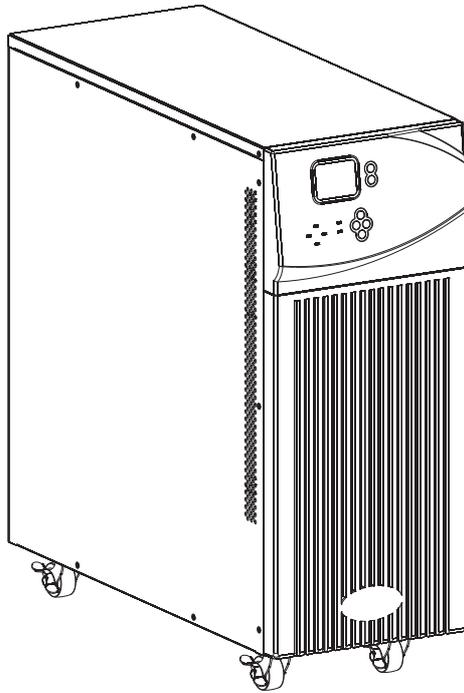




6-10 kVA UPS

# INSTALLATION AND USER MANUAL

## Green Point



KEEP FOR FUTURE REFERENCE  
for the entire life of the appliance





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## Publish statement

Thank you for purchasing this series UPS.

This series UPS is an intelligent, single phase in single phase out, high frequency online UPS designed by our R&D team who is with years of designing experiences on UPS. With excellent electrical performance, perfect intelligent monitoring and network functions, smart appearance, complying with EMC and safety standards, The UPS has become standard product meets the world's advanced level. Read this manual carefully before installation

This manual provides technical support to the operator of the equipment

# Safety Instruction

## 1. Prohibition

1.1 There is a high risk of electric shock from the UPS inside, so please do not open or remove the casing or front panel unless it is operated by authorized technicians, otherwise warranty becomes void as well.

1.2 Please contact and discuss with distributors before connecting the UPS to following equipments

- Medical equipments which have direct relationship with patients' life
- Equipments like elevators which may do harm to human being
- Similar equipments as mentioned above

1.3 Don't dispose of the battery with fire so as to avoid explosion

## 2. Safety notice

- 1) Output of standard UPS configured with internal batteries may be energized even if the UPS input is not connected to the utility
- 2) Do disconnect the UPS input and make sure the UPS is complete off before moving the UPS or reconfigure the connection, otherwise there will be potential electric shock.
- 3) For the sake of human being safety, please well earth the UPS before starting it.
- 4) Working environment and storage way will affect the lifetime and reliability of the UPS. Avoid letting the UPS work under following environment for long time
  - Area where the humidity and temperature is beyond the specified range(temperature 0 to 40 celsius degree, relative humidity 5%-95%).
  - Direct sunlight and location nearby heat
  - Area which can be crashed easily
  - Area with corrosive gas, flammable gas, excessive dust, etc.
- 5) Keep the ventilations in good conditions otherwise the temperature of components inside UPS will be high and the component and UPS life will be affected.
- 6) It is forbidden to pour liquid or put any objects into the UPS.

- 7) Don't use liquid extinguisher if there is a fire, a dry powder extinguisher is recommended.
- 8) Battery life cycle will be shorter as environment temperature rise. Replacing battery periodically can help to keep UPS in normal status and assure backup time required. Battery replacement should be done by authorized technician.
- 9) Keep the UPS in a dry area or environment if it will not be free of operation for long time. Storage temperature of UPS with internal battery is  $-20^{\circ}\text{C}\sim+55^{\circ}\text{C}$ , extended backup model without internal battery is  $-40^{\circ}\text{C}\sim+70^{\circ}\text{C}$ .
- 10) Taking out the UPS or batteries from storage, it is recommended to connect them with the utility for at least 12 hours per 3 months to avoid battery over-draining
- 11) Don't open the battery, electrolyte inside will do harm to eyes and skin. Please use plenty of clean water to wash if touching and go to see a doctor

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# 1. Product Introduction

## 1.1 Application

This series UPS providing reliable AC power to various equipment, can be used for computer center, network management center, auto control system, telecom systems, etc

## 1.2 Product range

Capacity	6kVA		10kVA	
Model	6kVA S	6 kVA H	10kVA S	10kVA H
Remarks	with internal battery	External battery	with internal battery	External battery

## 1.3 System principle diagram

The system can work in single unit, and parallel so as to enhance the reliability.

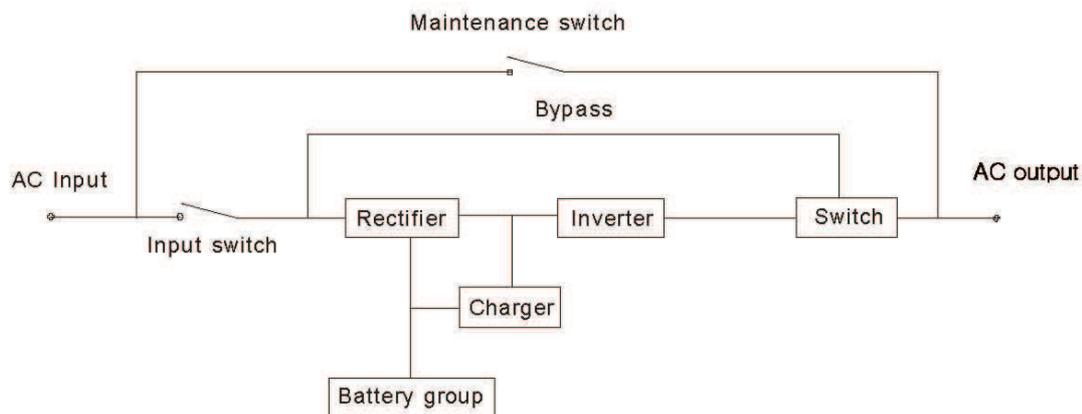


Fig.1-1 Single unit

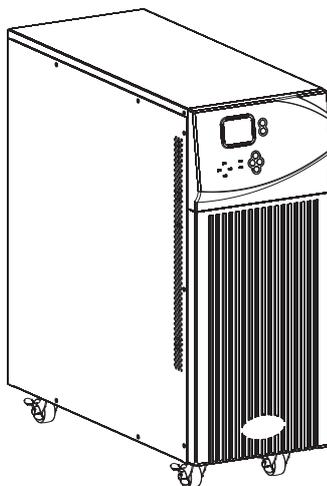
## 1.4 Features

This series UPS is newly introduced. It is an intelligent online sine wave UPS.

- High frequency, double conversion, high input power factor, wide input voltage range, the output will not be disturbed by power network, suitable for area with poor power supply condition
- DSP technology for all-digital control, high reliability, self-diagnostics and protections are featured
- Intelligent battery management which extends battery life
- LCD panel and LED indicators clearly indicate the system status and parameters such as input/output voltage, frequency, load, temperature inside UPS, etc.
- Perfect network power management can be achieved by using UPS monitoring software
- Maintenance bypass switch is provided so the power supply to load will not be interrupted during repair
- Friendly maintenance module design, easy for maintenance.

## 1.5 Product overview

### 1.5.1 Product view



F1-2 Complete unit view

## 1.5.2 LCD Operation instruction

The LCD control panel which consists of LCD display board, LED and buttons, (see Fig1-3) displays and controls these information including operating information, alarm information, function setting information.

### ■ LCD control panel

- 1) Five green LED and one red LED
- 2) LCD control panel which can display four line of English
- 3) Button: On, Off, ESC, Enter, and Left ,Right

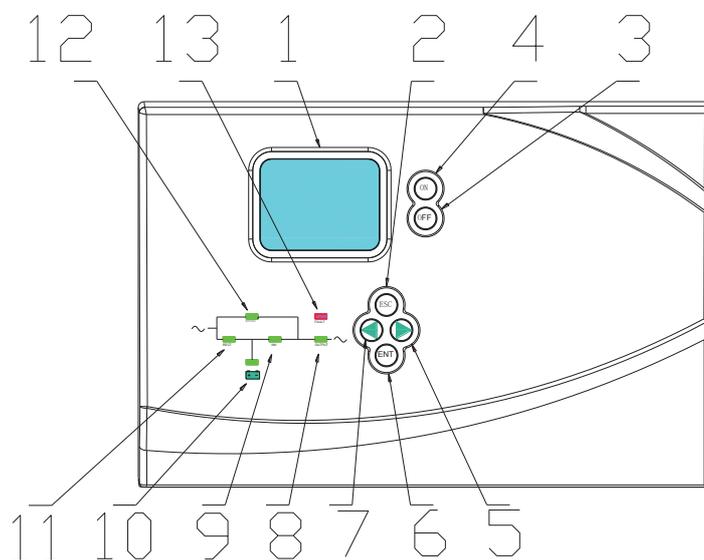


Fig.1-3 LCD control panel introduction

- |                      |                          |
|----------------------|--------------------------|
| 1. LCD Display Board | 8. Output Indicator      |
| 2. ESC               | 9. Inverter Indicator    |
| 3. Off button        | 10. Battery Indicator    |
| 4. On button         | 11. Mains (AC) Indicator |
| 5. right or down     | 12. Bypass Indicator     |
| 6. Enter/Save        | 13. Fault Indicator      |
| 7. left or up        |                          |

## ■ LED indicator definition

- 1) Fault Indicator (red) : On indicates when a fault occurred; Off means no fault
- 2) Indicator (Green) : On means AC is normal, Off means AC is not present, blinking means voltage is beyond normal range
- 3) Inverter Indicator (Green) : On : when load is powered by inverter, Off : when it is not working, blinking: when overload
- 4) Bypass Indicator (Green) : On : when UPS is in bypass mode, Off: not in bypass mode; blinking: when the input is beyond normal range
- 5) Battery Indicator (Green) : On: when UPS is in battery mode, Off : Not in Battery mode; Blinking: when battery voltage is low or battery is not connected
- 6) Output Indicator (Green) : On: when there is output, Off: no output.

## ■ LCD display content

- 1) Running parameters  
Input voltage/frequency, output voltage/frequency/current/loading, output power, inverter voltage, battery voltage/battery remaining capacity, Bus voltage/bus running time, temperature inside UPS
- 2) Alarm information ( priority from high to low )  
It provides shutting down, auxiliary power fault, output short circuit, inverter fault, rectifier fault, over temperature, overload, charger fault, battery fault, battery capacity low, ready to shut down and output fault.
- 3) Parameter setting  
Menu setting, working mode setting, battery capacity setting, ID of parallel UPS, output voltage/frequency level, bypass voltage range, Buzzer enable
  - Boosting charging voltage 2.30 to 2.35V per cell, floating charging voltage 2.20 to 2.29V per cell (use PC to setting)
  - Battery capacity setting includes the Ah of each battery unit, battery quantity 16 to 20, parallel group number
  - Parallel setting
  - UPS ID setting
  - UPS amount setting

■ Button definition

Button	Definition
ON	Switch on the inverter by pressing and holding it for 1s when the UPS is off
OFF	Switch off the inverter output by pressing and holding it for 1s when the UPS is on, load will be powered by bypass output if the bypass is normal
ENT	Confirm the operation
ESC	cancel and go to previous menu
◀	Turn to another menu or parameter
▶	Turn to another menu or parameter

■ UPS Messages reference table

Explanation	Content
Initialization	CurState: Init
No output	No-Out
At bypass	Bypass
Rectifier working	Mains
Battery mode	Battery
Battery testing	Testing
Starting	Starting
ECO mode	CurState: ECO
EPO mode	CurState: EPO
UPS maintaining	CurState: M-Byp
UPS fault	CurState: Fault
Battery float charging	Battery Charging
Battery Boost charging	Battery Boost
Inverter on/off	Inverter ON/ Inverter OFF
Master of UPS	Inver Master
Maintenance switch close or open	SWMB ON/ SWMB OFF

### 1.5.3 Display instruction

- 1) The main interface below comes out when the power is connected or the system is cold start. See Fig1



Fig.1: Main interface

- 2) Press ESC/ ◀ or ▶ button, it will change to the basic status interface, see Fig2 below

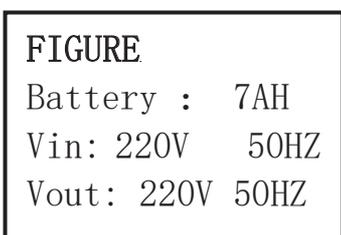


Fig.2: Basic status interface

- 3) Press the ENT button, it will change to main menu, see Fig3,

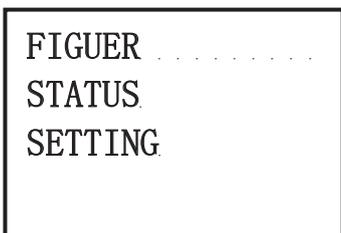


Fig.3: Main menu

- 4) An arrow icon will come out on the LCD when pressing the ENT, then the data info, status info, setting info can be selected by pressing the right or left arrow button, and checking the details by pressing
- 5) Select and confirm the data info to be viewed in detail. It contains the details of the AC input /output, inverter, battery, BUS, parallel, temperature. See Fig 4 to 12 below.

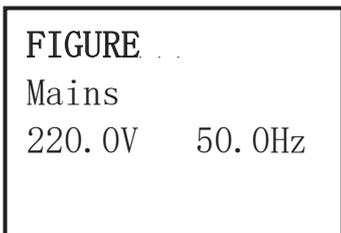


Fig.4: MAIN INPUT INFO

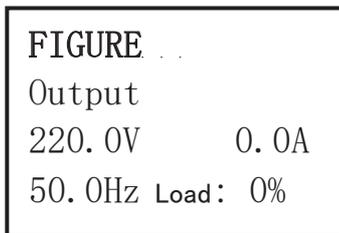


Fig.5: OUTPUT INFO

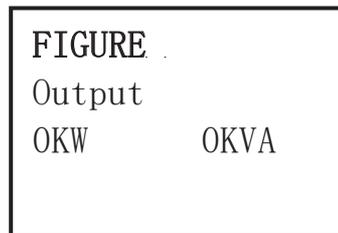


Fig.6: OUTPUT INFO

<b>FIGURE</b>
Invert
220.0V    50.0HZ

Fig.7: INVERTER INFO

<b>FIGURE</b>
P Battery
0V            0.0A
0min        0%

Fig.8: BATTERY INFO

<b>FIGURE</b>
N Battery
0V            0.0A
0min        0%

Fig.9 BATTERY INFO

<b>FIGURE</b>
BUS
-370V        +370V
CAP:        0Hour

Fig.10: BUS INFO

<b>FIGURE</b>
Parallel
ID: 1
P Amount: 0

Fig.11: PARALLEL INFO

<b>FIGURE</b>
Temperature°C
PFC: 27 INV: 27
ENV:27

Fig.12: TEMPERATURE INFO

- 6) Select and confirm the status info can view the details, including status information, alarm information, code, power rating and version. See Fig 13 to 14

<b>STATUS</b>
Code: 11
Fault : 0. 0.0.0
Model: 10.0KVA

Fig.13: main menu

<b>STATUS</b>
Version
V03B05D002

Fig.14: main menu

- 7) Select and confirm setting menu, setting information will be displayed on the screen, which includes user set, system set, parallel set, battery sett, revise set. See Fig 15 to 19

<b>SETTING</b>
Mode:        NOR
Batt num: 16
Batt cap: 7AH

Fig.15: setting menu

<b>SETTING</b>
V-Level: 220V
F-Level: 50Hz

Fig.16: setting menu

<b>SETTING</b>
V-upper     15%
V-lower    -45%

Fig.17: setting menu

<b>SETTING</b>
Buzzer: Enable

Fig.18: setting menu

SETTING	
Parallel set	
ID	1
P-amount	2
P-Redund	0

Fig.29: Parallel setting

### 1.5.4 Rear panel instruction

#### 1.5.4.1 6 kVA H/S rear panel

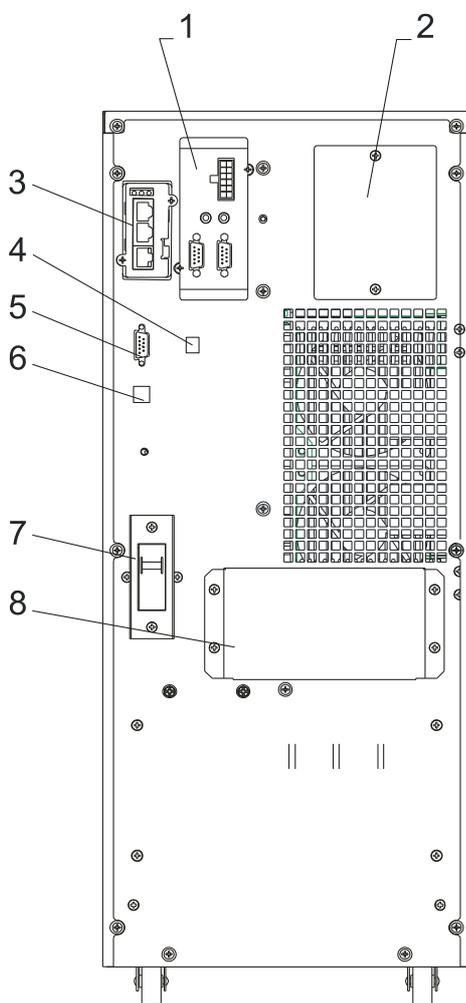
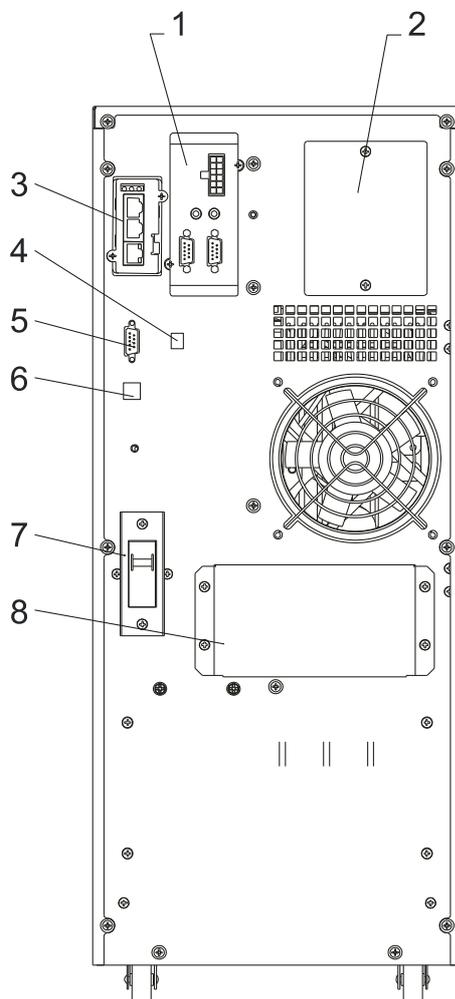


Fig.1-4 Rear Instruction

1. Parallel slot
2. Maintenance bypass switch (covered)
3. Intelligent slot
4. EPO
5. COM

- 6. USB
- 7. Input switch
- 8. Input/output/battery terminal (covered)

#### 1.5.4.2 10 kVA H/S rear panel



- 1. Parallel slot
- 2. Maintenance bypass switch (covered)
- 3. Intelligent slot
- 4. EPO
- 5. COM
- 6. USB
- 7. Input switch
- 8. Input/output/battery terminal (covered)

## 2 Installation

### 2.1 Unpack checking

- 1) Don't lean the UPS when moving it out from the packaging.
- 2) Check the appearance to see if the UPS is damaged during transportation, do not switch on the UPS if any damaged is found and please contact the dealer.
- 3) Check the accessories according to the packing list and contact the dealer if found any parts missing

### 2.2 Installation procedure

#### 2.2.1 Installation note

- \* Put the UPS at flat place next to the equipment.
- \* Keep the UPS at least 20cm from wall or equipment or other object. Don't block the ventilation holes of the UPS located in the front panel and the bottom part, so as to \*keep the ventilation in good conditions; avoid temperature of components inside getting high.
- \* Keep the UPS away from high temperature, water, flammable gas, corrosive gas, dust, direct sunlight and explosive things
- \* Don't lay the UPS outdoor
- \* 63A circuit breaker is required at the input L-N for 6KVA UPS, while 100A for the 10KVA UPS.
- \* PDU is required to connect to the UPS output so as to weaken the affection between loads
- \* In order to fix the UPS, please lock its wheels by shifting the sheet on each wheel
- \* RCD load like computer, linear load and small inductive load can be connected with the UPS. Please contact dealer if other types of loads is required to be connected with
- \* For the safe of user and equipments, please betake correct power configuration

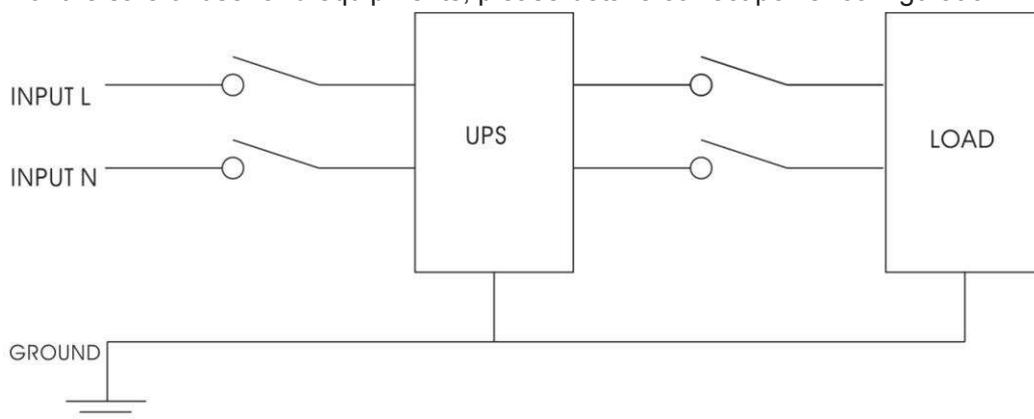


Fig.2-1 Correct power configuration

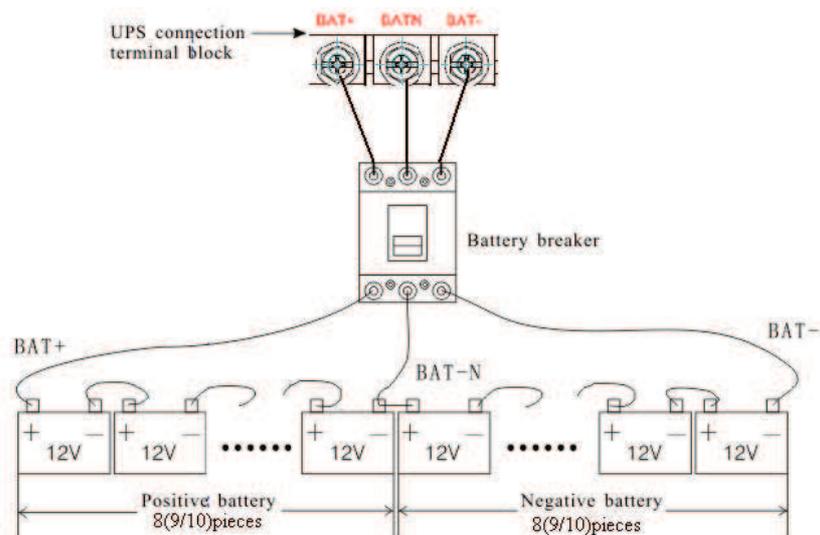
## 2.2.2 Installation

### ■ External battery connection (for extend model )

- 1) The breaker on battery cabinet should be off.
- 2) Connect battery with positive pole, common pole and negative pole to battery connector (BAT+,BATN,BAT-, don't reverse battery polarity).
- 3) Make sure battery quantity complies with the specs. Measure the voltage of battery bank after finishing connection and the battery voltage should be around 192/216/240Vdc. measure positive and negative battery voltage should be around 96/108/120Vdc. Don't mix batteries with different capacity, manufacturers and don't mix brand new and old batteries, either.

#### CAUTION

It is recommended to connect or replace battery after switching off the system; don't reverse battery polarity when doing battery hot-swapping.



### ■ UPS input and output connection

Minimum 10AWG copper wires are required for the 6KVA, and 8AWG for 10KVA, including input/output cables, battery cables.

- 1) Switch off all breakers before connecting cables
- 2) Remove the cover of the terminals, see Fig 2-2, following it to connect the cables

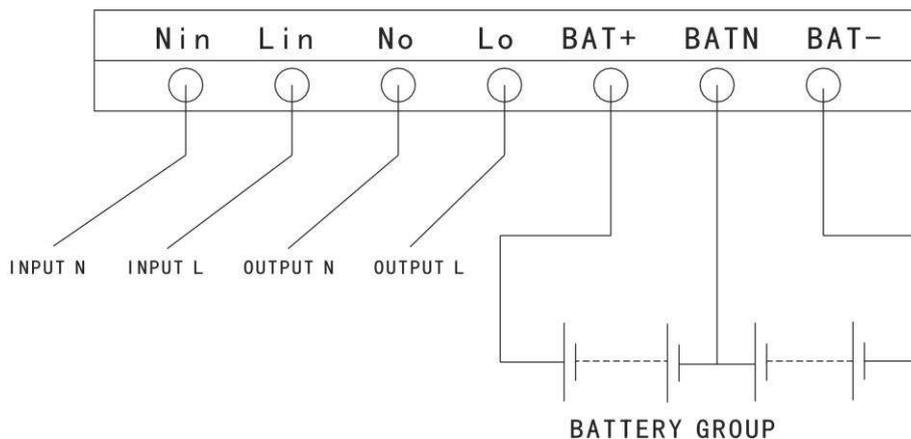


Fig.2-2I/O terminals connection

**CAUTION**

Terminators are required so as to ensure the connections are firm  
 Don't reverse the input L and N  
 Don't connect the UPS input to a wall outlet or the outlet will get burnt.

- 3) Connect the UPS output L, N, E to L, N, E of load via a PDU. Tighten the screws and shelter the terminals

**WARNING !**

***Please connect the output Earth well before go for other operation***

■ **Connection of the UPS communication cables**

- 1) USB cable provided in accessories can be used to connect the UPS with PC
- 2) Follow steps below to install SNMP (if purchased ):
  - A. Remove the cover of SNMP slot at UPS rear panel and keep it for further use.
  - B. Insert the SNMP card and tighten the screws
  - C. Connect the UPS with internet by network cable.
  - D. Refer to the SNMP manual provided to do SNMP setting

## 2.3 Connection of parallel system

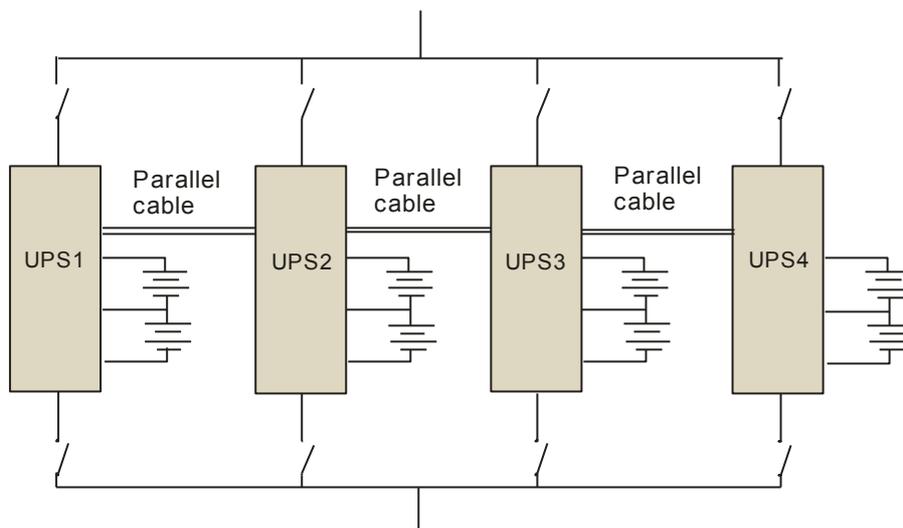


Fig.2-3 parallel system

Make sure all the breakers are off and no output at the UPS output.

### CAUTION

Connect the L,N and E well

Configure individual battery bank for each extend backup UPS in parallel system. Also can be use common battery bank.

Extended connecting cables in Parallel:

When the UPS are connected in parallel, the copper wires required to connect with each UPS is minimum 10AWG for the 6KVA and 8AWG for 10KVA, but the main wire for linking all the UPS in parallel should be  $N \times 10\text{AWG}$  or 8AWG (N refers to the number of the UPS in parallel.)

Make sure the cables are as shorter as possible to reduce any possible noise interference to data transfer.

## 3. Operation

### 3.1 Working modes

The UPS has AC mode, bypass mode, battery mode and ECO mode

#### 3.1.1 AC mode

If the AC input and load capacity are in normal ranges, the load will be powered by inverter output, battery will be charged at the same time. AC and inverter indicators on LCD control panel will be on (green).

#### **CAUTION**

Please note below if the UPS input power is provided by a generator

- 1) Don't switch on the loads before starting UPS. After the UPS has been started and worked steadily, switch on the loads one by one. Suggest that the total capacity of the loads should lower than 30% of capacity of generator
- 2) It is suggested that the rating of generator should be 1.5-2 times of the capacity of the UPS.

#### 3.1.2 Bypass mode

When the AC power is connected and the UPS has not been switched on, or the UPS is overloaded after switching on the UPS, it will go to bypass mode. The Loads will be powered by AC, battery will be charged, and the bypass indicator on the LCD control panel will be on (green). But, if the bypass is beyond normal range or absent, the UPS will not go to bypass mode and no power will be supplied to the loads.

#### 3.1.3 Battery mode

In AC mode, if the AC is absent or beyond normal range, the rectifier and charger will stop working, the loads will be powered by battery bank of which energy goes through inverter circuit. The Inverter's and battery's indicators on LCD control panel will be on (green) and the alarm will beep every 3 seconds.

In battery mode, if the battery voltage becomes low and reaches the setting value, the system will give low battery voltage alarm, beep once every second and the LCD will give low battery alarm, too.

**CAUTION**

Charge batteries for at least 8 hours when the UPS is used at the first time as battery has self-discharge characteristics even though the UPS has been fully charged by manufacturer before shipping.

### 3.1.4 ECO mode

In AC mode, the UPS can be set to work in ECO mode if the load does require strict power purity and it can be sustained in bypass mode normally. If the AC is beyond normal range, the UPS will transfer back to inverter mode. The Efficiency for the UPS in ECO mode is much higher.

## 3.2 Operation

### 3.2.1 Power on

Switch on the AC input and bypass circuit breakers if all connections are correct. If external batteries are connected, please switch on the battery breaker first, then the AC breaker. Fans will spin and the system will execute self-diagnostics. After the self diagnostics is finished, the buzzer inside will beep twice. The system will go to bypass mode, then AC and bypass indicators on front panel will be on (green) and it goes to inverter mode.

### 3.2.2 System parameter setting

Check the information displayed on the LCD by right or left arrow button, press ESC to quit from the main menu. When the function setting interface as P.11 Fig3, press the ENT to enter to function setting such as floating charging, boosting charging, temperature compensation function, battery capacity ( for extended backup model only )

### 3.2.3 Start

■ AC available

- 1) Press the On button and hold it for 1s until hearing a beep , wait for a few seconds, the bypass indicator will be off , the inverter indicator will be on, see Fig3-6, then, UPS is working in AC mode

**CAUTION**

The UPS can start automatically when the AC power comes back if the UPS was shut down due to battery exhausted last time , or the auto restart function has been enable.

- 2) Gradually increase the load after the UPS working normally. Load information can be checked through the LCD.
- 3) If the buzzer beeps twice per second and overload alarm is displayed on LCD, it means the system is overloaded. Please decrease the load immediately. 70% of load is recommended in case of sudden load added, which will not affect the UPS to work normally

**CAUTION**

If the UPS has transferred to bypass mode due to overload for several times and reach the setting times in 1 hour, it will keep in bypass mode unless manually transfer to inverter mode or automatically transfer to inverter mode 1 hour later without overloading

■ Battery mode

UPS can start in battery mode even if the AC is absent.

- 1) Press the On button and hold for 1 second until hearing one beep, battery and inverter indicators will be on after finishing self- diagnostics. The UPS will beep once every 3 seconds which means it is working in battery mode
- 2) Add load the same as above AC mode description

**CAUTION**

Please decrease load immediately if system is overload otherwise it will shut down in some time.

### 3.2.4 Inverter shutdown

- 1) If the AC is normal, press the off button and hold for 1 second until hearing one beep, inverter indicator will be off , bypass indicator will be on, UPS will work in Bypass mode
- 2) If the AC is absent, press the off button and hold for 1 second until hearing one beep, UPS will shut down the output and the LCD will display shutting down.

### 3.2.5 Power off

After switching off the inverter, switch off the AC and battery circuit breakers, the LCD control panel will be off, fan will stop. If there is battery bank connected, it will take 30 seconds to shut down the system completely

Power of equipment will be cut off when the UPS is powered off

### 3.3 Working Mode and transferring

Usually, the UPS should be set to work in AC mode, so it will transfer to battery mode automatically without interruption when AC fails. When the UPS is overloaded, it will transfer to bypass mode without interrupt. When the inverter is defective or over temperature inside UPS, UPS will transfer to bypass mode if the bypass is normal

#### 3.3.1 Transfer to bypass if overload

When the load of the UPS is beyond normal range and lasts for the time set, it will transfer to bypass mode and beeps twice every second. Then, the load is powered by AC directly, at that time, please decrease the load immediately until the alarm is eliminated. UPS will start the inverter after 5 mins. In order to protect the load and UPS, it is required to set the limitation times of transferring to bypass mode due to overload in 1 hour. If it exceeds the limitation times set, the UPS will keep in bypass mode.

#### 3.3.2 Normal mode to battery mode

The UPS will go to battery mode if the AC is failed. The UPS will shut down automatically if batteries are drained. When AC recovers, the UPS will start the inverter automatically.

#### 3.3.3 Go to Bypass mode due to over temperature

The temperature inside UPS may be high if ambient temperature is high or the ventilation is poor, then the UPS will go to Bypass mode, fault indicator will be on (red), the LCD will display that the inner temperature is high, long beeps will come. If so, please cut off the input power of UPS, move objects that affecting the ventilation far way from UPS if any or increase the distance between the UPS and the wall. Wait until UPS temperature become normal, restart it.

#### 3.3.4 Output short circuit

When the UPS output is in short circuit, UPS will cut off the output, fault indicator will be on (red), the LCD will display that output is short circuit, long beeps come. If so, please disconnect the short circuit load, cut off the UPS input power and wait for 10mins, UPS will shut down automatically or press the off button to shut down in after 10s. Before restarting the UPS, please make sure that the short circuit problem has been solved

### 3.4 UPS monitoring



Please refer to instruction of the UPS monitoring software provided.

## 3.5 LCD operation menu

### 3.5.1 Main menu switching

Pressing the left/right arrow and ENT button can switch among alarm info, running parameter and function settings. Press ENT to enter alarm info, running parameters or function settings. To enter function settings, double pressing on ENT is required.

### 3.5.2 Submenu switching

- 1) Press the arrow button can view the details after entering the running function interface, and press ESC to return to main menu.
- 2) Press the arrow button can view the details after entering the function settings interface, press ESC to return to main menu
- 3) Parameter which has been selected and to be changed will be highlighted. Press arrow button to change the value and press ENT to confirm the value. Once confirmed, it will not be highlighted.
- 4) Press the arrow button can view the detailed alarm info after entering the alarm info interface, press ESC to return to main menu

### 3.5.3 Priority of info displayed on LCD

- 1) If there is alarm but no valid operation on buttons, the alarm info with top priority will be shown on LCD automatically
- 2) When there isn't any alarm and LCD is displaying the submenu of running parameters, such as output current, these parameters will be always displayed on the LCD if no further operation on buttons. If LCD is not displaying the submenu of running parameters, it will return to main menu if 30s as long as there isn't any operation on buttons

## 4. Maintenance

Please follow 2.2.1 to install the UPS

### 4.1 Fan maintenance

Continual working time of fan is 20000 to 40000 hours. It will be shorter as temperature raises. Please check the fan periodically, make sure there is wind blowing out from it.

### 4.2 Battery maintenance

There are sealed lead acid maintenance free batteries inside this series standard models. Battery life depends on environment temperature and discharge/charge cycles, it will be shortened if temperature raised or deep discharged. Periodical maintenance is required so as to keep battery in good conditions.

- 1) The most proper working temperature is 15 to 25 Celsius degree.
- 2) Avoid small discharging current. Don't let UPS work in battery mode continuously for 24 hours.
- 3) Charge battery for at least 12 hours every 3 months if it is free of operation. If the environment temperature is high, charge it once every 2 months.
- 4) For extended backup models, check and clean the battery connectors periodically.

If backup time has become much less than before, or there is battery fault displayed on LCD, please contact distributors to confirm whether the batteries are needed to be replaced or not.

#### **CAUTION**

- 1) Don't short circuit battery, or it may cause a fire.
- 2) Don't open battery, released electrolyte is harmful to skin and eyes

### 4.3 Visual checking

Keep ventilation of the UPS in good condition

## 4.4 UPS status checking

- 1) Check to see if there is any fault occurred, fault indicator is on, any alarm there.
- 2) Please find the cause if the UPS is working in bypass mode.
- 3) If the UPS is working in battery mode, make sure it is normal, on the contrary, please find out the cause

## 4.5 Function checking

Do function checking once every 6 months.

- 1) Press the off button to see if the buzzer and indicators and LCD are normal or not.  
Please refer to 3.1
- 2) Press the On button, check the indicators, LCD and UPS inverter, make sure they are normal
- 3) When UPS is working in normal condition, do the battery testing to ensure battery is in good condition.

# 5 Trouble shooting

Please contact the distributor if problems can not be solved by following trouble shooting below

No	Problem description	Probable causes	Solution
1	No display on LCD, no self- diagnose	A. Input power absent B. Low input	Use Multi-meter to measure the input to see if it is normal or not.
2	AC normal but AC indicator off, UPS is in battery mode	A. Input circuit breaker off. B. Input power connection problem	A. Switch on input breaker B. Check the connection and re-do
3	No alarm but no output	Output connection problem	Check the connection and re-do
4	The UPS doesn't start after pressing On button	A. time of pressing ON button is short insufficient B. Overload	A. Press and hold On button for 1s B. Disconnect all loads and restart
5	AC indicator blinking	Input AC is beyond normal range	Pay attention to the backup time if UPS is in battery mode
6	Buzzer beeps twice every second, LCD shows "output overload"	UPS overload	Disconnect some loads

7	"Fault indicator On and LCD shows "battery fault"	A. Battery circuit breaker off or poor connection B. Reverse battery connection C. Battery defective	A. Switch On the breaker, check the battery connections B. Check the battery polarity C. Contact distributor to replace battery
8	Fault indicator on and LCD shows "charger fault "	Charger defective	Contact distributor
9	Abnormal backup time	A. Battery not fully charged B. Battery Bad	A. Charge battery for 8 hours when AC is normal, then test the backup time again B. Contact distributor to replace battery
10	Long beeps, fault indicator on, the LCD shows over-temperature	Over temperature inside UPS	A. Check to see if there is wind blowing out from fans B. Move objects away from the UPS C. Wait till the UPS becomes cool and restart UPS
11	Long beep fault indicator on and the LCD shows "output short circuit "	Output short circuit	Eliminate the short circuit and restart UPS
12	Long beeps, fault indicator on, LCD shows "rectifier fault"/"inverter fault"/"auxiliary power fault"/"output fault"	Fault inside UPS	Contact distributor
13	Abnormal sound or smell	Fault inside UPS	shut down the UPS immediately and Contact distributor

Please provide the UPS model, SN when calling distributor for maintenance.

## Appendix 1. USB communication port definition

Definition of Male port:

1	2
4	3

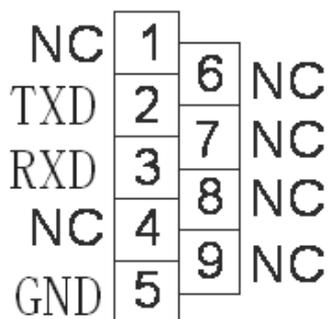
Pin 1 VCC , Pin 2 D-  
pin 3 D+ , Pin 4 GND

Available function of USB

- Monitor UPS power status
- Monitor UPS alarm info
- Monitor UPS running parameters
- Timing off/on setting

## Appendix 2. RS232 communication port definition

Definition of Male port:



Connection between PC RS232 port and UPS RS232 port:

PC RS232 port	UPS RS232 port	
Pin 2	Pin 2	UPS send, PC receive
Pin 3	Pin 3	PC send, UPS receive
Pin 5	Pin 5	ground

Available function of RS232:

- ◆ Monitor UPS power status.
- ◆ Monitor UPS alarm info.
- ◆ Monitor UPS running parameters.
- ◆ Timing off/on setting.

RS-232 communication data format:

Baud rate ----- 2400bps  
 Byte length ----- 8bit  
 End bit ----- 1bit  
 Parity check -----none

## Appendix 3. Specification

	<b>6kVA/5.4kW</b>	<b>10kVA/9kW</b>
<b>input</b>	Input	Single phase + Ground
	Power factor	≥0.99
	rating voltage	220Vac/230Vac/240Vac (can be set)
	rating frequency	50Hz/60Hz (auto sensing)
	Voltage range	120~276Vac
	Frequency range	45~55Hz/54~66Hz
	Bypass voltage range	220Vac max: 10%, 15%, 20% or 25%, default : 25% 230Vac max: 10%, 15% or 20%, default +20% 240Vac max: +10% or 15%, default +15% min: 20%, 30% or 45%, default 45%
	Bypass frequency range	±1%、±2%、±4%、±5%、±10%
	THDI	≤3% (100% linear load, input THDV ≤1%) ≤5% (100% non liner load, input THDV ≤1%)
	<b>battery</b>	Battery number
Battery type		VRLA
Charge model		Boost charge or float charge auto switch
Charge time		Boost charge up to 20Hr(Max)
Charge current(A)		6KVA:1-6 A 10KVA: 1-6 A
<b>output</b>	Output	Single phase + Ground
	Output precision	1.0%;
	Voltage distortion (THD)	≤2% at 100% liner load ≤5% at 100% non-liner load
	Rating voltage	220/230V /240V
	Frequency precision	±0.1%
	Rating Frequency	50Hz/60Hz
	Frequency track speed	1Hz/s
	Overload	105%~110%, 1Hr 110%~125% 10min 125%~150% 1min ≥150% 200ms
	Overload for bypass	125%
	Peak value factor	3:1
	Efficiency at normal	≥90%

	Dynamic respond	5.0% 20ms
	DC heft	≤500mV
Switch time	Between Normal mode and battery mode	0ms
	Between inverter and bypass	0ms. unlock: <15ms (50Hz), <13.33ms (60Hz)
	Noise	<55dB (1m)
	Display	LCD+LED
	Safety	Meeting IEC62040-1 GB4943.
	Max input voltage	320Vac, 1Hr
	EMI	Conduction : IEC 62040-2
		Radiation : IEC 62040-2
		Harmonics : IEC 62040-2
	EMS	IEC 62040-2
	MTBF	250,000Hr 1+1 400,000Hr
	MTTR	30min
	Isolation resistance	> 2MΩ (500Vdc)
	Isolation intension	2820Vdc, <3.5mA, 1min
	Surge	Meeting IEC60664-1 1.2/50uS+8/20uS 6kV/3kA.
	Protection	IP20
	Parallel circumfluence	1+1≤8%, N+1≤3%
	Parallel equal current	1+1≤8%, N+1≤10%

## Dimension & weight

DIMENSION			
Capacity	KVA	6KVA/5.4KW	10KVA/9KW
Height	mm	616	
Width	mm	250	
Depth	mm	502	
Net weight	kg	6KVA: 62 Kg 10KVA: 75 Kg	
Color		Blackness	



## Appendix 4. Options

1. Dry contact card
2. SNMP card
3. Parallel card

## Appendix 5. UPS message table

This section lists the event and alarm messages that the UPS might display. The messages are listed in alphabetical order. This section is listed with each alarm message to help you troubleshoot problems.

### 4.1 Operational Status and Mode(s)

item	Content Displayed	LED			
		Fault	Bypass	Battery	Inverter
1	Initialized	EXTINGUISH	EXTINGUISH	EXTINGUISH	EXTINGUISH
2	Standby Mode	EXTINGUISH	EXTINGUISH	X	EXTINGUISH
3	No Output	EXTINGUISH	EXTINGUISH	X	EXTINGUISH
4	Bypass Mode	EXTINGUISH	LIGHT	X	EXTINGUISH
5	Utility Mode	EXTINGUISH	EXTINGUISH	X	LIGHT
6	Battery Mode	EXTINGUISH	EXTINGUISH	LIGHT	EXTINGUISH
7	Battery Self-diagnostics	EXTINGUISH	EXTINGUISH	LIGHT	EXTINGUISH
8	Inverter is starting up	EXTINGUISH	X	X	EXTINGUISH
9	ECO Mode	EXTINGUISH	X	X	X
10	EPO Mode	LIGHT	EXTINGUISH	X	EXTINGUISH
11	Maintenance Bypass Mode	EXTINGUISH	EXTINGUISH	EXTINGUISH	EXTINGUISH
12	Fault Mode	LIGHT	X	X	X

**Note:** “X” means that it will be determined by other conditions.

### 4.2 Alarm Information

Item	UPS Alarm Warning	Buzz	LED
1	Rectifier Fault	Beep continuously	Fault LED lit
2	Inverter fault(Including Inverter bridge is shorted)	Beep continuously	Fault LED lit
3	Inverter Thyristor short	Beep continuously	Fault LED lit
4	Inverter Thyristor broken	Beep continuously	Fault LED lit
5	Bypass Thyristor short	Beep continuously	Fault LED lit
6	Bypass Thyristor broken	Beep continuously	Fault LED lit
7	Fuse broken	Beep continuously	Fault LED lit
8	Parallel relay fault	Beep continuously	Fault LED lit
9	Fan fault	Beep continuously	Fault LED lit
10	Reserve	Beep continuously	Fault LED lit
11	Auxiliary power fault	Beep continuously	Fault LED lit
12	Initialization fault	Beep continuously	Fault LED lit
13	P-Battery Charger fault	Beep continuously	Fault LED lit

Item	UPS Alarm Warning	Buzz	LED
14	N-Battery Charger fault	Beep continuously	Fault LED lit
15	DC Bus over voltage	Beep continuously	Fault LED lit
16	DC Bus below voltage	Beep continuously	Fault LED lit
17	DC bus unbalance	Beep continuously	Fault LED lit
18	Soft start failed	Beep continuously	Fault LED lit
19	Rectifier Over Temperature	Twice per second	Fault LED lit
20	Inverter Over temperature	Twice per second	Fault LED lit
21	Reserve	Twice per second	Fault LED lit
22	Battery reverse	Twice per second	Fault LED lit
23	Cable connection error	Twice per second	Fault LED lit
24	CAN comm. Fault	Twice per second	Fault LED lit
25	Parallel load sharing fault	Twice per second	Fault LED lit
26	Battery over voltage	Once per second	Fault LED blinking
27	Mains Site Wiring Fault	Once per second	Fault LED blinking
28	Bypass Site Wiring Fault	Once per second	Fault LED blinking
29	Output Short-circuit	Once per second	Fault LED blinking
30	Rectifier over current	Once per second	Fault LED blinking
31	Bypass over current	Once per second	BPS LED blinking
32	Overload	Once per second	INV or BPS blinking
33	No battery	Once per second	BATTERY blinking
34	Battery under voltage	Once per second	BATTERY blinking
35	Battery low pre-warning	Once per second	BATTERY blinking
36	Internal Communication Error	Once per second	Bypass LED lit
37	DC component over limit.	Once per 2 seconds	INV blinking
38	Parallel Overload	Once per 2 seconds	INV blinking
39	Mains volt. Abnormal	Once per 2 seconds	BATTERY LED lit
40	Mains freq. abnormal	Once per 2 seconds	BATTERY LED lit
41	Bypass Not Available		BPS blinking
42	Bypass unable to trace		BPS blinking
43	Inverter on invalid		