

Options for ABB drives

User's manual

CDPI-01 communication adapter module



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List of related manuals

Drive manuals and guides

Code (EN/Multilingual)

<i>ACS580-01 manuals</i>	9AKK105713A8085
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Option manuals and guides

<i>CDPI-01 communication adapter module user's manual</i>	3AXD50000009929
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<i>ACS-AP-x Assistant control panels user's manual</i>	3AUA0000085685
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You can find manuals and other product documents in PDF format on the Internet. See section [Document library on the Internet](#) on the inside of the back cover. For manuals not available in the Document library, contact your local ABB representative.

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CDPI-01 communication adapter module

Introduction to the manual

■ Safety instructions



WARNING! Obey the safety instructions for the drive. If you ignore the safety instructions, injury or death can occur.

■ Target audience

This manual is intended for people who plan the installation, install, start up, use and service the CDPI-01 communication adapter module. Before you do work on the module, read this manual and the applicable drive manual that contains the hardware and safety instructions for the product in question.

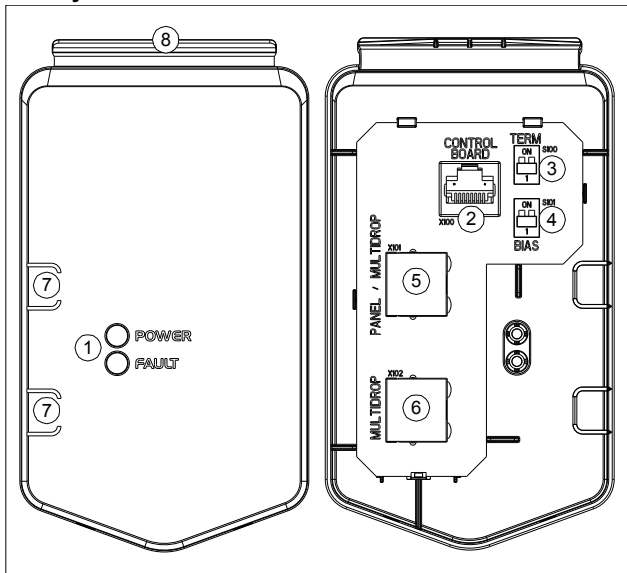
You are expected to know the fundamentals of electricity, wiring, electrical components and electrical schematic symbols.

The manual is written for readers worldwide. Both SI and imperial units are shown.

Product overview

The CDPI-01 communication adapter module can be used to connect a remote ACS-AP-x control panel to the drive, or to chain the control panel or a PC to several drives on a panel bus. The panel bus can have a maximum of 32 nodes. The control panel/PC is the master, while the drives equipped with the communication adapter module are followers.

Layout



Item	Description
1	LEDs mirrored from the drive control unit
2	Connector X100 to the drive control unit
3	Termination switch (S100)
4	Bias switch (S101)
5	Connector X101 for connecting a control panel or a PC
6	Connector X102 for chaining a panel bus
7	Cable hole locations. Used when the cabling connected to the module is routed outside the drive.
8	Clip for attaching the module to the drive

Planning the installation

There are two ways to route the cabling to the communication adapter module:

- Inside the drive and via the drive bottom plate. See page [10](#).
- Outside the drive. See page [13](#).

Necessary tools and instructions

Screwdriver and a set of suitable bits.

If you install the communication adapter module inside the drive, you need a T20 torx screwdriver for removing the cover and a cutter/knife for cutting a hole to the rubber grommet at the cable lead-through.

Selecting the cables

Use straight-connected CAT5e UTP/FTP cables with RJ-45 connectors.

General cabling instructions

- Arrange the cables as far away from the motor cables as possible.
 - Avoid parallel runs with the power cables.
-

Installation

■ Unpacking and checking the delivery

1. Open the option package.
2. Make sure that the package contains:
 - CDPI-01 communication adapter module
 - this manual.
3. Make sure that there are no signs of damage.

■ Removing the control panel from the drive

The communication adapter module is installed in the same slot as the control panel. If a control panel is attached to the drive, remove the control panel first as follows.

Note: If the drive is in local control and you do not stop the drive before you remove the control panel, the motor will stop and the drive will trip to a fault.

1. If the drive is running, stop the drive.
 2. Release the control panel by pressing the clip at the upper end of the panel.
 3. Pull the upper end of the control panel out of the slot in the drive.
-

Connecting the panel cabling to the drive

Alternative 1: Routing the cabling inside the drive

If you have several drives on the panel bus, repeat these steps in all drives.

1. Stop the drive and disconnect it from the power line. Wait for 5 minutes to let the intermediate circuit capacitors discharge before you continue.
 2. Remove the drive cover.
 3. Use a multimeter to make sure that there are no parts under voltage in reach.
 4. Cut an adequate hole into the rubber grommet. Slide the grommet onto the cable. Slide the cable through the hole of the bottom plate and attach the grommet to the hole.
 5. Route the cable first under the cable clamp (a) and then anticlockwise round the panel housing (b).
 6. Connect the panel cable to module connector X101.
For an illustration, see page [15](#).
 7. If you need to chain the panel bus to another drive:
 - repeat steps 4...5 for the chaining cable,
 - and connect the chaining cable to module connector X102.
-

8. Adjust the switches at the back of the module.

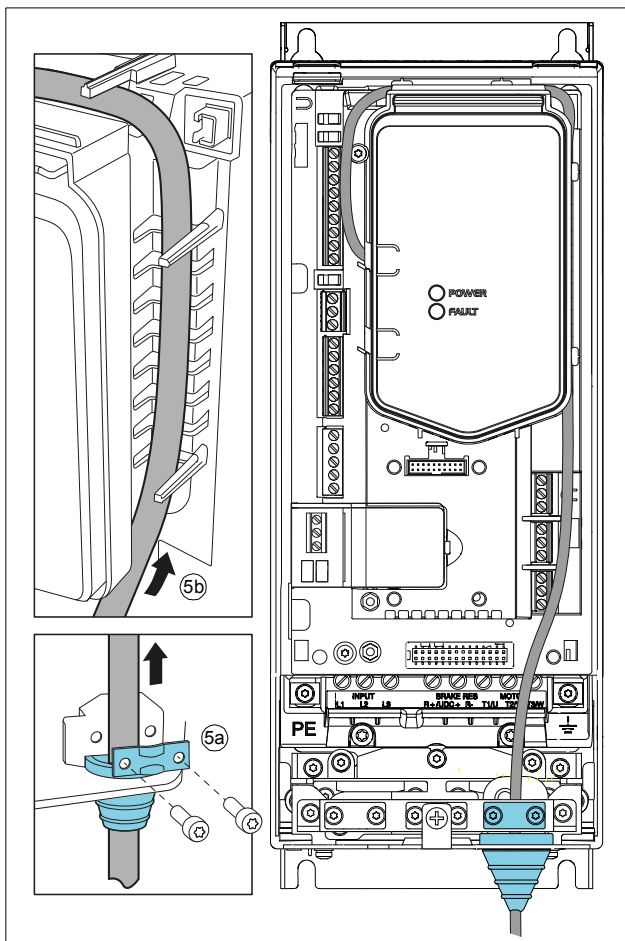
Termination switch (S100):

- If the module is connected to one drive only, set the switch to OFF.
- If you have several drives on the panel bus, set the switch to ON in the last module of the bus, OFF in all other modules. The control panel terminates the bus at its end, so only the other end of the bus must be terminated.

Bias switch (S101): Must be OFF in all modules.

9. Attach the module to the drive.
 - Place the bottom end of the module into the bottom of the slot in the drive.
 - Pivot the module and push the upper part until you hear a click.
10. Adjust the cable(s) and tighten the clamp (a).
11. Put the drive cover back.

For a panel bus chaining example, see section [Example: Chaining a control panel](#) on page 17.



Alternative 2: Routing the cabling outside the drive

If you have several drives on the panel bus, repeat these steps in all drives.

1. If the drive is running, stop the drive.
2. Make a hole for the panel cable on the left side of the communication adapter module.
If you need to chain the panel bus to another drive, make a hole for the chaining cable as well.
3. Connect the panel cable to module connector X101.
If you need to chain the panel bus to another drive, also connect the chaining cable to module connector X102.
4. Adjust the switches at the back of the module.

Termination switch (S100):

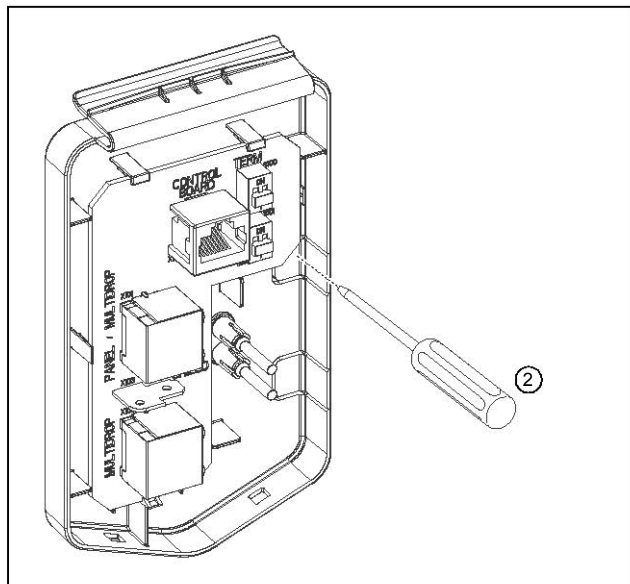
- If the module is connected to one drive only, set the switch to OFF.
- If you have several drives on the panel bus, set the switch to ON in the last module of the bus, OFF in all other modules. The control panel terminates the bus at its end, so only the other end of the bus must be terminated.

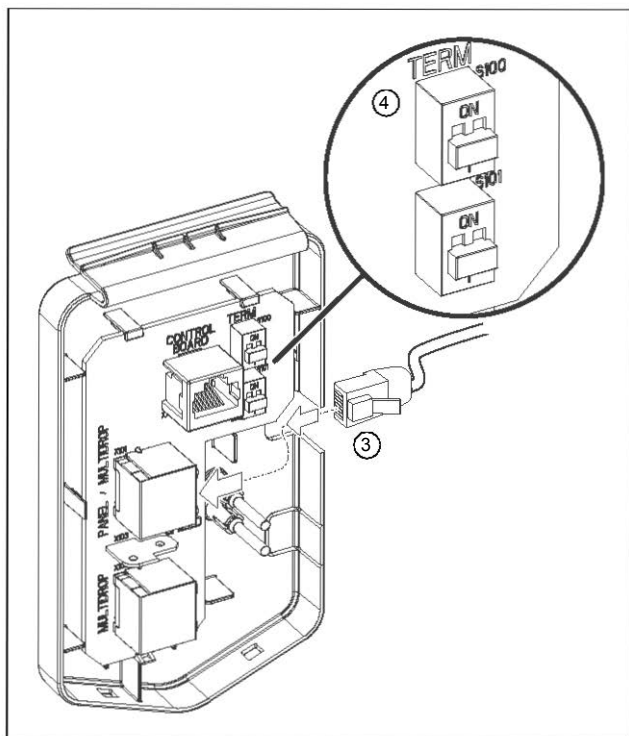
Bias switch (S101): Must be OFF in all modules.

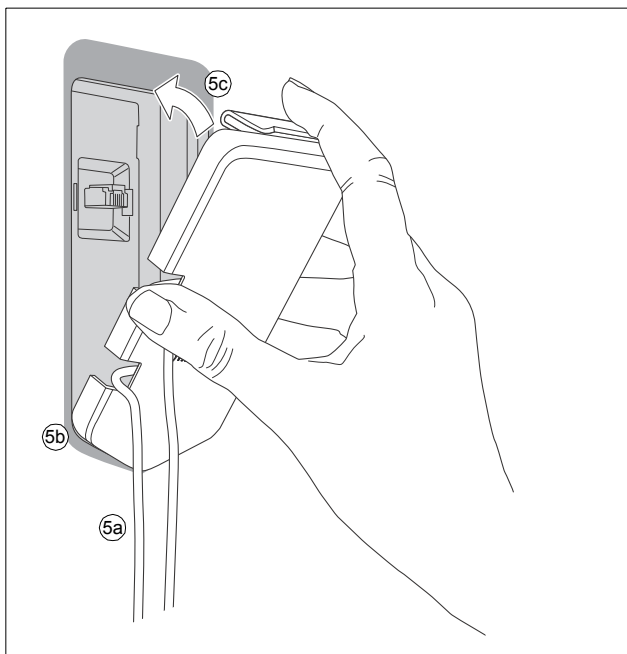
5. Attach the module to the drive.
 - Lead the cable(s) through the hole(s) to the front side of the module (a).
 - Place the bottom end of the module into the bottom of the slot in the drive (b).
 - Pivot the module and push the upper part (c) until you hear a click.
6. Secure the cable(s) to applicable cable supports.

For a panel bus chaining example, see section [Example: Chaining a control panel](#) on page 17.

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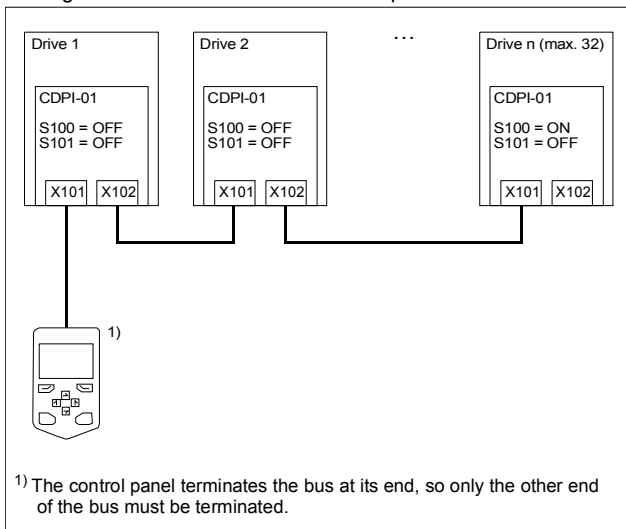


Bus termination and chaining examples

Bus termination is required to prevent signal reflections from the bus cable ends.

Example: Chaining a control panel

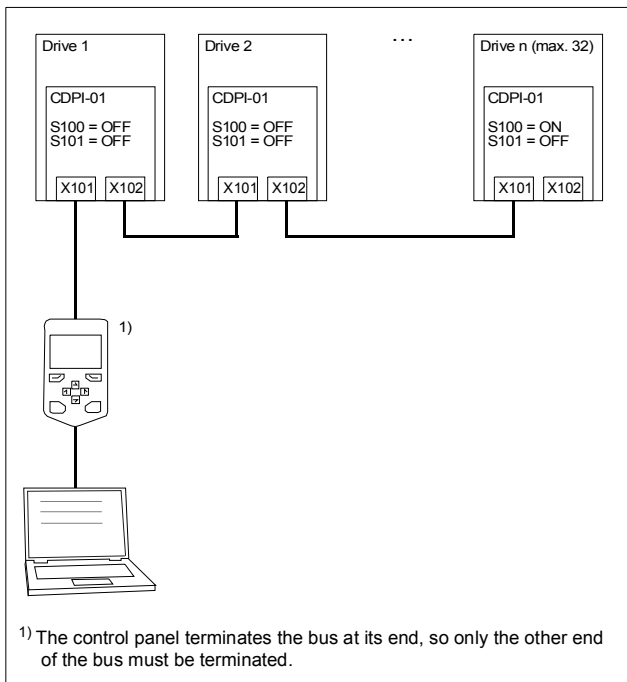
This figure shows how to chain a control panel to several drives.



Example: Chaining a PC through a control panel

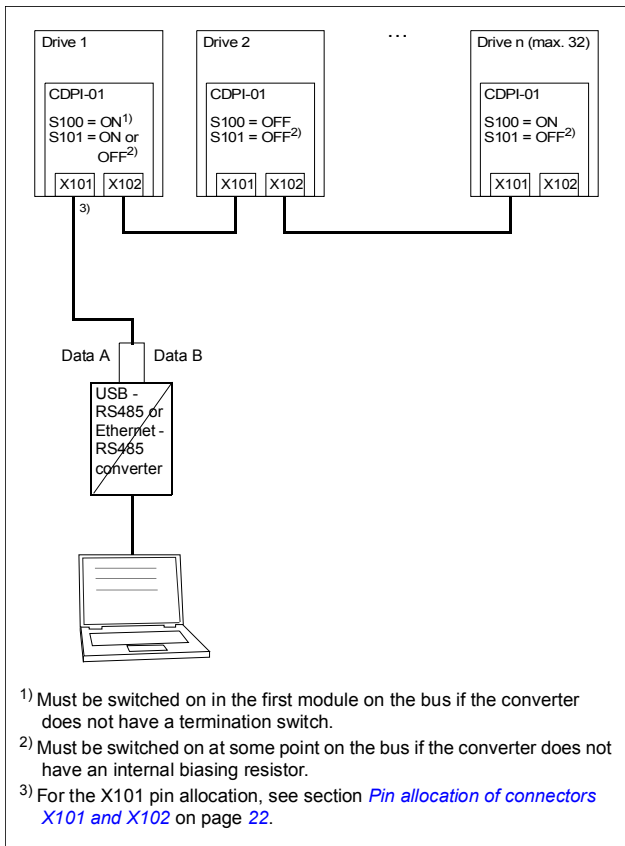
This figure shows how to chain a PC to several drives through a control panel.

Note: When a control panel is used for a panel-to-PC connection, it cannot be used for operating the drive.



Example: Chaining a PC through a commercial converter

This figure shows how to chain a PC to several drives through a commercial converter.



Start-up

■ Before you start

Make sure that you have completed the drive start-up.

■ Setting the parameters – Example for ACS580 Standard control program

If the communication adapter module is used to chain a control panel or a PC to several drives, set the parameters of group 49 Panel port communication for each drive before you connect the drives to the bus.

1. Power up the drive.
 2. Define the node ID of the drive (**49.01 Node ID number**).
All devices connected to the bus must have a unique node ID. It is advisable to reserve ID 1 for spare/replacement drives because they have ID 1 as the default factory setting. Start numbering from ID 2.
 3. Set the baud rate of the drive (**49.03 Baud rate**).
The baud rate has to be the same for all nodes on the bus.
 4. Select a suitable value for parameter **49.05 Communication loss action value**.
This parameter defines the operation of the drive when the control panel communication breaks.
 - **No action (0)**: No action taken.
 - **Fault (1)**: Drive trips on a fault.
 - **Last speed (2)**: Drive freezes the speed to the level the drive was operating at.
 - **Speed ref safe (3)**: Drive sets the speed to a safe speed reference.
-

Diagnostics

Faults and warning messages

For the fault and warning messages concerning the communication adapter module, see the drive manual.

LEDs

The communication adapter module has two diagnostic LEDs.

Name	Color	Description
POWER	Green	Drive control unit is powered.
FAULT	Red	There is an active fault in the drive control unit.

Technical data

CDPI-01 communication adapter module

Degree of protection	IP21 when installed
Ambient conditions	See the drive technical data.
Package	Cardboard
Switches	- Termination switch (S100) - Bias switch (S101)
Connectors	- Unshielded female connector to the drive control unit (X100, RJ-45) - Shielded female connector for connecting a control panel or a PC (X101, RJ-45) - Shielded female connector for chaining a panel bus (X102, RJ-45)
Power supply	Supplied by the drive control unit
General	- Complies with EMC standard EN 61800-3:2004 - Printed circuit board conformal coated - Printed circuit board materials RoHS compliant and UL Recognized

Pin allocation of connectors X101 and X102

Pin No.	Signal	Direction	Description
1	A	In / Out / Hi-Z	Data A (+)
2	B	In / Out / Hi-Z	Data B (-)
3	/TRANS	-	Not connected
4	/FAULT	-	Not connected
5	GND	-	Ground
6	GND	-	Ground
7	GND	-	Ground
8	VCC	From drive	Power supply +15...+24 V DC

 Panel bus

Bus type	RS-485
Purpose	Used as a panel bus
Maximum length	100 m
Maximum number of nodes	32 nodes (control panel/PC and drives)
Maximum transfer rate	1 Mbit/s
Medium	- CAT5e UTP/FTP Ethernet cable, straight connection - Connector: RJ-45

Further information

Product and service inquiries

Address any inquiries about the product to your local ABB representative, quoting the type designation and serial number of the unit in question. A listing of ABB sales, support and service contacts can be found by navigating to www.abb.com/searchchannels.

Product training

For information on ABB product training, navigate to www.abb.com/drives and select *Training courses*.

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