



# **NPM 3100 (Network Power Manager)**

## **User Manual**



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## I . NPM Introduction

NPM can monitor, control and manage the power supply of many equipments in cabinets in data room all over the world through LAN or WAN. For meeting with the restrictions and requirements in different environment, NPM supplies many connection methods; can be connected through RJ45 in the LAN and WAN; can be accessed and controlled through standard network management station.

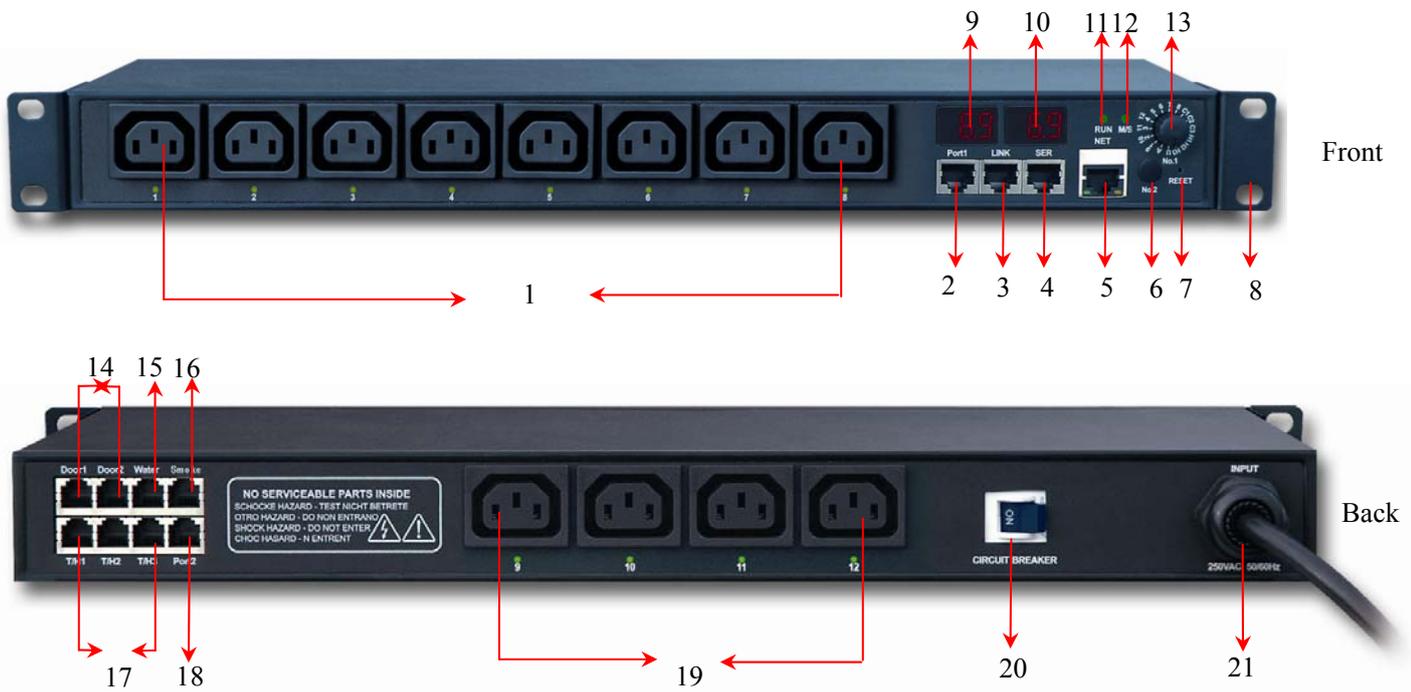
## II . Function Description

1. Monitoring function: by the cooperation of LED screen and knob on NPM, user can monitor the total load current, voltage, individual load current (exclude NPM A and C series), power on/off state of individual outlet (exclude NPM A and B series), temperature/humidity, smoke, water logging, door opening/closing state. User can also monitor through LAN or WAN.
2. Controlling function (for NPM C and D series): turn on/off individual outlet, set the interval of sequential power on/off, set the time for outlet power on/off.
3. Keeping the original state (for NPM C and D series): keep the original state of each outlet when resetting.
4. User-defined alarming: the limit of total load current, individual load current (for NPM B and D series) and temperature/humidity.
5. System default alarming: system alarming when total load current, individual load current beyond the limit (for NPM B and D series), individual outlet breaks down, smoke appears, water logging or door opening.
6. Alarming methods: problem information show on LED screen and NPM buzzer alarms, the problem value flashes on web interface and PC buzzer alarms, automatically send e-mail to system administrator, SNMP sends alarm information, wireless telecommunication report to administrator.
7. Kwh maturement: measure the total Kilowatt per hour
8. Daisy-chain: can daisy-chain at most 9 pcs NPM.
9. Alarming record: record and save the alarming information which can be checked and exported. (Note: record can only be checked in order. Record information concludes overload, temperature/humidity beyond the limit, smoke appears, water logging, door opening/closing, outlet breaks down and the insert and pull out of the sensors)
10. User management: User right configuration
11. Safe mode turn-off: remote soft turn off the NPM
12. Access method: Web, through IE, SNMP (V1/V2/V3) or Telnet, SSH to access and control.
13. Support multi-user operation system and software upgrade.

### III. Applied Range

1. NPM 3100 can be applied to server cabinet, network cabinet etc.
2. The socket quantity (8 or 12) and socket standard (C13, C19, NEMA5-15R, NEMA5-20R) of NPM 3100 can be selected.
3. NPM 3100 conforms to RoHS instruction, suitable for 110VAC and 220VAC power supply, can meet the customers' different requirements all over the world.

### IV. Product Picture & Description



1&19: outlets

2. Port1: The software upgrade port of hardware

3. LINK: when daisy-chain NPM, connect with the SER port of the next NPM

4. SER: for daisy-chain

5. NET: RJ 45 port to connect PC, Hub, router or switch.

6. No.2: select outlet

7. RESET: set master or slave NPM and reset NPM (press 30 seconds)

8. Mounting bracket

9/10. Display NPM address and other parameters

11. RUN: operation indicator

12. M/S: Master/slave indicator

13. OUTLET No. 1: select outlet and other parameters (T/H)

14. Door1、 Door2: connect door sensor



15. Water: connect water sensor
16. Smoke: connect smoke sensor
17. T/H1, T/H2, T/H3: connect temperature/humidity sensor
18. Port2: RS485 spare port
20. Overload protection
21. Cable input

## V. Mounting Method

Horizontal installation.

## VI. Hardware Introduction

### 1. Power on & Self-check

The buzzer makes a sound when NPM is connected with AC power source, LED screen lightening and sequentially display **8.8.8. 8.8.8.** (it means digitron is normal, any different display means fault), software version number (for example **U0.0 1.01**), baud rate (for example **9 600**), NPM default address (For example **ABC DEF**), NPM series (for example **310 1-d**), socket quantity (for example **OU7 08**), finally display the value of which OUTLET No.1 pointing to (for example **A1 0.0**), and RUN indicator flashes. M/S indicator on means this NPM is master while off means slave NPM.

### 2. Current, voltage, temperature & humidity Monitoring

OUTLET No.1 and OUTLET No.2 are together used to monitor the relative outlet value (OUTLET No.2 has the function of plus 8 port or minus 8 port).

### 3. Water logging & Smoke Monitoring

3.1 When the water logging sensor monitoring the water, NPM LED screen displays **F2** and the buzzer alarms at the same time.

3.2 When the smoke sensor monitoring the smoke, NPM LED screen display **F1** , and the buzzer alarms at the same time.

### 4. Outlet Fault Monitoring

When one outlet breaks down (For example: A1), the NPM LED screen will display relative fault (for example: **A1 Err**) , and the buzzer alarms at the same time.

### 5. Individual current, total current, voltage, temperature & humidity over the Limit monitoring

5.1 When individual load current, total load current, voltage, temperature & humidity value are lower than the Min., the NPM screen displays as **A.1** (that means the load current of outlet No. 1 is lower than the Min. value)

5.2 When individual load current, total load current, voltage, temperature & humidity value are higher than the

Max., the NPM screen displays as **A.1.** (that means the load current of outlet No.1 is higher than the Max. value)

#### 6. Self-checking Parameter Monitoring

Make the OUTLET N0.1 display **---**, then press reset button, the NPM LED screen sequentially display the NPM self-checking parameter for one minute.

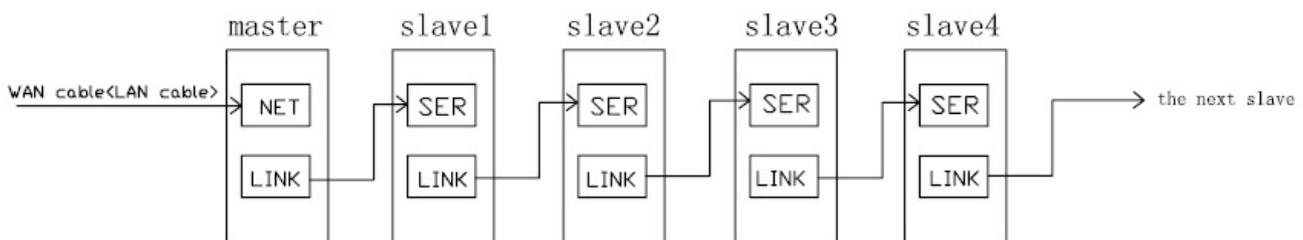
#### 7. Stopping alarming

Click the RESET button to stop alarming for one minute (When NPM3100 has alarm information, OUTLET No.1 has no function, you have to stop the alarming for one minute then you can check other information. But it will continue alarming after one minute until you have modified the fault.)

#### 8. Master / Slave NPM Configuration

Press the RESET button for 10-13 seconds, the indicator of M/S on indicates the NPM is the master NPM; Press the RESET button for 5-8 seconds, the indicator of M/S off indicates the NPM is the slave NPM. Account the time please refer to the RUN indicator (T= 2S)

#### 9. Daisy-chain Connection Method



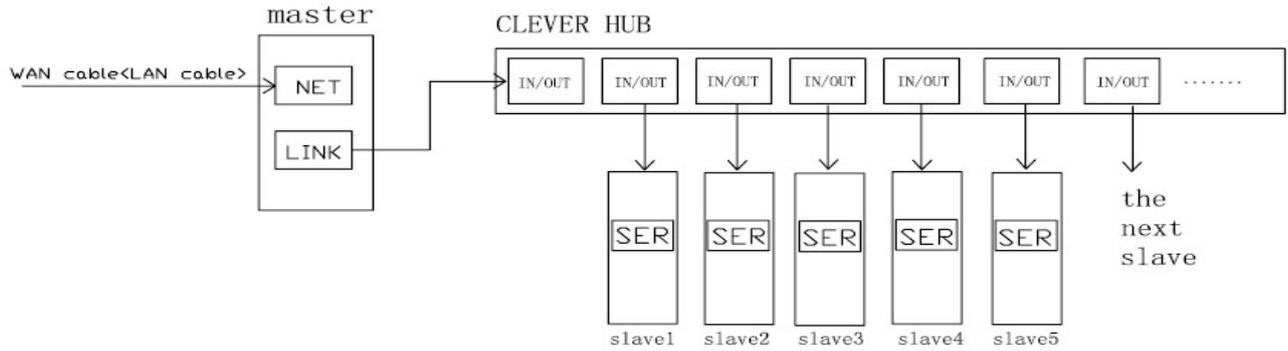
9.1 Each NPM owns the sole default address which is different from others. The address has been locked before leaving factory and can not be changed.

9.2 Set one NPM as master and the others as slaves. One master can daisy-chain 9pcs NPM slave at most.

9.3 One end of the network wire connects to the LINK port of the master NPM, the other end connects to the SER port of the first slave NPM, then use one end of another wire connects to the LINK port of the first slave NPM, the other end connects to the SER port of the next slave NPM. Use the same way to connect other slave NPM.

9.4 One end of the network wire connects to the net port of the PC; the other end connects to the NET port of the NPM, then through IE to access. (Details please refers to the software introduction)

#### 10. Radialized Connection Method



10.1 Set one NPM as master and the others as slaves. One master can link 9pcs NPM slave at most

10.2 One end of the network wire connects to the net port of the PC; the other end connects to the NET port of the NPM

10.3 One end of the network wire connects to the LINK port of the master NPM, the other end connects to the RJ45 port of the HUB (special HUB for NPM link from CLEVER)

10.4 Use the end of another network wire connects to another in/out port of the HUB, the other end connects to the SER port of the slave. Each in/out port of HUB connects to the SER port of one slave NPM, can link 9pcs slave at most.

10.5 Through IE to access (Details please refers to the software introduction)

11. Software Upgrade in Hardware

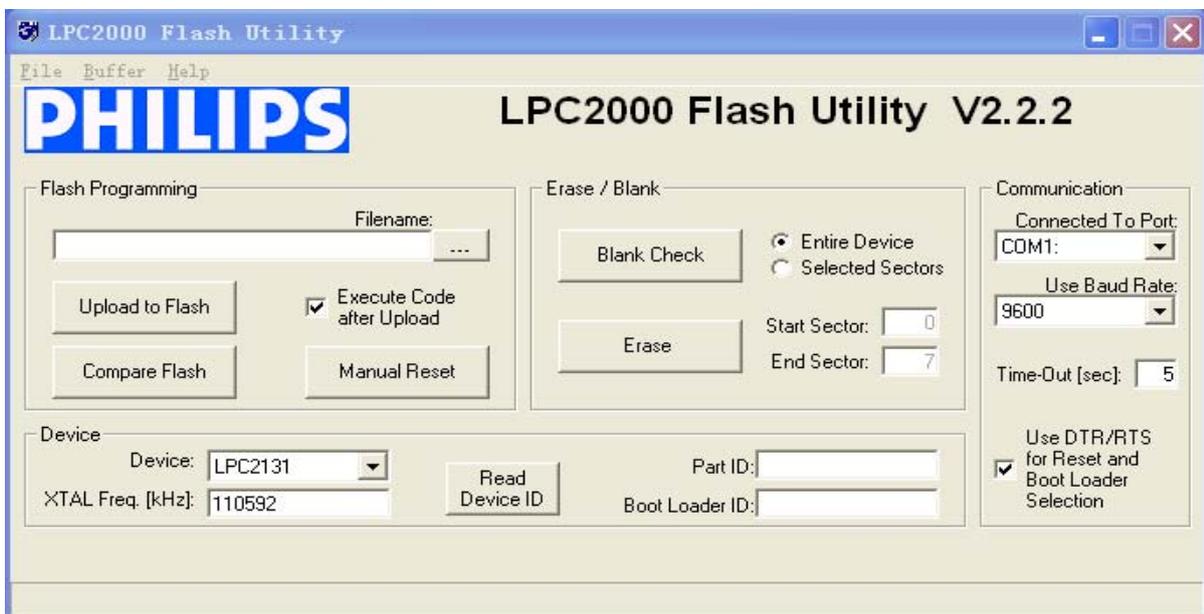


11.1 Clever will provide the file of software upgrade NPM3100.hex, please save it in your PC



11.2 Please open the software upgrade file philips\_flash\_ut..., then double click this file to install the software.

11.3 Operate this software after installation, see the following picture:



11.4 The RJ45 end of the signal wire for upgrade software (special wire, it must from CLEVER) inserts to PORT1 on NPM, DB9 end inserts to the RS232 port of PC

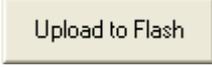
11.5 Please select the correct series port in  , make other selection according the picture

11.6 Click  in  , add the file  .

11.7 Power on the NPM

11.8 Click  , it will show  when read successfully; if fails, please check the connection wire and the communication port

11.9 Click  , it will show  when erase succeeds; If fails, please check the connection wire and the communication port

11.10 Click  , it will show  when uploading the file succeeds; if fails, please check the connection wire and the communication port

11.11 Power off the NPM

11.12 Power on the NPM, LED screen will show the new version which means the software upgrade successful and then it can work normally.

## VII. Software Introduction

### 1. Software overview

This software is a technology that employs the total embedded system solution. It is based on the monitoring technology of SNMP standard protocols, encryption of SSH data transmission, sensor network node technology and other high-tech technologies. Through the network the user can timely monitor and remotely control the devices power and micro environment in the cabinet. It help user to monitor、control and manage the status of each outlet as well as the sensor of environment temperature, humidity, smoke, water, door open status with its multiple-user operation system、friendly administration interface and compatible network connection.

### 2. Access Method

By connecting the devices to the LAN or WAN, the user can carry out the remotely control and management through IE browser、SNMP、SSH and Telnet.

#### 2.1. IE Access

Open the IE browser (only support IE6.0 and IE7.0 version currently), input the device IP address and log on to the administration interface with the correct user name and password, The system will automatically log out if the user



input the incorrect user name or password for three times consecutively.

The administration interface is made up of three parts: the system information interface, user guide menu and the device control interface.

The system information interface: mainly contain the company Logo as well as the device current IP address;

User guide menu: display the user name and function menu, it helps and guides the user complete the operation conveniently and promptly;

Device control interface: the user can monitor, control and manage the devices through the device control interface., please see the details as below 1) to 16):

### 1) Device Control

"Device Control" interface control the switch on/off of the each outlet and look over the status of outlets and basic information of sensors, details as below:

a) to view the model of device;

b) "output Name" display the name of each outlet;

c) "current" display the total load current as well as the current of individual outlet. The digit of current in red will flash when it's over the limiting value to alarm

d) "Output Status" shows the switch on/off status of outlets: ● means on, ● means off, ● means problem occurred to the outlet;

e) "Control" controls the switch on/off: "ON" means switch on, "OFF" means switch off, "REBOOT" means restarting the device and its default status was "NONE", the user can switch on/off single outlet, multiple-outlet or all outlets;

f) The load current can be read if the device equipped with ampere meter. If not, it will display "Not found"

g) The power consumption can be read if the device equipped with power consumption meter. If not, it will display "Not found"

h) The corresponding value and status of temperature, humidity, smoke, water logging and door open can be read if all this sensors are equipped. If not, it will display "Not found". The digit in red will flash if the sensors alarm.

### 2) Sensor Status

View the current status of all these sensors. Details as below:

a) "Temperature/Humidity" displays the current temperature/humidity sensor connection status and value. "Not found" means no Temperature/Humidity sensor is connected. The digital figures in red will flash if it's over the value to alarm.

b) "Door" displays the connection status of door. "Not found" means no door sensors are connected. The word "open" in red on the screen will flash if the door is opened.



c) "Smoke alarm" displays the connection of smoke sensor, "Not found" means no smoke alarm is connected. The word "CLOSE" or "OPEN" can be read on the screen if connected. The word "YES" in red will flash if smoke alarm happens.

d) "Water logging" displays the status of water sensor, "Not found" means no water sensors is connected. The word "YES" or "NO" can be read when connected. The word "YES" in red will flash if water-logging alarm happens.

### 3) Device Configuration

Configure the device series number, input outlet name as well as the interval of sequential power on/off, details as below:

a) " NPM Address No": each device has a unique series number; the user can not normally monitor and manage the device if the displayed figure is not the same as the device series number.

b) " NPM name": configure the device name which can reach as long as 20 bytes;

c) Configure outlet name, it can reach as long as 35 bytes;

d) "Sequence Interval": configure it according to specific requirement; the interval is between 0 to 255 seconds.

### 4) Network

Configure IP address、Sub-net Mask、default gateway DNS according to different application environment, details as below:

a) IP address: LAN or WAN IP address, the default IP is 192.168.1.163

b) Sub-net Mask: correspond with IP; the default sub-net mask is 255.255.255.0

c) Gateway: correspond with IP; the default gateway is 192.168.1.1;

d) DNS address: the default DNS is 0.0.0.0, any DNS address of normal domain name resolution, make sure the e-mail can be send successfully

**Note:** network configuration information will be valid after system reboot.

### 5) Timing Control

Configure the time of power on/off, the device automatically switch on/off according to the set time, details as below:

a) Click on "Setting" to adjust time and make sure the time is the same with the PC

b) "ON Timing" time of power on setting, the format is: yy/mm/dd hours: minutes:

"OFF Timing" time of power off setting, the format is: yy/mm/dd hours: minutes:

c) Select "Repeat", the device will automatically power on/off daily according to the time set by user if setting success.

### 6) Threshold Value

Set current, temperature/humidity threshold and ensure the devices operation well in normal status, details as



below:

a) Individual outlet current rate: 0~10(A), total current rate: 0~16(A) or 0~32(A), connecting to the load, the device will alarm when the current exceed the set limiting value of current.

b) Temperature rate setting: -40~215(°C), Humidity rate: 0~100(100%), the sensor will alarm when the temperature/humidity exceed the limiting value.

**Note:** the Max. value can not be smaller then the Min. value.

## 7) Alarm Setting

Set the style of alarm, voice alarm and e-mail alarm. The alarm information will be sent to the administrator by voice or e-mail when the current, temperature/humidity exceed the limiting value or any problem occurred.

a) Voice alarm:

- ◆ Select the voice document from the PC through the interface prompt, save it after testing;
- ◆ The interface displays the path of the voice document and prompt of setting success;
- ◆ The PC will alarm through the voice set by user when device alarms, only single user setting is available to the voice path and only one voice path can be saved.

**Note:** The voice alarm count on the browser, the voice alarm can not be realized when the browser is closed

b) E-mail alarm:

- ◆Select "Enable e-mail alarm"
- ◆POP3 address: receive e-mail server address, e.g. Sina POPS3 address: pop.sina.com;
- ◆SMTP address: deliver e-mail server address, e.g.Sina SMTP address: smtp.sina.com;
- ◆Port: delivery e-mail port (general e-mail port: 25), input the corresponding output port according to e-mail level.
- ◆User name: input the receive e-mail address, make sure this e-mail address is accordant with the SMTP address
- ◆User Password: fill in the e-mail password of sender, the password is accordant with e-mail of sender.
- ◆Authentication type: the way of e-mail login (general e-mail default as: LOGIN), select the login way according to the level of e-mail
- ◆To address: the e-mail address of receiver, the user can fill one or more receiver, but all the receive address must be separated by ";"
- ◆Cc to: fill in one or more CC-email address, each address must be separated by ";"
- ◆From address: the same with User name
- ◆Repeat interval: interval of email sending

## 8) Alarm Logs

Automatically record the alarm information and data, offer viewing and leading out function, details as below:

a) Daily record the alarm and recovering information of current overload, temperature/humidity from exceeding



limitation, problem occurrence and the status information of sensor connection and disconnection;

**b)** "Select Device" to select and view the single device daily record information;

**c)** Select "First", "Previous" "Next" to view the daily record;

**d)** Select "WEB" or "EXCEL" to leading-out the daily record information;

**e)** "clear all records" to clear all the record information of single device.

### **9) System**

**a)** View the latest software version, time of update, hardware address( MAC), RAM space, CPU occupancy rate and total system operation time.

**b)** Click "reset system settings" to restore factory settings e.g. Device Configuration, Alarm Setting, Web, Console, SNMP, User Manage and other configuration of menu; it will be valid after rebooting.

### **10) Web**

Configure HTTP, user can enable or disable the HTTP port, details as below:

◆ Set and save the HTTP port according to the network environment, the default HTTP port is 80;

◆ Select "Enable" to start and save HTTP, set the HTTP enable and can not be closed

**Note:** the setting will be valid after system reboot.

### **11) Console**

Configure devices Telnet and SSH access method, details as below:

#### **a) Telnet**

◆ Select "Enabled" or "Disabled" to decide start the Telnet function or not, the system defaults status was "Enabled"

◆ Change the Telnet port according to requirement of user, the default port was: 23

#### **b) SSH**

◆ Select "Enabled" or "Disabled" to decide start SSH function or not, the system default status is "Disabled"

**Note:** the changed Console configuration will be valid after reboot

### **12) SNMP**

"SNMP" interface configure the SNMP access method, details as below:

**a)** Select "Enabled" or "Disabled" to decide starting the SNMP function or not through drop-down menu of "SNMP Agent" interface;

**b)** Set the character string of "get" "set" "trap" respectively. Get community is to offer read-only channel mark of visiting the MIB object, set community is to offer the read-write channel mark of visiting MIB object, TRAP community is the style mark of all TRAP information generated and sent. The default status of these three items is: public, private, private. The length of the community string must be between 1-24 bytes.

**c)** Set calculagraph of SNMP trap from 1 to 65535 seconds, better to above 10 seconds, the defaults time is 30



seconds.

**d)** Set trap destination, input the SNMP management platform object address in the frame of Trap Destination, the Trap information will be sent to the corresponding address automatically, user can set 2 Trap Destinations.

**e)** The system name of SNMP records the information of SNMP system name.

**f)** SNMP server position record the server position information

**Note:** the SNMP configuration will be valid after reboot

### 13) Update

To upgrade the software, the image.bin file packet from supplier is required when upgrading, the user can complete the updating process according to the prompt message, details as below:

**a)** Connecting device and the PC directly by network cable.

**b)** Click "Browse" and select the the image.bin file path on the PC

**c)** Click "Update"

**d)** Return to prompt information automatically when file submitting successfully (letters in blue), which means the update document submitted successfully.

**e)** Waiting for the system pop the login window after software system initialized when file submit successfully.

**Note:** Make sure no power failure, no network disconnected and no operation on the interface when upgrading

### 14) User manage

Create or delete user account and configure user's right, details as below:

**a)** The administrator can add 5 users at most. The user name can only be made up of letters, number and underline; other character can not be filled in.

**b)** Administrator can open the "Edit" which under the Action menu to modify the password and lever of all the users.

**c)** Administrator can delete users, but the last administrator can not be deleted.

**d)** Administrator can open the "Edit" which under the "Control Rights" menu to view and assign the user's right, the administrator holds all the right.

**Note:** General user can only monitor and manage the assigned devices status, sensor status, device configuration information, network configuration, power on/off automatically, limiting value to alarm setting, alarm setting, daily record information and so on.

### 15) Restart

"Restart" interface is designed to restart and refresh the device software system (e.g. Change the IP address, HTTP port, Telnet port, software update), no need to cut off the power supply as this operation does not affect the normal power supply. The system will automatically pop the login window when system restart.

## 16) Logout

According to the prompt message to close the software system interface`

### 2.2. SNMP Access Method

SNMP(Simple Network Management Protocol), this software support the V2 version of SNMP with a MIB file which contain an enterprise number, network management system offer network management of device through SNMP, the user can change the output port name, view the device and sensor status, receive alarm information through SNMP approach.

The user has to open the SNMP access method through visiting interface of IE browser, please refer to the 13<sup>th</sup> item of IE access method SNMP introduction. Install corresponding SNMP management software after completing the SNMP start setting, set up the configuration according to the software menu provided by SNMP software company, leading-in MIB file on the SNMP management platform, user can monitor and manage the device status information and alarm Trap information after translating and editing success, the details information of device status are as detailed in figure 2-1, figure 2-2,

1). The status of the device and sensor can be read through the table format of SNMP software, details as below:

Figure 2-1 the information table of device output status

Menu	Description of menu
XX output ID	XX stands for device name, output ID display the device ID address
Name	The output end name
Status	The corresponding switch on/off status of each output
Load Value	The corresponding current of each output
Load Low limit	The corresponding minimum value of each output
Load High limit	The corresponding maximum value of each output

Figure 2-2 the information table of device sensor status

Menu	Description of menu
Device name	Display the connected device name
Device Type	Display the connected device model
Series No	Display the current hardware device series number
ON Interval	The interval of power on
Total Load Value	Display the total output load current



Temperature 1	Display the current connection status and temperature of temperature sensor 1
Humidity 1	Display the current connection status and humidity of humidity sensor 1
Temperature 2	Display the current connection status and temperature of temperature sensor 2
Humidity 2	Display the current connection status and humidity of humidity sensor 2
Temperature 3	Display the current connection status and temperature of temperature sensor 3
Humidity 3	Display the current connection status and humidity of humidity sensor 3
Door 1	Display the current status of door sensor 1
Door 2	Display the current status of door sensor 2
Smoke	Display the current status of smoke sensor
Water Logging	Display the current status of waterlogging sensor

2) According to the setting of the SNMP on the IE browser interface, TRAP information will be sent to Trap Destination automatically, the time information of alarm, device name and the alarm type will be included in the TRAP information. Overview of the TRAP information as below:

Minor 11/17/2009 11:07:56 device

thresholdAlert

[1] unitName.0 (DisplayString): total load

[2] deviceName.0 (DisplayString): device1

[3] alertStatus.0 (DisplayString): load low

[4] alertValue.0 (DisplayString): 7.2

[5] lowLimit.0 (DisplayString): 10.0

[6] highLimit.0 (DisplayString): 16.0

[7] pollLastState (Integer): unk

### 2.3. SSH command line console access

SSH(Secure Shell) is kind of protocol which provide telnet and other secure network service through unsafe network. Besides the configuration of safe network terminal conversation and power management, SSH conversation can also be employed to safe direct connecting devices.

The configuration and client of SSH require using the PC client agent, lots of free shared software like PUTTY are available or user can buy the SSH client in the market.

The SSH monitor, control and manage the device mainly through command line like STATUS ON OFF、REBOOT、SHOW、SET、ADD、REMOVE、RESET、RESTART、QUIT

#### 1). STATUS

"STATUS" command line can be used to view the basic information of devices, status of total output, individual output and sensor; the format of command line: STATU **【ADDRESS】** **【OPTION】**

**【ADDRESS】**: the series number of connected device, view the current status of device according to the series number;

**【OPTION】** : View the device information according to the options, as detailed in Figure 3-1

Figure 3-1 the description table of STATUS OPTION

<b>【OPTION】</b>	Description
SUMMARY	View the basic information of device, e.g device series, model, series number, output quantity, total load current, total voltage, and power consumption
OUTPUTS	View all the output numbers, switch on/off status, threshold of individual and total current
NO.	This option only require outlet No., user can only view one outlets status at a time, e.g output name, switch on/off status, load current, and the current threshold.
SENSORS	View the sensor status, e.g the current status of the temperature/humidity/door /water/smoke sensors and the threshold of temperature/humidity.

For instance: STATUS ABCDEF 5: View the status of output 5 of the NPM whose series number is ABCDEF, e.g the statue of switch on/off, load current and threshold of current.

2) ON

"ON" command can switch on the individual or total outputs.

Command input format: ON **【ADDRESS】** **【OPTION】**

**【ADDRESS】** : the series number of connected device, control the status of switch on/off according to the series number.

**【OPTION】** select the quantity of the output to be controlled according to the options, as detailed in figure 3-2:

Figure 3-2 the description table of switch on option

<b>【OPTION】</b>	Description
ALL	Switch on all output of the device
NO.	This option only require output number, switch on only one outlet at a time

For instance: ON ABCDEF 1: Switch on the output 1 of NPM whose series number is ABCDEF

3) OFF

"OFF" command line can switch off individual or total output;

Command input format: OFF **【ADDRESS】** **【OPTION】**;

**【ADDRESS】** : the series number of connect device, control the status of switch on/off according to this series number

**【OPTION】** : select the output No. to be controlled according to the options, as detailed in figure 3-3:

Figure 3-3 the description table of switch off option

<b>【OPTION】</b>	Description
ALL	Switch off all the output of the device
NO.	This option only require output number, switch off only one outlet at a time

For instance: OFF ABCDEF 1: Switch off the output 1 of NPM whose series number is ABCDEF

#### 4) REBOOT

"REBOOT" command line can restart the individual or total outputs.

Command line input format: REBOOT **【ADDRESS】** **【OPTION】**;

**【ADDRESS】** : the series number of connect device, control the status of switch on/off according to this series number

**【OPTION】** : select the output No. to be controlled according to the options, as detailed in figure 3-4:

Figure 3-4 the description table of REBOOT OPTION

<b>【OPTION】</b>	Description
ALL	Restart all the output of devices
NO.	This option only require output number, restart only one outlet at a time

For instance: REBOOT ABCDEF 1: restart the output 1 of NPM whose series number is ABCDEF

#### 5) SHOW

"SHOW" command line can be used to read the network configuration information, system information, user management information, e-mail configuration information, SNMP configuration information, HTTP configuration information, TELNET configuration information, SSH configuration information, device configuration information, output configuration information, timing power on/off configuration information, interval of sequential power on configuration information and so on.

Command line input format: SHOW **【OPTION】**;

**【OPTION】** as detailed in figure 3-5

Figure 3-5 the description table of SHOW OPTION

<b>【OPTION】</b>	Description
USERS	View the user name and level



DEVICE	View all the connected devices and corresponding serial number	
SYSTEM	View the system information e.g software version, update time, MAC code, CPU occupancy rate, operation time	
NETWORK	View the network configuration e.g IP address, sub-net mask, default gateway, main DNS and back up DNS	
SNMP	View the SNMP configuration information	
SSH	View the SSH on/off status and port configuration	
TELNET	View the TELNET on/off status and port configuration	
HTTP	View the HTTP on/off status and port configuration	
MAIL	View the e-mail alarm setting, e.g POP3 server address, SMTP server address, e-mail sending port, e-mail sender's address and password, receive address, carbon copy address, interval of alarm	
ONINTERVAL 【ADDRESS】	View the power on interval of this 【ADDRESS】	
OUTPUTS 【ADDRESS】	View the output name and address information of this 【ADDRESS】	
TIMING 【ADDRESS】	ALL	View time setting and time of power on/off of all output of this 【ADDRESS】
	NO.	View time setting and time of power on/off of this individual output of this 【ADDRESS】 , "NO" means outlet number, input one outlet number at a time.

For instance: SHOW USER: view user information and level.

## 6) SET

"SET" command line can configure and control the IP, SUBNET, GATEWAY, DNS1, DNS2, HTTP, TELNET, SSH, SNMP, MAIL, THRESHOLD, TIMIGN, ONNTERVAL of the device.

### A. Network configuration

Network configuration include: IP address, Sub-net mask, Gateway, DNS1 and DNS2

Command line input format: SET 【Network configuration】 =

For instance: SEG IP=192.168.1.163: configuration network IP address: 192.168.1.163

**Note:** the network configuration will be valid after reboot.

### B. HTTP



Command line input format: SET HTTP 【OPTION】

【OPTION】 as detailed in figure 3-6-b

Figure 3-6-b the description table of HTTP OPTION

【OPTION】	Description
ENABLE	Set the HTTP enable
DISABLE	Set the HTTP disable
PORT	Set the HTTP port

For instance: SET HTTP ENABLE: enable HTTP function

**Note:** HTTP configuration will be valid after reboot

### C. TELNET

Command line input format: Set TELNET 【OPTION】

【OPTION】 as detailed in figure 3-6-c

Figure 3-6-c the description table of TELNET OPTION

【OPTION】	Description
ENABLE	Set the HTTP enable
DISABLE	Set the HTTP disable
PORT	Set the HTTP port

For instance: SET TELNET ENABLE: enable TELNET function

**Note:** TELNET setting will be valid after reboot

### D. SSH

Command line input format: SET SSH 【OPTION】

【OPTION】 as detailed in figure 3-6-d

Figure 3-6-d the description table of SSH OPTION

【OPTION】	Description
ENABLE	Set the HTTP enable
DISABLE	Set the HTTP disable
PORT	Set the HTTP port

For instance: SET SSH ENABLE: set the SSH enable

**Note:** SSH setting will be valid after reboot

E. SNMP

Command line input format: SET SNMP 【OPTION】

【OPTION】 detail as figure 3-6-e

Figure 3-6-e the description table of SNMP OPTON

【OPTION】	Description
ENABLE	Set the SNMP enable
DISABLE	Set the SNMP disable
GETC	Set getting the character string of community
SETC	Set the character string of community
TRAPC	TTAP character string of community
REPTIME	The interval of Trap sending
DES1	The destination 1 of Trap information to be sent
DES2	The destination 2 of Trap information to be sent
CONTACT	SNMP system contact
SYSNAME	SNMP system name
LOCATION	SNMP system address

For instance: SET SNMP ENABLE: set the SNMP enable

**Note:** "NULL" can clear the configuration; SNMP setting will be valid after reboot.

F. MAIL

Command line input format: SET SNMP 【OPTION】 =

【OPTION】 as detailed in figure in 3-6-f

Figure 3-6-f the description table of MAIL OPTION

【OPTION】	Description
ENABLE	Enable e-mail alarm
DISABLE	Disable e-mail alarm
POP3	Setting POP3 e-mail receive server
SMTP	Setting SMTP e-mail sending server
PORT	E-mail sending sever port
AUTH	The authentication of mailbox login
USER	E-mail sending address



PASSWORD	The password of e-mail sending address
TO	E-mail receiving address
CC	E-mail carbon copy address
FROM	E-mail sending address
REPTIME	Setting the interval of e-mail alarm sending

For instance: SET MAIL POP3=POP3.163.COM: Set POP3 server address to be POP3.163.COM

**Note:** "NULL" can clear the setting information.

G. THRESHOLD

Command input format: SET THRESHOLD 【ADDRESS】 【OPTION1】 【OPTION2】

【OPTION】 as detailed in figure 3-6-g

Figure 3-6-g the description table of THRESHOLD OPTION

【OPTION 1】	【OPTION 2】	Description
TEM1	L=	Set the lowest value of temperature sensor 1
	H=	Set the highest value of temperature sensor 1
HUM1	L=	Set the lowest value of humidity sensor 1
	H=	Set the highest value of humidity sensor 1
TEM2	L=	Set the lowest value of temperature sensor 2
	H=	Set the highest value of temperature sensor 2
HUM2	L=	Set the lowest value of humidity sensor 2
	H=	Set the highest value of humidity sensor 2
TEM3	L=	Set the lowest value of temperature sensor 3
	H=	Set the highest value of temperature sensor 3
HUM3	L=	Set the lowest value of humidity sensor 3
	H=	Set the highest value of humidity sensor 3
NO	L=	Set the lowest value of each output current
	H=	Set the highest value of each output current
TOTAL	L=	Set the lowest value of the total load current
	H=	Set the highest value of the total load current
TOTALA	L=	Set the lowest value of the total load current of phase A
	H=	Set the highest value of the total load current of phase A



TOTALB	L=	Set the lowest value of the total load current of phase B
	H=	Set the highest value of the total load current of phase B
TOTALC	L=	Set the lowest value of the total load current of phase C
	H=	Set the highest value of the total load current of phase C

For instance: SET THRESHOLD ABCDEF TEM1 L=0 Set the lowest value of temperature sensor 1 of NPM whose series number is ABCDEF to be 0

**Note:** Temperature rating: -40 °C~215 °C;

Humidity rating: 0%~100%;

Current rating: 0~10A

H. TIMING

"SEG TIMING" adjust the device time, set the time of device power on/off

Command line input format: SEG TIMING 【ADDRESS】 【OPTION】

【ADDRESS】 : the series number of connected device

【OPTION】 as detailed in Figure 3-6-h:

Figure 3-6-h the description table of TIMING OPTION

【OPTION】	Description
CHECK	Adjust the device time
NO	Set the time of each individual output

◆ Adjust the time:

SET TIMING 【ADDRESS】 CHECK=091231042150

The format of the time: year-month-day-week-hour-minute, each section with 2 digits, 24-hour clock

Week reference table

week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Command line	01	02	03	04	05	06	00

◆ The time setting of output

Command line input format: SET TIMING 【ADDRESS】 1 Y ON=0912301456

1: the outlet No.



Y: daily timing repeat , Y means repeat, N means non-repeat

ON: the status of switch on/off, ON means power on, OFF means power off

=0912301456: the time of power on/off, format: year-month-day-hours-minute, each section with 2 digit, 24-hour clock.

**Note:** "NULL" can clear the setting information

**I) ONINTERVAL**

"SET ONINTERVAL" set the interval of the device sequential power on

Command line input format: SET ONINTERVAL **【ADDRESS】【OPTION】**

For instance: SET ONINTERVAABCDEF TIME=1 Set the interval of device whose series number is ABCDEF to be 1 second.

**J) DEVICE**

"SET DEVICE" to change the device name, output name and serial number.

Command line input format: SET DEVICE **【ADDRESS】【OPTION】**

**【OPTION】** as detailed in figure 3-6-j

Figure 3-6-j the description table of DEVICE OPTION

<b>【OPTION】</b>	Description
NAME	Change the device name
ADDRESS	Change the device serial number.
NO	Change the name of each outlet

**Note:** the length of device name can not exceed 20 bytes.

The device series number only use six digits.

The length of output name can reach 35 byte.

The " " are required if there is a blank in the name.

**7) ADD**

"ADD" is the command line of adding device,

Command line input format: ADD DEVICE **【NO.】** =

**【NO.】** : the device rank number can be used here, one rank number at a time.

For instance: ADD DEVICE 2=ABCDEF: the series number of new added device 2 is ABCDEF

**8) REMOVE**

"REMOVE" command line can be used to delete the connected device.

Command line input format: REMOVE DEVICE **【 ADDRESS】**

For instance: REMOVE DEVICE ABCDEF: Delete the device whose series number is ABCDEF



## 9) RESET

"RESET" command line can be used to restore factory setting, e.g device name, output port name, HTTP configuration, SSH configuration, TELNET configuration, SNMP configuration, voice alarm setting, e-mail alarm setting and user management.

**Note:** it will be valid after system reboot

## 10) RESTART

"RESTART" command line can be used to restart the system, the SSH interface will be closed automatically when restart system, the IE browser interface and the TELNET interface will restart with the system.

## 11) QUIT

"QUIT" to close the SSH system.

### 2.4. TELNET command line console access

The application of Telnet provides the user with the ability of remotely login and controlling conveniently, start the conversation by inputting the user name and password. Terminal user can input the command in the telnet program to control and get better response,

The operation method of command line console is the same with SSH command line console, details please refer to the SSH instruction.

### 3. Device Daisy-chain

The device support daisy-chain (see hardware user manual), user can monitor and control multiple devices at one time conveniently, and 10 devices can be connected at most to one master, please see details as below:

#### 3.1. Hardware setting

Firstly set up one Master and several Slaves, M/S indicator on is the Master while off is Slave, make sure the device are connected in the right way.

Master setting: Press RESET button for 12 seconds (the interval of RUN light is 2 seconds), setting success when M/S light on.

Slave setting: Press RESET button for 6 seconds (the interval of RUN light is 2 seconds), setting success when M/S light off.

#### 3.2. Software setting

There are three ways to set the daisy-chain by software, please details as below:

A. Log on to IE(Internet Explorer) browser access interface, open the "Device Configuration" and input the device series number in the frame of NPM Address No., check the setting success or not through reading the device status of "Device Control" interface

B. Log on to SSH command line console access, command line of "Add Device" can be used to daisy-chain device



and add the corresponding device series, check the setting success or not through reading the device status of "STATUS" interface

C. Log on to TELNET command line console access, command line of "Add Device" can be used to daisy-chain devices and add corresponding device series number, check the setting success or not through reading the device status of "STATUS" interface.

**Note:** A. The daisy-chain device hold the unique hardware series number

B. The name can not be repeat when name the new added device.

#### IV. Restore the network configuration

Restore the network configuration of hardware, restore IP address, sub-net mask, default gateway, DNS setting, SSH, Telnet, HTTP to factory settings, for the original default values please refer to the 4<sup>th</sup> page of IE browser, the method of restoring by network are as below:

A. Connected the device and PC directly with network cable, namely network direct connection, rotate "OUTLET NO.1" knob on the front panel to "U"

B. Set up the device as Master (the Slaves can not be restored)

C. Press knob of "OUTLET NO.2 for 30 seconds (the interval of RUN light is 2 seconds), the digital tube will display the RES IP;

D. PC interface will automatically connect after the network disconnected.

### 4. Frequently Asked Questions

1. Q: User can not monitor the device information after logging on to the administrator interface.

A: 1, Check the device series number through "Device Configuration" interface, make sure the device series number is exactly the same with the hardware;

2, Check whether the hardware device is the Master or not, the Slaves can not be monitored when single device connected to network, multiple devices daisy-chain, set up one device to be Master, others to be Slaves;

2. Q: Forget the login IP address、 user name or password?

A: Press the knob of "OUTLET NO.2 for 30 seconds to restore it to factory setting, when restore complete the IP will be: 192.168.1.163; User name is clever; password is clever, these user name and password can be used only once, other user administration will not be affected when restore to the original factory setting.

3. Q: E-mail delivery failure?

A: 1. Check and make sure the network are connected and function well;

2. Check whether the DNS setting is successful or not;

3. Check and make sure the pop and smtp server was filled in correctly and accordant with server of e-mail sender, the smtp port is right



4. Ensure all the information filled in frame is accurate.