Table 2   Input area (drive to PLC)

1+2	3+4	5+6	7+8	9+10	11+12	13+14	15+16
ABC SW	Drv1 SW	Drv1 Act1	Drv1 Act2	Drv2 SW	Drv2 Act1	Drv2 Act2	Drv3 SW
17+18	19+20	21+22	23+24	25+26	27+28	29+30	31+32
Drv3 Act1	Drv3 Act2	Drv4 SW	Drv4 Act1	Drv4 Act2	Drv5 SW	Drv5 Act1	Drv5 Act2
33+34	35+36	37+38	39+40	41+42	43+44	45+46	47+48
Drv6 SW	Drv6Act1	Drv6 Act2	Drv7 SW	Drv7 Act1	Drv7 Act2	Drv8 SW	Drv8 Act1
49+50	51+52	53+54	55+56	57+58	59+60	61+62	
Drv8 Act2	Drv9 SW	Drv9 Act1	Drv9 Act2	Drv10 SW	Drv10 Act1	Drv10 Act2	

Quick Start-up Set AnyBus® Communicator slave settings via the Profibus configurator tool as follows:

- select 'Universal' mode
- 62 byte input length
- 62 byte output length
- consistancy over total length

After switching on the external power supply to the AnyBus® Communicator the amount of physically connected drives to the subnet has to be set and the subnet communication has to be started by means of the ABC CW register. To start the subnet communication with 10 drives write the value 6000 hex to the ABC CW register in the PLC (see Table 1). To start the communication with less than 10 drives write the value 720x hex to the ABC CW register, where x is the amount of drives (1 to 9) physically connected to the subnet. Note that the required memory space in the PLC is always 62 byte for input and output regardless of the amount of drives connected to the subnet. The configuration procedure has to be repeated each time the power supply to the AnyBus® Communicator is turned on.

When the subnet communication is running the value of the Drv x SW registers of the connected drives will differ from zero. The subnet status LED is lit red if any of the drives does not communicate on the subnet.

The response time of the communication is app. 200 ms/drive.

ABC-PDP PROFIBUS-DP Gateway Module Installation Guide

Introduction This guide is intended for people who are responsible for commissioning and using an ABC-PDP PROFIBUS-DP gateway module.

It is assumed that the drive is installed and ready to operate before starting the installation of the adapter module. In addition to conventional tools, the drive manuals should be available during the installation as they contain important information not included in this guide. If an RS 232/485 adapter is used with the drive, have also its manual available. Additionally the User Manual AnyBus® Communicator, included in the package, contains useful information on the mechanical installation, electrical connections, diagnostics and supported features. Refer to AnyBus® Communicator manual if any of the module configurations needs changing. Follow the safety instructions mentioned in these manuals. All related documents to the AnyBus® Communicator and its configuration files can be found on the website **www.anybus.com**.

Content of the Delivery Check that you have received in the product package the AnyBus® Communicator module, User Manual AnyBus® Communicator and this guide.

This guide contains information on the drive topology, pre-set configuration of the ABC-PDP and some basic information for quick start-up.

Warranty The warranty for your ABB drive and options covers manufacturing defects. The manufacturer carries no responsibility for damage due to transportation or unpacking. In no event and under no circumstances shall the manufacturer be liable for damages and failures due to misuse, abuse, improper installation, or abnormal conditions of temperature, dust, or corrosives, or failures due to operation above rated capacities. Nor shall the manufacturer ever be liable for consequential and incidental damages.

The period of manufacturer's warranty is 12 months, and not more than 18 months, from the date of delivery. Extended warranty may be available with certified start-up. Contact your local distributor for details.

Your local ABB Drives company or distributor may have a different

warranty period, which is specified in their sales terms, conditions, and warranty terms.

If you have any questions concerning your ABB drive, contact your local distributor or ABB Drives office.

The technical data and specifications are valid at the time of printing. ABB reserves the right to subsequent alterations.

ABC-PDP and Drive Topology

The topology of the ABC-PDP is shown in the figure below.

Fieldbus link PROFIBUS-DP

AnyBus-S Communicator

RS485 Modbus link · subnet

ACS 140/160/400 with RS485 interface
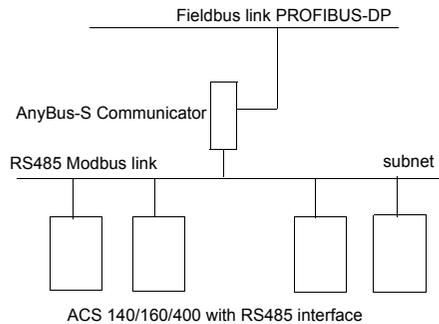
The ABC-PDP module is directly linked to the PROFIBUS-DP fieldbus network. The standard Modbus protocol is used on the subnet for communication between the ABC-PDP module and the drives. The physical transmission medium of the bus between module and drives is a twisted pair cable according to the RS485 standard.

A maximum of 10 drives can be connected to one ABC-PDP. Information on the electrical connections can be found in the AnyBus® Communicator manual (wiring to the module) and the RS 232/485 manual (wiring to ACS140/160) or ACS 400 User's Manual (wiring to ACS 400 series).

When connecting several drives to the ABC-PDP arrange the bus cables as far away from the motor as possible. Avoid parallel runs and use screened cable only.

The subnet should not be directly earthed at any point. All the devices on the subnet should be well earthed using their corresponding earthing terminals.

As always, the earthing wires should not form any closed loops, and all the devices should be earthed to a common earth.

The subnet must be terminated using 120 Ω resistors at both ends of the network. Use a switch or a jumper according to the wire instructions to connect or disconnect the termination resistors.

The termination should only be done on the first and last node on the stations on the network. Do not select the termination for the intermediate nodes.

Communication Set-up

After the ABC-PDP has been mechanically and electrically installed, the master station and the drive must be prepared for communication with the module. Program the drive parameters to use Modbus fieldbus as drive control location according to the drive User's Manual. The pre-set configuration of the ABC-PDP module enables the use of maximum ten ACS 140/160/400 drives connected to one ABC-PDP module. Select the node number of the drive in the range of 1 to 10 in following order (no blanks allowed) starting from 1. The ABC-PDP communicates by default at a speed of 19200 bits/s with the drive with parity 'None'. Set the communication speed of the drive interface accordingly. Set the drive communication fault time to at least 5 sec to avoid nuisance communication time out trippings of the drive. Note that even though the ABC-PDP is used, it is also possible to use other available control locations to control the drive, e.g. digital/analogue inputs and the drive control panel.

Data Mapping

The ABC-PDP has been pre-configured to support the following functionality:

- send output data to the drive, maximum of 3 words:
  - Drv X CW = Control Word for drive X
  - Drv X Ref1 = Reference value 1 for drive X
  - Drv X Ref2 = Reference value 2 for drive X
- receive input data from the drive, maximum of 3 words:
  - Drv X SW = Status Word of drive X
  - Drv X Act1 = Actual value 1 of drive X
  - Drv X Act2 = Actual value 2 of drive X

Refer to the drive related manuals for the meaning of its data words.

Additionally, the AnyBus® Communicator has its own Control Word (ABC CW) and Status Word (ABC SW). Refer to the AnyBus® Communicator manual for the meaning of these words.

The data mapping is presented in the tables 1 and 2 below.

Table 1   Output area (PLC to drive)

1+2	3+4	5+6	7+8	9+10	11+12	13+14	15+16
ABC CW	Drv1 CW	Drv1 Ref1	Drv1 Ref2	Drv2 CW	Drv2 Ref1	Drv2 Ref2	Drv3 CW
17+18	19+20	21+22	23+24	25+26	27+28	29+30	31+32
Drv3 Ref1	Drv3 Ref2	Drv4 CW	Drv4 Ref1	Drv4 Ref2	Drv5 CW	Drv5 Ref1	Drv5 Ref2
33+34	35+36	37+38	39+40	41+42	43+44	45+46	47+48
Drv6 CW	Drv6 Ref1	Drv6 Ref2	Drv7 CW	Drv7 Ref1	Drv7 Ref2	Drv8 CW	Drv8 Ref1
49+50	51+52	53+54	55+56	57+58	59+60	61+62	
Drv8 Ref2	Drv9 CW	Drv9 Ref1	Drv9 Ref2	Drv10 CW	Drv10 Ref1	Drv10 Ref2	