/Magnetic valves

Controllers
PLC/NC/CNC/DCS
VME
PC
Workstation

Network Components
Repeaters
Fibre-Optic components
Optical Star Couplers
Cables

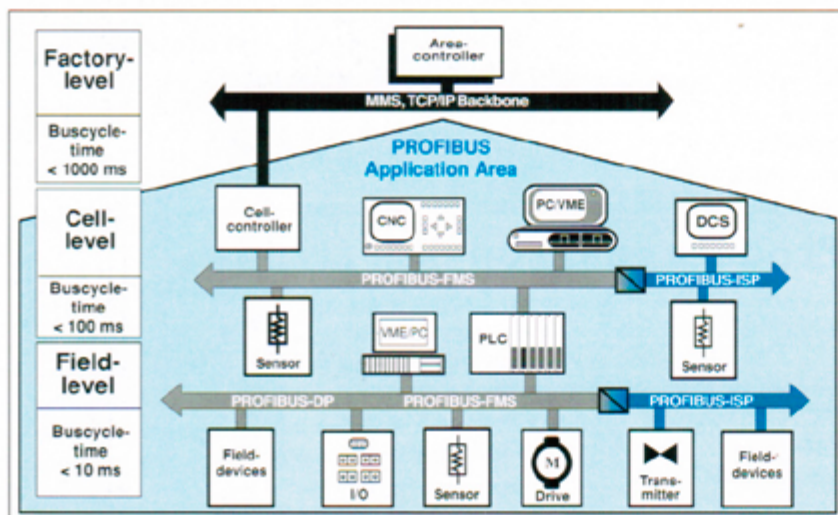
Software Drivers
DOS/Windows
RT-OS/OS-9/VRTX
VxWORKS/PSOS+
OS2
UNIX/VMS

Tools
Configurators
Bus Monitors
Test Systems

Gateways
MAP 3.0 Networks/
TCP/IP
Vendor specific

Host Interfaces
VAX and VME

Where PROFIBUS can be used



PROFIBUS-DP Standard Updated in English

DIN E19 245 Part 3, covering PROFIBUS-DP, details the functionality that particularly suits time critical PROFIBUS communications for data transfers between automation systems and simple slaves such as binary or analogue I/O, drives and similar devices. The second draft contains extended functions, including baud

rates up to 12Mbit/s and extended capabilities for Master and Slave devices. The basic functionality, as published in the first draft, is unchanged so this issue is complete and stable.

Full functionality is supported by ASICs from Siemens and IAM and is the final version of the standardization work on PROFIBUS-DP in Germany. The draft can be purchased from any User Group office. Or **CIRCLE 10**

Essential Reading

Essential reading for anyone moving into fieldbuses is this 20 page technical introduction to PROFIBUS, available now in English and German. It provides a detailed overview of PROFIBUS and is a valuable insight into fieldbus operations. A full description is given of the hybrid medium access methods by which PROFIBUS can be a master/slave network, a master/master network, OR a combination. To receive a free copy **CIRCLE 11** for English language or **CIRCLE 12** for German language or contact your local User Group office.

Valve Cooperation

The development of a compact, high quality pneumatic valve by Kuhnke has led to collaboration with Klöckner-Moeller over PROFIBUS-networkable valve/controller combinations.

Because of their size, the new valves lend themselves to direct control by PLCs. Four and eight valve islands are wired to a D-plug serial port that can be interfaced directly with a PLC system, effectively

Rexroth Widens Choice

Engineering company Mannesmann Rexroth has added PROFIBUS products to its range of fieldbus interfaces to offer customers a simpler plug-in option for third party products. The move has come about through the realization that the company cannot by itself meet all needs in their turnkey packages. New products include PLCs and pneumatic valve islands. Units can be used stand-alone or connected over the PROFIBUS network with full programming, diagnostic and on-line communication protocols. **CIRCLE 14**

creating a highly-efficient pneumatic 'relay'. Klöckner-Moeller have interfaced the same four valve manifolds with a four output expansion unit connected to their PLCs. Open PROFIBUS communications are available as standard on both products. **CIRCLE 13**

"The Fieldbus for Industrial Automation"

Edited by Professor Bender of Karlsruhe FIZ, this book provides an introduction to industrial communications as well as a detailed appraisal of PROFIBUS. It contains 240 pages, costs £35.95 and is available both in the English and the German through any User Group office. Or, **CIRCLE 15**

PROFIBUS - A Summary of Features

	FMS	DP	ISP
Application Range	General purpose automation	Optimised for time critical applications	Process control
Functionality	37 powerful appl'n services and network management	Fast transfer of small amounts of data and diagnosis functions	Like FMS plus system management
Cable	Twisted pair 2 conductor cable RS-485 or Fibre Optic	Like FMS	Intrinsically safe
Speed	9.6 Kbaud up to 500 Kbaud in steps	9.6 Kbaud up to 12 Mbaud in steps	31.25 Kbaud

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