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Contact:

EPSG POWERLINK-OFFICE
Kurfuerstenstrasse 112
10787 Berlin · Germany
Phone: +49(0)30-85 08 85-29
Fax: +49(0)30-85 08 85-86
info@ethernet-powerlink.org
www.ethernet-powerlink.org

openPOWERLINK now available for Windows XP

openPOWERLINK, the open source version of the real-time communication system POWERLINK, is now also available for Windows XP. The technology services provider Kalycito, who specializes in real-time operating systems and all types of network protocols, has ported the drivers which were only available for Linux systems until now. The software is available for download free of charge at www.kalycito.com/downloads.html#powerlinkxp. It includes the stacks for the master and slave side and complies with the current V.1.1.0 specification. According to Kalycito, the software allows users to quickly implement a simple Managing Node (i.e. a POWERLINK master) on a Windows XP computer. The software is based on the open program library WinPcab, which ensures compatibility with all types of Ethernet hardware.

In addition to the openPOWERLINK source code for Windows XP, Kalycito also provides further downloads: a free-of-charge configuration management tool for Linux and Windows systems, a modified Ethernet driver code for Intel8255x[e100] cards and documentation for installation, configuration and drivers.



Stephane Potier,
Sales & Marketing Director at Kalycito.

openPOWERLINK

openPOWERLINK was released in April 2008 by SYS TEC electronic. A completely software-based solution, the Ethernet-based communication protocol, which operates with standard hardware, is the first and only completely open system for hard real-time worldwide.

The openPOWERLINK software package – a sample implementation for Linux systems – can be downloaded from <http://SourceForge.net/projects/openpowerlink>.

LiveCD from SYS TEC electronic: Implement a POWERLINK network in five minutes

SYS TEC electronic, systems house for distributed automation solutions and creator of openPOWERLINK, now provides an openPOWERLINK live CD which, according to the company, allows users to implement a POWERLINK network within five minutes.

The CD image is available free of charge from www.systec-electronic.com/html/index.pl/download_openpowerlink_livecd. It can be described as a Managing Node on a CD.

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Implement a POWERLINK network in five minutes**

The CD contains the complete protocol stack which is immediately available, requiring neither installation nor access to the hard drive. Users merely need to connect the designated Controlled Nodes to a PC featuring a Realtek RTL8139-based network card and boot from the CD. On-screen instructions then guide users to a functioning network in a few steps.

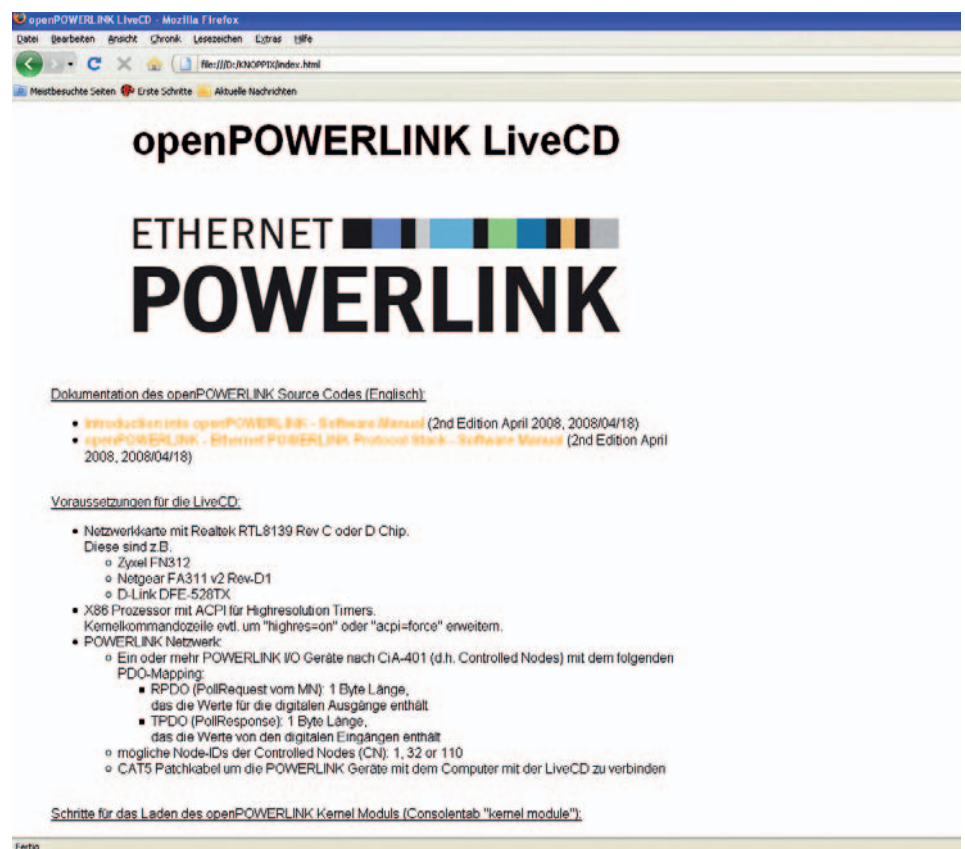


Figure 1: openPOWERLINK live CD from SYS TEC electronic (screenshot)

POWERLINK enables industrial Plug & Play

POWERLINK, the industrial Ethernet system for hard real-time communication, fully supports hot plugging. This key feature allows users to exchange or add network components during operation. In POWERLINK networks, these additions or local exchanges do not affect real-time operation and do not require system reboots. This enables users to e.g. add further operating terminals or exchange a malfunctioning temperature sensor without having to shut down the whole plant – a fundamental condition for use in process industry applications and for operating

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Contact:

EPSG POWERLINK-OFFICE
Kurfuerstenstrasse 112
10787 Berlin · Germany
Phone: +49 (0) 30 - 85 08 85 - 29
Fax: +49 (0) 30 - 85 08 85 - 86
info@ethernet-powerlink.org
www.ethernet-powerlink.org

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EPSC POWERLINK-OFFICE
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10787 Berlin · Germany
Phone: +49(0)30-85 08 85-29
Fax: +49(0)30-85 08 85-86
info@ethernet-powerlink.org
www.ethernet-powerlink.org

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modular machines and plants. The communication system includes this feature due to the complete integration of CANopen mechanisms and due to its compliance with the Ethernet standard according to IEEE802.3, which allows for a free choice of topology.

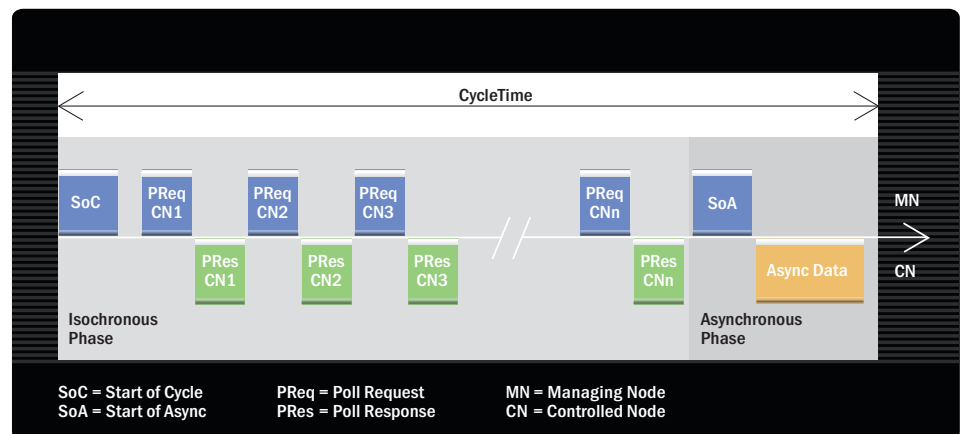


Figure 1: During the isochronous phase of a cycle, the Managing Node requests status information and user data from all network nodes in single telegrams (PollRequests). New or exchanged devices identify themselves by sending their device data during the asynchronous phase.

One of CANopen's key features is the use of standardized device profiles which define the functionalities of the device classes, such as I/O modules, drives or measuring devices and control systems. The device profiles ensure that devices belonging to one class can be addressed and exchanged without requiring reconfiguration, even if they were produced by different manufacturers. Within one cycle a Managing Node sends single telegrams to all network nodes requesting their status information and user data. If the MN encounters new or exchanged devices, it requests identification. During the asynchronous phase of the POWERLINK cycle, which is reserved for service and application data, these devices transfer their profiles to the configuration manager running on the MN which then updates the object dictionary. The devices become available with their full functional range after a few cycles, which can be as short as 100 μ s in POWERLINK networks. Thus, POWERLINK allows machine and plant operators to e.g. log into the network in different locations using portable control panels. POWERLINK devices can be integrated via any node, since POWERLINK is based on the Ethernet standard which does not require topologies to be configured via the master: the location of a device is unimportant, its address is essential. A POWERLINK control system therefore does not require to "know" the network layout.

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The Ethernet POWERLINK Standardization Group (EPSP) has released the new POWERLINK specification V.1.1.0. New features have been added by using reserved bits. Key improvements include the complete integration of high availability functionality and a greater bandwidth for the asynchronous phase. Until now, users had implemented high availability POWERLINK networks by modifying the protocol's address management through in-house developments, allowing for on-the-fly address changes to redundant control systems. The 1.1.0 version now supports the integration of redundant Managing Nodes (RMN) by default.

Moreover, the current specification extends the asynchronous phase. This part of the POWERLINK cycle serves to transfer non-time-critical data, as opposed to the isochronous phase which is used for time-critical process data transfer and which takes up the bulk of the cycle. Until now, only one frame could be transferred during the asynchronous phase. The new specification now allows for the transfer of several ASnd frames.

Contact:**EPSP POWERLINK-OFFICE**

Kurfuerstenstrasse 112
10787 Berlin · Germany
Phone: +49(0)30-85 08 85-29
Fax: +49(0)30-85 08 85-86
info@ethernet-powerlink.org
www.ethernet-powerlink.org

Masthead:

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Editorial Office:

Rüdiger Eikmeier (Editor in Chief), Heiko Wittke - gii die Presse-Agentur GmbH,
Immanuelkirchstr. 12, 10405 Berlin, Germany, Tel.: +49 03-53 89 65-0, Fax: +49 03-53 89 65-29

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