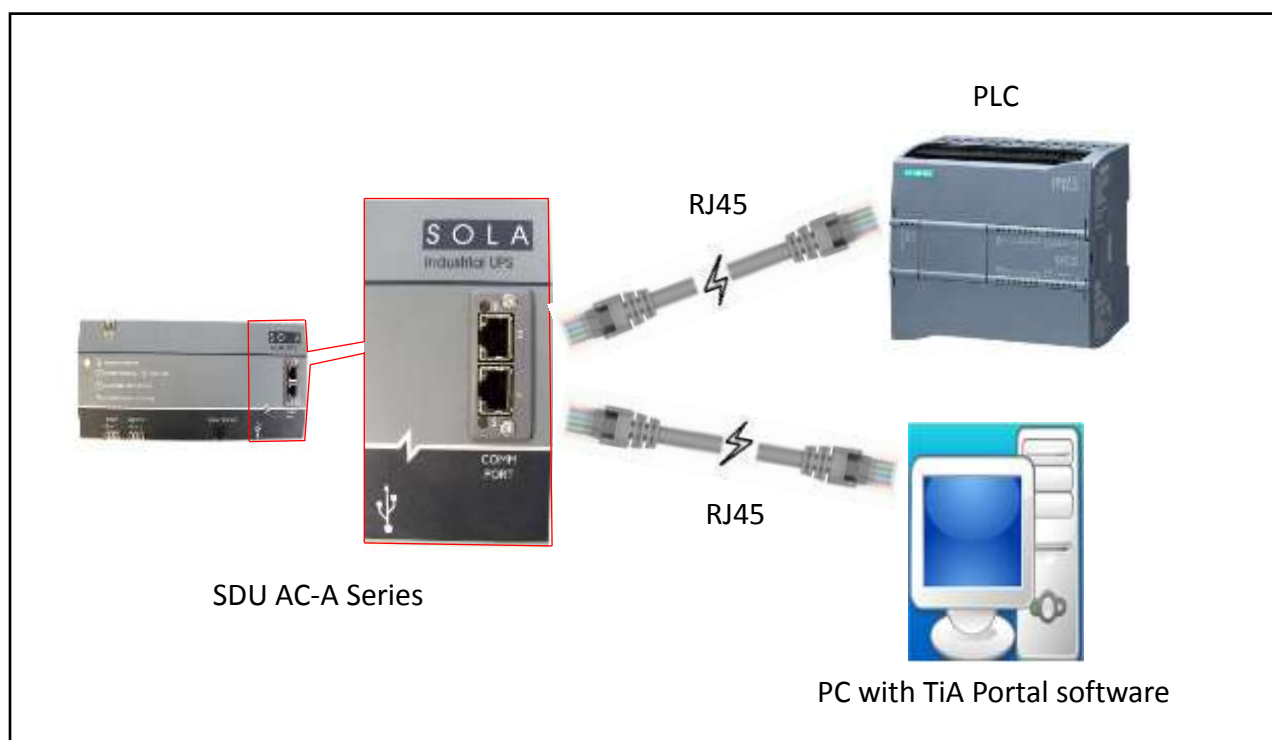# QUICK START GUIDE FOR SDUPNETCARD
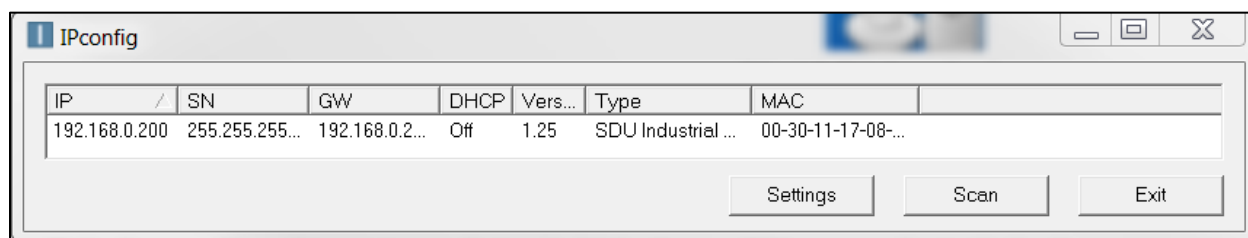
Quick Start Guide for PROFINET SOLA HD

TiA Portal Setup:

TiA Portal is the software that Siemens has made to configure PROFINET PLC's and the PROFINET network as a whole. Although this guide goes through basic TiA Portal startup information, some applications may have more steps to consider (such as plug in modules on the PLC, or for a brand new PLC). These more complex situations are out of the scope of this document.

FIG.01 below shows what the most basic physical setup would be during the configuration of the PROFINET network. Additionally, it is possible to set the IP address of the SDU using the Ipconfig software, seen in FIG.02. You can set this from TiA Portal also if you would like, it does not matter which method you choose.

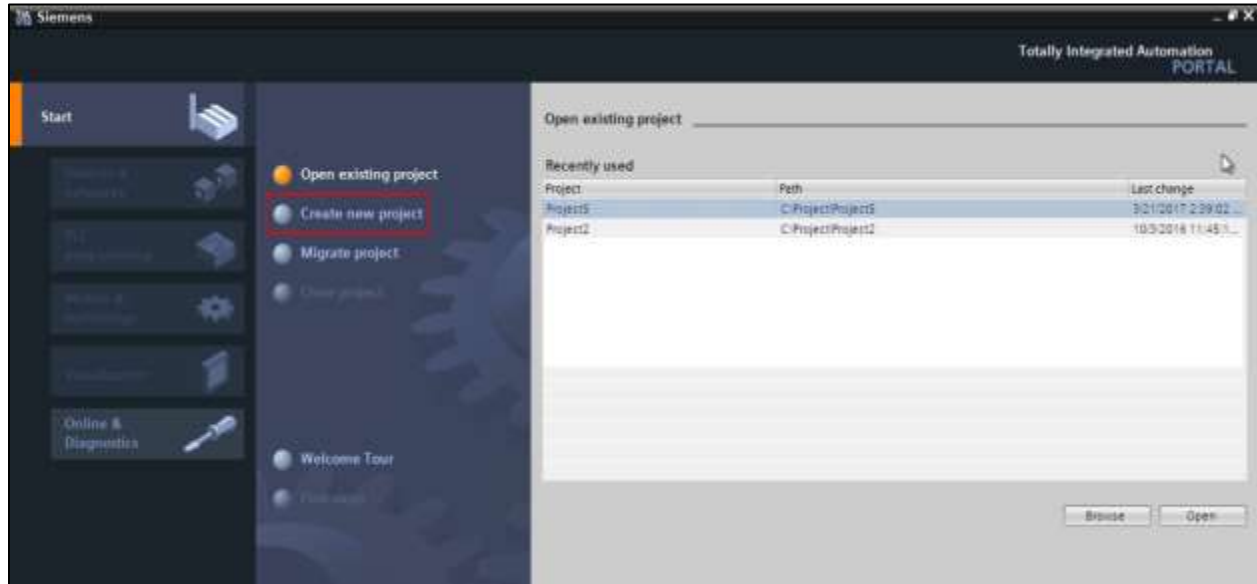*FIG.01* Wiring Connection of SDU AC-A Series UPS to Computer and PLC

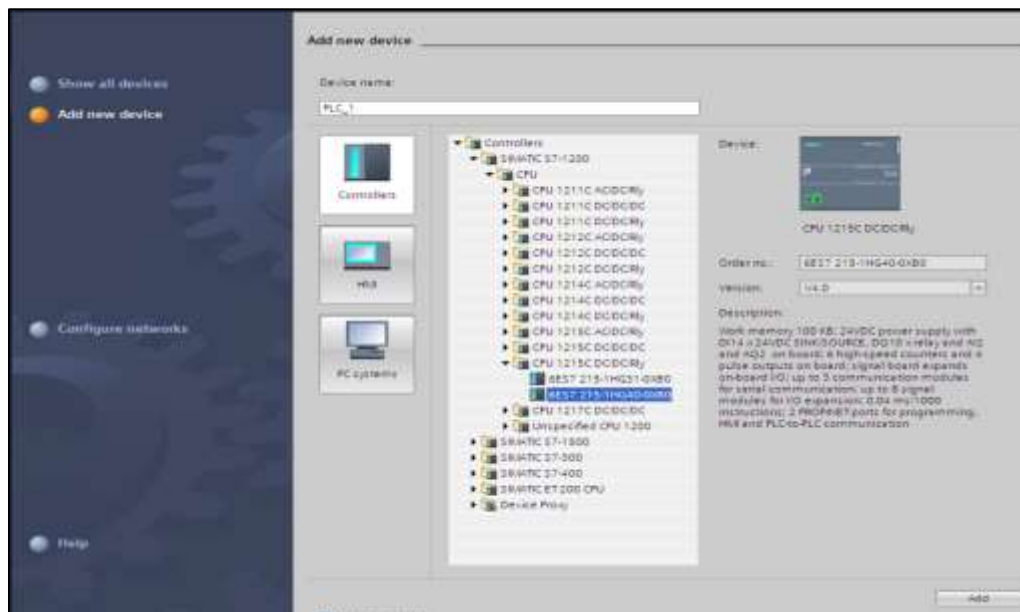*FIG.02* IPconfig Setup

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Creating a project and adding PLC:

To begin, you will need to create a project and add the Siemens PLC you are using to the hardware configuration. To start click "Create new project" on the left side of the start screen and name the project.
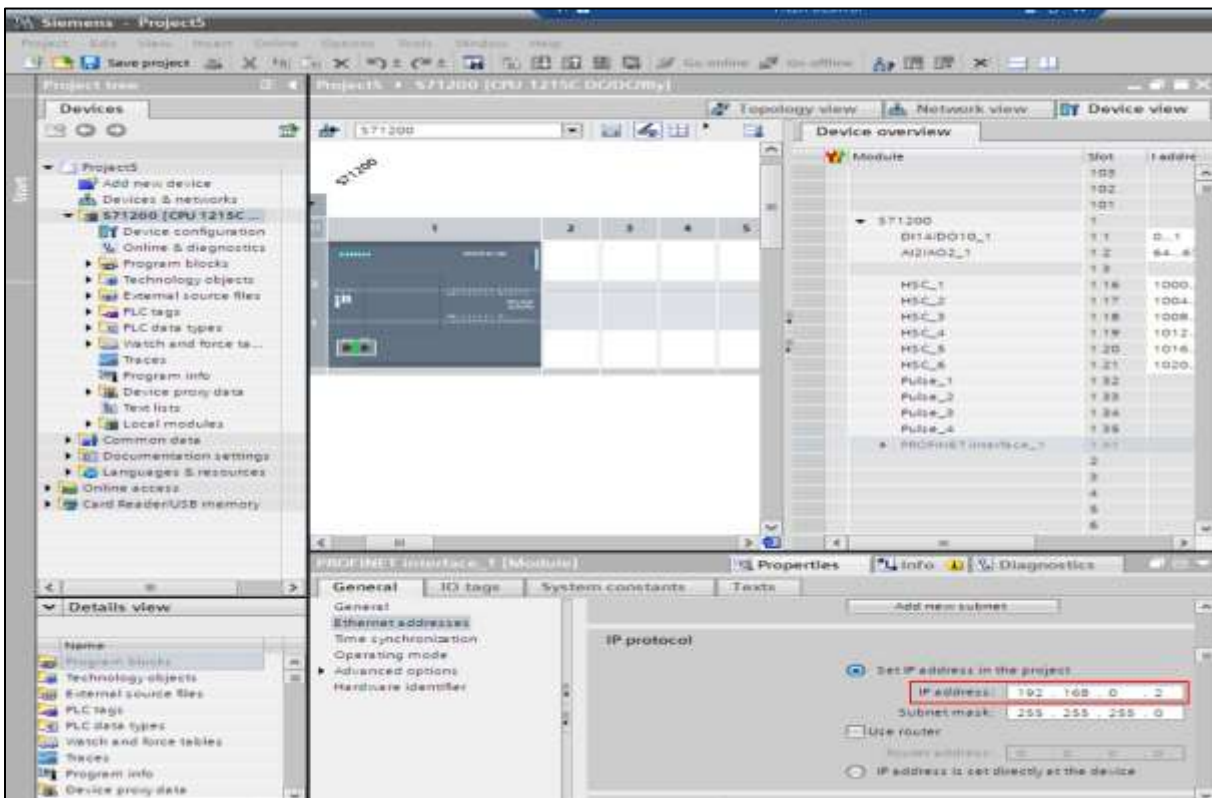

FIG.03 Project Creation Screen

From there you select "Configure a device" and then "Add a new device". Then you will navigate to the particular PLC you are using, in this example we are using SIMATIC S7-1200 (see image below)

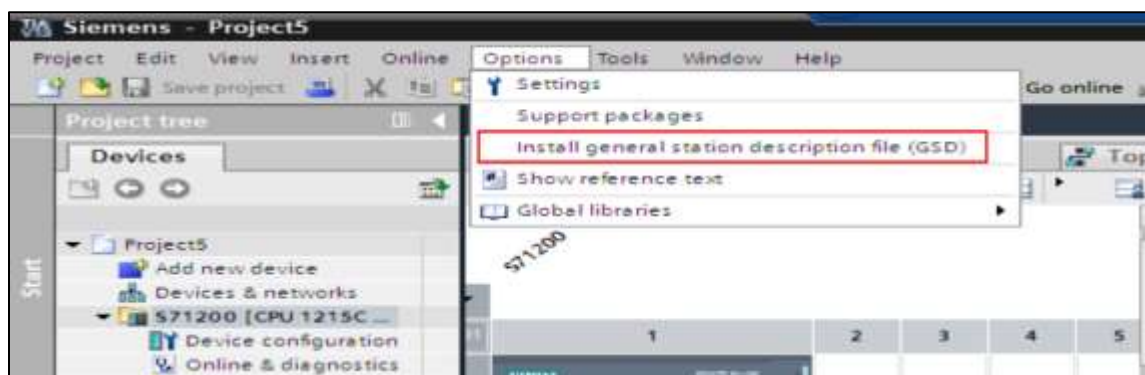*FIG.04* PLC Selection Screen

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Once you have added the PLC and are in the "Device View" of the project, make sure that the IP address under "Ethernet Address" is correct. This will be important moving forward so you can go online with the processor.

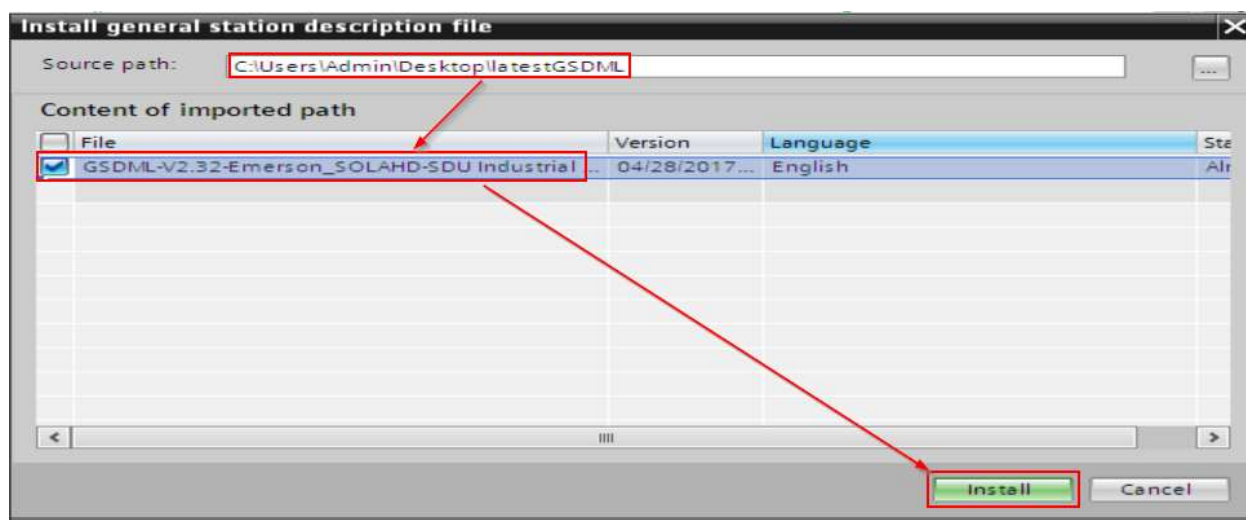*FIG.05* Ethernet Address Lookup

GSDML File

Now that your project is created and you have the ability to go online with the Siemens Processor you will need to add the GSDML file for the SDU to the GSDML repository.

FIG.06 GSDML Installation Menu Access

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In the "Install general station description file" window, navigate to the directory where the GSDML file is and it will automatically find all GSDML files there. Select "GSDML-V2.32-Emerson_SOLAHD-SDU Industrial UPS-20170428.xml" and hit "Install".
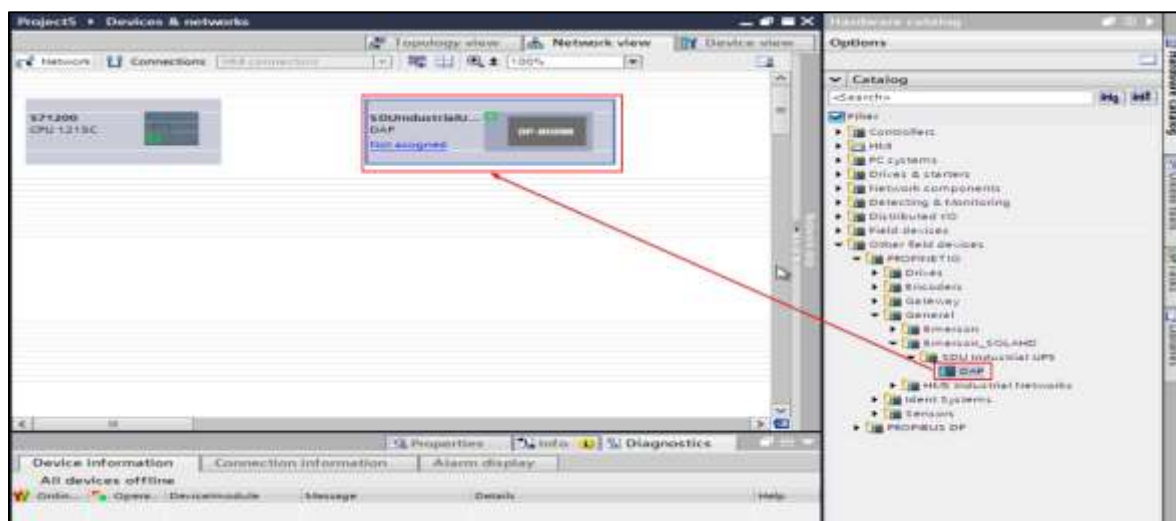

FIG.07 GSDML Installation Menu

Adding the Device to the Network

Once the GSDML file is added to the TiA Portal device Catalog, you can add the device to your network. This is done by dragging and dropping the device from the "Hardware catalog" into the white space in the "Network view". The device will be under;
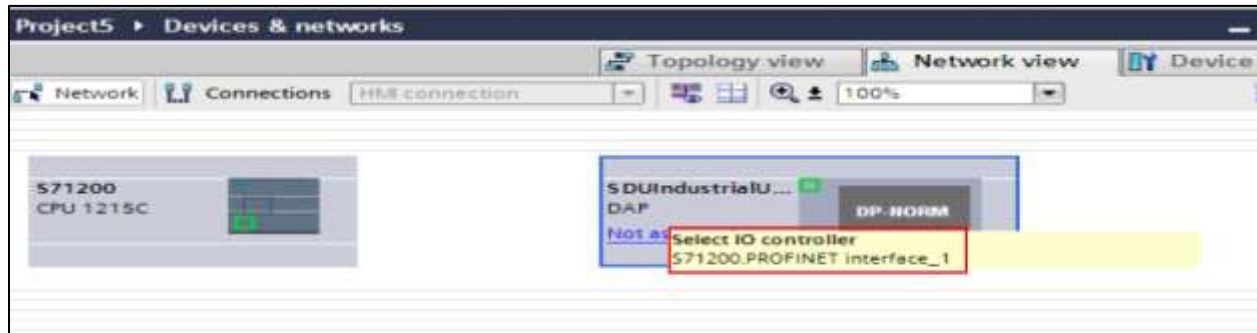
 "Other field devices>PROFINET IO>General>Emerson_SOLAHD>SDU Industrial UPS>DAP"
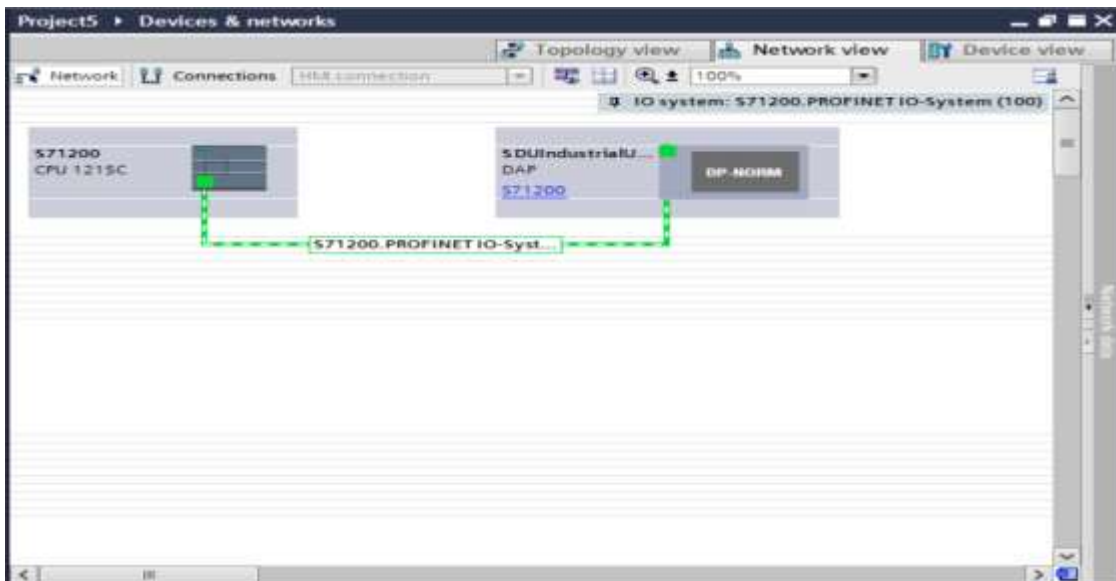

FIG.08 Adding the Device to the Network

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You then need to assign a PLC to connect to this newly added SDUIndustrialUPS, to do this click "Not assigned" and select the PLC.

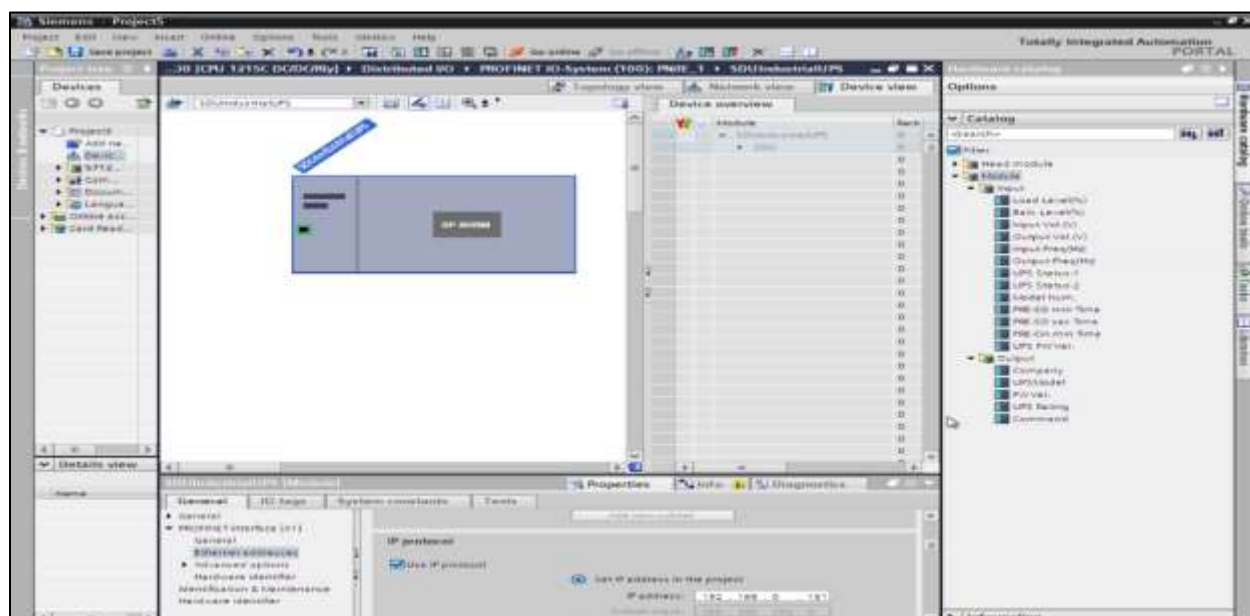***FIG.09*** Assigning Controller to SDU

Your final network should then look similar to FIG.10.
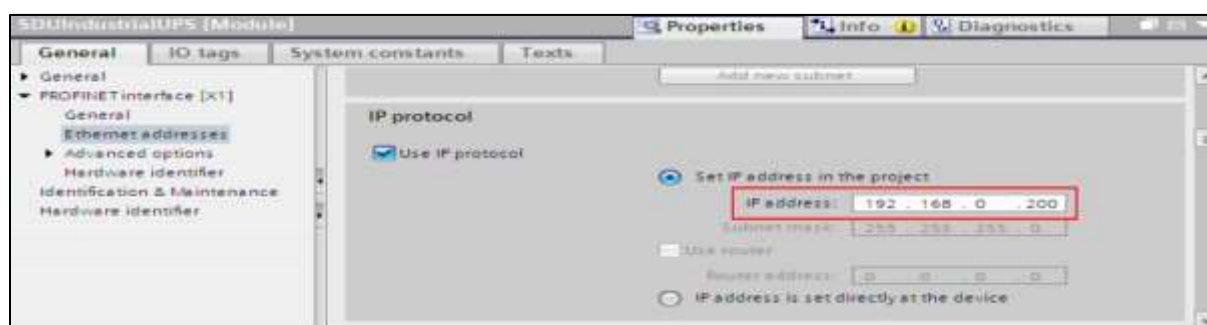

FIG.10 Network View

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Now it will be important to set the SDU up with the right IP address, station name and data points. To do this, select the "SDUIndustrialUPS" and then go to the "Device view". FIG.11 shows what this will look like;

FIG.11 Device View

First, make sure the IP address is correct for your network. This setting is under "Ethernet addresses" in the general properties menu. You can either set this to what you want the IP address of the device to be or what you have already set it to using the Ipconfig tool.
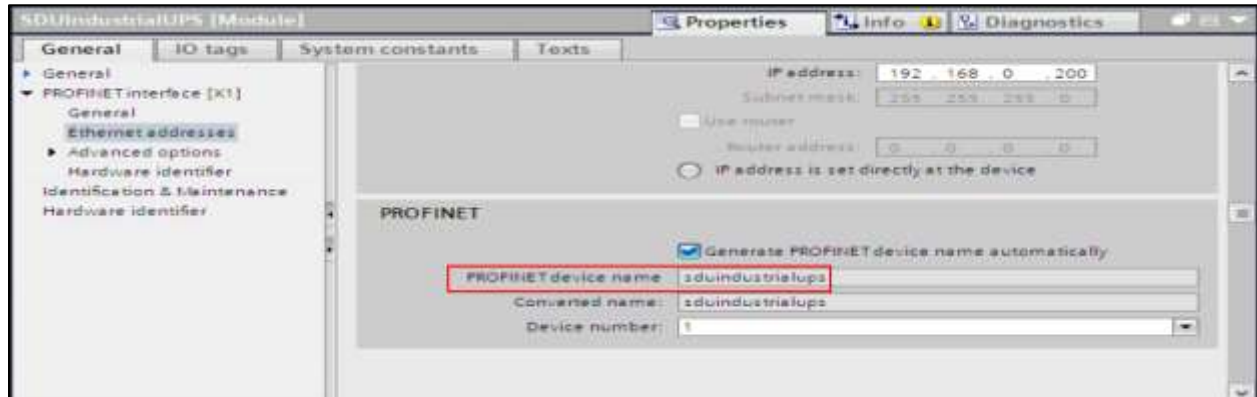

FIG.12 Set IP Address

Next, the "PROFINET device name" should be checked. This is found in the same menu as the IP address, you just need to scroll down. The default will be "sduindustrialups". For this example the default is ok. If there are multiple SDU's on the network or if there is a specific name that is needed this is where it must be changed.
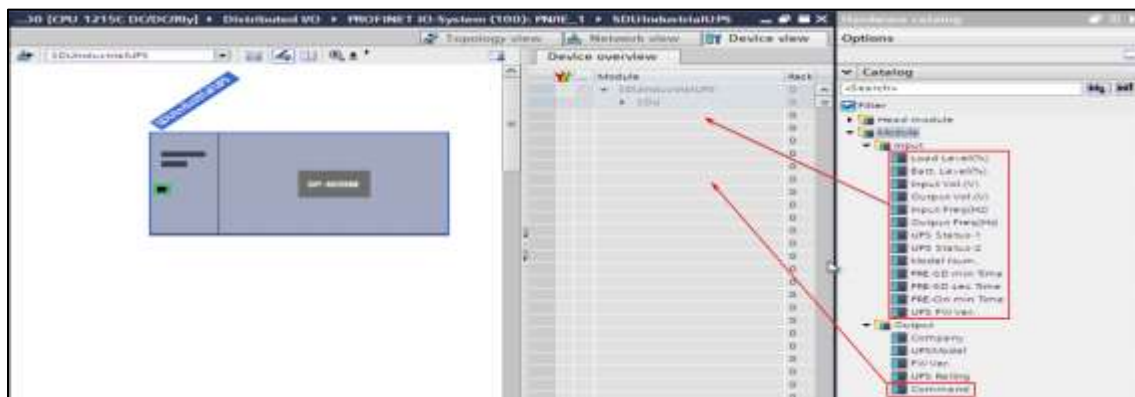
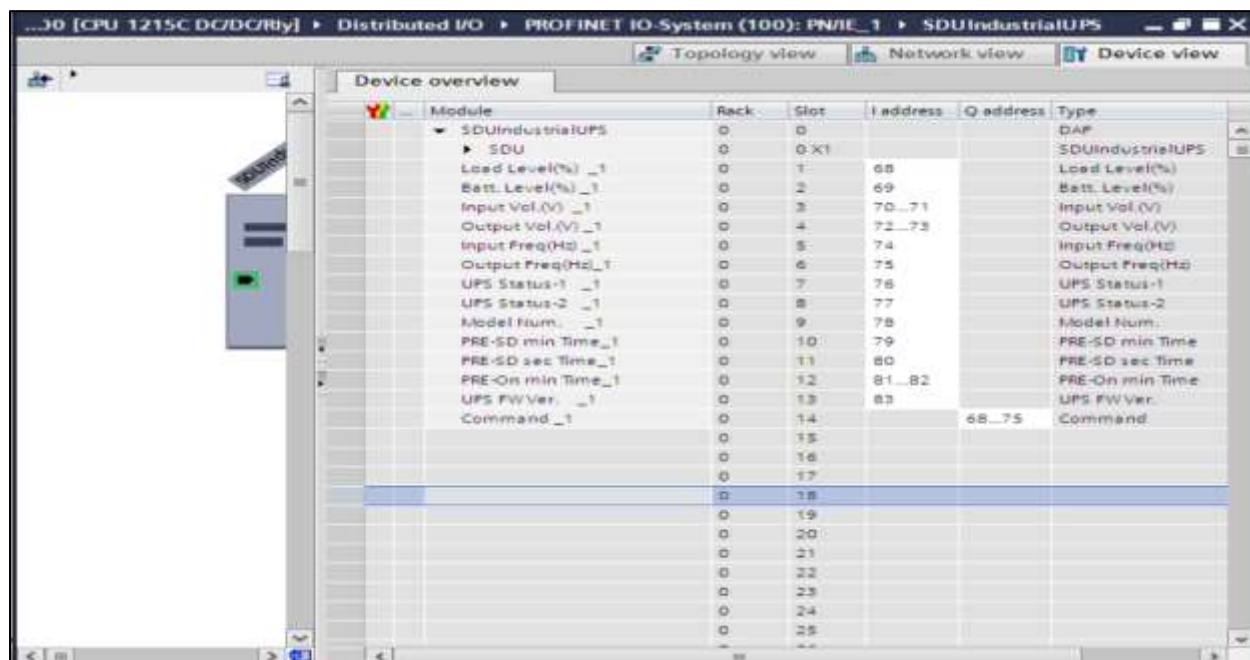# QUICK START GUIDE FOR SDUPNETCARD

FIG.13 Set Device Name

The last step in the "Device view" is to add the data modules that will be used in the PLC code. To do this you will drag and drop the data modules (in the red squares on FIG.14) in the "Hardware catalog" to the "Device overview".

FIG.14 Adding Data Modules

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After the modules have been dragged to the "Device overview", it will look like FIG.15. It is important that they are in the same order as in FIG.15 because PROFINET is particular about data module orientation and size. Also, take note of the "I" and "Q" addresses that are selected automatically from empty space in the process image. These are where the data points will be stored for the PLC program.

FIG.15 Device Overview

The last step is to make sure the actual connected device has the right Device name and IP address. To do this go back to the "Network view" and right click the green PROFINET network link. Select "Assign Device name".
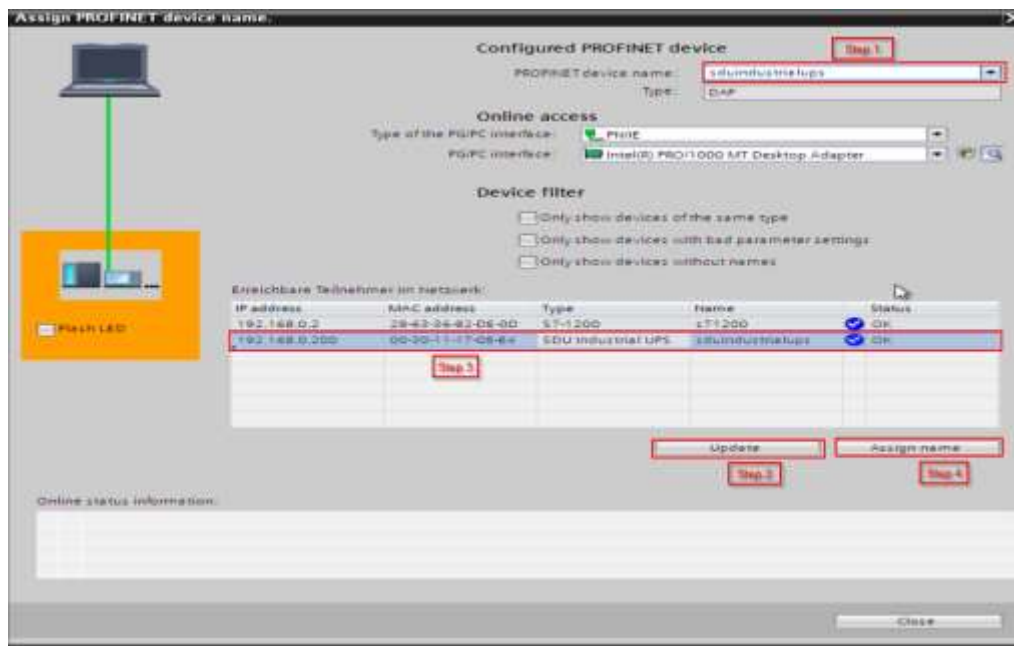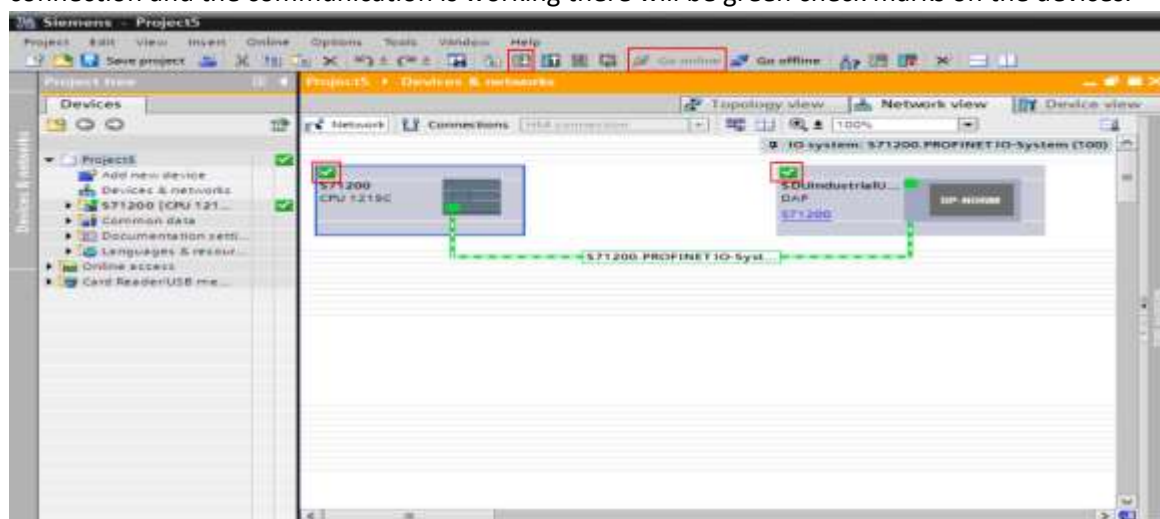

FIG.16 Assign Device Name Option

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In the Assign PROFINET device name menu select sduindustrialups (or whatever device name was set earlier, see FIG13) and hit the "Update" button. If the "Device filter" boxes are not check you will find all devices on the network. Select the "SDU industrial UPS" option (can verify by MAC ID or IP address) and hit "Assign name".

FIG.17 Assign Device Name

It should tell you the action was successful in the "Online status information". After this is complete now you can download your configuration and go online with the PLC and network. To download, there is a button on the toolbar. Follow the prompts to download the project (this could be different based on the specific application and PLC code). After this hit "Go online" on the toolbar. If there is a PROFINET connection and the communication is working there will be green check marks on the devices.
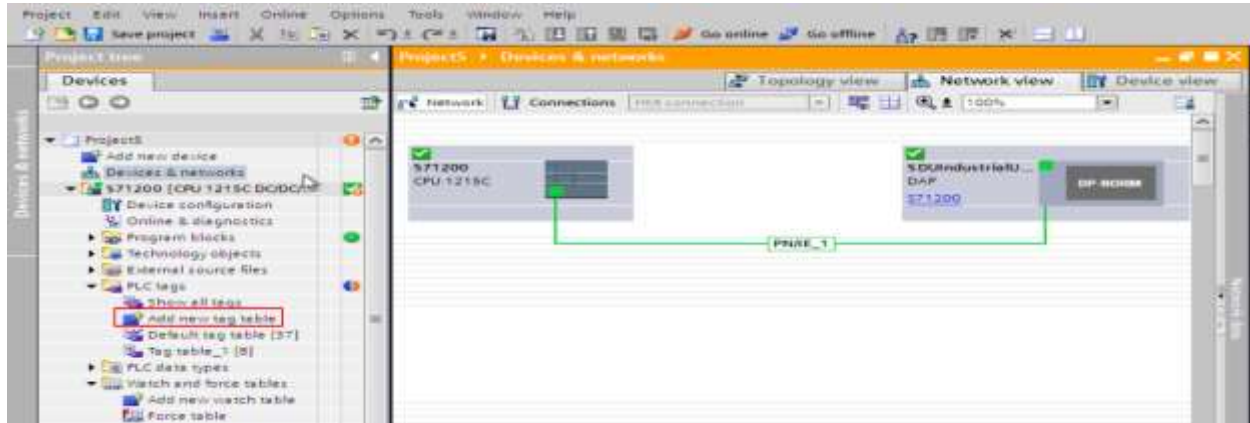

FIG.18 Complete Network
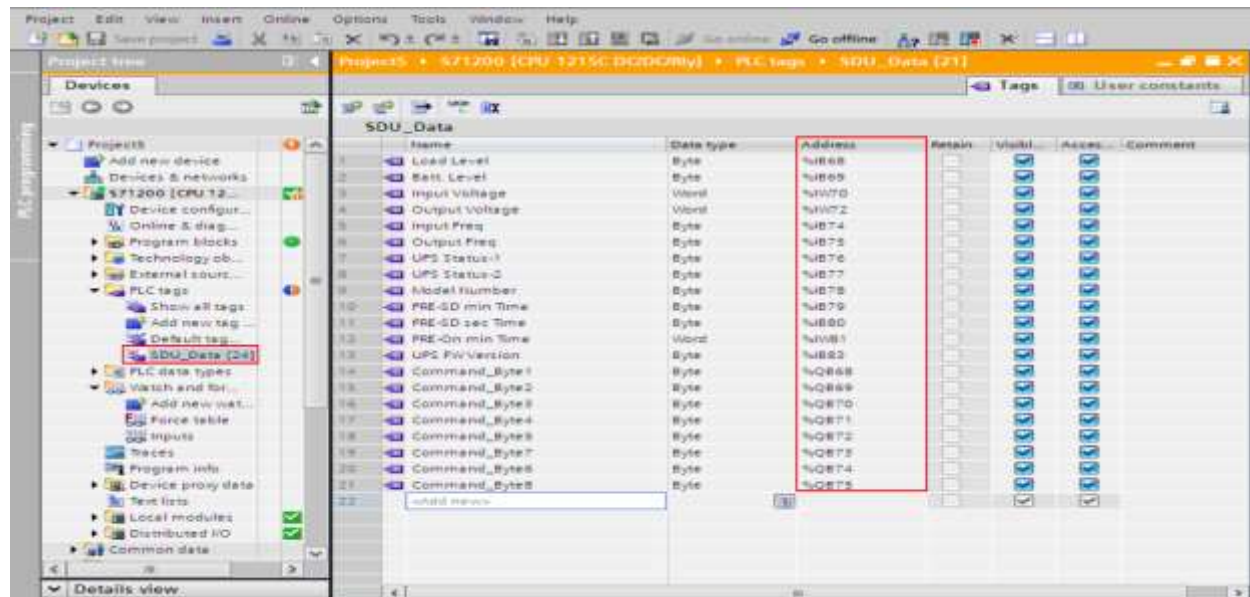
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Checking the Data

You can check the data coming into the module by making PLC tags and then setting up watch and force tables. To begin a Tag table must be created. In the project tree panel, under "PLC tags" there is a button called "Add new tag table".

FIG.19 New Tag Table

Once you double click this it will create a Tag table below it. You can feel free to rename it to reflect that it will be the SDU data. When you click on the tag table you created you can now create the tags that will pull data from the data modules you added earlier (FIG.14). Go through and name the tags and make sure that they have the right "I" and "Q" addresses. "I" addresses are the input data (Status-1 and Status-2), and "Q" addresses are the output data (Command).
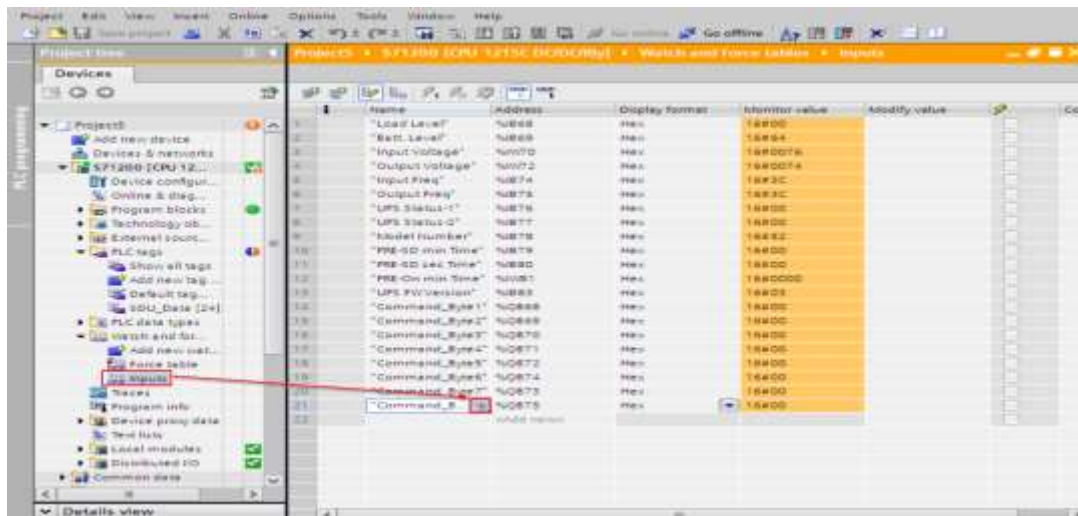

FIG.20 Tag Table

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The "I" and "Q" address are found in the Device view from FIG.14. The "B" after the "I" or "Q" is saying that you want that tag to be an 8-bit byte. As an example %IB68 means that you want the tag Status1_Byte1 to be linked to byte 68 from the process data image (that you set up earlier).
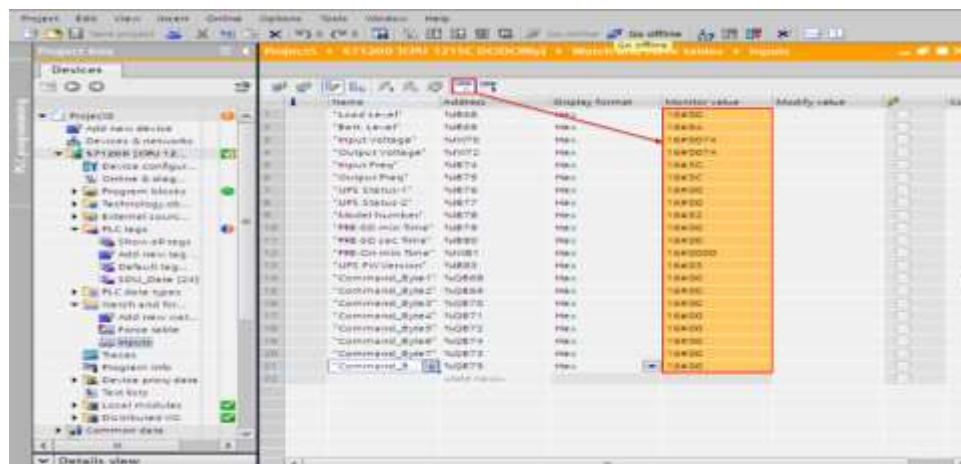
It may make more sense in your application to use a word or double word instead, for this example bytes are used.

Once your tag table is set up, go down to the "Watch and force tables" section and create a watch table. A watch table is where you will view the input data. To make a new watch table hit the "Add a new watch table" and rename it whatever makes sense. In the watch table you created you can go through and select the tag you want to watch.
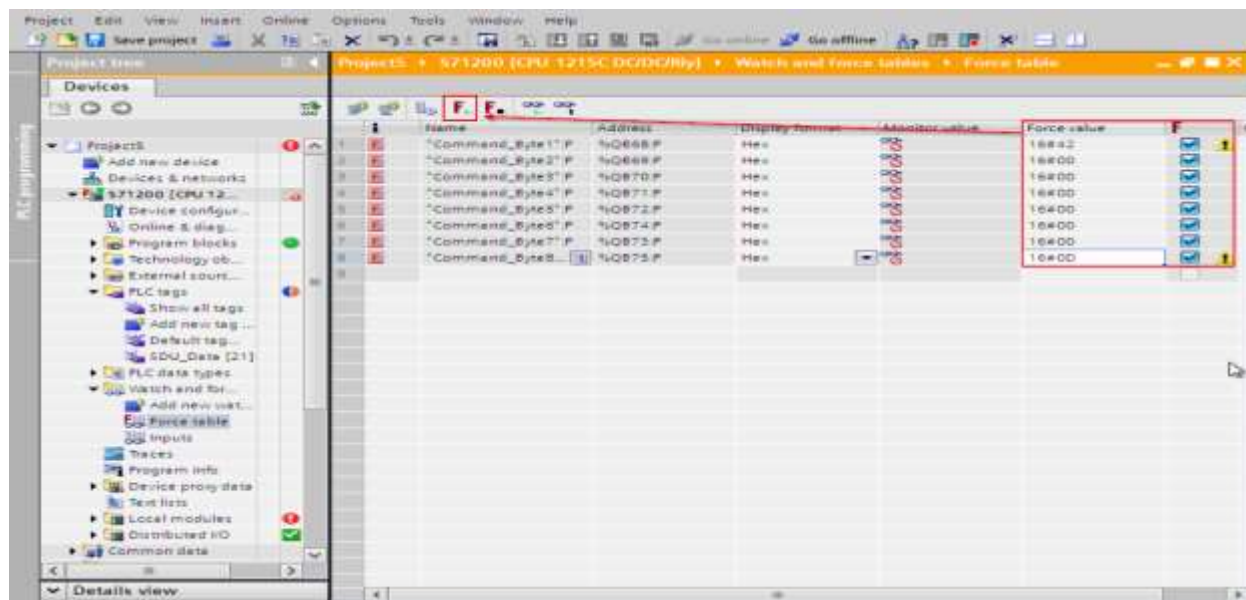

FIG.21 Watch Table

Once they are added you can hit the "Monitor all" and the data will appear in the "Monitor value" column.

FIG.22 Watch Table Values

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The procedure for setting output values using the force table is very similar. The Force table is already created for you, click it and add the command bytes. Once this is done you can change the values in the "Force value" column and hit the "Force all" button to send the command. FIG.23 below shows what the Force table will look like for enabling the SDU alarm.

FIG.23 Force Table Values

END

SOLaHD

January 2018

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