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APPLICATIONS

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OVER 3000 PROFIsafe APPLICATIONS NOW RUNNING



Proof of the value of networked safety systems comes from the startling fact that over 3000 PROFIsafe installations are now in operation right across the globe. Both process plants and automated factories are using the technology, in companies as far apart as Japan (Toyota), Australia (Ford) and Norway (Statoil).

Brewing companies, semiconductor manufacturers and packaging machines are among the list of successes, which is yet

another demonstration of the way PROFIBUS is continuing to act as one of the primary drivers of global fieldbus technology.

One engineer at an automotive plant described his installation thus: "the system was started up and we just forgot about it because it was working so well. We did not experience any problems. Although we have to get used to the new philosophy, safety is actually integrated into this system."

More PROFIsafe news on Page 3

PROFIsafe AT SPS/IPC/DRIVES

PROFIsafe was the topic of a round table discussion at SPS/IPC/DRIVES in Nuremberg. The event, organized by the German GIT-Verlag in co-operation with PROFIBUS Nutzerorganisation

Germany, and representatives from the TÜV, end-users and manufacturers, provided an opportunity for exchanging ideas. Feedback was very positive and the results were published in three German magazines. Participating were Dr Volker Oestrich, Günter Greil, TÜV Süddeutschland, Alfred Beer, TÜV Süddeutschland, Dirk Hablawetz, BASF, Christophe Arth, Daimler Chrysler, Bernard



Mysliwicz, Siemens, Helmut Börjes, Wago, Dr Peter Ebert, MessTec&Automation, Rainer Kremp, Sick, Dr. Wolfgang Stripf, Siemens. Pictured left: Dr Stripf (on right) explains PROFIsafe to visitors at SPS/IPC/DRIVES in Nuremberg.



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

PROFIBUS 'VALUE'

David Humphrey Senior Analyst ARC Advisory Group, recently wrote this appraisal of PROFIBUS:



"A fieldbus' value proposition is directly correlated to the variety of

different plant applications it can address. Manufacturers in hybrid industries, like pharmaceuticals or food & beverage, deal with daily operational issues involving both process and discrete applications. These users demand a seamless industrial network solution that is at home in all manufacturing domains. PROFIBUS handles both areas via its common communication layer that makes possible a single approach to network configuration and diagnostics in all areas of the plant. This universal value proposition is unique among available field bus solutions. PROFIdrive is one of PROFIBUS' value-adding application profiles geared to the needs of motion control users. PROFIdrive allows the synchronization of multiple frequency inverters or servo drives over PROFIBUS DP, eliminating the need for mechanical linkages and greatly increasing a machine's flexibility. Slave-to-slave

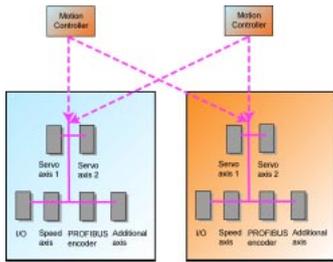
Continued on Page 2

STOP PRESS

Over 10 Million PROFIBUS nodes are now installed ... more than any other fieldbus! More in our next issue.

» NEWS

DEMONSTRATING PROFIdrive INTEROPERABILITY



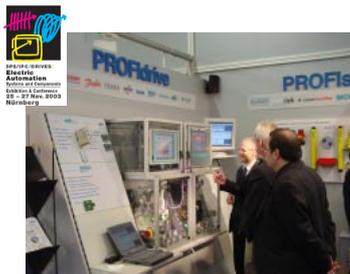
Vendors AMK, Beckhoff, Danfoss, Fraba, HMS, Lenze, Mesco, Siemens, Softing and Yaskawa have worked together to produce a multi-vendor Motion Control demo, to demonstrate PROFIdrive interoperability.

PROFIBUS is specified in the international standard IEC 61158, which forms a basis whereby various vendors can construct devices that are able to communicate via PROFIBUS. To also enable this in high-tech discipline motion control, where real-time and isochronous operation are required, the PROFIdrive profile was developed.

The PROFIdrive profile expands the communication description in the form of a motion control application layer. This has six

classes of utility and the machine vendor decides on the class according to his requirements. Class 6, for example, describes direct communication between drives, which is necessary in the case of distributed drives solutions where intelligent drives with functions such as synchronous operation must exchange data.

A further important class is class 4. This details the master-slave relationship between the controller and the drives that are interlinked via PROFIBUS. Utility class 4 was used for the PROFIdrive multi-vendor demo model. Our picture below shows Mr Walter Möller-Nehring explaining the PROFIdrive multivendor demonstrator at SPS/IPC/DRIVES.



FIELDBUS VALUE

(Continued from Page 1)



communication enables a cross synchronization of multiple axes via electronic gearing or cam tables. PROFIdrive greatly enhances PROFIBUS' value proposition to packaging and machine tools users by opening up new application areas such as Gen3 packaging machines and mechatronics-based distributed automation. Most importantly, PROFIBUS' many facets contribute significantly to helping end-users lower their Total Cost of Ownership (TCO). Fieldbuses and device networks can reduce wiring and installation costs, but these advantages often mask longer-term benefits. According to ARC's research, the greatest benefits of fieldbus and device networks are realized in maintenance and operations, long after a plant has been commissioned. In other words, fieldbus itself is often not the cost-saver, but merely an enabler to a new level of asset management that can significantly reduce operating costs and help manufacturers achieve operational excellence. Many of the benefits of fieldbus and device networks are still being discovered as users gain more experience with these technologies in real world plant settings."

MEMBERSHIP GUARANTEES NUMEROUS BENEFITS:

Over 1,200 companies are members of PROFIBUS International (PI), the largest fieldbus community worldwide! Membership offers the following benefits:

- » participation in joint marketing activities
- » technical support and participation in PROFIBUS Working Groups
- » free download of PROFIBUS and PROFInet specifications
- » free publication of stories in PROFInews
- » free presentation of products on www.profibus.com
- » price reductions on device certification and registration, books and training

To join, contact your local PROFIBUS Organization (see back page)

PROFIdrive DEMO ALSO SHOWN TO OMAC USERS GROUP MEETING

In January, the Open Modular Architecture Controls (OMAC) Users Group had its annual meeting in Orlando, Florida, USA. A highlight was the presentation and live demonstration of a PROFIdrive multi-vendor demo-application during the Packaging Working Group's (OPW) meeting.

OPW brings end-users of packaging machines together. Andreas Keller from the PROFIdrive Working Group and the PROFIBUS Competence Center at MESCO Engineering explained the PROFIdrive Profile

while John Ryan of Siemens Energy and Automation explained the PROFIdrive multi-vendor demo-application.

Both presentations met with great interest from the audience. Jeff Brown of Beckhoff explained how the PROFIdrive demo was implemented. The real interoperability of motion controllers and drives from



different manufacturers was then proven in the live demo. In an open discussion with the participants, technical details like bus cycle times and synchronization were explained.

Genuine interoperability is very important for manufacturers and end-users. Here, the main focus lies on programming based on IEC 61131-3, the use of PLCopen function blocks for Motion Control,

the state model of OMAC for packaging machines (PSM) and the exchangeability of drives from different manufacturers without changing the controller software. It was agreed that standards like PROFIdrive are the correct way to enable flexibility in the choice of vendor, effectiveness, time-saving, and TCO reduction.

New products from more manufacturers will be added to the multi-vendor demo and additional functionalities will be integrated for show at this year's PackExpo, Chicago, in November.

» APPLICATIONS

BELGIUM/ DUAL ZONE SAFETY

A manufacturer of tram doors, subway sets and buses wanted to have a five-axis profiling machine capable of operating in two zones: one in which the profile is loaded and one in which machining operations are performed. Furthermore, rapid loading of a wide range of profiles was required. To ensure the two zones were safely equipped, the new 'Safety Integrated' system of Siemens was integrated in the control system.

The machine comprises a long frame with a moving cabin or gantry inside which is the 5 axis machining head with tool holder. A clamping system makes use of numerically controlled cars on which the support block is mounted. Unlike a robot unit, the two zones cannot simply be closed off by gates. Moreover, the NC clamps must be able to move freely across both zones and, within these zones, people must be able to move about.

In terms of safety, this is a complex problem. A solution based on conventional techniques would not suffice. Further, a separate safety PLC would make the plant very complex. The new option is to use a safety system integrated into the normal



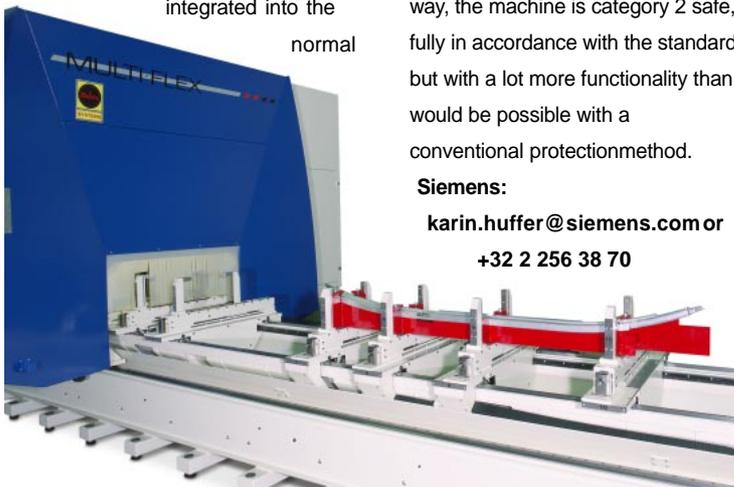
automation concept - PROFIsafe technology running over PROFIBUS - and by offering safety redundancy via CPUs using different technologies.

The complete system, including components, is tested and certified. In this way, safety is 'concealed' in the control system and is therefore much more difficult to bypass. The advantage for the machine manufacturer is that he can continue to use the traditional control system with the same software and programs.

The approach makes it possible to build in 'dynamic safety'. If someone enters a particular safety zone or presses an emergency stop button, that section switches to a safe state although the motors remain energized. The protection system makes use of the encoders which are used for positioning. Restarting means that the position of the incremental encoders is known and that the machine can pick up where it left off before the interruption. In this way, the machine is category 2 safe, fully in accordance with the standard but with a lot more functionality than would be possible with a conventional protection method.

Siemens:

**karin.huffer@siemens.com or
+32 2 256 38 70**



» PRODUCT GALLERY

EDD INTERPRETER

Available for OEM tools conforming to HART DDL, PROFIBUS EDD and IEC EDD, and also as an EDD DTM. Comprehensive PROFIBUS support can be provided for hardware / software design, specification, implementation and test for PROFIBUS DP, PROFIsafe, PROFInet, PROFInet I/O, GSD, EDD and FDT.
ifak: +49 39203 8100 or info@ifak-md.de

DEVICE COUPLERS

TG230 Series (GRP) and TG240 Series (Stainless Steel) fieldbus device couplers enable easy process plant installation of PROFIBUS PA devices in Zone 2 or non-hazardous applications, providing auto-resetting short-circuit protection, LED status indication per spur and a unique automatic segment terminator. **Hawke International: +44 (0) 161 308 5818 or fieldbus@ehawke.com**

UNIVERSAL PLUG SOLUTION

The FBP (FieldBusPlug) concept is designed to bring simplicity and flexibility to fieldbus applications by allowing devices to be quickly connected to the bus. A fieldbus-neutral plug is fitted at one end of the cable while an intelligent fieldbus-dependent interface is located at the other end. The first products to benefit are ABB motors and controllers. **ABB: andrew.bartlett@rsagroup.com**

DELPHI- AND VISUAL BASIC APPLICATIONS

Softing's interface boards guarantee fast data exchange between the PC and PROFIBUS field devices. Softing has application examples for Delphi and Visual Basic, for easy connection of PC application as a PROFIBUS master. Softing can also offer easy System Optimization using the PROFIBUS Analyzer Mobile. Data traffic is recorded with time-stamping and results can be evaluated in EXCEL. **Softing: +49 89 456 56 379 or www.softing.com**



DIAGNOSTIC CONNECTOR

Quick connections, installations and troubleshooting are now possible with the Brad Harrison Diagnostic D-Sub Connector. Built in an all-metal construction for harsh environments, these connectors perform comprehensive test functions that speed implementation and troubleshooting in PROFIBUS applications up to 12Mbaud. **Woodhead Connectivity: +49 711 782374 66 or Hauberg@Woodhead.de**

RUSSIA/ DISTILLERY

For many years RTSoft Company has used PROFIBUS-based solutions in its automation projects for the spirits industry. One example is the automatic control system for distilling towers which has been deployed at Yadrinskiy distillery. The system is distributed over three floors and is based on SMART I/O controllers from Kontron Modular Computers. Each tower is controlled by its own cabinet with 1 or 2 controllers. Data communications between controllers and cabinets are performed by a PROFIBUS link. The maximum distance between cabinets is about 300 meters.
RTSoft: www.rtsoft.ru or panina@rtsoft.msk.ru



▶ AROUND THE WORLD

▶ REGIONAL ASSOCIATIONS

NETHERLANDS 1

PROFIBUS Center Netherlands is organizing an English speaking session of the Certified Engineer Training Course, which is open to delegates from all countries. Successful delegates will receive an official diploma. Dates are : 4-7 May 2004 at Wateringen (near The Hague). PROFIBUS Center Netherlands can do the reservations and organize pick-ups from the airport. See also www.profibuscenter.nl/EN-pce.php3



NETHERLANDS 2

The new PROFIBUS Test Laboratory is becoming very effective, reports Dennis van Booma. Its goal is to test PROFIBUS products as thoroughly as possible. Hardware adjustments and software updates can be made and development engineers can be present during tests to benefit from the advice of test lab experts. www.profibuscenter.nl/page-testlab

UK

www.profibus.co.uk is now dedicated to the UK PROFIBUS Conference at Ragley Hall in June.



If you'd like to present a paper, please send an abstract no later than 28th February to the Papers Committee at uk@profibus.com. Current contributors include Rolls Royce Marine Engine Systems, ifak Magdeburg and the University of Limerick. Topics include radio-based PROFIBUS, software engineering for PROFIsafe and Motion Control. You can reserve booth space online, register as a delegate, also check available accommodation and the social

SOUTH AMERICA

118 exhibitors and 15000 visitors supported the ISA SHOW SOUTH AMERICA in November, held in São Paulo, Brazil. The PROFIBUS Association of Brazil joined in the event with a collective booth promoting PROFIBUS technology, and presented an original idea: 'learning kits'. The main objective of this was to demonstrate the interoperability and interconnection of products



programme. Certified PROFIBUS Engineer and Installer Courses offered by the PROFIBUS Competence Center at Manchester Metropolitan University are growing. Delegates are booked in from Africa and Singapore. Courses can be delivered anywhere in the world for up to 12 persons. Currently, Ireland, Singapore and Southern Africa are booked. Andy Verwer has been to Southern Africa twice and reports that Certified Installer status is now officially recognized as a pre-requisite by many South African companies. Course details from www.kognosys.co.uk/catalog.htm

BELGIUM

In January, PROFIBUS Belgium organized a press conference at ACRO to inform the Belgium market about its new Competence Center there (pictured) and the real-time Ethernet solution PROFInet. There was also a PROFIBUS technology update.



from many member companies via the PROFIBUS protocol. The kits comprise panels on which

products from each member company are assembled and equipped with the components needed to make the connection. During the 3-day show, the booth was visited by about 1500 people, among them customers, end users, students, teachers, researchers and many others.

All important magazines attended. Alain Wayenberg, the chairman of PROFIBUS Belgium, first informed participants about the PROFIBUS organization. Wim De Bleecker then provided an introduction to PROFIBUS. Eric Claesen presented ACRO and the PROFIBUS support services he can offer. Mr. Lucien Wolfs, a local politician and head of electrical maintenance at Ford, gave his opinion why PROFIBUS is important to the Belgium economy. Main points were Total Cost of Ownership and flexibility. Mr. Jurgen Scheepers of Goorts Automatisatie, presented an application of the 'regionale milieuzorg'. He told about their experience with PROFIBUS at an incinerator. Dolf van Eendenburg, director of PROFIBUS Belgium, gave a short presentation about PROFIsafe. Finally, Edgar Küster, chairman of PROFIBUS International, introduced PROFInet.

JAPAN

The Japanese PROFIBUS Organization (JPO) will hold a PROFIBUS seminar in February in Kita-Kyushu. JPO reports that they have now certified more than 10 PROFIBUS devices in their Tokyo Test Laboratory.

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