PROFINEWS

PROFIBUS & PROFINET news from around the world

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Welcome to PROFIsafe Growth

by Carl Henning - Thursday, September 01, 2016

http://profinews.com/2016/09/welcome-to-profisafe-growth/

Sometimes time goes very fast; a year ago PI published my welcome article on PROFIsafe in PROFINEWS. As everyone expected the number of PROFIsafe nodes installed has reached 5.4 million in year 2015. There is no doubt that this trend will continue for the coming years because of the transition of fieldbus technology from PROFIBUS to PROFINET and market acceptance of safe PLCs for functional safety. All machine builders are considering that PROFIsafe can be part of a new safety concept while engineering the next generation machines and going away from the traditional way of implementing safety with relays. The production lines are already well interconnected and now will raise the bar with reconfigurable safety devices. This can be achieved only when the safety parameters are secured.

Industrie 4.0 is a big leap for factory and process automation. PROFINET technology has proven to be the backbone of it. The safety and security of machines and plants play a big role in the journey of Industrie 4.0. As an open communication profile, PROFIsafe technology is accounting for future requirements, including them in updates to the PROFIsafe specification.

In this issue you will find some of the successful stories of PROFIsafe which we are permitted to publish but that does not mean that only these few F-Devices are installed in the field. Some case studies have been placed on PI website and more will be added in the coming months. As PROFIsafe is becoming the proven industry standard for safety communication, innovation is taking place in many safety devices. More PROFIsafe F-Devices and Gateways are being developed as the number of F-Hosts available in the market is increasing. The development time for F-Devices has gone down over the years due to the availability of design kits and pre-certified modules. In addition to regular workshops organized each year, PI provides the certified designers course for expediting the development time and device certification process.

The real benefits of using the PROFIsafe profile are explained with a live demo panel, which is presented on several fairs and also in the user workshops. The live demo consists of three machine modules and each has a Fail-safe PLC as PROFIsafe F-Host from a different provider. Each machine module consists of several F-Devices for its safety. If there is an emergency, the E-Stop button or Laser scanner or Light curtain is enabled to activate the Safe Torque Off (STO) function of a Drive to stop the motor. For example a door is opened, the speed of the motor is limited to access the machine safely by activating the Safely Limited Speed (SLS) function of a drive. These drive based safety functions can be activated at same time for all modules or independently for any module of the whole machine. This gives more flexibility and increases productivity. This all happens over just one PROFINET cable because the PROFIsafe communication works based on the Black-Channel principle. Less wiring means not only just cable savings but also time saving due to reduced electrical work which offers extra time to build more machines.

This month PI has prepared a video of the PROFIsafe Live Demo to explain some of the advantages of choosing well established PROFIsafe as safe fieldbus communication. This has been placed on PI

website, YouTube channel, other social media, and in the "New Videos" article in this issue. I hope it gives you the motivation to explore more about the simplicity and the interoperability of PROFIsafe profile. also hope you enjoy reading the PROFIsafe product news and application stories. I look forward to seeing you in one of the next user workshops or at the PI Booth at the SPS/IPC/Drives Fair.

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Safety for Bettmeralp Aerial Tramway

by Carl Henning - Thursday, September 01, 2016

http://profinews.com/2016/09/3682/

Project

The cable car from the valley floor in Wallis to Bettmeralp at 1933 meters above sea level is the "umbilical cord" for this popular vacation destination: Skiers, hikers, and locals use it for transportation since Bettmeralp is car-free. Groceries, building materials, and heating oil are brought up from the valley and trash is brought down, see figure. Just imagine what

would happen if the cable car failed. That is why a second, independent drive and a new controller were installed in 1992. In spite of excellent reliability, it was becoming increasingly difficult to find spare parts. Moreover, converter efficiency could not achieve the efficiency of today's drives. A modern asynchronous motor in combination with a frequency converter is approximately 25 percent more efficient. Consequently, the Bettmeralp cable cars decided to replace the drives along with the controllers. Sisag of Altdorf supplied the controllers and Beat Bossi, Technology Director, said: *"The main difference compared to industrial applications is the high demands on personal safety: The cars of the aerial tramway travel at 8 meters per second. They have to brake in good time before arriving at the stations!"* A so-called film lab is used to control and monitor the velocity.

Solution

"We decided to use a fail-safe controller and chose a Siemens product because it offers the greatest modularity in the safety area as well as a large selection of decentralized devices", said Bossi.

The S7-300F monitors the setpoint and the effective velocity with the values of various sensors that are attached to the motor shaft or monitor the cable velocity directly. A PROFIBUS connection ensures the communication between the system controller, monitoring, and visualization. Sensors and actuators are linked using fail-safe input/output nodes. The controller and safety controller communicate with the decentralized modules in the bottom station via an optical link. If the car is traveling too fast, the safety controller initiates a braking operation – first via the normal operating brake located between the motor and gearbox. If the car does not slow down, because of a broken drive shaft, for example, the safety brake is activated and acts directly on the large driving pulley that the cable runs on. Because the car cannot be

stopped abruptly but rather must be decelerated continuously, the safety controller monitors the operation. The analog values are compared with a defined ramp, which requires a lot of computing power. Besides the operating data, various other sensors are monitored. If, for example, the locking brake or an Emergency Off switch in the car is actuated, the motor must be stopped immediately and the aerial tramway braked. An inductive telecontrol system is used for this, whose function is also monitored by the fail-safe PLC.

Conclusion

When the cable car is carrying 125 vacationers up to Bettmeralp, safety is of utmost importance. The cable car is therefore monitored by a fail-safe controller that has been modernized together with the drives and main controllers. PROFIBUS ensures reliable communication.

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Safety for Cement Plant Crane

by Carl Henning - Thursday, September 01, 2016

http://profinews.com/2016/09/safety-for-cement-plant-crane/

Project

To produce 900,000 tons of cement annually, the Holcim cement plant in the Eclépens municipality (canton of Vaud, Switzerland) operates 24 hours a day and over 300 days a year as a very much function-oriented plant. At the heart of the plant, a traveling crane plays a key role in the production process, linking (a) the breaking down of raw materials process in the rock crushers with (b) the burning of the material in the rotary kilns at 1450° C. This giant crane has been used before at a subsidiary plant of Holcim in Italy, then returned to Switzerland, re-built and finally put into operation in the Eclépens plant. Part of the rebuilding of the crane was its automation including a special emphasis on safety aspects of people and equipment.

Solution

PROFIsafe technology as centerpiece

The task of automating the traveling crane was given to ONLINE Automation S.A. , which had prior experience in the field. After a complete overhaul, the control cabinet was ready for use in automatic operation. The RFID system, which enables correction of non-preventable crane slippage, was installed in collaboration with Stefan S.A. of Givisiez. Sensors were positioned every 2 to 3 meters on the traveling crane. "*One of the major advantages is that all safeguards of restricted zones are software-controlled,*" said Daniel Roth, Managing Director of ONLINE Automation.

The Holcim Standard S7 was chosen for the hardware portion. PROFIBUS DP connects the I/O devices of the traveling crane, while PROFINET is used for communication with the stationary equipment in the hall. In both cases, WAGO supplied the standard remote I/O and the safety devices based on PROFIsafe.

Besides the option to use wireless communication, the PROFINET standard provides a vertical architecture between the control room, the programmable controllers, and the remote I/O in the field. The controller mounted on the traveling crane communicates with the safety input/output modules installed in the control cabinets in the hall via a WiFi connection. It is possible to access the controller and the configuration of the safety equipment from the control room. The TCI technology (Tool Calling

Interface) as well as a routing option (Tool Routing) of the programmable controller are used for parameter assignment of the PROFIsafe safety inputs/outputs. The data are transferred via the LAN from the programming device to a controller, which outputs the parameters to the I/O modules that are connected to PROFIBUS. This interesting solution for the PROFIsafe modules provides a major advantage during commissioning and maintenance of the system.

Wiring savings and intelligent materials handling

Particular importance has been placed on safety of personnel. The risk analysis was performed directly by Holcim. The introduction of the PROFIsafe system enables the management of all "Emergency Off" disconnections and door contacts. For this purpose, the clinker hall was divided into two different areas: one that is accessible for vehicles that convey the raw materials and another where the machines that form the cement are charged with a clinker mixture of lime and gypsum. All doors are equipped with Emergency Off disconnections. As soon as an Emergency Off is triggered, the traveling crane comes to a standstill immediately.

Conclusion

One of the main innovations is the operating mode. Normally, the safety relay is wired using an electromechanical component that interrupts the connection when tripped. In

 Eclépens the traveling crane is driven by a safety controller with programmed logic. As a consequence, the wiring expense is much less. *"In addition, we also have the advantage of the ability to access the parameter assignment of the various modules from the programming station via Ethernet and, namely, independent of the fieldbuses,"* said Stéphane Rey, Product Manager for Industrial Automation at WAGO Contact SA.

The positioning commands of the traveling crane are transmitted directly to the programmable controller by the "O_Stock" application program developed by ONLINE Automation. With the help of a database and optimized algorithms, the EDP (Economic Development Program) application efficiently manages the inventory of bulk materials that arise due to the flow management in the hall. The system has three operating modes: automatic mode, operation via remote control (equipped with safety products), and via the cab operator's seat. In automatic mode, the operations can be visualized by cameras and monitored from the control room. This enables protection of operating personnel from dust and processed products. Daniel Gremion added: "This solution saved us one full-time employee."

PROFIsafe and Security

by Carl Henning - Thursday, September 01, 2016

http://profinews.com/2016/09/profisafe-and-security/

Typically viewed as separate activities, functional safety and security share some conceptual approaches. Both require an initial risk assessment which may result in some overlap in the mitigation phase. Here are some details and ongoing standardization work.

The introduction of functional safety in the manufacturing industry in recent decades represents an important step toward machine safety as well as a paradigm shift. Fieldbus technology has opened up additional opportunities for functional safety in machinery and equipment. With its ability to transmit safety-related messages together with standard messages on the same bus cable, the PROFIsafe communication technology of PROFIBUS & PROFINET International (PI) establishes an efficient and cost-saving "single channel" technology for functional safety for PROFIBUS and PROFINET.

Today, machines are expected to communicate with one another as well as with the outside world, which entails new types of risks. Examples of malicious interference resulting in disruption of the safe operation of machinery and motor vehicles have been featured in the news.

Real World Example

Two different safety functions can be configured for the same hardware component with the combination of a laser scanner, controller, control panel, and drive system:

- A: Protective field – When the machine operator gets too close to the danger zone, the drives immediately undergo a safe operating stop (SOS)
- B: Warning field – A trained operator can operate the machine in setup mode with safe limited speed (SLS)

Defined roles emerge from the safety perspective:

- The technology provider, e.g. PI with PROFIsafe
- The device manufacturer
- The machine manufacturer

The requirements of functional safety apply across all phases and to all parties involved:

- Functional safety management
- Selection of suitable devices and structures with corresponding diagnostic capabilities
- Selection of reliable components

This is to prevent injuries or death resulting from controller malfunctions. The rating criteria (SIL, PL) are first validated qualitatively and then quantitatively.

The requirements for IT Security are hardly different in that they apply across all phases and to all parties involved:

- Functional safety management
- Selection of suitable devices and structures

This is to prevent changes in machine behavior as a result of malicious attacks. The rating criteria (SL, FRs) are only qualitative.

Examination of the safety and security aspects of various applications calls for new measures, which have already been described in the PROFIsafe environment specification. The plant is divided into PROFIsafe islands (zones), which are connected via PROFINET and PROFIBUS (conduits). This enables the necessary interventions (including safety-related interventions).

Current standards

Among others, IEC TC 44, the IEC technical committee responsible for safety of machinery, is in the process of drafting a standard (IEC 63074). As in the case of functional safety, the standard will explain the basic principles. It will also explain how external attacks can put people at risk. Security requirements needed for protection of safety functions will be derived from this. These requirements are distributed among all life phases of the machinery and equipment and include:

- Organizational measures
- Passive and active technical measures

Possible reactions are also described:

- Ability to exclude security risk through the control concept
- Minimization of consequences of an attack
- Acceptance of these consequences
- Head off security risk via a further instance

Above all, the results in each step must be documented so that the effectiveness of previously used measures can be checked against new attack scenarios in the necessary recurring analysis. The possible target of these attacks must also be assessed. Different measures are needed for attacks on equipment than for attacks directed at the machine manufacturer, control components, or technology providers.

The draft standard retains the core concept that requires organizational or automatic monitoring of the environment of the safety function. Even if it can be assumed that espionage poses no safety risk for equipment, functional safety must be considered for all attacks that might change the behavior of the machine (sabotage). This starts with falsification of information during data transmission (false information about the status of equipment, which can lead to a dangerous situation in which the machine moves when it is supposed to be stationary).

In addition, accessible limit values can be changed by unauthorized operators and lead to damage. This is

the case when safe speed limits are entered for constant speed. It is already evident that measures classified as 'safety' measures, such as password protection and 4-eyes principle, can actually be classified as 'security' measures. Functional safety allows safety functions to be defined that can actively react to a 'security' attack.

Technology must be used. Security measures must be integrated and maintained in the recurring security risk analyses. It is the aim of TC 44 to stay in contact with users of the standards, and this approach has been presented to numerous machine manufacturers and industries with similar requirements or technical environment. The positive responses are spurring the working group to continue working in this direction, and some manufacturers are already feeling better supported today.

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PROFIsafe Test Tool Announced

by Carl Henning - Thursday, September 01, 2016

http://profinews.com/2016/09/3720/

F-Host test tool for PROFIsafe V2.61 available

In August, ifak released on behalf of PROFIBUS / PROFINET International the new version of the F-Host test tool. This new version supports the most recent PROFIsafe specification V2.6.1 and is also backward compatible to PROFIsafe V2.4. The development process was evaluated by TÜV SÜD Rail GmbH.

Potential users of the F-Host test tool are PI test labs using it for official certification tests and vendors of F-Host controllers using it for in-house tests. The F-Host test tool is aimed to prove the correct functionality of the F-Host state machine [PI2014]. Thus, the F-Host (Device under Test, DUT) is stimulated by field bus communication namely PROFIBUS or PROFINET. The architecture of the F-Host test system is oriented at the ISO standard for Conformance testing methodology and framework [ISO1994]. The architecture of the complete test setup is shown in Figure 1.
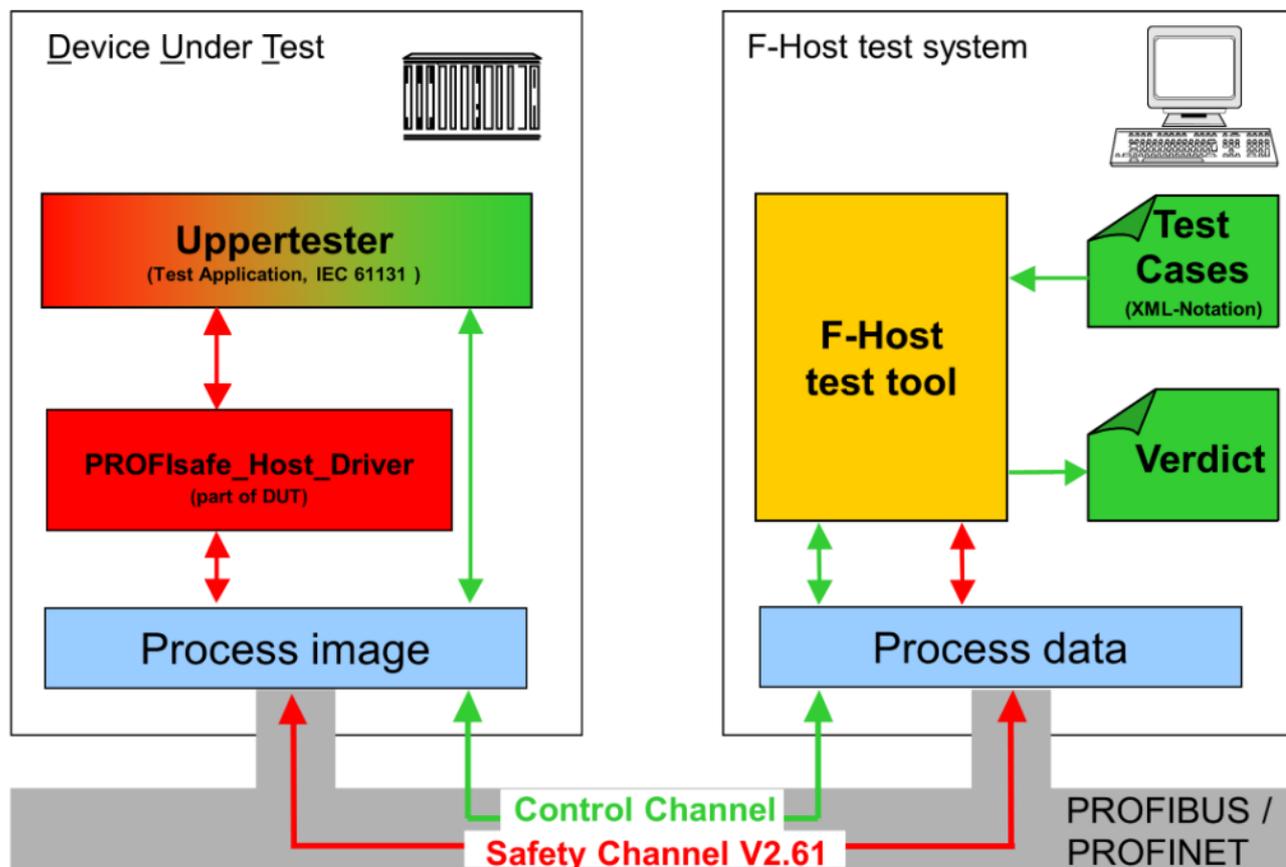

Figure 1: Architecture of the F-Host test system

The F-Host test tool performs tests in the form of test projects. Inside the test projects dedicated test cases are placed / referenced. Each test case references to a test script containing the test instructions. The test instructions will be interpreted and transformed into process data send and received to/from the DUT. The fieldbus specific datagrams will be created in a separate device called PROFILgate (Figure 2). This device implements a generic fieldbus interface for PROFIBUS and PROFINET, easy to use in high level development platforms or tools. The test project contains information which fieldbus communication system shall be used for the test.
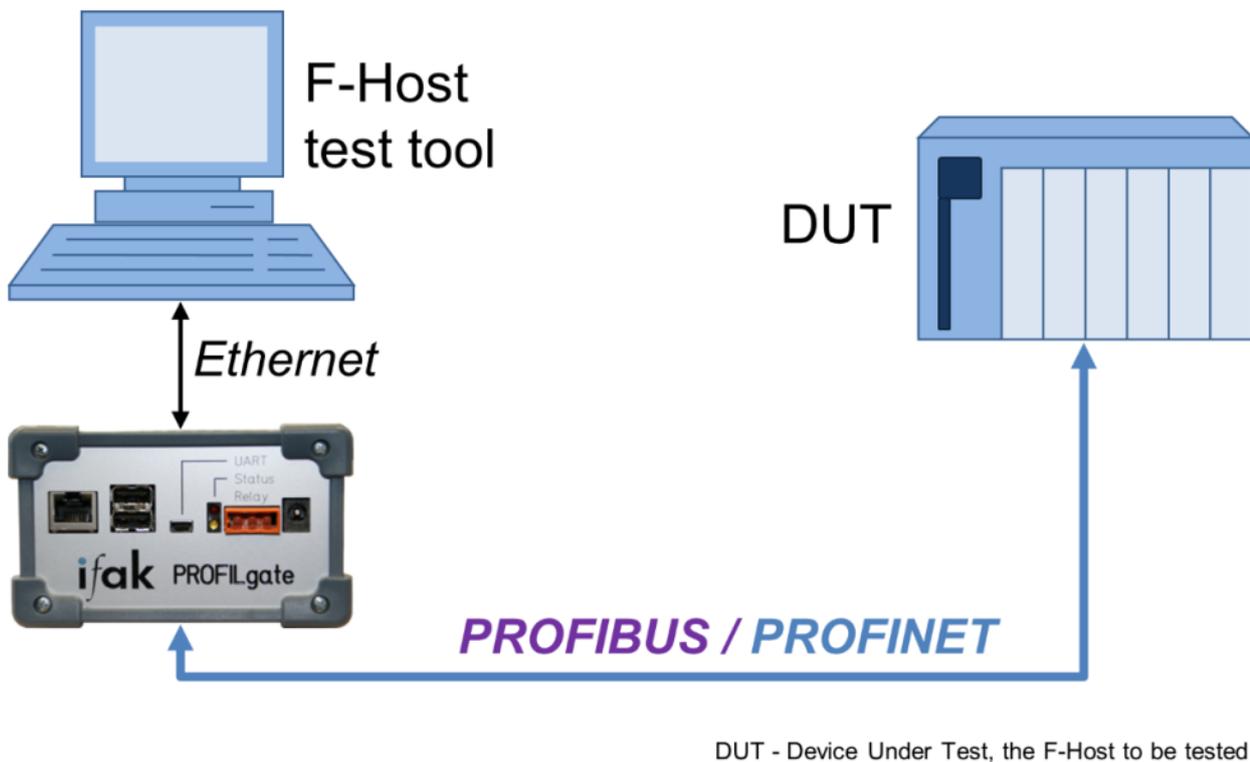

Figure 2: Communication path F-Host test tool to Device Under Test

The F-Host test tool compares the received data from DUT with the expected data defined in the test script and creates a verdict. It is important to note that there is a (software) part of the test system that is running on the DUT. This part is called upper tester and must be adapted to each DUT. This is in responsibility of each vendor of the DUT.

The F-Host test tool provides prepared test suites for PI conformance tests. These suites cover the PROFIsafe protocol versions BP (Basic protocol, corresponds to V2.4), LP (Loop-back extension) and XP (Expanded protocol) as well as the variants with/without persistent storage of faults. The test scripts are generated from the F-Host state machine by means of a formal transformation process. The official test suites and test scripts for PI certification tests are signed in order to prevent it from modifications. In addition, the creation of own test scripts is possible for in-house tests. The test tool provides the necessary editors.

Test results will be presented in form of detailed logging information and a short summary. This information may be exported as a test report. Interested companies should contact the PI Support Center.

Author: Dr. Matthias Riedl, Elke Hintze, Institut für Automation und Kommunikation e.V.

Literature

[ISO1994]   International Standard Organisation/ International Electrotechnical Commission: ISO/ IEC 9646: Information technology - Open Systems Interconnection - Conformance testing methodology and framework, International Electrotechnical Commission, Genf, 1994

[PI2014]   PROFIBUS Nutzerorganisation, PROFIsafe – Profile for Safety Technology on PROFIBUS DP and PROFINET IO, Profile part related to IEC 61784-3-3 Ed. 3, Technical Specification, Version 2.6.1, Order-No: 3.192., August 2014

[ifak2014]   PROFILgate: PROFILgate v5.0 Handbook, Date: February 13, 2014, info@ifak.eu

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New Videos

by Carl Henning - Thursday, September 01, 2016

http://profinews.com/2016/09/new-videos/

Two new videos help with understanding PROFINET and PROFIsafe. From Indu-Sol comes a video that shows how PROFINET works by using a street traffic analogy. From PI we have a live demo of PROFIsafe working. PI maintains three YouTube channels to which viewers can subscribe.

PROFINET Video

Congested highways, many intersections with traffic lights, and the ever-present heavy trucks slowing you down - traffic obstructions such as these are a nuisance not only to car drivers. In automated networks such as PROFINET, the "data highway" of the industry, so to speak, such obstacles play a decisive role in the quality of the communication and thus also affect production results. Those users who are aware of the significance of this correlation and who set up their networks accordingly are awarded with long-term stable data communication.

https://www.youtube.com/embed/lLwsUoSgwPA

PROFIsafe Video

The strengths of PROFIsafe have made it the market leading communication protocol for safety-related applications. Evidence of this can be seen in the more than 5 million installed PROFIsafe nodes (at end of 2015). To demonstrate the strengths of PROFIsafe, the PROFIsafe Marketing Working Group of PI has created a live demo video. The PROFIsafe live demo consists of the combination of a live application and a device wall.

https://www.youtube.com/embed/QjEeRvgO6jc

"Old" Videos

PI maintains three YouTube channels.

On PROFItelevision are dozens of live and animated videos including the very popular PROFINET Intro with 60,000 views and the PROFIBUS dialogs series.

The MinutePROFINET channel includes 22 individual one-minute videos, each highlighting a dimension of PROFINET. You can view all of them in order with this playlist or catch the most recent four that relate Industrie 4.0, IoT, IIoT, and PROFINET.

The PROFIblogger has a channel of less formal videos, including the 47-second Venn diagram showing visually the relationship between Industrie 4.0, Iot, IIot, and PROFINET. And two five-year old

PROFIsafe videos for [discrete](#) and [process](#).

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Giving Meaning to Data

by Carl Henning - Thursday, September 01, 2016

http://profinews.com/2016/09/giving-meaning-to-data/

PROFINET is demonstrating that it is the ideal backbone for Industrie 4.0

The topic of Industrie 4.0 can be examined from many aspects that differ, above all, in their degree of complexity. At the core, however, it boils down to a simple formula: Data plus connectivity lead to increased productivity.

In many discussions currently dominating the topic of Industrie 4.0, the impression is given that a new phenomenon is involved. And yet the foundation for Industrie 4.0 was laid decades ago with the start of digitization. Although this has progressed differently in individual industry sectors, the requirements are ultimately always the same. *"At the core, measured values must be generated from a machine, plant, or process in such a way that they can be further used in a meaningful way,"* said Karsten Schneider, Chairman of PI (PROFIBUS & PROFINET International). This is the only way, for example, to reduce energy and raw material consumption, increase the service life of machinery, reduce the downtimes of combined operations, shorten times to market, and increase product output. The process doesn't stop with the generation of data, according to Schneider: "The information must be prepared and analyzed as well as transported to the corresponding control or management level."

Data as a valuable raw material

The expanded data are essential for Condition Monitoring, Asset Management, or Energy Management. For example, a Drive profile registers the number of revolutions and the PROFIenergy profile is already used in practice to selectively switch off individual machines.

What that means in detail can be seen from looking at a simple temperature display. A temperature value of 72 is initially just a raw data value without further meaning. It acquires meaning only after the degree value is specified: it becomes useful when a semantics adds that the operating limit is 40 degrees Celsius and that the limit is being exceeded at the moment. This also applies to the fieldbus: fieldbus data become of interest to and useful for the user when it is combined with a semantics. Examples of this are the profiles for PA, Drives, PROFIsafe, PROFIenergy, etc. that ensure (added) value of the data. The expanded data are essential for Condition Monitoring, Asset Management, or Energy Management. For example, a PA profile supplies limit values for a process. The Drives profile defines a uniform drive

application model with standardized state variables, such as status, position, and velocity, as well as a uniform diagnostics system for monitoring and maintenance. The PROFIenergy profile is already being used in practice to selectively switch off individual machines in order to save energy, especially during machine idle times. *"The profiles thus assess the data and make the qualification to some extent so that the data can be further used in a meaningful way,"* explained Schneider. While these data can also be manually generated, the effort involved is very high. Thus, gains in productivity result just by using the profiles!

Velocity is not everything, data variety also counts

Speed and the effort for data retransmission also determine productivity. Accordingly, a welding robot primarily supplies its data to and is controlled by the PLC, e.g., the enable for welding when the workpiece is positioned. But it also provides data used for quality management. Various protocols are available for this, which may require different networks. *"The user doesn't want to deal with different networks, however,"* said Schneider. It is already possible today to use a single network for all these tasks. PROFINET is the only standard that meets the real-time requirements of high-performance machines (e.g., isochronous real-time with cycles of less than 0.1 ms) and is simultaneously open for IP communication (e.g., for maintenance tasks via video). PROFINET also shows itself to be flexible in relation to other communication standards. For example, PROFINET can be used for automation of a screwdriver control in real-time. Quality data such as tightening torques can then be transmitted to the quality management systems via OPC UA.

Connectivity for new business models

Connectivity also enables new business models, as an example from the agricultural industry demonstrates. For a major grain processing operation in the USA (Riceland Foods), Temputech recently developed a cloud-based system under PROFINET. The system monitors and manages the conditions of both the grain (e.g., temperature and humidity in the silo) and the plant components (conveyor belts, bucket elevators, etc.), thus supplying all information from the process to the plant operators so they can intervene proactively. During harvest time, in particular, there are often more than 25 trucks waiting to unload. A disruption in the process flow, caused by feeding at too high a speed, was a recurring problem that resulted in long queues. Thanks to PROFINET, plant operators not only have real-time access to disruptions in the process but are also shown trends that enable them to intervene much faster than before. In addition, data are transmitted to the cloud where they are analyzed for preventive maintenance with modern analysis tools. Temputech, which was previously responsible only for implementing the automation system, has now transformed into a proactive software analysis company.

"The example clearly shows how IT (Information Technology) and OT (Operations Technology) are merging and bridging their individual different characteristics," said Schneider in describing the current transformation. Up to now, IT networks mainly serve large bandwidths and connect various locations, while production networks are mainly characterized by high performance and short latency times. At Riceland, the network transitions are blurred, however.

Activities within PI

With efficient handling of measured values and further processing in networks, PI has been plotting a course for digitization for more than 25 years, starting with development of PROFIBUS and PROFINET and recently with the introduction of IO-Link. PI will continue on this path in future, as well. An emphasis is being placed on further development of the profiles so that meaningful data are produced.

On the other hand, other requirements in the Industrie 4.0 environment are already met by PI technologies today. For example, PROFINET networks with over 15,000 nodes operate smoothly and not only supply production data but also prepare it using PROFIdrive or PROFIenergy in such a way that it can be used to achieve real added value. A notable characteristic of PROFINET is that it relies on standard IT technologies while simultaneously meeting stringent real-time requirements. The convergence of real-time-capable traffic with IP-based traffic, which will significantly increase in Industrie 4.0 applications, has long since been firmly anchored in the PROFINET architecture.

Use of the new TSN-capable standard Ethernet block does not pose a problem for manufacturers of PROFINET devices. On the contrary: in TSN, PI sees a major opportunity to combine the strengths of PROFINET and TSN, thereby generating further added value for customers and placing PROFINET on a future-oriented foundation for Industrie 4.0. *"From the user perspective, it is critical that the proven PROFINET services, profiles, and user interfaces, such as diagnostics, alarms, PROFIsafe, and PROFIdrive remain unchanged. We are pointing out how this technology can be used in PROFINET networks,"* said Schneider. Special consideration is being give to the seamless transition to today's installations so that users can be shown an easy way to TSN-based networks. The initial results of the PI Working Group are expected to be available for SPS/IPC/Drives 2016.
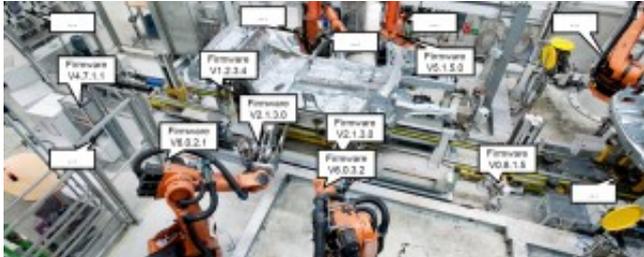

For large installations with more than 10,000 devices, it is not always clear whether all supplied devices meet in-house installation guidelines (e.g. I&M functions). Up to now, a check for this was hardly possible. Now this can be done via the network.

Activities in the Asset Management area are already complete. Here, the PI Working Group dealt with very commonplace problems. For example: For large installations with hundreds of devices, it is not always clear whether all supplied devices meet the in-house installation guidelines (e.g. released firmware/hardware versions). To check every individual device would be too time consuming or perhaps even impossible. In the future, this check can be made via the network. *"Information on lower-level devices are also included here and a standardized dataset is made available even if these are not connected to PROFINET,"* said Schneider about a commonplace scenario. PI is thus ensuring uniform information, which makes it easier to use.

Conclusion

Industrie 4.0 requires close connectivity between (autonomous) automation components, machinery and

equipment, and IT systems – including across locations or between companies. The strength of PROFINET lies in its universal usability in all important market segments of automation technology. PROFINET has long since been established in most industry sectors and is optimally adapted there to individual requirements through its scalable communication. And, thanks to the profiles, easy engineering is already possible today. PROFINET is thus the ideal backbone for Industrie 4.0.
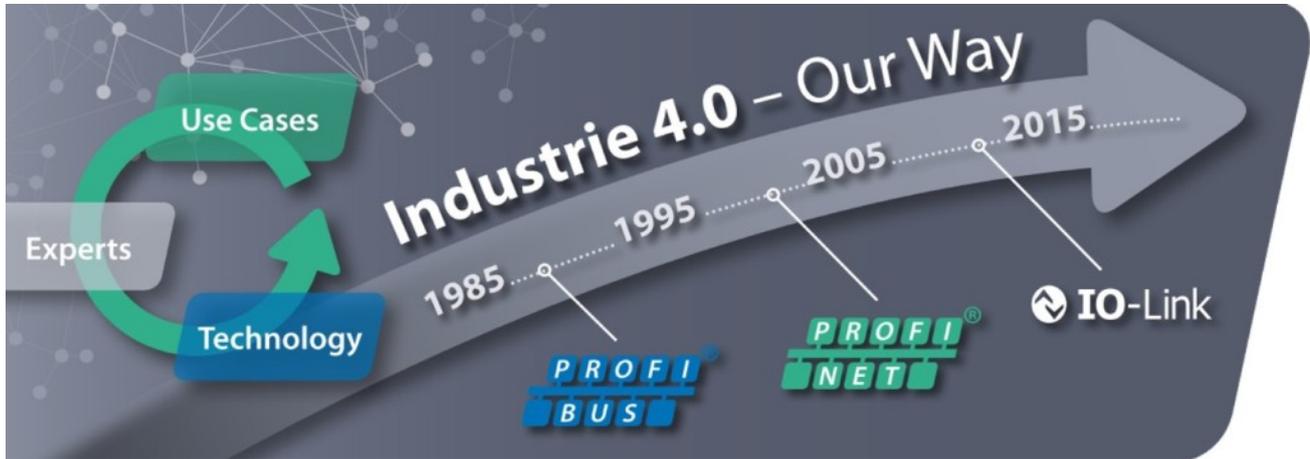
Author: Sabine Mühlenkamp, Freelance Journalist

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PI North America PROFINET Plugfest

by Carl Henning - Thursday, September 01, 2016

http://profinews.com/2016/09/pi-north-america-profinet-plugfest/

PROFINET devices and controllers successfully put through their paces

PI North America in cooperation with the PROFI Interface Center created the first North American PROFINET plugfest, hosted by Phoenix Contact in Ann Arbor, MI on August 3-4. Thirty-five engineers from thirteen companies brought six controllers and thirty I/O devices to the plugfest. Participating companies included Balluff, Cisco, Hilscher, Innovasic, Molex, Mynah, Phoenix Contact, ProSoft, Siemens, Teledyne DALSA, TR Electronic, Turck, Yaskawa, and Lapp USA.

All PROFINET products must be certified in accredited test labs, but the plugfest provided the opportunity to evaluate those products in a very large network. Some of the products were nearing completion, so the plugfest provided a chance to evaluate them before formal testing. Testing was carried out in small groups around individual controllers with the devices circulating among the various controllers prior to creating one large network.

Tom Weingartner of Innovasic, Inc. has attended a number of plugfests in Europe and had this to say about the North America version: "Plugfests are a great way to find out how your products perform with lots of other controllers and devices. We appreciate the opportunity to continuously improve our products and participate in such a well-attended event here in the US – as always we learned a lot."

The I/O devices were many and varied, including VFDs and servo drives. Edward Tom of Yaskawa America, Inc. noted that the event was "A great place for so many different device manufacturers to come together with one goal in mind - interoperability. It's not often you can talk to a counterpart of a different company and collaborate to figure things out."

The success of the event led the attendees to request another one. A PROFINET Plugfest will be scheduled for 2017.

Early coverage was posted in the PROFIblog on August 9 as PROFINET Plugfest Report.

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Training and Events - September 2016

by Carl Henning - Thursday, September 01, 2016

http://profinews.com/2016/09/training-and-events-september-2016/

PI North America hosts its annual members meeting starting September 27. Seats are still available. A new webinar "Introduction to PROFINET" has been archived. Free PROFINET one-day training classes in the USA continue after a summer break. PROFIsafe Certified Designer Training and PROFIsafe Refresher Seminar are scheduled in Germany but in the English language. Germany will be hosting a number of German language classes.

PI North America General Assembly Meeting

News, reports, plans, and user stories feature in this year's meeting. Details for this member-only event are online.

PROFINET Webinar

PI North America and the PROFI Interface Center hosted a live webinar on August 30, Introduction to PROFINET. It has been archived and can be viewed anytime here.

PROFINET One-day Training Classes

Free PROFINET one-day training classes continue after a summer break. Houston, Detroit, Nashville, Cincinnati, and Jacksonville are still to come. A full list is here.

PROFIsafe Classes

PROFIsafe Certified Designer Training

The required quality of PROFIsafe products and systems highly depends on the know-how quality of the development teams and on the development methods and procedures. An adequate range of training courses can assure the necessary level. Thus, the responsible PI working group in cooperation with TÜV developed a training scheme, which is available to all interested PI members for their employees in charge of PROFIsafe and safety.

This three days session comprises a written test at the end of each day. Experts having passed all tests will receive a TÜV certificate "Certified PROFIsafe Designer." The next PROFIsafe and safety training activity takes place from October 11 to 13, 2016, in Karlsruhe/Germany. For more information and registration. Training will be held in the English language.

PROFIsafe Refresher Seminar

The next PROFIsafe Refresher Seminar for all who need to refresh their knowledge and to prolong their PROFIsafe Designer certificate takes place on October 6, 2016 in Karlsruhe/Germany. For more [information and registration](). Training will be held in the English language.

PROFIsafe User Workshop

PI Germany has scheduled a PROFIsafe User Workshop for machine builders and device manufacturers on September 27, 2016 in Bad Pyrmont/Germany. This workshop is kindly hosted by Phoenix Contact. Participation is free. The workshop is held in the German language. For more [information and registration]() .

PROFINET Developer Workshop (in German)

PI Germany has scheduled a PROFINET Technology Workshop for developers and product managers on October 18, 2016 in Stuttgart/Germany.

The level of development of PROFINET enables fast and cost-effective implementation in applications. This requires a comprehensive line of products from numerous manufacturers. To make implementation as easy and efficient as possible for all companies, several companies offer corresponding development environments/kits. The objective of the workshop is to provide information on developing PROFINET products and to present implementation options. To this end, some of the leading technology companies will present their development support options.

The workshop is held in German language and participation is free of charge. For more [information and registration]().

PROFIBUS made easy

1-day Workshop (German language) in Germany:

  - November, 08, 2016 in Alzenau (near Frankfurt/Main
  - November, 10, 2016 in Hamburg

The workshop teaches you PROFIBUS in theory and practice from the field device to the controller. You will learn the basics of PROFIBUS so that the design, calculation, and commissioning of a bus system is no longer a challenge. In practical exercises you will learn on your own to select the right PROFIBUS network components and to calculate the bus topology. Another focus is the startup of a small PROFIBUS application: from the physical build-up via the bus diagnostics, parameterization of a field device up to the integration in an ABB control system.

The workshop is intended to decision makers, planning and project engineers, commissioning engineers and service staff.

Prerequisite are knowledge of basic process measuring and control technology.

Registration.

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events around
the globe
click here

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Your Article Here?

by Carl Henning - Thursday, September 01, 2016

http://profinews.com/2016/09/your-article-here/

One of the many benefits of PI membership is the invitation to have your product news or application story published in PROFINEWS. PROFINEWS has a subscriber base of 225,000, so publication here is a major benefit. In addition to the emailed newsletter with condensed introductions to each story, the articles appear at profinews.com and on the newly-updated PROFINEWS App. Each story also is tweeted on Twitter at least twice.

So if you are a PI member anywhere in the world and have a new product to announce or an application story to share, email it to editor@profinews.com. We need an English language text of any length and separate photos. Include a URL for the appropriate page of your website. We also publish member news that relates to PROFINET, PROFIBUS, or IO-Link – like a product award or facility with a PROFI-connection.

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PROFIBUS & PROFINET news from around the world

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