TECH NOTE – PROFIBUS with SIMATIC Manager

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Brief description

This document is meant to be a guideline to demonstrate the use of a ClipX signal conditioner within a Profibus network. For this example a Simatic 300 Station is used as PLC. There is also an explanation of how ClipX measurement values can be monitored in the Simatic Manager software. Basic knowledge of Profibus network and HBM amplifiers are recommended. The basic setup is shown in the figure below.
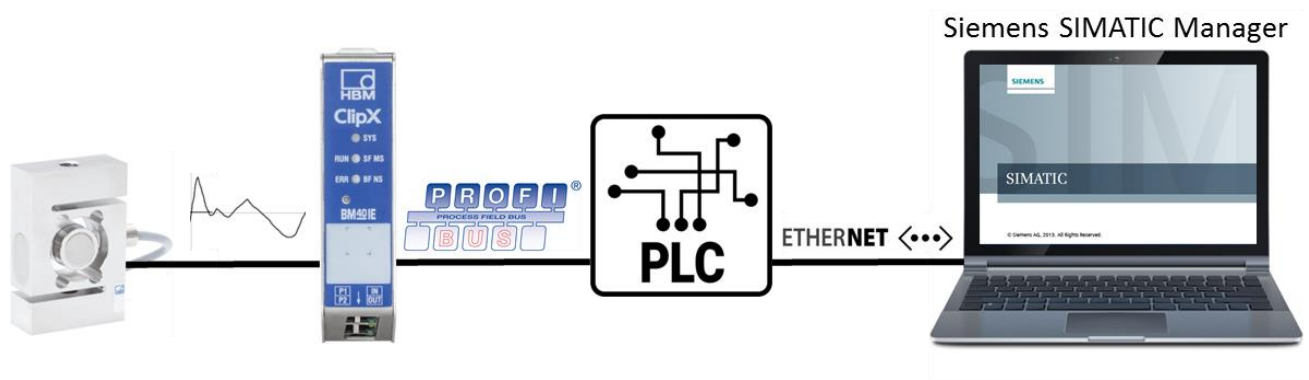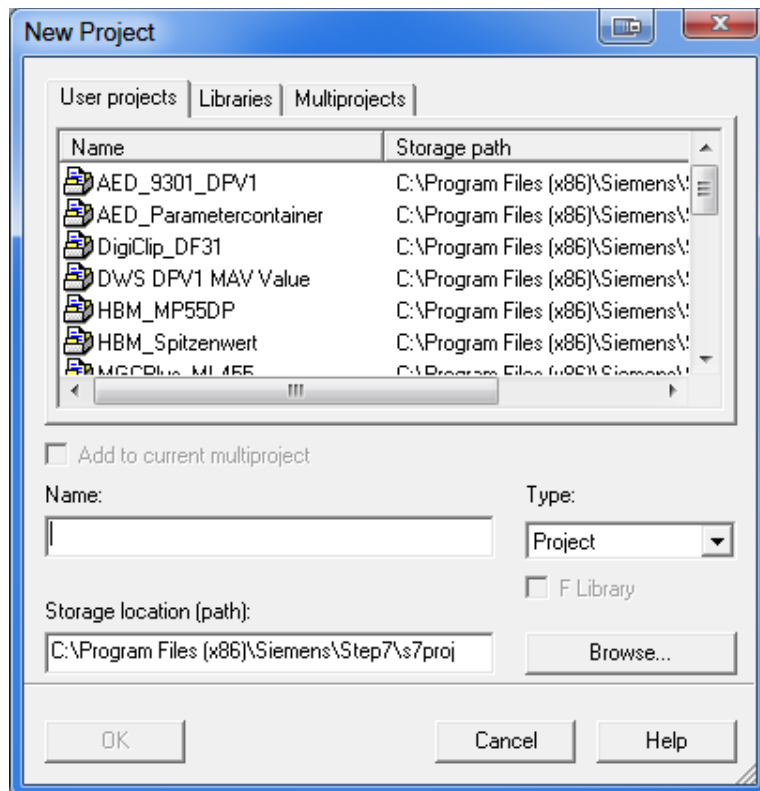

Operation

After starting the program, the following start screen appears: **Step 7 Wizard**
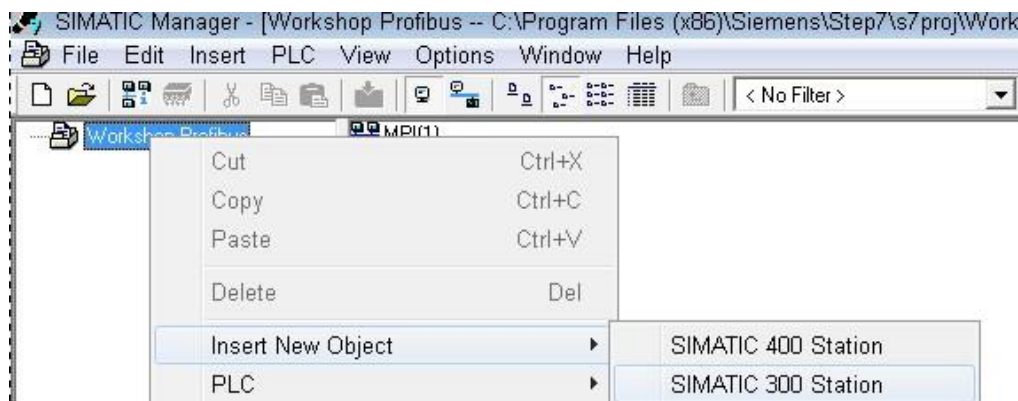

Press **Cancel** because the wizard doesn't support the Simatic 300 Station. For supported PLCs the wizard can for sure be used.
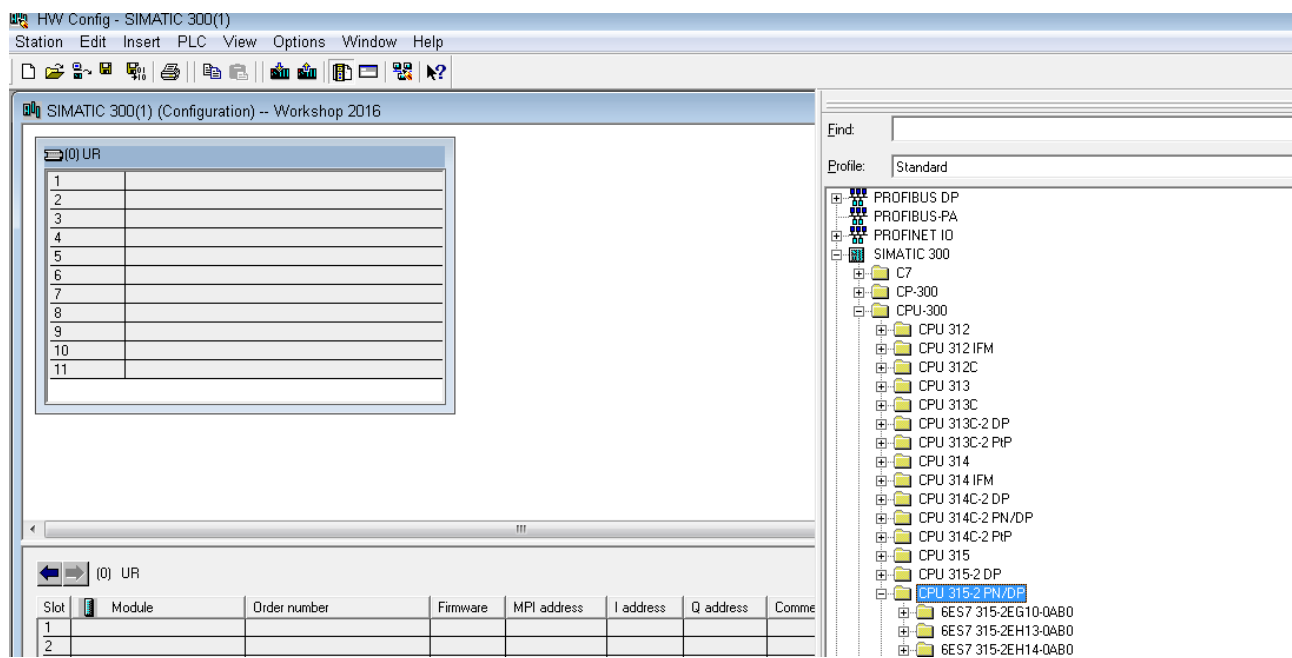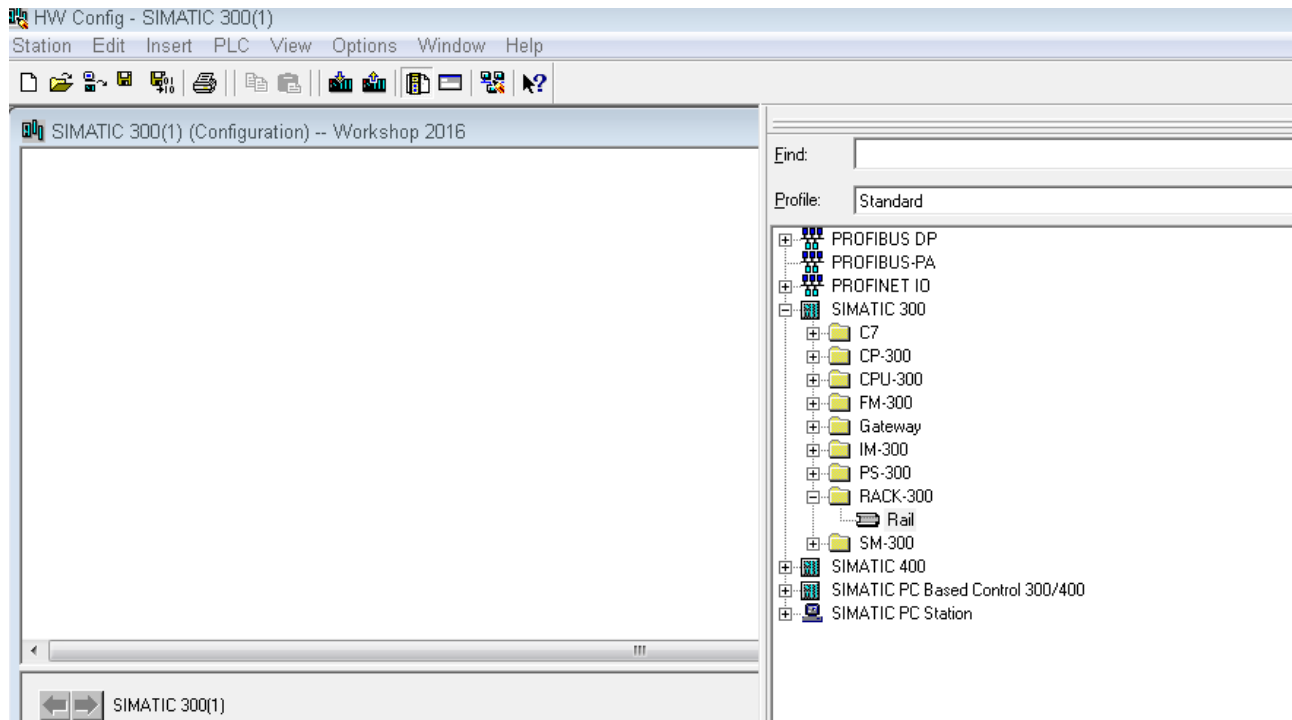
Then create a new project.

Assign a name to your project and insert a Simatic 300 Station as a next step.

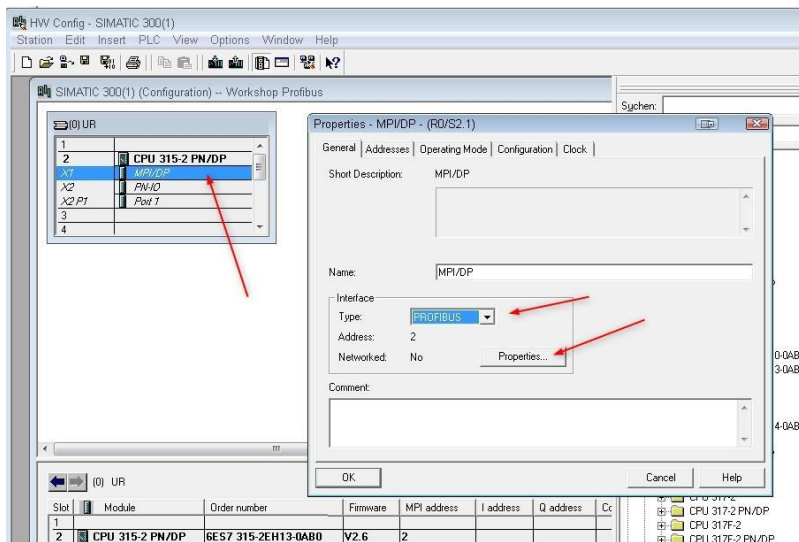Double-click on the hardware and open the Hardware Config (HW Config).

First insert the Rack/ Rail for the CPU-300 PLC and then choose the "right" PLC!!! (the label is on the right side of the PLC, the firware version is on the front)
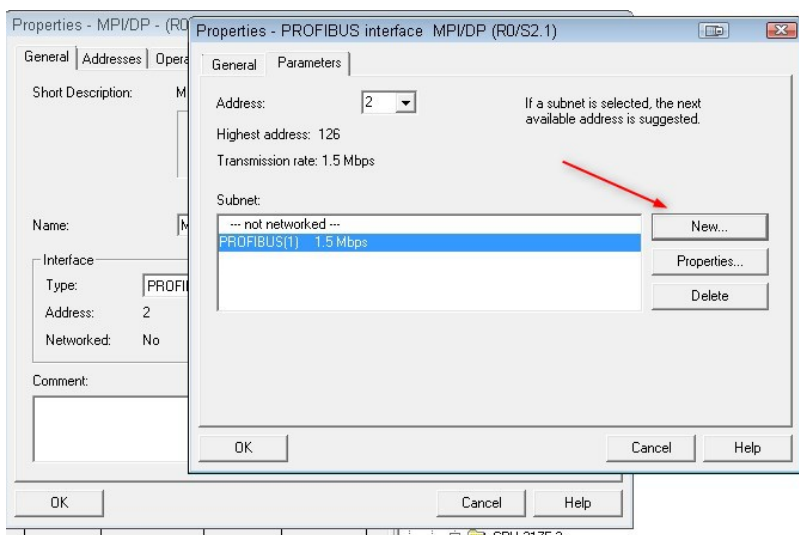
Just click on the OK-button because we don't need a New Subnet (Profinet in this case)
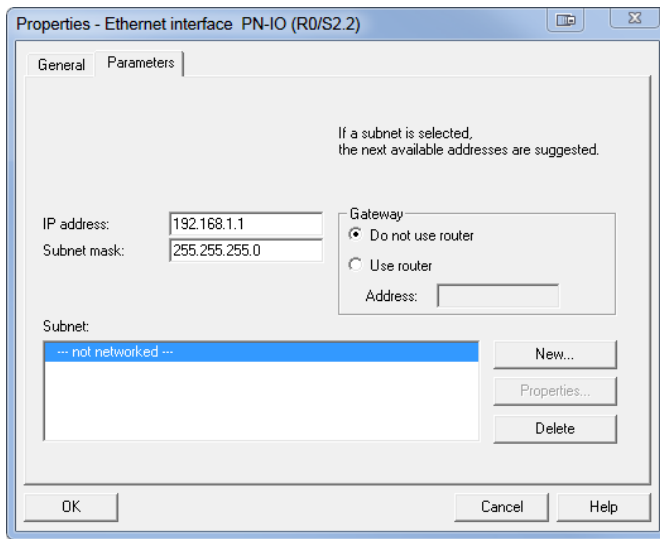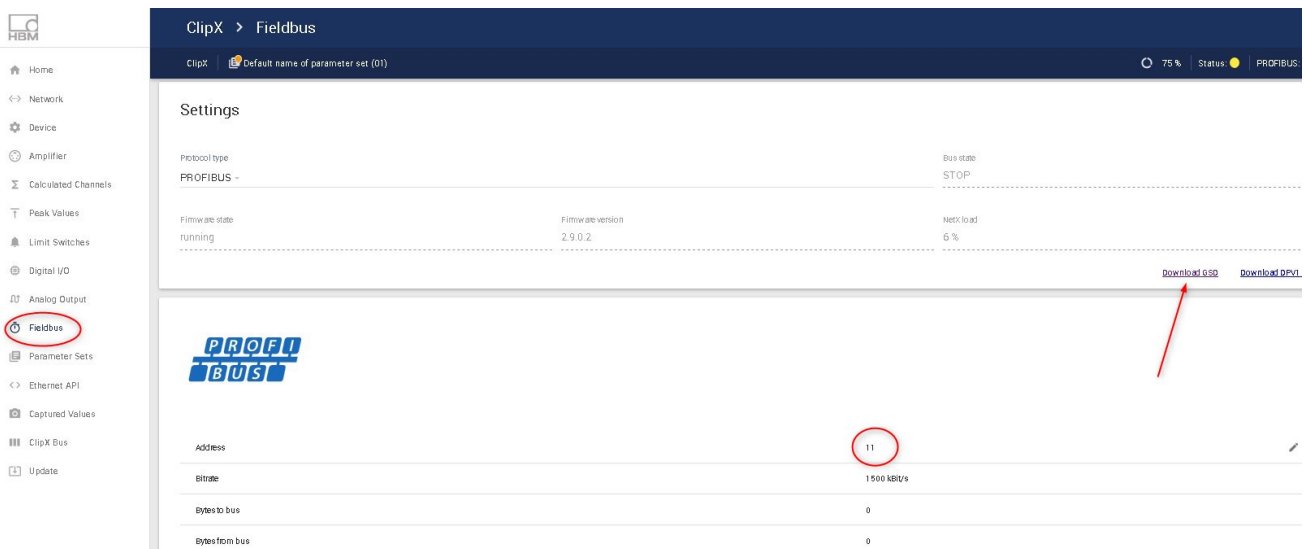

Double-click on MPI/DP and choose as Interface the Type **PROFIBUS**

Create a New Subnet with the 1.5Mbps baudrate and the PLC address 2

Now to get a Profibus Device on the Fieldbus we need at first to install the GSD-File of the Slave Device(ClipX). But before we can do it we have to create a GSE-File for your ClipX configuration inside the web browser!
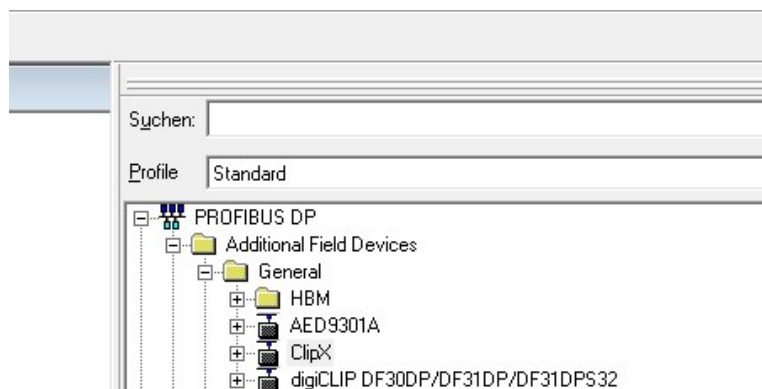

Please connect to the ClipX(Profibus) and download the GSD-File! By the way adjust the address of the slave e.g. **11**. The IP-Address is on the sticker.
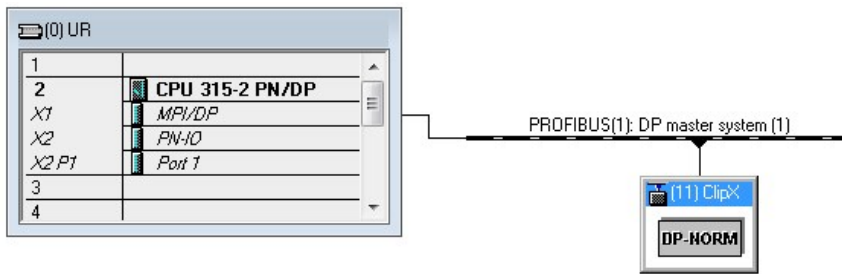
Install your created file into the HW Config.
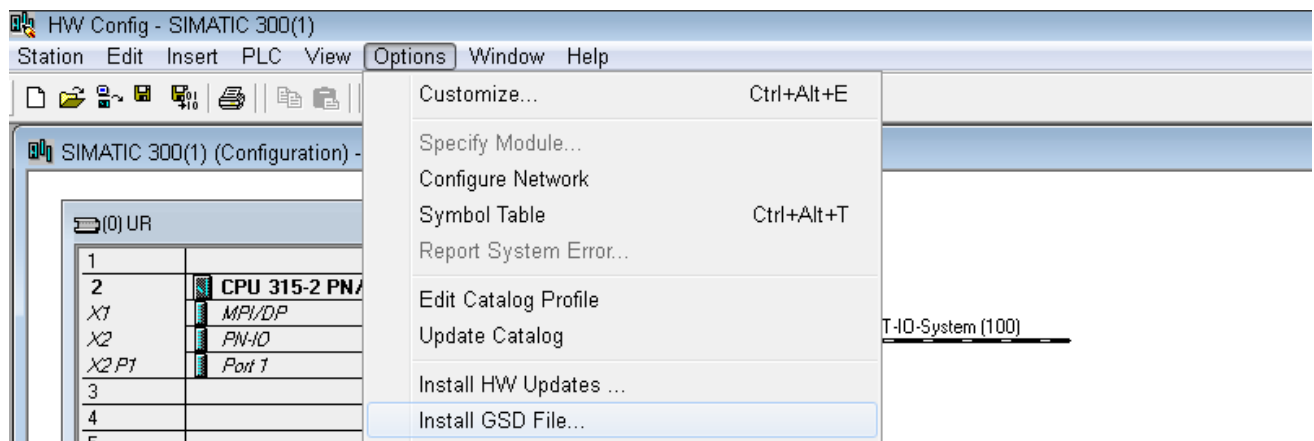
After the installation you can now find the ClipX Device in the device catalog, choose the correct file if you are using more than one ClipX configurations!

Please hold the left mouse-button and drop the ClipX on the Profibus line. The Profibus IO System got now one Profibus Slave!
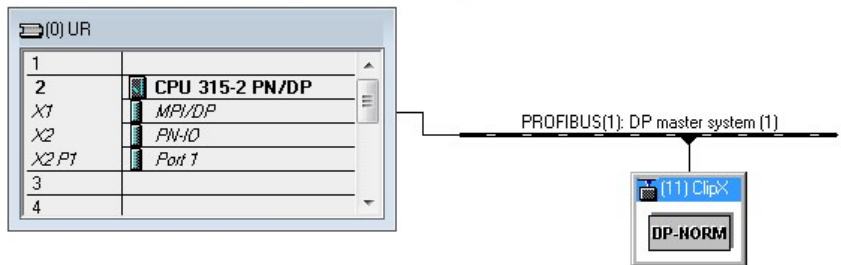

For the correct communication between the Master and Slave -> one important thing is necessary:

The projected hardware address and the slaves address have to be the same, please take care.

Insert the required entries from the EDS-catalog of ClipX for you needs.

Slot	DP ID	...	Order Number / Designation	I Address	Q Address	Comment
1	65		Gross	256...260		
2	65		Net	261...265		
3	65		Electrical value	266...270		
4	65		System status	271...274		
5	65		Control word read	275...278		
6	129		Control word write		256...259	
7						
8						
9						

Now save and compile the project. After that download it to the module (PLC)
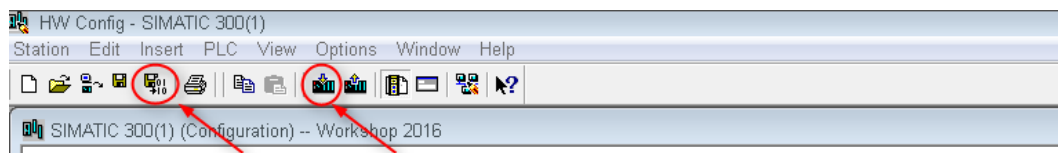
For the Profibus communication the Profibus muster is needed in our case we use the CP5711 master. Please check if the USB cable is connected to the Computer and the Profibus wires to the PLC and the slave.

Scan now for accessible nodes and download the hardware configuration into the module
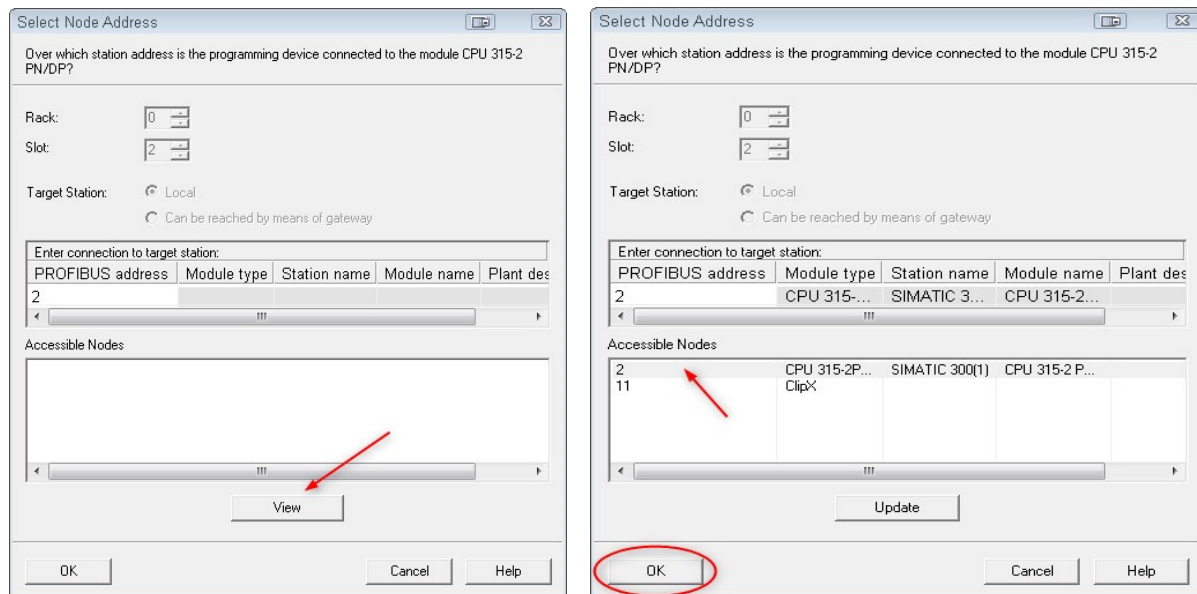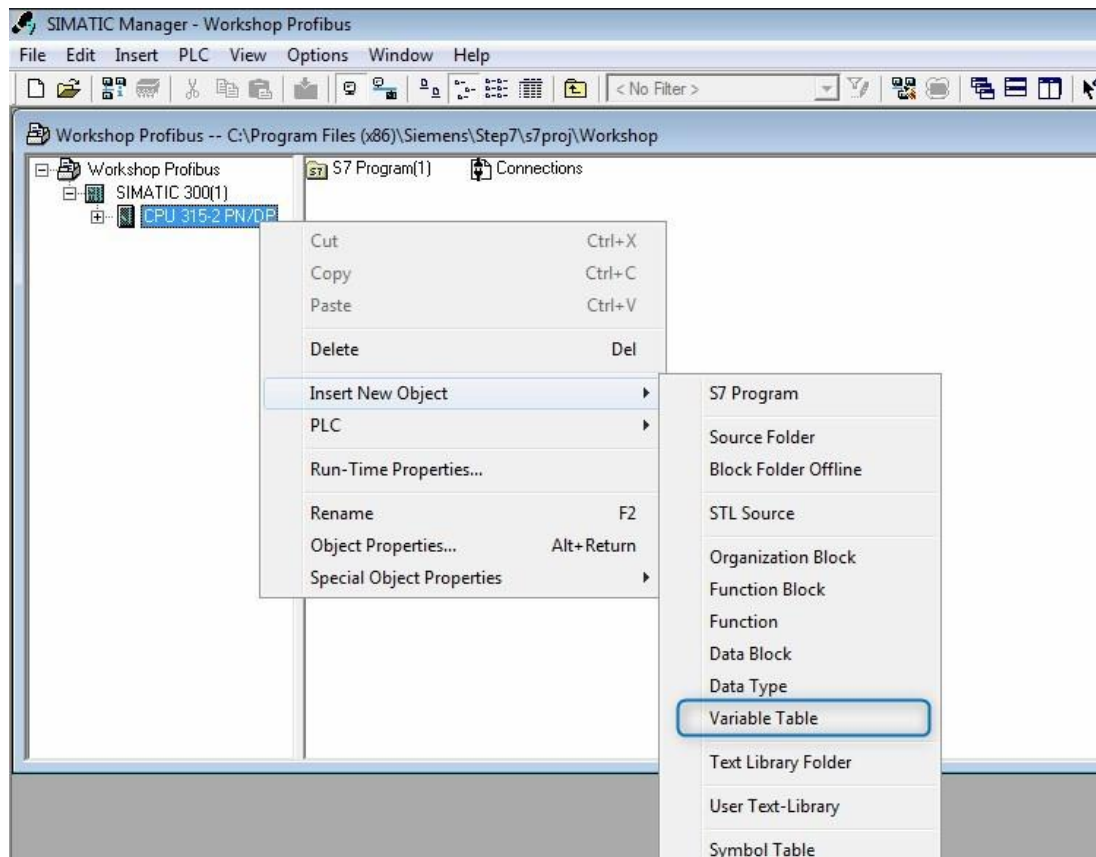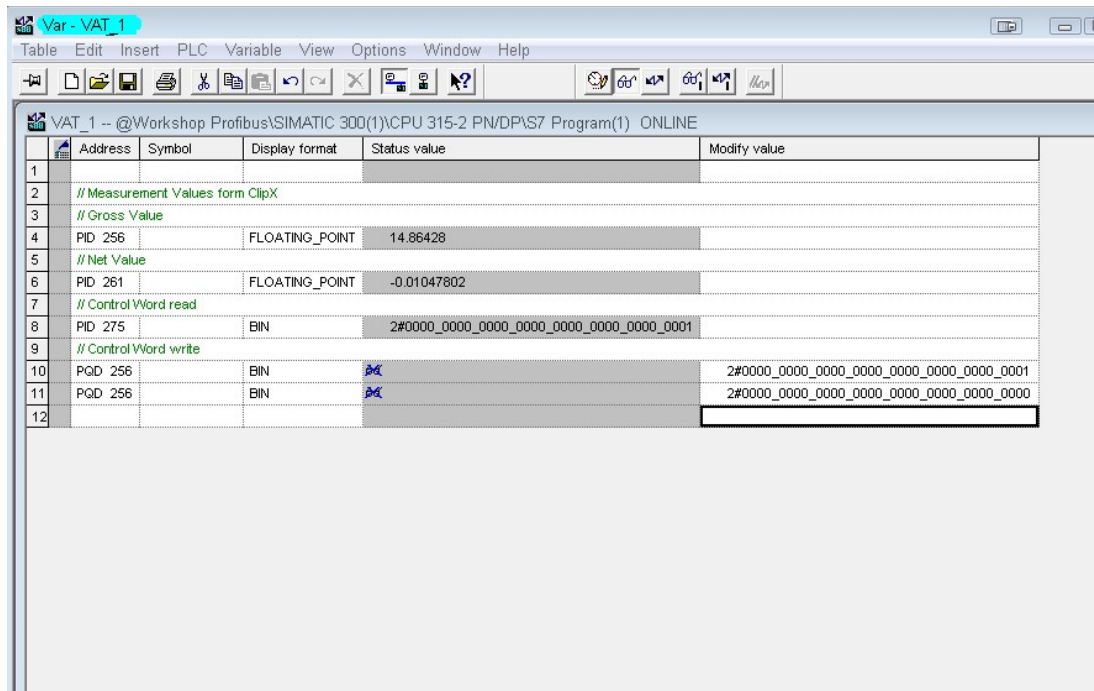

After the download the PLC should run and the LEDs should be green.

Just to check if the measurement values come in select the channel and open (right-mouse click) the Monitor/Modify Window
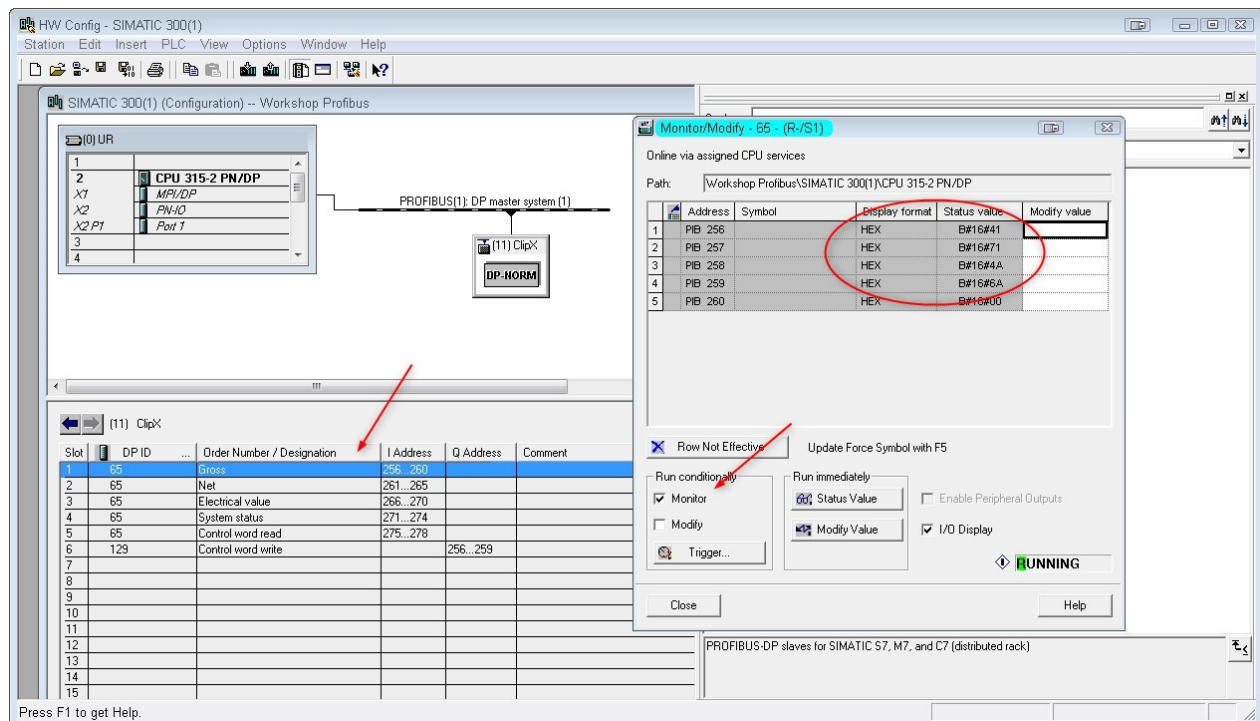
To read in the values more comfortable we could do it with the help of the variable table, please go to the S7-Project and Insert a New Object

To read the value we need the addresses from the HW-Config e.g. **PID256** for the Gross Value of ClipX for our configuration in this example. **PI** means Peripheral Input and **B** -> Byte, **W** -> Word(16 Bit), **D** -> Double Word(32Bit). Double Word is necessary for the **Floating Point Format**.
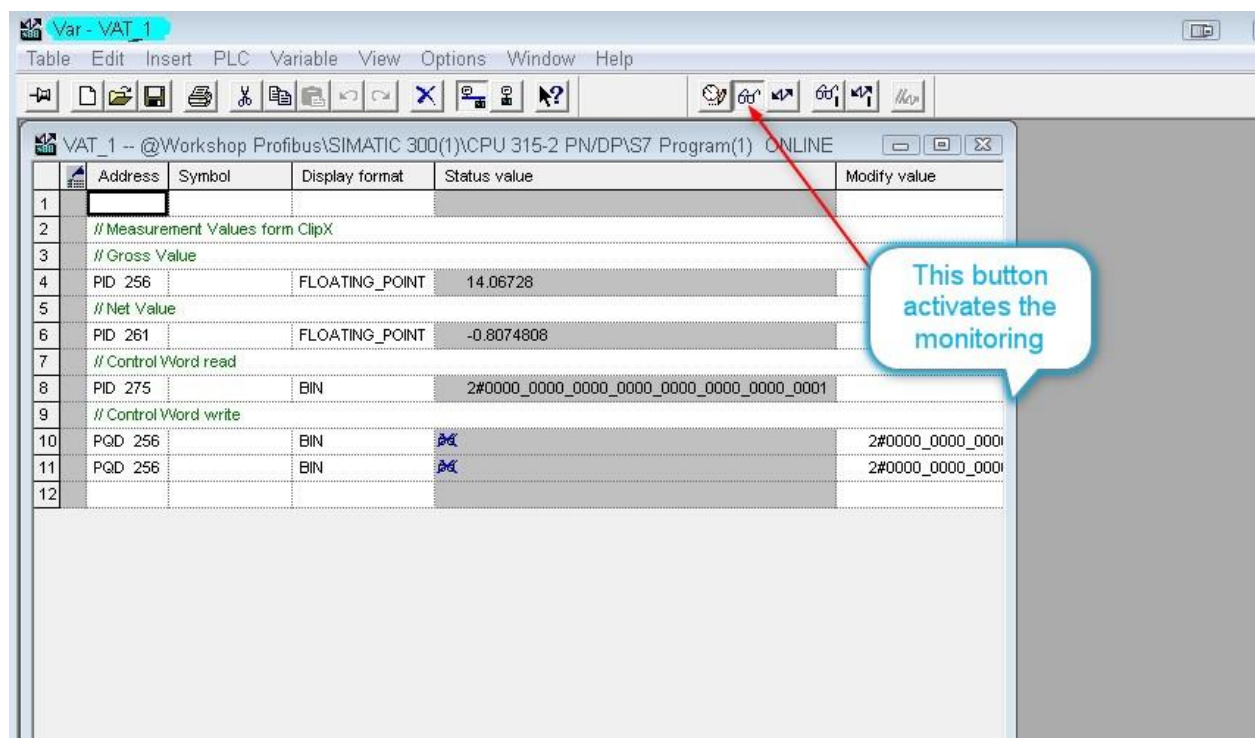
The exact length and format could be found in the manual of ClipX

acknowledgement				
Measured value slot x.y		60xy.1	x.y bytes 0.3	float32
Measured value status	see 'Measured value status' table 13.4.4	60xy.2	x.y byte 4	uint8
Measured value control word acknowledgement (confirms processing of the control word)	Control word return 70xy.2	60xy.3	x.y byte 5	uint8
– – –	Number dependent on the connected measurement cards			

The result looks like…

And in the variable table

One example how to use the control word.

Disclaimer

These examples are for illustrative purposes only. They cannot be used as the basis for any warranty or liability claims.