NPM-V(Network Power Manager)
User Manual

Contents

I. NPM Introduction

The NPM(Network Power Manager) is a network manageable device that provides power monitoring, controlling and managements to many equipments in the rack cabinet of data center all over the world through LAN or WAN. For meeting with the restrictions and requirements in different environment, NPM supplies many connection methods that user can manage it through its Web interface(HTTP or HTTPS), Serial connection, Telnet or SNMP.

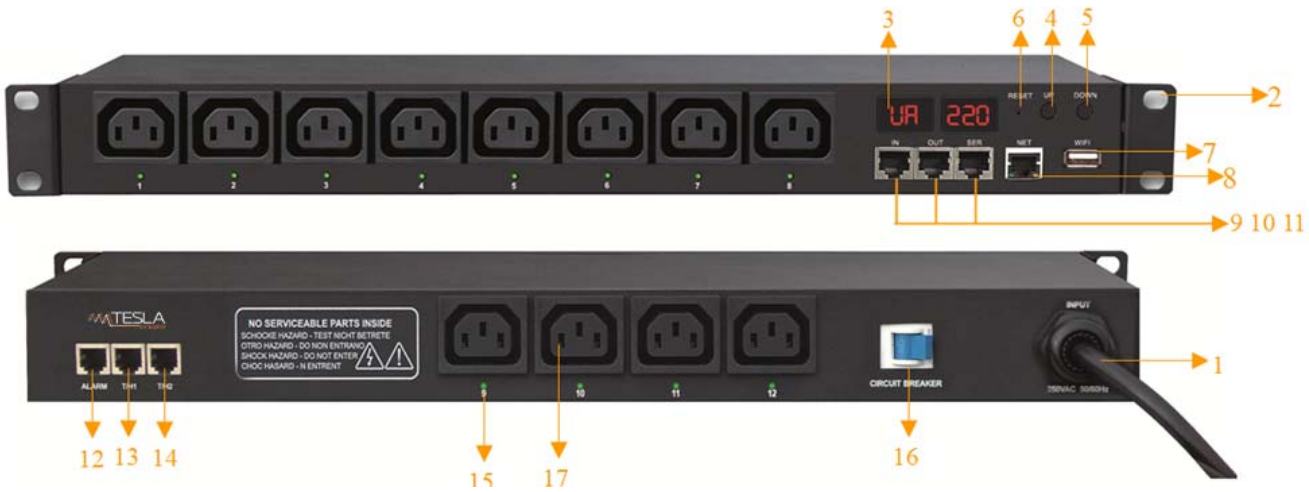
II. Function Description

1. Monitoring function: monitor the current, voltage, power (kW) and energy consumption (kWh), environment status like temperature, humidity, smoke, door and water leakage via IP and local LCD screen.
2. Controlling function: switch on/off individual outlet, set the interval of sequential power on/off
3. Keeping the former state: keep the former state of each outlet after resetting.
4. User-defined alarm: use can set the threshold of current, temperature and humidity.
5. System default alarm: receive warning when thresholds of current, temperature and humidity are exceeded.
6. Alarm methods: Alarming information will be shown on LCD screen and NPM buzzer beeps, the problem value flashes on web interface and PC buzzer alarms, automatically send e-mail to system administrator, SNMP sends Trap alerts.
7. Daisy-chain: suggest daisy-chain at most 5 units (Master unit included)
8. User management: user rights configurable. Added new user can be distributed into different user groups with different rights. User group rights are editable.
9. Access method: Web interface, HTTP, HTTPS, SNMP (v1 / v2c / v3), Telnet and Serial console.
10. Support multi-user operation system and software update.

III. Application range

1. NPM can be applied to server rack, network cabinet etc.
2. Outlet type and number (12, 16) can be selected according to the actual needs.
3. Meets RoHS directive, applicable for 110~220VAC, 380VAC power supply, can meet customers' requirements all over the world.

IV. Product picture and description



1. Power cord

2. Brackets

3. screen

4. UP button: go to the previous page

5. DWON button: go to the next page

6. RESET button: reset to factory default configuration

7. WIFI port

8. 10/100M Ethernet connector

9. IN: for daisy-chain

10. OUT: for daisy-chain

11. Serial port

12. Alarm: for audible and visual alarm

13. T/H1: temperature and humidity sensor port 1

14. T/H2: temperature and humidity sensor port 2

15. Outlet LED indicator

16. Breaker

17. Outlets

V. Installation

Horizontal-mounting (1U/2U)

VI. Hardware Introduction

1. System initialization

Power on the device instantly buzzer beeps for about 3 seconds, buzzer sound stops after 2 seconds the screen lights up

2. View system information

Flip through the DOWN button (Down) and UP page button (page up) and scroll down to see:

Device IP, equipment total current, total voltage.

Note: UP page button (page up), view system information Previous information.

3. Total current overload monitoring

If the total load current exceeds the threshold setting, the buzzer sounded alarm buzzer.

4. NPM Reset

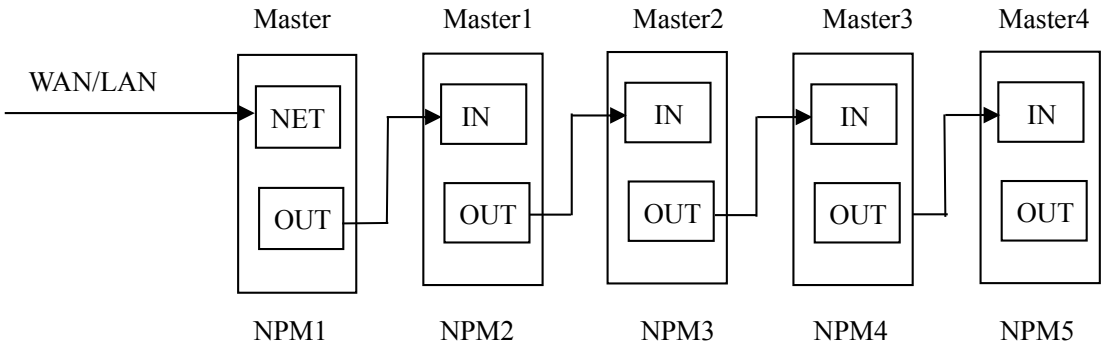
Press and hold the RESET button for 6 seconds,the NPM will restart itself and network configuration will return to factory setting without affecting the power supply

5. Master or slave configuration

To configurate the the NPM to be the Master or Slave in the Web interface.

6. Daisy-Chain

Daisy-chain schema is as following:



How to daisy-chain

6.1 Log on to each NPM, configurate the work mode on Device Manage page.

6.2 Daisy-chain all devices like above drawing, from OUT to IN, Maximum 5 units including Master.

6.3 Access the Master and check all the status of Slaves. If all readable, daisy-chain is successful.

Remark:

1. Once system runs normal,about 10s later LCD screen display normal.

2. Device sequential power on,power off interval time about 30s.Do not power on/off device frequentlly to avoid device damage.

VII. NPM Software Introduction

1.Software overview

NPM is equipped with embedded software system which provides a lot of network services like WED server, SNMP, Telnet, SMTP and NTP. It's easy to do second development and software integration.

2. Access method

Web based, can access via browsers like Internet Explorer, Google Chrome and Fire fox; supports WIFI, SNMP (v1 / v2c / v3), Telnet and Serial console.

2.1 Web access

Opening IE browser (support IE 6.0, 7.0, 8.0 and 9.0 versions; other browsers except IE are not available currently) and input the IP (factory default IP is 192.168.1.163), login window will pop up like below.

Fill in the correct name and password to login the main interface (Factory default login name is nag, password is nag). See figure1-2

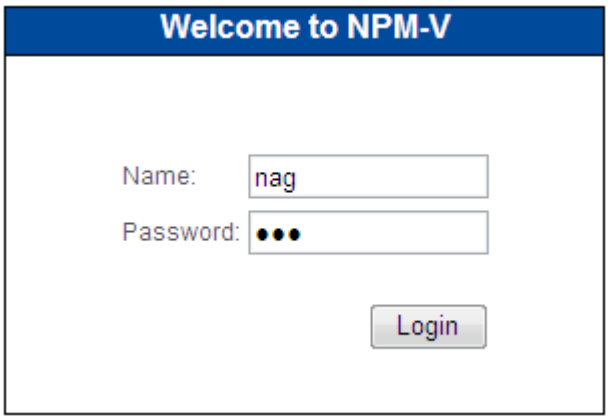


Figure1-1

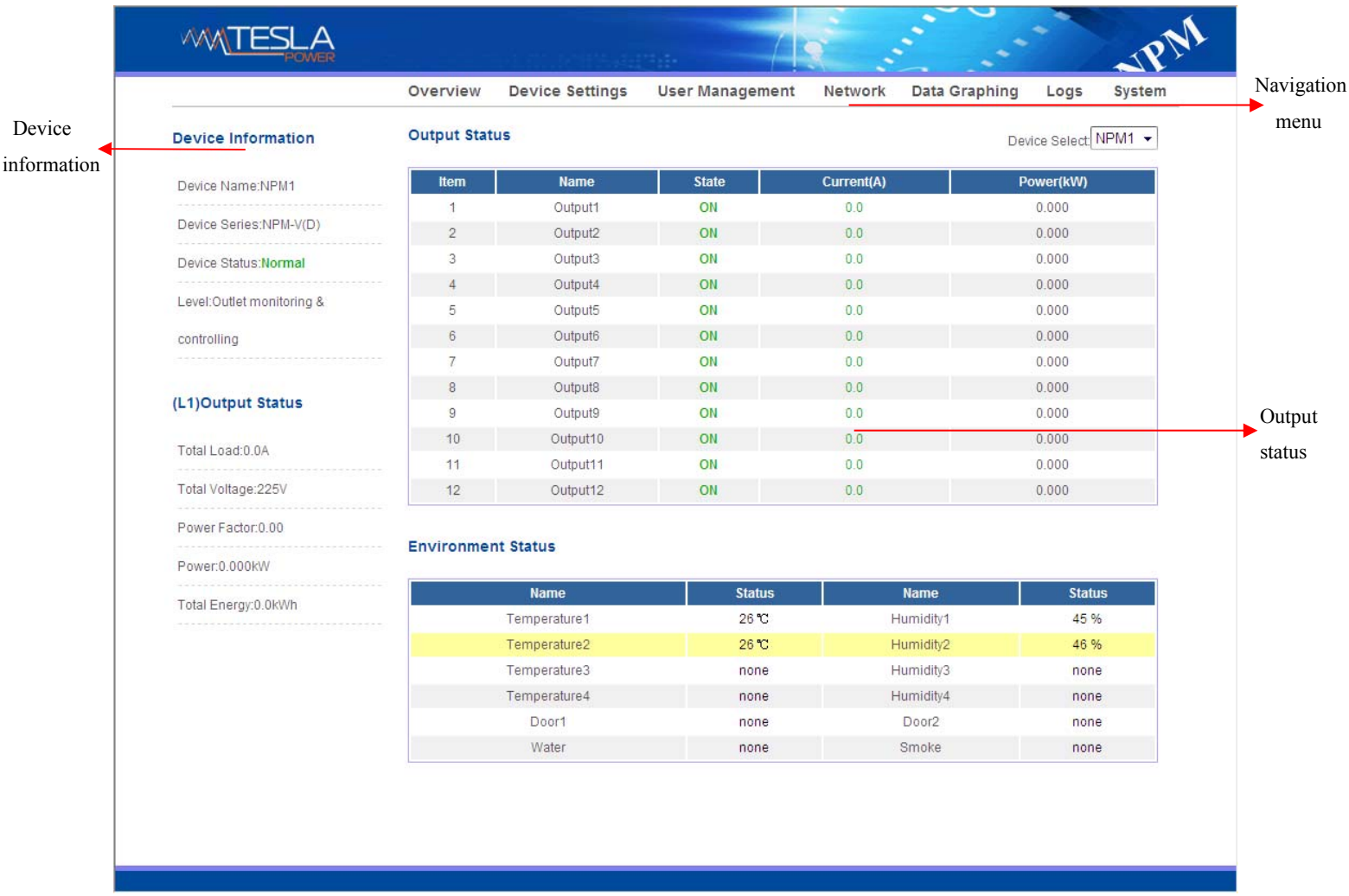


Figure 1-2

Mainly 3 parts on main interface: Navigation menu, Device information and Output status.

Navigation menu: show company logo and function menus.

Device information: display device name, device series, device status and function level.

Output status: display output name, on/off state. From the Device select drop down menu to check the information of Slaves.

2.1.1 Device information and status

Device information includes device name, device series, device status and function level. Output status includes total load, voltage, power factor, total power (kW) and total energy consumption (kWh).

2.1.2. Device Management: Click Device Management from menu to do basic configuration of the device like

Figure 1-3

A. Basic settings

Work mode setting: set the device as Master or Slave (1-4) from the drop down menu and save.

Device name setting: name the devices and save.

Power delay: set the delay of power on and power off (0~254 seconds) and save.

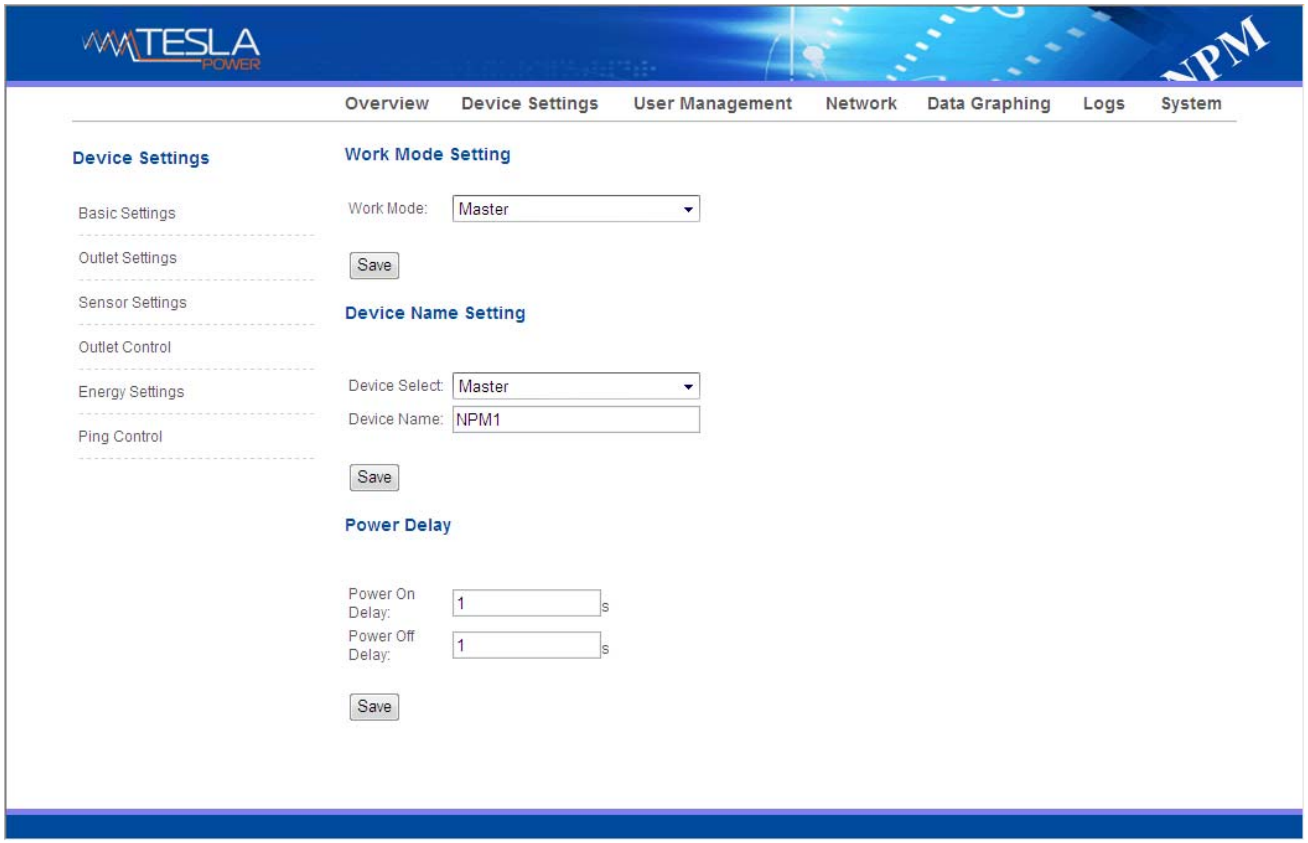


Figure 1-3

B. Outlet settings: Click Outlet setting from device management to name each outlet and set the threshold of load current.

Outlet name: To change the outlet name and click save to complete

Set the threshold of the each outlet: enter the user-defined threshold to alarm

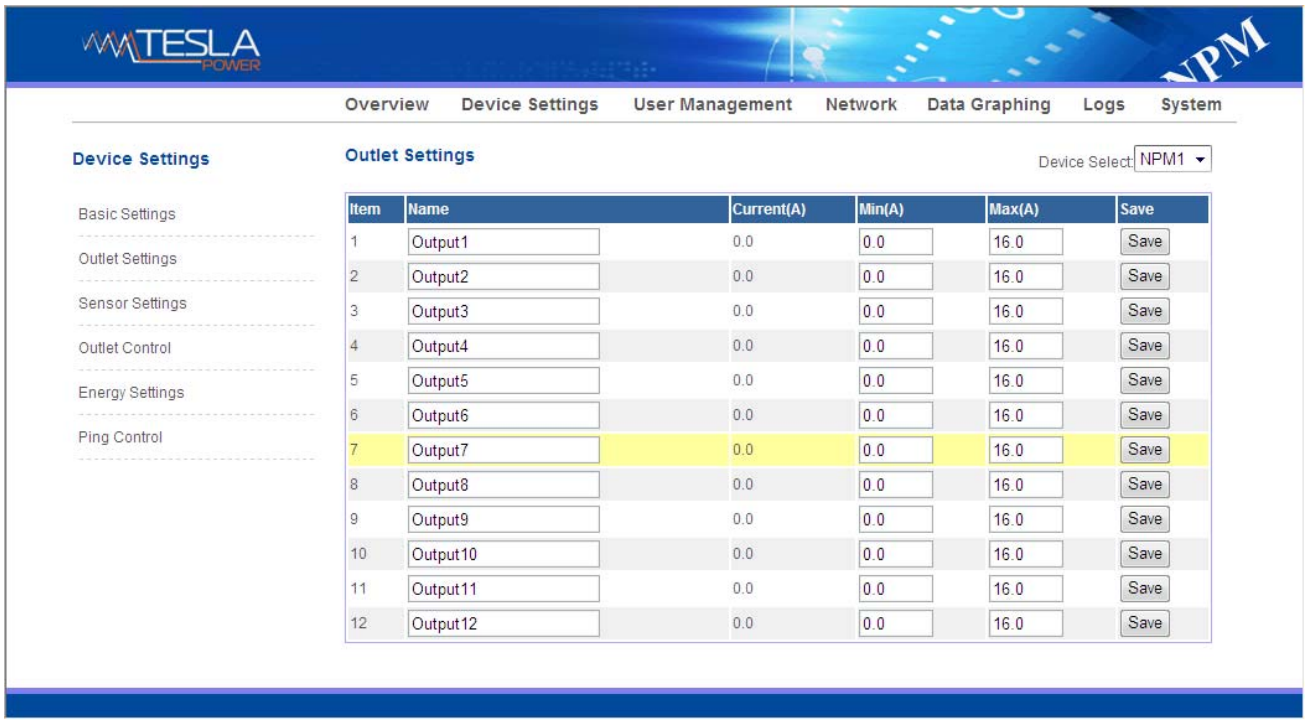


Figure 1-3-1

C. Sensor settings: set the threshold of temperature, humidity

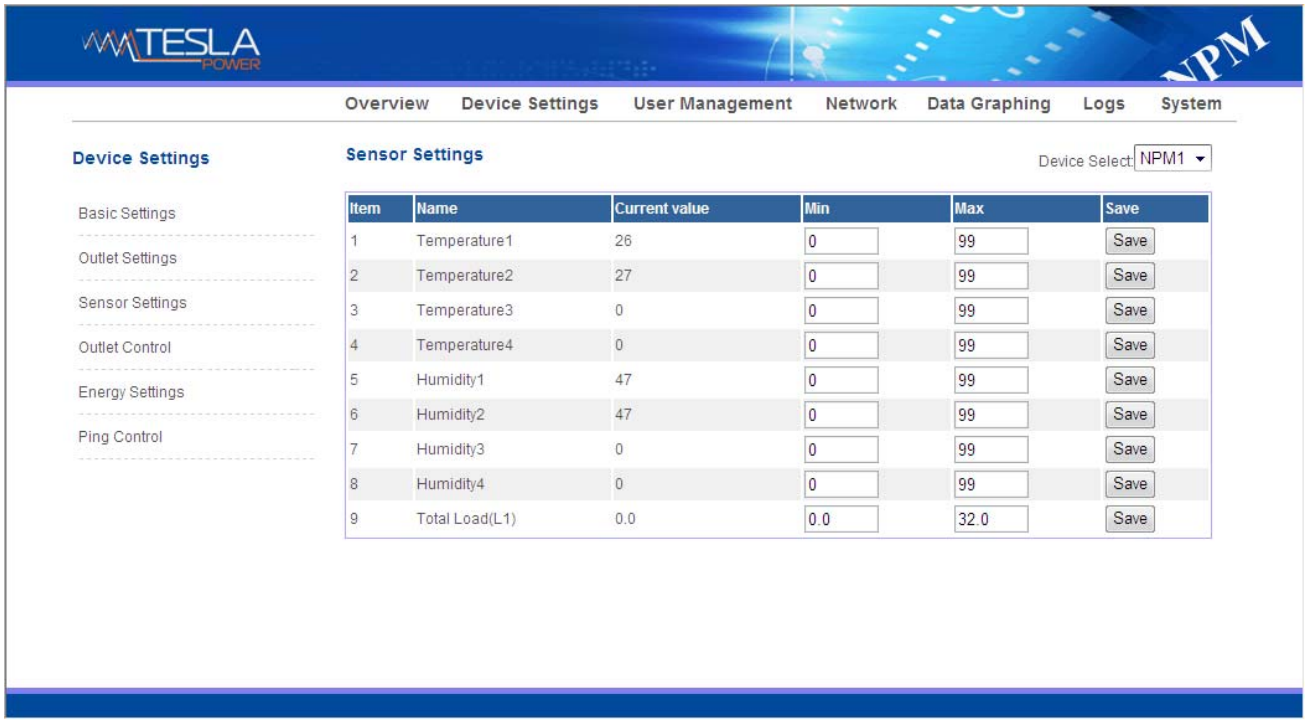


Figure 1-3-2

D. Outlet control: switch on/off or reboot outlets.

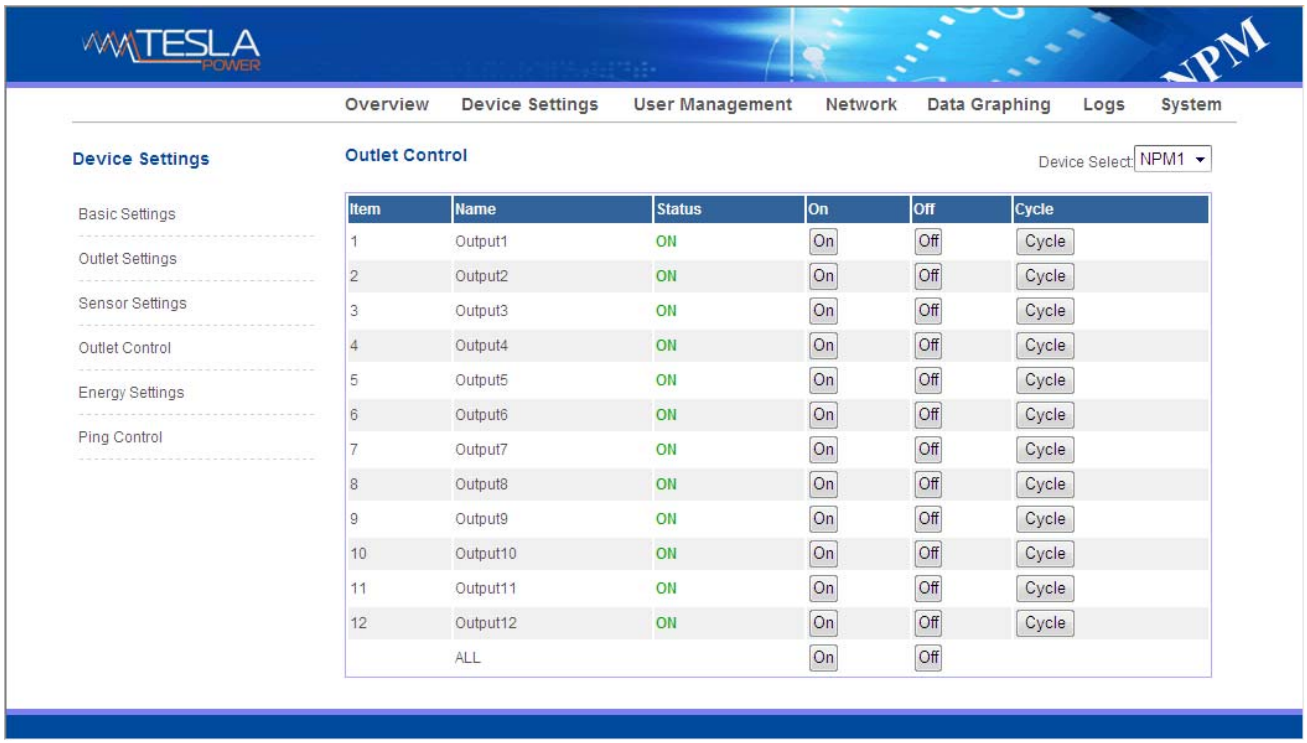


Figure1-3-3

E. Energy settings: check the energy consumption and reset to 0.

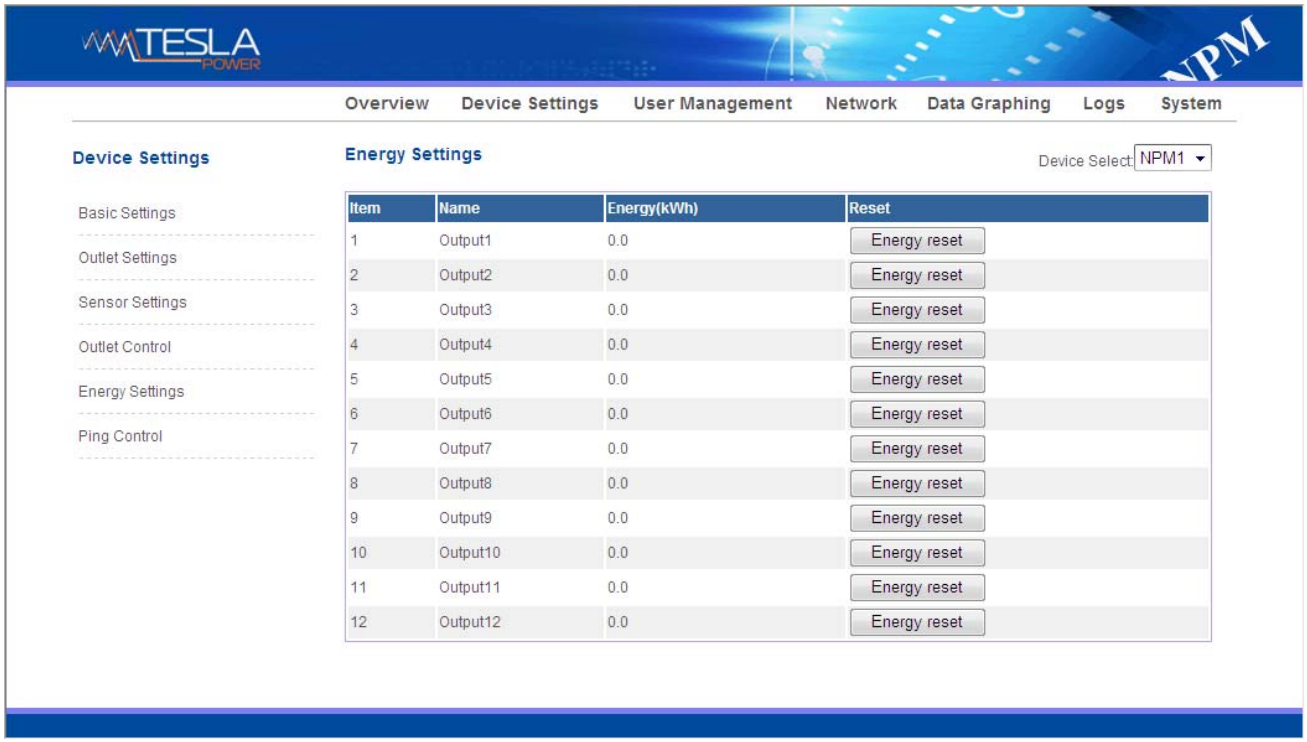


Figure1-3-4

F. Ping control

Use the PING command to ping the corresponding outlets network device's IP address from the first to eighth outlets, When Ping no answer occurs, by the control of outlets' power up/down so as to realize the power supply operation of network equipment.

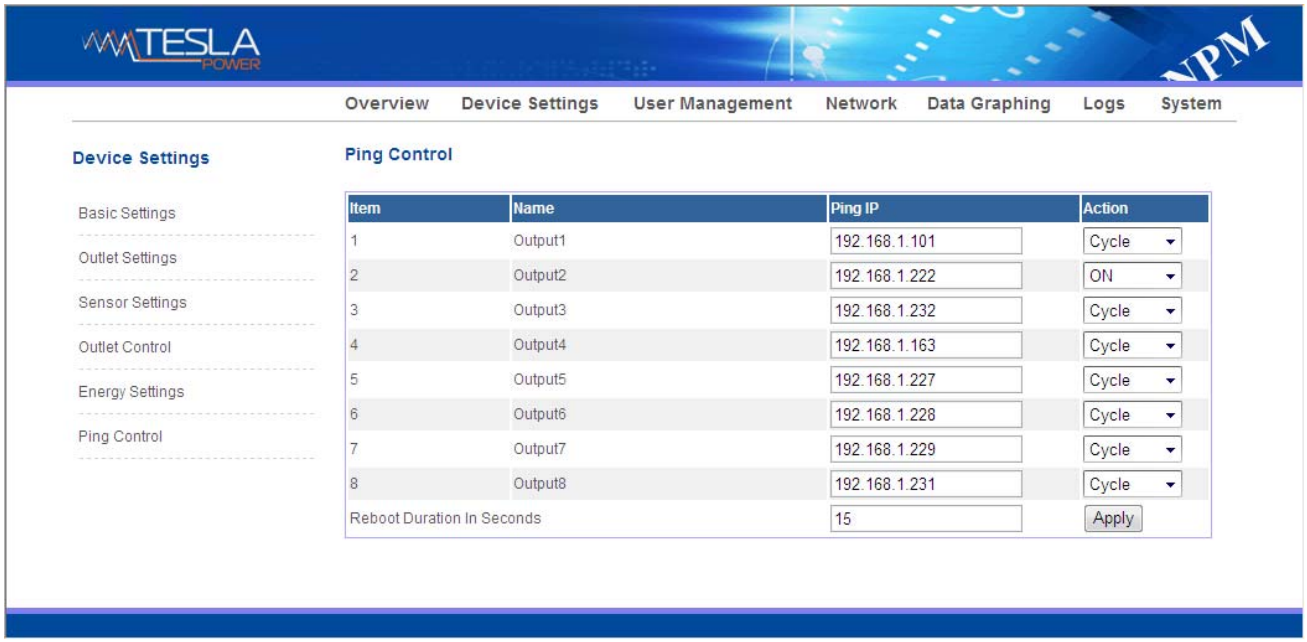


Figure1-3-5

1. Fill in the corresponding input IP address in the IP input box, which is controlled by network device.
2. Select the drop-down box options of ACTION, the default system command is NONE, PING- no answer, the system does not perform any operation of corresponding outlets; When you select ON / OFF / Once Options, Ping-No answer occurs, the system will perform the corresponding outlets on/off or restart an operation; When

you select Cycle option, Ping No answer occurs, the corresponding outlets will repeat restart operation at intervals of time.

3. The interval time of outlets restart command operation is 15s (system default), the range shouldn't be less than 3s. Click on "Apply" button, Ping function enable, when Ping function is enabled, the logs of the operation of Ping function will be generated.

Note: when Ping running normal, the outlets doesn't carry on any operates commands.

Ping function only could be available the network device IP connect with output1 to output8.

The other outlets connect the network device IP couldn't be available this function.

2.1.3 User Management: configure user access rights and security settings

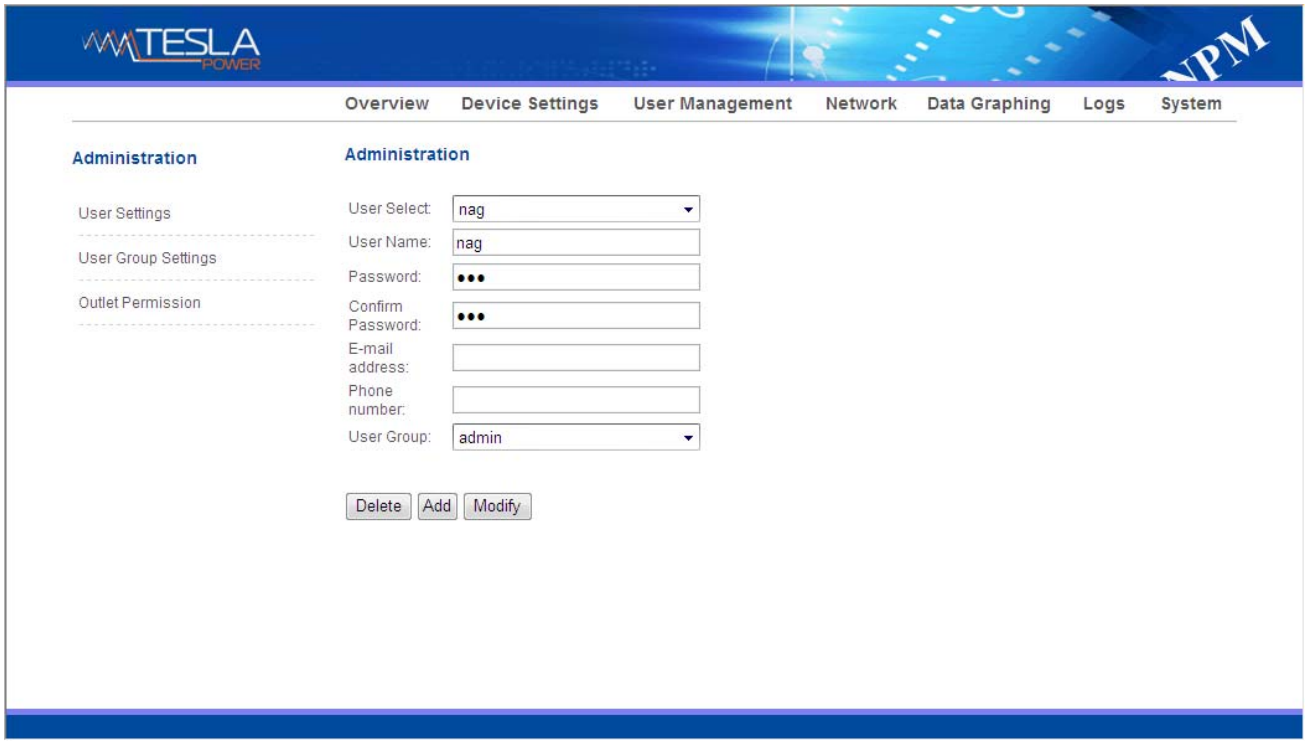


Figure1-4

A. User settings: fill in user name, password, email address and phone number, then click "Add" to add the new user; select the user, modify the relative information and then click "Modify" to modify the user information; select the user and click "Delete" to delete the user.

B. User Group Settings: fill in user group name and then click "Save" to add the new user group; select one group and click the following permissions to configure the rights.

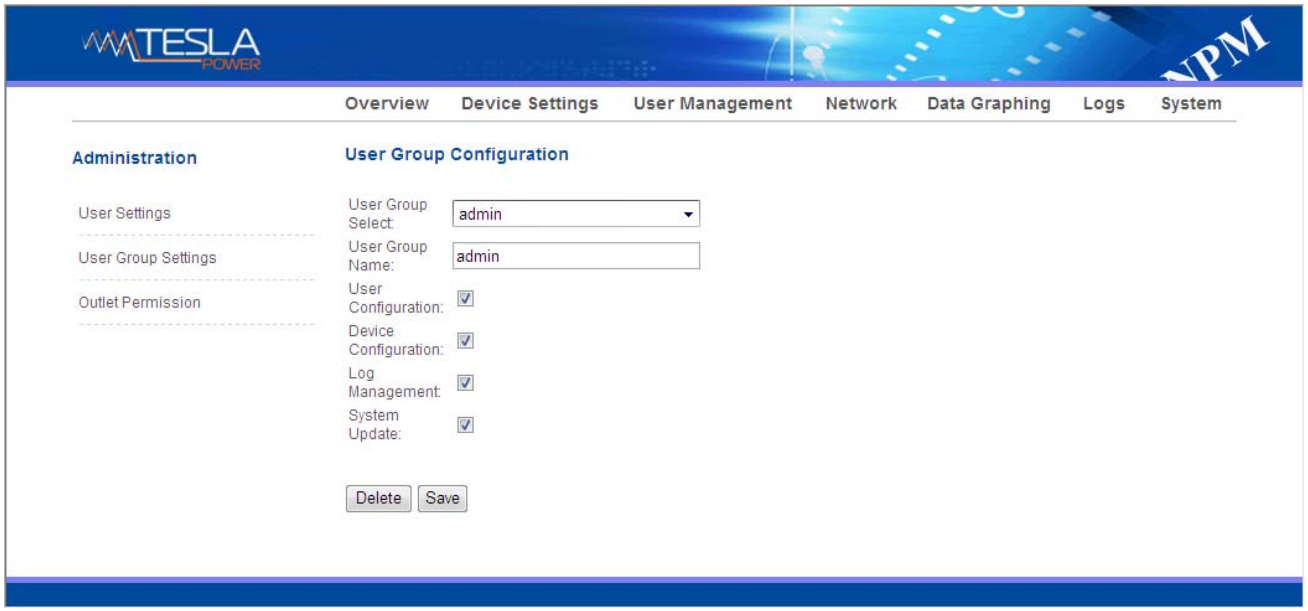


Figure1-4-1

C. Outlet Permission

“Outlet Permission ” interface is mainly used to delete and edit outlet right.Select one user group and click the following outputs to configure the rights.

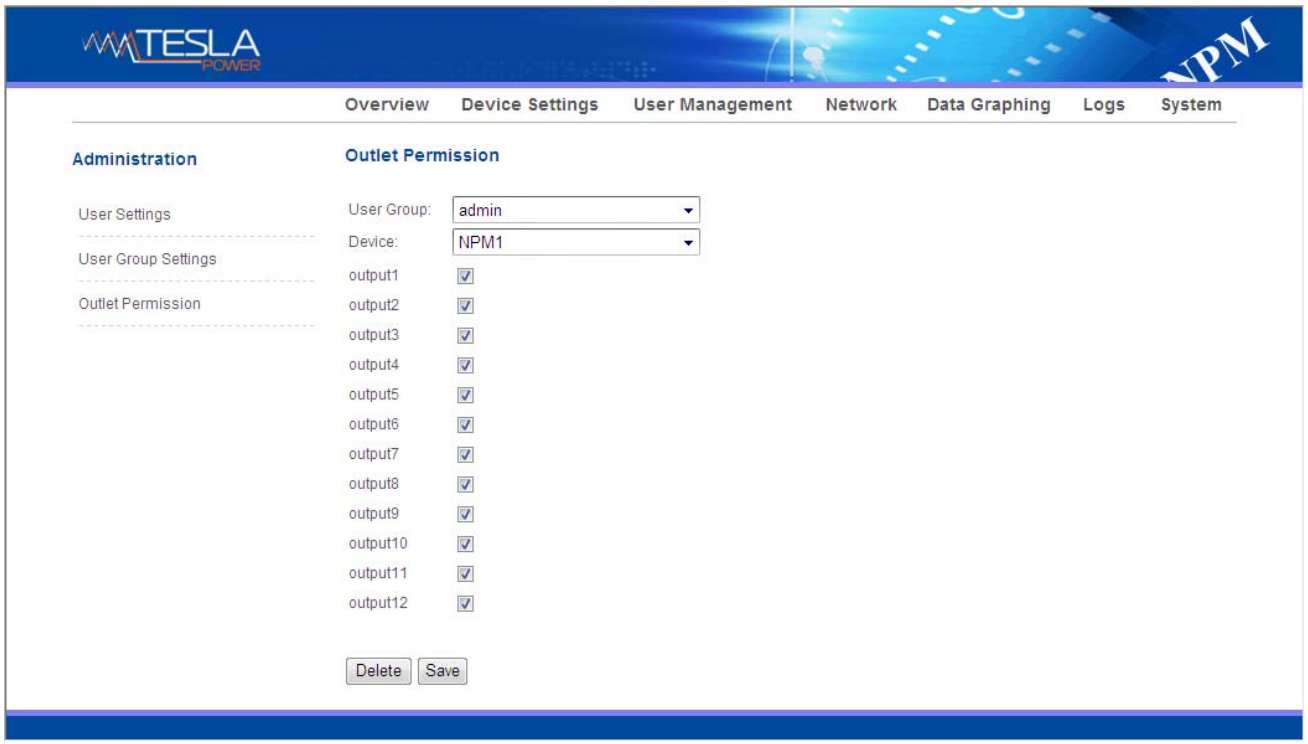


Figure1-4-2

2.1.4 Network Settings

A. Network mode: Manual or automatic acquisition. See figure 1-5

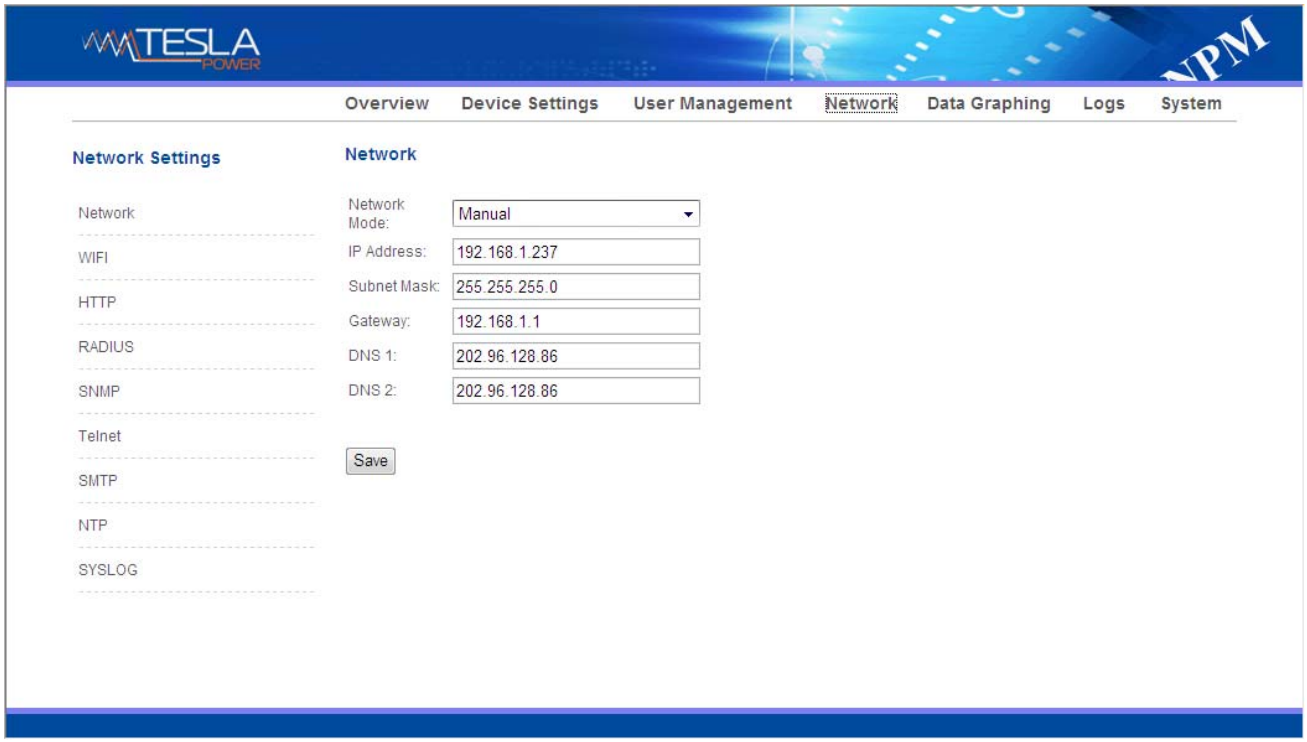


Figure1-5

1. Manual setting:

IP：192.168.1.163（factory default IP）；

Subnet mask：255.255.255.0

Gateway：192.168.1.1

DNS: default as 0.0.0.0；Should fill in correct DNS to ensure the email send out.

Note: please restart the software after the modification of network settings.

2. Automatic acquisition:

Select Automatic acquisition and click “Save”, then restart the software, device will get the IP automatically. IP can be viewed on LCD.

B. WIFI Settings:

Insert the wireless network card into the USB port

1. WIFI Signal Searching：

Click “Search Network” to find all the wireless network nearby.

2. Enable WIFI: select enable, fill in SSID and password and save.

3.WIFI network settings

Network mode can be manual or automatic acquisition

Manually settings as below:

IP Address: Set the WIFI IP in the LAN like 192.168.1.191

Subnet Mask: correspond to IP address like 255.255.255.0

Gateway: correspond to IP address like 192.168.1.1

DNS: default DNS is 0.0.0.0

automatic acquisition

Fill out the WIFI connection settings and save, select the automatic acquisition from the drop-down list of WIFI network settings and save. Then restart the device and system will acquire the IP address within the LAN and the address can be viewed from the LCD screen.

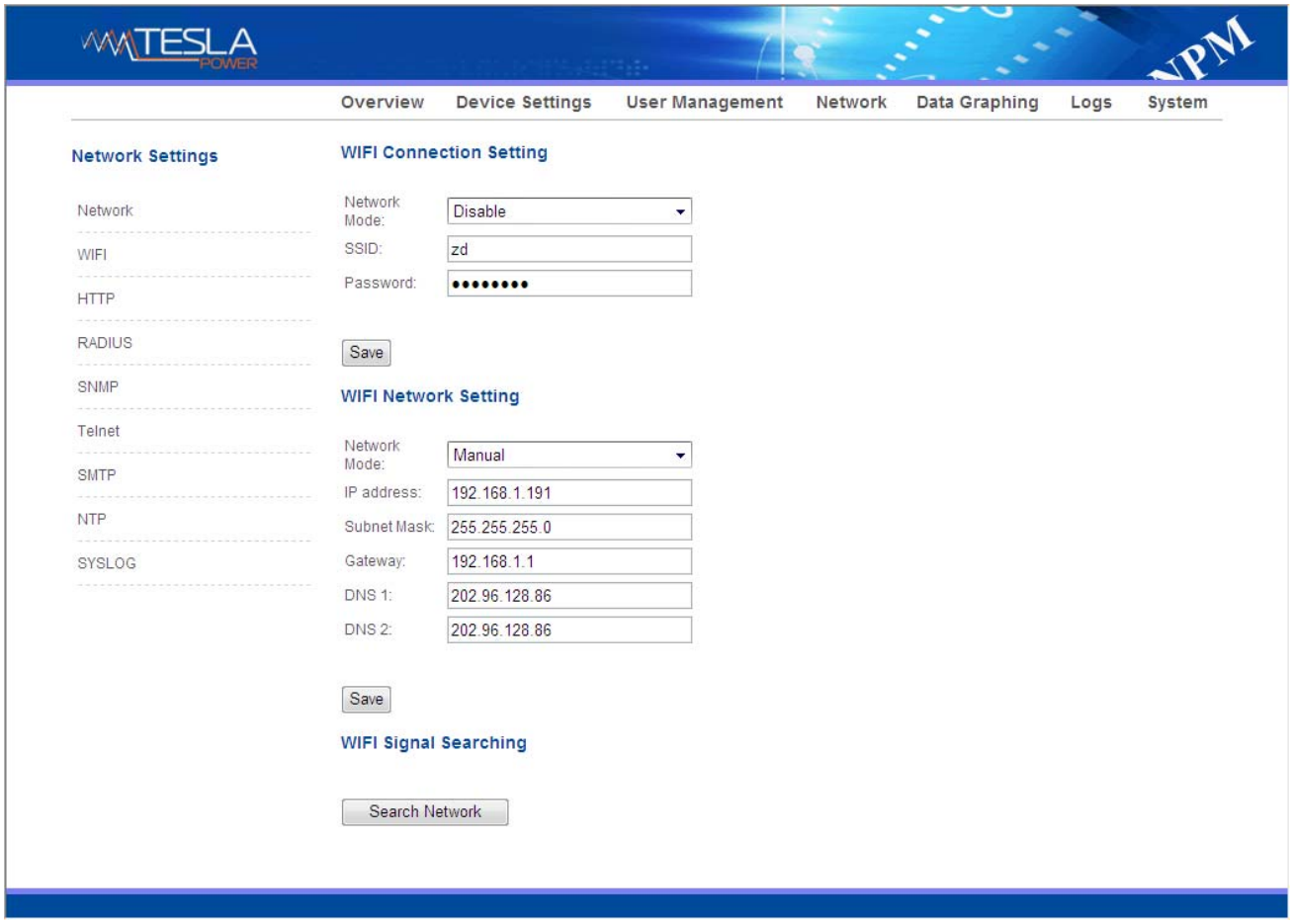


Figure 1-6

C. HTTP: fill in the correct HTTP port and save; under normal work mode, the default port is 80.

SSL Mode Port: default as 443.

Note: please restart the software after the modification of HTTP settings.

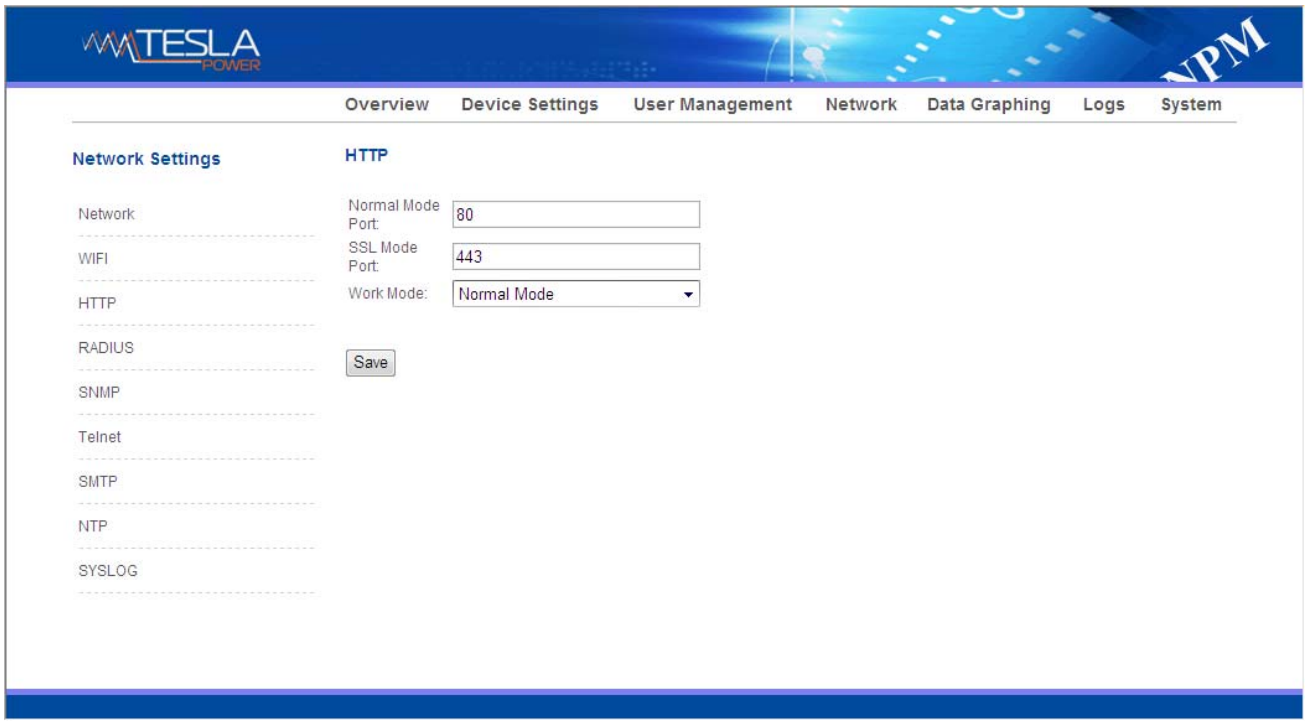


Figure 1-7

D. RADIUS

User can choose basic authentication or Radius authentication.

Select Radius authentication, device will authenticate the user account from the Radius server.

Server address: fill in the Radius server address.

Shared secret: fill in the required public key of the Radius server.

Note: please restart the software after the configuration. Then fill in the requested account and password of Radius server, after authentication, user can access the device.

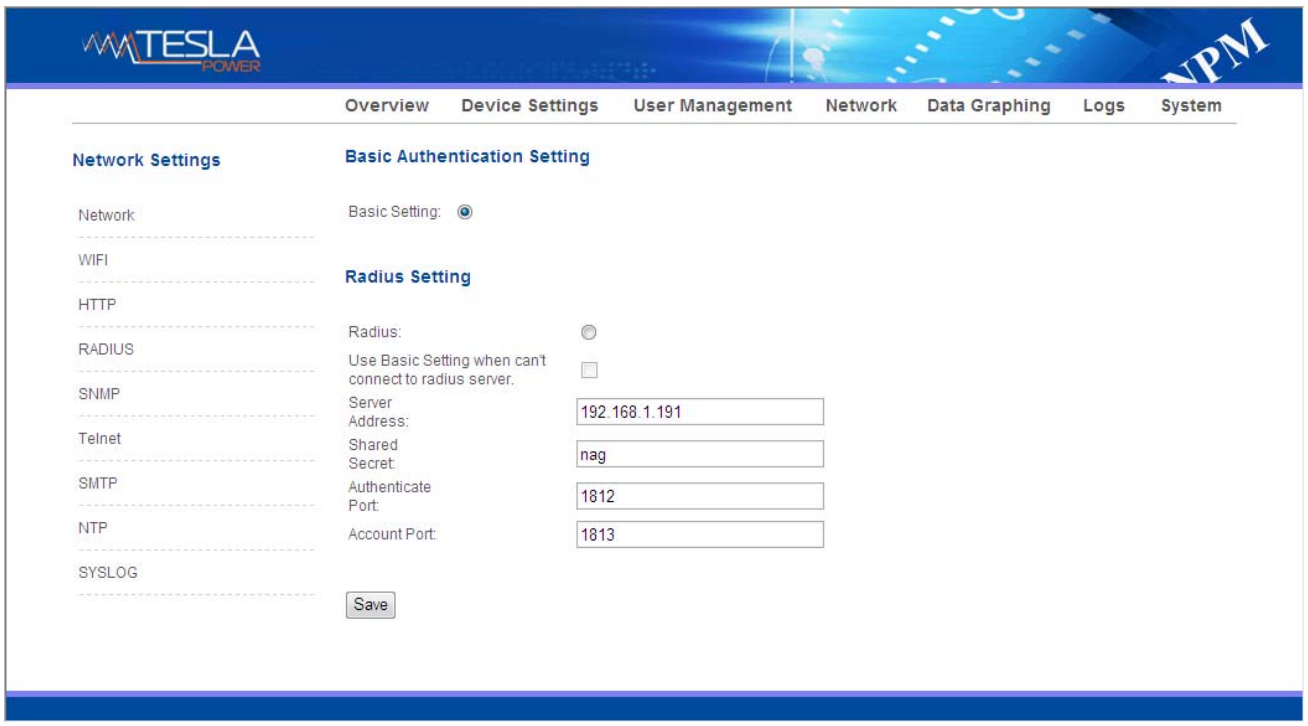


Figure1-8

E. SNMP

1. SNMP v1/v2c settings:

User can decide to Enable or Disable the SNMP access from the Web interface.

Enable SNMP V1 and V2C requires configuration of read community and write community. And the default “Read community” and “Write community ”is public and private. User can change it accordingly to situation.

Trap address: can set 2 trap addresses. Fill in the trap address of SNMP management platform, Trap information will be sent directly to the addresses.

2. SNMP v3 settings:

Select “Enable” and fill in account, password, private key.

Note: After save of the SNMP setting, software must be restarted.

For SNMP access please refer to page 24.

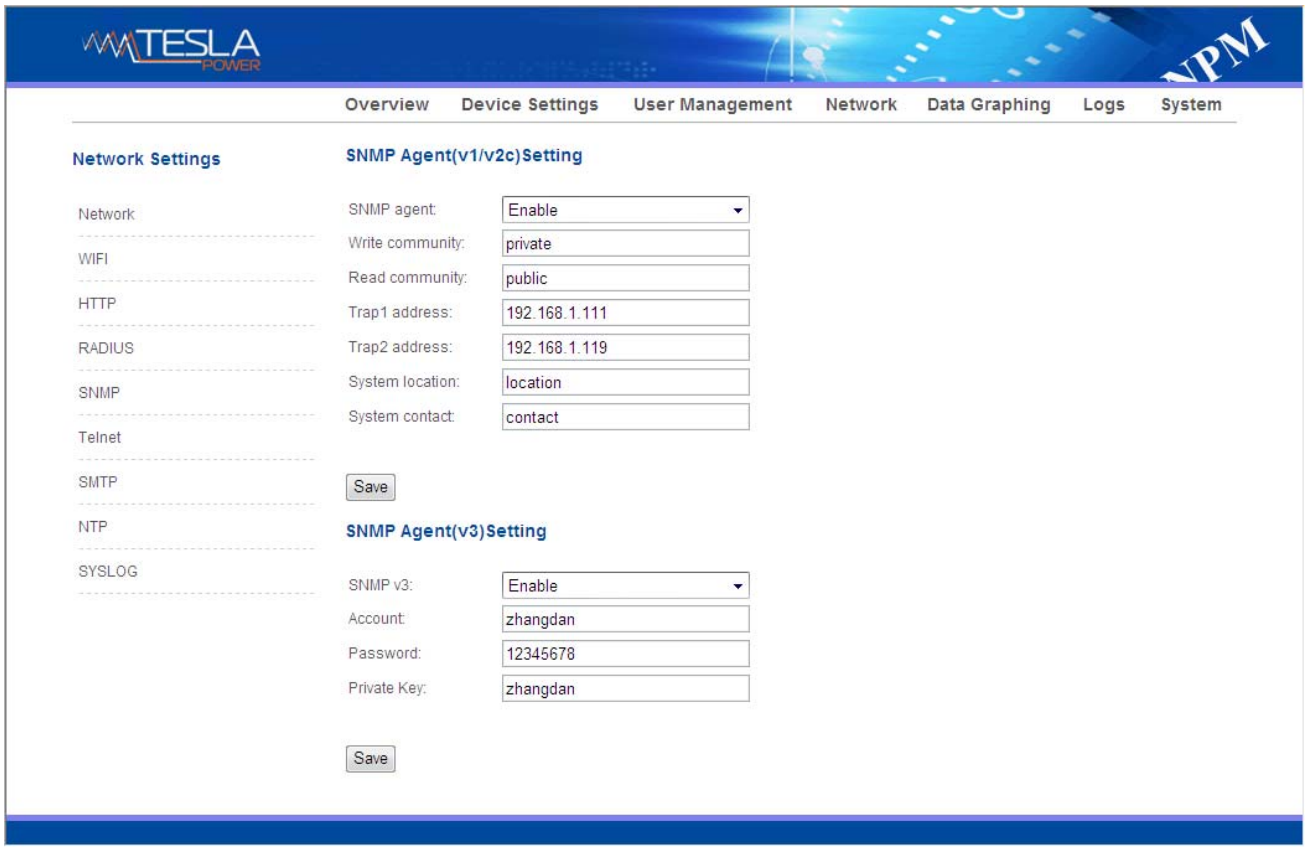


Figure 1-9

F. Telnet Settings:

Telnet: select “Enable” or “Disable” and save, make sure to restart the software after modification.

Fill in Telnet account and password as shown in figure 1-10, Telnet port is 23.

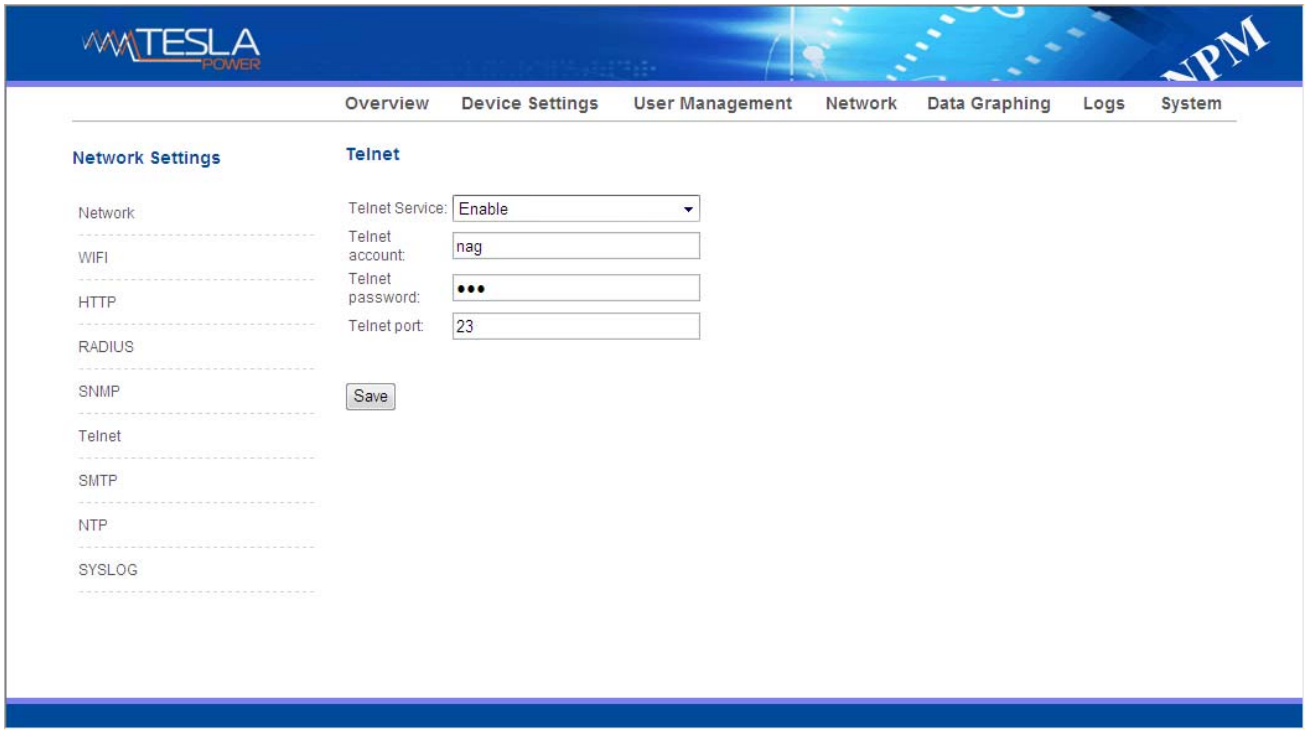


Figure 1-10

G. SMTP: Click SMTP from the network setting tap to enter the SMTP setting as figure 1-11.

Fill in the parameters of SMTP service including SMTP account, password, SMTP server, port and authentication mode. After save, must restart the software to take effect.

SMTP test: fill in the receiver account, click “Test” and then check the test receiver account. If test email received, SMTP setting is successful; if not received, please reset the SMTP.

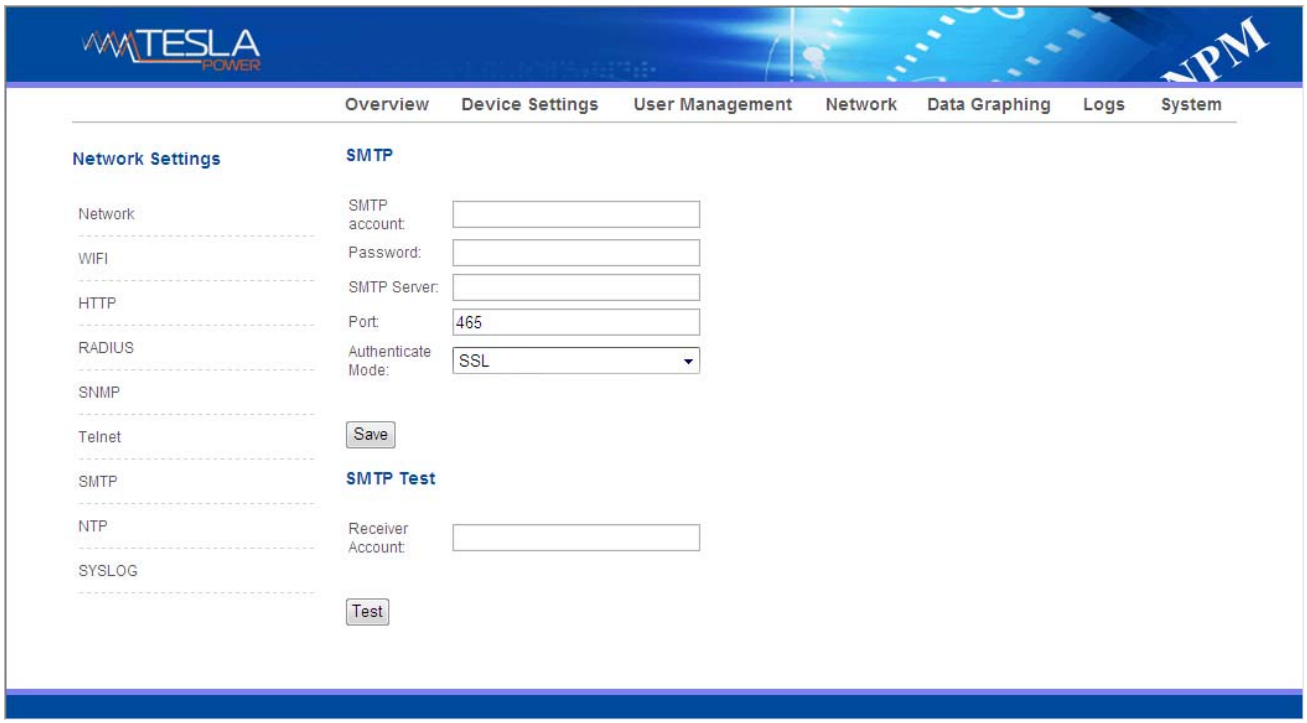


Figure 1-11

H. NTP Settings: Click NTP as shown figure 1-12 from network setting tap

Local time is the present time of the device server.

To enable or Disable the NTM service and click Save. Then restart the device.

Enable NTP, fill in the NTP server, port and select time zone, click “Save”.

Click “Synchronization”, device will update to the local system time according to the the current time zone and date from the internet

User-defined setting: must disable the NTP firstly and then fill in the date and time.

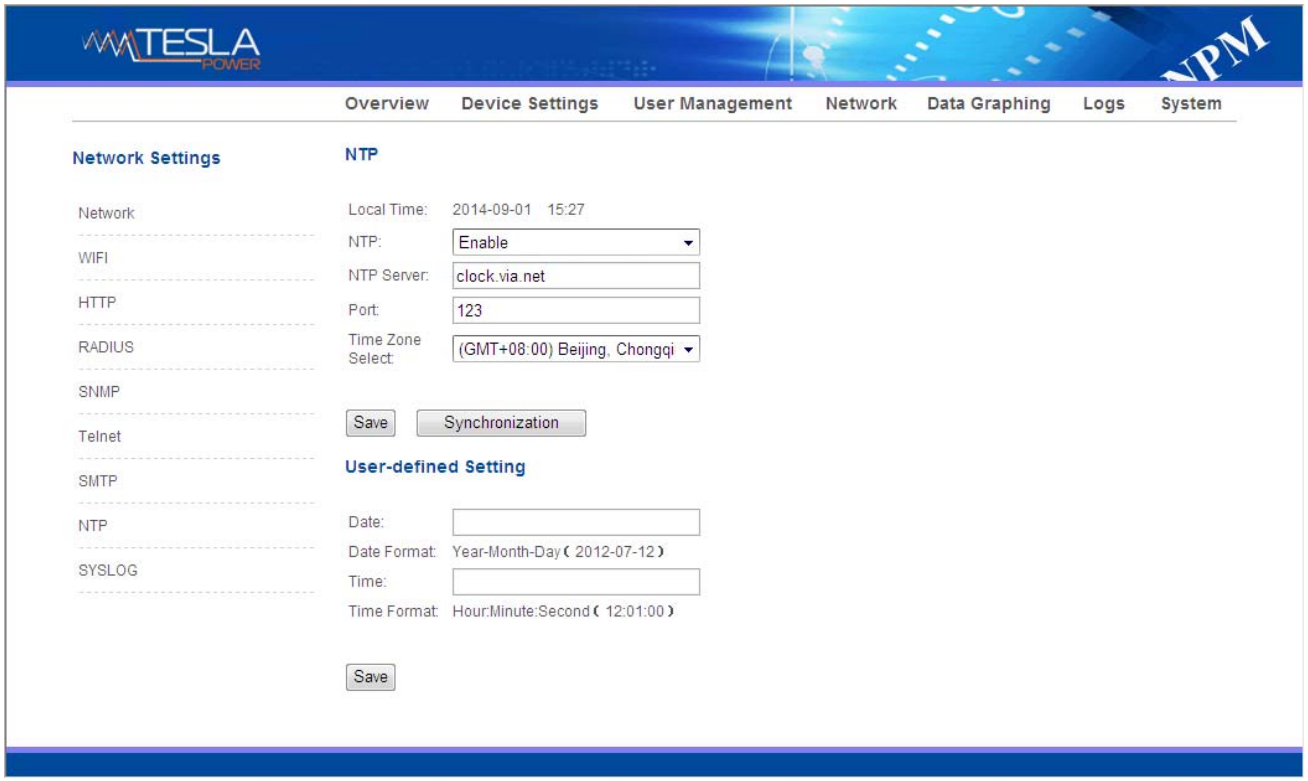


Figure 1-12

I. SYSLOG: fill in the SYSLOG server IP address as shown in figure 1-13

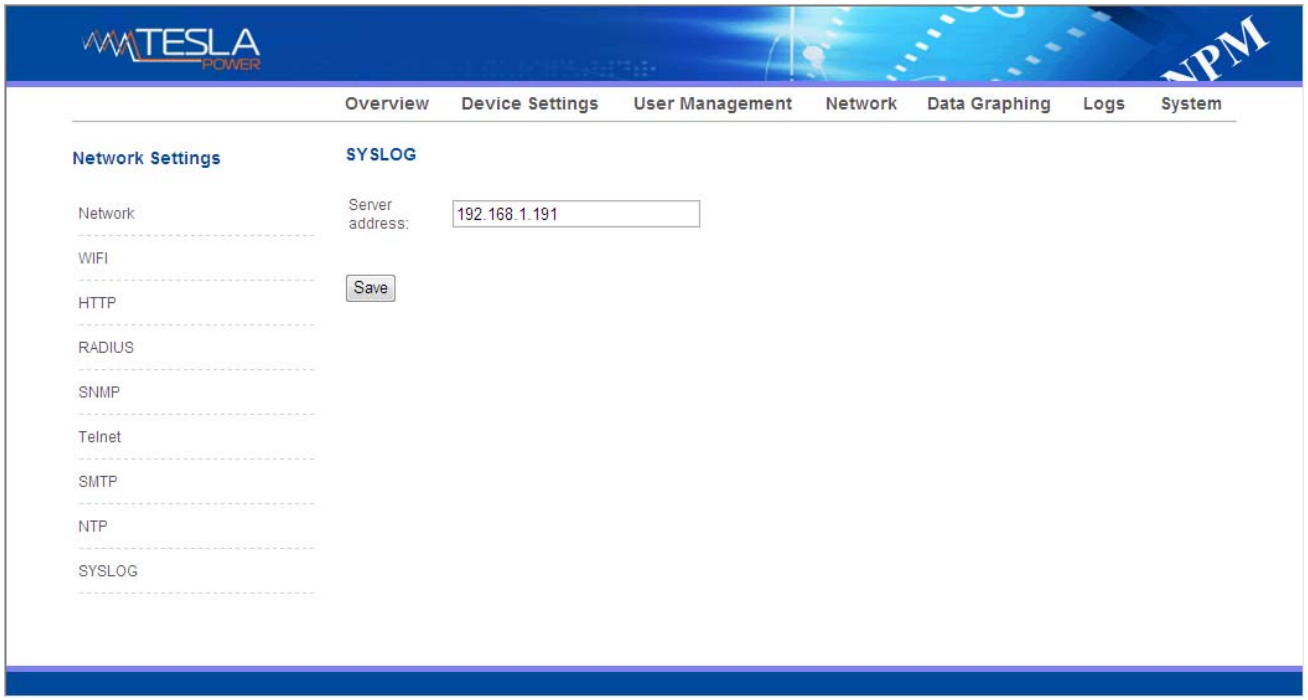


Figure 1-13

Note: SYSLOG contain the system start, service mistake during operation and command mistake information. After save the SYSLOG server address, restart the software to take effect.

2.1.5 Data Graphing

Select device and check the relative information in the past 24 hours including total power (kW), current (ampere), voltage, average temperature and humidity as illustrated in figure 1-14

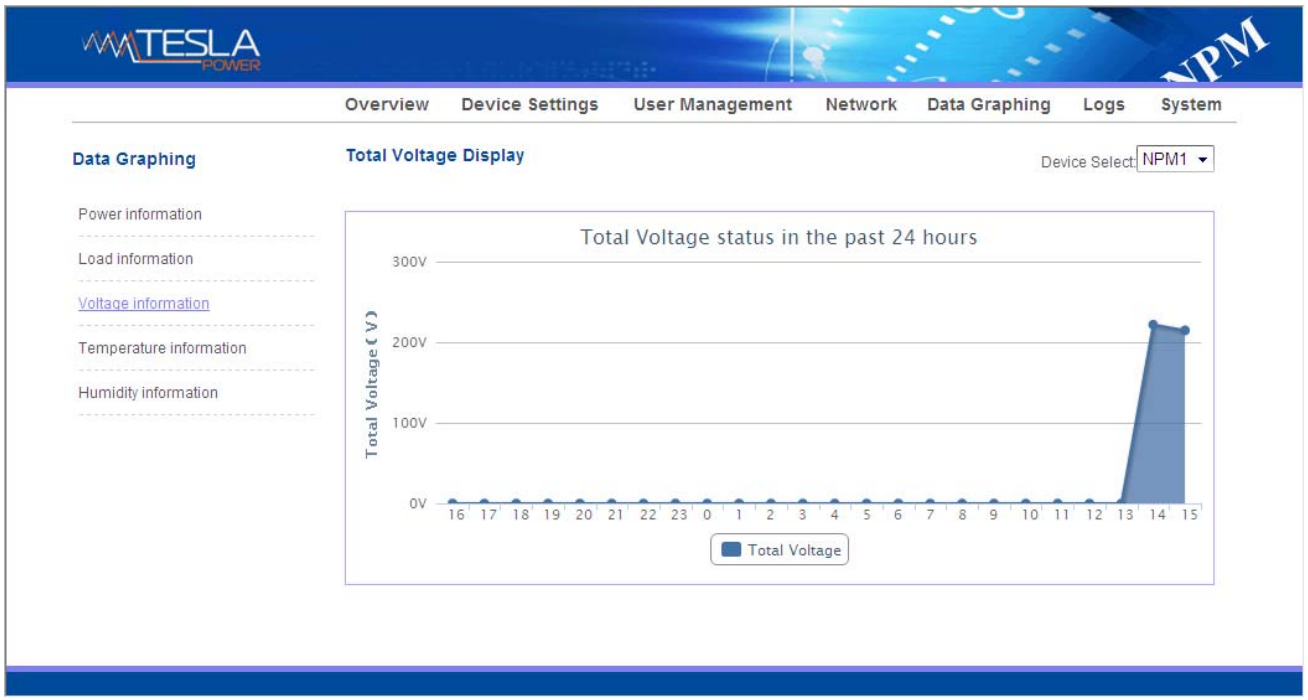


Figure 1-14

2.1.6 Logs

Click Logs to the logs interface as shown in figure 1-15, it contains events, history data and every data.

A. Logs Record: show the operation time, log type, user name and log details.

Memory capacity 100M.

1. To view the data:

Jump : enter the page you want to view and logs will switch over to the exact page.

Page turning: by click Next or Previous to view the logs

2. Delete the logs:

Click the delete logs, device will return the confirmation and click OK to delete all the logs.

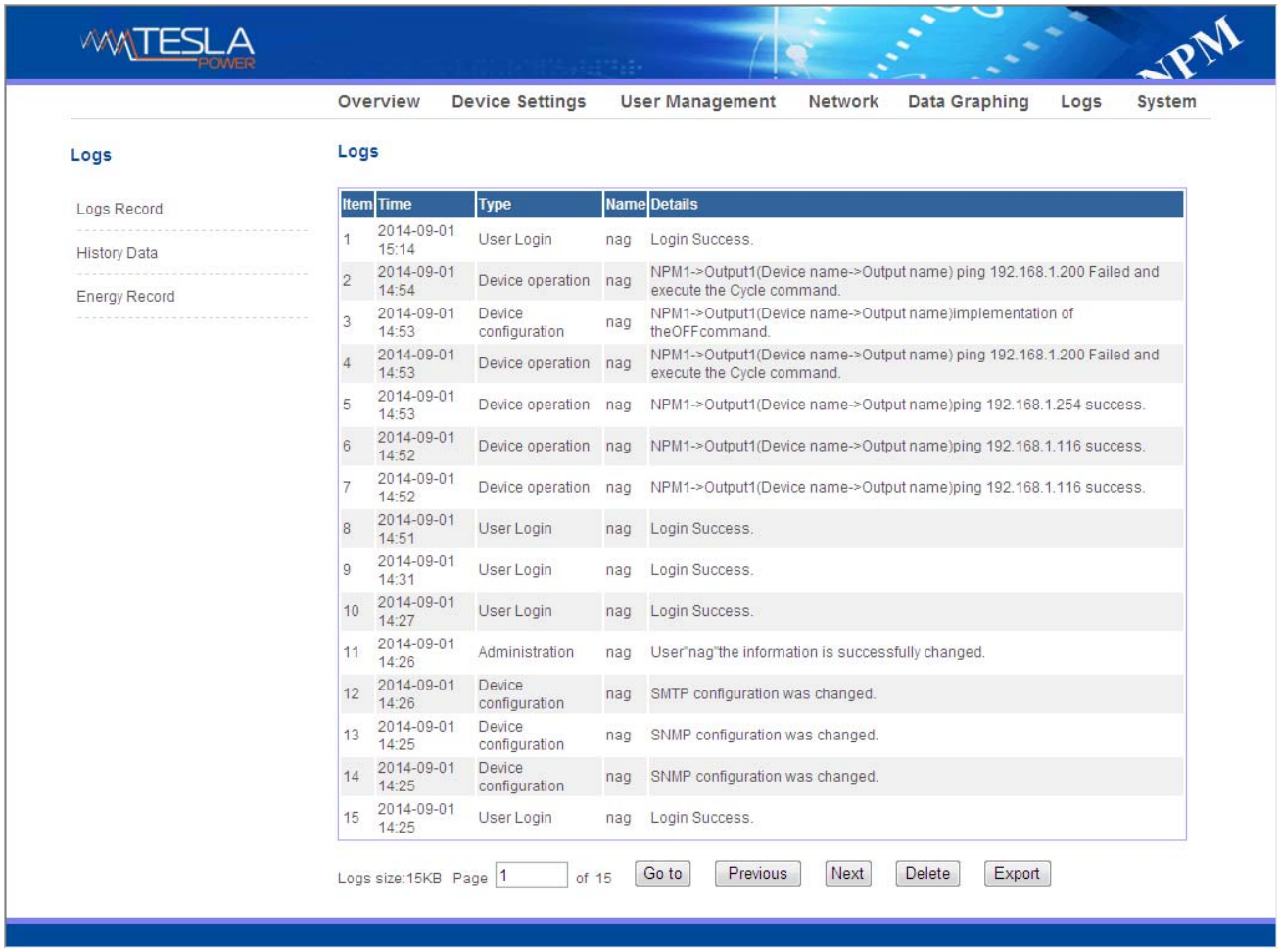


Figure 1-15

B. History Data: select the date, device and information type (total power, voltage, power, temperature and humidity) want to view, and then click “View” to see the history data.

Figure 1-16 shows the voltage status of 24 hours

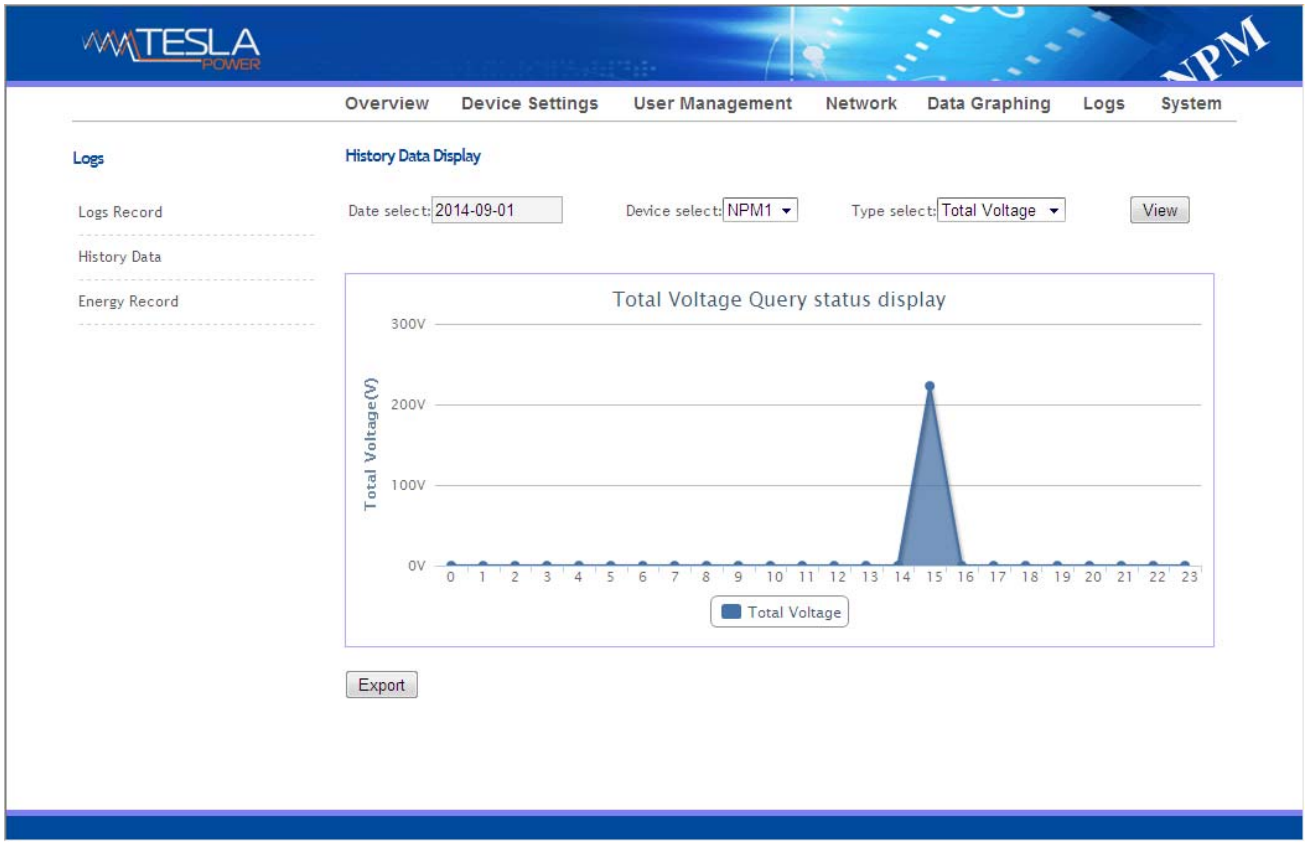


Figure 1-16

C. Energy Record: select the device, start and end date, and click “View”, system will show the accumulated kWh value on the two date and calculate the kWh value during that period as shown in figure 1-17

Figure 1-17

2.1.7 System

a. show system information:Here can check system version, last update time,flash size and so on ;

b. download update tool to remotely update the software provided;

c. download user manual and mib file ;

d. Massive data backup and batch import settings: Click **Settings** to save the devices settings, user settings and network settings through batch download, user can upload all the backup information easily by the upgrade tool.

e. restart the software or restore to factory default configuration.

Figure1-18

2.2. SNMP Access

This software support SNMP V1, V2C and V3, a MIB file can be provided at customer's request. User can view the power information and environment status and receive the alarming from the device.

After enable the SNMP function from Web interface. A SNMP management software is required to be installed(the first NPM is Master or Slave, and the other NPM is slave).

Please refer to the OID table as below:

	OID	Description
npmSlave X	1.3.6.1.4.1.30966.5.X	Device X
slave X Name	1.3.6.1.4.1.30966.5.X.1.1	Name of device X
slave X Type	1.3.6.1.4.1.30966.5.X.1.2	Type of device X
slave X Line One	1.3.6.1.4.1.30966.5.X.1.3	Phase one of device X
slave X Line One Power	1.3.6.1.4.1.30966.5.X.1.3.1	Power of phase one of device X

slave X Line One PF	1.3.6.1.4.1.30966.5.X.1.3.2	Power factor of the phase one of device X
slave X Line One Energy	1.3.6.1.4.1.30966.5.X.1.3.3	Energy of phase one of device X
slave X Line One Current	1.3.6.1.4.1.30966.5.X.1.3.4	Current of phase one of device X
slave X Line One Voltage	1.3.6.1.4.1.30966.5.X.1.3.5	voltage of phase one of device X
slave X Line One Current Min	1.3.6.1.4.1.30966.5.X.1.3.6	Minimum Current of phase one of device X
slave X Line One Current Max	1.3.6.1.4.1.30966.5.X.1.3.7	Maximum Current of phase one of device X
slave X Line One Voltage Min	1.3.6.1.4.1.30966.5.X.1.3.8	Minimum voltage of phase one of device X
slave X Line One Voltage Max	1.3.6.1.4.1.30966.5.X.1.3.9	Maximum voltage of phase one of device X
slave X Line Two	1.3.6.1.4.1.30966.5.X.1.4	Phase two of device X
slave X Line Two Power	1.3.6.1.4.1.30966.5.X.1.4.1	Power of phase two of device X
slave X Line Two PF	1.3.6.1.4.1.30966.5.X.1.4.2	Power factor of the phase two of device X
slave X Line Two Energy	1.3.6.1.4.1.30966.5.X.1.4.3	Energy of phase two of device X
slave X Line Two Current	1.3.6.1.4.1.30966.5.X.1.4.4	Current of phase two of device X
slave X Line Two Voltage	1.3.6.1.4.1.30966.5.X.1.4.5	voltage of phase two of device X
slave X Line Two Current Min	1.3.6.1.4.1.30966.5.X.1.4.6	Minimum Current of phase two of device X
slave X Line Two Current Max	1.3.6.1.4.1.30966.5.X.1.4.7	Maximum Current of phase two of device X
slave X Line Two Voltage Min	1.3.6.1.4.1.30966.5.X.1.4.8	Minimum voltage of phase two of device X
slave X Line Two Voltage Max	1.3.6.1.4.1.30966.5.X.1.4.9	Maximum voltage of phase two of device X
slave X Line Three	1.3.6.1.4.1.30966.5.X.1.5	Phase three of device X
slave X Line Three Power	1.3.6.1.4.1.30966.5.X.1.5.1	Power of phase three of device X
slave X Line Three PF	1.3.6.1.4.1.30966.5.X.1.5.2	Power factor of the phase three of device X
slave X Line Three Energy	1.3.6.1.4.1.30966.5.X.1.5.3	Energy of phase three of device X
slave X Line Three Current	1.3.6.1.4.1.30966.5.X.1.5.4	Current of phase three of device X
slave X Line Three Voltage	1.3.6.1.4.1.30966.5.X.1.5.5	voltage of phase three of device X
slave X Line Three Current Min	1.3.6.1.4.1.30966.5.X.1.5.6	Minimum Current of phase three of device X
slave X Line Three Current Max	1.3.6.1.4.1.30966.5.X.1.5.7	Maximum Current of phase three of device X
slave X Line Three Voltage Min	1.3.6.1.4.1.30966.5.X.1.5.8	Minimum voltage of phase three of device X
slave X Line Three Voltage Max	1.3.6.1.4.1.30966.5.X.1.5.9	Maximum voltage of phase three of device X
slave X TempHum	1.3.6.1.4.1.30966.5.X.1.6	The temperature and humidity of device X
slave X TempOne	1.3.6.1.4.1.30966.5.X.1.6.1	The temperature one of device X
slave X TempTwo	1.3.6.1.4.1.30966.5.X.1.6.2	The temperature two of device X
slave X TempThree	1.3.6.1.4.1.30966.5.X.1.6.3	The temperature three of device X
slave X TempFour	1.3.6.1.4.1.30966.5.X.1.6.4	The temperature four of device X
slave X HumOne	1.3.6.1.4.1.30966.5.X.1.6.5	The humidity one of device X
slave X HumTwo	1.3.6.1.4.1.30966.5.X.1.6.6	The humidity two of device X

slave X HumThree	1.3.6.1.4.1.30966.5.X.1.6.7	The humidity three of device X
slave X HumFour	1.3.6.1.4.1.30966.5.X.1.6.8	The humidity four of device X
slave X DoorOne	1.3.6.1.4.1.30966.5.X.1.6.9	The door one of device X
slave X DoorTwo	1.3.6.1.4.1.30966.5.X.1.6.10	The door two of device X
slave X Smoke	1.3.6.1.4.1.30966.5.X.1.6.11	The smoke of device X
slave X Output Number	1.3.6.1.4.1.30966.5.X.1.7	The outlet quantity of device X
slave X Output Name	1.3.6.1.4.1.30966.5.X.1.8	The outlet name of device X
slave X Output Name One	1.3.6.1.4.1.30966.5.X.1.8.1	The name of outlet 1 of device X
slave X Output Name Two	1.3.6.1.4.1.30966.5.X.1.8.2	The name of outlet 2 of device X
slave X Output Name Three	1.3.6.1.4.1.30966.5.X.1.8.3	The name of outlet 3 of device X
slave X Output Name Four	1.3.6.1.4.1.30966.5.X.1.8.4	The name of outlet 4 of device X
slave X Output Name Five	1.3.6.1.4.1.30966.5.X.1.8.5	The name of outlet 5 of device X
slave X Output Name Six	1.3.6.1.4.1.30966.5.X.1.8.6	The name of outlet 6 of device X
slave X Output Name Seven	1.3.6.1.4.1.30966.5.X.1.8.7	The name of outlet 7 of device X
slave X Output Name Eight	1.3.6.1.4.1.30966.5.X.1.8.8	The name of outlet 8 of device X
slave X Output Name Nine	1.3.6.1.4.1.30966.5.X.1.8.9	The name of outlet 9 of device X
slave X Output Name Ten	1.3.6.1.4.1.30966.5.X.1.8.10	The name of outlet 10 of device X
slave X Output Name Eleven	1.3.6.1.4.1.30966.5.X.1.8.11	The name of outlet 11 of device X
slave X Output Name Twelve	1.3.6.1.4.1.30966.5.X.1.8.12	The name of outlet 12 of device X
slave X Output Name Thriteen	1.3.6.1.4.1.30966.5.X.1.8.13	The name of outlet 13 of device X
slave X Output Name Fourteen	1.3.6.1.4.1.30966.5.X.1.8.14	The name of outlet 14 of device X
slave X Output Name Fifteen	1.3.6.1.4.1.30966.5.X.1.8.15	The name of outlet 15 of device X
slave X Output Name Sixteen	1.3.6.1.4.1.30966.5.X.1.8.16	The name of outlet 16 of device X
slave X Output Name Seventeen	1.3.6.1.4.1.30966.5.X.1.8.17	The name of outlet 17 of device X
slave X Output Name Eighteen	1.3.6.1.4.1.30966.5.X.1.8.18	The name of outlet 18 of device X
slave X Output Name Nineteen	1.3.6.1.4.1.30966.5.X.1.8.19	The name of outlet 19 of device X
slave X Output Name Twenty	1.3.6.1.4.1.30966.5.X.1.8.20	The name of outlet 20 of device X

slave X Output Name TwentyOne	1.3.6.1.4.1.30966.5.X.1.8.21	The name of outlet 21 of device X
slave X Output Name TwentyTwo	1.3.6.1.4.1.30966.5.X.1.8.22	The name of outlet 22 of device X
slave X Output Name TwentyThree	1.3.6.1.4.1.30966.5.X.1.8.23	The name of outlet 23 of device X
slave X Output Name TwentyFour	1.3.6.1.4.1.30966.5.X.1.8.24	The name of outlet 24 of device X
slave X Output Status	1.3.6.1.4.1.30966.5.X.1.9	The outlet status of device X
slave X Output Status One	1.3.6.1.4.1.30966.5.X.1.9.1	The outlet 1 status of device X
slave X Output Status Two	1.3.6.1.4.1.30966.5.X.1.9.2	The outlet 2 status of device X
slave X Output Status Three	1.3.6.1.4.1.30966.5.X.1.9.3	The outlet 3 status of device X
slave X Output Status Four	1.3.6.1.4.1.30966.5.X.1.9.4	The outlet 4 status of device X
slave X Output Status Five	1.3.6.1.4.1.30966.5.X.1.9.5	The outlet 5 status of device X
slave X Output Status Six	1.3.6.1.4.1.30966.5.X.1.9.6	The outlet 6 status of device X
slave X Output Status Seven	1.3.6.1.4.1.30966.5.X.1.9.7	The outlet 7 status of device X
slave X Output Status Eight	1.3.6.1.4.1.30966.5.X.1.9.8	The outlet 8 status of device X
slave X Output Status Nine	1.3.6.1.4.1.30966.5.X.1.9.9	The outlet 9 status of device X
slave X Output Status Ten	1.3.6.1.4.1.30966.5.X.1.9.10	The outlet 10status of device X
slave X Output Status Eleven	1.3.6.1.4.1.30966.5.X.1.9.11	The outlet 11 status of device X
slave X Output Status Twelve	1.3.6.1.4.1.30966.5.X.1.9.12	The outlet 12 status of device X
slave X Output Status Thriteen	1.3.6.1.4.1.30966.5.X.1.9.13	The outlet 13 status of device X
slave X Output Status Fourteen	1.3.6.1.4.1.30966.5.X.1.9.14	The outlet 14 status of device X
slave X Output Status Fifteen	1.3.6.1.4.1.30966.5.X.1.9.15	The outlet 15 status of device X
slave X Output Status Sixteen	1.3.6.1.4.1.30966.5.X.1.9.16	The outlet 16 status of device X
slave X Output Status Seventeen	1.3.6.1.4.1.30966.5.X.1.9.17	The outlet 17 status of device X
slave X Output Status Eighteen	1.3.6.1.4.1.30966.5.X.1.9.18	The outlet 18 status of device X
slave X Output Status Nineteen	1.3.6.1.4.1.30966.5.X.1.9.19	The outlet 19 status of device X

slave X Output Status Twenty	1.3.6.1.4.1.30966.5.X.1.9.20	The outlet 20 status of device X
slave X Output Status TwentyOne	1.3.6.1.4.1.30966.5.X.1.9.21	The outlet 21 status of device X
slave X Output Status TwentyTwo	1.3.6.1.4.1.30966.5.X.1.9.22	The outlet 22 status of device X
slave X Output Status TwentyThree	1.3.6.1.4.1.30966.5.X.1.9.23	The outlet 23 status of device X
slave X Output Status TwentyFour	1.3.6.1.4.1.30966.5.X.1.9.24	The outlet 24 status of device X
slave X Output Current	1.3.6.1.4.1.30966.5.X.1.10	The outlet current of device X
slave X Output Current One	1.3.6.1.4.1.30966.5.X.1.10.1	The current of outlet 1 of device X
slave X Output Current Two	1.3.6.1.4.1.30966.5.X.1.10.2	The current of outlet 2 of device X
slave X Output Current Three	1.3.6.1.4.1.30966.5.X.1.10.3	The current of outlet 3 of device X
slave X Output Current Four	1.3.6.1.4.1.30966.5.X.1.10.4	The current of outlet 4 of device X
slave X Output Current Five	1.3.6.1.4.1.30966.5.X.1.10.5	The current of outlet 5 of device X
slave X Output Current Six	1.3.6.1.4.1.30966.5.X.1.10.6	The current of outlet 6 of device X
slave X Output Current Seven	1.3.6.1.4.1.30966.5.X.1.10.7	The current of outlet 7 of device X
slave X Output Current Eight	1.3.6.1.4.1.30966.5.X.1.10.8	The current of outlet 8 of device X
slave X Output Current Nine	1.3.6.1.4.1.30966.5.X.1.10.9	The current of outlet 9 of device X
slave X Output Current Ten	1.3.6.1.4.1.30966.5.X.1.10.10	The current of outlet 10 of device X
slave X Output Current Eleven	1.3.6.1.4.1.30966.5.X.1.10.11	The current of outlet 11 of device X
slave X Output Current Twelve	1.3.6.1.4.1.30966.5.X.1.10.12	The current of outlet 12 of device X
slave X Output Current Thriteen	1.3.6.1.4.1.30966.5.X.1.10.13	The current of outlet 13 of device X
slave X Output Current Fourteen	1.3.6.1.4.1.30966.5.X.1.10.14	The current of outlet 14 of device X
slave X Output Current Fifteen	1.3.6.1.4.1.30966.5.X.1.10.15	The current of outlet 15 of device X
slave X Output Current Sixteen	1.3.6.1.4.1.30966.5.X.1.10.16	The current of outlet 16 of device X
slave X Output Current Seventeen	1.3.6.1.4.1.30966.5.X.1.10.17	The current of outlet 17 of device X
slave X Output Current Eighteen	1.3.6.1.4.1.30966.5.X.1.10.18	The current of outlet 18 of device X

slave X Output Current Nineteen	1.3.6.1.4.1.30966.5.X.1.10.19	The current of outlet 19 of device X
slave X Output Current Twenty	1.3.6.1.4.1.30966.5.X.1.10.20	The current of outlet 20 of device X
slave X Output Current TwentyOne	1.3.6.1.4.1.30966.5.X.1.10.21	The current of outlet 21 of device X
slave X Output Current TwentyTwo	1.3.6.1.4.1.30966.5.X.1.10.22	The current of outlet 22 of device X
slave X Output Current TwentyThree	1.3.6.1.4.1.30966.5.X.1.10.23	The current of outlet 23 of device X
slave X Output Current TwentyFour	1.3.6.1.4.1.30966.5.X.1.10.24	The current of outlet 24 of device X
slave X Output Current Min	1.3.6.1.4.1.30966.5.X.1.11	The outlet Minimum current of device X
slave X Output Current Min One	1.3.6.1.4.1.30966.5.X.1.11.1	The Minimum current of outlet 1 of device X
slave X Output Current Min Two	1.3.6.1.4.1.30966.5.X.1.11.2	The Minimum current of outlet 2 of device X
slave X Output Current Min Three	1.3.6.1.4.1.30966.5.X.1.11.3	The Minimum current of outlet 3 of device X
slave X Output Current Min Four	1.3.6.1.4.1.30966.5.X.1.11.4	The Minimum current of outlet 4 of device X
slave X Output Current Min Five	1.3.6.1.4.1.30966.5.X.1.11.5	The Minimum current of outlet 5 of device X
slave X Output Current Min Six	1.3.6.1.4.1.30966.5.X.1.11.6	The Minimum current of outlet 6 of device X
slave X Output Current Min Seven	1.3.6.1.4.1.30966.5.X.1.11.7	The Minimum current of outlet 7 of device X
slave X Output Current Min Eight	1.3.6.1.4.1.30966.5.X.1.11.8	The Minimum current of outlet 8 of device X
slave X Output Current Min Nine	1.3.6.1.4.1.30966.5.X.1.11.9	The Minimum current of outlet 9 of device X
slave X Output Current Min Ten	1.3.6.1.4.1.30966.5.X.1.11.10	The Minimum current of outlet 10 of device X
slave X Output Current Min Eleven	1.3.6.1.4.1.30966.5.X.1.11.11	The Minimum current of outlet 11 of device X
slave X Output Current Min Twelve	1.3.6.1.4.1.30966.5.X.1.11.12	The Minimum current of outlet 12 of device X
slave X Output Current Min Thriteen	1.3.6.1.4.1.30966.5.X.1.11.13	The Minimum current of outlet 13 of device X
slave X Output Current Min Fourteen	1.3.6.1.4.1.30966.5.X.1.11.14	The Minimum current of outlet 14 of device X
slave X Output Current Min Fifteen	1.3.6.1.4.1.30966.5.X.1.11.15	The Minimum current of outlet 15 of device X
slave X Output Current Min Sixteen	1.3.6.1.4.1.30966.5.X.1.11.16	The Minimum current of outlet 16 of device X
slave X Output Current Min Seventeen	1.3.6.1.4.1.30966.5.X.1.11.17	The Minimum current of outlet 17 of device X

slave X Output Current Min Eighteen	1.3.6.1.4.1.30966.5.X.1.11.18	The Minimum current of outlet 18 of device X
slave X Output Current Min Nineteen	1.3.6.1.4.1.30966.5.X.1.11.19	The Minimum current of outlet 19 of device X
slave X Output Current Min Twenty	1.3.6.1.4.1.30966.5.X.1.11.20	The Minimum current of outlet 20 of device X
slave X Output Current Min TwentyOne	1.3.6.1.4.1.30966.5.X.1.11.21	The Minimum current of outlet 21 of device X
slave X Output Current Min TwentyTwo	1.3.6.1.4.1.30966.5.X.1.11.22	The Minimum current of outlet 22 of device X
slave X Output Current Min TwentyThree	1.3.6.1.4.1.30966.5.X.1.11.23	The Minimum current of outlet 23 of device X
slave X Output Current Min TwentyFour	1.3.6.1.4.1.30966.5.X.1.11.24	The Minimum current of outlet 24 of device X
slave X Output Current Max	1.3.6.1.4.1.30966.5.X.1.12	The Minimum outlet current of device X
slave X Output Current Max One	1.3.6.1.4.1.30966.5.X.1.12.1	The Maximum current of outlet 1 of device X
slave X Output Current Max Two	1.3.6.1.4.1.30966.5.X.1.12.2	The Maximum current of outlet 2 of device X
slave X Output Current Max Three	1.3.6.1.4.1.30966.5.X.1.12.3	The Maximum current of outlet 3 of device X
slave X Output Current Max Four	1.3.6.1.4.1.30966.5.X.1.12.4	The Maximum current of outlet 4 of device X
slave X Output Current Max Five	1.3.6.1.4.1.30966.5.X.1.12.5	The Maximum current of outlet 5 of device X
slave X Output Current Max Six	1.3.6.1.4.1.30966.5.X.1.12.6	The Maximum current of outlet 6 of device X
slave X Output Current Max Seven	1.3.6.1.4.1.30966.5.X.1.12.7	The Maximum current of outlet 7 of device X
slave X Output Current Max Eight	1.3.6.1.4.1.30966.5.X.1.12.8	The Maximum current of outlet 8 of device X
slave X Output Current Max Nine	1.3.6.1.4.1.30966.5.X.1.12.9	The Maximum current of outlet 9 of device X
slave X Output Current Max Ten	1.3.6.1.4.1.30966.5.X.1.12.10	The Maximum current of outlet 10 of device X
slave X Output Current Max Eleven	1.3.6.1.4.1.30966.5.X.1.12.11	The Maximum current of outlet 11 of device X
slave X Output Current Max Twelve	1.3.6.1.4.1.30966.5.X.1.12.12	The Maximum current of outlet 12 of device X
slave X Output Current Max Thriteen	1.3.6.1.4.1.30966.5.X.1.12.13	The Maximum current of outlet 13 of device X
slave X Output Current Max Fourteen	1.3.6.1.4.1.30966.5.X.1.12.14	The Maximum current of outlet 14 of device X
slave X Output Current Max Fifteen	1.3.6.1.4.1.30966.5.X.1.12.15	The Maximum current of outlet 15 of device X
slave X Output Current Max Sixteen	1.3.6.1.4.1.30966.5.X.1.12.16	The Maximum current of outlet 16 of device X

slave X Output Current Max Seventeen	1.3.6.1.4.1.30966.5.X.1.12.17	The Maximum current of outlet 17 of device X
slave X Output Current Max Eighteen	1.3.6.1.4.1.30966.5.X.1.12.18	The Maximum current of outlet 18 of device X
slave X Output Current Max Nineteen	1.3.6.1.4.1.30966.5.X.1.12.19	The Maximum current of outlet 19 of device X
slave X Output Current Max Twenty	1.3.6.1.4.1.30966.5.X.1.12.20	The Maximum current of outlet 20 of device X
slave X Output Current Max TwentyOne	1.3.6.1.4.1.30966.5.X.1.12.21	The Maximum current of outlet 21 of device X
slave X Output Current Max TwentyTwo	1.3.6.1.4.1.30966.5.X.1.12.22	The Maximum current of outlet 22 of device X
slave X Output Current Max TwentyThree	1.3.6.1.4.1.30966.5.X.1.12.23	The Maximum current of outlet 23 of device X
slave X Output Current Max TwentyFour	1.3.6.1.4.1.30966.5.X.1.12.24	The Maximum current of outlet 24 of device X
slave X Output Current Energy	1.3.6.1.4.1.30966.5.X.1.13	The energy of device X
slave X Output Current Energy One	1.3.6.1.4.1.30966.5.X.1.13.1	The energy of outlet 1 of device X
slave X Output Current Energy Two	1.3.6.1.4.1.30966.5.X.1.13.2	The energy of outlet 2 of device X
slave X Output Current Energy Three	1.3.6.1.4.1.30966.5.X.1.13.3	The energy of outlet 3 of device X
slave X Output Current Energy Four	1.3.6.1.4.1.30966.5.X.1.13.4	The energy of outlet 4 of device X
slave X Output Current Energy Five	1.3.6.1.4.1.30966.5.X.1.13.5	The energy of outlet 5 of device X
slave X Output Current Energy Six	1.3.6.1.4.1.30966.5.X.1.13.6	The energy of outlet 6 of device X
slave X Output Current Energy Seven	1.3.6.1.4.1.30966.5.X.1.13.7	The energy of outlet 7 of device X
slave X Output Current Energy Eight	1.3.6.1.4.1.30966.5.X.1.13.8	The energy of outlet 8 of device X
slave X Output Current Energy Nine	1.3.6.1.4.1.30966.5.X.1.13.9	The energy of outlet 9 of device X
slave X Output Current Energy Ten	1.3.6.1.4.1.30966.5.X.1.13.10	The energy of outlet 10 of device X
slave X Output Current Energy Eleven	1.3.6.1.4.1.30966.5.X.1.13.11	The energy of outlet 11 of device X
slave X Output Current Energy Twelve	1.3.6.1.4.1.30966.5.X.1.13.12	The energy of outlet 12 of device X
slave X Output Current Energy Thriteen	1.3.6.1.4.1.30966.5.X.1.13.13	The energy of outlet 13 of device X
slave X Output Current Energy Fourteen	1.3.6.1.4.1.30966.5.X.1.13.14	The energy of outlet 14 of device X
slave X Output Current Energy Fifteen	1.3.6.1.4.1.30966.5.X.1.13.15	The energy of outlet 15 of device X

slave X Output Current Energy Sixteen	1.3.6.1.4.1.30966.5.X.1.13.16	The energy of outlet 16 of device X
slave X Output Current Energy Seventeen	1.3.6.1.4.1.30966.5.X.1.13.17	The energy of outlet 17 of device X
slave X Output Current Energy Eighteen	1.3.6.1.4.1.30966.5.X.1.13.18	The energy of outlet 18 of device X
slave X Output Current Energy Nineteen	1.3.6.1.4.1.30966.5.X.1.13.19	The energy of outlet 19 of device X
slave X Output Current Energy Twenty	1.3.6.1.4.1.30966.5.X.1.13.20	The energy of outlet 20 of device X
slave X Output Current Energy TwentyOne	1.3.6.1.4.1.30966.5.X.1.13.21	The energy of outlet 21 of device X
slave X Output Current Energy TwentyTwo	1.3.6.1.4.1.30966.5.X.1.13.22	The energy of outlet 22 of device X
slave X Output Current Energy TwentyThree	1.3.6.1.4.1.30966.5.X.1.13.23	The energy of outlet 23 of device X
slave X Output Current Energy TwentyFour	1.3.6.1.4.1.30966.5.X.1.13.24	The energy of outlet 24 of device X

2.2.5. To view the device and sensor status by table format via SNMPc software

Menu	Description
Npm Device xx	Device xx
Slave xx line xx	Phase xx of device xx
Slave xx line xx Power	Power of phase xx of device xx
Slave xx line xx PF	Power Factor of phase xx of device xx
Slave xx line xx Energy	Energy of phase xx of device xx
Slave xx line xx Current	Current of phase xx of device xx
Slave xx line xx Voltage	Voltage of phase xx of device xx
Slave xx line xx Current MIN	The Minimum current of phase xx of device xx
Slave xx line xx Current Max	The Maximum current of phase xx of device xx
Slave xx line xx Voltage Min	The Minimum voltage of phase xx of device xx
Slave xx line xx Voltage Max	The Maximum voltage of phase xx of device xx
Slave xx temp	The temperature of device xx
Slave xx hum	The humidity of device xx
Slave xx temp Min	The Minimum temperature value of device xx
Slave xx temp Max	The Maximum temperature value of device xx
Slave xx hum Min	The Minimum humidity value of device xx
Slave xx hum Max	The Maximum humidity value of device xx

Slave xx output name xx	The outlet name of outlet xx of device xx
Slave xx output status xx	The on/off status of outlet xx of device xx
Slave xx output current xx	The current of outlet xx of device xx
Slave xx output current Min xx	The Minimum current of outlet xx of device xx
Slave xx output current Max xx	The Maximum current of outlet xx of device
Slave xx output current Energy xx	The energy of outlet xx of device xx
Slave xx name	The name of device xx
Slave xx Type	The type of device xx
Slave xx output number	The outlet quantity of device xx

2.3. Telnet Access

The device supports Telnet access, after enter the username and password, user can remotely monitor and management the device. Telnet access support daisy-chain as well to enable the user to manage up to 5 devices.

2.3.1. To open the Telnet client  by Start→ Run command→enter “Telnet” in the input box and click OK

2.3.2. Enter the IP address as illustrated in figure 2-4

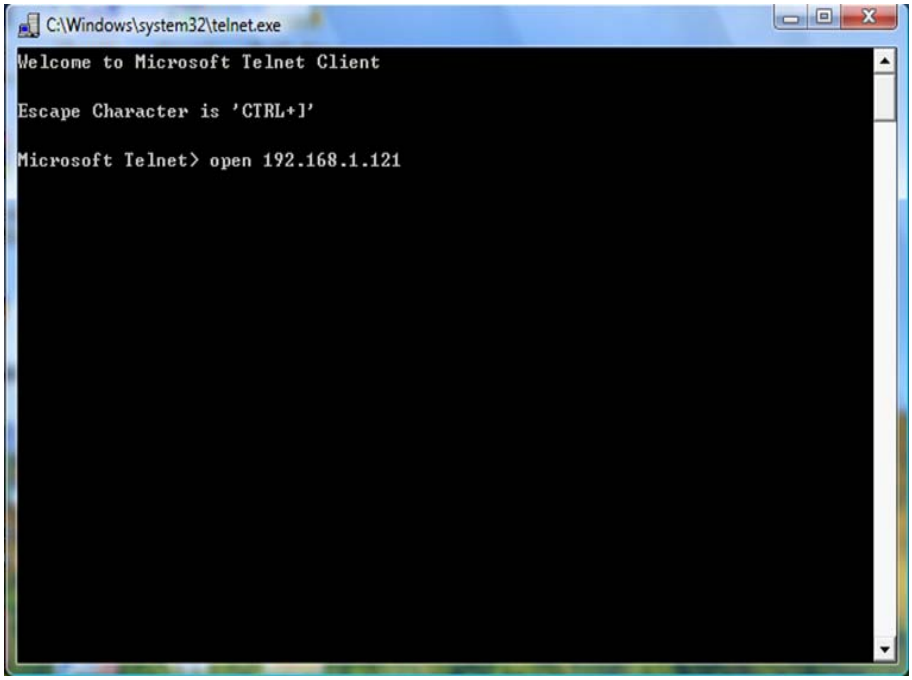


Figure 2-4

Enter the the username and password, interface as shown in figure 2-5 will pop up:

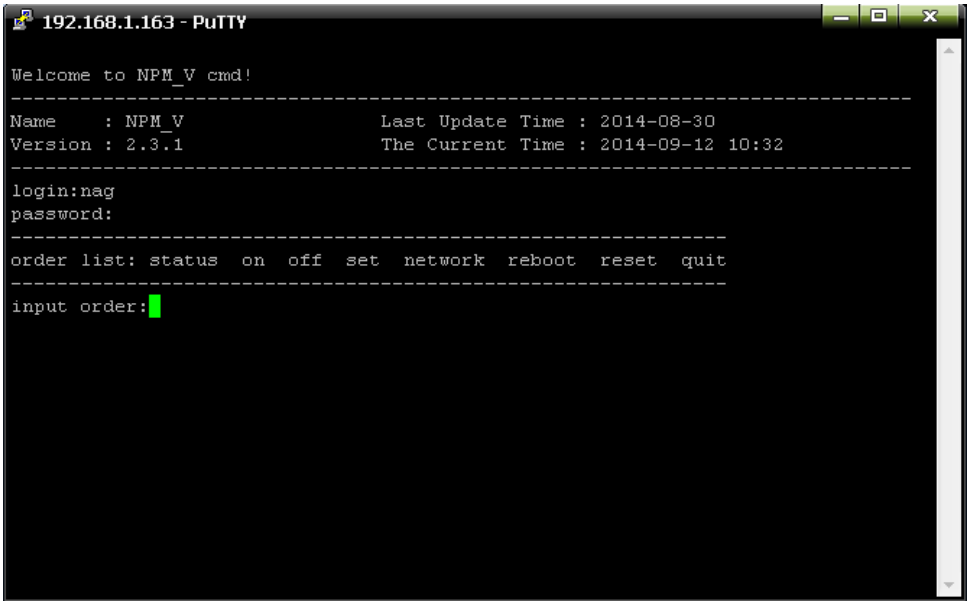


Figure 2-5

2.3.3 . “STATUS” command

Input “STATUS” command to view the individual outlet status (including current, on/off state, Max. and Min. current value, kW and kWh) and the overall status (including total current, voltage, kW and kWh).

Command line format: STATUS 【index】【operation】as illustrated in figure 2-6:

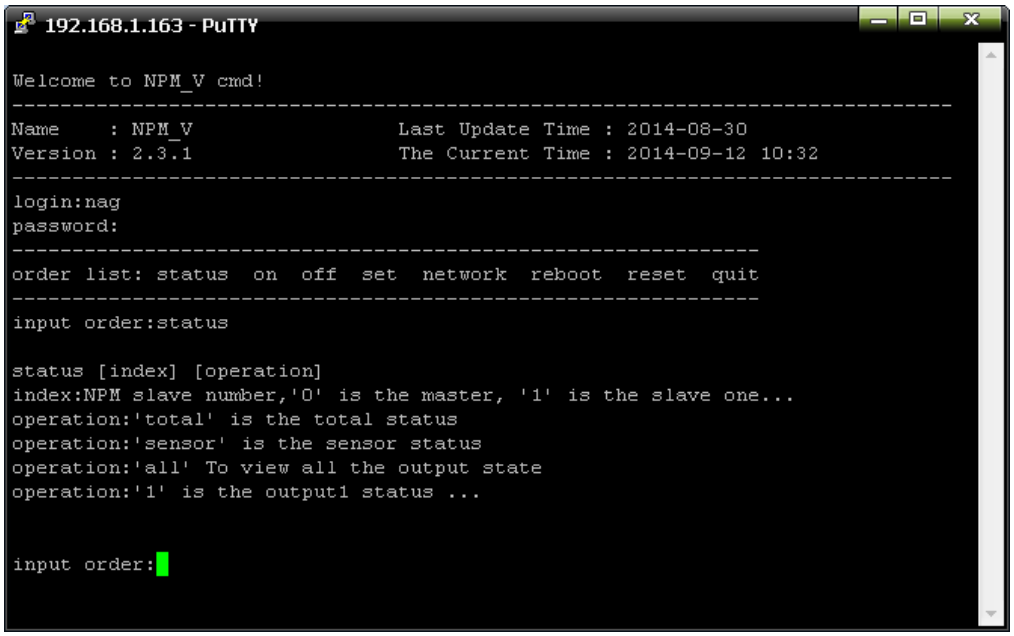
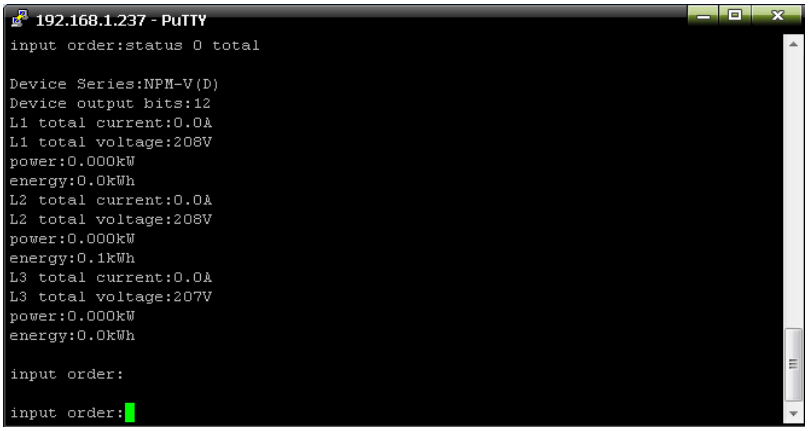


Figure 2-6

【index】： device mode（0-9， 0 is master，1-9 is slave）；

【operation】： view the device information, details as below:

【operation】	Description
Total	For example:

	 command line---status 0 total: 0 means the Master(1-4 means Slave 1 to Slave 4), total means the overall status, the above figure shown after input “status 0 total”
Output	For example:  command line---status 0 output1: 0 means the Master(1-4 means Slave 1 to Slave 4), 1 means the status of first outlet, the above figure will be displayed after input “status 0 1”

2.3.4 “ON/OFF” command

“ON/OFF” command enable the user to switch on/off the individual outlet or the complete device

Command format: ON/OFF 【index】【operation】as shown in figure 2-7

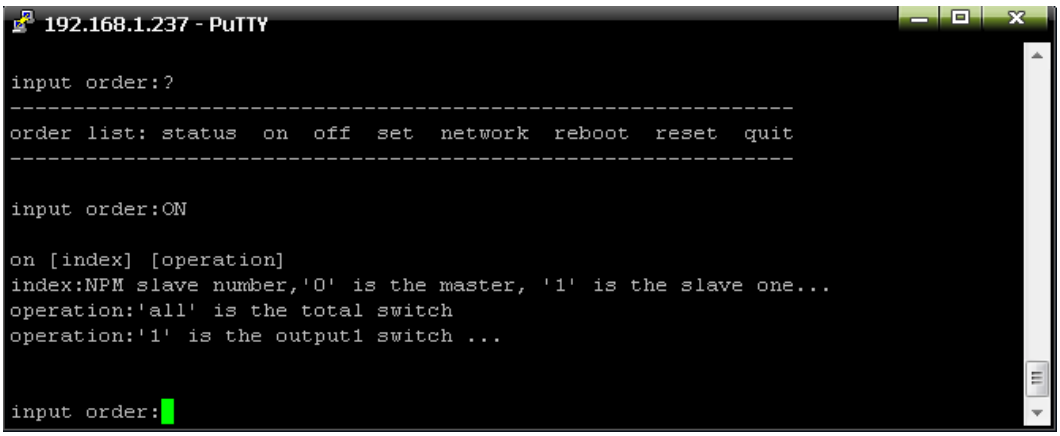
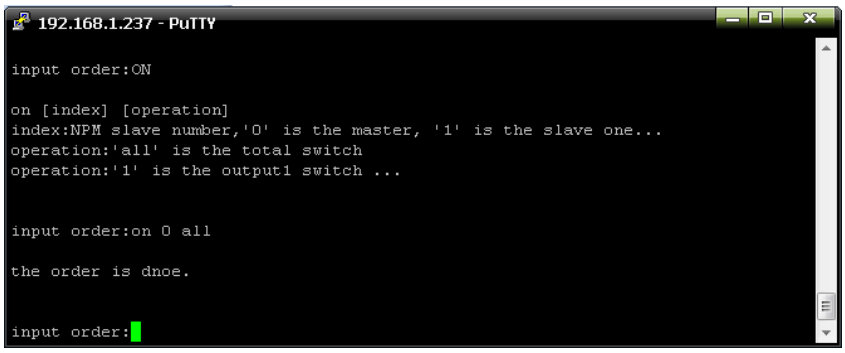
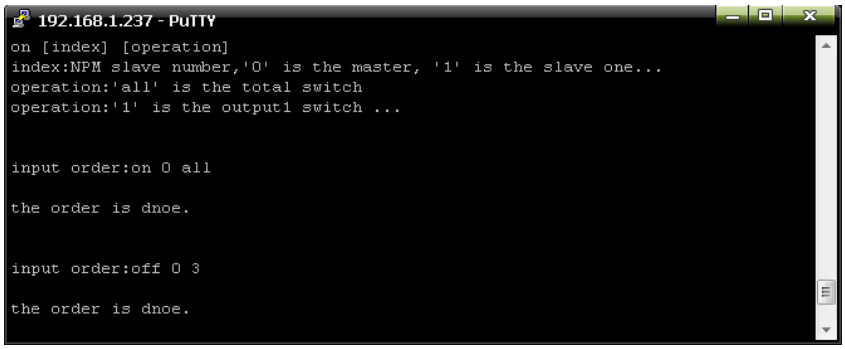


Figure 2-7

【index】：device mode（0-9， 0 is master，1-9 is slave）；

【operation】： view the device information, details as below:

【operation】	**Description**
ALL	 Command line---on 0 all means to swith on the complete device of the Master
Output	 Command line---off 0 1 on means to swith off the first outlet of the Master

2.3.5 Set command:

“set” command enable to Set the current of outlet , temperature and humidity minimum and maximum threshold, changing the IP, mask, gateway, dns , dns1;

Command format: set 【index】【operation】as shown in figure 2-8

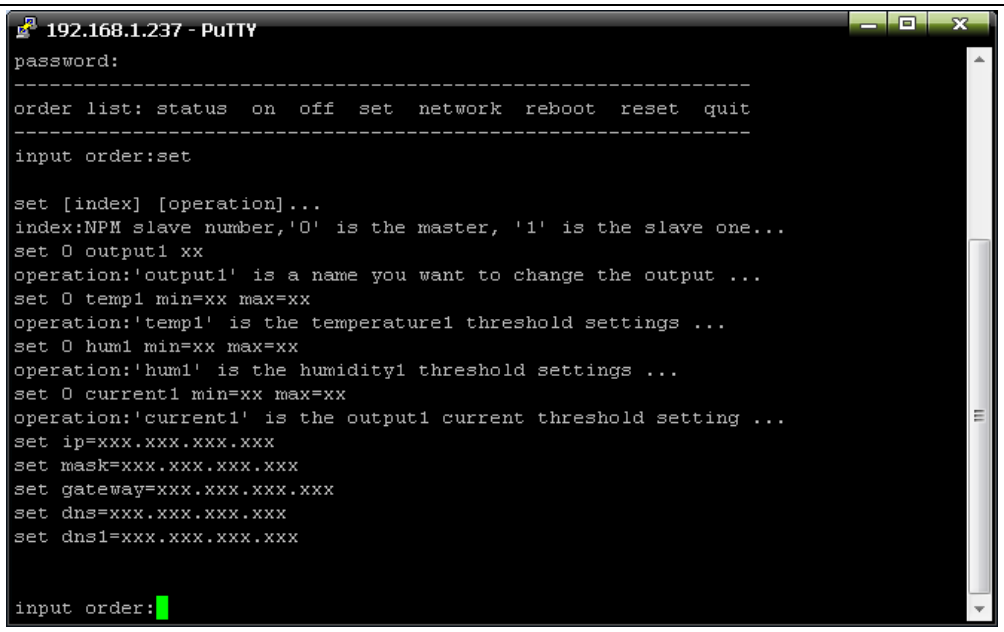
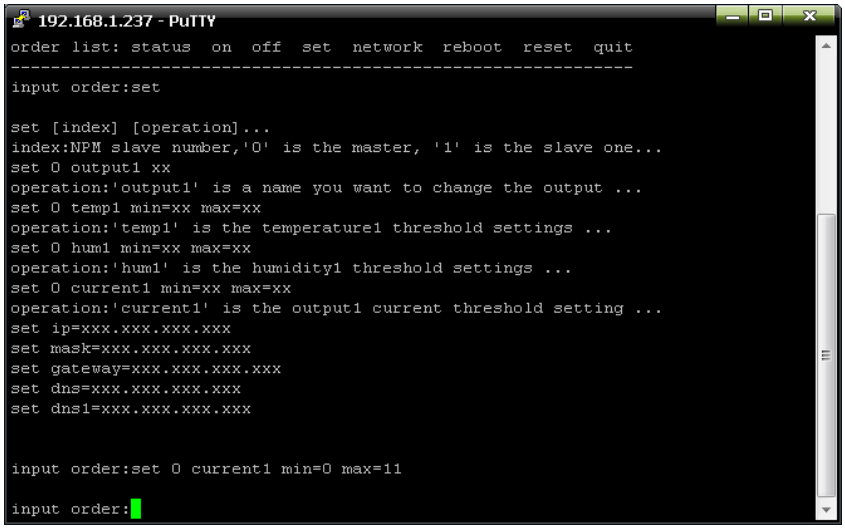
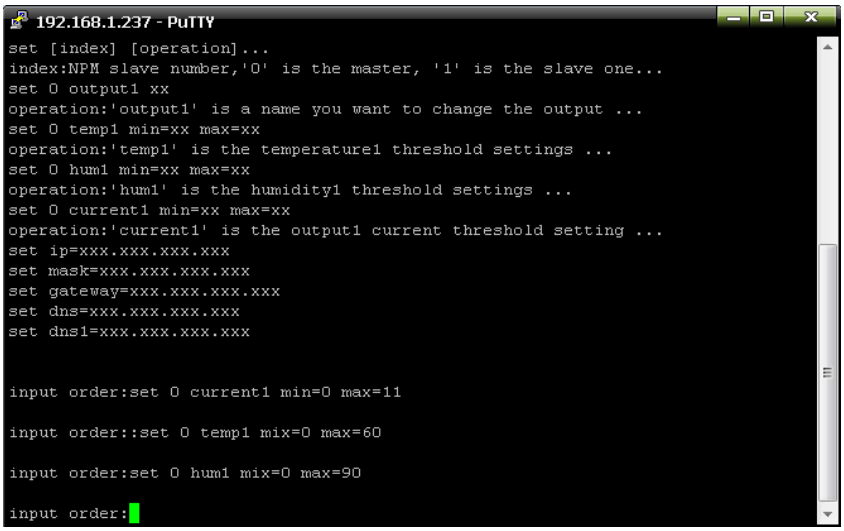
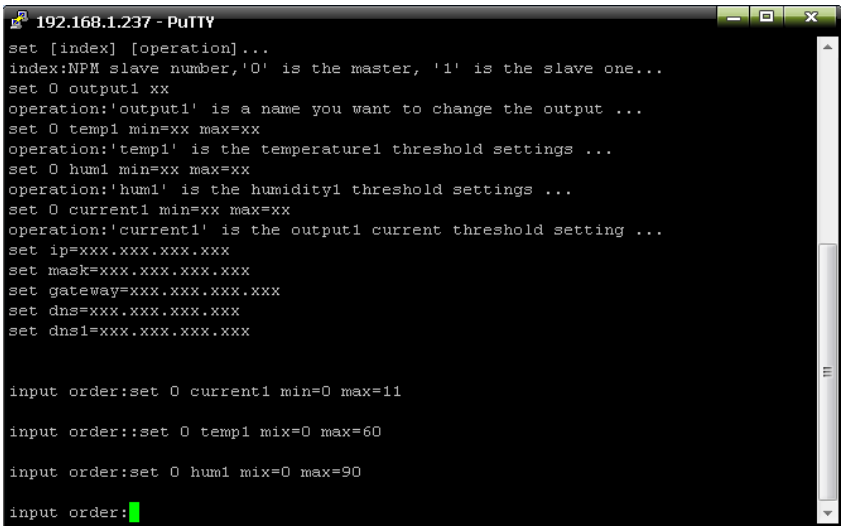
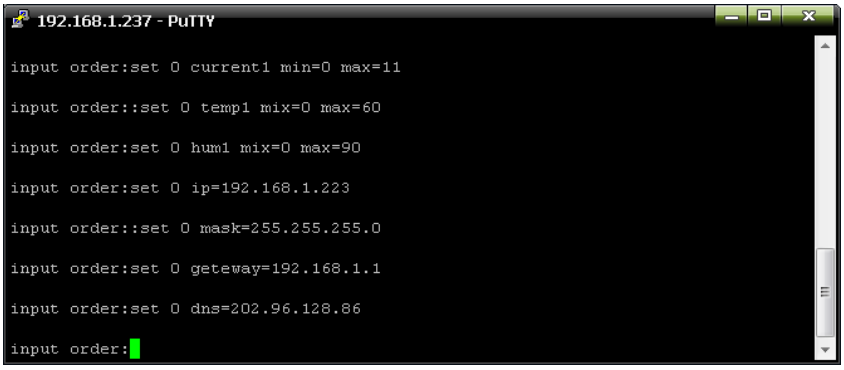


figure 2-8

【index】：device mode（0-9， 0 is master，1-9 is slave）；

【operation】： view the device information, details as below:

【operation】	**Description**
current	 Command line---set 0 current1 min=0 max=11 means to Configure the output1 current lower limit value of the Master is 0, the output1 current higher limit value of the Master is 11.

temperature	 Command line---set 0 temp1 min=0 max=60 means to Configure the temperature1 lower limit value of the Master is 0, the temperature1 higher limit value of the Master is 60.
humidity	 Command line---set 0 hum1 min=0 max=90 means to Configure the humidity1 lower limit value of the Master is 0, the humidity1 higher limit value of the Master is 90.
network	 Command line---set 0 ip=192.168.1.223 Means to configure Master

	network IP address 192.168.1.223

2.3.6 Network command: Check network configuration information, such as IP address, subnet mask, default gateway, main DNS, spare DNS.

figure 2-9

2.3.7 Reboot command: to restart to device as shown in figure 2-10

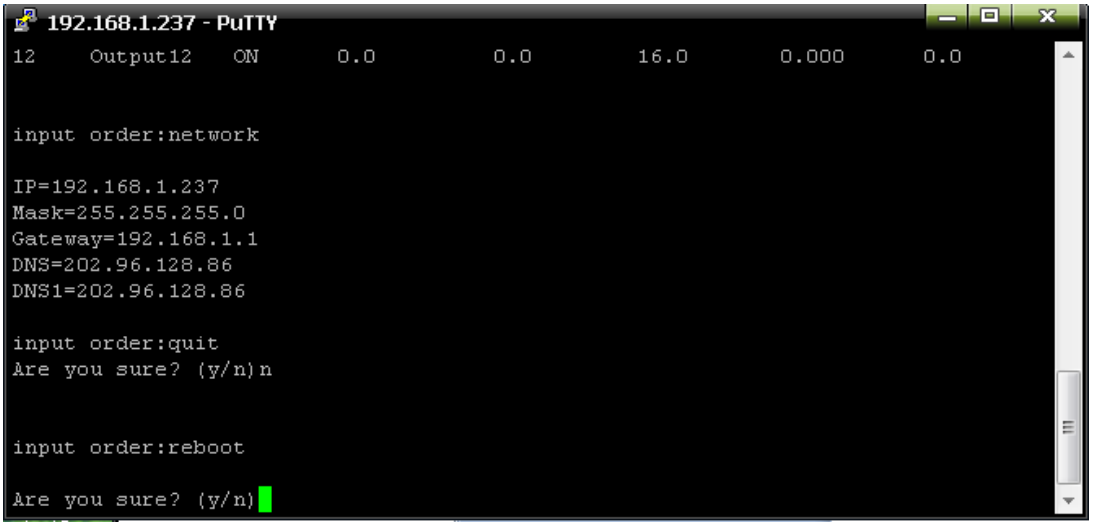


Figure 2-10

After press Enter y, exit the telnet interface, and restart device system, press Enter n,exit the telnet interface

2.3.7 QUIT command to quit the telnet client as shown in figure 2-11

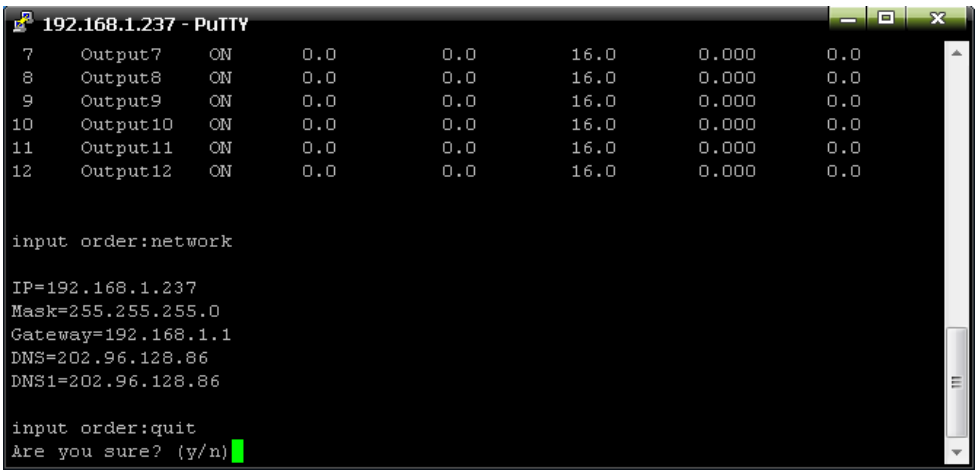


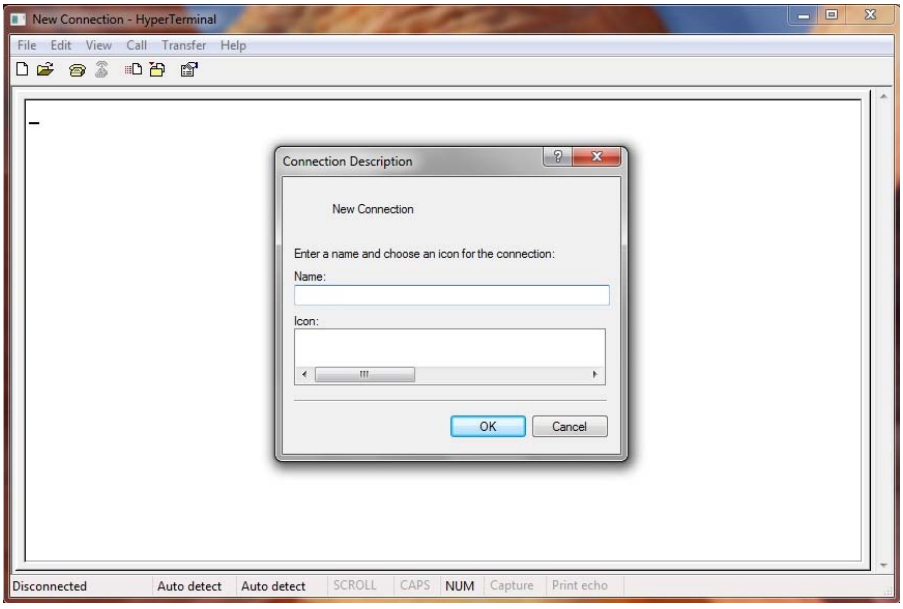
Figure 2-11

After press Enter y, exit the telnet client interface.press Enter n,cancel to exit the operation.

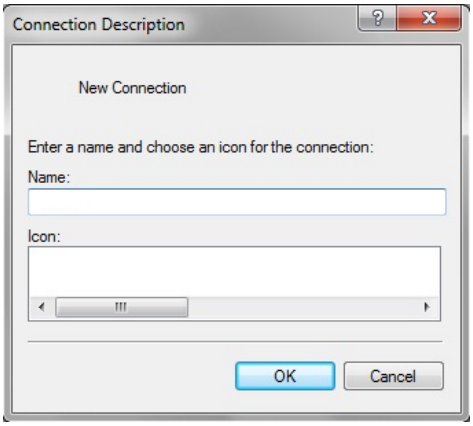
2.4 Serial access

To access the device via Hyper Terminal with provided cable .

Select Start→All Programs→Accessories→Communications→Hyper Terminal to enter the Hyper Terminal window to establish a new connection the system displays the Connection Description dialog box as below:

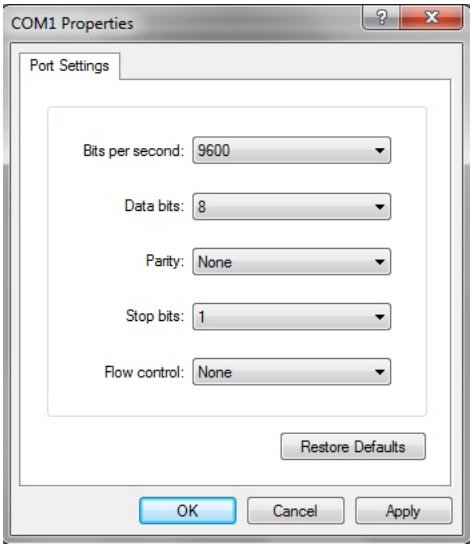


Enter the Name of the new connection and click OK.

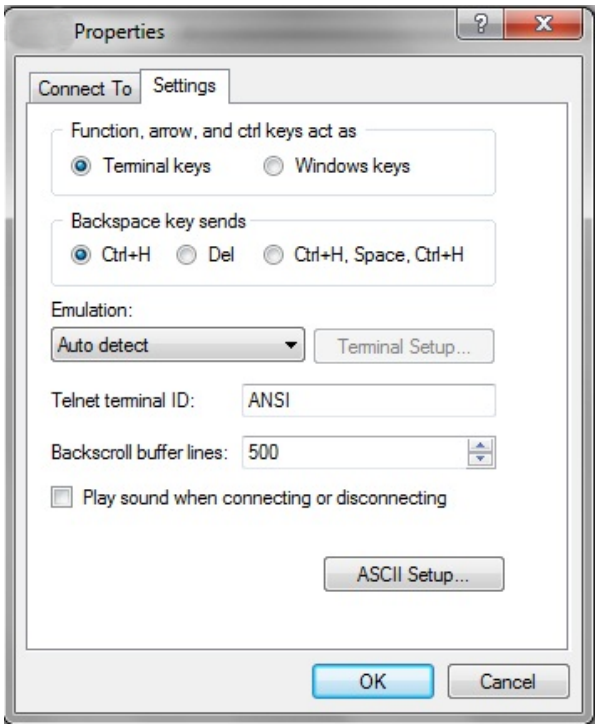


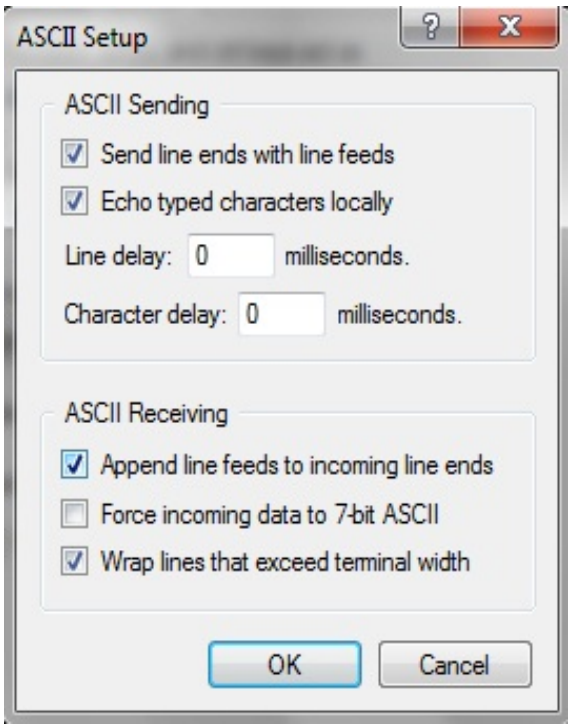
Then the system display the Connect to dialog box, Select the serial port which the cable is connected form Connect using drop-down list.

Click OK to go to the port properties setting dialog box as show below. Set the bits per second to 9600, data bits to 8, parity check to None, stop bits to 1 and Flow control to None as following figure. Then Click OK to enter the Hyper Terminal interface.

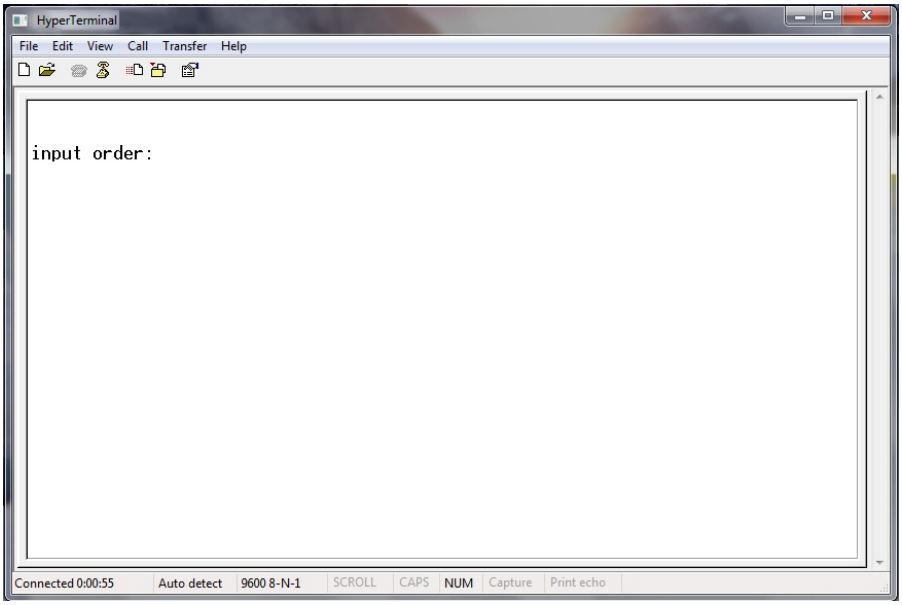


In the Hyper Terminal interface, click the properties icon  to open the Properties dialog box. Then click ASCLL Setup from the Settings tap and tick the items as following figures:



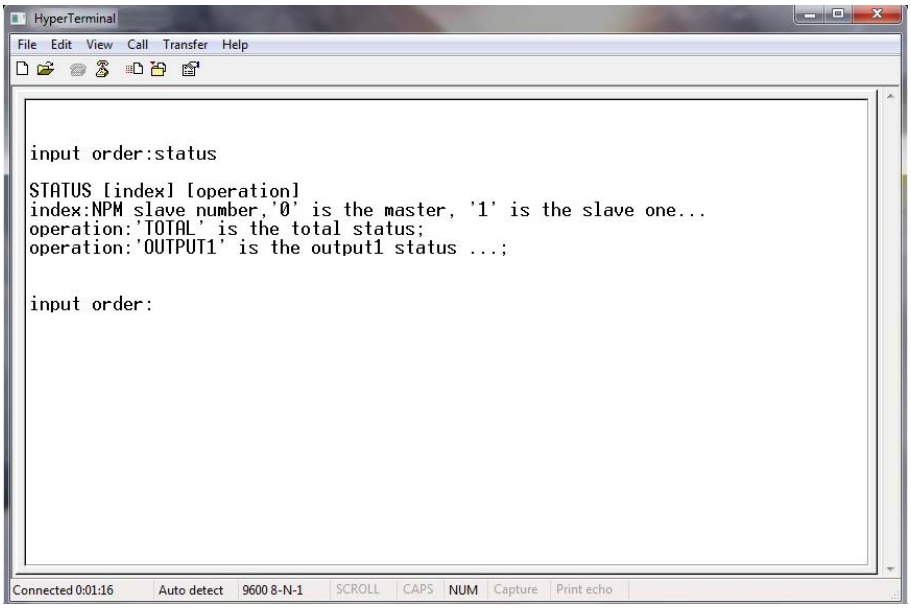


Click OK and following window will pop up:



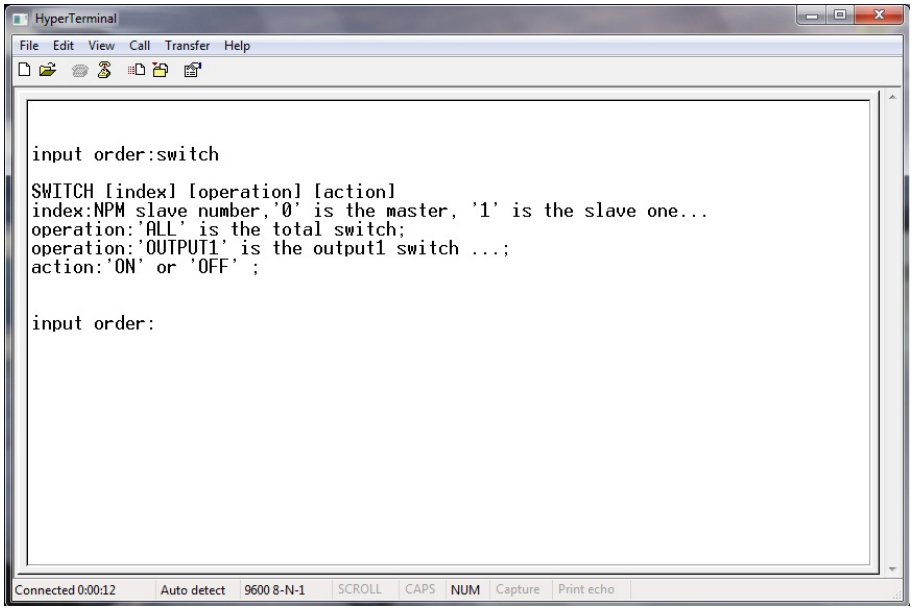
Serial command includes STARUS, SWITCH, RESET and REBOOT.

2.4.1 STATUS command



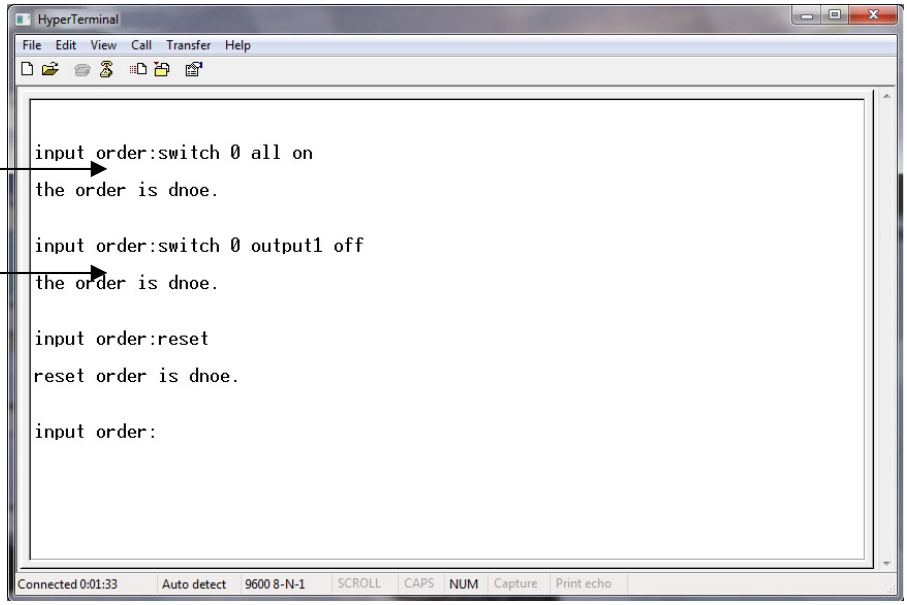
The command line is the same as Telnet, please refer to Telnet status command for details

2.4.2 SWTICH command: Refer to the following figures



Switch on all outlets

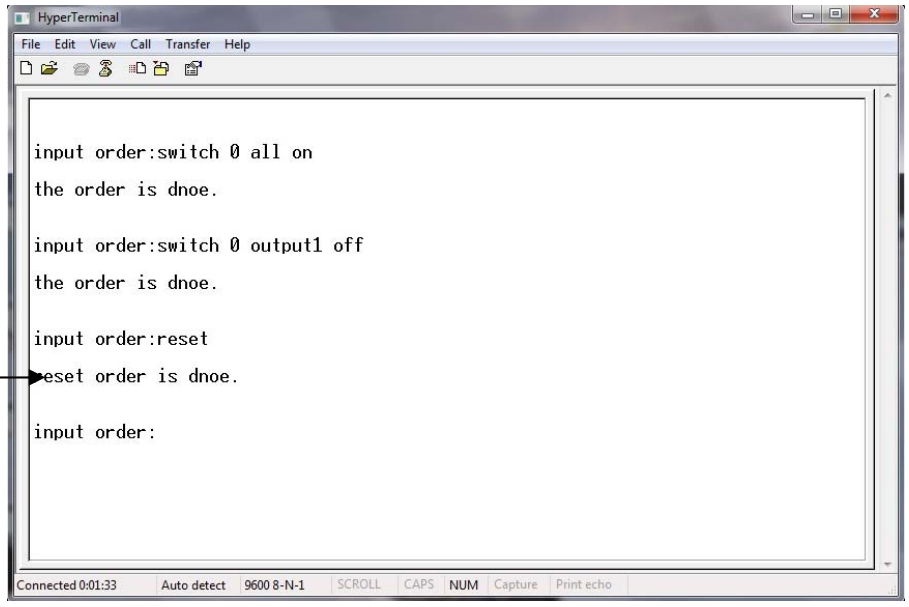
Switch off outlet 1



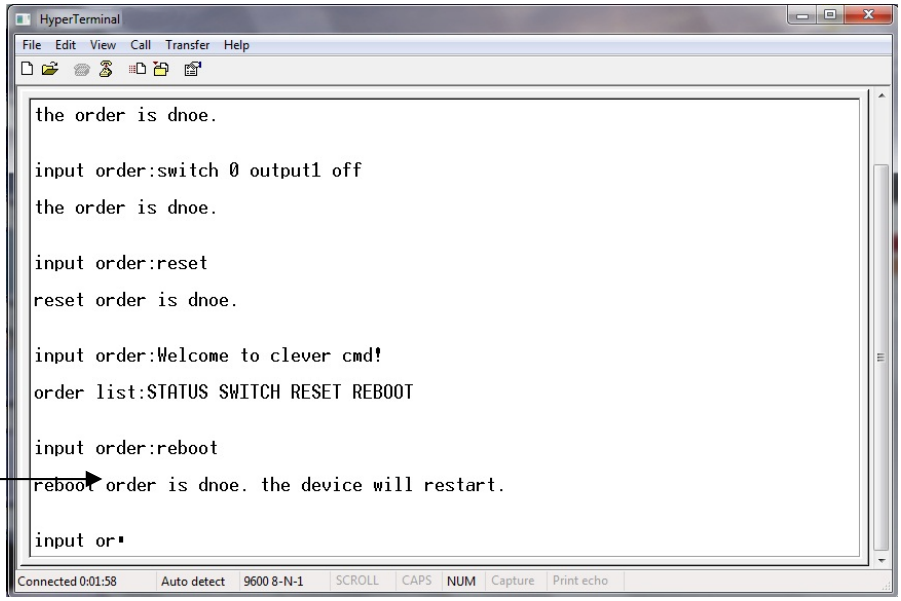
2.4.3 RESET command

To retore the device to factory settings.

RESET Command



2.4.4 REBOOT command



Reboot

Note: No quit command for serial

VIII. Frequently Asked Questions

1. Forget IP address?

A: check on the LCD screen, the first page displays the IP address.

2. Fail to send email?

A:1) Check and confirm the device connected to network and the network works normally.

2) Check DNS configuration and confirm whether it is successful.

3) Check and confirm POP, SMTP sever is correct and the same as the sender mailbox sever. Please confirm SMTP port is correct.

3. Lost IP

A. Press and hold the RESET button for 6 seconds, Release the RESET button when the device buzz, the device will restart.

IX. Technology Parameters

No	Performance parameter		Technical parameter
1	Input	Rated input voltage	110/220VAC 50/60HZ； 380V~ 50/60 Hz；
		Rated input plug	IEC60309 standard
		Cable specification	16A：3×2.5mm² 32A：3×6.0mm²； 3×16A：5×2.5mm² 3×32A：5×6.0mm²

		Cable length	3M
		Max. load current	16A, 32A
2	Output	Socket standard	IEC320 C13, C19
		Socket quantity	12, 16, 20, 24
		Plug locker	C13 sockets equipped with C14 plug locker
		Rated output voltage	110/220VAC 50/60HZ
		Rated outlet current	10A, 16A
		Max. load current	16A, 32A
3	Control ports	Net port	1×RJ45
		Daisy chain port	2×RJ45
		Software update port	1×RJ45
		Temperature & humidity port	4×RJ11 at most（optional）
		Smoke sensor port	1 × RJ11（optional）
		Water sensor port	1 × RJ11（optional）
		Door sensor port	2 × RJ11（optional）
4	Display	Working state	1×LED
		Power pulse	1×LED
		IP Address, M/S NPM state, measurement value, alarm state	LCD screen（Resolution: 128×64）
5	Load current display technology requirement	Total current	Full-scale:16A/32A,Accuracy:±1%+0.2 Resolution:200mA, Response:400ms
		Individual load current	Full-scale:25A, Accuracy:±1%+0.1, resolution:100mA, Response:400ms
6	Temperature/humidity Technology requirement	Temperature	Working rang: -40℃～+100℃ Accuracy:±1℃， Response: 4s
		Humidity	Accuracy:±5%RH, Response: 400ms
7	Product size	Product size（L×W×H）	X^2×66.6×44.4mm
		Mounting hole	X^3
8	Case color	Color	Black

9	Fittings	Installation bracket	1 set
		Network connection wire	2M, blue
		Daisy-chain connection wire	2M, yellow
		User manual	1 set (CD)
10	Optional fittings	Sensor	Temperature/humidity sensor
			Smoke sensor
			Door sensor
			Water logging sensor
11	Environment	Working temperature	0℃~55℃；
		Relative humidity	10~90%；
12	ROHS	Compliance	

X. Warranty and Service

The NPM warrants to be free for repairing in two years from the date of purchasing. During this period, our obligation is limited to repair, replace or return to our company for repair. If the product has been beyond the warrant for repairing time or it has been damaged by accident, negligence or misapplication, you should pay some repair charge.

The above warranty does not apply to the following situation：

1、 The damage caused by customers' incorrect or inadequate repair;

2、 The damage caused by unauthorized modification or misusing;

3、 The damage caused by using out of the product allowed environment.

Repairing Notice:

1、 If you want to return the product for repair, please make sure it packed in the bandbox or carton. The damage caused during the transportation is not warranted to repair.

2、 Please give a brief description of the repairing product about the problem and its operating process.

3、 The customer should pay for the returning freight, all the tariffs and taxes.

4、 Please write down your name, address and the telephone number by which we can contact you at anytime.