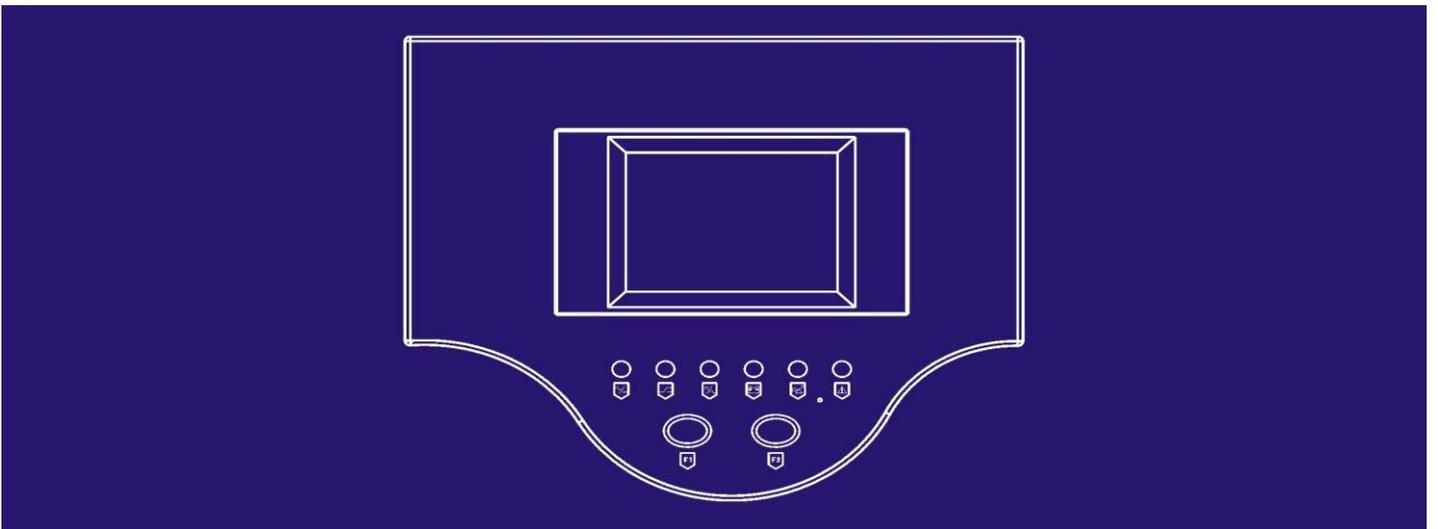


# Touch screen UPS

**(10-200) KVA**



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# User's Manual

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## 1 . Brief introduction:

8900 (3 phase in and 3phase out) series UPS is high power and true on-line UPS with range from 10KVA to 200KVA, which adopts advanced digital design, high speed 16-bit chip, ASIC, DDC and large power IGBT&SCR, and shows large capacity, high stability and high performance compared with other models in the market. All the products come integrated latest hardware and powerful software in itself, which could provide optimum pure power to integrated server center. This system supports several units connected in parallel through unique control technology.

The liquid crystal display of touch-sensitive screen is that UPS which our company develops newly, shows the module, which is adopt nowadays most popular touch screen interfaces. Compared with the situation that general LCD shows the module, this touch screen shows the operating sequence without complication of the module, users press the simulation button on the display and can obtain corresponding information directly. Operation and is easily understood; and it brings real-time clock and memory by oneself, can store up to 256 information and other establishment messages.

## 2 . Operation demand:

- Please read carefully the user manual before using the UPS.
- This manual must be understood and conserved by engineer.◦
- This manual does not introduce the detail specification.

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➤ This manual just suit to 8900 (3 phase in and 3phase out) series UPS.

### 3 . Notices:

3.1 Make sure proper power input/output/battery/cable.

3.2. It must be steady grounding system.

3.3. There are a lot of high-voltage energy stored in the UPS, please don't open the case and check, otherwise cause danger to move the UPS around, accept the consequences by oneself. The operator must have understand electrician knowledge and pore over the operation instructions.

3.4. Without permission, do not dismantle any kinds of connection cables without authorization.

3.5. Because this product is larger in volume, weight is heavy, can't move around fequence, keep the UPS well ventilating.

3.6.Ensure UPS is instealled in clean and dust free enviromrnt.

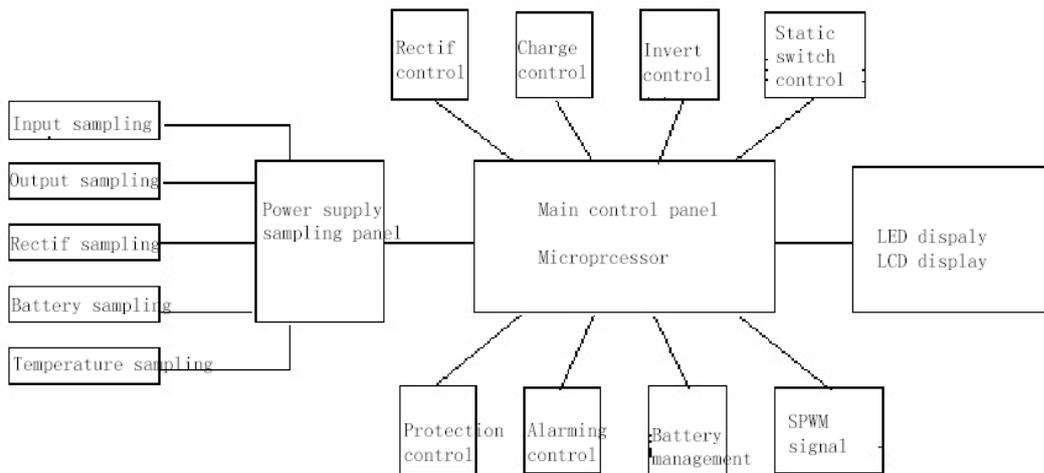
3.7. The battery must be changed by the professional and technical person; the used battery changed out must be deliver special circulation and give a new lease of life to the organization to deal with. The battery is “poisonous waste material”

3.8. When the UPS is not been used for long time, the battery disposed will discharge automatically, the battery must be charged in every three months, if the temperature is greater than 30 degrees Centigrade, the battery should be charged once every two months. You need to start UPS while charging, and run at least for 24 hours under the normal work pattern.

### 4. Working principle:

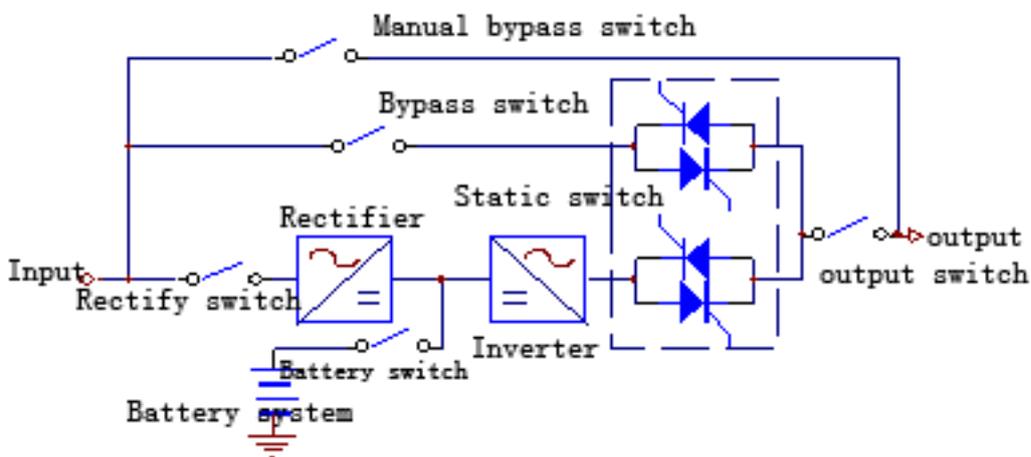
4.1 This 3/3 series UPS adopts advanced digital design, improved MTBF and steadily , a single main control panel control all system functions. Which adopts microprocessor

control and ensure the UPS can work steadily and reliably.



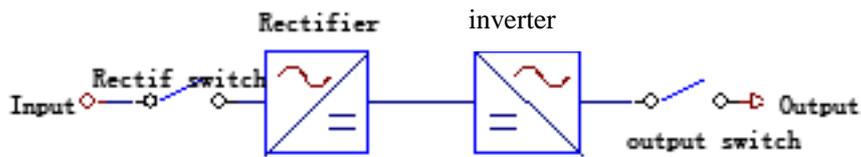
Besides, UPS others parts: inverter transformer, input inductance, IGBT, SCR controlled and switch.

#### 4.2. Standard UPS principle:



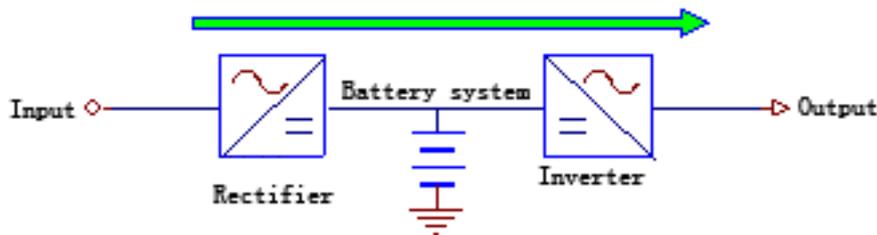
#### 4.3. Mains inverter principle:

After AC input turn to DC through rectifier, then inverter invert via SPWM and output AC.



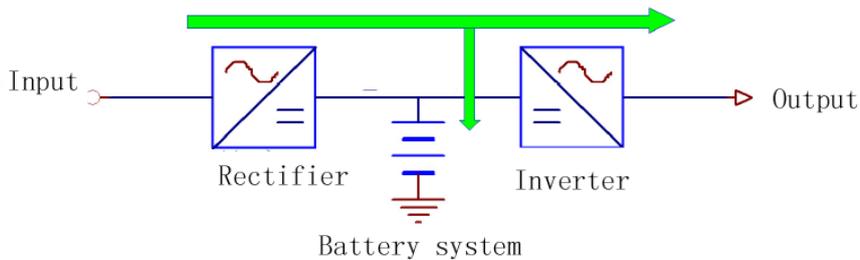
4.3.1. Normal inverter model :

Battery have been recharge fully, AC input via rectifier and inverter then output.



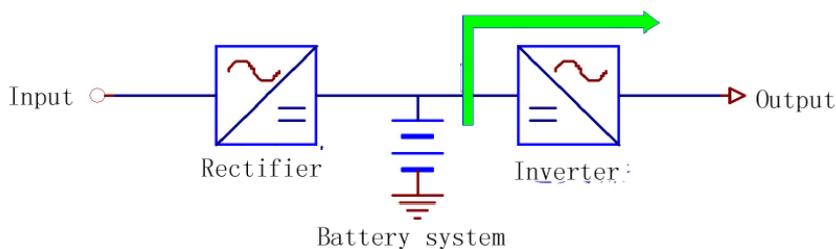
4.3.2. Inverter normal, and battery recharge working model :

Battery voltage is low, after AC inverter, on one hand it will charge the battery , on the other hand inverter output AC.



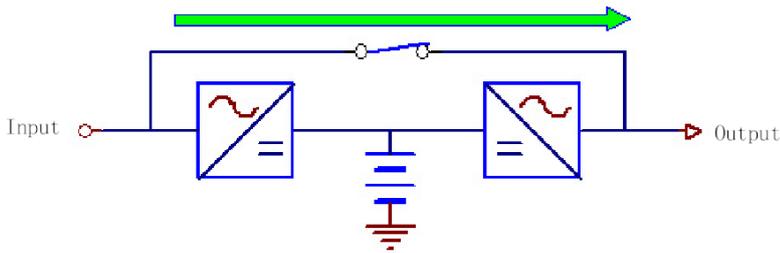
4.3.3. AC input failure, battery-working model:

When no AC input, battery supply energy to the inverter then supply AC.



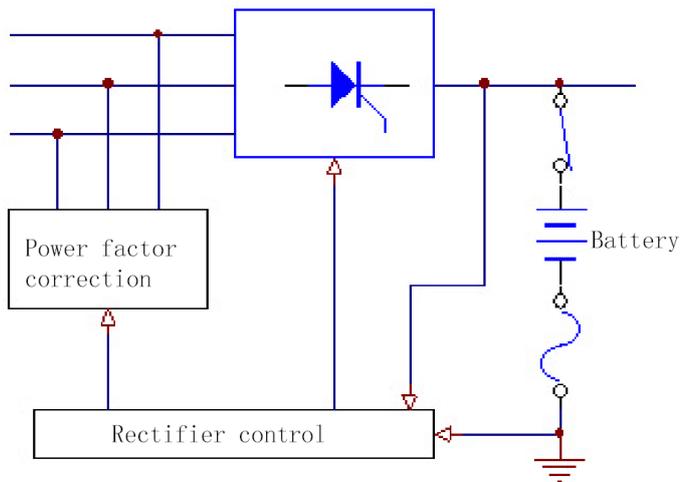
4.3.4. Bypass output working model:

There is AC input, but inverter has been closed, output is via bypass.



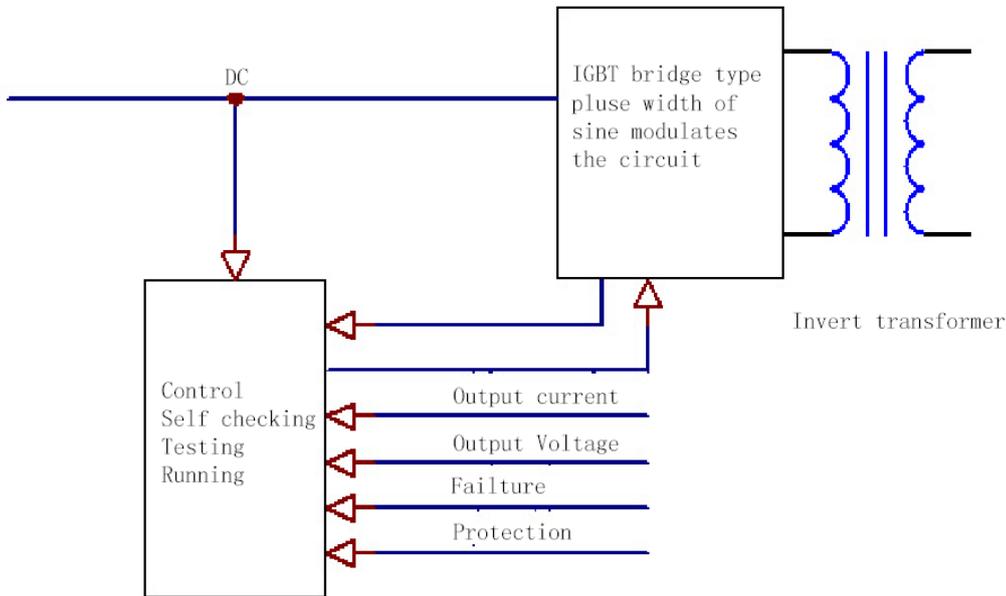
#### 4.4. Function module

##### 4.4.1. Rectifier



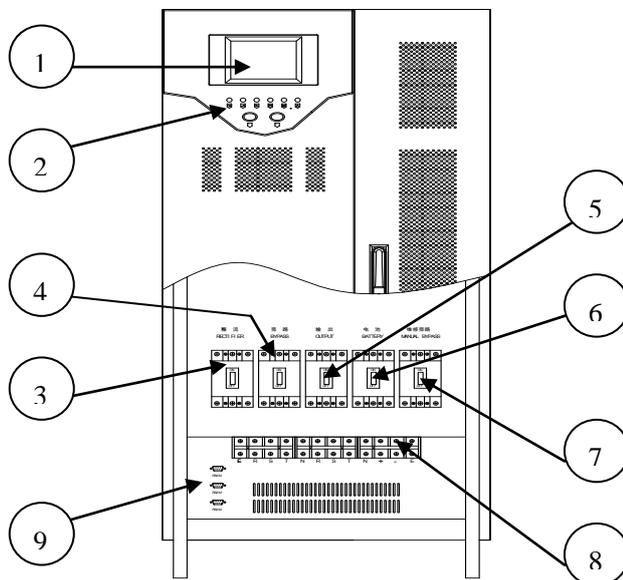
- Rectifier protection switch
- Lightning arrester
- 6/12 Pulse rectifier
- Input inductance
- Battery temperature compensation
- Battery floating charging
- Battery time balanced charging.
- The input of rectifier can be limited in rated numerical value, at the same time, battery recharge in constant current, constant voltage, engineer can change rectifier working through setting parameter.

##### 4.4.2. Inverter



- Inverter output isolation transformer.
- 3 Phase PWM inverter bridge.
- Current sampling
- Voltage sampling
- Feedback control
- Self-testing
- Hardware sense
- Protection circuit

5 . Front panel introduction :



- 
- (1) LCD display-----it indicates various kinds of data
  - (2) LED statue display-----it indicates working statue
  - (3) Input rectifier switch -----Control rectifier input
  - (4) Bypass switch -----Control bypass input.
  - (5) Output switch -----Control output
  - (6) Battery switch -----Control battery input
  - (7) Maintenance bypass switch -----Control AC bypass (just use it only during maintenance)
  - (8) Line bank-----Connect input, output, battery and grounding.
  - (9) RS232 communication port.

## 6. INSTALLATION:

### 6.1.Installation environment :

- Temperature : 0°C~+40°C
- Relative humidity : 30%~90%
- Altitude : ≤1000M
- Installation environment dimension ( L×W×H ) :

2000×2000×2000

- Board pressure : 3000KG/M<sup>2</sup>

The indoor environment demanded is as follows:

- No dust
- Appropriate indoor temperature: please operate UPS in 0~40°C,

But it is at 0°C when the UPS has just been switch on, The idea operation temperature is 25°C.

- There should be a good heat dissipation system, the following is a feasible method:

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A: Natural ventilating system: Only suitable for low heat and vast space.

B: man - made ventilating systems: Need to install the air conditioner when the peripheral temperature (TE) in chassis temperature (TA) exceeds. As the TE and TA is close, the capacity of the heat distribution system will increase.

### 6.2. Check before installation :

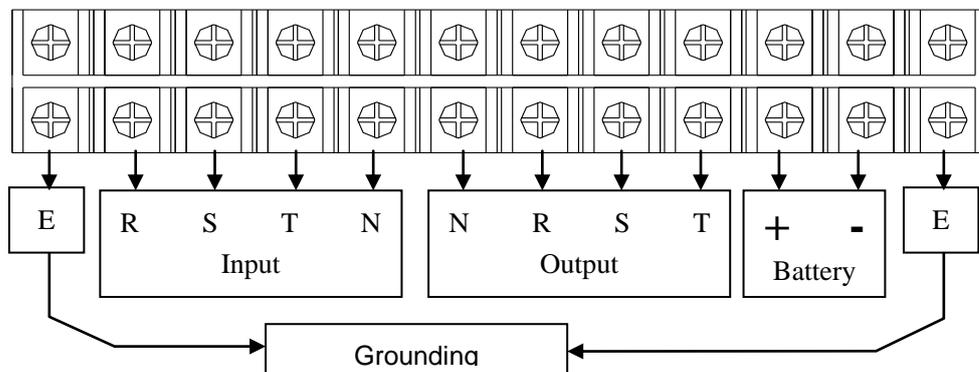
Unpack the equipment and inspect again to determine if any external or internal damage has occurred.

Opening the main entrance, and please check if all switches are disconnected.

### 6.3. Installation site :

- Please place the UPS in the place where there is good ventilation, Rear panel of UPS and two sides should be kept more than 80cm away from the wall.
- Do not store any goods on the top of the UPS.
- It must have enough room for inspection in the front of equipment and above.
- Battery box of equipment must have keep enough room on right-hand side for battery replacement.
- Power line must be connected from bottom of machine.

### 6.4. Terminal connection diagram:



Before UPS is not being installed, please disconnect all switches.

Left: R、 S、 T、 N connect three phase input, phase line and median line ;

Right :N 、 R 、 S、 T connect three phase output, phase line and median line;

E connect earth line ; +、 - connect battery positive pole and negative pole.

6.5. UPS three phase output system 5-200KVA cable specification: (unit: mm2)

capacity	Input					Output				Battery	
	R	S	T	N	E	R	S	T	N	+	-
5KVA	4	4	4	4	4	4	4	4	4	6	6
10KVA	6	6	6	6	6	6	6	6	6	10	10
20KVA	10	10	10	10	10	10	10	10	10	20	20
30KVA	16	16	16	16	16	16	16	16	16	30	30
50KVA	25	25	25	25	25	25	25	25	25	50	50
80KVA	40	40	40	40	40	40	40	40	40	80	80
100KVA	50	50	50	50	50	50	50	50	50	100	100
120KVA	60	60	60	60	60	60	60	60	60	120	120
150KVA	75	75	75	75	75	75	75	75	75	150	150
200KVA	100	100	100	100	100	100	100	100	100	200	200

6.6 . Battery connection

- Opening battery pack.
- Installation battery on the corresponding position and connecting the battery connecting wire

6.7. Connection inspection

connect all input/output/battery/wire and check the following:

- Whether all battery-connecting wires join correctly and keep securityly fasten,
- Ensure that input, output and the earth connection has already been connected in the corresponding wiring on the equipment is arranged correctly,
- The input voltage of input end, frequency, phase should keep the same with voltage of bypass, frequency, and phase.

7. Specification :

7.1 UPS series specification

7.1.1. Rectifier input parameter, Please refer to the following table 1

**Table 1**

Model	10 KVA	15 KVA	20 KVA	30 KVA	40 KVA	50 KVA	60 KVA	80 KVA	100 KVA	120 KVA
Capacity ( KVA )	10	15	20	30	40	50	60	80	100	120
Input single max. current	25	33	40	55	71	86	102	133	164	195
Working way and principle	On line , static bypass switch (zero transfer time ) , Double switch technology, output power to totally isolate									
Phase	3phase +N+G									
Nominal voltage	415/400/380/220/200AC±25%					415/400/380 AC±25%				
Nominal frequency	50Hz±10% , 60Hz±10%									
Voltage harmonics distortion	< 10%									
Soft start	0 ~ 100% 5sec									

**7.1.2. Rectifier output parameter; Please refer to the following table 2**

**Table 2**

Model	10 KVA	15 KVA	20 KVA	30 KVA	40 KVA	50 KVA	60 KVA	80 KVA	100 KVA	120 KVA
Max. output voltage	405VDC									
Microcomputer setting charge current	1A ~ 50A ( depend on battery capacity )									

**7.2 Battery Please refer to the following table 3**

**Table3**

Model	10 KVA	15 KVA	20 KVA	30 KVA	40 KVA	50 KVA	60 KVA	80 KVA	100 KVA	120 KVA
Max.discharge current ( A )	28	42	56	85	113	141	169	225	282	338
Battery quantity	30pcs									
Nominal battery voltage	360VDC									
Floating voltage	405VDC									
Charge current	3A ~ 30A ( depend on battery capacity )									

**7.3 Inverter specification**

**Inverter Please refer to the following table 4**

Table 4

Model	10 KVA	15 KVA	20 KVA	30 KVA	40 KVA	50 KVA	60 KVA	80 KVA	100 KVA	120 KVA
Rated power ( KW ) COSφ=0.8	8	12	16	24	32	40	48	64	80	96
Phase	3phase +N+G									
Nominal voltage	415/400/380/220/200AC±25%					415/400/380 AC±25%				
	±1% ( steady load ) / ±5% ( load fluctuate )									
Nominal frequency	50Hz±0.05% , 60Hz±0.05% ( battery supply power )									
Frequency stability : Out sync	< ±0.05%									
Frequency stability : Synchronization	< ±2%									
Crest factor	3 : 1									
Output wave	Sine wave									
Total harmonic distortion	Linearity load < 3% ; non-linearity load < 5%									
Dynamic load voltage transient ( from 0 to 100% abrupt change )	< ±5%									
Moment restart time	< 10ms									
Balance load voltage	< ±1% ; < ±5% ( imbalance load voltage )									
Overload capability	125% 1min , 150% 1S									
Inverter efficiency , load 100%	91	91	92	92	93	93	93	95	95	95

7.4 Bypass Please refer to the following table 5

Table 5

Model	10 KVA	15 KVA	20 KVA	30 KVA	40 KVA	50 KVA	60 KVA	80 KVA	100 KVA	120 KVA
Phase	3phase +N+G									
Nominal voltage	380VAC±25%									
Nominal frequency	50Hz±5% , 60Hz±5%									
Inverter /bypass ( transfer time )	( overload ) 0ms									

## 7.5 systems specification:

Please refer to the following table 6

Table 6

Model	10 KVA	15 KVA	20 KVA	30 KVA	40 KVA	50 KVA	60 KVA	80 KVA	100 KVA	120 KVA
Efficiency load 100%	> 80%									
PC communication interface	RS232									
Working temperature	0 ~ 40°C									
Humidity ( non~condensing )	30% ~ 90%									
Working height ( Max. )	< 1000m ( per100m, power decline 1% , Max.4000m )									
Type of cooling	Forced draught									
Noise dB ( according to load and temperature ) far away machine 1M	40 ~ 50				45 ~ 55			55 ~ 65		
Case color	Gray ( option )									
Input cable	The bottom / back									
Easy maintenance	The front / the above / left and right									
Dimension W×D×H ( mm )	600×700×1350		710×720×1450		710×850×1500			1100×860×1680		
Weight ( kg )	200	300	400	460	550	620	700	860	900	950
Input device	Terminal									
Output device	Terminal									

## 8. Alarming:

### 8.1 Alarming 1 : Bypass voltage failure or bypass fuse SCR failure.

It will alarm under these conditions:

1. Bypass input voltage is wrong.
2. Bypass input switch cut off.
3. Bypass SCR fuse cut off or burned because of output short circuit or fuse cut off.

### 8.2 Alarming 2 : Main input power failure or rectifier input switch cut off.

It will alarm under these conditions:

- 
1. Input voltage is not in the range ( 184 ~ 287 ) V<sub>AC</sub>.
  2. Input frequency is not in the range ( 47.5 ~ 52.5 ) Hz.
  2. Rectifier input switch cut off.
  3. Because UPS is abnormal and cause one phase of three phase rectifier can not work normally, please find out the fault.

### 8.3 Alarming 3 : Battery low voltage

It will alarm under these conditions :

1. Battery voltage is too low.
2. The time battery running is shorter than setting time.

### 8.4 Alarming 4 : Battery discharge

When battery discharge, it will alarm at once, after 2 minutes, alarm will stop. Once battery discharge is up to battery final voltage, alarm start again.

### 8.5 Alarming 5 : Output overload.

When load power is bigger than rated output voltage, namely, more than 100 % ,if load current is over big, UPS will alarm. When UPS alarm, it needs to reduce load capacity. Or UPS will turn to bypass, we get the time depend on over load value's inverse ratio.

### 8.6 Alarming 6 : Temporality bypass working

It indicates bypass supply power; UPS will turn to normally run statue (inverter supply power). There are some conditions under this temporary statue, for example, overload, after bypass supply power, UPS will return to power supplied by inverter.

### 8.7 Alarming 7 : Bypass output overload

If overload time is too long, for example, overload 125%, inverter can supply power 1min. then turn to bypass. UPS will renew normal running statue.

### 8.8 Alarming 8 : High temperature or fan failure

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When control system of UPS, inverter power module or rectifier power module is over temperature because of high temperature or fan failure, UPS turn to bypass.

## 9 . UPS start up process :

It must be operated in these sequence, thought there is battery in the UPS.

Start up UPS :

9.1.Open input rectifier switch ( Up ) .

9.2.Open bypass switch ( UP )

9.3.After battery low voltage indicator crust out, turn on the battery switch. When UPS has no any alarm statue indicator, bypass will turn to inverter statues.

Notice : it will display alarming information about the wrong phase sequence if rectifier switch is not cut off, at this time, please press F1 and silence, carry out UPS start up process.

## 10 . UPS maintenance shut down process:

10.1.open maintenance switch ( up )

10.2.close battery switch ( down )

10.3.close rectifier switch ( up )

10.4.close bypass switch ( down )

10.5.close UPS output switch ( down )

## 11. Emergency shut down process :

In the case of fire,electric shock,user should turn off all switchs

## 12 . Touch screen Introductions :

The liquid crystal display of touch-sensitive screen is that UPS which our company

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develops newly, shows the module, which is adopt nowadays most popular touch screen interfaces. Compared with the situation that general LCD shows the module, this touch screen shows the operating sequence without complication of the module, users press the simulation button on the display and can obtain corresponding information directly. Operation and is easily understood; and it brings real-time clock and memory by oneself, can store up to 256 information and other establishment messages.

### 13 . Operating interface introductions:

#### 13.1 Start up screen

It will show the compay logo when UPS starts the machine. When the interval of the touch-sensitive screen is not touched for four minutes , CPU will cut off the power in a dim light of touch-sensitive screen automatically , this way can lengthen in a dim light service life , and the compay logo will return (if UPS is under warning state to get back to at the starting time, the touch-sensitive screen will have priority to show the warning information frame , CPU can not cut off touch-sensitive screen in a dim light power before canceling warning information).

#### 13.2 The flow chart interface

When the logo is on the touch screen, you can touch it anywhere and enter into the flow chart interface. You can know the basic information and working statues about this UPS:

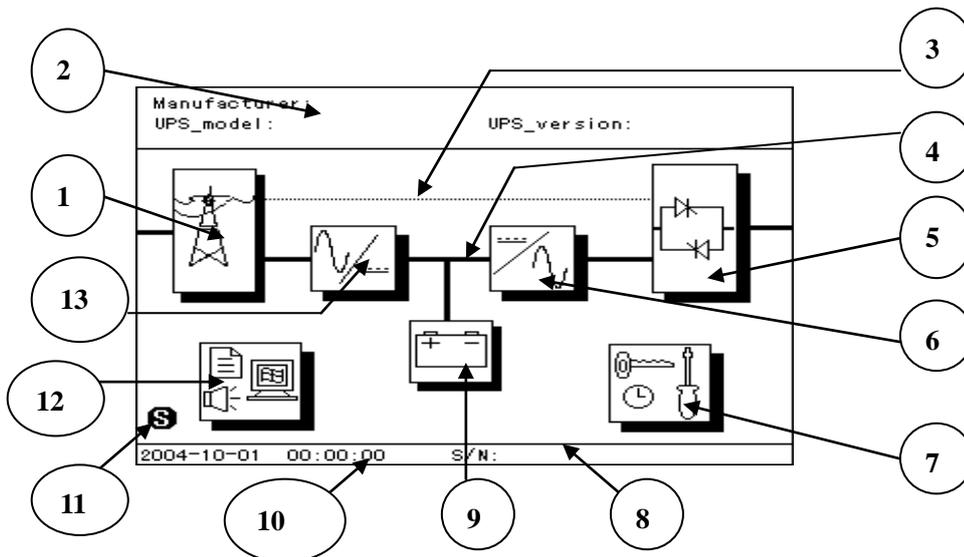
(1)Mains : Press it, you can look at the Mains input statue and data display.

(2)UPS basic information : Display UPS basic information, include manufacturer. UPS model and version number.

(3)Thin dotted line : It shows that the UPS has stopped to work.

(4)Heavy line : It shows that the UPS is working.

- (5)Output : Press it, you can look at the UPS output statue and data display.
- (6)Inverter : Press it, you can look at inverter working statue and data display.
- (7)The systematic parameter establishes the module : It can set up time and language.
- (8)UPS serial No. : it display UPS product serial number.
- (9)Battery : Press it, you can look at battery working statue and data display.
- (10)system time : it can display time.
- (11)slave marks : it show this UPS is working when it is parallel connection.
- (12)systems manage module : it can control UPS and consult the system records.
- (13)rectifier : Press it, you can look at the rectifier working statue and data display.



Picture 1

### 13.3 Measure data display interface.

Press Mains key , output key , inverter key ,battery key and rectifier key, then enter into corresponding measure data display interface, please consult the picture 2 and it show the output information and data display.:

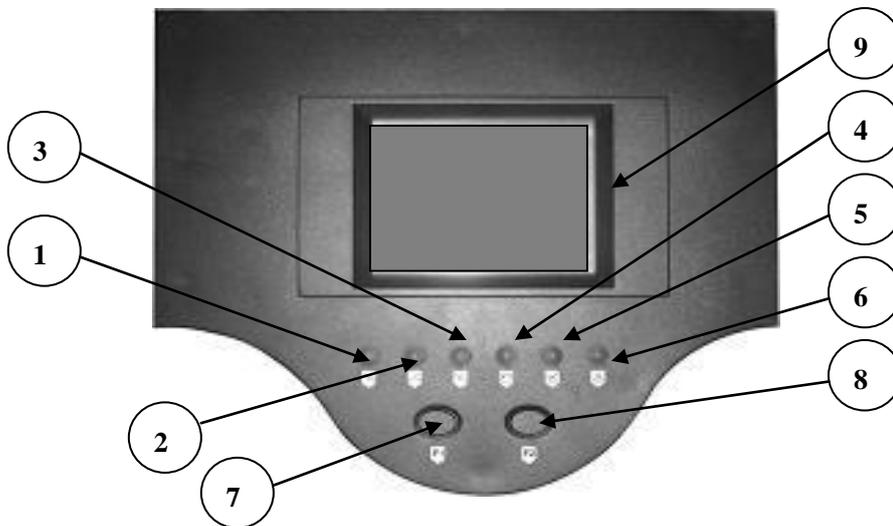
- (1)Form subject
- (2)Form contents : All kinds of statue and data display
- (3)System time : System time display
- (4)Back space : Press this button to return to the previous

(5)ESC: Press this button and return to the main menu

UPS AC output check and measure			
AC output voltage ( V )	220	220	220
AC output frequency ( Hz )	50.0	50.0	50.0
AC output current ( A )	00.0	00.0	00.0
Load capacity ( % )	000	000	000
Bypass switch working statue	ON		
Inverter switch working statue	OFF		
2004-10-01 00:00:00			

Picture 2

### 13.4 Display panel introductions



Picture 3

### 13.5 LED and button introduction:

( 1 ) Mains input indictor ( 2 ) Bypass indictor ( 3 ) Inverter indicator ( 4 ) Battery low voltage indicator ( 5 ) Overload indicator ( 6 ) system abnormal indicator ( 7 ) F1: combined key /silencing key ( 8 ) F2: shut down, Press F1 and F2 at the same time

---

and shut down UPS , Press F1 and enter into set up model .

### 13.6 Manage interface setting introductions:

(1)ON/OFF : When UPS is closed , the key display'ON' , Press this button and start UPS ; when UPS is started ,the key display 'OFF' ,press this button and close the UPS( system will demand to enter password in order to avoid mistake ) .

(2)Battery measure button : When UPS is working, press this and enter into battery measure mode. ( system will demand to enter password in order to avoid mistake )

(3)about... : Press this button and consult the touch screen version number information.

(4)Silencing : Make the buzzer silence. ( system will demand to enter password )

(5)UPS current working statue.

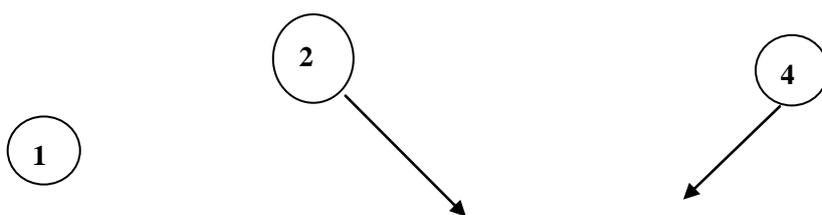
(6)ESC : Press this button and return to the main menu.

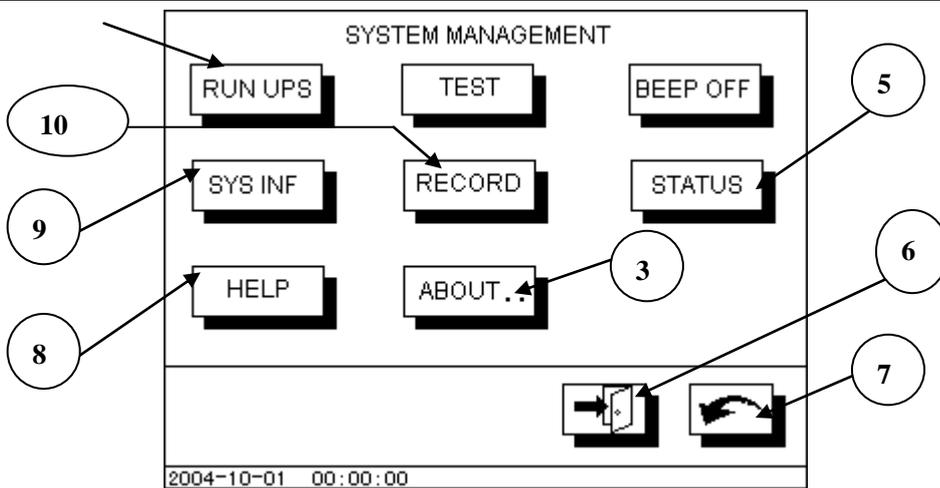
(7)Back space : Press button this return to the previous level

(8)Help : Press this button and consult help information.

(9)System information : Press this button and consult UPS's information.

(10)system records : Press this button and consult all history records.





Picture 4

### 13.6.1 Import password interface

Some operation will change the present working state of UPS, for instance: ON / OFF system, system at this moment will require operator input password, otherwise system will not accept any operator's instruction. The initial operation password from the factory is 1234, please consult the picture 5.

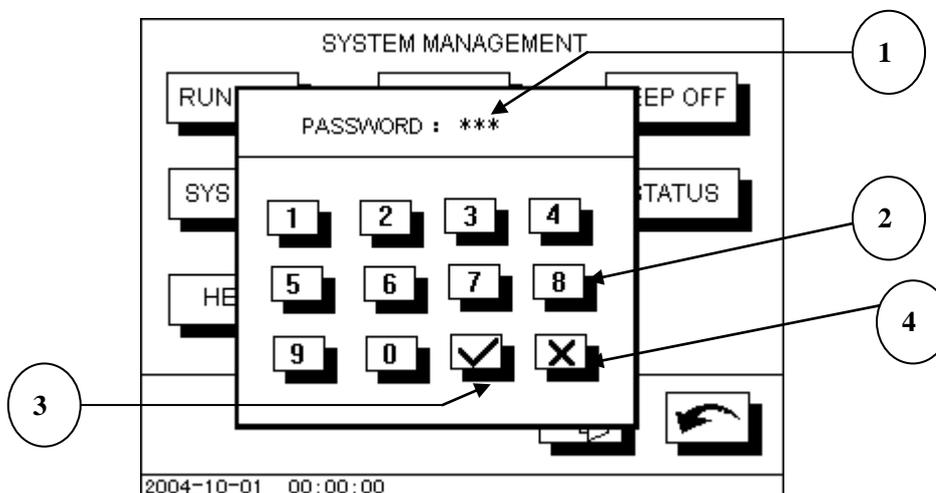
(1) Password : It will appearance ' \* ' each time the user enter the password.

(2) Number button : Input corresponding number.

(3) Enter : After (2), press this button and enter into interface.

(4) ESC : Withdraw from the introduction password communication frame

When the password is correct, system will carry out corresponding operation.



Picture 5

### 13.6.2 History records interface

Press system history records button from the menu,it will enter the history records menu and press corresponding button.:

- (1)The permutation order in the memory of the incident, the newest incident is arranged foremost, the serial number is minimum
- (2)Incident code
- (3)Incident time : Time records when it has happened.
- (4)incident description : It describes the incident type.
- (5)UP:There are 8 levels of incidents
- (6)Down: To see previous 8 levels of incident records
- (7)ESC:Press this button and withdraw from all catalogues and get back to main menu.
- (8)Back space : Press this button and consult all history records.

Incident record			
No.	Code	Time	Incident
000	044	2004-10-01 00 : 00 : 03	Silencing alarming
001	002	2004-10-01 00 : 00 : 00	Battery low voltage
002	001	2004-10-01 00 : 00 : 00	Input unusual
003	031	2004-09-30 00 : 00 : 00	Transmit the trouble
004	000	2000-00-00 00 : 00 : 00	No

Navigation buttons: Left arrow, Right arrow, Up arrow, Down arrow.

Footer: 2004-10-01 00 : 00 : 00

Picture 6

### 13.6.3 Current UPS working statue

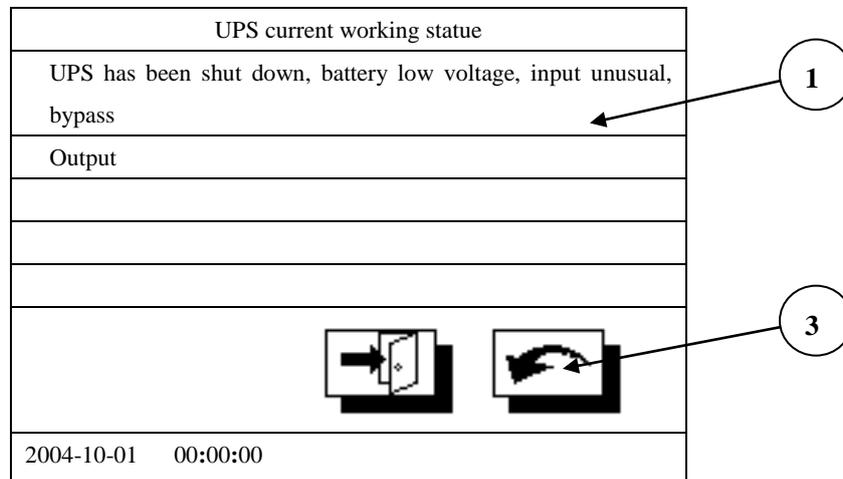
Press current working statue button when the menu interface display, and then enter into

current UPS working status interface and press corresponding button.:

(1)it shows current UPS working status.

(2)ESC : Press this button and withdraw from all catalogues and return to main menu.

(3)Back space : Press this button and consult all history records.



Picture 7

### 13.7 Setup display interfaces

Refer to picture 8 , press the corresponding button and can alter the systematic parameter of UPS in this picture.:

(1)Time setup button :It can change system time.( system will demand to enter password in order to avoid mistake )

(2)langue setup button : You can choose one langue, ENGLISH /CHINESE.

(3)Help : Press this button and ask for some help.

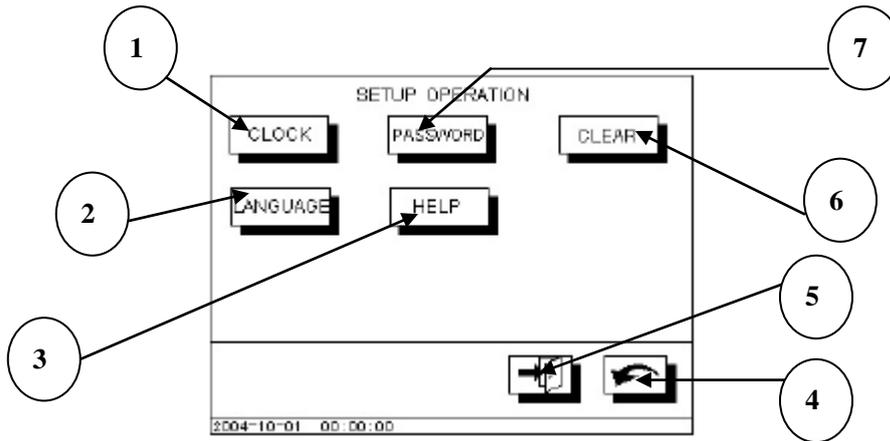
(4)Back space : Press this button and consult all history records.

(5)ESC : Press this button and withdraw from all catalogues and get back to main menu.

(6)Cancel button : Cancel all history records. ( system will demand to enter password in order to avoid mistake )

(7)Revise the password: Revise the systematic operation password. In order to prevent operating by mistake, the system will require the old operation password. You will be asked to verify the new password, if the new password input twice is unanimous, the

new password is set up.



Picture 8

### 13.7.1 Import password interface

Some operation will change the present working state of UPS, for instance: ON / OFF system, system at this moment will require operator input password, otherwise system will not accept any operator's instruction. The initial operation password from the factory is 1234. Please consult the 13.6.1 about the operation.

### 13.7.2 Time setup interface

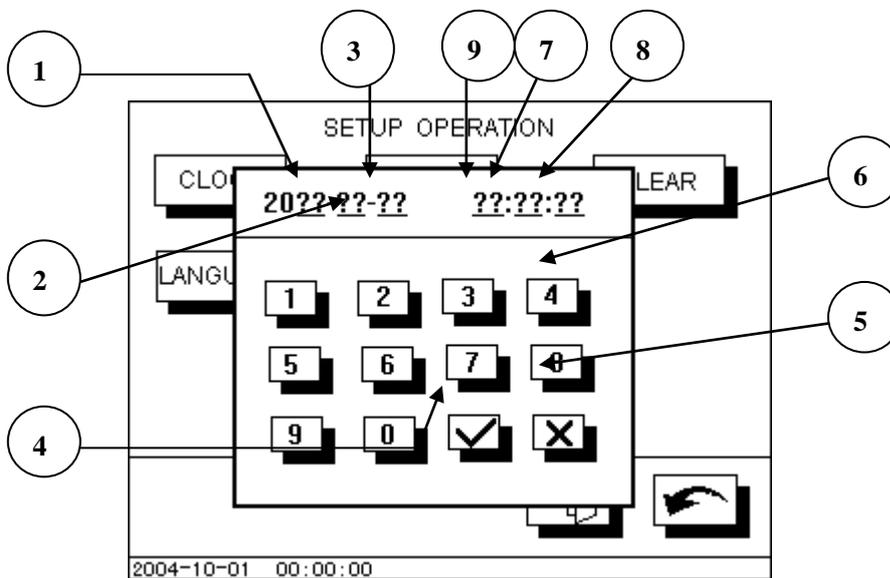
Press time setup button and enter password. This interface is mainly for inputting the new systematic clock; the interface is as showing picture 9:

- (1)Year :Show the year when the year is not set,"?" is displaying; When users import new number value from the figure button, show the digital value that users input.
- (2)Month : Show the month when the year is not set,"?" is displaying; When users import new number value from the figure button, show the digital value that users input..
- (3)Date :Show the date when the year is not set,"?" is displaying; When users import new number value from the figure button , show the digital value that users input.
- (4)Enter : After inputting, press this button to conform.
- (5)Cancel button : Withdraw from the new clock communication frame of introduction.
- (6)Number key : Input corresponding number.

(7)Minute : Show the minute when the year is not set,"?" is displaying; When users import new number value from the figure button , show the digital value that users input.

(8)Seconds : Show the second when the year is not set,"?" is displaying; When users import new number value from the figure button , show the digital value that users input.

(9)Hours : Show the hours when the year is not set,"?" is displaying; When users import new number value from the figure button , show the digital value that users input.



Picture 9

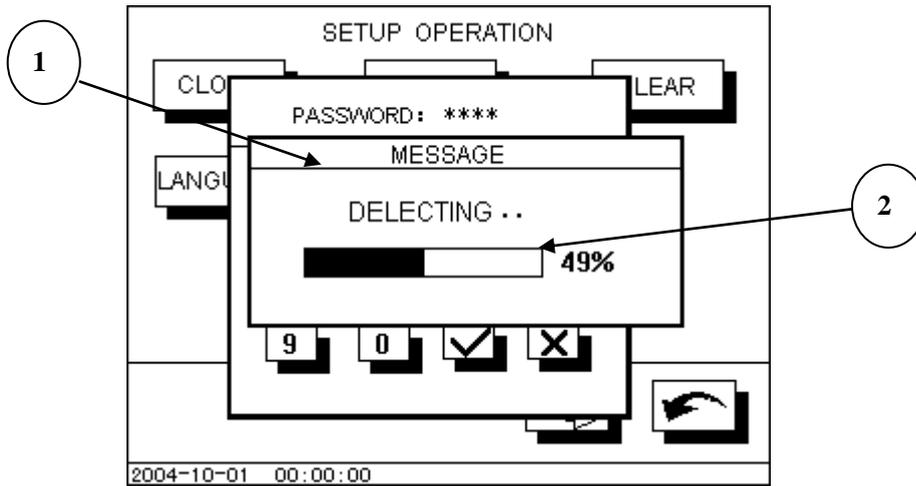
Notice: Users set up the time system from left to right while setting up , namely set up the order: Year →Month →Date →Hour →Minute →Second, user input one figure each time, cursor then move to right one automatically, place corresponding '?' are input by user.

### 13.7.3 Incident records deletion interface.

Press Incident records deletion button and input right password, then enter into Incident records deletion interface. Will delete all incidents to write down in this interface, this is non-irrecoverable after the data are deleted,. The interface is as show on picture10 :

(1)message box

(2)Progress mark: Show that deletes the completion of election.



Picture 10

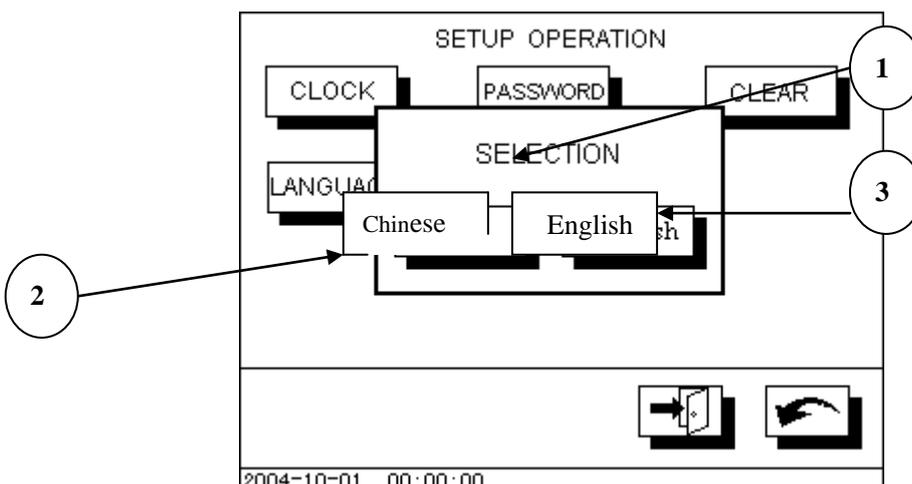
### 13.7.4 Languge interface

Press language button when setup interface display, then enter into language choose interface to set up. You can choose languages used while showing of system in this interface, the system supports two kinds of languages: Chinese and English. The interface is showing on picture 11 shows.:

(1)message box

(2)Chinese : Pressing this button will use the Chinese language to show various kinds of information.

(3)English : Pressing this button will use the English language to show various kinds of information

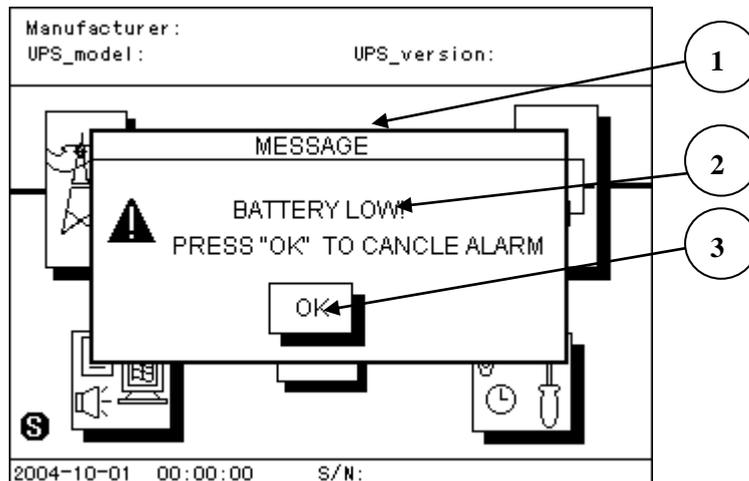


### 13.8 Alarming interface

When UPS is in warning state, Display module will show the warning menu automatically and preferentially. If UPS warning information does not canceled and the display menu show warning interface continually, user can cancel the alarming by hand.

The warning menu is as picture 12 shows.:

- (1) Warning information frame; Warning information shows in this news frame
- (2) Alarming information display
- (3) Enter, Push this key and cancel UPS alarming, withdraw from warning interface at the same time.



Picture 12.

### 14. Incident code:

System will automatic to write down some important incident and date time that incident happen in order to to refer in the future, System can only store up to 256 incidents. Every kind of different incident is expressed with different code (CODE). Users press the buttons and get the incident records. At the same time, besides the incident code and time, it will also provide simple incident. We will provide all incident codes and detailed incident records in the following forms one.

## Incident code

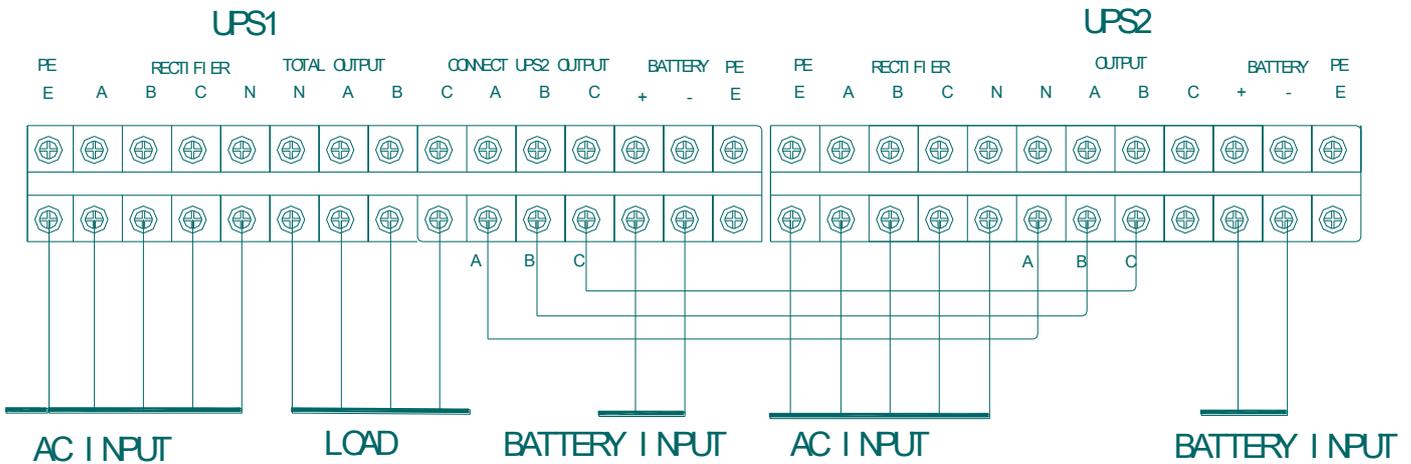
Incident code	Detail incident description
000	Empty, no records
001	Mains failure
002	Battery low voltage
003	UPS overload
004	Over Temperature
005	Phase sequence abnormal, the UPS input phase sequence is wrong
006	Inverter abnormal , there is something wrong with inverter
007	System abnormal
008	Bypass output, UPS turn to bypass output
009	Inverter output, UPS turn to inverter output
010	Rectifier abnormal, there is something wrong with rectifier
021	Mains returns to normal
022	The voltage of the battery returns to normal.
023	Load returns to normal
024	UPS temperature returns to normal
025	UPS input phase sequence returns to normal
031	Transmit abnormal
032	Transmit return to normal;
041	Automatic shut-down, because battery low voltage or others failure, UPS Automatic shut-down and turn to bypass output.
042	UPS restart
043	UPS is battery testing statue
044	Cancel buzzer alarming by hand
045	Shut down UPS by hand
051	Users send out the order and close the UPS from long-distant monitoring
052	Users send out the order and start the UPS from long-distant monitoring
053	Users send out the order and test the UPS from long-distant monitoring
054	Users send out the order and cancel the buzzer alarming from long-distant monitoring
061	Rectifier start to work
062	Rectifier stop working
Others	Unknown trouble, wrong trouble record

### 15 Notes:

- 1 Please press button with facial location of forefinger or middle finger, please do not press the screen with sharp device in order to prevent scratching the touch-sensitive screen surface.
2. After parameter setting, system will use the new setting.
3. Incident that are record inside the UPS is not permanent. It records most recent incident and over ride the old record automatically. User can through menu delete all incident record directly
4. Time format is 24 hours record
5. User must set the time and date at the first time of using the UPS

If users can understand or want to get more detasiled help to the content of the manual while using, please contact distributor or consult to our company, we will serve you.

REMARK: ( UPS parallel operate step )



UPS2 output wires connect to UPS1 terminal on which marked “connect UPS2 output”, two units UPS bypass input is come from output of bypass cabinet.

**Note: turn on operation step**

- 1 : Two units UPS connect wires must be connected following the above wiring diagram, before electrify, it must be insure the parallel cables connect correctly and firmly.
- 2 : When two units UPS connect to the utility, battery voltage is low, pls close rectifier switch. There is no “S” appear in the begin start UPS, “S” is not disappear in the end start UPS; if “S” disappear, pls stop turn on, which is show two units UPS signal disconnect.
- 3 : Closing bypass switch and battery switch one by one again.
- 4 : Before closing output switch, pls examine the two UPS output voltage difference, make sure the voltage difference is within 10V between phase and phase, then the two units UPS will parallel.