Overview

Overview

The RETA-02 Adapter module supports the Modbus/TCP and PROFINET IO network protocols. This chapter contains a short description of the above protocols and the RETA-02 Adapter module, a delivery checklist and warranty information.

Modbus/TCP

Modbus/TCP is a variant of the Modbus family of simple, vendor-neutral communication protocols intended for supervision and control of automation equipment. Specifically, it covers the use of Modbus messaging in an Ethernet environment using the TCP/IP protocols.

The implementation of the Modbus/TCP server in the RETA-02 module is done according to the Modbus/TCP Specification 1.0. The supported Modbus commands are listed in chapter *Communication*.

The Modbus/TCP protocol allows the RETA-02 module to be used as an Ethernet bridge to control the drive. The RETA-02 module supports eight simultaneous IP connections.

Further information can be obtained from www.modbus.org.

PROFINET IO

PROFINET IO uses traditional Ethernet hardware and software to define a network that structures the task of exchanging data, alarms and diagnostics with Programmable Controllers and other automation controllers.

PROFINET IO can be thought as PROFIBUS on Ethernet. PROFINET IO uses two different communication channels to exchange data with programmable controllers and other devices. The standard TCP/IP channel is used for parameterization, configuration and acyclic read/write operations. The RT or Real

Time channel is used for standard cyclic data transfer and alarms. There is no theoretical limit for the amount of connected nodes in PROFINET IO network, but in practise, the programmable controllers and number of available network addresses limits the size.

The PROFINET IO protocol is specified in the IEC standards 61158 and 61784. The communication with a drive is specified in the PROFIdrive profile (v4) published by PROFIBUS INTERNATIONAL.

Further information can be obtained from www.profinet.com.

The RETA-02 Ethernet Adapter module

The RETA-02 Ethernet Adapter module is an optional device for ABB drives, which enables the connection of the drive to a Ethernet network. The drive is considered as a slave on the Ethernet network. Through the RETA-02 Ethernet Adapter module, it is possible to:

- give control commands to the drive (Start, Stop, Run enable, etc.)
- 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 Modbus/TCP and PROFINET commands and services supported by the RETA-02 Ethernet Adapter module are discussed in chapter *Communication*. Please refer to the user documentation of the drive as to which commands are supported by the drive.

The adapter module is mounted into an option slot on the motor control board of the drive. See the *Hardware Manual* of the drive for module placement options.

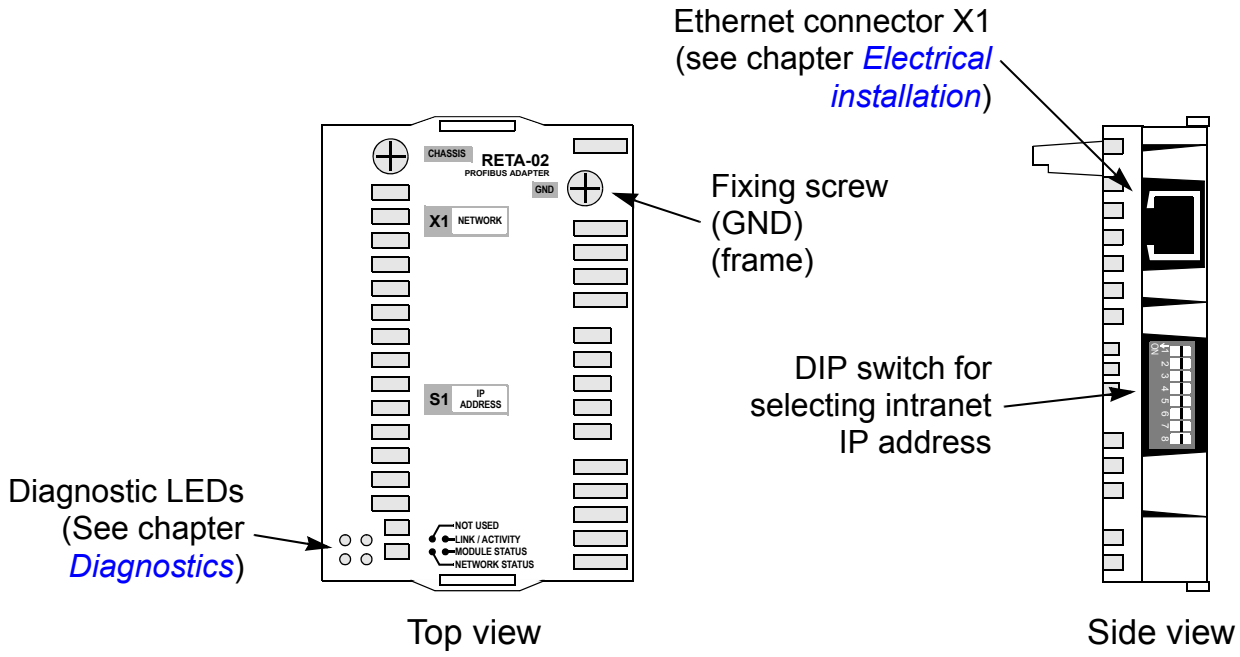


Figure 1. The RETA-02 Adapter module.

Compatibility

The RETA-02 is compatible with all master stations that support the Modbus/TCP. PROFINET IO can be used with master stations that support PROFINET IO and sub-slots. Functionality of the RETA-02 is limited if master station doesn't support multiple sub-slots per slot.

Delivery check

The option package for the RETA-02 Ethernet Adapter module contains:

- Ethernet Adapter module, type RETA-02
- two screws (M3x10)
- this manual.

Warranty and liability information

The manufacturer warrants the equipment supplied against defects in design, materials and workmanship for a period of twelve (12) months after installation or twenty-four (24) months from date of manufacturing, whichever first occurs. The local ABB office or distributor may grant a warranty period different to the above and refer to local terms of liability as defined in the supply contract.

The manufacturer is not responsible for

- any costs resulting from a failure if the installation, commissioning, repair, alternation, or ambient conditions of the drive do not fulfil the requirements specified in the documentation delivered with the unit and other relevant documentation
- units subjected to misuse, negligence or accident
- units comprised of materials provided or designs stipulated by the purchaser.

In no event shall the manufacturer, its suppliers or subcontractors be liable for special, indirect, incidental or consequential damages, losses or penalties.

If you have any questions concerning your ABB drive, please contact the local distributor or ABB office. The technical data, information and specifications are valid at the time of printing. The manufacturer reserves the right to modifications without prior notice.

Drive configuration

Overview

This chapter gives information on configuring the RETA-02 Ethernet Adapter module and the drive.

RETA-02 configuration

After the RETA-02 Ethernet Adapter module has been mechanically and electrically installed according to the instructions in chapters *Mechanical installation* and *Electrical installation*, the drive must be prepared for communication with the module.

ABB drives can receive control information from multiple sources including digital inputs, analogue inputs, the drive control panel and a communication module (e.g. RETA-02). ABB drives allow the user to separately determine the source for each type of control information (Start, Stop, Direction, Reference, Fault Reset, etc.). In order to give the fieldbus master station the most complete control over the drive, the communication module must be selected as source for this information.The detailed procedure of activating the drive for communication with the module is dependent on the drive type. Normally, a parameter must be adjusted to activate the communication. Please refer to the drive documentation.

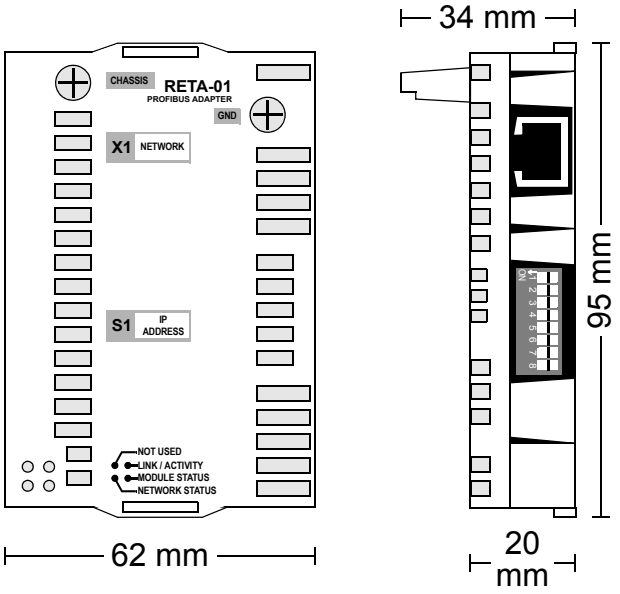
As communication between the drive and the RETA-02 is established, several configuration parameters are copied to the drive. These parameters must be checked first and adjusted if necessary. The alternative selections for these parameters are discussed in more detail below the table.

Note: The new settings take effect only when the module is powered up the next time or when the module receives a ‘Fieldbus Adapter parameter refresh’ (Parameter 51.27) command from the drive.

Technical data

RETA-02

Enclosure:



Mounting: Into the option slot on the control board of the drive.

Degree of protection: IP20

Ambient conditions: The applicable ambient conditions specified for the drive in its *Hardware Manual* are in effect.

Settings:

- Parameters (set through the drive)
- 8-way DIP switch for intranet IP address selection

Connectors:

- 34-pin parallel bus connector
- RJ-45 connector

Current consumption:

- 380 mA average (5 V), supplied by the control board of the drive

General:

- Estimated min. lifetime: 100 000 h
- All materials UL/CSA-approved
- Complies with EMC standards EN 50081-2 and EN 50082-2

Ethernet link

Compatible devices: Ethernet standard IEEE 802.3 and 802.3u devices

Medium: 10base-TX or 100base-TX

- Termination: Internal
- Wiring: CAT 5 UTP, CAT 5 FTP* or CAT 5 STP* (*Recommended)
- Connector: RJ-45
- Maximum segment length: 100 m

Topology: Bus, star

Serial communication type: Half and full Duplex

Transfer rate: 10/100 Mbps

Carrier protocol: TCP/IP

Application protocols:

- Modbus/TCP
- PROFINET IO