NEWSLETTER SEPTEMBER 2013

ETHERNET POWERLINK

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THE Industrial Ethernet Standard

NEWS

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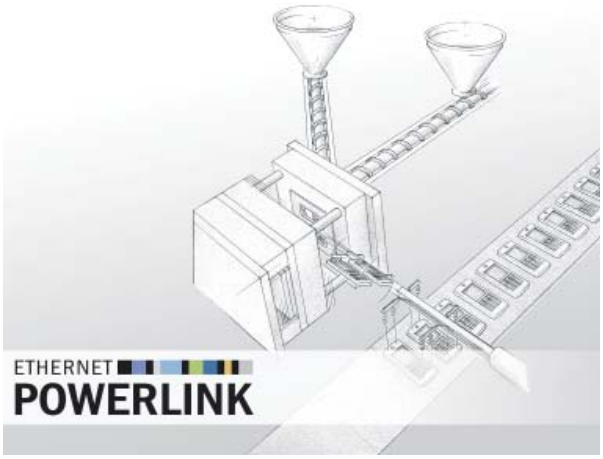
THE open standard for the plastics industry

For the industrial communication in the plastics industry, POWERLINK is better suited than any other system on the market. In plastics processing, extremely fast reactions are called for. Even for basic switching operations, response times below 0.5 milliseconds are required. Featuring communication cycles in the range of a few hundred microseconds, POWERLINK as an infrastructure without a time lag is particularly well suited for these control cycles. Due to its ability to accommodate cross-traffic, the real-time protocol also facilitates a singularly precise synchronization of multiple axes.



The real-time Ethernet POWERLINK is better suited for applications in the plastics industry than any other system on the market. This is why POWERLINK has been part of the EUROMAP specification for some time.

728 Axes in 400 µs

Using POWERLINK, the world's fastest network to date was implemented in a plastics application. In a two-dimensional foil stretching machine by Brückner Maschinenbau GmbH & Co. KG, 728 axes are synchronized within a 400 µs cycle time. This makes POWERLINK the first choice for the plastics industry.

As early as 2010, EUROMAP, the European association for plastics and rubber machinery manufacturers incorporated the POWERLINK standard in the EUROMAP specification 75. "The EUROMAP specification underscores the leading position of POWERLINK among protocols with hard real-time capability", said Stefan Schönegger, Managing Director of the EPSG.

Numerous POWERLINK solutions at the K show

From October 16 to 23, 2013, numerous machinery manufacturers who will showcase their solutions utilizing POWERLINK and openSAFETY at the world's leading plastics and rubber trade show, the K 2013 in Düsseldorf, Germany.

These technologies are instrumental for fulfilling the time-critical requirements of the automation solutions presented there.

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B&R & Alstom at 11th India Forum about POWERLINK

The Eleventh India Forum, hosted by the ARC advisory group in Hyderabad, attracted over 230 thought leaders and decision makers from key industrial segments, end users and technology solution providers. B&R and Alstom were invited to present on real-time deterministic, redundant networking for power plants using POWERLINK. Alstom – power industry pioneer and global leader in integrated plants and smart grid technology – uses the POWERLINK protocol as a communication backbone to optimize plant efficiency.

"As an open communication protocol based on standard Ethernet, POWERLINK is well-prepared for future evolutions of Ethernet technology." Rajeev Sharma, Vice President and Managing Director of Alstom Power Automation & Controls

Over the years, the use of Ethernet in power plants has evolved from shared, bridged and switched networks to deterministic real-time Ethernet one thousand times faster than traditional fieldbus technology. This set the stage for POWERLINK, whose flexibility and high performance are able to optimize plant efficiency like never before.

Groundbreaking plant performance with POWERLINK

"As an open communication protocol based on standard Ethernet, POWERLINK is well-prepared for future evolutions," says Rajeev Sharma, vice president and managing director of Alstom Power Automation & Controls. The first real-time deterministic protocol, POWERLINK is a global leader delivering guaranteed performance thanks to IEEE802.3 compliance, 100 µs cycle times and a system synchronization rate of 0.1 µs. "The cutting-edge solutions offered for all types of industrial automation lead to POWERLINK being selected unanimously as Alstom's real-time communication standard," adds Sharma.

Sharma also points to contributions by Alstom to the evolution of POWERLINK through heading the EPSG "High Availability" working group. The open nature of POWERLINK allowed Alstom to share its many years of expertise as standardized, open add-ons to the POWERLINK specification, making them available to everyone and ensuring compatibility with existing devices.

"Open technologies are superseding proprietary ones in all fields, and the automation industry is no exception," says Ninad Deshpande, open technology representative from B&R. "Users of POWERLINK benefit from no longer being bound to a specific vendor, license or copyrighted technology." In addition to technical details of the POWERLINK protocol and the benefits of open technology, the presenters also introduced the independent user organization, EPSG.

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POWERLINK stack achieves record 20,000 downloads

The POWERLINK software stack for master and slave nodes has been downloaded 20,000 times since it was first published as open source software.

Five years after the open source POWERLINK stack was first published on SourceForge.net, the download count of openPOWERLINK crossed another threshold in September 2013. Surpassing the 20,000 mark, openPOWERLINK has set a new download record for an industrial communication stack.

"The decision to make openPOWERLINK available as a free download has brought sustained growth in the number of system integrators using this advanced communication standard," says Stefan Schönegger, managing director of the EPSG. "In addition to being free, POWERLINK is also the first and only industrial real-time Ethernet standard to fulfill every aspect of open source software – all of which have contributed to its success."

Open source in every aspect

openPOWERLINK, the open source software stack used to implement the POWERLINK real-time Ethernet communication standard, meets every criteria for open source software. Equipped for both master and slave implementations, it is available for a wide range of operating systems, including Windows, Linux (including real-time variants using the RT-preempt patch) and VxWorks, and has been designed for easy portability to any hardware platform and operating system.

Most significantly, openPOWERLINK is available under a BSD license, which grants system designers full rights to the software and makes POWERLINK the only truly vendor-independent Ethernet-based industrial communication stand-ard around.

It therefore comes as no surprise that more and more leading device and sys-tems manufacturers are integrating POWERLINK into their products. openPOWERLINK download numbers are soaring – with no sign of slowing anytime soon.

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EPSG at the Automotive Engineering Show in India

The EPSG received an overwhelming positive response at the Automotive Engineering Show in Chennai, India. A highlight of the exhibition was a seminar held by Ninad Deshpande of B&R addressing the concerns of industrial specialists and plant owners with regard to their communication networks. "Users are looking for fieldbus technology that brings them a maximum balance of productivity and accuracy. Efficient, reliable and cost effective POWERLINK delivers on both these accounts."

A highlight of the Automotive Engineering Show was a seminar held by Ninad Deshpande of B&R. He addressed the concerns of industrial specialists and automotive plant owners with regard to their communication networks.

Improving manufacturing operations

During the interactive seminar "Sustaining Good Performance with Grassroots Innovation" at the second day, seminar moderator P.V. Sivaram, managing director of B&R India, evaluated innovations submitted from throughout the automotive industry and presented innovation awards to the winners.

An open future is faster and safer

POWERLINK has distinct advantages for everyone ranging from device manufacturers to end uses, contributing to a future-proof plant by ensuring freedom of topology, easy maintenance and convenient diagnostics. Open technology provides guaranteed investment security. As the first real-time Ethernet protocol, POWERLINK delivers an impressive performance – IEEE 802.3 compliance, fast cycle times of 100 µs and a system synchronization of 0.1 µs – that makes it an optimal solution for all aspects of industrial automation. 100% openness means no licensing, no royalties, no copyrights, no vendor lock up, and no single owner of the protocol. These added advantages make POWERLINK the unanimous choice among industrial Ethernet protocols.

openSAFETY – The bus-independent safety standard

openSAFETY is a safety protocol that can be used with all fieldbus or industrial Ethernet systems. This enables the end customer to interconnect several machines on the safety level independently from the bus system being used. This offers advantages over conventional plant safety solutions such as reduced wiring, elimination of setup errors, decreased response times and intelligent safety functions.

Other safety protocols on the market are proprietary, limited to certain fieldbuses and unable to communicate with each other. openSAFETY provides 100% openness and interoperability with all fieldbus network. This openness is not limited to legal details, but is elemental to the technology itself and supported by all of the necessary certifications.

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B&R's openSAFETY portfolio is EN 50156 compliant

TÜV Süd, one of the world's leading technical service organizations, has confirmed that the entire range of B&R X20 safety I/O modules and controllers satisfies all requirements of EN 50156 "Electrical equipment for furnaces and ancillary equipment". This standard applies in particular to protective systems used in furnaces and power plants.

Confirmed by TÜV Süd: Every B&R safety controller and safe I/O module meets all of the requirements of EN 50156.

Failsafe digital and analog inputs
Safety solutions from B&R allows users to achieve the highest levels of modularity and performance without having to sacrifice a single bit of availability. Safe I/O modules included in the B&R X20 series offer a wide spectrum of failsafe digital and analog inputs. A perfect example is the robust temperature input module for thermocouples, which demonstrates how safety products can be integrated into systems with furnaces or boilers.

openSAFETY – Safe communication for process control systems
Network-integrated safety technology offers huge advantages, especially in the area of process engineering. And with the absolute fastest response times, minimal wiring and safe data transport over any type of fieldbus, no other safety protocol offers production lines the same degree of protection as openSAFETY.

Congratulations, Industrial Ethernet Quiz winners!

The contest with questions about various aspects of industrial Ethernet on the Industrial Ethernet Book's website has ended. We congratulate the lucky winners:*

- Frederic Rannou (Hema) received the SSD drive (left)
- Lee Smith (Mettler-Toledo Safeline) now owns a BeagleBone
- Michael Nielsen (Danfoss) won the Spy Cam Helicopter

Whether participants in the quiz that was sponsored by the EPSG were able to answer the questions correctly using their own knowledge or whether they consulted the Industrial Ethernet Facts, is something only they know. For all those who could not answer all questions in the quiz, we suggest reading up in this valuable yet free reference guide. It can be ordered in print by email to the EPSG and is available for free download at www.ethernet-powerlink.org/IndustrialEthernetFacts2.

*according to the publication at www.iebmedia.com/contest.php