WPC-132-DL Modbus Quick Guide

Content

General

Thank you for choosing WPC-132-DL. WPC-132-DL is a Modbus RTU data logger which supports **Modbus Function code 03** – Read holding register (output register). It provides user friendly web interface to input holding register address of Modbus RTU devices. One WPC-132-DL supports to read 30 register addresses.

Installation of IP Search Tool

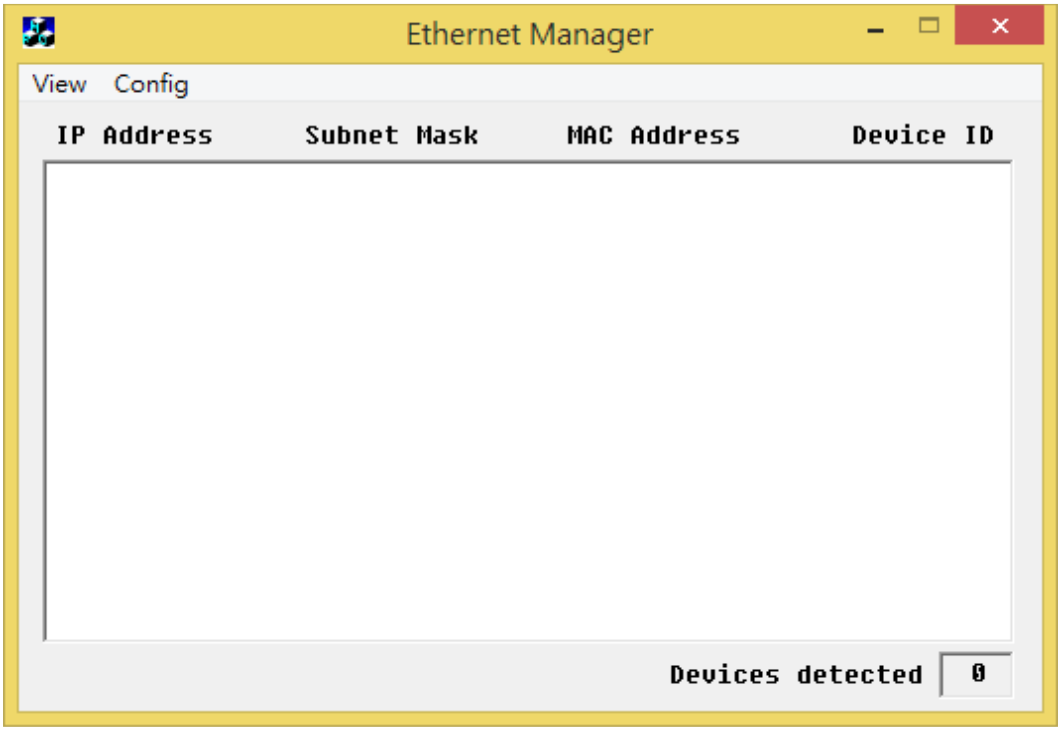
1- IP Search Tool

Please copy Etm.exe to your PC. You can find the file in the CD ROM.

2- Ethernet Manager

Double click Etm.exe to execute the IP search tool.

You will see following page.



The information of IP Address; Subnet Mask; MAC Address; Device ID (WPC-132) will be shown up. Where on the top row, there are

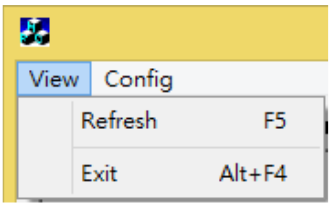
View

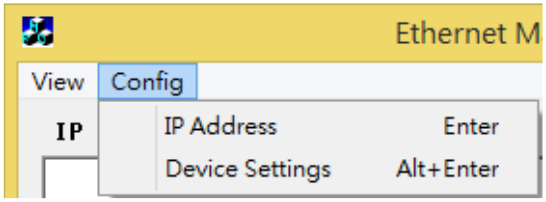
a. Refresh (F5) – Seraching the connected WPC-132 via Ethernet
b. Exit (Alt+F4) – Exit Ethernet Manager

3- Config

a. IP Address (Enter) – Modify IP address

b. Device Settings (Ctrl+Enter) – Open browser for WPC-132 device set up





Connection of Hardware

Please prepare a PC, a network Switch and a WPC-132-DL.

1- Power on WPC-132-DL

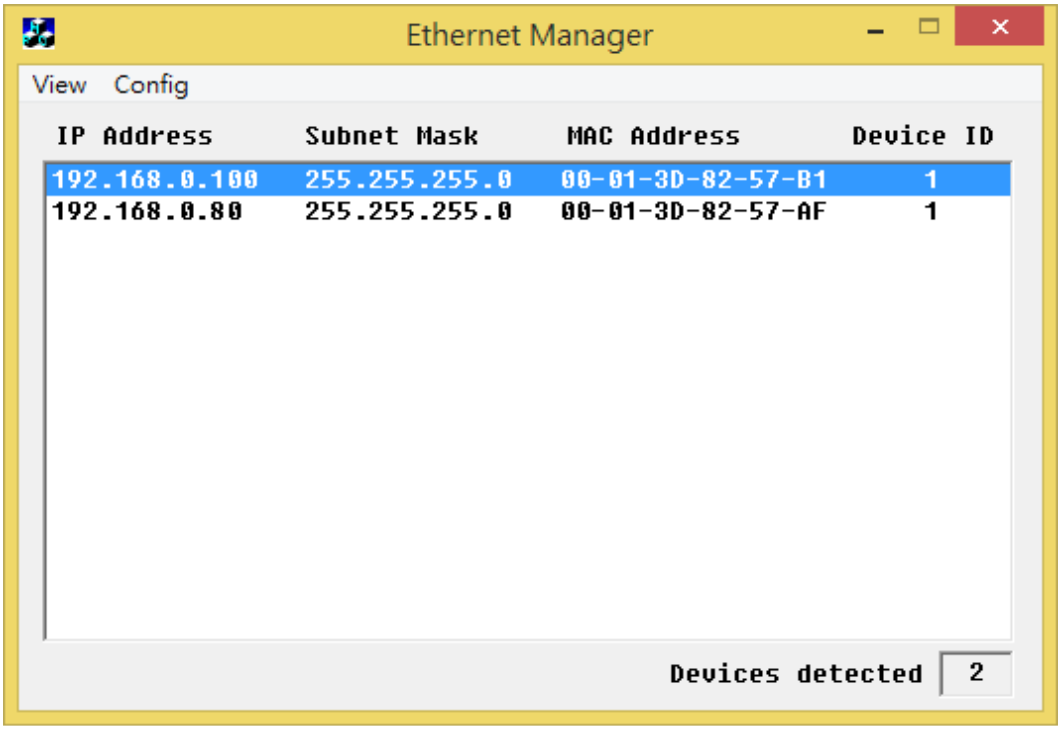
1-1. LED Status

Connect both PC and WPC-132-DL to network Switch with RJ45 Ethernet cable. Insert power cord to WPC-132-DL. LED status as below,

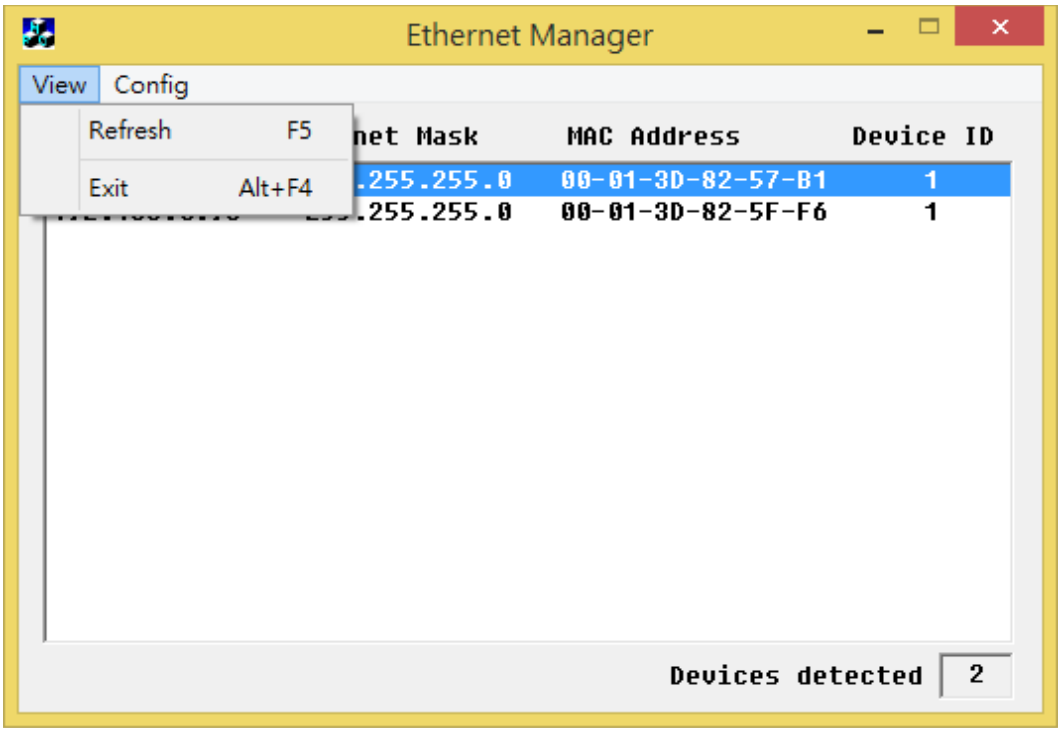
LED	Color	Status	Description
SYS	Green	On	First connect to power.
		Flash	In normal status. Blinks every 1 second
100M	Green	Flash	There is data transmission in 100Mbps.
10M	Red	Flash	There is data transmission in 10Mbps.
User	Red	Off	Not defined

2- Searching WPC-132-DL

Please click the Ethernet Manager icon to search connected converters. (Default IP: 192.168.0.100). The founded WPC-132 device will be automatically shown on the list.



Click “View” tag on the menu bar of Ethernet Manager. You will see following page



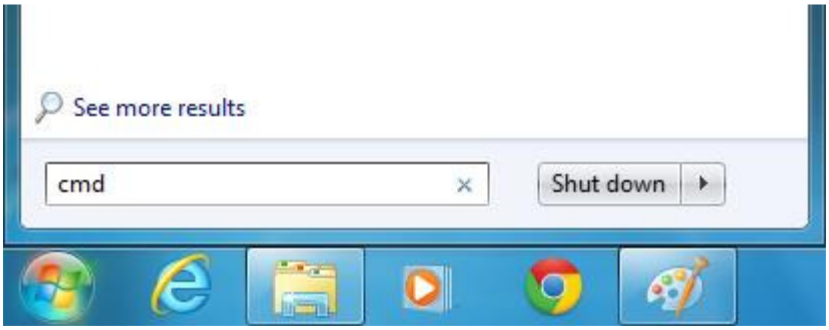
You can manually search WPC-132 devices by click “Refresh” button. Click “Exit” to end the searching program.

3- Connecting

Now you have found 1 pcs WPC-132 device. To link the device, please check first whether PC and WPC-132 are in the same network segment. PC and WPC-132 are able to be connected only when both are in the same network segment.

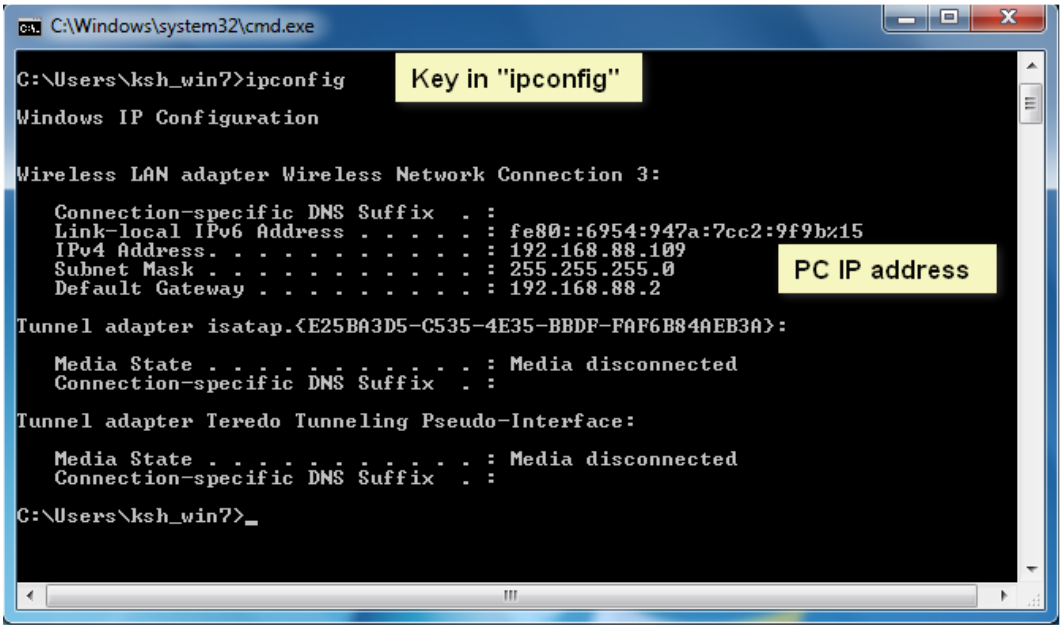
3-1. Checking PC IP address

Click “Start”. Key in “cmd” in RUN Command as below



A cmd window pops up. Type in “ipconfig” then press “enter”

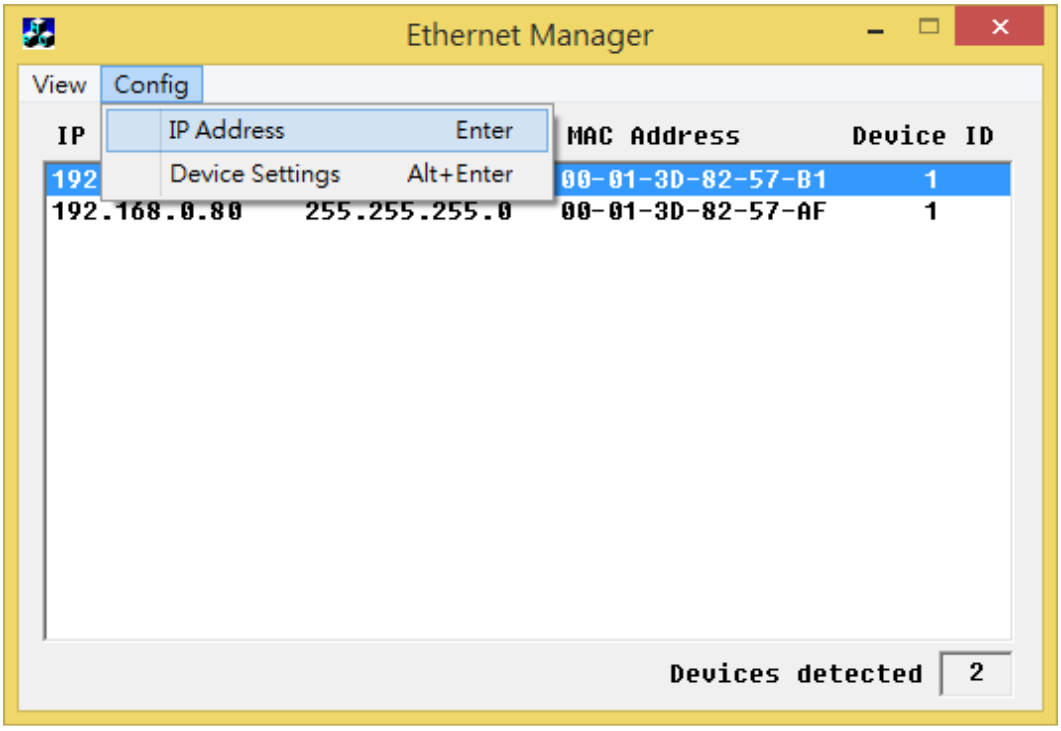
PC IP address and other network parameters will be shown.



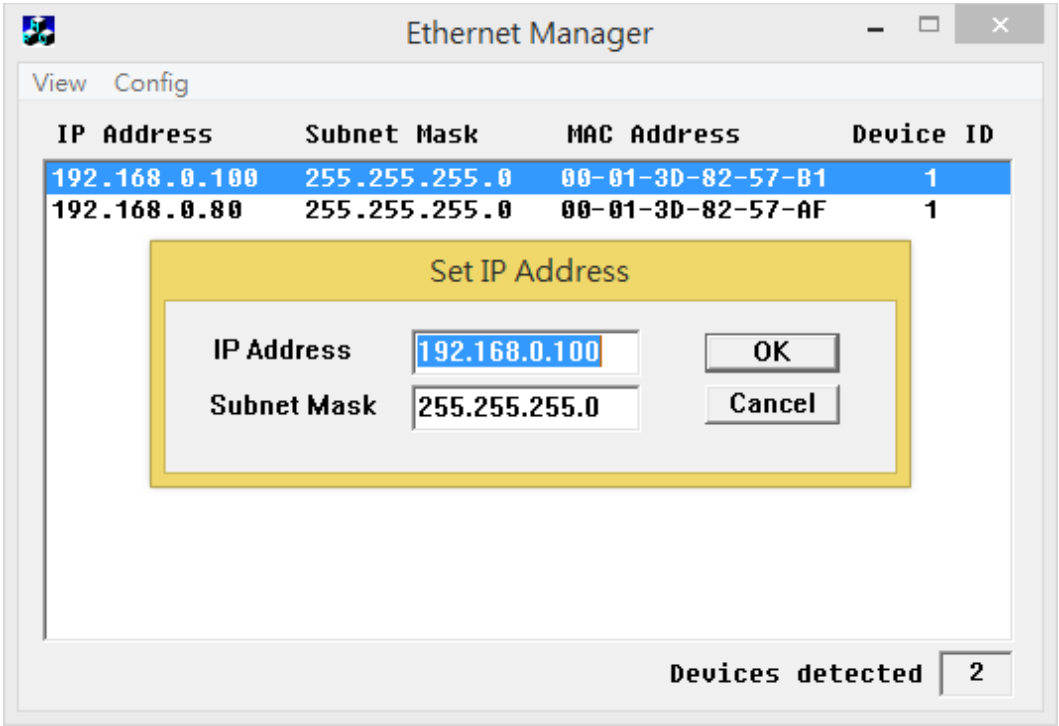
You can modify the IP address by following two ways.

3-2. Change Converter IP address

3-2.1. To modify converter IP address. Please go to “Config” → “IP Address”



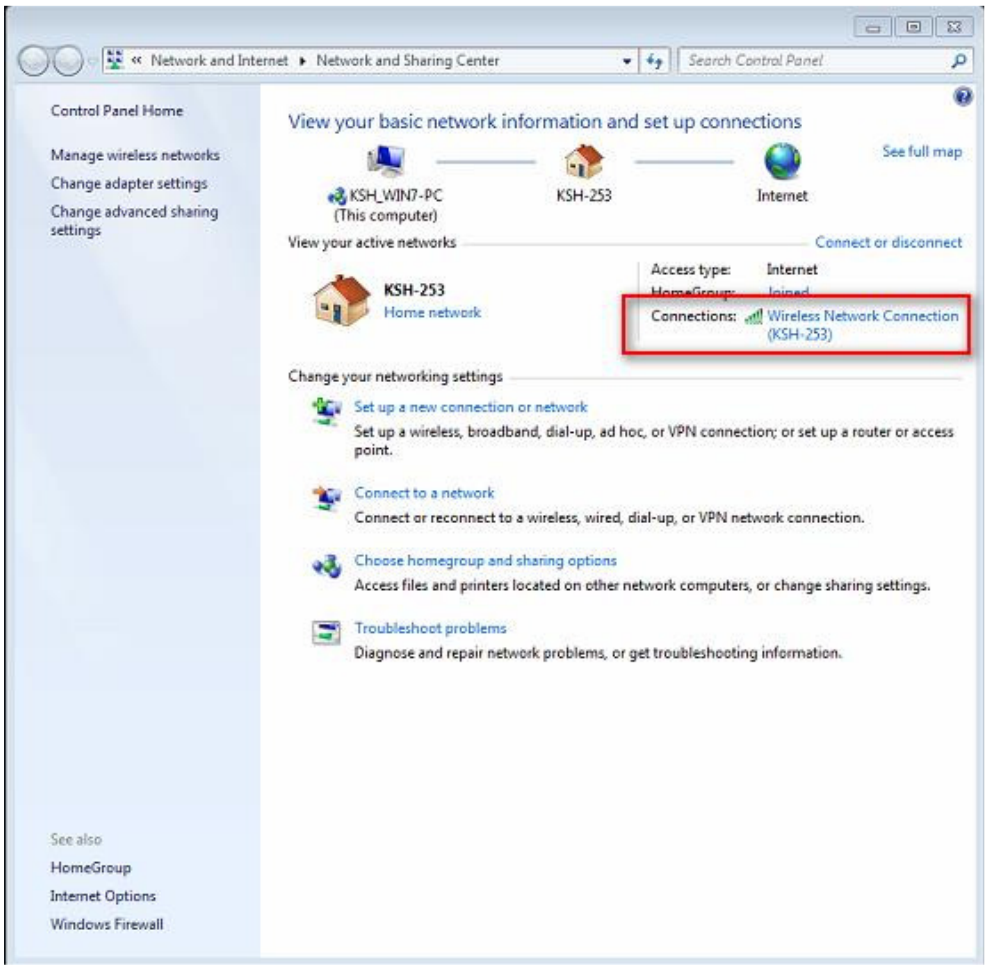
3-2.2. “Set IP Address” window pops up. You can modify IP Address, Subnet Mask and Gateway now. Press OK after modification.



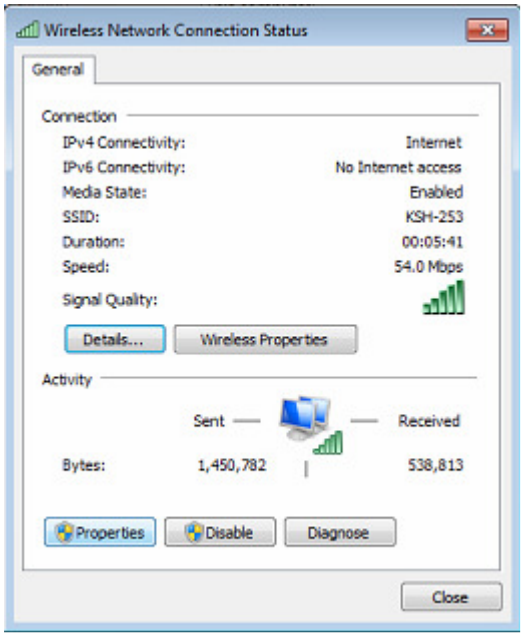
3-2.3. Press “View” → “Refresh”. You will find a searched WPC-132 device with new assigned IP address and parameters.

3-3. Change PC IP address

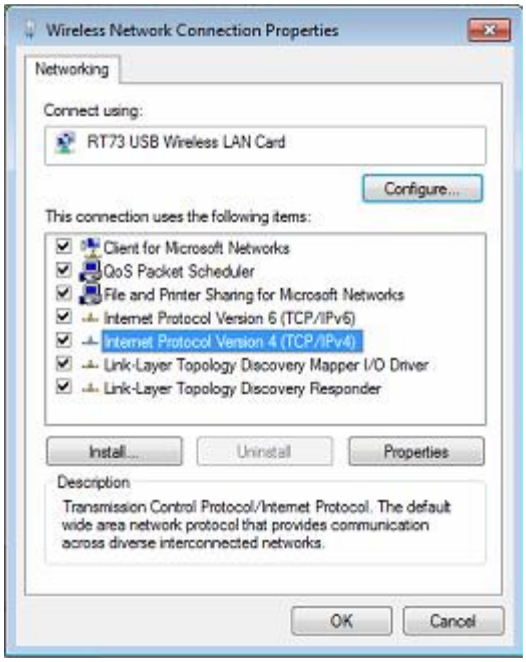
3-3.1. Go to Control Panel → Network and Internet → Network and Sharing Center, Then double click connections (either LAN or Wireless)

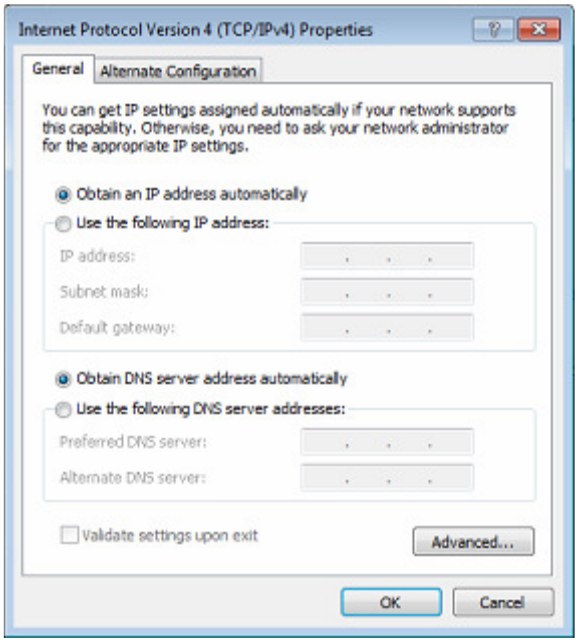


3-3.2. Click the Properties

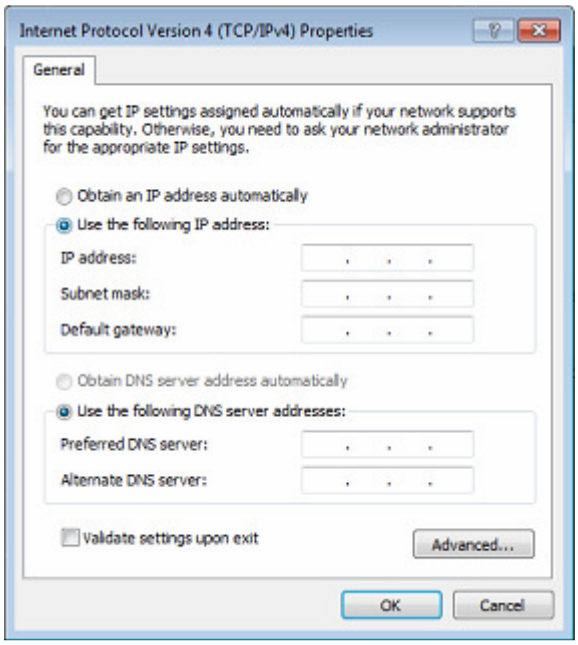


3-3.3. Click the Internet Protocol Version 4(TCP/IPv4) and press the "Properties". The "Properties" page will show "Obtain an IP address automatically" as default

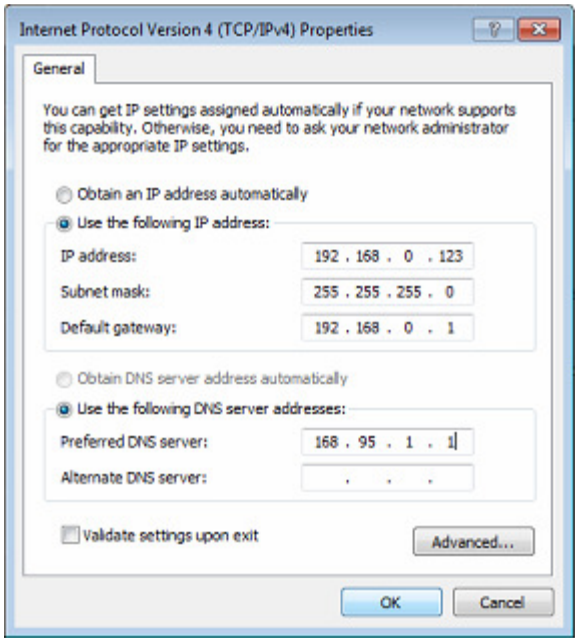




3-3.4. Click "Use the following IP address"



3-3.5. Key in the IP address, subnet mask, default gateway and preferred DNS server

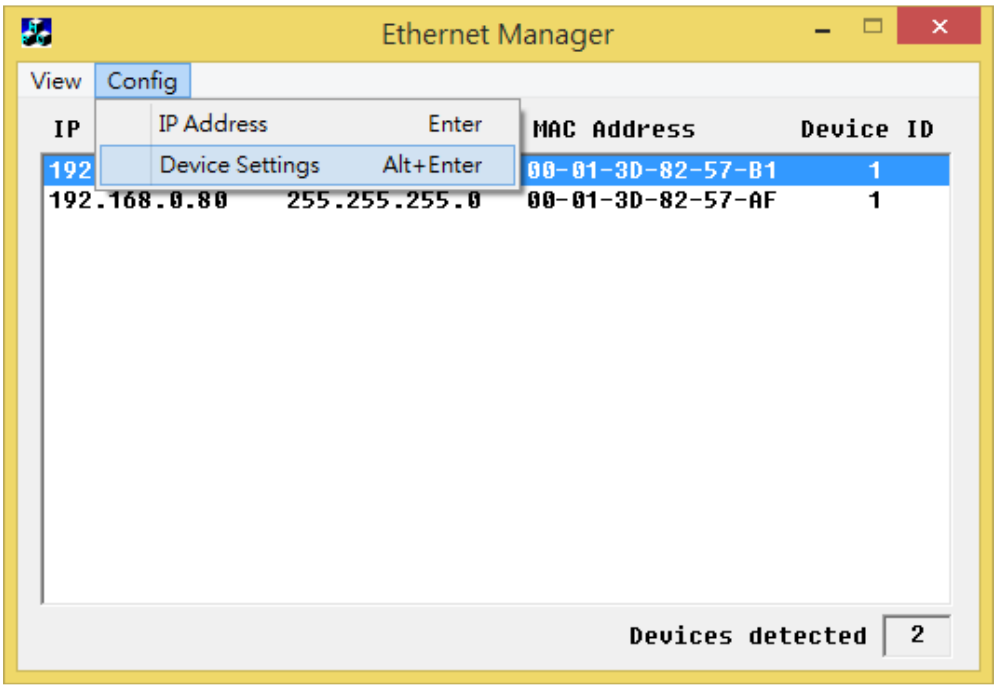


3-3.6. Press the OK button than close this window. You have successfully change PC IP address.

WPC-132 Configuration

1. Visit Web page

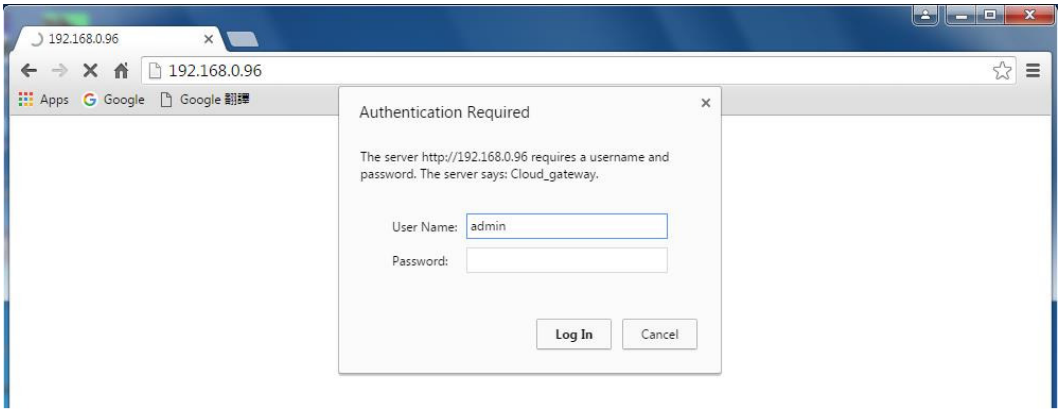
   Press “Config” → “Device Settings” to setup device via browser.



2. Login page

   Login page will be shown. Input ID & password (default no password).

   Default ID: admin; no password.



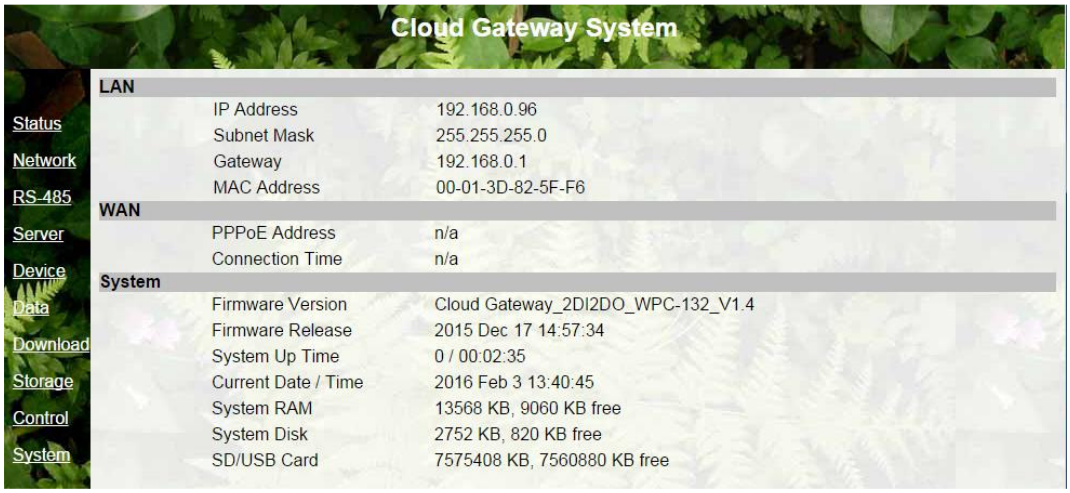
3. Quick glance

   A quick glance of the web page items and its main functions

Note: After each setup, please do not forget to “save” the setting. The setting will be effective after WPC-132 “reboot” successfully.

4. Status page

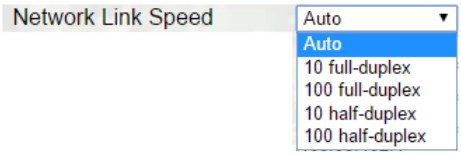
Status page is first shown up after log in. This page presents the general parameters of WPC-132 device.



5. Network page

You can setup LAN and PPPoE parameters for Network connection.

5-1. Network Link Speed – default setting is “Auto”. For legacy equipment you may choose other setting to work the connection. There are


Network Link Speed
Auto
Auto
10 full-duplex
100 full-duplex
10 half-duplex
100 half-duplex

5-2. DHCP – In DHCP mode router or network switch will assign an available IP address to WPC-132 (in router / switch's network segment).

5-3. Static IP – Please input IP address; Subnet Mask; Gateway; DNS server information. Please consult with network professionals for parameters setup.

5-4. PPPoE – Please check with local Telecom operator for PPPoE account details. Enable PPPoE then input User; Password and Service Name.

6. RS-485 page

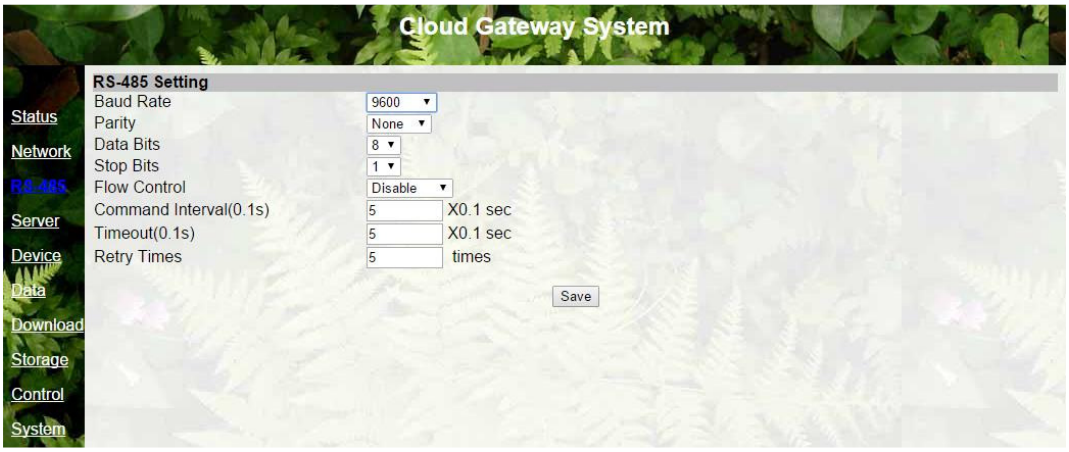
Setup Serial Port parameters – general settings as Baud rate, Parity, Data bits, Stop bits and special settings as the followings.

6-1. Flow Control – Disable, CTS/RTS. It is a hardware flow control mechanism to prevent buffer memory overrun.

6-2. Command Interval (0.1s) – Unit is 0.1 second. It is the time interval between every send-out-command.

6-3. Timeout (0.1s) – Unit is 0.1 second. It is the time interval between send-out-command and reply from RTU slave device. If there is no reply within the assigned time interval, it is recognize as a timeout and will resend the command again.

6-4. Retry Times – Unit is times. Once there is timeout, WPC-132 will follow the setting to retry as many times as per assigned value.



7. Server page

Set up parameters of remote servers to receive data.

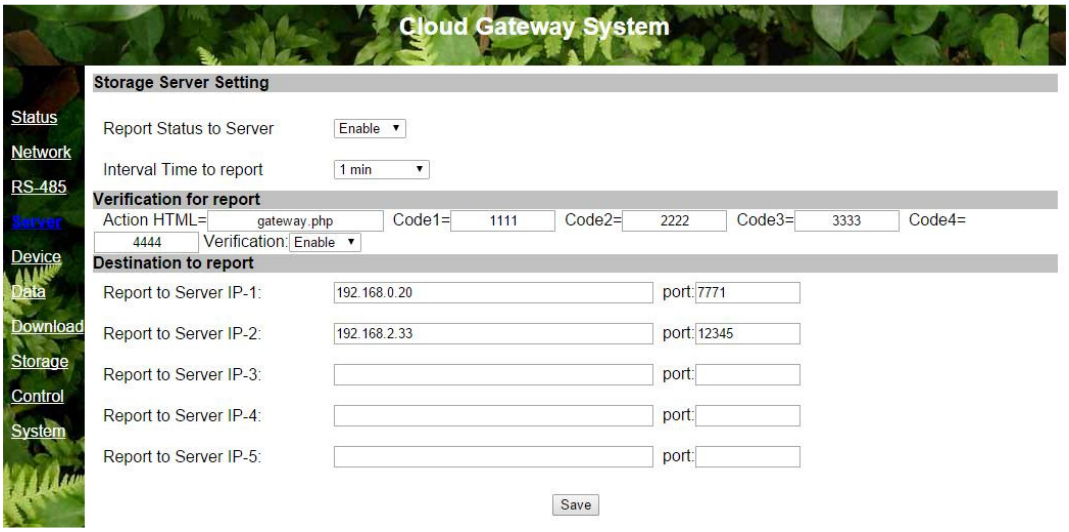
7-1. Storage server setting

7-1.1. Report status to server – enable / disable

7-1.2. Interval time to report – set up the time interval to report data to remote server

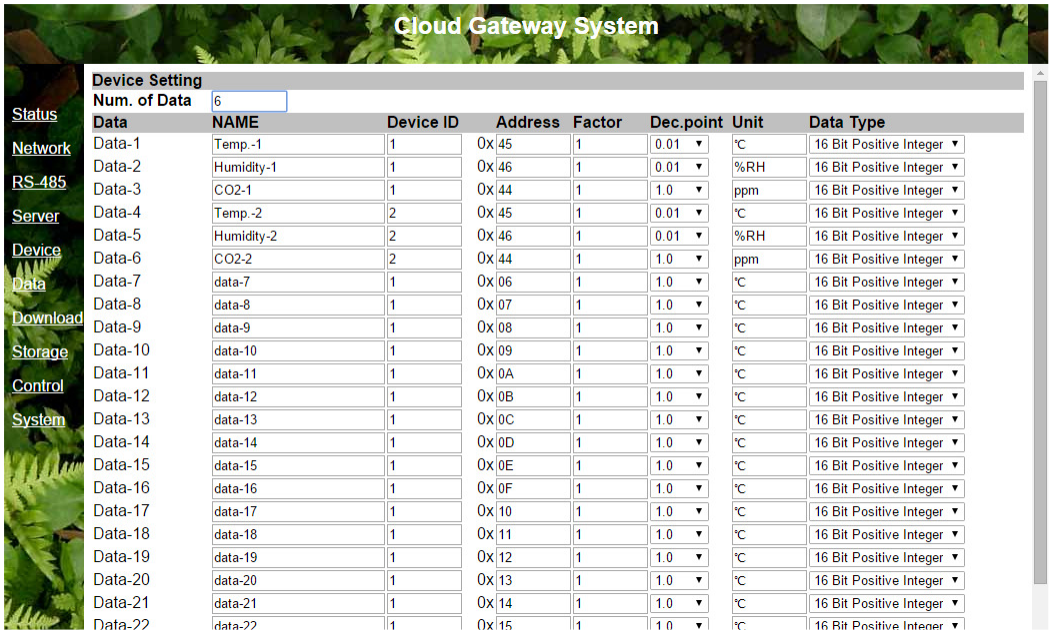
7-2. Verification for report – Enable / Disable the verification mechanism. Default is “Enable”. It is the html parameters at server side to receive data. Software programmers can define their own terminologies and variables.

7-3. Destination to report – Remote servers IP address and Port numbers. WPC-132 is able to report data to 5 servers simultaneously.



8. RTU Device setting page

This page sets up Modbus RTU slave devices parameters



Data	NAME	Device ID	Address	Factor	Dec.point	Unit	Data Type
Data-1	Temp.-1	1	0x 45	1	0.01	℃	16 Bit Positive Integer
Data-2	Humidity-1	1	0x 46	1	0.01	%RH	16 Bit Positive Integer
Data-3	CO2-1	1	0x 44	1	1.0	ppm	16 Bit Positive Integer
Data-4	Temp.-2	2	0x 45	1	0.01	℃	16 Bit Positive Integer
Data-5	Humidity-2	2	0x 46	1	0.01	%RH	16 Bit Positive Integer
Data-6	CO2-2	2	0x 44	1	1.0	ppm	16 Bit Positive Integer
Data-7	data-7	1	0x 06	1	1.0	℃	16 Bit Positive Integer
Data-8	data-8	1	0x 07	1	1.0	℃	16 Bit Positive Integer
Data-9	data-9	1	0x 08	1	1.0	℃	16 Bit Positive Integer
Data-10	data-10	1	0x 09	1	1.0	℃	16 Bit Positive Integer
Data-11	data-11	1	0x 0A	1	1.0	℃	16 Bit Positive Integer
Data-12	data-12	1	0x 0B	1	1.0	℃	16 Bit Positive Integer
Data-13	data-13	1	0x 0C	1	1.0	℃	16 Bit Positive Integer
Data-14	data-14	1	0x 0D	1	1.0	℃	16 Bit Positive Integer
Data-15	data-15	1	0x 0E	1	1.0	℃	16 Bit Positive Integer
Data-16	data-16	1	0x 0F	1	1.0	℃	16 Bit Positive Integer
Data-17	data-17	1	0x 10	1	1.0	℃	16 Bit Positive Integer
Data-18	data-18	1	0x 11	1	1.0	℃	16 Bit Positive Integer
Data-19	data-19	1	0x 12	1	1.0	℃	16 Bit Positive Integer
Data-20	data-20	1	0x 13	1	1.0	℃	16 Bit Positive Integer
Data-21	data-21	1	0x 14	1	1.0	℃	16 Bit Positive Integer
Data-22	data-22	1	0x 15	1	1.0	℃	16 Bit Positive Integer

8-1. Number of Data – Define how many data to be read and shown. Maximum data number is 30.

8-2. Name – Name of data received from RTU meters.

8-3. Device ID – The RTU slave ID. Each slave device has a unique ID number.

8-4. Address – Input the holding register address of the RTU meter within which data can be read.

Please check with the user manuals of RTU meters, referring to the section of Modbus register address. These registers store data such as measured value (℃, V, A, KWH, %RH, ppm,…), configuration parameters etc,...

Note: For Modbus protocol please visit http://modbus.org/docs/PI_MBUS_300.pdf

8-4.1. Examples

Modbus slave device communication specification.

ModBus Specification

set 9600 n81

Func

3 Read

00H(00) ID

03H(03) BPS

04H(04) Set

44H(68) Co2 Value (ppm)

45H(69) Amb Value (1/100'C)

46H(70) RH Value (1/100 %)

**if read -100 means Module Error

6 Write

0 ID Change

A5xx (A5 for Check, xx for New ID)

Input these register addresses to device setting page as below

Data	NAME	Device ID	Address	Factor	Dec.point	Unit	Data Type
Data-1	Temperature-1	1	0x 45	1	0.01	℃	16 Bit Positive Integer
Data-2	Humidity-1	1	0x 46	1	0.01	%RH	16 Bit Positive Integer
Data-3	CO2-1	1	0x 44	1	1.0	ppm	16 Bit Positive Integer

8-5. Factor – an adjusted number multiply by decimal point to generate a correct data reading from Modbus meters. Default is “1”.

8-6. Dec. point – It is the decimal point set to present the correct data. There are 0.001, 0.01; 0.1; 1, total 4 options to be chosen. The user manual of RTU slave device should show the relative information as below example shows,

8-6.1. Example

03H(03) BPS

04H(04) Set — Decimal Point

44H(68) Co2 Value (ppm) → 1

45H(69) Amb Value (1/100'C) → 0.01

46H(70) RH Value (1/100 %) → 0.01

**if read -100 means Module Error

Input the decimal point to device setting page

Data	NAME	Device ID	Address	Factor	Dec.point	Unit	Data Type
Data-1	Temp.-1	1	0x 45	1	0.01	℃	16 Bit Positive Integer
Data-2	Humidity-1	1	0x 46	1	0.01	%RH	16 Bit Positive Integer
Data-3	CO2-1	1	0x 44	1	1.0	ppm	16 Bit Positive Integer

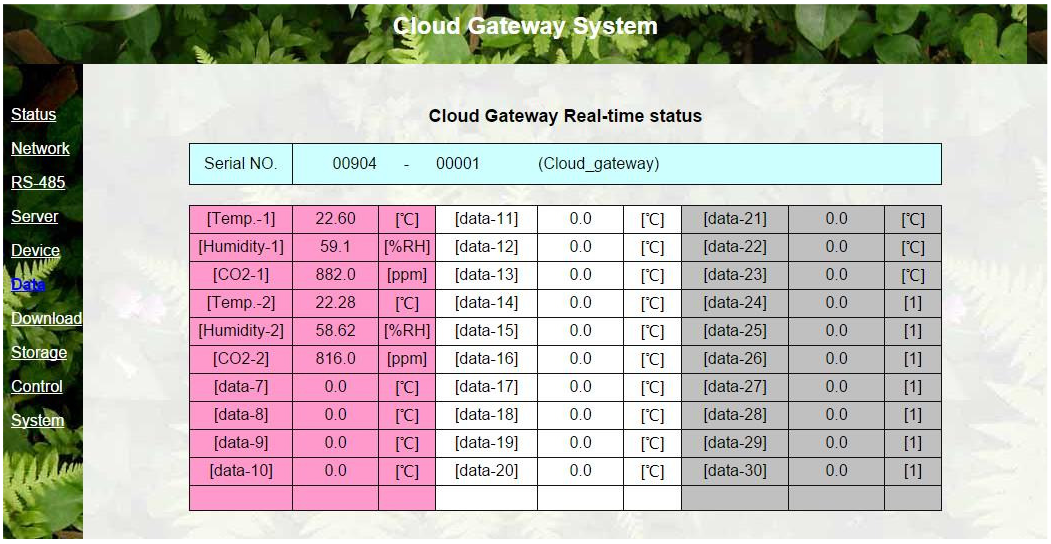
8-7. Unit – the unit of data read from Modbus meters such as ℃, V, A, KWH, %RH, ppm,… Please input the correct unit.

8-8. Data type – there are 16, 32, 64 bits integers and positive integers. Check with the Modbus meter user manual for detail information. Default is “16 Bit Positive integer".

Note: WPC-132 does not support “Floating point” data type.

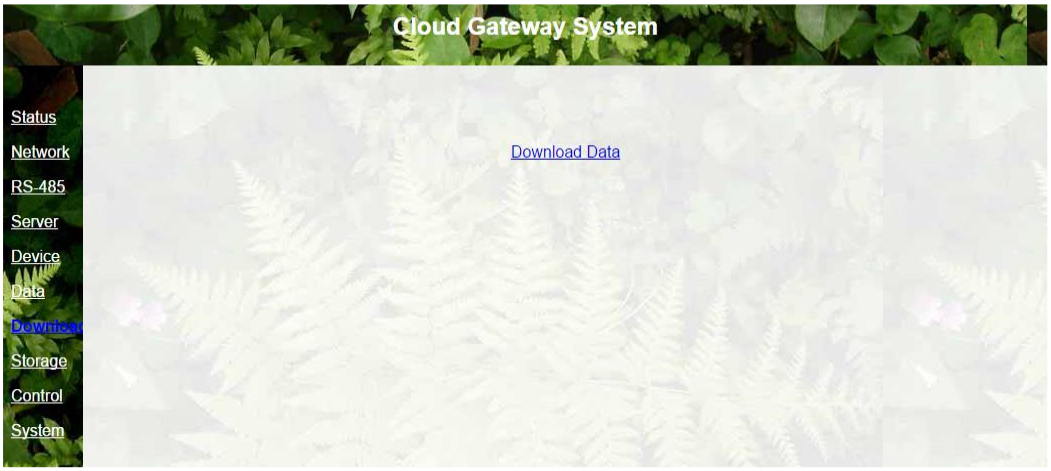
9. Real Time Data page

This page shows the real time data read from Modbus meters

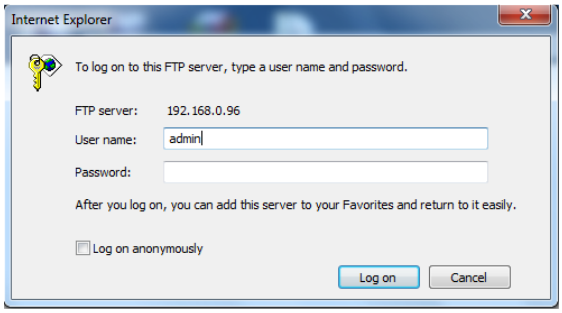


10. Data Download page

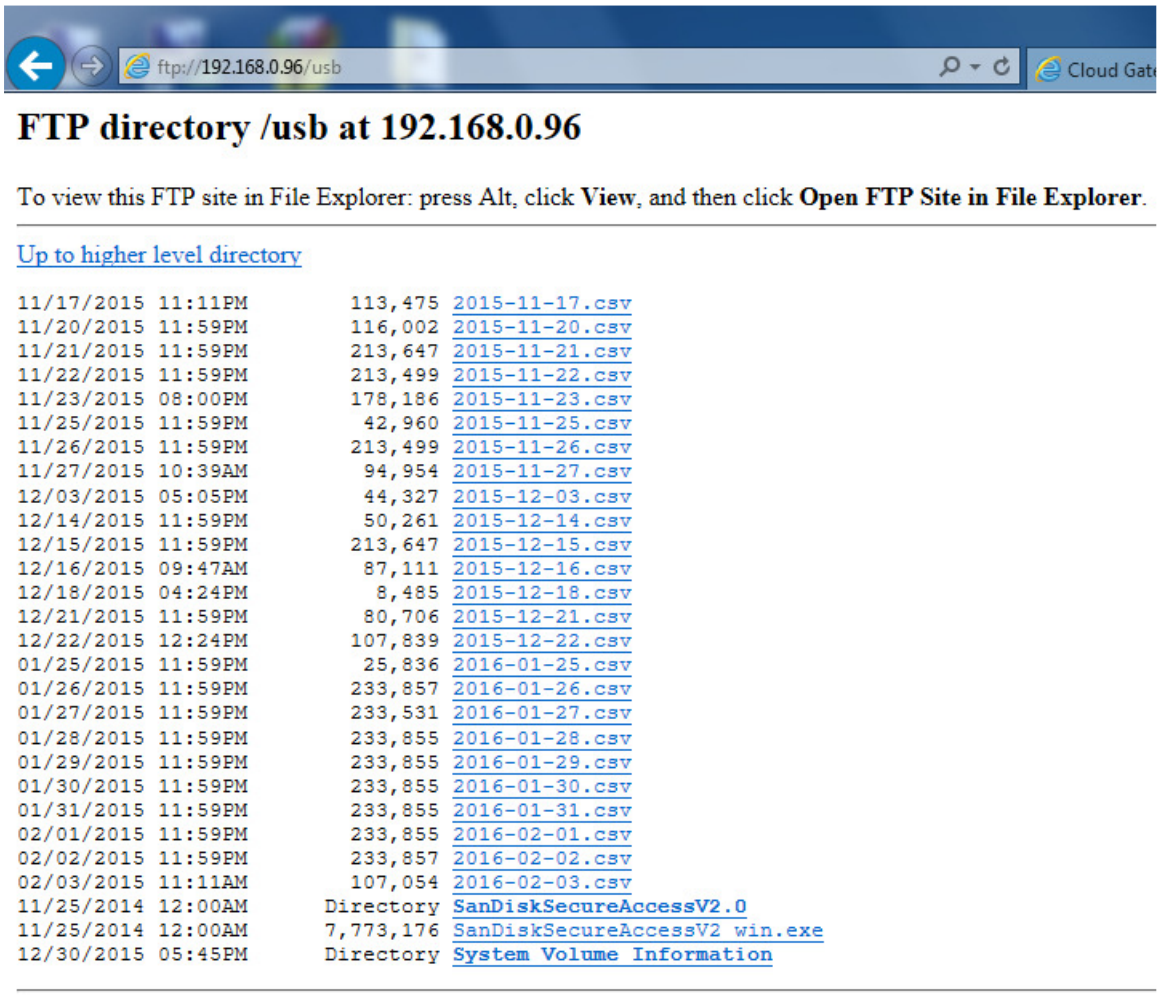
Data is ready to be downloaded via IE browser or FTP utilities. IE support FTP download, chrome does not.



10-1. IE Browser – Double click “Download Data” link. There is a pop up of authentication request.



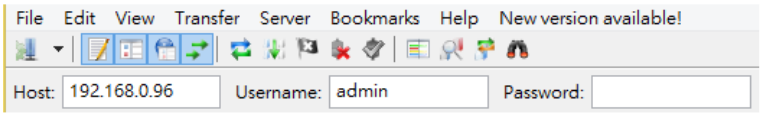
Type in ID & password (default ID: admin, no password). The file directory page will be shown. Double click the file name to download file from WPC-132 USB disk.

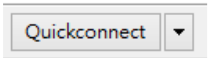


10-2. FTP utility

Use FTP utility to download data from WPC-132. Filezilla example as below

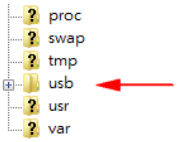
10-2.1. Input Host address, Username & Password



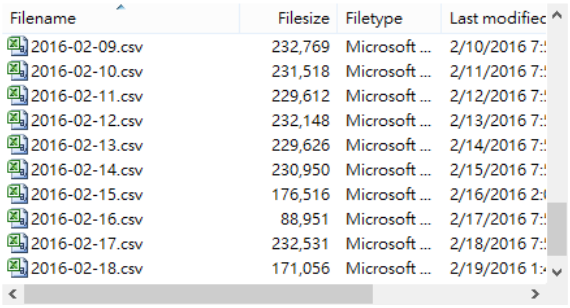
10-2.2. Quickconnect 

10-2.3. Start built connection with WPC-132

10-2.4. Connect successfully. File directory of WPC-132 is shown.



10-2.5. Click on USB to check the files. There are daily.csv files stored inside USB drive. Click on the file to start the download process.



11. Storage page

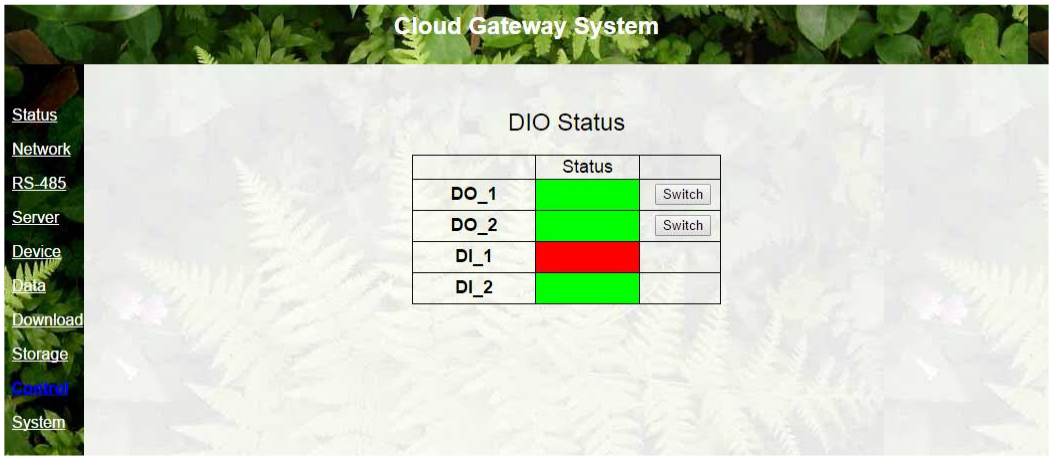
Setup USB drive enable/disable, storage interval time (minutes) and enable/disable Server storage function.

12. I/O Control page

(DIO model supports this function, please discard if without DIO function)

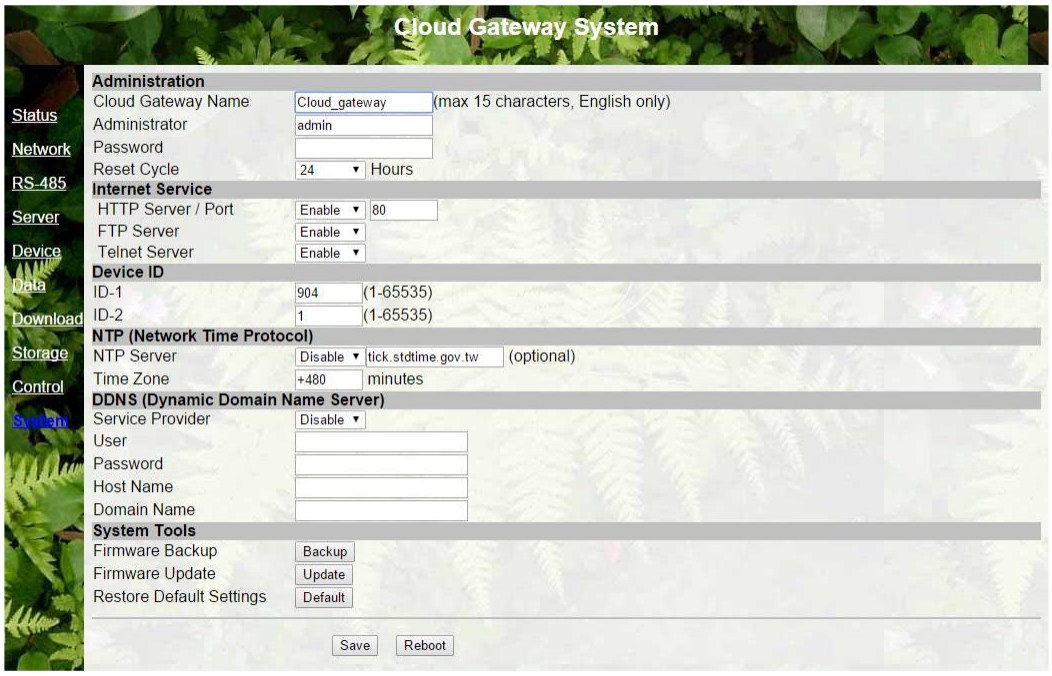
Control digital output relay on/off status and read the status of digital

input.



13. System page

Setup several system parameters



13-1. Administration – Setup device name, ID, Password and reset cycle time.

13-2. Internet Service – Enable/disable HTTP, FTP and Telnet services

13-3. Device ID – Setup WPC-132 ID as a identify number for remote server to receive data transmission

13-4. NTP – Setup NTP parameters

13-5. DDNS – Setup DDNS account information

13-6. System Tools – Backup and upgrade firmware; restore to factory default setting.

14. RTC time settings:

14.1 Telnet to Datalogger

```
login: admin
Password:

Sash command shell (version 1.1.1)
/> _
```

14.2 In the command line, input “date” will show up the existing RTC time.

```
/> date
Sun May  6 10:16:59 2018

/>
```

14.3 Input the correct time with format by “date MMDDhhmmYYYY” and then type “date” press enter will see RTC time changed.

```
/> date 052112402018
/> date
Mon May 21 12:40:27 2018

/> _
```

14.4 Save time into RTC (last 3 days after fully charged)

```
/> rtc -set
RTC updated
```

14.5 Refresh the web configuration will show up Date/Time as per RTC