

PROFINEWS

PROFIBUS & PROFINET news from around the world

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Impressive Networking

by Karsten Schneider - Wednesday, January 06, 2016

<http://profinews.com/2016/01/impressive-networking/>

*Karsten Schneider, Chairman of PI on Industrie 4.0.
(For PI, the Industrial Internet of Things is a [subset](#) of Industrie 4.0.)*

Industry 4.0 calls for easy-to-handle solutions that are characterized by high performance capability for real-time, availability, flexible topologies, and integration – even over great distances – and that also make use of the many possibilities of the digital world. In recent years, PI has brought about numerous developments that meet these requirements.

For example, the openness of technologies is always an important maxim and is ultimately also the reason for the success of the PI technologies. This means that specifications and guidelines are available to any interested party for implementation in products or use in systems and applications.

Also, the transmission of large data volumes, an important requirement for Industry 4.0 solutions, has also been a top priority for PI. PROFINET is currently the only standard that supports the complete real-time bandwidth, from hard real-time requirements in high-performance machines with the necessary openness for IP communication all the way to transmission of large data quantities in real-time within automation systems and with higher-level IT systems.

PI has not only mastered the networking of technologies but also the networking of users, manufacturers, and associations. PI has long been collaborating – often already before the term "Industry 4.0" existed – with important committees to advance important issues such as Semantik eCI@ss, Automation ML, Condition Monitoring (for example, with VDMA), integration of OPC UA (with the OPC Foundation) and cloud services as well as product descriptions.

These activities are now intensifying in the newly formed working group I4.0@PI. The technologies of PI are being evaluated in detail here using specific use cases against the backdrop of the requirements for production systems for Industry 4.0. The core of this is PROFINET, which takes on the role of the backbone in the automation systems. The working group is identifying properties in the available technologies that already meet the requirements of Industry 4.0. If there is a need for development, specific task areas will be defined. As part of this work, new technologies such as TSN and IPV6 will also be evaluated and action agreed on in the standardization committees. However Industry 4.0 looks in the future, PI will track the development with watchful eyes and ensure that the specifications set by PI, such as reliability, openness, and interoperability as well as reliable real-time behavior, are complied with and that the application of this complex issue remains simple.

PI North America 2015 into 2016

by Michael Bowne - Wednesday, January 06, 2016

<http://profinews.com/2016/01/pi-north-america-2015-into-2016/>

To understand our goals for 2016, it helps to look back on 2015, a year of milestones reached and surpassed. Some involved big numbers, like passing the 10 million node count for PROFINET. Others were more intangible, like our broad coverage in the trade press. Our *PROFINET of Things* tagline introduced mid-year certainly seemed to catch a few ears, playing off the 'Internet of Things' meme. As such, the concept will continue into 2016 and will be expanded upon.



Until now, here at PI North America, we've focused on the 'Uptime' part of the *PROFINET of Things*. We will now explore other topics like 'Data Access' and 'Openness'. For more, read the PROFINET of Things article in this issue. Fascinating to observe are the viewpoints from other parts of the world. For example, in Europe there is a big focus on Use Cases. As in, not just creating technology for technology's sake. The *PROFINET of Things* is playing a direct role in such Use Cases as: Individualization, Maintenance, and Optimization.

And so, our goals for 2016 and beyond involve publicizing real-world use cases. Like the thousands of installations extant today where PROFIBUS has performed with aplomb for years. Except manufacturers are realizing there are applications beyond typical control for these automation networks. Therefore, using standardized proxies and flexible topologies, more hybrid systems are being installed as the step-by-step migration continues in the *PROFINET of Things*.

No-charge North American PROFINET Classes

by Carl Henning - Wednesday, January 06, 2016

<http://profinews.com/2016/01/no-charge-north-american-profinet-classes/>

Lunch for 1,263 please. In 2015, PI North America fed 1,263 students lunch at the 17 PROFINET one-day training classes. A similar crowd is expected in 2016.

Industrie 4.0, Internet of Things, and Industrial Internet of Things (IIoT) are everywhere now, including these PROFINET classes. PROFINET provides the fundamental task of providing data to IIoT. (For a 46-second video explanation of the relationship between Industrie 4.0, IoT, IIoT, and PROFINET visit [here](#).) PI North America calls this fundamental task the “PROFINET of Things” and it provides the framework for the class.

The class covers the range of applications that PROFINET is used with: factory, process, and motion control. PROFINET also has a depth of features and most of them are covered in the class.

Each application space and feature has its own section that includes an explanation of what it does and how it does it. The “how it does it” portion is not really required to use PROFINET, but the class is attended mostly by control engineers who want to know how. There are demonstrations using PROFINET devices, application stories, and competitive comparisons to round out the section.

The class has no prerequisites, but a minimal knowledge of Ethernet is expected. For those lacking that knowledge, a PI North America webinar called “[An Introduction to Ethernet for Control Engineers](#)” is recommended prior to attending.

For 2016, these cities have been selected (hyperlinked cities are open for registration the rest are in the process of being scheduled):

CITY	2016 DATE (CALENDAR WEEK)
San Diego, CA	Feb 2
New Orleans, LA	Feb 18
Silicon Valley, CA	Mar 1
Kansas City, MO	Mar 15
Greenville, SC	Mar 29
Oklahoma City, OK	Apr 12
Portland, OR	Apr 26
Philadelphia, PA	May 10
Milwaukee, WI	Jun 22
Cincinnati, OH	Wk 24
Cleveland, OH	Wk 35
Boston, MA	Wk 41
Nashville, TN	Wk 43
Houston, TX	Wk 45

CITY	2016 DATE (CALENDAR WEEK)
Detroit, MI	Wk 47
Jacksonville, FL	Wk 49

And Montreal, date TBD.

For a semi-serious look at how the cities are selected, visit the PROFIBlog post “[Picking PROFINET Cities.](#)”

Still curious? This two-and-a-half minute video provides an outline of the class day:

[YouTube Video](#)

PROFIsafe Certified Designer Training will be held in March in Germany. Prepare your staff to add PROFIsafe to your products with this English-language class. Students that pass all tests will be certified as “Certified PROFIsafe Designers.” Details [here](#).

For a list of global classes, visit our international [website](#).

Certified Network Engineer and Developer Classes

by Carl Henning - Wednesday, January 06, 2016

<http://profinews.com/2016/01/certified-network-engineer-and-developer-classes/>

Often students at the PROFINET one-day training classes wish for a hands-on experience. Given the class sizes, this is not practical. For an in-depth, hands-on class, PI offers Certified Network Engineer classes. These fee-based classes are a week long.

Theoretical and practical examinations are conducted at the end of the class. Students who pass both exams are certified and listed on the PI international website.

In North America PROFIBUS DP/PA and PROFINET classes are offered. PROFIBUS classes will be offered in Johnson City, TN by the PROFI Interface Center (PIC) and in Peterborough, ON at the Siemens Canada Learning Center. PROFINET classes will be offered in Johnson City, Seattle, and Detroit by the PIC.

For the 2016 calendar, visit the PI North America [website](#).

For a list of global classes, visit the PI international [website](#).

New in North America are customized Developer classes offered by the PIC. These classes are tailored to individual development teams who are adding PROFINET to their product. They can be held at the PIC or at the user's facility. Details are available at the PIC's [website](#).

For background on the PROFINET development process, view the webinar "[The Rapid Way to PROFINET](#)."

For specific information on the process of certifying a PROFINET product, view the webinar "[A Guide to PROFINET Product Certification](#)."

Intro to PROFINET of Things and IIoT

by Carl Henning - Wednesday, January 06, 2016

<http://profinews.com/2016/01/intro-to-profinet-of-things-and-iiot/>

Where does the Industrial Internet of Things and PROFINET fit in a control engineer's world?

At the level of the control network, IIoT is a new name for where automation was headed anyway. What is new is the use of the data produced by the control system to improve the overall process. Introduced are storage and analysis capabilities that provide a real ROI for the investments made in the control system and the analytics. The ROI is achieved by providing a better understanding of the process using current and after-the-fact data analysis. Data is fed back to the process contemporaneously or improvements are made through modifications of the machines and the procedures. PROFINET provides the data; the analytics provide the process improvement.

Here are the basics – definitions of Industrial Internet of Things, Internet of Things, Industrie 4.0, and PROFINET of Things in a 47-second video:

[YouTube Video](#)

Not just any Industrial Ethernet can claim to be foundational to IIoT; here are three benefits of PROFINET that differentiate it from the others.

Data Access. Getting the data is not very exciting. But without the data none of the rest of IIoT is possible. PROFINET provides the data at whatever speed the application needs it – from microseconds to multiple seconds. PROFINET arranges the data into objects (PROFINET calls them “Application Profiles”) to simplify multi-vendor access with little effort. PROFINET integrates legacy buses to preserve existing infrastructure and bring its data to IIoT.

Uptime. PROFINET helps support uptime and prevent downtime with fault tolerant devices and architectures and comprehensive diagnostics.

Openness. IIoT depends on open standards. PROFINET's openness goes beyond published international standards to implementation without contracts or license fees.

For more details on PROFINET's data access, uptime, and openness, read the white paper “[PROFINET of Things](#).”

Here are additional resources covering these topics:

- [Playlist](#) for four MinutePROFINET of Things videos
- [Past articles](#) in PROFINEWS
- [PROFIblog posts](#)
- PROFIblog post with links to magazine articles “[PROFINET and IIoT in the News](#)”

IO-Link: Did You Know?

by Carl Henning - Wednesday, January 06, 2016

<http://profinews.com/2016/01/io-link-did-you-know-11/>

Did you know that IO-Link is backward compatible with binary sensors?

The IO-Link communication interface is standardized in international standard IEC 61131-9. One of the initial goals of the multi-company standardization initiative was to create an interface that takes into consideration the existing architectures and the typical connection level in the lower field level. The point-to-point connection familiar there was simply taken over in IO-Link, complete with the standard cabling.

Moreover, the standard defines a standard I/O mode (SIO) in addition to the communication mode (COM). The SIO mode describes that an IO-Link master can also take up a digital input/output function according to IEC 61131-2 Type 1. Binary IO-Link sensors output digital switching signals according to IEC 60947-5-2 after switch-on using the connection C/Q provided for IO-Link communication.

The advantages are obvious: The wiring level in the lower field level can be used one-to-one without limitations for IO-Link connections and binary signals. A better degree of utilization can be achieved for the IO-Link master because IO-Link and binary sensors can be connected to a master module in a mixed operation. Binary IO-Link sensors, on the other hand, can also be operated with conventional digital inputs.

But does it make sense to operate an IO-Link sensor as a binary sensor? Yes, for example, because IO-Link is used as a standardized parameter assignment interface. With IO-Link a universal tool world and the device description IODD that exists for all IO-Link devices are available for the first time. It is therefore possible to make settings or 'clone' sensors efficiently even outside the actual application. The devices with preassigned parameters can then be integrated in a non-IO-Link application without manual setting.

[IO-Link](#)

Tech Tip: Troubleshooting PROFIBUS PA Networks

by Carl Henning - Wednesday, January 06, 2016

<http://profinews.com/2016/01/tech-tip-troubleshooting-profibus-pa-networks/>



A ten-year old white paper entitled “A Guide to Troubleshooting PROFIBUS PA Networks” is the most downloaded document from www.us.profinet.com. The guide is so old it still says PTO instead of PI North America. In the guide, author James Powell promotes a systematic approach that makes network set-up and trouble-shooting easy. You can download the guide [here](#).

James is also the author of *Catching the Process Fieldbus: An Introduction to Profibus for Process Automation*. The newest edition of the book can be downloaded at no cost [here](#).

Member News

by Carl Henning - Wednesday, January 06, 2016

<http://profinews.com/2016/01/member-news/>

PROFINET stalwart Phoenix Contact's Middletown, Pa., plant was named *Plant Engineering* magazine's Top Plant of 2015. HARTING announces "The HARTING Knowledge Center" app, a content hub of all of HARTING's educational materials, including white papers, FAQs, videos, brochures, and more.

Plant Engineering names Phoenix Contact 2015 Top Plant

Phoenix Contact, a leader in industrial connectivity and automation, has been named the Top Plant of 2015 by *Plant Engineering* magazine. The Top Plant program, established in 2004, honors outstanding manufacturing facilities in North America.

Phoenix Contact is a German-based company that established its U.S. headquarters in 1981. In its first two decades, Phoenix Contact's U.S. operations acted as a sales subsidiary, while gradually increasing its value-added manufacturing services. In 2005, the company launched a Development and Manufacturing (D&M) company at its Middletown, Pa., headquarters, to design and manufacture products based on American standards and customer needs.

"At Phoenix Contact, we believe we have proven that with the right strategy and the right focus on our people, we can successfully manufacture in the U.S. and compete globally," said Jack Nehlig, president of Phoenix Contact USA. "It was decisive investment, a focus on the long term, the pursuit of excellence while you do it, and really treating our people right that made the difference. We are honored to receive the 2015 Top Plant Award, which is a testimony to the success of those decisions."

As demand for Phoenix Contact's locally designed and manufactured products has grown, so has the company. In 2014, Phoenix Contact completed construction of a 125,000-square-foot addition to its U.S. facility. The expansion included 50,000 square feet of production and support space, and 50,000 square feet of office and lab space.

The D&M company went from no exports a decade ago to exporting around 30 percent of its manufacturing dollar volume in 2015. "The development and manufacturing investments were founded on the principle that being close to our customers would bring significant benefits in speed and flexibility. Our growth is recognition that these high-quality facilities and people are delivering that value," said Dave Skelton, vice president and general manager, Phoenix Contact D&M.

"Even as a subsidiary of a \$2 billion global company, Phoenix Contact USA has built a formidable reputation as a manufacturer in its own right," said Bob Vavra, content manager, *Plant Engineering*.

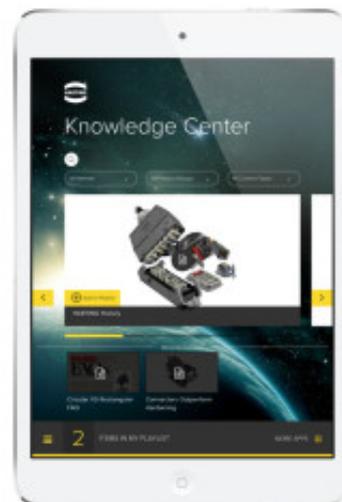
"It now employs more than 500 people in Middletown and continues to look for new ways to deliver customer value—and to continue its phenomenal growth."

Phoenix Contact joins an elite group of manufacturers who have been named Top Plant in the past. Previous winners include Mother Parkers RealCup, Victaulic, Lincoln Electric Co., Pfizer Global Supply, Toyota Industrial Equipment Manufacturing, Siemens Industry Inc., Square D, SEW Eurodrive, BMW, DaimlerChrysler, and Hewlett-Packard.

[Phoenix Contact](#)

HARTING Knowledge Center App Educates Engineering Community

HARTING North America announced that it has released a new app for Apple and Android devices – the HARTING Knowledge Center. The HARTING Knowledge Center app is a content hub of all of



HARTING’s educational materials, including white papers, FAQs, videos, brochures, and more. The app also allows users the ability to make custom playlists and send them to any email address.

“We want to make it easy for our customers to find the information in order to make educated buying decisions. Engineers need the right tools to better inform themselves when choosing a connector solution. That is why we created the Knowledge Center app.” said Christina Chatfield, Director of Marketing at HARTING, Inc. of North America, “Our customers have different applications, so the app allows a customized experience depending on each individual’s needs.”

Users can sort through content by market, product or content type so they only have to see the information that’s relevant to them. The playlist feature also makes it easy to share information with colleagues or anyone else who might need it.

The HARTING Knowledge Center app is available on the iTunes and Google Play store for Apple and Android phones and tablets.

[HARTING](#)

Regional News

by Michael Bowne - Wednesday, January 06, 2016

<http://profinews.com/2016/01/regional-news-2/>

Why have an entire section of PROFINETS dedicated to Regional News? It matters for three reasons. First, it shows the strength of the PI organization on a global scale. Second, if you are a device vendor, it encourages you to explore other such markets with the expectation of local support. And finally, if you are an end-user, it assures that if you start operations in another country there are already experts in place.

Brazil

PI Brazil has completed workshops at Ambev (beer manufacturer) plants in Jacareí and Cervejaria Rio de Janeiro, one of the company's largest. It is part of an agreement signed between PI Brazil and Ambev. The morning sessions consisted of technical lectures on PROFIBUS and PROFINET from engineers at various member companies. The afternoon sessions featured demonstrations and hands-on practice. Other events included taking part in the Campinas section ISA show, and conducting trainings at Produquímica and Gerdau.

China

On December 15th, 2015 PI Chairman Karsten Shneider announced at a press conference in Beijing that PROFIsafe was issued as the first functional safety China National Standard. It is a remarkable milestone for the development of functional safety in China. At the same time, local Chinese automation vendors have started to produce devices based on PROFIsafe. For example, a pressure transmitter from the Shenyang Institute of Automation was certified at the event.

Japan

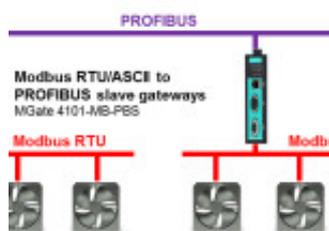
The cooperation between CC-Link IE and PROFINET was announced at a press explanation event in Tokyo last month. It comes on the heels of the announcement made at SPS/IPC/Drives in Nuremberg in late November. There were many relevant questions from the press on hand. Following the press explanation, the *System Control Fair 2015* took place, where the JPO (Japanese PROFIBUS Organization) hosted a popular booth.

Product News

by Michael Bowne - Wednesday, January 06, 2016

<http://profinews.com/2016/01/product-news-2/>

There are two new gateways to announce this month: a PROFIBUS to Modbus gateway from **Moxa**, and one for PROFINET to PROFIBUS PA from **Softing**. Also, **Siemens** announces an RFID system with IO-Link connectivity, and **Acromag** announces new I/O.



[Efficient Modbus-to-PROFIBUS Conversion in Modern Automation Systems](#)

Modern automation control systems can significantly decrease the total cost of ownership by using intelligent field devices to further enhance savings. Since most of these devices implement Modbus RTU, a simple but cost-effective communications protocol, a common challenge is the integration of Modbus RTU devices with PLC control networks that use PROFIBUS. **Moxa** has announced a gateway to help.



[RFID systems with IO-Link](#)

SIMATIC RF200 is the new, compact RFID system to ISO 15693 within the SIMATIC RF product family from **Siemens**. The system consists of space-saving HF readers that are particularly suited for applications in intralogistics or in small assembly lines. They offers a seamless integration into the established PROFINET and PROFIBUS field buses via a corresponding IO-Link master module.



[Direct Integration of PROFIBUS PA Devices into PROFINET Networks](#)

The pnGate PA from **Softing** supports widely accepted device configuration, parameterization, and condition monitoring tools like for example Siemens PDM, PROFINET Engineering Systems, and Device Type Manager (DTM) frame applications. This significantly facilitates the migration from PROFIBUS DP to PROFINET applications in the process industry.



[New I/O with PROFINET Connectivity](#)

Acromag's BusWorks XT Series discrete I/O Ethernet modules now interface signal devices on PROFINET and other networks. They are ideal for a variety of remote monitoring, distributed control, or SCADA applications. Front-facing terminals allow for more convenient wiring and support daisy-chaining for simple and cost-effective installation.

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