

TRP-C34M

User's Manual

4-Port Modbus TCP to RTU/ASCII Gateway with 3KV Optical Isolation



User's Manual

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1. Introduction

TRP-C34M is a 4-Port Modbus gateway.

There are two functions below:

Modbus RTU/ASCII serial master to Modbus TCP slave bi-direction.

Modbus TCP master to Modbus RTU/ASCII slave bi-direction.

The TRP-C34M is able to run under industrial environment stable, it provides 3KV optical isolated protection between Ethernet interface and 4-port serial interface.

The TRP-C34M provides a watchdog timer function that allows the system to automatically recover from a system crash. When the TRP-C34M microprocessor stop working correctly, the watchdog timer waits for a preset period of time and performs a hardware reset.

1-1 Features

- Wide input range DC power supply.
- Provide 3KV optical isolation protection.
- Supports Ethernet Mode like TCP Server, TCP Client, and UDP.
- Support Auto-MDIX twisted pair crossover detection and auto-correction.
- Maximum allowed bandwidth is 921 Kbps per Serial Port.
- Supports PPPoE , DDNS , NTP , FTP , Telnet.
- Runs in Stand Alone Mode.
- Built in Restore Factory default push button.
- Auto direction RS485 flow control by hardware.
- Power/Link and 4 pairs serial RX/TX mode LED indicator.
- Support screw terminal and standard external DC power adaptor.
- Panel mounts support.

1-2 Specification

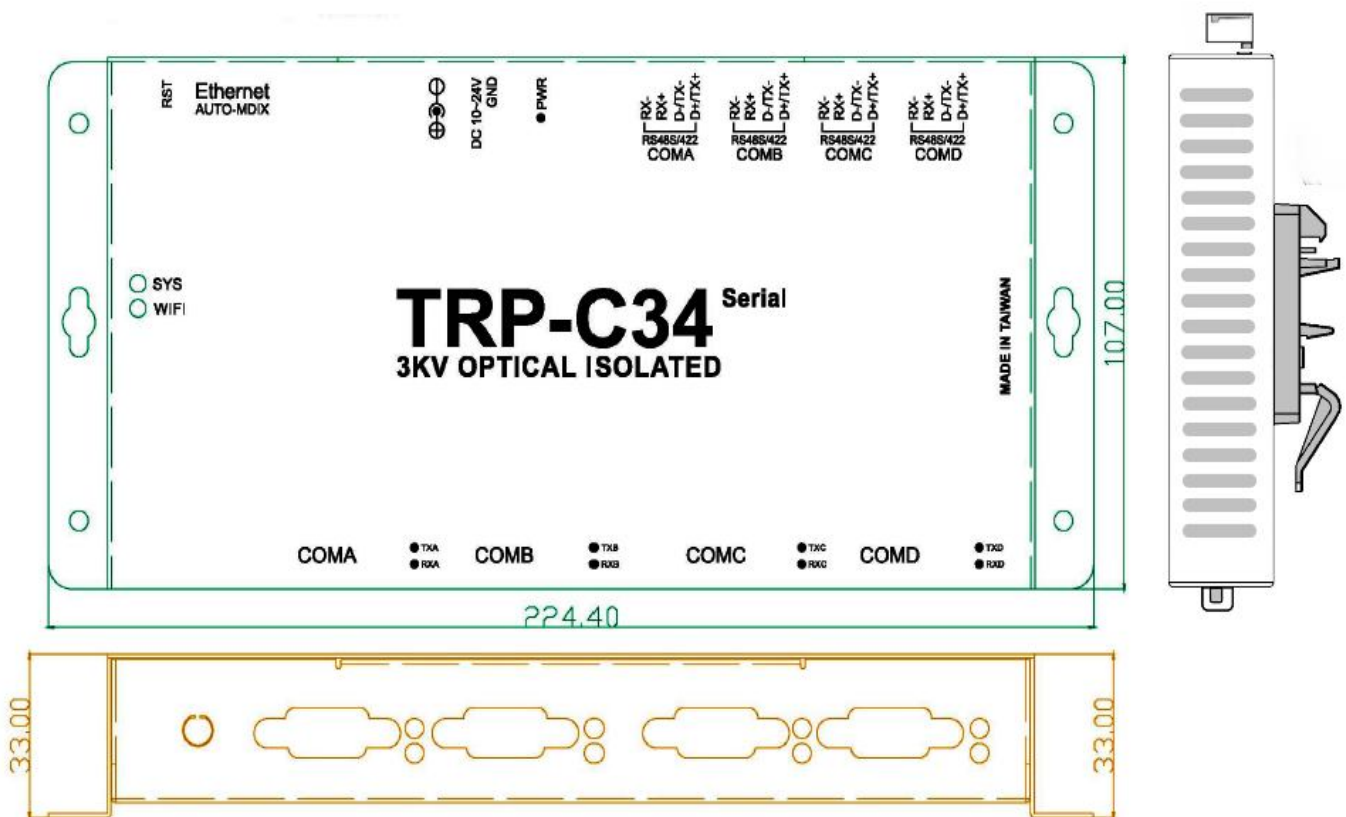
- CPU:32 bit 580MHZ with MMU.
- Power Input Voltage: DC +9V to +24V.
- LAN: Auto-MDIX, 10/100 Mbps Auto-detecting.
- RS-232: TX, RX, GND.
- RS-422: TX+, TX-, RX+, RX-.
- RS-485: Data +, Data -.
- Data Rate: 300,600,2400,4800,9600,19200,38400,57600,115200,230400,460800 and 921600 bps.
- Parity: none, 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-C34M 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-C34M will be back to factory default setting.

3. Install TRP-C34M Hardware

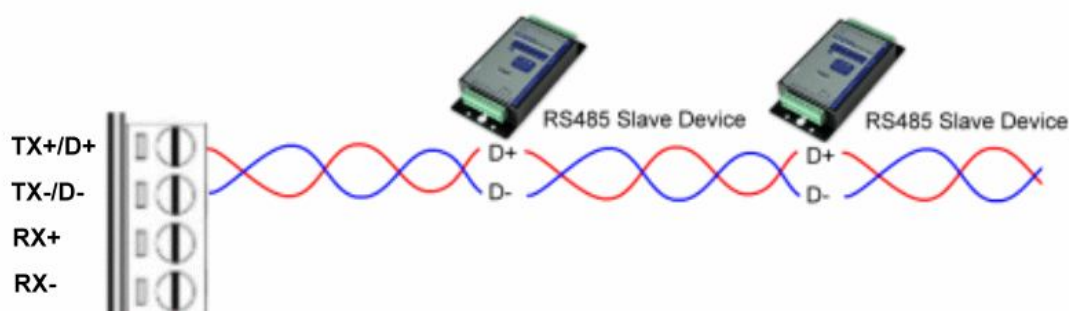
STEP1: Please connect the power source, the PWR LED will on and wait the SYS LED will blink.

STEP2: Connect TRP-C34M with internet port by RJ45 LAN cable.

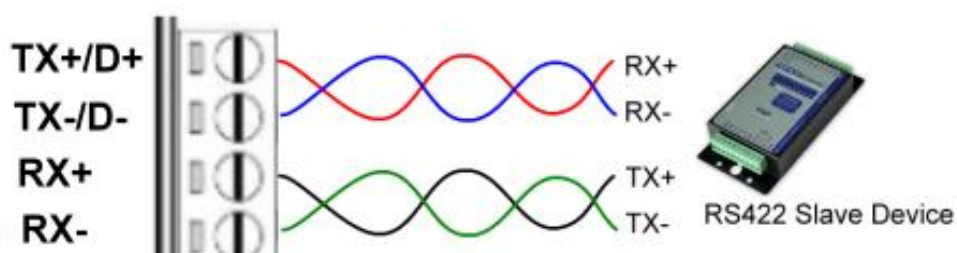
**The TRP-C34M Support Auto-MDIX, A straight-through or crossover Ethernet cable can be used to make a connection directly to the HUB/Router/PC.*

STEP3: Connect TRP-C34M with RS232, RS422 or RS485 with Modbus RTU or ASCII protocol.

3-1. RS485 Wiring



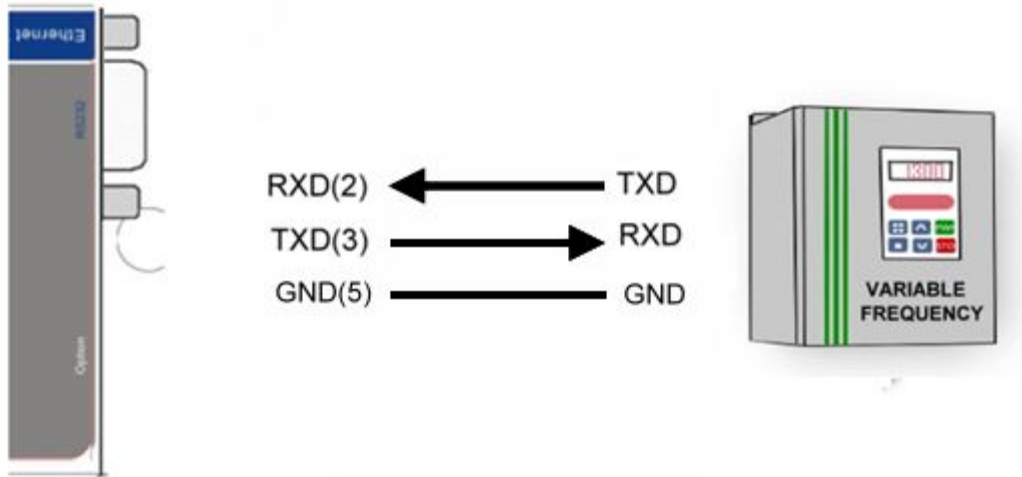
3-2. RS422 Wiring



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.

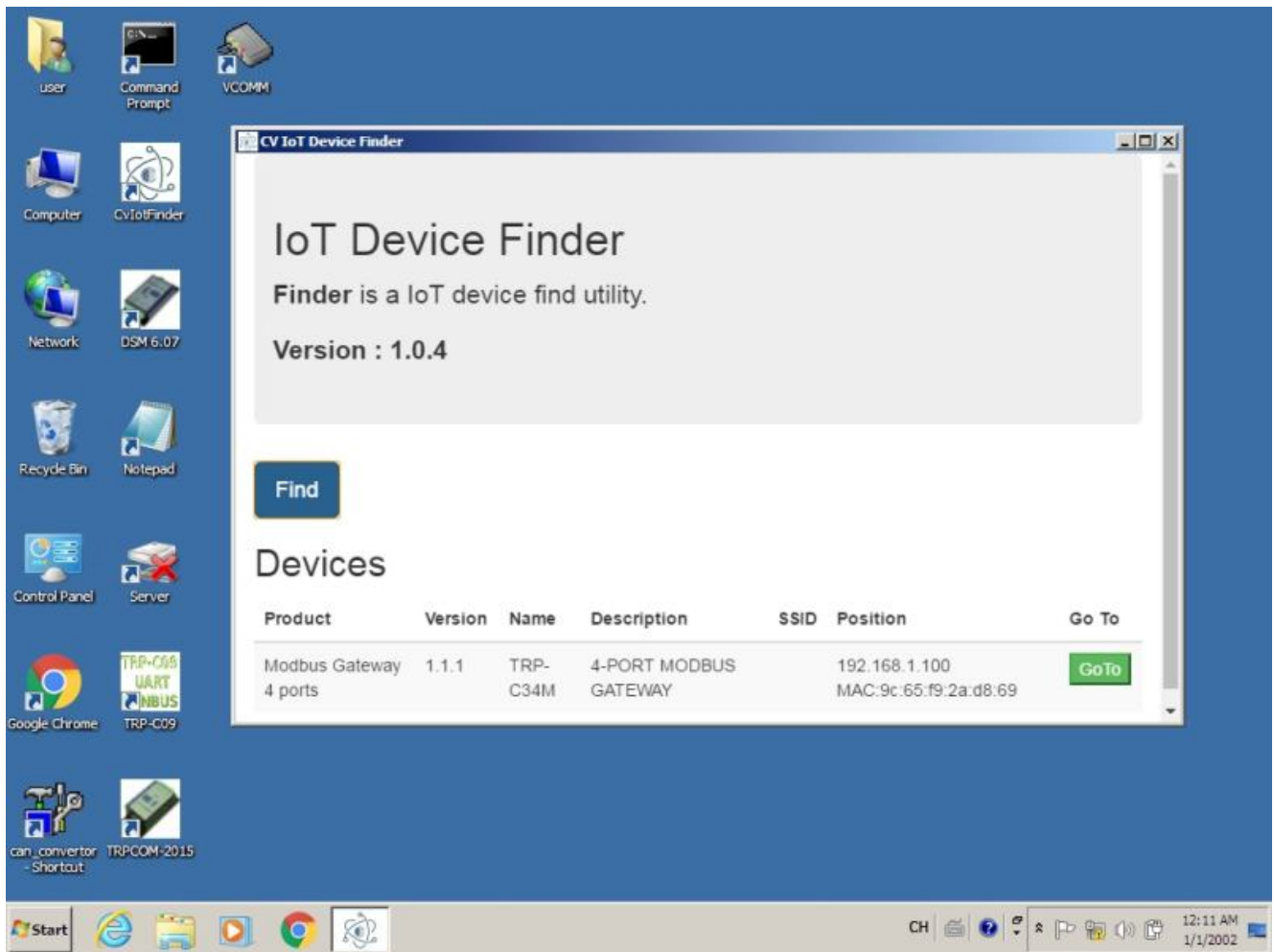
*Please try to connect pin1,4,6 and Pin 7,8 together if RS232 device does not work.



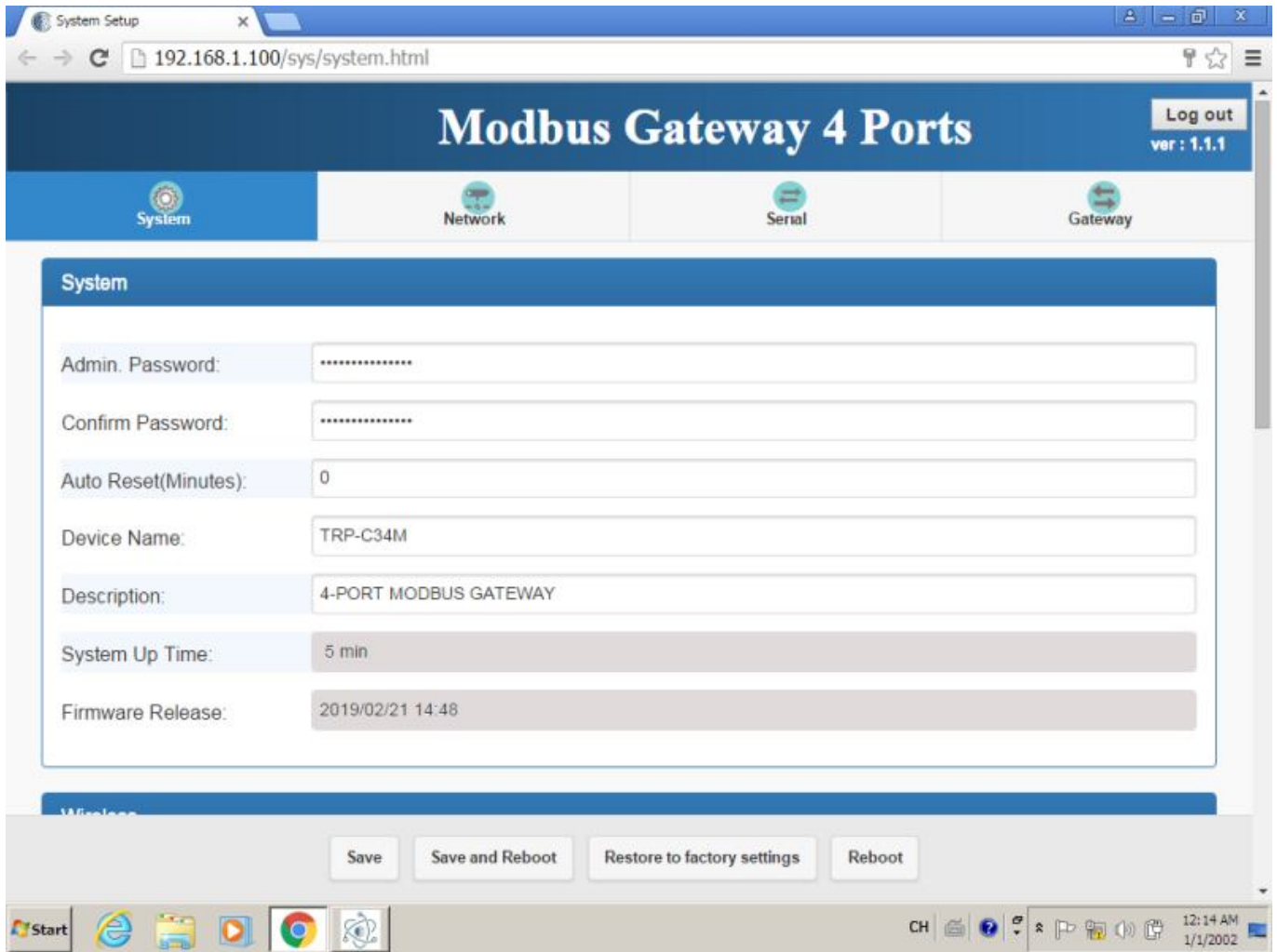
4. How to configure TRP-C34M

There are 2 ways to access the Server Properties and program the TRP-C34M.

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-C34M connected to the network.
- B: Displaying and changing the configuration of TRP-C34M.
- C: Upgrading the TRP-C34M firmware.
- D: Save, reboot and back factory settings.

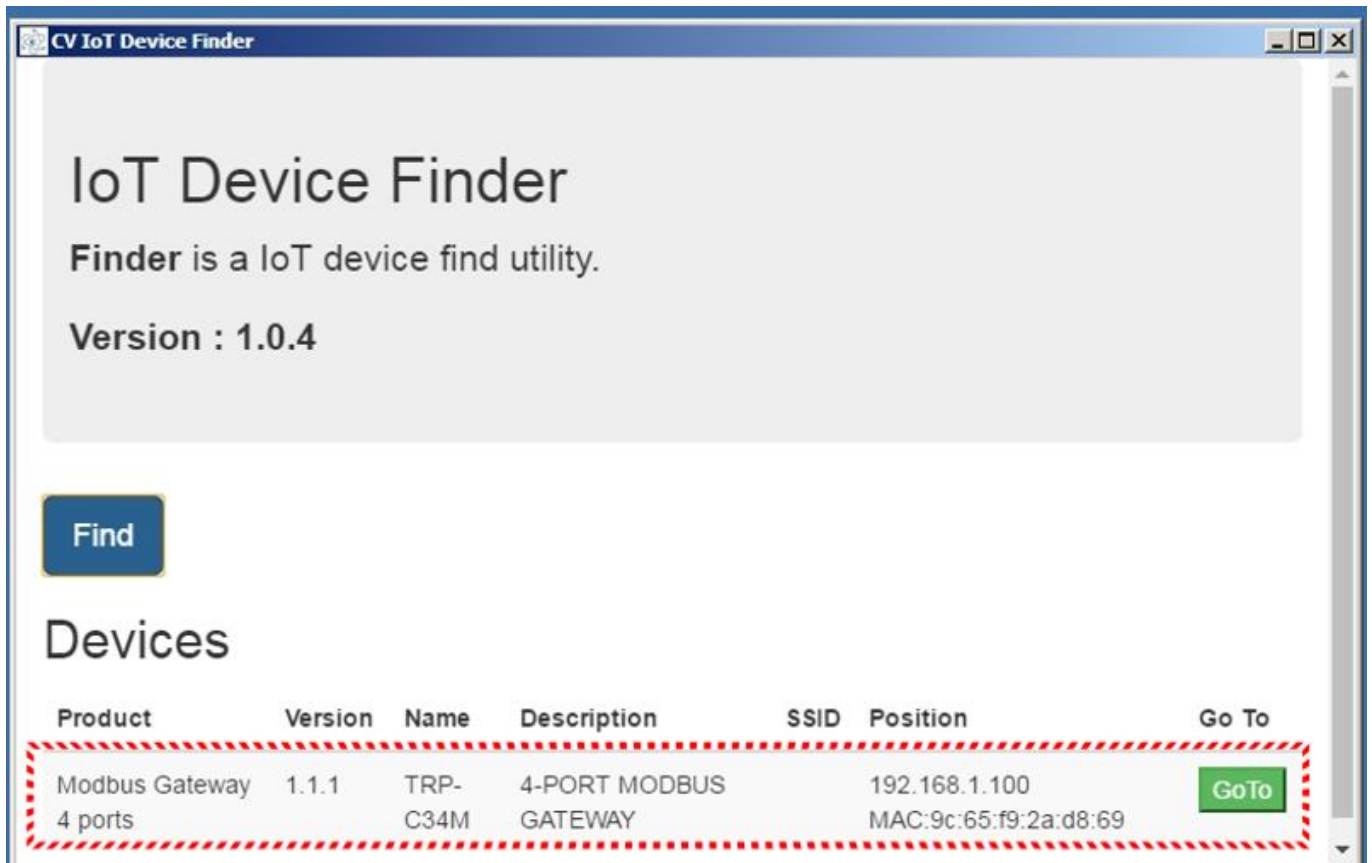
4-2. Searching LAN for TRP-C34M

Once TRP-C34M 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-C34M.

*** Please make sure the PC's network IP 3 segment as same as TRP-C34M.**

Such as PC's network IP should set up 192.168.1.xx ,and the TRP-C34M's default IP is 192.168.1.100.



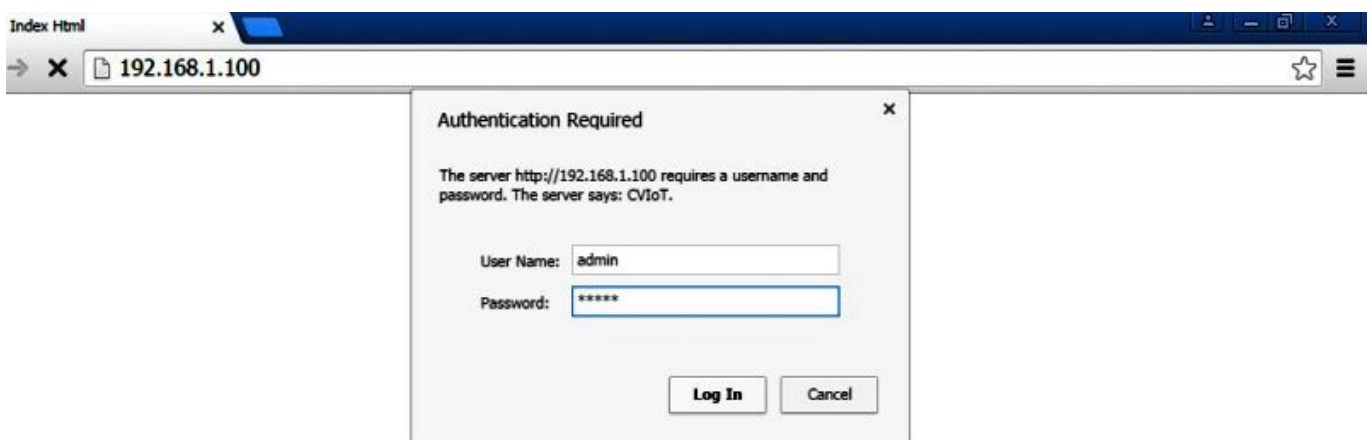
4-3. Configuring Server Properties

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:

The screenshot shows a web browser window with the URL `192.168.1.100/sys/system.html`. The page title is "Modbus Gateway 4 Ports" and the version is "ver : 1.1.1". The interface has a dark blue header with a "Log out" button. Below the header is a navigation bar with four tabs: "System" (selected), "Network", "Serial", and "Gateway". The "System" tab is active, showing a form with the following fields:

System	
Admin. Password:
Confirm Password:
Auto Reset(Minutes):	0
Device Name:	TRP-C34M
Description:	4-PORT MODBUS GATEWAY
System Up Time:	5 min
Firmware Release:	2019/02/21 14:48

At the bottom of the form, there are four buttons: "Save", "Save and Reboot", "Restore to factory settings", and "Reboot".

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.

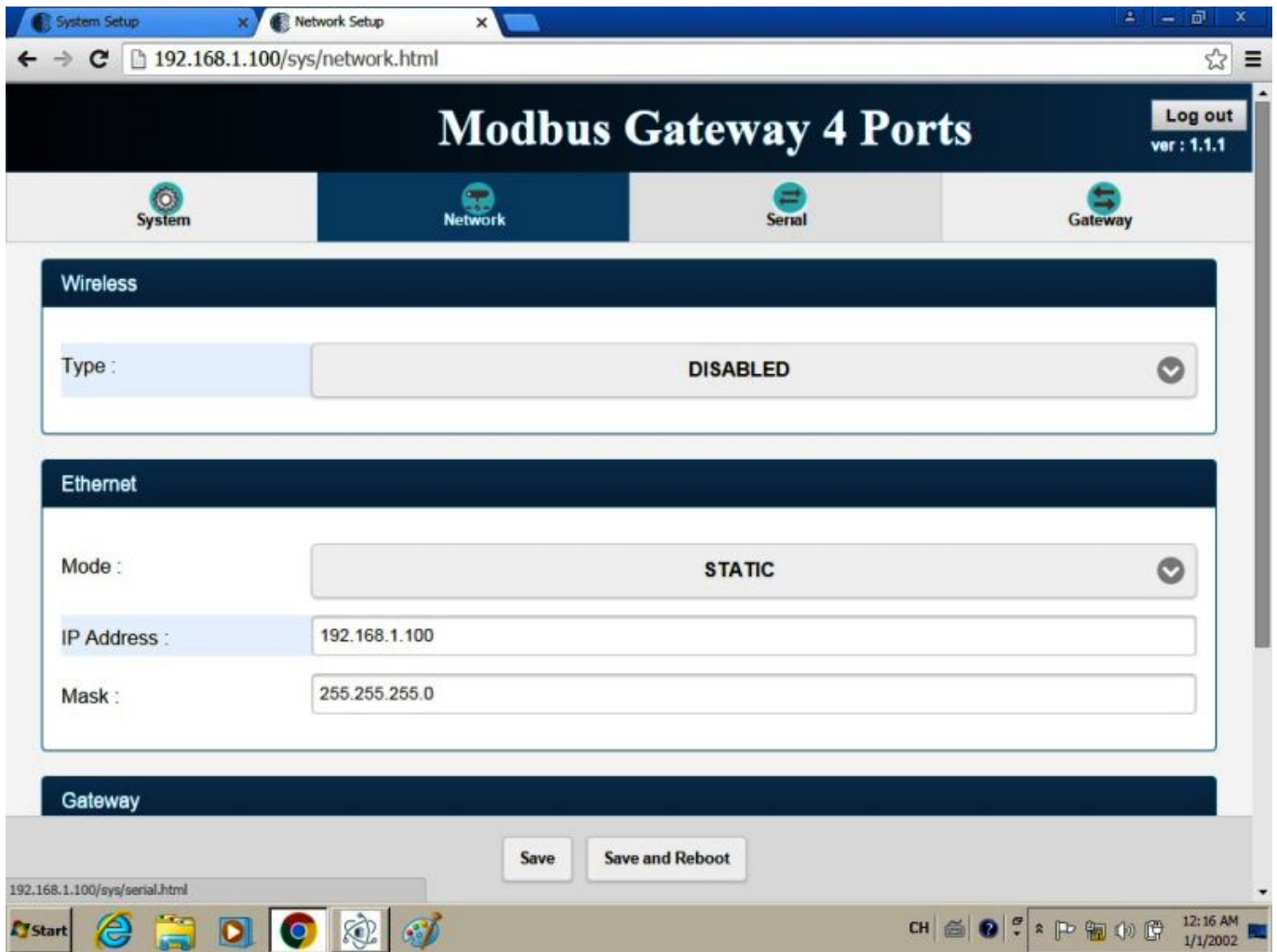
System Up time:

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

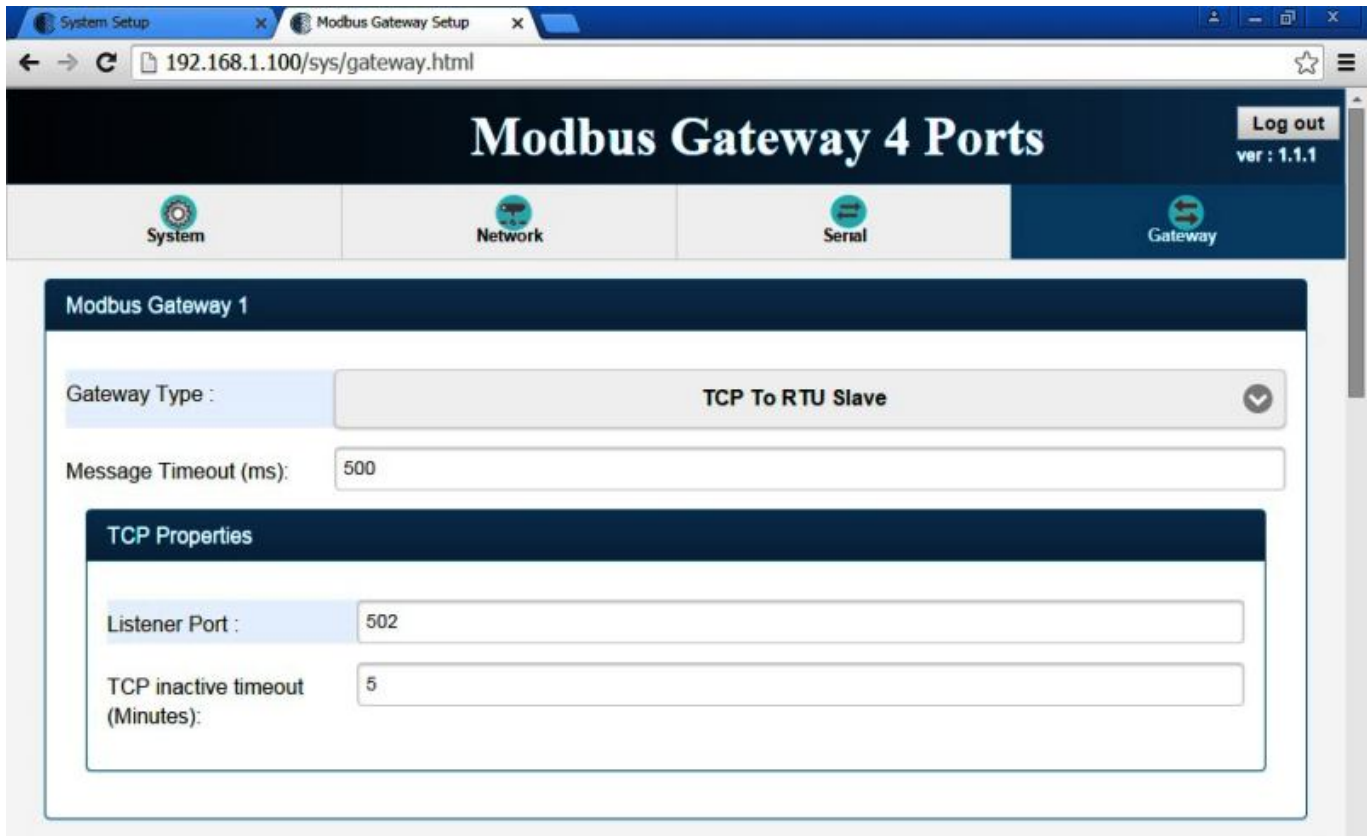
Stop Bits:1,2

Flow Control:None,XON/XOFF.

RxDelay(ms):0

TxDelay(ms):0

4-7. Gateway web UI:

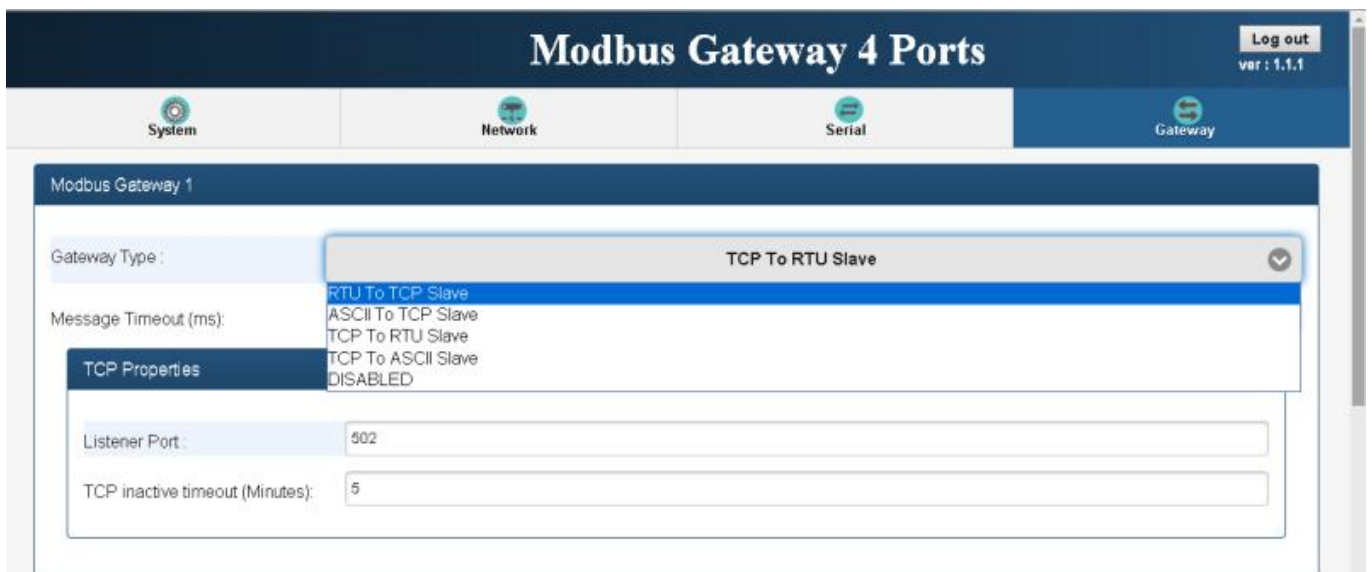


From Gate1, Gate2, Gate3 and Gateway4.

Gateway Type:

There are 4-port, each port can set up different connect type independently below.

- RTU To TCP Slave.
- ASCII To TCP Slave.
- TCP To RTU Slave.
- TCP To ASCII Slave.
- DISABLED.



Default Listen port:501,502,503,504.

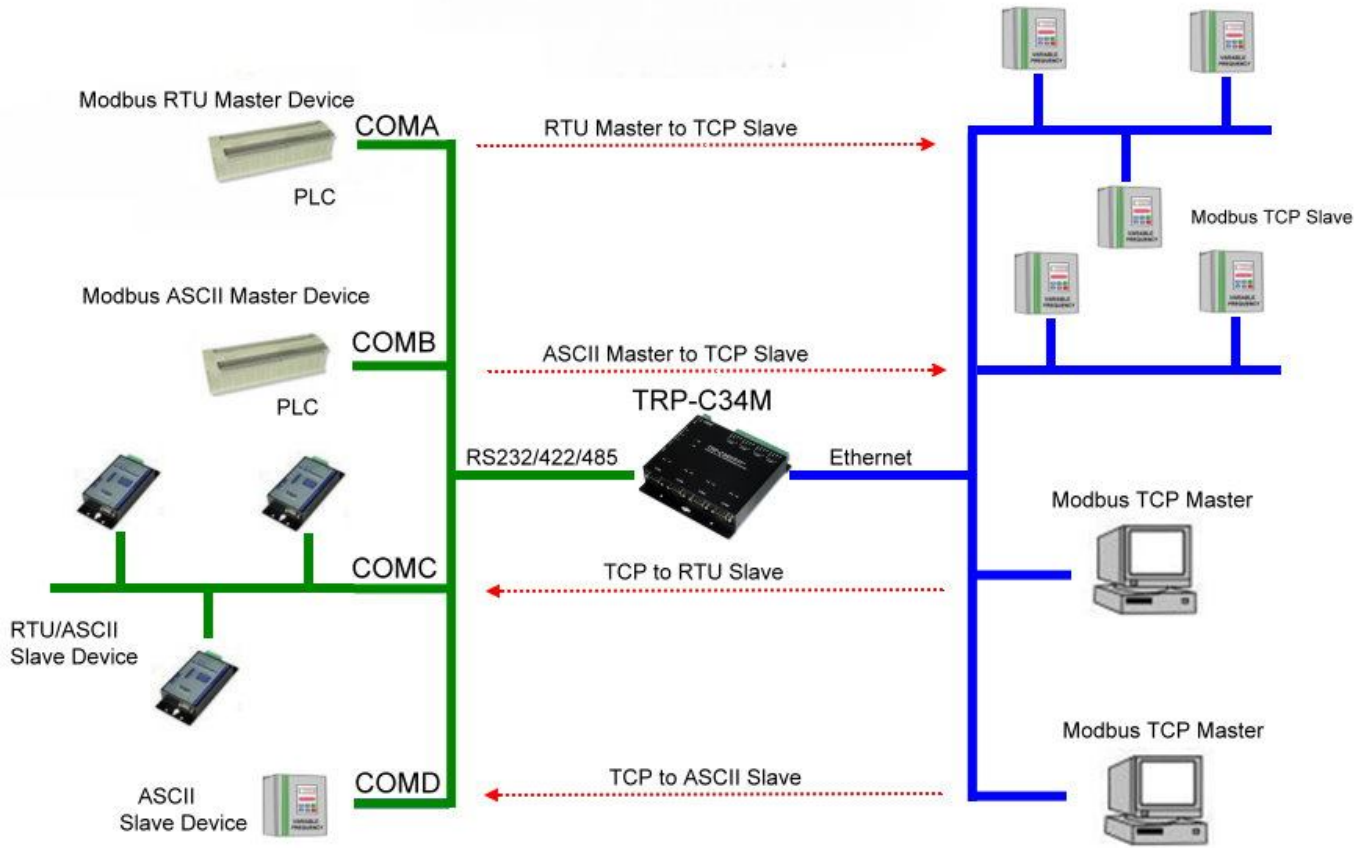
If User chooses the RTU to TCP Slave or ASCII type, the Gateway web UI will appear the screen below:

ID Range(1~255) Using UID range to map a query from Modbus serial master with an UID within this range to an IP and port.

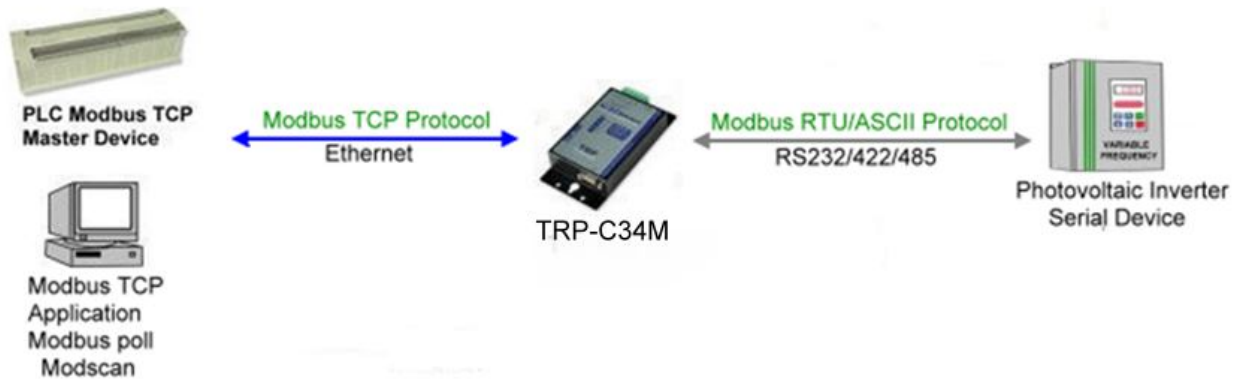
Each port can up to 8 sets Modbus slave TCP.

No.	ID Start	ID End	IP[:Port]
1	1	32	192.168.1.101
2	33	64	192.168.1.102:502
3	65	96	192.168.1.103
4	97	128	192.168.1.104
5	129	160	192.168.1.105
6	161	192	192.168.1.106
7	193	224	192.168.1.107
8	225	255	102.168.1.108:503

5. Application Multi-Function Application



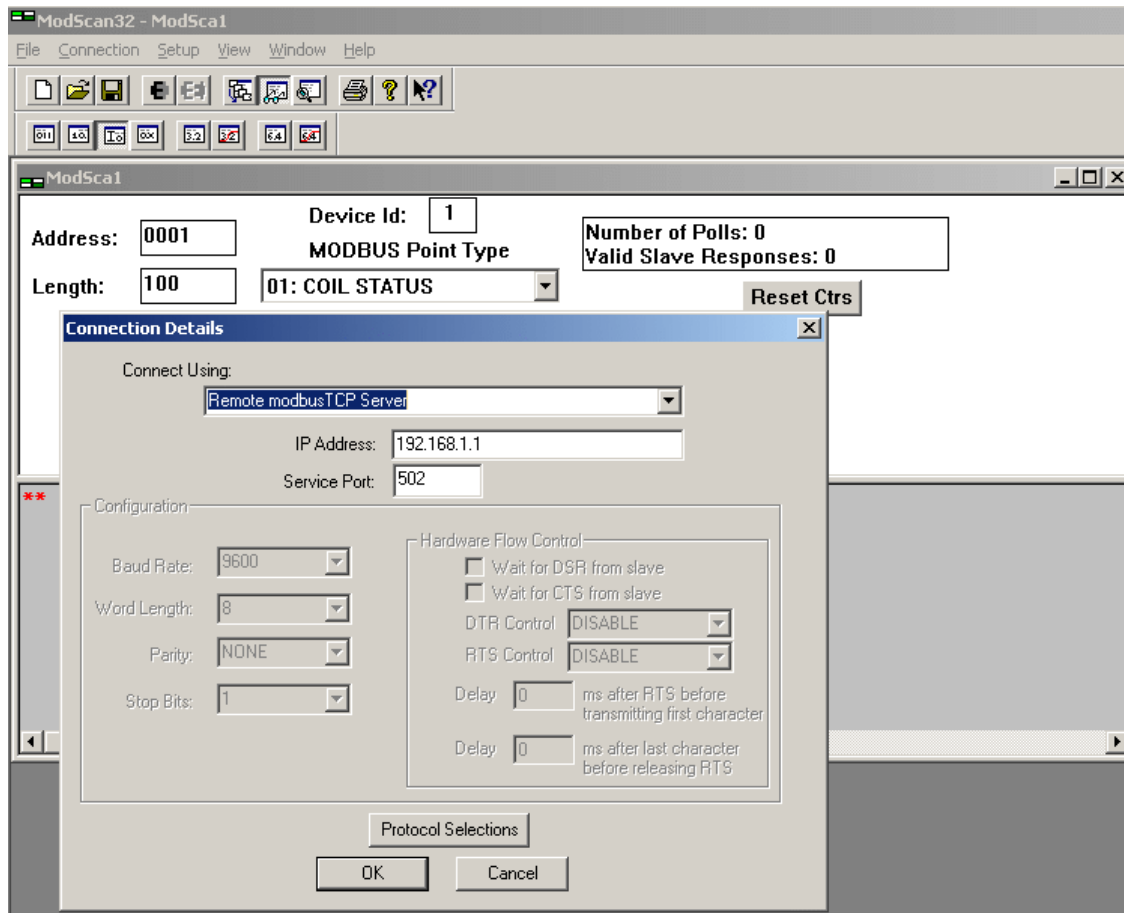
5-1.Modbus TCP to RTU/ASCII Application



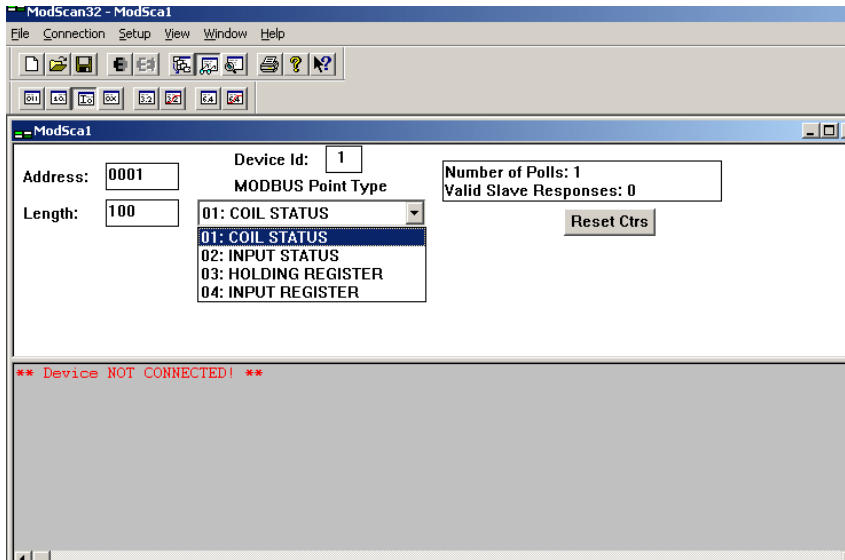
Example:

Step1.Perform this utility, and input IP/Port, click the **OK** button, then Select function code, the response will appear below:

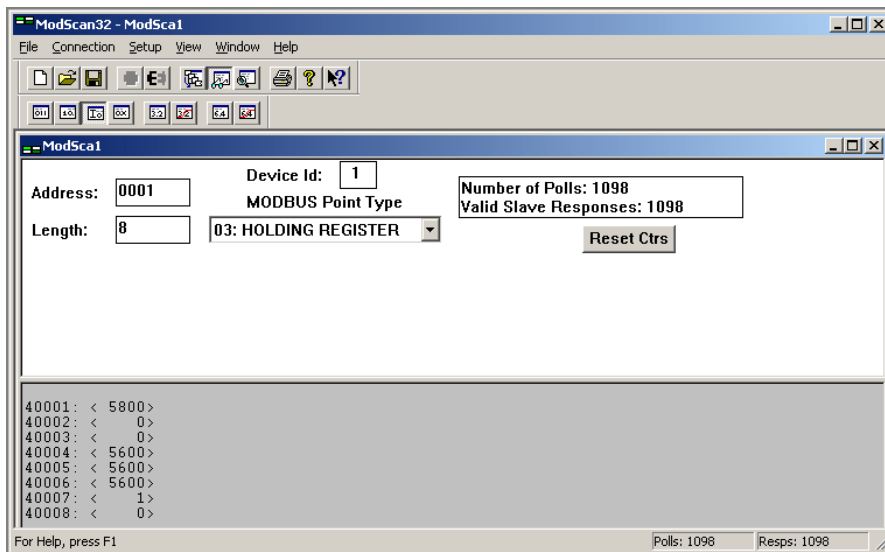
***the Modscan32 utility copyright belong the Win-TECH Software Design, user can find it from the www.win-tech.com.**



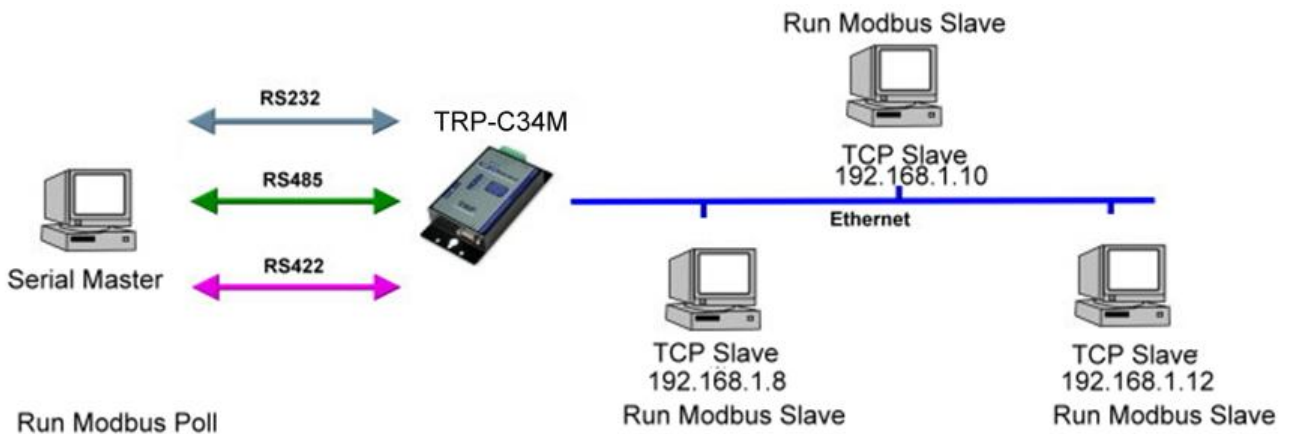
Step2. Selecting the function code.



Step 3.the utility will appear screen below:

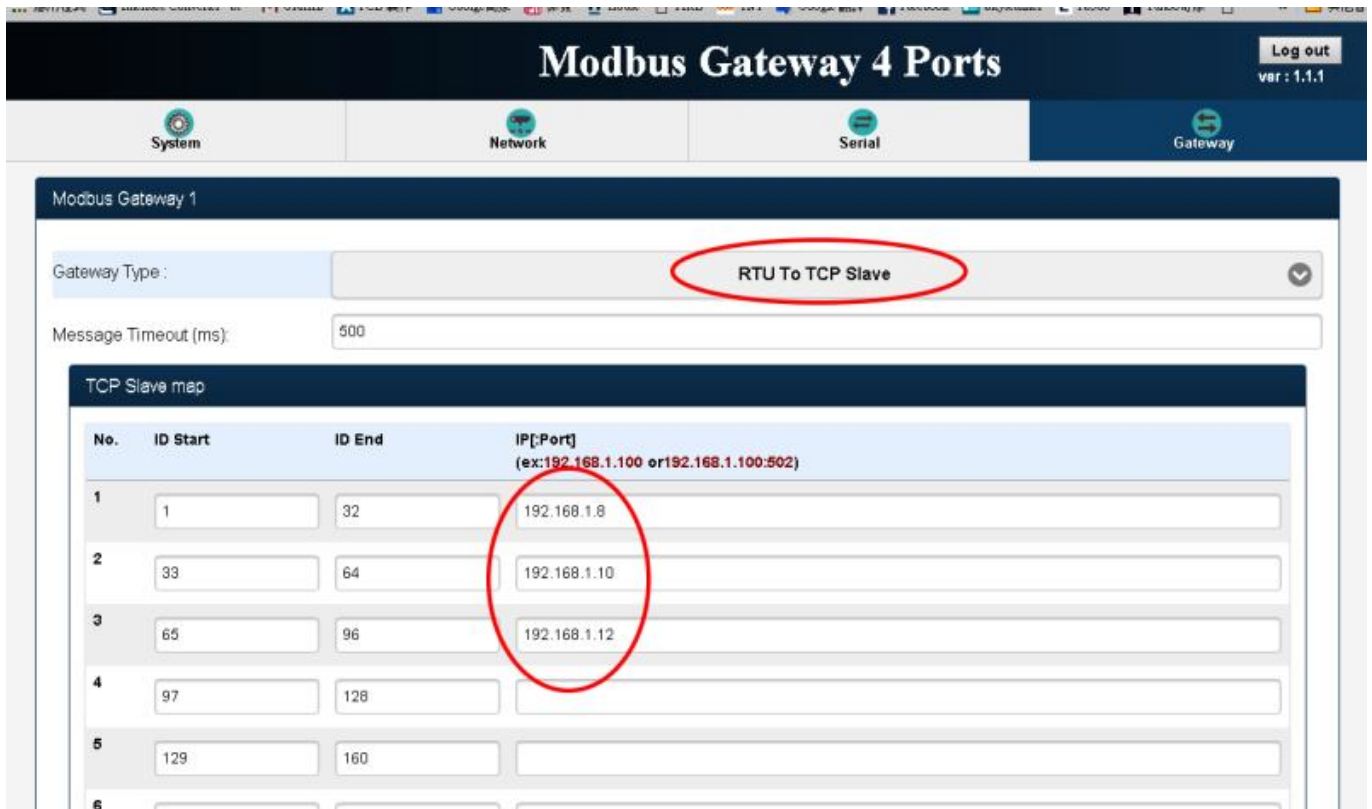


5-2 Modbus TCP Slave to Serial Master



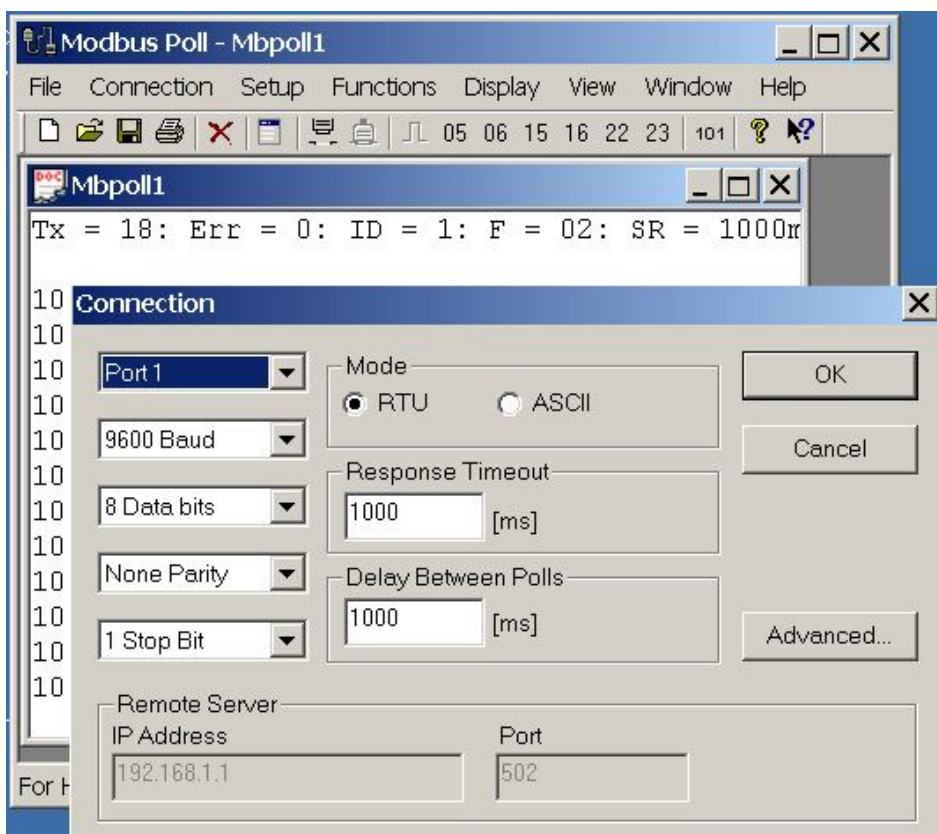
Example:

- Step1: Connect Serial Master PC-----RS232-----TRP-C34M-----Ethernet---Multi TCP Slave PC.
- Step2: Selecting the RTU to TCP Slave, and input the IP in order to match each Modbus TCP slave.



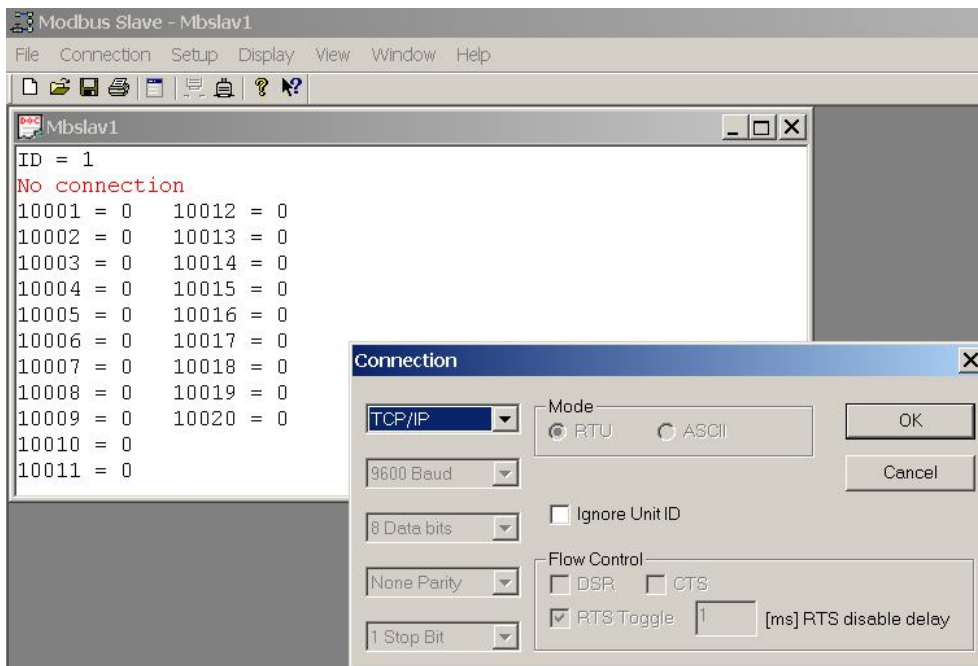
Step3: Perform the Modbus Poll utility from serial master PC.

***The Modbus Poll and Modbus Slave utility copyright belong the Witte Communications Company Design; user can find it from the www.modbustools.com.**



Step4: Run Modbus Slave utility from TCP Slave PC and setting the function code as same as

the Modbus slave poll.



6. Appendix

What is different between TRP-C34R and TRP-C34M

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-C34M is Modbus TCP Gateway

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

The TRP-C34M 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-C34M is able to analyze the protocol from Serial Master then send them to every Modbus TCP slave devices.