



Line-Interactive Lead-Acid UPS - 800 VA - 3000 VA

User Manual



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1. Important Safety Warning

SAVE THESE INSTRUCTIONS - This manual contains important instructions for the installation and maintenance of the UPS and batteries.

Please strictly comply with all warnings and operating instructions in this manual. Do not operate this unit before carefully reading through all safety information and operating instructions.

1.1 Transportation

Please transport the UPS system only in the original package to protect against shock and impact.

1.2 Preparation

- Condensation may occur if the UPS system is moved directly from a cold to a warm environment. The UPS system must be absolutely dry before being installed. Please allow at least two hours for the UPS system to acclimate to the environment.
- Do not install the UPS system near water or in moist environments.
- Do not install the UPS system where it would be exposed to direct sunlight or nearby heaters.
- Do not block ventilation holes in the UPS housing.

1.3 Installation

- Do not connect appliances or devices that would overload the UPS system (e.g. laser printers) to the UPS output sockets.
- Place cables in such a way that no one can step on or trip over them.
- Do not connect domestic appliances such as hair dryers to UPS output sockets.
- The UPS can be operated by any individual with no previous experience.
- Connect the UPS system only to an earthed shockproof outlet which must be easily accessible and close to the UPS system.
- Please use only high-quality UL or CE (as appropriate) marked mains cable (e.g. the mains cable of your computer) to connect the UPS system to the building wiring outlet (shockproof outlet).
- Please use only high-quality UL or CE (as appropriate) marked power cables to connect the loads to the UPS system.
- When installing the equipment, one should ensure that the sum of the leakage current of the UPS and the connected devices does not exceed 3.5mA.

1.4 Operation

- Do not disconnect the mains cable on the UPS system or the building wiring outlet (shockproof socket outlet) during operations since this would cancel the protective grounding of the UPS system and all connected loads.
- The UPS system features its own, internal current source (batteries). The UPS output sockets or output terminals block may be electrically live even if the UPS system is not connected to the building wiring outlet.
- In order to fully disconnect the UPS system, first press the OFF/Enter button to disconnect the mains.
- Prevent no fluids or other foreign objects from inside of the UPS system.
- The EPO, RS-232 and USB circuits are an UL/IEC 60950 safety extra low voltage (SELV) circuit. This circuit must be separated from any hazardous voltage circuits by reinforced insulation.

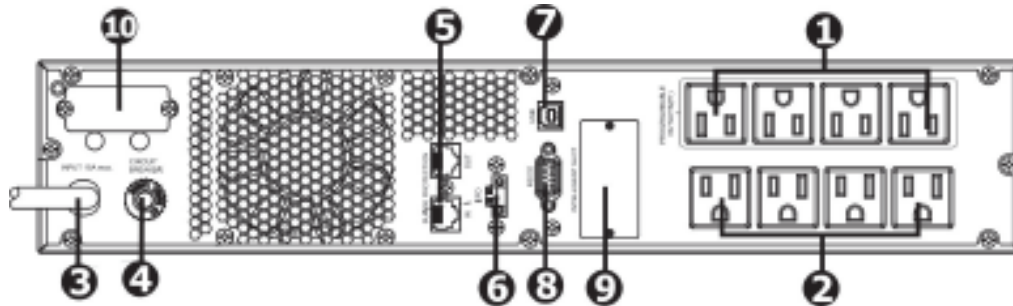
1.5 Maintenance, Service, and Faults

- The UPS system operates with hazardous voltages. Repairs may be carried out only by qualified maintenance personnel.
- Caution - risk of electric shock. Even after the unit is disconnected from the mains (building wiring outlet), components inside the UPS system are still connected to the battery and electrically live and dangerous.
- Before carrying out any kind of service and/or maintenance, disconnect the batteries and verify that no current is present and no hazardous voltage exists in the terminals of high capability capacitors such as BUS-capacitors.
- To avoid electrical shock, turn off the unit and unplug it from the AC power source before servicing the battery.
- Only persons who are adequately familiar with batteries and with the required precautionary measures may replace batteries and supervise operations. Unauthorized persons must be kept well away from the batteries.
- Caution - risk of electric shock. The battery circuit is not isolated from the input voltage. Hazardous voltages may occur between the battery terminals and the ground. Before touching, please verify that no voltage is present!
- Batteries may cause electric shock and have a high short-circuit current. Please take the precautionary measures specified below and any other measures necessary when working with batteries:
 - Remove wristwatches, rings and other metal objects
 - Use only tools with insulated grips and handles.
 - When changing batteries, install the same number and same type of batteries.
 - Do not attempt to dispose of batteries by burning them. This could cause battery explosion.
 - Do not open or destroy batteries. Escaping electrolyte can cause injury to the skin and eyes. It may be toxic.
 - When replacing batteries, replace with the same type and number of batteries or battery packs.
 - Do not dismantle the UPS system.
 - Wear rubber gloves and boots.
 - Do not lay tools or metal parts on top of batteries.
 - Disconnect charging source prior to connecting or disconnecting battery terminals.
 - Determine if the battery is inadvertently grounded. If inadvertently grounded, remove source from ground. Contact with any part of a grounded battery can result in electrical shock. The likelihood of such shock can be reduced if such grounds are removed during installation and maintenance.

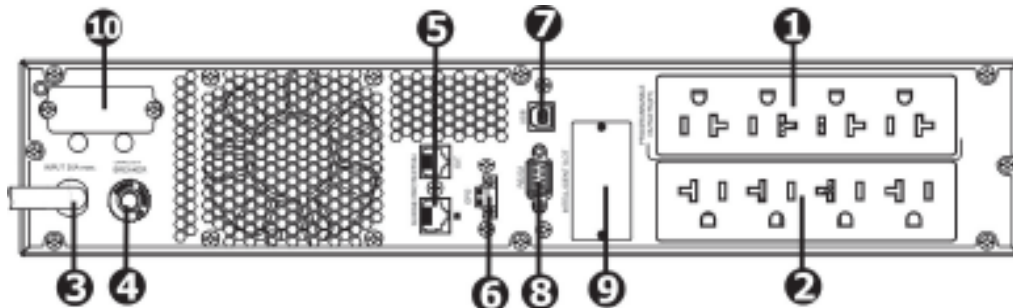
2. Installation and Setup

NOTE: Before installation, please inspect the unit. Be sure that nothing inside the package is damaged. Please keep the original package in a safe place for future use.

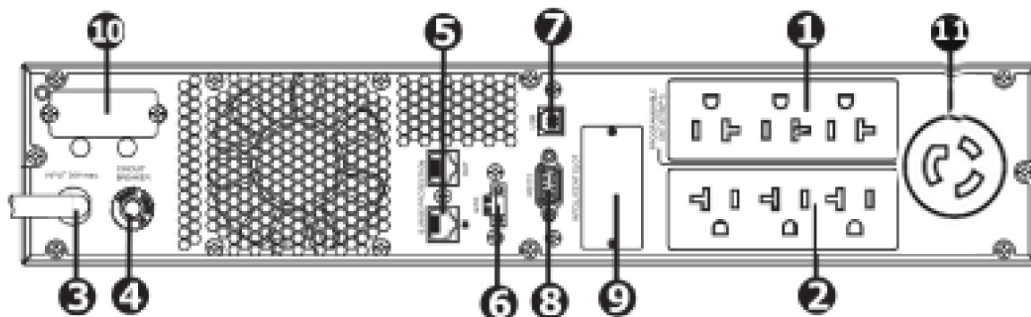
2.1 Rear Panel View



LX800L, LX1100L, LX1500L - Rear View



LX2000L, LX2200L - Rear View

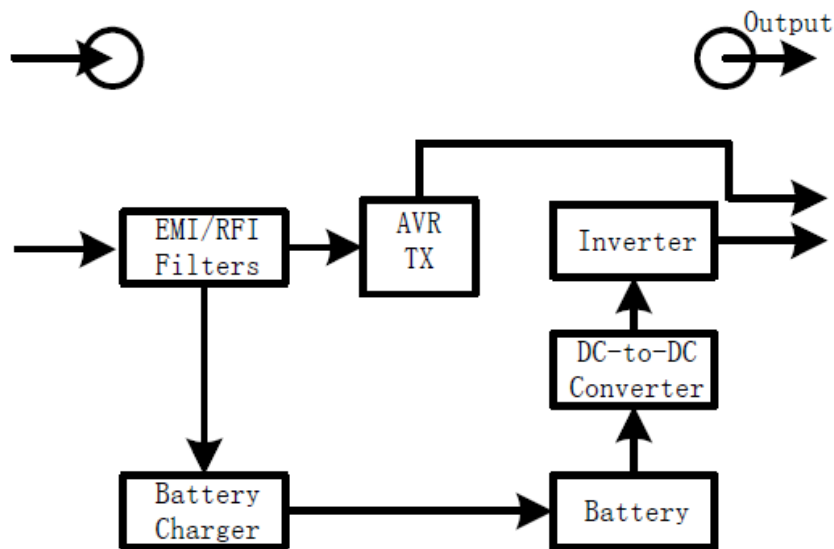


LX3000LA - Rear View

1. Programmable outlets: connect to non-critical loads.
2. Output receptacles: connect to non-critical loads.
3. AC input
4. Input circuit breaker
5. Network/Fax/Modem surge protection
6. Emergency power-off function connector (EPO)
7. USB communication port
8. RS-232 communication port
9. SNMP intelligent slot
10. External battery connector
11. Output receptacle: connect to bypass distribution

2.2 Operating Principle

The operating principle of the UPS is shown as below.

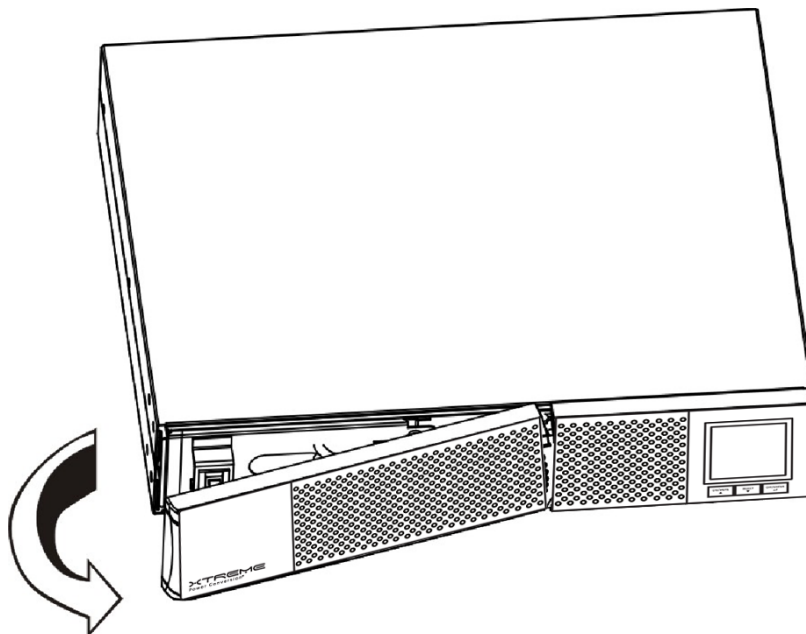


The UPS is composed of mains input, EMI/RFI Filters, an Inverter, a Battery charger, a DC-to-DC converter, a battery, AVR TX, and UPS output.

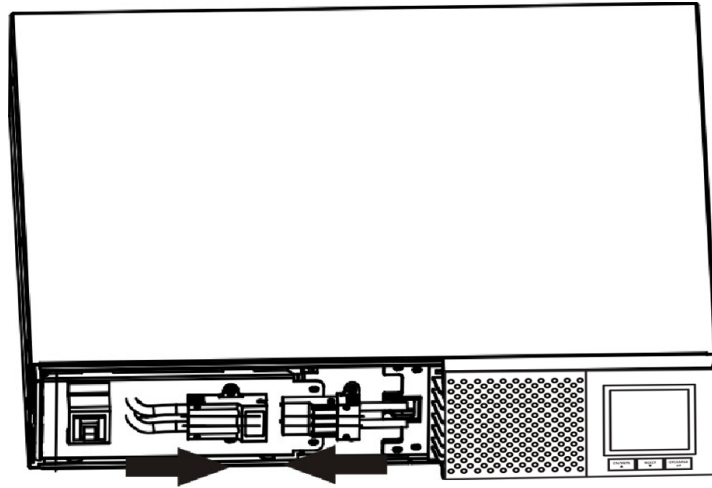
2.3 Install the UPS

For safety considerations, the UPS is shipped out from the factory without connecting battery wires. Before installing the UPS, please follow the steps below to reconnect the battery wires.

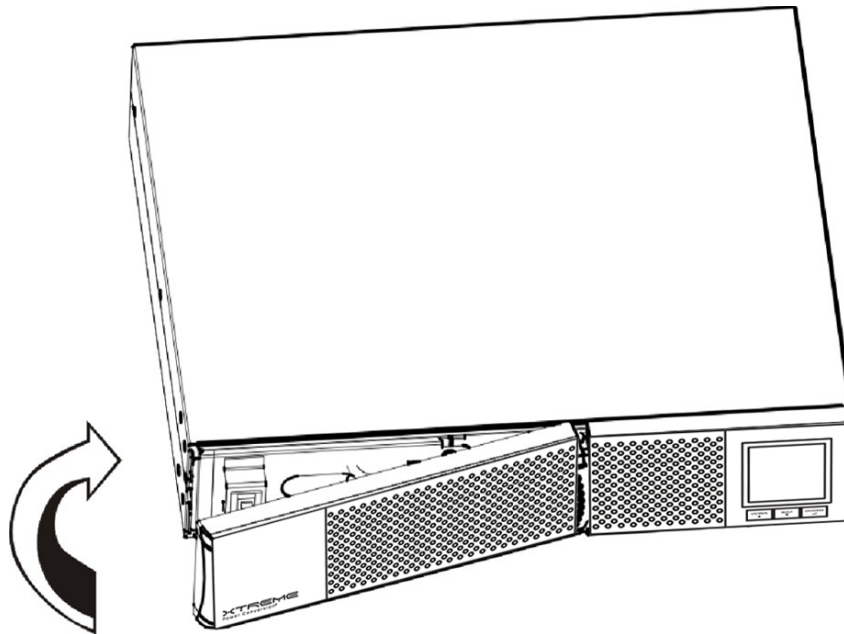
Step 1: Remove the front panel.



Step 2: Connect the AC input and reconnect the battery wires.



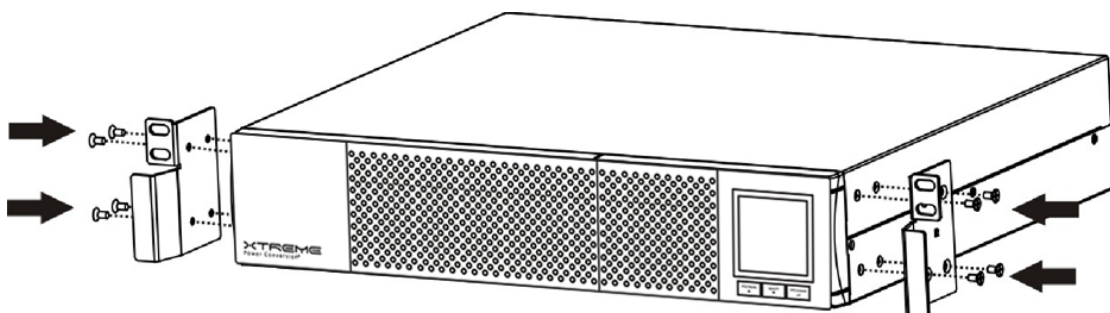
Step 3: Put the front panel back on the unit.



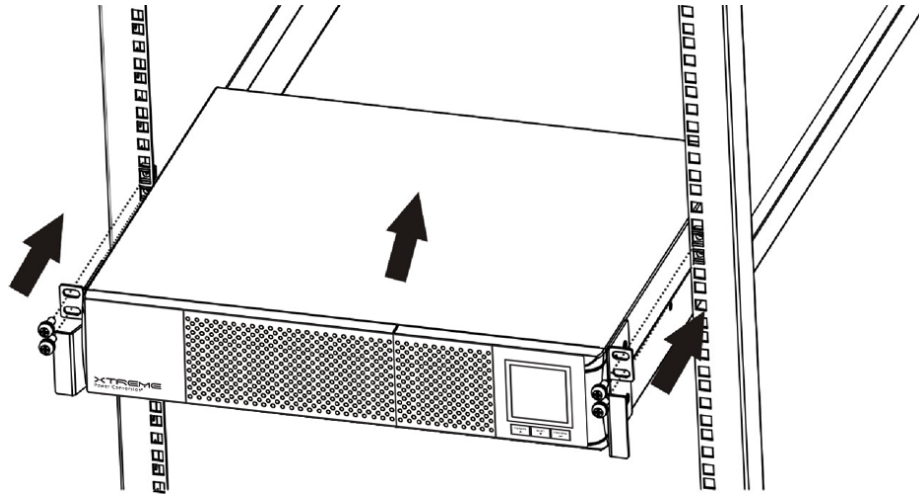
Rack-Mount Installation

CAUTION – Do NOT use the mounting brackets to lift the unit. The mounting brackets are only for securing the unit to the rack.

Step 1:

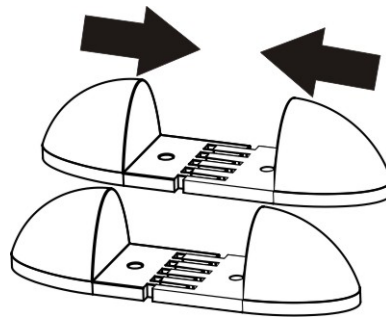


Step 2:

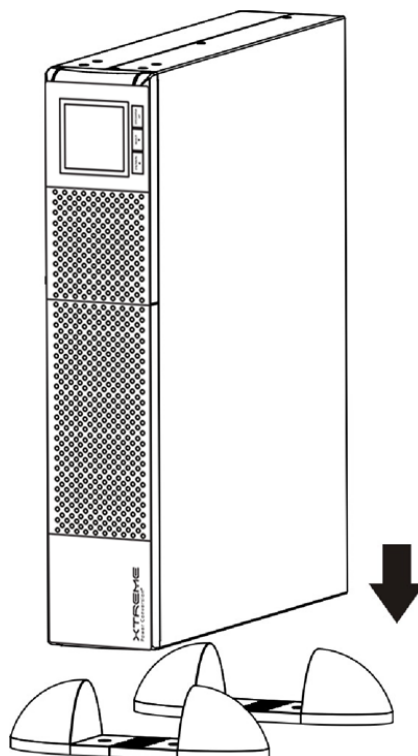


Tower Installation

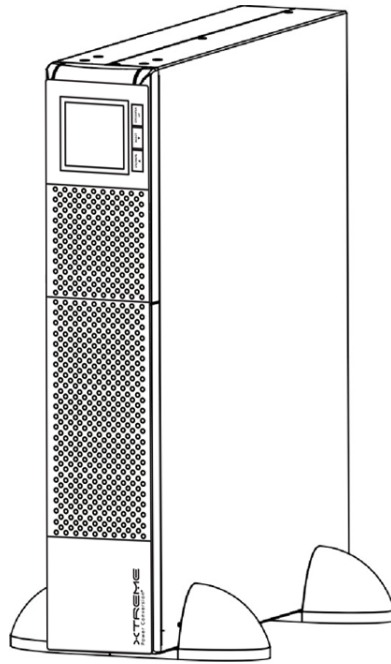
Step 1:



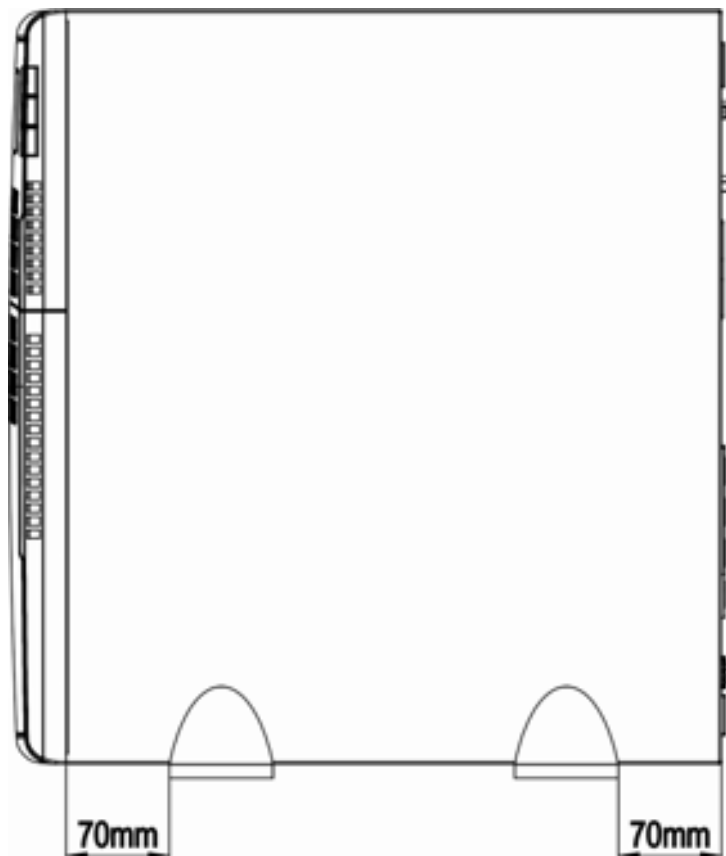
Step 2:



Step 3:



NOTE: When installing the UPS or battery pack with feet, please keep a 2.75" (70 mm) distance from the edge of the unit.



2.4 Setup the UPS

Step 1: UPS Input Connection

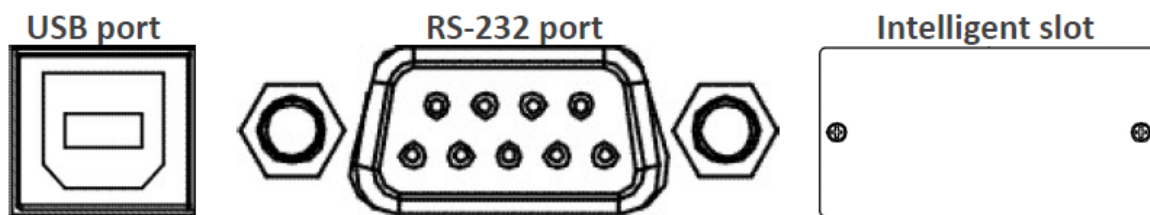
Plug the UPS into a two-pole, three-wire, grounded receptacle only. Avoid using extension cords.

Step 2: UPS Output Connection

There are two kinds of outputs: programmable outlets and general outlets. Please connect non-critical devices to the programmable outlets and critical devices to the general outlets. During power failure, you may extend the backup time to critical devices by setting shorter backup time for non-critical devices.

Step 3: Communication Connection

Communication ports:



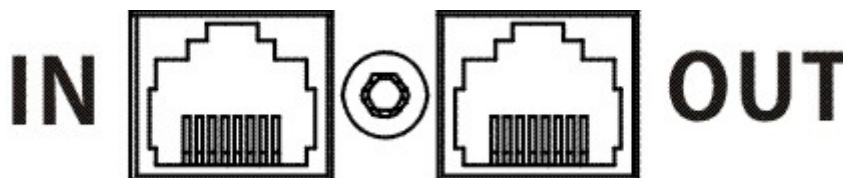
To allow for unattended UPS shutdown/start-up and status monitoring, connect the communication cable on one end to the USB/RS-232 port and the other to the communication port of your PC. With the monitoring software installed, you can schedule UPS shutdown/start-up and monitor UPS status through the PC.

The UPS has an intelligent slot perfect for SNMP or Dry Contact/Relay card. Installing either SNMP or Dry Contact/Relay card in the UPS will provide advanced communication and monitoring options.

Note: USB port and RS-232 port can't work at the same time.

Step 4: Surge Protection

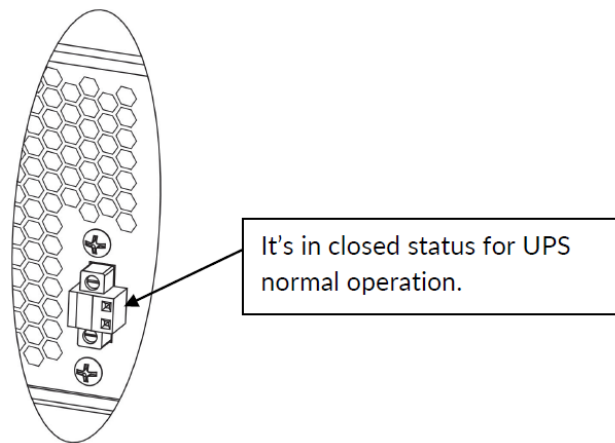
Fax/Phone surge port



Connect a single modem/phone/fax line to a surge-protected "IN" outlet on the back panel of the UPS unit. Connect from the "OUT" outlet to the equipment with another modem/fax/phone line cable.

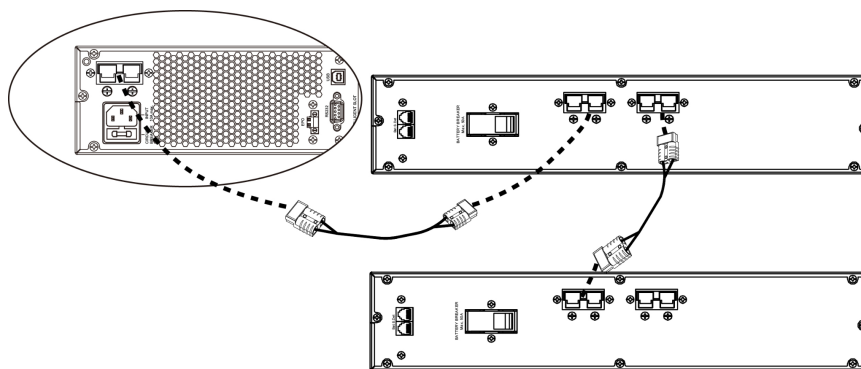
Step 5: Disable and enable EPO function

Keep pin 1 and pin 2 closed for UPS normal operation. To activate the EPO function, cut the wire between pin 1 and pin 2.

**Step 6: External battery connection**

Connect one end of the external battery cable to the UPS unit and the other end to the battery box. Use the supplied battery detection wire in the detection port of the UPS unit and plug the other end into the battery bank.

CAUTION: Connection to External Battery shall be installed by SERVICE PERSONNEL only.



NOTE: It's only allowed to connect external battery boxes up to 1 unit.

Step 7: Turn on the UPS

Press the ON/Mute button on the front panel for two seconds to power on the UPS.

Note: The battery charges fully during the first five hours of normal operation. Do not expect full battery run capability during this initial charge period.

Step 8: Install Software

For optimal computer system protection, install UPS monitoring software to fully configure UPS shutdown. Please follow the steps below to download and install monitoring software:

1. Go to the website <http://www.power-software-download.com>
2. Click the ViewPower software icon and choose your required OS to download the software.
3. Follow the on-screen instructions to install the software.
4. When your computer restarts, the monitoring software will appear as an orange plug icon located in the system tray near the clock.

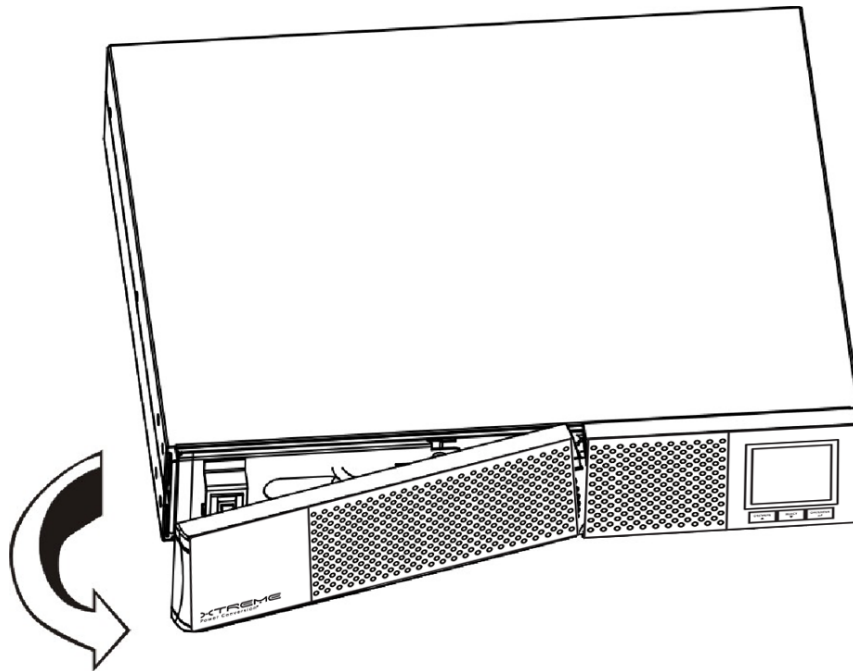
2.5 Battery Replacement

NOTICE: This UPS is equipped with internal batteries and only a service person can replace the batteries.

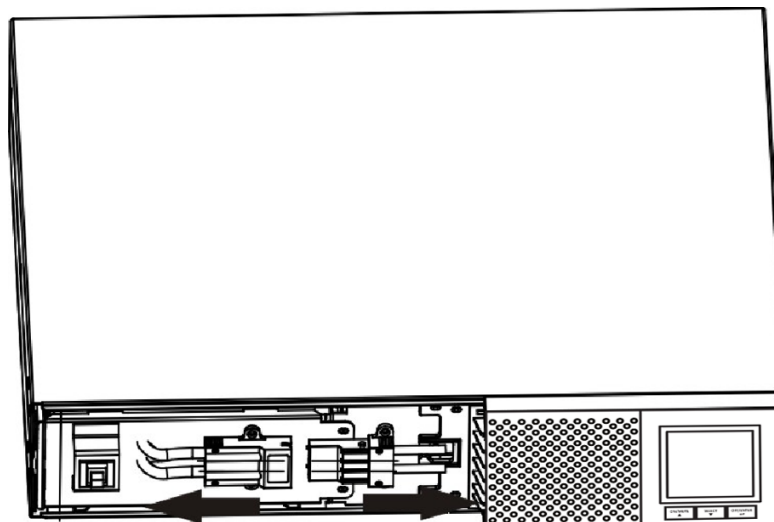
CAUTION! Consider all warnings, cautions, and notes before replacing batteries.

Note: Upon battery disconnection, equipment is not protected from power outages.

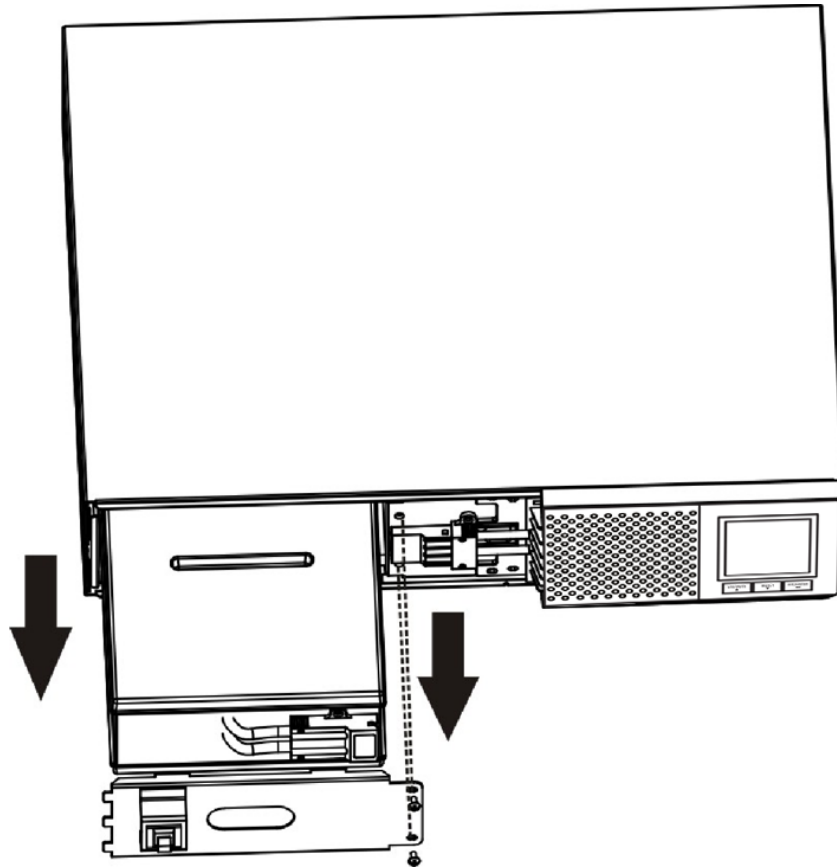
Step 1: Remove the front panel.



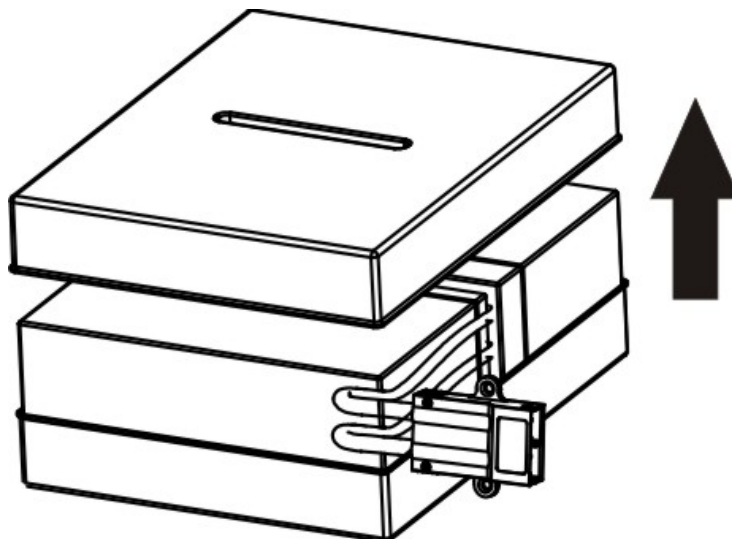
Step 2: Disconnect the battery wires.



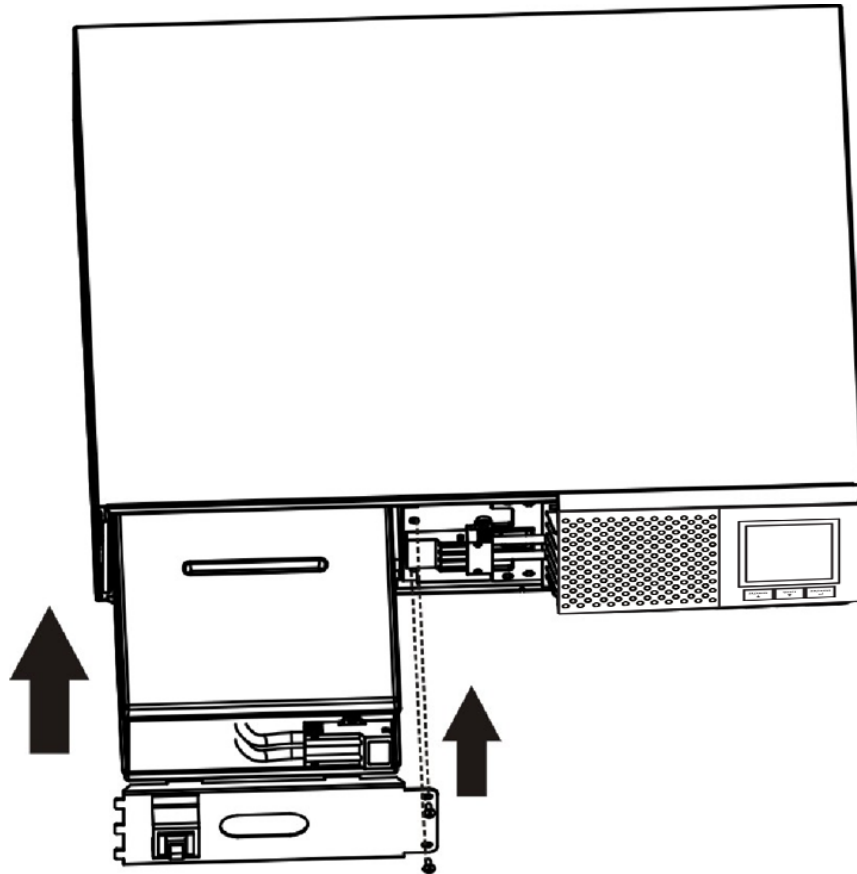
Step 3: Pull out the battery box by removing two screws on the front panel.



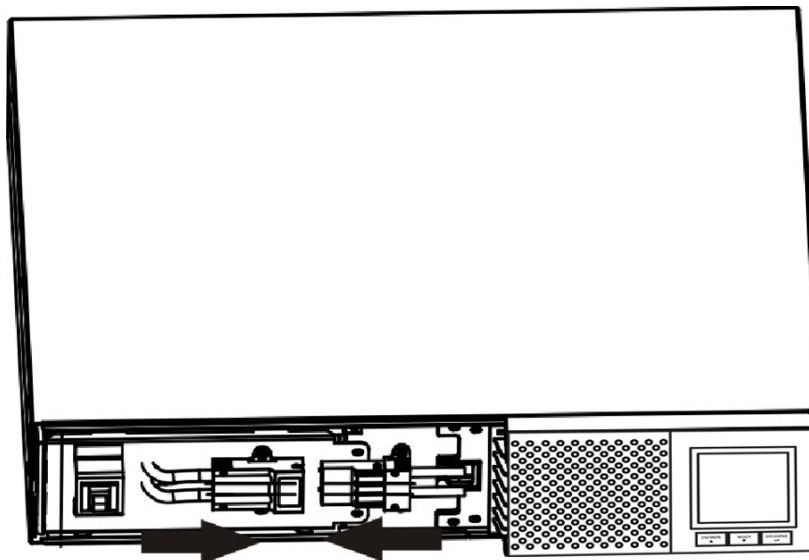
Step 4: Remove the top cover of the battery box and replace the inside batteries.



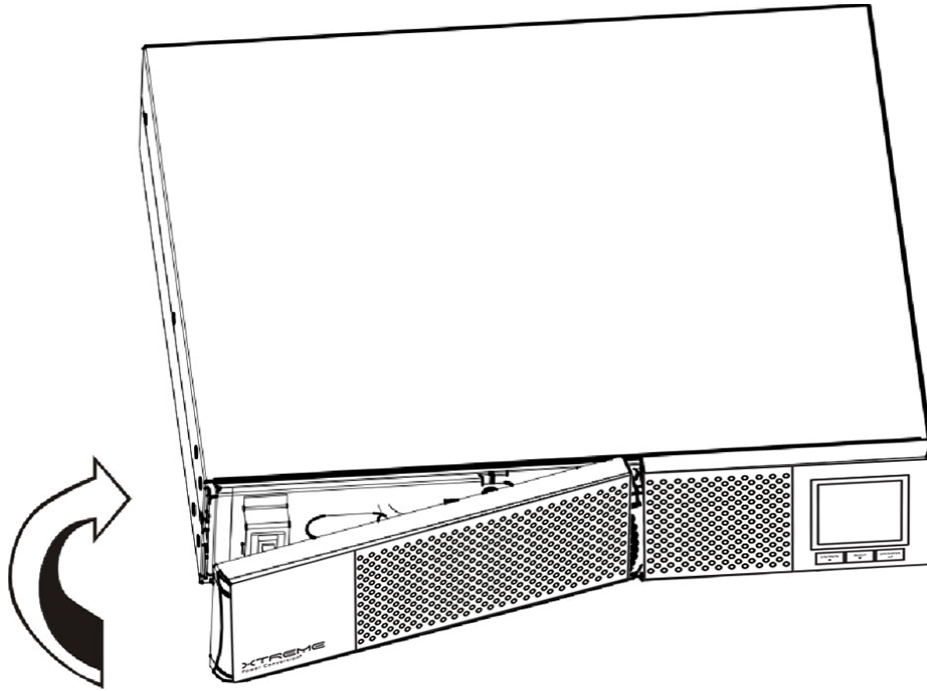
Step 5: After replacing the batteries, put the battery box back in the original location and screw tightly.



Step 6: Reconnect the battery wires.



Step 7: Install the front panel.

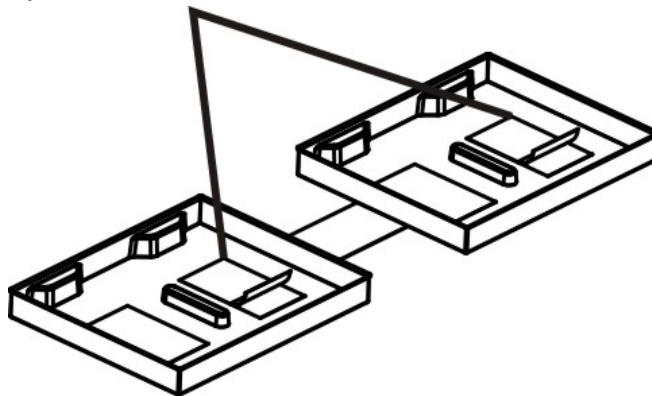


2.6 Battery Kit Assembly

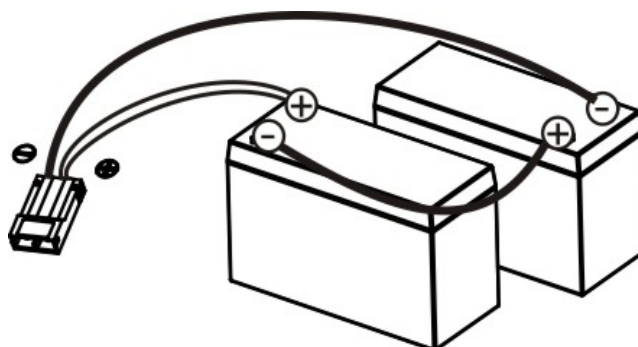
NOTICE: Please assemble the battery kit first before installing it inside of UPS. Please select the correct battery kit procedure below to assemble it.

Two Battery Kit

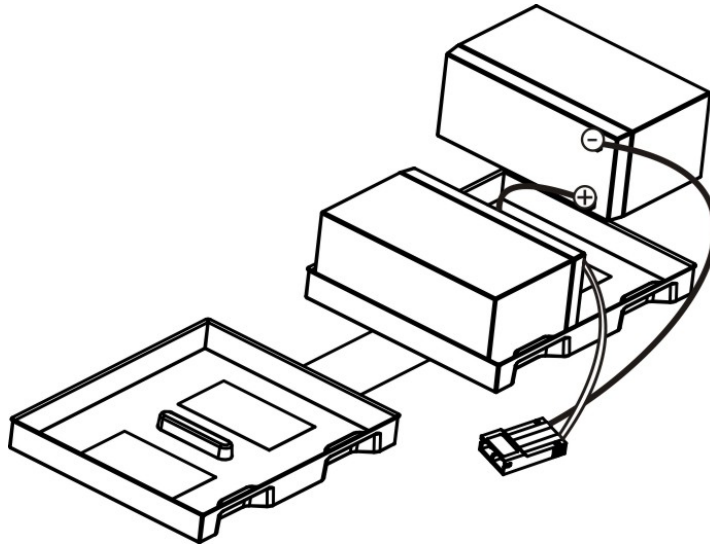
Step 1: Remove adhesive tape.



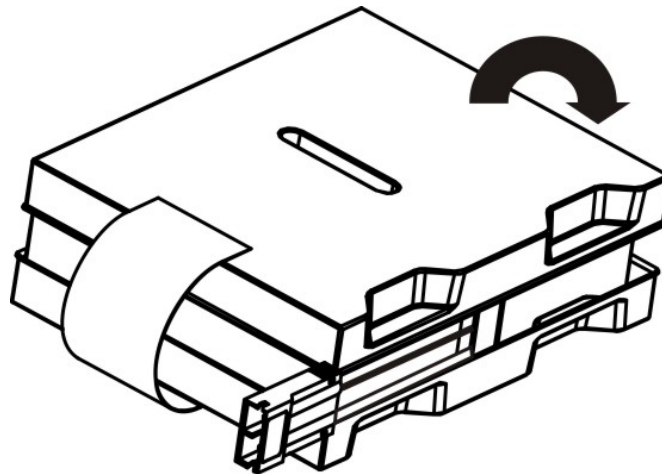
Step 2: Connect all battery terminals by following the below diagram.



Step 3: Put assembled battery packs on one side of the plastic shells and insert one more defect battery on the space.

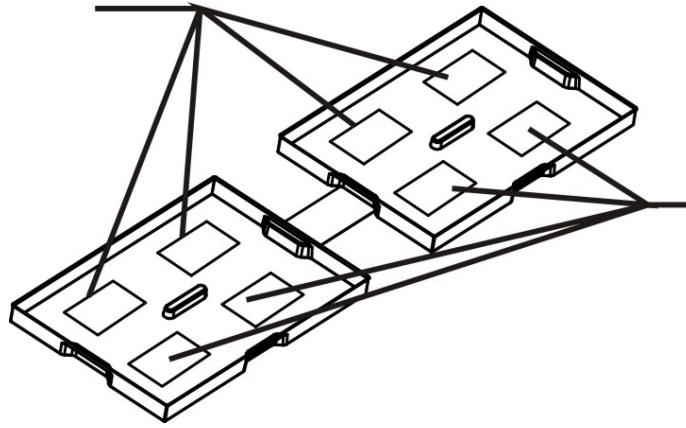


Step 4: Cover the other side of the plastic shell, as shown in the below diagram. Then, the battery kit is fully assembled.

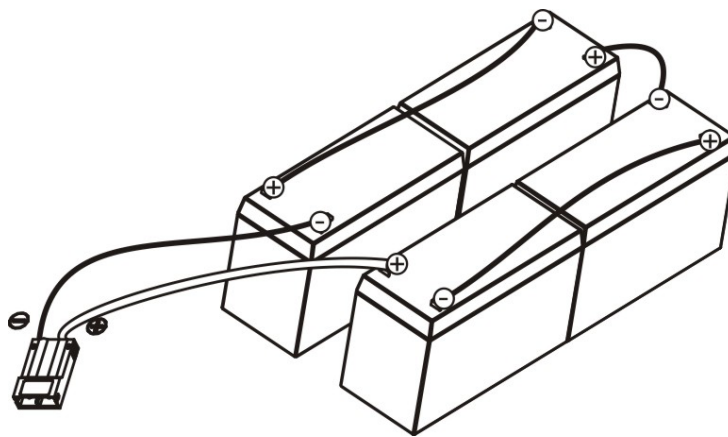


Four Battery Kit

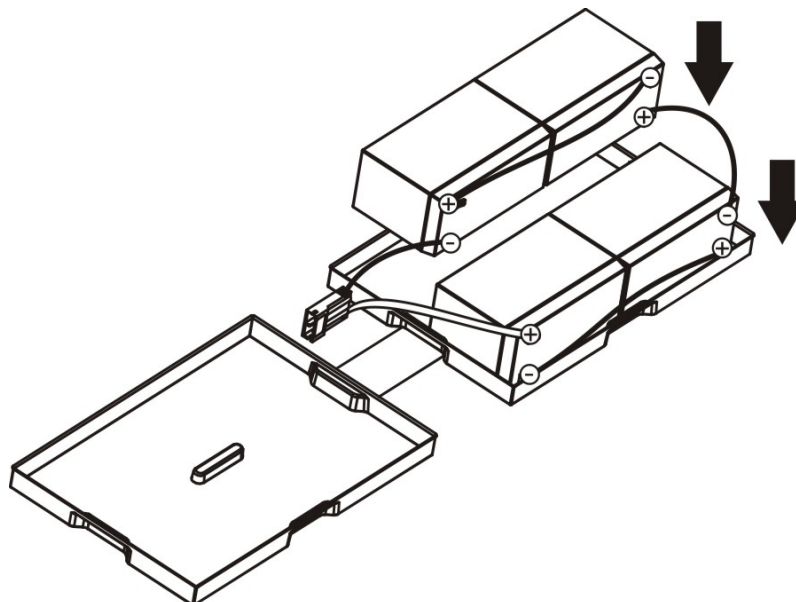
Step 1: Remove adhesive tape.



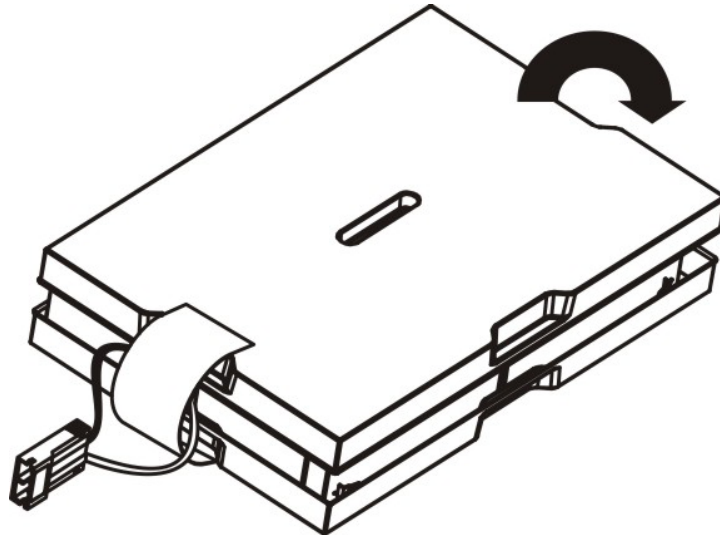
Step 2: Connect all battery terminals by following the below diagram.



Step 3: Put the assembled battery packs on one side of the plastic shells.

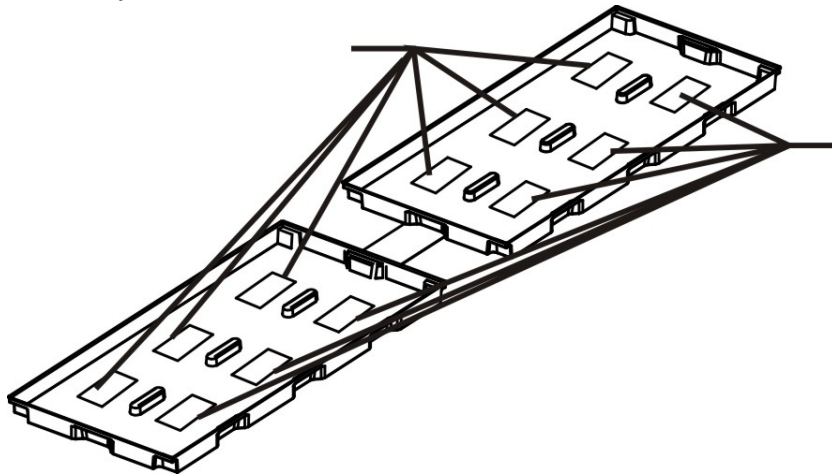


Step 4: Cover the other side of the plastic shell as shown in the below diagram. Then, the battery kit is fully assembled.

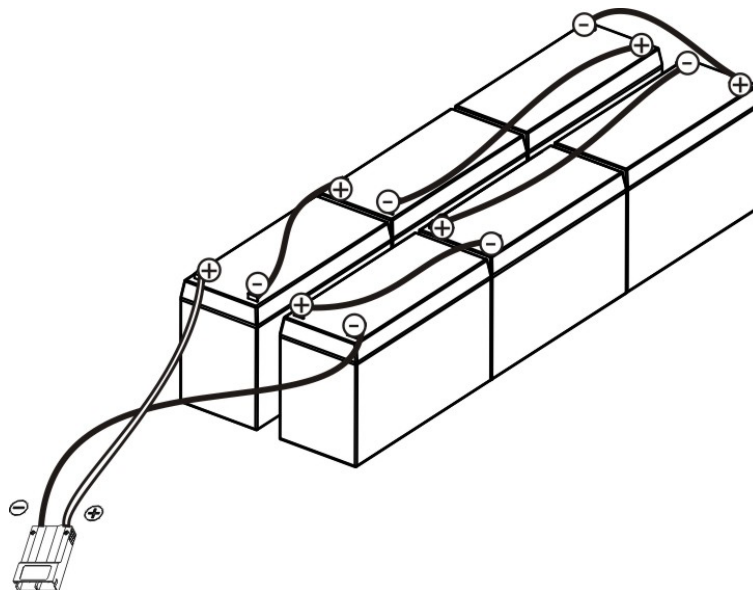


Six Battery Kit

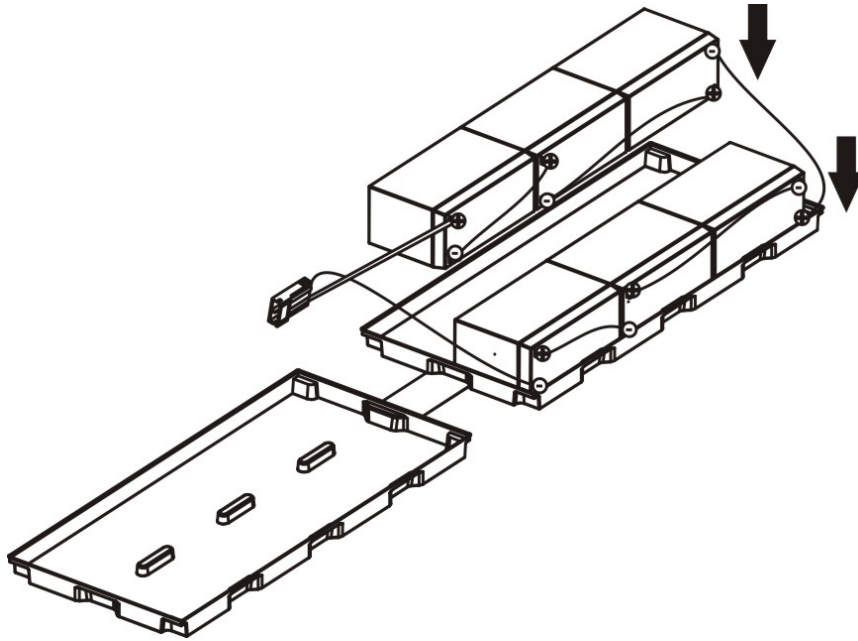
Step 1: Remove adhesive tape.



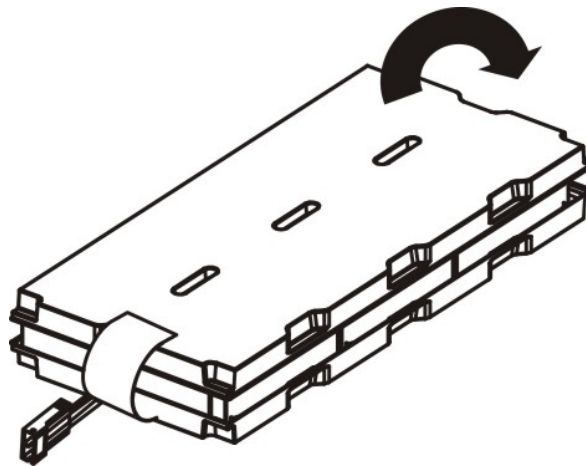
Step 2: Connect all battery terminals as shown in the below diagram.



Step 3: Put the assembled battery packs on one side of the plastic shells.



Step 4: Cover the other side of the plastic shell as shown in the below diagram. Then, the battery kit is fully assembled.



3. Operation

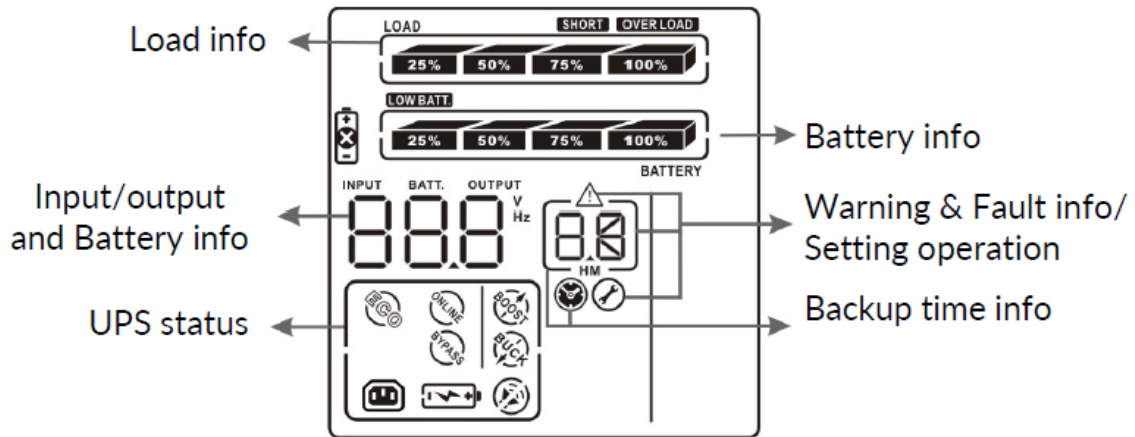
3.1 Button Operation



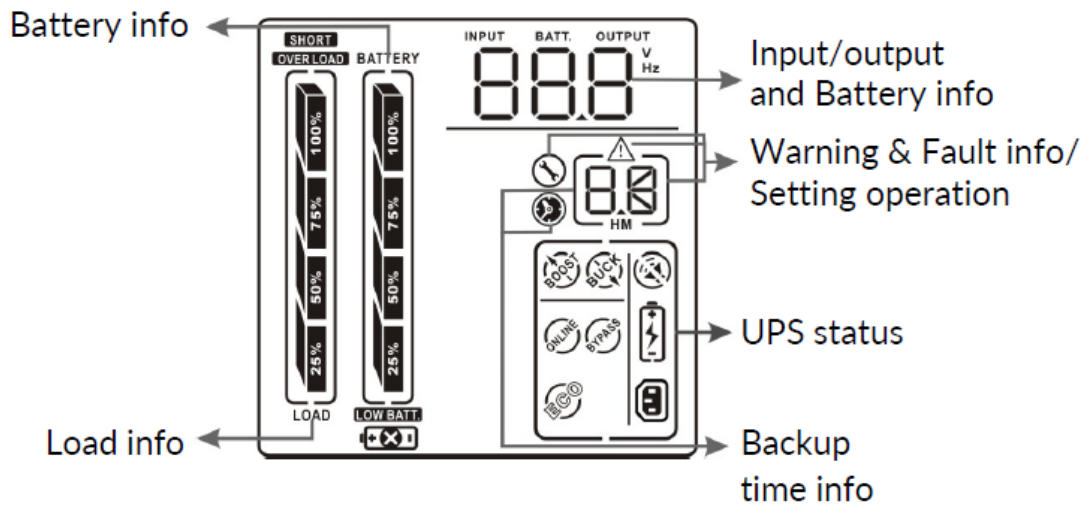
Button	Function
ON/MUTE	<ul style="list-style-type: none"> • Turn on the UPS: Press and hold the ON/Mute button for at least 2 seconds to turn on the UPS. • Mute the alarm: After the UPS is turned on in battery mode, press and hold this button for at least 3 seconds to disable or enable the alarm system. However, it's not applied to situations when warnings or errors occur. • Up key: Press this button to display the previous selection in UPS setting mode. • Switch to UPS self-test mode: Press and hold ON/Mute button for 3 seconds to enter UPS self-testing while in AC mode.
OFF/ENTER	<ul style="list-style-type: none"> • Turn off the UPS: Press and hold this button for at least 2 seconds to turn off the UPS. • Confirm selection key: Press this button to confirm selection in UPS setting mode.
SELECT	<ul style="list-style-type: none"> • Switch LCD message: Press this button to change the LCD message for input voltage, input frequency, battery voltage, output voltage, and output frequency. • Setting mode: Press and hold this button for 3 seconds to enter UPS setting mode when UPS is off. • Down key: Press this button to display the next selection in UPS setting mode.
SELECT + OFF/ENTER	<ul style="list-style-type: none"> • Rack or Tower display switch: Press the Select and OFF/Enter buttons simultaneously for 3 seconds. The display changes from/to Rack to/from Tower.














3.2 LCD Panel






Rack Display



Tower Display









Display	Function
Backup Time Information	
	Indicates the backup time in a pie chart.
	Indicates the backup time in numbers. H: hours, M: minutes
Warning and Fault Information	
	Indicates that the warning and fault occurs.
	Indicates the warning fault codes, which are listed in detail in this manual.
Setting Operation	
	Indicates the setting operation.
Input/ Output & Battery Information	
	Indicates the output/input voltage, output/input frequency or battery voltage. V: output voltage, Hz: frequency
Load Information	
	Indicates the load level by 0-25%, 26-50%, 51-75%, and 76-100%.
	Indicates overload.
	Indicates that the load or the UPS output has short circuited.
UPS Status	
	Indicates that the programmable management outlets are working.
	Indicates that the UPS alarm is disabled.
	Indicates the UPS powers the output directly from the mains.
	Indicates the battery charger is working.

	Indicates the UPS is working in boost mode.
	Indicates the UPS is working in buck mode.
Battery Information	
	Indicates the battery level by 0-25%, 26-50%, 51-75%, and 76-100%.
	Indicates low battery.
	Indicates there is something wrong with the battery.

3.3 Audible Alarms

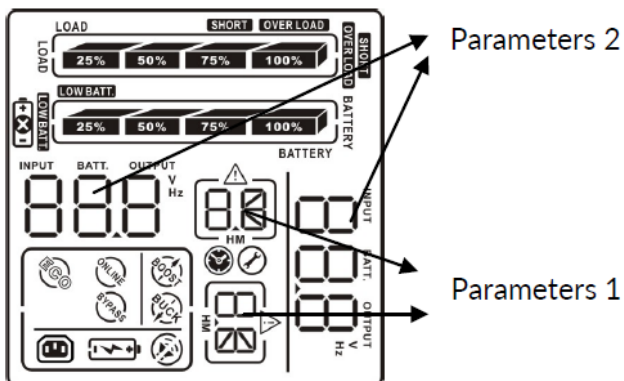
Description	Buzzer Status
Battery Mode	Sounds every 10 seconds
Low Battery	Sounds every 2 seconds
Overload	Sounds every second
Fault	Continuously sounds

3.4 Abbreviations in LCD Display

Abbreviation	Display	Meaning
ENA		Enable
DIS		Disable
ESC		Escape
ON		ON
OK		OK
EP		EPO

TP	TP	Temperature
CH	CH	Charger
RAC	RAC	Rack Display
TOE	TOE	Tower Display
SF	SF	Site Fault
EE	EE	EEPROM Error
BR	BR	Battery Replacement

3.5 UPS Setting

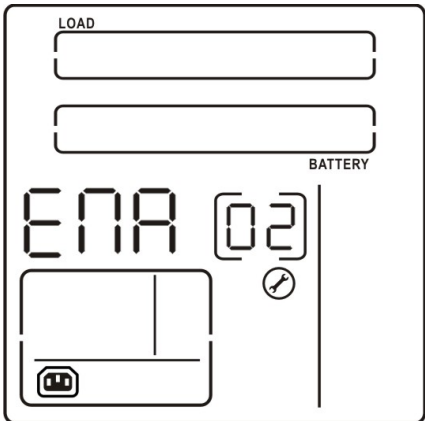


There are two parameters to set up the UPS.
Parameter 1: For program alternatives. Refer to below table for details.
Parameter 2: For setting options or values for each program.

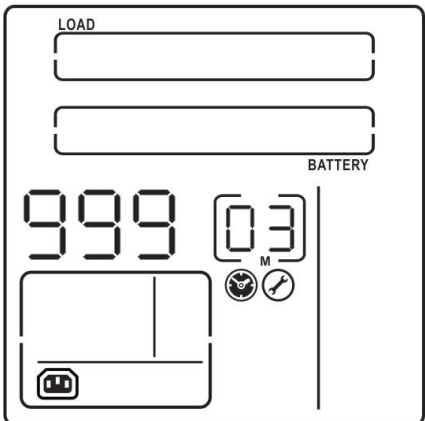
01. Output Voltage Settings

Interface	Setting
	<p>You may choose the following output voltage:</p> <p>110: presents output voltage as 110VAC</p> <p>115: presents output voltage as 115VAC</p> <p>120: presents output voltage as 120VAC (Default)</p> <p>127: presents output voltage as 127VAC</p>

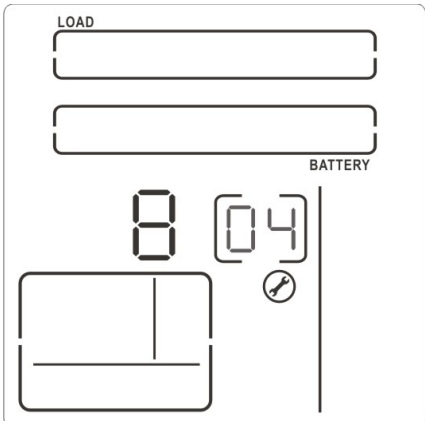
02. Programmable Outlets Enable/Disable

Interface	Setting
 <p>The interface shows two empty input fields at the top labeled 'LOAD' and 'BATTERY'. The main display shows 'ENA' on the left and '02' on the right. Below the display is a battery level indicator and a small icon of a plug.</p>	<p>ENA: Programmable outlets enable (Default)</p> <p>DIS: Programmable outlets disable</p>

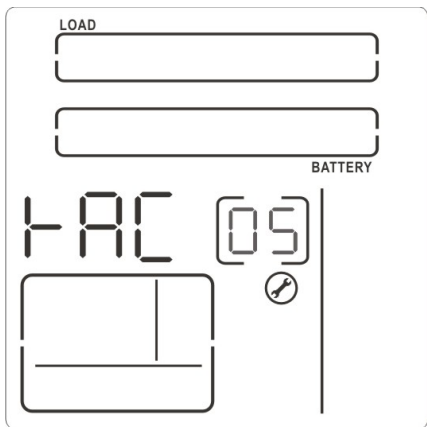
03. Programmable Outlets Settings

Interface	Setting
 <p>The interface shows two empty input fields at the top labeled 'LOAD' and 'BATTERY'. The main display shows '999' on the left and '03' on the right. Below the display is a battery level indicator and a small icon of a plug.</p>	<p>Setting the backup time limit in minutes from 0-999 for programmable outlets that connect to non-critical devices in battery mode.</p>

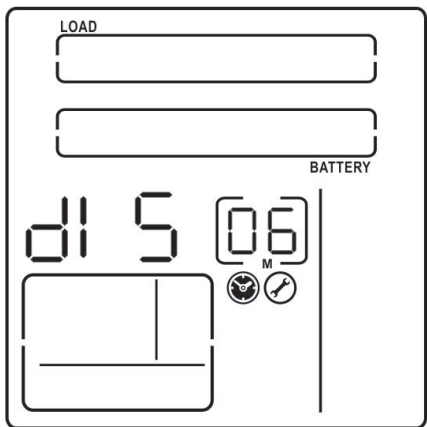
04. Maximum Charger Current Setting

Interface	Setting
 <p>The interface shows two empty input fields at the top labeled 'LOAD' and 'BATTERY'. The main display shows '8' on the left and '04' on the right. Below the display is a battery level indicator and a small icon of a plug.</p>	<p>Set up the maximum charger current.</p> <p>1/2/4/6/8: Setting the maximum charger current at 1/2/4/6/8A (Default: 8A).</p> <p>Note: This setting is only effective for a supercharger.</p>

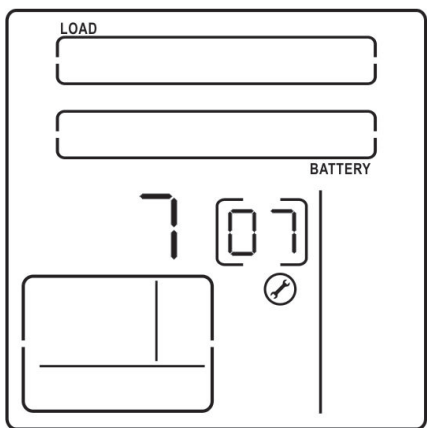
05. LCD Display Direction Setting

Interface	Setting
	<p>RAC: The LCD display is horizontal.</p> <p>TOE: The LCD display is vertical.</p>

06. Autonomy Limitation Setting

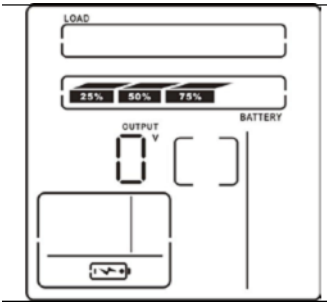
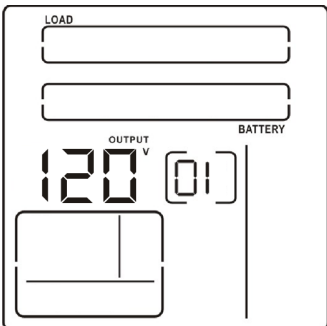

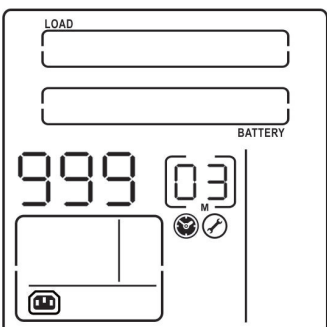
Interface	Setting
	<p>Parameter 2: Set up backup time on battery mode for general outlets.</p> <p>0-999: Set the backup time in minutes from 0-999 for general outlets on battery mode.</p> <p>DIS: Disable the autonomy limitation, and the backup time will depend on battery capacity. (Default)</p> <p>Note: When setting is "0", the backup time will be only 10 seconds.</p>

07. Battery Total AH Setting

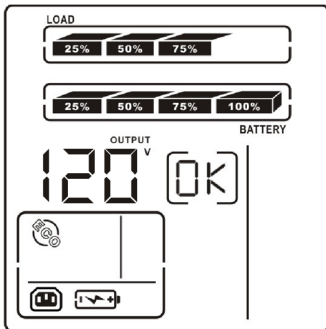
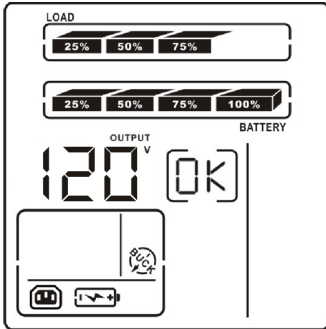
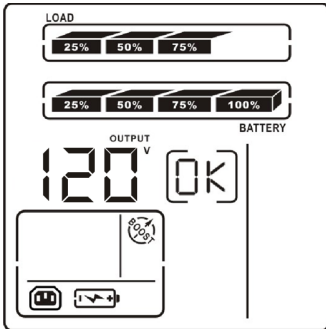
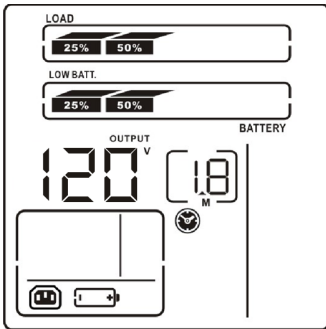
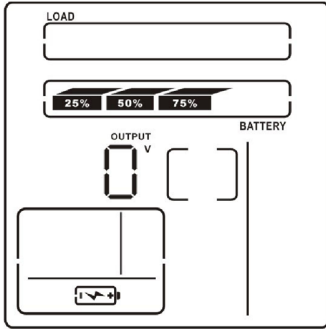
Interface	Setting
	<p>Parameter 2: Set up the battery total AH of the UPS.</p> <p>7-999: Set the battery total capacity from 7-999 in AH. Please set the correct battery total capacity if the external battery bank is connected.</p>

00. Exit Setting


Steps for setting programmable outlet

<p>Step 1: Before entering the Setting mode, the UPS should be in Stand-by mode (off-charging), and make sure the battery is connected. The LCD display is shown as right.</p>	
<p>Step 2: Press and hold the “Select” button for 3 seconds to enter Setting mode.</p>	
<p>Step 3: Press the “Up” button (ON/MUTE) to switch to “02” of the program list. Then press the “Enter” button to enter the value setting of parameter 2. Press the “Up” button to change the value to “ENA” to enable the programmable outlet function. Then press the “Enter” button again to confirm the setting.</p>	
<p>Step 4: Press the “Up” button (ON/MUTE) again to switch to “03” of the program list. Then press the “Enter” button to set the programmable outlet time. Push the “Up” button to change the value of the backup time desired. Then press “Enter” to confirm the setting.</p>	
<p>Step 5: Press the “Up” button (ON/MUTE) to switch to “00” of the program list. Then press the “Enter” button to exit the settings menu.</p>	
<p>Step 6: Disconnect the AC input and wait until the LCD display is off. The new setting will be activated when turning on the UPS again.</p>	




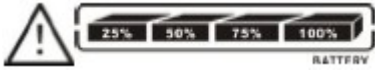





3.6 Operating Mode Description



Operating Mode	Description	LCD Display
ECO mode	When the input voltage is within the voltage-regulated range, UPS will power the output directly from the mains. ECO is an abbreviation for Efficiency Corrective Optimizer. In this mode, when the battery is fully charged, the fan will stop working for energy saving.	
Buck mode when AC is normal	When the input voltage is higher than the voltage regulation range but lower than the high loss point, the buck AVR will be activated.	
Boost mode when AC is normal	When the input voltage is lower than the voltage regulation range but higher than the low loss point, the boost AVR will be activated.	
Battery mode	When the input voltage is beyond the acceptable range or power failure and the alarm sounds every 10 seconds, UPS will backup power from the battery.	
Standby mode	UPS is powered off without output power, but the battery is still being charged.	

3.7 Fault Reference Codes

Fault event	Fault code	Icon	Fault event	Fault code	Icon
Bus start failure	01	X	Inverter output short	14	SHORT
Bus over	02	X	Battery voltage too high	27	X
Bus under	03	X	Battery voltage too low	28	
Inverter soft start failure	11	X	Over temperature	41	X
Inverter voltage high	12	X	Overload	43	OVER LOAD
Inverter voltage low	13	X	Charger failure	45	X







3.7 Warning Indicators

Warning	Icon (flashing)	Alarm
Low battery		Sounds every 2 seconds
Overload		Sounds every second
Battery not connected		Sounds every 2 seconds
Overcharge		Sounds every 2 seconds
Site wiring fault		Sounds every 2 seconds
EPO enable		Sounds every 2 seconds
Over temperature		Sounds every 2 seconds
Charger failure		Sounds every 2 seconds
Battery fault		Sounds every 2 seconds (At this time, UPS is off to remind users that something is wrong with the battery)

EEPROM error	 EE	Sounds every 2 seconds
Battery replacement	 bt	Sounds every 2 seconds

4. Troubleshooting

If the UPS does not operate correctly, please use the table below to troubleshoot the problems.

Symptom	Possible Cause	Remedy
No indication or alarm even though the utility is normal.	The AC input power is not connected well.	Check that the input power cord is firmly connected to the utility
	The AC input is connected to the UPS output.	Plug the AC input power cord into the AC input utility correctly.
The icon  and the warning code EP are flashing on the LCD display and the alarm is sounding every second.	EPO function is enabled.	Set the circuit to the closed position to disable the EPO function.
The icon  and the warning code 5F are flashing on the LCD display and the alarm is sounding every second.	The line and neutral conductors of the UPS input are reversed.	Have a qualified electrician correct the input receptacle wiring.
The icon  and  are flashing on the LCD display and the alarm is sounding every second.	The internal battery is incorrectly connected.	Check to make sure all batteries are properly connected.
The fault code 27 and the  icon is showing on the LCD display and the alarm is continuously sounding.	The battery voltage is too high or the charger is faulty.	Contact your dealer for support.
The fault code 28 and the  icon is showing on the LCD display and the alarm is continuously sounding.	The battery voltage is too low or the charger is faulty.	Contact your dealer for support.
The fault code 14 is showing on the LCD display and the alarm is continuously sounding.	The UPS automatically shut down because a short circuit condition occurred on the UPS output.	Disconnect loads and check to see if the output wiring or connected devices are in short circuit status.
The fault code is shown as 01, 02, 03, 04, 11, 12, 13, and 41 on the LCD display and the alarm is sounding continuously.	A UPS internal fault has occurred. There are two possible results: 1. The load is still supplied, but directly by the AC utility via bypass. 2. The load is no longer supplied with power.	Contact your dealer for support.

Battery backup time is shorter than expected.	Batteries are not fully charged.	Charge the batteries for at least 5 hours and then re-check their capacity. If the problem persists, contact your dealer for support.
	Batteries are defective.	Contact your dealer for battery replacement.

5. Storage and Maintenance

5.1 Operation

The UPS system contains no user-serviceable parts. If the battery service life (3~5 years at 25°C ambient temperature) has been exceeded, the batteries must be replaced. In this case, please contact your dealer.



Be sure to deliver the spent battery to a recycling facility or ship it to your dealer in the replacement battery packing material.

5.2 Storage

Before storing, charge the UPS for at least 5 hours. Store the UPS covered and upright in a cool, dry location. During storage, recharge the battery in accordance with the following table:

Storage Temperature	Recharge Frequency	Charging Duration
-13°F - 104°F (-25°C - 40°C)	Every 3 months	1-2 hours
104°F - 113°F (40°C - 45°C)	Every 2 months	1-2 hours

6. Specifications

PHYSICAL SPECIFICATIONS						
Part Number	LX800L	LX1100L	LX1500L	LX2000L	LX2200L	LX3000LA
Dimensions (WxDxH)	17.2" x 15.1" x 3.5" (436.88 mm x 383.54 mm x 88.9 mm)		17.2" x 18.9" x 3.5" (436.88 mm x 480.06 mm x 88.9 mm)		17.2" x 23.6" x 3.5" (436.88 mm x 599.44 mm x 88.9 mm)	
Weight	29.3 lb (13.29 kg)	30.5 lb (13.83 kg)	44.7 lb (20.27 kg)	47.4 lb (21.50kg)	61.7 lb (27.98 kg)	67.1 lb (30.43 kg)
Power Cord	6 ft (1.82 m), 5-15P	6 ft (1.82 m), 5-15P	6 ft (1.82 m), 5-15P	6 ft (1.82 m), 5-20P	6 ft (1.82 m), 5-20P	6 ft (1.82 m), L5-30P
UPS Receptacles	(8) NEMA 5-15R			(8) NEMA 5-15/20R		(8) 5-15/20R or (6) 5-15/20R + L5-30R
POWER						
Power Capacity	800 VA (720 W)	1100 VA (990 W)	1500 VA (1350 W)	2000 VA (1800 W)	2200 VA (2000 W)	3000 VA (2700 W)
Input (Voltage Nominal)	120 VAC					
Input (Voltage Range)	-32% to +27% without use of battery					
Input (Frequency)	50/60Hz auto-sensing					
Output (Voltage)	120 VAC nominal (110/115/127 selectable)					
Output (Waveform)	Pure sine wave					
Output (Typical Transfer Time)	2-6 ms					
Output (Efficiency)	Up to 99% ECO mode, 95% buck and boost mode					
Output (Harmonic Distortion)	2% @ 100% linear load; 5% @ 100% non-linear load					
BATTERY						
Type	Sealed, maintenance-free lead-acid					
Charging Current	1.5A Max					
Typical Recharge	4 hours to 90%					
INCLUDED						
Communications Interface	RS-232, USB, EPO, intelligent slot for optional cards (Web/SNMP, Relay/dry contact, Modbus)					
Included in Box	ViewPower software, horizontal brackets, tower pedestals, and user manual					
OPTIONAL						
Available Options	Bypass distribution (PM series), 4-post rail kit, 2-post shelf kit, wall-mount bracket					
Optional Battery	N/A	N/A	BX48L (LX1500L, LX2000L)		BX72L (LX2200L, LX3000LA)	

Packs PN				
Dimensions (WxDxH)	N/A	N/A	17.2" x 18.9" x 3.5" (436.88 mm x 480.06 mm x 88.9 mm)	17.2" x 23.6" x 3.5" (436.88 mm x 599.44 mm x 88.9 mm)
Weight	N/A	N/A	74.6 lb (33.83 kg)	104.4 lb (47.3 kg)
Battery	N/A	N/A	(8) 12V 9AH / 48V	(12) 12V 9AH / 72V
ENVIRONMENTAL				
Operating Temperature	32–104°F (0–40°C)			
Audible Noise	< 45 dBA			
Elevation, Above MSL	11,500 ft (3,500 m)			
COMPLIANCE/STANDARDS				
EMC Compliance	FCC Class A, FCC Class B (as applicable)			
Safety Compliance	TUV certified to UL-1778 and CSA-C22.2no107.3-14			
Environmental	RoHS			
TAA Compliant	Yes			

7. Obtaining Service

If the UPS requires Service:

1. Use the TROUBLESHOOTING section in this manual to eliminate obvious causes.
2. Verify there are no circuit breakers tripped.
3. Call your dealer for assistance. If you cannot reach your dealer, or if they cannot resolve the problem, call Enconnex Technical Support at +1 (775) 562-2138 or toll-free at +1 (833) 825-5329. Technical support inquiries can also be made at info@enconnex.com. Please have the following information available BEFORE calling the Technical Support Department:
 - Your name and address.
 - The serial number of the unit.
 - Where and when the unit was purchased.
 - All of the model information about your UPS.
 - Any information on the failure, including LEDs that may or may not be illuminated.
 - A description of the protected equipment, including model numbers, if possible.
 - A technician will ask you for the above information and, if possible, help solve your problem over the phone. If the unit requires factory service, the technician will issue you a Return Material Authorization number (RMA).

If you are returning the UPS to Enconnex for service, please follow these procedures:

1. Pack the UPS in its original packaging. If the original packaging is no longer available, ask the Technical Support Technician about obtaining a replacement set of packaging materials. It is important to pack the UPS properly to avoid damage in transit. Never use Styrofoam beads for a packing material.
2. Include a letter with your name, address, daytime phone number, RMA number, a copy of your original sales receipt, and a brief description of the problem.
3. Mark the RMA number on the outside of all packages. Enconnex cannot accept any package without the RMA number marked on the outside of the boxes.
4. Return the UPS by an insured, prepaid carrier to the address provided by the Technician.
5. Refer to the Warranty statements in this manual for additional details on what is covered.

Customer Service: sales.usa@enconnex.com or +1 (833) 825-5329

Technical Support: info@enconnex.com or +1 (775) 562-2138

8. Enconnex Limited Warranty

Enconnex warrants Enconnex equipment, when properly applied and operated within specified conditions, against faulty materials or workmanship for a period of three years for LXL series products from the date of purchase. Enconnex warrants internal batteries for a period of three years from the date of purchase. For equipment sites within the United States and Canada, this warranty covers repair or replacement at the sole discretion of Enconnex. The customer is responsible for the costs of shipping the defective product to Enconnex. Enconnex will pay for ground shipment of the repaired or replacement product. This warranty applies only to the original purchaser.

If equipment provided by Enconnex is found to be Dead-on-Arrival (DOA), Enconnex will be responsible for the costs of shipping product to and returning equipment from the customer in a timely manner as agreed to with the customer once the customer has requested and received a Return Material Authorization (RMA) number. DOA equipment is defined as equipment that does not properly function according to user documentation when initially received and connected in conjunction with proper procedures as shown in the user documentation or via support provided by Enconnex personnel or authorized agents.

This warranty shall be void if (a) the equipment is repaired or modified by anyone other than Enconnex or an Enconnex approved third party; (b) the equipment is damaged by the customer, is improperly used or stored, is subjected to an adverse operating environment, or is operated outside the limits of its electrical specifications; or (c) the equipment has been used or stored in a manner contrary to the equipment's operating manual, intended use or other written instructions. Any technical advice furnished by Enconnex or an Enconnex authorized representative before or after delivery with regard to the use or application of Enconnex equipment is furnished on the basis that it represents Enconnex's best judgment under the situation and circumstances, but it is used at the recipient's sole risk.

EXCEPT AS STATED ABOVE, Enconnex DISCLAIMS ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

EXCEPT AS STATED ABOVE, IN NO EVENT WILL Enconnex BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF Enconnex EQUIPMENT, including but not limited to, any costs, lost profits or revenue, loss of equipment, loss of use of equipment, loss of software, loss of data, cost of substitutes, or claims by third parties. Purchaser's sole and exclusive remedy for breach of any warranty, expressed or implied, concerning Enconnex equipment, and the only obligation of Enconnex under this warranty, shall be the repair or replacement of defective equipment, components, or parts; or, at Enconnex's sole discretion, refund of the purchase price or substitution of an equivalent replacement product.

9. Appendix A: BX48L & BX72L User Guide

9.1 Important Safety Instructions

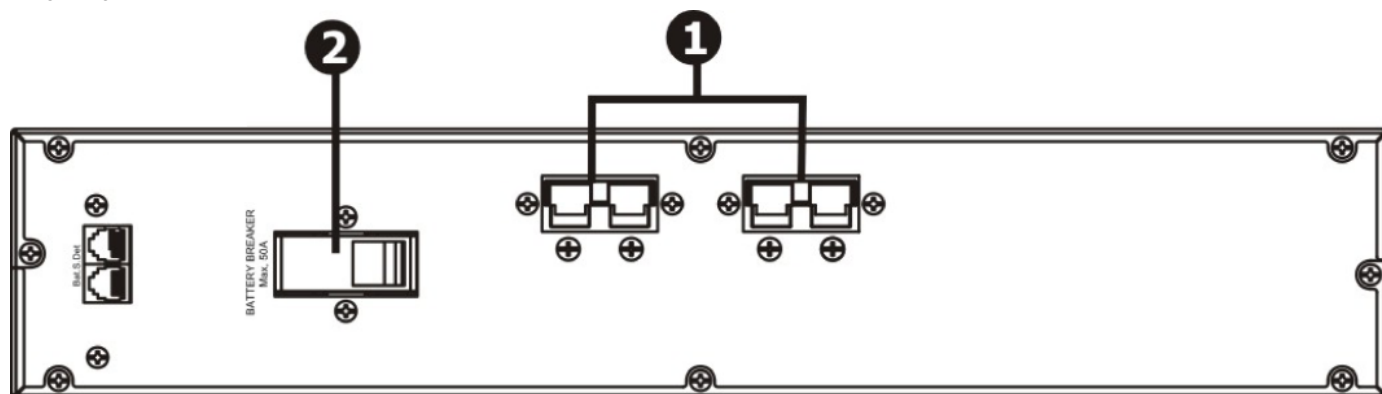
Please comply with all warnings and operating instructions in this manual strictly. Save this manual properly and read carefully the following instructions before installing the unit. Do not operate this unit before reading through all safety information and operating instructions carefully.

- Do not try to repair the unit yourself. Contact your local supplier, or your warranty will be void.
- To eliminate overheating of the battery box, keep all ventilation openings free from obstruction and do not place foreign objects on top of the battery bank. Keep the battery box 20cm away from the wall.
- Make sure the battery box is installed within the proper environment as specified. (0-40°C and 30-90% non-condensing humidity)
- Do not install the battery box under direct sunlight. Your warranty will be void if the batteries fail due to overheating.
- This battery box is not designed for use in dusty, corrosive, and salty environments.
- The warranty for this battery bank will be void if water or other liquid is spilled or poured directly onto the battery box. Similarly, we do not warrant any damage to the battery box if foreign objects are deliberately or accidentally inserted into the battery box enclosure.
- The battery will discharge naturally if the system is unused for a period of time.
- It should be recharged every 2-3 months if unused. If this is not done, the warranty will be null and void. During regular operation, the batteries will automatically remain in charged condition.
- Servicing of batteries should be performed or supervised by trained personnel with knowledge of batteries and the required precautions.
- When replacing batteries, it is necessary to replace ALL batteries with the same quantity, type & capacity.
- CAUTION – Do not dispose of batteries in a fire. The battery may explode.
- CAUTION – Do not open or mutilate the batteries. The electrolyte from the batteries is toxic and harmful to the skin and eyes.
- CAUTION – Risk of Electric Shock –Hazardous voltage may exist between battery terminals and ground. Test before touching with bare hands.
- CAUTION – A battery can present a risk of electrical shock and high short circuit current. The following precautions should be observed when working on batteries:
 1. Remove watches, rings, or other metal objects.
 2. Use tools with insulated handles.
 3. Wear rubber gloves and boots.
 4. Do not lay tools or metal parts on top of batteries.
 5. Disconnect the charging source before connecting or disconnecting battery terminals.
- Do not plug or unplug the battery connector if UPS works in DC (discharging) mode.

9.2 Product Overview and Setup

Note: Before installation, please inspect the unit. Be sure that nothing inside the package is damaged. Please keep the original package in a safe place for future use.

Rear Panel View



1. DC connector: connects to either UPS or 2nd battery box
2. DC breaker: Battery over-current protection breaker

Installation and Setup with UPS

Unpacking & Inspection

1. Remove the battery box from the packing.
Note: The battery box is very heavy, be cautious when unpacking and lifting the unit to avoid injury.
2. Check the inside package
 - Battery box unit
 - Manual
 - Battery connection cable x 1
 - Ear x 2 & screw x 8
 - Extended stand

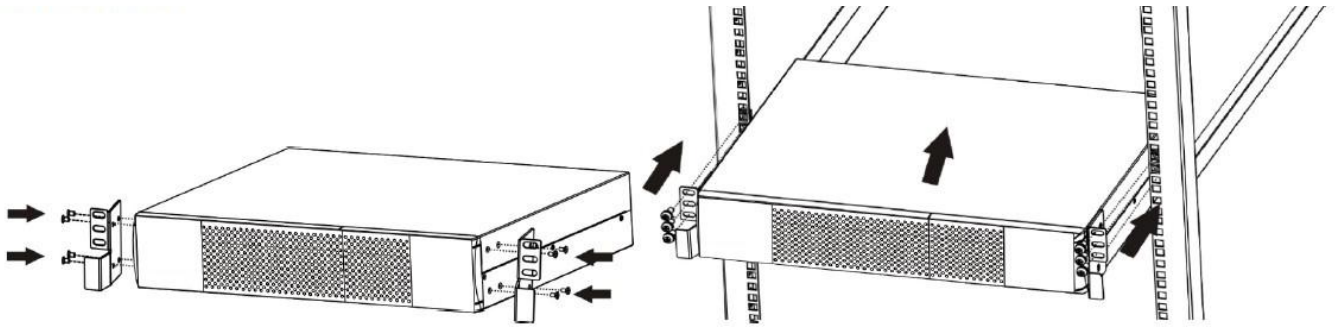
Selecting Installation Position

It is necessary to select a proper environment to install the unit to minimize the possibility of damage to the battery box and extend the life of the batteries. Please follow the instructions below:

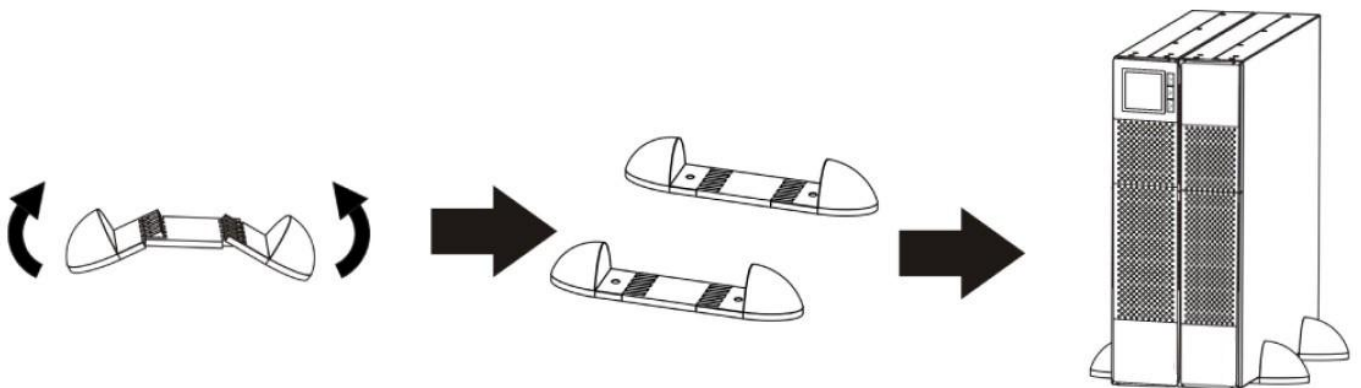
1. It is necessary to select a proper environment to install the unit to minimize the possibility of damage to the battery box and extend the life of the batteries. Please follow the instructions below:
2. Keep at least 20cm (8 inches) clearance from the rear panel of the unit from the wall or other obstructions.
3. Do not block the airflow to the ventilation openings of the unit.
4. Please ensure the installation site environmental conditions are following the unit's working specifications to avoid overheating and excessive moisture.
5. Do not place the unit in a dusty or corrosive environment or near flammable objects.
6. This unit is not designed for outdoor use.

This unit can either be rack-mounted or placed vertically on the desk.

Rack Installation

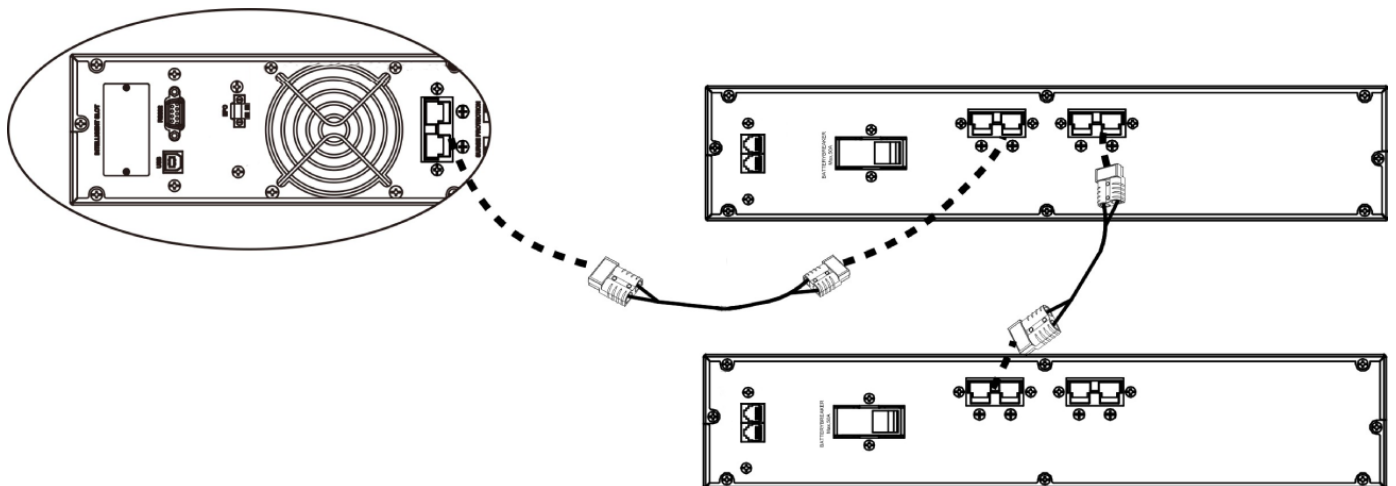


Tower Installation



Connecting with UPS and Other Battery Box

Follow the installation chart below to connect with UPS and other battery boxes with the included cable.



9.3 Type of Battery Required

This battery box has been designed to operate with the following types of batteries:

- 48V/9Ah Version: 4 pieces of 12V 9Ah batteries per string
- 72V/9Ah Version: 6 pieces of 12V 9Ah batteries per string

9.4 Battery Replacement

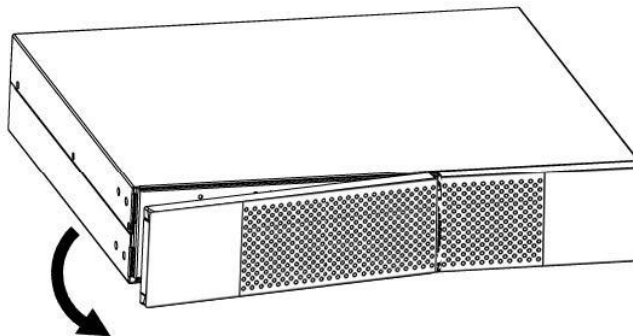
If your battery box is not installed with batteries, please follow proper procedure to put batteries inside of the unit.

NOTE: MAKE SURE THE BATTERY BOX IS DISCONNECTED FROM THE UPS BEFORE PERFORMING THE FOLLOWING SEQUENCE OF OPERATIONS.

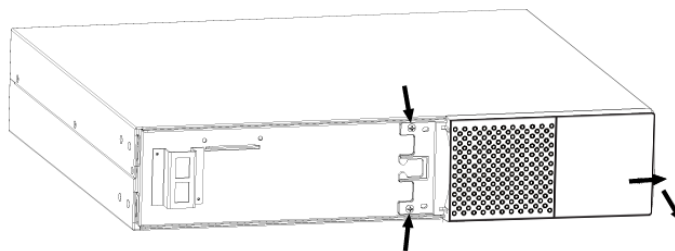
BX48L

Step 1: Open the package and place the battery box on a horizontal plane.

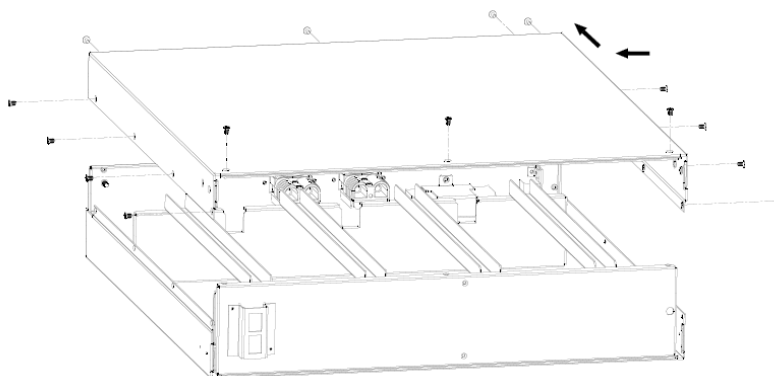
Step 2: Remove the front panel part by pulling it from the lower extremity.



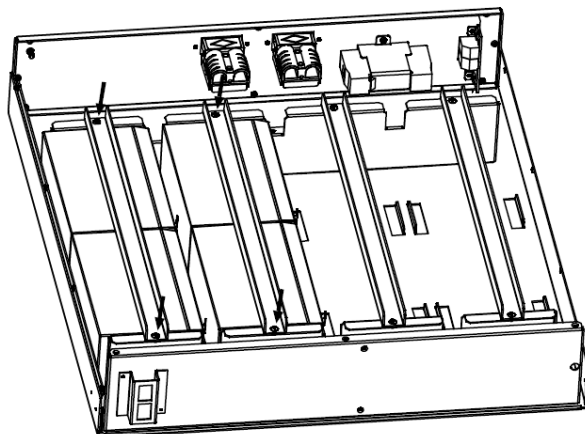
Step 3: Remove the fixed part of the front panel by removing the two screws.



Step 4: Remove the metal top cover of the battery box by removing the eight screws on both sides, three screws from the top, and four screws on the back.

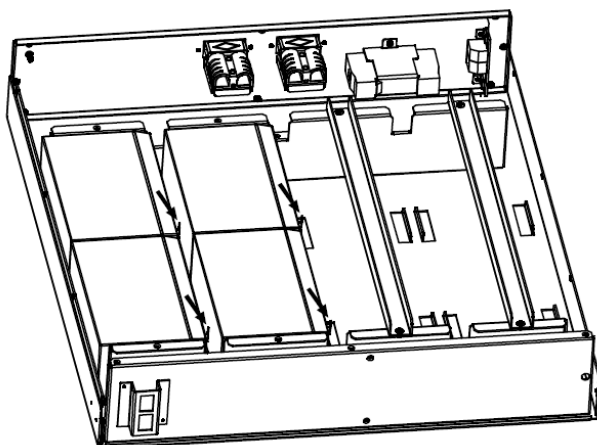


Step 5: Once the battery box is open, remove the battery hold-down brackets on the left side of the battery box by unscrewing the two screws on each bracket.



Note: To install the second string of batteries, repeat the same procedure on the battery hold-down brackets on the right side of the battery box.

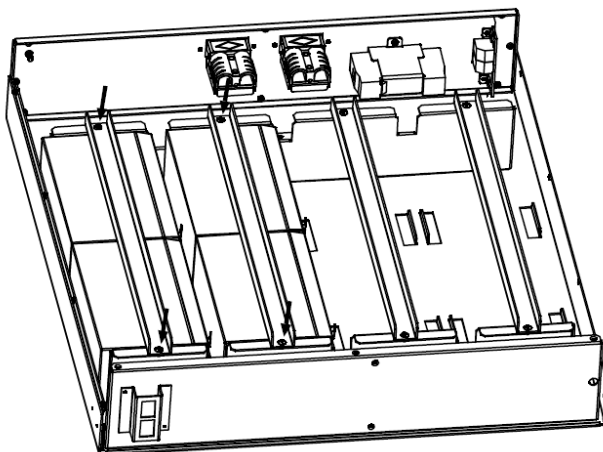
Step 6: Now, put all batteries inside the unit by following the picture below (the following drawing indicates the wire fastener positions for the correct battery placement).



Note: To install the second string of batteries, repeat the same procedure on the right side of the battery box.

Step 7: Connect all batteries following the wiring diagram in the next chapter.

Step 8: Put all batteries inside and secure in place with hold-down brackets.



Note: To install the second string of batteries, repeat the same procedure on the right side of the battery box.

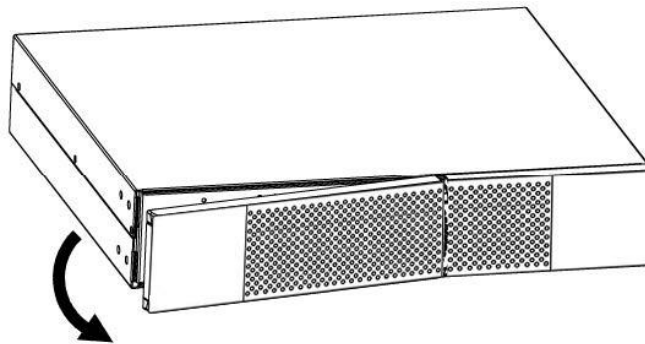
Step 9: Put the metal top cover back on the unit. Close the front fixing plate and the two parts of the front panel and secure it with screws.

Step 10: Connect the battery box to the UPS.

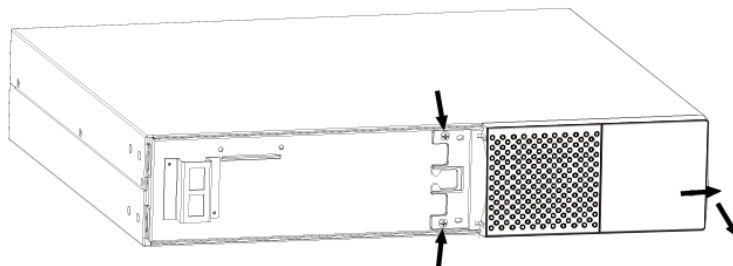
BX72L

Step 1: Open the package and place the battery box on a horizontal plane.

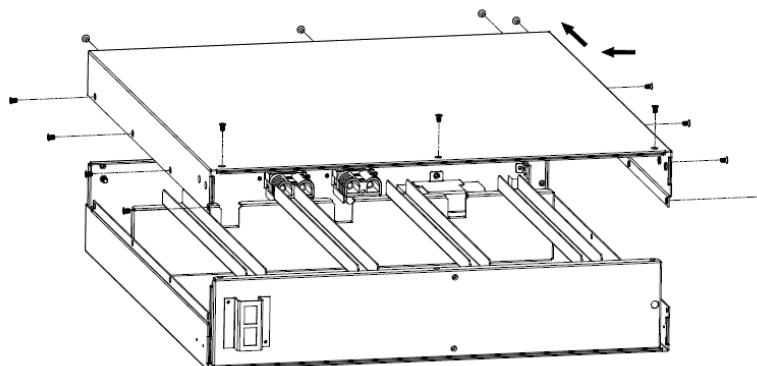
Step 2: Remove the removable front panel part by pulling it from the lower extremity.



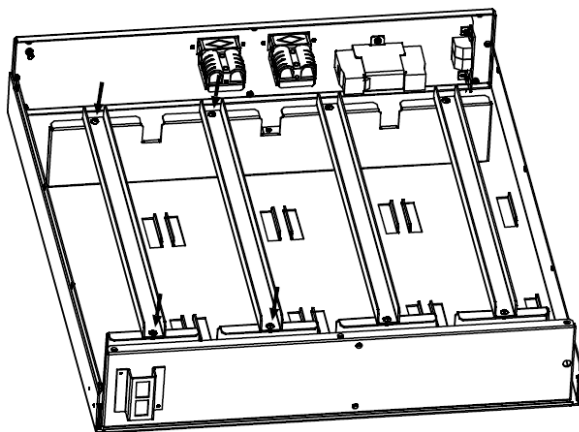
Step 3: Remove the fixed part of the front panel by removing the two screws.



Step 4: Remove the metal top cover of the battery box by removing the eight screws on both sides, three screws from the top, and four screws on the back.

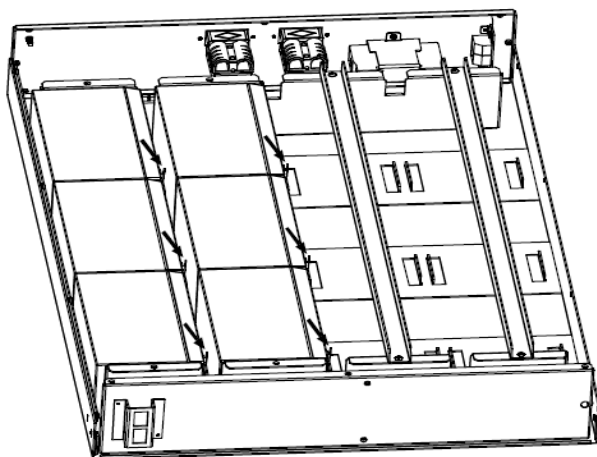


Step 5: Once the battery box is open, remove the battery hold-down brackets on the left side of the battery box by unscrewing the two screws on each bracket.



Note: To install the second set of batteries, repeat the same procedure on the battery fixing plate on the right side of the battery box.

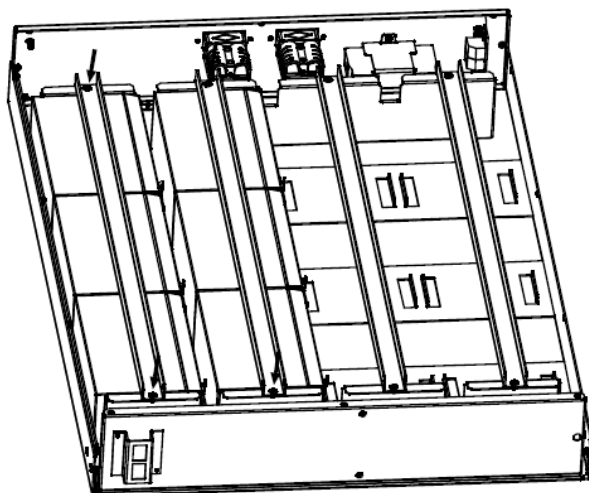
Step 6: Now, put the batteries inside the battery box (the below picture indicates the fasten positions for correct battery placement).



Note: To install the second set of batteries, repeat the same procedure on the right side of the battery box.

Step 7: Connect all batteries following the wiring diagram in the next chapter.

Step 8: Put all batteries inside and secure in place with the hold-down brackets.



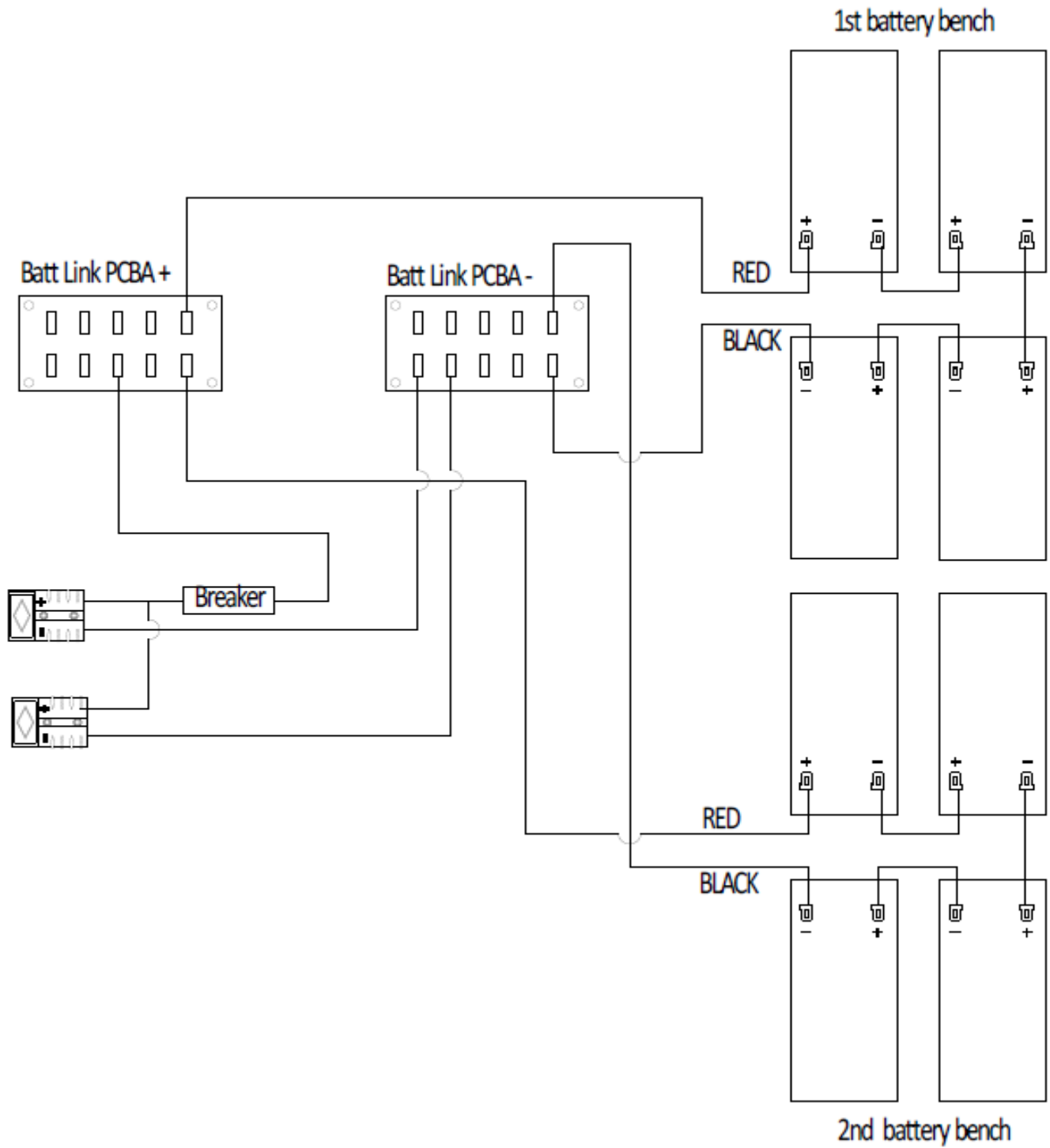
Note: To install the second string of batteries, repeat the same procedure on the right side of the battery box.

Step 9: Put the metal top cover back on the unit. Close the front fixing plate and the two parts of the front panel and secure it with screws.

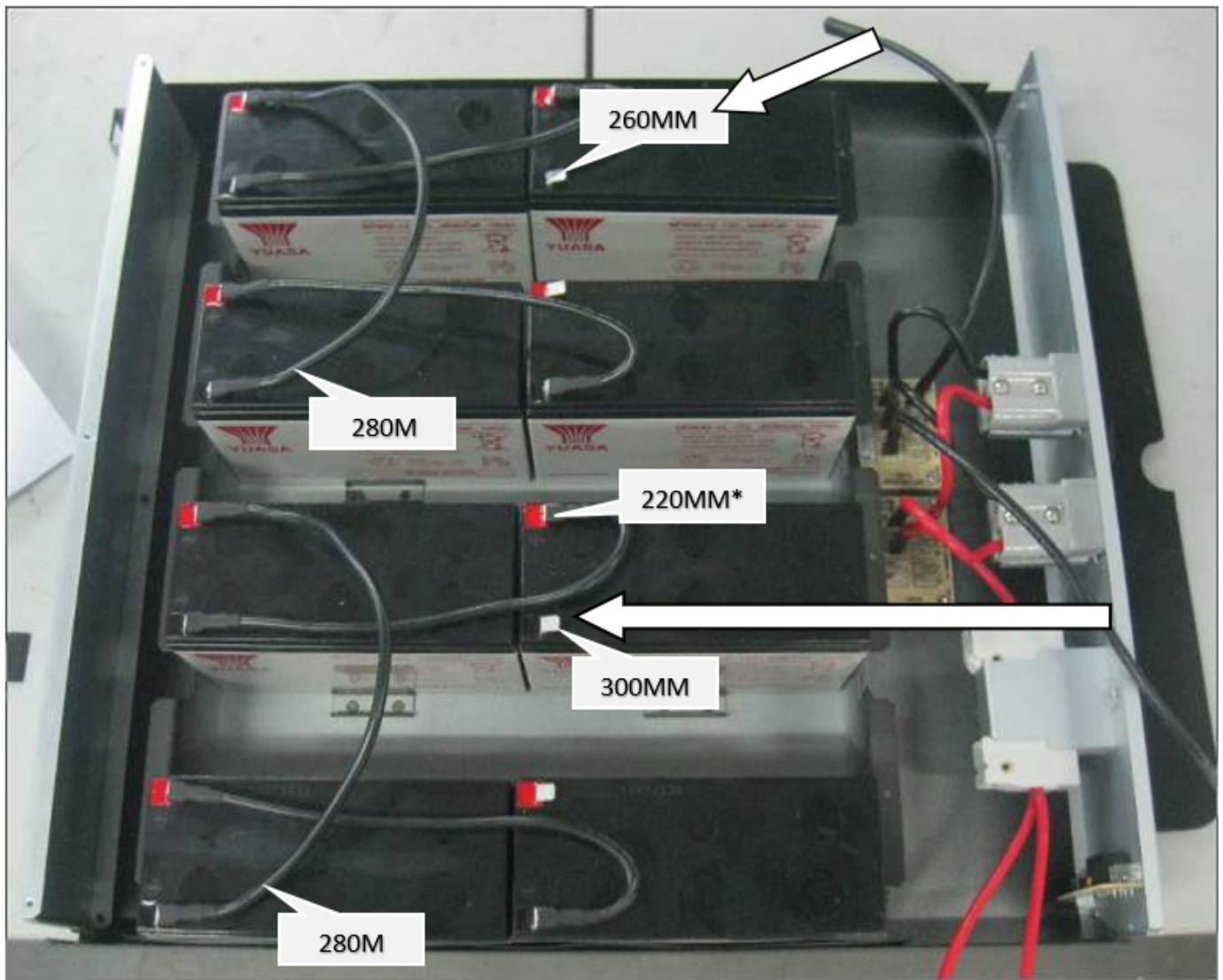
Step 10: Connect the battery box to the UPS.

9.5 Wiring Diagram

BX48L

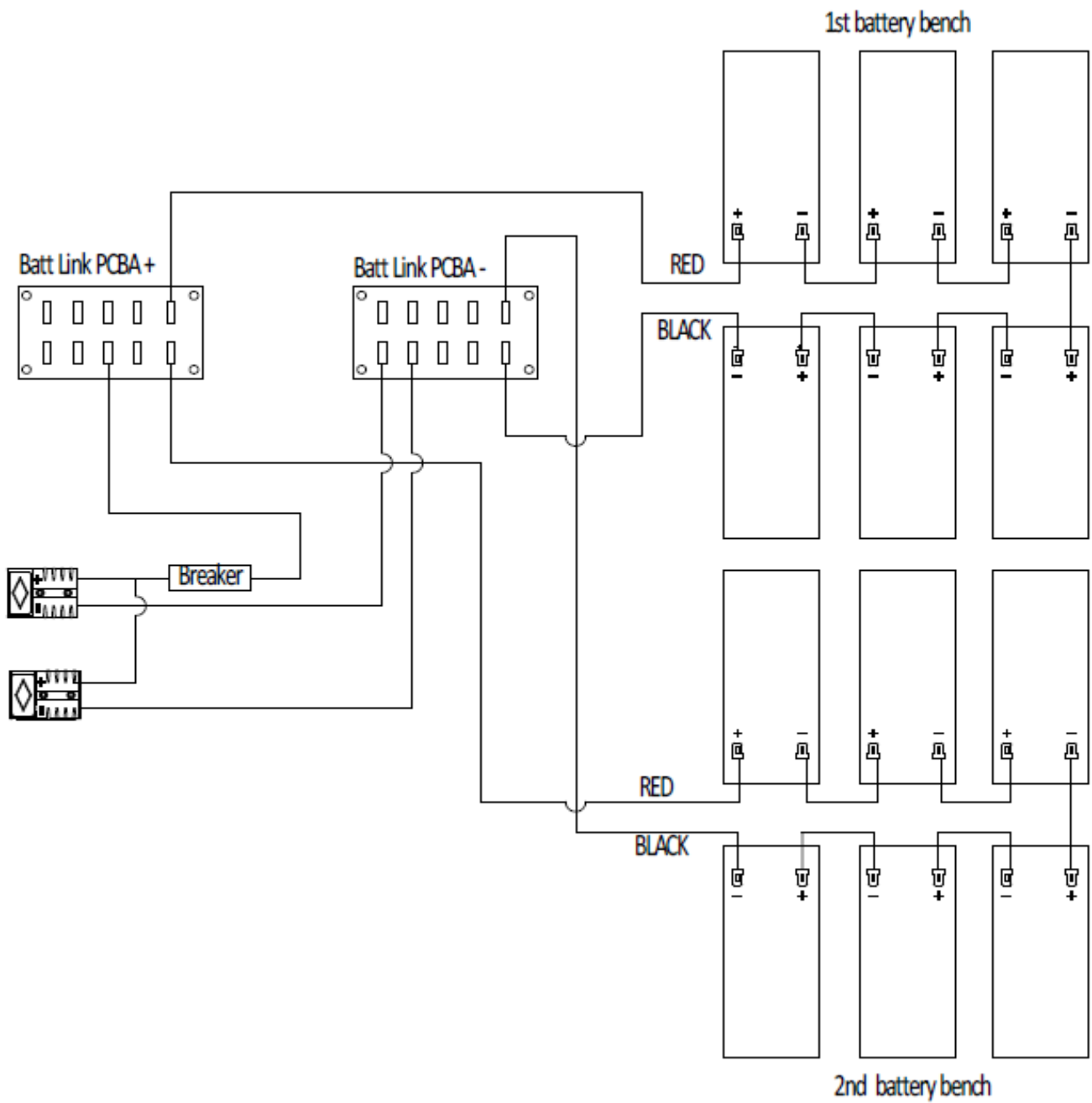


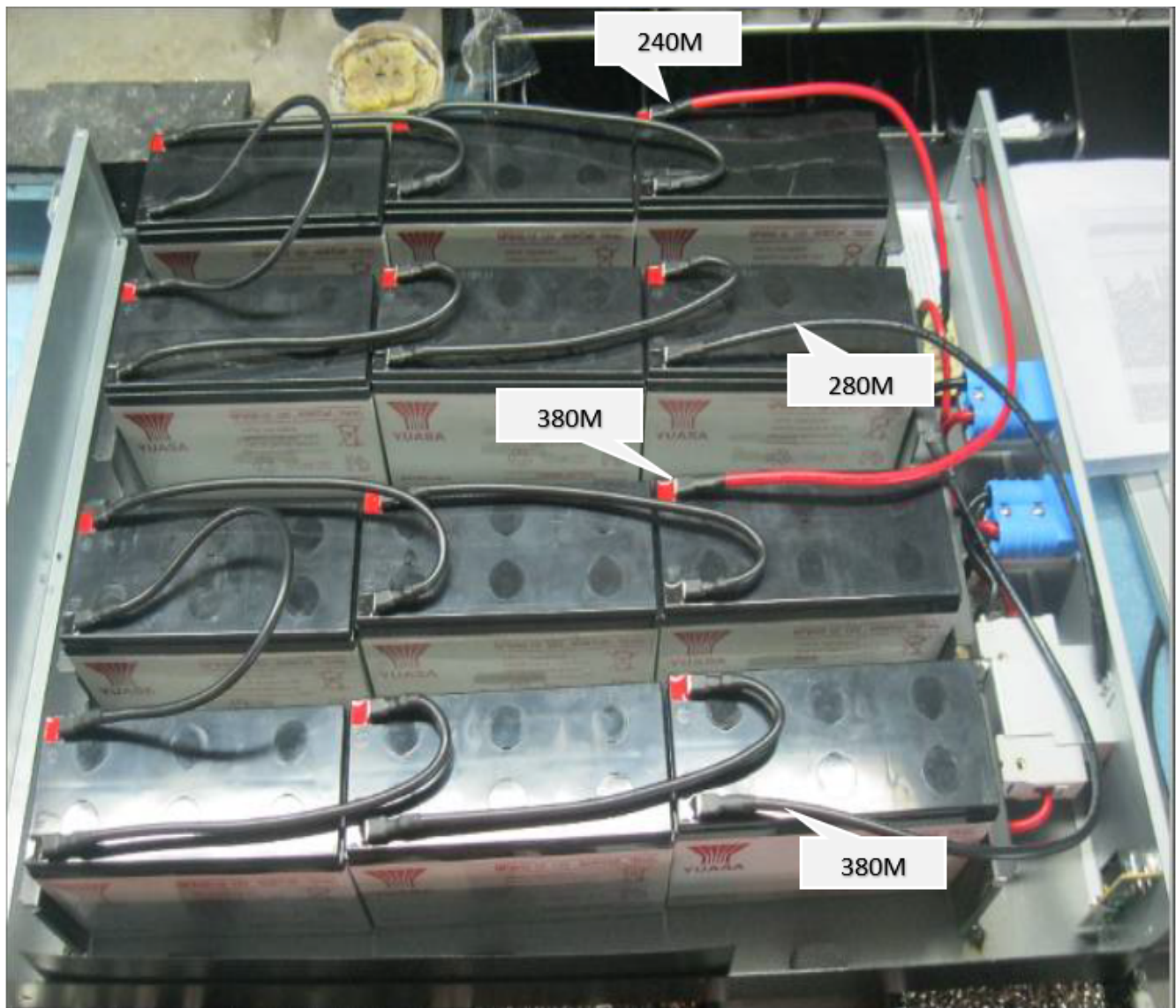
Example:



Note: The cable connection from the external battery connector to PCB is already inside the battery box. All the other cable connections should be made following the above wiring diagram.

BX72L



Example:

Note: The cable connection from the external battery connector to PCB is already inside the battery box. All the other cable connections should be made following the above wiring diagram.

9.6 Storage and Maintenance

The unit contains no user-serviceable parts. If the battery service life (3~5 years at 25°C ambient temperature) has been exceeded, the batteries must be replaced. In this case, please contact your dealer.

Be sure to deliver the spent battery to a recycling facility or ship it to your dealer in the replacement battery packing material.

Storage

Before storing, charge the unit for 4 hours. Store the unit covered and upright in a cool, dry location. During storage, recharge the battery following the below table:

Storage Temperature	Recharge Frequency	Charging Duration
-13°F - 104°F (-25°C - 40°C)	Every 3 months	1-2 hours
104°F - 113°F (40°C - 45°C)	Every 2 months	1-2 hours