Application Note

Setup Modbus RTU and TCP/IP Communication Protocols in AC500 PLC Using Automation Builder Software

1 Description

This application note will take you through the configuration of AC500 eCo CPU's Modbus RTU and TCP/IP protocols in Automation Builder software tool.

2 Setup the Ethernet communication in Windows:

Before you are able to download the compiled program the first time from the PC to the PLC, you have to setup the communication parameter. There are two options you can use to login to the PLC, either with Ethernet or serial with TK503 USB cable.

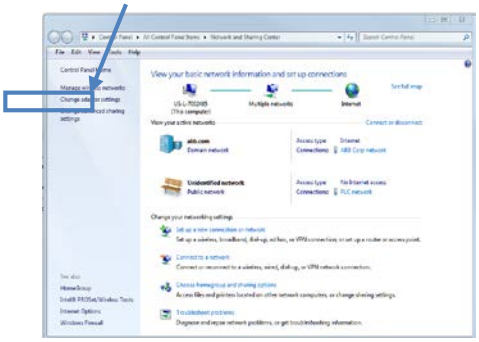
Make sure that your PC address is in the same class as the CPU's IP address. The factory setting of the CPU for IP address is **192.168.0.10.** Then the IP of the PC should be **192.168.0.x**, **x** should be different number than **10** so that it will not have an IP conflict with the CPU. Subnet mask should be **255.255.255.0.**

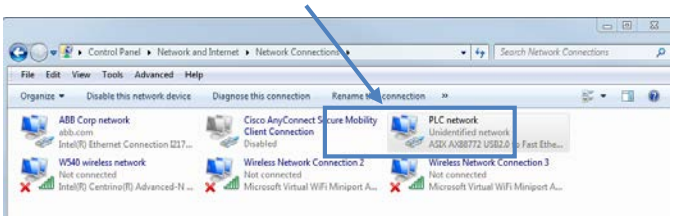
To change the IP address in your PC:

2.1 **Windows Control Panel** > **Network and Internet** > **Network and Sharing Center**

2.2 Click on **Change adapter settings**

2.3 Select **Local Area Connection** (in this example is **PLC network** connection below) and right click it to open the menu.

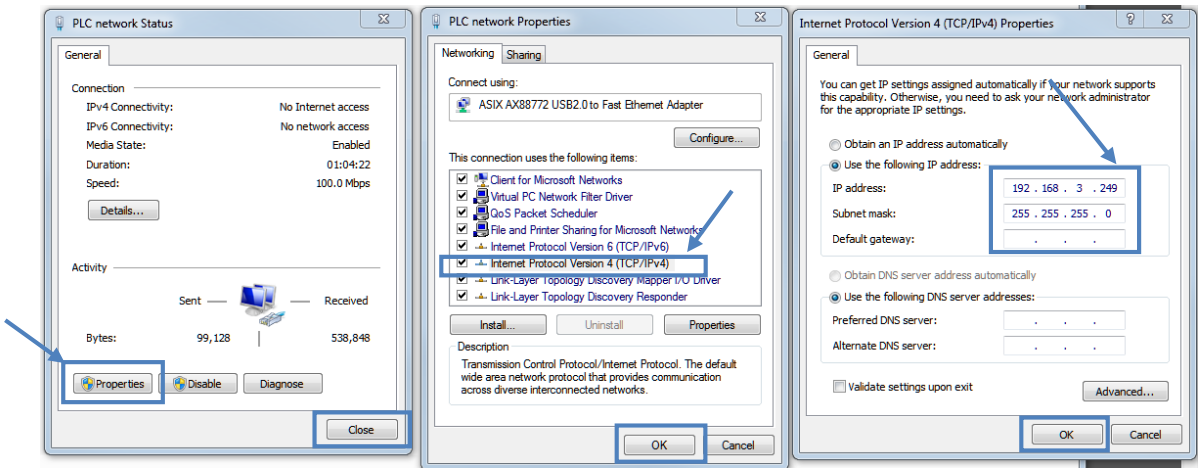




Choose **Properties** (the status is active when the Ethernet connection between PC and PLC is active)

2.4 Select **Internet Protocol Version 4 (TCP/IPv4)** and double click to see properties.

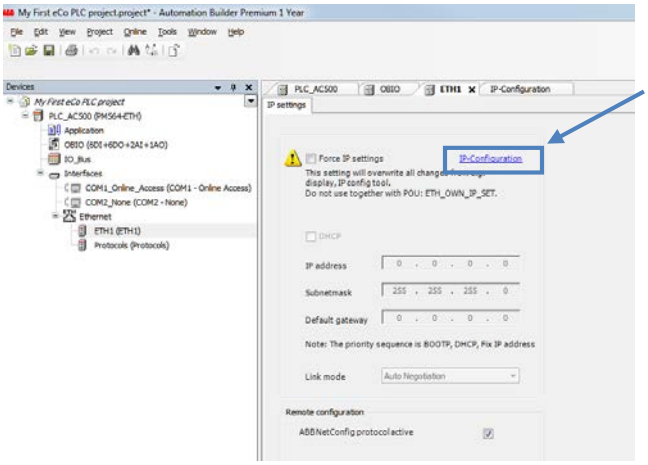
2.5 Type in your desired IP address and subnet mask then click OK.



3 Setup the IP address in Automation Builder software:

3.1 Make sure the CPU's RUN switch is **STOP** position

3.2 Click **IP-Configuration** to access Scan tool

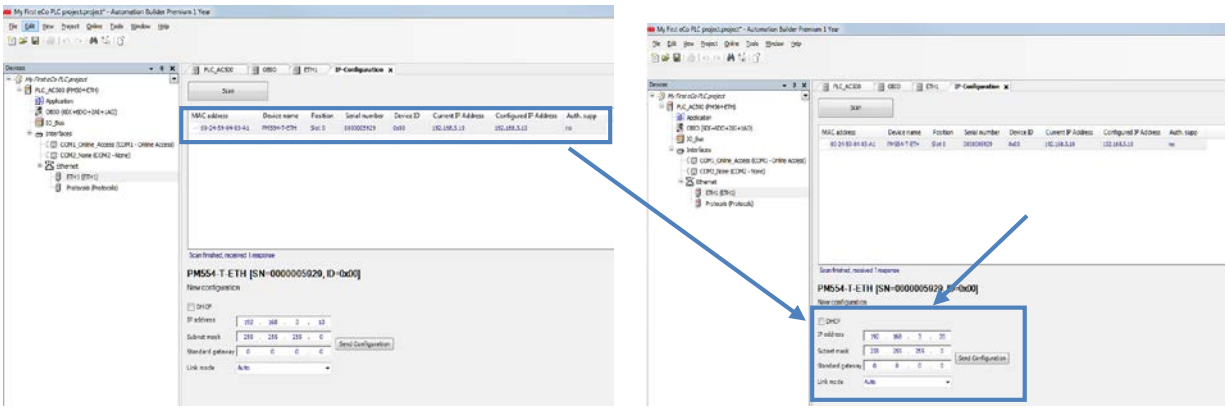


3.3 Click on Scan button for searching active PLC on the network

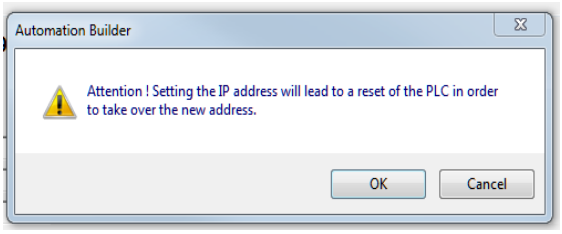
3.4 Highlight the active IP address in the search window

3.5 Change the IP address to new IP address such as **192.168.3.20**

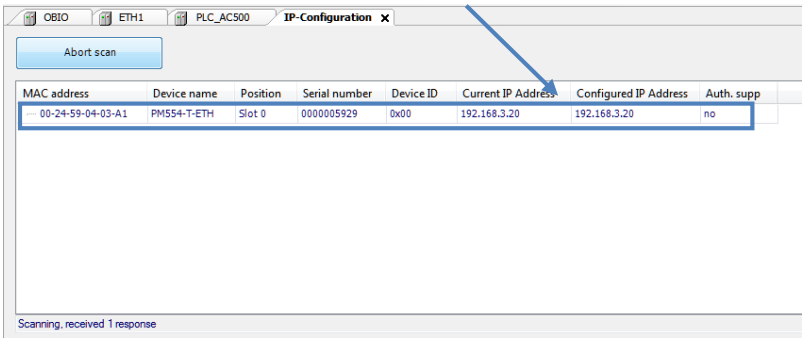
3.6 Click on Send Configuration button to send new IP address to PLC.



- The warning message window display is shown below for this change.
- This screen shows the progress of IP address settings is sending to CPU. Wait about 30 seconds for CPU to register new IP address (the RUN and ERR lights are flashing during this process).
- Click OK to accept this new IP address for this CPU.



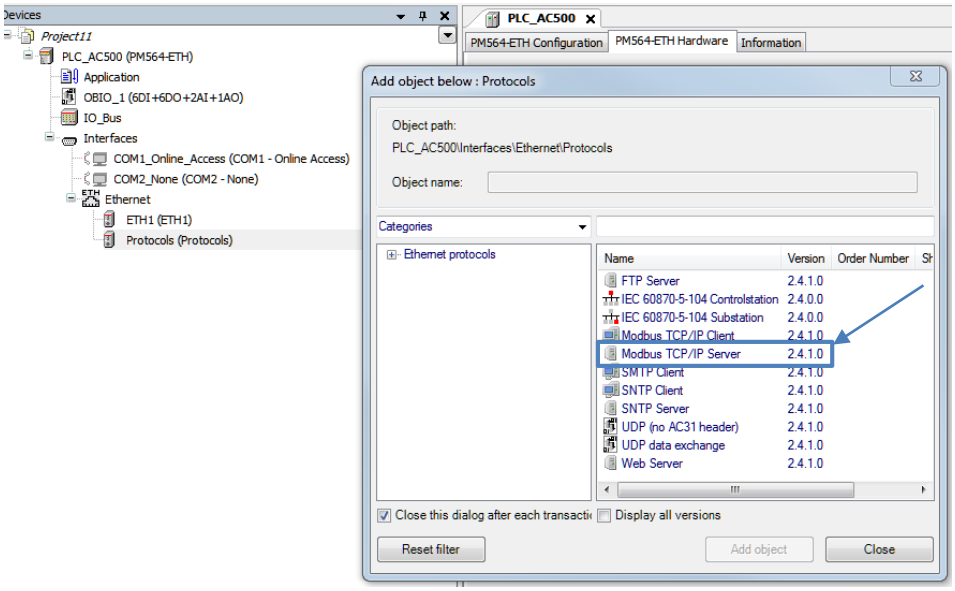
- Press "**Scan**" button again to verify the IP address of CPU. This window shows the Configured IP address sent to CPU successfully. This IP address will be used in IEC 61131-3 CoDeSys to download your PLC project to CPU.



3.7 Click **File > Save Project** to save the configuration settings for this lab.
3.8 Right on **Application** > **Create Configuration data** to save the settings before go to CoDeSys window.

4 Modbus TCP/IP Configuration:

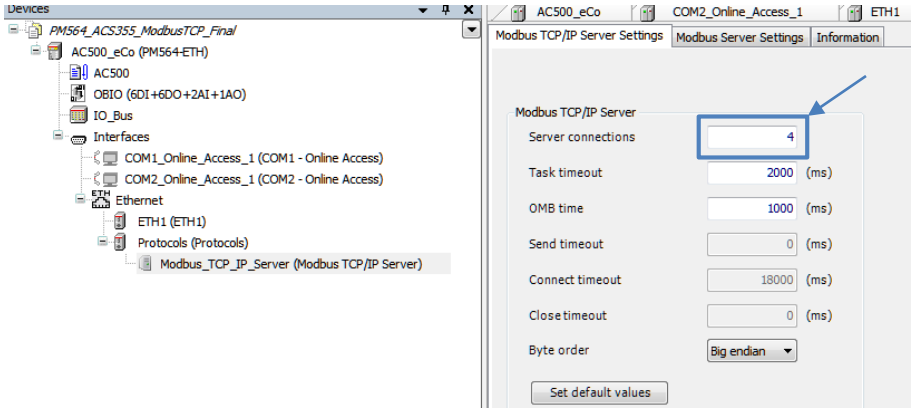
4.1 Right click on **Protocols** > **Add object** to access Protocols menu
4.2 Select Modbus TCP/IP Server for this connection



4.3 Set Server connections = 4 (Max. 12 connections for this eCo PM64 ETH CPU)
The task timeout = 2000ms and OMB time = 1000ms are default values.

Note: Server Connections are for Maximum number of logical parallel connections, that are kept for connection requests by clients in operation mode as server.

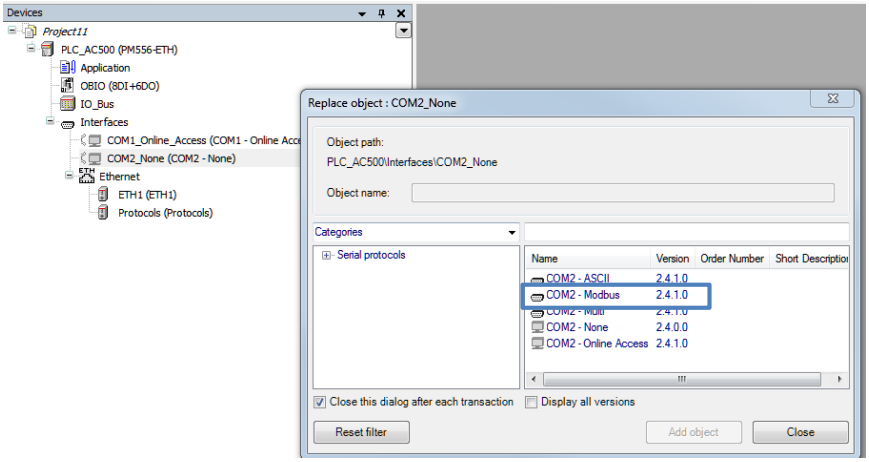
4.4 Click File > Save for Modbus TCP/IP configuration parameters.



5 Modbus RTU Configuration:

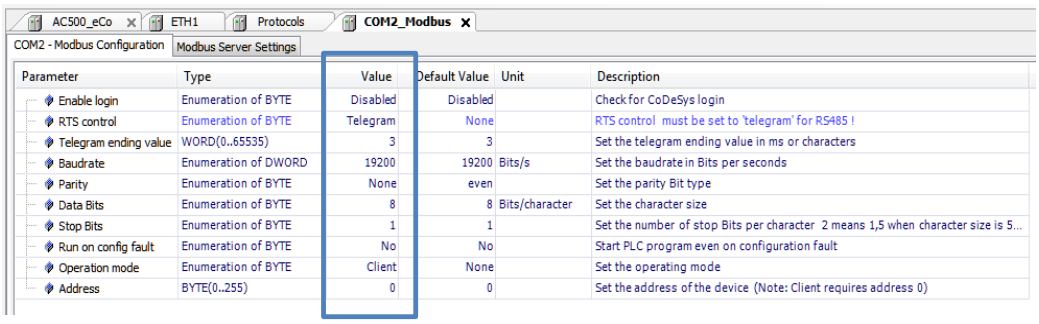
5.1 Right click on **COM2_None> Add Object**

5.2 Select **COM2-Modbus** then click **Replace object** to accept the changes.



5.3 Set the configuration as shown below

- Operation mode = Client
- Address = 0 or any number from 0 to 31for this eCo CPU



5.4 **Click File > Save Project** to save the configuration settings for this setup.