

THE RESULT MUST AGREE –

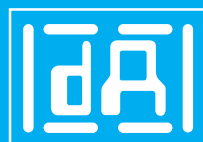
BUS-TECHNOLOGY MADE BY DEUTSCHMANN!

EPL-ROUTER

Ethernet Powerlink Router complying with the standards

Ethernet Powerlink is a protocol extension to the Ethernet standard according to IEEE 802.3, in order to transfer real-time data in the time range of microseconds. It was developed considering standard conformity and it extends Ethernet by a mixed polling- and time slice-mechanism: With it the transfer of time-critical data is guaranteed within short isochronous cycles with configurable runtime performance as well as the time synchronization of all network nodes in the time range of sub-microseconds. The transfer of the less time-critical data traffic takes place in the reserved asynchronous channel. Current implementations of Ethernet Powerlink achieve cycle times of less than 200µs and a time accuracy (Jitter) of less than 1µs.

Collisions on the Ethernet have to be avoided in order to guarantee the real-time. For that purpose the data transmission is controlled by means of a special node, the „Managing Node“ (MN). The other devices, the so-called „Controlled Nodes“ (CN) are only allowed to send if the MN asks them. Each cycle starts with a special telegram, the „Start of Cyclic“ (SoC). After that each node is prompted by the MN with a „Poll Request“ (PReq), whereon the CN replies with a „Poll Response“ (PRes). The PRes are sent by Ethernet-multicast. That way all others can also hear the response. A crosswise data-traffic between the CNs is possible. It is not necessary to poll every device in each cycle. Telegrams can be transferred by PDO and SDO.



Deutschmann Automation

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EPL-Router (type 1)

An EPL-Router connects two networks on IP level, two IEEE802.3 Ethernet complying networks accesses are required for it. One interface handles access to the standard Ethernet-based IP network, and the other provides access to the EPL network. On the EPL side it acts the same as any other EPL node and must comply with the EPL controlled node specification. Via an integrated html-page the NAT-routing can be set through any web browser.

Network administration:

- According to specification V2.0
- Static routing
- Class C subnet 192.168.100.____
- Access control and firewall is defined by the specification

Abbreviations:

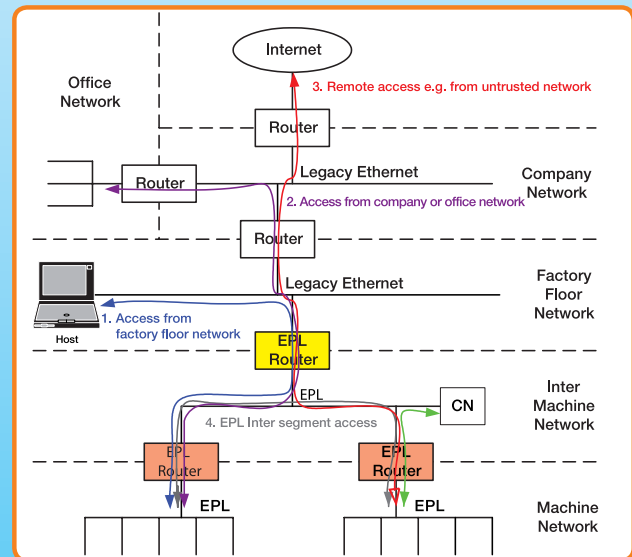
CN: Controlled Node

MN: Managing Node

NAT: Network Address Translation (X1)

X1: Two networks are interconnected by replacing the internal IP-address with the external IP-address that corresponds to the node during the communication from internal to external.

The Gateway has an implemented web server for configuration, for example to set the IP-address for the standard Ethernet network. Additionally an analyser is available, collecting the data traffic of the Ethernet Powerlink network to send it to the connected PC.



Application example for the integration of a Powerlink-Router (EPL)

EPL-Router design



General technical details

■ Mounting	DIN-rail with integrated grounding
■ Temperature range	0°C – 55°C
■ Dimension	23 x 100 x 115 (B x H x D)
■ Supply voltage	24 VDC