

GTNet Card Function User Manual

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1 Introduction

1.1 Function introduction

The gtNet card is an intelligent UPS network monitoring card that allows UPS to have network monitoring functions. This card can easily meet the UPS monitoring needs in various scenarios.

If you want to see the current working status of the UPS, you can directly log in to the gtNet card through a browser and see all the UPS operating data. If you want to connect the UPS to the centralized management platform, the gtNet card provides rich third-party interfaces such as SNMP (Simple Network Management Protocol) protocol, ModbusTCP protocol and MQTT protocol. The gtNet card itself is also equipped with its own centralized management software and IoT monitoring platform to meet the different needs of customers.

The gtNet card comes with a complete alarm mechanism. When a UPS failure occurs, the failure can be quickly reported to relevant personnel through email, SMS, voice, etc., so that administrators can quickly troubleshoot. The gtNet card also has powerful data analysis functions, which can save UPS data, alarms, logs, etc., and display them intuitively in the form of charts.

The gtNet card also provides shutdown assistants under different systems. When the UPS mains power is abnormal or the battery power is low, in order to avoid hardware damage or software failures caused by sudden power outages, the shutdown assistant can receive the shutdown information sent by the gtNet card and automatically Shut down the system.

The feature list is as follows:

- ✓ Supports web access, you can easily view all UPS data, and perform various settings on the gtNet card through the web.
- ✓ Supports SNMP, ModbusTCP, MQTT and other protocols, providing rich interfaces for third-party monitoring.
- ✓ IPsearch software is provided, which can automatically search for devices in the LAN, and has the functions of software upgrade and partial parameter setting.
- ✓ When a UPS fails, it can trigger SNMP TRAP, E-mail, SMS, voice, etc. to notify the administrator.

-
- ✓ Extended equipment expansion functions such as temperature, humidity, and water immersion can be added.
 - ✓ Different versions of shutdown software are provided to automatically shut down the computer server when a fault occurs.
 - ✓ Provide centralized monitoring solutions such as localized centralized monitoring and cloud IoT monitoring.

1.2 Introduction to use

- **gtNet card connects your UPS to the network**

When your UPS is equipped with an gtNet card and is connected to the network through the Ethernet port of the gtNet card, you can enter the gtNet card IP address to view the UPS status on any computer with a browser installed.

- **gtNet card makes the UPS you manage transparent**

When your UPS is connected to the network, you can view various UPS data information and UPS parameter settings on the browser. The gtNet card will detect UPS abnormality information at any time and send it to the administrator via email and trap. If you install an SMS alarm, you will also receive alert information in the form of SMS.

When your gtNet card is connected to an external expansion device such as a water immersion sensor, temperature and humidity sensor, etc., you can see your UPS working environment information.

- **When to use gtNet card?**

If you want to remotely monitor the UPS status through the network, for example: the system administrator needs to monitor the UPS status of subsidiary A, subsidiary B, and subsidiary C through the network. At this time, you only need to install an gtNet card on each UPS, and the system administrator can do so at any time. Remotely monitor the UPS status of each subsidiary on the network.

If you want to monitor computer room, warehouse, and office environment information through the network, but don't want to go to the warehouse for testing, you only need to install expansion equipment to meet your needs.

1.3 General parameters

Processor	Cortex-A7 Dual Croe
System clock	1GHz _
RAM	DDR3 128M Byte

Flash	128M Byte
Watchdog	YES
RTC	YES
LED indicator	3
LAN interface	10M/100M
Extended communication interface	RJ11 , can be connected to IoT devices

1.4 Power supply specifications

scope Enter information	Rated	minimum value	maximum value
DC input voltage	12V	8 V	15 V
DC input current	300mA	100mA	500mA
	—		

1.5 Environmental specifications

parameter	lowest temperature
Operating temperature	-20 °C ~ 70 °C
storage temperature	-40°C~85°C
Working humidity	10% ~ 90% RH (no condensation)
Storage humidity	5% RH ~ 90% RH (no condensation)
Altitude	3,000 meters

2 Product Appearance

2.1 Product Appearance

Interface description :

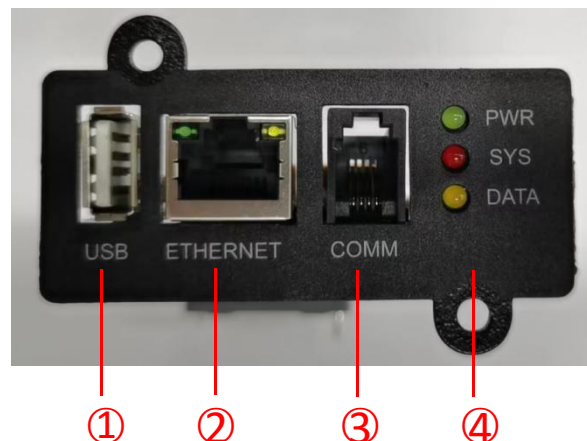


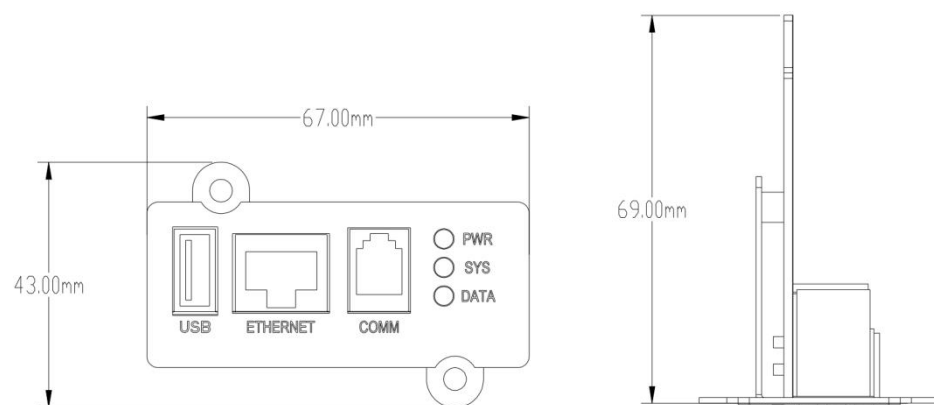
Figure 1

- ① USB interface
- ② RJ45 network cable interface
- ③ Extended COMM port
- ④ Signal indicator light

2.2 Product Dimensions

Total measurement	69.0mm(L)×67.0mm(W) ×43.0mm(H)
Connection method	26-pin dedicated card slot

Structural dimension drawing:



2.3 Product Port Introduction

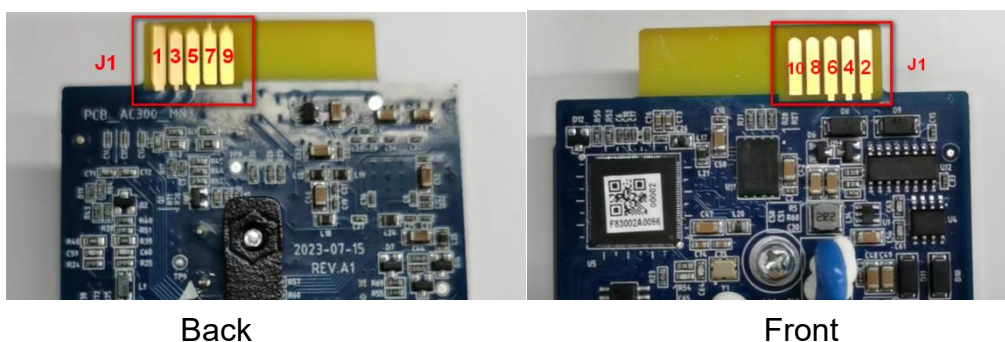
Port	Function
USB interface	USB 2.0 interface , TYPE-A
ETHERNET interface	Network communication interface
COMM interface	External expansion devices such as: water immersion sensor Temperature and humidity sensor 4G module (SMS alarm)

2.4 Interface Signal Definition

2.4.1 Gold finger interface

Pin definition	Input/output	Describe
J1-1	GND	Ground wire
J1-2	+ 1 2V power input	DC power input
J1-3	RS232_TXD output 1	RS232 signal output (for communication)
J1-4	RS232_RXD input 1	RS232 signal input (for communication)
J1-5	RS232_TXD output 0	RS232 signal output (for debugging)
J1-6	RS232_RXD input 0	RS232 signal input (for debugging)
other	N C	null

Note: Pin 1 of the J1 interface is on the back of PC CB , see the note in the figure below :



2.4.2 USB Interface

Standard USB 2.0 TYPE A interface.

2.4.3 Ethernet Interface

Pin Definition	Input/output	Describe
J2-1	TD+	Send data+
J2-2	TD-	send data-
J2-3	RD+	Receive data+
J2-4	NC	Public end
J2-5	NC	Public end
J2-6	RD-	Receive data-
J2-7	NC	Empty feet
J2-8	GND	Ground wire

2.4.4 COMM Interface

Pin definition	Input/output	Describe
J3-1	+ 1 2V power output	External power supply (Maximum support 200mA)
J3-2	R S485+	RS485 A
J3-3	R S485-	RS485 B
J3-4	GND	Ground wire

2.5 Signal Indicators

Signal light	Description
PWR light (green light)	gtNet card power supply status 1. Always on: gtNet card is powered normally 2. Off: gtNet card is not powered on
SYS light (red light)	gtNet card system status 1. Off: system is normal 2. Flashing: general alarm 3. Always on: serious alarm

DATA light (yellow light)	<p>Communication status between gtNet card and UPS</p> <ol style="list-style-type: none">1. Off: The communication between gtNet card and UPS is normal.2. Flashing: Abnormal communication between gtNet card and UPS
------------------------------	---

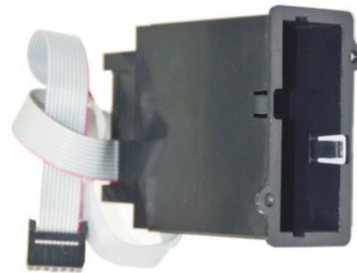
3 GTNet Card Settings

3.1 Hardware Installation

3.1.1 gtNet Card Slot Installation

Some models have card slots installed before leaving the factory . Please follow 3.1.2 to install the gtNet card;

For models without a card slot installed , please contact the local authorized dealer or after-sales staff to complete the installation . Do not disassemble the UPS without permission to access the internal circuit!



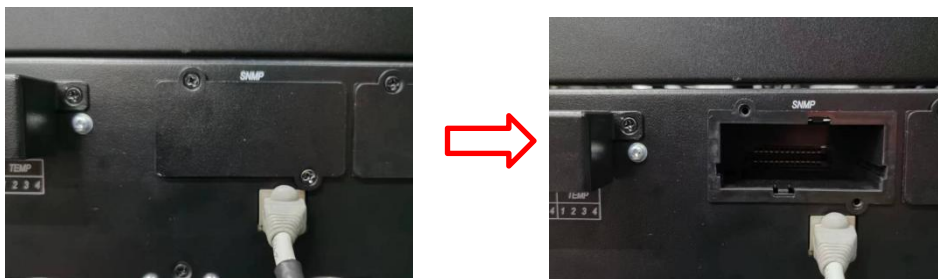
Note: Please make sure the UPS is turned off before installing the gtNet card slot!

3.1.2 gtNet Card Installation

The gtNet cards installed before leaving the factory , please plug in the Internet cable directly to use .There is no gtNet card on the UPS. You need to install the card by following the steps below.

The gtNet card installation steps are as follows:

- ① Unscrew the slot protective cover screws and remove the cover.



- ② Push the gtNet card all the way along the track in the slot.



- ③ Tighten the fixing screws at both ends of the card.



- ④ Plug in the network cable.



- ⑤ It can be used after turning on the UPS.

Note : gtNet card supports hot swapping, please pay attention to the risk of electric shock when installing gtNet card!

3.1.3 T/H & Water Immersion Sensors Installation



Use a network cable to connect the RS485 port of the sensor to the COMM port (R J11 port) of the gtNet card. Check whether the power indicator light of the

sensor is on. Then use a browser to add the sensor device and check the temperature and humidity information. If there is relevant information, it means the connection is success.

3.1.5 SMS Alarm Installation

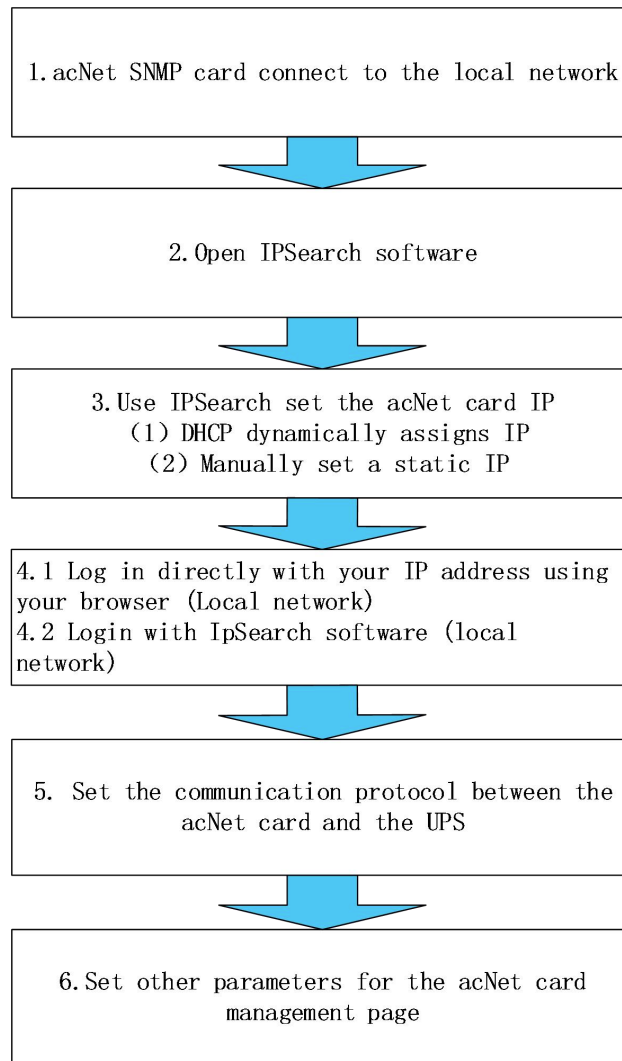
Use a cable to connect the power supply and communication signal of the SMS alarm to the COMM port of the gtNet card. For the device adding process on the browser, please refer to the "[Manually Adding Devices](#)" chapter.



3.2 Software installation

3.3 gtNet Card Usage Process

When the gtNet card hardware is installed, the following is a flow chart for using the gtNet card for the first time.



- **PWR light of the gtNet card is always on and ensure that the power supply of the gtNet card is normal.**

PWR light is always on, indicating that the gtNet card is powered normally.

- **Complete the connection between the gtNet card and the computer.**



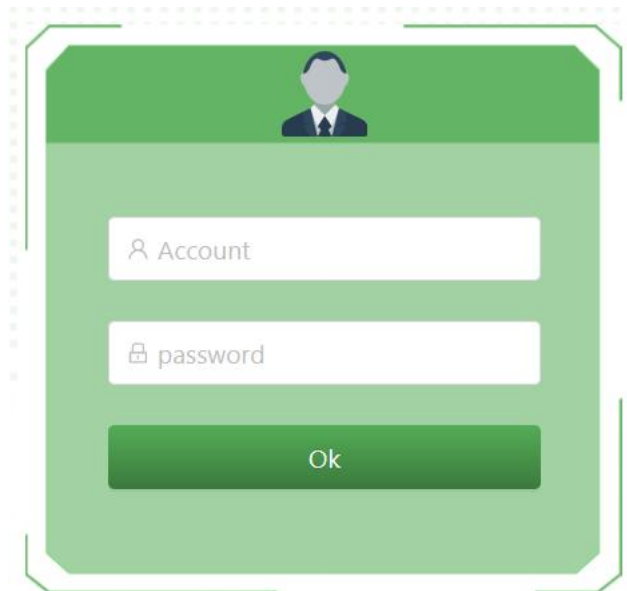
- **[Open the IPSearch software to set the IP address information.](#)**

When using the gtNet card for the first time, opening the IPSearch software will search for the default information of the gtNet card. Please [set the IP address information first](#). After the setting is successful, you can enter this IP address in the

browser IP address bar to log in to the gtNet card web page or use IPSearch Click the [Web Page] button to open the gtNet card web page.

- **Log in to the gtNet card web page.**

gtNet card initial administrator login account and password: **Account: admin**
Password: 123456. When the computer and gtNet card are on the same network ,
use IPSearch software to log in or use a browser to log in directly.



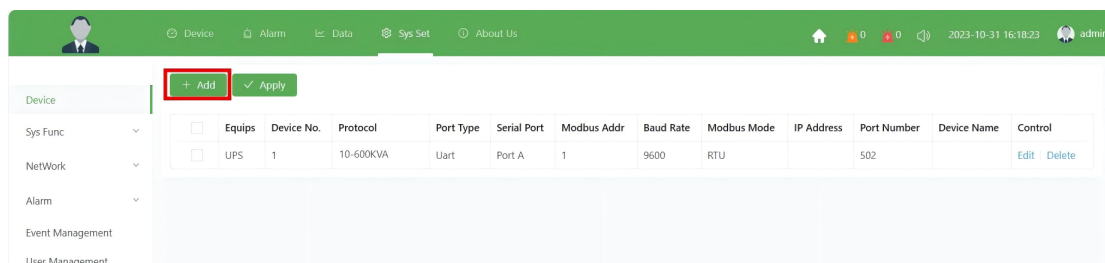
A login form with a green header containing a user icon. Below the header are two input fields: the first is labeled 'Account' with a person icon, and the second is labeled 'password' with a lock icon. At the bottom is a green button labeled 'Ok'.

- **Communication settings between gtNet card and UPS.**

If the " UPS communication failure" alarm event occurs.

Please go to [System Settings] → [Device Management] to set up the communication between the gtNet card and UPS.

- Click the [Add] button



The screenshot shows the 'Device Management' section of the gtNet card web page. The 'Device' menu is selected on the left. The main area contains a table with columns: Equip, Device No., Protocol, Port Type, Serial Port, Modbus Addr, Baud Rate, Modbus Mode, IP Address, Port Number, Device Name, and Control. The 'Add' button is highlighted with a red box.

Equip	Device No.	Protocol	Port Type	Serial Port	Modbus Addr	Baud Rate	Modbus Mode	IP Address	Port Number	Device Name	Control	
<input type="checkbox"/>	UPS	1	10-600KVA	Uart	Port A	1	9600	RTU		502		Edit Delete

- Setting related information:

The screenshot shows the 'Device' configuration page. The form includes the following fields:

- * Equip Type: UPS (dropdown)
- * Device No.: 2 (dropdown)
- * Protocol: 10-600KVA (dropdown)
- * Port Type: Uart (dropdown)
- * Serial Port: Port A (dropdown)
- * Modbus Addr: (empty text field)
- * Baud Rate: 9600 (dropdown)
- * Modbus Mode: RTU (dropdown)
- Device Name: (empty text field)

Buttons: + Add, ✓ Apply, OK, Cancel.

<input type="checkbox"/>	Equips	Device No.	Protocol	Port Type	Serial Port	Modbus Addr	Baud Rate	Modbus Mode	IP Address	Port Number	Device Name	Control
<input type="checkbox"/>	UPS	1	ACM(10-600KVA)	Uart	Port A	1	9600	RTU		502		Edit Delete

[Equipment Type] Select UPS;

[Device No] Select as needed and do not repeat;

[Protocol] There are four options according to the actual type of equipment used:

1. GTM (10-600KVA) ----- modular UPS protocol;
2. T T (10-40KVA) ----- tower UPS protocol;
3. Megtec ----- Megtec single-phase protocol;
4. Megtec33 ----- Megtec three-phase protocol;

[Port type] Select serial port;

[Serial port] Select serial port A;

[Modbus address] Select a number between 1~247;

[Baud rate] The selection consistent with the modbus communication baud rate of the UPS;

[Modbus Mode] ASCII or RTU mode is available. The mode selection here must be consistent with the modbus communication mode of the UPS.

If you don't know how to check the modbus address, port protocol, and modbus mode of the UPS product, you can refer to the UPS manual or consult the UPS supplier.

After the settings are completed, click the [OK] button and then click the [Apply] button.

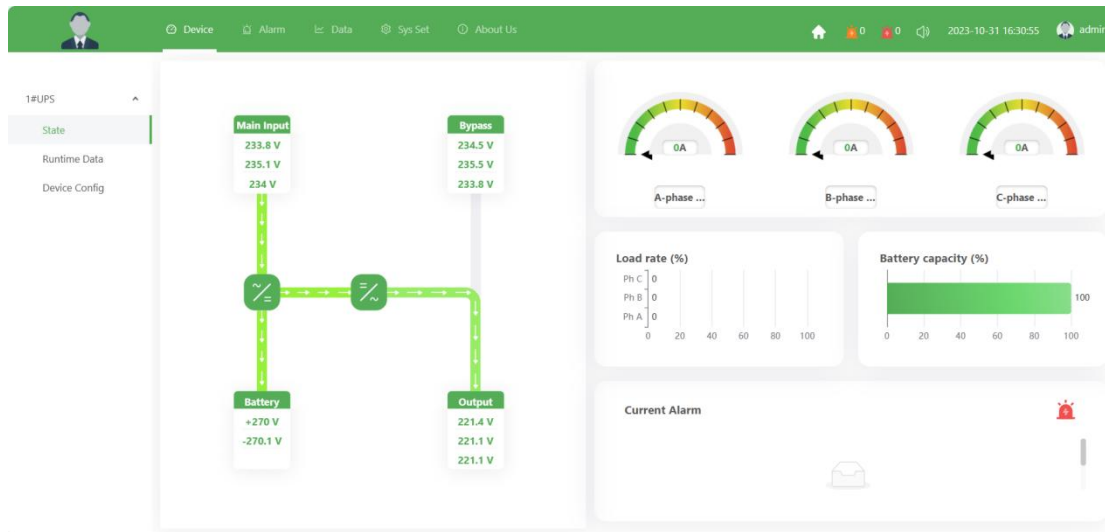
The screenshot shows the 'Device' configuration page after applying the settings. The table now contains two rows:

<input type="checkbox"/>	Equips	Device No.	Protocol	Port Type	Serial Port	Modbus Addr	Baud Rate	Modbus Mode	IP Address	Port Number	Device Name	Control
<input type="checkbox"/>	UPS	1	10-600KVA	Uart	Port A	1	9600	RTU		502		Edit Delete
<input type="checkbox"/>	UPS	2	10-600KVA	Uart	Port A	2	9600	RTU		502		Edit Delete

Check the alarm events after refreshing the interface. If no

"communication failure" alarm event occurs, the communication is normal.

Return to the main interface and display as follows:



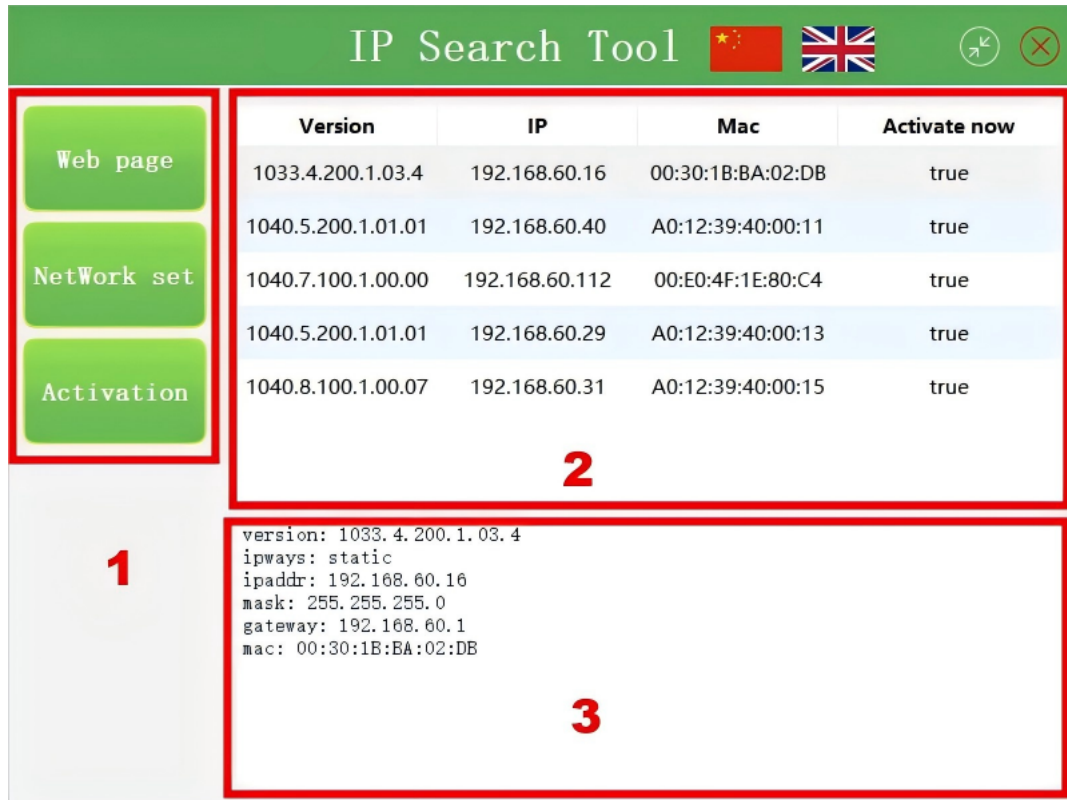
3.4 IPsearch Functions

IPsearch : It is a search tool that can quickly search for gtNet card information that is normally connected and online in the local area network.

3.4.1 IPsearch Usage Instructions

IPsearch interface composition

IPsearch, the interface consists of two areas, the gtNet card device information display area and the operation area. (The list will be automatically refreshed every 15 seconds) When the user opens the IPsearch tool, it will automatically search for the gtNet card information that is online in the current LAN, and obtain the device type, MAC address, IP address, software version, hardware version, and IP address type (DHCP, StaticIP).

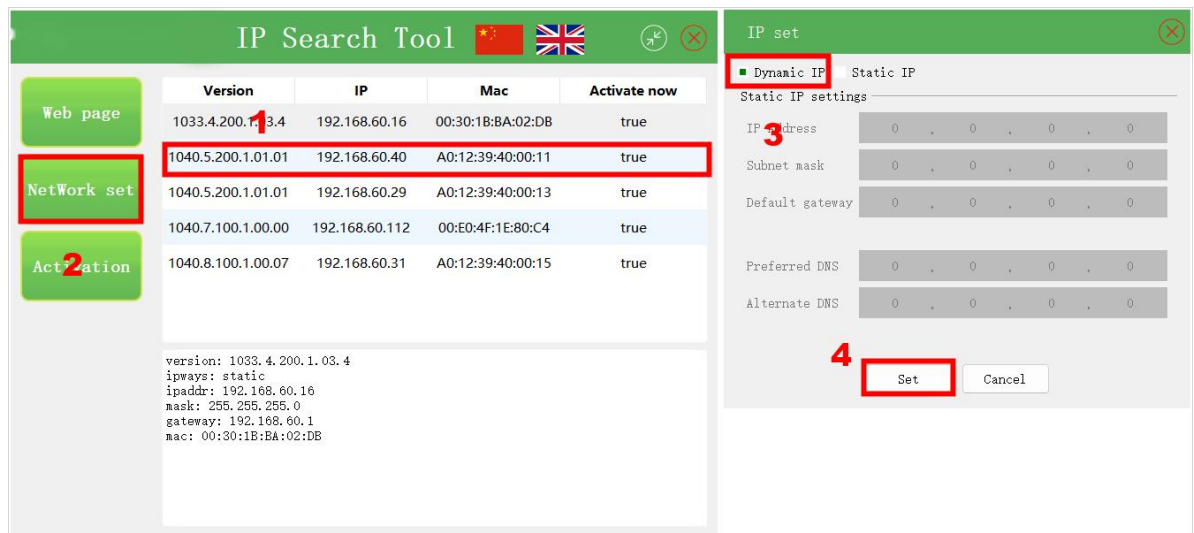


- ① Operating area
- ② Online device list
- ③ Device Information

When there are multiple devices in the list, the first one will be selected as the default device by default. When the user clicks on any device in the list, the device information box will display the corresponding device type, software version, hardware version, MAC address, and IP type (manually set static IP, DHCP dynamically assigns IP).

3.4.2 IPsearch Software Dynamic IP Address Setting

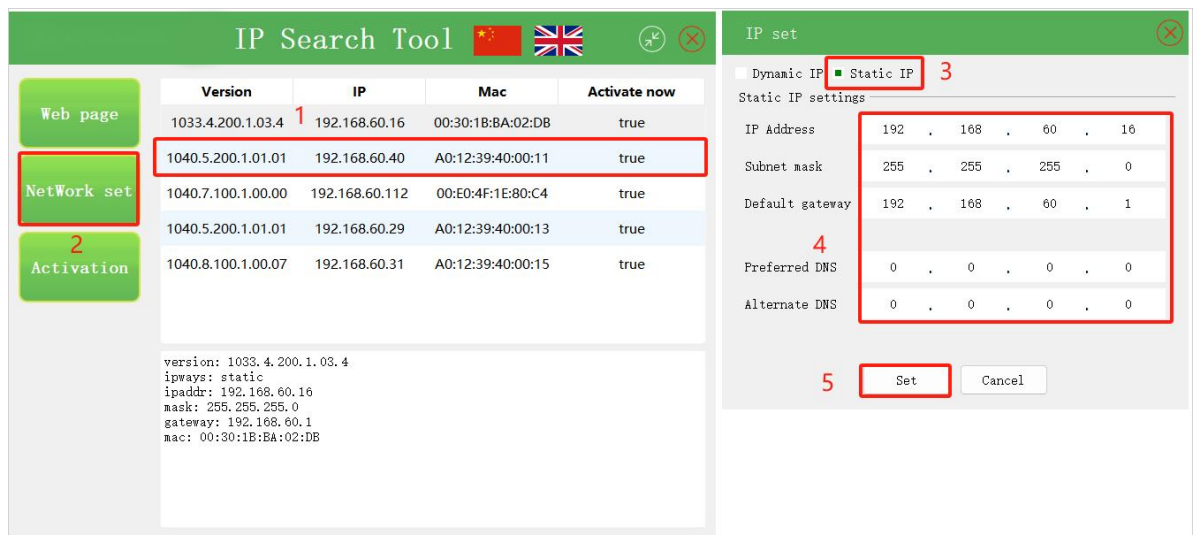
The steps are as follows: **Note (this DHCP service can only successfully assign IP when there is a DHCP server).**



- ① Select the device IP from the online device list.
- ② Click the "Network Set" button.
- ③ Select "Obtain IP".
- ④ Click the "Set" button.

3.4.3 IPsearch Software Static IP Address Setting

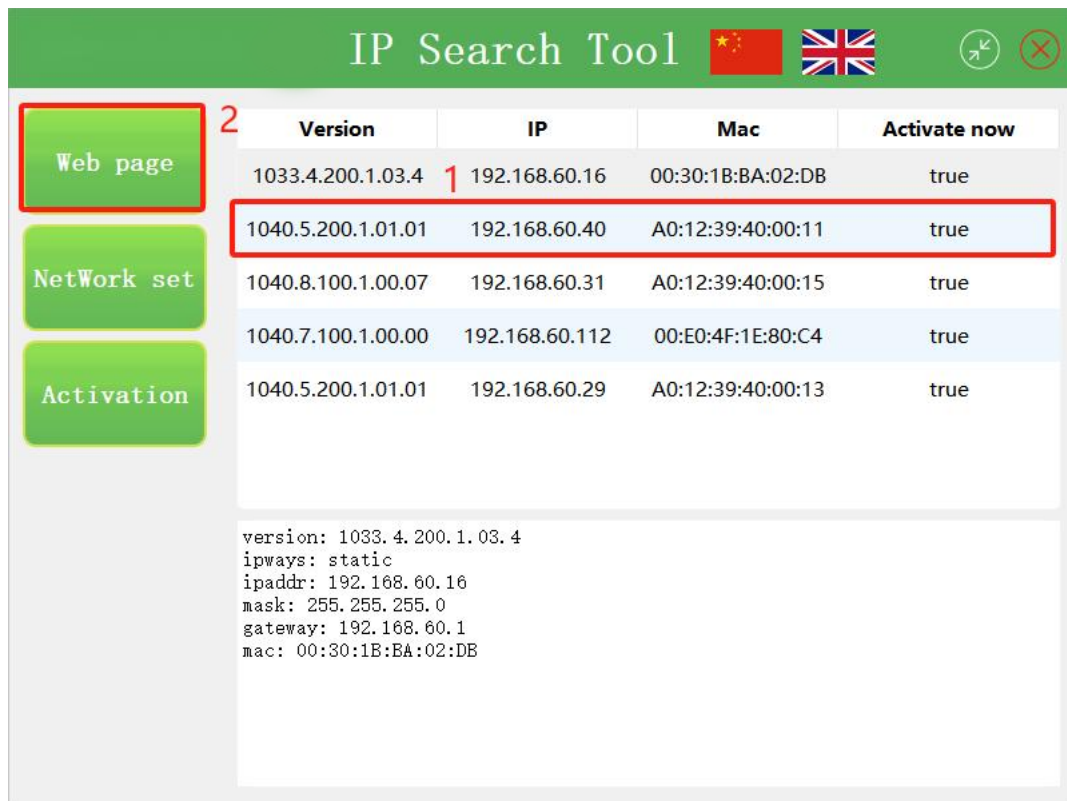
Users use IPsearch software to set the IP for the gtNet card in static IP mode. The steps are as follows:



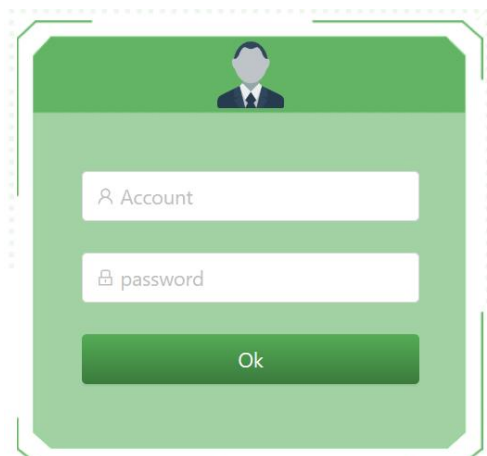
- ① Select the device IP from the online device list.
- ② Click the "Network Set" button.
- ③ Select "Static IP".
- ④ Enter IP information.
- ⑤ Click the "Set" button.

3.4.4 gtNet Card Web Page

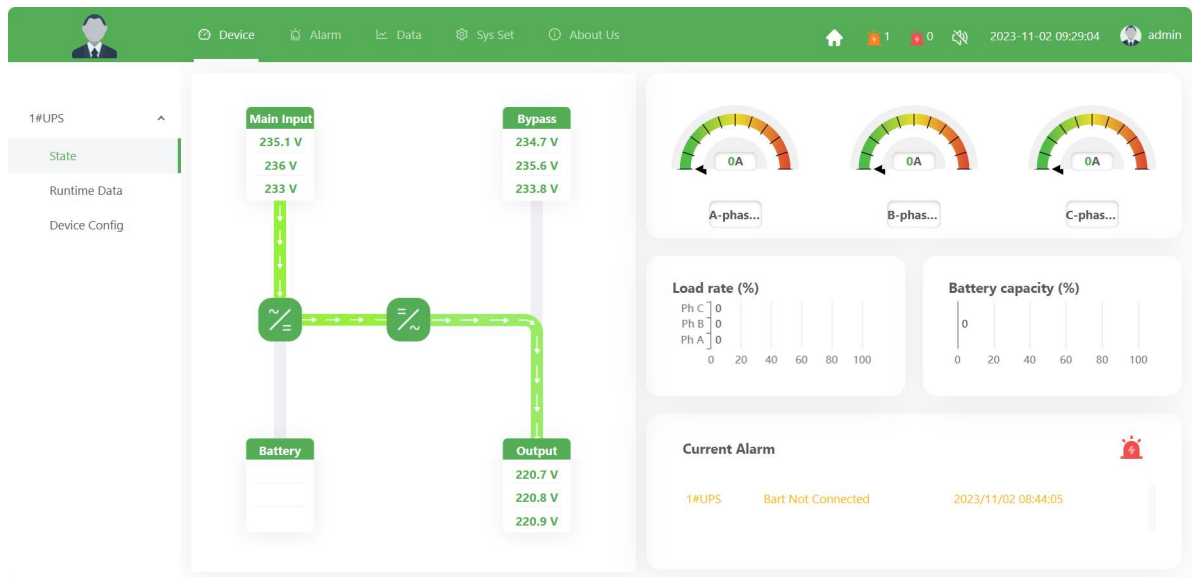
The steps for users to use IPsearch software to open gtNet card web pages are as follows: **Note: The following operations must ensure that [the computer and gtNet card](#) are in the same LAN, otherwise it will cause failure to open the web page.**



- ① Select the corresponding device.
- ② Click " Web Page" button.
- ③ Enter the initial administrator username: admin Password: 123456.



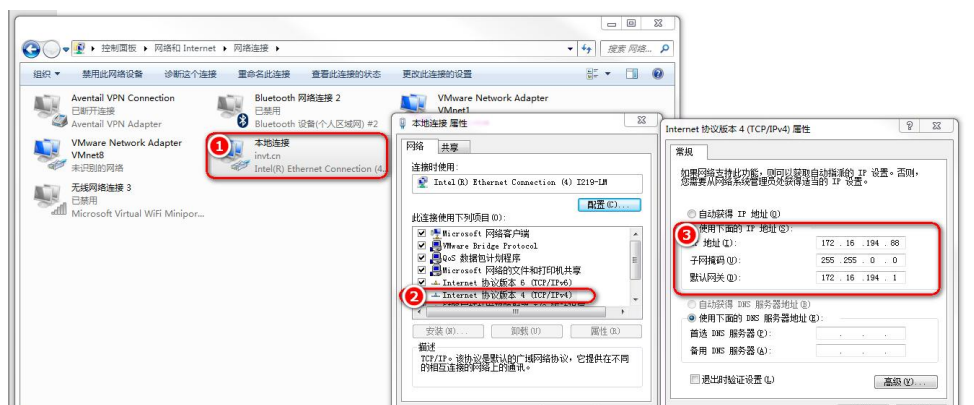
- ④ Open the corresponding web page.



3.5 View Computer Network Information

Before logging in, make sure the gtNet card and computer are on the same local network. When the gtNet card IP and the computer IP are not in the same network, you can use the following methods to set or view it. The process of viewing IP information and setting IP in **Windows 7 system** is as follows: (The same applies to other Windows versions of operating systems)

[Control Panel] → [Network and Internet] → [Network Connections]



- ① Right-click on the local area connection and select "Properties".
- ② Select "Internet Protocol Version 4 (TCP/IPv4)" and click "Properties".
- ③ View or set IPv4 information.

4 GTNet Card Web Page Functions

4.1 gtNet Card Web Page Function

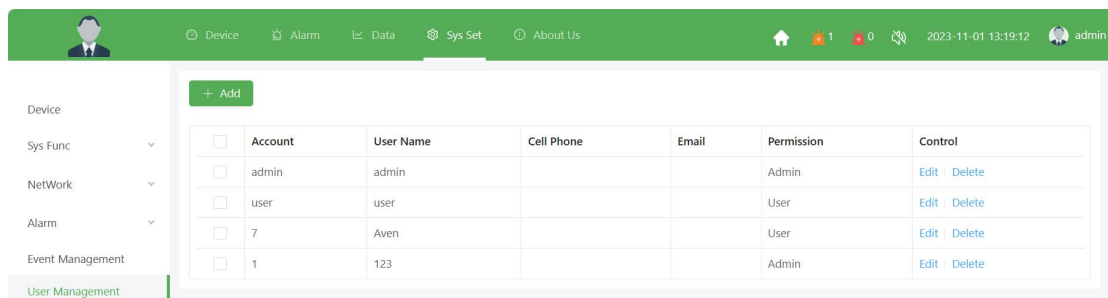
The gtNet card web page allows users to log in to the network management interface via IP to view UPS status and setting information. When you connect the UPS to the centralized management platform, the gtNet card web page provides configuration management of third-party interfaces of SNMP (Simple Network Management Protocol) protocol, ModbusTCP protocol and MQTT protocol.

4.2 Open the gtNet Card Web Page

Before opening the management webpage, you need to ensure that your computer and gtNet card are properly connected and in the same local area network.

4.3 Users and User Permissions

The information displayed depends on different user permissions. admin is the highest authority administrator (default password is 123456); user is an ordinary user who only has permission to view data (default password is 888888). After logging in, the administrator can manage user information (add or delete accounts, modify user information, set user permissions, etc.).

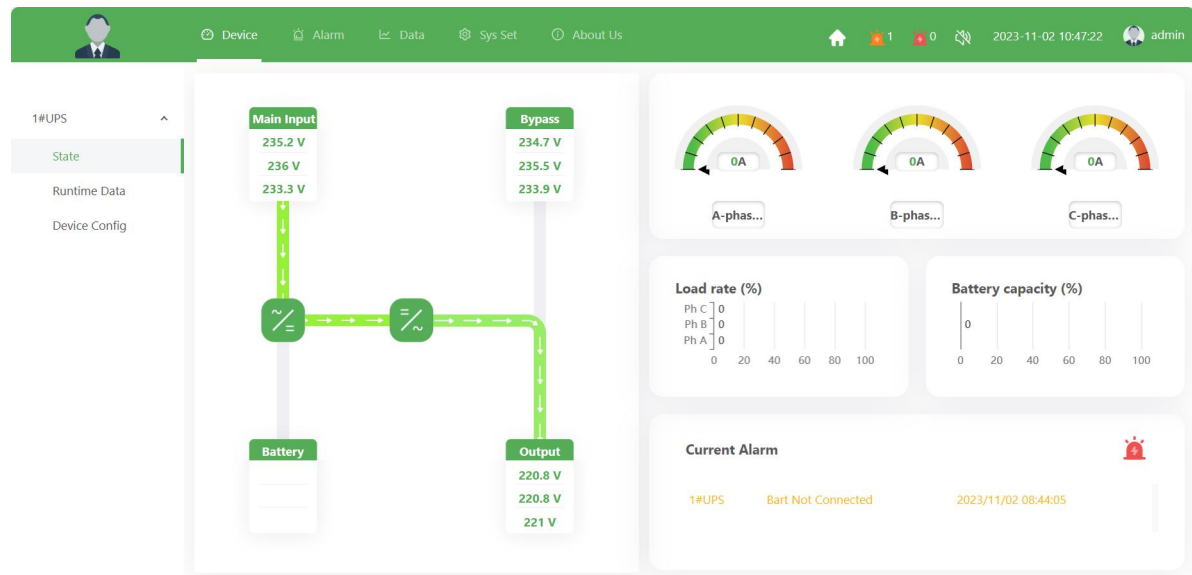


<input type="checkbox"/>	Account	User Name	Cell Phone	Email	Permission	Control
<input type="checkbox"/>	admin	admin			Admin	Edit Delete
<input type="checkbox"/>	user	user			User	Edit Delete
<input type="checkbox"/>	7	Aven			User	Edit Delete
<input type="checkbox"/>	1	123			Admin	Edit Delete

Note : In order to ensure the security of the user's equipment and data , please change the account name and password immediately after enabling the gtNet card and remember it . Otherwise, the user will be responsible for any losses caused !

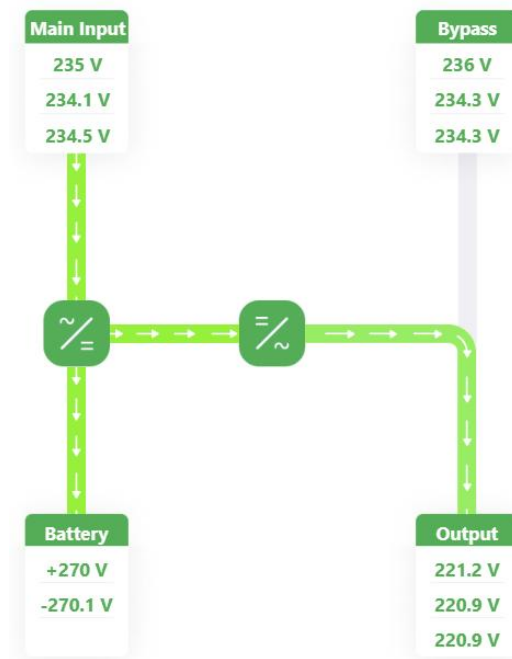
4.4 System Homepage

After logging in, the system defaults to [Device Management]-[UPS] -[Status] as the main interface of the system:



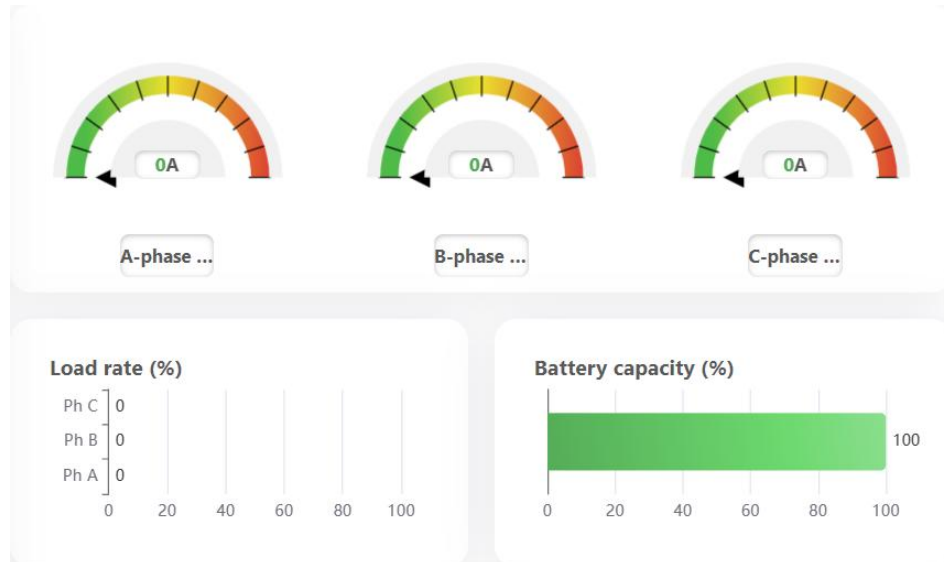
Energy flow diagram

Displays the UPS power flow status. Through the power flow diagram, users can quickly identify the UPS power flow direction, bypass, rectifier, and inverter working status.



- **Running status bar**

There are 3 display meters, which display the 3-phase output current respectively. In addition, the following chart shows the current load rate of each phase and the remaining battery capacity:



The meaning of the color segment of "Current Display Meter":

Color	Description
Green	UPS light load
Yellow	UPS heavy load
Red	UPS overload (alarm color)

- **Current Alarm**

The [Current Alarm] column displays the current alarm information and alarm level. The alarm information is divided by level: no alarm (not displayed), general alarm (alarm color: yellow), serious alarm (alarm color: red)



At the same time, the alarm information is also prominently displayed at the top of the web page, indicating the number of general alarms or serious alarms. It is convenient for users to quickly grasp alarm information. Users can click the alarm indicator icon to quickly jump to the alarm management interface. The alarm indicator icon is as follows:



4.5 Device Management

4.5.1 Running status

the chapter [4.5 System Home Page]

4.5.2 Running data

[Device]→[UPS] →[Running Data]

UPS is divided into three-phase and single-phase according to the number of input and output phases. The model monitored by the gtNet card here is a three-phase model. The three phase will display the voltage , current , frequency and other information of the A/B/C phases respectively, while the single phase only has A-phase data items.

Device					
Cabinet					
Module					
1#UPS					
State					
Runtime Data					
Device Config					
Bypass					
Bypass Voltage A	236.2 V	Bypass Voltage B	234.8 V	Bypass Voltage C	234.6 V
Bypass Current A	0 A	Bypass Current B	0 A	Bypass Current C	0 A
Bypass Frequency A	49.96 Hz	Bypass Frequency B	49.96 Hz	Bypass Frequency C	49.96 Hz
Bypass PF A	1	Bypass PF B	1	Bypass PF C	1
Bypass SCR Temp. 1	-- °C	Bypass SCR Temp. 2	-- °C	BYP Fan Run Time	20 Hour
Main					
Input Voltage A	235.6 V	Input Voltage B	234.6 V	Input Voltage C	235 V
Input Current A	1.6 A	Input Current B	1.6 A	Input Current C	0 A
Input Frequency A	49.97 Hz	Input Frequency B	49.96 Hz	Input Frequency C	49.96 Hz
Input PF A	0.02	Input PF B	0.02	Input PF C	0
Input voltage	220 V	Input Frequency	50 Hz		

- Bypass, main input, output, load and battery information will be displayed on this page.

These three areas all display: voltage, current, frequency, and power factor data

in different states.

4.5.3 Device configuration

[Device]→[UPS]→[Device Configuration]

This page is mainly used to view and set the current UPS communication related parameters.

The screenshot shows the 'Device Configuration' page for a UPS. The top navigation bar includes 'Device', 'Alarm', 'Data', 'Sys Set', and 'About Us'. The left sidebar shows '1#UPS' with options for 'State', 'Runtime Data', and 'Device Config'. The main content area is titled 'Comm Set' and contains a table of communication parameters. A 'Set' button is located at the bottom left of the table.

Comm Set					
232 Device Address	1	(1~255)	232 Parity	None	
232 Mode	RTU		232 Baudrate	9600	
232 Protocol	MODBUS		485-USB Address	1	(1~255)
485-USB Check	None		485-USB Mode	RTU	
485-USB Baudrate	9600		485-USB Protocol	MODBUS	

Note: This setting function will not take effect when the UPS communication fails.

4. 6 Alarm management

4.6.1 Current Alarm

[Alarm Management] → [Current Alarm]

The screenshot shows the 'Current Alarm' page. The top navigation bar includes 'Device', 'Alarm', 'Data', 'Sys Set', and 'About Us'. The left sidebar shows 'CurAlarm' and 'Device History'. The main content area has tabs for 'All Alarms', 'General Alarm', and 'Serious Alarm'. Below the tabs is a table with columns for 'ID', 'Equip Type', 'Event', and 'Date Time'. The table is currently empty, displaying a 'No Data' message.

ID	Equip Type	Event	Date Time
No Data			

All alarm information will be displayed in list form here, and the data information includes device type, event, date and time. General alarm: Filter to display general alarm information, filter to display serious alarm information to display serious alarm information.

4.6.2 Device History

[Alarm Management] → [Device History]

ID	Equip Type	Event	Date Time
1	1#UPS	5#Module Inserted	2023/10/31 16:08:49
2	1#UPS	Battery Float	2023/10/31 08:49:36
3	1#UPS	Battery Connected	2023/10/31 08:49:01
4	1#UPS	Load On UPS	2023/10/31 08:48:39
5	1#UPS	Load On Bypass	2023/10/31 08:49:57
6	1#UPS	10#Module Inserted	2023/10/31 08:44:21
7	1#UPS	9#Module Inserted	2023/10/31 08:44:21
8	1#UPS	8#Module Inserted	2023/10/31 08:44:21
9	1#UPS	7#Module Inserted	2023/10/31 08:44:21
10	1#UPS	6#Module Inserted	2023/10/31 08:44:21
11	1#UPS	4#Module Inserted	2023/10/31 08:44:21

History query:

a.Event level:

Options (select all, general events, general alarms, serious alarms) are set up.

b. Query based on time:

Users can also customize the start time and end time. After selecting the query conditions, click the [OK]- [Inquire] button.

c. Query information display.

Note: When the gtNet card storage space is less than or equal to 10MB, a serious warning of "Insufficient remaining memory space" will be issued. When the gtNet card storage space is less than or equal to 5MB, historical data will not be stored. Please clean up the data space and delete unnecessary historical data.

4. 7 Data Management

4.7.1 History Data

[Data Management] → [History Data] This is the historical data page.

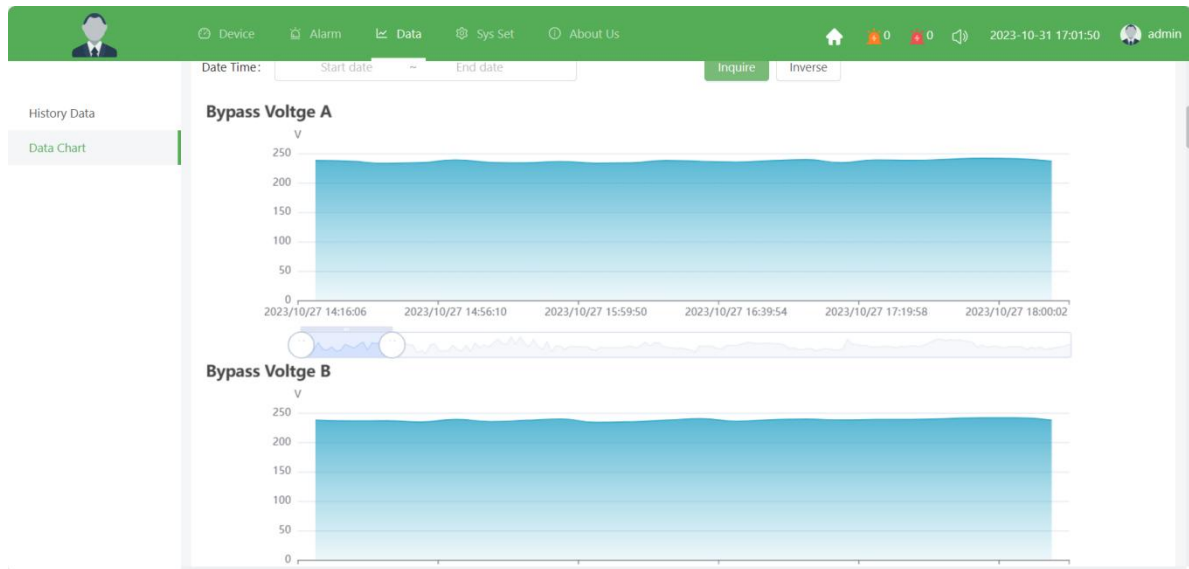
<div> Device Alarm Data Sys Set About Us 2023-10-31 16:57:29 admin </div>				
<div> <div>History Data</div> <div>Data Chart</div> </div>				
<div> <div>Equip Type:</div> <div> <div>Start date</div> <div>~</div> <div>End date</div> </div> <div> <div>Inquire</div> <div>Inverse</div> <div>Download</div> </div> </div>				
ID	Equips	Param	Value	Date Time
1	1#UPS	Output KVA Phase C(kVA)	0	2023/10/31 17:20:24
2	1#UPS	Output KVA Phase B(kVA)	0	2023/10/31 17:20:24
3	1#UPS	Output KVA Phase A(kVA)	0	2023/10/31 17:20:24
4	1#UPS	Input Frequency C(Hz)	49.97	2023/10/31 17:20:24
5	1#UPS	Input Frequency B(Hz)	49.97	2023/10/31 17:20:24
6	1#UPS	Input Frequency A(Hz)	49.97	2023/10/31 17:20:24
7	1#UPS	Input Current C(A)	0	2023/10/31 17:20:24
8	1#UPS	Input Current B(A)	1.6	2023/10/31 17:20:24
9	1#UPS	Input Current A(A)	1.6	2023/10/31 17:20:24
10	1#UPS	Input Voltage C(V)	237	2023/10/31 17:20:24
11	1#UPS	Input Voltage B(V)	236.4	2023/10/31 17:20:24

4.7.2 Data Chart

[Data Management]→[Data chart]

Historical reports display historical data in the form of charts to improve the efficiency of information extraction. In the [Equipment Type] drop-down list, you can select UPS #→extended device and device number. You can select the number of generated charts according to your needs, select all, input voltage, input frequency, output voltage, output current, output frequency, bypass voltage, bypass current, etc. Check the desired information and click [Inquire] to generate the corresponding chart. You can also set the starting time.

<div> Device Alarm Data Sys Set About Us 2023-10-31 16:59:37 admin </div>				
<div> <div>History Data</div> <div>Data Chart</div> </div>				
<div> <div>Equip Type:</div> <div> <div>Start date</div> <div>~</div> <div>End date</div> </div> <div> <div>Inquire</div> <div>Inverse</div> <div>Download</div> </div> </div>				
ID	Equips	Param	Value	Date Time
1	1#UPS	Output KVA Phase C(kVA)		
2	1#UPS	Output KVA Phase B(kVA)		
3	1#UPS	Output KVA Phase A(kVA)		
4	1#UPS	Input Frequency C(Hz)		



4.8 System settings (administrator users)

4.8.1 Device management

[System Settings]→[Device Management]

remove devices , set or modify device parameters . When adding a device , users need to first understand the communication protocol between the new device and the gtNet card , the communication port type , the serial port number used , the communication baud rate and other important parameters, otherwise it will As a result, communication fails. See Appendix A below for details.

List of devices currently added :

Device												
<div> <div>+ Add</div> <div>✓ Apply</div> </div>												
<input type="checkbox"/>	Equips	Device No.	Protocol	Port Type	Serial Port	Modbus Addr	Baud Rate	Modbus Mode	IP Address	Port Number	Device Name	Control
<input type="checkbox"/>	UPS	1	ACM(10-600KVA)	Uart	Port A	1	9600	RTU		502		Edit Delete

To add a new device, please click the [+Add] button:

The screenshot shows the 'Device' configuration page. The sidebar on the left includes 'Device', 'Sys Func', 'NetWork', 'Alarm', 'Event Management', and 'User Management'. The main content area has a form for adding a new device. The form includes the following fields:

- * Equip Type: (dropdown menu)
- * Device No.: (text input)
- * Protocol: (dropdown menu)
- * Port Type: (dropdown menu, currently set to 'Uart')
- * Serial Port: (text input)
- * Modbus Addr: (text input)
- * Baud Rate: (dropdown menu, currently set to '9600')
- * Modbus Mode: (dropdown menu, currently set to 'RTU')
- Device Name: (text input)

Below the form is a table listing existing devices:

	Equips	Device No.	Protocol	Port Type	Serial Port	Modbus Addr	Baud Rate	Modbus Mode	IP Address	Port Number	Device Name	Control
<input type="checkbox"/>	UPS	1	ACM(10-600KVA)	Uart	Port A	1	9600	RTU		502		Edit Delete

After setting the parameters, click [OK] → [✓Apply] to add the new device.

4.8.2 System Functions

[System Function]→[System Function]

The screenshot shows the 'Data Storage' configuration page. The sidebar on the left includes 'Device', 'Sys Func', 'Time Set', 'Language', 'Config Settings', 'Factory Data Reset', 'System Upgrade', 'Led Settings', 'NetWork', 'Alarm', 'Event Management', and 'User Management'. The main content area shows the 'Data Storage' configuration form. The form includes the following fields:

- Sys: (dropdown menu, currently set to 'Sys')
- Sys(27.89M / 81.98M): (progress bar showing 66% completion)
- System Name: (text input)
- * Data-Collection Interval(min): (text input, currently set to '10', with a range of '(1~60)')

The information displayed on this page is as follows:

Provides internal storage space information, total storage space size, and remaining capacity information display.

History saving interval and alias settings.

The time interval for saving historical records. The default interval for saving historical records is 10 minutes. Users can set the time interval for saving historical records according to their own needs. System name setting, the [System name] set here is mainly used for email alerts and SMS alerts. After setting the alias, emails

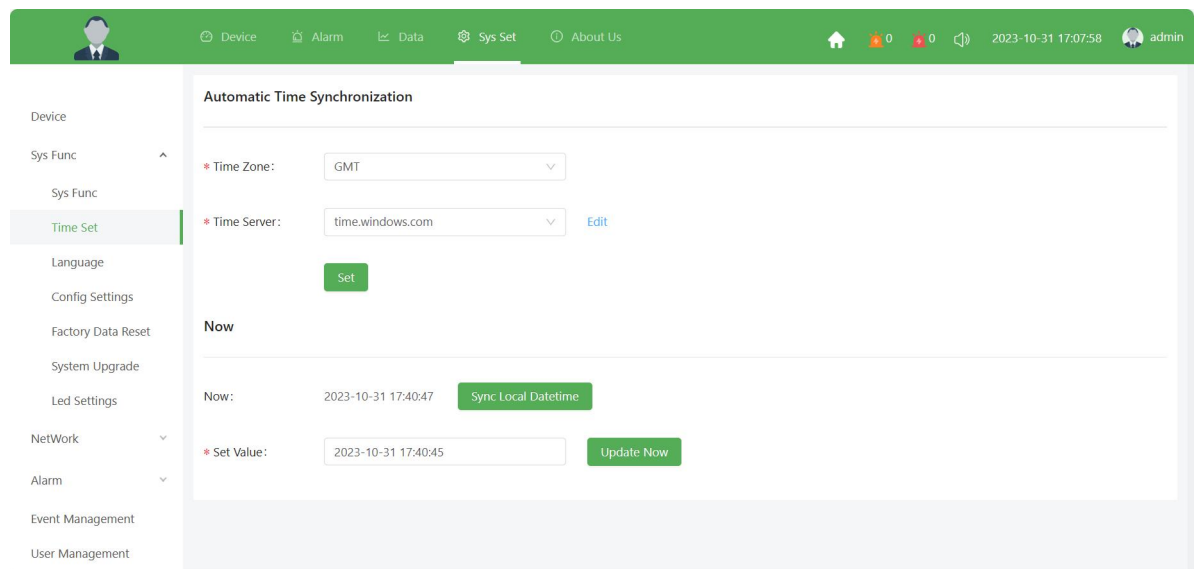
and SMS alarms will use this as the sender information to send alarm information, making it easier for users to locate the UPS location.

4. 8.3 Time setting

The gtNet card can automatically obtain clock synchronization with the time server of the external network or internal network through the NTP protocol. Administrators use the NTP protocol to efficiently unify the running time of multiple gtNet cards and improve management efficiency.



[System Function] → [Time Settings] can be set: automatic synchronization of time, current date and time.



a. Automatically synchronize time:

Time zone (relative to Greenwich GMT)

You can choose (GMT+[1,12], GMT-[1,12]). At this time, you need to adjust the time zone ownership of the location of the gtNet card to obtain the correct time zone. For example, this gtNet card uses Beijing time, so select GMT+8 for this time zone.

Time server:

* Time Server: [Edit](#)

Click [Edit], enter the time server address or IP, click [Add], and the filled-in value appears in the list below, indicating that the time server address has been added successfully.

Select the previously filled in IP in the time server column, select the time zone and automatic synchronization period, and click "Settings".

Note: **This function can only be used if the LAN can access the external network and the server address will not be blocked.**

b. Current date and time

In the Data time areas, you can use [Set value] to update the time immediately, and you can also [Synchronize local date time]

Now: 2023-10-31 17:44:19

[Sync Local Datetime](#)

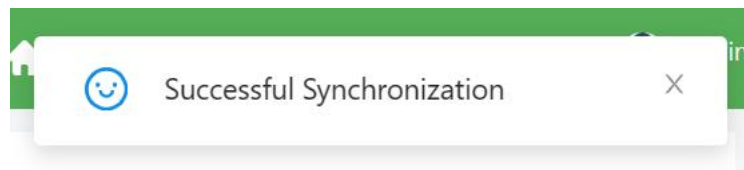
* Set Value:

[Update Now](#)

Use the [Update Now] button to change the date and time. Enter the date and time in the time input box corresponding to the setting value, and click [Update Now]

Use [Synchronize local date time]. Set local time to gtNet card time.

If the update or synchronization is successful, there will be an "update successful" message.



4.8.4 Language Settings

[System Function] → [Language Settings]

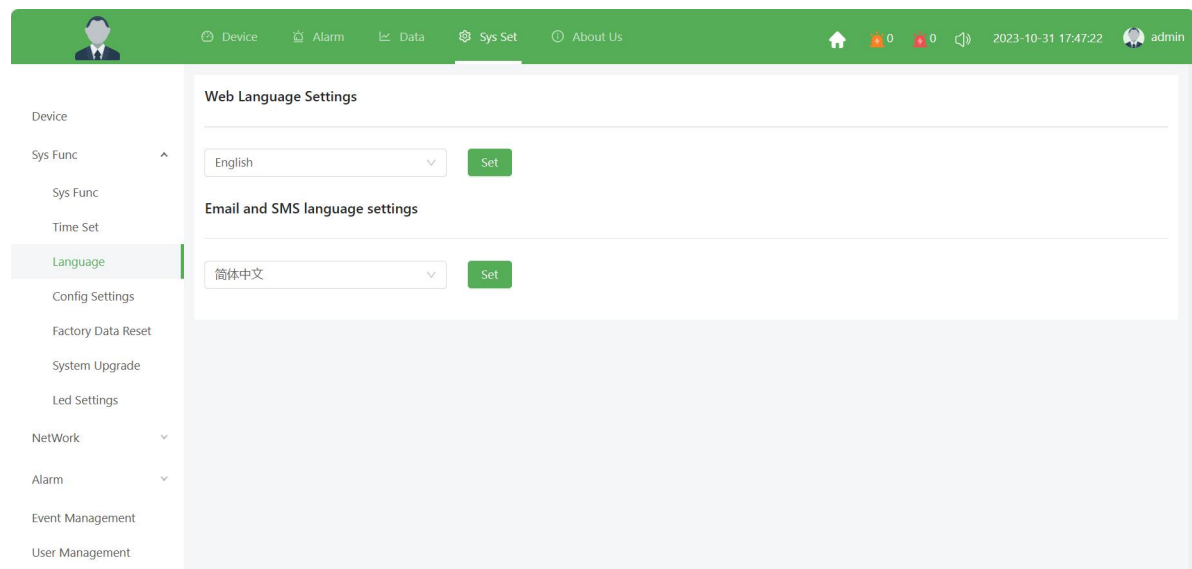
This is the web page language setting page. The gtNet card web page will automatically adjust according to the user's operating system language. Currently, it supports "Simplified Chinese", "English", "Russian", "Spanish", and "French" languages. The user can also adjust according to the language of the user's operating system . Make manual settings according to your own usage habits.

Web page language settings

clicking the [English] → [Set] button, the gtNet card web page will switch to the English interface.

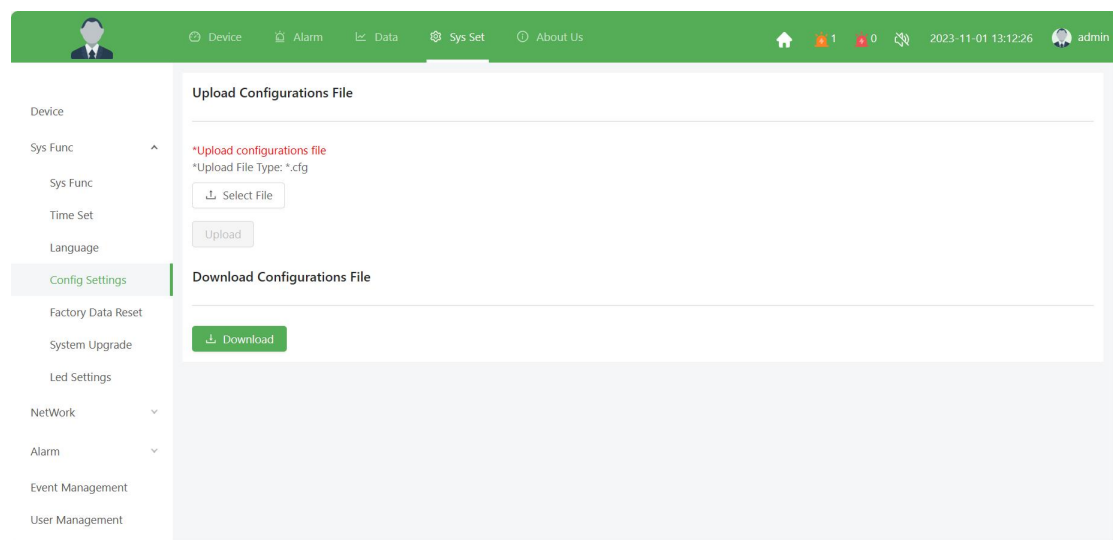
Email and SMS language settings

The settings here are mainly related to the writing language used in the information content of emails and text messages. Currently, "Simplified Chinese", "English", "Russian", "Spanish" and "French" are supported.



4.8.5 Configuration settings

[System Function]→[Configuration Settings]



Only the "admin" account can enter the batch configuration page. Other user accounts cannot enter this page.

Special note: If the browser is below IE9 and other browsers and there is no response when clicking to select the file, please download the Adobe Flash Player

plug-in from the Internet and refresh the page after installation.

[Upload Configurations File]

Upload Configurations File

*Upload configurations file

*Upload File Type: *.cfg

⬇ Select File

Upload

- Select the configuration file type ".cfg"
- Click the "Upload" button, and the progress bar below will show whether the upload is successful or not. The system will restart after the upload is complete.

[Download batch configuration]

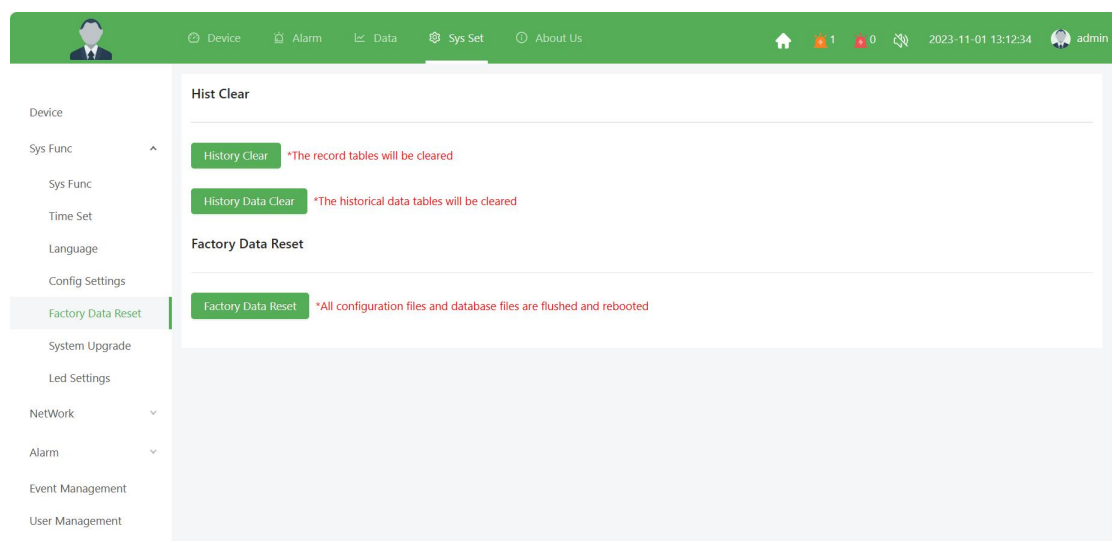
Download Configurations File

⬇ Download

"Download Configurations File": Download other setting information in the system settings except the email settings, events and recipients in the SMS settings.

4.8.6 Factory Data Reset

[System Function] → [Factory Data Reset]



4.8.7 System Upgrade

[System Function]→[System Upgrade]

The screenshot shows the 'System Upgrade' page. The top navigation bar is green with icons for Device, Alarm, Data, Sys Set, and About Us. The left sidebar lists menu items: Device, Sys Func, Sys Func, Time Set, Language, Config Settings, Factory Data Reset, and System Upgrade (highlighted). The main content area has a red warning message: '*When the update has successfully completed, reboot your system'. Below this, it says '*Upload File Type: *.bin' and provides a 'Select File' button and an 'Upload' button.

System upgrade can upgrade the internal software of gtNet card online .

4.8.8 Network settings

[System Settings] → [Network Settings] → [Network Interfaces]

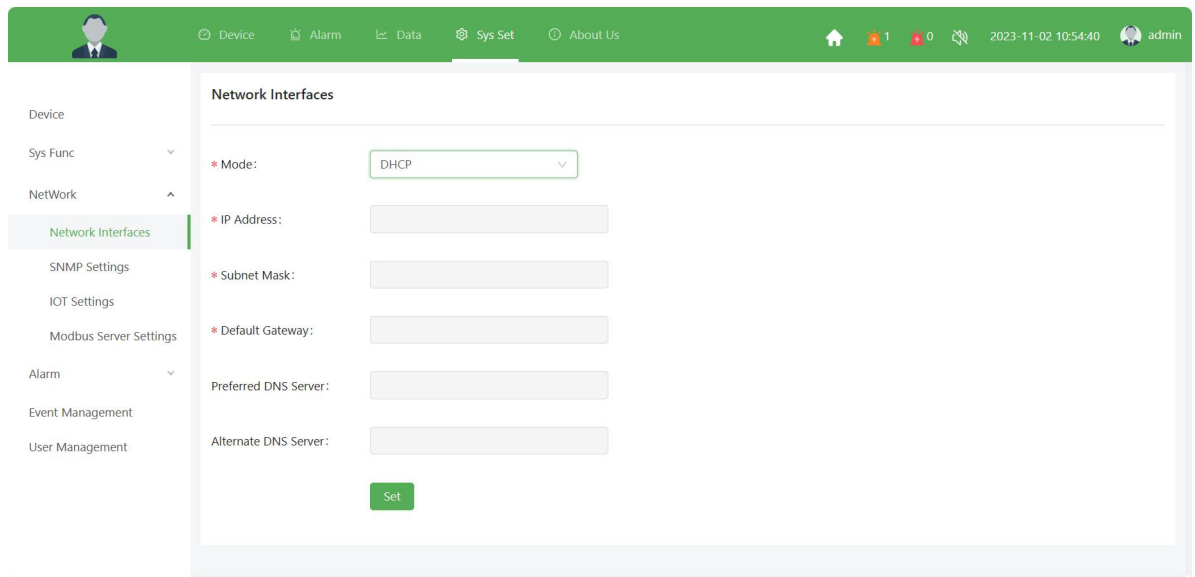
The screenshot shows the 'Network Interfaces' settings page. The top navigation bar is green with icons for Device, Alarm, Data, Sys Set, and About Us. The left sidebar lists menu items: Device, Sys Func, NetWork, Network Interfaces (highlighted), SNMP Settings, IOT Settings, Modbus Server Settings, Alarm, Event Management, and User Management. The main content area is titled 'Network Interfaces' and contains the following settings:

- * Mode: Static Setting (dropdown menu)
- * IP Address: 192.168.60.29 (text input)
- * Subnet Mask: 255.255.255.0 (text input)
- * Default Gateway: 192.168.60.1 (text input)
- Preferred DNS Server: 114.114.114.114 (text input)
- Alternate DNS Server: 223.5.5.5 (text input)

A green 'Set' button is located at the bottom of the settings area.

The network connection settings page provides users with basic network information settings.

Select the [Static Setting] button to set the IP address, subnet mask, default gateway, preferred DNS server, and alternate DNS server.

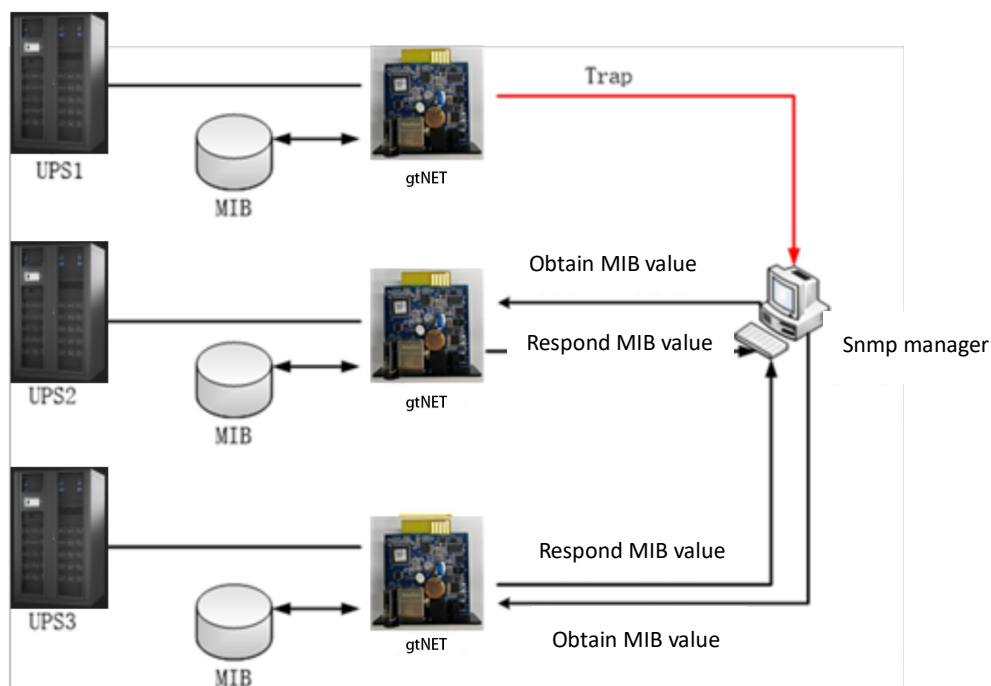


Select the [DHCP] button to automatically set the IP address, subnet mask, and gateway.

4.8.9 SNMP Settings

[System Settings] → [Network Settings] → [SNMP Settings]

Through the SNMP protocol, the gtNet card can also be monitored by the NMS host on the network and proactively send traps to specific hosts. Convenient for users to monitor and manage in a centralized manner.



Commonly used versions of the SNMP protocol include SNMPV1, SNMPV2, and SNMPV3.

gtNet card supports SNMP version:

Web page	SNMP protocol version support
gtNet card web page	SNMPV1
gtNet card web page	SNMPV2
gtNet card web page	SNMPV3

General settings

system name:

gtNet card is customized by the user to facilitate identification by administrators.

System location:

It is up to the user to indicate the location of the gtNet card . When an alarm occurs on the online UPS , the administrator can quickly find the location of the device, which facilitates user management and maintenance.

SNMP port:

The port number used by the gtNet card web page to receive and transmit SNMP commands and information. The default is 161.

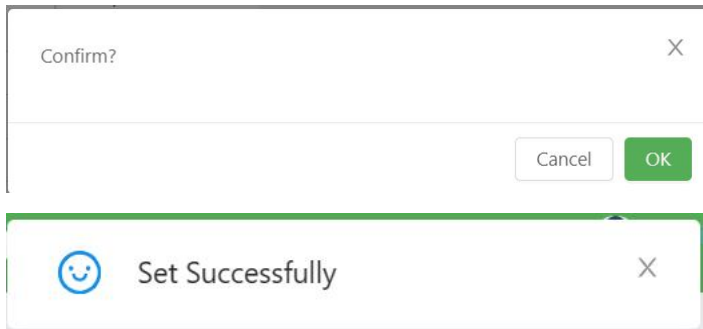
Trap receiving port:

Trap message receiving port number, default 162.

SNMPv3 Engine ID value:

Using the SNMPv3 version requires the gtNet card webpage to have an engine ID code as its unique identifier to generate the key for authentication and encryption. The format of this identifier can be selected from the drop-down list (MAC Address / IPv4 / IPv6 / manual setting)

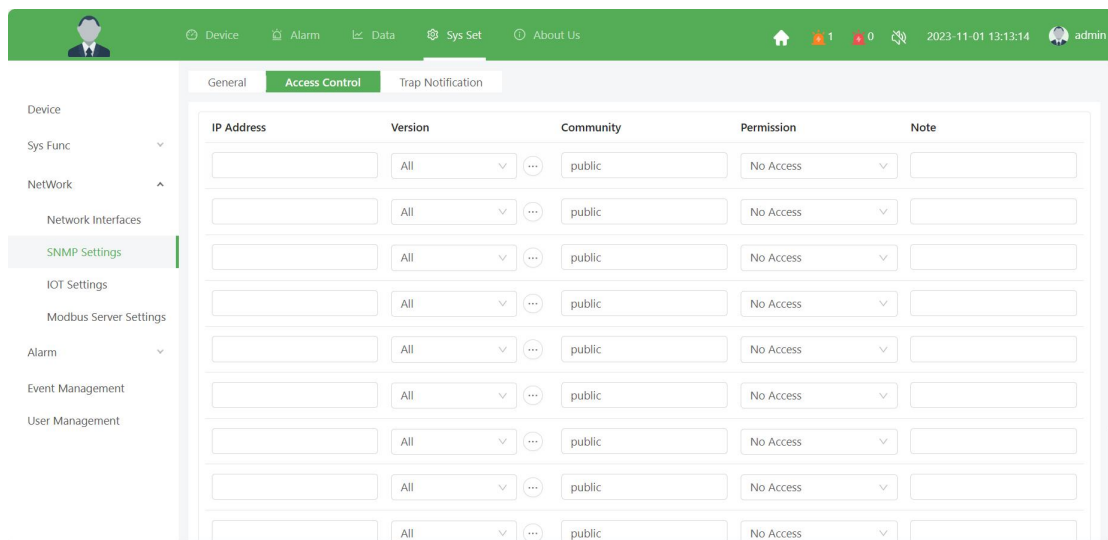
After the setting is completed, click the [Set] button and it will prompt "Set successfully" before it can take effect.



Access Control settings

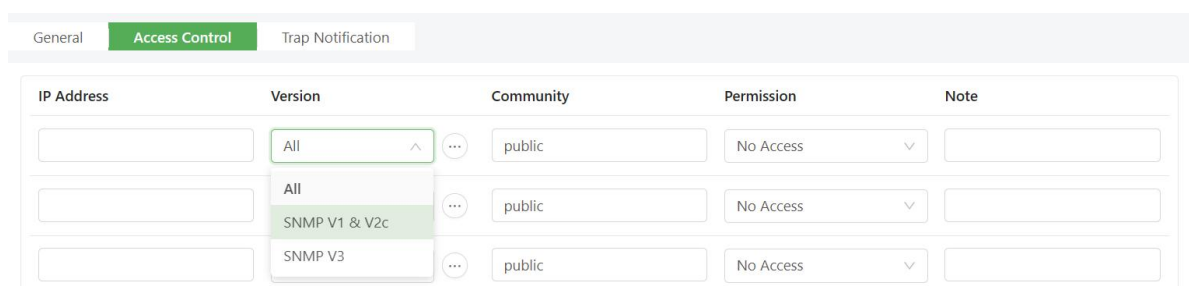
Manager IP address:

Users can designate ten hosts with specific IP addresses as managers by entering legal IP addresses. If the administrator IP address is not set, any IP can be managed.



Version:

Set the SNMP version used to communicate with the administrator host (all/SNMP V1&SNMP V2/SNMP V3). When choosing to use all and SNMP V3 versions, you need to set the username/password/authentication/encryption information.



Community string:

The administrator host and gtNet card web page need to set the same community string, otherwise they cannot communicate. The gtNet card web page community string is public by default.

X

User Name:

Authentication Protocol:

NULL

Authentication Password:

Privacy Protocol:

NULL

Privacy Password:

Cancel

OK

Permissions:

Set the administrator's permissions (no control/read/read & write).

Remark:

Provide description information to facilitate query and management.

Trap notification settings:

Device Alarm Data Sys Set About Us

Home 1 0 2023-11-01 13:13:21 admin

General Access Control Trap Notification

Device
Sys Func
NetWork
Network Interfaces
SNMP Settings
IOT Settings
Modbus Server Settings
Alarm
Event Management
User Management

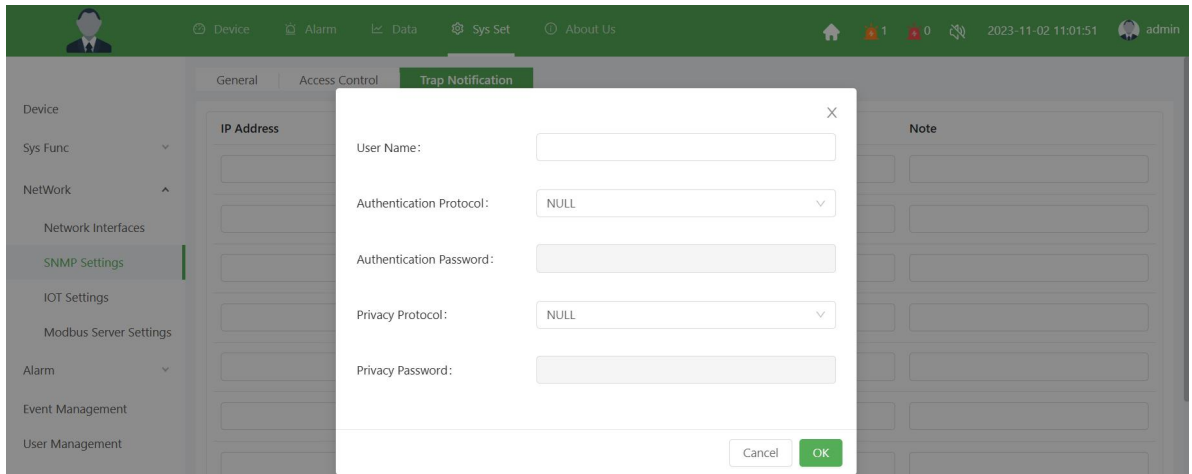
IP Address	Accept	Community	Note
<input type="text"/>	NULL	public	<input type="text"/>
<input type="text"/>	NULL	public	<input type="text"/>
<input type="text"/>	NULL	public	<input type="text"/>
<input type="text"/>	NULL	public	<input type="text"/>
<input type="text"/>	NULL	public	<input type="text"/>
<input type="text"/>	NULL	public	<input type="text"/>
<input type="text"/>	NULL	public	<input type="text"/>
<input type="text"/>	NULL	public	<input type="text"/>
<input type="text"/>	NULL	public	<input type="text"/>
<input type="text"/>	NULL	public	<input type="text"/>

Trap recipient IP address:

Ten people can be set up to receive Trap notifications using IP address.

Take over:

Use the drop-down list to select which version of SNMP Trap or Inform to receive. When selecting SNMPv3 Trap or Inform, please set the account password and authentication encryption information (SNMPv1 Trap / SNMPv2 Trap / SNMPv2 Inform / SNMPv3 Trap / SNMPv3 Inform).



Community string:

The Trap recipient and the gtNet card webpage need to set the same string to communicate, and the default is public.

Remark:

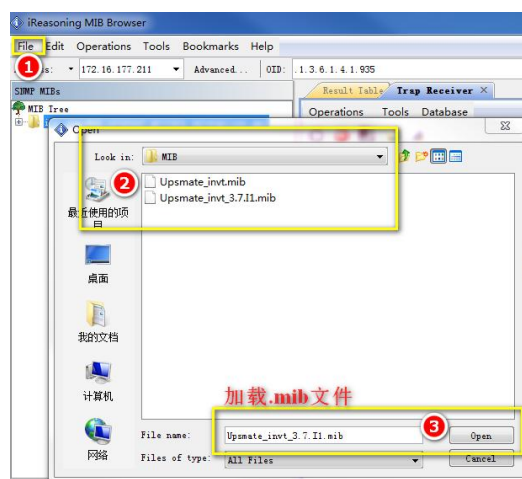
This field can be used by managers to mark relevant content.

SNMP notification request:

Set the number of times and interval for the gtNet card to request responses from the sent Inform host. The default value is 3 times with an interval of 5 seconds. Users can adjust it according to their needs.

The following is the Trap viewing process. **Note that after setting the Trap recipient IP , the recipient's computer needs to install Trap viewing software to view it.**

The following takes " MIB Browser software" to view MIB information as an example:



- Open the " MIB Browser " software and load the .mib file



- Enter the gtNet card IP address to view MIB object information or set MIB object information.

Operations Tools Database		
Description	Source	Time
Specific: 3: .1.3.6.1.2.1.33.2	172.16.194.241	2013-01-29 08:49:51
Specific: 3: .1.3.6.1.2.1.33.2	172.16.194.241	2013-01-29 08:49:50
Specific: 3: .1.3.6.1.2.1.33.2	172.16.194.241	2013-01-29 08:49:27
coldestart	172.16.194.241	2013-01-29 08:49:48
coldestart	172.16.194.241	2013-01-29 08:49:26
coldestart	172.16.194.241	2013-01-29 08:49:25
coldestart	172.16.194.241	2013-01-29 08:49:23
coldestart	172.16.194.241	2013-01-29 08:49:22
coldestart	172.16.194.241	2013-01-29 08:49:20
coldestart	172.16.194.241	2013-01-29 08:49:19
coldestart	172.16.194.241	2013-01-29 08:48:24
Source: 172.16.194.241 Timestamp: 3 seconds SNMP Version: Enterprise: .1.3.6.1.2.1.33.2 Specific: 3 Generic: enterpriseSpecific Variable Bindings: Name: .1.3.6.1.2.1.33.1.6.2.1.1 Value: [Integer] 0 Name: .1.3.6.1.2.1.33.1.6.2.1.2 Value: [OID] .1.3.6.1.2.1.33.1.6.3.20		

- Receive and view Trap information

4.8.10 IoT settings

[System Settings] → [Network Settings] → [IoT Settings]

The screenshot shows the 'IoT Server' configuration page. The left sidebar has a tree view with 'IoT Settings' selected. The main area contains the following fields:

- Enable:** A dropdown menu currently showing 'Ban'.
- * IP Address:** An empty text input field.
- * Port Number:** A text input field containing '1883'.
- Account:** An empty text input field.
- password:** An empty text input field.
- strSubject:** A text input field containing 'dtp/mqtt/A01239400013'.
- Set:** A green button to save the configuration.

Function description : gtNet supports the MQTT protocol and can be connected to the IoT management platform that supports the MQTT protocol. After selecting enable, configure the IP address and port of the MQTT server. If the server requires authentication, enter the corresponding account password to connect to the server. For specific protocols, please refer to the product MQTT protocol.

4.8.11 Modbus Server Settings

[System Settings] → [Network Settings] → [Modbus Server Settings]

Modbus Server Settings

* Port Number: (502 / 1024 ~ 49149)

Description : gtNet supports ModbusTCP. When using it, you only need to configure the port number. The Modbus address is already listed on the page.

4.8.12 Alarm Settings

[System Settings] → [Alarm Management] → [Alarm Settings]

* Equip Type: * Device No.:

ID	Event	Event Level
1	Communication exception	<input type="text" value="4"/>
2	Integrated Alarm	<input type="text" value="0"/>
3	EPO	<input type="text" value="0"/>
4	Byp Module Fail	<input type="text" value="0"/>
5	Input Fail	<input type="text" value="0"/>
6	Output Fail	<input type="text" value="0"/>
7	Fan Fail	<input type="text" value="0"/>
8	Battery Fail	<input type="text" value="0"/>

Each alarm in the system can independently set the alarm level. Level can be set from 0-15.

Description:

0 indicates a normal event, no record will be generated, and no alarm will be generated.

1 means recording. The occurrence will be recorded. If it is not recorded, it will disappear and there will be no alarm.

2 means recording. It will record occurrences and disappearances, but will not alarm.

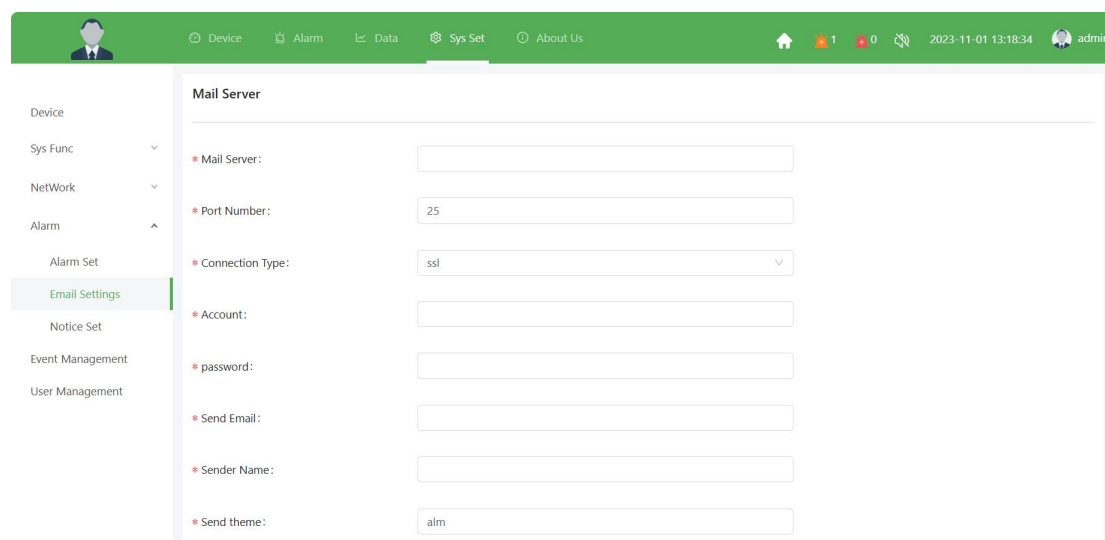
3 indicates a general alarm, which will record occurrence, disappearance, and alarm. The alarm information is yellow.

4 and above indicates a serious alarm. The occurrence will be recorded, the record will disappear, and the alarm will occur. The alarm information will be red.

4.8.13 Email Settings

[System Settings]→[Email Settings]

The gtNet card can send events that occur to the online UPS to the designated mailbox through email notification.



The screenshot shows the 'Email Settings' page in the gtNet web interface. The page has a green header bar with navigation icons for Device, Alarm, Data, Sys Set, and About Us. The 'Sys Set' tab is selected. On the left, there is a sidebar menu with options: Device, Sys Func, NetWork, Alarm, Alarm Set, Email Settings (highlighted), Notice Set, Event Management, and User Management. The main content area is titled 'Mail Server' and contains several input fields with red asterisks indicating required fields: 'Mail Server', 'Port Number' (set to 25), 'Connection Type' (set to ssl), 'Account', 'password', 'Send Email', 'Sender Name', and 'Send theme' (set to alm).

Email server address:

It is the SMTP mailbox server address, which can be an IP or a domain name. The following option S SL is to set whether to send emails in an encrypted manner and the encryption version. The currently supported encryption version is "SSL".

The port number:

Set the communication port number required to send emails. The default is 25, which needs to be determined according to the specific email server.

Sender's email address:

You need to write the email address xxxx@xx.xx, which is the default email address of the gtNet card user account. After an alarm event occurs, the gtNet card will send messages to this email address.

Account number:

If the email server requires authority authentication, please fill in the authentication account here.

Password:

If the email server requires authority authentication, please fill in the authentication password here.

Recipient email address:

Recipient's email address (to receive daily reports and alarm information).

Fill in the "recipient email address" and click "Send test email".

When the test mailbox receives an email sent from the "sender email address", it means that the server is valid and can send emails to the outside world.

Click the "Settings" button below to save the filled in information for sending emails when an alarm occurs (note: the network where the gtNet card is located must have access to the email server). Special note: As long as either step ② or step ④ is modified, you must click "Settings" to save the modifications before they can take effect.

Email alarm notification supports up to 20 email addresses.

Note: If the test email fails to be sent, you need to confirm the following points:

- Are the email server address and port correct?
- Is the account and password you logged in correct?
- Whether the network where gtNet is located can connect to the mail server.
- In order to verify the above steps, you can use foxmail and other software to test.
- For some mailboxes, you need to go to the official website to activate the SMTP service and apply for a dedicated password before you can use a third party to send.

4.8.14 Notification Settings

[System Settings] → [Alarm Management] → [Notification Settings]

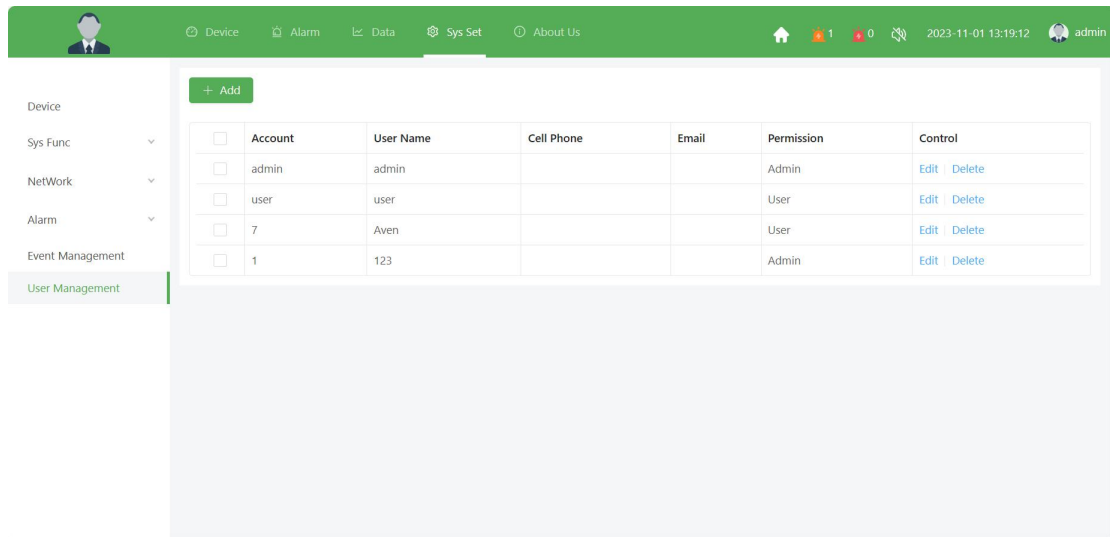
gtNet can support 20 alarm receiving personnel information, including three methods: email, SMS, and phone language.

Each person can configure different event levels. When an event greater than or equal to the set level occurs, the system will issue an alarm notification in a specified way. SMS and phone language require SMS alarm equipment.

4.8.15 User management

[System Settings] → [User Management]

Note that only the "admin" account can enter the [User Management] page, other administrators cannot enter this page. The administrator account can add users and delete users.



"admin" is the highest authority account and cannot be deleted.

Note: When adding a user, **the username and password are required** (username: can only consist of English letters, underscores, and Chinese characters).

When the "admin" administrator user changes the password of another user, he does not need to confirm the user's password and can modify it directly.

5 About this device

5.1 About

[About] displays the system ID , product serial number , and gtNet card software version.

