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The Internet is a powerful marketing tool. The Official P-NET Web Site uses leading edge technology, to assist Members with info and provide links to their own home pages.

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Having already been dubbed "The last P-NET Conference of the Century", our hosts will be the Institute of Computer Technology within the University of Vienna.

### **Austrian Centre of Excellence for Fieldbus Systems**

The Austrian Centre of Excellence for Fieldbus Systems (FeldbusKompetenz-zentrum) is based at the Vienna University of Technology.

### **DTI/SIRA Survey ready**

The IPUO has been involved in a DTI study on fieldbus, flowmeters and sensor fusion. The study is now ready to be published.

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## **P-NET Web Site Open for Members Info**

**By John Johansen**

The official P-NET World Wide Web Internet site was launched last year, and has since had many visitors from all over the world. It was always the intention that members should have the opportunity to each have their own section, with information and presentations on the company, engineering facilities and available P-NET products, and of course, links to their own web sites. This is now a reality.

**P-NET** The P-NET Fieldbus [HOME](#)

THE P-NET FIELDBUS    IPUO P-NET    INTERNATIONAL P-NET USER ORGANIZATION    ARTICLES AND PAPERS

PRODUCTS & ENGINEERING    P-NET APPLICATIONS

NEWS

**P-NET**

IPUO - the International P-NET User Organization - welcomes you to the official P-NET Homepage. P-NET is a data communication standard, used for automation and process control applications. P-NET has been a European Standard - EN 50 170 Vol. 1, since July 1996. The IPUO is a forum for P-NET users.

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**www.P-NET.dk**

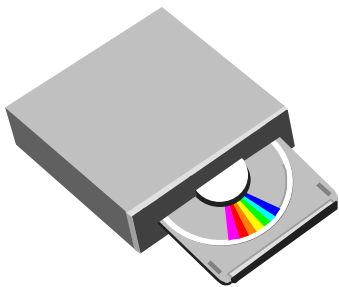
The marketing strategies of companies working as automation and solution providers, have changed during the past year, to also include the use of the Internet. It is in fact now more of a commercial necessity than just a possible option, since the habits of the users of the Internet are also rapidly changing. An increasing number of engineers and users of automation equipment are now using the Internet as their first priority, in the search for new products or complete solutions.

That is why it's important to be present out there. By using the P-NET web site as the starting point, makes it very attractive, especially for small companies, who have not yet established their own web site.

Since the Internet, especially as a Marketing tool, has recently grown so rapidly, and has turned out to be such a powerful medium, a lot of people have seen it as a means for earning big money. Huge amounts are being spent on nice web sites. However, if you are not aware that additional effort must be put in to ensure that your information is constantly included in all the popular search engines, then it is all a waste of time, because nobody will find it. Furthermore, it is important to establish links from other sites associated with the same technology. Updating the search engines and maintaining links from other sites must be done on a regular basis, and it can be quite a big job. During the last 3 months, the IPUO has spent a great deal of time, involved experts in this area, and invested in software tools, to assist in updating the search engines. This means that we are now well equipped and sufficiently educated, to establish the IPUO Web-Hotel to support its members. We have the knowledge. We have the tools. You get the benefit !

As it has been the case for the last 9 months, the site provides yet another means of obtaining the latest facts about P-NET, including downloadable and printable articles and documents, products, membership details, and the latest news.

Members are about to be circulated with a simple fax-back questionnaire, to ensure firstly that their contact details are up to date, but also to obtain email and web addresses. These details and links to members sites who have them, will be included on the P-NET site, free of charge to paid up members. In addition, members will be asked whether they would like their product details and more specific information about their company, included on the site. There is an initial set up charge for this, depending on the extent of the information, plus an annual maintenance charge. These costs however, are likely to be far less than setting up your own site, and has the additional advantage of being maintained by experts! Contact your local office for details.



## **P-NET CD-ROM still available**

The PROCES-DATA CD-ROM, which contains an exciting array of multi-media data about the P-NET European Fieldbus Standard EN50170 Vol. 1, together with full details about available P-NET products, devices, systems and programs, **is still available.**

Structured in a similar way to a WEB site, the CD-ROM allows the user to off-line browse sections as diverse as documentary video clips about many P-NET projects already installed, through animations on building automation, to a complete library of papers, newsletters and manuals about P-NET technology. Also available are a suite of fully working programs, which can be tried out for 30 days. The core of this collection is the 32 bit version of the VIGO Fieldbus Management System, for Windows '95 based PC's. VIGO also provides an intuitive user interface, for the configuration of projects which use Fieldbus technology.

In addition, a catalogue of products is also included, together with associated short form leaflets, photographs and product manuals, all of which can be printed if required. The retail prices of these products can also be given in the local currency.

The CD-ROM is available free of charge for use on Multimedia PC's

### **Obtaining a Copy**

The CD-ROM can be obtained by contacting PROCES-DATA at:

Worldwide

Tel: +45 87 200 300, Fax: +45 87 200 301, email: [pd@post4.tele.dk](mailto:pd@post4.tele.dk)

UK

Tel +44 1491 828 200, Fax: +44 1491 828 201, email: [pnet@easynet.co.uk](mailto:pnet@easynet.co.uk)



In the last issue, we were reviewing the 5th Conference held in Oxford. There was also some speculation as to where the next conference might take place. Having held previous events in Denmark, Germany, Portugal and the UK, and following much deliberation, it has been decided that it will now be the turn of Austria to host the event. Although the arrival at this decision now, might be regarded as slightly premature, comparing it with the selection for a site for the next Olympic Games, it will be realized that it is essential that both local organisers, speakers and delegates have plenty of notice to ensure another successful event.

So, to keep everyone informed, with the longest possible notice, the 6th International P-NET Conference will be held in Vienna in the **Spring of 1999**. Having already been dubbed "**The last P-NET Conference of the Century**", our hosts will be the **Institute of Computer Technology within the University of Vienna**.

Further details will obviously be provided in following issues of the NEWS, but take a note of this NOW in order to consider giving a paper, exhibiting, learning more about P-NET as a delegate, or meeting other people with similar interests.

## News from Scandinavia



### Martin Professional

Martin Professional is the largest manufacturer of automated luminaires for Concerts & Touring Companies, Clubs & Discotheques, Theatres, Film & Television Studios and much more. The computer controlled, automated manufacturing processes at their huge 15,000 square metre state-of-the-art factory, is combined with an appropriate level of skilled human intervention. The target is total product reliability. The dynamic lighting products are actually sold in more than 72 countries, and the company employs some 550 people with annual sales of more than \$75 million.

The Martin Group has just installed P-NET equipment in the production area. The P-NET devices are collecting manufacturing data from the punching machines, sheet benders and other manufacturing equipment. The data are stored in an Access database and are automatically distributed within the organisation as figures and charts in HTML documents. The next issue of P-NET News will bring a feature from Martin Manufacturing.

## **EN 50170 now available on CD-ROM via Danish Standards Association.**

The European standard for Fieldbus, EN50170, is now available on CD-ROM. As the first national standardisation body, the Danish Standards Association is now able to distribute the entire EN 50170 Fieldbus standard on an electronic media. Any requests on the CD-ROM should be passed to: Danish Standards Association Kollegievej 6, DK-2920 Charlottenlund Denmark, phone: +45 39 96 61 01, fax: +45 39 96 61 02, e-mail: [DANSK.STANDARD@ds.dk](mailto:DANSK.STANDARD@ds.dk), web: [www.ds.dk](http://www.ds.dk)

## **P-NET and VIGO selected by Danish Municipal Council.**

The Council in a Danish municipality, located on Zealand, has recently selected hand held equipment based on P-NET. The equipment comprises a selection of hand held terminals and a number of PC's running the Fieldbus Management System -VIGO. The hand held terminals are used for the registration of timesheets for the local authority employees, based on a daily work plan. Each employee working in the field, has their own hand held terminal. The work plan for each person is downloaded to their individual terminals. During the work schedule, the employee can then report their work progress, as well as any problems, by using the terminal. At the end of the day, they place their terminals at one of the available docking stations, and the data are then transferred via P-NET and VIGO, to the administrative system for central registration and analysis.

## **"Scheduling Real-Time Communications with P-NET"**

Eduardo Tovar from the School of Engineering, Polytechnic Institute of Porto, Portugal, has been researching into the techniques for "Scheduling Real-Time Communications with P-NET". He recently presented a paper with that title at an IEE Colloquium on Real Time Systems in York - UK. The paper addressed the P-NET Medium Access Control (MAC) ability to schedule traffic according to its real-time requirements, in order to support real-time distributed applications. A schedulability analysis, based on the P-NET standard was provided, with proposals for mechanisms to improve priority throughput. A copy of the paper can be obtained via the IPUO, or by contacting Eduardo at [emt@dei.isep.ipp.pt](mailto:emt@dei.isep.ipp.pt)

## **News from the Local Society for Germany, Austria and Switzerland**

by the local Chairman - Jörg Böttcher

Within the P-NET News 1/1997 there was the last report from the Local Society regarding to activities till end of May 1997. The following article will give the latest informations about all things which happened from June 1997 till now.

Following the basic tasks for a Local Society within the P-NET world we continuously are offering the following services to members and non-members in our region:

- dissemination of actual P-NET informations, especially those which are important for the German speaking market
- supporting companies in using and implementing P-NET
- representing P-NET in Conferences and Trade Fairs
- establishing contact to the press
- helping members in finding development partners
- distributing information material
- giving P-NET training courses

Most of the services had been supported by the head office of the User Organization and therefore free of charge.

The Local Society gave P-NET the following lectures and practical demonstrations:

- lecture about Remote Access To P-NET Systems
- P-NET training course "Messtechnik und Meßdatenerfassung"
- lecture about planning, putting into operation and diagnosis of P-NET based fieldbus systems
- lecture at conference "Feldbusse"
- lecture about P-NET work in LabVIEW applications
- P-NET training course within a special conference about measurement systems for EMV at Technische Akademie Esslingen

Furthermore, the Local Society had the opportunity to show P-NET modules, tools and applications free of charge by use of a mini booth on SPS/IPC/DRIVES '97 in Nürnberg on 25<sup>th</sup> November 1997. A lot of visitors of this trade fair - which specialises in the use of PLCs and industrial PCs for automation purposes - came to this booth, too. As follow-up many information material has been ordered.

Compared to former years much more practical demonstrations instead of pure paper work have been given. We made the experience that it is much more effective to show the simplicity of working with P-NET modules when doing it step by step with the visitor of a conference or training course. Therefore, our strategy for the next future is to concentrate on such practical work.

Nevertheless, within an important German speaking magazine, the "etz elektrotechnik + automation", an paper about remote access to fieldbus systems shown with P-NET examples could be placed. It was shown that there are a lot of possibilities to connect P-NET based systems to the world around via RS-232, IPX or TCP/IP based LANs, GSM mobile telephone systems or the intranet/internet systems.

Also a contribution to a well-known German book about fieldbus systems within automation technology was part of the work of the last months. The book deals with all things having to do with Fieldbus systems starting at the fundamentals of bit transmission end ending with detailed descriptions of several systems. Our part, of course, was the P-NET chapter.

Actually, the Local Society is working on a bigger P-NET Demo Package including a Demo Disk. It specializes on P-NET for data acquisition because we felt that this is an application area where P-NET has the best possibilities. Not only because of its technical benefits for those applications, but also seen from the market, where a lot of the existing P-NET applications are dealing with data acquisition problems. Included will be application examples done with Excel, LabVIEW and InTouch as well as a demo version of PRO-View. The describing text is formatted as HTML document, therefore it also will exist on the IPUO Homepage.

In order to support the above mentioned activities press releases have been sent out to more than 60 magazines.

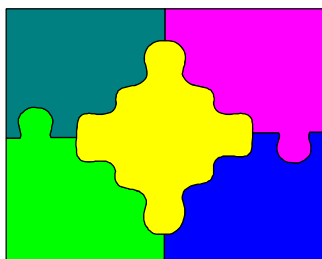
What have been the main tendencies in our region corresponding to fieldbus market in general and P-NET:

- Many of the fieldbus systems which were under discussion within the last years did not play an important role anymore. Especially in Germany most discussions are concentrated on the EN 50170 fieldbus standard where P-NET is one part of it.



- the discussions went back from detailed technical specifications to practical application questions; among those the coupling of standard Windows applications to P-NET and the coupling of P-NET to higher level systems very often has been discussed.
- some special branches like food industry, truck electronic manufacturers and ship automation companies as well as research institutes have increased their demand on P-NET information and products.

In order to ensure an effective communication between the German speaking members and non-members and the Local Society an own P-NET E-mail address has been established which is P-NET@b-plus.com. Additionally, the Local Society actually is generating an own Homepage under URL [www.b-plus.com/P-NET](http://www.b-plus.com/P-NET) which especially holds regional information in German language and, of course, an link to the official Homepage of the International P-NET User Organization.



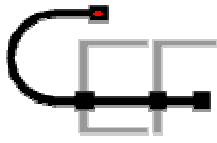
## **Application News**

### **Terminals are a 'Pig' to Handle**

A recent article in the "Pig World" magazine, describes the use of the PD4500 Hand Held Terminal on British Pig Farms, for the recording and display of a wide variety of information on individual animals. In one situation, a farmer can enter that a sow has just been 'served'. This immediately brings up the farrowing date on the display. In another usage, a stockman can enter by keyboard or detect by transponder, the identity of any pig, and quickly obtain data on feed amounts, age, weight and so on.

The terminals have been programmed for these specific tasks, by AgroSoft (UK) Ltd., ([www.agrosoft.ltd.uk](http://www.agrosoft.ltd.uk)), who have had reported to them that the units have been bounced on concrete and dunked in water, and still operate perfectly reliably.

The terminals can be connected to the PC network in the farm office, where all collected data can be uploaded and analysed on AgroSoft's WinPig system. At the same time, updated information about individual animals can also be downloaded to appropriate hand held terminals.



## **Austrian Centre of Excellence for Fieldbus Systems**

Austrian Centre of Excellence for Fieldbus Systems (Feldbus-Kompetenzzentrum) is based at the Vienna University of Technology. Its main tasks are:

- imparting of technical know-how and consultation,
- support of software and hardware development (in co-operation with industry, but also in the form of diploma theses),
- presentation, training, education on multi-vendor installations
- national and international project support,
- organisation of workshops and conferences,
- giving expert's evaluations and certifications.
- interoperability tests

Different fieldbus multi-vendor systems, such as ASI, Bitbus, CAN, EIB, LON, P-NET, Profibus-DP and Profibus FMS, are set up at the Centre and used for educational, research and development purposes. Activities in the area of the P-NET fieldbus form a part of the whole Centre activities. The current major research topic is fieldbus - Internet connection, that has resulted in the practical investigations for P-NET and Profibus. Another major Centre objective is fieldbus interoperability tests under the multi-vendor environment. These tests are significantly beneficial for companies integrating their devices into the Centre's installations and assure a leading role of the Centre in the fieldbus technology activities in Austria.

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## **VIGO Fieldbus Management System version 4.0 to be released in the near future!!**

Soon PROCES-DATA will launch VIGO 4.0 - the latest version of the Fieldbus Management System for Windows 95/98/NT, which enables standard and specific Windows applications to be linked to fieldbus variables, using OLE technology. A standardised application interface provides the means for any fieldbus type, e.g. P-NET, Modbus, Profibus, WorldFIP, etc., to intercommunicate, including all LAN types supported by Windows, e.g. Ethernet.

We will inform you on the PROCES-DATA home page ([www.proces-data.dk](http://www.proces-data.dk)), when the release date has been set. The current version of this superior fieldbus management software, VIGO Ver. 3.0, is still available on a [CD-ROM](#) or downloadable from the internet location. It's available as a 30 days fully functional trial version. For more information about the features of VIGO Ver. 3.0, [visit the VIGO page](#) on the web site or call PROCES-DATA +45 87 200 300. On the web site you can also [fill in a form](#) to request the information.

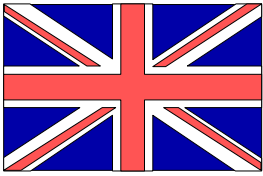


## **PD 3930 PC P-NET interface module for parallel port will be released in the near future!!**

As you see above, VIGO 4.0 - the latest version of the Fieldbus Management System for Windows 95/98/NT, will be released soon. The new PC P-NET interface module, PD 3930, will be released simultaneously

Unlike the existing PD 3920 PC to P-NET internal card, the interface module utilises the parallel port, and will now enable laptop, as well as desktop PC's, to be utilised for P-NET configuration and operation.

We will inform you on the web page when the release date has been set.



## **News from the UK**

by Chris Jenkins, Chairman of the local P-NET society in Great Britain

### **Impact of Fieldbus and Sensor Fusion in Flowmetering**

The DTI (Department of Trade and Industry) have commissioned Sira Test and Calibration Ltd, to produce a study into the current usage of intelligent flowmetering within the UK. Whilst the study features flowmeters as a specific node type, a great deal of general comparative information is also included about various fieldbus types, especially those included within EN 50170. Also included is persuasive data regarding the cost advantages of designing new projects using fieldbus technology. The study is due to be published in May 1998, and further information can be obtained from the IPUO, or Steve Cork, at Sira Test and Calibration, (spcork@siratc.co.uk).

### **FACES**

The DTI have also commissioned Sira to arrange some 40 half day "workshops" around the country, over the next 3 years, which describe the emerging advantages of fieldbus technology for UK industry. FACES stands for Fieldbus Awareness Campaign & Exploitation Service! The IPUO are supporting this important strategy, and will be presenting application descriptive papers on a rotating basis throughout the campaign. Further information can be obtained by contacting the UK office pnet@easynet.co.uk or on the Sira web site [www.sira.co.uk/fieldbus](http://www.sira.co.uk/fieldbus).

### **MTEC**

The IPUO presented a paper at this conference/exhibition held in February at the NEC in Birmingham, entitled Flowmeters and Fieldbus. It described the versatility of the well known PD340 range of magnetic flowmeters, but also how to utilise a standard P-NET module (UPI) to turn other flowmeter types, such as turbine and positive displacement mechanisms into fully fledged intelligent flowmeters. A copy of this paper is available on application.



The IPUO will be providing a stand at FieldComms 98, at the new venue at the Telford exhibition centre, in the Midlands. Members are welcome to take space to exhibit their products/services. Papers on various P-NET associated subjects, a tutorial and a workshop, will also be given by members, at the associated conference. Contact Chris Jenkins at [pnnet@easynet.co.uk](mailto:pnnet@easynet.co.uk) for more information.

## Connecting P-NET to the Internet via SNMP

*Melih Ayal, Mikhail Gordeev*

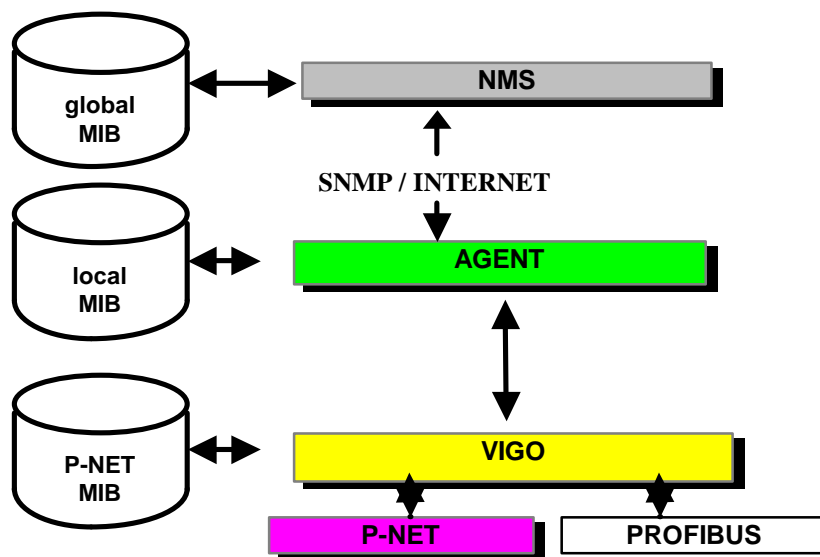
**Institute of Computer Technology, TU Vienna, Austria**

There is no doubt, that networks in process automation and world wide computer networks are different. However, it is worthwhile considering the combination of both. The most interesting idea in this context, is to open the global resources of Internet to fieldbus systems. It can be easily seen, that such an attempt offers two major advantages. First and most obvious, an interconnection between a global computer network and fieldbus system opens the opportunity to access FAN (field area networks, fieldbus systems) from virtually all over the world. The second and even more important advantage originates from the fact that the Internet is based on global standards for both communication and management of remote systems, which in fact was the key to its world wide success.

Because they use their own protocols, FANs cannot be connected directly to the Internet, which makes the use of proxy devices for protocol translation necessary. To provide each node of the FAN with a proxy could be one possibility. But this solution encapsulates several serious disadvantages [1]. Another possibility could be to use the common proxy that acts as a gateway for all fieldbus nodes of one particular FAN. As this seems to be the most interesting, due to its low costs, we have decided to concentrate on this approach.

In a plant different fieldbus systems can be used. Management of the relatively big number of such plants should not mean a large expenditure for the whole system. The management system should be very simple and flexible in a way that it could be suitable for different fieldbus systems after few modifications. Everything mentioned above is provided by SNMP (Simple Network Management Protocol), the simplicity of which makes the proxy agent implementations easy and small. A system utilising this concept is shown on the *figure 1*.

We use a network management system (NMS), that runs management applications and can be a commercial product. The NMS communicates with an agent over SNMP. The agent stores all the management related data in a local Management Information Base (MIB). The agent for P-NET uses an OLE-2-automation client, which can send data to, or request data from the P-NET via VIGO. VIGO provides a transparent and well-defined interface between the network management system and variables and constants in P-NET nodes. The agent also allows the selection of the managed objects.



*Figure 1: Network management system for P-NET.*

The management system should be flexible enough, so that the NMS doesn't need to know what fieldbus is being managed. If the agent receives a request from the NMS, it retrieves the data either from a local buffer or directly from the fieldbus system. The agent MIB will be updated each time a new managed object is added to the fieldbus system.

The aim of the project, to be carried out at our institute, is to implement a system encapsulating the features briefly discussed in this paper, and open the world of Internet to fieldbus systems.

#### *Literature*

1. **Martin Knizak, Michael Kunes, Martin Manninger, Thilo Sauter:** Applying Internet Management Standards to Fieldbus Systems, IEEE International Workshop on Factory Communication Systems, S. 309-315, IEEE, Piscataway, 1997, 0-7803-4182-1



## **Editorial.**

### **Internet/Intranet**

In almost any magazine or newspaper that you open nowadays, the words Internet or Intranet pops up. You simply can't avoid it, and this technology has also entered into the Fieldbus world. Connections are made between various types of networks, each working in their area of application and based on different technologies.

Several examples can already be found with our own Fieldbus, (see the article on page 13), and a number of presentations have already been given at International Fieldbus Conferences. One worth mentioning, is a paper given by Martin Wollschlaeger, Institute for Measurement Technology and Electronics (IPE) Otto-von-Guericke-University Magdeburg, Germany. The title was "Intranet based Management of Fieldbus Systems", where some management concepts and implementation strategies were highlighted. Examples were given for P-NET using VIGO.

An interesting example from the "real world", is data logging, where P-NET is integrated with an Intranet solution in a manufacturing plant. This is briefly mentioned on page 5. Manufacturing data are automatically collected by means of standard P-NET equipment, integrated and distributed on the factory network using standard software, and made available for anybody with access to this network. Simple and efficient!

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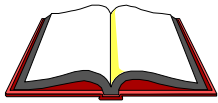
**P-NET** NEWS      Published

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The P-NET News is published 3 or 4 times a year and is mailed to all members of the International P-NET User Organization ApS, the technical press and other interested parties.

Contributions from members, for inclusion in future issues of the P-NET News are welcomed. These could consist of news on events, new products or development experiences. Copy for the next issue, should be sent to IPUO Headquarters for consideration, by the end of August 1998.



## Diary of Events

The International P-NET User Organisation has, or will be actively involved in the following conferences and exhibitions. For further information on attendance or involvement, see details in this newsletter, or contact IPUO headquarters or your local branch office.

<b>FieldComms'98 - Telford UK</b>	Exhibition & Conf	September 98
<b>EITech 98 – Odense, Denmark</b>	Exhibition	September 98
<b>Feldbusse – Regensburg, Germany</b>	Conference	October 98
<b>Messtechnik und Messdatenverarbeitung</b>		
– Passau, Germany	Conference	October 98
<b>SIM'98 – Copenhagen, Denmark</b>	Exhibition	October 98
<b>Feldbusse – Essen, Germany</b>	Conference	November 98
<b>SPS/ PC/ Drives – Nuremberg, Germany</b>	Exhibition	November 98
<b>6<sup>th</sup> International P-NET Conf - Vienna</b>	Exhibition & Conf	Spring '99

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