

1 Product description

The ABC-PRT-USS works as a gateway between a Profinet network and an USS network. The gateway acts as a Profinet slave on the Profinet network and as an USS master on the USS network. This document describes an easy startup of the gateway. For more detailed information please see the manual of the product.

1.1 Supported features on PROFINET

The ABC-PRT-USS acts as a PROFINET IO device with RT functionality.

1.2 Siemens USS Protocol

The USS protocol (Universal Serial Interface Protocol) defines an access technique according to the Master-Slave principle for communication via a serial RS-485 based communication bus. ABC-PRT-USS has implemented a full featured USS Master that supports cyclic communication with fixed telegram lengths.

1.3 PKW and PZD Data Handling

The ABC-PRT-USS will transfer all PKW and PZD data transparently through the Gateway

1.4 Configuration of the Gateway

The Gateway is solely configured with the standard PLC configuration tool, i.e. STEP7. No local configuration tools or settings shall be required. The configuration is based on the Profinet GSD file of the Gateway that can be downloaded from the web page. The configuration parameter that can be accessed from the STEP7 tool is the baudrate that is located in the module on Slot 0, Subslot 0, Index 1. With this parameter you set can the baudrate of the USS sub-network.

2 Gateway status LEDs and connector

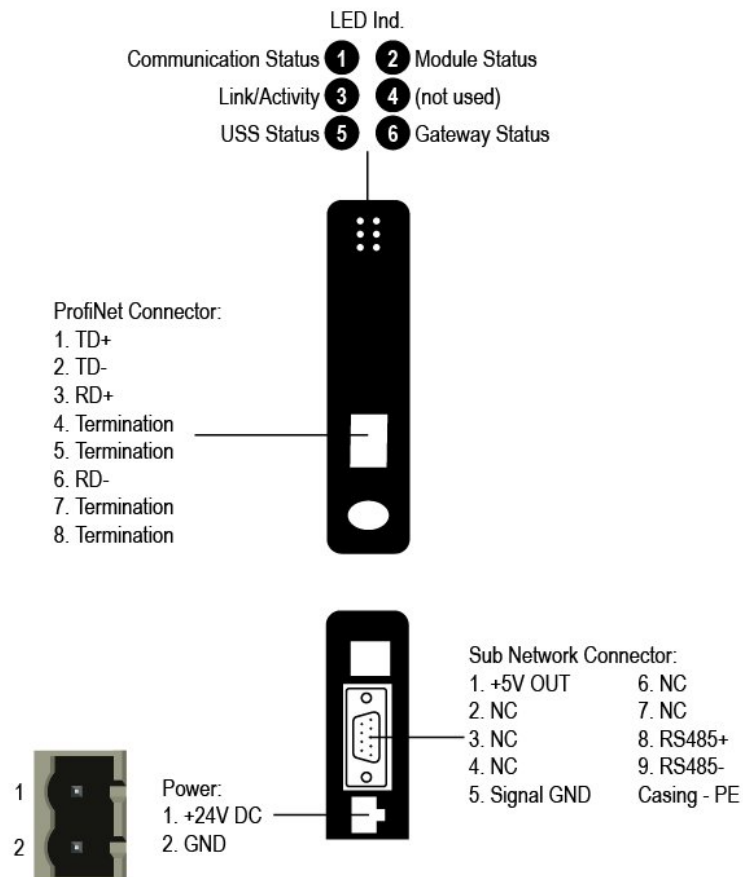


Figure 1

	Led (number)	Indication	Meaning
Fieldbus	Communication Status (1)	Off Green Flashing Green	Not powered / Not online On line, Connection with IO established, IO controller in run state On line, Connection with IO established, IO controller in stop state
	Module Status (2)	Off Solid Green 1 Sequential Green blink 2 Sequential Green blinks 1 Sequential Red blink 3 Sequential Red blinks 4 Sequential Red blinks	No power or module not initialized Module initialized, no errors Diagnostic data available Used by engineering tool to identify the ABC Configuration error No station name or no IP address assigned Failed to initialize Profinet IO object or no mac address
	Link Activity (3)	Off Green Flashing Green	No link. Module is connected to an Ethernet network Packet is received or transmitted
	USS Status (5)	Off Red Green	USS communication idle USS communication timeout USS communication detected (Receiving only)
Sub Network	Gateway Status (6)	Off Green Flashing 1Hz Red Flashing 1Hz Red Flashing 2Hz Red Flashing 4Hz Green Red	Power off Configuration in progress No configuration present Configuration error Initialization error of Anybus module Running Stopped

Figure 2

3 Getting started

3.1 Primary setup tool

After the hardware configuration of the PLC, the ABC-PRT-USS Gateway has to be configured.

When the ABC-PRT-USS gateway is to be used the first time, a “Station Name” needs to be set for the gateway. To set the station name perform the following steps:

1. Open the program SIMATIC Primary Setup Tool.
2. Select “Network Adapter” in the “Settings” menu and then browse the network.
3. Select the Ethernet interface for the gateway and select “Browse” from the “Network ” menu,
4. Enter correct station name, see figure 3.

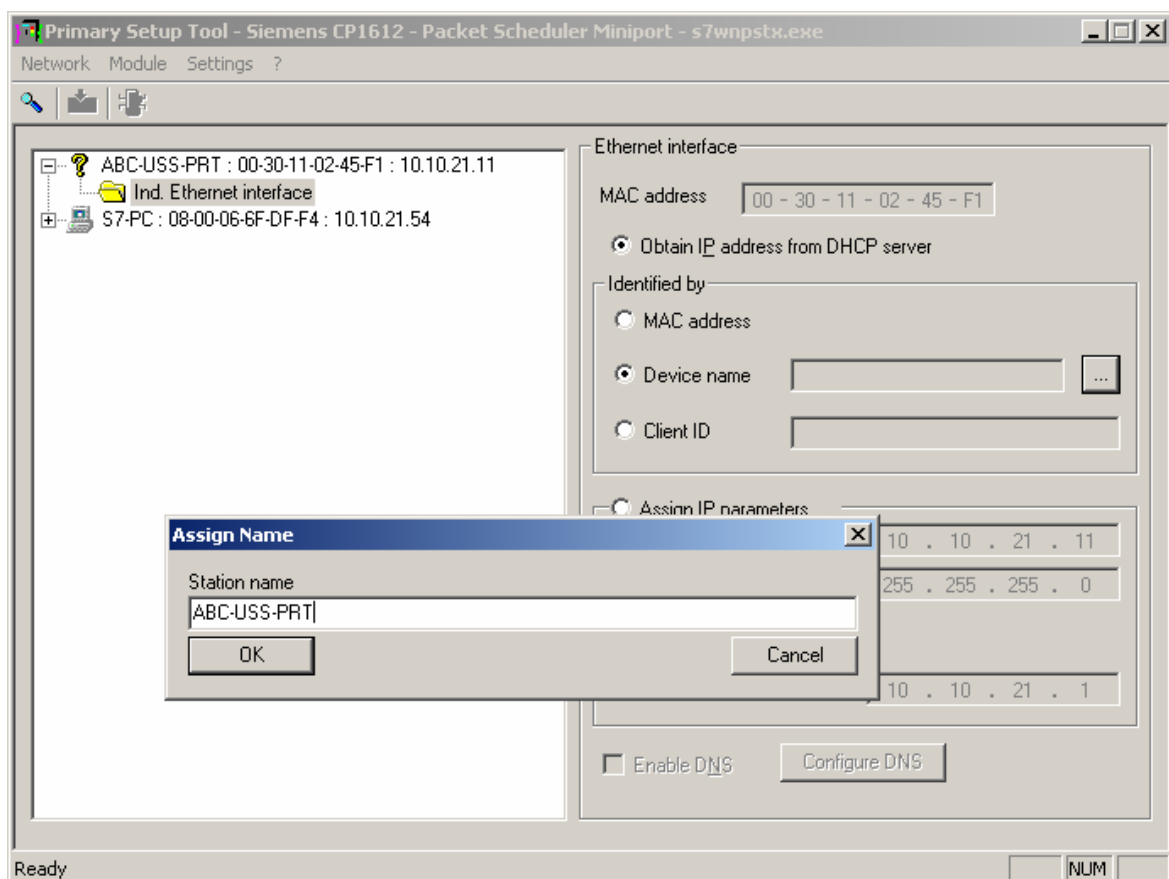


Figure 3

The primary setup tool is usually not installed with a standard STEP7 installation.

Instead we use the build in function “Edit Ethernet node” to assign IP-address and Station name to the PN-devices, that can be called from the SIMATIC Manager via “PLC → Edit Ethernet Node...”.

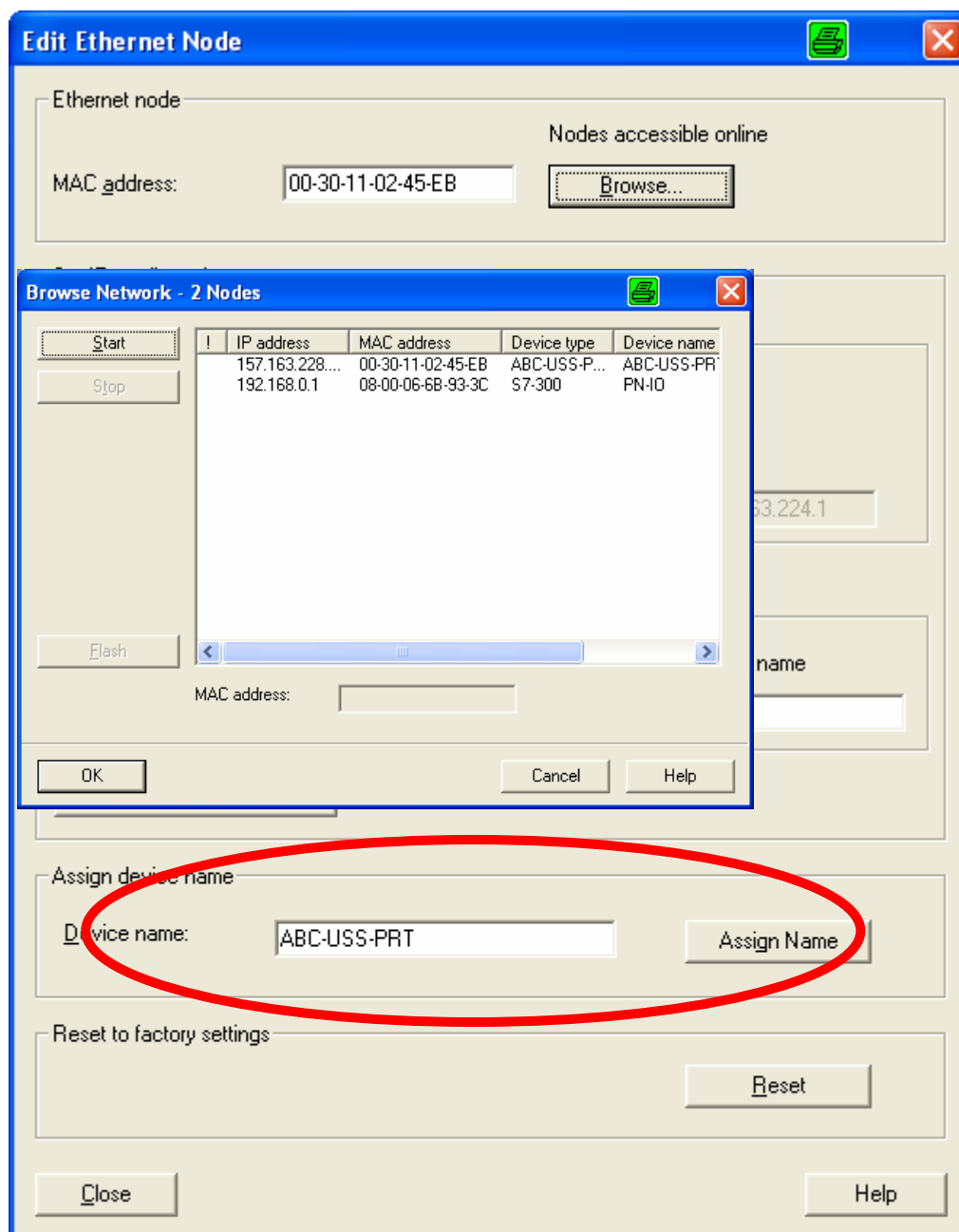


Figure 4

3.2 SIMATIC Manager

After the name is set the gateway have to be configured. To configure the gateway please perform the following steps.

1. Open the program SIMATIC Manager program and start a new project.
2. Choose PG/PC interface from the menu as shown in figure 5.

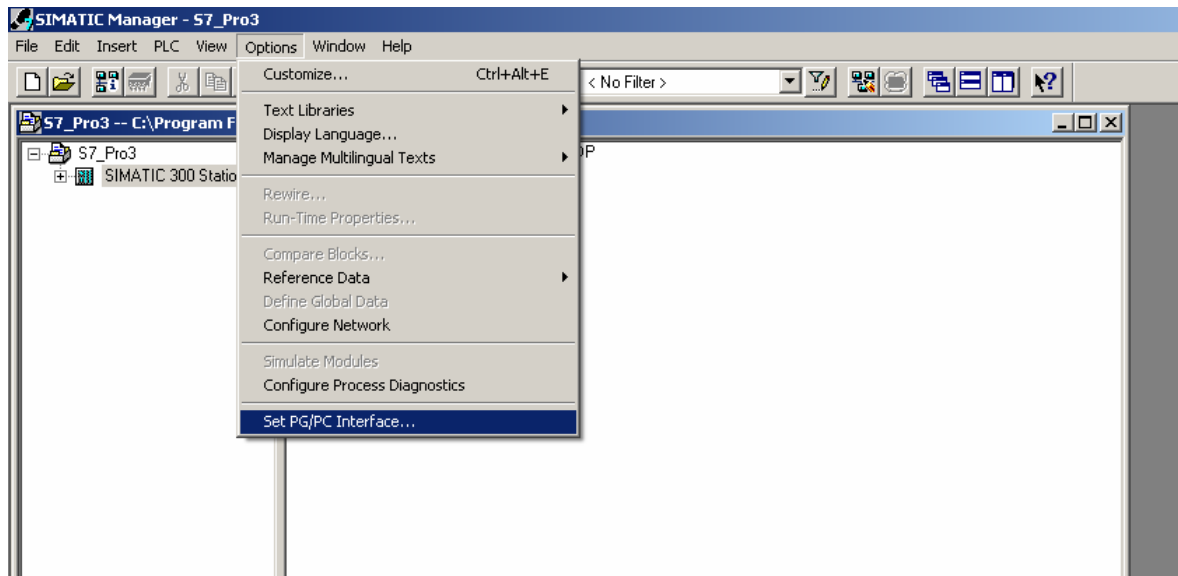


Figure 5

3. Change the PG/PC Interface to TCP/IP (AUTO), as shown in figure 6.

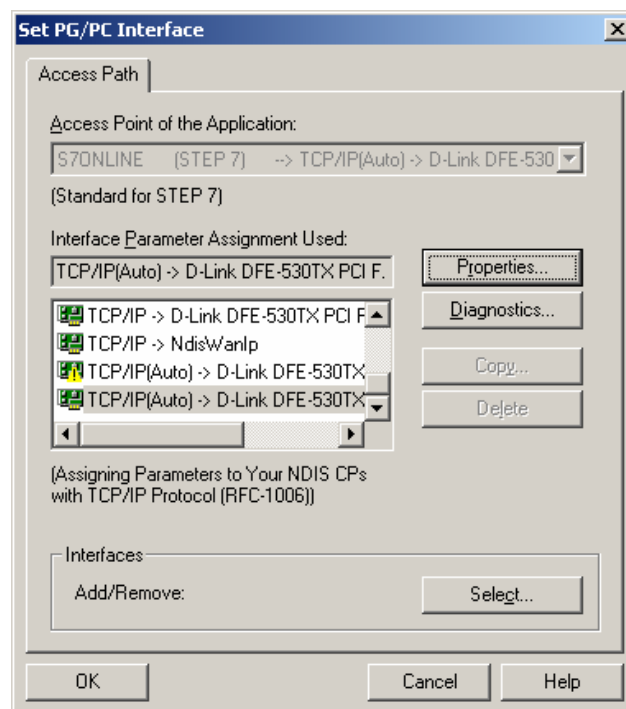


Figure 6

4. Select station and click on Hardware, as shown in figure 7.

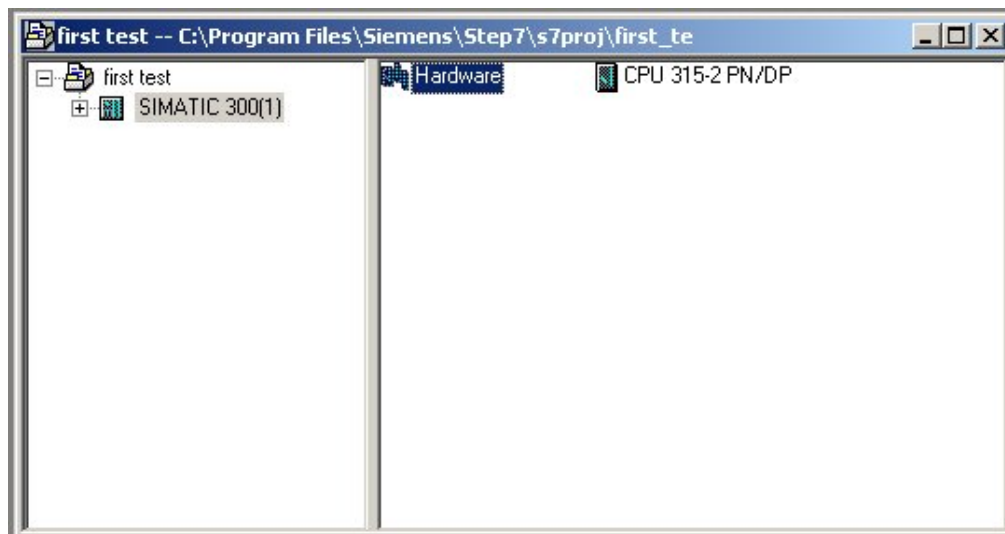


Figure 7

5. Enter the “HW config” of STEP7 and import the GSDML file for the gateway as shown in the figure 8.

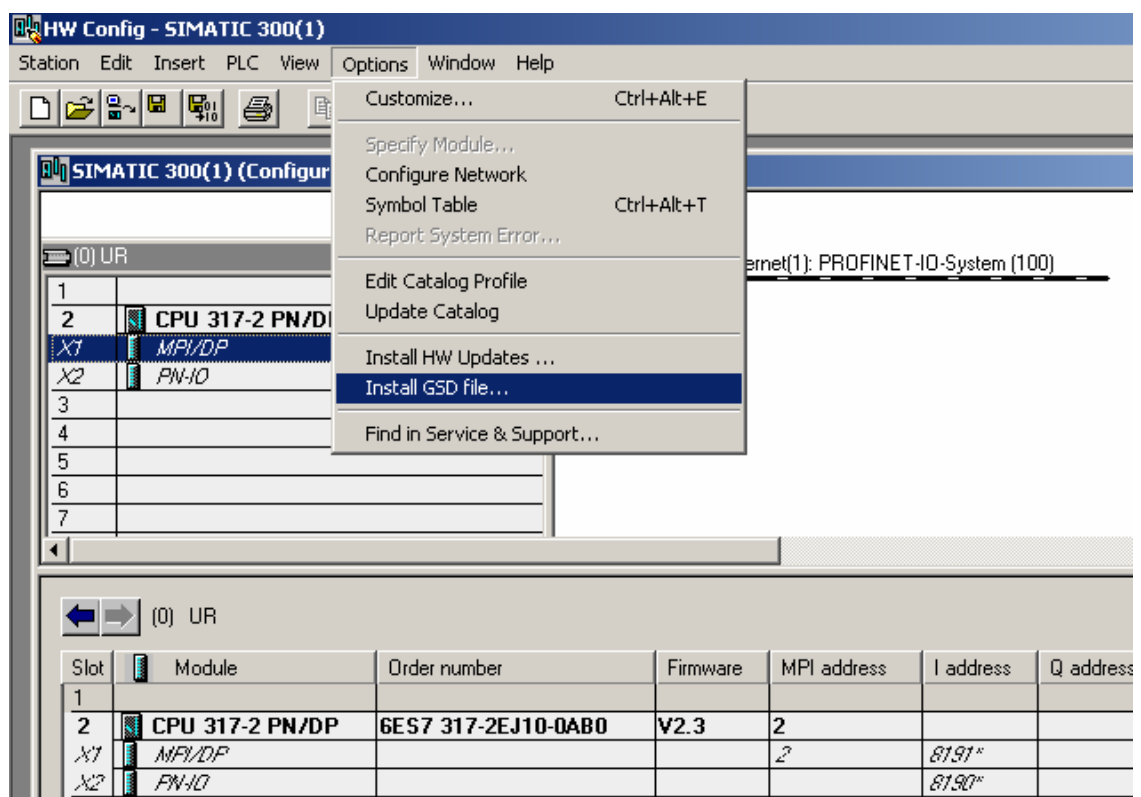


Figure 8

5. Drag and drop the ABC-PRT-USS into the network as shown in figure 9

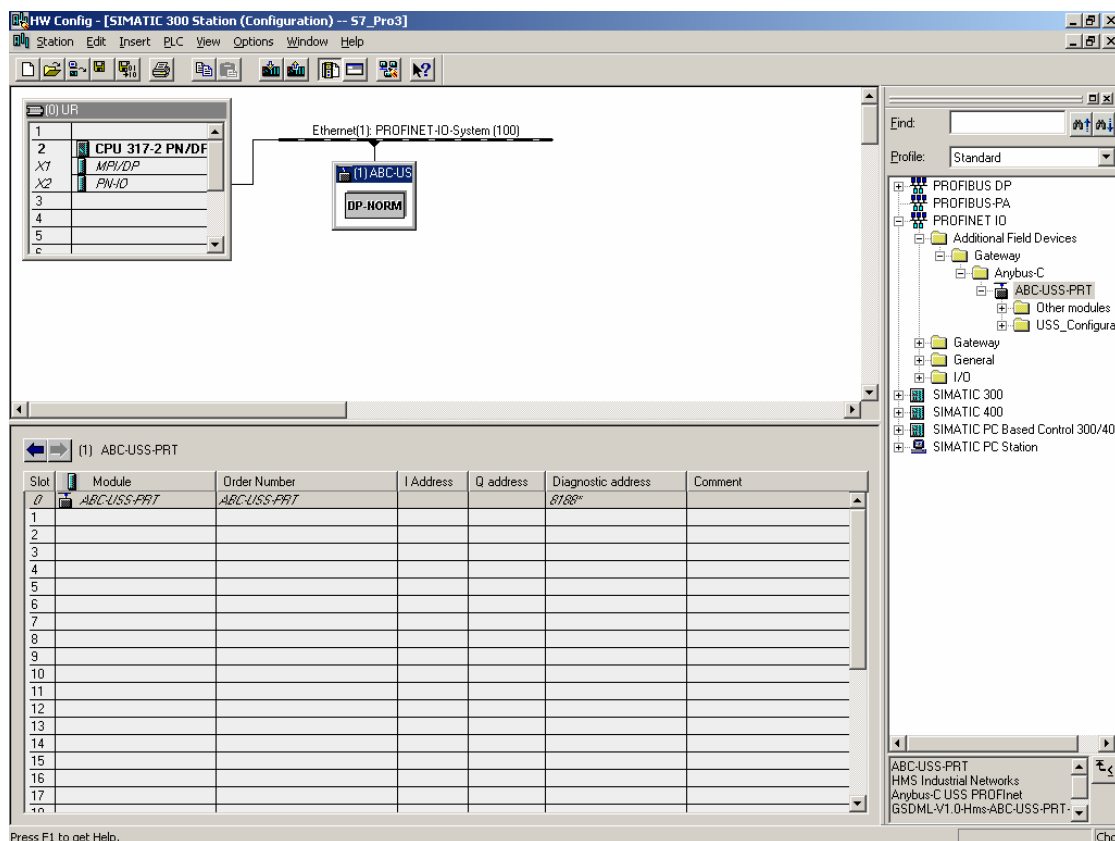


Figure 9

Overview of correlations between the HW-Configuration and drive parameter settings

Drive parameters	MASTER-DRIVES	MICROMASTER MM4xx	SINAMICS G110	corresponds in HW-Config to
Baudrate	P701	P2010.2	P2010	settings according to Fig. 10
USS-bus-address	P700	P2011.2	P2011	slot-number.
Amount of PKW words	P702	P2013.2	P2013	settings according to Fig. 11 & 12
Amount of PZD words	P703	P2012.2	P2012	settings according to Fig. 11 & 12

6. Enter the correct baudrate used for the USS network, highlight slot 0 (ABC-PRT-USS), right click and select object properties. Select the parameter TAB. The choosen baudrate must correspond to the baudrate selected via the parameters in the USS-slaves. Otherwise no communication will be established.

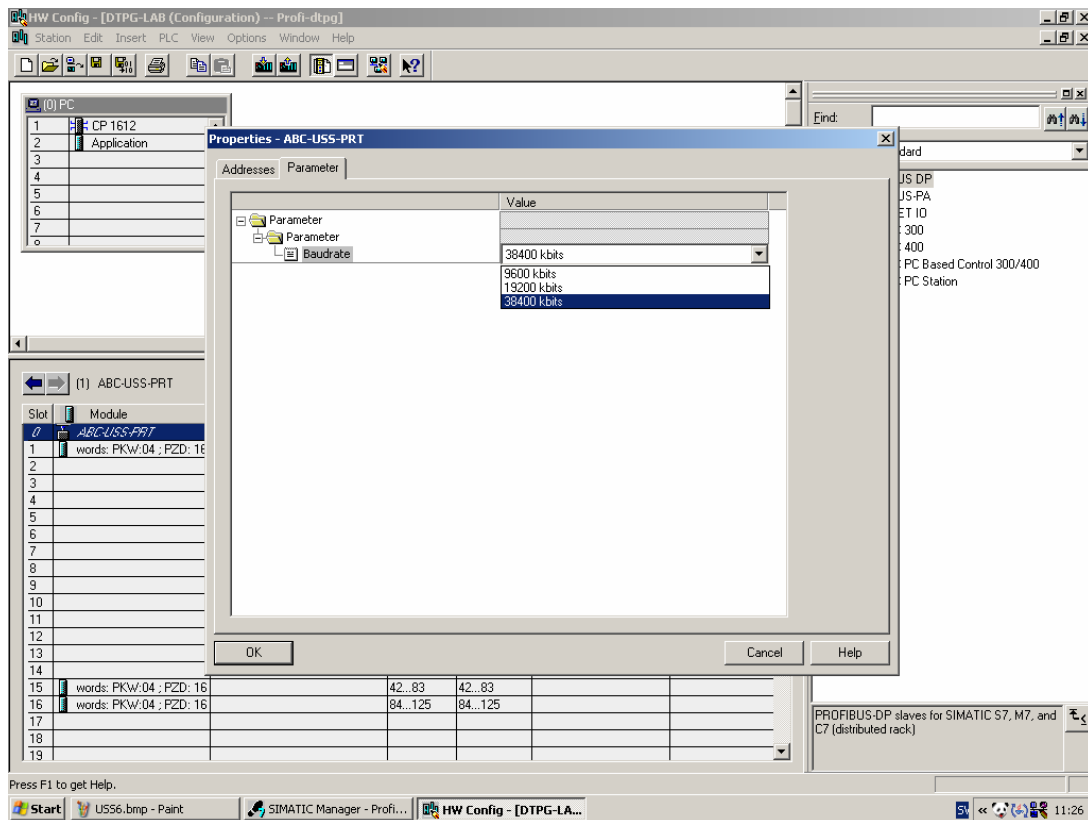


Figure 10

7. Next add an Object and the correct PKW and PZD and edit the I/O addresses if necessary, as shown in figure 11 and 12. The choosen values for PKW and PZD must correspond to the parameter-settings for PKW and PZD in the addressed USS-slaves.

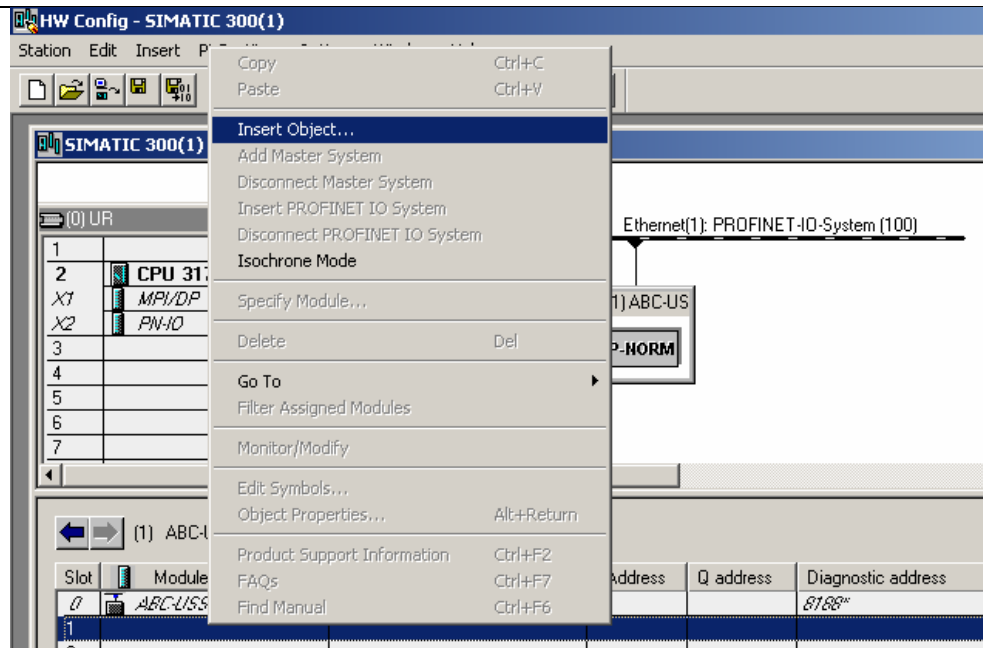


Figure 11

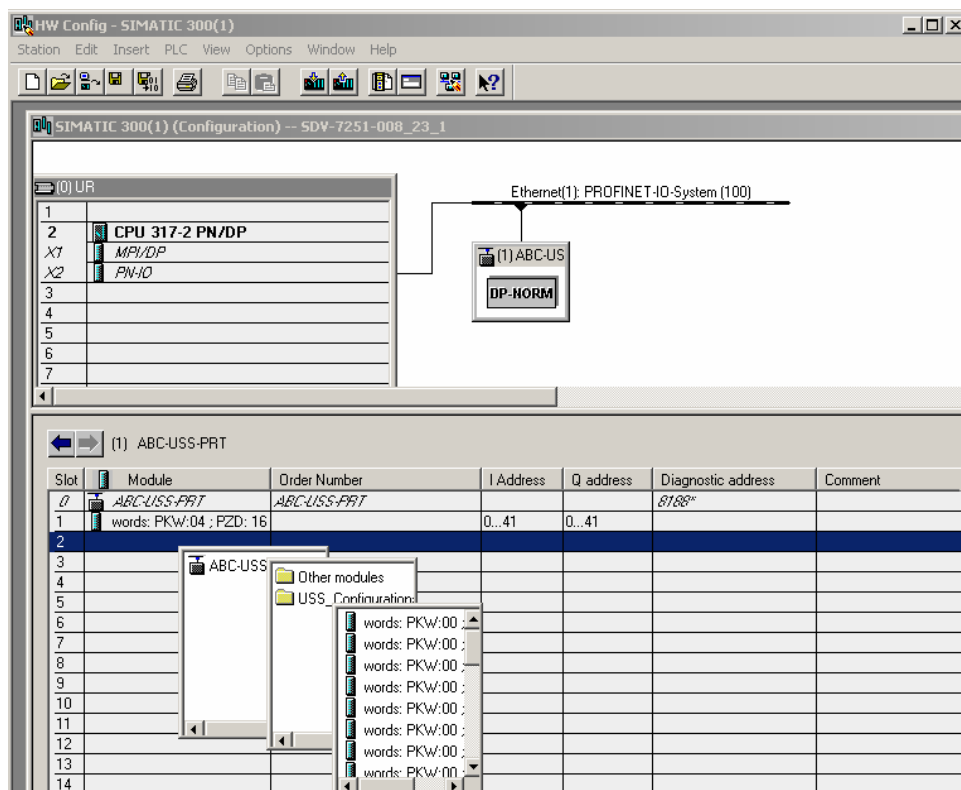


Figure 12

Fig. 12 shows an example for an USS-slave with USS-bus-address 1 and the parameter-settings $PKW = 4$ words and $PZD = 16$ words.

HW-configuration	drive parameter for USS-bus-address		
	MASTER-DRIVES	MICROMASTER MM4xx	SINAMICS G110
	P700	P2011.2	P2011
1	1	1	1
2	2	2	2
3	3	3	3
:	:	:	:
:	:	:	:
31	31	31	31
Slot-number corresponds 1:1 to USS-bus-address			

8. Enter an IP address for the PN-IO, as shown in figure 13 and 14

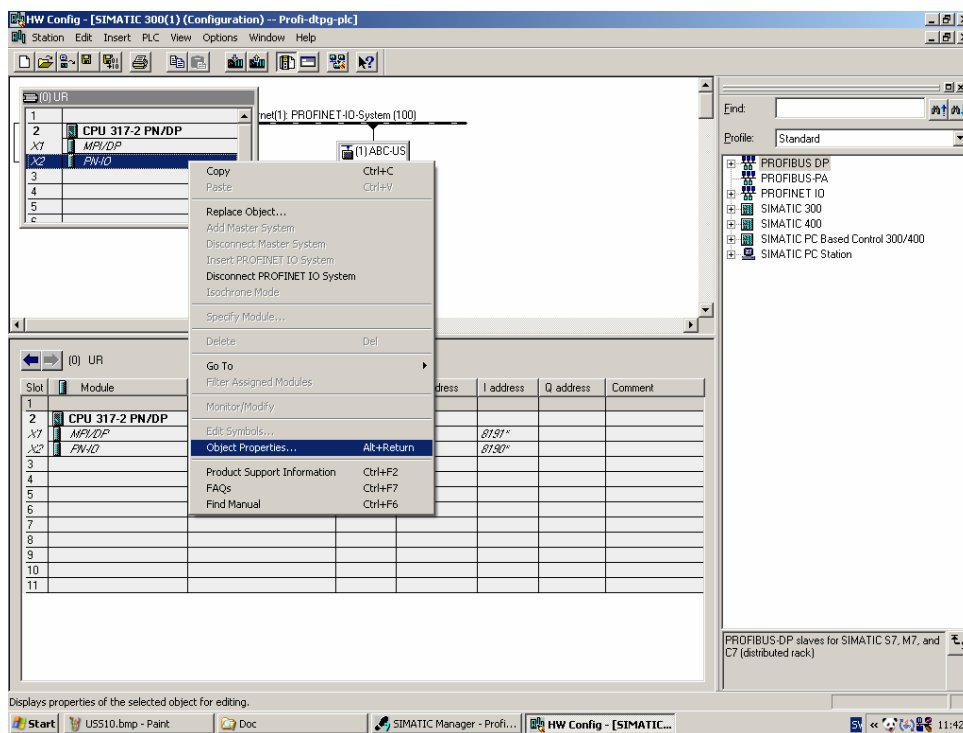


Figure 13

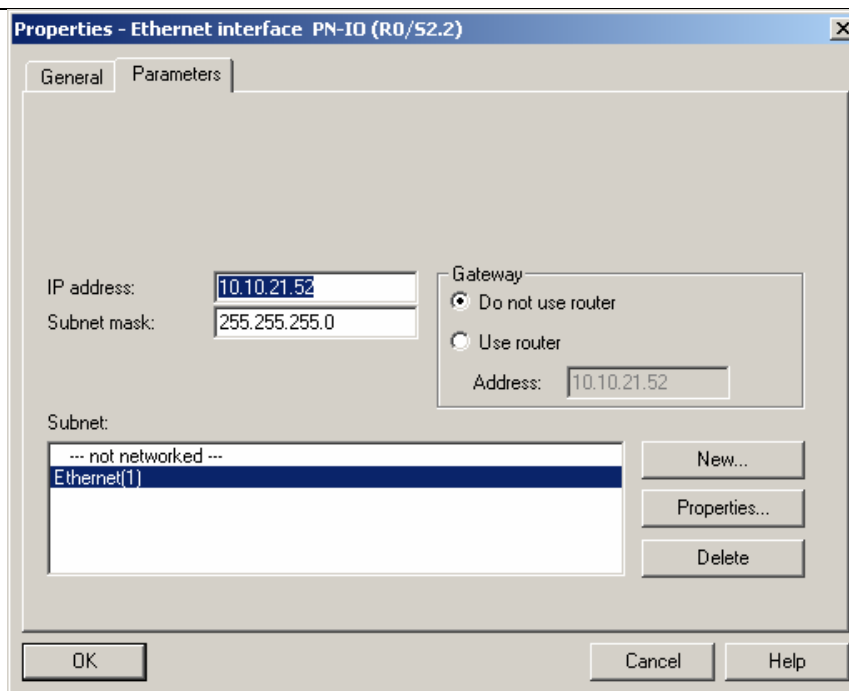


Figure 14

9. Select “Object Properties” by clicking on the ABC-PRT-USS module, as shown in figure 15.

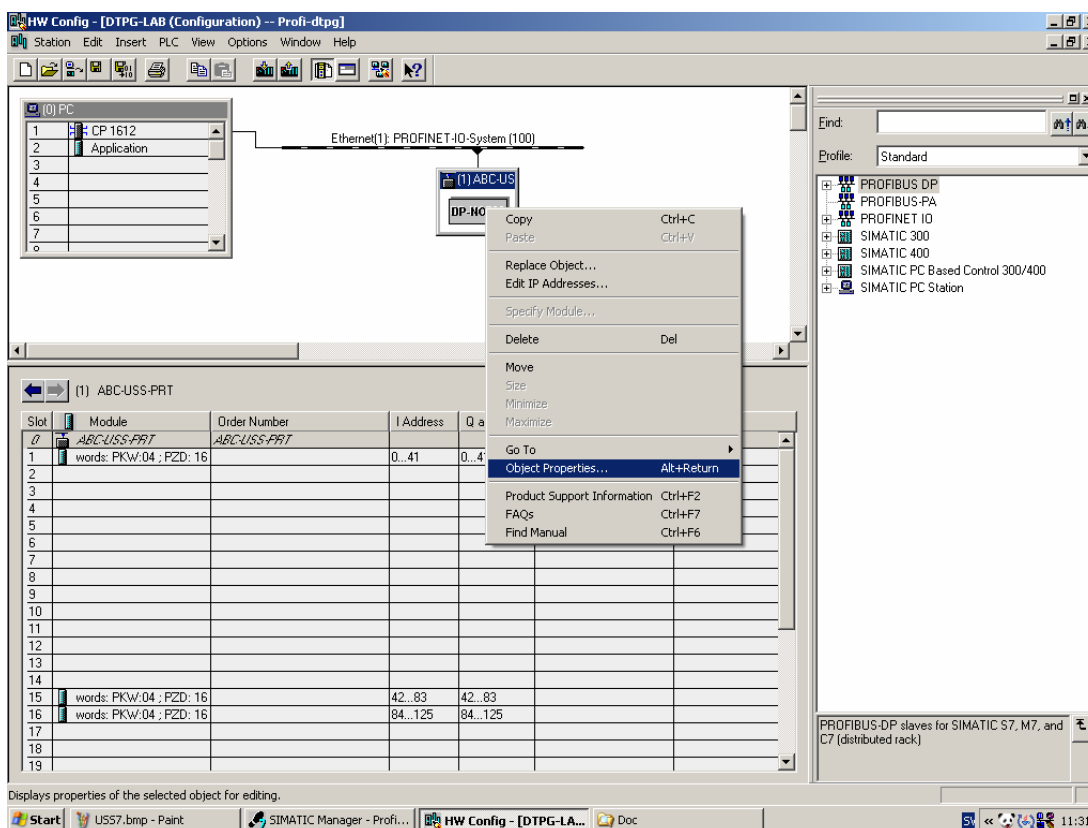
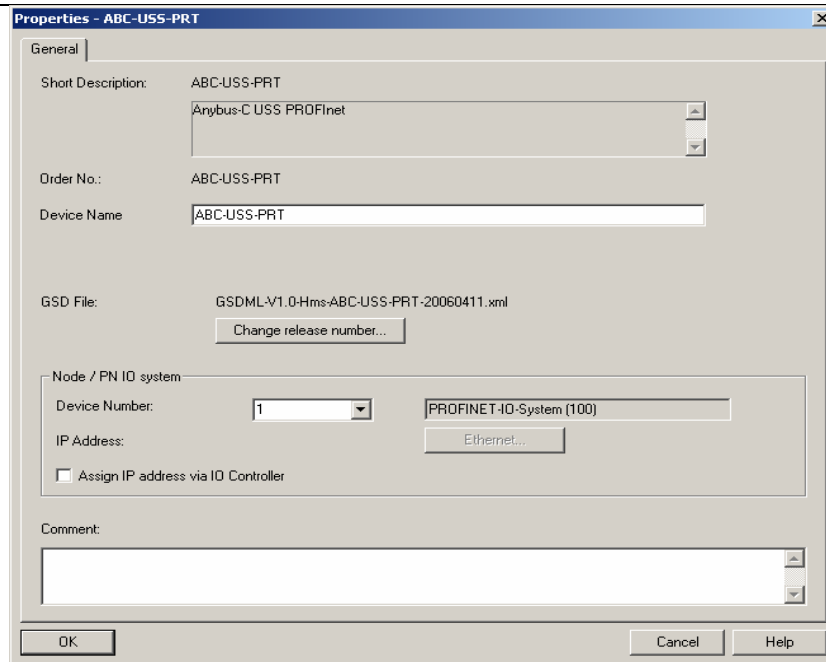
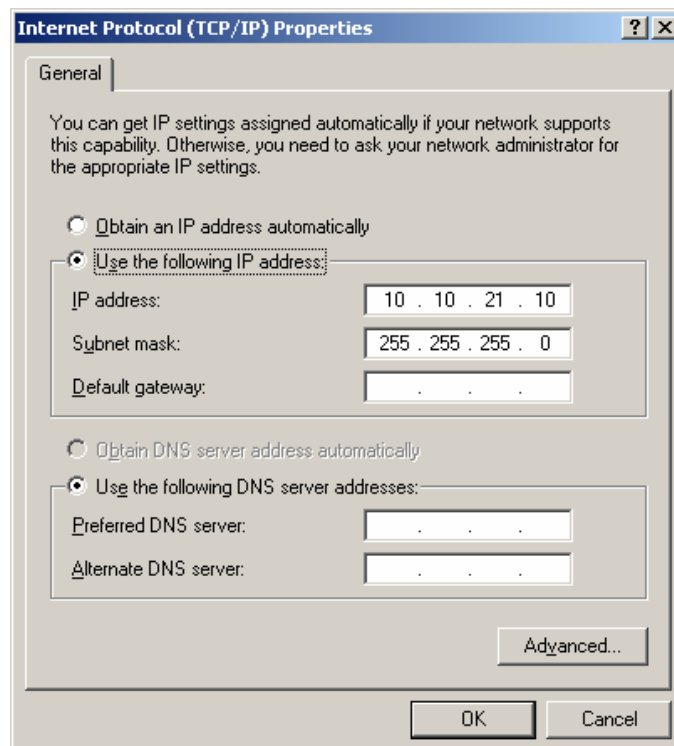


Figure 15

10. Make sure that the “Assign IP address via IO Controller” is not selected, as shown in figure 16.

**Figure 16**

11. Set your TCP/IP settings, in your local area Connection, to the same subnet as the PN-IO, as shown in figure 17 below.

**Figure 17**

12. Download the configuration to the PC/PLC as shown in figure 18

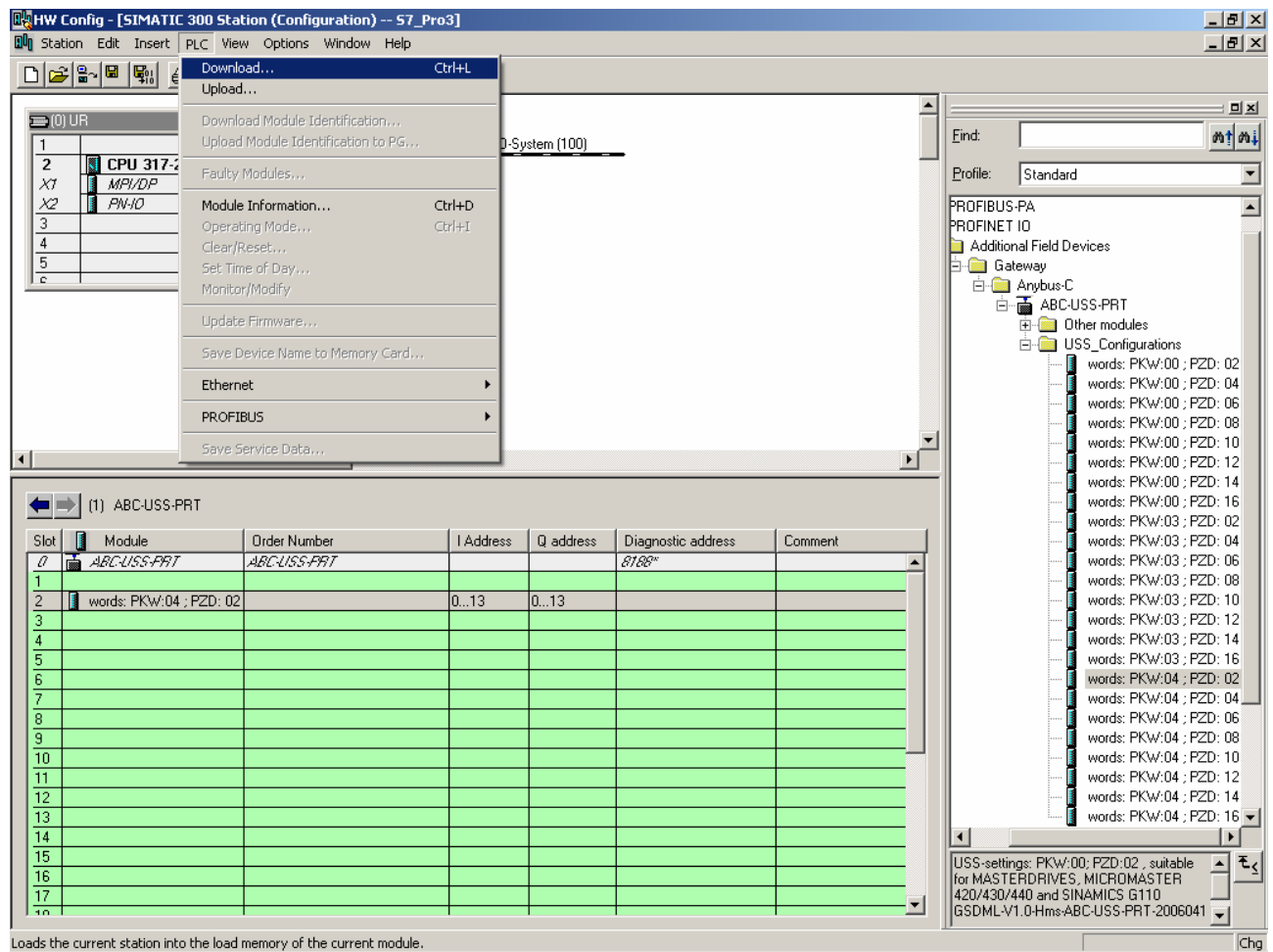


Figure 18

4 Web interface

Type the IP address in the navigation toolbar. The following window should appear, see figure 19.

The default Username is “USS Gateway” and the Password is “1234”. The same Username and password is used to log on to the ftp. On our gateways the username and password for the ftp-logon is “admin; admin”.

Could you please verify that “USS Gateway; 1234” is correct for ftp as well.



Figure 19

There are a number of functions on the default webpage, such as email notification, displaying slave status etc. It is also possible to add user defined pages via ftp.