OPTION FOR ABB DRIVES, CONVERTERS AND INVERTERS

FEPL-02 Ethernet POWERLINK adapter module

User's manual

3

Overview of the Ethernet POWERLINK network and the FEPL-02 module

What this chapter contains

This chapter contains a short description of the Ethernet POWERLINK network and the FEPL-02 Ethernet POWERLINK adapter module.

Ethernet POWERLINK network

Ethernet POWERLINK is a communication profile for Real Time Ethernet. It extends standard Ethernet IEEE802.3 with a mechanism to transfer data deterministically. The mechanism is called Slot Communication Network Management (SCNM). SCNM is managed by a networked device designated as the Managing Node (MN). All other nodes are Controlled Nodes (CN).

Unlike standard Ethernet, SCNM ensures that only one node is accessing the network at a time. The schedule is divided into an isochronous phase and an asynchronous phase. During the isochronous phase, time-critical data is transfered, while the asynchronous phase provides bandwidth for the transmission of data that is not time-critical. The MN grants access to the physical medium via dedicated poll request messages. As a result, only one CN has access to the network at a time, and thus no collisions occur.

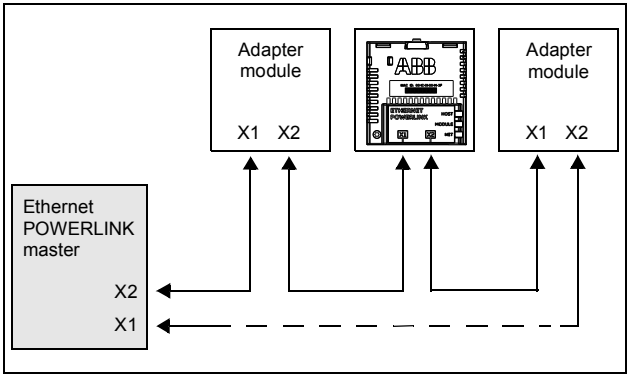
The Ethernet POWERLINK network applies the same protocol technology as CANopen. It defines Service Data Objects (SDO), Process Data Objects (PDO) and the Object Dictionary structure to manage the parameters.

The Ethernet POWERLINK network may have a star, tree, daisy chain or ring structure. The network can also be a combination of these topologies. The use of repeating hubs instead of switches is recommended to minimize delay and jitter. Use class 2 hubs. FEPL-02 has an internal hub, and thus, no external hub is required.

Further information is available from the Ethernet POWERLINK Standardization Group (www.ethernet-powerlink.org).

Example topology of the Ethernet POWERLINK link

The figure shows an example of an allowable topology for an Ethernet POWERLINK master with FEPL-02.



FEPL-02 Ethernet POWERLINK adapter module

The FEPL-02 Ethernet POWERLINK adapter module is an optional device for ABB drives which enables the connection of the drive to an Ethernet POWERLINK network. The module is classified as a full Ethernet POWERLINK slave.

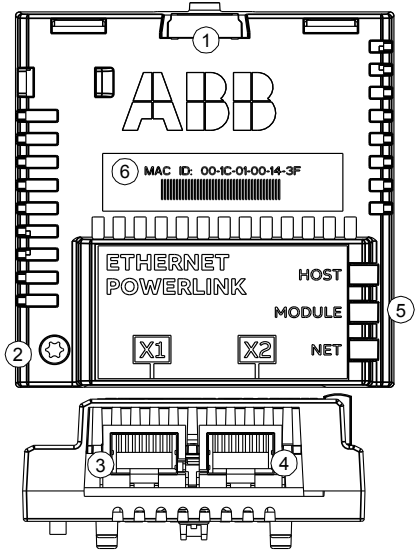
Through the adapter module you can:

- give control commands to the drive (for example, Start, Stop, Run enable)
- feed a motor speed or torque reference to the drive
- give a process actual value or a process reference to the PID controller of the drive
- read status information and actual values from the drive
- change drive parameter values
- reset a drive fault.

The Ethernet POWERLINK commands and services supported by the adapter module are described in chapter *Communication protocol*. Refer to the user documentation of the drive as to which commands are supported by the drive.

The adapter module is installed into an option slot on the drive control unit. See the drive manuals for module placement options.

Layout of the FEPL-02 adapter module



No.	Description	See chapter
1	Lock	*Mechanical installation*
2	Mounting screw	*Mechanical installation*
3	Connector X1 to Ethernet POWERLINK	*Electrical installation*
4	Connector X2 to Ethernet POWERLINK	*Electrical installation*
5	Diagnostic LEDs	*Diagnostics*
6	MAC address	-