

2-Port Modbus RTU/ASCII To Modbus TCP Gateway

WPC-832-2-Modbus User Manual



v.201812b

<http://www.tcpipweb.com>

*** this user manual is subject to change without prior notice.

Table of Contents

Introduction	3
Overview	4
Package Check List	5
Product Specifications	6
Product Panel Views	8
Antenna Side	8
Serial Interface Side	8
LED Indicators	9
Wiring Architecture	10
Configuration	11
IP Search Utility Setup	12
Web Browser Configuration	14
1. System Setup	14
2. Network setup	16
3. Serial Port page	20
4. Gateway page (Serial port over TCP/IP)	21
Testing Verification	23
Hyper Terminal for TCP/IP	23
Hyper Terminal for COM Port	26
Reset (if needed)	27
Pin Assignment	28

Introduction

WPC-832-2-Modbus RTU/ASCII to TCP Gateway provides the easy way of connecting Modbus Serial devices to Wireless and Ethernet LAN in Modbus TCP and RTU/ASCII networks at the same time. The wireless supports 802.11 b/g/n in AP/Station mode with WEP/WPA/WPA2 encryption for data transmission security. Ethernet support 10/100 Mbps auto-detecting communication speeds. This Gateway is designed to operate 2 Serial ports (RS-232 and RS-422/485 respectively) over wireless and Ethernet network. It allows users to integrate Modbus/RTU and Modbus/ASCII Serial devices to the TCP/IP network-based devices from host to remote site with 8 TCP Masters simultaneously and 32 requests simultaneous per Master.

WPC-832-2-Modbus 2-Port Modbus RTU/ASCII To Modbus TCP Gateway is a high performance design composed with carefully selecting qualified components from reliable and certified sources. This operation manual will guide you to configure functions step by step.

The following topics are covered in this chapter:

- ☐ **Overview**
- ☐ **Package Checklist**
- ☐ **Product Features**
- ☐ **Hardware Specifications**

Overview

WPC-832-2-Modbus 2-Port Modbus RTU/ASCII To Modbus TCP Gateway provides a perfect solution to make your industrial Serial devices connect to Internet instantly via Wireless and Ethernet LAN.

WPC-832-2-Modbus embedded with MT7688AN MIPS chipset makes it become the ideal device for transmitting the data from your RS-232 or RS-422/485 Serial interface devices, such as PLCs, various Meters and/or Sensors to an IP-based Wi-Fi LAN, and making it possible for your software to access Serial interface devices anywhere and anytime.

WPC-832-2-Modbus provides TCP Server Mode, TCP Client Mode, and UDP Mode for selection. It supports manual configuration via web browser and support various protocols including TCP, IP, UDP, HTTP, DHCP, ICMP, and ARP. These are the best solution to coordinate your Serial interface devices.

Package Check List

WPC-832-2-Modbus 2-Port Modbus RTU/ASCII To Modbus TCP Gateway product attached with the following items:

- ☐ 1 unit of Serial to WPC-832-2-Modbus Gateway
- ☐ 1 unit of Power Adaptor (12V DC, 1A) is an option
- ☐ 1 unit of dipole antenna(2.0dBi)
- ☐ Documentation & Utility CD

NOTE: Inform your sales representative if any of the above items missing or damaged.

Product Specifications

System

- ✧ CPU : MT7688AN MIPS CPU, 580 MHz
- ✧ RAM : 128M Bytes DDR2 RAM
- ✧ ROM : 32M Bytes Flash ROM
- ✧ OS : OpenWrt Linux OS
- ✧ TCP to RTU support 8 simultaneous TCP Master, 32 simultaneous requests per Master.
- ✧ RTU to TCP support 8 TCP Slaves on each port.

Ethernet

- ✧ Port Type : RJ-45 Connector
- ✧ Speed : 10 /100 M bps (Auto Detecting)
- ✧ Protocol : ARP , IP , ICMP , UDP , TCP , HTTP , DHCP
- ✧ Protocol : NTP, FTP
- ✧ Mode : TCP Server / TCP Client / UDP
- ✧ Setup : HTTP Browser Setup (IE, Chrome, Firefox)
- ✧ Security : Setup Password
- ✧ Protection : Built-in 1.5KV Magnetic Isolation

WiFi port

- ✧ Support AP / Station
- ✧ Standard : 2.4G IEEE 802.11b/g/n
- ✧ Data Rate : 11/54/72.2 Mbps @ 20Mhz Band Width
- ✧ Modulation : DSSS; OFDM
- ✧ Frequency : 2.4GHz
- ✧ Tx Power 11b : Max. 22dBm
- ✧ Tx Power 11g/n : Max. 19dBm
- ✧ Rx Sensitivity : -76dBm @ 54Mbps; -89.5dBm @ 11Mbps
- ✧ Tx Rate : Max. 54Mbps with auto fallback
- ✧ Tx Distance : Up to 100m
- ✧ Security : WEP 64-bit / 128-bit data encryption, WPA / WPA2 personal
- ✧ Antenna : 2 dBi ; RP-SMA connector
- ✧ Network Mode: Infrastructure; Soft AP (for Setup)
- ✧ Mode : TCP Server / TCP Client / UDP / Virtual Com / Pairing
- ✧ Setup : HTTP Browser Setup (IE, Chrome, Firefox)
- ✧ Security : Login Password

Serial Ports *2

- ✧ Port : RS-232 *1 (RS-232 with RX/TX/GND only)
- ✧ Port : RS-422 / 485 *1 (Surge Protect)
- ✧ Speed : 300 bps ~ 230.4 K bps
- ✧ Parity : None , Odd , Even , Mark , Space
- ✧ Data Bit : 5 , 6 , 7 , 8
- ✧ Stop Bit : 1 , 2
- ✧ RS-232 Pins : Rx , Tx , GND
- ✧ RS-422 : Rx+ , Rx- , Tx+ , Tx- (Surge Protect)
- ✧ RS-485 : Data+ , Data- (Surge Protect)
- ✧ 15KV ESD for all signals

Power

- ✧ DC 9~32 V, 1000mA@12V
- ✧ support DC Jack & Terminal Block Input

Mechanical and Environment

- ✧ Operating Temperature : -20℃ ~ 70℃
- ✧ Storage Temperature: -25℃ ~ 80℃
- ✧ Dimensions : 110 * 90 * 26 mm (W * D * H)

- ✧ Weight : 110 ± 5gm
- ✧ Housing: plastic.

Other Features

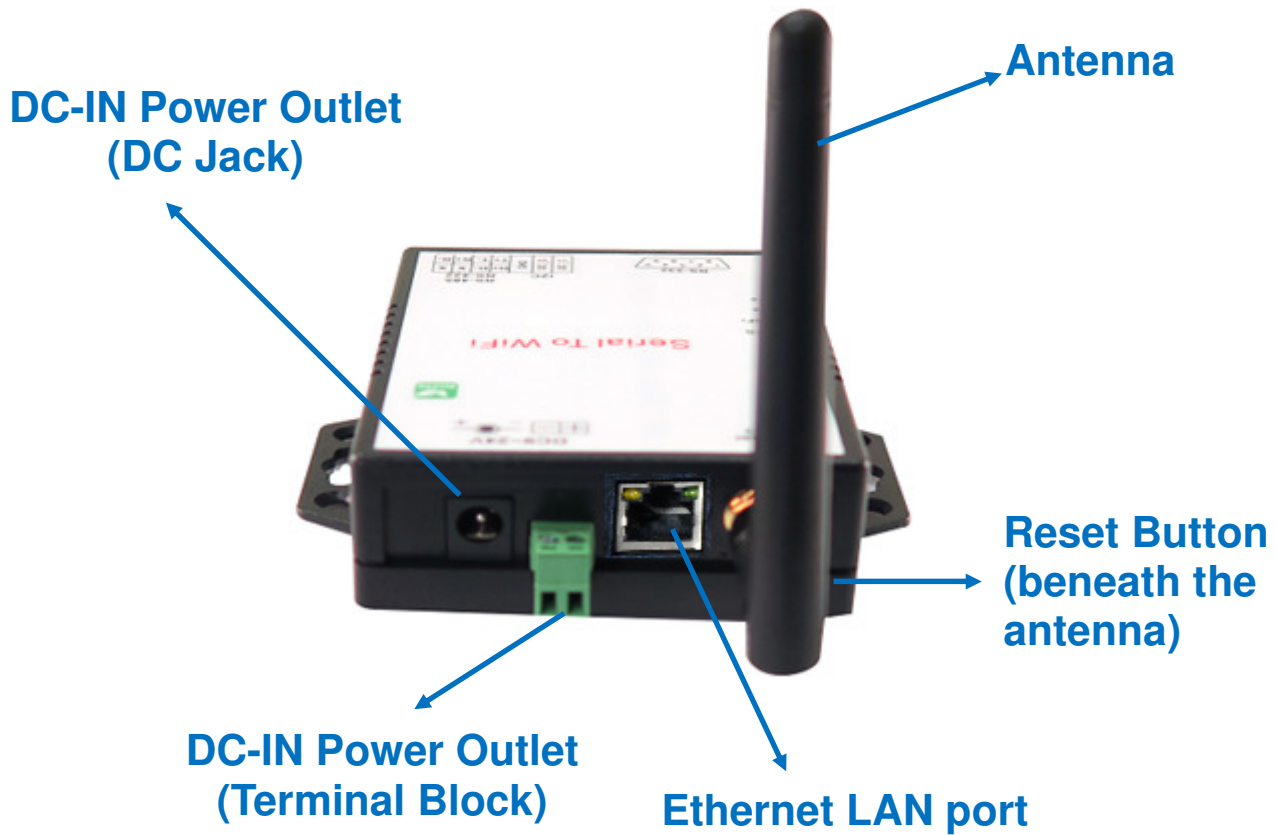
- ✧ Led Lamp : SYS, WiFi, RX, TX, LAN
- ✧ RTC : Real Time Clock
- ✧ Watch Dog Function
- ✧ Software : TCP TO RTU Slave, RTU Master TO TCP Slave ,
TCP TO ASCII Slave, ASCII Master TO TCP Slave

Warranty

- ✧ Warranty period : 1 year.

Product Panel Views

Antenna Side



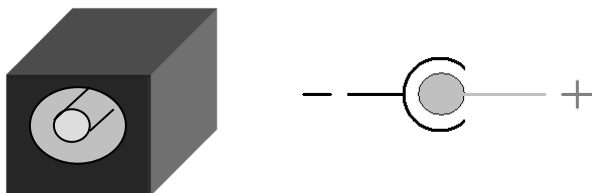
Serial Interface Side



DC-IN Power Outlet

The Serial to Ethernet+WiFi Converter is powered by a single 12V DC (Inner positive, outer negative) power supply and 1A Current. Connect the power adaptor to the AC power socket and put the DC Jack plug into the outlet of device. The “SYS” green color LED will be ON when power is properly supplied. Terminal Block 2 wires power supply is an option.

□ DC Power outlet



Reset Button

If any chance you forgot the login password or have incorrect settings making this Device inoperable, upon the power is on and the “SYS” LED light on, use a point tip to press this button and hold it for more than 20 seconds the release the point tip. The Device will reboot and all the parameters will be reset to the factory default.

LED Indicators



SYS (Green):

Power indicator. When the power is on, the LED will be on and blink per second.

WiFi (Red):

WiFi indicator. When the WiFi is working, this LED will be blinking.

Tx (Green):

Data sending indicator. When data sending to the device from LAN or WiFi, this LED will blink.

Rx (Red):

Data received indicator. When data sending to the device from Serial ports, this LED will blink.

Antenna Connector

The connector for antenna is a standard reverse SMA jack. Simply connect it to a 2.0dBi dipole antenna (Standard Rubber Duck). It is 50 Ohms impedance and can support 2.4GHz frequency.

Ethernet Port

The connector for network is the usual RJ45. Simply connect it to your network switch or Hub. When the connection is made, the green color LED of Ethernet port will blink. When data traffic (Rx/Tx) occurs on the network, yellow color LED will blink during data transferring.

DC-IN Power Outlet

The Device is powered by a 12V DC (Inner positive, outer negative) , 1.0A power supply. Plugging the power adaptor to the AC power socket and put the DC Jack plug into the outlet of the Device. The “SYS” green color LED will be ON when power is properly supplied. Terminal Block 2 wires power supply is an option.

Serial Port of RS-232/RS-422/RS-485

Connect the Serial data cable between the device and the Serial interface device. Follow the procedure of web page configuration to set up parameters.

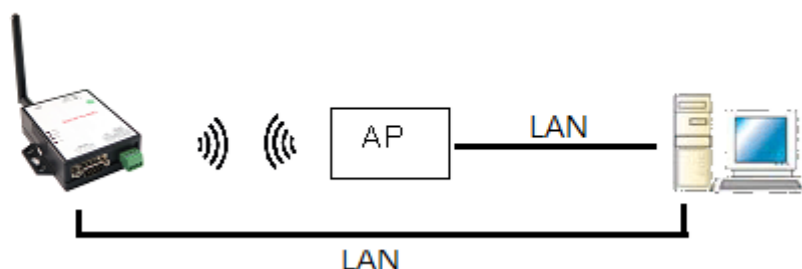
Wiring Architecture

1. RS-232

RS-232 Wiring

Serial Device

DB 9 ————— DB 9

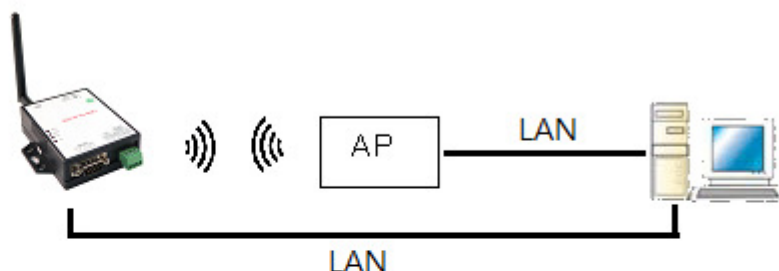


2. RS-422/RS-485

RS-422 Wiring

Serial Device

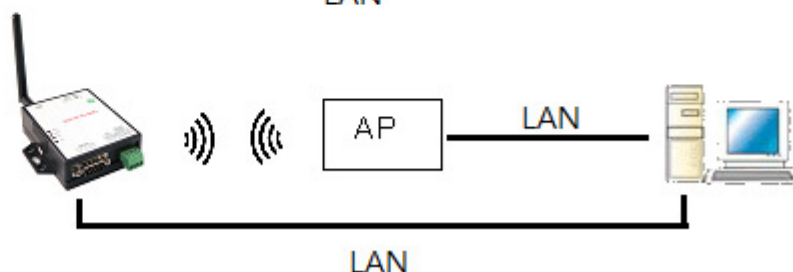
T -	—————	R -
T +	—————	R +
R -	—————	T -
R +	—————	T +



RS-485 Wiring

Serial Device

D +	—————	D +
D -	—————	D -



When you finish the steps mentioned above and the LED indicators are as shown, the converter is installed correctly. You can check the Software Setup CD to find IP Search Utility. To proceed with the parameters setup, please use a web browser (IE or Chrome) to continue the detailed settings.

Configuration

When setting up your Gateway for the first time, the first thing you should do is to configure the IP address.

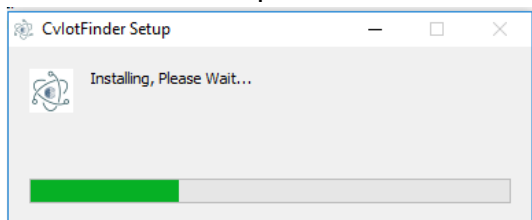
The following topics are covered in this chapter:

- ☐ **IP Search Utility Setup**
- ☐ **Web Browser Configuration**

IP Search Utility Setup



1. Copy “CvlotFinder Setup.exe” from CD ROM to your host computer.
2. “CvlotFinder” is a self-extract-install program. Double click it to install this Wi-Fi IP Searching tool into host computer.



3. Upon running IP search tool (CvlotFinder), if a firewall warning pop up, please click to accept the program pass through firewall.

Customize settings for each type of network

You can modify the firewall settings for each type of network that you use.

Private network settings

- ☒ Turn on Windows Defender Firewall
- ☐ Block all incoming connections, including those in the list of allowed apps
- ☒ Notify me when Windows Defender Firewall blocks a new app

☒ Turn off Windows Defender Firewall (not recommended)

Public network settings

- ☒ Turn on Windows Defender Firewall
- ☐ Block all incoming connections, including those in the list of allowed apps
- ☒ Notify me when Windows Defender Firewall blocks a new app

☒ Turn off Windows Defender Firewall (not recommended)

4. CvlotFinder will pop up on the screen after installation or you may double click the icon on desk top of host computer to open this tool.



5. Click on “Find” button. It will scan the network and show up the IP of Gateway.

CvlotFinder 1.0.9



Devices

Product	Version	Name	Description	IP & MAC	Go To
Modbus Gateway 4 ports	1.0.22	Device Name	Device Description	192.168.1.199 9c:63:95:21:7f:c1	Go To Setup
Modbus Gateway 4 ports	1.0.22	Device Name	Device Description	10.0.0.1 9:16:5f:9:21:21:4	Go To Setup

Ethernet IP

WiFi IP

6. Click "Setup" button will pop up a window. You may change Name, Description, IP, Netmask of device. Click "Setup" to save setup. **The device's IP must be same subnet with host PC/NB enable to use web browser open configuration page.**

Setup

MAC	Name & Description	IP & Netmask
9c:65:f9:21:0f:cd	<div>Device Name</div> <div>Device Description</div>	<div>192.168.1.199</div> <div>255.255.255.0</div>

USERNAME:

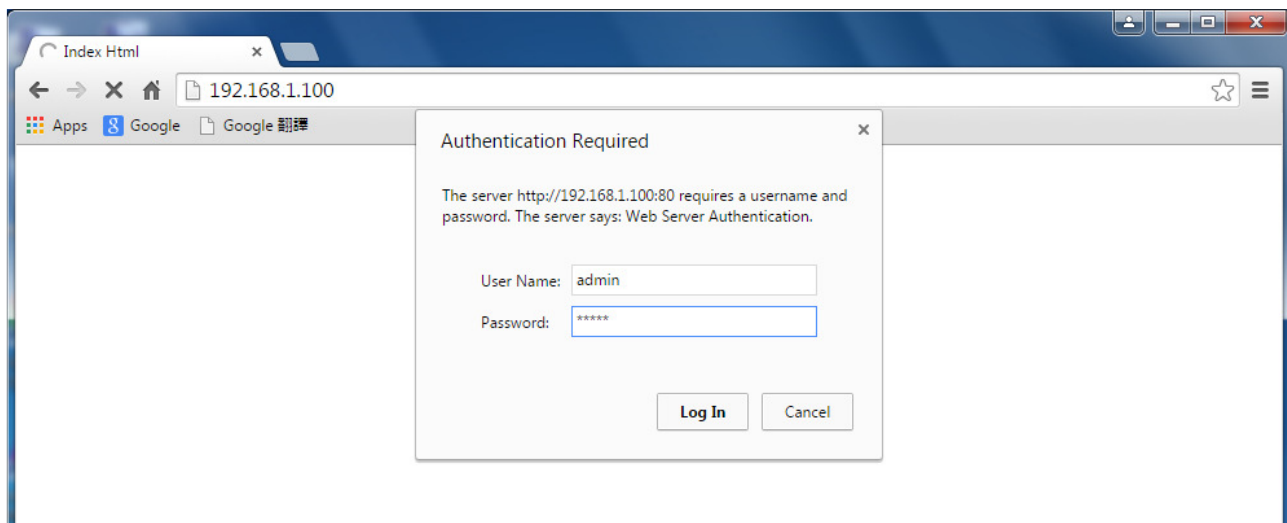
admin

PASSWORD:

Setup

Close

7. Click "Goto" button will open a web page of configuration. (default ID: admin; password: admin).



Login:

User: "admin"

Password: (none or "admin")

8. Follow #5 step, now you have successfully connected to the Gateway.

Modbus Gateway

Log out
ver : 1.0.26b

System

Network

Serial

Gateway

System

Admin. Password:

Confirm Password:

Auto Reset(Minutes):

Device Name:

Description:

System Up Time:

Firmware Release:

0

Device Name

Device Description

6:34

2018/04/15 16:48

Save

Save and Reboot

Restore to factory settings

Reboot

Web Browser Configuration

There are 4 setup pages as “System”, “Network”, “Serial” and “Over TCP/IP”.



1. System Setup

1.1 System: where you can change Password, set up Auto Reset time and modify Device Name, Description of device.

The screenshot shows the "System" configuration page. It has a blue header with the "System" tab selected. Below the header, there are several input fields: "Admin. Password:" with a masked password field, "Confirm Password:" with a masked password field, "Auto Reset(Minutes):" with a value of "0", "Device Name:" with a text field containing "Device Name", "Description:" with a text field containing "Device Description", "System Up Time:" with a value of "23 min", and "Firmware Release:" with a value of "2017/11/10 10:02".

1.2 Appearance of Wireless and Ethernet setup.

The image shows two screenshots of the configuration pages. The top screenshot is the "Wireless" configuration page, which has a blue header with the "Wireless" tab selected. It contains input fields for "IP Address:" (10.0.0.1), "Subnet Mask:" (255.255.255.0), "Gateway:" (192.168.1.1), and "MAC Address:" (9c:65:f9:24:55:56). The bottom screenshot is the "Ethernet" configuration page, which has a blue header with the "Ethernet" tab selected. It contains input fields for "IP Address:" (192.168.1.199), "Subnet Mask:" (255.255.255.0), "Gateway:" (192.168.1.1), and "MAC Address:" (9c:65:f9:24:2a:36).

1.3 NTP: Enable / Disable NTP function; Set up NTP server and Time Zone.

The SERVICES configuration page has a blue header. Below it, there are four rows of configuration options:

- HTTP Port: 80
- NTP Enabled: A dropdown menu showing "Enabled" with a downward arrow.
- NTP Server: openwrt.pool.ntp.org
- NTP Offset: A dropdown menu showing "UTC" with a downward arrow.

1.4 Firmware update:

If necessary, click “Browse” to open file manager.

The Firmware update page has a blue header. Below it, there is a text input field for the firmware file name, followed by a "Browse..." button. Below the input field is a large red "Update" button.

Then, select the file with specified version and click “open” button.

The screenshot shows a Windows File Explorer window with the following path: This PC > Data (D:) > KSH -Customers客戶 > SanTelequip -India U031 > Products測試,文件 > WPC-832-485 > Firmware. The left sidebar shows "Quick access" with "This PC" selected. The main area displays a table of files:

<input type="checkbox"/>	Name	Date modified	Type	Size
<input checked="" type="checkbox"/>	SAN-U2E-UPGRADE-'1.0.21'.bin	11/16/2017 11:48	BIN File	861 KB
<input type="checkbox"/>	SAN_U2E-UPGRADE-'1.0.20'.bin	10/16/2017 4:19 PM	BIN File	1,683 KB
<input type="checkbox"/>	SAN_U2E-UPGRADE-'1.0.19'.bin	9/29/2017 3:29 PM	BIN File	834 KB

When the selected file name appears on the input column, click “Update” button.

The Firmware update page is shown again, but now the text input field contains the file name "SAN-U2E-UPGRADE-'1.0.21'.bin". The "Browse..." button is still present to the right of the input field. Below the input field is a large red "Update" button.

1.5 Up to now, Setup is successfully configured. Please click “Save” and go to other pages for configuration or click “Save and Restart” to run new configuration.

The screenshot shows two buttons side-by-side: "Save" and "Save and Restart". Both buttons are white with a light blue border and a shadow.

2. Network setup

Modbus Gateway

Log out
ver : 1.0.26b

System

Network

Serial

Gateway

Wireless

Type : ACCESS POINT

SSID : CVIoT_9e_65_f9_04_55_56

Password :

Encrypt : NONE

Mode : STATIC

IP Address : 10.0.0.1

Subnet Mask : 255.255.255.0

2.1 Wireless section:

2.1.1 Type: Click to select “Access Point” or “Infrastructure”. “Infrastructure” is for connecting to a local Router.

Modbus Gateway

Log out
ver : 1.0.26b

System

Network

Serial

Gateway

Wireless

Type : ACCESS POINT

SSID : INFRASTRUCTURE

ACCESS POINT

Password : DISABLED

Encrypt : NONE

Mode : STATIC

IP Address : 10.0.0.1

Subnet Mask : 255.255.255.0

2.1.2 If select “ACCESS POINT”, input password for the AP and assign IP address with “DHCP” or “STATIC”.

Modbus Gateway

Log out
ver : 1.0.26b

System

Network

Serial

Gateway

Wireless

Type : ACCESS POINT

SSID : CVIoT_9e_65_f9_04_55_56

Password :

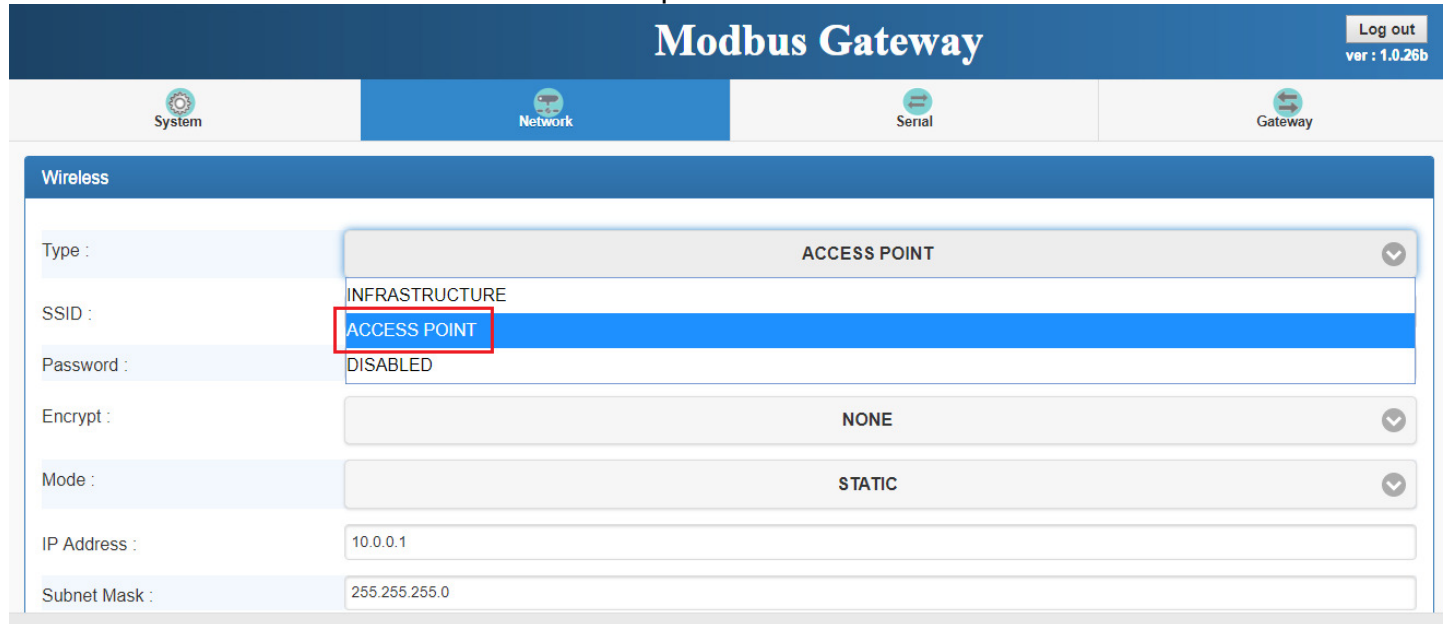
Encrypt : NONE

Mode : STATIC

IP Address : 10.0.0.1

Subnet Mask : 255.255.255.0

2.1.3 When selected “ACCESS POINT”, this Device acts as an Access Point which is allowed to be connected by PC /NB /Smart Phone/ PAD. It supports DHCP server function. Soft AP broadcasts its SSID “CVIoT_XX_XX_XX_XX_XX_XX”. PC /NB /Smart Phone/PAD should connect to this SSID and then able to open web browser with default IP of this Device.



Modbus Gateway Log out ver : 1.0.26b

System Network Serial Gateway

Wireless

Type : ACCESS POINT

SSID : INFRASTRUCTURE
ACCESS POINT

Password : DISABLED

Encrypt : NONE

Mode : STATIC

IP Address : 10.0.0.1

Subnet Mask : 255.255.255.0

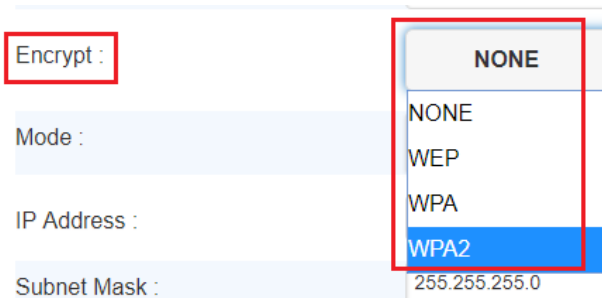
2.1.4 Password: Key in selected AP log in password



SSID : ksh66666666 CVIoT_9c_65_f9_24_55_56

Password :

2.1.5 Encrypt



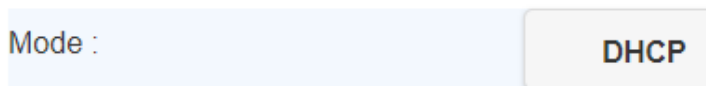
Encrypt : NONE

Mode : NONE
WEP
WPA
WPA2

IP Address : 10.0.0.1

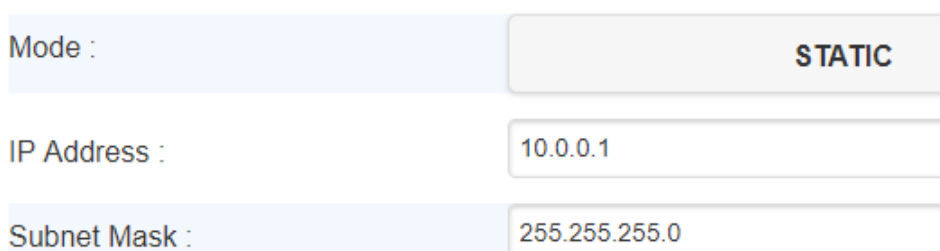
Subnet Mask : 255.255.255.0

2.1.6 Mode: select “DHCP” to let AP assign IP address to itself,



Mode : DHCP

or select “STATIC” to input assigned IP address, Subnet Mask manually.



Mode : STATIC

IP Address : 10.0.0.1

Subnet Mask : 255.255.255.0

2.1.7 If The Type selected with “Infrastructure”, set SSID of Router and the other inputs.

Network Setup

192.168.0.100/sys/network.html

Serial Over TCP/IP

Log out ver: 1.0.13

System Network Serial Over TCP/IP

Wireless

Type : INFRASTRUCTURE

SSID : Scan edimax_2.4G_ksh

Password : arp78945612

Encrypt : WPA2

Mode : STATIC

IP Address : 192.168.1.100

Subnet Mask : 255.255.255.0

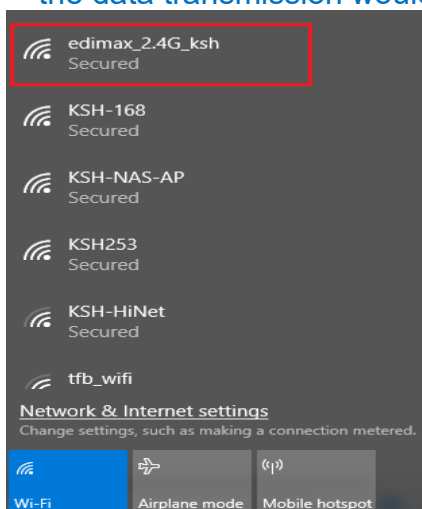
Save Save and Reboot

2.1.8 Go to item SSID, click “Scan” will get list of available SSID of Access Points, select the one in your network to link. For example:

SSID	MAC	Strength
KSH-NAS-AP	74:DA:38:33:EA:EE	100%
edimax_2.4G_ksh	74:DA:38:14:A2:D0	73%
nhrm	B8:55:10:C8:AC:72	7%
Burn_in_test_1	00:02:70:65:99:A4	96%
Fortune	5C:F4:AB:5F:J:44	10%
CHT Wi-Fi Auto	1C:AF:F7:35:36:96	7%
CHT Wi-Fi(HiNet)	1E:AF:F7:35:36:96	57%

Close

2.1.9 On the NB/PC, choose same SSID to link. NB/PC must close Ethernet in advance otherwise the data transmission would not work.



2.2 Ethernet section: select “STATIC” or “DHCP” to assign IP address.

Ethernet

Mode : STATIC

IP Address :

Mask : 255.255.255.0

Gateway

Gateway : 192.168.0.2

2.3 Gateway and DNS section: check with MIS for right IP address of Ethernet or Wi-Fi. **The Gateway must be set with correct IP enable to connect with other devices.**

Gateway

Gateway : 192.168.1.1

DNS

DNS : 168.95.1.1

2.4 Up to now, Setup is successfully configured. Please click “Save” for this page temporarily and go to other pages for configuration or click “Save and Restart” to run this Device with new settings.

Save **Save and Restart**

3. Serial Port page

Please clearly set each parameters from Serial 1 to Serial 2 (default 9600,n,8,1).

System

Network

Serial

Gateway

Log out

ver : 1.0.26b

Serial 1

Baud Rate:

9600

Parity:

None

Data Bits:

8

Stop Bits:

1

Flow Control:

None

RxDelay(ms) :

0

3.1 Baud Rate: 300 bps to 921.6K bps

3.2 Parity: None, Even, Odd

3.3 Data Bits: 5, 6, 7, 8

3.4 Stop Bits: 1, 2

3.5 Flow Control: None, XON/XOFF

3.6 RxDelay(ms)

3.7 TxDelay(ms)

3.8 Up to now, Setup is successfully configured. Please click “Save” for this page temporarily and go to other pages for configuration or click “Save and Restart” to run this Device with new settings.

Save

Save and Restart

4. Gateway page (Serial port over TCP/IP)

4.1 There are “Modbus Gateway” #1 and #2 port.

Modbus Gateway

Log out
ver : 1.0.22

System

Network

Serial

Gateway

Modbus Gateway 1

Gateway Type : TCP To RTU Slave

Message Timeout (ms): 500

TCP Properties

Listener Port : 502

TCP inactive timeout(Minutes): 5

4.2 Gateway Type: 4 types for selection or to disable.

Modbus Gateway 1

Gateway Type : RTU To TCP Slave

Message Timeout (ms): ASCII To TCP Slave

TCP Properties

TCP To RTU Slave

TCP To ASCII Slave

Listener Port : DISABLED

4.3 For RTU To TCP Slave can set up to 8 slaves.

Modbus Gateway 2

Gateway Type : RTU To TCP Slave

Message Timeout (ms): 500

TCP Slave map

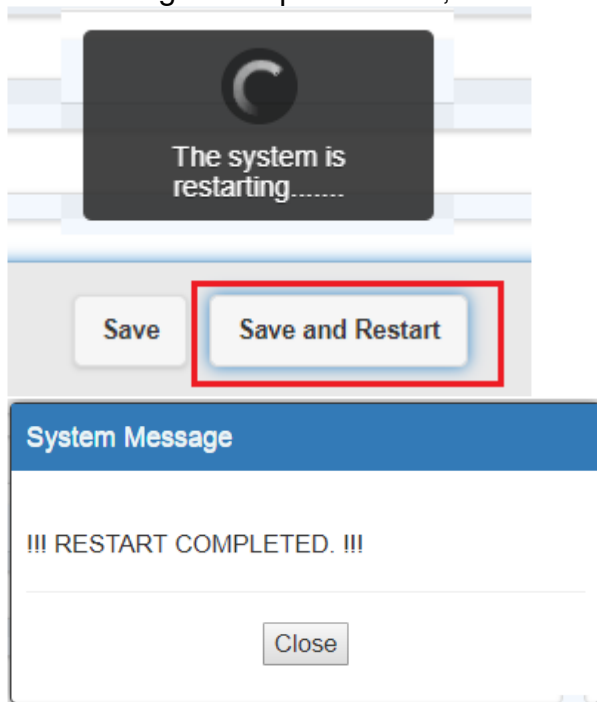
No.	ID Start	ID End	IP[:Port] (ex:192.168.1.100 or192.168.1.100:502)
1	1	32	
2	33	64	

4.2 Up to now, Setup is successfully configured. Please click “Save” and go to other pages for configuration or click “Save and Restart” to run new configuration.

Save

Save and Restart

4.3 After configured all parameters, click “Save and Restart” to reboot system.



5. Testing Verification

After completing the wiring and parameter setting, we should verify if the setting is correct. This chapter will introduce how to use a single computer to test whether the converter work well.

The operating system can be Window 7/8/10. The “Hyper Terminal” utility should be installed on host PC/NB.

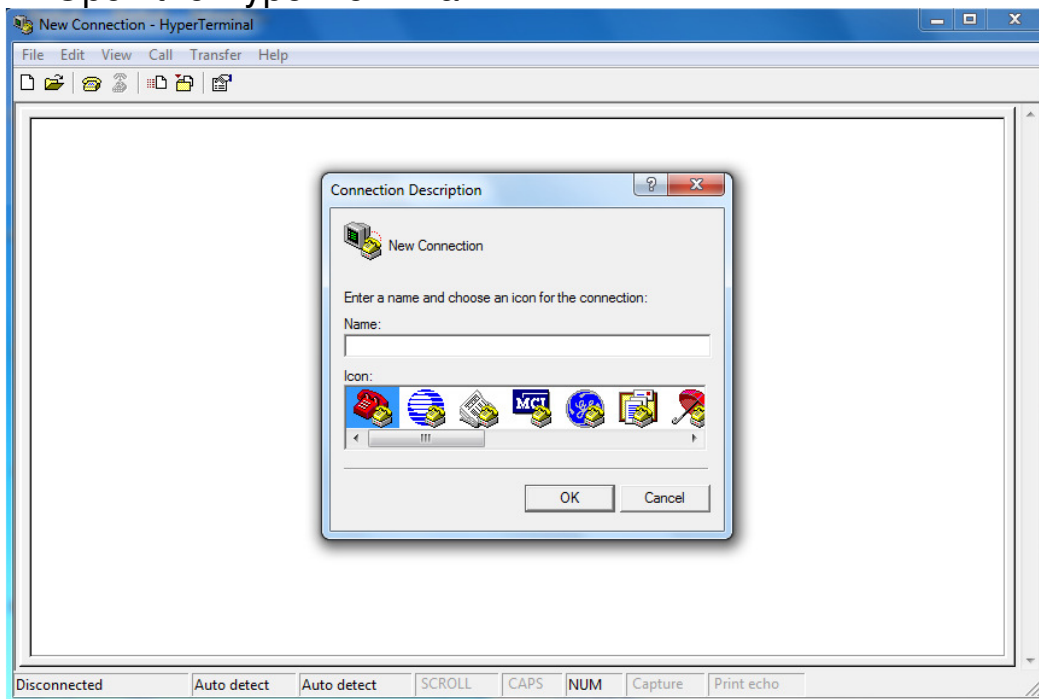
The following topics are covered in this chapter:

- ❑ **Hyper Terminal for TCP/IP**
- ❑ **Hyper Terminal for COM Port**
- ❑ **Data Transmission**

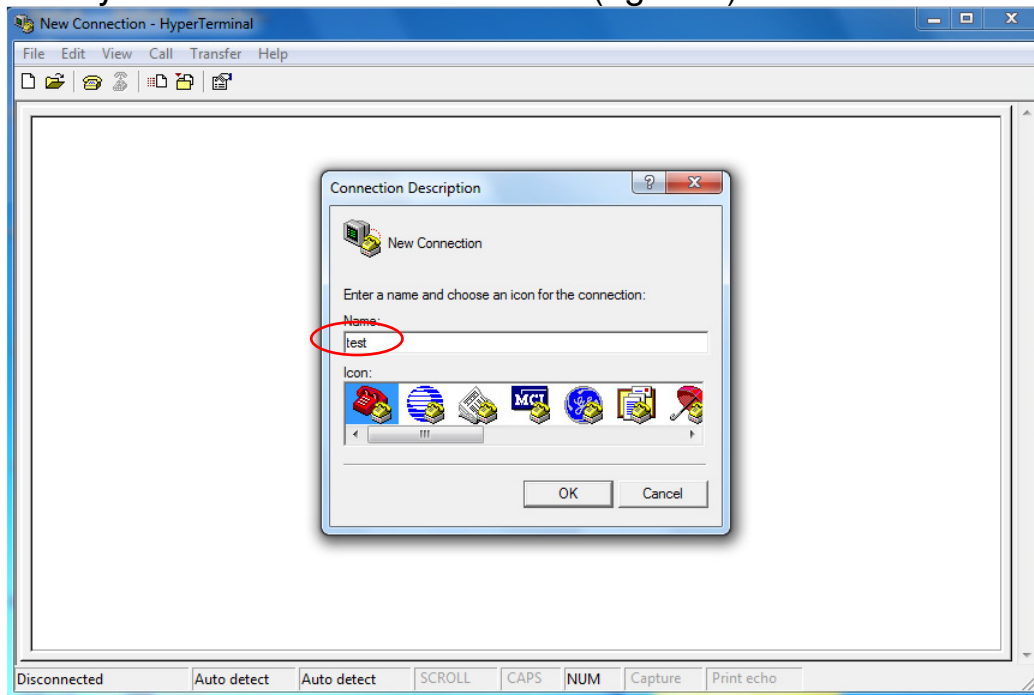
5.1 Hyper Terminal for TCP/IP



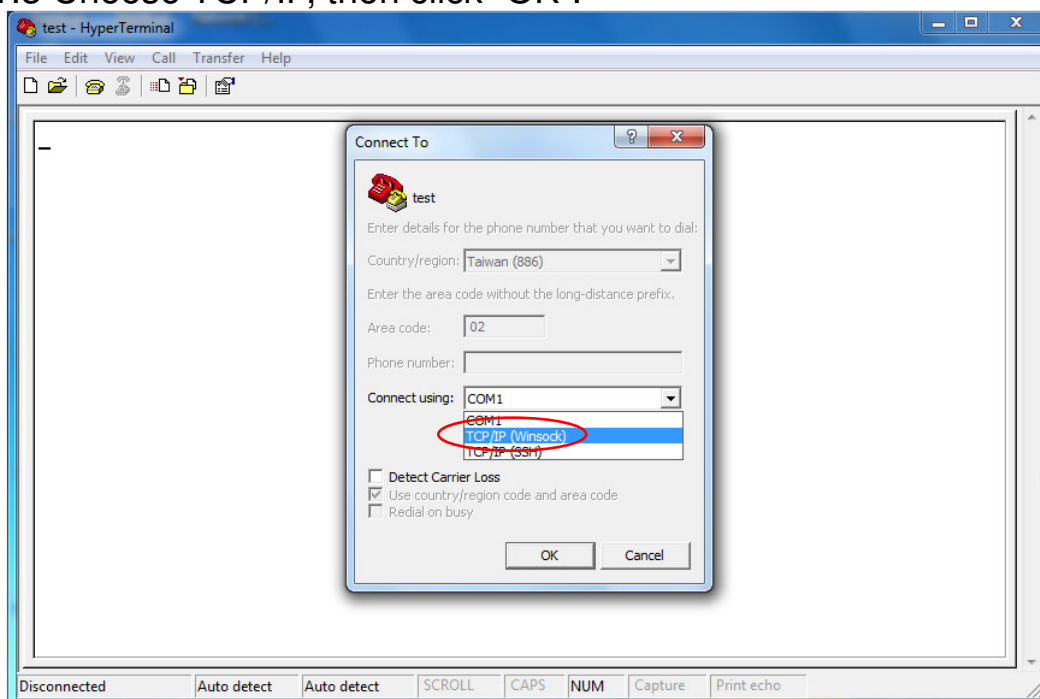
5.1.1 Open the Hyper Terminal



5.1.2 Key in a file name of connection (eg. test) and then click “OK”.



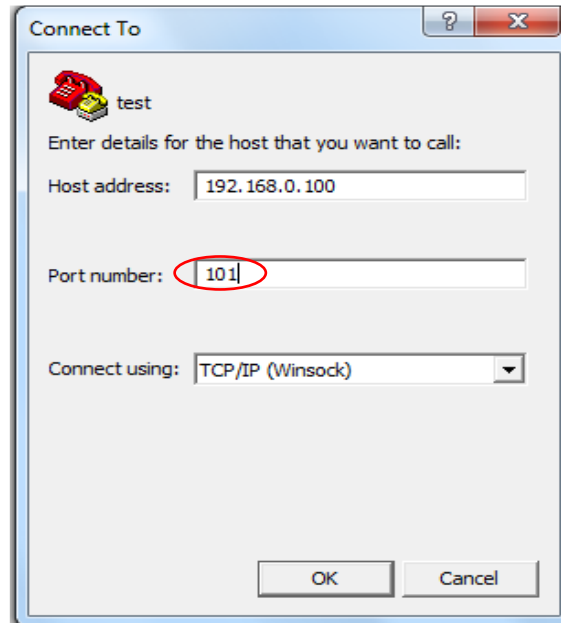
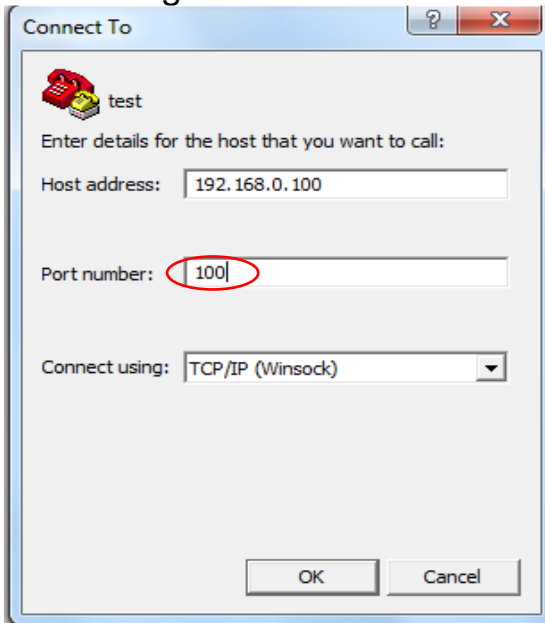
5.1.3 Choose TCP/IP, then click “OK”.



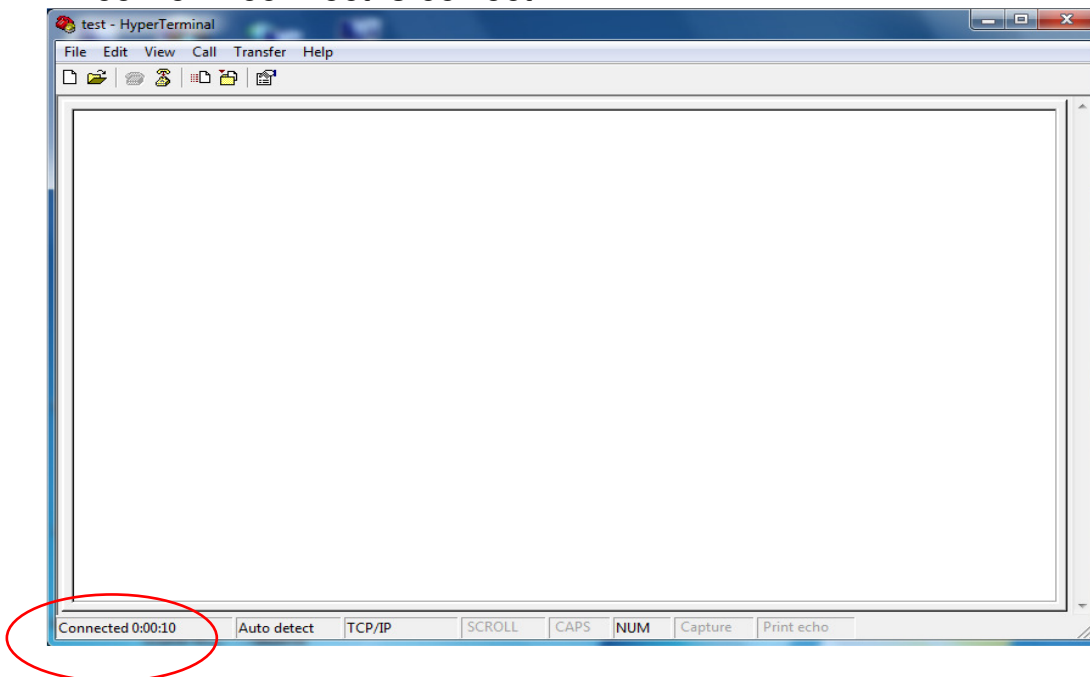
5.1.4 Key in the Converter's IP address and Socket port then click "OK".

*for testing RS-232: default Port Number is 100

*for testing RS-422/485: default Port number is 101

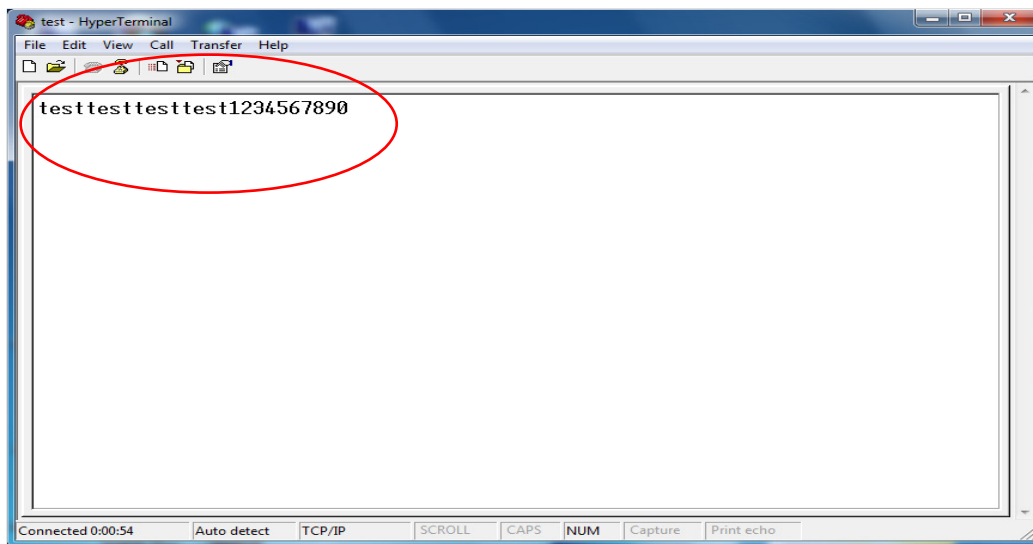


5.1.5 A HyperTerminal window will show up. The time counter start at the down left corner if connect is correct.



5.1.6 Echo Loop Test

- For RS-232 testing: Short DB9 connector #2 pin and #3 pin as circuit.
- For RS-422 testing: Short the green Terminal Block T+ to R+ and T- to R- or TX to RX. In RS-422/485 setup page: choose RS422 firstly.
- Key in any characters. If those characters show on the screen means the loop test is successful.



5.1.7 If not able to type or not seen any character present in the window, please check every step from beginning of this procedure.

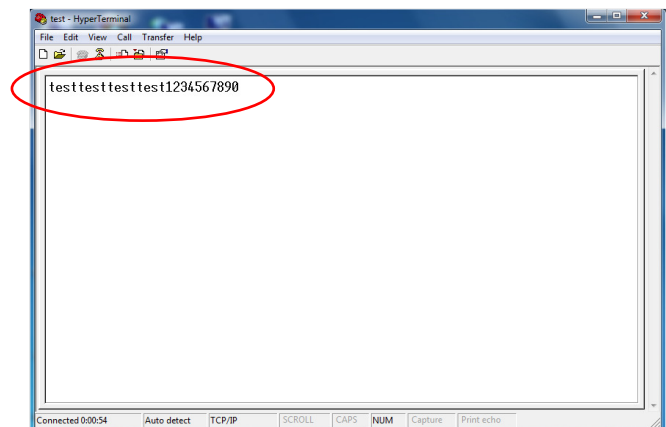
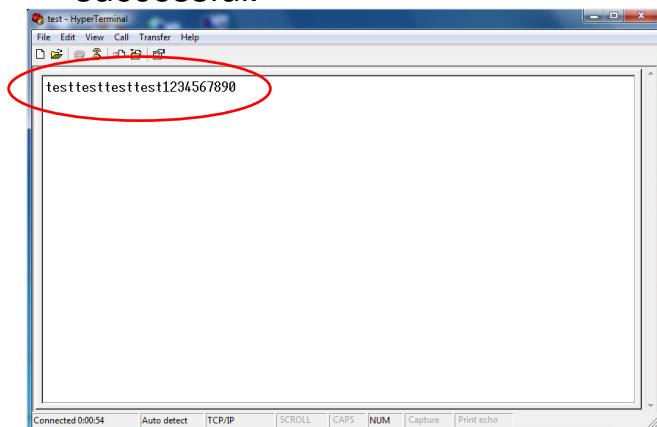
5.2 Hyper Terminal for COM Port

5.2.1 For RS-485 testing:

It needs two devices to connect the Terminal Block D+ to D+ and D- to D-.
In RS-422/485 setup page: choose RS485.

5.2.2 Sock ports must be different between two devices.

5.2.3 Run HyperTerminal as per RS-232 or RS-422 for two socket ports. Key in any characters show on the screen of another socket port means the loop test is successful.



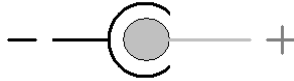
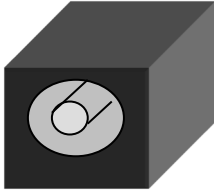
6. Reset (if needed)

Ensure power is on, press “WiFi Reset” button for over 25 seconds then release. WPC-832 will set configuration back to default.



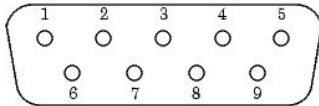
Pin Assignment

□ DC Power outlet



□ RS-232 Pin Assignment

The pin assignment scheme for a 9-pin male connector on a DTE is given below.



PIN 1 : DCD

PIN 2 : RXD

PIN 3 : TXD

PIN 4 : DTR

PIN 5 : GND

PIN 6 : DSR

PIN 7 : RTS

PIN 8 : CTS

PIN 9 : X

□ RS-422 Wiring Diagram

Serial Device

Converter

R-

T-

R+

T+

T-

R-

T+

R+

□ RS-485 Wiring Diagram

Serial Device

Converter

D+

D+

D-

D-

Please look our website <http://www.tcpiweb.com/> for more information.