DELTA ELECTRONICS, INC.

CMC-PD01

PROFIBUS DP Slave Communication Card

Operation Manual

http://www.delta.com.tw/industrialautomation

CMC-0205820-01

Table of Content

1 Introduction to CMC-PD01

1.1 Product Introduction

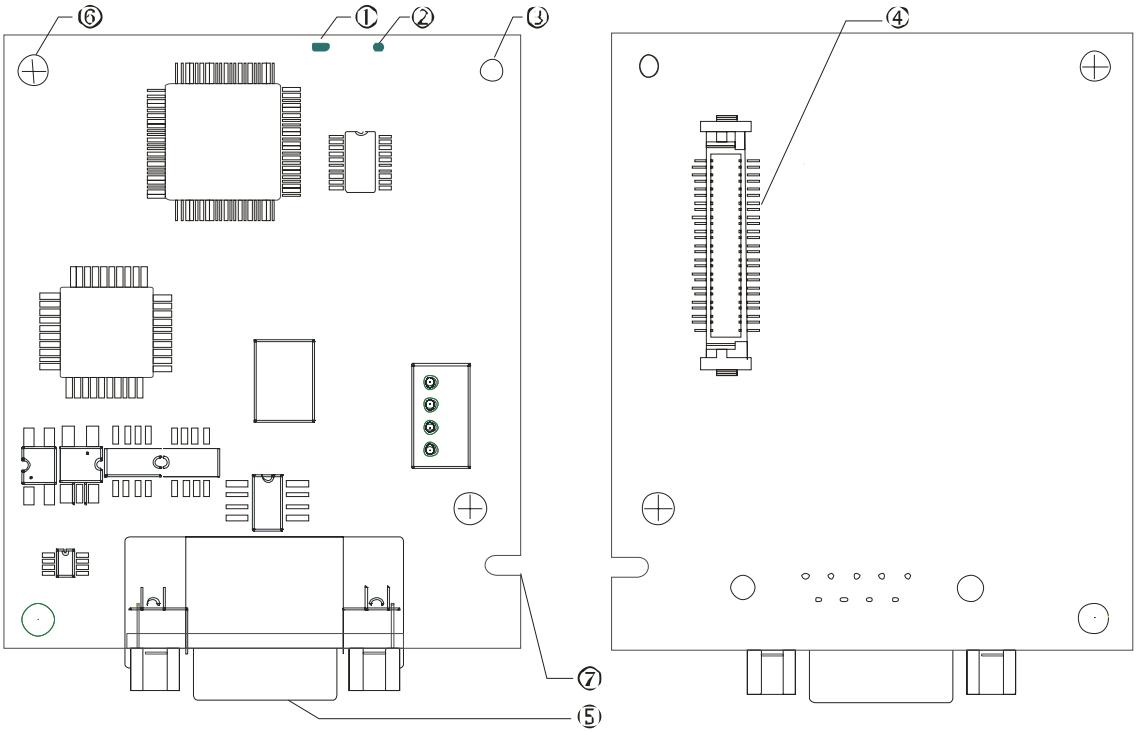
1. Thank you for choosing Delta CMC-PD01 communication card. To ensure correct installation and operation of the product, please read this operation manual carefully before using it.
2. This operation manual only provides introductory information on CMC-PD01. Detailed information about PROFIBUS DP protocol is not included in this manual. Please refer to relevant literatures for more information on PROFIBUS DP protocol.
3. CMC-PD01 is PROFIBUS DP slave communication card for connecting Delta VFD-C2000 series AC motor drive to PROFIBUS DP network.

1.2 Features

1. Supports PZD control data exchange.
2. Supports PKW polling AC motor drive parameters.
3. Supports user diagnosis function.
4. Auto-detects baud rates; support max. 12Mbps.

2 Product Profile and Outline

2.1 Parts



① NET indicator	② POWER indicator	③ Positioning hole
④ AC motor drive connection port	⑤ PROFIBUS DP connection port	⑥ Screw fixing hole
⑦ Fool-proof groove		

2.2 Specifications

■ PROFIBUS DP Port

Interface	DB9 connector
Transmission method	High-speed RS-485
Transmission cable	Shielded twisted pair cable
Electrical isolation	500VDC

■ Communication

Message type	Cyclic data exchange.
Model name	CMC-PD01
GSD file	DELA08DB.GSD
Company ID	08DB (HEX)
Serial transmission speed supported (auto-detection)	9.6kbps; 19.2kbps; 93.75kbps; 187.5kbps; 500kbps; 1.5Mbps; 3Mbps; 6Mbps; 12Mbps (bits per second)

■ Electrical Specification

Power supply voltage	5VDC (supplied by AC motor drive)
Insulation voltage	500VDC
Power consumption	1W
Weight	28g

■ Environment

Noise immunity	ESD (IEC 61800-5-1, IEC 6100-4-2) EFT (IEC 61800-5-1, IEC 6100-4-4) Surge Teat (IEC 61800-5-1, IEC 6100-4-5) Conducted Susceptibility Test (IEC 61800-5-1, IEC 6100-4-6)
Storage/operation	Operation: -10°C ~ 50°C (temperature), 90% (humidity) Storage: -25°C ~ 70°C (temperature), 95% (humidity)
Shock/vibration immunity	International standards: IEC 61800-5-1, IEC 60068-2-6/IEC 61800-5-1, IEC 60068-2-27

3 Installation

3.1 Connecting CMC-PD01 to VFD-C2000

1. Switch off the power of VFD-C2000.
2. Open the front cover of VFD-C2000.
3. Place the insulation spacer into the positioning pin and aim the two holes on the PCB at the positioning pin. Press the pin to clip the holes with the PCB (see Figure 3.1-1).
4. Screw up after the PCB is clipped with the holes (see Figure 3.1-2).

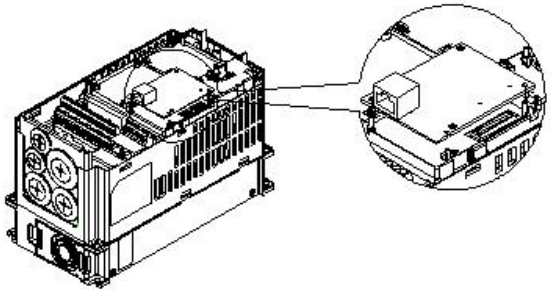


Figure 3.1-1

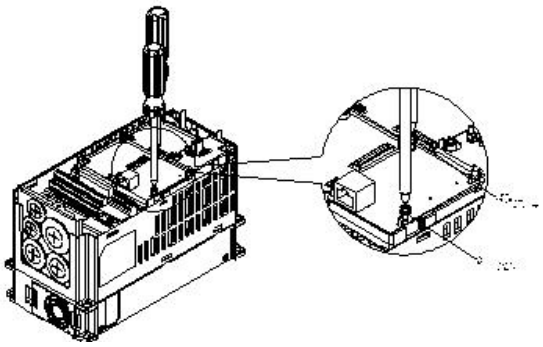


Figure 3.1-2

3.2 Disconnecting CMC-PD01 from VFD-C2000

1. Remove the two screws (see Figure 3.2-1).
2. Twist open the card clip and insert the slot type screwdriver to the hollow to separate the PCB from the card clip (see Figure 3.2-2).
3. Twist open the other card clip to remove the PCB (see Figure 3.2-3).

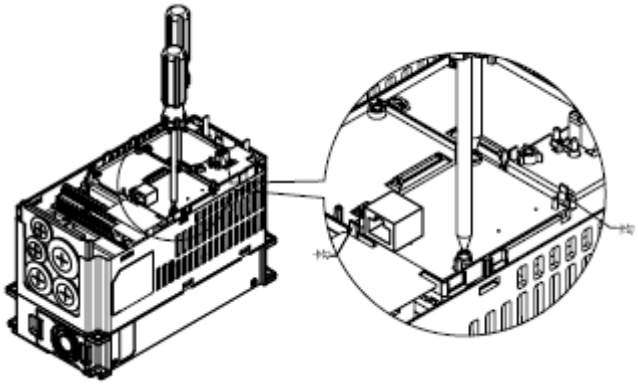


Figure 3.2-1

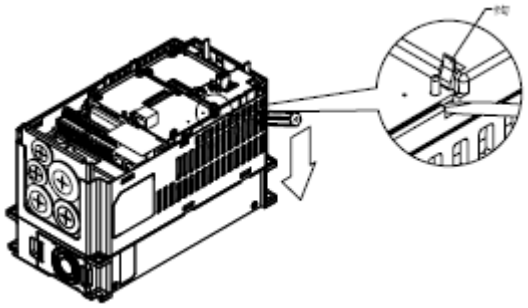


Figure 3.2-2

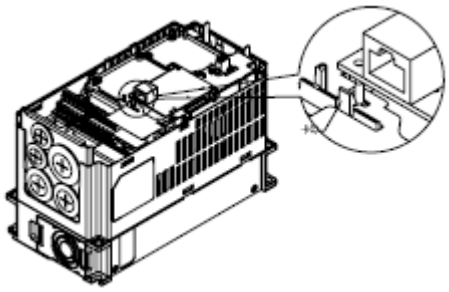
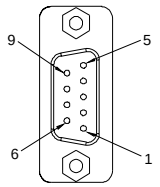


Figure 3.2-3

3.3 Definition of PROFIBUS DP Port

PIN	PIN name	Definition
1	--	N/C
2	--	N/C
3	RxD/TxD-P	Sending/receiving data P(B)
4	--	N/C
5	DGND	Data reference potential (C)
6	VP	Power voltage - positive
7	--	N/C
8	RxD/TxD-N	Sending/receiving data N(A)
9	--	N/C



3.4 Connecting to PROFIBUS DP Connector

Insert the connector to the connection port on CMC-PD01 and screw up the screws on the connector to ensure tight connection between CMC-PD01 and the PROFIBUS DP connector. See Figure 3.4-1.

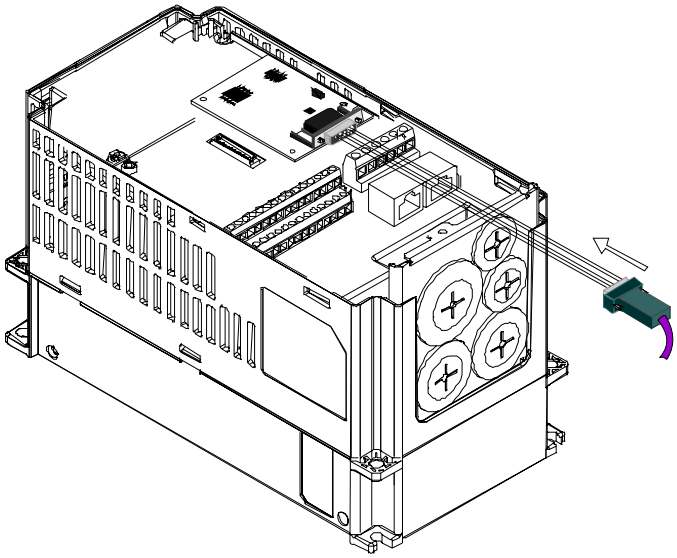


Figure 3.4-1

4 Communication

4.1 Communication Parameters for VFD-C2000 Connected to PROFIBUS DP

When VFD-C2000 is connected to PROFIBUS DP, please set up the communication parameters for it according to Table 4.1-1.The PROFIBUS DP master is only able to read/write the parameters of VFD-C2000 after the communication parameters are set.

Parameter	Function	Set value	Explanation
00-20	Setting up source of frequency command	8	The frequency command is controlled by communication card.
00-21	Setting up source of operation command	5	The operation command is controlled by communication card.
09-30	Decoding method for communication	0/1	0: The old decoding method for Delta AC motor drive (20XX) 1: The new decoding method for Delta AC motor drive (60XX)
09-70	Address of communication card	User defined	Address of VFD-C2000 on PROFIBUS DP network

Table 4.1-1

Note: The value of 09-70 is the address of VFD-C2000 on the PROFIBUS DP network. The address has to be consistent with the address of VFD-C2000 during configuration. Changing the value in 09-70 when VFD-C2000 is working will be invalid. After the value in 09-70 is changed, shut down VFD-C2000 and re-power it to make the parameter valid.

4.2 Transmission Distance and Baud Rate

The baud rate range for PROFIBUS DP is 9.6kbps ~ 12Mbps, and the length of transmission cable varies upon the transmission speed. The transmission distance ranges from 100m to 1,200m. SeeTable 4.2-1 for the baud rates CMC-PD01 supports and their corresponding communication distances.

Baud rate (bps)	9.6k	19.2k	93.75k	187.5k	500k	1.5M	3M	6M	12M
Distance (m)	1,200	1,200	1,200	1,000	400	200	100	100	100

Table 4.2-1

4.3 Applicable Data Form for CMC-PD01 and Introduction to PKW, PZD

4.3.1 Applicable Data Form for CMC-PD01

The data form defined by PROFIDrive can be used for cyclic data exchange. These defined data form is called “Parameter Process data Object” (PPO). Apart from PPO, the cyclical data can be configured as EXT CONF1 or EXT CONF2. Based on different demands, the two extended configurations are able to achieve 4 process data words. See Table 4.3-1 for the data forms CMC-PD01 supports.

4.3.2 Introduction to PKW, PZD

After VFD-C2000 is connected to PROFIBUS DP network through CMC-PD01, there will be two ways to poll AC motor drive parameters, PKW polling and PZD polling. PKW is composed of 4 words, and each word represents particular definition. 4 words combined are able to read or write one AC motor drive parameter. Change each word in PKW to poll all the parameters in the AC motor drive. When the AC motor drive parameter is polled by PZD, PZD is able to map the address of the AC motor drive directly. After PZD maps the address, it will fix to map the certain address. See Table 4.3-1, the 4 words in PKW zone combined are able to read one parameter in the AC motor drive, but every word in PZD zone is able to map one parameter address of the AC motor drive.

PKW				PZD									
PKE	IND	PWE1	PWE2	PZD1	PZD2	PZD3	PZD4	PZD5	PZD6	PZD7	PZD8	PZD9	PZD10
1st word	2nd word	3rd word	4th word	1st word	2nd word	3rd word	4th word	5th word	6th word	7th word	8th word	9th word	10th word
PPO1													
PPO2													
				PPO3									
				PPO4									
PPO5													
EXT CONF1													
				EXT CONF2									

Table 4.3-1

4.4 Data Formats and Examples

See Table 4.4-1 for the data form of PKW. As cyclical data, PKW data has request and response mechanism, i.e. all masters are able to send new request message only after receiving the corresponding responses.

PKW	Definitions of bit															
	bit15	bit14	bit13	bit12	bit11	bit10	bit9	bit8	bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
Word 1	PKE (parameter ID)															
	AK				SPM	PNU (basic parameter number)										
Word 2	IND (sub-index of parameter)															
	Page number				Not in use											
Word 3	PWE1 (reserved)															
Word 4	PWE2 (read/write parameter value)															

Table 4.4-1

4.4.1 PKE (Word 1)

- PNU (PKE bit0 ~ bit10): Basic parameter number

Basic parameter number (PNU) = Address of AC motor drive to be polled – n*2,000 (n = PNU page number). Range of PNU: 1 ~ 1,999 (decimal). PNU page number = 0, when the parameter address of AC motor drive < 1,999 (decimal). When the parameter address of AC motor drive > 1,999 (decimal), you will need to set up adequate PNU page number to make PNU < 1,999 (decimal).

- SPM (PKE bit11): Reserved (Default = 0)
- AK (PKE bit12 ~ bit15): Request or response ID

Request ID (Master ➔ CMC-PD01)

Request ID	Definition
0	No request
1	Request parameter value
2	Modify parameter value

Table 1.4-2

Response ID (CMC-PD01 ➔ Master)

Response ID	Definition
0	No response
1	Send parameter value
7	Request unable to process (Find out the reason according to PWE2 error code)

Table 1.4-3

When the request is unable to process, an error code will be generated in PWE2. See Table 1.4-4 for the definitions of error codes.

Error code	Definition
0	Illegal parameter number (parameter does not exist)
1	Parameter value cannot be changed (read-only parameter, the present value cannot be changed)
2	Below or exceeds minimum or maximum value
18	Other errors

Table 1.4-4

4.4.2 IND (Word 2)

See Table 1.4-5 for the data form of IND (sub-index of parameter). IND bit12 ~ bit15 are for page number selection (see Table 1.4-6 for the definition of each bit). When you use PKW to poll the AC motor drive parameters, you have to first make sure the page number. The value of page number is decided by bit12 ~ bit15 of IND, which is the sum of each bit value multiplied by power value. For example, if the page number is 4, bit12 ~ bit15 of IND will be 0100. After the page number is set, the IND value will be confirmed as well. The IND value can be obtained by the binary bit0 ~ bit15 values. For example, if the page number is 4, the IND value will be 2000 (hex).

Sub-index of parameter (IND)															
bit12 ~ bit15 (page number)				bit0 ~ bit11 (Reserved, Default = 0)											
bit15	bit14	bit13	bit12	bit11	bit10	bit9	bit8	bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 1.4-5

Page number				
Bit	IND bit15	IND bit14	IND bit13	IND bit12
Weight	2^0	2^3	2^2	2^1
Value	0/1	0/1	0/1	0/1

Table 1.4-6

Once the parameter address of the AC motor drive is known, you can further confirm the value of PNU page number according to Table 1.4-7. With the PNU page number, you will be able to obtain the IND and PNU value. PNU value = Parameter Address of AC Motor Drive – PNU Page Number × 2,000.

PNU (PKE bit0 ~ bit10) (Hex)	PNU page number (INC bit12 ~ bit15) (Decimal)	Parameter address of AC motor drive (Decimal)
0…1999	0	0…1,999
0…1999	1	2,000…3,999
0…1999	2	4,000…4,999
…	…	…
0…1999	15	30,000…31,999

Table 1.4-7

4.4.3 PWE1 and PWE2 (Word 3 and Word 4)

PWE1 is reserved for PD-01. When PKW is used for reading or writing AC motor drive parameters, the PROFIBUS DP master has to be set to PWE1 = 0. When PKW is used for reading AC motor drive parameters, PWE2 has to be 0. When PKW is used for writing AC motor drive parameters, PWE2 has to be the parameter value to be written in.

4.4.4 Reading Actual Output Frequency from VFD-C2000 by PKW

To read the actual output frequency, first set the request ID to “1” (read parameter). The address of actual output frequency is 2103 (hex), and the decimal form of it is 8,451. Due to the range of PNU = 1 ~ 1999, and the page number is set to 4, the IND value = 2,000. PNU = 8451 – 4 × 2000 = 451 (01C3(hex)). The data format for PKW:

Master ➔ C2000: 11C3 2000 0000 0000

C2000 ➔ Master: 11C3 2000 0000 1070

Master requesting data:

Parameters in PKW	Parameters in PKW (hex)
Word 1 (PKE)	11C3
Word 2 (IND)	2000
Word 3 (PWE1)	0000
Word 4 (PWE2)	0000

Slave responding data:

Parameters in PKW	Parameters in PKW (hex)
Word 1 (PKE)	11C3
Word 2 (IND)	2000
Word 3 (PWE1)	0000
Word 4 (PWE2)	1070

4.4.5 Writing Value “2” into AC Motor Drive Address 2000 (hex) through PKW

To write value “2” into the parameter at address 2000 (hex), first set the request ID to “2” (modify parameter). The address of control word of AC motor drive is 2000 (hex), and the decimal form of it is 8,192. Set the page number to 4, the IND value = 2,000, and PNU = 8,192 – 4 x 2,000 = 192 (0C0(hex)). The data format for PKW:

Master ➔ C2000: 20C0 2000 0000 0002

C2000 ➔ Master: 10C0 2000 0000 0002

Master requesting data:

Parameters in PKW	Parameters in PKW (hex)
Word 1 (PKE)	20C0
Word 2 (IND)	2000
Word 3 (PWE1)	0000
Word 4 (PWE2)	0002

Slave responding data:

Parameters in PKW	Parameters in PKW (hex)
Word 1 (PKE)	10C0
Word 2 (IND)	2000
Word 3 (PWE1)	0000
Word 4 (PWE2)	0002

4.5 Reading/Writing AC Motor Drive Parameters by PZD

When you read/write AC motor drive parameters by PZD, the parameters of AC motor drive and registers in the master will formulate a corresponding relation. That is, when you read/write the parameter in the slave through the master, you can do it directly on the slave address which is mapped in the master. See Application Example section below for detailed method.

5 GSD File

The GSD file is a text file and can be used to identify PROFIBUS DP device (master or slave). A GSD file usually contains the supplier's information, baud rates supported and applicable I/O messages. When using VFD-C2000 as a PROFIBUS DP slave, you have to first import the GSD file of VFD-C2000 to the configuration software for PROFIBUS DP master. You can download the GSD file at Delta's website: http://www.delta.com.tw/

6 LED Indicators, Panel Display on VFD-C2000 and Trouble-shooting

6.1 LED Indicator and Trouble-shooting

■ POWER LED

The POWER LED displays the status of the working power supply.

LED status	Indication	How to correct
Green light on	Power supply in normal status	---
Off	No power supply	Check if the connection between CMC-PD01 and AC motor drive is normsl.

■ NET LED

The NET LED displays the connection status of the communication.

LED status	Indication	How to correct
Green light on	Normal status	---
Red light on	CMC-PD01 is not connected to PROFIBUS DP master.	1. Check if the configuration address of VFD-C2000 is consistent with the actual addrss. 2. Check if the communication cable between CMC-PD01 and PROFIBUS DP master is working normally.
Red light flashes	Invalid PROFIBUS communication address	Set the PROFIBUS address of VFD-C2000 to be between 1 ~ 125 (decimal).
Orange light flashes	CMC-PD01 fails to communicate with AC motor drive.	Switch off the power of VFD-C2000 and check whether CMC-PD01 is correctly and normally connected to the AC motor drive.

6.2 Panel Display on VFD-C2000 and Trouble-shooting

Errors on PROFIBUS DP bus are displayed on the panel of VFD-C2000.

Displayed code	Indication	How to correct
ECIO	The I/O data exchange between PROFIBUS DP master and CMC-PD01 is disconnected.	1. Check if the connection between CMC-PD01 and PROFIBUS DP bus is in normal status. 2. Check if the communication cable between CMC-PD01 and PROFIBUS DP master is in normal status.
ECPP	PROFIBUS DP parameter error	Check if the GSD file is correct.
ECPI	PROFIBUS DP configuration error	Check if VFD-C2000 is configured to general puspose mode.

7 Application Example 1

Mission:

Exchanging data between S7-300 (Siemens) and VFD-C2000 through PROFIBUS DP network

Connecting VFD-C2000 to PROFIBUS DP network:

1. S7-300 as the PROFIBUS DP master; VFD-C2000 as the slave. See the PROFIBUS DP network in Figure 7-1.

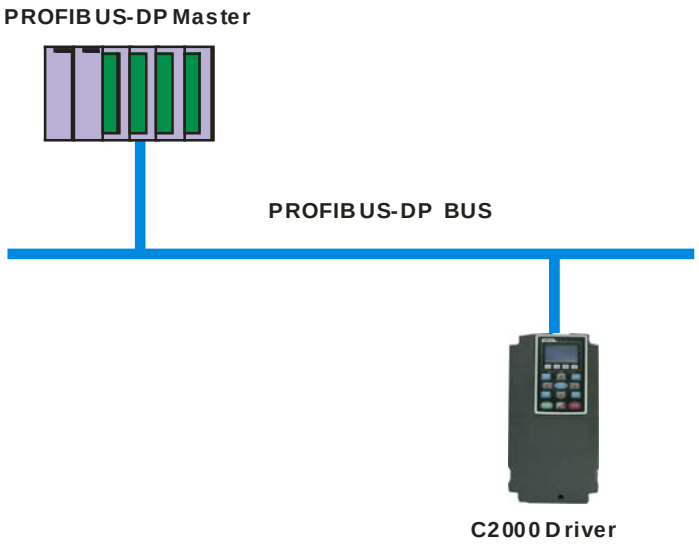


Figure 7-1

2. Set parameter 00-20 of VFD-C2000 to 8, 00-21 to 5, 09-30 to 0 and 09-70 to 8. The value of 09-70 is the address of VFD-C2000 on the PROFIBUS DP network. When the value of 09-70 is changed, VFD-C2000 has to be re-powered to make the new value valid.
3. Check if VFD-C2000 and CMC-PD01 is firmly connected, and if the wiring of the entire network is correct.

Configuring VFD-C2000 in PROFIBUS network (the software configuration):

- Create a new project by software wizard.

1. Open SIMATIC Manager. See Figure 7-2.

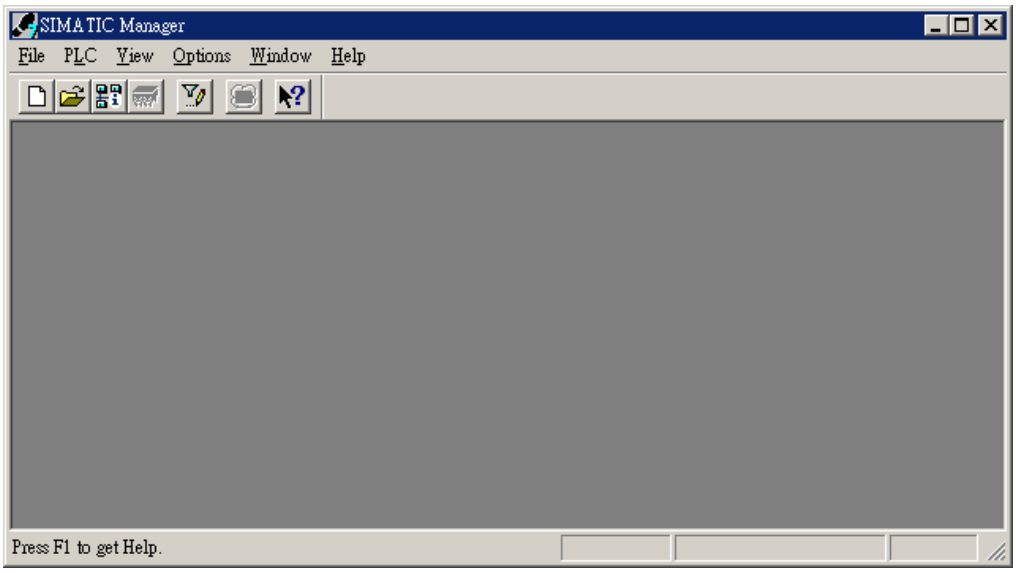


Figure 7-2

2. Select “File” => “New Project Wizard”. See Figure 7-3.

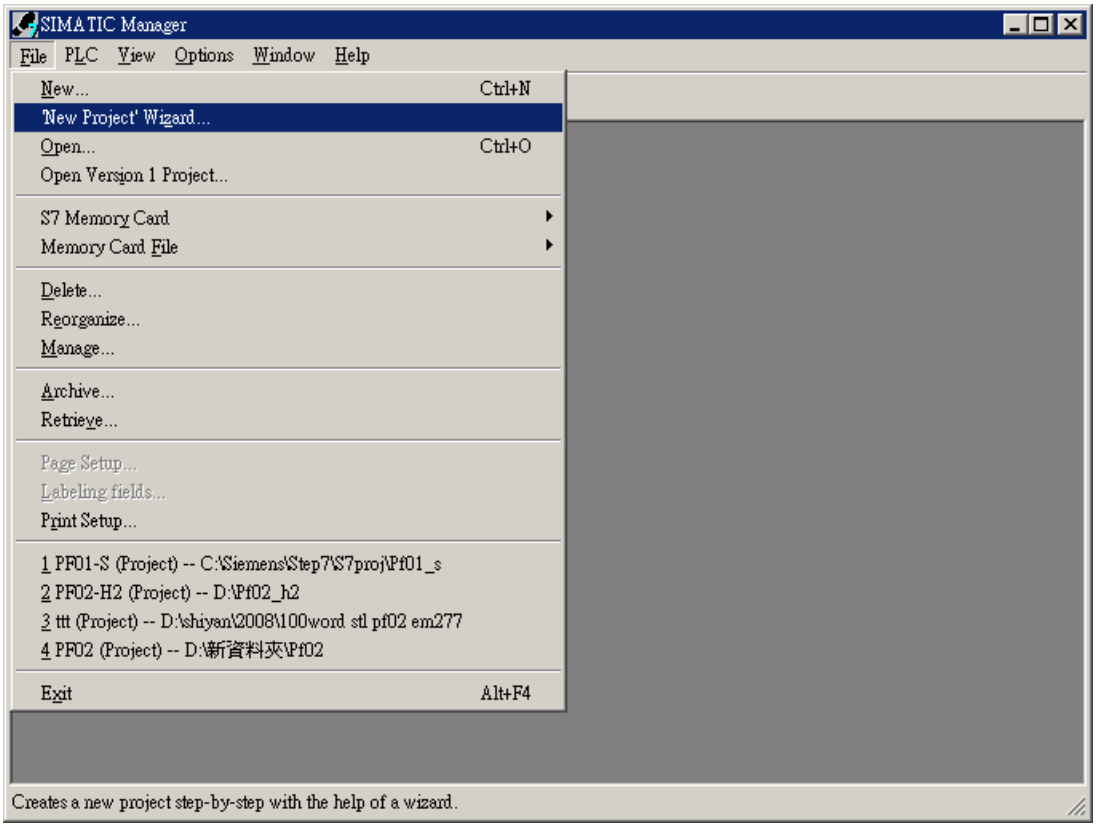


Figure 7-3

3. Click “Next” in the wizard. See Figure 7-4.

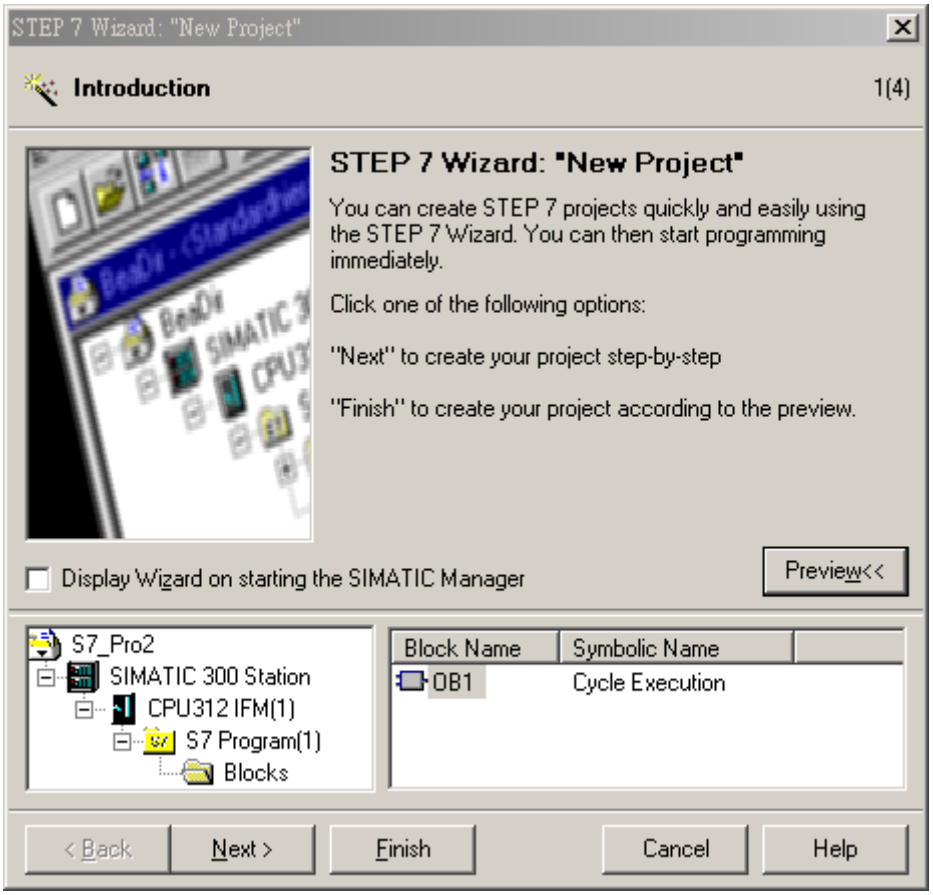


Figure 7-4

4. Select “CPU315-2 DP” for CPU as we are using the S7-300 model. Click “Next”. See Figure 7-5.

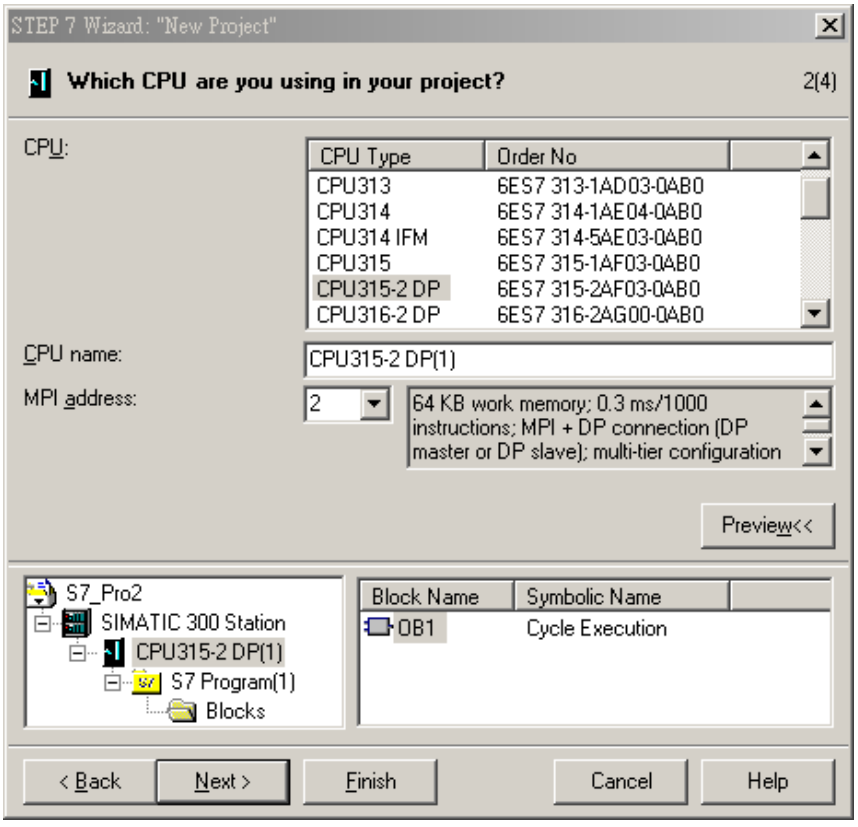


Figure 7-5

5. Select the block and language we need and click “Next”. See Figure 7-6.

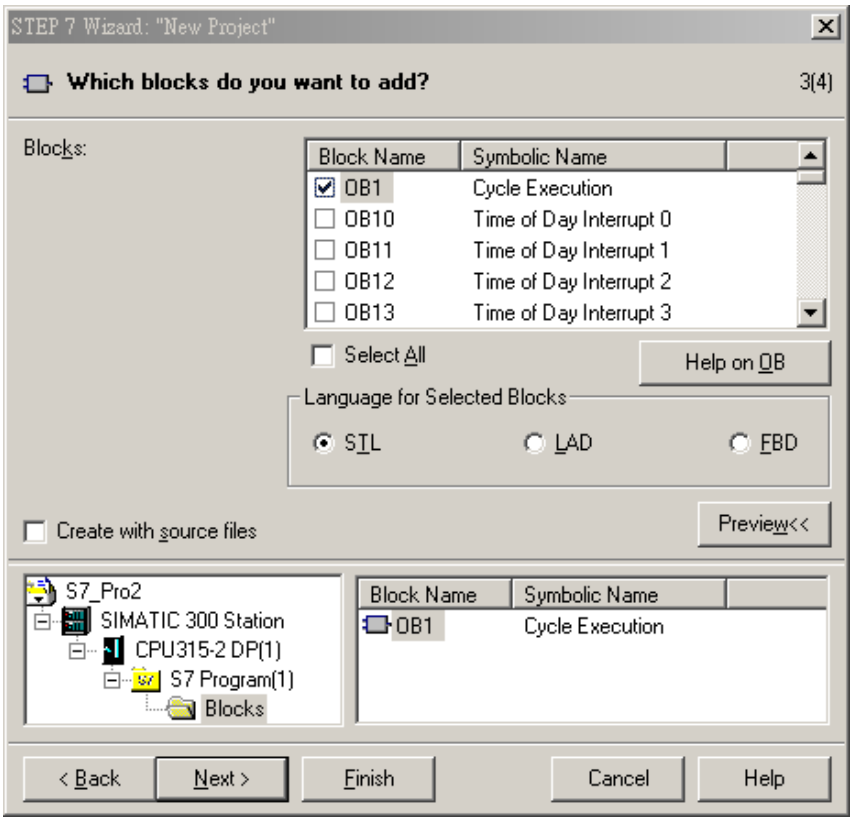


Figure 7-6

6. Enter the project name and click “Finish”. See Figure 7-7.

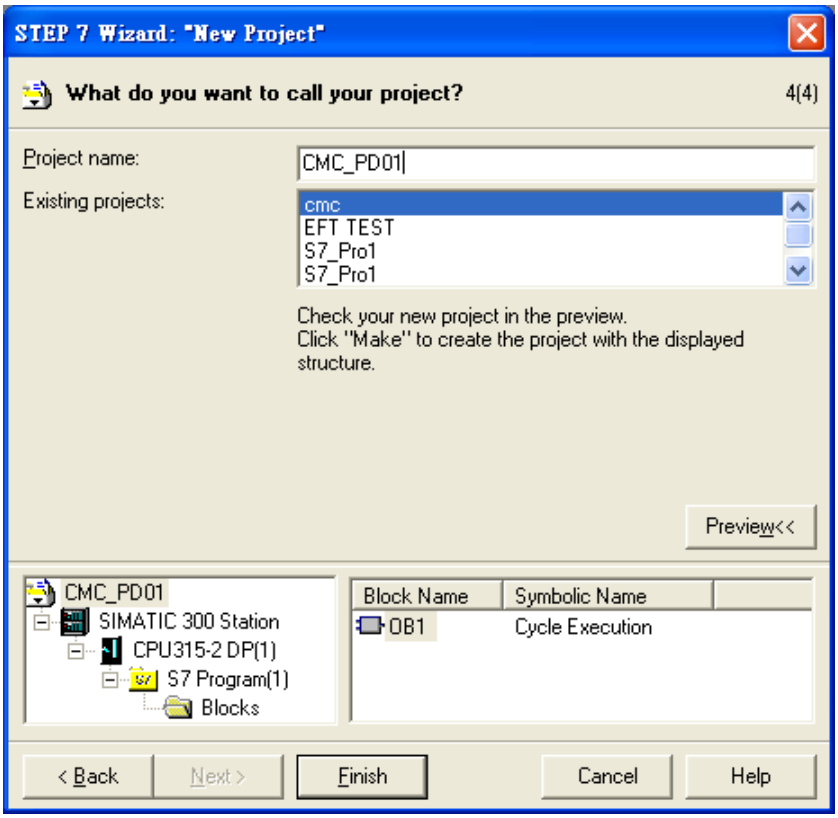


Figure 7-7

7. A new window will appear after the project is created. See Figure 7-8.

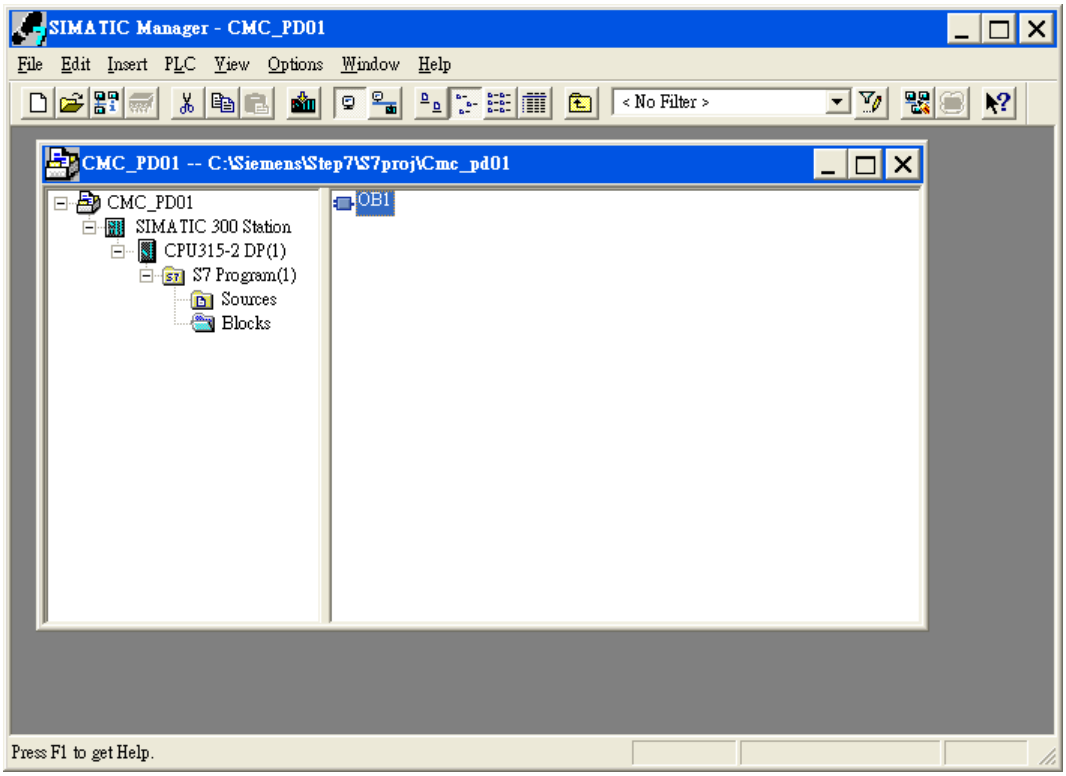


Figure 7-8

■ Add PROFIBUS DP bus

1. Select “SIMATIC 300 Station” in the project created. See Figure 7-9. Double click “Hardware”, and a new window (HW-Config) will appear.

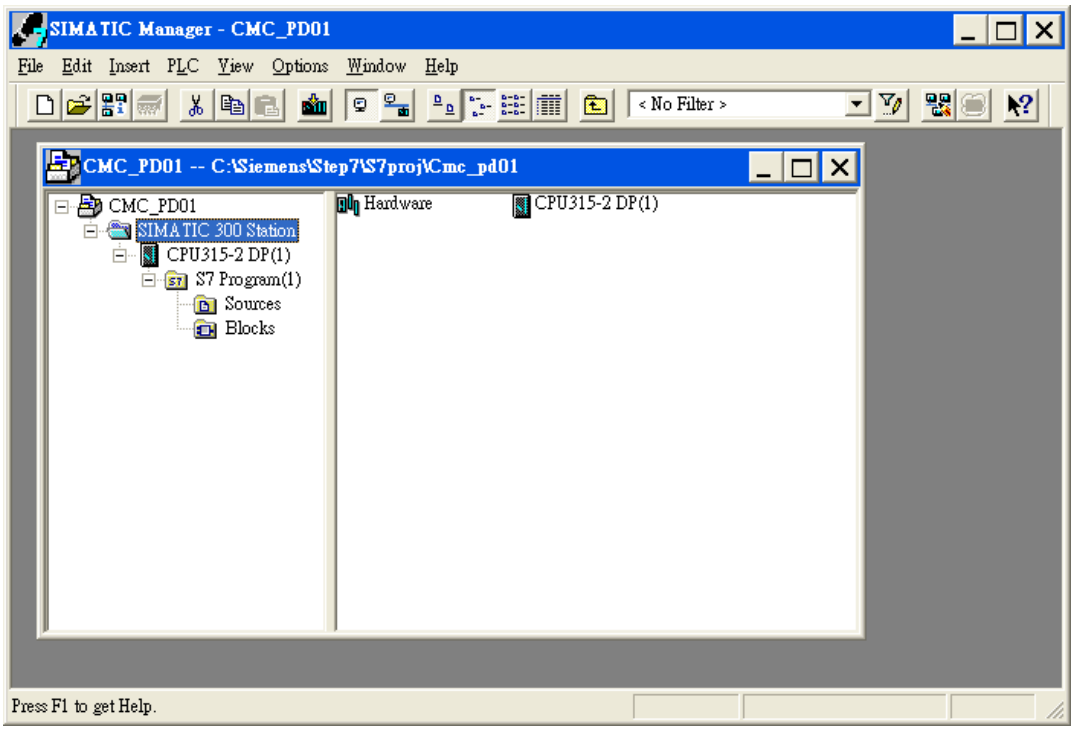


Figure 7-9

2. In the “HW Config” window, double click “DP” in the left-hand side column, and a dialog box will appear. See Figure 7-10.

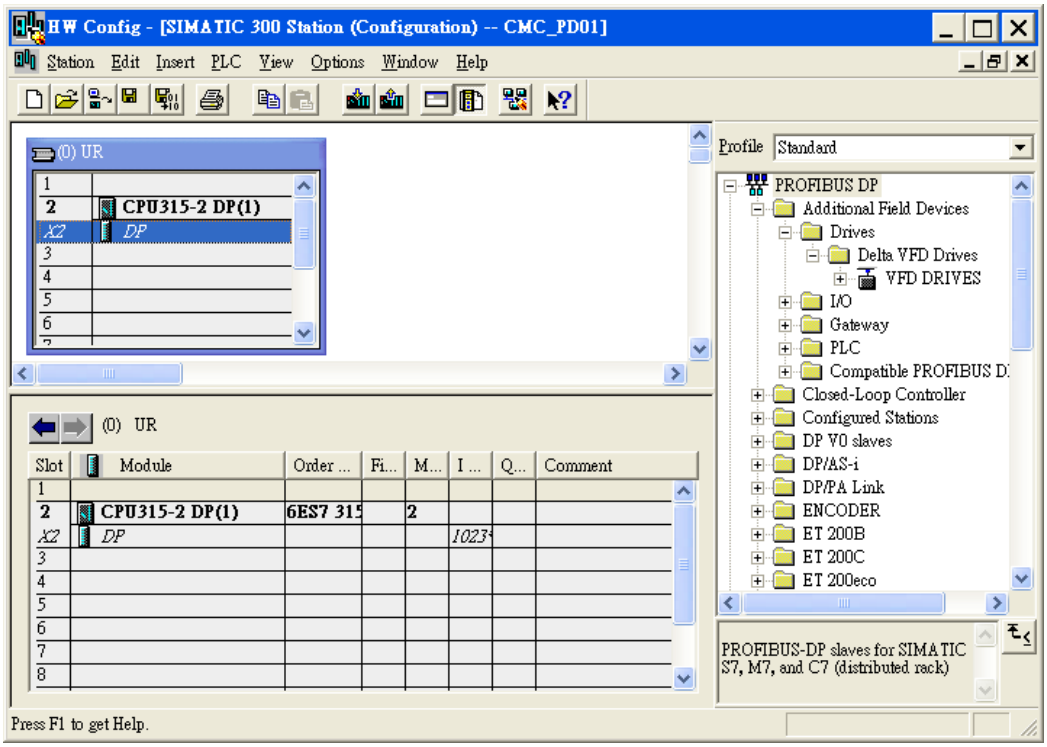


Figure 7-10

3. Click “Properties” in the dialog box, leading to another dialog box. See Figure 7-11.

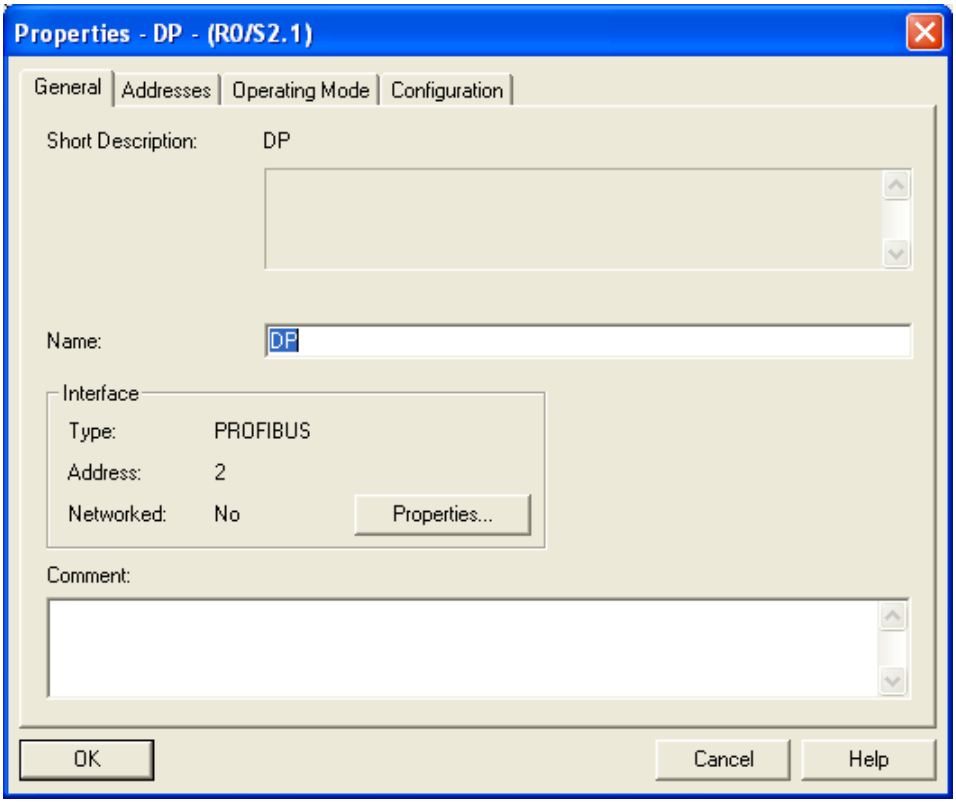


Figure 7-11

4. Select “Address” in the dialog box to be the address of the master. Then click “New” to go to the next dialog box. See Figure 7-12.

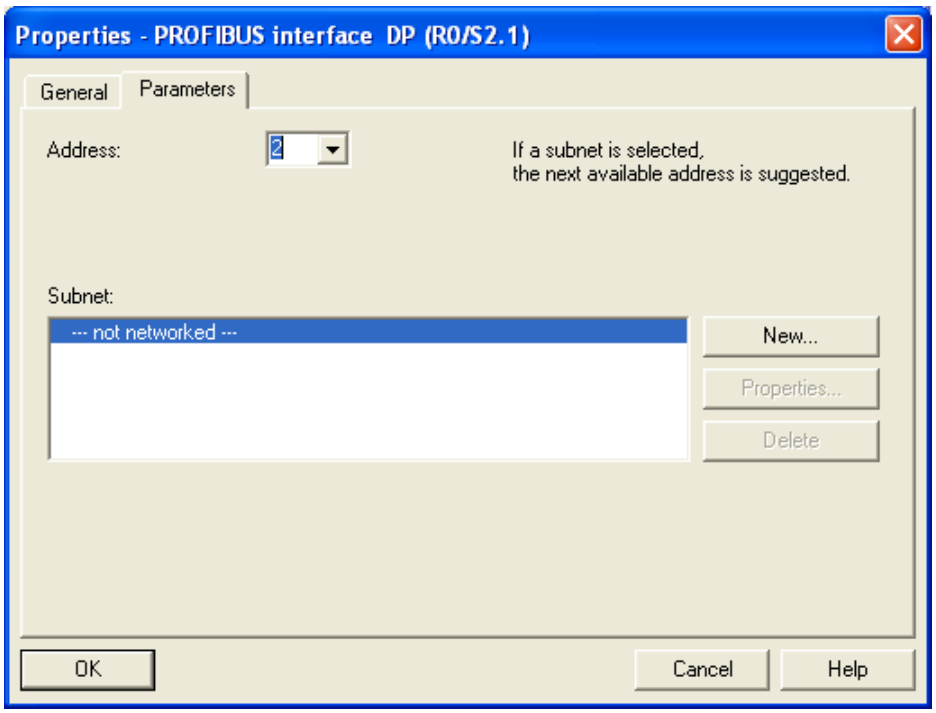


Figure 7-12

5. Select communication speed and bus type, then click “OK”. See Figure 7-13.

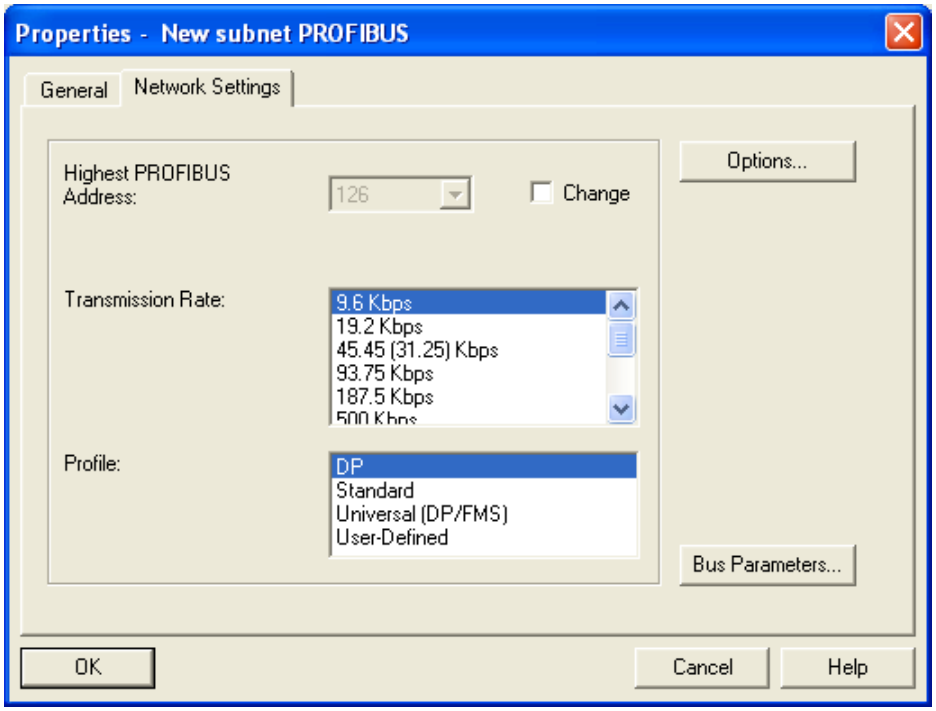


Figure 7-13

6. Confirm the communication speed and the master address for PROFIBUS DP bus, then click “OK”. See Figure 7-14.

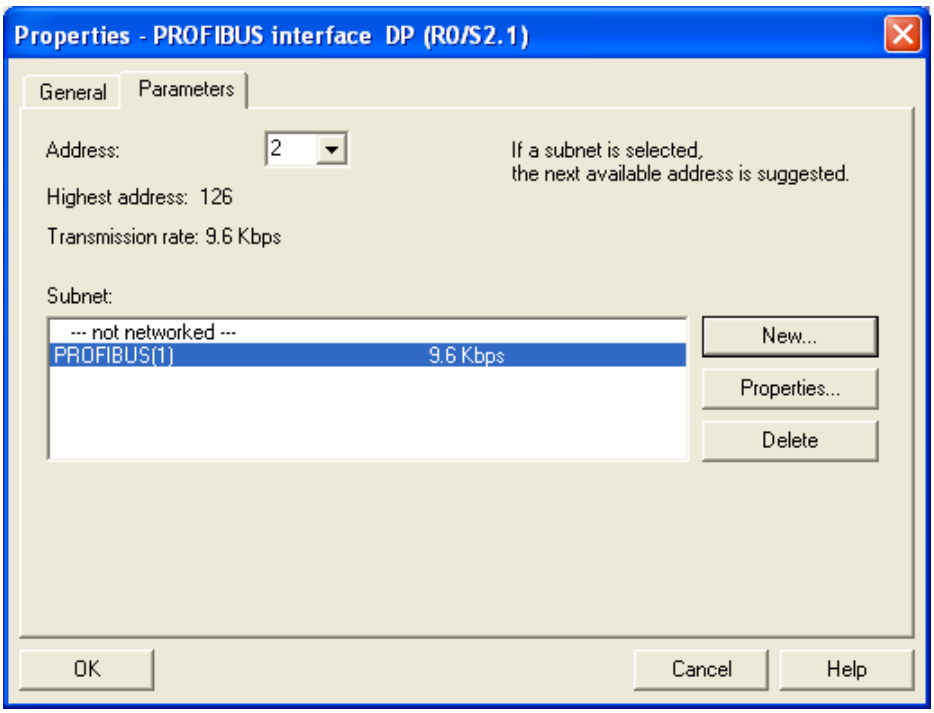


Figure 7-14

7. Confirm the information on the PROFIBUS DP bus in the dialog box and click “OK”. See Figure 7-15.

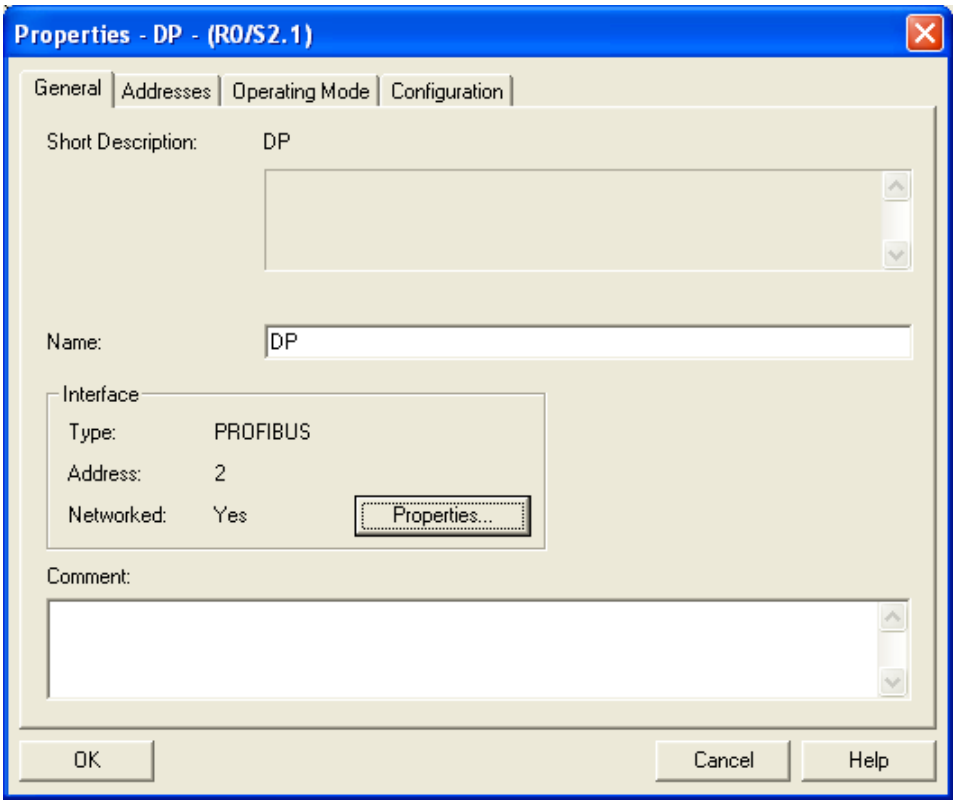


Figure 7-15

8. Once all the parameters are set, a PROFIBUS DP bus will appear after the UR window. See Figure 7-16.

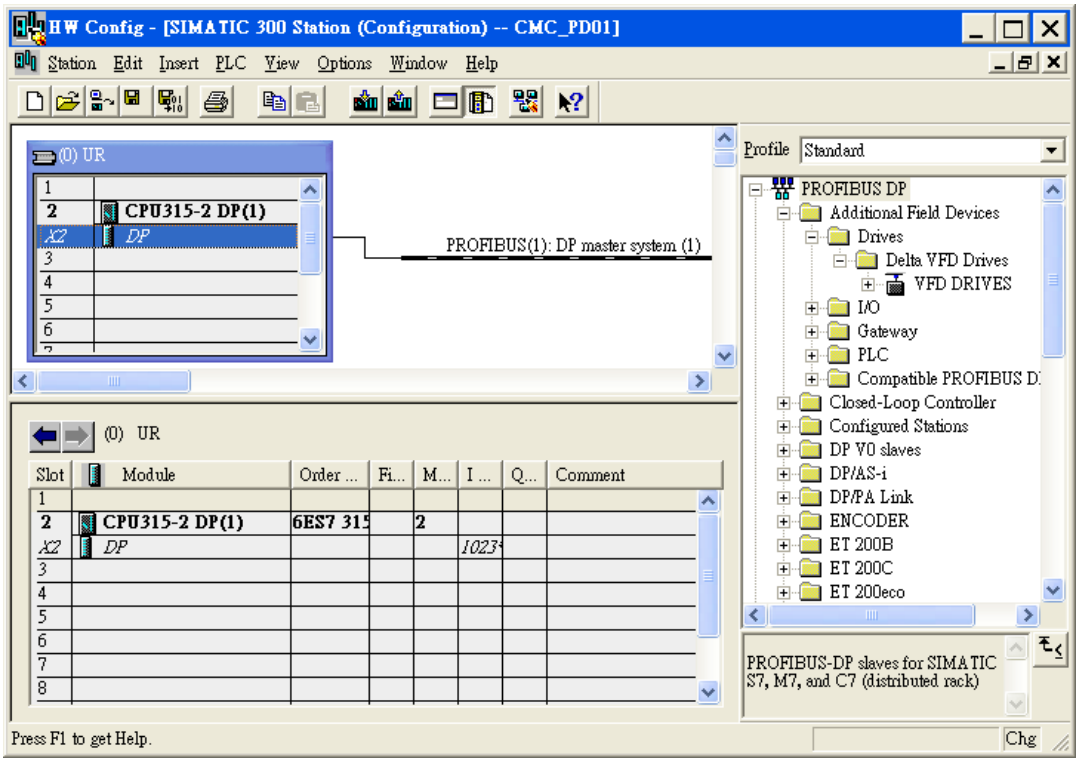


Figure 7-16

■ Add GSD file of VFD-C2000

1. Select “Options” => “Install GSD File” in the HW Config window. See Figure 7-17.

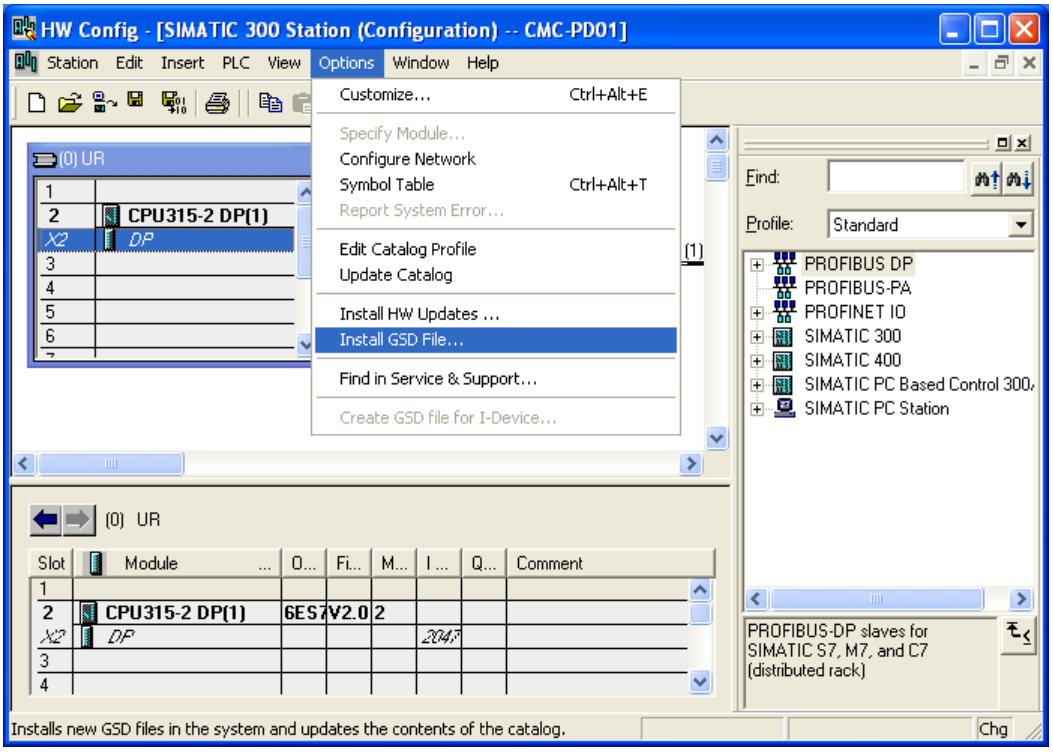


Figure 7-17

2. Find the path of the GSD file, select it and click “Open” to add the GSD file needed. See Figure 7-18.

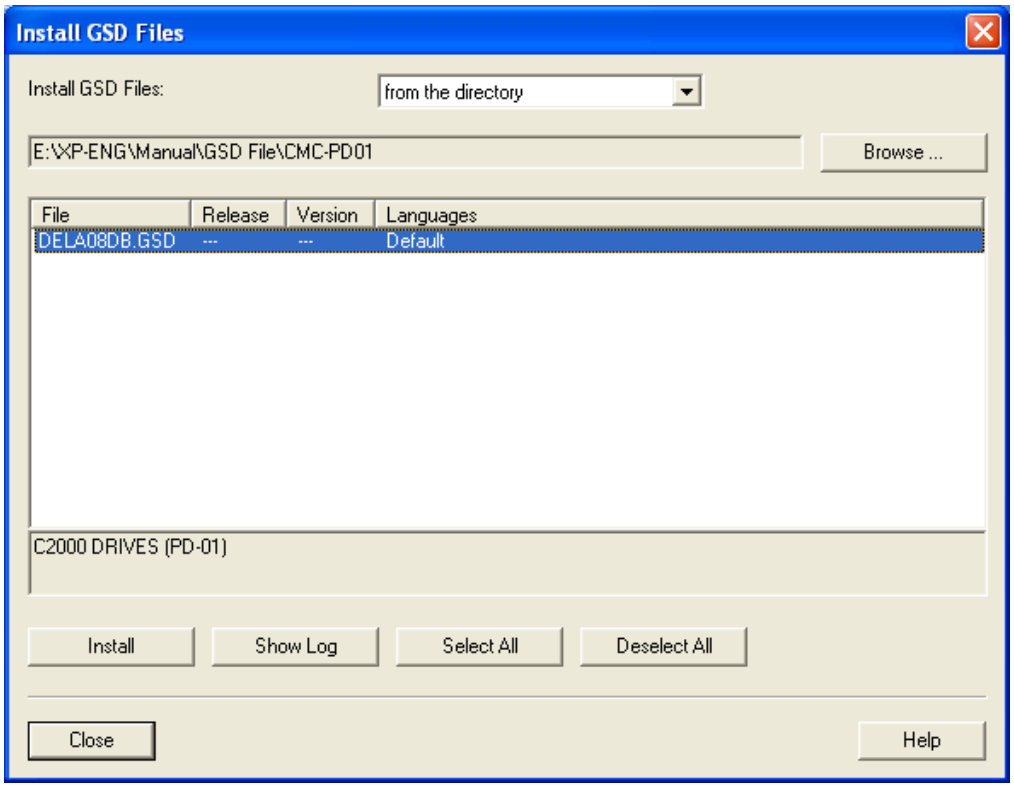


Figure 7-18

3. We can see VFD-C2000 in the right-hand side column. See Figure 7-19. C2000 DRIVES is the module added.

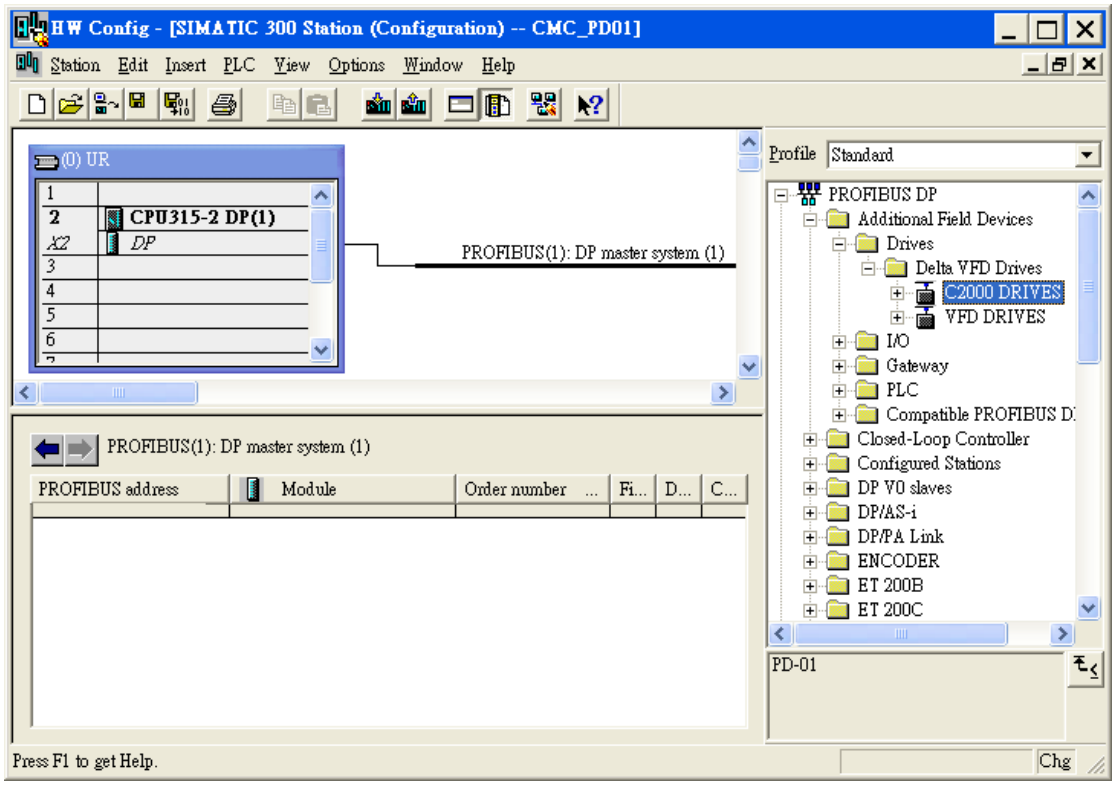


Figure 7-19

- Add VFD-C2000 slave and set up parameters

1. See Figure 7-20. Select PROFIBUS DP on the right-hand side column and double click “C2000 DRIVES” to open a dialog box.

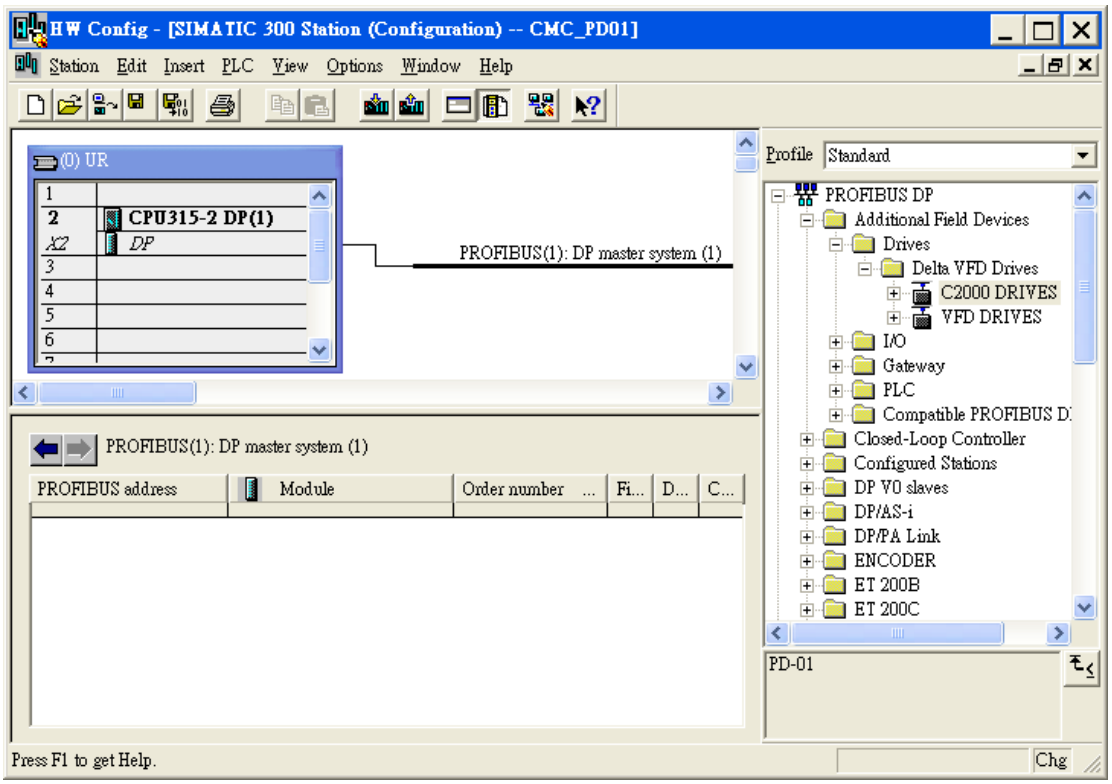


Figure 7-20

2. In the dialog box, select the address (decimal) of VFD-C2000 slave. The address has to be the same as the setting of parameter 09-70 for AC motor drive. Click “OK”. See Figure 7-21.

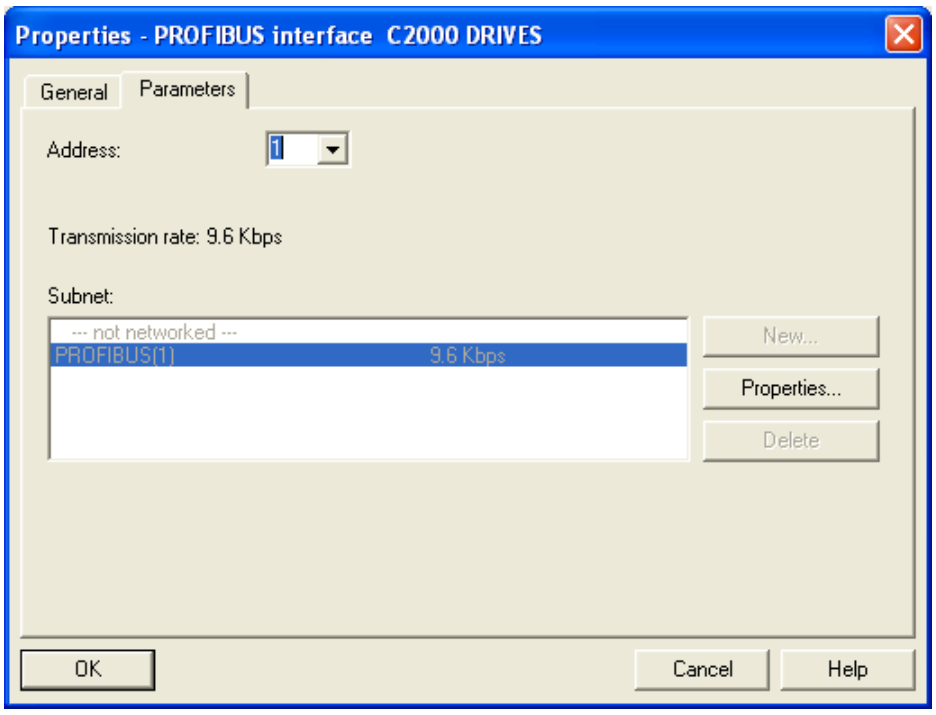


Figure 7-21

3. Add PROFIBUS DP bus to VFD-C2000. See Figure 7-22.

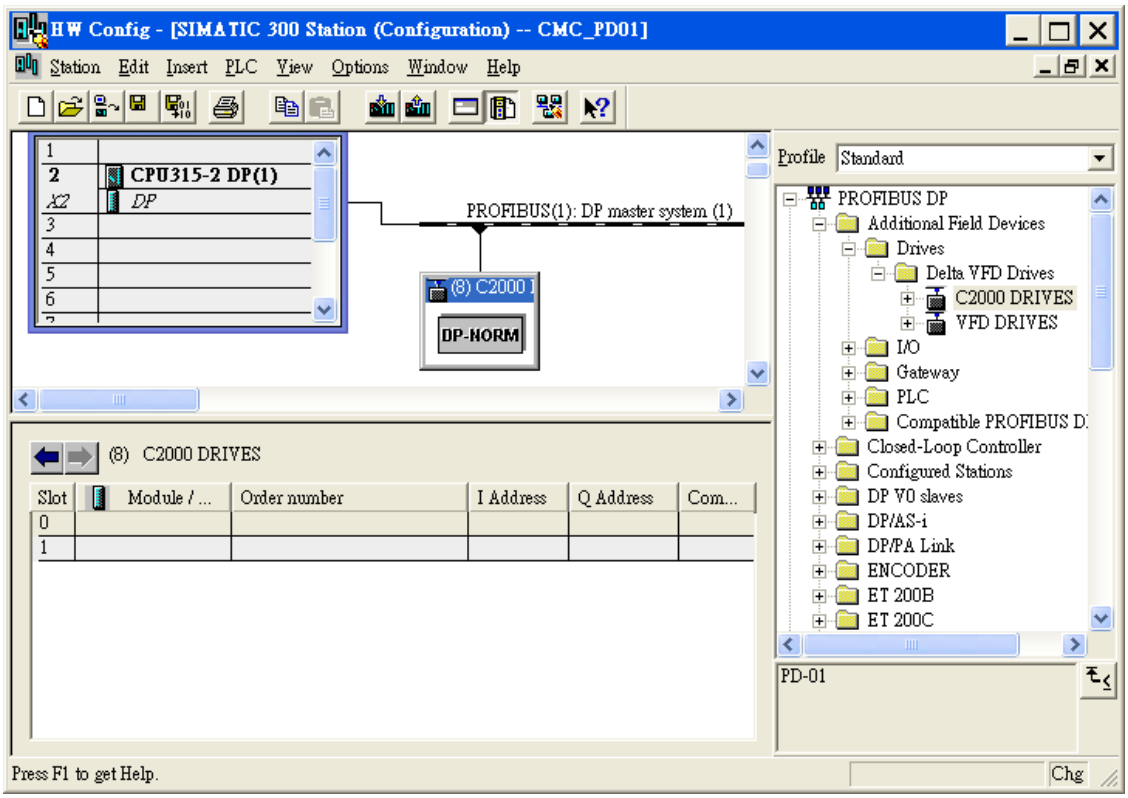


Figure 7-22

4. Select Slot 0 and double click “4PKW 4PZD” in the right-hand side column. See Figure 7-23.

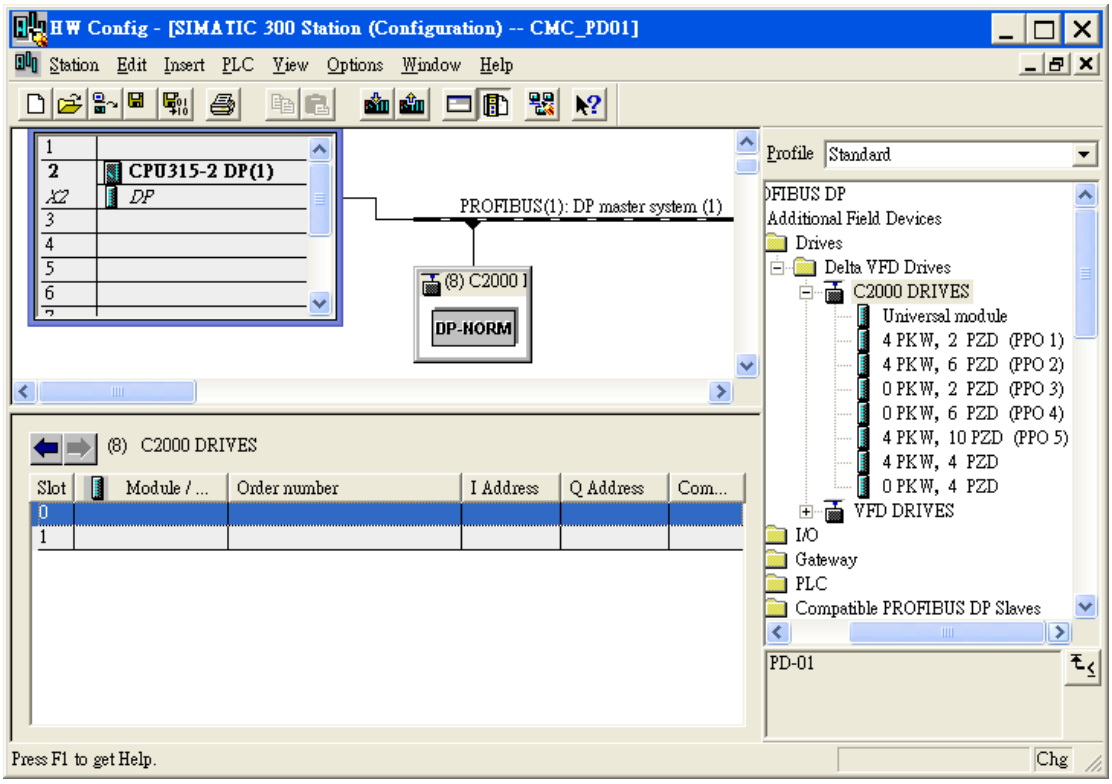


Figure 7-23

5. Configure 4PKW 4PZD to Slot 0 and Slot 1. See Figure 7-24.

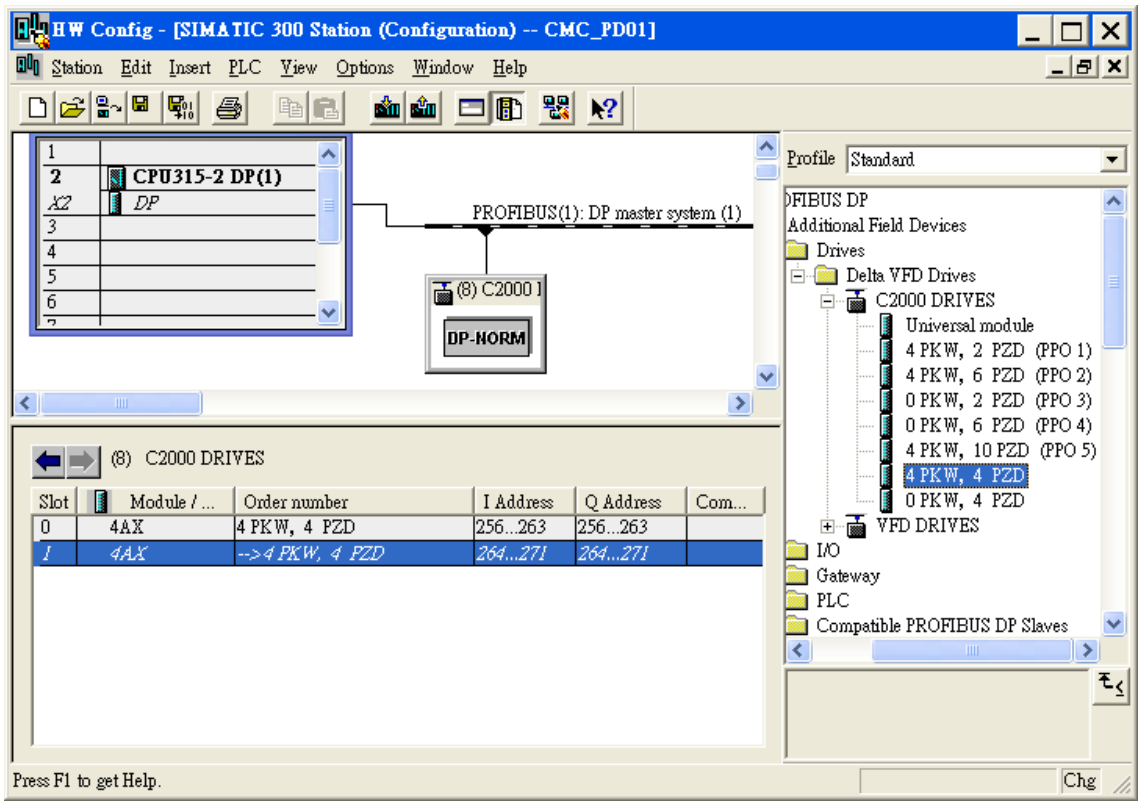


Figure 7-24

6. After all the parameters are configured, click  in the HW Config window to show the dialog box as Figure 7-25. Click “OK” to go to the next dialog box.

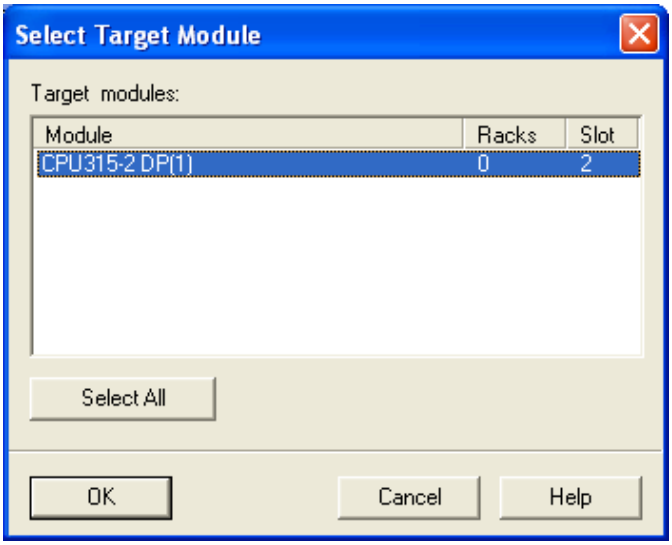


Figure 7-25

7. Click “OK” in the dialog box as Figure 7-26 to download the configured parameters.

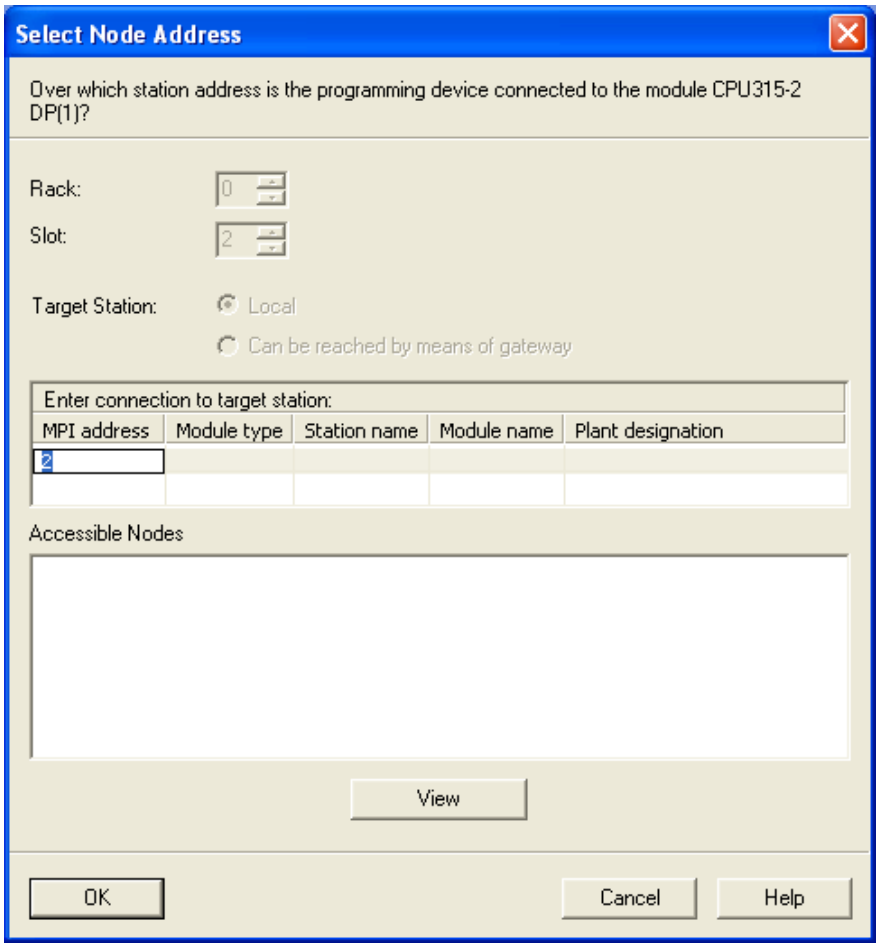


Figure 7-26

8. The configured parameters are being downloaded.

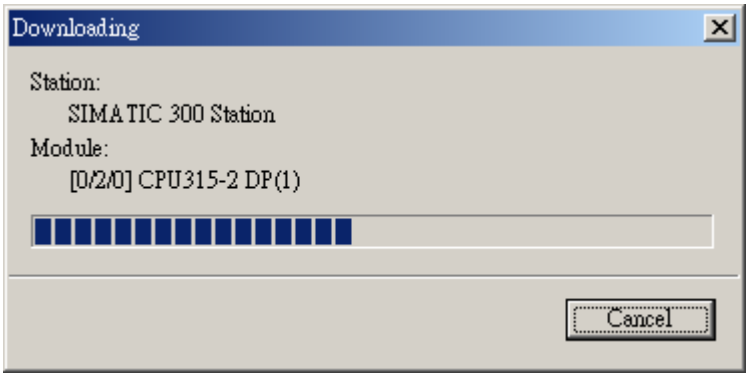


Figure 7-27

9. Once all the configured parameters are downloaded, the NET LED on CMC-PD01 will be constantly On in green color.

Data Mapping:

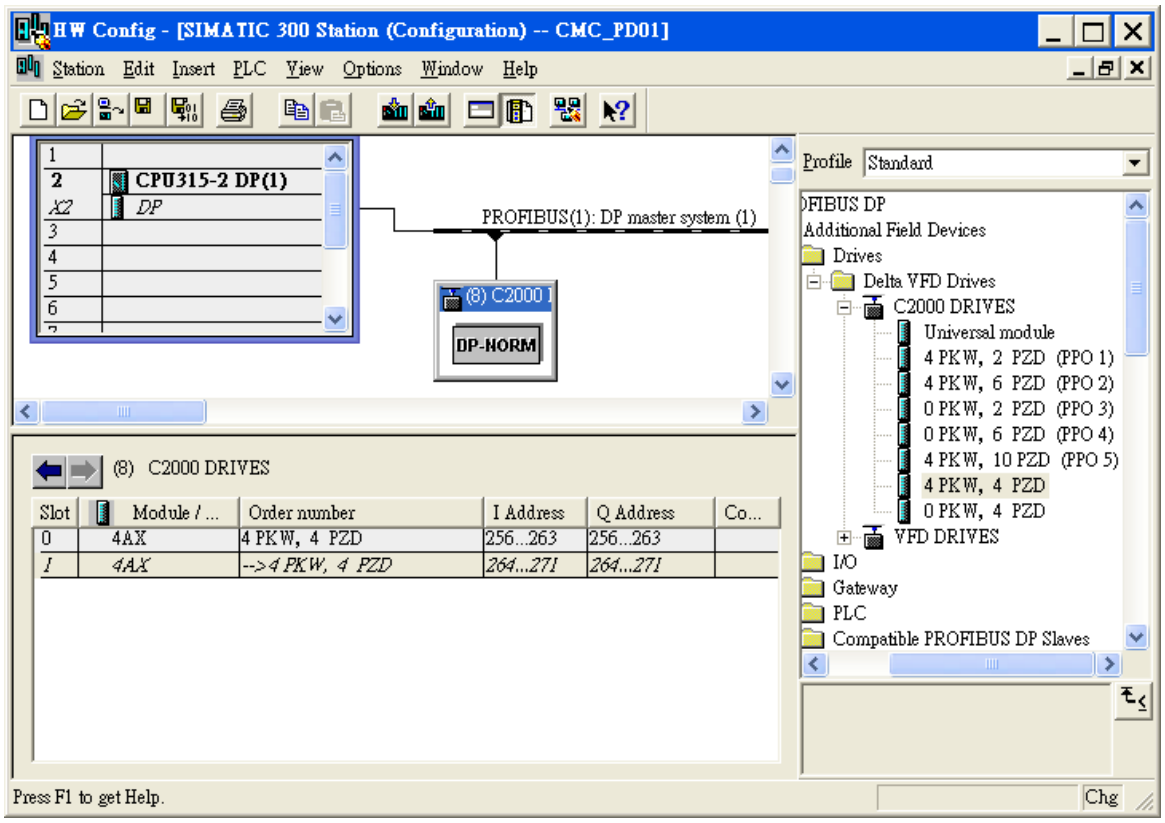


Figure 7-28

Double click the C2000 DRIVES slave icon under the PROFIBUS DP bus in Figure 7-28 to go to the dialog box in Figure 7-29. Data Output and Data Input areas are the mapped slave addresses in PZD. The data format for Data Output and Data Input is decimal and can be entered manually. For example, if we enter 1024 (decimal) in Data Output 3, the address of AC motor drive will be 0400 (hex), meaning parameter 04-00 of AC motor drive.

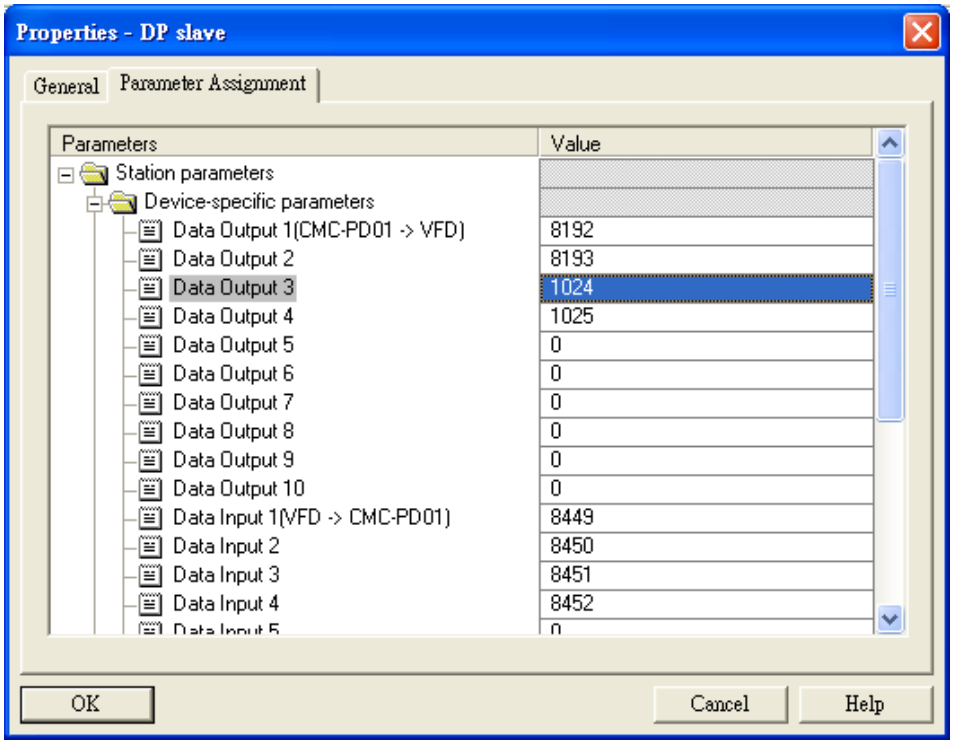


Figure 7-29

Scroll down Figure 7-29 to Figure 7-30. “din_len” refers to the length of data in the Data Input, and “dout-len” means the length of data in the Data Output.

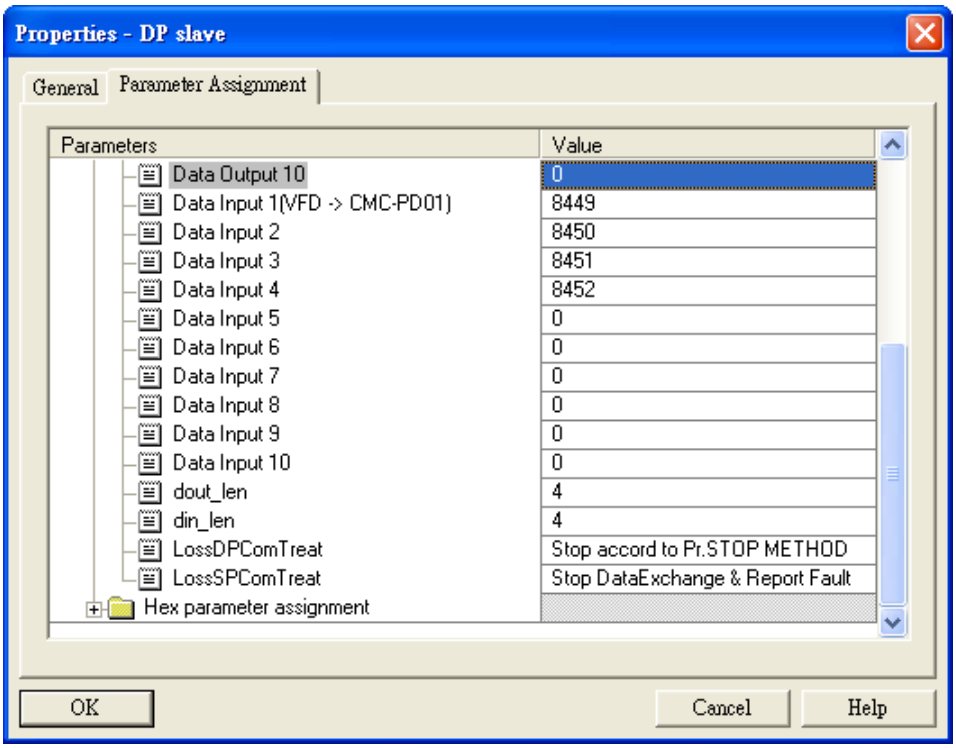


Figure 7-30

See Figure 7-31., scroll down the options for “LossDPComTreat”. See Table 7-1 for the meanings of the options.

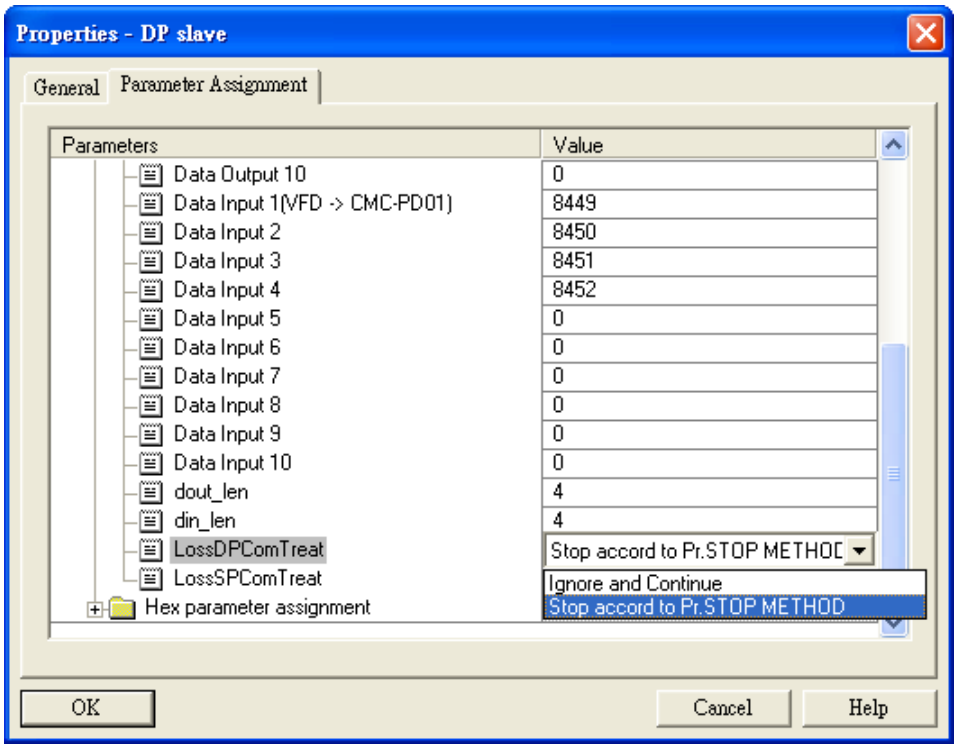


Figure 7-31

Influence on AC motor drive when CMC-PD01 is disconnected with PROFIBUS DP master	
Ignore and continue	AC motor drive continues to operate as it does before the disconnection.
Stop accord to Pr.STOP METHOD	AC motor drive stops following the stop method set in it.

Table 7-1

See Figure 7-32., scroll down the options for “LossSPComTreat”. See Table 7-2 for the meanings of the options.

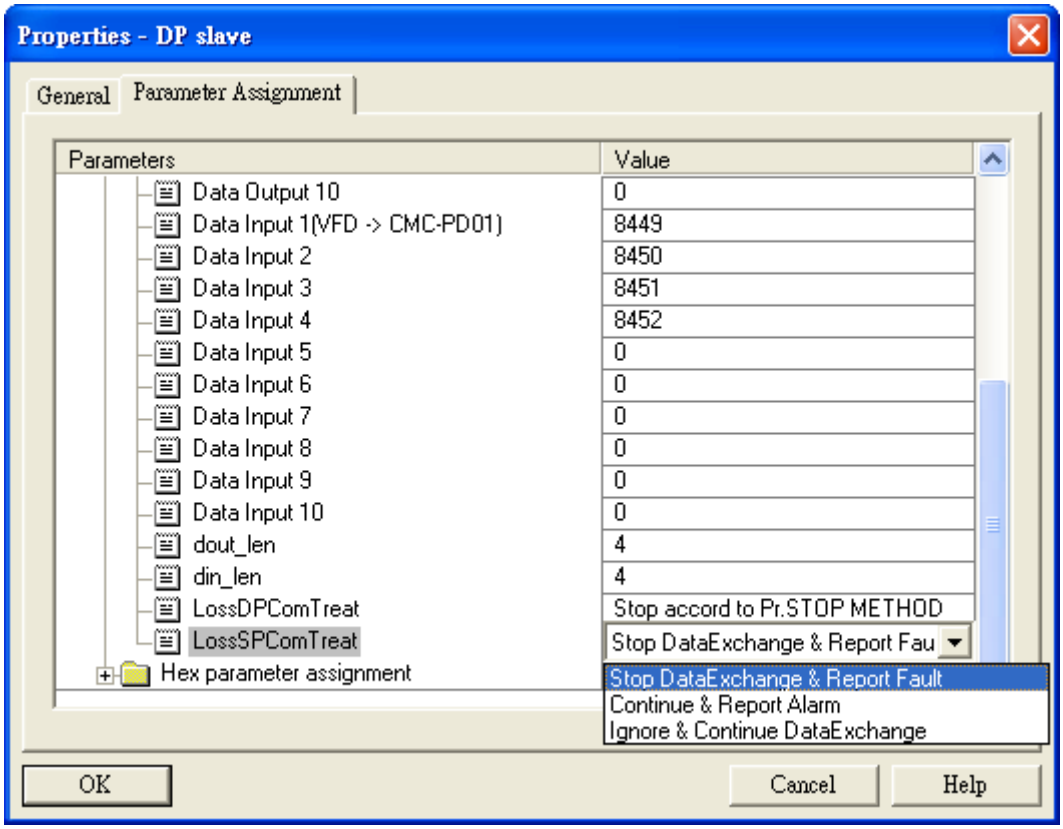
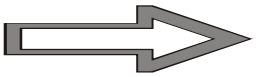
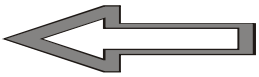


Figure 7-32

Influence on PROFIBUS DP bus when CMC-PD01 is disconnected with AC motor drive	
Stop DataExchange&Report Fault	CMC-PD01 stops exchanging data with PROFIBUS DP master and reports the error.
Continue&Report Alarm	CMC-PD01 keeps exchanging data with PROFIBUS DP master and reports alarms.
Ignore&Continue DataExchange	CMC-PD01 keeps exchanging data with PROFIBUS DP master and reports alarms.

Table 7-2

See Table 7-3 below for the data mapping relation in the parameter configuration shown in Figure 7-28:

PKW/PZD	External I/O word for S7-300	Data transmission direction in PROFIBUS DP network	Parameter address of AC motor drive (hex)
PKW	PQW256		4 words combined make it able to read/write one AC motor drive parameter.
	PQW258		
	PQW260		
	PQW262		
	PIW256		PKW returning data
	PIW258		
	PIW260		
	PIW262		

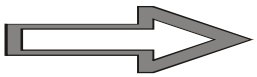
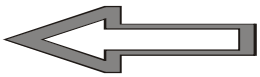
PKW/PZD	External I/O word for S7-300	Data transmission direction in PROFIBUS DP network	Parameter address of AC motor drive (hex)
PZD	PQW264		2000 (Data Output 1)
	PQW266		2001 (Data Output 2)
	PQW268		0400 (Data Output 3)
	PQW270		0401 (Data Output 4)
	PIW264		2101 (Data Input 1)
	PIW266		2102 (Data Input 2)
	PIW268		2103 (Data Input 3)
	PIW270		2104 (Data Input 4)

Table 7-3

Program Example:

Instructions on SFC14 and SFC15 commands:

SFC15: Write consistent data to standard PROFIBUS DP slave

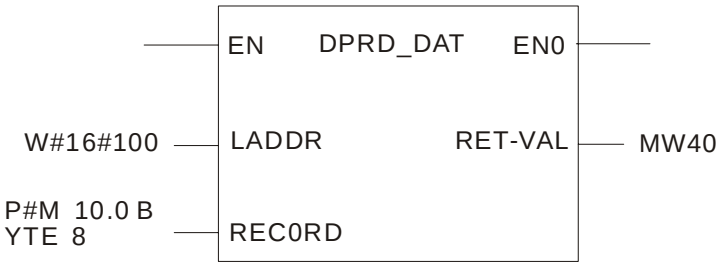


Figure 7-33

LADDR is the start address of slave in the mapping area for master output (as PQW256 in Figure 7-28). LADDR is in hexadecimal form, e.g. enter W#16#100 in LADDR of SFC15 to represent PQW256. The decimal form of 100 in hex is 256.

RECORD is the start address and length of the data to be written. The data length of RECORD has to be consistent with the data length in parameter configuration, and the unit has to be “byte”. See Figure 7-33 for the input format.

RET_VAL is the address of error code. When the EN condition in SFC15 is true, SFC15 will be executed. If any error occurs in the execution, an error code will be stored into RET_VAL. When there is no error, the value in RET_VAL will be “0”.

In Figure 7-33 we can see the data in MW10, MW12, MW14 and MW16 are written into PQW256, PQW258, PQW260 and PQW262, and the data in PQW will be sent to the slave automatically.

SFC14: Write consistent data to standard PROFIBUS DP slave

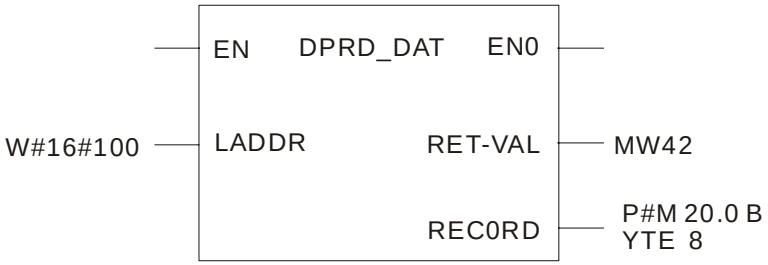


Figure 7-34

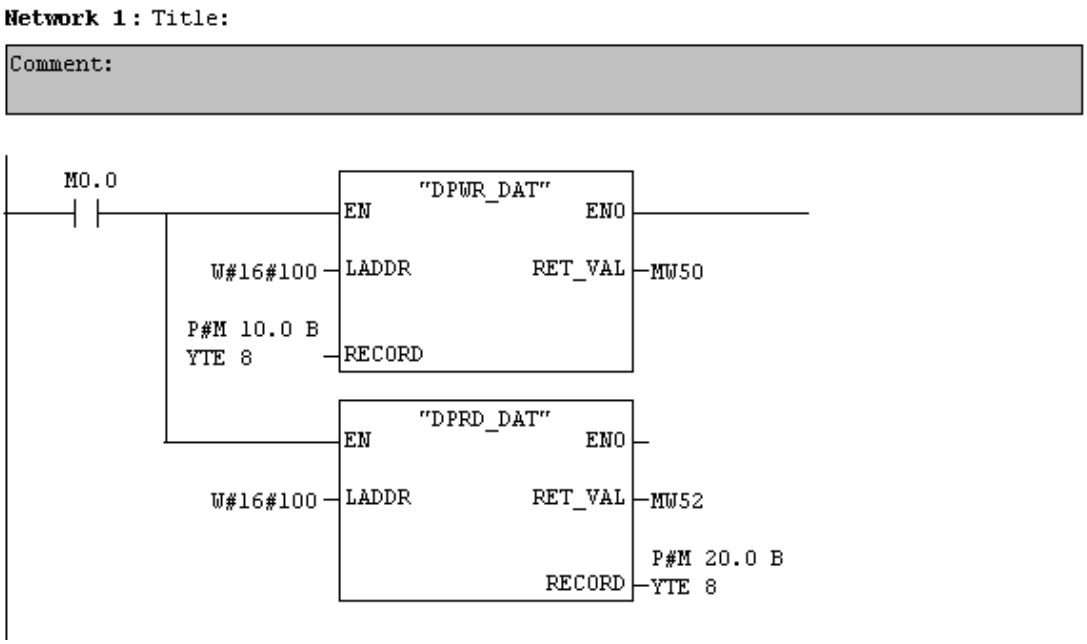
LADDR is the start address of slave in the mapping area for master input (as PIW256 in Figure 7-28). LADDR is in hexadecimal form, e.g. enter W#16#100 in LADDR of SFC14 to represent PIW256. The decimal form of 100 in hex is 256.

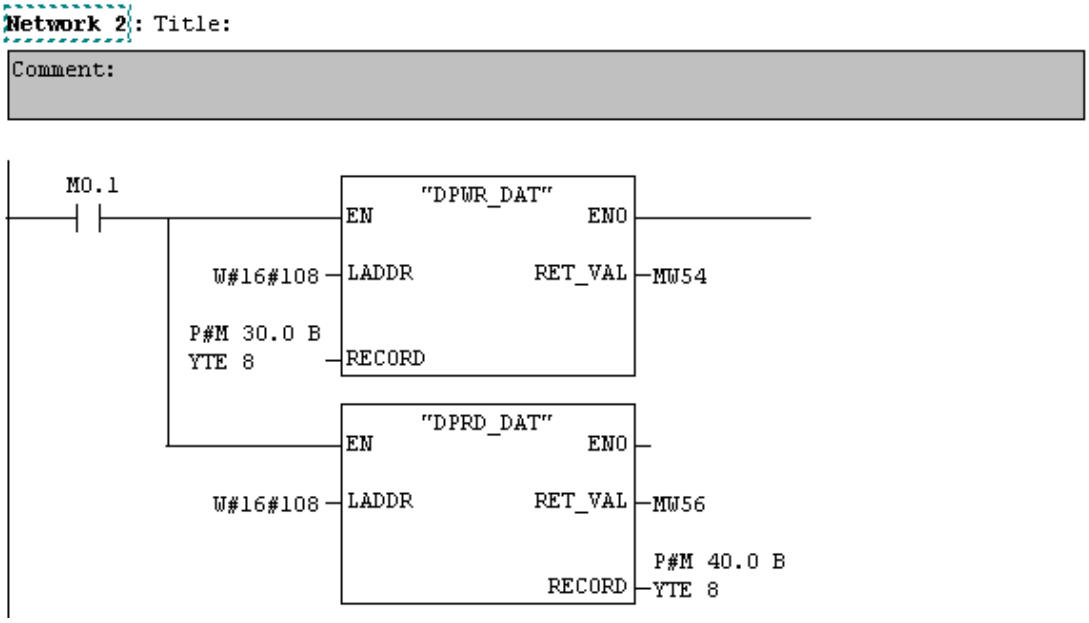
RECORD is the start address and length of the data to be read. The data length of RECORD has to be consistent with the data length in parameter configuration, and the unit has to be “byte”. See Figure 7-34 for the input format.

RET_VAL is the address of error code. When the EN condition in SFC14 is true, SFC14 will be executed. If any error occurs in the execution, an error code will be stored into RET_VAL. When there is no error, the value in RET_VAL will be “0”.

In Figure 7-34 we can see the data sent from the slave to PIW256, PIW258, PIW260 and PIW262 are written to MW20, MW22, MW24 and MW26.

The program of master OB1:

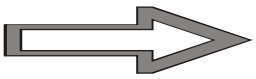
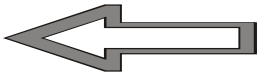




When M0.0 = ON, PKW can be executed. See the table below about the PKW data.

Modifying value in parameter 04-02 (hex) of AC motor drive by PKW (the address of parameter 04-02 is 402 (hex))				
Data from master to slave	MW10	MW12	MW14	MW16
Data value (hex)	2402	0	0	500
Data from slave to master	MW20	MW22	MW24	MW26
Data value (hex)	1402	0	0	500
Reading value in parameter 04-02 (hex) of AC motor drive by PKW (the address of parameter 04-02 is 402 (hex))				
Data from master to slave	MW10	MW12	MW14	MW16
Data value (hex)	1402	0	0	0
Data from slave to master	MW20	MW22	MW24	MW26
Data value (hex)	1402	0	0	500

When M0.1 = ON, PZD can be executed. See the table below for the data transmission for PZD.

Register in master	Data transmission of PROFIBUS DP bus	Parameter address of AC motor drive
MW30 (PQW264)		2000 (hex)
MW32 (PQW266)		2001 (hex)
MW34 (PQW268)		0400 (hex)
MW36 (PQW270)		0401 (hex)
MW40 (PIW264)		2101 (hex)
MW42 (PIW266)		2102 (hex)
MW44 (PIW268)		2103 (hex)
MW46 (PIW280)		2104 (hex)