On- Line uninterruplable power supply

Power Series
GP800
User’s manual

Contents

1 BRIEF INTRODUCTION

1.1 Preamble

This product is designed for medium to mid size computer installations. The equipment has been designed for ease of use, compact and low in noise for office installations. The compact slim line design has a small footprint to minimizing office space, but does not compromise in quality. Apart from being convenient to install and operate, it has been designed to the highest technically specifications, ensuring reliable clean power.

1.2 Five design advantages

1. Compact slim line design
2. Light weight making it easy to transport
3. Reliable and easy to operate
4. Convenient to maintain
5. Low in noise and heat emissions.

1.3 Note

The manual explains how to install, operate and maintain the UPS easily. To optimize the use of this UPS, please note the following:

1. Read the manual carefully before use
2. Operate the UPS strictly according to operating instructions
3. Place the UPS in a convenient, dry and safe area
4. Install the power according to instructions in the manual
5. Do not open the covers to avoid injury
6. Keep the unit on at all times to keep the batteries charged
7. Do not use the UPS in the fault condition
8. Do not obstruct air flow
9. Do not leave objects on top of the UPS

10. Call your closest service center if the unit indicates a fault in any way
11. Maintenance by a trained, qualified technician is recommended at regular intervals to optimize the life of the UPS.

2 APPEARENCE AND OPERATION

2.1 Front panel

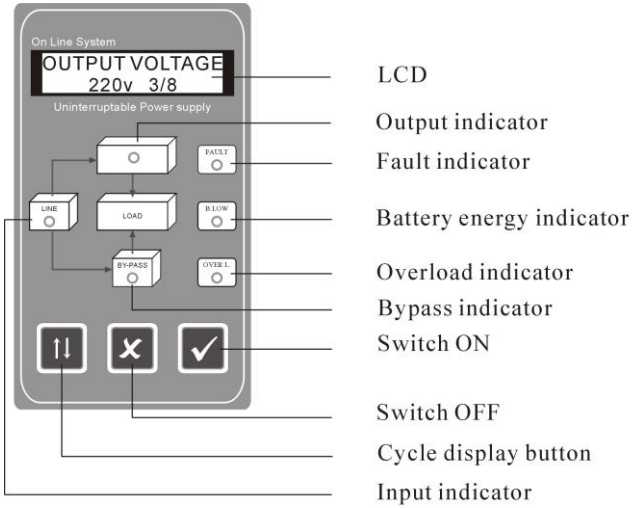


Figure 1. Symbol instruction of front panel indicator

1) Welcome screen

   WELCOME TO

   ×××PSS_UPS×××

2) Display of system status

   ×××××

   AC: IN BAT: OK

   Note: AC: indicates utility; BAT: indicates battery;

   AC: IN indicates utility power is normal;

   AC: LOSS indicates utility power is abnormal;

   BAT: OK indicates battery is normal;

   BAT: LOW indicates battery capacity is depleted.

3) Display of input voltage value

   INPUT VOLTAGE

   230V 2/8

4) Display of output voltage value

OUTPUT VOLTAGE
230V 3/8

5) Display of input frequency value
INPUT FREQUENCY
50HZ 4/8

6) Display of output frequency value
OUTPUT FREQUENCY
50HZ 5/8

7) Display of battery voltage value
BATTERY VOLTAGE
218V 6/8

8) Display of output power Percent
CURRENT LOAD
100% 7/8

9) Temperature display in machine
TEMPERATURE
33℃ 8/8

*These parameters may vary with machine model.

10) LCD scroll button

11) UPS general switch button.

(1) To switch UPS on, press the “ON” button. UPS will switch to the on line mode within 20 seconds.

(2) To switch UPS off press the “OFF” button. UPS reverts to utility power.

2.2 Appearance

Figure 2 Front panel

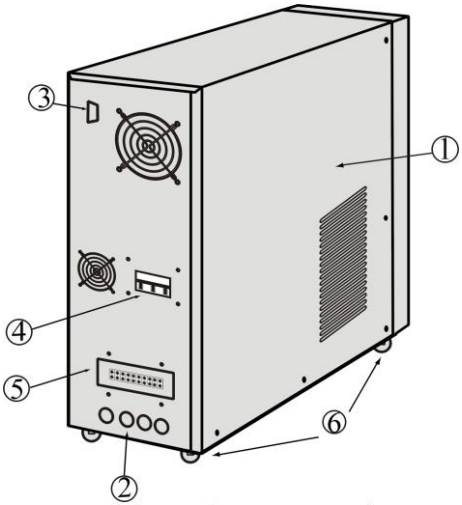


Figure 3 Rear panel

1. Emission heat ventilation hole:

The ventilation hole and other small long elliptic ventilation holes should be kept clear for good ventilation.

2. Wiring inlet/outlet holes:

Wiring inlet/outlet hole of input, output and battery pack cabling.

3. RS232 communication interface receptacle

Standard communication interface between UPS and computer.

4. Power switch:

Power switch controls input, output and battery power switch at the same time.

5. Wiring Terminal support

Power wiring Terminal support of input, output and battery.

6. Casters:

There are four hidden wheels, for ease to move.

3 TRANSPORT AND POSITIONING

3.1 Transport

1. Keep UPS in its original packaging while in transit.
2. Do not drop UPS.
3. Keep upright in transit

3.2 Positioning

1. Do not place the UPS on the slope or unevenly. (Figure 4)

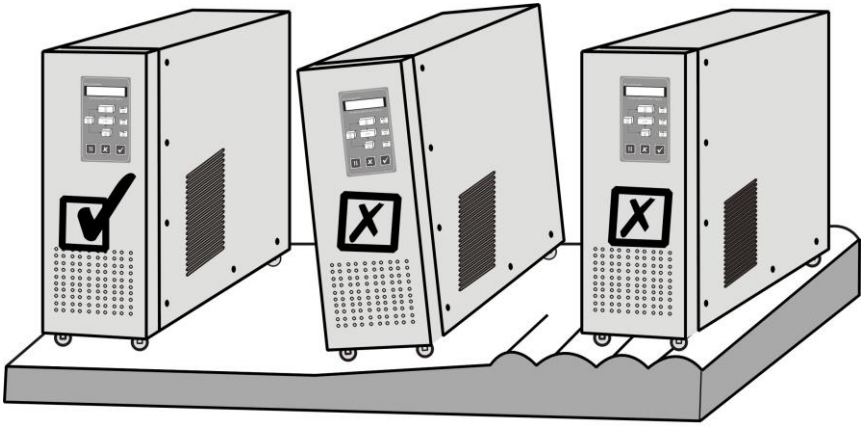


Figure 4, choice of placement position

2. Place UPS in a dry and ventilated area. For good ventilation the unit needs at least 10cm clearance around the unit.
3. Do not install UPS in direct sunlight or rain. (Figure 6, 7)

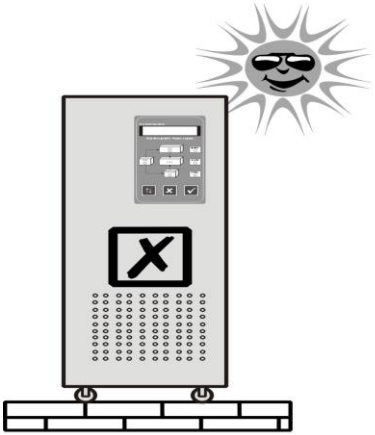


Figure 6

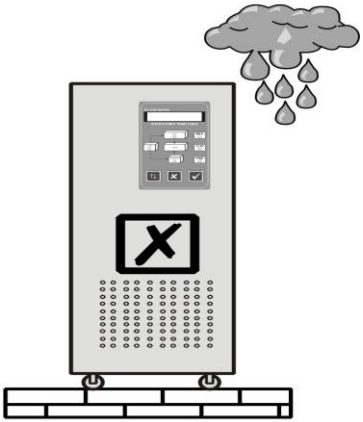


Figure 7

4. Keep away from sources of high temperature to avoid overheating (Figure 8)
5. Do not lay objects on the UPS. (Figure 9)
6. Do not install UPS near corrosive or flammable gases. (Figure 10)
7. Running environment should not exceed temperature: 40 degrees C.

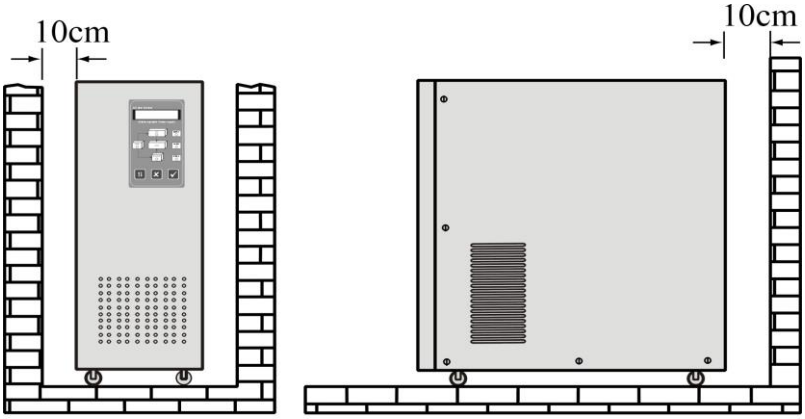


Figure 5

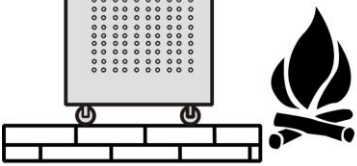


Figure 8

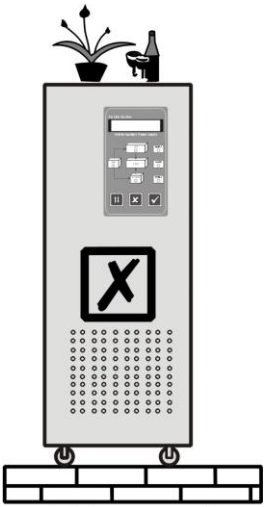


Figure 9

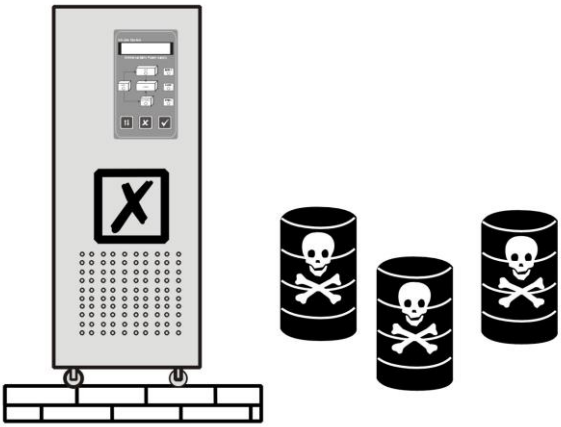
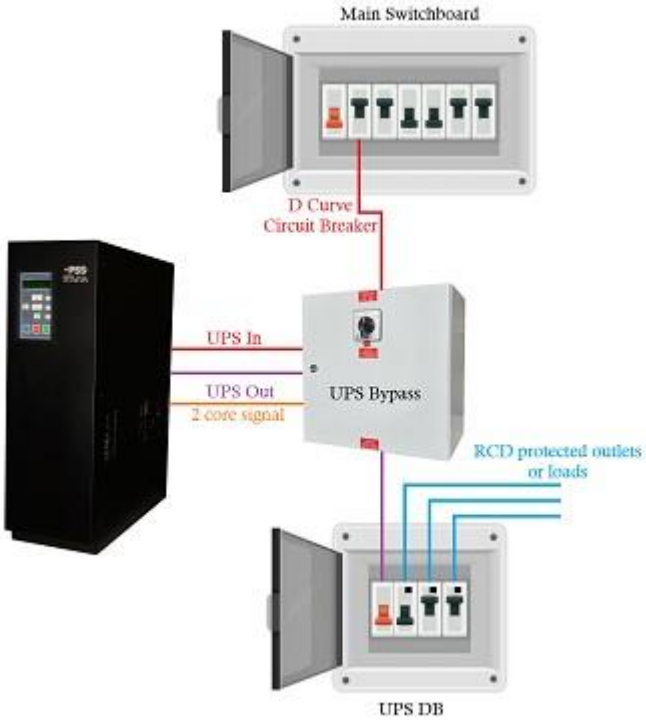


Figure 10

4 INSTALLATION

4.1 Input

1. UPS can not be plugged into the wall outlet as the current draw exceeds the outlets current rating.
2. UPS must be hard wired to the local switchboard. (figure 11)
3. UPS must be installed by qualified personal.
4. To remain compliant with Australian Standards, any hard wired UPS system must have an RCD installed on any outgoing circuits.



Remove cable terminal plate (Figure 12)

(1) Open cable terminal plate and inspect the wiring terminal below the power switch. (Figure 13)
(2) Connect cables as shown below.
(3) Once connected, make sure that the earth wire is connected to the earth terminal.
(4) Check that there is less than 2V difference between earth and neutral.
(5) Connect output cables to the output terminals.(Figure 15)
(6) Make sure that the output earth is connected to the ground terminal (Figure 15)

5. Replace cable terminal plate once connecting the relevant cables.
6. Gland the relevant cables to glad plate to ensure a secure connection.

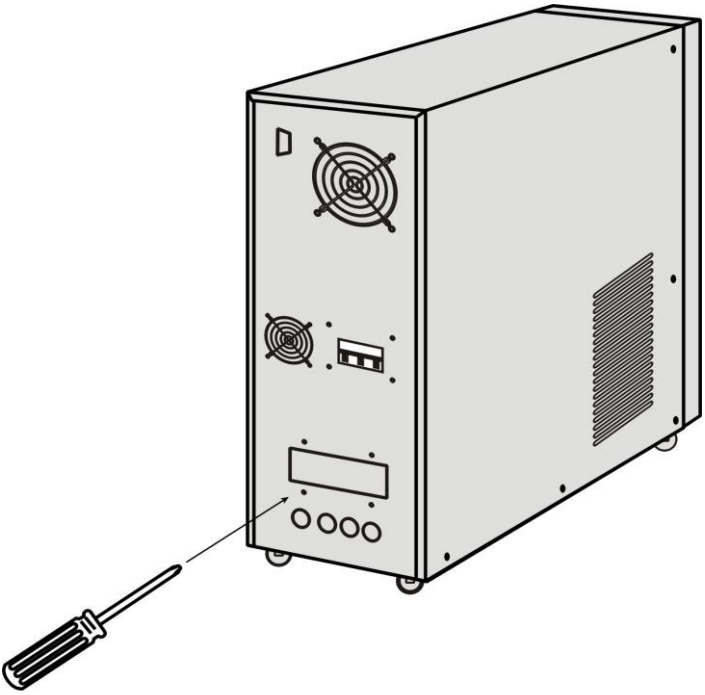
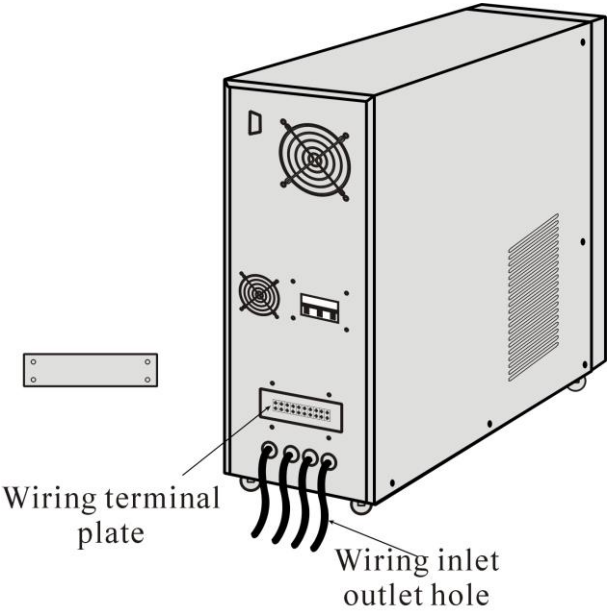


Figure 12


Wiring terminal plate
Wiring inlet outlet hole

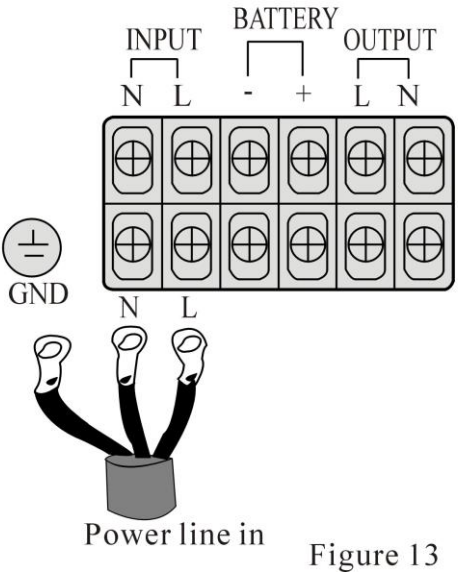

INPUT
BATTERY
OUTPUT
N L - + L N
GND
N L
Power line in

Figure 13

7. The following table indicates the input circuit breaker size.

Model	Max. input current
4KVA	20A
5 KVA	25A
6KVA	30A
7KVA	35A
8KVA	40A
10KVA	50A
12KVA	60A

8. Slow curve breakers should be used where possible.
9. Input power cables should be sized according to input breaker.

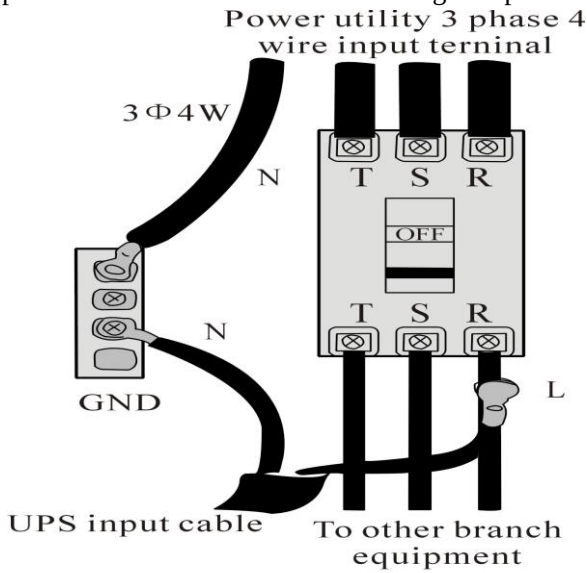


Figure 14

Please note that this equipment is 230V system, do not connect three phases to this equipment.

4.2 Output

1. Please refer to output installation principle when installing

2. Connect output cables as indicated in figure 15.

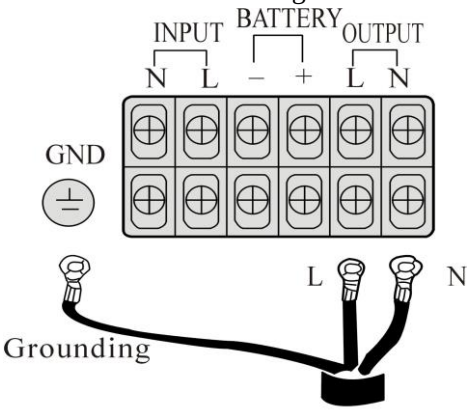


Figure 15

3. Use specified output circuit breaker as per table 2
4. RCD must be installed in on the output of the UPS.

Model	Max. output current
4KVA	16A
5KVA	20A
6KVA	24A
7KVA	28A
8KVA	32A
10KVA	40A
12KVA	48A
15KVA	50A

Table 2

5. Use output cabling of appropriate size circuit breaker.
6. The ground to this unit only acts as reference point, if the ground is faulty, it may cause load disturbances, and affect computers, please ask professional personnel if there is a grounding problem.

7. Connect ground to the UPS ground stud and to the supply switch board. Please refer to figure 16.

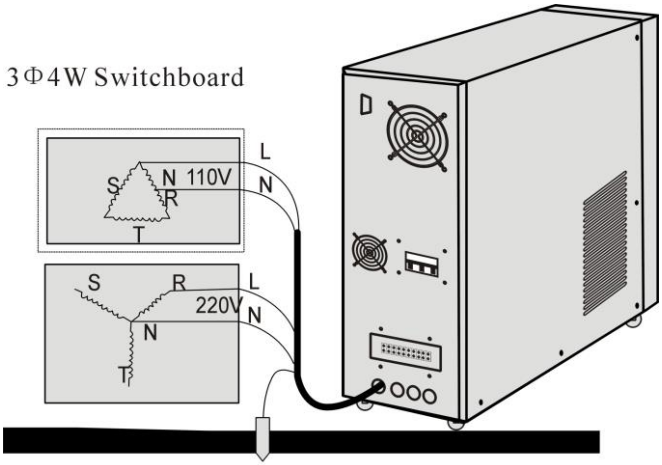


Figure 16

*** Please install wiring according to input voltage system purchased Please contact professional personnel or our service department if there is problem in installation**.

5.3 DC input wiring

1. If the DC cables are not connected, please install as indicated in figure 17.
2. Polarity is very important when connecting the DC cables.

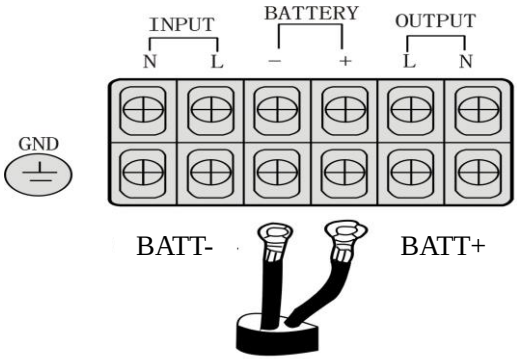


Figure 17

5 OPERATION PROCESS

Preparation before switching on

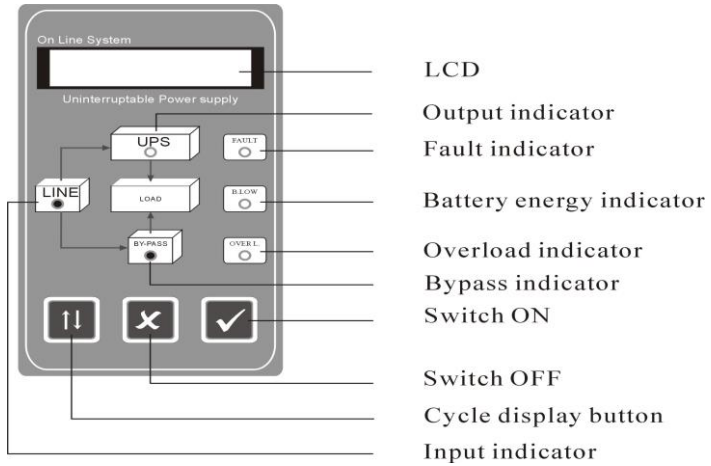
5.1 To make sure that the UPS is correctly connected, confirm the following items. (Refer to figure 2)

3. Verify that the power switch on back panel is on the “OFF” position.
4. Verify that the UPS is in the correct position. (Figure 4 to 10)
5. Ensure that the cables are securely fastened.
6. Do not connect load yet.
7. Inspect if input voltage is correct.(230V±20%) with multimeter.

5.2 Initial start-up

After verify the above items, please switch UPS on as follows:

Figure 18



1. Switch power switch at the rear of the UPS. At this stage input indicator light and bypass indicator light on the front panel will light up. (Figure 18)

2. Press the "ON" button on front panel. At this point the Input indicator, Bypass indicator and the LCD display will be on.

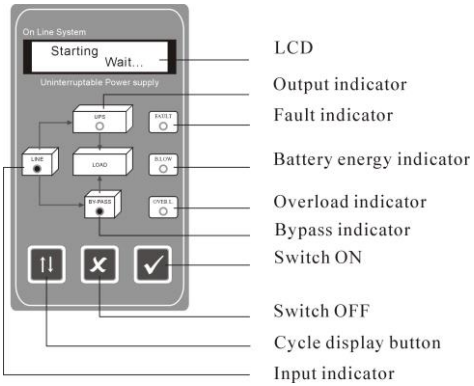


Figure 19

3. After 20s, the Bypass indicator will switch off and the Output indicator will be on. The Welcome screen will be displayed on the LCD display. At this point the UPS is in operational mode and should stay in this state at all times.

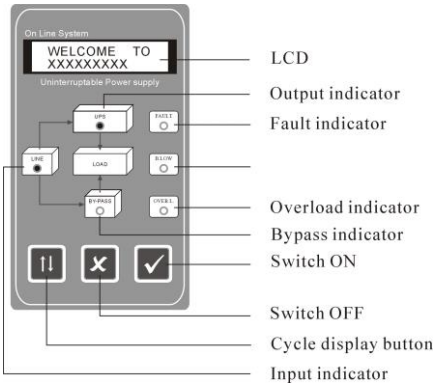


Figure 20

4. At this stage the load circuit breaker can be switch on. If the utility power fails, the Input indicator will switch off and the UPS will supply the load from the batteries. The UPS will sound a BEEP every 4 seconds for 90 seconds. If the utility is restored, the Input indicator will light up again.
5. Once the load is connected, press the display Cycle button until the output power is displayed in %. Make sure that this value is less than 100%. If over 100% please consult your nearest service centre as this can cause damage to the UPS.

5.3 Operation process for a routine turn-off

If you want to switch the UPS off while in daily use, please operate UPS

accordingly:

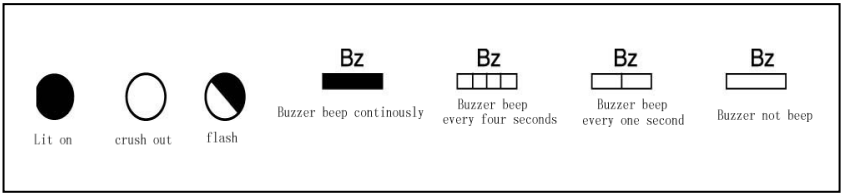
1. You can switch off UPS by pressing the “OFF’ button on the front panel. At this stage, the UPS will revert to bypass mode, the output is being supplied by the utility power.
2. Always leave the UPS in the “ON” position during daily use. This will ensure reliable clean power.

5.4 Operation process if UPS if not in use.

1. If UPS is not used for more than ten days, push the “OFF” button on front panel, then switch the power switch on back panel to the off position
2. If UPS is not in use for more than three months, push the “OFF” button on front panel but keep the power switch on the back panel in the on position. This will ensure that the batteries are continually being charged and extend their life.

6 STATUS INDICATORS

If indicator light flashes, this is synchronized with the buzzer and indicates alarms for different modes.



6.1 UPS in different modes.

Please refer to the indicators on the UPS panel, the LCD indicator and the LED lights will be as follows indicate what mode the UPS is in.

1. Normal operation

(1) Indicators lit:

Input indicator

Output indicator

(2) Buzzer

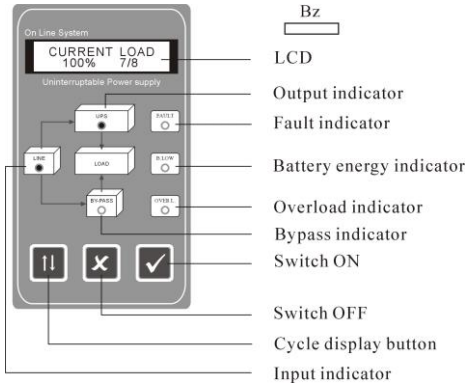
No alarm.

(3) LCD

Normal operation

(4) Action to be taken

None



2. Utility fail

(1) Indicators lit:

Output indicator

(2) Buzzer:

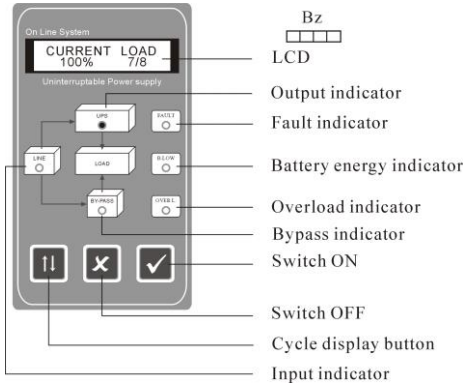
Every 4 seconds for 90 seconds.

(3) LCD

2/8 Input voltage 0V

(3) Action to be taken:

If utility is not restored prepare for the UPS to switch off.



3. UPS overload

(1) Indicators lit:

Input indicator

Bypass indicator

Overload indicator

(2) Buzzer:

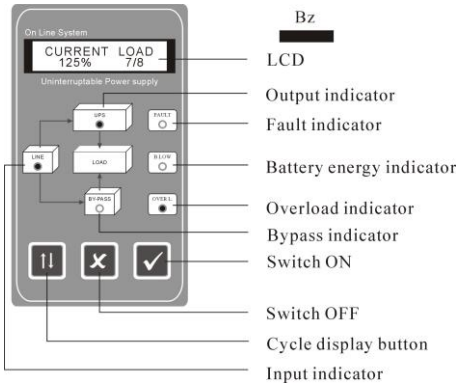
Continuous

(3) LCD

7/8 Current load >100%

(3) Action to be taken:

Decrease load until output indicator switch back on.



4. UPS fault

(1) Indicators lit:

Input indicator

Bypass indicator

Fault indicator

(2) Buzzer:

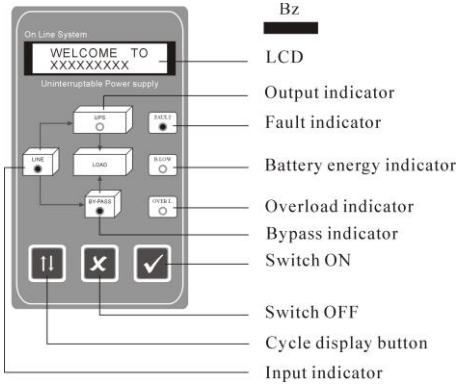
Continuous

(3) LCD

Wecome to PSS-UPS

(3) Action to be taken:

Call nearest service center.



5. Low Battery

(1) Indicators lit:

Output indicator

(2) Buzzer:

Every second.

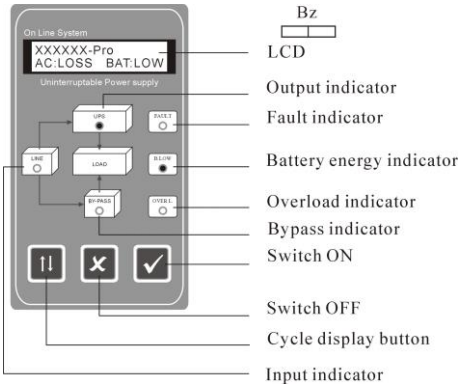
(3) LCD

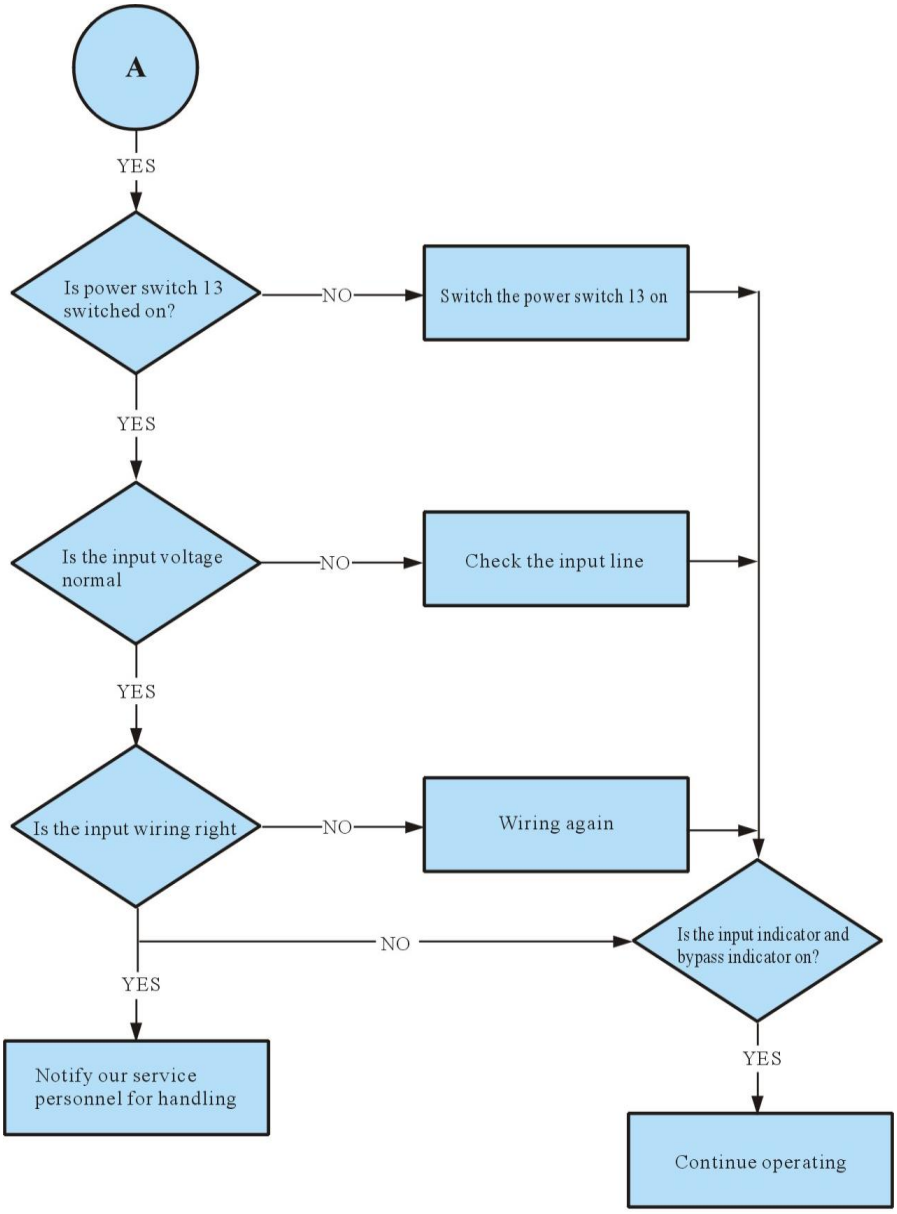
2/8 Input voltage 0V

Battery low

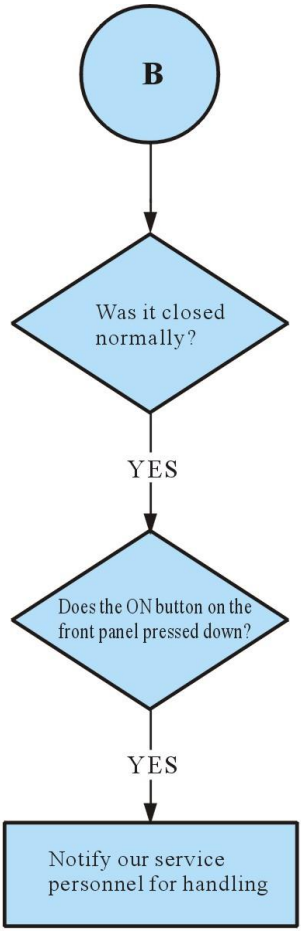
(3) Action to be taken:

If utility is not restored prepare for the UPS to switch off.

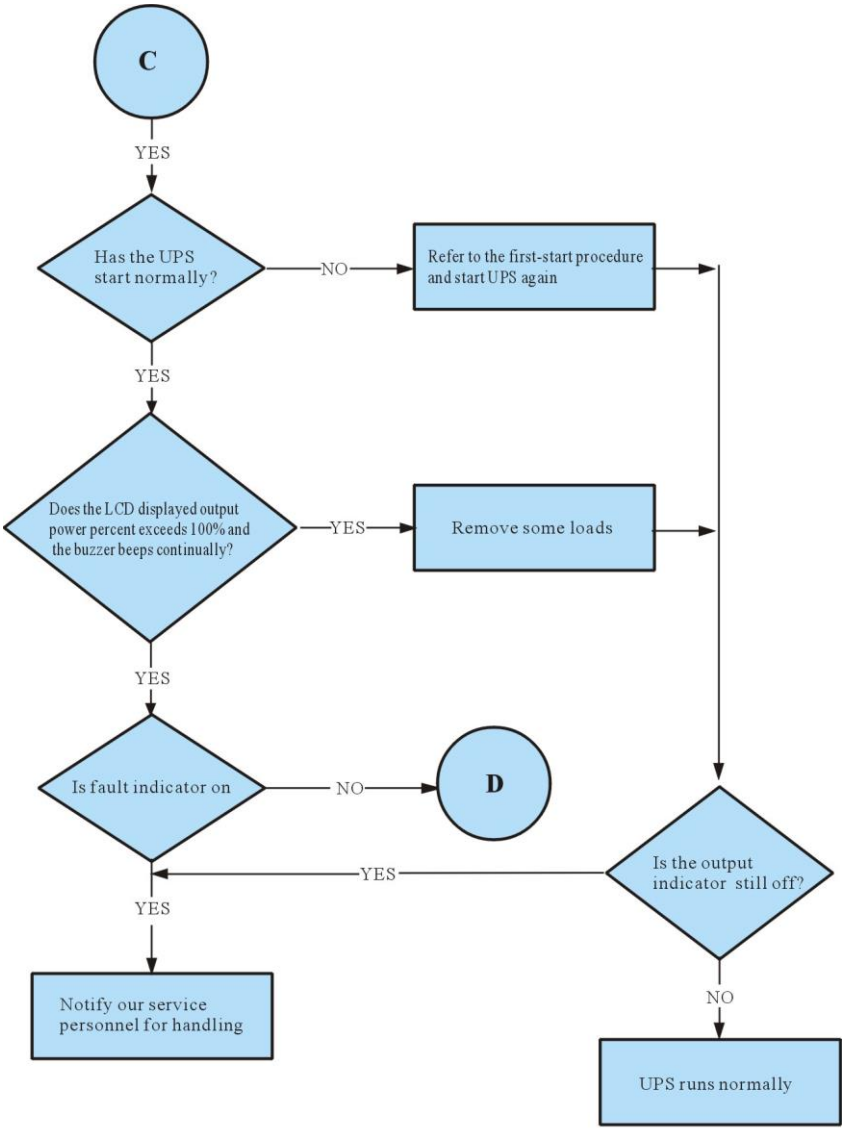




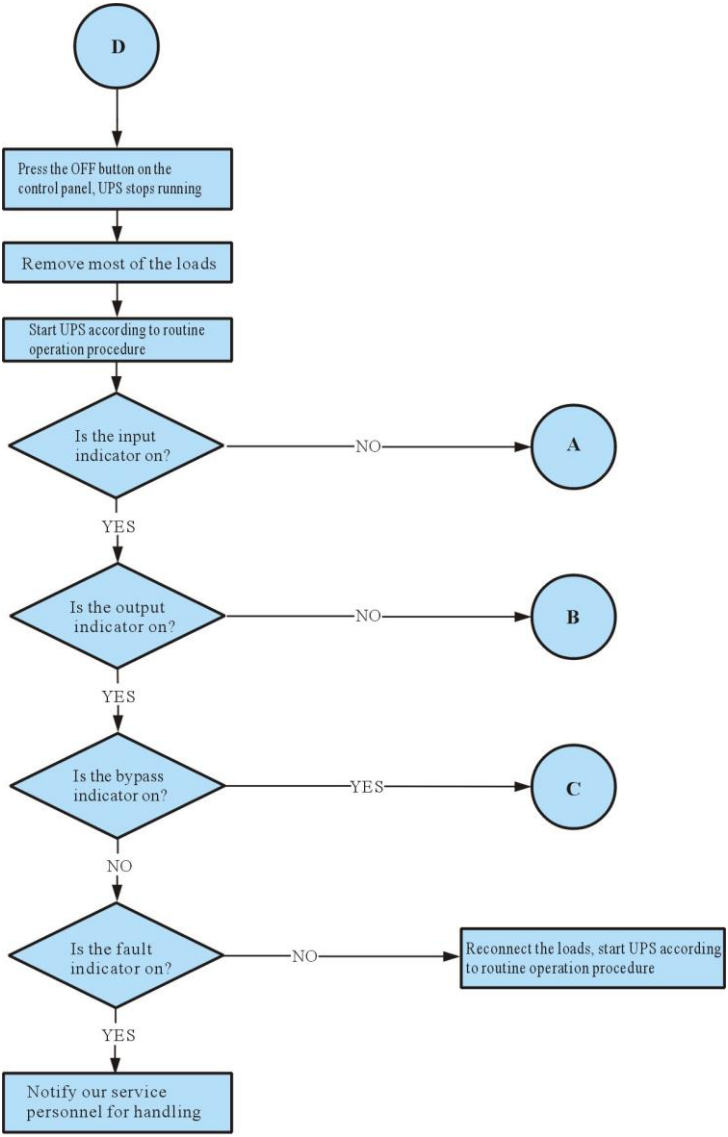
] Flow chart 1 of status handing



Flow chart 2 of status handing



Flow chart 3 of status handing



Flow chart 4 of status handing

7 UPS configuration in different modes

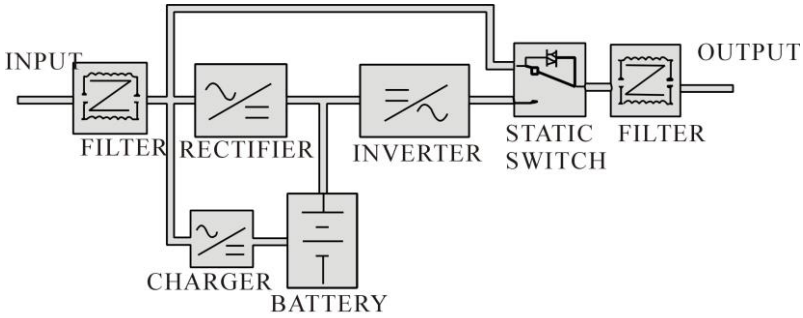


Figure 32

7.1 UPS in normal mode.

When UPS runs normally, after high-frequency harmonic noise in utility power is filtered by an input filter, the utility power charges the battery pack via the charger which keeps battery power at full voltage, while the utility power is converted into DC power via the rectifier and is then converted into pure sine wave power via the inverter, feeding the load through the static switch.

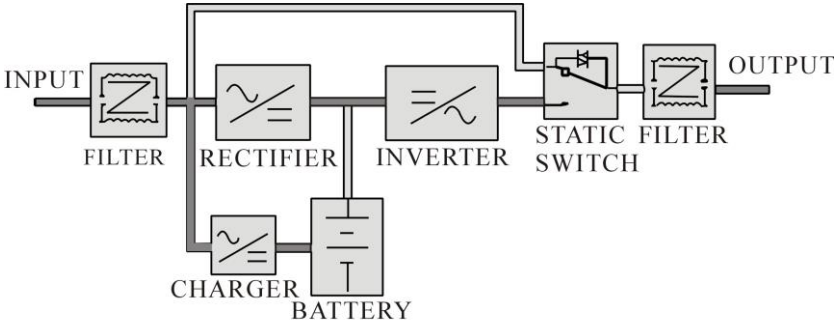


Figure 33

7.2 UPS mode while utility power fail.

When the utility fails, battery power is converted to AC power in the inverter and the load is supplied through the static switch.

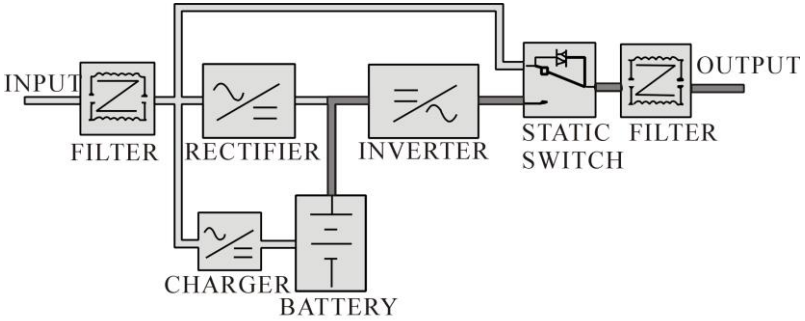


Figure 34

7.3 UPS mode while in static bypass

The UPS will be in bypass during the following 5 conditions:

1. Overload
2. Inverter failure
3. During start up.
4. When the inverter is switched off.
5. Over temperature..

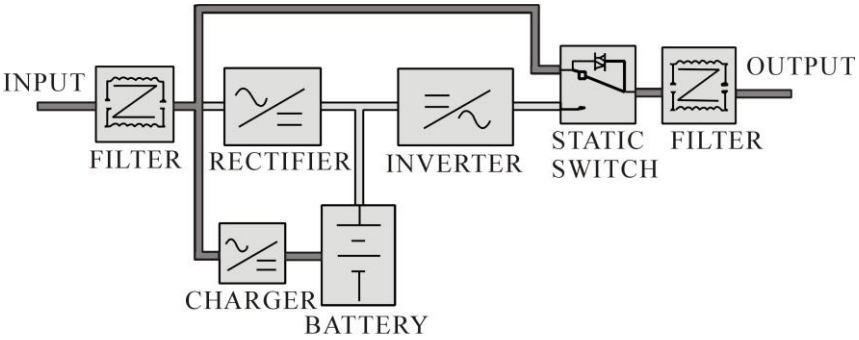


Figure 35

7.4 Battery and charger

1. When the power switch on the back panel is in the on position, the batteries can automatically be charged. The charger can charge to 90% of the battery capacity with in 8 hours.

2. The following chart will give a rough estimate to how long the batteries will take to discharge during utility failure.

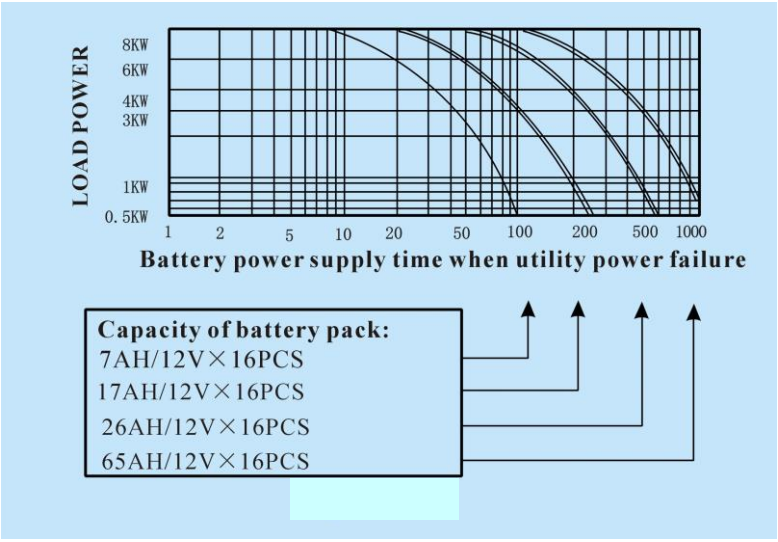


Figure 36

3. If you want to extend the battery autonomy time, please contact the closest service department.
4. Keep the battery at full voltage to extend the battery life.

8 Communication interface

8.1 All computer installations can monitor the UPS. The UPS connects to the LAN /WAN via a RS232 serial cable.

8.2 The installation of the UPS monitoring software works perfectly on the following platforms: DOS, WINDOWS3.1, WINDOWS95, WINDOWS/NT, NOVELL, etc. The UPS software will save and shut down the files which are being worked on safely during a power failure. If the bias in the monitoring PC is set to start automatically when power returns, the software will restart the computer when power returns after a power failure.

8.3 The interface software offers detailed data which is date stamped to reference at a later stage. The interface, offers details such as load,

battery voltage, input power, output power, input frequency temperature etc. It can be used to shut down multiple applications on the same LAN/WAN .

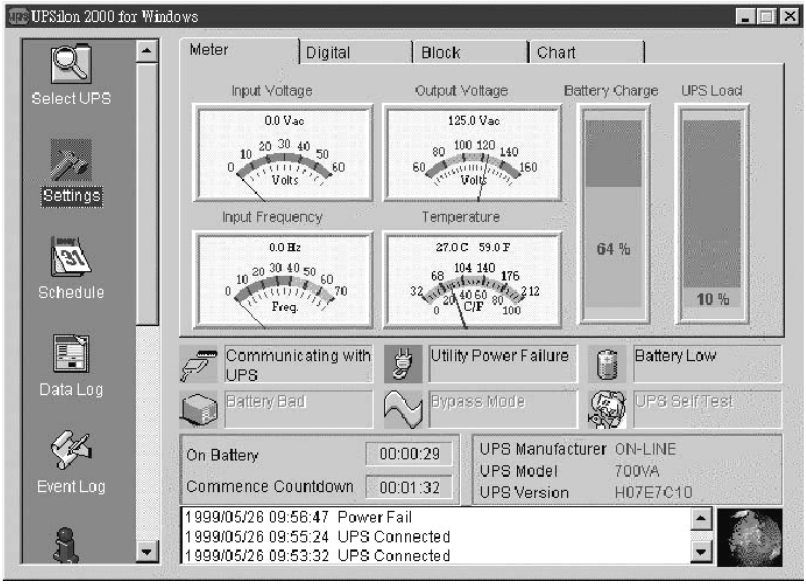


Figure 37

8.4 Serial cable

RS232 appearance, figure 38

The pin of UPS' RS is the following:

PIN2: RS232 RXD

PIN3: RS232 TXD

PIN5: GND

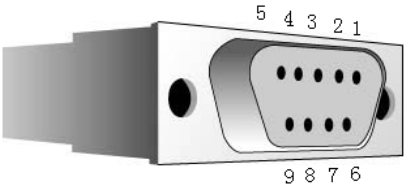


Figure 38

9 SPECIFICATION

Model	1KVA	2KVA	3KVA	4KVA	5KVA	6KVA	8KVA	10KVA	12KVA
AC input									
Voltage	176V~264VAC								
Frequency	50(60) Hz ±5%								
Phase	Single								
Max. Current	5A	10A	15A	20A	25A	30A	40A	50A	60A
AC output									
Voltage	230V								
Frequency	50(60) Hz								
Voltage stability	±1%								
Frequency stability	±0.5 (Disconnection)								
Wave form	SPWM sine wave								
Power factor	0.8								
Distortion	<3%(linear load)								
Battery									
Voltage	48VDC			192VDC					
Model	Lead acid free from maintenance,								
Autonomy	Refer to figure 31								
Charging time	90% capacity after 8 hours								
Alarm									
Utility disconnect	Buzzer beeps once every four seconds								
Overload	Load indicator, buzzer continuously beeps								
UPS abnormal	Fault indicator light , buzzer continuously beeps								

Model	1KVA	2KVA	3KVA	4KVA	5KVA	6KVA	8KVA	10KVA	12KVA
Internal protection equipment LCD panel									
Battery	UPS automatically shutdowns at battery low power level								
Overload	When load reaches 110~150% of UPS rating, transfer to bypass after 3s, recover auto.								
Over-temperature	Automatically transfer to bypass if UPS internal temperature > 85℃								
Output short-circuit	Limit current, automatic shutdown and fuse								
UPS abnormal	Automatically transfer to bypass and supplied power by utility								
Noise filter	10~100KHz at 40Db; 100KHz~100MHz at 70dB								
LCD display	Display: input, input voltage, frequency, battery voltage, output power (%), temperature								
Battery BVL	One LED, it lit when battery low voltage								
Environment									
Temperature	0~40℃								
Humidity	20~90% non-condensing								
Noise	<58dB (1m away from enclosure)								
General									
Output socket	Terminal plate								
Unit weight (no battery)	46Kg	63Kg	75Kg	65Kg	67Kg	69Kg	105Kg	115Kg	135Kg
Dimension (mm) W×D×H	200×608×538			230×580×720			305×585×864		
Others									
Full efficiency	>85%								
Transform time when utility fails	0s								
UPS status indicator light	Utility, inverter, bypass, UPS abnormal (fault)								
Communication interface	RS232 interface								