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User Manual for SC10EK2 485 485 Two Port Serial to Ethernet Converter. Version 1 : Dt 6th Jan 2015.

Index

SC10EK2 485 is Two Port Serial to Ethernet Converter.
It is an Interface Converter between Ethernet and RS232 / RS485 / RS422 devices.

TECHNICAL SPECIFICATIONS

Communication Interfaces	
Ethernet Interface	10 / 100 Base Mbps (Auto Detecting)
Serial Interface	2 Ports Port1 is RS485 /RS422 Port2 is RS232/RS 485 / RS 422
Baud Rates	300 bps to 115.2 Kbps
Network Protocols	ARP, UDP, TCP, IP, ICMP, HTTP, DHCP
Operation Mode	TCP Server/Client, UDP Client
Configuration	Through a Utility on a PC and through HTTP
Mechanical : Connectors	
RS485/RS422	3 Pin Howder
RS232/RS485/RS422	7 Pin Howder
Ethernet	RJ45
Dimensions	90 * 70 * 30 mm (W * D * H)
Power Supply	
External Power Supply	9 to 24V DC, 300mA @12V DC
Mounting	Din rail
Environmental	
Operating Temperature	0°C to 50°C

Table – 1

INSTALLATION PROCEDURE

⇒ Power ON the device.
⇒ The "SYS" LED (Green) will glow and flash.
⇒ Insert RJ45 jack into the RJ45 socket of the converter.
⇒ LAN LED on RJ45, Right for Lan Link & Left LAN communication
⇒ When you finish these procedures and LED displays are as shown, the hardware is properly installed and On-line. You can use the Setup Tool **SC10 Config V1.30** to setup the IP Address, Subnet Mask and MAC Address. For the advance setup please use the IE or other Browsers. Refer to the section below for details.

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LED INDICATIONS

SYS "Green LED"	: CPU health. Flashes once a second.
Port 1 "Red LED"	: While Port 1 is connected transmitting / receiving any signal from network the LED will blink.
Port 2 "Green LED"	: While Port 2 is connected transmitting / receiving any signal from network the LED will blink.
DI/DO	: While transmitting / receiving any signal from DI/DO.

RESET BUTTON (left side on box)

Press the Reset button. Turn ON the power and wait for 3 seconds. Converter will reset to factory default.

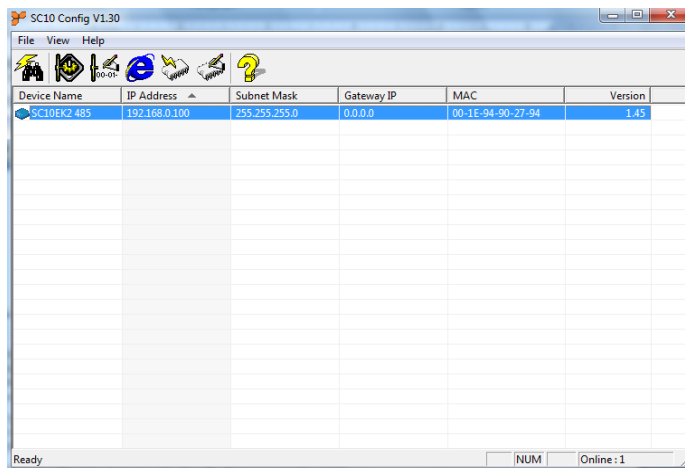## CONFIGURATION OF SC10EK2 485 USING TOOL SC10EK2 485 CONFIG.EXE
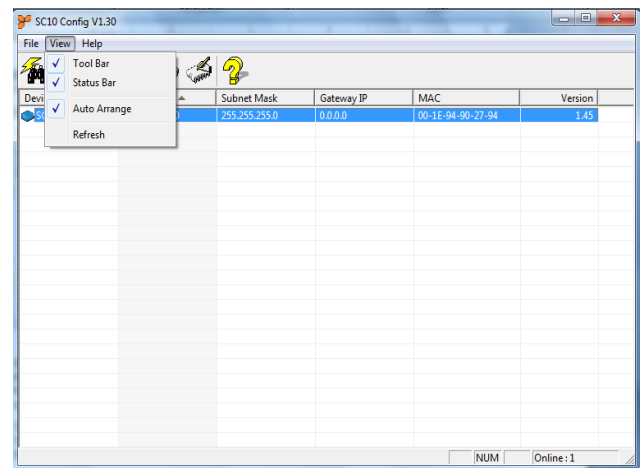

Figure 1

Figure 2

SC10 Config V1.30 Config Setup Tool is used to detect and setup the SC10EK2 485 on the Network as shown in figure 1. Run the program from SC10EK2 485 folder provided in the CD. When you activate the tool it will detect the installed SC10EK2 485 as shown in the Figure 2. The SC10 Config V1.30 Tool can setup only one SC10EK2 485 at a time. Please shut down or off-line other SC10EK2 485 converters.

The Default IP address is 192.168.0.100
View -- Refresh (Figure 2).
File--- Exit

Note: Configuration happens only when the device password is empty.

SC10EK2 485 CONFIG.EXE SETUP TOOL FUNCTIONS

Right click on the device selected & select "Modify IP" to change the IP address as shown in Figure 3

Similarly repeat for Config, Gateway IP address and MAC Address setup. When done it will show the confirming message as shown in figure 4.

Press CONFIRM to save changes.

Remark: Always run the View -- Refresh after any changes for confirmation as shown in Figure 2
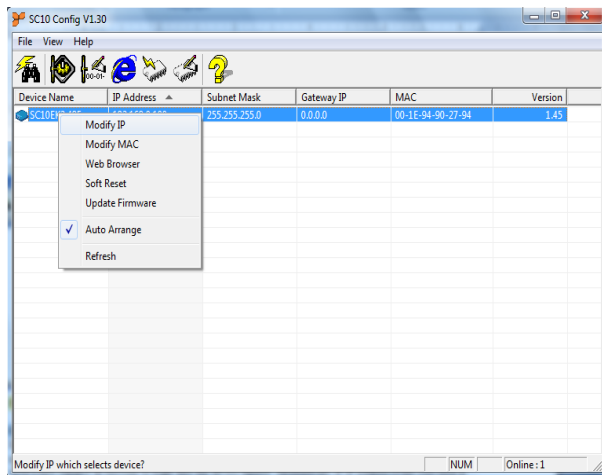
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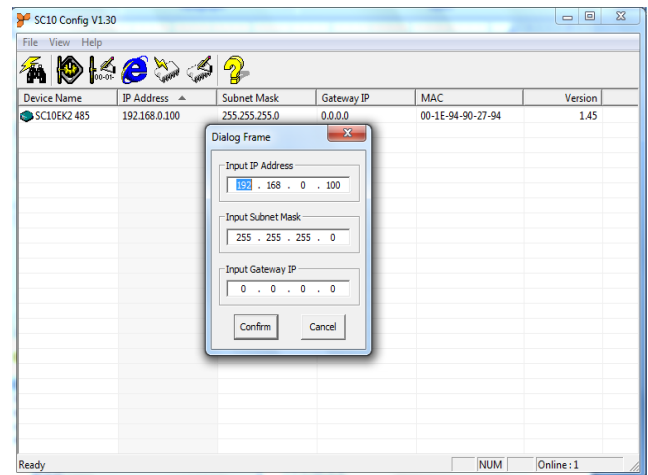

Figure 3

Figure 4

CONFIGURATION THROUGH HTTP (IE OR OTHER BROWSERS)

In addition of IP address and Subnet mask, specific device settings can be set through HTTP protocol. No special software will be required. By right click on device detected & click on "Web Browser" figure5, will open a new window in browser to login into the device figure6. Alternatively, if IP address of the converter is already known, you can connect to the converter directly by providing IP address in the URL field of browser.
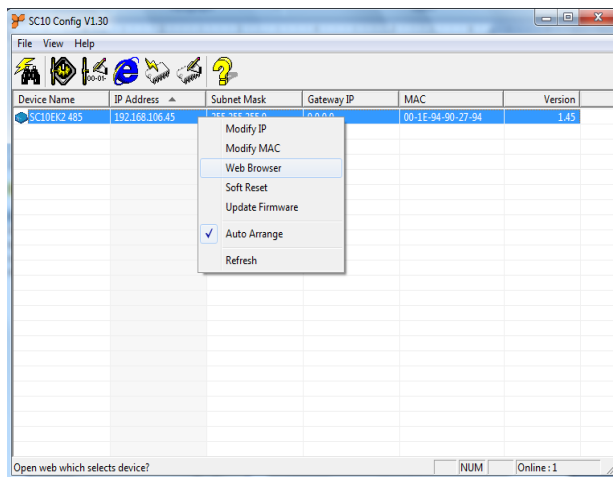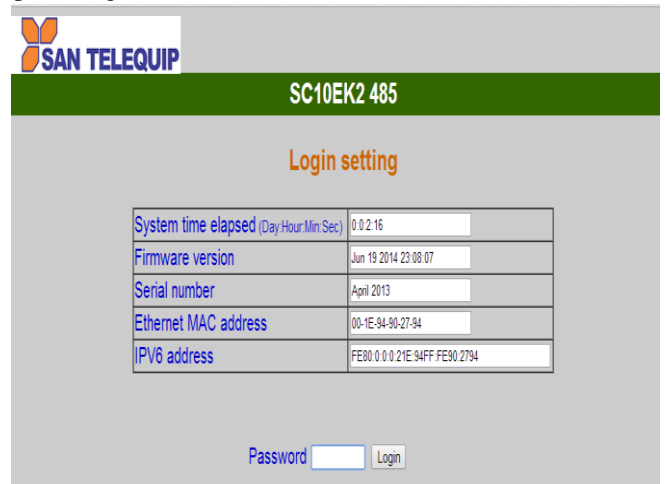

Figure 5

Figure 6

➢ Activated IE
➢ Key in the IP address of the SC10EK2 485 hardware that is going to setup frame and press Enter.
➢ The first Login frame will show up. You do not have to key in any Password, just press Login
➢ If you cannot login, it means you have to key in the password.
➢ If you do not know the password you can reset the device by using reset button.

Note: If the domain of the converter is different from the computer running the browser, the login page won't appear unless the converter's "Gateway Address" has been correctly set.

Login Screen Parameters (fig 6 above)

√ System time elapsed   : The time elapsed since start of this device [Day Hour: Minute: Second] format. This information can be useful in identifying reliability of system.

√ Firmware release date.

√ Serial Number: It shows the serial number of the device.

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√   Ethernet address   : Unique MAC (Media Access Control) address

√   Password   : Factory default is "empty". However, it is not recommended to leave empty in field operation. If you cannot login, it means you have to key the password. If you do not know the password you can turn off the power and then use any point tip to press "Reset" button and hold it and turn on the power. The password will be reset to the factory default as "empty".

The converter uses the same password protection mechanism commonly used in Windows NT or UNIX. If there are more than "3 consecutive failures" in password check during login, the login function will be disabled for "15 minutes". During this 15 minutes period, even if you supply a correct password, login will not proceed. This prevents intruder from finding the password by computer generated program.

Advance setup frame Parameters (Fig 7 & 8 below)

1.   IP address   : If DHCP client mode is enabled and there is a DHCP Server on the network, this field will be assigned by DHCP server automatically otherwise enter manually.

2.   Subnet mask   : If DHCP client mode is enabled and there is a DHCP Server on the network, this field will be assigned by DHCP server automatically otherwise enter manually.

3.   Gateway address   : Gateway is a device which connects local network to external network. Please type it correctly. If there is no Gateway on the network, just leave as "0.0.0.0". If DHCP client mode enabled and there is a DHCP Server on the network, this field will be assigned by DHCP server automatically.

4.   Network Link speed   : Auto by default (to be confirmed)

5.   DHCP client   : DHCP client mode could be enabled / disabled. If DHCP enabled, there should be a DHCP Server on the network. If DHCP disabled IP address, Subnet mask and Gateway address should be manually assigned. .
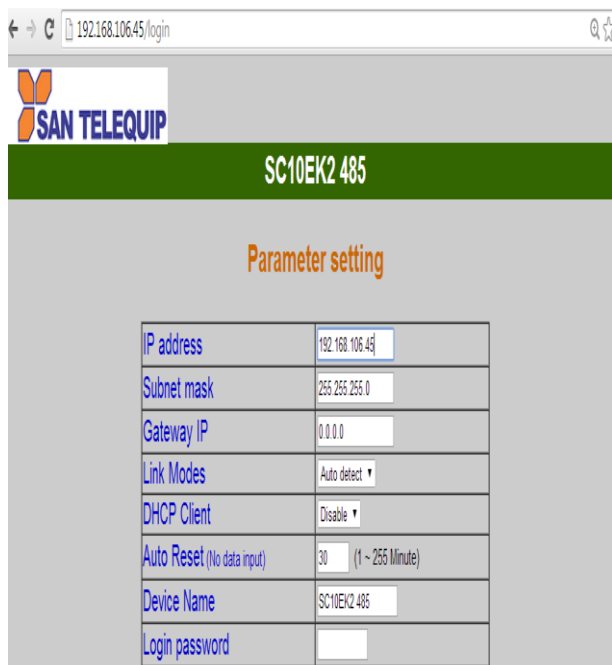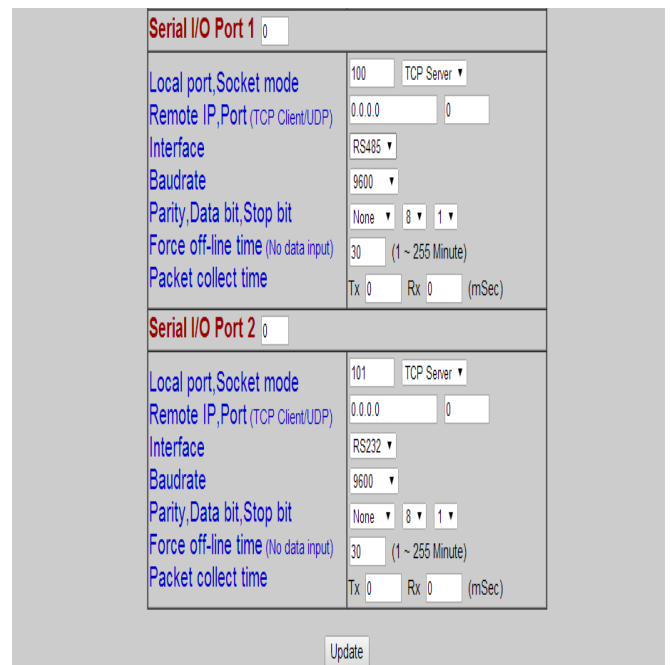

Figure 7

Figure 8

6.   Socket port of HTTP : 80 (to be confirmed)

7.   Auto Reset (No Data Input): If the device has been disconnected or for some reasons the data did not transmit a while, you can Soft restart the device after waiting a while (1～99 hours) as your settings

8.   Device Name   : User assigned ID name for the converter.

9.   Login password   : It may be empty or up to 15 long characters.

10. Serial I/O Port 1   : The first port is RS485 /422 port :

11. Socket Port: A socket port assigned to the Serial port. It's 16-bit numbers, ranging from 1 to 65535. Because the numbers below 1000 are used for specific purposes (e.g. 80 for HTTP protocol), you use numbers

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bigger than 1000.
12. Socket type   : TCP Server, TCP Client, UDP Client.
13. Remote IP, Port   : Enter relevant destination IP address & Port no's
14. Interface   : RS485 / RS422
15. Baud rate, parity, data bits, stop bits :
    a. Baud Rate   : 300 bps to 115 K bps
    b. Parity: None, Even, Odd, Mark, Space
    c. Data Bits: 5, 6, 7, 8
    d. Stop Bit: 1 or 2
16. Serial I/O Port 2   : The second serial port is RS232/RS422/485
17. Socket port : Same as Serial I/O Port 1
18. Socket type: Same as Serial I/O Port 1
19. Interface   :
    a. RS485
    b. RS422
    c. RS232
20. Baud rate, parity, data bits, stop bits : Same as Serial I/O Port 1.
21. Force offline time   : When the converter is a TCP Server, the socket maybe dead or hang. The converter will not know the socket is not alive. We need extra control to close the socket if the socket connects and does not transfer data. The converter will wait till the setup value minutes and then close the socket automatically. "0 to 99" in "minute".
22. Packet Collect Time : Packet Collect Time   : The data from internal serial UART to Ethernet port will be sent until the input buffer is full or the Packet collect time has expired, which ever is earlier.

Attention: If the SC10EK2 485 Gateway address is not same as the computer that is doing the setup, then the Login frame will not appear unless the SC10EK2 485 Gateway address is setup same as the computer.

When finished, please press Update. The "Controller updated now restarting ..." frame will show (Figure 9). When the frame is back to the Login frame which means the advance setup it done, you can close the browser.

Figure 9

FACTORY DEFAULT SETTING

By the chance, if you forget to setup password or have made incorrect settings, making the converter inoperable, there are two ways to reset the setting. The following procedures can also be used to reset all settings to factory default:
Turn Off the power of the converter and Press the reset button of the converter. Turn ON the power of the converter and wait for 3 seconds. The password will RESET to the factory default. (Empty).

Log in the SC10 Config V1.30 select IP address and press the SOFT RESET option of the SC10 Config V1.30. After that Dialog Frame window Popup select the Confirm option. The password will reset to the factory default (empty).

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SC10 EK2 Default Parameters List
- IP address   : 192.168.0.100
- Subnet mask   : 255.255.255.0
- Gateway address   : 0.0.0.0
- DHCP client   : Disable
- Auto Reset (No data Input)   : 0 Hrs
- Device Name   : Serial_TCP/IP
- Setup password   :

Serial I/O Port 1
- Local Port Socket Mode   : 100   TCP Server
- Remote IP, Port   : 0.0.0.0   0
  (TCP Client/UDP)
- Interface   : RS485
- Baud rate   : 9600
- Parity, data and stop bits   : None   8   1
- Force off-line time   : 10 (Minute)
  (No data input)
- Packet collect time   : TX 0, RX 0 (msec)

Serial I/O Port 2
- Local Port Socket Mode   : 101   TCP Server
- Remote IP, Port   : 0.0.0.0   0
  (TCP Client/UDP)
- Interface   : RS232
- Baud rate   : 9600
- Parity, data and stop bits   : None   8   1
- Force off-line time   : 10 (Minute)
  (No data input)
- Packet collect time   : TX 0, RX 0 (msec)

RS422/485 TERMINATON RESISTORS
Use the inbuilt terminator resistors if need.

COMMUNICATION PORT DETAILS

RS485 Port Details of SC10EK2 485 (Port1)

For RS422

SIGNAL of SC10EK2	Will Connect to
T +	RX + of your device.
T --	RX -- of your device.
R +	TX + of your device.
R --	TX – of your device.

For RS485

SIGNAL of SC10EK2	Will Connect to
D +	TX + of your device.
D --	TX -- of your device.

CABLE DETAILS OF SC10EK2 485
RS232 Port Details of SC10EK2 485 (Port 2)

SC10EK2 485 Side	COM Port Side	9 Pin Connecter Pin No.
TX	RX	2
RX	TX	3
GND	GND	5

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For RS422

SIGNAL of SC10EK2 485	Will Connect to
T +	RX + of your device.
T --	RX -- of your device.
R +	TX + of your device.
R --	TX – of your device.

For RS485, 2 wire

| SIGNAL of SC10EK2 485	Will Connect to
D +	TX + of your device.
D --	TX -- of your device.

POWER SUPPLY

24V DC, Two Pin Terminal block.

CONFIGURATION FOR VIRTUAL SERIAL PORT CONSOLE: VER 2.7

➢ Unzip from SC10EK2 485Config\Virtual Com\Vserport.zip in the enclosed CD.
➢ Double click on required exe File.
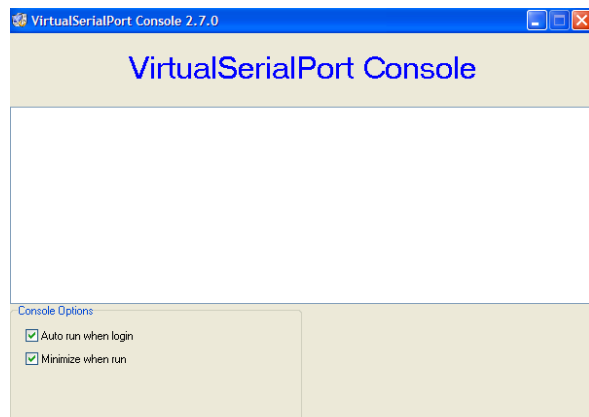
➢ Follow the below screens to install the Virtual Com Port.
➢ Right Click inside the above screen to get "Add the Port Option "
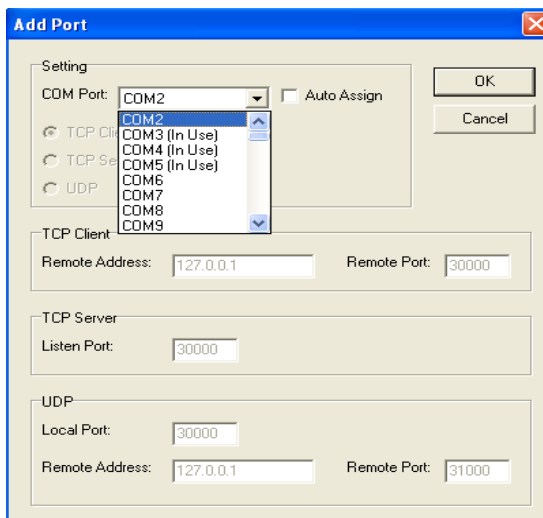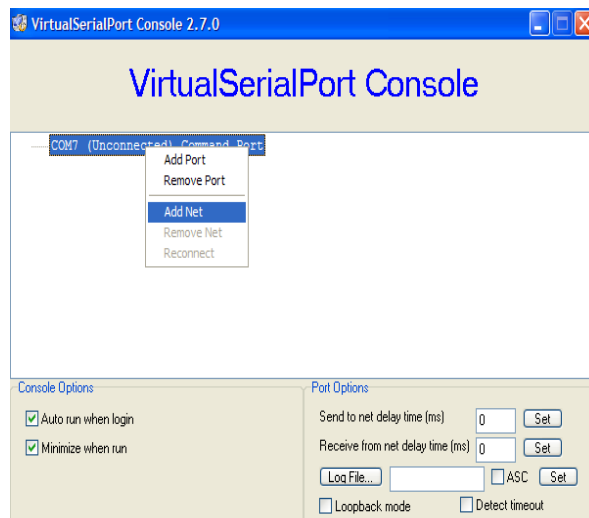
Add Port

➢ The following screens below will appear.
➢ Select "Continue Anyway".
➢ Selected COM Port will be added. Port no's 8 in the picture is only for reference.

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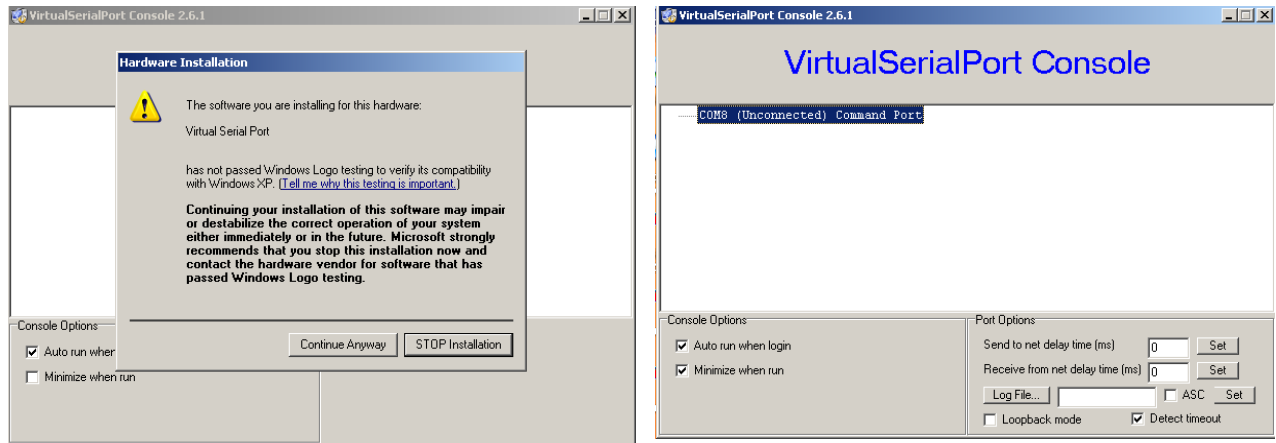
➢ Right Click on the added COM port & choose Add Net option. The snap shots are below
➢ In the next screen you are required to insert Network details
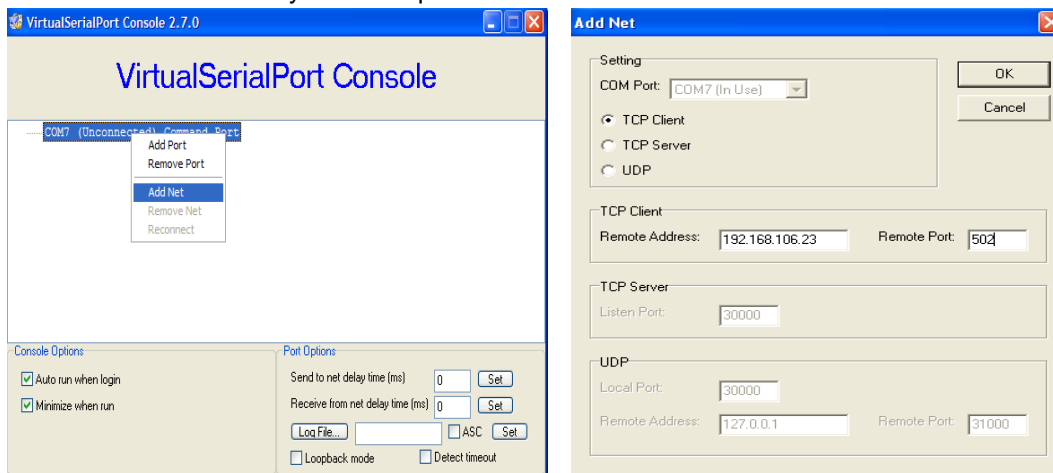
Following screens are the confirmation of the IP selected & communication established
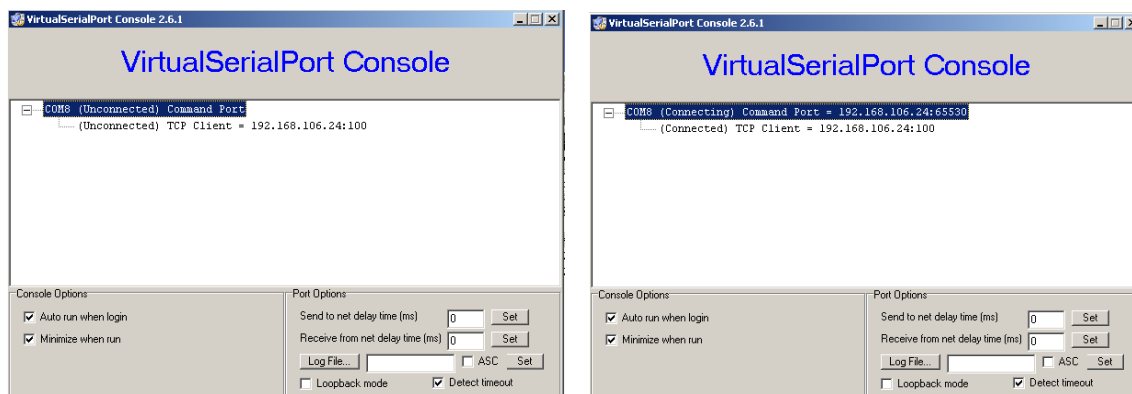
Congratulations!!! The Virtual Com Port is installed