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### Point Level PROFIBUS PA Instruments and Step 7

Configuring a Siemens Point Level PROFIBUS PA Instrument in a S7-300 or S7-400 PLC

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**Objective:** • Become familiar with the steps required to configure a point level instrument in Step 7

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**Equipment:**

- Siemens Point Level PROFIBUS PA instrument
- *.gsd*file
- SIMATIC STEP 7 ver. 5.2 (SP. 1)
- MPI/Profibus interface to S7 PLC
- Terminal screwdriver
- PC or Laptop

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While every effort was made to verify the following information, no warranty of accuracy or usability is expressed or implied.

#### Overview:

SIMATIC STEP 7 is the Siemens programming software used to setup a S7-300 or S7-400 PLC.

This Application Guide discusses the following

- Running Hardware Config. to set up a network
- When and how to import a *.gsd*file
- Setting the Different Siemens instruments on the bus
- Viewing cyclic data via STEP 7

Please note that the Pointek CLS 200 is used for illustration purposes. The process is similar for all Siemens Point Level instruments.

#### Siemens Milltronics Process Instruments Inc.

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K9J 7B1 / Canada

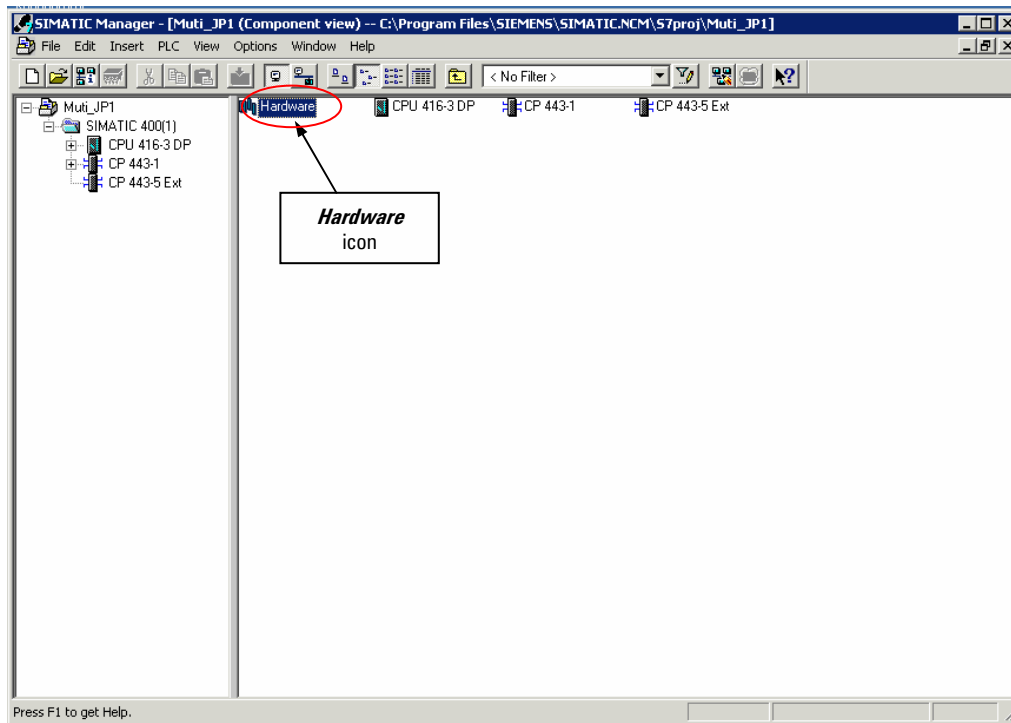
Tel.: (705) 745-2431  
Fax: (705) 741-0466  
[www.siemens.com/processautomation](http://www.siemens.com/processautomation)

## Required Steps

### Step 1 – Run Hardware Config

Hardware Config is the part of STEP 7 and PCS 7 used for configuring the network. To operate it, first run SIMATIC Manager and then open a project.

1. Using the left side of the screen, navigate to a position similar to the screen shot below:



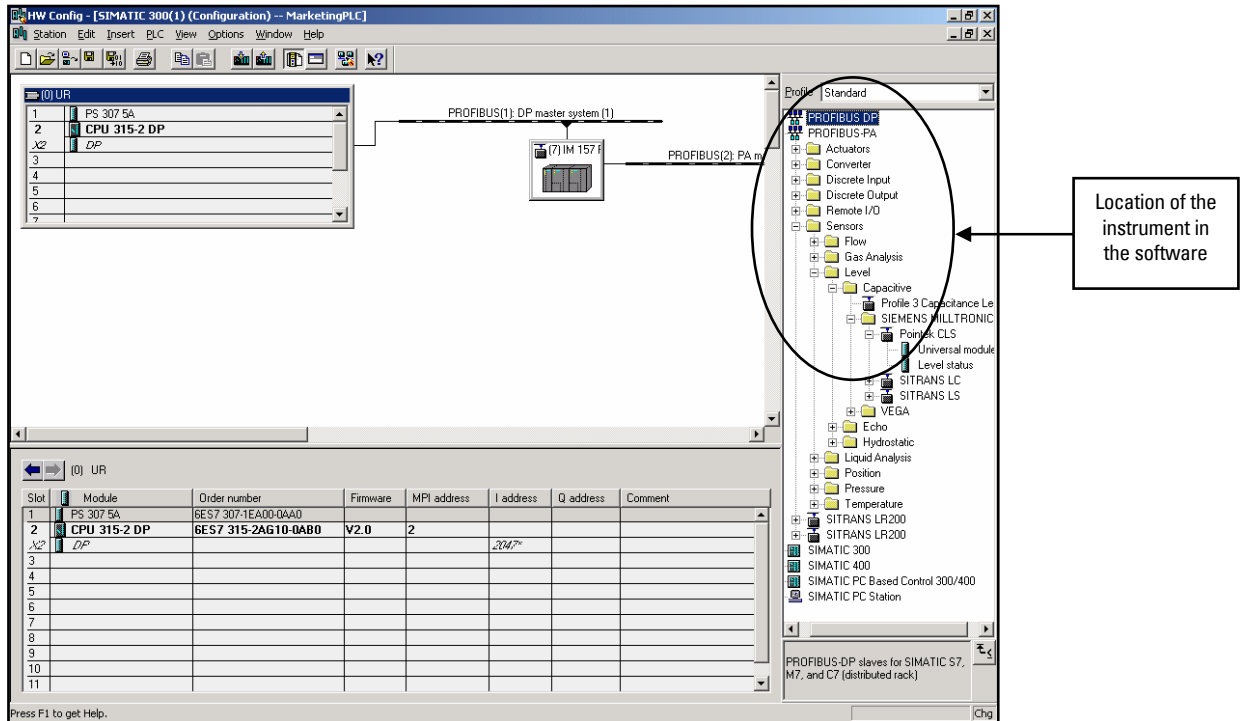
2. Double-click the **Hardware** icon on the right side of the screen.

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## Step 2a – Check the Hardware Catalog for the instrument

1. From within Hardware Config., click the **Hardware catalog** icon to find the Instrument.

**NOTE:** The Pointek CLS 200 is called a Pointek CLS in the software. If it is part of the software, it is located in **/PROFIBUS-PA/Sensors/Level/Capacitive/Siemens Milltronics/Pointek CLS**. If so, go to **Step 3**, otherwise go to **Step 2b** to import the .gsd file into STEP 7.



## Step 2b – Import the .gsd file into STEP 7 (two options)

**Option One (recommended):** Use a program called **DeviceInstall** to update the Device Descriptor for SIMATIC PDM and install the .gsd file into STEP 7.

**NOTE:** The latest device description for Simatic PDM is available for free download on [www.siemens.com/processautomation](http://www.siemens.com/processautomation).

1. Close down SIMATIC Manager.
2. Go to **Downloads** on the instruments product page and select the current version of the **PROFIBUS Device Description for SIMATIC PDM**.
3. Save the ZIP file to a directory on your terminal, right-click the **ZIP** icon, and then extract the files to the directory.
4. Double-click and run **DeviceInstall.exe**. Do not run this program from within the ZIP window because it will not install correctly.
5. Follow the directions in the installation wizard. Close and delete ZIP file after installation.
6. Open SIMATIC STEP 7

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**Option Two:** Install the *.gsd* files using the *Options/Install New GSD...* from the HW Config of STEP 7.

1. Download the *.gsd* file from the CLS 200 product page at [www.siemens.com/processautomation](http://www.siemens.com/processautomation).

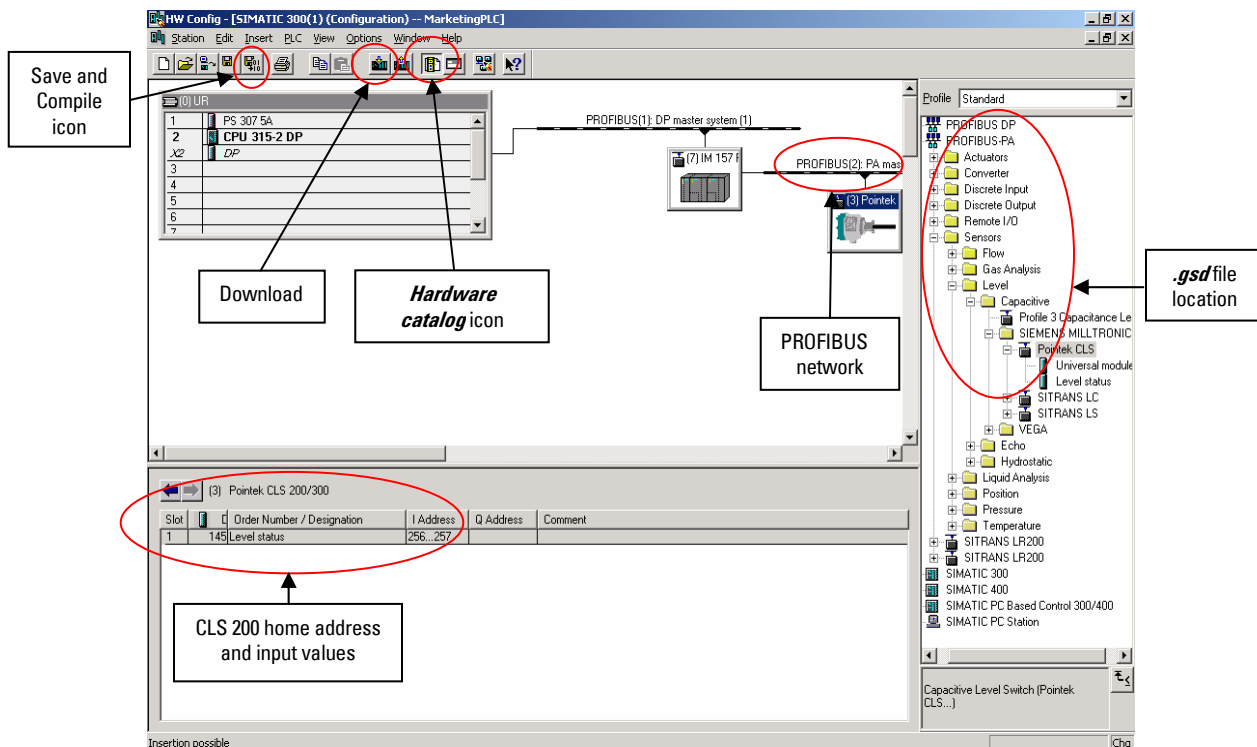
**NOTE:** When the *.gsd* file is input, it will not be placed in the correct directory in the Hardware catalog. Rather, it is placed in */PROFIBUS-PA* and not in *PROFIBUS-PA/Sensors/Level/Capacitive/Siemens Milltronics/*.

### Step 3 – Add the CLS to the network

1. Open the Hardware catalog by clicking on the fourth icon from the right (use the mouse-over to verify).
2. The *.gsd* file for the instrument will be located in */PROFIBUS-PA/Sensors/Level/Capacitive/Siemens Milltronics/*.
3. Highlight the PROFIBUS network that you want to add the instrument to (in the case below, it is the PROFIBUS (2) PA).
4. Highlight instrument and drag it to the PROFIBUS network.

### NOTES:

- At this point, the address of the instrument on the PROFIBUS network is necessary. In the example below, a CLS 200 is placed at **Address 3** and the input at **I256** and **I257** (see below).
- When Pointek CLS rack is added, the module is added automatically. The output is 1 byte output plus 1 byte of status.



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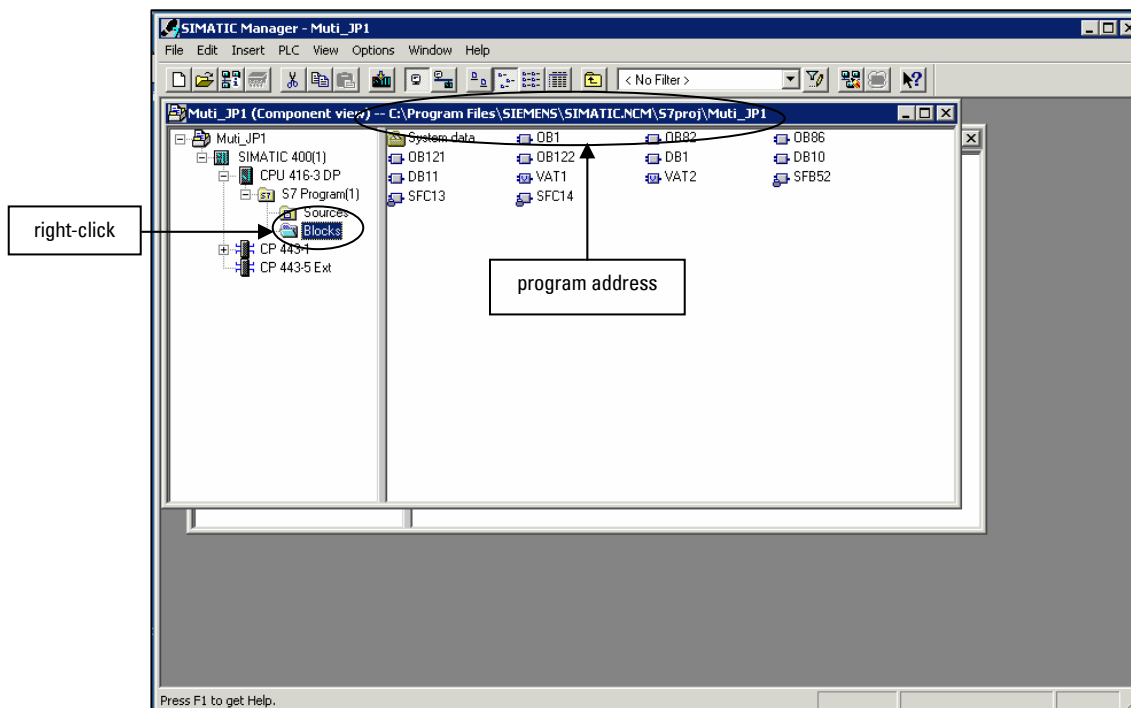
## Step 4 – Download the new configuration

1. Click on the **Save and Compile** icon.
2. Click the **Download** icon to save the new configuration to the PLC. To do this, place the PLC in stop mode.
3. After the download is complete, do not place the PLC in **RUN** mode.
4. First connect instrument to the network, power it up, and verify that the network address is set correctly.
5. Place the PLC in **RUN** mode.

## Step 5 – Reading the data

### Option One: Program the PLC to read the data consistently using SFC14 and view the data

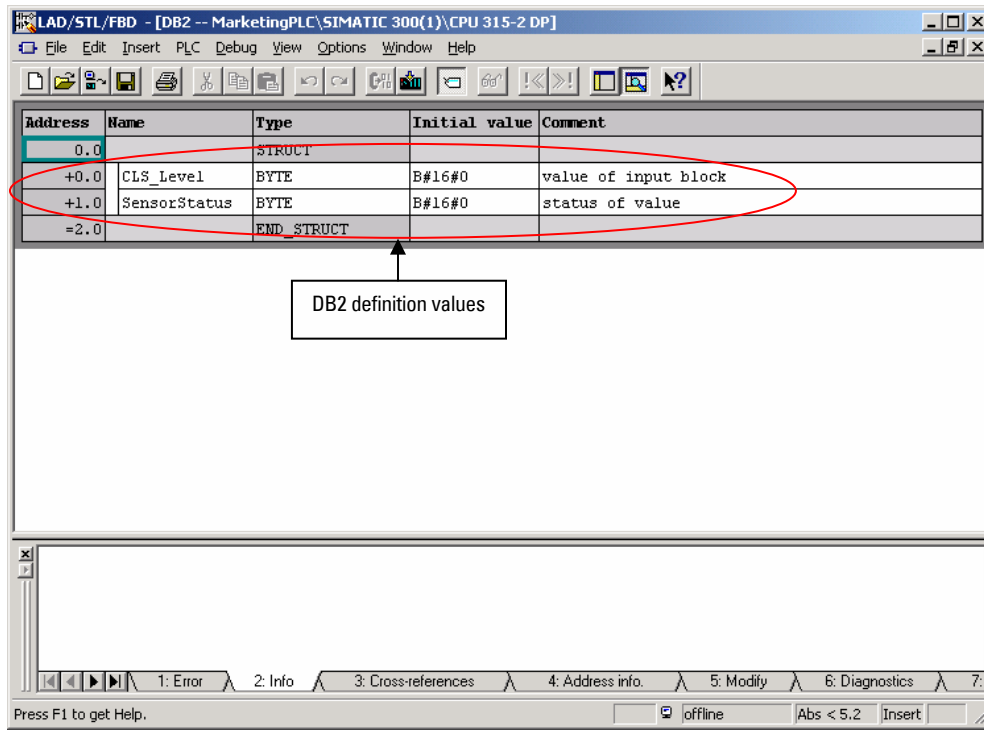
1. From SIMATIC Manager, navigate to the program section of the CPU .



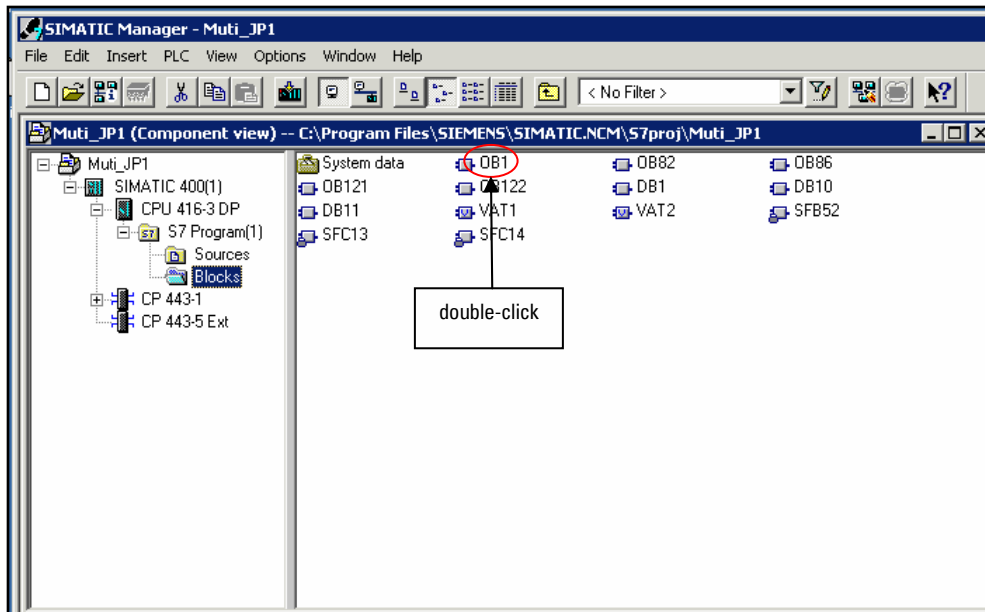
2. Right-click **Blocks**, add DB2, and then define it as follows:

Location 0.0	CLS_Level	Byte
Location 1.0	SensorStatus	Byte

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3. Double-click on OB1



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4. Add **SFC14** to read the data. The program will look like this:

```
CALL "DPRD_DAT"  
  LADDR:=W#16#100           This is the address of the CLS 200 in hex (input 256=100hex)  
  RET_VAL:= MW200          This is status location for the function block  
  RECORD:=P#DB2.DBX0.0 BYTE 2  
NOP 0
```

5. Save and compile the code, and then save it to the PLC.
6. From SIMATIC Manager, navigate to the program section of the CPU.
7. Right click **Blocks** and select **/Insert new object/VAT table**.
8. View the **level** at address DB2.DBB 0 as a HEX number.
9. View the **status** at address DB2.DBB 1 as a HEX number.
10. Click the **Glasses** icon to view the incoming data.

## ***Option 2: View the data directly from the VAT table:***

1. From SIMATIC Manager, navigate to the program section of the CPU.
2. Right click on **Blocks** and select **/Insert new object/VAT table**.
3. View the **level** at address PIB 256 as a HEX number.
4. View the **status** at address PIB 257 as a HEX number.
5. Click the **Glasses** icon to view the incoming data.