

FieldBus Application

< Profibus-DP >

2

Fieldbus Type :	Profibus-DP
Setting S/W :	Siemens SIMATIC STEP 7 version 5.0
Profibus Master :	Siemens SIMATIC S7-300

2002/03/27

Hyundai Heavy Industries Co., Ltd.

The information presented in this documentation is the property of HHI, Any copy or even partial is not allowed without prior written authorization from HHI. HHI reserves the right to modify without prior notification.

<u>1</u>	<u>Introduction</u>	<u>1</u>
<u>2</u>	<u>Project Creation.....</u>	<u>2</u>
<u>3</u>	<u>Setting Rail slot with HW Config.....</u>	<u>3</u>
<u>4</u>	<u>Installation of GSD File.....</u>	<u>5</u>
<u>5</u>	<u>Inserting and setting of Hi Robot Controller, the slave device</u>	<u>6</u>
<u>6</u>	<u>Writing PLC Ladder</u>	<u>7</u>
<u>7</u>	<u>Completion</u>	<u>7</u>

1 Introduction

PLC products from Siemens has function that can be transmit Input/Output through Profibus. This document explains setting up Profibus-DP network including Hi Controller and SIMATIC S7-300 CPU module(with built-in Profibus master) of Siemens.

In order to install or monitor or modify setting of Profibus network for the first time, PC must be connected to PLC and Profibus as the following Figure (1-1). PC must have Windows 95/98/NT operating system and STEP7 software of Siemens.

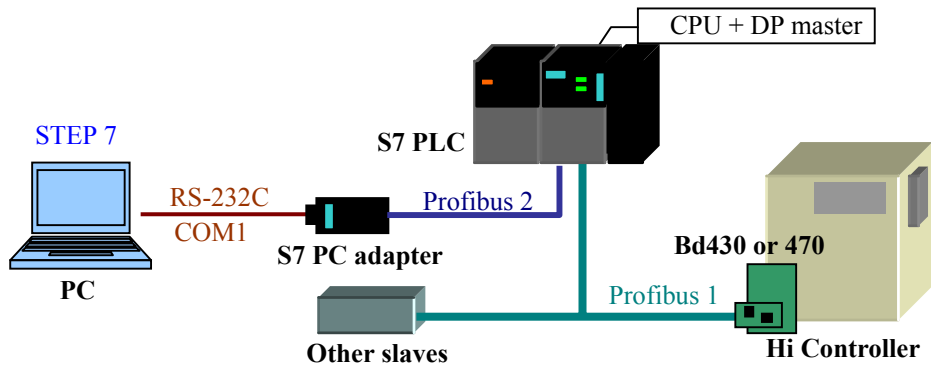


Figure 1-1. Configuration of Profibus-DP setting and Monitoring

S7 PC adapter is a hardware of Siemens that connects PC to Profibus-DP via RS-232C

This document explains brief network installation and setting procedure. Further information, refer to the manuals from Siemens.

2 Project Creation

Execute STEP 7 Simatic Manager and press Cancel key to cancel Wizard dialog box displayed at first .

Select File – New menu. Enter the name of project when dialog box is displayed as Figure 2-1 and press O.K button

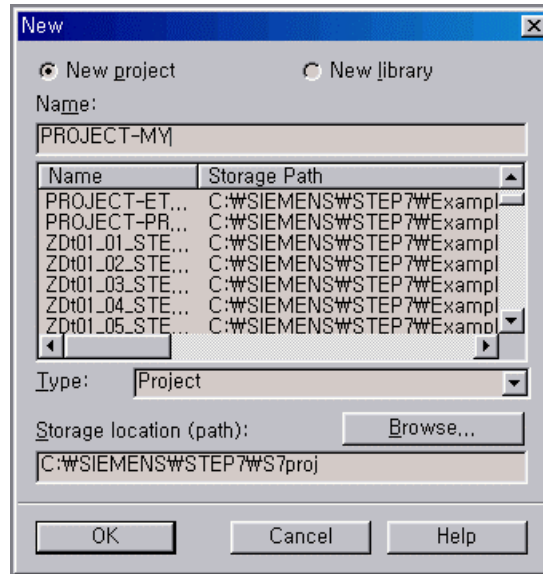


Figure 2-1 Project Creation

Select SIMATIC 300 Station in Insert – Station menu. When Figure 2-2 is displayed, double click Hardware of SIMATIC 300 to execute HW Config program.

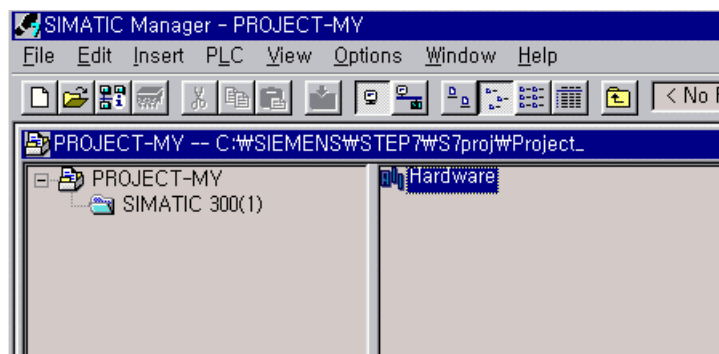


Figure 2-2 Selection on Hardware of SIMATIC 300

3 Setting Rail slot with HW Config

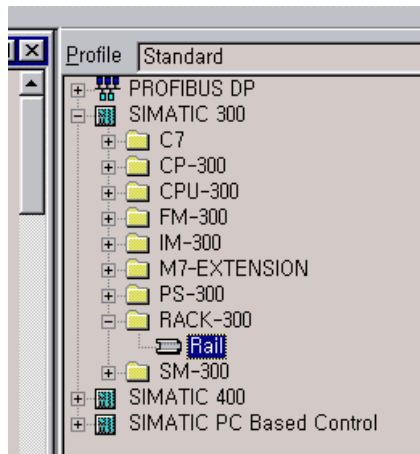


Figure 3-1 Catalog

HW Config Program shown in Figure 3-1 includes catalog. Open SIMATIC 300 in Figure 3-1 first and open RACK-300, double click Rail afterward.

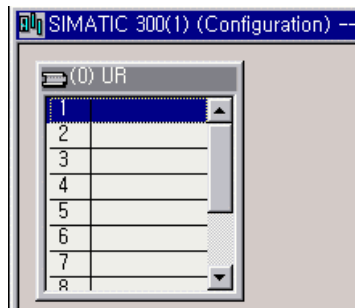


Figure 3-2 SIMATIC 300 Rail

Rail window is displayed as shown Figure 3-2. With this window, you can set what modules are plugged on each slots of PLC rail. The example shall for example have following condition; power module in slot 1, CPU in slot 2,16 Input module in slot 4.

At the condition of slot 1 being selected with highlight as shown in Figure 3-2, find item to be matched with power module being used in catalog and double click it to set power module on slot 1. Upon selection of slot 2, find exact name of CPU and double click it to display dialog box shown in Figure 3-3 which is utilized to set Profibus-DP function of CPU.

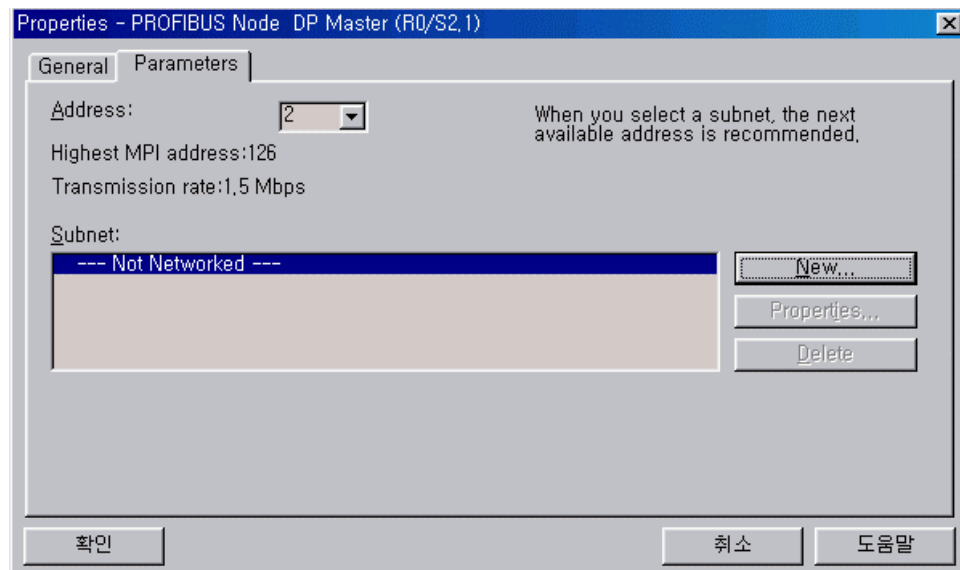


Figure 3-3 PROFIBUS-DP Master setting dialog box

Upon the condition of Address assigned for master, press New button to open the dialog box for setting various parameter. Do any needed changes and press O.K button.

In general, default parameter may be used without any changes. Now, in Subnet list, the name and baudrate of created network is displayed.

Slot 3 is left empty for expansion of I/O

After selecting slot 4, find input module in catalog and set it.

It is normal if the condition is similar with Figure 3-4.

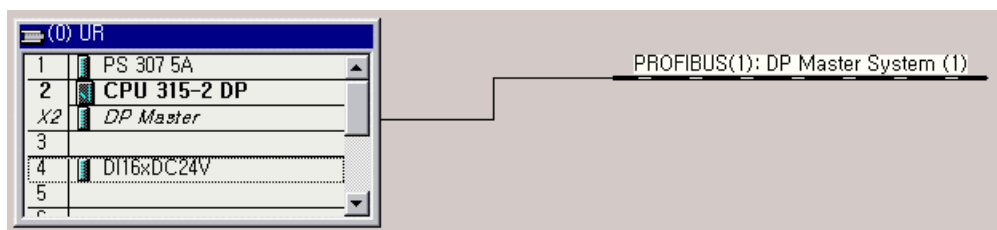


Figure 3-4 completion of Slot configuration

4 Installation of GSD File

Now slave has to be setup. GSD file must be setup because GSD file of Hi Controller normally is not included in STEP 7 software.

Select Options – Install New *.GSE Files... menu to open dialog box. Find Hhi_0870.gsd file and press open button for installation .

In order to install image file showing Hi Controller, select first Options – Install New *.GSE Files menu. Select Bitmap Files (.bmp) in type of file and find /select hhi_hi_n.bmp and press Open button for installation when dialog box is displayed.

The screen shown in Figure 4-1 will be displayed by expanding Additional Field Devices – Sonstige – HiRobotControlle in Catalog. (Newly installed GSD shall be added in Sonstige folder. Sonstige is the meaning of ‘miscellany’ in German.)

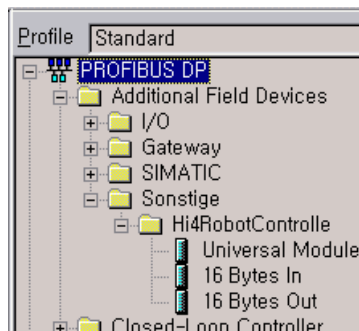


Figure 4-1 Added GSD in Catalog

Hi Robot Controller in default has 32 input and 32 output bytes which consist of 4 modules (16 bytes per module). In catalog, 16 byte-sized input and output module is displayed.

5 Inserting and setting of Hi Robot Controller, the slave device

Click the PROFIBUS network symbol as shown in Figure 3-5 and double click HiRobotController folder in Catalog to display dialog box where Address is inputed.



Figure 5-1 PROFIBUS network symbol

Enter an appropriate Node number and press OK to insert a Hi Controller slave device to Network as shown in Figure 4-3

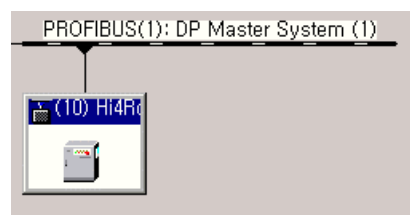


Figure 5-2 Inserted slave device of Hi Controller to network

With this method, slave connected to network can be added.

Name or node number can be set as double click the icon of Hi Controller device.

Module table is displayed at the bottom of program under the condition of icon being selected. Select slot 0 and add module by double click '16 bytes In' in catalog. As the same method, the following Figure 5-3 is displayed as adding two inputs and two outputs module to slot 0, 1, 2, 3

S...	Module ...	Order Number	I Addre...	Q Addre...	Comment
0	31	16 Bytes In	2,..17		
1	31	16 Bytes In	18,..33		
2	47	16 Bytes Out		0,..15	
3	47	16 Bytes Out		16,..31	

Figure 5-3 Module setting

These are respectively mapped to appropriate positions in I Address and Q Address of PLC.

In this example, the reason that I Address is started from 2 not from 0 is 16 points input module of rail slot 4 occupies 0 and 1 already. (You can check this by clicking slot 4 in rail window)

If double click the Address item, the address can be changed to the desired position unless two modules are overlapped.

Click Station – Save and Compile menu to record the setting and perform the compile for the completion. Hardware setting is downloaded to PLC as click PLC – Download menu.

6 Writing PLC Ladder

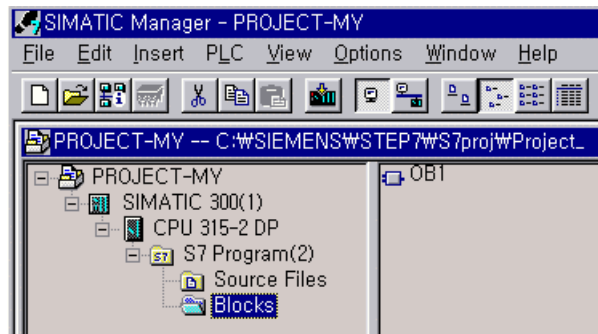


Figure 6-1 OB1

Return SIMATIC Manager program and open S7 Program – Blocks and double click OB1 which is the main program of S7 PLC .

Select program type among the STL/LAD/FBD when Dialog box for setting is opened and press O.K button.

Write PLC program when STL/LAD/FBD program is carried out and download to PLC. For the further detail, refer to STEP 7 manual.

7 Completion

Under condition of the main power being supplied, Profibus master device manages entire Network and exchanges data with Hi Controller and slave devices within Network .

HW Config software is not needed unless any changes(adding/deleting additional slaves, data mapping) in setting is required. Namely, during performing Run mode of PLC, PC or PC adapter is not necessary to be connected.

