



# **SNMP Web Management For Rugged UPS Series**

## **SNMP CardBox Operation Manual**

**M-SNMPV1.2  
Rev. A**

# Table of Contents

1. Overview .....	1
1.1 Introduction .....	1
1.2 Features .....	1
1.3 Overlook.....	1
1.4 Connection.....	2
1.5 Configuration .....	3
1.6 First Time Login.....	3
1.7 Monitoring .....	3
2. SNMP Web GUI .....	5
3. Function Menu .....	6
3.1 Information.....	6
3.2 Setting.....	6
3.3 System configuration.....	10
3.4 Log .....	13
3.5 Help .....	15

# 1. Overview

## 1.1 Introduction

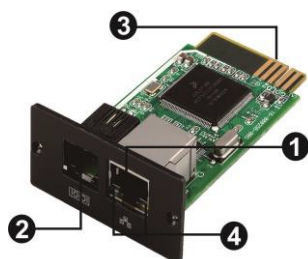
This SNMP card can provide a web server to monitor and manage off-grid inverters in a networked environment including LAN and INTERNET. It can retrieve the UPS's working status, working data and setting. It also can receive data of temperature and humidity for the environment via connecting to EMD (Environmental Monitoring Device).

Integrated with ViewPower Pro software, it can monitor and remote access all distributed off-grid inverters via SNMP interface. For the detailed operations, please check user manual of ViewPower Pro.

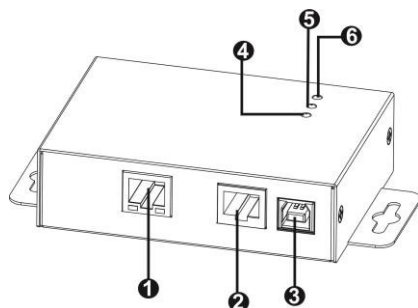
## 1.2 Features

- Open monitor via Web Browser.
- Automatically detect and exchange data through 10M/100M Fast Ethernet.
- Support wake-on-LAN function.
- Supported protocol such as TCP/IP, UDP, SNMP, SMTP, SNTP, HTTP and so on.
- Support to record and export event log, including warnings and faults.
- Support daily reports for event log and data log.
- Support parallel-inverter monitoring.

## 1.3 Overlook



- ❶ Ethernet port (10/100Base-T)
- ❷ Sensor port
- ❸ Golden finger: connects to device slot
- ❹ Ethernet port status LEDs



- ❶ Ethernet port(10/100Base-T)
- ❷ RS-232 port
- ❸ 5V DC input
- ❹ Data receiving indicator
- ❺ Data transmission indicator
- ❻ Power indicator

Ethernet port status LEDs:

100M LED (Green)	Flash	Port is operating at 100Mbit/s
	Off	Card is not connected to the network
10M LED (Yellow)	Flash	Port is operating at 10Mbit/s
	Off	Card is not connected to the network

## 1.4 Connection

Refer to chart 1-1 for connecting the SNMP card and chart 1-2 for connecting SNMP box.

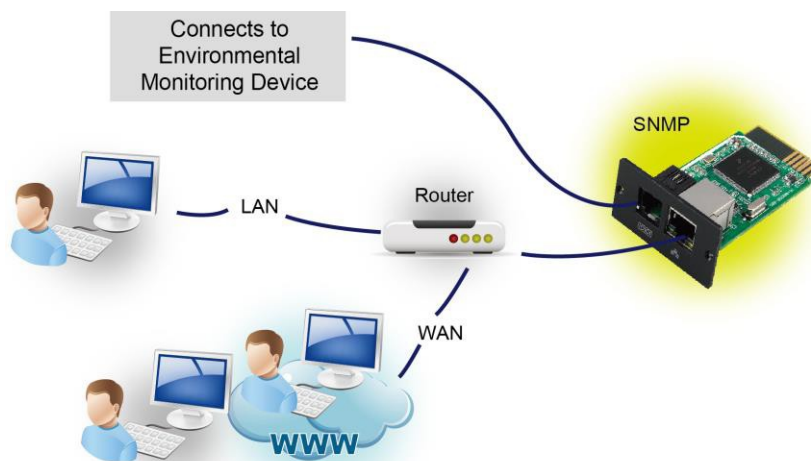
### If using SNMP card:

Plug Ethernet cable to the Ethernet port (RJ-45) on the SNMP card. Use one more Ethernet cable. Connect one end to the sensor port on the SNMP card and the other end to the optional environmental monitoring device.

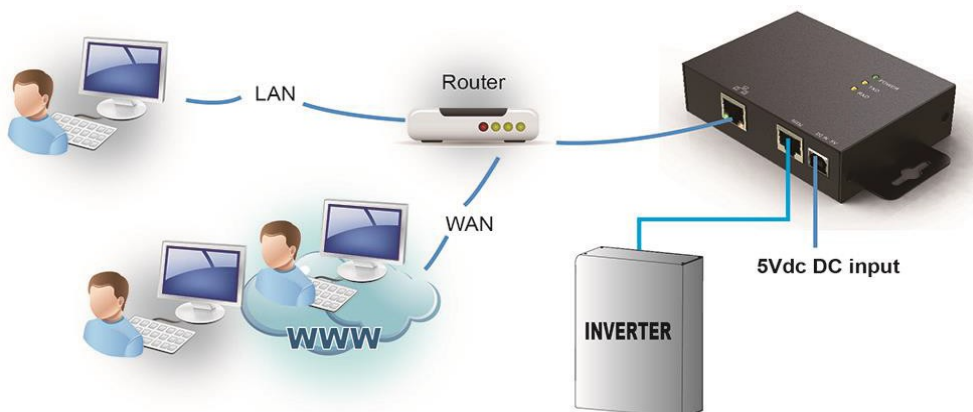
### If using SNMP box:

Use one Ethernet cable to connect to Ethernet port (❶) of the box. Use one RJ45 cable to connect to RS-232 port (❷) of the box and RS-232 port of the inverter. Then, use bundled USB cable to connect to USB port (❸) of the box and 5V DC USB power source.

**Chart 1-1**



**Chart 1-2**



## 1.5 Configuration

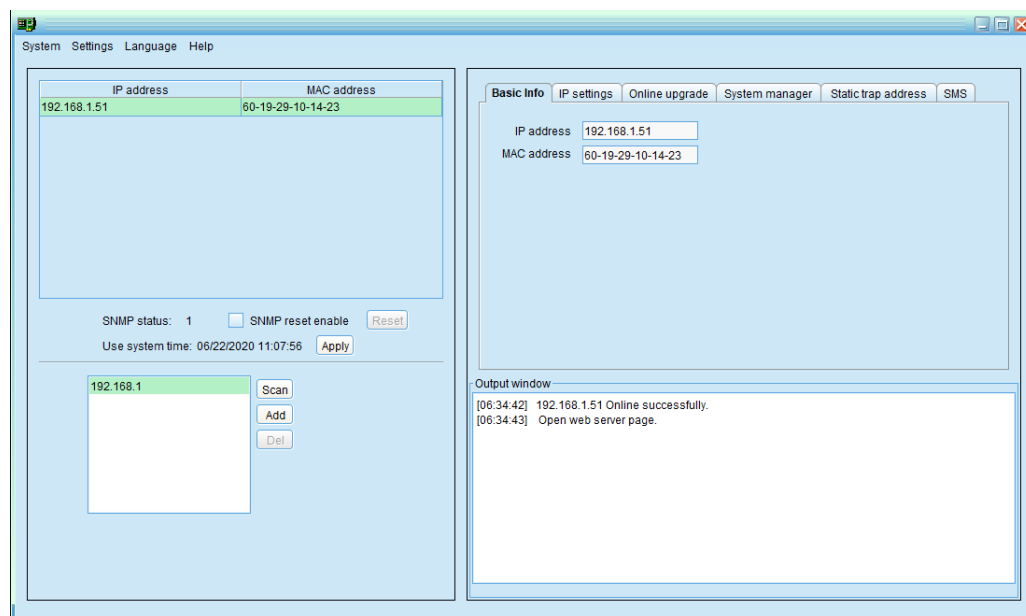
- a) Please install SNMP Web Manager software in your PC. After software is installed successfully, the Installer will leave a shortcut icon on your desktop. To download SNMP Web Manager software, visit [www.power-software-download.com/SNMP\\_Web\\_Manager.html](http://www.power-software-download.com/SNMP_Web_Manager.html) for the latest version.

**Chart 1-3**



- b) Enter specific IP address to search all SNMP devices in LAN. (The SNMP Web Manager will automatically collect the IP address from sever by default via a DHCP server. It will apply default IP address of 192.168.1.51, default subnet mask as 255.255.255.0, and default gateway as 0.0.0.0 without a DHCP server.

**Chart 1-4**



- c) Users can modify IP setting, online upgrade, password management, and static trap address setting in SNMP Web Manager screen. It is necessary to enter password for any modifications. The default password is 12345678.

Please check SNMP Web Manager User Manual for detailed configuration.

## 1.6 First Time Login

When logging into the SNMP Web Manager for the first time, use the following:

Username: admin

Password: user

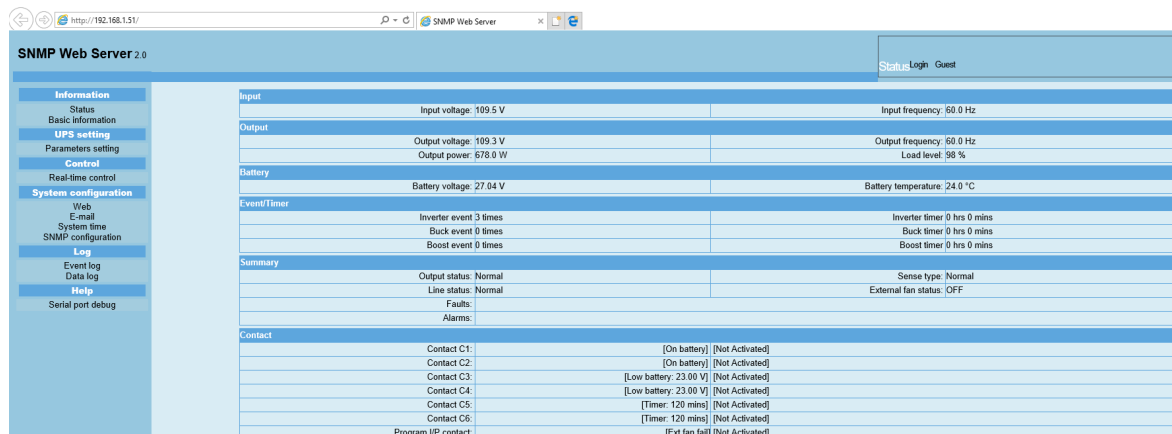
## 1.7 Monitoring

There are two ways to monitor:

- a) Double click the selected device from the device list (refer to Chart 1-5) to open

web page as Chart 1-4.

**Chart 1-5**



The screenshot shows the 'SNMP Web Server 2.0' interface. On the left is a navigation menu with tabs: Information, Status, Basic information, UPS settings, Parameters setting, Control, Real-time control, System configuration, Web, E-mail, System time, SNMP configuration, Log, Event log, Data log, Help, and Serial port debug. The main area displays the 'Status' tab, which is divided into several sections: Input, Output, Battery, Event/Timer, Summary, and Contact. Each section contains a table of data.

Input	
Input voltage: 109.5 V	Input frequency: 60.0 Hz

Output	
Output voltage: 109.3 V	Output frequency: 60.0 Hz
Output power: 678.0 W	Load level: 98 %

Battery	
Battery voltage: 27.04 V	Battery temperature: 24.0 °C

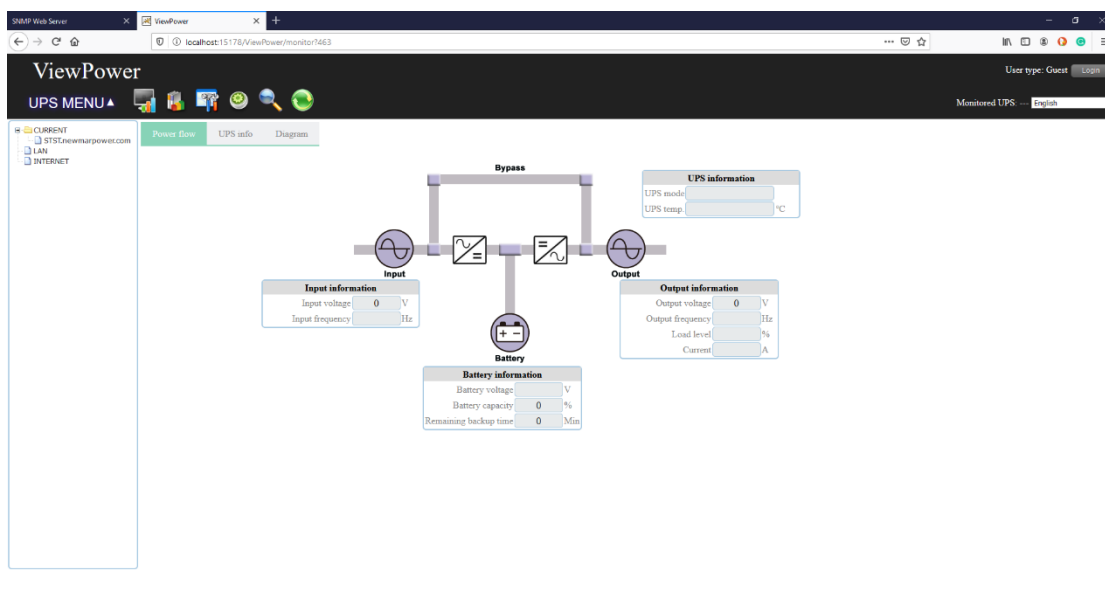
Event/Timer	
Inverter event 3 times	Inverter timer 0 hrs 0 mins
Buck event 0 times	Buck timer 0 hrs 0 mins
Boost event 0 times	Boost timer 0 hrs 0 mins

Summary	
Output status: Normal	Sense type: Normal
Line status: Normal	External fan status: OFF
Faults:	
Alarms:	

Contact	
Contact C1:	[On battery] [Not Activated]
Contact C2:	[On battery] [Not Activated]
Contact C3:	[Low battery: 23.00 V] [Not Activated]
Contact C4:	[Low battery: 23.00 V] [Not Activated]
Contact C5:	[Timer: 120 mins] [Not Activated]
Contact C6:	[Timer: 120 mins] [Not Activated]
Program IP contact:	[Ext fan fail] [Not Activated]

b) Installed ViewPower Pro software to monitor SNMP devices. Refer to Chart 1-5. Please check ViewPower Pro User Manual for detailed monitoring.

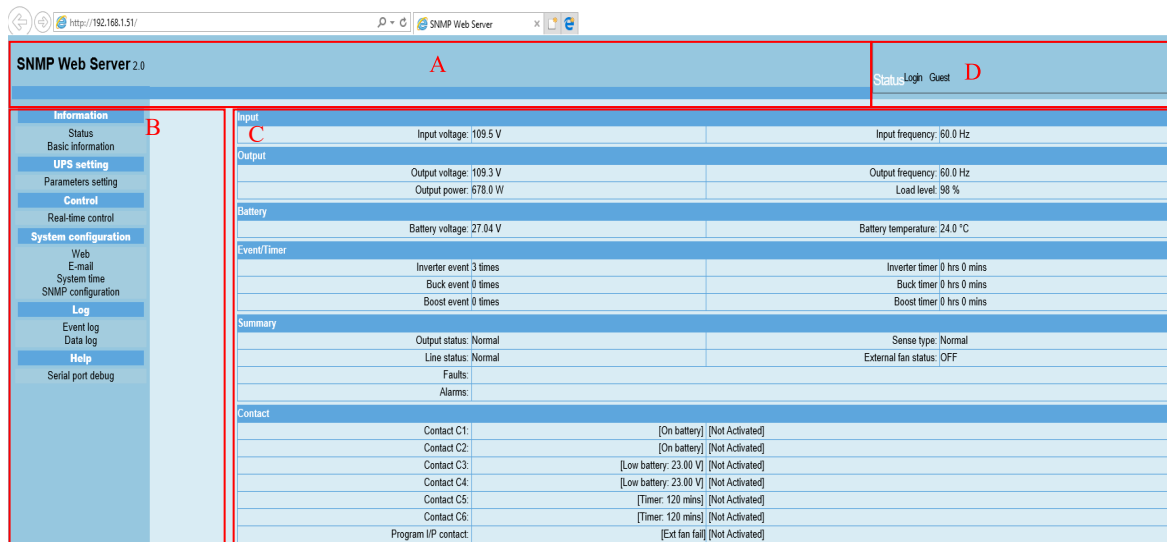
**Chart 1-6**



## 2. SNMP Web GUI

SNMP web GUI includes function menu, login section and main screen. Refer to Chart 2-1:

**Chart 2-1**



A. SNMP web GUI version

B. Function Menu

It offers complete tool-set for navigation and setting the GUI.

C. Main Screen

It will display information and/or control alternatives according to function menu selected.

D. Login section

It shows user type for current login user. The default administer username is "admin" and password is "user".

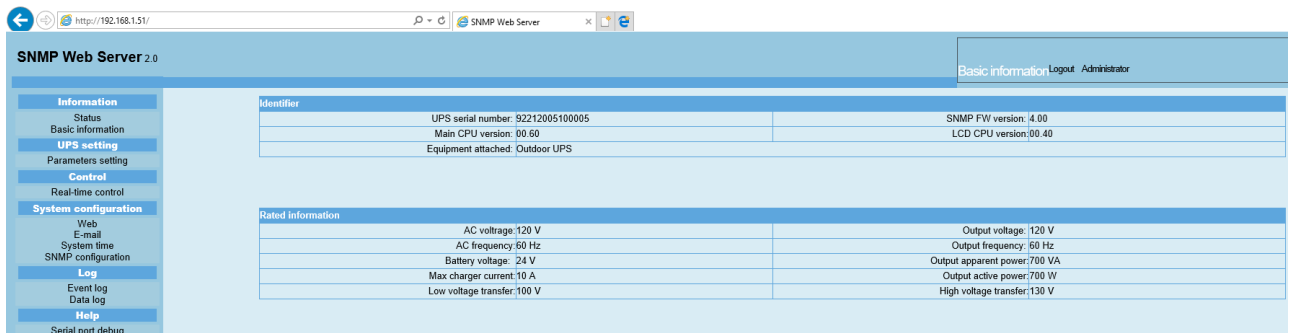
## 3. Function Menu

### 3.1 Information

#### 3.1.1. Status

Select Information >> Status. Refer to Chart 3-1. It's shown real-time monitored off-grid inverter data including working status and data. Working data includes input information, output information, device mode and battery information in table format.

**Chart 3-1**



SNMP Web Server 2.0			Basic information Logout Administrator
<b>Information</b>			
Status			
Basic information			
<b>UPS setting</b>			
Parameters setting			
<b>Control</b>			
Real-time control			
<b>System configuration</b>			
Web			
E-mail			
System time			
SNMP configuration			
<b>Log</b>			
Event log			
Data log			
<b>Help</b>			
Serial port debug			

Identifier		
UPS serial number:	92212005100005	SNMP FW version: 4.00
Main CPU version:	00.60	LCD CPU version:00.40
Equipment attached:	Outdoor UPS	

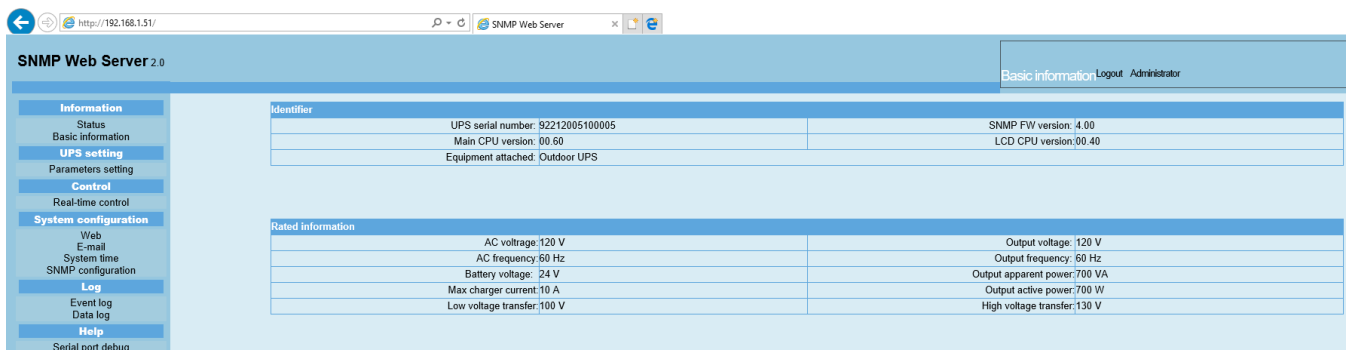
Rated information		
AC voltage:	120 V	Output voltage: 120 V
AC frequency:	60 Hz	Output frequency: 60 Hz
Battery voltage:	24 V	Output apparent power:700 VA
Max charger current:	10 A	Output active power:700 W
Low voltage transfer:	100 V	High voltage transfer:130 V

#### 3.1.2. Basic Information

Select Information>>Basic information. It includes product information and rated information. Refer to Chart 3-2.

**Chart 3-2**

### 3.2 Setting



SNMP Web Server 2.0			Basic information Logout Administrator
<b>Information</b>			
Status			
Basic information			
<b>UPS setting</b>			
Parameters setting			
<b>Control</b>			
Real-time control			
<b>System configuration</b>			
Web			
E-mail			
System time			
SNMP configuration			
<b>Log</b>			
Event log			
Data log			
<b>Help</b>			
Serial port debug			

Identifier		
UPS serial number:	92212005100005	SNMP FW version: 4.00
Main CPU version:	00.60	LCD CPU version:00.40
Equipment attached:	Outdoor UPS	

Rated information		
AC voltage:	120 V	Output voltage: 120 V
AC frequency:	60 Hz	Output frequency: 60 Hz
Battery voltage:	24 V	Output apparent power:700 VA
Max charger current:	10 A	Output active power:700 W
Low voltage transfer:	100 V	High voltage transfer:130 V

#### 3.2.1 Parameters setting

Some functions can be set and changed via software. Parameter setting includes voltage and frequency setting, status setting and restore to the default setting.



Select Setting >> Parameters setting. Refer to Chart 3-3.

**Chart 3-3**

The image displays two screenshots of the 'Parameters setting' page in the 'SNMP Web Server 2.0' interface. The left sidebar contains a navigation menu with options: Information, Status, Basic information, UPS setting, Parameters setting, Control, Real-time control, System configuration, Web, E-mail, System time, SNMP configuration, Log, Event log, Data log, Help, and Serial port debug. The main content area is divided into several sections, each with an 'Apply' button.

**Top Screenshot:**

- Line quality options:** Line quality: 30 seconds.
- Sense type options:** Sense type: Normal.
- Battery charging current:** Current value: 10 A.
- Battery charging temperature compensation:** Compensation value: -3 mV/Cell/Degree.
- Battery voltage low warning:** Enter new value: 23.0 V.
- Battery time options:** Test period time: 1 Min; Backup timer: 120 Min.
- External fan on/off by temperature:** Temperature set to: 25 degree.
- High transfer point:** High limit point: 130 Vac; High hyst point: 125 Vac; High gap: 5 Vac.
- Low transfer point:** Low limit point: 100 Vac; Low hyst point: 105 Vac; Low gap: 5 Vac.
- Buck transfer point:** Buck high point: 128 Vac; Buck low point: 123 Vac.
- Boost transfer point:** Boost low point: 102 Vac; Boost high point: 107 Vac.

**Bottom Screenshot:**

- Temperature set to:** 20 degree.
- AVR feature:** Buck feature: On (radio button); Boost feature: On (radio button).
- Contact information:** Contact C1: On battery; Contact C2: On battery; Contact C3: Low battery; Contact C4: Low battery; Contact C5: Timer; Contact C6: Timer; Program I/O in: Ext fan fail.
- SNMP equipment attached:** Input: Outdoor UPS (Less than 32 characters).
- Replace battery time:** Date/yyyy/mm/dd: 0000/00/00; Time(hh:mm): 00:00; The frequency of send event: None.

**Note:** Different inverter model may access different parameter setting.

1. Select the functions by clicking "Enable" or "Disable" button. Change the numbers by clicking up-down arrows or modify the numbers directly in the number column.
2. Click "Apply" button to save the settings. Each function setting is saved by clicking "Apply" button in each section.
3. Click "Restore to the defaults" button to set control parameter to default value.
4. Before setting value in Battery cut-off voltage, Bulk charging voltage and Floating charging voltage columns, it's necessary to set Battery type as "user".

5. Please check parallel setting for detailed set up.

**Note:** Any functions which are not supported by current inverter will not be able to access.

- **Line Qualify Options:** This setting allows for an allotted amount of time before the UPS validates the line voltage to be stable. The allotted amount of time is: 3 seconds, 10 seconds, and 30 seconds.
- **Sense Type Options:** This setting is where the user can specify which kind of input mode the UPS will work under.
  - Normal Mode:** The UPS will operate using AC main power to supply the load.
  - UPS Mode:** The UPS will use the battery bank to provide power to the load
  - Generator Mode:** The UPS will operate under noisy line conditions or generator power to supply the load.
- **Battery Charging Current:** This setting limits the amount of current that can be supplied for charging the batteries.
- **Battery Charger Temperature Compensation:** This setting will adjust the battery voltage based on the temperature sensor reading. The default value is -3.0mV/Cell/°C, with a range of -2.5 to -4.0
- **Battery Voltage Low Warning:** This setting will cause a warning alarm when the voltage reaches the setpoint. The default setting for 48V systems is 43.0V. The default for 24V systems is 23.0V.
- **Battery Timer Options:** This setting allows the user to set the battery self-test timer period and the battery backup timer. The battery self-test timer may be set in 1 minute intervals. It will produce a warning to one of the programmed contacts at the set interval.
- **External Fan On/Off by Temperature:** This setting activates the fan at the temperature setting. The default setting is 25° C to 50° C.
- **High Transfer Point:** When the input voltage exceeds this level, the UPS transfers to Battery Mode from either Buck Mode (when AVR is enabled) or Line Mode.
- **Low Transfer Point:** When input voltage is lower than this level, the UPS transfers to Battery Mode from either Boost Mode (when AVR is enabled) or Line Mode.
- **Buck Transfer Point:** This setting will put the UPS into Buck Mode when the AC main power goes too high.
- **Boost Transfer Point:** This setting will put the UPS into Boost Mode when the AC main power goes too low.
- **AVR Feature:** The AVR feature allows the user to select automatic voltage regulation for buck or boost modes. Only one feature may be selected at a time.
- **Contact Information:** This field is to set the alarm feature for contacts C1-C6. The selectable alarms are as follows:
  - 1) On battery
  - 2) Low battery
  - 3) Time
  - 4) Alarm
  - 5) Fault
  - 6) Off
  - 7) Disable
- **SNMP Equipment Attached:** This field allows up to 32 characters to name your system
- **Replace Battery Time:** This field allows the user to set a reminder date, time and the frequency with which to replace batteries.

# 3.3 System configuration

## 3.3.1 Web

It configures the authority to access SNMP webpage. Please enter access ID and password in each column. There is no any limitation to access control in default setting. Refer to Chart 3-4.

Chart 3-4

SNMP Web Server 2.0

WebLogout Administrator

Information

Status

Basic information

UPS setting

Parameters setting

Control

Real-time control

System configuration

Web

E-mail

System time

SNMP configuration

Log

Event log

Data log

Help

Serial port debug

User account

User name	Password	Permission	Operation
admin		Read/Write	Apply Delete
		No Access	Apply Delete
		No Access	Apply Delete
		No Access	Apply Delete

### 3.3.2 Email

It can send an alarm mail by SMTP server. To use this function, the e-mail service must be configured correctly. All values in this function page are empty by default. This action can't be executed without the SMTP information, e-mail account and password. Also, the sender account should be allowed for SMTP/POP3 forwarding.

Select System Configuration >> E-mail. Refer to Chart 3-5

**Chart 3-5**

SNMP Web Server 2.0

E-mail Logout Administrator

**Information**  
Status  
Basic information  
**UPS setting**  
Parameters setting  
**Control**  
Real-time control  
**System configuration**  
Web  
E-mail  
System time  
SNMP configuration  
**Log**  
Event log  
Data log  
**Help**  
Serial port debug

SMTP server:   
Port:   
Send from:   
User name:   
☐ Need auth  
Password:   
Note: After apply, you can click "Test" button to send a test message.

Receive 1:     
Receive 2:     
Receive 3:     
Receive 4:     
Password get back email:

Recipient's email address (for daily report)  
Account 1:     
Account 2:     
Send email for daily report (hh:mm): ☐ at   
Send email when event log overflows (200 records): ☐  
Send email when data log overflows (500 records): ☐

1. Enter SMTP server, SMTP port, sender's E-mail address, user name and password. Click checkbox of "Need Auth" for password verification.
2. Click "Apply" to save the changes. The "Test" button can be used to send a test e-mail to all receivers to confirm correct operation. When the test e-mails are successfully sent to specific recipients, a pop up "success" message will inform the user. Otherwise, a pop up "failure dialog" message to indicate there is an error in setting.
3. Enter correct e-mail accounts in Recipient section. Then, click "Apply" to add into receivers list. Click "Delete" button to delete e-mail account.
4. A daily report will be sent to setting recipients by e-mail at a specific time everyday. Please enter recipient's email address and receiving time into columns. Then, click "Apply" button to confirm. Setting recipients also receive an alarm e-mail when event log exceeds 100 or data log exceeds 50 records by clicking each checkbox.

### 3.3.2 System time

Select System Configuration >> System time. Refer to Chart 3-6.

**Chart 3-6**

The screenshot shows the SNMP Web Server 2.0 interface in a web browser. The browser's address bar shows the URL <http://192.168.1.51/>. The page has a blue header with the title "SNMP Web Server 2.0". On the left is a navigation menu with the following items: Information (Status, Basic information), UPS setting (Parameters setting), Control (Real-time control), System configuration (Web, E-mail, System time, SNMP configuration), Log (Event log, Data log), and Help (Serial port debug). The "System configuration" section is currently selected. The main content area displays the "System time" configuration options:

- Automatic time correction interval: 12 Hours (dropdown menu)
- Time server: time.windows.com (text input)
- Time zone(relative to GMT): GMT (dropdown menu)
- Applying daylight saving time: No (dropdown menu)
- Adjust now >> (button)
- SNMP time (yyyy-mm-dd hh:mm:ss): 2020-06-30 02:43:02 (text input) with an Apply button
- Auto restart SNMP for every (0: Disable): 0 (text input) Minute(s) with an Apply button
- Manual restart SNMP after 30 seconds. with an Apply button

- Automatic time correction interval: There are five options: No, 1 hour, 12 hours, 1 day and 1 week. When interval is selected, it will automatically calibrate time.
- Time server: Please enter SNTP server IP address or domain name of time server.
- Time Zone: Select time zone based on GMT.
- Applying daylight saving time: Please choose "Yes" when your time zone is applying daylight saving time.
- System Time (mm/dd/yyyy hh:mm:ss): It is to set up SNMP web local time. Please be sure to set up correctly so that time of event log and data log will be correctly recorded.
- Auto Restart system for Every (0: Disable): XX Minute(s)
- Manual Restart system after 30 Seconds: When click "Apply" button, SNMP will restart after 30 seconds.

### 3.3.3 SNMP configuration

Setting SNMP basic information such as IP address, password, trap IP address, SNMP UDP port and Restore the factory settings.

**Note:** Some operations will cause SNMP to reboot. It's normal operation. Select System Configuration >> SNMP configuration. Refer to Chart 3-7.

Chart 3-7

- IP address: There are two methods to obtain IP address
  - 3.3.3.1 Automatically obtain IP address (DHCP, default setting)
 

The system will default automatically obtain IP addresses. If there is no this kind of service provided in LAN, the default IP will display as "192.168.1.151", Net mask as "255.255.255.0" and default gateway as "0.0.0.0".
  - 3.3.3.2 Use a static IP address Enter a static IP address.
- Password: Modify the password. The length of password is 8~15 digits.
- Trap IP address: The SNMP device could provide 4 static trap addresses.
- SNMP UDP port: You may change SNMP port and trap port.
- Restore the factory settings: Click "Restore" button to restore to factory default settings.
 

**Note:** The system will default automatically obtain IP address and default Password is 12345678.

## 3.4 Log

### 3.4.1 Event log

In the Event Log window, it lists all history events and can be saved as .csv file. The event log includes warnings, fault information and EMD warnings. Refer to Chart 3-8.

Select Log >> Event log.

### Chart 3-8

Time	Event name
2020-06-30 02:22:58	Connect to time server error
2020-06-29 14:22:59	Connect to time server error
2020-06-29 02:22:58	Connect to time server error
2020-06-28 14:22:59	Connect to time server error
2020-06-28 02:22:58	Connect to time server error
2020-06-27 14:23:00	Connect to time server error
2020-06-26 00:01:03	Unit transfers to normal mode
2020-06-26 00:00:30	Dry contact 2 active on battery
2020-06-26 00:00:30	Dry contact 1 active on battery
2020-06-26 00:00:28	Unit transfers to battery mode
2020-06-26 00:00:26	AC failed
2020-06-24 05:10:48	Unit transfers to normal mode
2020-06-24 05:10:11	Dry contact 2 active on battery
2020-06-24 05:10:11	Dry contact 1 active on battery
2020-06-24 05:10:08	Unit transfers to battery mode
2020-06-24 05:10:06	AC failed
2020-06-24 04:31:02	Unit transfers to normal mode
2020-06-24 04:30:38	Dry contact 2 active on battery
2020-06-24 04:30:38	Dry contact 1 active on battery
2020-06-24 04:30:36	Unit transfers to battery mode
2020-06-24 04:30:34	AC failed
2020-05-28 21:18:39	Dry contact 2 active on battery
2020-05-28 21:18:39	Dry contact 1 active on battery
2020-05-28 21:18:37	Unit transfers to battery mode
2020-05-28 21:18:35	BTS disconnected

### 3.4.2 Data Log

In the Data Log window, it will list all history logs and can be save as .csv file. Refer to Chart 3-9.

Select Log >> Data log.

### Chart 3-9

Time	Input voltage(V)	Output voltage(V)	Input freq(Hz)	Output freq(Hz)	Load(%)	Battery voltage(V)	Battery Temp.(°C)
2020-06-30 02:53:28	109.0	108.3	60.0	60.0	97	27.04	24.0
2020-06-30 02:53:27	109.5	109.0	60.0	60.0	97	27.04	24.0
2020-06-30 02:51:26	110.0	108.5	60.0	60.0	97	27.08	24.0
2020-06-30 02:50:24	109.3	108.3	60.0	60.0	97	27.04	24.0
2020-06-30 02:49:22	109.0	108.3	60.0	60.0	97	27.04	24.0
2020-06-30 02:48:21	109.3	108.8	60.0	60.0	97	27.04	24.0
2020-06-30 02:47:20	109.3	109.0	60.0	60.0	97	27.04	24.0
2020-06-30 02:46:18	109.5	109.5	60.0	60.0	98	27.04	24.0
2020-06-30 02:45:16	109.8	109.0	60.0	60.0	97	27.08	23.0
2020-06-30 02:44:15	109.8	109.0	60.0	60.0	97	27.08	23.0
2020-06-30 02:43:14	109.5	109.0	60.0	60.0	98	27.08	23.0
2020-06-30 02:42:12	109.0	109.0	60.0	60.0	97	27.08	23.0
2020-06-30 02:41:10	108.8	108.5	60.0	60.0	97	27.08	23.0
2020-06-30 02:40:09	109.0	108.8	60.0	60.0	97	27.04	24.0
2020-06-30 02:39:10	110.0	108.5	60.0	60.0	97	27.04	24.0
2020-06-30 02:38:08	109.3	108.3	60.0	60.0	97	27.04	24.0
2020-06-30 02:37:08	109.5	109.0	60.0	60.0	97	27.04	24.0
2020-06-30 02:36:09	109.8	109.8	60.0	60.0	98	27.04	24.0
2020-06-30 02:35:00	110.0	108.5	60.0	60.0	97	27.04	24.0
2020-06-30 02:33:58	109.5	109.0	60.0	60.0	97	27.04	24.0
2020-06-30 02:32:57	109.5	109.0	60.0	60.0	97	27.04	24.0
2020-06-30 02:31:55	109.3	109.0	60.0	60.0	97	27.04	24.0
2020-06-30 02:30:54	109.5	109.5	60.0	60.0	98	27.04	24.0
2020-06-30 02:29:52	109.3	108.3	60.0	60.0	97	27.08	23.0
2020-06-30 02:28:51	109.3	109.0	60.0	60.0	98	27.08	23.0
2020-06-30 02:27:51	110.3	109.5	60.0	60.0	98	27.08	23.0
2020-06-30 02:26:50	109.0	108.5	60.0	60.0	97	27.08	23.0
2020-06-30 02:25:50	109.5	109.0	60.0	60.0	97	27.08	23.0
2020-06-30 02:24:48	109.0	108.3	60.0	60.0	97	27.04	24.0
2020-06-30 02:23:47	109.3	108.5	60.0	60.0	97	27.04	24.0
2020-06-30 02:22:45	109.3	108.8	60.0	60.0	97	27.04	24.0
2020-06-30 02:21:44	109.5	109.8	60.0	60.0	98	27.04	24.0
2020-06-30 02:20:42	110.3	109.0	60.0	60.0	97	27.04	24.0
2020-06-30 02:19:41	109.5	109.0	60.0	60.0	97	27.04	24.0
2020-06-30 02:18:39	109.5	109.0	60.0	60.0	97	27.04	24.0
2020-06-30 02:17:38	109.3	109.0	60.0	60.0	97	27.04	24.0
2020-06-30 02:16:36	109.5	108.8	60.0	60.0	97	27.04	24.0
2020-06-30 02:15:35	109.5	109.0	60.0	60.0	97	27.04	24.0
2020-06-30 02:14:33	109.8	109.8	60.0	60.0	98	27.08	23.0

## 3.5 Help

### 3.5.1 Serial Port Debug

It's to useful tool to verify communication problems between SNMP web card/box and device. Users can send commands in this webpage and it will get query result from output window. It will help technical support personnel to verify problems.

Select Log >> Event log. Refer to Chart 3-10.

**Chart 3-10**

