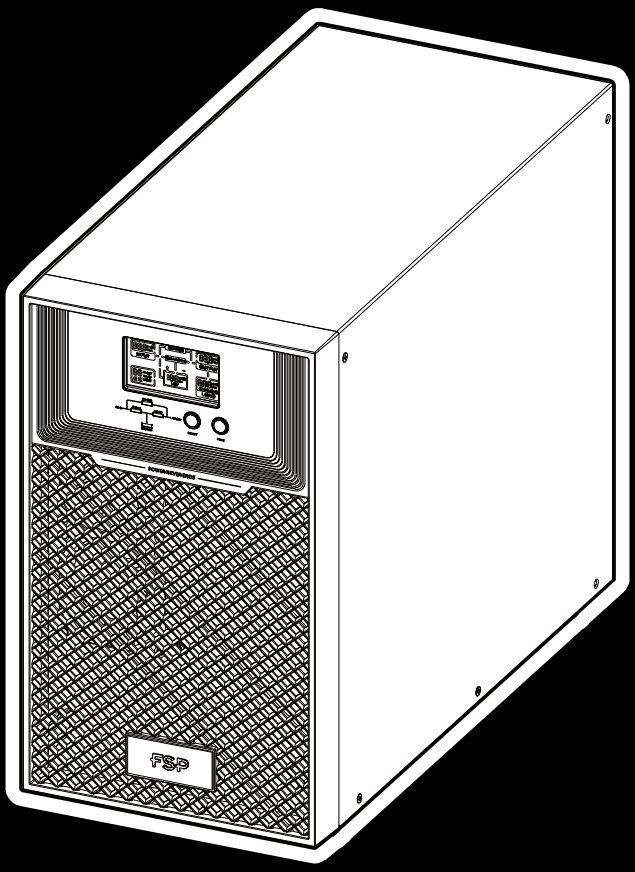


Champ+ 1KVA-3KVA
Tower On-Line UPS

Quick Installation Guide

Safety Precautions

This manual contains important safety instructions. Before handling, installation, operation, and maintenance, please read the instruction manual carefully and follow all safety precautions in the instruction manual. Adhere to all warnings on the unit and in this manual. Follow all operating and user instructions.


WARNING

The battery can present a risk of electrical shock and high short circuit current. Following precautions should be observed before replacing the battery.

- Wear rubber gloves and boots.
- Remove rings, watches and other metal objects.
- Use tools with insulated handles.
- Do not lay tools or other metal objects on the batteries.
- If the battery is damaged in any way or shows signs of leakage, contact your local representative immediately.
- Do not dispose of batteries in a fire. The batteries may explode.
- Handle, transport and recycle batteries in accordance with local representative.


WARNING

Although the UPS has been designed and manufactured to ensure personal safety, improper use can result in electrical shock or fire. To ensure safety, observe the following precautions:

- Turn off and unplug the UPS before cleaning it.
- Clean the UPS with a dry cloth. Do not use liquid or aerosol cleaners.
- Never block or insert any objects into the ventilation holes or other openings of the UPS.
- Do not place the UPS power cord where it might be damaged.
- Confirm the ground wire is connected correctly, whether the wiring and the polarity of the battery are correct before powering on.
- Leave enough space around the UPS to ventilation and maintenance.
- Use dry powder to extinguish fire. Liquid fire extinguisher is a risk of electric shock.
- Take the load capacity of floor for battery into account when installing the UPS.

Contents

1. Electromagnetic Compatibility

*** Safety**	
IEC/EN 62040-1-1	
*** EMI**	
Conducted Emission.....IEC/EN 62040-2	Class A
Radiated Emission.....IEC/EN 62040-2	Class A
***EMS**	
ESD.....IEC/EN 61000-4-2	Level 4
RS.....IEC/EN 61000-4-3	Level 3
EFT.....IEC/EN 61000-4-4	Level 4
SURGE.....IEC/EN 61000-4-5	Level 4
Low Frequency Signals.....:IEC/EN 61000-2-2	
Warning: This is a product for commercial and industrial application in the second environment-installation restrictions or additional measures may be needed to prevent disturbances.	

NOTICE:

Operated the UPS in an indoor enviroment only in an ambient temperature range of 0-40°C(32-104°F). Install it in a clean environment, free from moisture, flammable liquids, gases and corrosive substance.

This UPS contains no user-serviceable parts except the internal battery pack. The UPS on/off push buttons do not electrically isolate internal parts. Under no circumstance attempt to gain access internally, due to the risk of electric shock or burn.

Do not continue to use the UPS if the panel indications are not in accordance with these operating instructions and contact the local representative immediately.

Battery service should be performed or supervised by personnel knowledgeable of batteries and the precautions. Keep unauthorized personnel away from the batteries. Proper disposal of batteries is required. Refer to your local laws and regulations for disposal requirement.

DO NOT CONNECT equipment that could overload the UPS or DC current from the UPS, for example: electric drills, vacuum cleaners, laser printers, hair dryer or any appliance using half-wave rectification.

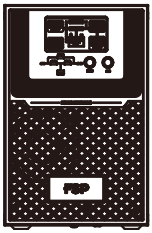
Storing magnetic media on top of the UPS may result in data loss or corruption.

Turn off and isolate the UPS before cleaning it. Use only a soft cloth, never using liquid or aerosol cleaners.

2. Introduction

This series UPS adopt the online double-conversion design, continuously supply the clean sine wave power to computer, telecommunication even industrial automation system. This manual is suitable for single phase 1, 2, 3K.

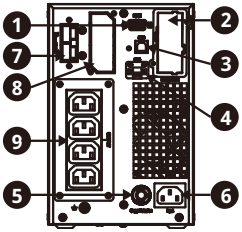
They feature a LCD display to indicate all information for UPS, for ease of use, we provide kinds of function buttons and communication ports.



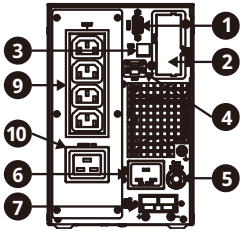
Champ+1K/1KL/2KL/3KL

Champ+2K/3K

Figure 1 UPS Front View



Champ+1K/1KL



Champ+2KL/3KL

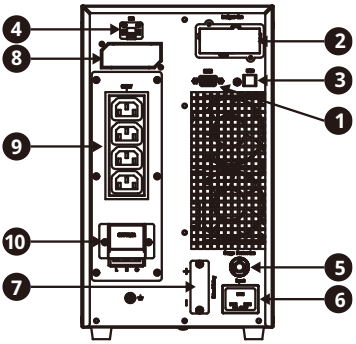
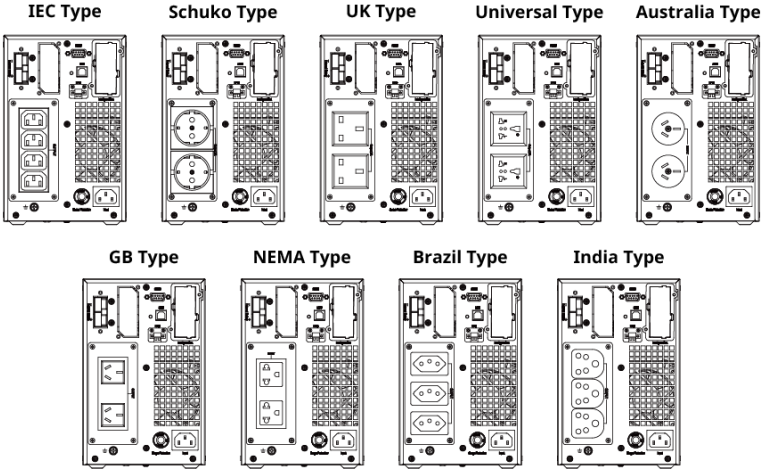


Figure 2 UPS Rear View

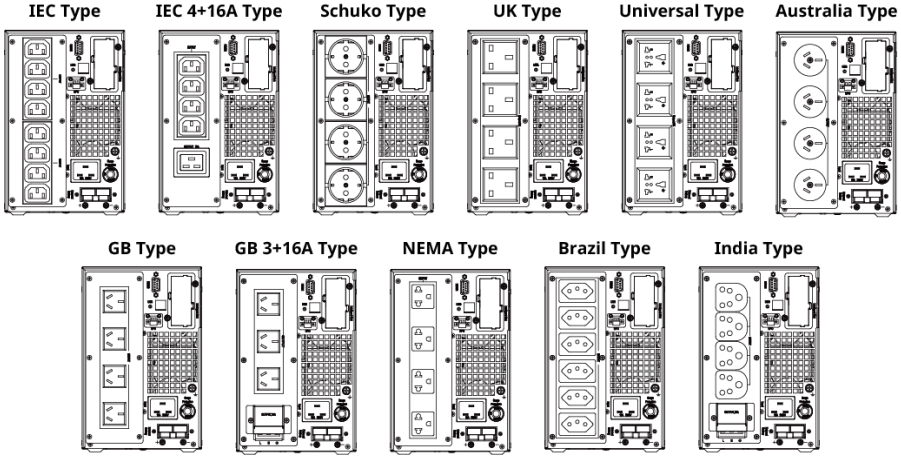
❶	RS-232 communication port. DB9 type.
❷	Intelligent slot. SNMP card, AS400 card, RS485, External battery temperature sensor, RJ45 network port surge protection for optional
❸	USB port. B type.
❹	EPO. Emergency Power Off.
❺	Input surge protection
❻	Input socket. 1K: IEC C14, 2K/3K: IEC C20
❼	External battery port. Optional for standard model.
❽	Expand slot. RS485, External battery temperature sensor, RJ45 network port surge protection for optional
❾	Output Socket
❿	Output terminal. Only 3K model has the terminal.

Output Socket:

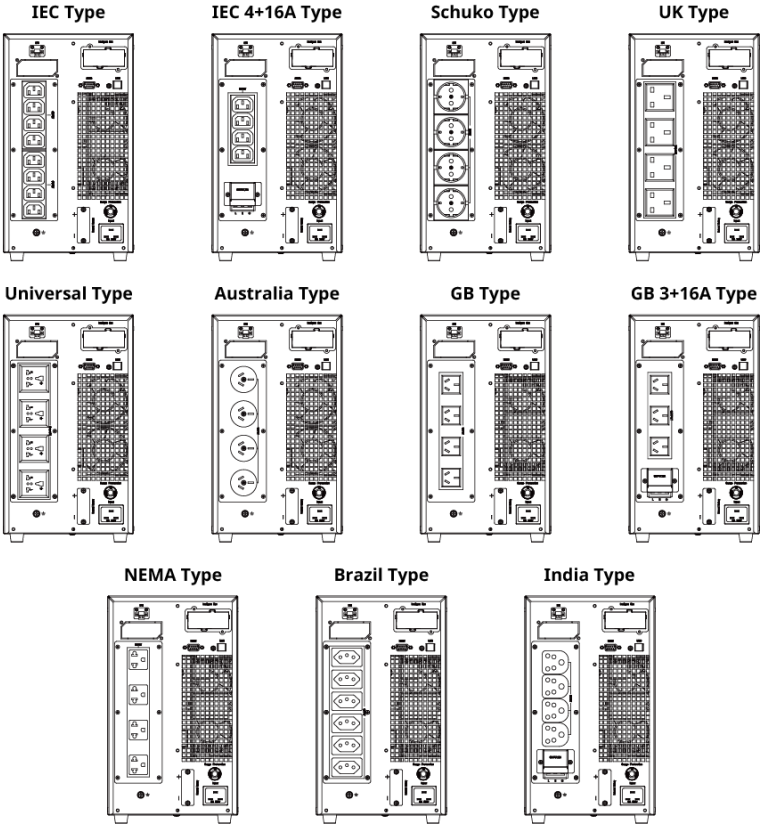
1) Champ+ 1K /1KL



2) Champ+ 2KL /3KL



3) Champ+ 2K /3K


IEC Type
IEC 4+16A Type
Schuko Type
UK Type
Universal Type
Australia Type
GB Type
GB 3+16A Type
NEMA Type
Brazil Type
India Type

3. System Description

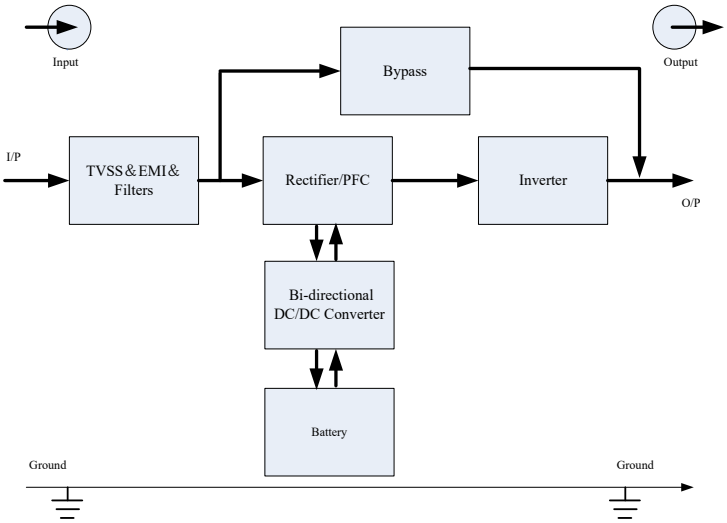


Figure 3 System Diagram

3.1 Transient Voltage Surge Suppression (TVSS) and EMI/FRI Filters

These UPS components provide surge protection and filter for electromagnetic conduction and radiation, keeping the sensitive equipment protected from the interference of utility power and correcting the power factor.

3.2 Rectifier/Power Factor Correction (PFC) Circuit

The rectifier of UPS adopts boost (Vienna) topology that improves the reliability and reduces rectifier switching losses.

3.3 Battery Charger

We provide the different chargers that provide two charging currents, 1A for standard model, 1-12A (settable) for long backup time model.

3.4 Inverter

The inverter uses two-level high frequency PWM control, providing pure sine wave, ideal power supply to connected load.

3.5 DC-to-DC Converter

The DC-to-DC converter utilizes energy from the battery system and raises the DC voltage to the optimum operating voltage for the inverter.

3.7 Dynamic Bypass

This series UPS provides a dynamic bypass in parallel with the mains to provide energy to the load in some special cases, for example overload, over temperature or any other failure condition. UPS automatically transfers the connected load to bypass. At this time, the bypass indicator yellow light is on, accompanied by a buzzer alarm.

NOTICE: The bypass power path does NOT protect the connected equipment from disturbances in the utility supply.

4. Product Specification and performance

4.1 Model Description

Model No.	Type
Champ+ 1K	Standard model
Champ+ 2K	
Champ+ 3K	
Champ+ 1KL	Long backup model
Champ+ 2KL	
Champ+ 3KL	

Note：“L” Model: Long backup time, without “L” Model: Standard backup time

4.2 Product Specification and Performance

1. General Specification

Model		Champ+ 1KL	Champ+ 1K	Champ+ 2KL	Champ+ 2K	Champ+ 3KL	Champ+ 3K
Power Rating		1kVA/1kW		2kVA/2kW		3kVA/3kW	
Frequency (Hz)		50		50		50	50
Input	Voltage	110Vac~300Vac					
	Current	5.5A max		11A max		17A max	
Battery	Voltage	36VDC		72VDC		96VDC	
	Current	40A max		40A max		43A max	
Output	Voltage	220V					
	Current	4.5		9		13.6	
Dimension (WxDxH) mm		144*350 *224	144*350 *224	144*410 *223	190*405 *330	144*410 *223	190*405 *330
Weight (kg)		4.3	10.3	5.8	21.1	6.2	25.5

2. Electrical Performance

Input			
Model	Voltage	Frequency	PF
Champ+ 1K-3K/1KL-3KL	Single-phase 220VAC	50/60±5Hz (default),±3Hz/±1Hz (settable)	>0.99 (Full load)

Output					
Voltage Regulation	Power Factor	Frequency tolerance.	Distortion	Overload capacity	Crest ratio
±1%	1	±0.3	THDu<1%@ Linear Load THDu<5%@ nonlinear load	102%~110%: transfers to Bypass mode after 30 minutes 110%~125%: transfers to Bypass mode after 10 minutes 125%~150%: transfers to Bypass mode after 30s	3:1 maximum

3. Operating Environment

Temperature	Humidity	Altitude	Storage temperature
0°C-40°C	<95%	<1000m	-20°C-70°C

NOTICE: If the UPS is installed or used in a place where the altitude is above than 1000m, the output power must be derated in use, please refer to the following:

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

5. Installation

The installation and wiring of the UPS must be carried out by a qualified electrician according to the requirements of this manual.

NOTICE: UPS operation in sustained temperature outside the range of 15-25℃ (59°-77℉) reduces battery life.

5.1 Unpacking and Inspection

1) Unpack the packaging and check the package contents. The shipping package contains:
   - 1 UPS
   - 1 user manual
   - If UPS is long backup type; there will be an external battery cable
2) Inspect the appearance of the UPS to see if there is any damage during transportation. Do not turn on the unit and notify the carrier and dealer immediately if there is any damage or lacking of some parts.

5.2 Connect Input /Output Power Cable

5.2.1. Notes for installation

1) The UPS must be installed in a horizontal occasion location with good ventilation, far away from water, inflammable gas and corrosive agents.
2) Ensure the air vents on the front and rear of the UPS are not blocked at least 0.3m.
3) Condensation to water drops may occur if the UPS is unpacked in a very low temperature environment. In this case it is necessary to wait until the UPS is fully dried inside out before proceeding installation and use. Otherwise there are hazards of electric shock.

5.2.2 Installation

Installation and wiring must comply with local laws and regulations and the requirements of this manual, and must be carried out by professional personnel. During the installation process, in order to ensure the safety of personnel, please disconnect the power switch and battery switch first.

Connecting Input and Output Cables

1. Input cable connection

The UPS is connected via the power plug; please use a proper socket with protection against electric current, and the rated current of this socket should be greater than the maximum input protection current of UPS:

10A (Champ+1K/1KL), 20A (Champ+2K/2KL, Champ+3K/3KL).

2. Output cable connection

The total output power shall not exceed 1kW/1kVA, 2kW/2kVA, and 3kW/3kVA. Simply plug the load power plug to the output socket of UPS to complete connection.

Except from using socket as output, Champ+3K/3KL *has output terminal as well for load which* ***current is over 10A***. As shown in Figure 4:

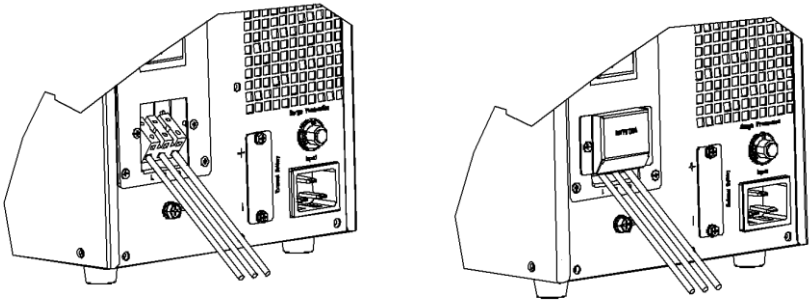


Figure 4 Output terminal of 3K

1) Remove the cover of output terminal
2) Use AWG14 wires for terminal wiring configuration
3) Please check if the wires are securely affixed
4) Put back the cover to the rear panel

Note:

1. Please turn off all loads before booting, and then turn on the loads one by one after the UPS is connected and turned on.
2. Regardless of whether the mains power is normal or not, there may be dangerous voltages inside the UPS, in order to ensure that there is no output, please disconnect the mains power and shut down.
3. Before using the UPS, it is best to charge the battery for at least 8 hours. After the cable is connected, close the input and open it, and after a while the UPS will automatically charge the battery. Of course, it can also be used directly with load without charging, in which case the battery backup time may not reach the standard value.
4. If you need to connect inductive loads such as monitors, laser printers, etc., you need to consider the impact of the load on the UPS when booting, because the impact current of such loads when booting will be much greater than the rated current.

5.3 Connect External Battery Power Cable

1) The nominal DC voltage of external battery pack is 36VDC/1kVA, 72VDC/2kVA,

96VDC/3kVA. It consists of 3, 6, and 8pcs 12VDC single-cell batteries of the same voltage and type connected in series.

2) A DC switch must be connected between the battery and the UPS, disconnect the switch before connecting the battery line.
3) Use the same type of cable as the input and output power cables for the battery connection.

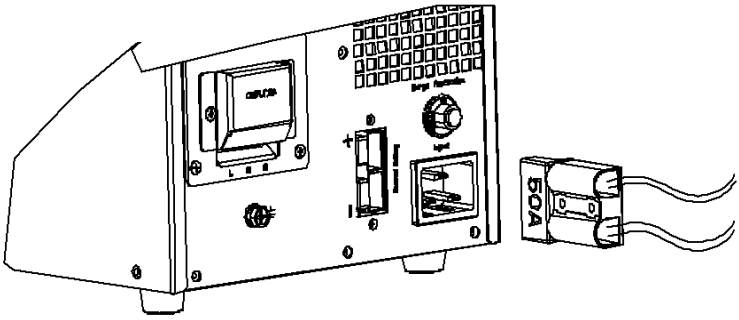


Figure 5 Battery connection

4) Take out battery cable delivered with the UPS. One end of battery cable is a plug and the other end has 2 open wires (red and black in color) to connect to the battery pack.
5) Connect the RED wire to the "+" terminal of the battery. Connect the BLACK wire to the "-" terminal of the battery; please make sure it is firmly connected.
6) Connect the external battery plug to the battery socket on the rear panel.
7) Do not connect any load before connecting the battery wire. After the battery cable is connected, close the battery switch, and then close the input switch, the UPS can start to charge the battery.

Notice: DO NOT connect the battery plug to the battery socket of UPS first, otherwise, it may cause electric shock.

6. Controls and Indicators

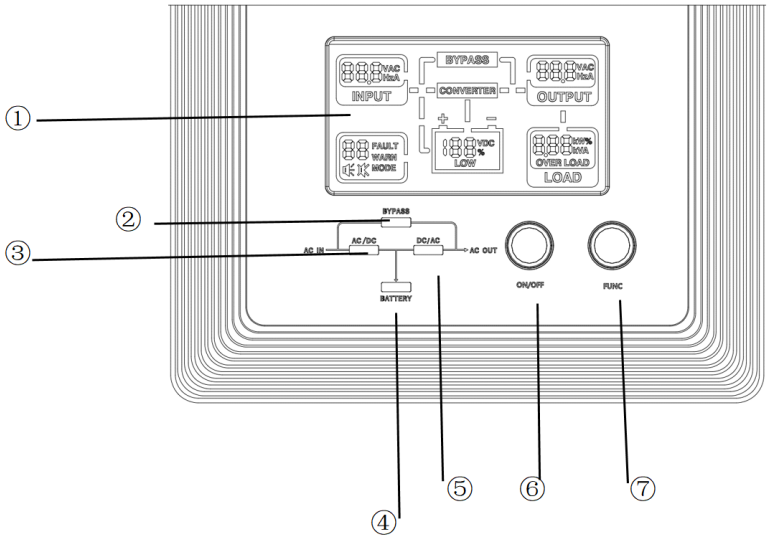


Figure 6 1-3K LCD Screen

6.1 Description of Panel

Controls	Description
6 ON/OFF	1. Press ON/OFF for 2.5s to start UPS when utility is normal. NOTE: *It only bases on default setting(manual start)* 2. Press ON/OFF for 2.5s to power on the auxiliary power, press again to start from battery when there is buzzer alarms 3. Press ON/OFF for 2.5s to shutdown inverter and transfer to bypass when UPS is in normal mode 4. Press ON/OFF to shutdown UPS completely when UPS is in battery mode 5. In the parameter setting state, ON/OFF key is a " confirmation key"
7 FUNC	1. Press FUNC button to transfer in different menus 2. Press FUNC button for 3 seconds to mute off

	3. Press FUNC and ON/OFF together for 2.5 seconds to set rated parameters when auxiliary power is on
Indicators	**Description**
3 AC/DC	Rectifier indicator: green--rectifier is working green flicker--rectifier is starting dark—rectifier is not working
5 DC/AC	Inv indicator: green--inverter is working green flicker--inverter is starting or tracking with bypass and ready (ECO), along with inverter alarm dark—inverter is not working
2 BYPASS	Bypass indicator: yellow—bypass is working yellow flicker—Bypass alarms dark—bypass is not working
4 BATTERY	Battery indicator: yellow—battery discharge or charged yellow flicker—battery isn`t connected, low or charger is failed dark—battery is connected and full

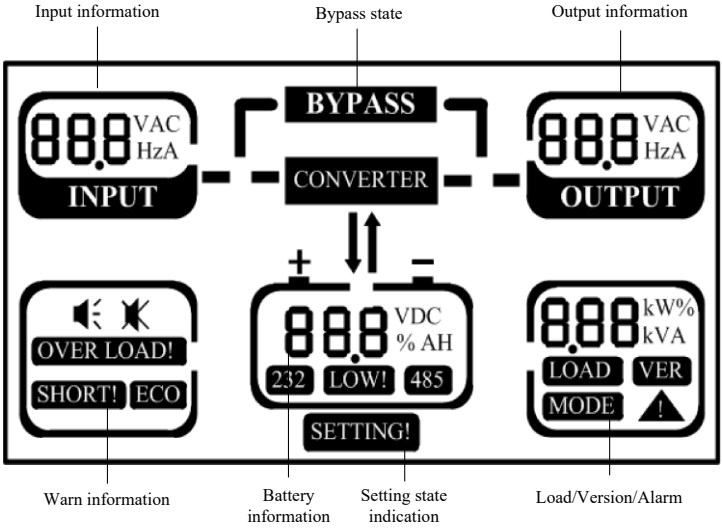


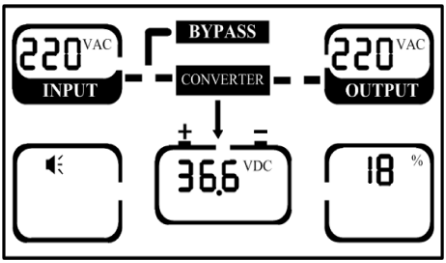
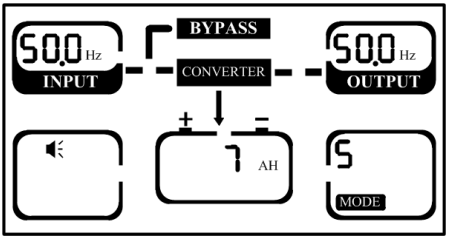
Figure 7 LCD menu

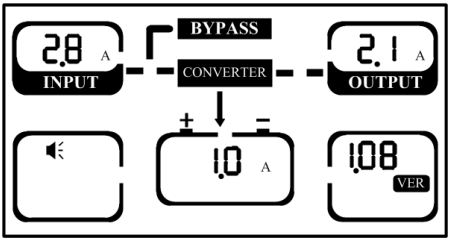
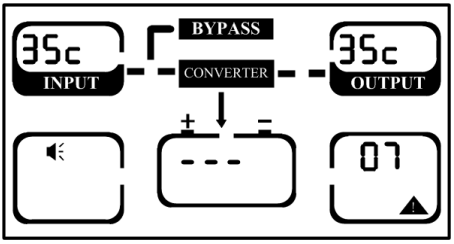
6.2 Description of main menu

Display	Information
Input information	Input voltage(VAC) / frequency(Hz) / current(A)
Output information	Output voltage(VAC) / frequency(Hz) / current(A)
Warn information	: mute on/mute off (press and hold “FUNC” to mute off) OVER LOAD!: system output overload SHORT: output short-circuit ECO: working in the ECO mode
Battery information	Battery voltage (VDC) Battery voltage charging/discharging current (A) Capacity (AH) LOW!: Battery low warning
Load / Version/ Alarm code	LOAD: Active load (KW) Apparent load (KVA)

	Load percentage (%) VER: system monitoring version MODE: S-Single mode, E-ECO mode ⚠: Display system alarm code, the detail list is shown in “chapter 9 Trouble shooting”
Others	BYPASS: working in bypass mode SETTING: LCD is on the setting page

Note: Press “FUNC” button to see different information

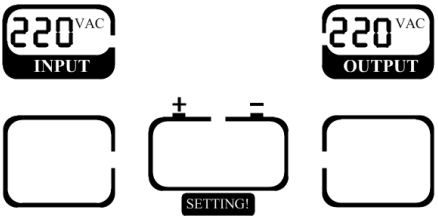
Page	Description
	First page: INPUT voltage: 230VAC OUTPUT voltage: 230VAC Battery voltage: 36.6VDC LOAD percentage: 18% Active load, apparent load, load percentage will display in turn in 1s Press and hold “FUNC” to mute off on this page
	Second page: INPUT frequency: 50Hz OUTPUT frequency: 50Hz Battery capacity: 7AH (settable) MODE: S-Single mode

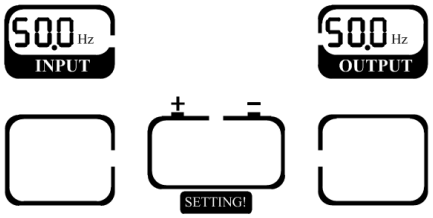
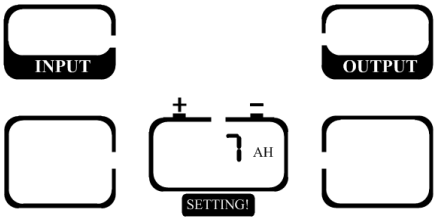
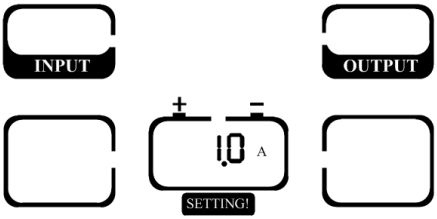
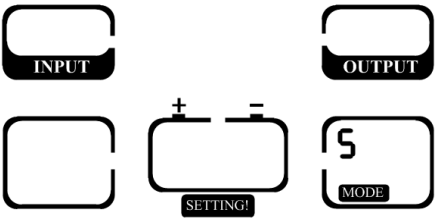
	Third page: INPUT current: 2.8A OUTPUT current: 2.1A Battery current: 1A (↑ discharging ↓ charging) VER software version: V1.08
	Fourth page: INPUT: Rectifier temperature 35℃ OUTPUT: Inverter temperature 35℃ External environment temperature: 30℃ (When the external temperature sensor is not selected, it will display ”---“) ⚠ alarm code: 07 Press and hold “FUNC” to operate fault clear on this page

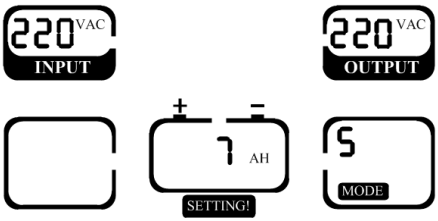
6.3 Parameter Settings

6.3.1 Rated parameter settings

When you set the system rated parameters through the LCD, press the "ON/OFF" and "FUNC" keys simultaneously for two seconds while the LCD is working, the system enters the parameter display interface, press "FUNC" to enter the function code input page, and enter the function Code (233) to enter the setting page. The "SETTING" will be displayed in the middle of the bottom, and all 4 LED indicators are flashing.

Rated voltage setting	Rated voltage: 200VAC/208VAC/ 220VAC/230VAC/240VAC, Select the parameter by pressing the "FUNC" key, after selection, confirm the setting with "ON/OFF" and enter the next setting	

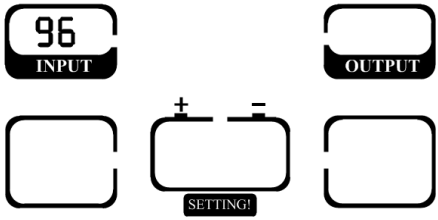
Rated frequency setting	Rated frequency settable: 50Hz/60Hz. Select the parameter by pressing the "FUNC" key, after selection, confirm the setting with "ON/OFF" and enter the next setting	
Rated capacity setting	Rated frequency settable: 7AH/9AH/12AH/24AH/36AH/ 48AH/100AH/200AH Select the parameter by pressing the "FUNC" key, after selection, confirm the setting with "ON/OFF" and enter the next setting	
Charging current setting	Charging current settable: Standard backup type: 1A Long backup type: 1-12A Select the parameter by pressing the "FUNC" key, after selection, confirm the setting with "ON/OFF" and enter the next setting	
System mode setting	S-single mode E- ECO mode Select the parameter by pressing the "FUNC" key, after selection, confirm the setting with "ON/OFF" and enter the next setting	

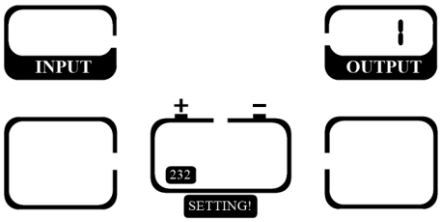
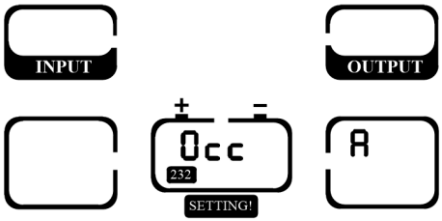
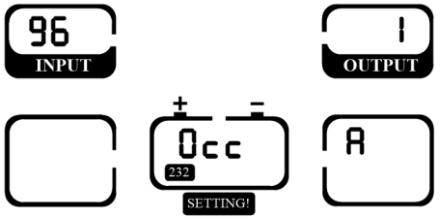
Setting complete	After all the above parameters are set, all the rated setting parameters will be displayed, confirm the settings and press "ON/OFF" to exit. Press "FUNC" to reset. The rated voltage and rated frequency settings will take effect after the machine is powered on again, and other settings will take effect immediately.	

Note: When the rated voltage is 200VAC or 208VAC, the output power factor will be automatically reduced to 0.9. If you need to set other more parameters, please connect to the background software.

6.3.2 Communication protocol settings

When you set the system rated parameters through the LCD, press the "ON/OFF" and "FUNC" keys simultaneously for two seconds while the LCD is working, the system enters the parameter display interface, press "FUNC" to enter the function code input page, and enter the function Code (232) or (485) to enter the Communication Protocol Setting page. The "SETTING" will be displayed in the middle of the bottom, and all 4 LED indicators are flashing.

Baud Rate Setting	Baud rate is 12/24/48/96/122/192, which is corresponding to 1200/2400/4800/9600/12200 /19200. Select the parameter by pressing the "FUNC" key, after selection and confirm the setting with "ON/OFF"	

	and enter the next setting.	
Address setting	Correspondence address can be 1-32. Select the parameter by pressing the "FUNC" key, after selection and confirm the setting with "ON/OFF" and enter the next setting.	
Protocol setting	The communication protocol can be 0cc or 1cc, corresponding to the ASCII/RTU protocol. Select the parameter by pressing the "FUNC" key, after selection and confirm the setting with "ON/OFF" and enter the next setting.	
Setting complete	After all the above parameters are set, all the rated setting parameters will be displayed, confirm the settings and press "ON/OFF" to exit. Press "FUNC" to reset. The rated voltage and rated frequency settings will take effect after the machine is powered on again, and other settings will take effect immediately.	

7. Operation

7.1 Operation

7.1.1 Turn on the UPS in normal mode

1) After you make sure that the power supply connections is correct, and then close the battery breaker (this step only for long backup time model), after that turn on the input breaker, at this time the fans rotate, and UPS is on.

Note: Only be suitable for default setting mode, if not, you need to press "ON/OFF" button to turn on.

2) About 30 seconds, the UPS turn into normal inverter mode. If the utility power is abnormal, the UPS will operate in Battery mode.

7.1.2 Turn on the UPS from battery without utility power

1) After you make sure that the power supply connections is correct, and then close the battery breaker (this step only for long backup time model)

2) Press ON/OFF for about 2 seconds, the fans rotate, and auxiliary power is on.

3) Pressing the ON/OFF button continuously for more than 2.5 seconds when buzzer is beeping. Battery LED is yellow then the inverter indicator starts flashing green. Wait about 20 seconds, the UPS inverter is on. The UPS operates in battery discharge mode.

7.1.3 Turn off the UPS in normal mode

1) Remove the load and press ON/OFF button for 3 seconds in condition of normal mode, UPS will shut down the inverter or transfer to bypass mode.

2) If it's an external battery model, open the input and battery breaker, UPS will shut down completely.

If it's an internal battery model, after opening the input breaker, press ON/OFF button for 3 seconds and UPS will shut down completely after a few seconds.

7.1.4 Turn off the UPS in battery mode

1) Press ON/OFF button for 3 seconds, UPS will shuts down the inverter and completely power off after a few seconds.

2) For external battery model, open the battery breaker after powering off the UPS.

Note:

Disconnect the load before shutting down the UPS. And turning off the load before turning up, wait for the machine to be fully turned on, then add the load one by one.

7.2 Operation Mode

7.2.1 Normal Mode

When UPS operating in the normal mode, the LED of rectifier and inverter are steady green, and bypass indicator LED is off, battery LED is yellow, the load is powered by inverter. If the battery isn`t full enough, the UPS will charge the battery at the same time.

7.2.2 Battery Mode

The UPS will transfer to the battery discharging mode when the utility is abnormal, which means that the load is powered by the battery stored energy through inverter. When the battery backup time is approaching, the UPS will alarm. And UPS will shut down the inverter when the battery voltage reaches to the end of discharge point, in case over-discharge. If the utility is not yet normal, the system will shut down all the power supply after a while.

Note: Do not touch the port; it still has strong power at this time.

8. Battery maintenance, disposal and replacement

8.1 Battery Maintenance

This series UPS adopts a minimum maintenance design; the battery adopts maintenance-free, sealed, valve-regulated lead-acid battery. When the utility power is normal, regardless of whether the UPS is in inverter power supply, the UPS will charge the battery and provide overcharge and over-discharge protection.

- If the battery has not worked for a long time, it needs to be charged every 4 to 6 months.
- If the battery works in hot areas, it needs to be charged and discharged once in 2 months, and the charging time is not less than 12 hours per charge.
- The life of the battery can reach 3 to 5 years normally, if it works in a harsh environment, the battery life will be greatly shortened, and needs to be replaced early.
- Battery replacement needs to be carried out by qualified personnel.
- Use the same voltage, model and number of batteries to replace then old battery.
- Can not only replace part of the battery; you need to replace all batteries at once under the guidance of the manufacturer.

8.2 Battery Disposal Procedures

1) Before disposing of batteries, remove jewelry, watches and other metal objects.
2) Use rubber gloves and boots, use tools with insulated handles.
3) If it is necessary to replace any connection cables, please purchase the original materials from the authorized distributors or service centers, so as to avoid overheat or spark resulting in fire due to insufficient capacity.
4) Do not dispose of batteries or battery packs in a fire. The batteries may explode.
5) Do not open or mutilate batteries, released electrolyte is highly poisonous and harmful to the skin and eyes.
6) Do not short the positive and negative of the battery electrode, otherwise, it may result in electric shock or fire.
7) Make sure that there is no voltage before touching the batteries. The battery circuit is not isolated from the input potential circuit. There may be hazardous voltage between the battery terminals and the ground.
8) Even though the input breaker is disconnected, the components inside the UPS are still connected with the batteries, and there are potential hazardous voltages. Therefore, before any maintenance and repairs work is carried out, switch off the

breaker of the battery pack or disconnect the jumper wire of connecting between the batteries.

9) Batteries contain hazardous voltage and current. Battery maintenance such as the battery replacement must be carried out by qualified personnel who are knowledgeable about batteries. No other persons should handle the batteries

8.2.2 Battery Replacement Procedures

1) Remove the load, cut off power and press “ON/OFF” to turn off UPS completely.
2) Remove covers from the UPS.
3) Disconnect the battery wires one by one.
4) Remove metal bars which are used to fasten batteries.
5) Replace batteries one by one.
6) Screw metal bars back to UPS.
7) Connect the battery wires one by one. Take care of electrical shock while connecting the last wire.

9. Trouble shooting

If your UPS has an abnormal condition, please check and troubleshoot according to the following table, press the "FUNC" button to obtain the fault code and alarm code, each representing a different fault. If the problem is still there, please contact the dealer or our customer service directly. The list of faults code is as follows:

Code	Event	Possible cause	Solutions
7	Warn: Battery not connected	Battery not connected or weak battery	Check battery connections Check battery breaker (external) or whether the battery fuse is disconnected Check whether the battery is damaged
10	Warn: EPO	Emergency power off	Please confirm that the EPO terminals on the back panel are properly inserted Whether there is a remote EPO button and have the trigger order
12	Warn: Insufficient capacity	Exceeds the normal operating voltage range of the mains and the load rate exceeds the derating standard	Check whether the voltage of utility (Normal range: 176V-276V) is out of range or load rate exceeds the derating standard (<50% load @276VAC~300VAC, 100%~50% load derating linearly@176VAC~110VAC)
16	Warn: Input voltage abnormal	Utility is failed or abnormal	Check the condition of utility Check the voltage of utility (Normal range: 176V-276V) or frequency is out of range
		Input surge protector opens	If utility is normal but rectifier is not working, reset input surge protector
18	Warn: Line neutral wires reversed/PE not grounded	Input Line and neutral is reversed	Check the polarity of line wire and neutral wire
		PE wire is not connected correctly in UPS	Check if PE on input plug is shorted with UPS rear panel. If yes, contact with distributer or service center. If no, shut down the UPS and connect PE wire in

			input power socket
20	Warn: Bypass voltage abnormal	Bypass voltage is out of bypass range or no bypass voltage	Check if utility power is indeed out of range
22	Warn: Output relay failed	Output relay failed	Please contact with distributer or service center
24	Warn: Bypass over load	Load is on bypass and overload	Remove some loads to ensure that total loads is less than 95% of rated capacity
26	Warn: Bypass overload timeout	Load is on bypass and overload. Overload time is longer than the time limit. At that time UPS will shut down output	Remove some loads and restart UPS again. When UPS is working normally, turn on loads one by one.
30	Warn: Transfer times over limit in 1 hour	Transfer times between inverter and bypass is over 5times in recent 1 hour. UPS will work in bypass mode.	Check if output is overload or some loads are shorted. Remove the shorted loads and restart the UPS or wait for the system starting inverter automatically.
32	Warn: output shorted	Output shorted	Shut down the UPS and remove all loads. Check if UPS output is shorted. Remove the failure loads and restart the UPS, if failed, please contact your distributer.
34	Warn: End of discharge	If there still isn`t normal utility after battery discharge to the end of discharge point, UPS output will be shut down.	Please save your data when UPS alarm “utility fail”
38	Warn: Battery	Battery low or load	Please make sure that the battery voltage

	test failed	is too low	is higher than the set battery voltage and that the UPS load ratio is greater than 30%
47	Fault: Rectifier fault	Bus over voltage or under voltage, rectifier soft-start failed, input fuse is blow up	Please contact with distributer or service center.
49	Fault: Inverter fault	Inverter over voltage, inverter under voltage,	Please contact with distributer or service center.
51	Fault: UPS over temperature	Environment temperature is higher than permitted point, ventilation is blocked	Please ensure there is nothing blocking ventilation and environmental temp must be 0~40°C
53	Fault: Fan failure	One or more fans are failed, fan wires are loosen	Please contact with distributer or service center
55	Warn: Inverter overload	Loads are on inverter and inverter overload	Remove some loads to ensure that total loads is under the rated capacity
57	Warn: Inverter overload timeout	Inverter overload timeout, UPS will transfer to bypass mode if bypass is available	Remove loads to under 95%, UPS will transfer to inverter automatically
59	Fault: Inverter over temperature	Environment temperature is higher than permitted point, ventilation is blocked	Please ensure there is nothing blocking ventilation and environmental temp must be 0~40°C
65	Fault: Battery	UPS works in battery	Recover input power or save data before

	low	and battery voltage is low	UPS power off due to battery low.
71	Fault: Charger fault	The battery charger failed	Please contact with distributer or service center
74	Warn: Manual shutdown	UPS shuts down output or transfer to bypass mode	/
87 100 /	Fault: Model error Auxiliary power failure Battery discharge time reduction	Model identification error	Please contact with distributer or service center
		Auxiliary power error	Please contact with distributer or service center
		The battery is undercharged	Keep the UPS connect to mains power for more than 10 hours to allow the battery to recharge
		UPS overload	Check the load capacity and remove the non-critical load
		Battery aging	Change the battery and contact with distributer or service center to obtain the necessary part for changing the battery

Notice: Please provide the following information when reporting the fault:

◆UPS Model (Model NO.), serial (Serial NO.)

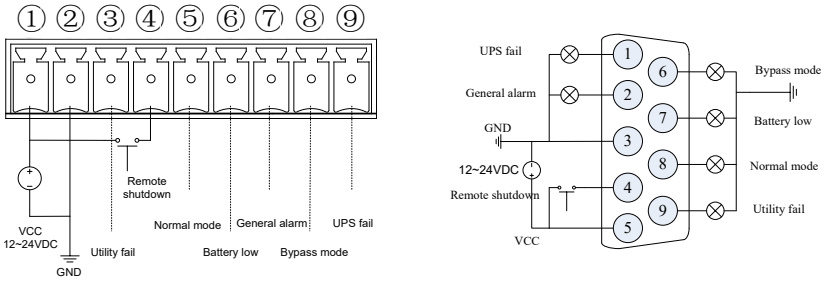
◆The date and time when the warn and fault code happen

◆Complete description (indicators, buzzer beeps, power condition, load capacity, configuration of batter if it is a long backup time model)

Annex A. Dry contact

Dry contact

There are two types of dry contact for option: phoenix terminator, DB9: pluggable, un-pluggable. The functions of intelligent slot are listed as fig.8:



Phoenix port **DB9 port**

Figure 8 Wiring diagram of Intelligent slot

Description of phoenix port:

Pin NO.	Function	Description
1	Power supply	External power supply.12VDC~24VDC, Common connection.
2	GND	External power supply GND
3	Utility fail	Pin3 to pin1 is NO if utility is failure. If not, NC.
4	Remote shutdown	UPS shutdowns rectifier and inverter if utility is normal. UPS shutdowns completely if in battery mode. Close switch to activate.
5	Normal mode	Pin5 to pin1 is NC if UPS works in normal mode. If not, NO.
6	Battery low	Pin6 to pin1 is NO if battery voltage is low. If not, NC.
7	General alarm	Pin7 to pin1 is NO if something is abnormal. If not, NC
8	Bypass mode	Pin8 to pin1 is NC if UPS works in bypass mode. If not, NO.
9	UPS fail	Pin9 to pin1 is NO (Normally Open) if something is failure in UPS. If not, NC (Normally Close)

Annex A. Dry contact

Description of DB9 port:

Pin NO.	Function	Description
1	UPS fail	Pin1 to pin5 is NO (Normally Open) if something is failure in UPS. If not, NC (Normally Close)
2	General alarm	Pin2 to pin5 is NO if something is abnormal. If not, NC
3	GND	External power supply GND
4	Remote shutdown	UPS shutdowns rectifier and inverter if utility is normal. UPS shutdowns completely if in battery mode. Close switch to activate.
5	Power supply	External power supply.12VDC~24VDC, Common connection.
6	Bypass mode	Pin6 to pin5 is NC if UPS works in bypass mode. If not, NO.
7	Battery low	Pin7 to pin5 is NO if battery voltage is low. If not, NC.
8	Normal mode	Pin8 to pin5 is NC if UPS works in normal mode. If not, NO.
9	Utility fail	Pin9 to pin5 is NO if utility is failure. If not, NC.

Annex B. EPO

EPO (emergency power off) is optional function to shutdown UPS completely at emergency condition. This function can be activated through a remote contact provided by the customers. It requires opening between NO and +24V normally.

EPO is activated when shorting the NO and +24V.

Description of Input Port for Remote EPO:

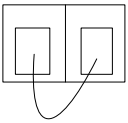


Figure 9 Short to active the EPO

Position	Name	Purpose
P1	+24V	+24V, internal power supply
P2	EPO_NO	EPO is activated when shorting with +24V