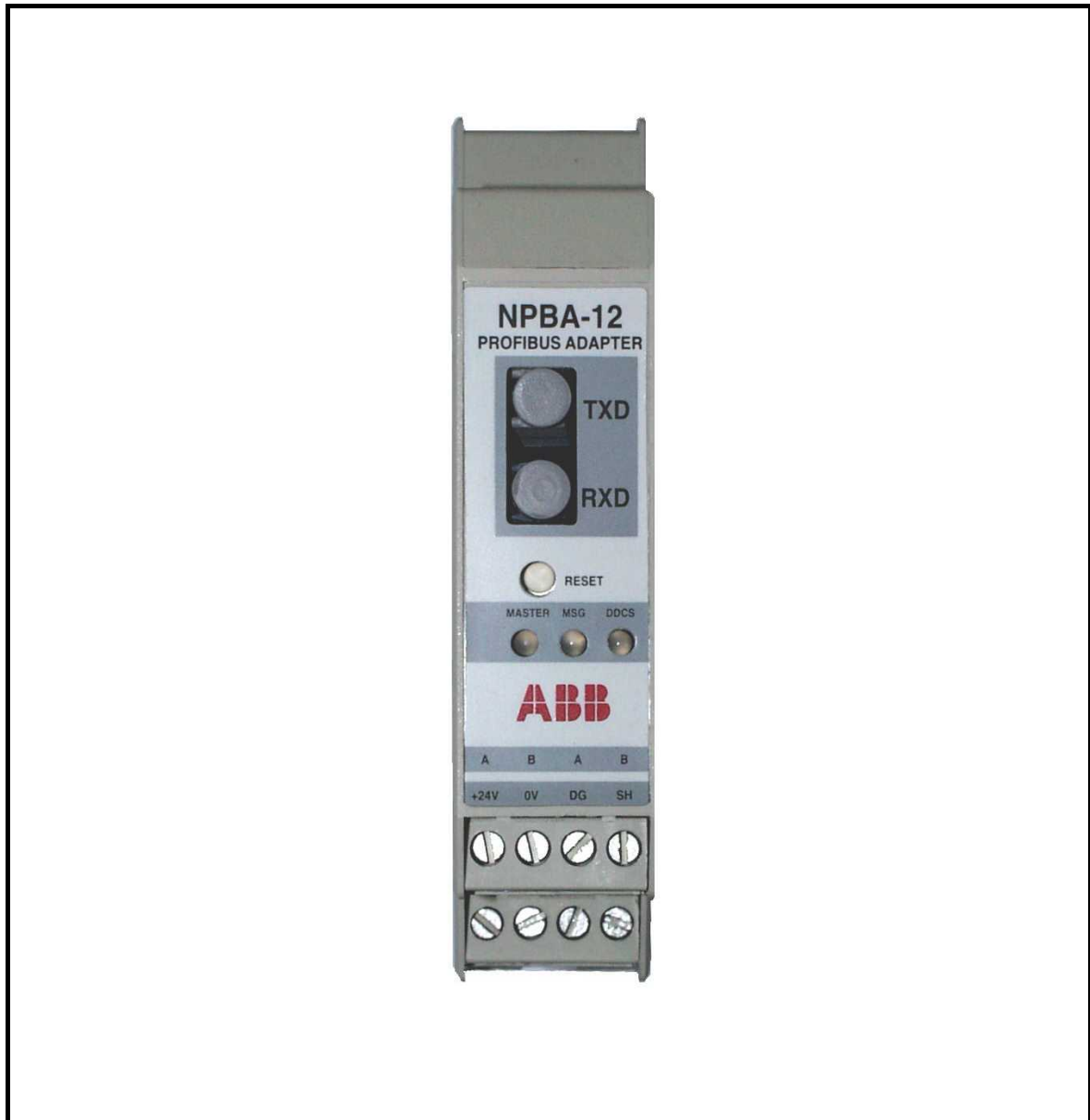


# Fieldbus Adapter with DC-Drives

DCS 400, DCS 500B, DCS 600

PROFIBUS Adapter Module

NPBA-12



**ABB**

<b>Contents of the package</b>	1 pc	PROFIBUS Adapter Module, Type NPBA-12
	2 pcs	Fibre optic cables (2m) for connecting the adapter to the drive
	1 pc	Fieldbus adapter with DC-Drives (this document)



**STOP!**

**Take into account the Safety Instructions in the appropriate documentations!**

### **Related Documentation**

There are two parts of documentation.

- Fieldbus Specific Documentation
- Drive Specific Documentation

#### **Fieldbus specific documentation**

Description of the fieldbus adapter.  
Please see also the chapter *Specific hints for the operation with DC-Drives* of this document.

**Installation and Start-up Guide  
PROFIBUS Adapter Module  
NPBA-12  
3BFE64341588 Rev. B**

#### **Drive specific documentation**

Description of available fieldbus adapters concerning DCS 400, DCS 500 or DCS 600

**DCS 400** Manual (please find NPBA-12 in the appendix)  
3ADW 000 095 R0701

**DCS 500** Description of the drive-specific serial link connection  
3ADW 000 086 R0201

**DCS 600** Description of the drive-specific serial link connection  
3ADW 000 097 R0101 incl. the updates.

#### **Internet**

The documentation is available via internet:  
[www.abb.com/dc](http://www.abb.com/dc) , further please select :

##### **Drives**

##### **DC Drives**

**Standard Drives** for DCS400 or

**Industrial Drives** for DCS500 and DCS600

##### **Options** (tap)

under chapter **Serial communication** please find **Further documentations**, which are linked with the relevant documents

## Adapter Connection

For more details please see documentation *Installation and Start-up Guide PROFIBUS Adapter Module NPBA-12*

X1:			X2:		
1	A	Data Negative (Conductor 2 in twisted pair)	5	+24V	Power supply for the module : (24V d.c. ±10%)
2	B	Data Positive (Conductor 1 in twisted pair)	6	0V	
3	A	Data Negative (Conductor 2 in twisted pair)	7	DG	PROFIBUS cable data ground
4	B	Data Positive (Conductor 1 in twisted pair)	8	SH	PROFIBUS cable shield

### Specific hints for operation with DC-Drives

The following table relates to the *Installation and Start-up Guide*, which is indicated in chapter *Related documentation* of this document.

The column **Page** shows the page number of the documentation *Installation and Start-up Guide*.

Page	Rem.
2-3	<p><b>Compatibility</b></p> <ul style="list-style-type: none"> <li>also compatible for DCS600</li> </ul> <p><b>Delivery Check</b> (different content for DC-Drives) The option package for the NPBA-12 PROFIBUS Adapter Module contains:</p> <ul style="list-style-type: none"> <li>PROFIBUS Adapter Module, Type NPBA-12</li> <li>Two pieces of fibre optic cables (2m) for connecting the adapter to the drive</li> <li>This document : „Fieldbus adapter with DC-Drives“</li> </ul>
4-3	<p><b>Drive Connections</b></p> <p>Fibre optic link connecting the NPBA-12 to the drive. DCS 400 : Fibre optic link connector V800 on the SDCS-CON-3(A) board DCS 500 : Fibre optic link connector V260 on the SDCS-CON-2 board DCS 600 : Fibre optic link connector CH0 on the AMC-DC Classic board</p>
4-4	The first paragraph (on earthing of the cable shields) is incorrect and should be disregarded.
5-1	<p><b>Configuring the System</b></p> <p>GSD File : ABB-6012.GSD (Please look also at internet <a href="http://www.abb.com/dc">www.abb.com/dc</a>)</p>
...	... Please see the following page.

<b>Page</b>	<b>Rem.</b>								
5-2	<p><b>Table 5-1 NPBA-12 configuration parameters</b> (also see description following this tabel)</p> <hr/> <p><b>Fieldbus Par.No. : 1 MODULE TYPE</b></p> <p>DCS 400 : Select "Fieldbus" in parameter 8.01 When a fieldbus communication is selected the character string „Fieldbus“ is displayed.</p> <p>DCS 500 : Select "Fieldbus" in parameter 40.01 After initialisation the string NPBA-12 Vx.x instead of "Fieldbus" is displayed using the CDP312 panel.</p> <p>DCS 600 : Select "Fieldbus" in parameter 98.02. This selection opens fieldbus group 51. After initialisation string NPBA-12 Vx.x is displayed in 51.01.</p> <hr/> <p><b>Fieldbus Par.No. : 2 PROTOCOL</b></p> <p>The DPV1 protocol is not supported by the adapter with this software version. It is prepared for future use.</p> <hr/> <p><b>Fieldbus Par.No. : 5 NO. OF DATA SETS</b></p> <p>Max. 2 datasets can be used with DCS 400 or DCS 500 converters.</p>								
5-3	<p><b>COMM PROFILE (table)</b></p> <table border="1"> <thead> <tr> <th></th> <th><b>Drive Type</b></th> <th><b>Drive Sw. Version</b></th> <th><b>Setting to Use</b></th> </tr> </thead> <tbody> <tr> <td>also</td> <td>DCS 600</td> <td>DC15x603 or later</td> <td>Transparent</td> </tr> </tbody> </table>		<b>Drive Type</b>	<b>Drive Sw. Version</b>	<b>Setting to Use</b>	also	DCS 600	DC15x603 or later	Transparent
	<b>Drive Type</b>	<b>Drive Sw. Version</b>	<b>Setting to Use</b>						
also	DCS 600	DC15x603 or later	Transparent						
6-7	<b>Table 6-1 Control Word ...</b>								
6-8	<b>Table 6-2 Status Word ...</b>								
	Please see the drive specific documentation. Some bits slightly differ in their function from this description.								
6-10	<b>Table Request Labels</b> Request 4 up to request 9 are not supported by SW version V1.1.								
6-12	<b>Example Write : Save to FLASH memory</b> Not possible with DCS 400 and DCS 500								
A-1	<b>PROFIBUS Par.No. 971</b> Not possible with DCS 400 and DCS 500								
C-1	<b>DDCS-Link</b> <b>Compatible Devices</b> also for          DCS 600								

**"Upgrade" the communication of adapter NPBA-02 V2.x to NPBA-12 V1.x**

"Upgrade" means either to use the NPBA-12 with the feature 12Mbps or to replace an existing NPBA-02. The replacement is preferably done with adapter version NPBA-12 V1.4 (or higher). **Please note** : Before connecting the new adapter please write down the fieldbus parameters (see table *Parameter settings*), if the parameter setting was correct for the NPBA-02 adapter. After connecting the DC drive and switching on the electronic supply the new adapter will load its default values into the fieldbus group. After this action the "new values" need to be set.

**Please note** : The protocol FMS is not supported by NPBA-12.

**Wiring connection**

NPBA-02		from	to	NPBA-12	
X2:1	D(P)	→	→	X1:2	A
X2:2	D(N)	→	→	X1:1	B
X2:3	DG	→	→	X2:7	DG
X2:4	SHF	→ *1	→		
X2:5	SH	→	→	X2:8	SH
X2:6	0V	→	→	X2:6	0V
X2:7	+24V	→	→	X2:5	+24V
X2:8	PE				
Off	Termination			Off	Termination
On				On	(inside)

\*1 The terminal SHF (X2:4 of NPBA-02) has a capacitive-ohmic load to earth. Please check the whole shield wiring, whether it is possible to connect to SH (X2:8 of NPBA-12)

**Parameter settings**

- x = 8 valid for DCS 400
- = 40 valid for DCS 500B
- = 51 valid for DCS 600

from NPBA-02		→	to NPBA-12		
Para.no.	Act. values		Para.no.	Para.name	New values
x.01	NPBA-02	→	x.01	Module Type	NPBA-12
x.02	value_2	→	x.02	Protocol	<b>(0) DP</b>
x.03	value_3	→	x.03	PPO Type	value_2 -1
x.04	value_4	→	x.04	Node Number	value_3
x.05	value_5	→	x.05	No. of Datasets	value_5
x.06	value_6	→	x.06	Data Set Index	value_6
x.07	value_7	→	x.07	Cut-off Timeout	value_7
x.08	value_8	→	x.08	Comm Profile	value_8
x.09	value_9	→	x.09	Control zero mode	value_9

**NPBA-12**  
**used as replacement for**  
**NPBA-02**

NPBA-12 V1.4 (and higher) is able to simulate the NPBA-02.

Setting "**NPBA-02 Mode**" the configuration file (GSD) for NPBA-02 must be used. That means the PLC configurations must not be changed after replacing NPBA-02 by NPBA-12.

x.02	Protocol	(2) NPBA-02 Mode
------	----------	------------------

Fieldbus group x = 8 (DCS 400)  
40 (DCS 500B)  
51 (DCS 600)

All other parameters of group x are equivalent to NPBA-12.

Please note: after connecting the adapter to the drive the first time, a new initialization will be started. Please set the necessary values of the fieldbus group after this initialization only.



ABB Automation Products GmbH  
Postfach 1180  
68619 Lampertheim • GERMANY  
Tel: +49 (0) 62 06-5 03-0  
Fax: +49 (0) 62 06-5 03-6 09  
www.abb.com/dc



\*156Z0301A4030000\*

Ident.No.: 3ADW000 156Z0301 REV C  
01\_2005