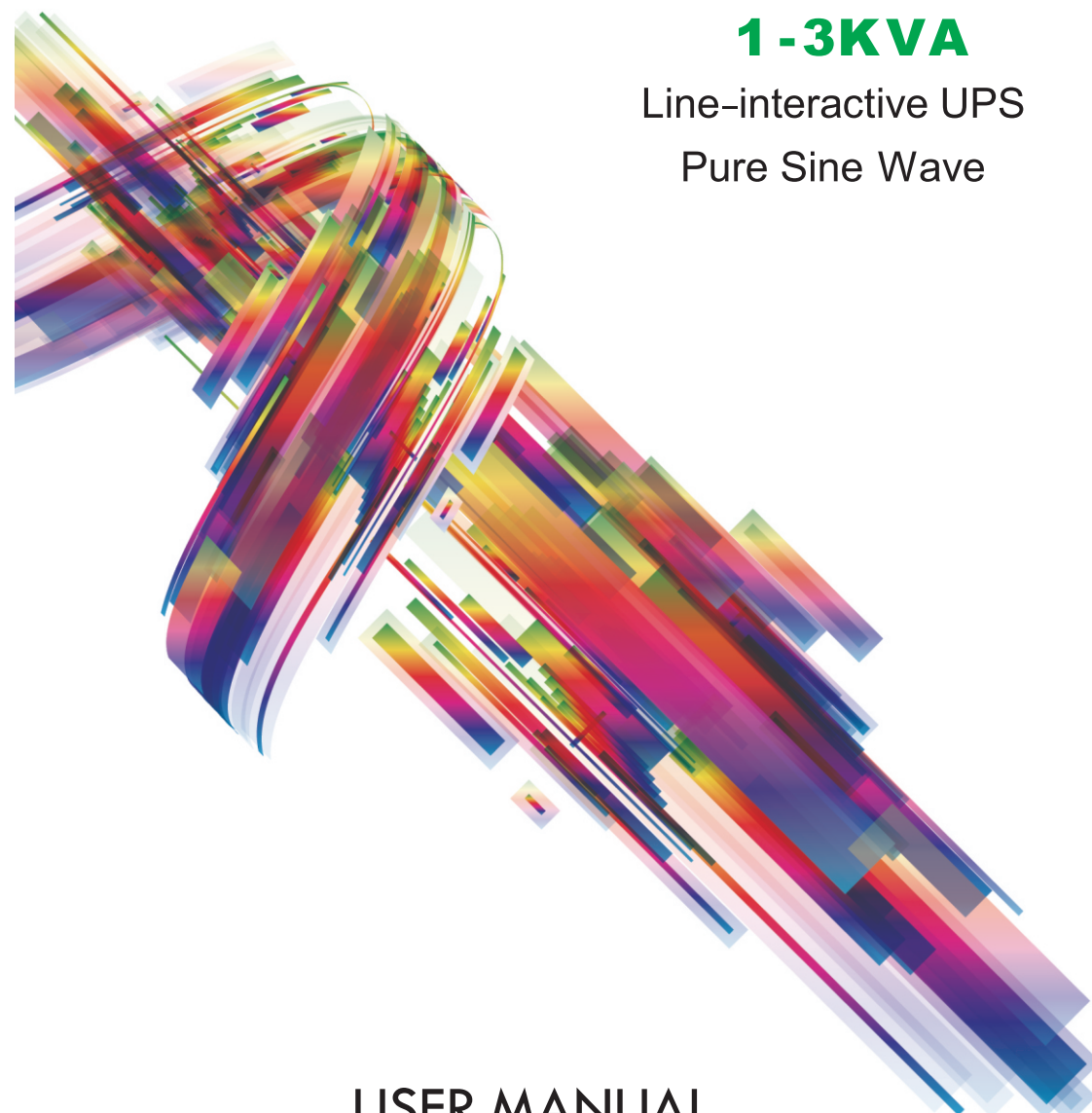


UPS

1-3KVA

Line-interactive UPS

Pure Sine Wave



USER MANUAL

Uninterruptible Power Supply



Thanks for using our products.
Please strictly obey all the instructions in this manual and pay attention to all the warning and operation information. It is not advisable to install or operate the machine before reading this manual.

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1. Safety and Overview

Safety precautions (In order to ensure the safety, please observe the following)

- Please be sure to read the user's manual before use.
- Please charge the product for more than 8 hours before using it.
- When the battery has been discharged or the storage period has been more than 3 months, the battery shall be charged for more than 8 hours in time, so as to ensure it is fully-charged and prevent it from being damaged.
- This product is specially designed for group computers. It shall not be connected with inductive loads (e.g. motor, refrigerator, etc.). It is not recommended for life supporting system and other specific major equipments.
- When installing the product, please maintain a distance of more than 50cm away from the display.
- The normal temperature of the chassis surface will reach about 50℃ during the use of this product, which is a normal phenomenon.
- Do not use UPS which goes beyond the rated load capacity.
- Do not open UPS case, or it will lead to electric shock or other dangers. If it is required to conduct an internal overhaul or replace the battery, please deliver it to the designated maintenance center.
- As internal short-circuit will result in electric shock or fire, any vessel containing liquids shall not be placed on UPS for fear of electric shock or other dangers.
- When the machine works abnormally, cut off the power immediately, and contact the supplier.
- Never store or use this product in the following conditions.
 - 1) The place where there is no air convection
 - 2) The place where combustible gas, corrosive substance or a great deal of dust exists
 - 3) The place where the temperature is extremely high or low (above 40℃ or below 0℃) and the humidity is high (above 90%)
 - 4) The place having direct sun exposure or close to heating equipment
 - 5) The place where violent vibration occurs
 - 6) Outdoor
- In case of fire around UPS, put out the fire with powder fire extinguishers. Using fluid extinguisher may lead to electric shock.
- Please place the power socket near UPS, so that UPS can be disconnected from the socket in emergency.
- When it is required to move or re-connect UPS, the AC input power shall be cut off to ensure UPS stops completely, or the output end may be live which may result in electric shock.
- The battery life is shortened as the ambient temperature rises. Periodic battery replacement can ensure UPS works properly and there is enough backup time.
- The battery maintenance shall only be carried out by the personnel having professional knowledge of batteries.
- Since the dangers of electric shock and short-circuit current exist, the following warnings shall be observed in battery replacement to avoid electric shock.
 - 1) Do not wear watches, rings or other metal objects.
 - 2) Use insulated tools.
 - 3) Wear rubber shoes and glove.
 - 4) Do not place metal tools or metal parts on the battery.
 - 5) First disconnect the load connected to the battery before removing connecting terminals of the battery.
 - 6) Do not short-circuit the positive and negative terminals, or it will lead to electric shock or fire.
 - 7) Do not touch the connecting terminal of the battery. Do not separate the battery circuit from the input voltage circuit. The danger of high voltage exists between the battery terminal and ground.

Warning!



The equipment must be grounded. When AC utility power is connected, the system shall be grounded reliably.

Improper operation will result in huge losses. Please be sure to operate this product according to the requirements of operation instructions.

UPS applies to area with altitude below 1000m. If applies to altitude above 1000m, it requires decreasing rating output, as shown in the following table

Load bearing in high altitude area= rated power* derating factor (correspond to altitude)

Altitude (m)	1000	1500	2000	2500	3000	3500	4000	4500	5000
Derating factor	100%	95%	91%	86%	82%	78%	74%	70%	67%

2 Installation Instructions

2.1 Unpacking and checking

2.1.1 Unpack UPS, and check accessories

- Host
- Instructions
- Warranty card
- Communication line
- Power cord
- CD
- Battery connecting wire (not provided for standard UPS)
- Accessories of fixed support (not provided for tower UPS)
- Rack (wall-mounted) accessories (not provided for tower UPS)

Others according to requirements of the contract

Note: Please keep the carton and packaging materials of the machine for convenience of future handling. The series of products are very heavy which shall be handled with care.

2.1.2 Check whether UPS is damaged during the transportation. If any damage or missing parts are found, do not start up the machine, and inform the carrier and distributor

2.2 UPS front panel view

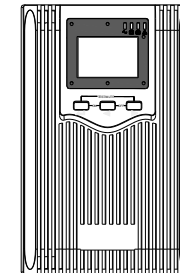


Fig. 2.2 Tower panel

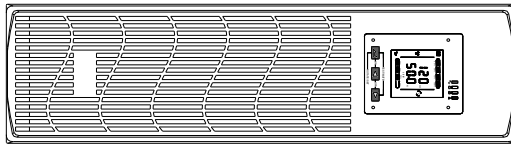


Fig. 2.2 Rack panel

2.3 UPS rear panel view

2.3.1 Tower rear panel

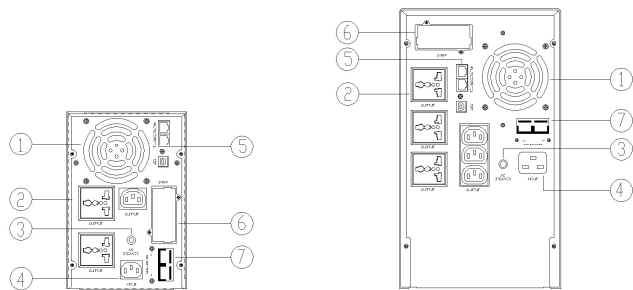


Fig. 2.3.1 1KVA-2KVA rear panel (left), 3KVA rear panel (right)

2.3.2 Rack rear panel

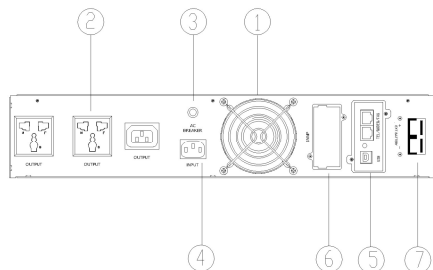


Fig. 2.3.2 2U 1KVA rack rear panel

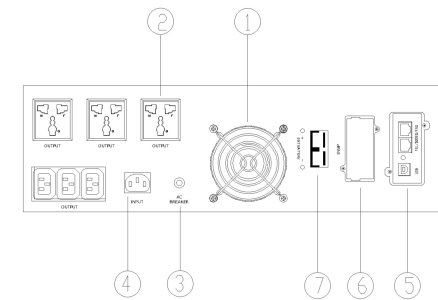


Fig. 2.3.2 3U 1.5KVA-3KVA rack rear panel

Description of rear panel

- a) Fan and fan guard
- b) Output power supply socket
- c) AC over-current protector
- d) IEC Input socket
- e) Communication interface (standard configuration USB+RJ45)
- f) SNMP card slot
- g) External battery connector

2.4 Product installation instructions

2.4.1 Installation attentions

1. Put UPS in a well-ventilated place and ensure the heat emission holes and fan peripherals of the chassis meet the ventilation conditions at a distance of 150mm above and keep away from water, combustible gases and corrosives.
2. Turn off the devices which need uninterrupted power supply (such as host computer), disconnect the power cord from the utility power socket and connect it to the output socket of UPS connect the devices which do not need to be connected with UPS to the common utility power socket.
3. Put UPS input plug into the utility power socket (ensure the zero wire and live wire are correct and the ground wire is good).
4. The ambient temperature of UPS shall be kept between 0°C and 40°C.

5. It is recommended to charge the battery for 8 hours before using it. UPS will charge the battery automatically as long as the input utility power meeting requirements is connected to the host.
6. For the extended runtime model, connect the battery first after confirming the battery wires, and then connect the utility power line.

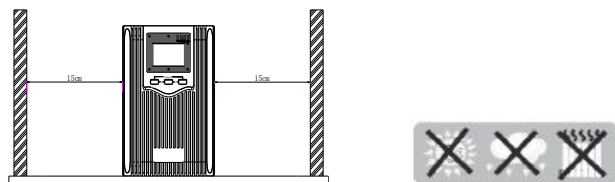


Fig. 2.4.1 Installation attentions

2.4.2 Battery installation attentions for extended runtime model

Warning:

In order to ensure the safety of equipment and personnel, the installation must be carried out by professionals.

1. First connect the battery bank with accompanied battery connecting wires (note the red wire shall be connected to the anode, and the black wire shall be connected to the cathode).
2. Confirm the connection of the battery bank. Measure the identification of the battery input socket and the positive and negative of battery wire terminals of UPS with a multimeter. The voltage shall be consistent with UPS's input DC voltage.
3. Be sure to check whether the installation is correct or not after it is completed.

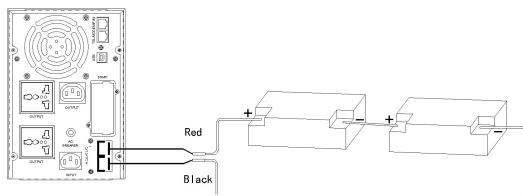


Fig. 2.4.2 Schematic diagram of DC24V tower battery connection

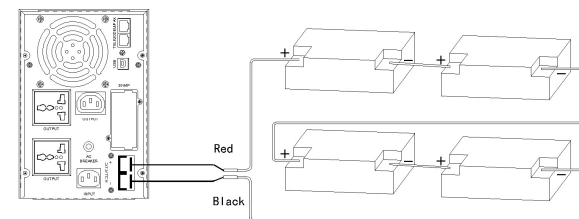


Fig. 2.4.2 Schematic diagram of DC48V tower battery connection

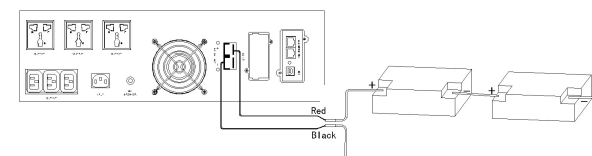


Fig. 2.4.2 Schematic diagram of DC24V rack battery connection

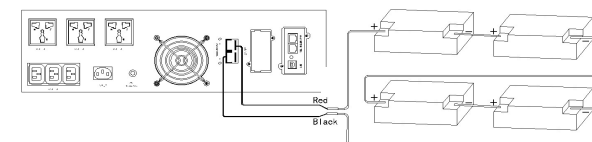


Fig. 2.4.2 Schematic diagram of DC48V rack battery connection

2.4.3 Installation

1. This product shall be installed by professionals. The provided power cord can be B connected to the wall socket to serve as UPS input power.
2. Before the use of UPS, the battery shall be charged for more than 8 hours. UPS will charge the battery automatically as long as it is connected to the utility power line.
3. Installation of rack UPS.

Vertical installation

Combine the connecting extensions and RT foot pieces among the accessories into two racks according to the following figure. Align the racks at a proper distance and place them on the plane in parallel.

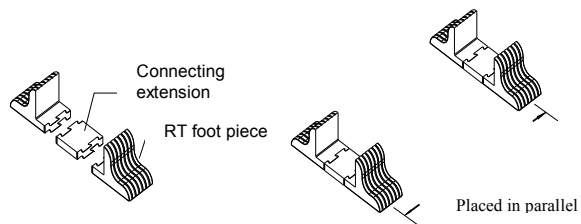


Fig. 2.4.3 Assembly diagram of foot pieces

Keep the machine upright and put it on two racks. Do not turn upside down.

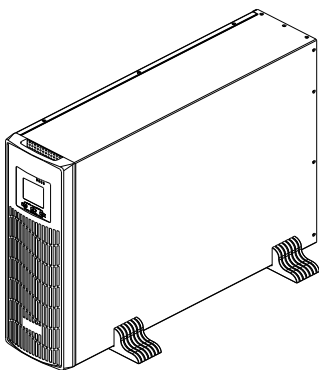


Fig. 2.4.3 Vertically positioned UPS

Rack installation

Fasten the rack parts among the accessories to both sides of the chassis with screws (as shown below).

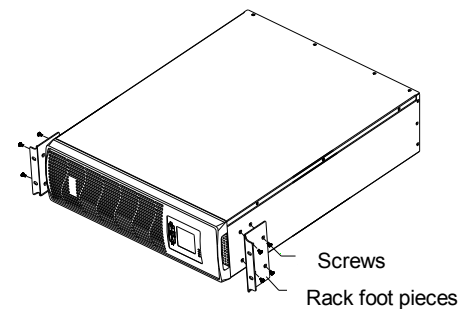


Fig. 2.4.3 Installation of rack parts

When the rack parts have been installed, fasten UPS to the rack (as shown below).

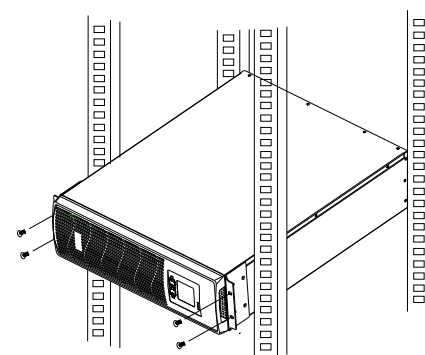
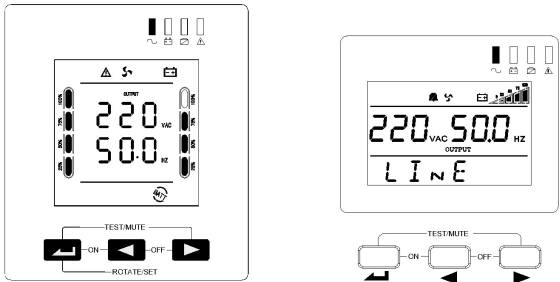


Fig. 2.4.3 Rack installation

3. Function Setting of Panel Keys and Description of LCD Display

3.1 Description of panel keys



Description of rack panel keys

Description of tower panel keys

Key combination	Function introduction
	Press the two keys for 3 seconds to start up.
 + 	1) Press the two keys for 3 seconds to shut down. 2) Press the setting interface for 5 seconds to restore factory settings and exit the setting interface.
 + 	1) Press “  +  ” momentarily to enable inverter mute. 2) In the utility power mode, press “  +  ” momentarily to enable the battery discharge testing for 15 seconds.
	1) Press the key for 5 seconds to enter the setting interface. 2) Press the key momentarily in the setting interface to turn the page. 3) Press the key for 3 seconds to exit the setting interface without saving data. 4) Select the item to be set in the setting interface. After selecting the required setting, page down to “save and exit” page. Choose “Yes”, press “  ” momentarily to save the date and exit the setting mode. 5) In non-setting mode, momentarily press the key twice, and the LCD display content rotates. 6) In setting mode, when it goes to SAVE page, press “  ” or “  ” momentarily, choose “Yes”, press “  ” to complete the setting and exit the mode.

	1) In non-setting mode, press the key momentarily to turn the page (page up). 2) In setting mode, the parameter decreasing iterates.
	1) In non-setting mode, press the key momentarily to turn the page (page down). 2) In setting mode, the parameter decreasing iterates. 3) In non-setting mode, press the key for 2 seconds to enter the state of automatic page up/down and re-press the key for 2 seconds to exit the state of automatic page up/down.

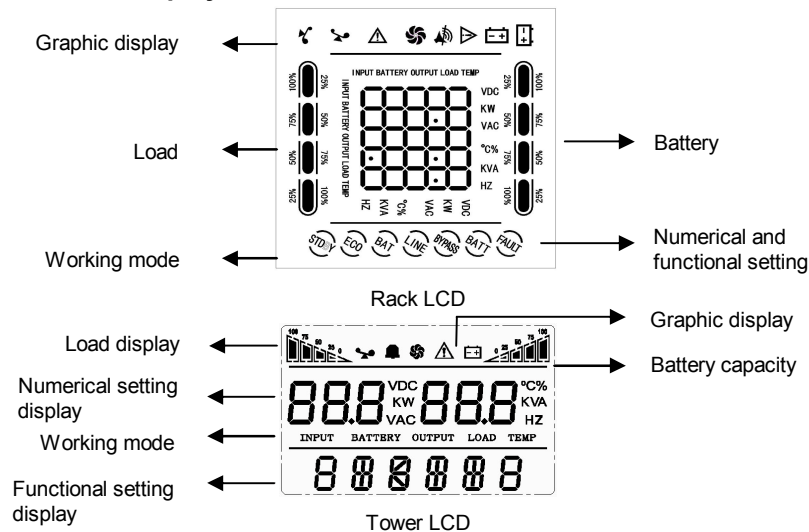
3.2 Functions of LED indicators



They are respectively output indicator, inverter indicator, bypass indicator and alarm indicator from left to right.

1. The green indicator of UPS is normally on referring to that UPS works in the utility mode or inverter mode.
2. The red inverter indicator is normally on referring to that UPS works in the inverter mode.
3. The yellow bypass indicator is normally on referring to that UPS works in the bypass mode or setting mode.
4. The red alarm indicator lamp flashes referring to UPS failure (battery failure, utility power failure).

3.3 LCD display functions



Graphics, load and battery capacity display area

- Each grid of the load and battery capacity display area 25% capacity. The overload icon will flash in case of UPS overload.
- The fan icon displays the working state of the fan. When the fan works, the fan icon is in a rotating state and when the fan stops, the fan icon is normally on.
- In case of utility power failure, the failure icon flashes in case of battery failure, the failure icon is normally on.
- Numerical and functional setting display area.
- In non-setting mode, the output information displays normally by pressing "Page UP" or "Page Down" key, the input, battery, load and temperature information can be seen.
- In the setting mode of rack UPS, by pressing functional setting key and "Page UP" or "Page Down" key, the input voltage value, frequency, low voltage shutdown time, charging current and inverter no-load shutdown function can be set.

- In the setting mode of tower UPS, by pressing functional setting key and "Page UP" or "Page Down" key, the output voltage value, frequency, low voltage shutdown time, charging current, inverter no-load shutdown function, inverter no-load power saving mode, DC self-starting function and AC self-starting function can be set.

Working mode display area

The display area mainly displays the working mode, such as STDBY (standby mode – rack LCD display), LINE (utility mode), BATT (battery mode), BYPASS (bypass mode – tower LCD display).

4. Startup and Shutdown Operations

4.1 Startup operation

Startup with utility power

After connected with utility power, UPS will start up and beginning self-test (bypass output) automatically and enter normal working state in 15 seconds. As UPS working indicator (green light) goes on and bypass indicator goes off, the user can start PC and other loads.

Startup with battery

When powered by the battery (without utility power) Press the front panel startup combination button for 3 seconds. UPS will start the inverter, and the power supply output will function normally at this moment, UPS working indicator (green light) lighting, inverter indicator lighting and failure indicator flashes.

4.2 Shutdown operation

Shutdown with utility power

Press the front panel shutdown combination button for 3 seconds. UPS will enter standby mode (rack) or bypass mode (tower). The yellow bypass indicator goes on. Then cut off the utility power supply to shut down UPS.

Shutdown with battery

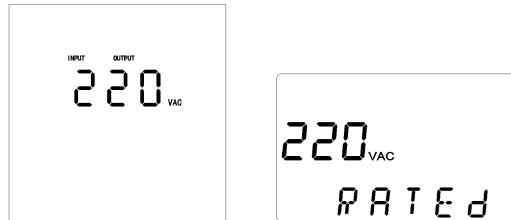
Press the front panel shutdown combination button for 3 seconds to shut down UPS.

Note

1. Before UPS start-up operation, first start UPS and then add the computer and other loads when shut down, first shut down the computer and other loads and then UPS.
2. Once the utility power is interrupted, UPS will be powered by the battery. Please conduct save actions or other emergency processing for PC and other loads in time.
3. If UPS will not be used for more than 7 days, please shut down it according to the steps of UPS "shutdown with utility power".
4. If UPS has not been used for more than 3 months, please refer to the method of UPS startup with utility power, charge UPS for more than 12 hours to keep the battery fully charged and extend battery life.

5. Panel Setting Operation

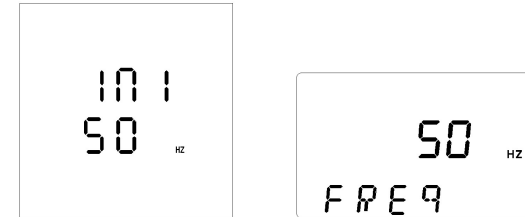
5.1 Output voltage setting



1. The left figure shows the output voltage setting interface of rack UPS, and the right figure shows the output voltage setting interface of tower UPS.
2. Press the function setting key " ↵ " for more than 5 seconds to enter the setting interface. Press the key " ↵ " momentarily to select the output voltage setting interface. Press the key " ◀ " or " ▶ " momentarily to select the voltage. Available voltage values are 220V, 230V and 240V the output voltage is 220V by default.

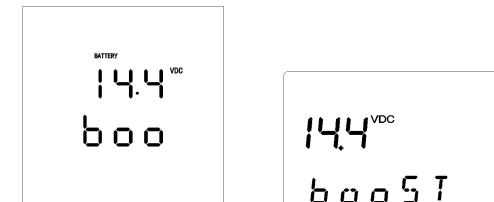
3. After selecting "Confirm", press the key " ↵ " momentarily to save the interface (by reference to "save and exit setting"). Press the key " ◀ " or " ▶ " momentarily, choose "Yes", and then press the key " ↵ " momentarily to save and exit it.

5.2 Frequency setting



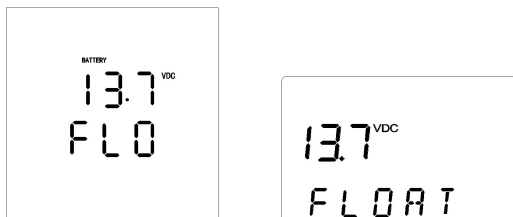
1. The left figure shows the frequency setting interface of rack UPS, and the right figure shows the frequency setting interface of tower UPS.
2. Press the function setting key " ↵ " for more than 5 seconds to enter the setting interface. Press the key " ↵ " momentarily to select the output voltage standard setting interface. Press the key " ◀ " or " ▶ " momentarily to select the frequency. Available frequency values are 50Hz and 60Hz the frequency is 50Hz by default.
3. After selecting "Confirm", press the key " ↵ " momentarily to save the interface (by reference to "save and exit setting"). Press the key " ◀ " or " ▶ " momentarily, choose "Yes", and then press the key " ↵ " momentarily to save and exit it.

5.3 Boost charge voltage



1. The left figure shows the boost charge voltage interface of rack UPS, and the right figure shows the boost charge voltage interface of tower UPS.
2. Press the function setting key “” for more than 5 seconds to enter the setting interface. Press the key “” momentarily to select the equalizing charge voltage interface. The equalizing charge voltage cannot be set through the panel. It is 14.1V by default.

5.4 Floating charge voltage



1. The left figure shows the floating charge voltage interface of rack UPS, and the right figure shows the floating charge voltage interface of tower UPS.
2. Press the function setting key “” for more than 5 seconds to enter the setting interface. Press the key “” momentarily to select the equalizing charge voltage interface. The floating charge voltage cannot be set through the panel. It is 13.5V by default.

5.5 Battery end of discharge voltage setting



1. The left figure shows the battery end of discharge voltage setting interface of rack UPS, and the right figure shows the battery end of discharge voltage setting interface of tower UPS.

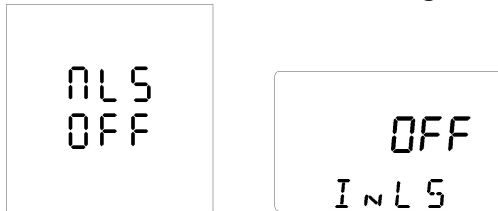
2. Press the function setting key “” for more than 5 seconds to enter the setting interface. Press the key “” momentarily to select the battery end of discharge voltage setting interface. Press the key “” or “” momentarily to select the battery end of discharge voltage. Available voltage values are 9.6V-11.5V the end of discharge voltage is 10.2V by default.
3. After selecting “Confirm”, press the key “” momentarily to save the interface (by reference to “save and exit setting”). Press the key “” or “” momentarily, choose “Yes”, and then press the key “” momentarily to save and exit it.

5.6 Charging current setting



1. The left figure shows the charging current setting interface of rack UPS, and the right figure shows the charging current setting interface of tower UPS.
2. Press the function setting key “” for more than 5 seconds to enter the setting interface. Press the key “” momentarily to select charging current setting interface. Press the key “” or “” momentarily to select the charging current. Available current values are 0A, 1A, 2A for standard model, and 0A-10A, 15A, 20A for extended runtime model the charging current is 1A for standard model and 10A for extended runtime model by default.
3. After selecting “Confirm”, press the key “” momentarily to save the interface (by reference to “save and exit setting”). Press the key “” or “” momentarily, choose “Yes”, and then press the key “” momentarily to save and exit it.

5.7 Inverter no-load shutdown function setting



1. The left figure shows the inverter no-load shutdown function setting interface of rack UPS, and the right figure shows the inverter no-load shutdown function setting interface of tower UPS.
2. Press the function setting key " for more than 5 seconds to enter the setting interface. Press the key " momentarily to select inverter no-load shutdown function setting interface. Press the key " or " momentarily to select the inverter no-load shutdown function. The user can select ON or OFF the inverter no-load shutdown function is off by default.
3. After selecting "Confirm", press the key " momentarily to save the interface (by reference to "save and exit setting"). Press the key " or " momentarily, choose "Yes", and then press the key " momentarily to save and exit it.

5.8 Inverter no-load power saving function setting



1. The above figure shows the inverter no-load power saving function setting interface of tower UPS (tower UPS can be set through the panel).

2. Press the function setting key " for more than 5 seconds to enter the setting interface. Press the key " momentarily to select inverter no-load power saving function setting interface. Press the key " or " momentarily to select the inverter no-load power saving function. The user can select ON or OFF the inverter no-load power saving function is off by default.
3. After selecting "Confirm", press the key " momentarily to save the interface (by reference to "save and exit setting"). Press the key " or " momentarily, choose "Yes", and then press the key " momentarily to save and exit it.

5.9 DC self-start function setting



1. The above figure shows DC function setting interface of tower UPS (tower UPS can be set through the panel).
2. Press the function setting key " for more than 5 seconds to enter the setting interface. Press the key " momentarily to select DC self-starting function setting interface. Press the key " or " momentarily to select the DC self-starting function. The user can select ON or OFF the DC self-starting function is off by default.
3. After selecting "Confirm", press the key " momentarily to save the interface (by reference to "save and exit setting"). Press the key " or " momentarily, choose "Yes", and then press the key " momentarily to save and exit it.

5.10 AC self-start function setting



1. The above figure shows AC function setting interface of tower UPS (tower UPS can be set through the panel).
2. Press the function setting key “” for more than 5 seconds to enter the setting interface. Press the key “” momentarily to select DC Auto-start function setting interface. Press the key “” or “” momentarily to select the AC auto-start function. The user can select “ON” or “OFF” the AC Auto-start function is off by default.
3. After selecting “Confirm”, press the key “” momentarily to save the interface (by reference to “save and exit setting”). Press the key “” or “” momentarily, choose “Yes”, and then press the key “” momentarily to save and exit it.

5.11 Save and exit setting or direct-exit setting

Save and exit setting



1. The left figure shows “save setting” interface of rack UPS, and the right figure shows the inverter no-load shutdown function setting interface of tower UPS.

2. In setting mode, after confirming the selected parameters, press the key “” momentarily to save the interface. Press the key “” or “” momentarily, choose “Yes”, and then press the key “” momentarily to save and exit it.

Direct-exit setting

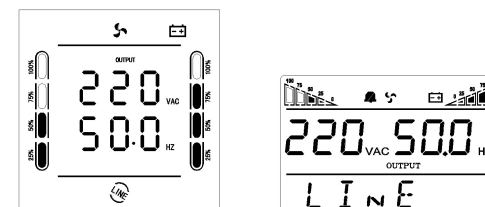
1. Press the key combination “ + ” for 5 seconds in the setting interface to restore factory settings of UPS, and then exit the setting interface.
2. Press the key “” for 3 seconds to exit the setting interface of UPS without saving the data.

6. Parameter Query Operation

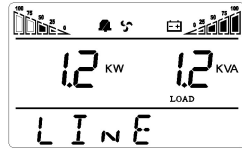
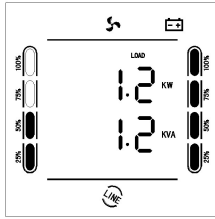
Press the query key “” or “” momentarily to check output, load, temperature, input and battery information in turn.

In non-setting mode, press the key “” for 2 seconds to enter the state of automatic page up/down and re-press the key for 2 seconds to exit the state of automatic page up/down.

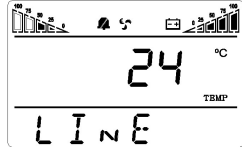
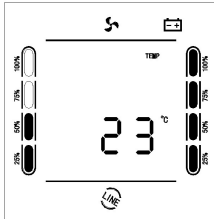
1. Output Display UPS output voltage and output frequency, as shown below (the left figure shows the display interface of rack UPS, and the right figure shows the display interface of tower UPS).



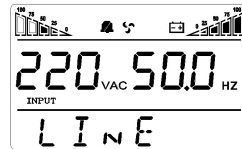
2. Load Display WATT and VA values of the connected load, depending on load type and load value, as shown below (the left figure shows the display interface of rack UPS, and the right figure shows the display interface of tower UPS).



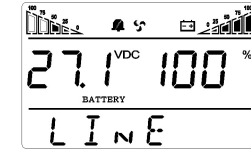
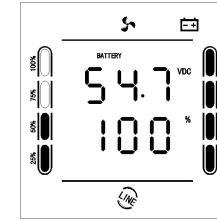
3. Temperature Display the temperature inside the chassis, as shown below (the left figure shows the display interface of rack UPS, and the right figure shows the display interface of tower UPS).



4. Input Display the input voltage and input frequency, as shown below (the left figure shows the display interface of rack UPS, and the right figure shows the display interface of tower UPS).



5. Battery Display the battery voltage and battery capacity, as shown below.



7. Technical Specifications

Note “S” refers to tower standard model. “H” refers to tower extended runtime model
RTS refers to rack RT convertible standard model. RTH refers to rack RT convertible extended runtime model.

Model	1000VA (S/H/RTS)	1500VA (S/RTS)	2000VA (S/H/RTS)	3000VA (S/H/RTS)
DC input				
Rated voltage	24V		36V (H 48V)	48V
DC input range (default)	20-30V		30-45V (H 40-60V)	40-60V
AC input				
AC input range (bypass mode)	0-264Vac for 220Vac/230Vac/240Vac, 0-132Vac for 100Vac/110Vac/120Vac			
AC input range (utility mode)	165-280Vac for 220Vac, 175-290Vac for 230Vac, 185-300Vac for 240Vac, 65-130Vac for 100Vac, 75-140Vac for 110Vac, 85-150Vac for 120Vac			
Frequency input range	50Hz/60Hz (auto-detection), 45-55Hz for 50Hz, 55-65Hz for 60Hz			
Generator	Yes (generator power must be 1.5 times bigger than rated power of UPS)			
Output				
Inverter output range	220Vac/230Vac/240Vac±5% (settable) 100Vac/110Vac/120Vac±5% (settable)			
AC output range (bypass mode)	0-264Vac for 220Vac/230Vac/240Vac, 0-132Vac for 100Vac/110Vac/120Vac			
AC output range (utility mode)	192-241Vac for 220Vac, 203-250Vac for 230Vac, 215-259Vac for 240Vac, 76-111Vac for 100Vac, 87-120Vac for 110Vac, 99-129Vac for 120Vac			
Output frequency	50Hz/60Hz±0.3Hz (Auto-sensing & settable)			

Waveform	Pure sine wave			
Power	1000VA	1500VA	2000VA	3000VA
Output power factor	0.8			
Inverter output efficiency (resistive load)	Max 85%			
Energy saving mode	It can be set (<3% load) to enter the mode after 80s			
No-load shutdown	It can be set (<3% load) to shut down after 80s			
transfer time	≤10ms			
THDV (resistive load)	<5%			
Inductive load	Yes			
Capacitive load	Yes			
Resistive load	Yes			
Protection	Overload, short circuit, battery low voltage, battery overcharge			
Overload time (AC mode)	105% 300s, 110% 120s, 125% 60s, 150% 10s (enter bypass mode later)			
Overload time (inverter mode)	105% 300s, 110% 60s, 125% 10s, 150% 0.7s (shut down later)			
Mute	Auto mute after 60s or manual mute			
Battery				
Battery capacity (H external expansion)	12V/7AH*2 (H 12V*2)	12V/9AH*2	12V/9AH*3 (H 12V*4)	12V/9AH*4 (H 12V*4)
Charging current	Standard model 1A (default), 0-5A adjustable by back-end setting			
	Extended runtime model H 10A (default)			
	H Max 15A	-	H Max 20A	H Max 25A
Average charge voltage	A single battery 14.1Vdc (default), 13.6-15Vdc adjustable by back-end setting			
Floating charge voltage	A single battery 13.5Vdc (default), 13.2-14.6Vdc adjustable by back-end setting			
End of discharge voltage	A single battery 10.2Vdc (default), 9.6-11.5Vdc adjustable by back-end setting			
Warning				
ON/OFF	Beep continuously for 0.5s (one beep)			
Battery low voltage	Beep continuously for 0.16s, with an interval of 0.16s (quick)			
Overload	Beep continuously for 2s, with an interval of 0.5s (long beep)			
Utility power failure	Beep continuously for 0.32s, with an interval of 0.5s (slow)			
Others				
Interface	LCD & BUZZER			
Operating temperature	5℃ - 40℃			
Operating humidity	Relative humidity ≤ 93%			
Cooling mode	Fan			
Tower	Dimension (mm)	346.5*215*144 (S/H)	411.5*215*144 (S) 346.5*215*144 (H)	467*335.5*190 (S/H)
	Packing Dimension (mm)	427*316*236 (S/H)	492*316*236 (S) 427*316*236 (H)	592*462*320 (S/H)

Rack Mount	Net Weight (Kg)	12.2 (S) 8.9 (H)	14.2 (S)	18.5 (S) 13.2 (H)	28.1 (S) 22.5 (H)
	Gross Weight (Kg)	13.2 (S) 10 (H)	15.2 (S)	19.8 (S) 14.2 (H)	30.2 (S) 23.9 (H)
	Dimension (mm)	338*440*88	410*440*132		
	Packing Dimension (mm)	611*448*208	611*505*235		
Rack Mount	Net Weight (Kg)	14.6 (RTS)	17.2 (RTS)	21.3 (RTS)	26.7 (RTS)
	Gross Weight (Kg)	16.8 (RTS)	20.4 (RTS)	24.5 (RTS)	30.5 (RTS)

Note

1. The above products are conventional products of the company. Special customized model shall be subject to the real product.
2. The discharge time is related to the battery capacity and load characteristics, subject to the configuration of the real product.
3. "S" refers to standard model (internal battery). "H" refers to extended runtime model (external battery). The specifications are subject to change without prior notice. The figures provided are for reference.
4. UPS must be connected with battery to work properly

8. Maintenance

8.1 Preventive maintenance

The preventive maintenance of UPS system can ensure UPS reliability and long-term service. The following inspections can be carried out every month.

1. Shut down UPS (specifically refer to operation steps).
2. Check the vent hole to ensure it is not blocked.
3. Check whether the cover has collected too much dust or not.
4. Check whether the input, output and battery cables are firm or not and whether the cable insulation is good or not.
5. Ensure UPS is well protected against moisture.
6. Start UPS (specifically refer to startup operation).
7. Discharge UPS powered by the battery and other unimportant loads, until the battery low voltage alarm sounds. During the period, there will be no other alarm. If any other alarm is triggered, please contact local service center.

8.2 Battery maintenance

This machine adopts sealed lead-acid battery. The service life of the battery depends on the storage and service environment and battery discharge frequency. The temperature increase will shorten the service life of the battery rapidly. Even if the battery is not used, its performance will decrease gradually. It is recommended to carry out the discharge test once every three months in case of uninterrupted power supply.

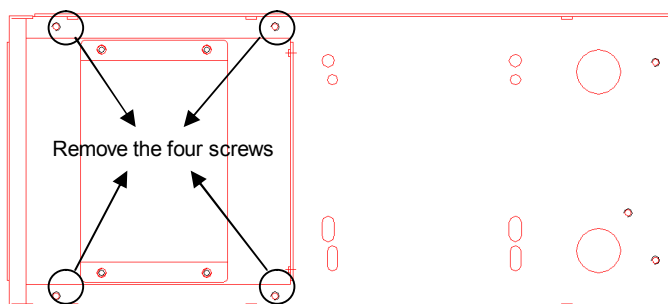
8.2.1 The checking methods of the battery will be introduced as below (the battery performance will decrease sharply with the approaching of the expiration date, so the following checking and maintenance methods shall be kept in mind)

1. Connect with the utility power line, start UPS, and charge the battery for more than 8 hours. Pay attention to the operation condition of the loads connected to UPS.

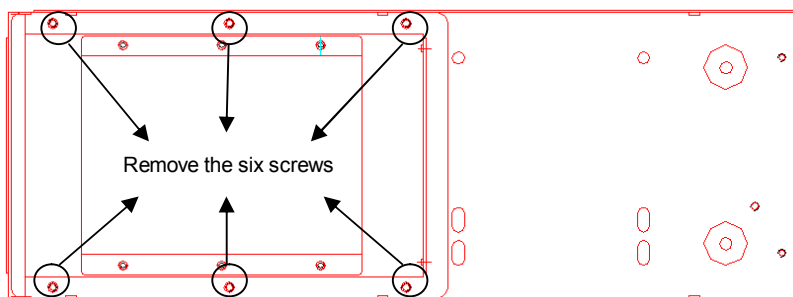
2. Maintain the load condition, and record the total power. Disconnect UPS input plug (to simulate the interruption of utility power). UPS enters battery discharge mode, until it is shut down automatically. And record the discharge time. Keep the record of initial discharge time for future use.
 - a) The total load capacity (power consumption) shall be calculated by watts (W).
 - b) If the nameplate only states the volt-ampere (VA) value, multiply it by the power factor (0.8, if not stated) and convert it to watts (W).
 - c) If only the current (A) value is stated, multiply it by the rated voltage (V) and then by the power factor, and convert it to watts (W).
3. The battery service life is about 1 – 2 years in normal service conditions. When the temperature is pretty high and the discharge is conducted frequently, the battery service life may be 0.5 – 1 year.
4. The battery performance decreases gradually (marked by the discharge time) as the application period extends. When the discharge time decreases to 80% of initial value, its performance reduction will be accelerated. Accordingly, the battery checking time shall be changed to once per month from once half a year.
5. Battery maintenance of extended runtime model (it is crucial to conduct proper maintenance for the battery to prevent the precision equipment from being damaged in case of power outage).
 - a) Clean the dust and dirt on the battery.
 - b) Check internal lines of all batteries for any looseness or corrosion. Carry out the replacement and repair if necessary.
 - c) Ensure the battery and battery terminals are firmly fastened.

8.2.2 Cold replacement battery of tower standard model UPS

Shut down UPS, remove the battery baffle from bottom, cut off connections and take out batteries (please label battery cable connection mode for reference of re-installation). Disassembly mode as shown in figure:



1000VA、1500VA



2000VA

9. Exception Handling

Carry out the self checking according to the following methods in case of abnormal conditions. If the abnormal condition cannot be eliminated, please contact the nearest distributor or warranty unit or directly contact our company.

Condition	Confirmation and countermeasures
The utility power is normal, while UPS cannot connect to it	1) Check whether the power cord is loose. 2) Check whether the over-current protector is out.
The utility power is normal, while UPS cannot start normally. The failure indicator is normally on, "Δ" icon is normally on, and LCD function display area displays OFF	1) Check whether the battery wire is connected or not. 2) Confirm whether the battery is damaged or not.
In utility mode, the buzzer beeps continuously, "Δ" icon blinks, and the machine works in bypass mode after a while in inverter mode, the buzzer beeps continuously, "Δ" icon blinks, and the machine is shut down automatically after a while	Output overload check whether the condition of overload occurs in UPS load display. Reduce the load.
UPS cannot power on after the "ON" key is pressed	1) The "ON" key is pressed too briefly. Press the "ON" key continuously for more than 3 seconds to start UPS. 2) Check whether the battery is connected. 3) UPS has internal failure. Please contact the supplier.
The battery discharge time diminishes	1) The battery has not been fully charged. Keep UPS connected to utility power persistently for more than 8 hours to charge the battery again. 2) UPS is overloaded. Check load capacity, and reduce the load. 3) The battery is aged and the capacity decreases. Replace the battery. Please contact the supplier to obtain the battery and components for replacement.