PROFINET at the SPS/IPC/DRIVES exhibition

PROFINET is showcased at SPS/IPC/DRIVES 2008 as a versatile and efficient standard offering more efficiency, flexibility, and transparency. New products and systems expand the possibilities for applications based on Industrial Ethernet.

The SPS/IPC/DRIVES 2008 exhibition, which takes place from November 25 to 27 in Nuremberg, is set to receive around 45,000 visitors from around the world, in particular from the electrotechnology, electrical drive and control technology, and mechanical engineering industries. Siemens is once again showing its leadership this year with live presentations demonstrating a wide range of products and systems in exciting applications. Machine and system manufacturers alike face the challenge of increasing productivity, quality, and efficiency, and Siemens takes these requirements seriously by providing machine manufacturers with the right technology, know-how, products, and services. In the engineering center at Booth 310 in Hall 9, visitors can learn about Siemens’ wide range of products...
PROFINET with isochronous real time (IRT): New functions for complex automation systems

PROFINET with IRT, which has been available since mid-2008 for high-end SIMATIC applications, enables reliable operation of fast processes. Process data and standard Ethernet data with a high data volume can now be transferred to a network without influencing the process data. Moreover, machine and system structures can be realized with numerous nodes interconnected on a linear basis with very short update times. IRT-compatible devices also guarantee reduced throughput times (30 percent). The real-time (RT) feature is available for standard applications in all SIMATIC controllers.

The Fast Start-Up (FSU) function makes it possible to start PROFINET I/O devices within less than one second in conjunction with SIMATIC controllers. For instance, it optimizes the time required for coupling robot applications. This makes it quicker to change the tools on a robot in a body shop, for example. In addition, the integrated Web server for PROFINET controllers from the SIMATIC product line offers new, easy-to-use diagnostic functions, such as displaying the condition of components and the topology of PROFINET and PROFIBUS field devices linked to the system. Certain Web sites, such as those showing variable status and tables, as well as component condition, are automatically updated.

One of the innovations is automatic addressing of peripheral devices for commissioning. In this case, the I/O device is configured as usual as part of the hardware configuration process in SIMATIC STEP 7, and the device cabling is specified in the topology editor as the desired topology. After the data have been downloaded into the I/O controller, the configured and connected devices are automatically initialized and data are exchanged. This simplifies commissioning, especially for configurations that occur frequently, as in series machine manufacture or large systems with several PROFINET I/O nodes. Thanks to this function, replacing a device is also very straightforward, because devices such as SIMATIC ET 200 can easily be replaced for maintenance or in the event of a fault. The user simply plugs in the new device, and the parameter data for the device are defined automatically by the controller during start-up.

Easy and automatic start-up of configurations

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PROFINET product highlights

Some PROFINET innovations from the fields of controllers, distributed I/Os, human-machine interface (HMI), and industrial communication are being presented to the public for the first time at SPS/IPC/DRIVES.

SIMATIC S7-300/400: New system functions

New firmware V2.7 for the SIMATIC 319-3 PN/DP CPU and its fail-safe version, 319F-3 PN/DP, as well as V5.2 for the 414-3 PN/DP and 416-3 PN/DP CPUs and their fail-safe variant, 416F-3 PN/DP, offers new system functions. The new firmware allows the handling of fast processes by PROFINET with IRT. A fast start-up time of less than 1 second for PN I/O devices enables rapid tool changes in robots – for example, in auto body construction. The firmware offers more diagnostic functions via Web browser without a connected engineering system and simplifies the parameterization and diagnostic testing of field devices from a central point.

SIMATIC ET 200eco PN: Compact and robust

The SIMATIC ET 200 distributed I/O system is supplemented by the SIMATIC ET 200eco PN, a space-saving block periphery with IP65/67 protection for connection to PROFINET. The SIMATIC ET 200eco PN completes the comprehensive and graduated portfolio for the periphery for installation without switch cabinets. It is available with two types of housing and, due to the fully encased die-cast zinc housing, it is extremely robust and resistant to vibration. The new block periphery can be flexibly extended via PROFINET and supports line and star structures within a plant. Areas of application are, in particular, the machinebuilding and tool-making industries as well as the automotive industry.

SIMATIC Basic Panels for simple operating tasks

New low-cost SIMATIC Basic Panels serve as an entry-level series for small machines and simple applications. The devices are available with 10-inch or 15-inch touch displays. Both offer interfaces for PROFINET, and the 10-inch version is also available with a PROFIBUS interface.

The 10-inch version comes with freely programmable keys with tactile feedback. The engineering with SIMATIC WinCC flexible enables flexible scalability within the HMI family.

SCALANCE W Industrial Wireless LAN (IWLAN) with hopping capability

SCALANCE W offers a new iFeature: iHOP. This term indicates the capability to “hop” between radio channels. SCALANCE W Access Points and Industrial Ethernet client modules prove their industrial capabilities with numerous features for industry (iFeatures) such as iPCF (industrial Point Coordination Function) and the enabled fast change between radio cells (Rapid Roaming). However, sporadic interference sometimes occurs despite careful planning of a radio field – for example, due to the evening operation of a home WLAN in a nearby housing area. iHOP ensures reliable and robust IWLAN communication in such cases by enabling the SCALANCE Access Point to search for a better channel in a split second and to move there with its IWLAN client.
Siemens presentations about PROFINET at the SPS/IPC/DRIVES 2008 conference

The SPS/IPC/DRIVES 2008 conference offers senior-level staff working in development and product line management in the supply and user industries, as well as scientists working in applied research, an excellent platform to discuss new technologies and innovative applications and obtain answers to specific questions. Siemens is making a total of three presentations at the conference that are specifically related to PROFINET. «

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**Session 1a) Industrial Ethernet**

11:00 – 11:30 a.m.: PROFINET technologies for increased efficiency in commissioning and operation

Xaver Schmidt, Siemens AG, Nuremberg

By using a network topology based on mechanisms such as DCP and LLDP, PROFINET offers automatic start-up of an I/O configuration or easy replacement of a device in the event of a fault. However, network topology can also be the starting point for comprehensive diagnostics, enabling rapid start-up and fault location using Ethernet standards such as SNMP and Web as well as its own definitions for network and device diagnosis, such as PDEV and Maintenance. This is demonstrated in the presentation with practical examples. «

**Session 3a) Wireless in industrial plants**

10:00 – 10:30 a.m.: Emergency-stop wireless: Is it possible?

Ewald Kuk, Siemens AG, Nuremberg

In the future, the demand for mobile operating and monitoring systems and wireless and reliable data communication from customers in industry will increase dramatically, and will include the wireless sensor. This presentation provides an overview of the state of wireless technologies as well as looking toward future developments and shows its implementation using existing PROFINET PROFINET safe wireless systems from the perspective of customer requirements, solutions, and benefits. «

**Session 3b) IT safety in the network**

12:00 – 12:30 p.m.: Network diagnosis and simulation in PROFINET networks

Bernhard Kraft, Siemens AG, Karlsruhe

With new tools it is possible to offer PROFINET network operators efficient monitoring and simulation. Reaction-free real-time analysis of the data traffic with transmission rates of up to 1 gigabit per second and a resolution of 10 nanoseconds makes it possible to control the PROFINET network autonomously and effortlessly across all known speeds. Simulation components simulate the devices in real time – for example, during configuration and engineering work on the controller. In this case, one simulation component can simulate up to 256 devices. Combined operation of real and simulated devices is also easily achieved. As a result, it is possible to simulate in real time a complete PROFINET system on the controller. «
10 years of PROFIsafe

On the 10th anniversary of the introduction of this groundbreaking technology, PNO is offering a new, live demo of PROFIsafe at SPS/IPC/DRIVES 2008 with the help of renowned manufacturers, in addition to a device presentation. The application symbolizes the process steps of production systems – from Upstream to Mainstream right through to Downstream. In addition to the interaction of PROFIBUS, PROFINET, and PROFIsafe in production automation, the use of PROFIsafe in process automation is also demonstrated with various PROFIsafe-compatible PA devices and a fail-safe control unit. «

The future of automation systems

A further highlight of the communal booth is the forum entitled “The Future of Automation,” organized jointly by PNO and the INTERBUS Club Deutschland. Here, experts present current technology topics every hour. In addition, numerous company presentations and several multivendor demos provide information about new products, services, and solutions. In this way, various technology providers are demonstrating the value-added chain in the development of PROFINET products. Topics include advice and design, implementation and certification, and support and service. «

Other participation at the trade fair

In addition to showcasing new PROFINET functions and products, Siemens is also represented at the PNO booth in Hall 6, Booth 210. At the heart of the communal PNO booth at this year’s SPS/IPC/DRIVES is functional safety technology with PROFIsafe. Ten years ago, in September 1998, PROFIsafe launched a new era of safety technology in which secure data are transferred together with conventional data via a shared bus cable. Since then, PROFIsafe has developed into a global market leader, thanks to its open structure and widespread installation. «

Links zum Thema

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www.mesago.com/sps