TRP-C34R
User's Manual

4-Port RS232/422/485 Serial Server with 3KV Optical Isolation

User's Manual

1. Introduction

TRP-C34R 4 RS232/422/485 Serial Server provides a transparent way of connecting Serial devices over Ethernet. It can transmit data between the Serial and Ethernet interfaces bi-directionally. To establish automatic or remote data acquisition.

By specifying the IP address and the TCP Port number, a host computer can access different Serial Devices such as Serial Modems, Serial Thermometers, Magnetic Card Readers, Barcode Scanners, Data Acquisition Systems, POS Terminals, Industrial PCs etc., over the Network, you can centralize Serial Device management and distribute the management to different hosts at the same time. TRP-C34R Serial Server makes possible to access distant Serial Devices over Network as if they were directly connected to the Standard COM Port of a Personal Computer.

TRP-C34R Serial Server supports different modes of operation allowing user to operate the system in different environments**.**

Virtual COM Mode.

TRP-C34R Serial Server comes equipped with COM drivers that work with Operating Systems WIN 32bit XP /Vista/2003Server/2008 Server (32-bit & 64-bit), 2000 Server OS, Win 7 (32-bit & 64-bit), WIN 8(32/64 bit),The driver establishes a transparent connection between host and serial device by mapping the IP: Port Number of the TRP-C34R's Serial Port to a local COM Port on the host computer.

The important point is that Real COM Mode allows users to continue using RS-232/422/485 serial communications software like HyperTerminal and similar applications.

TCP Server Mode.

In TCP Server mode, TRP-C34R Serial Server provides a unique IP: Port address on a TCP/IP network. TRP-C34R Serial Server waits passively to be contacted by the host computer, allowing the host computer to establish a connection with and get data from the serial device. This operating mode supports up to 4 simultaneous connections, so that multiple hosts can collect data from the same serial device—at the same time.

TCP Client Mode.

In TCP Client mode, TRP-C34R Serial Server can actively establish a TCP connection to a pre-defined host computer when serial data arrives. After the data has been transferred, TRP-C34R Serial Server can automatically disconnect from the host computer by using the TCP alive check time or Inactivity time settings. This Operating Mode supports establishing the TCP connection up to 4 Destination Hosts.

UDP Mode.

Compared to TCP communication, UDP is faster and more efficient. In UDP mode, you can multicast data from the serial device to multiple host computers, and the serial device can also receive data from multiple host computers, making this mode ideal for message display applications.

TRP-C34R hardware support wide range power input , the 4 RS422/485 interface with surge, over current ,over voltage protection, the RS485 interface built-in hardware decoder ensure RS485 data without lost, Specify hardware   can ensure on line RS485 device working fine.

The TRP-C34R has four synchronous D SUB 9 pin serial port for RS232 connection and 4 screw terminal block for RS422/485 and power connection. The Ethernet port support Auto-MDIX and Auto-select 10/100MB.

When TRP-C34R working at unstable voltage industrial environment, the hardware circuit detection can prevent the power fail cause of the boot fail and Re-Boot.

1-1 Features
- Wide input range DC power supply.
- Supports Socket operation modes like TCP Server, TCP Client, and UDP using TCP/IP and UDP protocols.
- Support Auto-MDIX twisted pair crossover detection and auto-correction.
- Each Port maximum connection 4 host PC at TCP Server and TCP Client Mode.
- Maximum allowed bandwidth is 230.4 Kbps per Serial Port.
- Supports Web Console, Telnet Console.
- Runs in Stand Alone Mode.
- Built in Restore Factory default push button.
- Features Accessible Imps List to add or remove "legal" remote host IP Addresses to prevent unauthorized access to Serial Server.
- Features Auto IP Address Report to periodically report the IP Address of Serial Server to the assigned Host on Network.
- Auto direction RS485 flow control by hardware.
- Surge protection and over current and over voltage on RS-422/485 data lines.
- Virtual COM drivers for WIN 32bit XP /Vista/2003Server/2008 Server (32-bit & 64-bit), 2000 Server OS, Win 7 (32-bit & 64-bit) ,Win 8/8.1 (32-bit & 64-bit).
- Fully compatible with Ethernet and TCP/IP protocol.
- Supports 10/100 Mbps Ethernet.
- Power/Link and 4 pair Serial RX/TX mode LED indicator.
- Support screw terminal and standard external DC power adaptor.
- Panel mounts and Din-Rail support.

1-2 Specification

- CPU:32 bit 580MHZ with MMU.
- Power Input Voltage: DC +9V to +24V.
- LAN: Auto-MDIX, 10/100 Mbps Auto-detecting.
- RS-232: TX, RX, GND.
- RS-422: TX+, TX-, RX+, RX-.
- RS-485: Data +, Data –.
- Data Rate: 300,600,2400,4800,9600,19200,38400,57600,115200,230400,460800 and 921600 bps.
- Parity: none, even, odd.
- Data Bits: 5, 6, 7 or 8.
- Stop Bits: 1, 2.
- Configuration through Windows Admin Utility / Web Console / Telnet Console.
- Protocol: ARP,IP, ICMP,UDP,TCP,HTTP,DHCP,PPPoE,DDNS ,NTP,FTP,Telnet.
- Power supply: Screw terminal, or standard external DC adapter.
- Serial interface: +/-15 KV ESD.
- RS422/485 interface: Surge, over current, over voltage protection.
- Serial terminal and Ethernet with 3KV Optical Isolation.
- Power consumption: 12V/400 mA .
- Operating Temperature: -20 °C to 65 °C.
- Humidity: 0~90% Non-Condensing.
- Dimensions: 180(L)*110(W)*30(H) /mm.
- Weight: 400g (W/Packing).

2. Hardware Description

The following information is provided to give the user an understanding of how to connect the TRP-C34R to the LAN and serial device. A review of the switch settings and the functionality of the LED's are also provided.

2-1. Panel layout
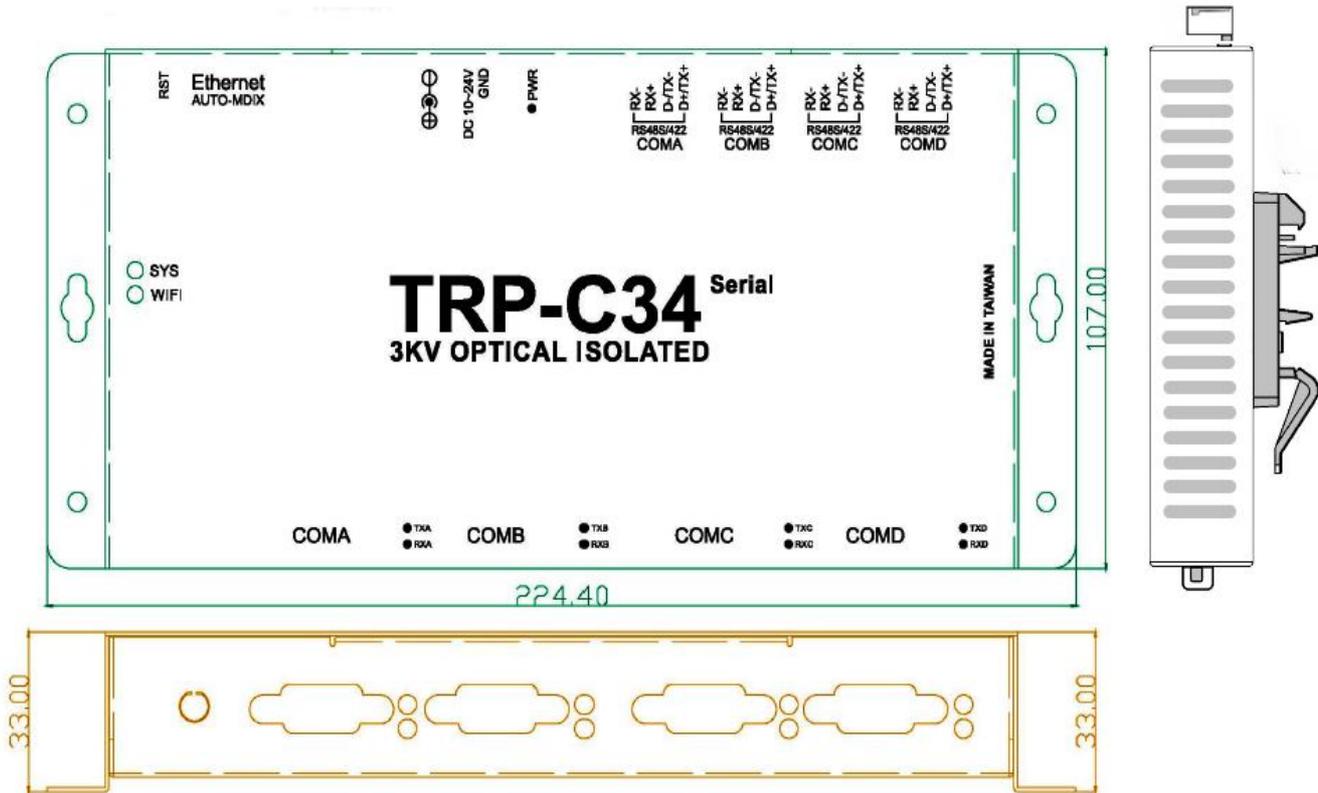
2-2. LED indicator

PWR:Power LED keep on when the DC input.

SYS: The system boot time needs 36sec after SYS LED will blinking, it means that the device is working.

TX/RX LED: COMA~COMD Transiting/Receiving Indicator.

2-3. Power Input

DC Jack: Power Input DC +10V to +24V. (Please use the 5.5*2.1mm DC JACK).

There are two types power input.

a. Use the plug of power adaptor than plug in the DC jack on the side.

This approach also allows the user to provide additional power to other devices using the terminal from EU regulation.

b .Wiring terminals on the EU regulation

2-4. RST button

Keeping pushes the RST button over 10-sec when power on, and the SYS and WiFi LEDs will blinking then TRP-C34R will be back to factory default setting.

3. Install TRP-C34R Hardware

STEP1: Please connect the power source, the PWR LED will on and wait the SYS LED will blink.

STEP2: Connect TRP-C34R with internet port by RJ45 LAN cable.

The TRP-C34R Support Auto-MDIX, A straight-through or crossover Ethernet cable can be used to make a connection directly to the HUB/Router/PC.

STEP3: Connect TRP-C34R with serial device.

3-1. RS485 Wiring
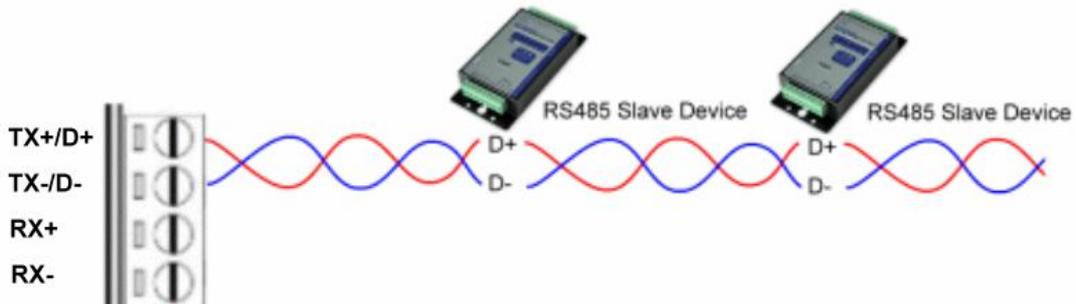
3-2. RS422 Wiring
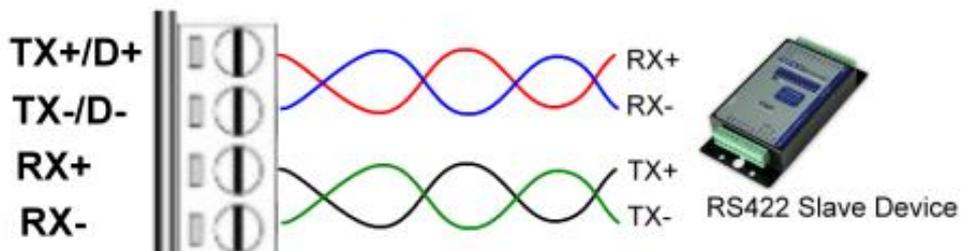
3-3. RS232 Wiring

The RS-232 supports 2 channels plus Signal Ground and is configured as DTE like a computer. Signals are single ended and referenced to Ground.

*Please try to connect pin1,4,6 and Pin 7,8 together if RS232 device does not work.
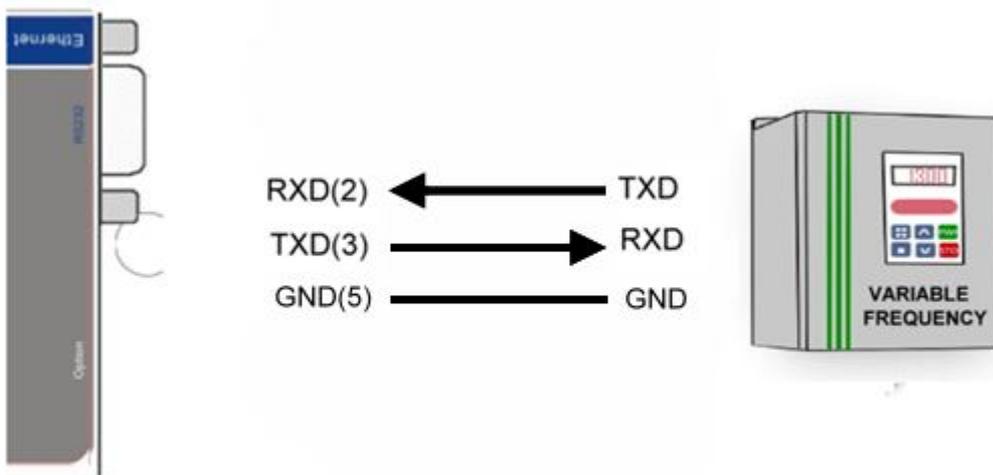
4. How to configure TRP-C34R

There are 2 ways to access the Server Properties and program the TRP-C34R.

a. Using the IoT Device Finder utility.
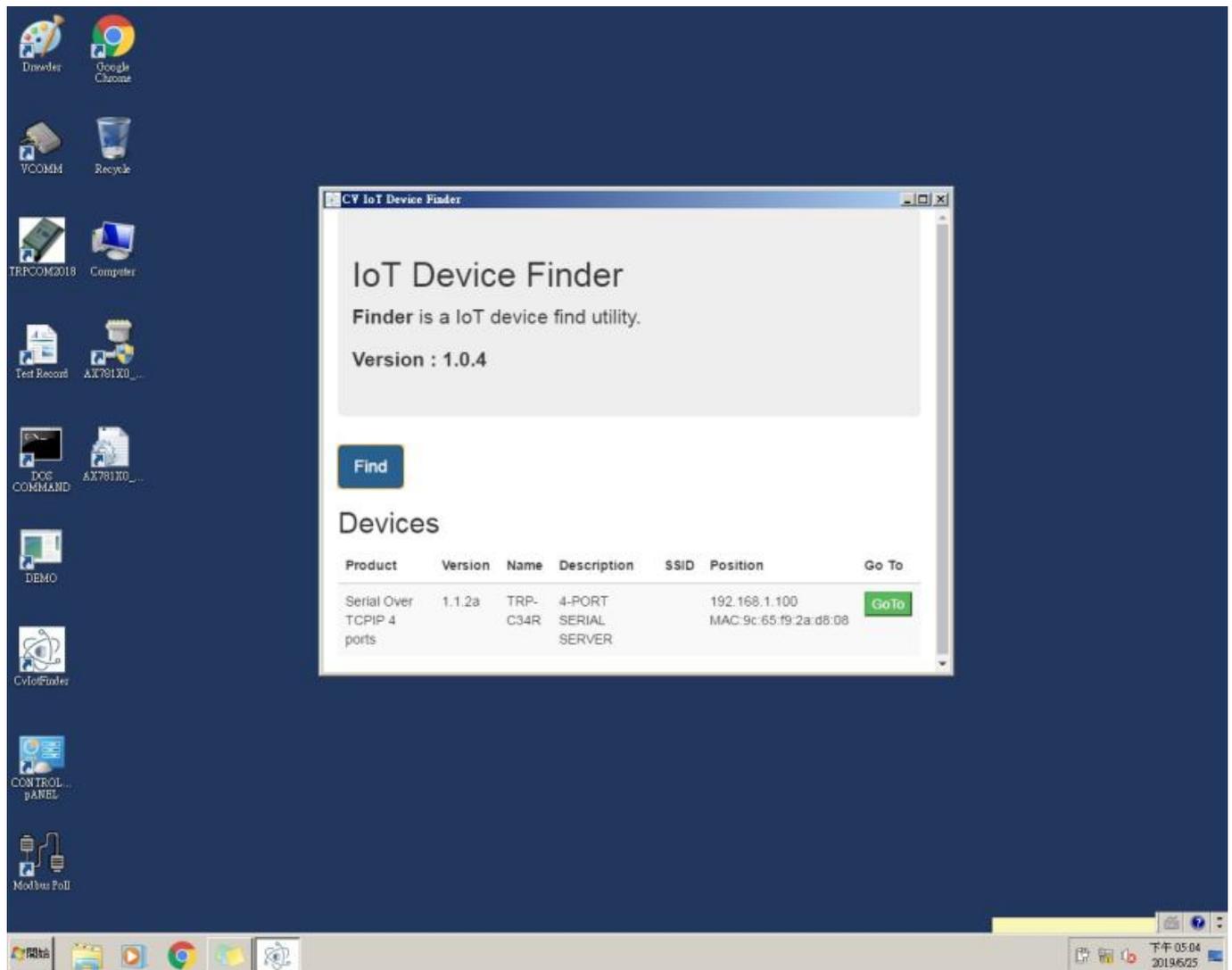
b. Using the WEB Server
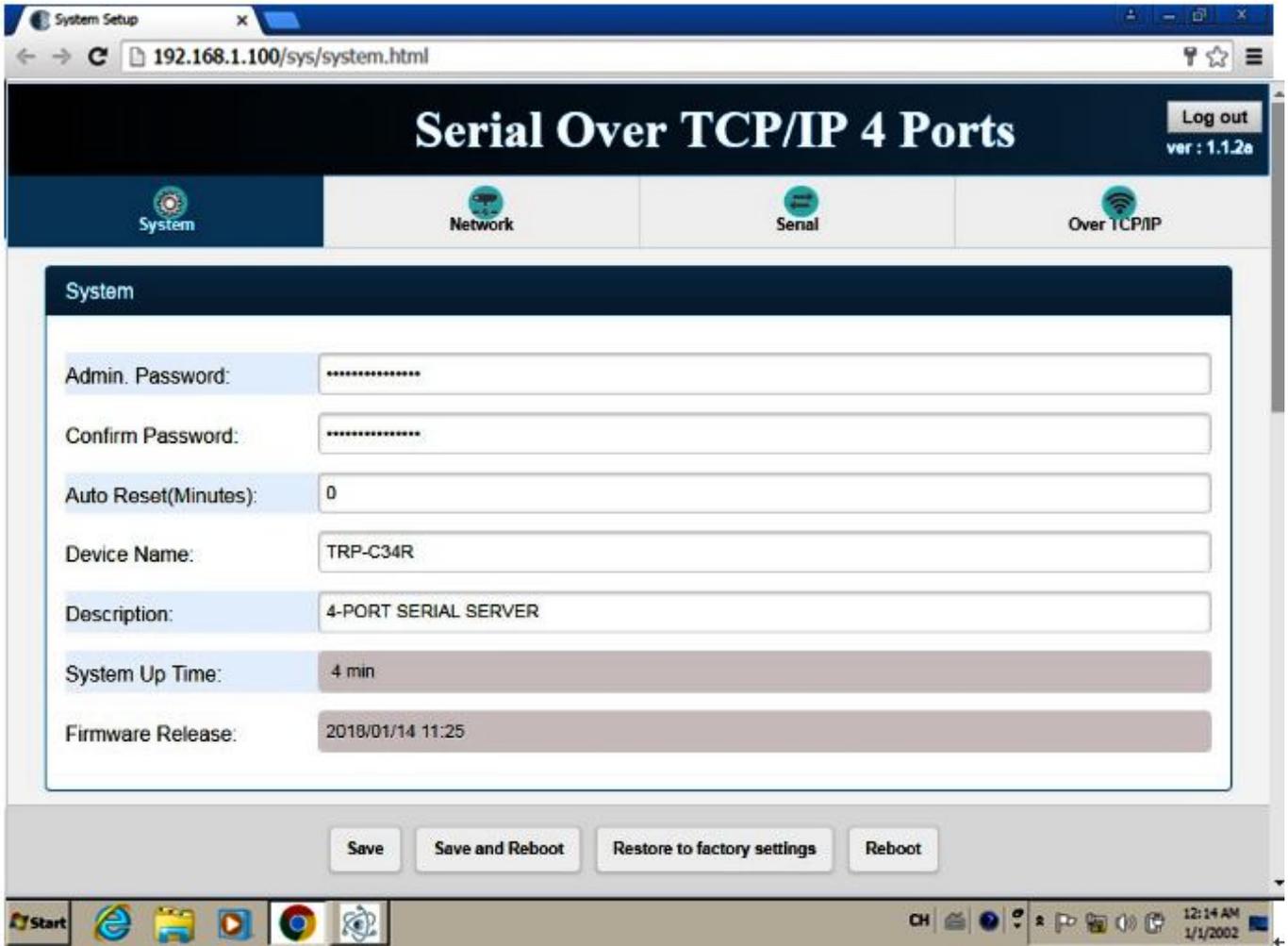
4-1. Using IoT Device Finder utility.

The **"IoT Device Finder"** utility performs several functions:

> A: Searching for TRP-C34R connected to the network.
>
> B: Displaying and changing the configuration of TRP-C34R.
>
> C: Upgrading the TRP-C34R firmware.
>
> D: Save, reboot and back factory settings.

4-2. Searching LAN for TRP-C34R

Once TRP-C34R is connected to the LAN the **IoT Device Finder utility** will search it and display it in a window by name, IP address, Mac….Information, please click the "Find" button to looking for that.

The IoTdevice Finder utility will find the TRP-C34R.

* Please make sure the PC's network IP 3 segment as same as TRP-C34R.

Such as PC's network IP should set up 192.168.1.xx ,and the TRP-C34R's default IP is 192.168.1.100.
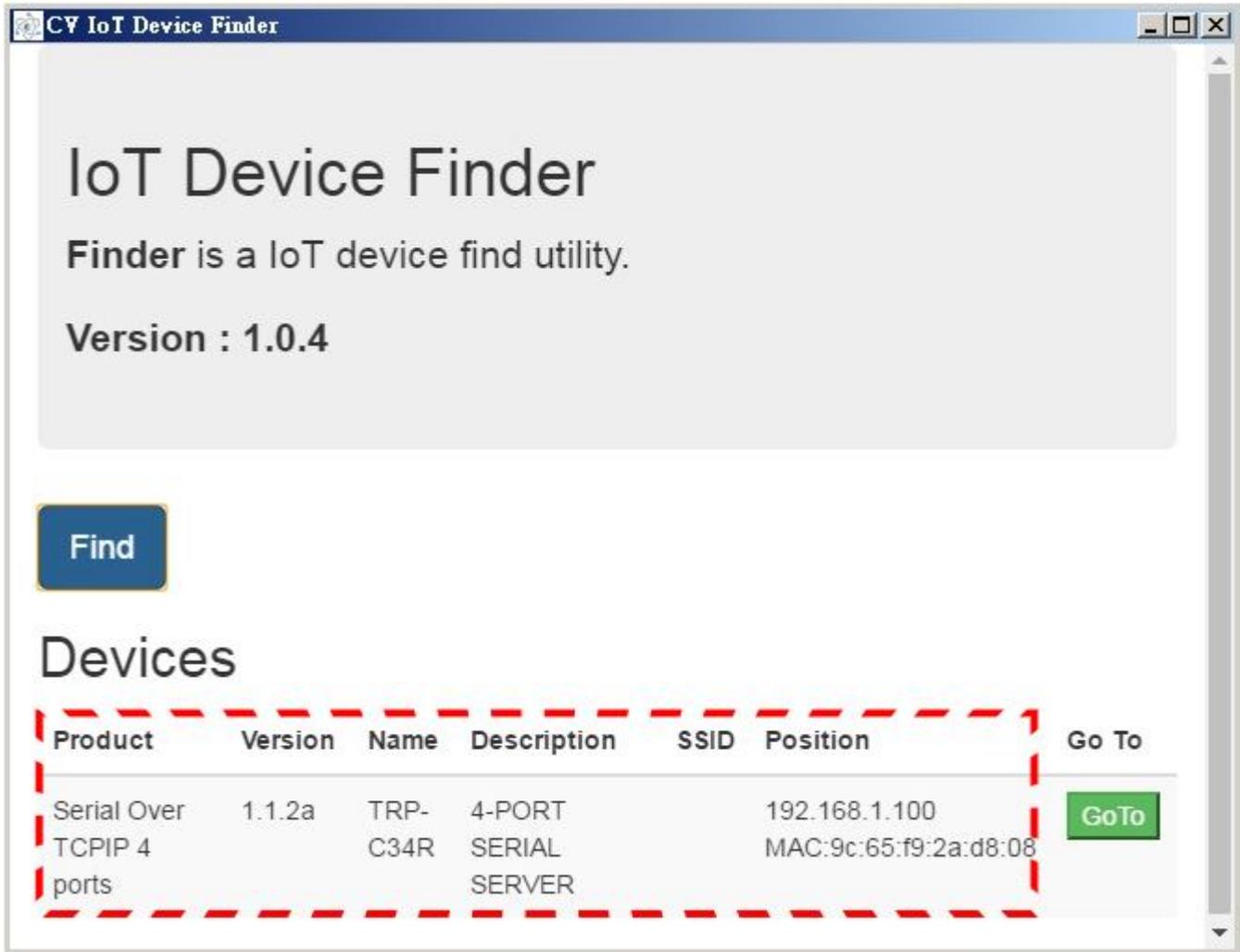
4-3.Configuring Server Properties

Click the **GoTo** button, when the login prompt appears, login using the administrator and

password. Click **Log In.**

the factory default setting below:
User Name: **admin**
Password: **admin**
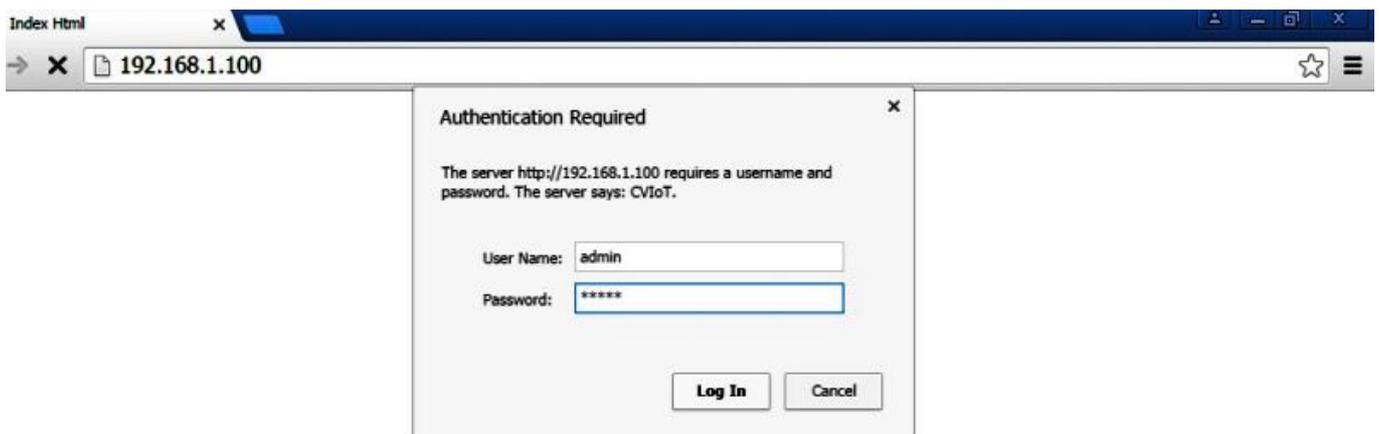
Please click the "Log In" button after you completed the User Name and Password.

4-4.System web UI:

Admin Password:

Maximum 25 chars.

Confirm Password:

Input the password again.

Auto Reset (Minutes):

Sets the amount of time a user can remain idle before being reset.

Device Name:

Device server name.

Device Description:

Device is described.

System Up time:

Device power on time.

Firmware Release:

Firmware Release time.

4-5.Network web UI:

Wireless:

Option, it should be disabled.

Ethernet:

Static Mode:

Selecting Static IP requires the user to assign the IP information for the device manually.

*Please make sure your host pc the network segment as same as this IP.

Such as: PC:192.168.1.xx, and the device is 192.168.1.100.

DHCP Mode:

Selecting this mode will cause the device to obtain an IP address from the local DHCP server.

IP Address: The Gateway IP address.

Mask

The default LAN Netmask is configured for a Class C address. This may be reconfigured by the user.

DNS

Short for Domain Name System, an Internet service that translates domain names into IP addresses. Because domain names are alphabetic, they're easier to remember. The Internet however, is really based on IP addresses. Every time you use a domain name, therefore, a DNS service must translate the name into the corresponding IP address.

4-6.Serial web UI:
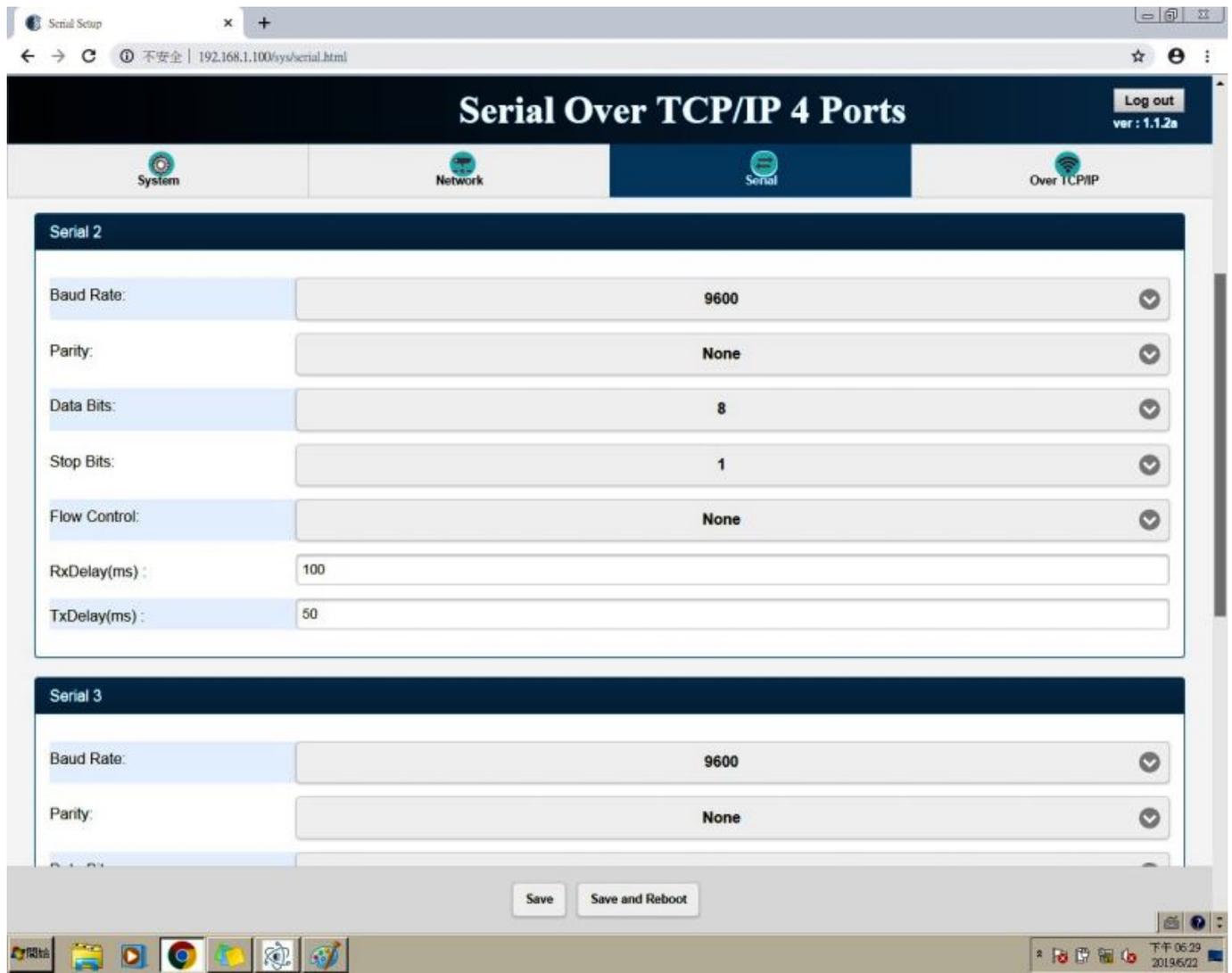
From Serial1,Serial2,Serial3 to Serial4.

Baud Rate:

From 300,600,2400,4800,9600,19200,38400,57600,115200,230400,460800 and 921600 bps.

Parity:None,Even,Odd.

Data Bits:5,6,7,8

Stop Bits:1,2

Flow Control:None,XON/XOFF.

RxDelay(ms):0

TxDelay(ms):0

4-7.Serial Over TCP/IP 4 Ports:
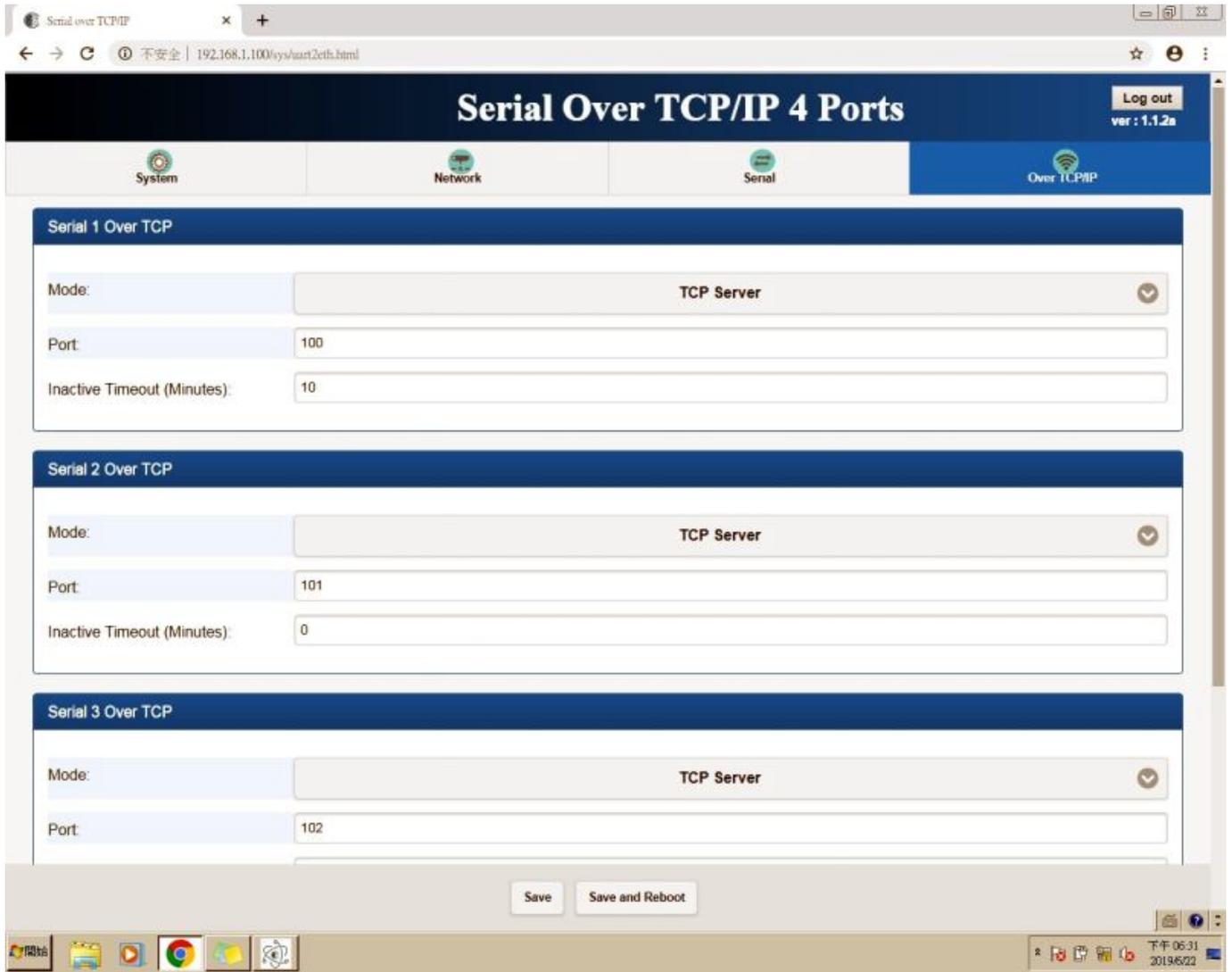
From Serial 1 Over TCP, Serial 2 Over TCP, Serial 3 Over TCP and Serial 4 Over TCP.
There are 4 modes for selection: TCP Server, TCP Client, UDP, and DISABLED.
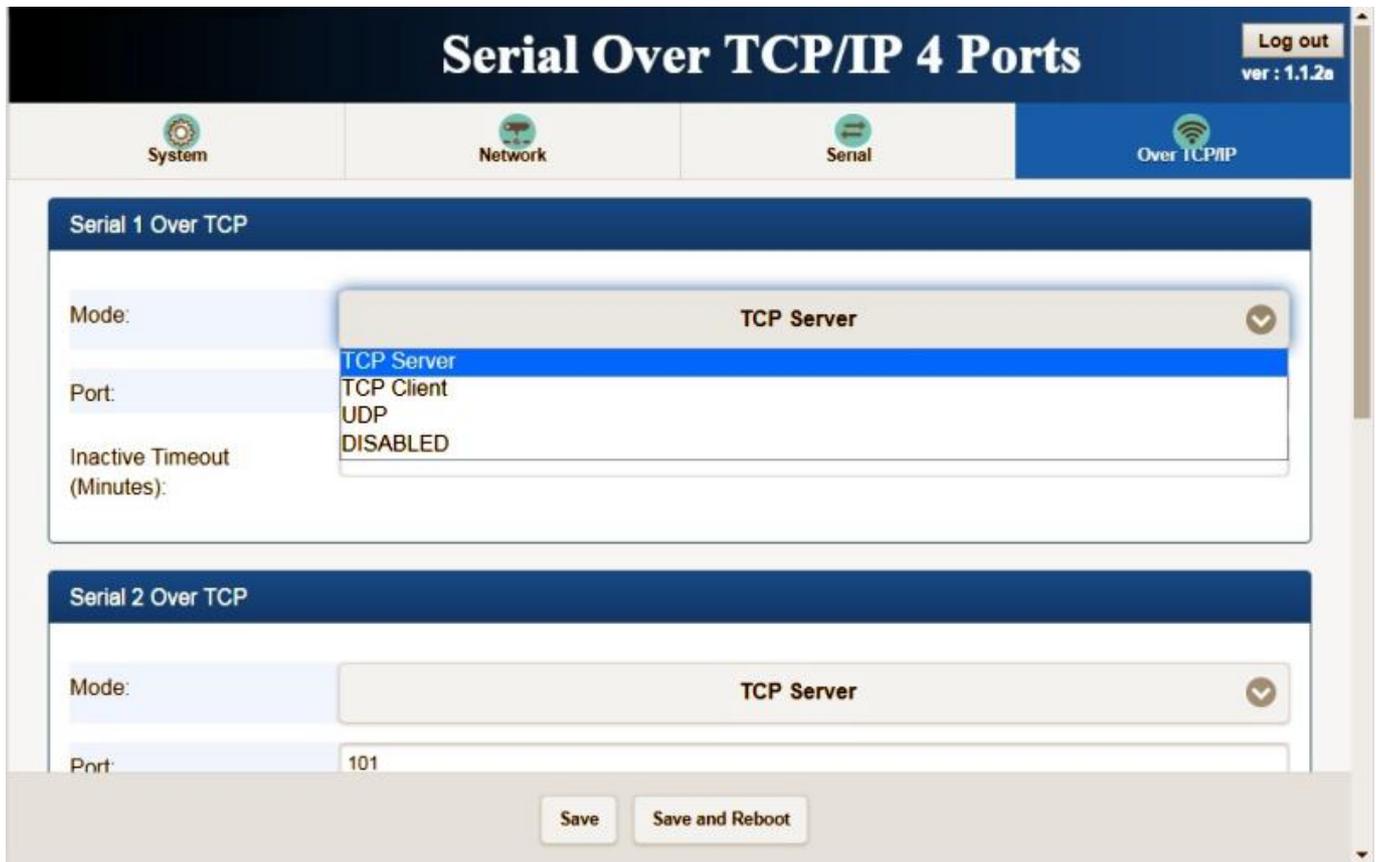
a. TCP server.

Configure TCP server port number and message time out period, TRP-C34R will wait for client connection in this mode.

b. TCP Client.

Allow configuring 4 remote destination host IP address, port number. TRP-C34R establishes a connection with the remote host and sending data to the remote host actively in this mode.

c. UDP.

Allow configuring 4 remote destination host IP address, port number. TRP-C34R establishes a connection with the remote host and sending data to the remote host actively in this mode.

d.DISABLED.

Default Listen port:100,101,102,103.

5. Application Multi-Function Application
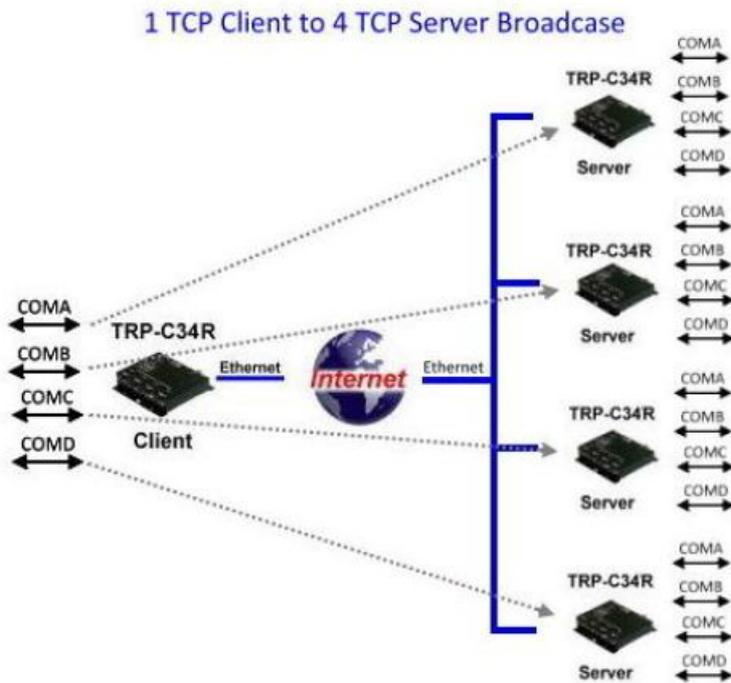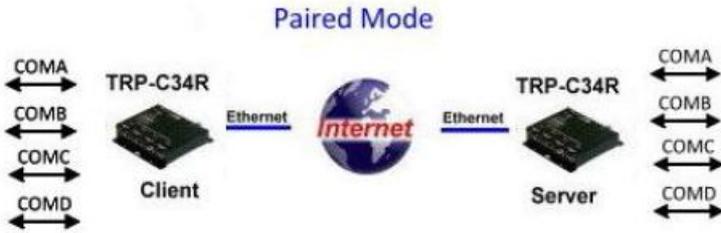

5-1 Direct IP Mode
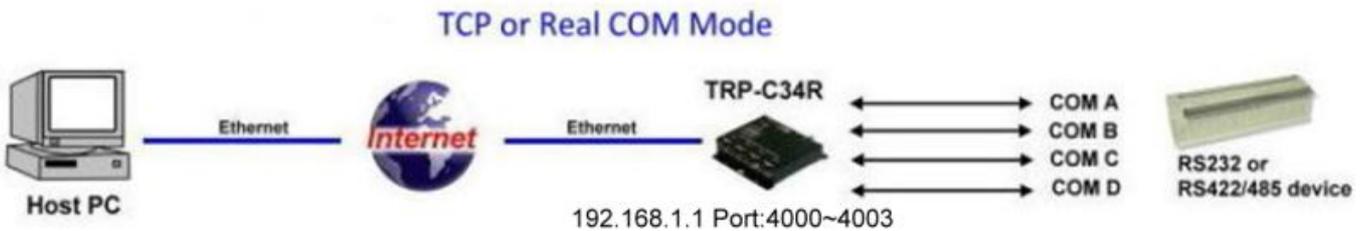
Example:

Step1: Connect PC-----Ethernet-----TRP-C34R-----RS485---TRP-C28 (RS485 ID=01)

Step2.Run TRPCOM utility and input IP/Port, click "Link" button, then Send Command , The Response will appear TRP-C28 I/O Status.
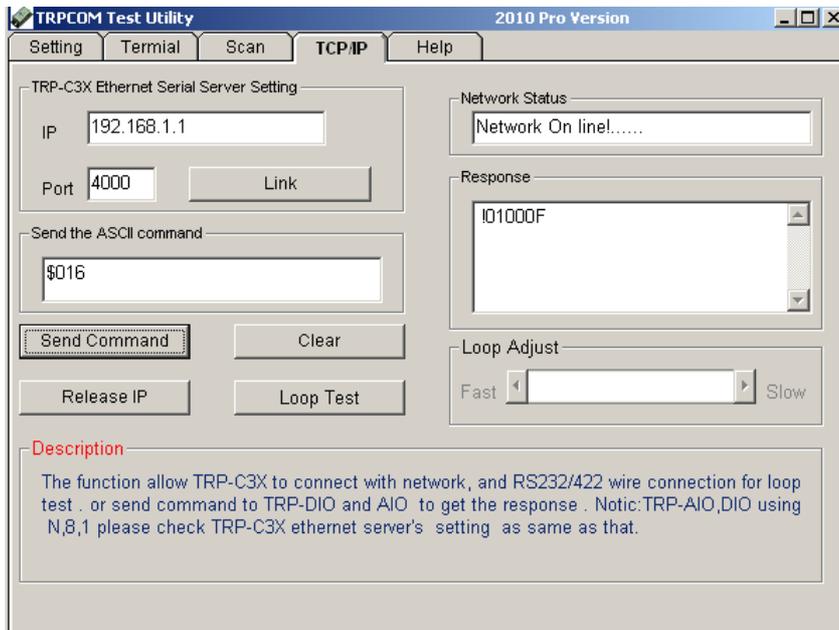
Step3.Send Command "#010003", The Response will enable TRP-C28 Relay1 and Relay2 enable.
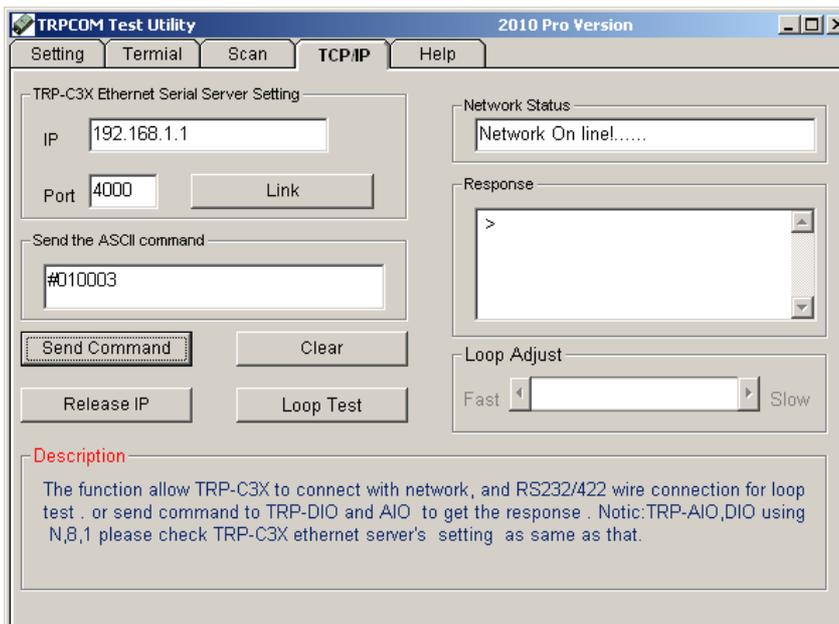
5-2. Install the Virtual-COM

The Virtual-COM utility support TCP/IP、UDP data mapping to the HOST PC virtual-com, it can creative Maximum 512~1024 virtual-com port, Support Server、Client、UDP mode, Support all Windows O.S include Win98/Win2000/WinXP/Vista/Win2003/WIN7,Support Multi-virtual com at different PC to one serial server; Support Ethernet and Internet , If TRP-C37 off line or power fail, The Virtual-Com utility will try to Reconnection.

Step 1. Insert the TRP-Serial CD and find the TRP-C34R folder.
**Step 2**.Click "Vcomm.exe" icon then install Virtual-COM utility.
*The Virtual COM utility support multi-language, please select which language do you need.

Step3. Click "OK" button and select "VSP run as Client support Server Device".
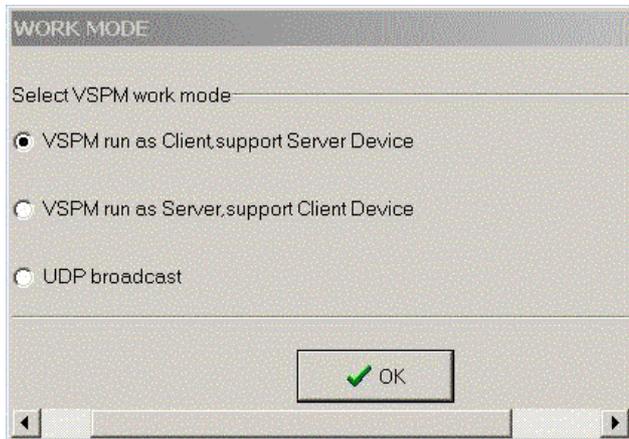
Step4. Select "Create virtual serial by device scanner", then press "OK"
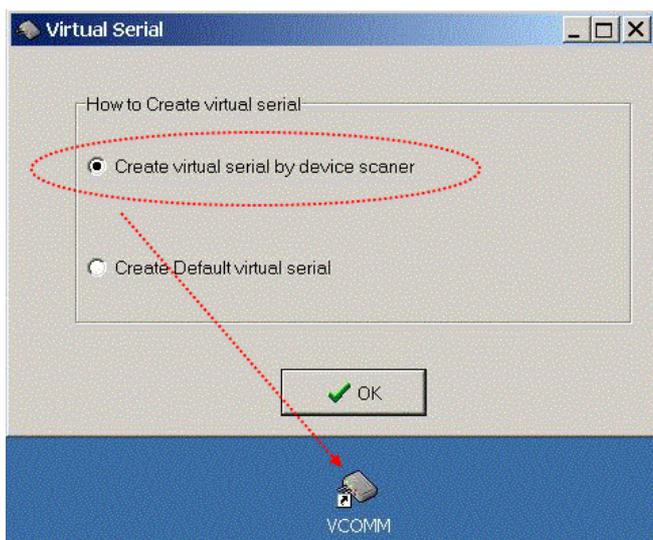
Step5. Run VCOMM.exe then click right button select "New Virtual COM"


Step6. Select "Select Serial Port" and input TRP-C34R IP and port then press "OK".
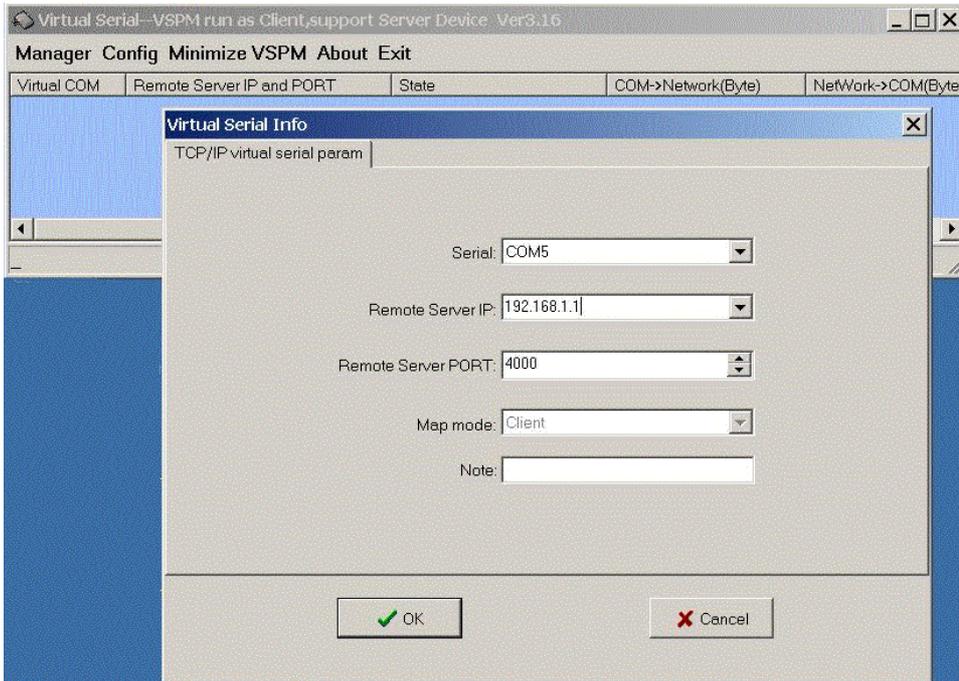
**Step7.** If Virtual-Com setting success, the display will appear bellow.

Step8. Run TRPCOM utility then select virtual-com port make a TRP-C34R loop test.
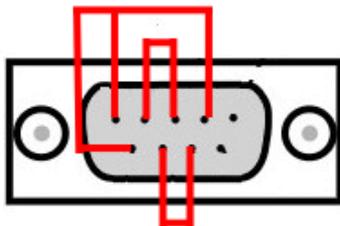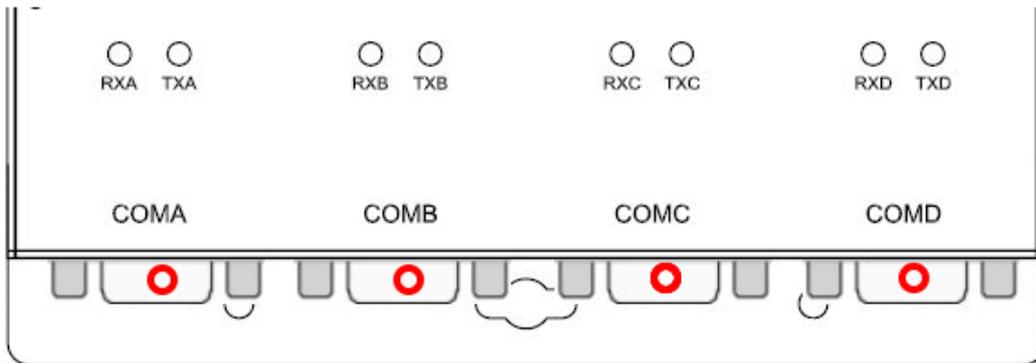
**Look Back Test DB 9 Female
Short PIN1,4,6 PIN 2,3 PIN 7,8**
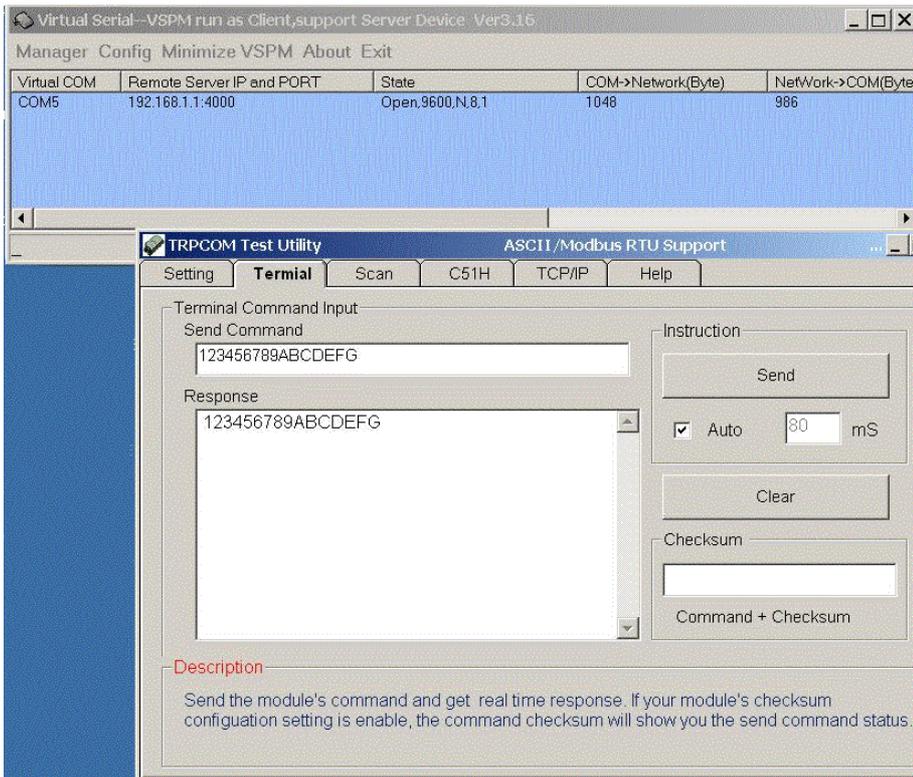
*If in VCOMM's configuration select "Boot with windows", the virtual-com will Auto-connection when windows start.
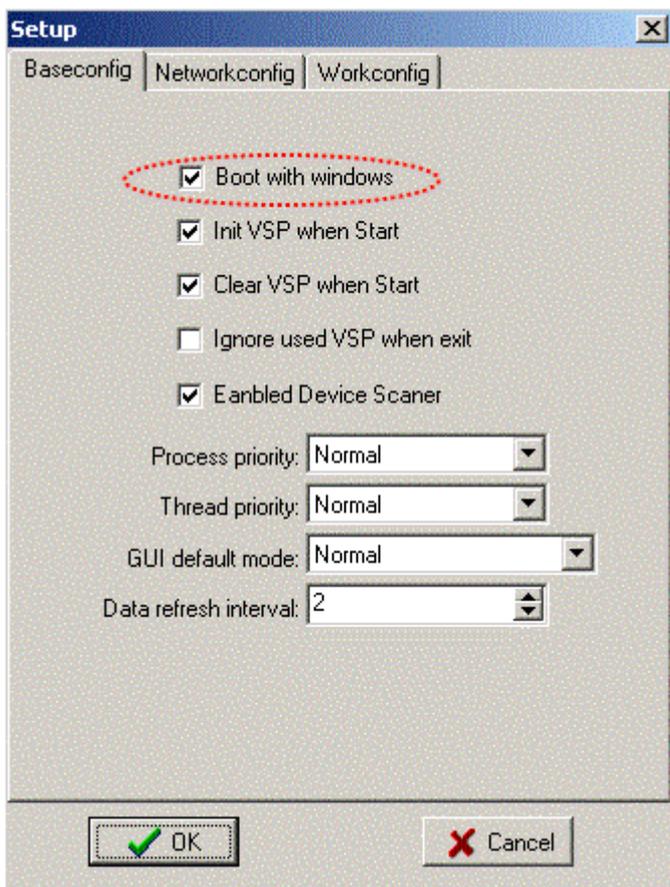
5-2 Virtual COM Mode

TCP or Real COM Mode
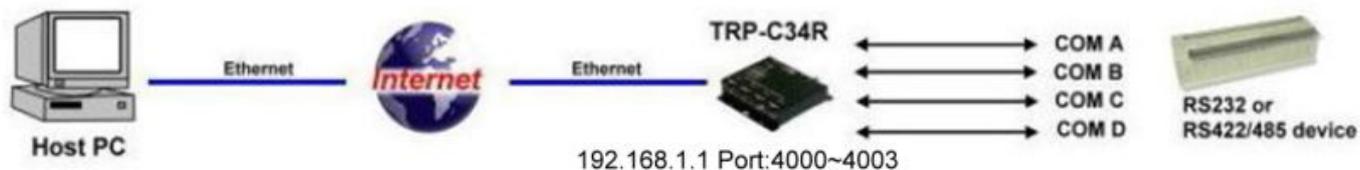
Example:

Step1. Connect PC-----Ethernet------TRP-C34R-----RS485---TRP-C28 (RS485 ID=01).

Step2. Run Virtual-COM utility and make a virtual-COM port, Run TRPCOM utility and input com port number, press "OK".
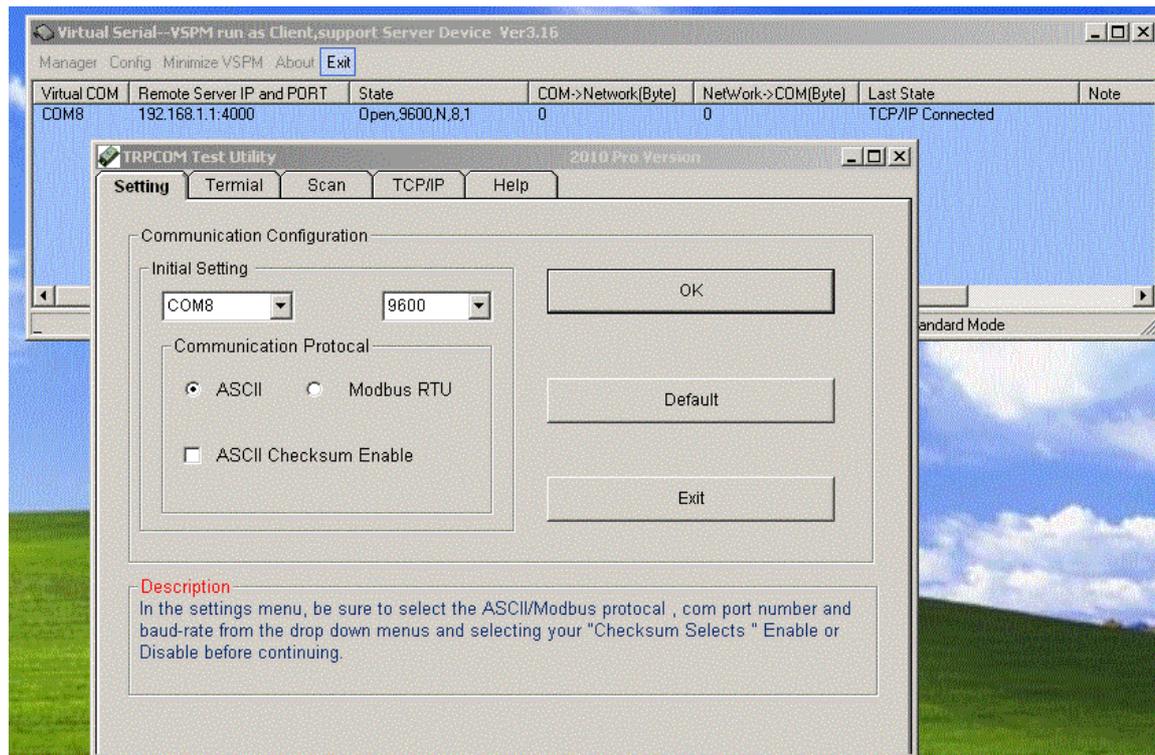
Step3.Select "Terminal" and send command, the response will appear TRP-C28 channel 2 counter value.
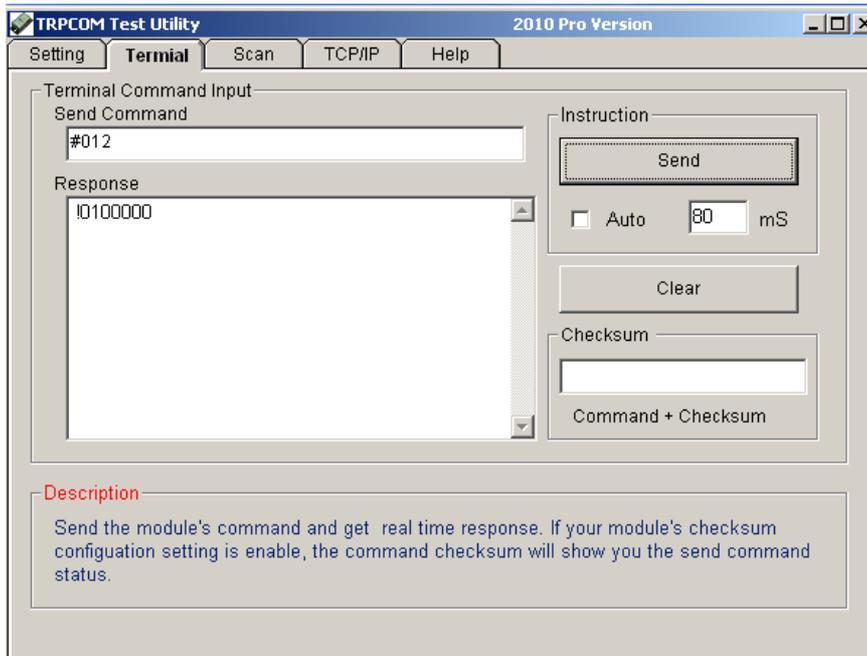
6. Appendix

What is different between TRP-C34R and TRP-C34R

The TRP-C34R RS232/422/485 is Serial Device Server, it can send the data between the TCP and Serial port bi-direction, it cannot process the data or convert the Modbus protocol.

TRP-C34R is Modbus TCP Gateway

As a Modbus TCP to RTU/ASCII slave device server.

The TRP-C34R is able to analyze Modbus protocols and auto to convert between Modbus TCP and Modbus RTU/ASCII.

As Serial Modbus master (PLC) to Modbus TCP slave.

The TRP-C34R is able to analyze the protocol from Serial Master then send them to every Modbus TCP slave devices.