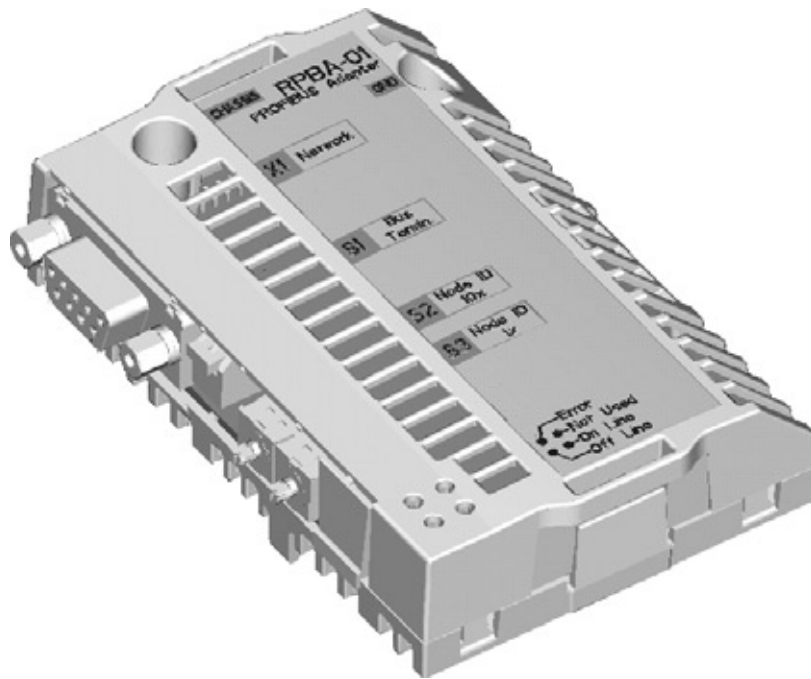


ABB Drives

User's Manual PROFIBUS DP Adapter Module RPBA-01



Overview

Overview

This chapter contains a short description of the PROFIBUS standard and the RPBA-01 PROFIBUS DP Adapter module, a delivery checklist and warranty information.

PROFIBUS standard

PROFIBUS is an open serial communication standard that enables data exchange between all kinds of automation components. There are three main variations of PROFIBUS: PROFIBUS-FMS (Fieldbus Message Specification), PROFIBUS-DP (Decentralised Periphery) and PROFIBUS-PA (Process Automation). The RPBA-01 PROFIBUS DP Adapter module supports the PROFIBUS DP protocol, including its DP-V1 extension.

The physical transmission medium of the bus is a twisted pair cable (according to the RS-485 standard). The maximum length of the bus cable is 100 to 1200 metres, depending on the selected transmission rate (see Technical data chapter). Up to 31 nodes can be connected to the same PROFIBUS network segment without the use of repeaters. With repeaters, it is possible to connect 127 nodes (including repeaters and master station) to the network.

In PROFIBUS communication, the master station – usually a programmable logic controller (PLC) – polls the nodes which respond and take the actions requested by the master. It is also possible to send a command to several nodes at the same broadcast; in this case the nodes do not send a response message to the master.

The PROFIBUS protocol family is specified in the IEC 61158 standard. The communication with a drive is defined in the PROFIdrive Profile – The PROFIBUS Profile for Adjustable Speed

Drives. For further information on PROFIBUS, refer to the above-mentioned standards.

The RPBA-01 PROFIBUS DP Adapter module

The RPBA-01 PROFIBUS DP Adapter module is an optional device for ABB drives which enables the connection of the drive to a PROFIBUS network. The drive is considered as a slave on the PROFIBUS network. Through the RPBA-01 PROFIBUS DP 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 PROFIBUS commands and services supported by the RPBA-01 PROFIBUS DP Adapter module are discussed in the chapters *DP-V0 communication* and *DP-V1 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.

Configuration of the master station requires a type definition (GSD) file. For DP-V0 communication, the file is available from **www.profibus.com** or an ABB representative (the filename is **ABB_0812.GSD**). For DP-V1 communication, the type definition (GSD) file is available from an ABB representative (the filename is **ABB10812.GSD**).

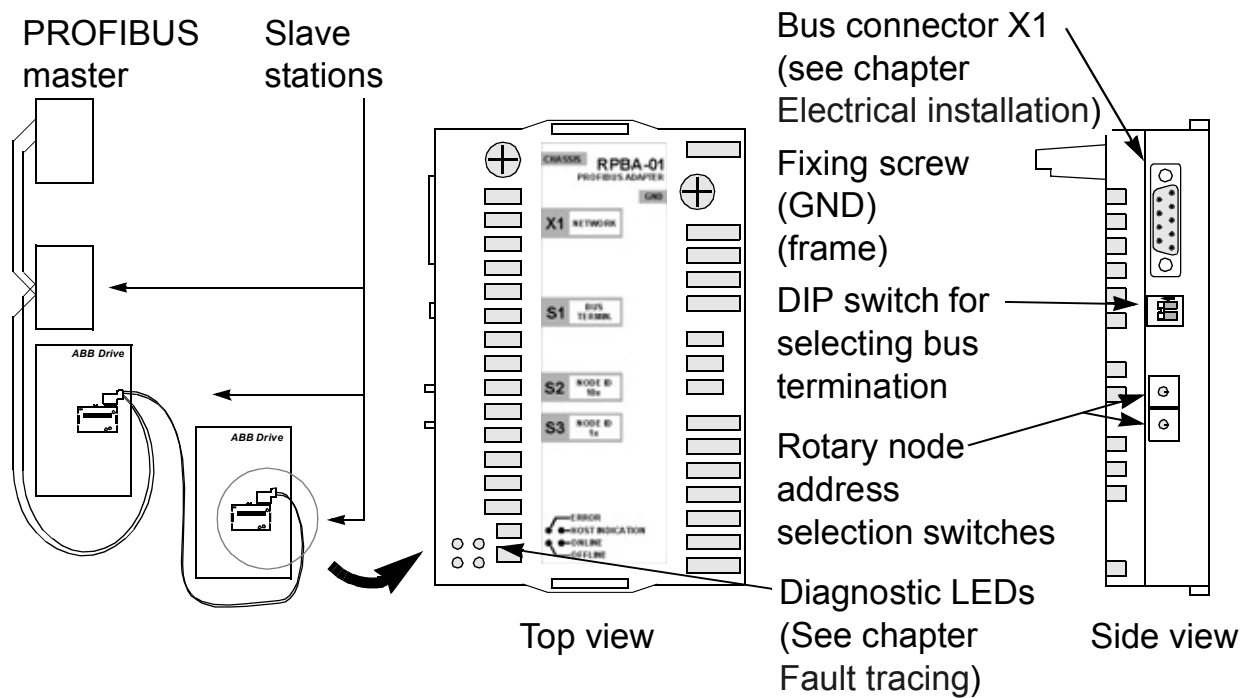


Figure 1. The construction of the PROFIBUS link and the RPBA-01 Adapter module.

Compatibility

The RPBA-01 is compatible with all master stations that support the PROFIBUS DP protocol.

Delivery check

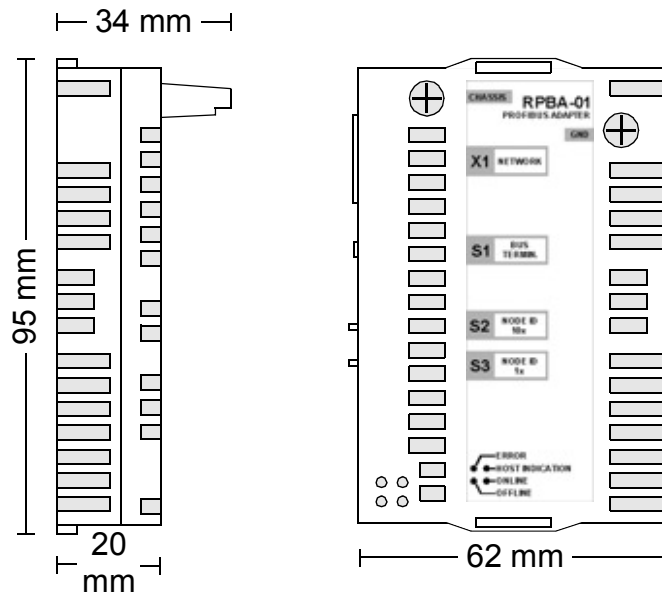
The option package for the RPBA-01 PROFIBUS DP Adapter module contains:

- PROFIBUS DP Adapter module, type RPBA-01
- two screws (M3x10)
- this manual.

Technical data

RPBA-01

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.

Hardware settings:

- Rotary switches for node address selection (address range 00 to 99)
- DIP switch for bus termination selection

Software settings:

- Input/Output/User Parameter data/Diagnostics format
- Maximum cyclic I/O data size: 28 bytes in, max 28 bytes out, max. 56 bytes total
- Maximum acyclic I/O data size: 240 bytes in, max. 240 bytes out, max. 480 bytes total
- Maximum User Parameter data/Diagnostics length: 26 bytes

Connectors:

- 34-pin parallel bus connector
- 9-pin female DSUB connector

Current consumption:

- 350 mA max. (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