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1 Safety Information

1.1 UPS safety information

- Read all safety information and operating instructions carefully before attempting to install, service or maintain the UPS. Save this manual properly for reuse.
- This UPS is intended for indoor use only.
- Do not operate this UPS in direct sunlight, in contact with fluids, or where there is excessive dust or humidity.
- Be sure the air vents on the UPS are not blocked. Allow adequate space against the wall for proper ventilation.
- Do not open the UPS case as you will, there is a high risk of electric shocks inside. All connection/wiring/servicing must be performed by a qualified electrician.
- Do not connect to the equipment like hair dryer or electric heater.
- Do not use liquid extinguisher if there is a fire, a dry powder extinguisher is recommended.

⚠ **CAUTION**

UPS has high voltage inside, do not repair it by yourself. If any questions, please contact local service center or dealer.

1.2 Battery safety information

- Environmental factors impact battery life. Elevated ambient temperatures, poor quality utility power, and frequent short duration discharges will shorten battery life. Replacing battery periodically can help to keep UPS in normal state and assure backup time required.
- Battery installing or replacing should be performed by a qualified electrician. If you want to replace the battery cable, please purchase it from our local service center or distributors to avoid fever and lighter which can cause fire by inadequate power capacity.
- Batteries may cause electric shocks and have a high short circuit current, follow below requirements before installing or replacing the batteries.
    A. Remove wristwatches, rings, jewelry and other conductive materials.
    B. Only use tools with insulated grips and handles.
    C. Wear insulated shoes and gloves.
    D. Do not put the metal tools or parts on the batteries.
    E. Before disconnecting the terminals from the batteries, cut off all the loads to the batteries first.

- Do not dispose of the batteries with fire. The batteries may explode.
- Do not open or mutilate batteries. Released electrolyte inside is harmful to the skin and eyes, and maybe toxic.
- Do not connect the positive pole and negative pole directly, otherwise it will cause electric shocks or will be on fire.
- The battery circuit is not isolated from the input voltage, high voltage may occur between the battery terminals and ground, check if there is no voltage there before touching.

Note：Symbol instructions:

Symbol	Significations	Symbol	Significations
	Caution		Protective earth
	Danger! High Voltage!		Disable/mute audible alarm
ON	Turn on		Overload
OFF	Turn off		Battery inspection
	Standby or Shutdown		Repeat
	AC		Display screen repeat key
	DC		Battery

2 Product Overview

2.1 Specifications

Model		**1kVA**	**2kVA**	**3kVA**
Rated Capacity		1 kVA / 1 kW	2 kVA / 2 kW	3 kVA / 3 kW
Input				
Rated input voltage		208 Vac / 220 Vac / 230 Vac / 240 Vac		
Rated input frequency		50 Hz / 60 Hz (auto-sense)		
Input voltage range		110 ~ 176 Vac (linear derating between 50% and 100% load); 176 ~ 280 Vac (no derating); 280 ~ 300 Vac (derating 50%)		
Input frequency range		50/60 Hz ± 5 Hz (auto-sensing)		
Power factor		≥ 0.97	≥ 0.99	
THDI		≤ 5%		
Bypass voltage range		- 40% ~ +20% (settable)		
Output				
Output voltage		208 Vac / 220 Vac / 230 Vac / 240 Vac(settable)		
Voltage accuracy		± 1%		
Power factor		1.0		
Inverter overload capability		105% ~ 110% for 30 min, 110% ~ 130% for 10 min, 130% ~ 150% for 30 s, > 150% for 500 ms		
From mains mode to BAT mode		0ms (transfer time)		
From mains mode to bypass		4 ms (typical)		
Output frequency	Line mode	Same as input frequency		
	BAT mode	(50 / 60 ± 0.1) Hz		
Total voltage harmonic distortion		≤ 2% (linear load); ≤ 5% (non-linear load)		
Recharging time		Standard model: 90% capacity restored in 3 hours; Long time model: depend on the capacity of battery		

Charging current (Max.)	Standard model: 1 A (1 ~12A settable) Long time model: 12 A (1 ~12A settable)		
System Control and Communications			
Efficiency	≥ 93.5% (Mains mode)	≥ 94.5% (Mains mode)	≥ 94.5% (Mains mode)
	≥ 89% (Battery mode)	≥ 91% (Battery mode)	≥ 92.5% (Battery mode)
	≥ 98.5% (ECO mode)	≥ 99% (ECO mode)	≥ 99% (ECO mode)
Protections	Over-temp protection; Fan testing protection; Overload protection; Output short circuit protection; Battery discharge protection		
Communication port	Standard: RS232; Options: USB, SNMP card, dry contacts		
Display	LCD+LED		
Environmental			
Operatinghumidity	0 ~ 95 % RH @ 0 ~ 40°C (non-condensing)		
Storage temperature	-25°C ~ 55°C(exclude batteries)		
Operating altitude	≤ 1000m, above 1000m, derate 1% for each rising 100m		
Protection class	IP20		
Noise level	≤50dB (at 1m)		

* Derate capacity to 90% when the output voltage is adjusted to 208Vac.

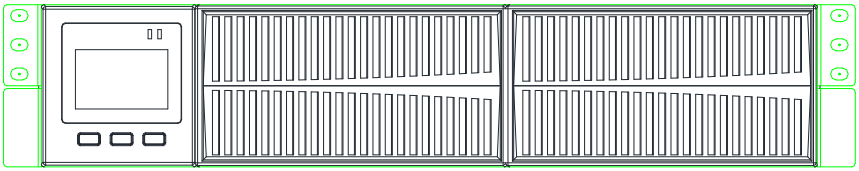
Others

Model	DC voltage	Inbuilt battery	Dimensions (mm) W × D × H	Weight (kg)
1kVAS	DC24V	12 V / 9 Ah	440×338×88	10.9
1kVAS	DC36V	12 V / 7 Ah	440×430×88	13.3
2kVAS	DC48V	12 V / 9 Ah	440×430×88	17.8
2kVAS	DC72V	12 V / 7 Ah	440×560×88	22.1
3kVAS	DC72V	12 V / 9 Ah	440×560×88	22.3
3kVAS	DC96V	12 V / 7 Ah	440*430 *88(UPS) 440*468*88(BAT)	7.52(UPS) 23.5(BAT)
1kVAH	DC24V	/	440×338×88	5.2
1kVAH	DC36V	/		

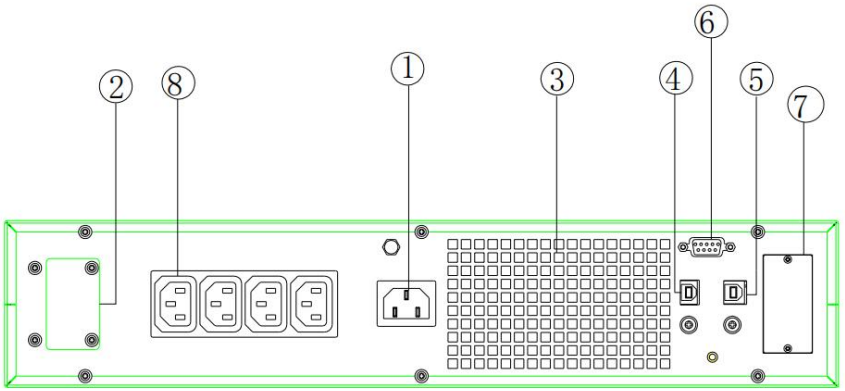
2kVAH	DC48V	/	440×430×88	7.3
2kVAH	DC72V	/		
3kVAH	DC72V	/	440×430×88	7.5
3kVAH	DC96V	/		

* S means standard model, H means long time model.

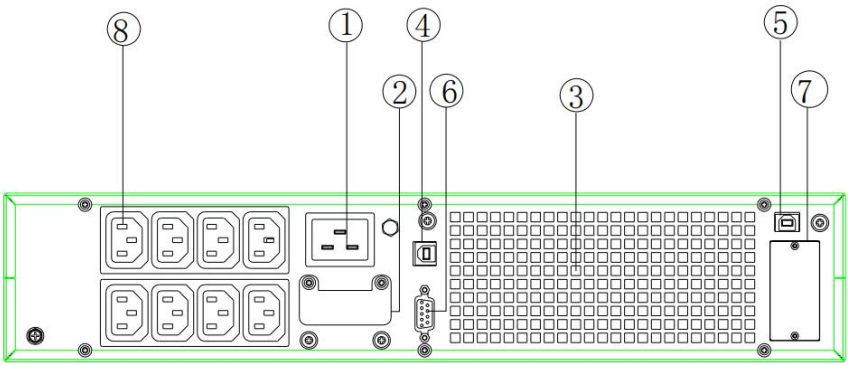
2.2 Front panel features



2.3 Rear panel features



a. 1kVAS / 1kVAH rear panel



b. 2kVAS / 2kVAH / 3kVAS / 3kVAH rear panel

① AC input socket	⑥ RS232 port
② Battery connector	⑦ Intelligent slot
③ Fan	⑧ Output sockets
④ USB port	
⑤ EPO (Emergency Power Off) port	

Note:

The figure is for reference only. Due to the technology upgrading and development, the real unit might be different from the figure.

3 Installation

3.1 Unpacking inspection

- Open the UPS package and inspect the contents upon receipt. The accessories attached to the UPS contain a power cord, a user manual, communication cable, CD-ROM. The long backup model also includes the cable for connection to battery bank.
- Check if the unit is damaged during transport. Do not power on and notify the carrier and dealer if find damaged or parts missing.
- Verify this unit is the model you want to buy. Check the model name showed both on the front panel and rear panel.

Note:

Keep the packaging box and packaging materials for future transport use. The equipment is heavy. Always handleit with care.

3.2 Installation information

- The UPS installation environment must be in good ventilation, away from water, flammable gases and corrosive entities.
- Do not lie down the UPS against the wall so that front and side panel air intake hole, rear panel air outtake hole will be unobstructed.
- The ambient temperature around the UPS should be within 0℃~40℃ （non-condensing）.
- If dismantling the machine at low temperatures, there may be condensation droplets, users can not install or operate it before UPS completely got dry both inside and outside, otherwise there will be danger of electric shocks.
- Place the UPS near the mains source so that can cut off utility power without any delay in case of emergency.
- Make sure the load connected to the UPS is off when users connect it to UPS, and then turn on the load one by one later.
- Connect the UPS with the power outlet which is over-current protected. Do not connect the UPS with power outlets whose rated current is less than the maximum input current of this UPS.
- All power outlets should be configured with earthing device for safety.
- UPS could be electrified or powered no matter the input power cord is tied or not, even when the UPS is off. The only way to cut off the output is switching off the UPS and disconnecting the mains power supply.

- For all standard model UPS, it is advised to charge the batteries over 8 hours before using. Once the AC mains power energizes the UPS, it will automatically charge the batteries. Without prior charging, UPS output remains as usual but with shorter back-up time than normal.
- When connected to motor, display equipment, laser printer etc., UPS power selection should be based on the startup power of the load which is usually twice as rated power.
- Wiring by a qualified electrician is required. Ensure input cables and output cables are connected correctly and firmly.
- If install a leakage current protective switch, please install it on output cable.

3.3 Installation and output connection

Normally, output connection of 1~3kVA series is configured with power outlets or terminal blocks, users can plug the load cable into the UPS power outlets to energize the load. Make sure the mains cable and breakers in the building are enough for the rated capacity of UPS to avoid the hazards of electric shock or fire.

4 Network Functions

4.1 Communication port

Users could monitor the UPS system through the communication port such as standard RS232 port and USB port with computer. Connecting this UPS with computer by communication cable could achieve UPS management easily.

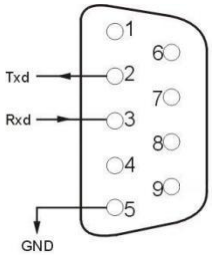
>RS232 port：

Pins	1	2	3	4	5	6	7	8	9
Indication	empty	send	receive	empty	ground	empty	empty	empty	empty

Note:

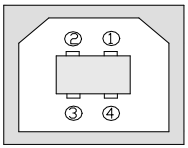
RS232 interface is set as below:

- Bit rate: 9600 bps
- Byte: 8bit
- Completion code: 1 bit
- Bit pattern: None



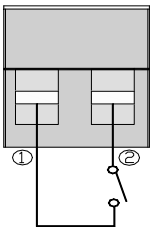
>USB port：

Pins	1	2	3	4
Indication	+5V	date+	date-	GND



4.2 EPO port（optional）

EPO is the short for Emergency Power Off. EPO port is on the rear panel of the UPS. It's green. Users can cut off the output of UPS immediately by operating EPO port in case of emergency.



Normally, pin1 and pin2 are connected so that the machine can be working normally. When some emergencies happen, and when users have to cut off the output, just need to disconnect the connection between pin1 and pin2, or just pulling it out.

4.3 Intelligent card (optional)

There is an intelligent slot on the rear panel of the UPS, it's for SNMP card and dry contacts. Users can insert any type intelligent card from those three into it to monitor

and manage the UPS. And users don't have to turn off the UPS when install the intelligent card. Follow below process:

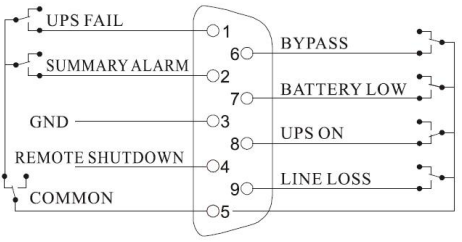
- First of all, remove the intelligent slot cover;
- Then insert the intelligent card (SNMP card and dry contacts);
- Finally, screw the intelligent card back.

> SNMP card (optional)

SNMP card on UPS is compatible with the most software, hardware and network operating system, it is a network management of UPS, with this function, UPS can login on internet , which can supply information of UPS status and input power, and even possible to control UPS via net management system.

> Dry contacts card (optional)

Insert the dry contacts card into the intelligent slot. It's another type function of intelligent monitoring.



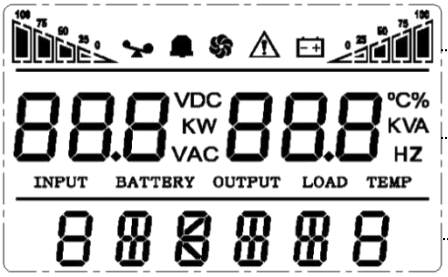
Position	Definition
PIN1	ON：UPS is malfunctioning
PIN2	ON：Alarm（system failure）
PIN3	Ground
PIN4	Remote shutdown
PIN5	Common
PIN6	ON：Bypass mode
PIN7	ON：Battery low
PIN8	ON：Inverter mode； OFF：Bypass mode
PIN9	ON：No AC power in

5 Operation

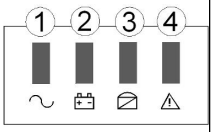
5.1 Button operation

Button	Function
"ON" key (↵ + ◀)	Press the two keys for more than half a second to turn on the UPS.
"OFF" key (◀ + ▶)	Press the two keys for more than half a second to turn off the UPS.
TEST/MUTE key (↵ + ▶)	Press the two keys for more than 1 second in Line mode or ECO mode : UPS runs the self-test function. Press the two keys for more than 1 second in battery mode: UPS runs the mute function.
INQUIRING key (◀ , ▶)	Not in setting mode: • Press ◀ or ▶ for more than half a second (less than 2 seconds): display the items orderly. In setting mode: • Press ◀ or ▶ for more than half a second (less than 2 seconds): Select the setting option.
FUNCTION SETTINGS key (↵)	Not in setting mode: • Press the key for more than 2 seconds: Function settings interface. In setting mode: • Press the key for more than half a second (less than 2 seconds): go to the function setting options. • Press the key for more than 2 seconds: exit from this function settings interface.

5.2 Display interface



Display	Function
Icon display	

	Load icon: The approximate load capacity percentage (0-25%, 26-50%, 51-75% and 76-100%) is indicated by the number of load bar sections illuminated. When UPS is overloaded, the load icon will flash.
	Mute icon: Indicates the audible alarm is disabled / mute. Press the mute key in the battery mode, the mute icon flash.
	Fan icon: Indicates fan working status. When the fan normally runs, the icon displays rotation; if the fan is not connected or faulty, the icon will flash.
	Fault icon: Indicates UPS is in fault mode.
	Battery status icon: Indicates the battery capacity of 0-25%, 26-50%, 51-75%, and 76-100%. When the capacity of battery get low or battery disconnected, the battery status icon will flash.
UPS status information	
 	• In non-setting mode, it displays UPS output information when UPS normally runs; Fault code will be told in fault mode. • In setting mode, users could adjust different output voltage, activate ECO mode, select an ID number and so on by operating function setting keys and inquiring key.
Operation mode	
	Indicates the power capacity of UPS within 20 seconds after starting up. Indicates UPS operation mode in 20 seconds, such as STDBY (standby mode), BYPASS (Bypass mode), LINE (AC mode), BAT (Battery mode), BATT (Battery Self Test mode), ECO (Economic mode), SHUTDN (Shutdown mode).
LED indicator light functions	
	They are respectively inverter light and fault light from left to right. ①The inverter light (green LED indicator light) illuminates continuously: it indicates that UPS is in mains mode or ECO mode or power supply status in battery mode. ②The battery light (yellow LED indicator light) illuminates continuously:The UPS is working in battery / battery self test mode. ③The bypass light (yellow LED indicator light) illuminates continuously:The UPS is working in bypass mode or ECO mode. ④The fault light (red LED indicator light) illuminates continuously: it indicates that UPS is in fault status. Note: For LED indication in different modes, please refer to LED/display panel and alarm list.

5.3 UPS On/Off operation

Operation	Description
Turn on the UPS	**> Turn on the UPS with mains power** ● With mains power connected, UPS works in bypass mode, its output is same as the input voltage within the input range. If there is no need of output voltage when mains power connected, you can set up bPS to 'OFF'. Default bPS is ON, it means there is bypass output when power on. ● Press the ON key for more than half a second to start the UPS, then it will start the inverter. ● Once started, the UPS will perform a self-test function. When the self-test finishes, it will turn to online mode. **> Turn on the UPS by battery without mains power** ● When main power is disconnected, press the ON key for more than half a second to start UPS. ● The operation of UPS startup process is almost same as above process with mains power. After the self-test finishes, UPS will work in battery mode.
Turn off the UPS	**> Turn off the UPS in Line mode** ● Press the OFF key for more than half a second to turn off the UPS. ● After UPS shutdown, there is no output. If output is needed, you can set BPS 'ON' on LCD setting menu. **> Turn off the UPS in battery mode without mains power** ● Press the OFF key for more than half a second to turn off the UPS. When UPS shut down, it will do self-test first, until there is no display on the panel.
UPS self-test/mute test operation	● When UPS is in LINE Mode, press the self-test/mute key for more than 1 second. UPS gets to self-test mode and tests its status. It will exit automatically after finishing test. ● When UPS is in BAT Mode, press the self-test/mute key for more than 1 second, the buzzer stops beeping. If you press the self-test/mute key for one more second, it will restart to beep again.
UPS Setting	● Enter Setup interface. Press and hold the function setting key ↵ for more than 2 seconds, then come to Setup interface, press and hold the inquiring key (◄ , ►) for more than half a second (less than 2 seconds), select the function setting, choose the setup interface, at the moment, the letters flash. ● Enter the setup interface. Press and hold the function setting key ↵ for more than half a second (less than 2 seconds), then come to the setup interface, at this time, the letters doesn't flash any more, the numerical value flash. Press and hold the inquiring key (◄ , ►) for more than half a second (less than 2 seconds), select the numerical value in accordance with the function. ● Confirm the setup interface. After selecting numerical value, press and hold the function setting ↵ for more than half a second (less than 2 seconds).

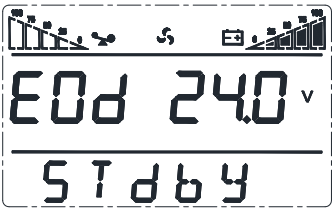
	Now, the setting function is completed and the numerical value illuminates without flashing. ● Exit from the setup interface. Press and hold function setting key ↵ for more than half a second (less than 2 seconds), exit from the setup interface and return to the main interface. **Note:** ● UPS could not be set until it is connected to the battery and it is turned off and switched to Stdby mode (standby mode). ● Disconnect mains power after setting. ● The LCD display screen will automatically extinguish in about 1 min, and the setting will be configured normally.

5.4 UPS Settings

- **Output voltage setting (OPU)**

LCD display	Settings
	For 208/220/230/240 VAC models, you may choose the following output voltage: **208:** output voltage is 208Vac **220:** output voltage is 220Vac **230** (default)**:** output voltage is 230Vac **240:** output voltage is 240Vac

- **Low voltage of battery setting (EOd)**

LCD display	Settings
	The battery voltage selecting interface. **24:** Low voltage of battery is 24Vdc **36:** Low voltage of battery is 36Vdc **48:** Low voltage of battery is 48Vdc **72:** Low voltage of battery is 72Vdc **96:** Low voltage of battery is 96Vdc **dEF** (default)**:** EOD voltage automatically varies with loads, including 20 hours discharge protection. Note：The setting range can be changed according to the difference of the model.

- **AUO setting (AUO)**

LCD display	Settings
	AUO setting only can be set in Stdby mode or Bypass mode. You may choose the following two options: **ON**: UPS will start up automatically and works in Line mode when connect mains. **OFF** (Default): UPS won't start up automatically when connect mains except EOD, it will work in standby or bypass mode.

- **Bypass mode setting (bPS)**

LCD display	Settings
	Enable or disable Bypass function. You may choose the following two options: **ON:** Bypass enable **OFF** (default)**:** Bypass disable

- **Emergency power off setting (EPO)**

LCD display	Settings
	Enable or disable Emergency power off function. You may choose the following two options: **ON:** Emergency power off function enable ,output will be cut off after emergency shutdown. **OFF** (default)**:** Emergency power off function disable.

- **Economic operation mode setting (ECO)**

LCD display	Settings
	Enable or disable Economic operation mode function. You may choose the following two options: **ON:** Economic operation mode function enable. **OFF** (default)**:** Economic operation mode function disable. Note: Output voltage has switching time of 15ms at most when economic operating mode is switched to mains mode / battery mode. As for the load having strict requirements for switching time, please select carefully whether to open economic operating mode or not.

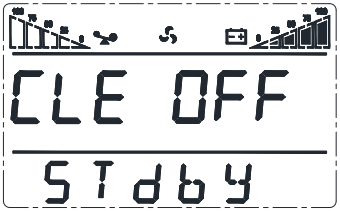
- **Expert Mode setting (EP)**

LCD display	Settings
	Enable or disable Expert mode. You may choose the following two options: **ON**: Expert mode is ON, then enter the settings page again, and there are some options available for setup: Charging current(CHG), . If Expert mode is OFF, these options will not be shown in the settings interface. **OFF** (default): Expert mode disable

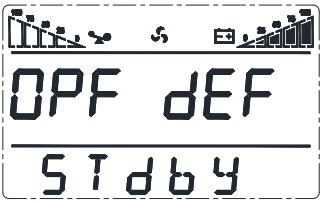
- **Charging current setting (CHG)**

LCD display	Settings
	When set EP as ON, CHG option shows up in the setting interface, allows to configurate the charging current.The default charging current of standard model UPS is 1A, and the default charging current of long backup model UPS is 12A. There are other charging currents 1/2/3/4/5/6/7/8/9/10/11/12 A can be set.Please confirm the battery capacity before setting.It is recommended that the charging current does not exceed 0.2C.

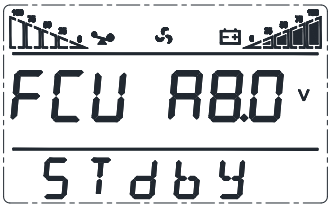
- **Configure Clear Alarms (CLE)**

LCD display	Settings
	When set EP as ON, CLE option shows up in the function settings interface to enable to clear some alarms, such as ECO instability, frequent overload, frequent over-temperature and switching to battery for mains voltage instability.

- **Output frequency setting (OPF)**

LCD display	Settings
	When set EP as ON, OPF option shows up in the function settings interface to set the output frequency of battery mode , Output of 50Hz or 60Hz.can be selected.

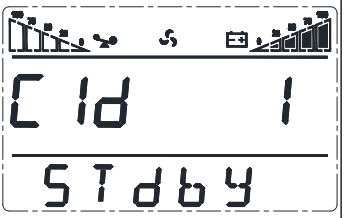
- **Floating charge voltage setting (FCV)**

LCD display	Settings
	When set EP as ON, FCV option shows up in the function settings interface to set the floating charge voltage. **A8.0**: Floating charge voltage is 108V. Note：The setting range can be changed according to the difference of the model.

- **Equalizing charge voltage setting (ECV)**

LCD display	Settings
	When set EP as ON, ECV option shows up in the function settings interface to set the equalizing charge voltage. **b2.8**: Equalizing charge voltage is 112.8V. Note：The setting range can be changed according to the difference of the model.

- **The ID of Communication device setting (CId)**

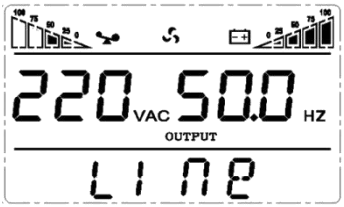
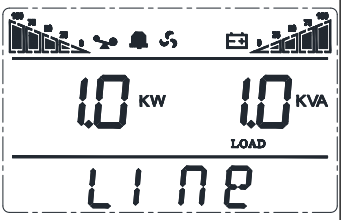
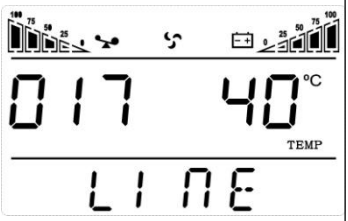
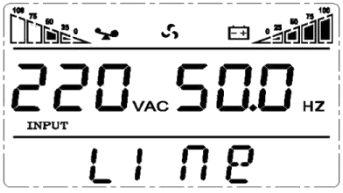
LCD display	Settings
	When set EP as ON, CId option shows up in the function settings interface to set the ID of Communication device.

- **Battery type setting (bAt)**

LCD display	Settings
	When set EP as ON, bAt option shows up in the function settings interface to set the battery type.You may choose the following two options: **0:**Lead acid battery. **1:**15 lithium batteries . **2:**16 lithium batteries .

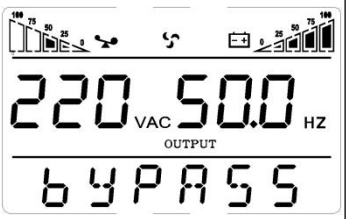
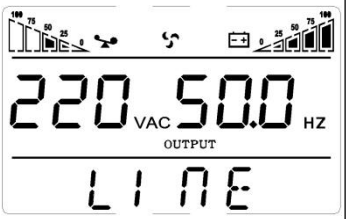
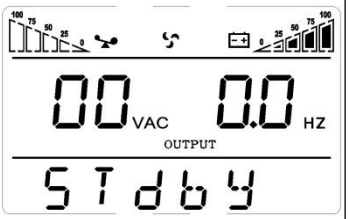
5.5 Parameters inquiring operation

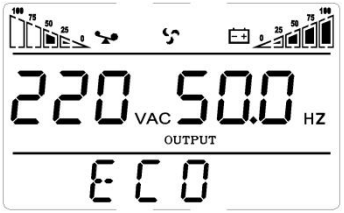
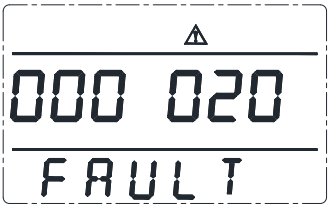
Press the inquiring key ◄ or ► for more than half a second (less than 2 seconds) to inquire about items. The inquired items include Input, Battery, Output, Load and Temperature. The displayed items on LCD screen are shown as following:

LCD display	Description
	**Output：** Display the output voltage and output frequency of the UPS. As the following graphic shows, the output voltage is 220V, the output frequency is 50Hz.
	**Load:** Display the numerical value of the active power (WATT) and apparent power (VA) of the load. For example, as the following graphics shows, the WATT of the load is 1.0kW, VA is 1.0kVA (when disconnect loads, it is a normal phenomenon to show a small numerical value of WATT and VA).
	**Version and Temperature:** Indicate firmware version of UPS and display the highest temperature of UPS components; As the following graphics shows, the firmware version is v1.7, the maximum temperature is 40℃.
	**Input:** Display the voltage and frequency of the input. As the following graphics shows, the input voltage is 220V, input frequency is 50Hz.
	Battery: Display the voltage and capacity of the battery. As the following graphics shows, the battery voltage is 24V, the capacity of battery is 100% (the capacity of battery is approximately reckoned according to the battery voltage).

	Warning: Display the warning code.

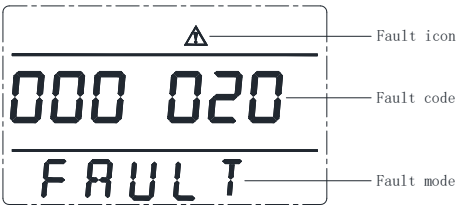
5.6 Operation mode

Operation mode and LCD display	Description
Bypass mode 	Turn to bypass mode under the following three conditions: ● Connect mains power and the bypass setup is ON. ● Turn off the UPS in line mode and the bypass setup is ON. ● Overload in line mode. **Note:** When UPS is working in bypass mode, it has no back up function.
Line mode 	Being in line mode are as following: When input mains corresponding to the working conditions, UPS will work in line mode, LCD displays 'Line'.
Stdby mode 	UPS is powered off and no output supply power, but still can charge batteries.

Battery mode 	Being in battery mode are as following: the buzzer beeps once every 4 seconds. When the mains power is low or unstable, UPS will turn to battery mode at once, and LCD displays ‘batt’.
ECO mode 	Being in ECO mode are as following: When the input mains meet the input range of the ECO mode and the ECO function is on, the UPS works in ECO mode. If input mains exceed the range of ECO several times within one minute but stays in inverter input range, UPS will work in inverting mode automatically. LCD displays ‘ECO’.
Fault mode 	When UPS has a failure, the buzzer beeps and the UPS turns to fault mode.The fault codes is displayed on the LCD . At the moment, users can observe whether the UPS has output, if there is output,please save the data of the load device and then disconnect the input power of the UPS.The UPS will shut down after one minute(when the battery is connected).Or wait for maintenance personnel to perform maintenance. If no serious faults occur, you can also connect the power supply to the UPS and restart the UPS.

6 Troubleshooting

LCD display in fault mode is as shown below, contact your supplier or service man according to the fault message for troubleshooting.



Tower UPS LCD display in fault mode

Table 1: Fault code messages

Fault code	Fault name	Solutions	Bypass output
000 001	Inverter output overcurrent	1. Check if the load is within the specification； 2.Check whether the inverter IGBT is faulty	yes
000 002	Bus voltage is abnormal	1.Check IGBT and sampling circuit 2.Please contact your supplier.	yes
000 004	Output voltage is abnormal	1.Check IGBT and sampling circuit 2.Please contact your supplier.	yes
000 008	Battery voltage is abnormal	1.Check whether the configured numbers of battery is consistent with the actual numbers of battery connected to the UPS. 2.Check battery sampling circuit	yes
000 010	UPS soft start fail	Please contact your supplier.	1.Inverter self-test failed :yes 2.Bus failed to soft up:no
000 020	Over-temperature	Ensure that UPS is not overloaded, the room temperature is normal and vent is not blocked. Wait 10 minutes to let UPS cool and then restart it. if the problem persists, contact your supplier.	yes

000 040	NOT USE		
000 080	Inverter output Overload	Check load capacity and remove non-critical devices, recalculate load power and reduce the load quantity connected to the UPS. Check whether the load has faults or not.	yes
000 100	Bypass output Overload	Check load capacity and remove non-critical devices, recalculate load power and reduce the load quantity connected to the UPS. Check whether the load has faults or not.	no
000 200	Output short circuit	Turn off the UPS, disconnect all loads, and ensure that the load has no fault or internal short circuit. Restart the UPS, if the problem persists, contact your supplier.	no
000 400	NOT USE		
000 800	Input overcurrent	1.Check PFC IGBT and sampling circuit 2.Please contact your supplier.	yes
001 000	NOT USE		
002 000	EPO	Please check whether the EPO terminal wiring circuit is disconnected if not manually operated.	no
004 000	Bus voltage is short	1.Please check the IGBT on the BUS and sampling circuit 2.Please contact your supplier.	yes
008 000	Line mode output Overload switch to battery mode	Check load capacity and remove non-critical devices, recalculate load power and reduce the load quantity connected to the UPS. Check whether the load has faults or not.	yes

Note:

Output overload in any mode will not charge the battery.

Table 2: Working status messages

S/N	Working status	LCD display messages	Alarm beep	LCD flashes	LED flashes	
					Inverter	Fault
1	Inverter mode (mains power)					
	Mains power voltage	Working mode displays Line	No beep	No flash	Flash always	/
	Mains power high/low voltage protection, switch to battery mode	Working mode displays bAT	One beep / 4 sec	One flash / 4 sec	One flash / sec	/
2	Battery mode					
	Battery voltage - normal	Working mode displays bAT	One beep / 4 sec	One flash / 4 sec	One flash / sec	/
	Warning for abnormal voltage of battery	Working mode displays bAT, Bat flash	One beep / sec	One flash / sec	One flash / sec	/
3	Bypass mode					
	Mains power – normal（under Bypass）	Working mode displays byPASS	One beep / 2 min	No flash	One flash /2 sec	/
4	Warning for battery disconnected					
	Bypass mode	Working mode displays byPASS, bat display is 0, and flash all the time	One beep / 4 sec	One flash / 4 sec	One flash /2 sec	/
	Inverter mode	Working mode displays Line, bat display is 0, and flash all the time	One beep / 4 sec	One flash / 4 sec	Flash always	/
	Power on / Switch on	LCD illuminates when power on, and display the capacity of the UPS, later working mode displays Line or byPASS, bat icon flash all the time	6 beeps	Flash always	Flash always	Flash always
					/	/
5	Output overload protection					
	Warning for mains power overload	Working mode displays Line, load icon flash	2 beeps / sec	2 flashes / sec	Flash always	/
	Protect operation for mains power mode overload	Working mode displays FAULT and the corresponding codes	Long beep	Flash always	/	Flash always
	Warning for battery overload	Working mode displays bAT, load icon flash	2 beeps / sec	2 flashes / sec	One flash / sec	/
	Protect operation for battery mode overload	Working mode displays FAULT and the corresponding	Long beep	Flash always	/	Flash always

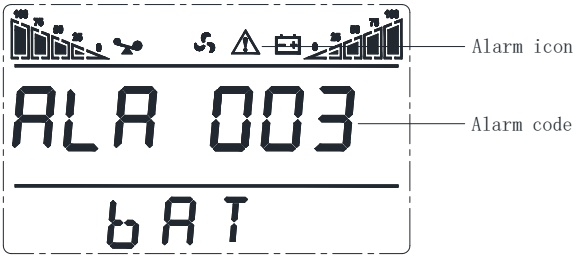
		codes				
6	Warning for bypass mode overload	Working mode displays byPASS, load icon flash all the time	One beep / 2 sec	One flash / 2 sec	One flash / 2 sec	/
7	Fans fault(fan icon）	Fan icon flash, working mode displays depending on current mode	One beep / 2 sec	No flash	/	/
8	Faults mode	Working mode displays FAULT, numerical value area displays the corresponding error code	Long beep	Flash always	/	Flash always

Note:

- End user need to provide below information when require to maintain the UPS.
- UPS Model No. & Serial No.
- Date of fault occurrence.
- Fault details (LCD status, noise, AC power situation, load capacity, battery capacity configuration ect.)

Table 3: Alarm code display

The alarm code will be displayed in four digital tubes on the right of the numerical part of the LCD screen (red mark), as shown below:



Tower UPS LCD display in alarm mode

Alarm code messages

Alarm code	Alarm name	Solutions
ALA 001	Abnormal mains power	Measure if mains voltage and frequency is normal using a multimeter.
ALA 002	Abnormal bypass power	Measure if bypass voltage and frequency is normal using a multimeter.
ALA 004	Abnormal ECO power	Measure if bypass voltage and frequency is normal using a multimeter.

ALA 008	Battery disconnected	1. Check the battery connection: 2. Replace the battery.
ALA 010	Battery low-voltage alarm	/
ALA 020	Discharging ending of battery	Charge the battery as soon as possible.
ALA 040	Overload alarm	Remove non-critical devices to reduce the loads connected to the UPS.
ALA 080	Fan fault	Check if the fan is connected correctly, the fan is locked and damaged. If all the above things are normal, please contact your supplier.
ALA 100	Bypass switch to mains mode reach 5 times in an hour	1.Ensure that UPS is not overloaded. 2.Set CLE as ON to clear the alarm.
ALA 200	LN line reverse connection	Check the mains input connection.
ALA 400	ECO mode switched over to the inverter mode three times	Power grid fluctuates great or is caused by human switching(The warning disappears automtically after an hour)
ALA800	Bus overvoltage alarm	This alarm is caused by the power grid fluctuation, the system automaticlly switches to battery mode

Note:

Output overload in any mode will not charge the battery.

7 Software Download & Installation

（Only for the model with communication port）

Please follow steps below to download and install monitoring software :

1 . Go to the website https://tools.powerchange.top

2 . Click UPSSmartView software icon and then choose your required OS to download the software

3 . Follow the on-screen instructions to install the software