



# **P90L 6kVA & 10kVA Online UPS**

6kVA, 10kVA Models

User & Installation Manual



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

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## Safety Warnings and EMC Instructions

This manual contains important instructions that you should follow during installation and maintenance of the UPS and batteries. Please read all instructions before operating the equipment and save this manual for future reference.

### **UPS Warnings**

- Install your UPS indoors, away from excess moisture or heat, direct sunlight, dust and conductive contaminants.
- Install your UPS in a structurally sound area. Your UPS is extremely heavy; take care when moving and lifting the unit.
- Only operate your UPS at indoor temperatures between 32°F and 104°F (between 0°C and 40°C).
- Leave adequate space around all sides of the UPS for proper ventilation.
- Do not install the UPS near magnetic storage media, as this may result in data corruption.
- Do not mount unit with its front or rear panel facing down (at any angle). Mounting in this manner will seriously inhibit the unit's internal cooling, eventually causing product damage not covered under warranty.
- This UPS should be connected with a grounded system. NEC and local electrical codes apply.
- The power supply for this unit must be single-phase rated in accordance with the equipment nameplate. It also must be suitably grounded
- Use of this equipment in life support applications where failure of this equipment can reasonably be expected to cause the failure of the life support equipment or to significantly affect its safety or effectiveness is not recommended. Do not use this equipment in the presence of a flammable anesthetic mixture with air, oxygen or nitrous oxide.
- Connect your UPS power module's grounding terminal to a grounding electrode conductor.
- The UPS is connected to a DC energy source (battery). The output terminals may be live when the UPS is not connected to an AC supply.

### **Maintenance Warnings**

- Service and repair should be done only by trained personnel. During any service work to the UPS, it should be turned off or manually bypassed. Note that potentially lethal voltages exist within this unit as long as the battery supply is connected.
- Your UPS power module and battery module(s) do not require routine maintenance. Do not open them for any reason. There are no user-serviceable parts inside.
- Even after the unit is disconnected from the mains, components inside the UPS system are still connected to the battery packs which are potentially 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 on PCB components
- Fuses should be replaced only by factory authorized personnel. Blown fuses should be replaced only with fuses of the same rating and type.
- Verify that no voltage between the battery terminals and the ground is present before maintenance or repair. In this product, the battery circuit is not isolated from the input voltage. Hazardous voltages may occur between the battery terminals and the ground.

### **Battery Warnings**

- Do not operate your UPS without connecting it to an external battery module.
- Batteries can present a risk of electrical shock and burn from high short-circuit current. Observe proper

precautions.

- a) Remove watches, rings, and other metal objects
- b) Use tools with insulated handles.
- c) Wear rubber gloves and boots.
- d) Do not lay tools or metal parts on top of batteries.
- e) Disconnect charging source prior to connecting or disconnecting battery terminals.
- Do not dispose of the batteries in a fire. Do not open the batteries. The batteries must be disposed of in accordance with local regulations.
- Do not short or bridge the battery terminals with any object.
- Unplug and turn off the UPS before performing battery replacement.
- Battery replacement should be performed only by authorized service personnel using the same number and type of batteries (Sealed Lead-Acid). Use tools with insulated handles. The batteries are recyclable.
- Do not open or mutilate the batteries. Released electrolyte is harmful to the skin and eyes, and may be toxic.
- Do not connect or disconnect battery module(s) while the UPS is operating from the battery supply.

**Standards**

* Safety	
Safety Conformance: IEC/EN 62040-1,UL1778 (4th Edition)	
Safety Markings : TUV, cTUVus, CE, UL, cUL, RoHS	
* EMI	
Conducted Emission.....:IEC/EN 62040-2	Category C3
Radiated Emission.....:IEC/EN 62040-2	Category C3
*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
CS..... :IEC/EN 61000-4-6	Level 3
Power-frequency Magnetic field..... :IEC/EN 61000-4-8	Level 4
Low Frequency Signals.....:IEC/EN 61000-2-2	

## Installation

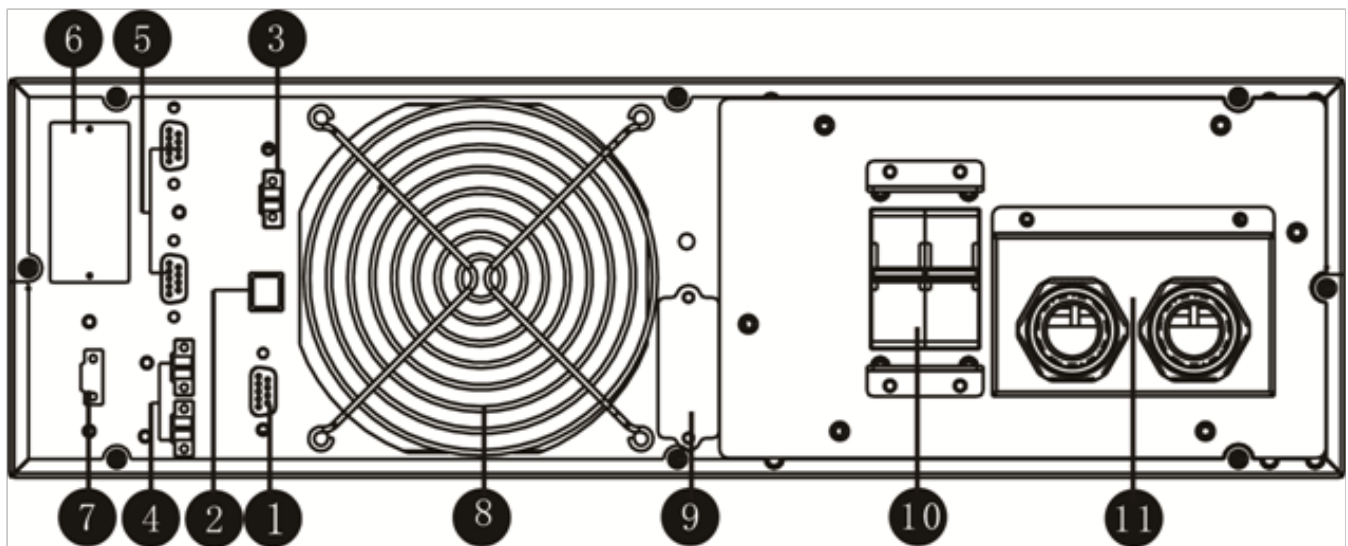
### UPS Unpacking and Inspection

Open the package and check the contents. The shipping package contains:

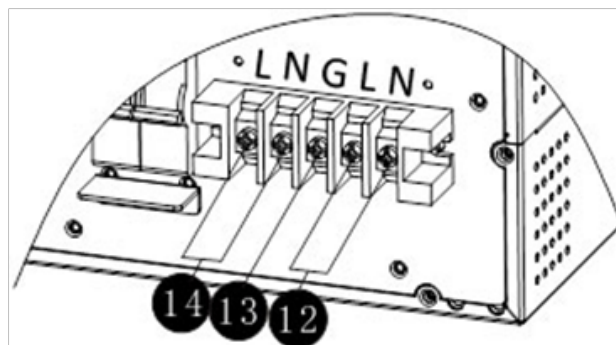
- One UPS
- One user manual
- One 3ft, L6-30R output cord (P90L-6K only)
- One 6ft, L6-30P input cord (P90L-6K only)
- One monitoring software CD
- One USB cable
- Two sets of tower stands including feet and extensions
- Two Rack-mounting ears

**Note:** Before installation, please inspect the unit. Be sure that nothing inside the package has been damaged during transportation. Do not turn on the unit and notify the carrier and dealer immediately if there is any damage or missing parts. Please keep the original packing material in a safe place for future use.

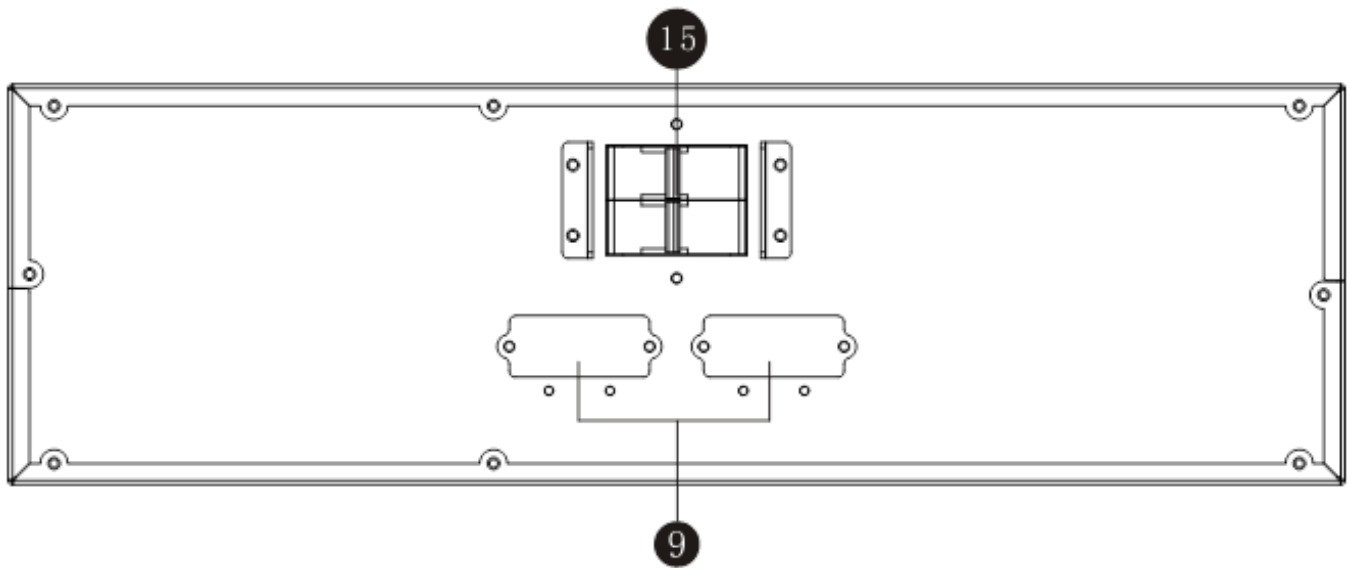
### Rear Panel View



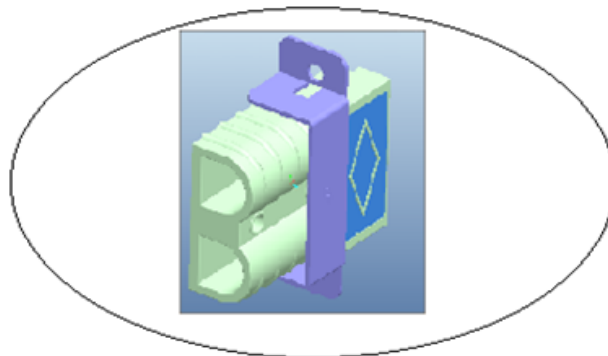
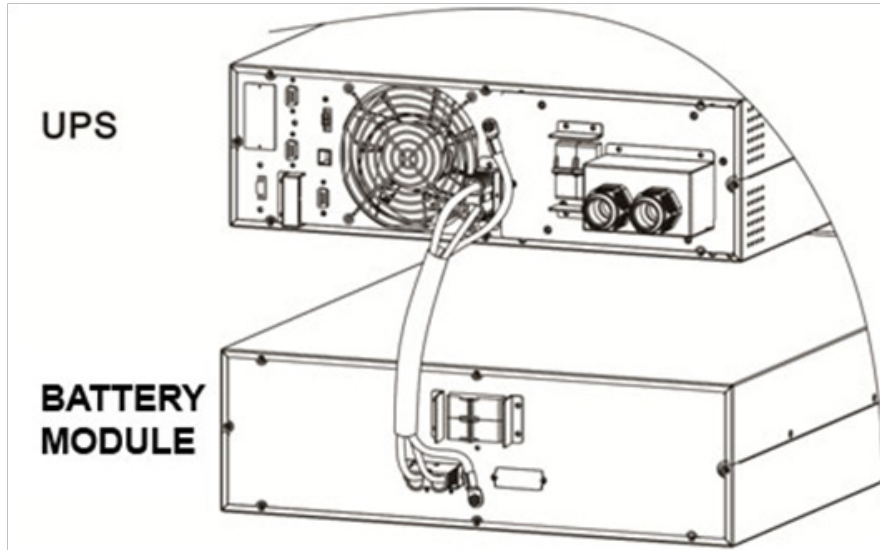
**P90L-10K Rear Panel**  
 P90L-6K ships with default cord kit



**P90L-6K and 10K Input/Output Terminal**



P90-BP240 Battery Pack Rear Panel

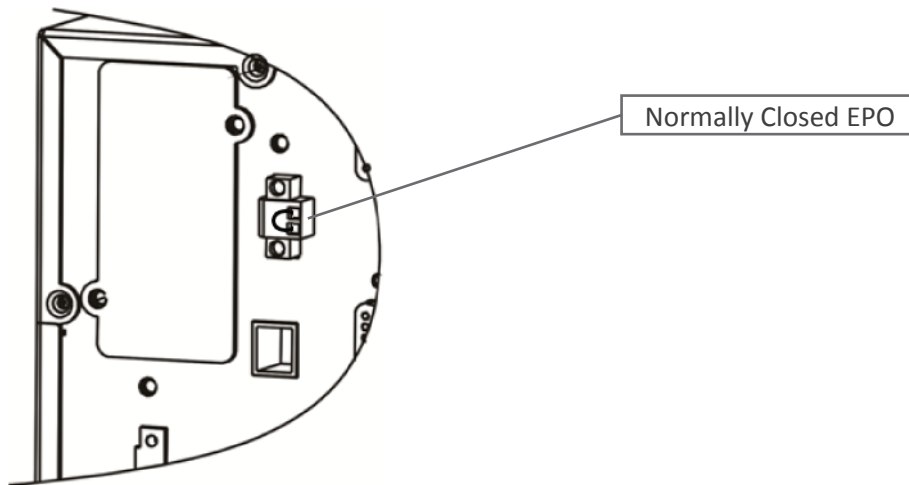


Connection between P90-BP240 and P90L UPS



1. RS-232 communication port
2. USB communication port
3. EPO (Emergency Power Off) connector
4. Share current port (parallel systems only)
5. Parallel port (for future use)
6. Intelligent slot
7. EMBS (External Maintain Bypass Switch) port
8. Cooling fan
9. External battery connector
10. Input circuit breaker
11. Input/output terminal - P90L-6K ships with default cord kit
12. Input terminal
13. Ground
14. Output terminal
15. Battery pack output circuit breaker

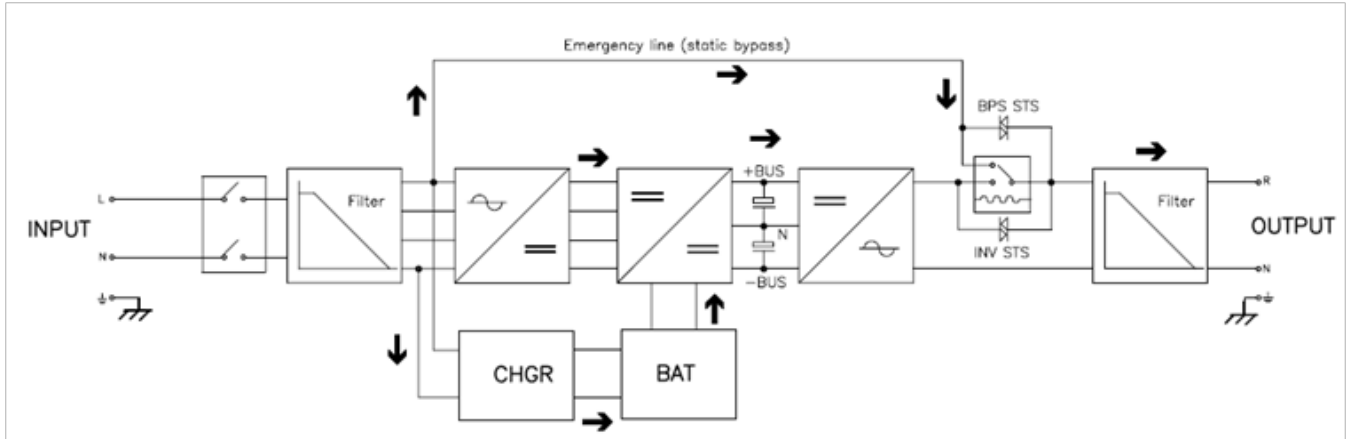
**Note:** EPO connector is normally closed (NC) for normal operation. To activate EPO function, remove the NC signal.



**WARNING:** The EPO, RS-232 and USB circuits are IEC 60950 safety extra low voltage (SELV) circuits. This circuit must be separated from any hazardous voltage circuits by reinforced insulation.

### System Single Line Diagram

System single line diagram is shown below:

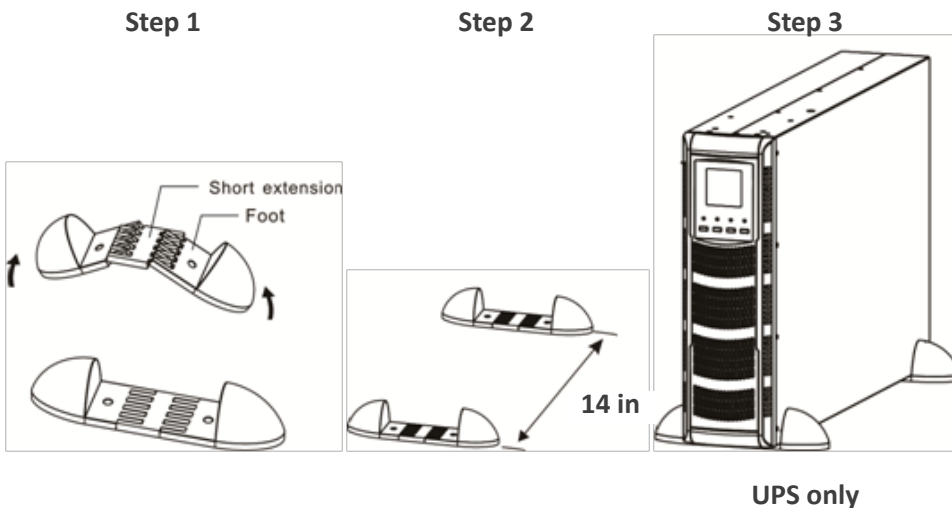


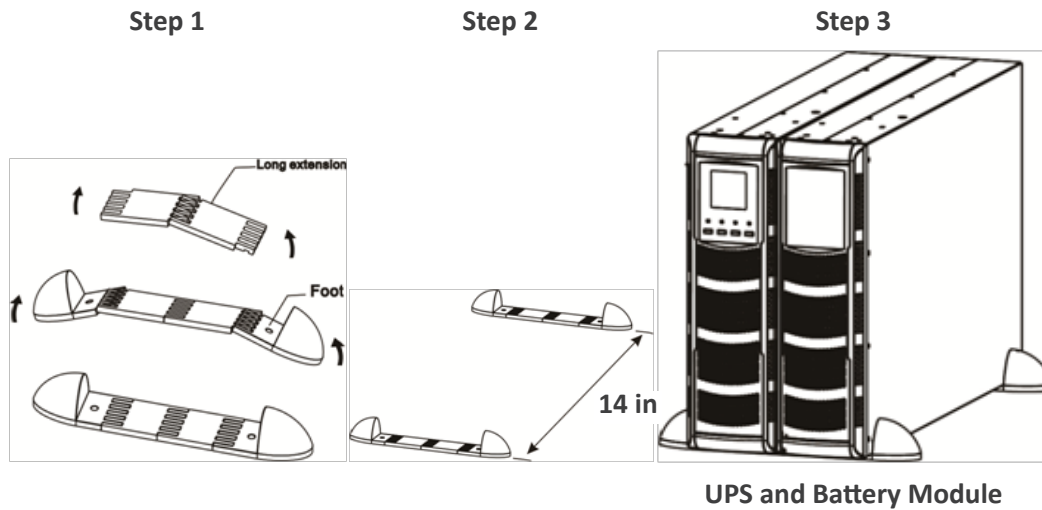
### Rack/Tower Installation

#### Tower Installation

The UPS system is shipped with four plastic feet and 6 plastic extensions (2 short extensions plus 4 long extensions). These are to be used to install the P90L UPS or UPS and BP240 battery module in tower configuration:

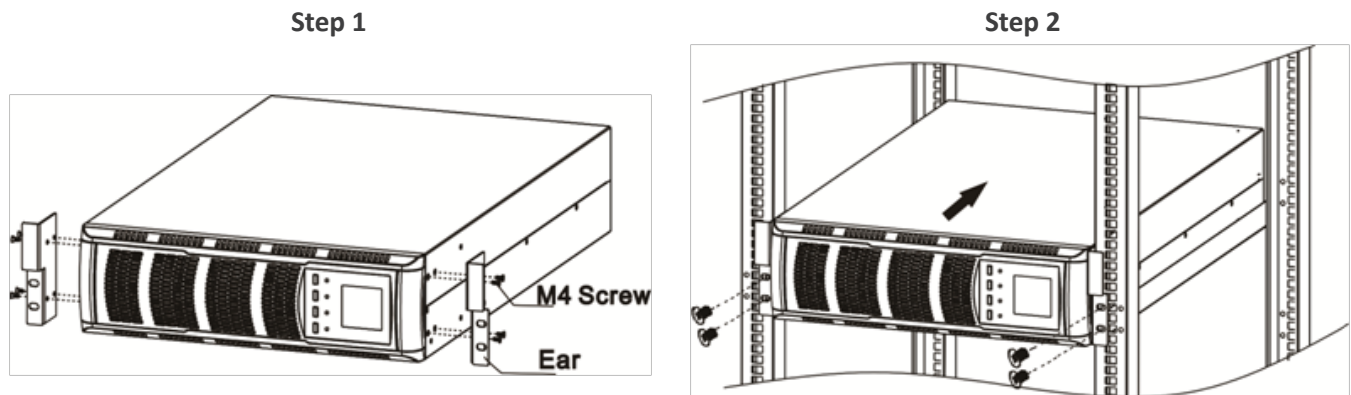
1. For UPS only, assemble two feet and one short extension together as front support. Assemble rear support in the same manner.
2. For UPS and Battery Module, assemble two feet and two long extensions together as front support. Assemble rear support in the same manner.
3. Align the two supports in your installation area, appropriately 14 inches apart.
4. Then, simply put the UPS module and battery module in the stands as shown in step 3. Be sure that the UPS LCD display is on the upper half part of front panel.





**Rack Installation**

1. Attach mounting ears to the side mounting holes of UPS using the screws provided with the ears facing forward.
2. Lift the UPS module and slide it onto the mounting rail kits. Attach the UPS module to the rack with the screws, nuts and washers (user-provided) through its mounting ears and into the rack rails.
3. See Appendix B: P90L-RAIL Installation Guide for further details.



**UPS Electrical Installation**

Installation and wiring must be performed in accordance with local and national code/regulations.

1. Make sure the mains wire and breakers in the building are rated for the correct capacity of UPS.
2. Switch off the main feed before installation.
3. Turn off all the connected devices before connecting to the UPS.
4. Prepare wires based on the following table:

Model	Wiring Spec (AWG)			
	Input	Output	Battery	Ground
P90L-6K	8	8	10	8
P90L-10K	6	6	8	6

**Note 1:** P90L-6K input and output cords must be removed prior to proceeding with hardwire installation if required

**Note 2:** The wiring for P90L-6K should be able to withstand over 40A current. It is recommended to use 8AWG.

**Note 3:** The wiring for P90L-10K should be able to withstand over 63A current. It is recommended to use 6AWG or

thicker wire for safety and efficiency.

**Note 4:** The selections for color of wires should be followed by the local electrical laws and regulations.

**Note 5:** External battery wires must use reinforced insulation or double insulated wire.



**Warning:**

- For standard P90-BP240 battery module, there is one DC breaker to disconnect the battery bank and the UPS. For nonstandard external battery options, make sure a DC breaker or other protection device between UPS and external battery module is installed.

**Note:** Set the battery module breaker in "OFF" position and then install the battery module.

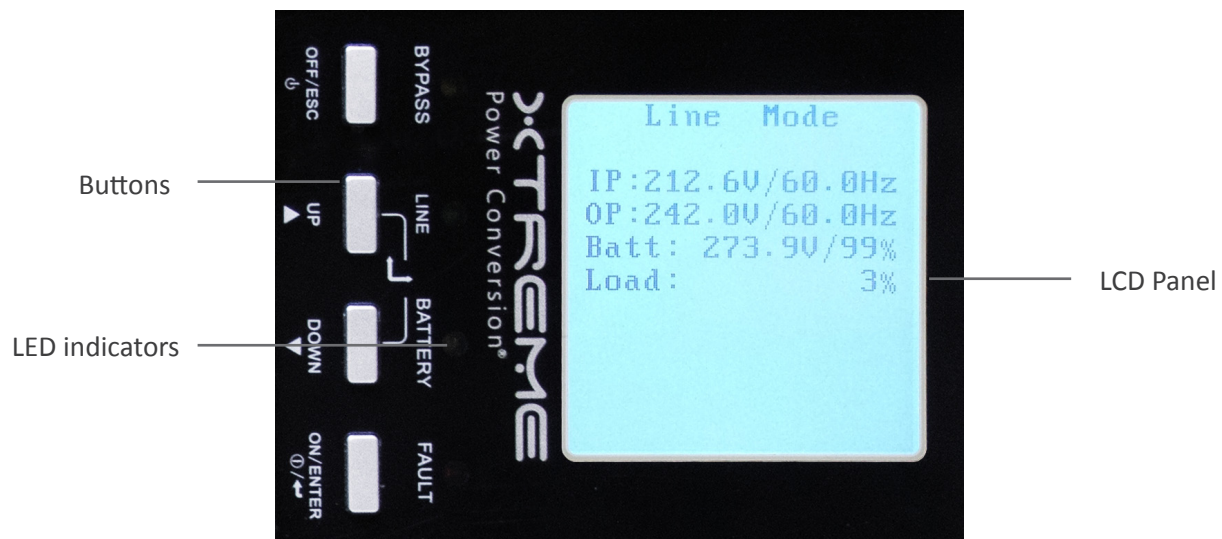
- Pay attention to the polarity marking on external battery connector and make sure the battery polarity is correct. Wrong connection may cause permanent damage of the UPS.
- Make sure the protective earth ground wiring is correct. The wire current spec, color, position, connection and conductance reliability should be checked carefully.
- Make sure the utility input & output wiring is correct. The wire current spec, color, position, connection and conductance reliability should be checked carefully. Make sure the N (or L2) site is correct.

## Operations

### Operating Mode/Status Description

Mode/Status	Description
UPS power on	When UPS is powered on, it will enter into this mode for a few seconds for initializing the CPU and system.
Line Mode	When the input voltage is within acceptable range, and the UPS is turned on (the inverter is running), the UPS will provide pure and stable sine wave AC voltage. The UPS will also charge the battery in Line mode.
Battery Mode	When the input voltage is out of the acceptable range or a power failure occurs, and the UPS is turned on (the inverter is running), the UPS will backup power from battery.
Bypass Mode	When input voltage is within acceptable range and bypass is enabled, and the UPS (inverter) is not turned on or the inverter can’t support the load, the UPS will switch to battery.
ECO Mode	When the input voltage is within voltage regulation range and “ECO” mode is enabled, the UPS will bypass voltage to output for energy saving. If the input voltage is out of the regulation range but it is still within acceptable range of Line mode, the UPS will transfer to inverter supplying the power to load (similar to Line mode).
Frequency Converter Mode	When input frequency is within 46 to 64Hz, the UPS can be set with a constant output frequency (50 Hz or 60 Hz) through the inverter. The UPS will still charge the battery in this mode. Bypass is disabled in this mode.
Battery Test Mode	When the UPS is in Line mode or Converter mode, and the battery test command is enabled through LCD or monitoring software, the UPS will start Battery Test. This operation is used to check the battery status.
Warning Status	If some errors occur in the UPS (but it is still running normally), buzzer will alarm and warning code will appear in the LCD for trouble shooting.
Fault Mode	When fatal error occurs in the UPS, it will beep continuously and go to fault mode. It will display fault codes in LCD.

### Button Operation



There are 4 buttons on front panel.

Button	Function
ON/ENTER	<ul style="list-style-type: none"> <li>Press this button to turn on the UPS.</li> <li>Or press it to confirm the selection in the menu.</li> </ul>
OFF/ESC	<ul style="list-style-type: none"> <li>Press this button to turn off the UPS.</li> <li>Or press it to return to last menu.</li> </ul>
UP*	<ul style="list-style-type: none"> <li>Press this button to select the previous item in the menu.</li> <li>Or press this button to jump to previous page in the screen.</li> <li>Or press this button to increase the number in the setting.</li> </ul>
DOWN*	<ul style="list-style-type: none"> <li>Press this button to select the next item in the menu.</li> <li>Or press this button to jump to next page in the screen.</li> <li>Or press this button to decrease the number in the setting.</li> </ul>

\*If pressing UP and DOWN button together, the LCD display will rotate 90° automatically. This operation is used when configuring the UPS to Rack or Tower display.

### LED Indicators

There are 4 LEDs on front panel to show the UPS working status:

Mode	Bypass	Line	Battery	Fault
UPS power on	●	●	●	●
Bypass mode	●	○	○	○
Line mode / Converter mode	○	●	○	○
Battery mode	○	○	●	○
Fault mode	○	○	○	●
Battery test mode	○	●	●	○
ECO mode	●	●	○	○

**Note:** ● means LED is lit; ○ means LED is off; ● means LED is flashing.

### Audible Alarm

UPS status	Buzzer status
Bypass mode	Beeping once every 2 minutes
Battery / Battery-test mode (normal battery voltage)	Beeping once every 4 seconds
Battery / Battery-test mode (low battery voltage)	Beeping once every second
Fault	Beeping continuously
Warnings (except overload)	Beeping once every second
Overload	Beeping twice every second
Other	Mute

### UPS Operation

#### Turn on the UPS with utility power supply (to Line mode)

1. Make sure mains input and battery are connected, and the battery pack breaker is in the "ON" position; Set the external mains input breaker to "ON" position, then the fan will be run-

ning and the UPS supplies power to the loads via bypass; (The UPS is operating in Bypass mode.)

**Note:** When UPS is in Bypass mode, the output voltage comes directly from utility, so the load is not protected by the UPS. To protect the load, the UPS should be turned on to Line mode.

2. When LCD is on home screen, press the "ON/ENTER" button, LCD will show a prompt page of "Turn On"; Move the arrow to "Yes" by up or down button, then press "ON/ENTER", the UPS will beep once and start UPS. You could also enter the "control menu" to select the instruction "Turn On" to startup the UPS. Please refer to the section of "LCD operation".
3. A few seconds later, the UPS will enter into Line mode; "Line mode" will be displayed on LCD. (In line mode, if the utility power is abnormal, the UPS will transfer to Battery mode without interruption.)

#### **Turn on the UPS without utility power supply (to Battery mode)**

1. Make sure the battery is connected and the battery pack breaker is in the "ON" position;
2. Press the "ON/ENTER" button to start up the internal power, the UPS will enter into bypass mode without output;
3. When LCD is on home page, press the "ON/ENTER" button, LCD will show a prompt page of "Turn On"; Move the arrow to "Yes" by up or down button, then press "ON/ENTER", the UPS will beep once and start up. You could also enter the "control menu" to select the instruction "Turn On" to startup the UPS. Please refer to the section of "LCD operation".
4. A few seconds later, the UPS will enter into Battery mode; "Battery mode" will be displayed on LCD (In Battery mode, it will shutdown automatically when battery is depleted. If the utility power is restored, it will auto restart to Line mode.)

#### **Connect devices to UPS**

After the UPS is turned on, you can add load to the UPS.

1. Turn on the UPS first and then switch on the load devices one by one, the LCD panel will display total load level.
2. If inductive loads, such as a printer, are connected, the in-rush current should be calculated carefully to see if the capacity of the UPS is sufficient due to the huge starting power consumption of this kind of load.
3. If the UPS is overloaded, the buzzer will beep twice every second.
4. When the UPS is overloaded, please remove some loads immediately. It is recommended to have the total load connected to the UPS be less than 80% of its nominal power capacity for system safety.
5. If the overload time exceeds duration listed in the spec at Line mode, the UPS will automatically transfer to bypass mode. After the overload is removed, it will return to Line mode. If the overload time exceeds duration listed in spec at Battery mode, the UPS will enter fault status. At this time, if bypass is enabled, the UPS will power the load via bypass. If bypass function is disabled or the input power is not within bypass acceptable range, it will cut off the output immediately.

#### **Charge the batteries**

1. After the UPS is connected to the utility power, the charger will charge the batteries automatically except in Battery mode or during battery test;
2. Suggest charging batteries at least 4 hours before use. Otherwise, the backup time may be shorter than expected;
3. Make sure the battery numbers setting on the control board (Please refer to the section of changing battery quantity) is consistent with actual connection.

#### **Battery mode operation**

1. When the UPS is in Battery mode, the buzzer will beep according to the battery capacity. Normally, the buzzer will beep once every 4 seconds in battery mode, but when the battery voltage drops to the alarm level, the buzzer will beep once per second and the UPS will shut down automatically when the battery reaches cutoff level. Users could switch off some non-critical loads to delay the shutdown alarm and prolong the backup time. If there is no more load to be taken off at that time, you must shut down all loads as soon as possible to protect the devices or save data. Otherwise, there is a risk of data loss or load failure.

2. In Battery mode, you can mute the alarm by entering "Control->Mute" on LCD to silence it. Please refer to the section of "LCD operation".
3. The backup time depends on the external battery capacity.
4. The backup time may change under different environment temperature and load type.
5. The maximum backup time is limited by default to 16.5 hours (After discharging 16.5 hours, UPS will shut down automatically to protect the battery). The time could be modified through LCD panel or communication port.

#### Test the batteries

1. If you need to check the battery status or performance when the UPS is running in Line / Converter / ECO mode, you could enter "Control->Batt Test" to instruct the UPS to perform a battery test. Please refer to the section of "LCD Operation".
2. Users also can set battery test through monitoring software.
3. If the UPS is in battery testing, "Battery test mode" will be displayed on LCD, the buzzer indication will be the same as Battery mode, but both line LED and battery LED will be lit.

#### Turn off the UPS with utility power supply in Line mode

1. When LCD is on home page, press the "OFF/ESC" button, LCD will show a prompt page of "Turn Off"; Move the arrow to "Yes" by up or down button, then press "ON/ENTER", the UPS will beep once and turn off. Power is still applied via bypass mode. You could also enter the "control menu" to select the instruction "Turn Off" to turn off the UPS. Please refer to the section of "LCD operation".  
**Note:** Here, "Turn Off" means that UPS is not working on line / converter / ECO / battery / battery test mode. So even though the UPS is turned off, if input or bypass voltage is normal, the internal power supply will still be working; and if bypass status has been set to "enable", the output voltage of the UPS will still exist.
2. If you need to fully cut off the output, switch off the external input breaker. A few seconds later, there is no display shown on the panel and UPS is completely off.

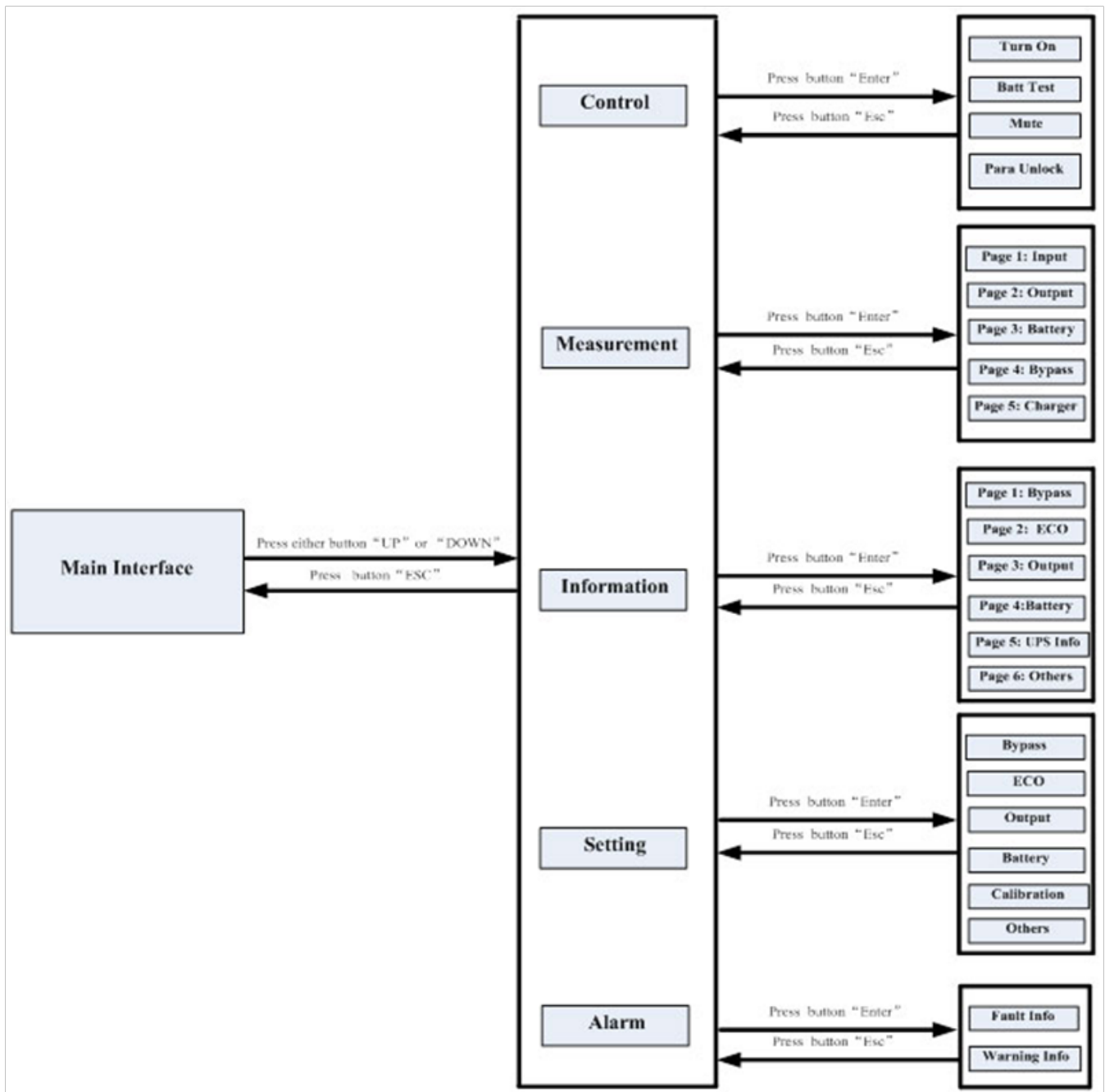
#### Turn off the UPS without utility power supply in Battery mode

1. When LCD is on home page, press the "OFF/ESC" button, LCD will show a prompt page of "Turn Off"; Move the arrow to "Yes" by up or down button, then press "ON/ENTER", the UPS will beep once and turn off. Power is still applied via bypass mode. You could also enter the "control menu" to select the instruction "Turn Off" to turn off the UPS. Please refer to the section of "LCD operation".
2. If there is no bypass input voltage, the UPS will cut off all power supply and there is no display shown on the panel.

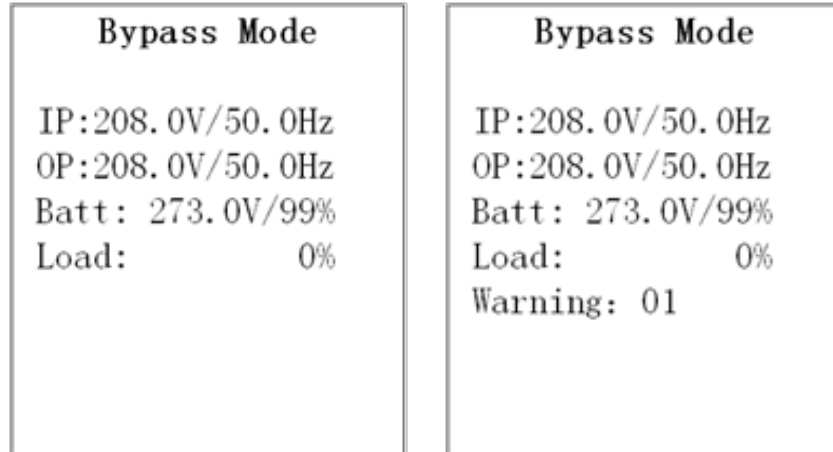


### LCD Operation

The entire LCD structure is demonstrated in diagram below:



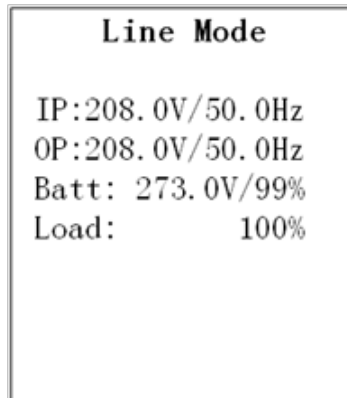
### Main Interface (Home Screen)



1. In the first line, it will display the current mode the UPS is in.
2. When an alarm occurs, the warning or fault information will display below the “load” line;
3. When the front panel is not operated for quite a long time, the page will default back to this home page;
4. Press the “UP” or “DOWN” button to enter the main operation menu.
5. When LCD is on this home page, if UPS is in bypass, you could press the “ON/ENTER” button to turn on the UPS to line / converter / ECO / battery mode according to the setting and input status; in reverse, you could press the “OFF/ESC” button to turn off the UPS to bypass mode or shutdown. As previously mentioned in “UPS Operation” section of this manual.

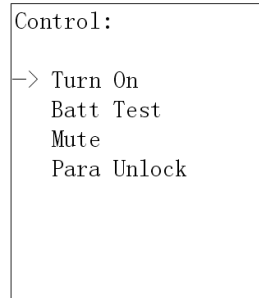
### Operation Menu

#### Main menu



1. After pressing the “UP” or “DOWN” button at the home page, the screen will display the main menu of the operation menu. In the main menu, there are 5 items (Control / Measurement / Information / Setting / Alarm) to select.
2. Press “UP” or “DOWN” button to select item.
3. Press “ON/ENTER” button to confirm the selection.
4. Press “OFF/ESC” button to go back to the home page;
5. This operation is the same or similar in other menus or pages. Please refer to the section of “Button Operation” section.

### Control Items

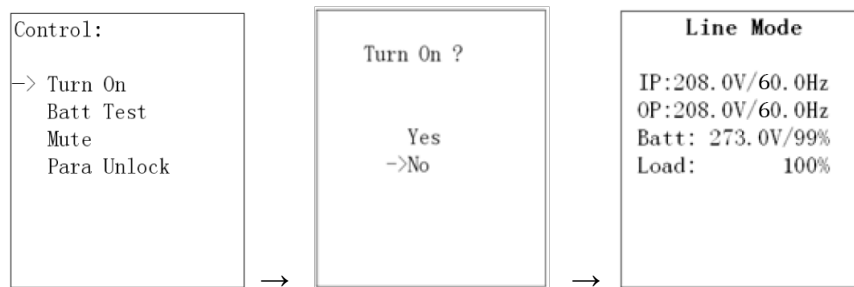


**Note:** “Turn On” will be displayed if UPS is not turned on. “Turn Off” will be displayed if UPS is turned on. In general situations, these items will not be displayed at the same time or in all operation modes.

#### 1. Turn On/Turn Off

This item is for turning on/off the UPS;

- a. In Bypass mode, it will display “Turn On”, if it is selected and confirmed, the UPS will transfer to line mode, converter mode, ECO mode, or battery mode according to the settings and input status.



**Note:** You could turn on the UPS by pressing “ON/ENTER” button at the home page. It’s not necessary to enter into this control menu to turn on the UPS.

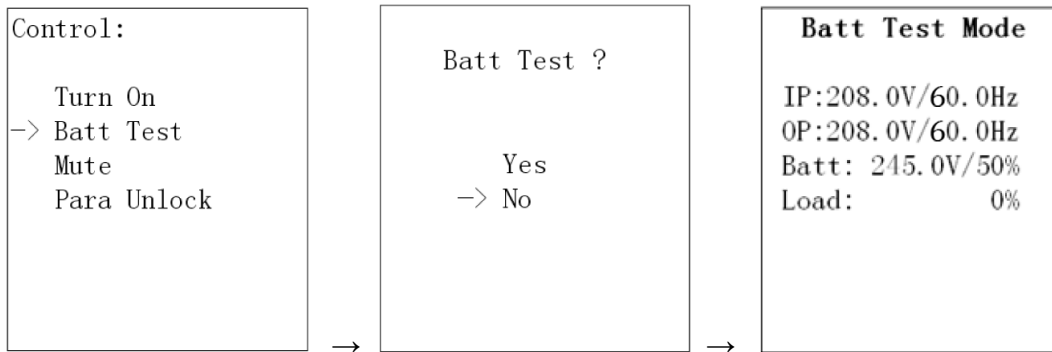
- b. On line mode or converter mode or ECO mode or battery mode, it will display “Turn Off” in control menu. If it is selected and confirmed, the UPS will transfer to bypass mode or shut down.



**Note:** You could turn off the UPS by pressing “OFF/ESC” button at the home page. It is not necessary to enter into this control menu to turn off the UPS.

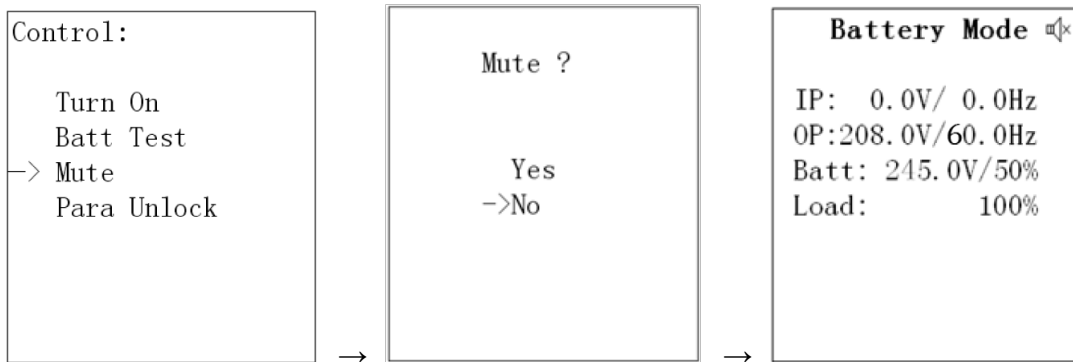
#### 2. Battery Test

Battery test is used to ensure that the UPS could work well in battery mode and to test the battery performance. This item could be shown in all modes but will not work in Battery/Fault/Eco mode. Related data will be shown at the same time.



**3. Mute**

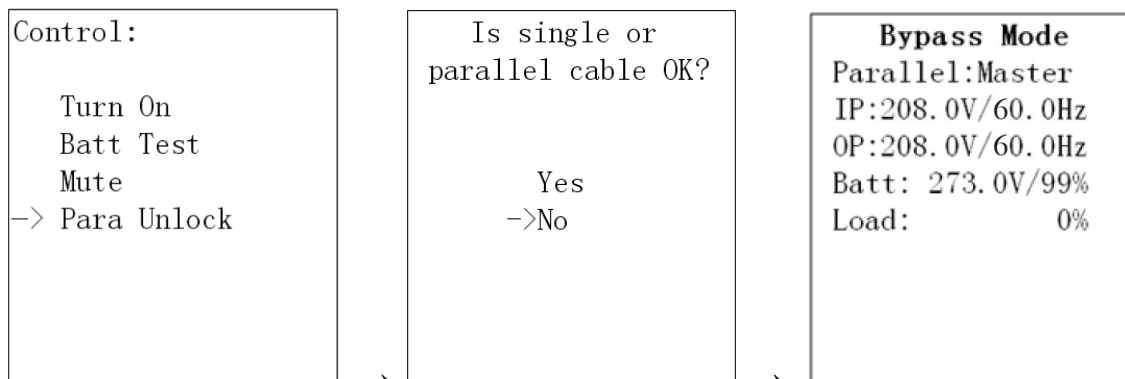
This item is used to mute the buzzer in battery/bypass/fault mode. In any other mode, this item also could be seen but does not function and related data will also be shown. After confirmation, it will go to the home page and you can see the change of the mute icon.



**4. Para Unlock (Future Use)**

This selection is for “parallel (protection) unlock”, to allow for parallel unit operation. It only appears when the LCD shows the warning “3F: Para Protect” (that means the parallel system is in protection and cannot startup); if you need to startup the parallel UPS, this instruction must be executed.

**Note:** Before executing this instruction, you must check that the system’s parallel cables and connections are correct. Please read the related content in the trouble shooting section of this manual.



### Measurement Pages

<p>Input: 1/5</p> <p>Volt: 208.0V</p> <p>Freq: 60.0Hz</p>	<p>Output: 2/5</p> <p>Volt: 208.0V</p> <p>Curr: 43.3A</p> <p>Freq: 60.0Hz</p> <p>Inv: 208.0V</p> <p>Apparent Power: 10000VA</p> <p>Active Power: 9000W</p> <p>Load: 100%</p>	<p>Battery: 3/5</p> <p>Volt: 273.0V</p> <p>Cap: 100%</p> <p>Dischg Time: 00:00:00</p>
<p>Bypass: 4/5</p> <p>Volt: 208.0V</p> <p>Freq: 60.0Hz</p>	<p>Charger: 5/5</p> <p>Volt: 273.0V</p> <p>Status: On</p>	

These pages display the measurement value of the parameters such as voltage / current / frequency / power / capacity / time etc. Press "UP" or "DOWN" to navigate the pages.

### Information Pages

<p>Bypass: 1/6</p> <p>Status: Open</p> <p>Enable</p> <p>HighLoss V: 264V</p> <p>LowLoss V: 110V</p> <p>HighLoss F: 60Hz</p> <p>LowLoss F: 60Hz</p>	<p>ECO: 2/6</p> <p>Status: Open</p> <p>HighLoss V: 232V</p> <p>LowLoss V: 184V</p> <p>HighLoss F: 60Hz</p> <p>LowLoss F: 60Hz</p>	<p>Output: 3/6</p> <p>Volt: 208V</p> <p>Freq: Auto</p> <p>CVCF: Disable</p>
<p>Battery: 4/6</p> <p>DisChg Protect: Enable</p> <p>Backup Time: 990 Minute</p> <p>Batt Test Type: Short Time: 10 Second</p>	<p>UPS Info: 5/6</p> <p>UPS Model: 10KL</p> <p>DSP Ver: 99-00</p> <p>MCU Ver: 97-00</p> <p>Unit Name: P90L</p> <p>Manufacturer: XPCC</p>	<p>Others: 6/6</p> <p>Hot Standby: Disable</p> <p>Bypass Mute: Disable</p> <p>Batt Mute: Disable</p> <p>Fault Mute: Disable</p>

These pages display the information of parameters setting value or status. Press "UP" or "DOWN" to navigate the

## Setting Menu

```

Setting:

->Bypass
   ECO
   Output
   Battery
   Calibration
   Others
    
```

This menu is used to adjust the parameters or do the calibrations.

**Note:** Not all settings are available in every mode. If the setting is not available in present mode, the LCD will show prompt message with “Item cannot be set in this mode”. Press any button or just wait for several seconds then this message will disappear.

### 1) Bypass setting

Interface	Description
<div data-bbox="207 997 526 1375" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <pre> Bypass:  -&gt;Status:      Open                 Enable HighLoss V: 264V LowLoss  V: 110V HighLoss F: 60Hz LowLoss  F: 60Hz                     </pre> </div> <div data-bbox="207 1386 526 1743" style="border: 1px solid black; padding: 5px;"> <pre> Bypass:  -&gt;Status:      Forbid  HighLoss V: 264V LowLoss  V: 110V HighLoss F: 60Hz LowLoss  F: 60Hz                     </pre> </div>	<ol style="list-style-type: none"> <li>1. <b>Status</b> (only available in bypass / line mode)  <b>Open/Forbid:</b>  <b>Open:</b> Bypass allowed. When selected, UPS will run at Bypass mode depending on bypass enabled/disabled setting.  <b>Forbid:</b> Bypass not allowed. When selected, it’s not allowed to run in Bypass mode under any situations.  <b>Enable/Disable</b>                      This option appears only when “Open/Forbid” is set to “Open”.  <b>Enable:</b> Bypass enabled. When selected, Bypass mode is available. This means that the UPS can go to Bypass mode automatically or manually.  <b>Disable:</b> Bypass disabled. When selected, automatic bypass is acceptable, but “manual bypass” is not available. “Manual bypass” means users manually operate UPS to Bypass mode (for example, in Line mode turning off the UPS to Bypass mode). Then, the UPS will go to bypass mode but without output if it is turned off in line mode.  <b>NOTE:</b> The following items are only available in bypass mode.                 </li> <li>2. <b>HighLoss V:</b> Set the acceptable high voltage for bypass. Setting range is from (Rated Output Volt +11V) to 276V and the default value is 264V.</li> <li>3. <b>LowLoss V:</b> Set the acceptable low voltage for bypass. Setting range is from 110V to (Rated Output Volt - 11V) and the default value is 110V.</li> <li>4. <b>HighLoss F:</b> Set the acceptable high frequency for bypass.                      50 Hz: Setting range is from 51Hz to 54 Hz.                      60 Hz: Setting range is from 61Hz to 64Hz.                      The default value is 54.0Hz/64.0Hz.</li> <li>5. <b>LowLoss F:</b> Set the acceptable high frequency for bypass.                      50 Hz system: Setting range is from 46.0Hz to 49.0Hz.                      60 Hz system: Setting range is from 56.0Hz to 59.0Hz.                      The default value is 46Hz/56Hz.</li> </ol>

**2) ECO setting (only available or effective on bypass mode)**

Interface	Description
<div style="border: 1px solid black; padding: 10px; margin: 10px;"> <p>ECO:</p> <pre> -&gt;Status:  Disable   HighLoss V: 232V   LowLoss  V: 184V   HighLoss F: 60Hz   LowLoss  F: 60Hz                     </pre> </div>	<ol style="list-style-type: none"> <li><b>1. Status</b>  <b>Enable:</b> Enable ECO Function  <b>Disable:</b> Disable ECO Function                      If ECO function is disabled, voltage range and frequency range for ECO mode can still be set, but it is meaningless unless the ECO function is enabled.                 </li> <li><b>2. HighLoss V:</b> High voltage point in ECO mode. The setting range is from +5% to +10% of the nominal voltage.</li> <li><b>3. LowLoss V:</b> Low voltage point in ECO mode. The setting range is from -5% to -10% of the nominal voltage.</li> <li><b>4. HighLoss F:</b> Set low frequency point for ECO mode.                      50 Hz system: Setting range is from 46Hz to 48Hz.                      60 Hz system: Setting range is from 56Hz to 58Hz.                      The default value is 48Hz/58Hz.</li> <li><b>5. LowLoss F:</b> Set high frequency point for ECO mode.                      50 Hz: Setting range is from 52.0Hz to 54.0 Hz.                      60 Hz: Setting range is from 62.0Hz to 64.0Hz.                      The default value is 52.0Hz/62.0Hz.</li> </ol>

**3) Output setting (only available or effective on bypass mode)**

Interface	Description
<div style="border: 1px solid black; padding: 10px; margin: 10px;"> <p>Output:</p> <pre> -&gt;Volt:      208V   Freq:      60Hz   CVCF:      Enable                     </pre> </div>	<ol style="list-style-type: none"> <li><b>1. Volt:</b>  <b>208:</b> The voltage is set for 208VAC  <b>220:</b> The voltage is set for 220VAC  <b>230:</b> The voltage is set for 230VAC  <b>240:</b> The voltage is set for 240VAC                 </li> <li><b>2. Freq:</b>  <b>50Hz:</b> The output frequency is manual set for 50Hz.  <b>60Hz:</b> The output frequency is manual set for 60Hz.  <b>ATO:</b> If selected, output frequency will be decided according to the latest normal utility frequency. If it is from 46Hz to 54Hz, the output frequency will be 50.0Hz. If it is from 56Hz to 64Hz, the output frequency will be 60.0Hz. ATO is default setting.                 </li> <li><b>3. CVCF:</b>                      Used to enable or disable frequency converter mode.  <b>Enable:</b> The output frequency will be fixed at 50Hz or 60Hz according to setting of “Freq”. The input frequency could be from 46Hz to 64Hz.  <b>Disable:</b> The output frequency will synchronize with the input frequency within 46~54 Hz for 50Hz system or within 56~64 Hz for 60Hz system.  <b>Note:</b> CVCF means Constant Voltage and Constant Frequency, it represents frequency converter mode.                 </li> </ol>

4) Battery setting (available on all operation modes)

Interface	Description
<pre> Battery: -&gt;DisChg Protect:            Enable            990 Minute Batt Test Type:   Short Time:         </pre>	<p><b>1. Dischg Protect:</b>  <b>Enable:</b> Battery discharge protection function is enabled. When UPS has been continuously working in “battery/battery test mode”, the UPS will automatically shut down when the running time set by option below is met;  <b>Disable:</b> Battery discharge protection function is disabled.  <b>000~999:</b> The maximum discharge time ranging from 0 to 999mins. UPS will shut down to protect battery after backup time arrives when the “Dischg Protect” is enabled. If “Dischg protect” is disabled, then this setting is not relevant; The default value for this setting is 990mins.</p> <p><b>2. Batt Test Type:</b>  <b>Short Time:</b> Battery test will last for 10 seconds;  <b>Long Time:</b> Battery test time, can be adjusted within 01~99 minutes.  <b>Till Batt Low:</b> Battery test will continue until battery voltage is low.</p>
<pre> Battery: -&gt;DisChg Protect:            Enable            990 Minute Batt Test Type:   Short Time:         10 Minute         </pre>	
<pre> Battery: -&gt;DisChg Protect:            Enable            990 Minute Batt Test Type:   Short Time:         10 Second         </pre>	



### 5) Calibration

Interface	Description
<div style="border: 1px solid black; padding: 10px; margin: 10px;"> <p>Calibration:</p> <p>-&gt;Batt: 273.0 +0.0</p> <p>    Inv: 209.0 +0.0</p> <p>    Chg: 273.0 +0.0</p> </div>	<p>The Batt, Inv, and Chg calibrations can be adjusted to ensure the front panel display value matches the actual voltages measured in the UPS with a multimeter.</p> <ol style="list-style-type: none"> <li><b>1. Batt:</b> Calibrate the battery voltage measurement; the calibration range is from 0V to 5.7V, the default value is 0V. It is available on all operation modes.</li> <li><b>2. Inv:</b> Adjust the inverter output voltage; the adjustable range is from 0V to 6.4V, the default value is 0V. It is only available in line / battery / converter mode;</li> <li><b>3. Chg:</b> Adjust the Charger output voltage; the adjustable value is from 0V to 6.9V, the default value is 0V. It is only available in bypass / line / ECO /converter mode.</li> </ol> <p><b>(Note:</b> Before making charger output voltage adjustment, be sure to disconnect all batteries first to get the accurate charger voltage; Be careful that the adjustment should be suitable to battery specifications, or the battery may be destroyed.)</p>

### Alarm Page

<p style="text-align: center;">Alarm Info</p> <p>Fault:</p> <p>14:Output Short</p> <p>Warning:</p> <p>01:Bat Open</p>
---

This page records and displays the faults or warnings event history.

## Troubleshooting

### Warning Status

When Fault LED flashes and the buzzer beeps once every second, it means that the UPS has experienced a warning condition. Users can see the warning code on the LCD panel and refer to the trouble shooting table to check the warning condition.

### Fault Mode

1. When Fault LED illuminates and the buzzer beeps continuously, it means that there is a fatal error with the UPS. Users can get the fault code from LCD panel. Please refer to the trouble shooting table to check the fault condition.
2. Don't try to turn on the UPS again until the fault is cleared. If the fault can't be fixed, please contact the manufacturer immediately.
3. In case of an emergency, please cut off the connection from utility, external battery, and output immediately to avoid more risk or danger.

### Trouble Shooting Table

If the UPS system does not operate correctly, please solve the problem by referring to the table below:

Alarm type	LCD display	Possible cause	Remedy
Warning	01: Batt Open	<ul style="list-style-type: none"> <li>• The battery connection is loose;</li> <li>• The battery protection device is open.</li> </ul>	<ul style="list-style-type: none"> <li>• Tighten the battery connection;</li> <li>• Replace or restore the protection device.</li> </ul>
Warning	07: Over Charge	<ul style="list-style-type: none"> <li>• Battery numbers and its setting is not matching;</li> <li>• Charger voltage is too high, the charger failed.</li> </ul>	<ul style="list-style-type: none"> <li>• Disconnect the battery and check the charger output voltage, contact the dealer for repair.</li> </ul>
Warning	08: Batt Low	<ul style="list-style-type: none"> <li>• Battery is discharged deeply to low voltage;</li> <li>• Battery number is not correct;</li> <li>• Battery is at the end of life.</li> </ul>	<ul style="list-style-type: none"> <li>• Recharge the battery;</li> <li>• Correct the battery number;</li> <li>• Replace the battery.</li> </ul>
Warning	09: Over load	<ul style="list-style-type: none"> <li>• The load is too heavy.</li> </ul>	<ul style="list-style-type: none"> <li>• Remove excess loads from UPS output.</li> </ul>
Warning	0A: Fan Error	<ul style="list-style-type: none"> <li>• Fan is blocked;</li> <li>• Fan is in the end of life;</li> <li>• Fan detection circuit failed.</li> </ul>	<ul style="list-style-type: none"> <li>• Unblock the fan;</li> <li>• Contact the dealer for replacing the fan;</li> <li>• Contact the dealer for repair.</li> </ul>
Warning	0B: EPO Enable	<ul style="list-style-type: none"> <li>• EPO plug (jumper) is removed or the external EPO switch is off.</li> </ul>	<ul style="list-style-type: none"> <li>• Connect the EPO plug (jumper) or switch on the external EPO switch.</li> </ul>

Warning	0D: Over Temp	<ul style="list-style-type: none"> <li>The internal temperature is too high and has reached the warning level;</li> <li>Environment is too hot;</li> <li>Fan is blocked or failed;</li> <li>UPS ventilation points are blocked by the wall or other goods;</li> <li>Load is too heavy.</li> </ul>	<ul style="list-style-type: none"> <li>Make sure the ambient temperature is not over 40°C;</li> <li>Make sure the fan is OK;</li> <li>Make sure the ventilation points are clear;</li> <li>Reduce the load.</li> </ul>
Warning	0E: Charger Fail	<ul style="list-style-type: none"> <li>Charger failed.</li> </ul>	<ul style="list-style-type: none"> <li>Contact the dealer for repair.</li> </ul>
Warning	10: IP Fuse Open	<ul style="list-style-type: none"> <li>Input fuse on the power board is open.</li> </ul>	<ul style="list-style-type: none"> <li>Check and replace the input fuse.</li> </ul>
Warning	33: Overload 3 Times	<ul style="list-style-type: none"> <li>Locked in bypass after overload 3 times in 30 minutes.</li> </ul>	<ul style="list-style-type: none"> <li>Remove excess loads from UPS output first, then shut down the UPS and restart it.</li> </ul>
Warning	3A: Maintain Open	<ul style="list-style-type: none"> <li>External Maintenance Bypass Switch (EMBS) port is open or the maintain switch sensor (connected to EMBS port) is triggered. (The UPS is transferred to bypass).</li> </ul>	<ul style="list-style-type: none"> <li>If the EMBS port is short-circuited, the warning will disappear.</li> </ul>
Warning	3F: Para Protect (Future Use)	<ul style="list-style-type: none"> <li>Parallel cable is still not connected when restart after the parallel system is faulty because of parallel communication failure. (When this warning appears, the UPS can not start up, it is protection for parallel system)</li> </ul>	<ul style="list-style-type: none"> <li>If the system still needs to be operated in parallel mode, please connect the parallel cable, and choose "Para Unlock" in control menu to remove the warning, then the UPS can start up.</li> <li>If the UPS in the system are separated to single UPS, please disconnect the output to other UPS and choose "Para Unlock" in control menu to remove the warning, then the UPS can start up.</li> </ul> <p><b>Note:</b> Be careful to check the UPS operation mode (parallel or single) and the connections. If the parallel cable is not connected in the parallel mode, the UPS may be damaged.</p>
Fault	01: Bus Start Fail	<ul style="list-style-type: none"> <li>The internal converter failed, so the DC bus voltage could not be boosted correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Contact the dealer for repair</li> </ul>
Fault	02: Bus Over	<ul style="list-style-type: none"> <li>The mains input or load transient current caused the DC bus voltage to be too high;</li> <li>The internal converter failed.</li> </ul>	<ul style="list-style-type: none"> <li>Shutdown and restart the system to see if the fault clears;</li> <li>Contact the dealer for repair.</li> </ul>
Fault	03: Bus Under	<ul style="list-style-type: none"> <li>The internal converter failed, so the DC bus voltage is too low.</li> </ul>	<ul style="list-style-type: none"> <li>Contact the dealer for repair.</li> </ul>

Fault	04: Bus Unbalance	<ul style="list-style-type: none"> <li>The load is abnormal, so the internal positive and negative DC bus voltages are unbalanced;</li> <li>The internal converter failed.</li> </ul>	<ul style="list-style-type: none"> <li>Contact the dealer.</li> </ul>
Fault	11: Inv Start Fail	<ul style="list-style-type: none"> <li>The internal inverter failed, so the inverter voltage could not start up correctly.</li> </ul>	<ul style="list-style-type: none"> <li>Contact the dealer for repair.</li> </ul>
Fault	12: Inv Volt High	<ul style="list-style-type: none"> <li>The internal inverter failed, so the inverter voltage is too high.</li> </ul>	<ul style="list-style-type: none"> <li>Contact the dealer for repair.</li> </ul>
Fault	13: Inv Volt Low	<ul style="list-style-type: none"> <li>The internal inverter failed, so the inverter voltage is too low.</li> </ul>	<ul style="list-style-type: none"> <li>Contact the dealer for repair.</li> </ul>
Fault	14: Output Short	<ul style="list-style-type: none"> <li>Short circuit occurred on the UPS output.</li> </ul>	<ul style="list-style-type: none"> <li>Remove the short circuit.</li> </ul>
Fault	1A: NegPower	<ul style="list-style-type: none"> <li>UPS output power is negative. It means there is energy feedback into the UPS from output. It may be caused by regenerative load; or caused by the current control failure in the parallel system.</li> </ul>	<ul style="list-style-type: none"> <li>Contact the dealer.</li> </ul>
Fault	21: Batt SCR Short	<ul style="list-style-type: none"> <li>The internal battery SCR has failed (shorted).</li> </ul>	<ul style="list-style-type: none"> <li>Contact the dealer for repair.</li> </ul>
Fault	24: Inv Rly Short	<ul style="list-style-type: none"> <li>The internal inverter relay is stuck in the shorted position or the SCR of STS (Static Transfer Switch) is shorted.</li> </ul>	<ul style="list-style-type: none"> <li>Contact the dealer for repair.</li> </ul>
Fault	35: Para Comm Fail	<ul style="list-style-type: none"> <li>Parallel cable for communication is not connected in the parallel system.</li> </ul>	<ul style="list-style-type: none"> <li>Connect the parallel cable.</li> </ul>
Fault	36: OP.I Unbalance	<ul style="list-style-type: none"> <li>The output current is extremely unbalanced between the paralleled UPSs, there is an error in the parallel system.</li> </ul>	<ul style="list-style-type: none"> <li>Contact the dealer for repair.</li> </ul>
Fault	41: Over Temp	<p>The internal temperature is too high and has reached the fault level (shut-down):</p> <ul style="list-style-type: none"> <li>The environment is hot;</li> <li>The fan is blocked or failed;</li> <li>The ventilation is blocked by the wall or other goods;</li> <li>Load is too heavy.</li> </ul>	<ul style="list-style-type: none"> <li>Make sure the ambient temperature not over 40°C;</li> <li>Make sure the fan is OK;</li> <li>Make sure the ventilation is clean;</li> <li>Remove some loads.</li> </ul>
Fault	42: CPU Comm Fail	<ul style="list-style-type: none"> <li>Internal communication between the CPUs failed</li> </ul>	<ul style="list-style-type: none"> <li>Contact the dealer for repair.</li> </ul>
Fault	43: Over load	<ul style="list-style-type: none"> <li>Overload time is out of the specification and the UPS shut down automatically.</li> </ul>	<ul style="list-style-type: none"> <li>Remove excess loads from UPS output and restart it.</li> </ul>

## Storage

Before storing, charge the UPS batteries for at least 7 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
-25°C - 40°C	Every 3 months	1-2 hours
40°C - 45°C	Every 2 months	1-2 hours

## Specifications

MODEL NUMBER		P90L-6K	P90L-10K
CAPACITY	AC output	6kVA (5.4kW)	10kVA (9kW)
INPUT	Voltage	110–300VAC*	
	Frequency	50/60Hz	
OUTPUT	Voltage	200/208/220/230/240VAC** 240/120VAC with optional isolation transformer with maintenance bypass	
	Frequency	50/60Hz ± 4Hz	
	THD (full load)	< 2%	
	Overload capacity	110% 10 min; 130% 1 min; > 130% 1 sec	
	Crest factor	3:1	
BATTERY CHARGER	Charger amps	4A	
	Nominal/float voltage	240/270VDC	
PHYSICAL	UPS dimensions (W x D x H)	17.2 x 26.3 x 5.3 in	17.2 x 29.5 x 5.3 in
	UPS weight	55 lbs	60 lbs
	Input connection	Terminal block with 6 ft, L6–30P	Terminal block
	Output connection	Terminal block with 3 ft, L6–30R	Terminal block
ENVIRONMENT	Efficiency	Up to 98% ECO mode and 92% online mode	
	Operating temperature	32–104°F (0–40°C)	
	Audible noise	< 58dBA	< 60dBA
	Altitude	11,500 ft above sea level	
OPTIONAL BATTERY PACKS	Model number	P90L-BP240	
	Dimensions (W x D x H)	17.3 x 25.1 x 5.3 in	
	Weight	165 lbs	
	Battery quantity/type	(20) 12V9AH/240V	
OPTIONAL TRANSFORMER	Dimensions (W x D x H)	17.3 x 28.7 x 3.5 in	17.3 x 31.8 x 5.2
	Weight	99 lbs	122 lbs
APPROVALS	UL, cUL, RoHS		
WARRANTY	3 years electronics and battery (2 years outside of USA)		
COMMUNICATIONS INTERFACE	RS-232, USB, EPO, intelligent slot for optional cards (Web/SNMP, Relay/dry contact, Modbus)		
INCLUDED IN BOX	Software CD, horizontal brackets, tower pedestals		
AVAILABLE OPTIONS	5 year extended warranty, power distribution (XPDU), 4-post rail kit, 2-post shelf kit, isolation transformer with maintenance bypass		

\*Depending on load level

\*\*P90L capacity derates 10% at 200VAC output voltage

Frequency converter derates capacity 40%

## 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 Xtreme Power Conversion Corp Technical Support at 800.582.4524. Technical support inquiries can also be made at [support@xpcc.com](mailto:support@xpcc.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 LED's 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. In the event that the unit requires factory service, the technician will issue you a Return Material Authorization number (RMA).

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

1. Pack the UPS in its original packaging. If the original packaging is no longer available, as the Technical Support Technician about obtaining a replacement set of packaging material. It is important to pack the UPS properly in order 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. Xtreme Power cannot accept any package without the RMA number marked on the outside of the boxes.
4. Return the UPS by 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.

## Xtreme Power Conversion Limited Warranty

Xtreme Power Conversion (XPC) Corporation warrants Xtreme Power Conversion equipment, when properly applied and operated within specified conditions, against faulty materials or workmanship for a period of **three years for P90L-Series products** from the date of purchase. XPC Corporation warrants **P90L-Series battery packs 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 XPC Corporation. The customer is responsible for the costs of shipping the defective product to XPC Corporation. XPC Corporation will pay for ground shipment of the repaired or replacement product. This warranty applies only to the original purchaser.

If equipment provided by XPC Corporation is found to be **Dead-on-Arrival (DOA)**, XPC Corporation 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 XPC Corporation personnel or authorized agents.

This warranty shall be void if (a) the equipment is repaired or modified by anyone other than XPC Corporation or a XPC Corporation 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 XPC Corporation or a XPC Corporation authorized representative before or after delivery with regard to the use or application of Xtreme Power Conversion equipment is furnished on the basis that it represents XPC Corporations best judgment under the situation and circumstances, but it is used at the recipient's sole risk.

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

EXCEPT AS STATED ABOVE, IN NO EVENT WILL XPC Corporation BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF Xtreme Power Conversion 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 Xtreme Power Conversion equipment, and the only obligation of XPC Corporation under this warranty, shall be the repair or replacement of defective equipment, components, or parts; or, at XPC Corporations sole discretion, refund of the purchase price or substitution of an equivalent replacement product.



## Xtreme Power Conversion Load Protection Policy

THIS POLICY IS NOT A WARRANTY. REFER TO **THE XPC CORPORATION, INC. LIMITED WARRANTY** FOR INFORMATION CONCERNING THE WARRANTY FOR YOUR XPC PRODUCT. THE LIMITATIONS AND CONDITIONS CONTAINED IN THIS POLICY DO NOT AFFECT **THE TERMS OF THE XPC LIMITED WARRANTY**.

### Definitions:

1. "Product" means a Standard 120, 208, or 240 Volt power protection device that is used in the United States and Canada. This policy does not include custom manufactured products.
2. "Power Disturbance" means an AC power line transient (telephone line or Local Area Network, if applicable), spike or surge.
3. "Connected Equipment" properly connected electronic equipment
4. "Fair Market Value" of damaged Connected Equipment as determined by XPC shall be the lower of (a) the average price the same or similar items are being sold for on eBay, (b) the price list of Orion Blue Book (or if such price list is no longer published, a published or announced price list reasonably selected by XPC), (c) the lowest price the same or similar items can be purchased for in the United States or (d) the total amount of all payment(s) you have or are entitled to receive from insurance, other warranties, extended warranties, a legal liability claim or from other sources or persons for the damaged Connected Equipment.
5. "Purchaser" means the person or entity that originally purchased the Product from an authorized reseller or distributor of XPC Products.

The Purchaser of this Product is protected, for the term of the XPC Limited Warranty, against certain losses caused by a Power Disturbance for properly connected electronic equipment (referred to as the "Connected Equipment") subject to certain terms and conditions provided below.

This policy applies only to the original purchaser of the Product. If the Product is transferred or sold to another person or entity, this policy is void.

### Load Protection Policy Dollar and Period Limits

For purchasers that meet the qualifications and conditions set forth in this policy, XPC will provide reimbursement (cost of repair or fair market value as determined by XPC) during the period limits and up to the dollar limits stated as follows:

PRODUCT	DOLLAR LIMIT	PERIOD OF COVERAGE
XVT	25,000	Term of XPC Limited Warranty
XST	25,000	Term of XPC Limited Warranty
S70	25,000	Term of XPC Limited Warranty
XPRT 6kVA & 10kVA	50,000	Term of XPC Limited Warranty
NXRT	50,000	Term of XPC Limited Warranty
P90, P90L, P90g, P90Lg	50,000	Term of XPC Limited Warranty
T90	50,000	Term of XPC Limited Warranty
TX90, TX90i	50,000	Term of XPC Limited Warranty

This Load Protection Policy is not deemed "first dollar" coverage. XPC's obligation is reduced by any amounts that the Purchaser is entitled to recover, from other sources regarding the Connected Equipment, including, but not limited to, insurance, other warranty, extended warranty, or legal liability, regardless of whether or not the Purchaser makes a claim for recovery.

### Eligibility for Coverage Under the Load Protection Policy

1. The Product must be registered on the XPC website, [www.xpcc.com](http://www.xpcc.com), within 10 days of purchase. All required information must be provided, and Purchaser should retain a copy for Purchaser's records. When registering on the website, Purchaser must list all connected equipment that is directly connected to the

- product. Only those devices registered in that manner will be covered.
2. All Connected Equipment must be UL or CSA approved.
  3. The Product must be plugged into a properly wired and grounded outlet. Use of input surge devices, extension cords, adapters, ground wires, or electrical connections not manufactured by XPC voids the XPC Load Protection Policy. No other surge protection device may be connected to the output sockets of the Product. The installation must comply with all applicable electrical and safety codes set forth pursuant to the NEC.
  4. The Product must have undeniable physical evidence of a Power Disturbance that directly and proximately caused the damage;
  5. The Connected Equipment must have been damaged by a Power Disturbance on a properly installed, grounded, and National Electric Code, ("NEC"), code-compliant 120, 208, 240 Volt AC power line in the United States or Canada, by a Power Disturbance on standard telephone land line or PBX telephone equipment line that is properly installed and connected to an RJ11 port on the Product; or by a Power Disturbance on a standard Local Area Network connection that is properly installed and connected to an RJ45 port on the Product and (d) is directly plugged into, and properly connected to, the Product in its original condition which was properly operated when a Power Disturbance passed through the Product and (i) exhausts the protection capacity of the Product or (ii) damages the Product.
  6. The Load Protection Policy does not apply if the Product has been operated in a failure mode or not in compliance with XPC operating instructions in the Product user's manual, or if the Connected Equipment has not been operated in compliance with the instructions and manuals of its manufacturer/vendor.
  7. This policy is null and void if, XPC determines, in its sole discretion, that the Product has been tampered with or altered in any way.

**What is Not Covered Under the Load Protection Policy:**

The following damage is not covered by this Policy:

1. Restoration of lost data and reinstallation of software.
2. Damage from a cause other than AC power-line transients, except for damage due to telephone line, Local Area Network, or CATV transients, which is covered only if the Product offers such protection.
3. DAMAGE CAUSED BY FAILURE TO PROVIDE A SUITABLE INSTALLATION ENVIRONMENT FOR THE PRODUCT (INCLUDING, BUT NOT LIMITED TO, LACK OF A PROPER SAFETY GROUND).
4. Damage caused by the use of the Product for purposes other than those for which it was designed.
5. Damage caused by accidents, or natural disasters, including but not limited to, fire, flood, and wind.
6. Damage caused by abuse, misuse, alteration, modification, or negligence.
7. Any labor costs or travel, room and board expenses associated with the repair and/or restoration of lost or damaged hardware, software or data.

**EXCEPT AS EXPRESSLY PROVIDED IN THIS POLICY, XPC SHALL NOT BE LIABLE FOR ANY DAMAGES WHATSOEVER, INCLUDING, BUT NOT LIMITED TO, DIRECT, INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR MULTIPLE DAMAGES ARISING OUT OF THE USE OF THE PRODUCT OR DAMAGE TO THE CONNECTED EQUIPMENT, REGARDLESS OF THE LEGAL THEORY ON WHICH SUCH CLAIM IS BASED, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE. SUCH DAMAGES INCLUDE, BUT ARE NOT LIMITED TO, LOSS OF PROFITS, LOSS OF SAVINGS OR REVENUE, LOSS OF USE OF THE PRODUCT OR THE CONNECTED EQUIPMENT OR ANY ASSOCIATED EQUIPMENT, LOSS OF SOFTWARE, COST OF CAPITAL, COST OF ANY SUBSTITUTE EQUIPMENT, FACILITIES OR SERVICES, DOWNTIME, THE CLAIMS OF THIRD PARTIES, INCLUDING CUSTOMERS, AND INJURY TO PROPERTY.**

**Submitting a Load Protection Policy Claim:**

1. Any claim under the Load Protection Policy must be made within 10 days of the date of alleged damage to the Connected Equipment.
2. Call the XPC technical support department at 1-800- 582-4524 and obtain a Load Protection Policy Returned Material Authorization (RMA) number. Have information on all applicable insurance or other resources of recovery/payment that is available to the Purchaser and the name of the power utility supplier for the location of the Connected Equipment. XPC will forward to the Purchaser a Load Protection Policy claims form, which

must be completed and filed with XPC within 30 days.

- Mark the Load Protection Policy RMA number on the Product the Purchaser is returning.
- Pack the Product in its original packaging or similar packing materials if the original packaging has been discarded. Enclose the completed Load Protection Policy claim form and a copy of the Purchaser's original sales receipt for the Product in the box.
- Mark the RMA number clearly on the outside of the box.
- Ship the Product (one-way shipping charges paid by the Purchaser) to:

XPC Corporation  
230 Yuma Street  
Denver, CO 80223  
Attn: LPP RMA#

3. XPC will evaluate the Product to determine its level of functionality, and will examine the Product for evidence of damage from a Power Disturbance.
  - If XPCs' evaluation provides no evidence of damage from a Power Disturbance, XPC will send to the Purchaser (i) a report summarizing the tests performed and (ii) a rejection of claim notice.
  - If the Product shows evidence of damage from a Power Disturbance, XPC will request that all Connected Equipment for which a Load Protection Policy claim has been submitted, be sent for evaluation to either XPC or an authorized service center. If it is determined that the Connected Equipment has been damaged by a Power Disturbance, XPC will, in its sole discretion, issue payment to the Purchaser for either the cost of repair of the Connected Equipment or the Fair Market Value of the damaged Connected Equipment, up to the dollar limits stated above. XPC reserves the right to require the Purchaser to transfer title and deliver the Connected Equipment to XPC if it chooses to reimburse the Purchaser for the fair market value of the Connected Equipment. XPCs' maximum liability shall be reduced to reflect all such other payments or sources of recovery, whether applied for or not.
4. If XPC issues payment to the Purchaser to have the Connected Equipment repaired, the repair must be performed at a service center that is authorized by the manufacturer of the Connected Equipment. XPC reserves the right to contact the authorized service center directly to discuss repair costs and damage to the Connected Equipment to determine if it was caused by a Power Disturbance and the right to request that the service center forward the Connected Equipment or components of the Connected Equipment to XPC for inspection
5. Unless modified in writing signed by an officer of XPC and the Purchaser, the terms of this policy are the complete and exclusive agreement between the parties, superseding all prior agreements, oral or written, and all other communications between the parties relating to the subject matter of this agreement. No employee of XPC or any other party is authorized to make any representations beyond those made in this agreement concerning the Load Protection Policy.

XPC Corporation  
230 Yuma Street  
Denver, CO 80223  
1.800.582.4524

## Appendix A: P90L-BP240 User Guide

### Important Safety Warnings

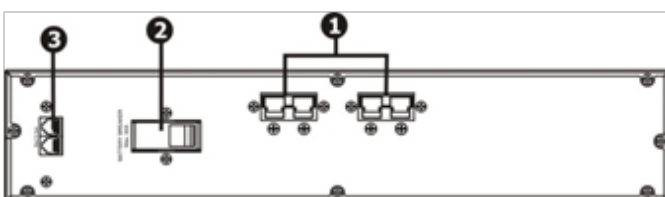
Please comply with all warnings and operating instructions in this manual. Save this manual properly and read carefully the following instructions before installing the unit. Do not operate this unit before reading through all safety information and operating instructions carefully.

- Do not try to repair the unit yourself, contact your local supplier or your warranty will be void.
- To eliminate any overheating of the battery box, keep all ventilation openings free from obstruction and do not place any foreign objects on top of the battery bank. Keep the battery box 8 inches 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 environment.
- 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, then the warranty will be null and void. During normal operation, the batteries will be automatically remained 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 battery or 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 precaution 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 charging source prior to connecting or disconnecting battery terminals.
- Do not plug or unplug the battery connector if UPS is in battery (discharging) mode.

### Installation and Setup

**Note:** Before installation, please inspect the unit. Be sure that nothing inside the package is damaged. Please keep the original packing material 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
3. External battery numbers detection port: detects the numbers of connected batteries.

## 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
- Quick guide
- Battery connection cable x 1
- Detection cable x 1
- Ear x 2 & screw x 8
- Extended stand



**Battery connection cable**



**Ears**



**Screws**



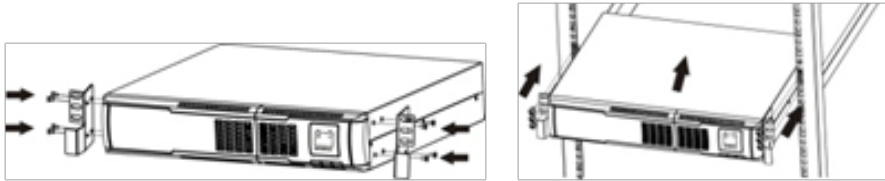
**Extended stand**

### Selecting Installation Position

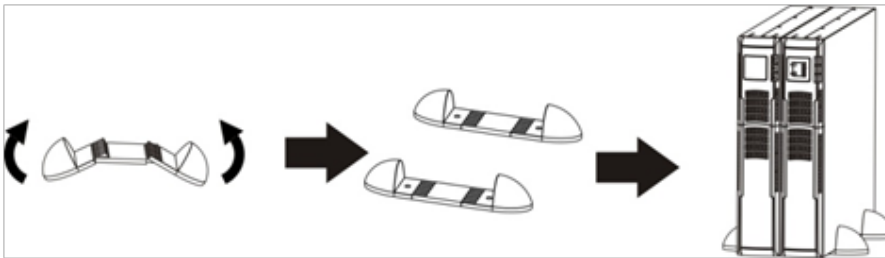
1. It is necessary to select a proper environment to install the unit, in order to minimize the possibility of damage to the battery box and extend the life of the batteries. Please follow the instructions below:
2. Keep at least 20cm (8 inches) clearance from the rear panel of the unit from the wall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

This unit can either be mounted horizontally in a rack or placed vertically on the floor.

**Rack Installation**

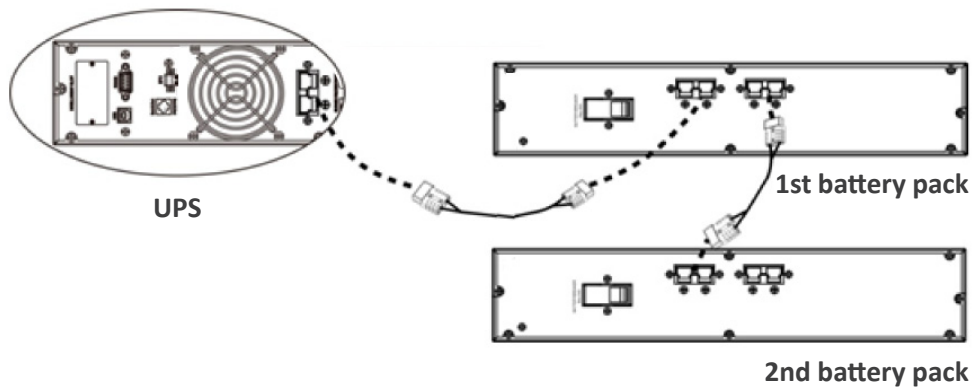


**Tower Installation**




**Connecting with UPS and Other Battery Box**

Follow below installation diagram to connect with UPS and other battery box with included cable.



**Storage & 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**

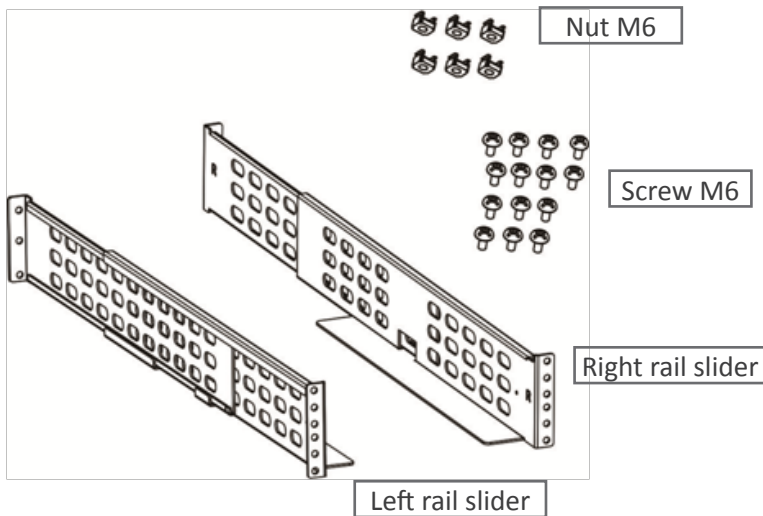
Before storing, charge the unit 4 hours. Store the unit covered and upright in a cool, dry location. During storage, recharge the battery in accordance with the following table:

Storage Temperature	Recharge Frequency	Charging Duration
-25°C - 40°C	Every 3 months	1-2 hours
40°C - 45°C	Every 2 months	1-2 hours

## Appendix B: P90L-RAIL Installation Guide

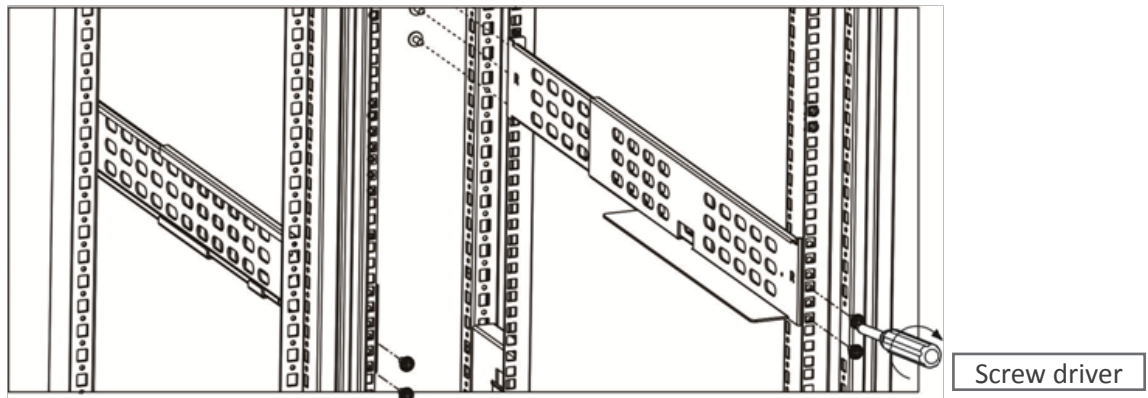
### Package Contents

- Right rail slider x 1
- Left rail slider x 1
- Nut M6 x 6
- Screw M6 x 14

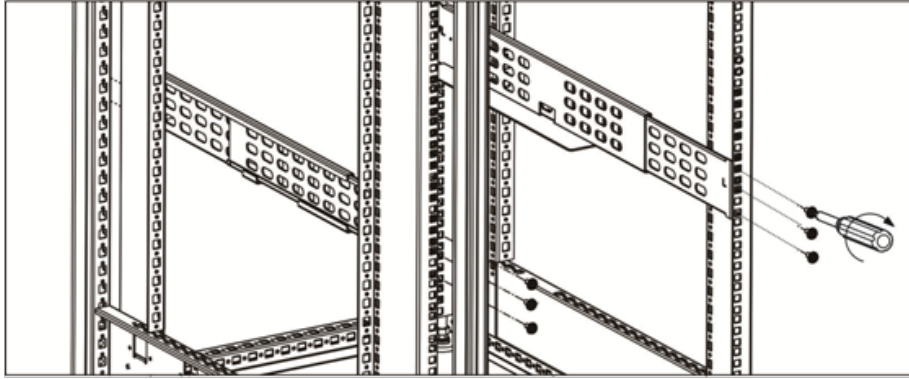


### Assembly Steps

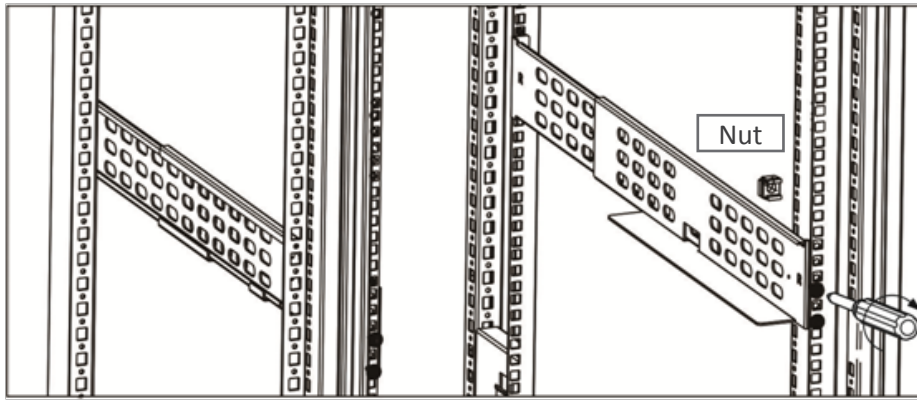
**Step 1:** Use 4 screws to mount right and left rail sliders in front. See chart below:



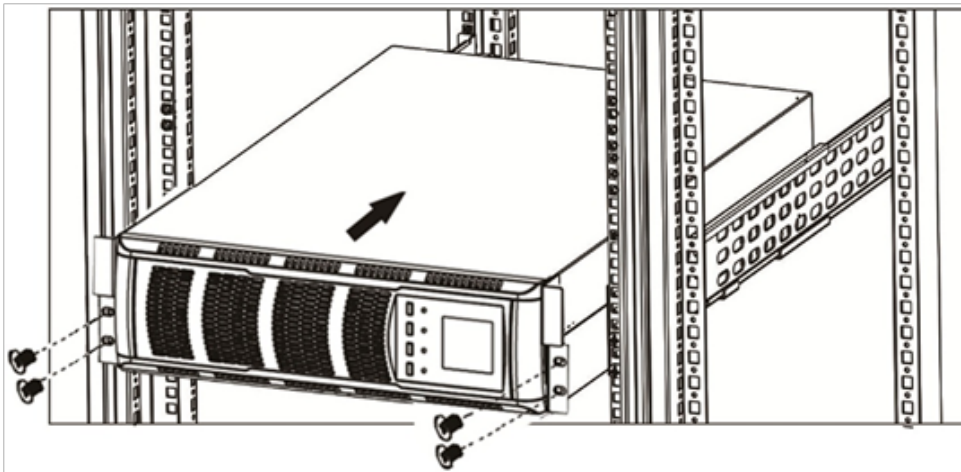
**Step 2:** Use 4 screws to mount rail sliders in back. See chart below:



**Step 3:** According to UPS height, put nuts on proper location.

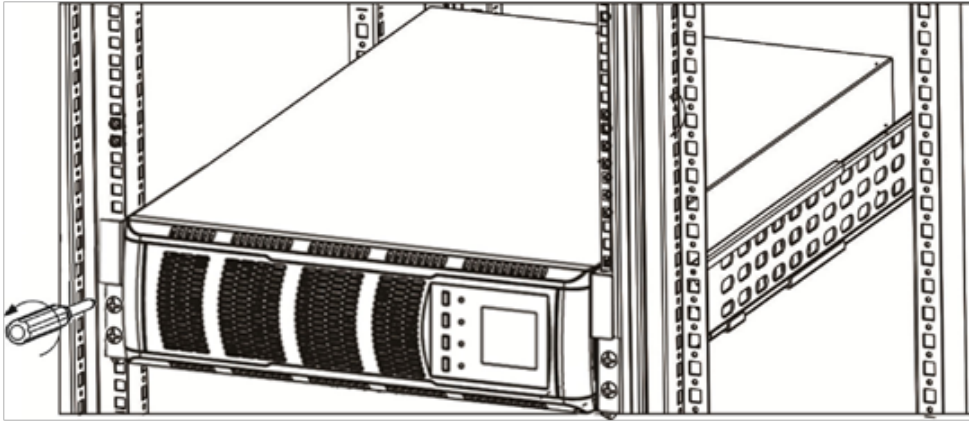


**Step 4:** Put UPS on the rail support

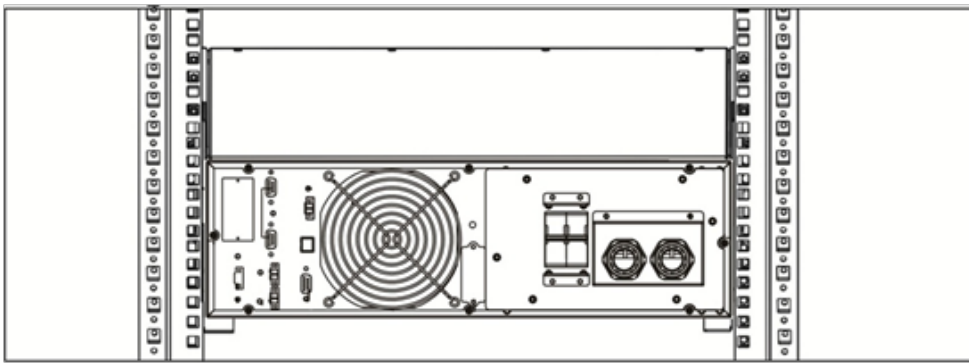




**Step 5:** Fix the UPS in position with screws



**Step 6:** Assembly complete



## Appendix C: P90L-ISO6MB & P90L-ISO10MB User Guide

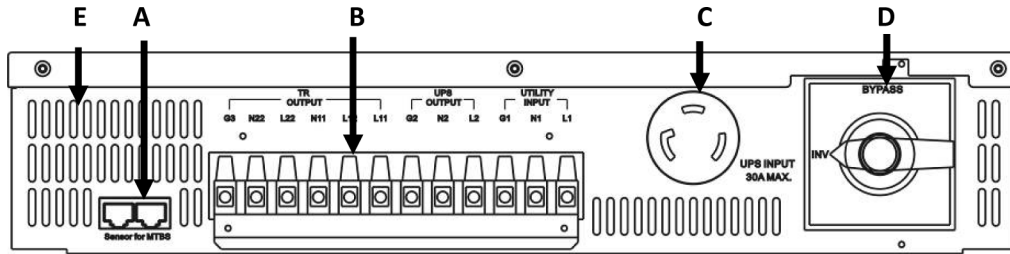
### *Important Safety Instructions*

#### **An Important Notice**

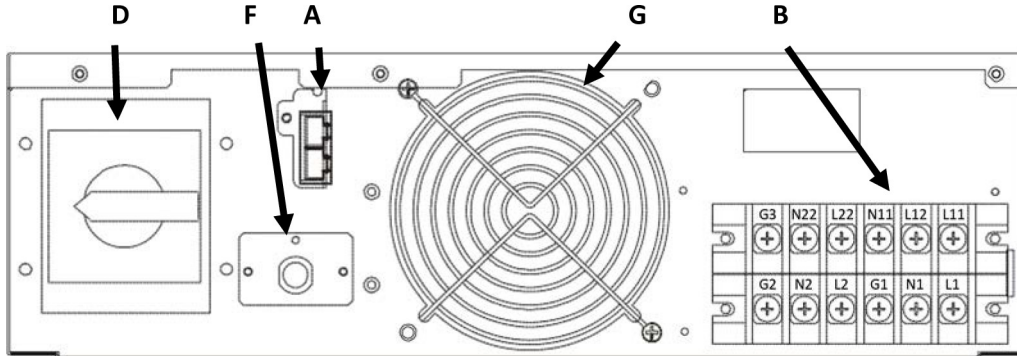
- There is a tiny leakage current from the Transformer Module, so make sure to it is correctly grounded before connecting to the UPS, Utility or Output Device.
- Do not open the case, as there are no serviceable parts inside, or your warranty will be void.
- Do not try to repair the unit yourself; contact your local supplier or your warranty will be void.
- Non-authorized technician is not allowed to install the unit in the following areas:
  - a) Medical equipment directly related to human life.
  - b) Elevator, Metro(Subway) system or any other equipment related to human safety.
  - c) Public System or critical computer Systems.
- Any installation related to human safety, public system, or emergency device shall be consulted with dealer first; otherwise, your warranty will be void.
- If any liquid is split onto the unit or foreign objects dropped into the unit, the warranty will be null and void.
- Do not install the unit in an environment with sparks, smoke, or gas.
- Make sure the unit is installed within a proper environment as specified:
  - a) Keep it in the place of 0 -40 C and 30-90% non-condensing humidity
  - b) Keep away from direct sunlight
  - c) Keep away from the objects that give off excessive heat and areas that are excessively wet.
  - d) Keep away from the environment that generates ARCs.
  - e) Keep away from dusty, corrosive and salty environments
  - f) Install the unit indoors as it is not designed for installation outdoors.
- To eliminate any overheating of the unit, keep all ventilation openings free from obstruction, and do not store items on the top of the unit. Keep the unit 30 cm away from the wall.
- The unit is recommended to install in an environment with 5M3 airflow per hour.
- Make sure the unit is completely turned off when moving the unit from one place to the other. It might cause electrical shock if the input or output is not turned off completely.
- Improper grounding might cause unexpected leakage current, so please make sure that the utility ground is properly connected.
- This unit includes an optional Maintenance Bypass Switch. Please make sure you may follow the operation procedure
- When use a damp cloth to clean the unit, please make sure the unit is turned off to avoid any hazardous risk.
- Do not touch any terminals of the unit if it is connected to the Utility.

### Rear Panel Explanation

#### 6kVA



#### 10kVA

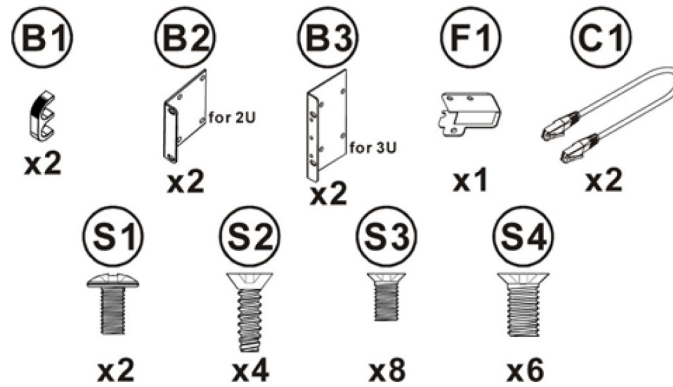


- A. RJ-45 Communication port
- B. Input & Output Terminal Block
- C. For UPS Input (6kVA only)
- D. Maintenance Bypass Switch
- E. Air Ventilation Openings (6kVA only)
- F. Thermal breaker for the protection of Load in abnormal condition: CB3 (10kVA only)
- G. Cooling Fan (10kVA only)

## Installation And Operation

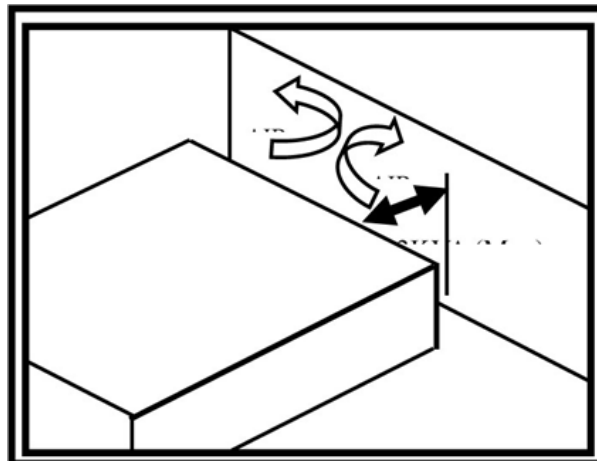
### UPS Unpacking

- Remove the unit from PE foam.
- Check Accessories
  - o one set of user's manual
  - o one set of accessory kit
  - o RJ45 - molex cable
  - o (2) 12" NEMA L6-30P cables (6kVA only)
  - o (1) 12" NEMA L6-30R cable (6kVA only)



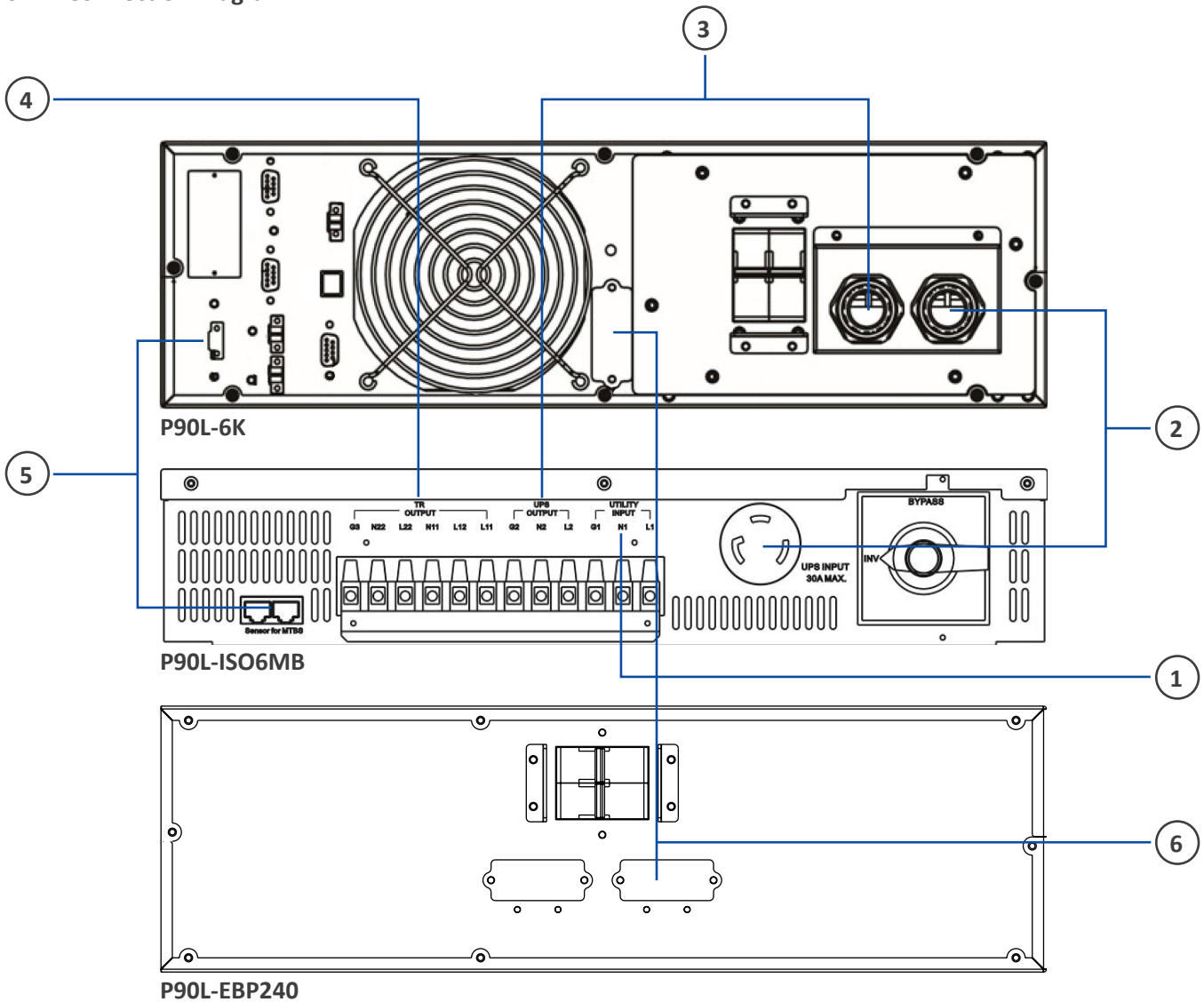
### Selecting Installation Position

- It is necessary to select a proper environment to install the unit, in order to minimize the possibility of damage to the unit and extend the life of the unit. Please follow the advice below:
- Keep at least 30 cm (12 inches) clearance from the rear panel of the unit to the wall. Do not block the air flow to the ventilation openings of the unit. Also check the installation site to avoid over-heat and excessive moisture.
- Do not place the unit in an environment near dust, corrosive or salty material or flammable objects.
- Do not expose the unit to outdoors.



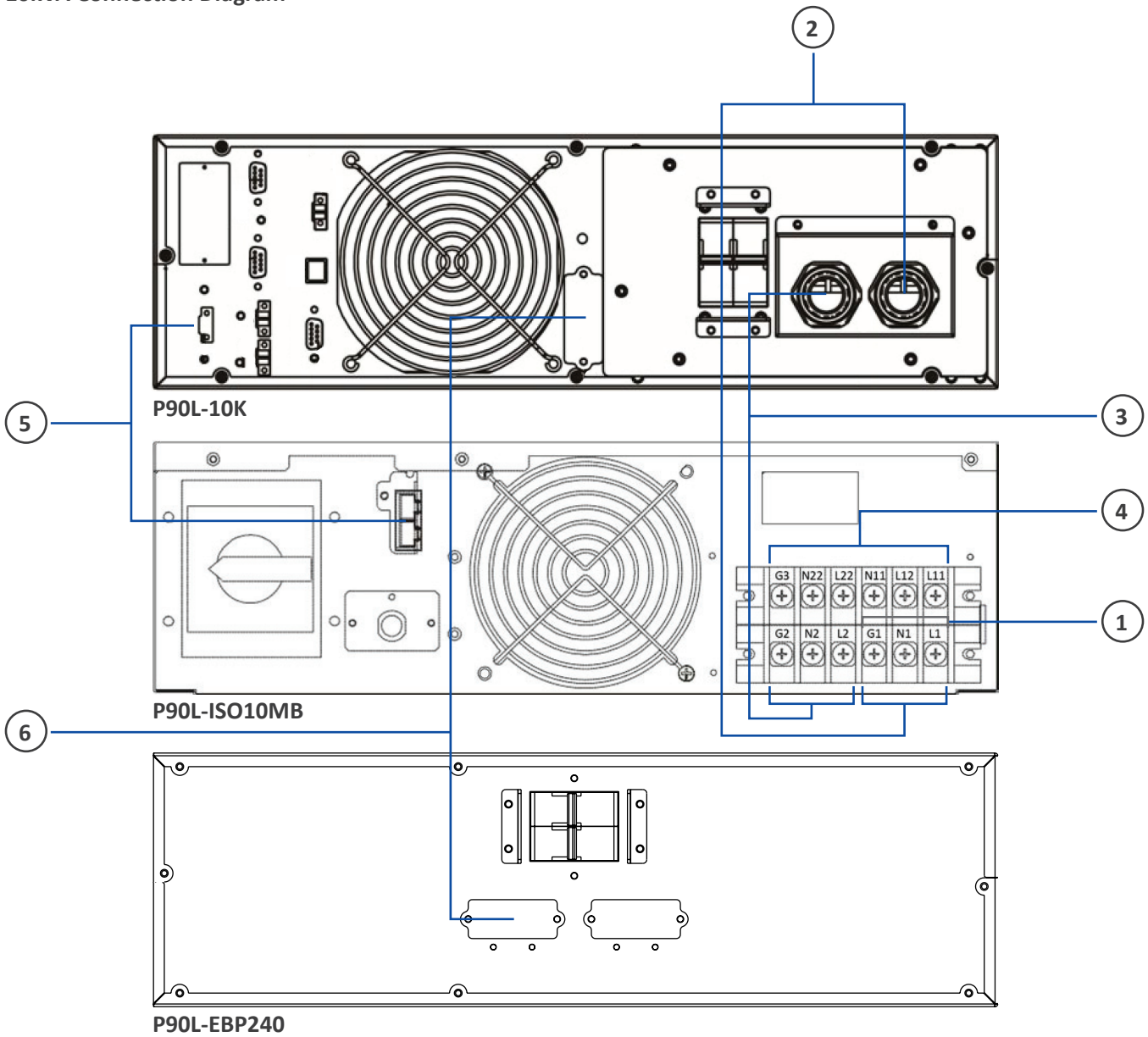
Installation

6kVA Connection Diagram



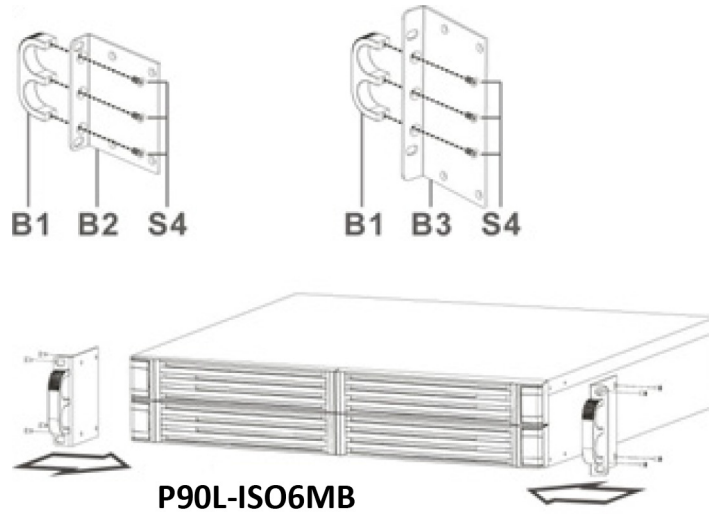
1. Hardwired input from Utility Input
2. L6-30P cord from UPS input connects to L6-30R on P90L-ISO6MB UPS Input
3. L6-30R cord from UPS connects with L6-30P on P90L-ISO6MB UPS Output
4. Hardwired TR Output to load
5. RJ45 on P90L-ISO6MB to Molex connector on P90L-6K for static bypass interlock
6. Battery connection; Anderson to Anderson

10kVA Connection Diagram



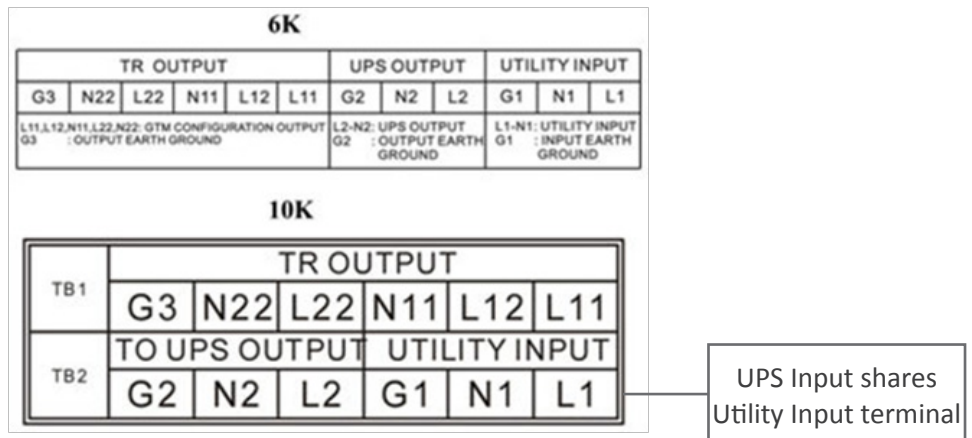
1. Hardwired input from utility
2. Hardwired input cord with ring terminals connects to utility input terminals on P90L-ISO10MB terminal block
3. Hardwired output cord with ring terminals connects to UPS output terminals on P90L-ISO10MB terminal block
4. Hardwired output to load
5. RJ45 on transformer to Molex connector on UPS for static bypass interlock
6. Battery connection; Anderson to Anderson

**Installation as a Rack Unit**



**Terminal Block Explanations for Input, Output**

**Terminal Block Explanation**



**L1–N1:** Utility Input / UPS Input (use same terminals as Utility Input)

**G1:** Input Ground

**L2–N2:** Connect to UPS Output Terminal

**G2:** Connect to UPS Output Ground Terminal

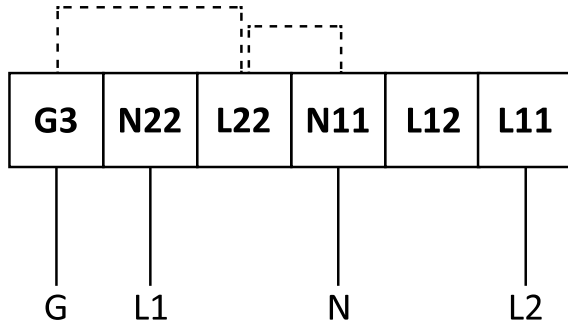
**L11–L12–N11–L22–N22:** the Output Terminals of the Unit

**G3:** The Output Ground Terminals of the Unit

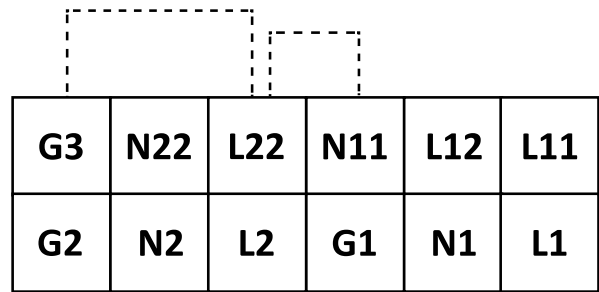
**Output Wiring Explanation**

- The maximum output current for each terminal is 30A (6K) or 50A (10K).
- If the input of L2-N2 from UPS OUTPUT block is 208Vac, the output voltage shall be 240Vac/120Vac

P90L-ISO6MB Output Terminal Block



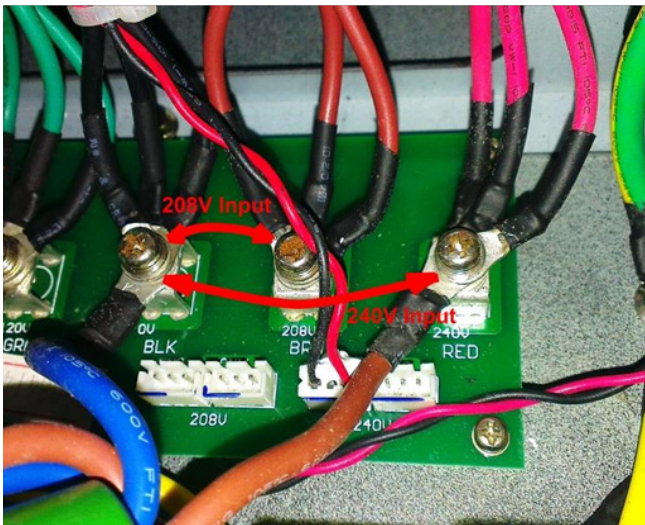
P90L-ISO10MB Output Terminal Block



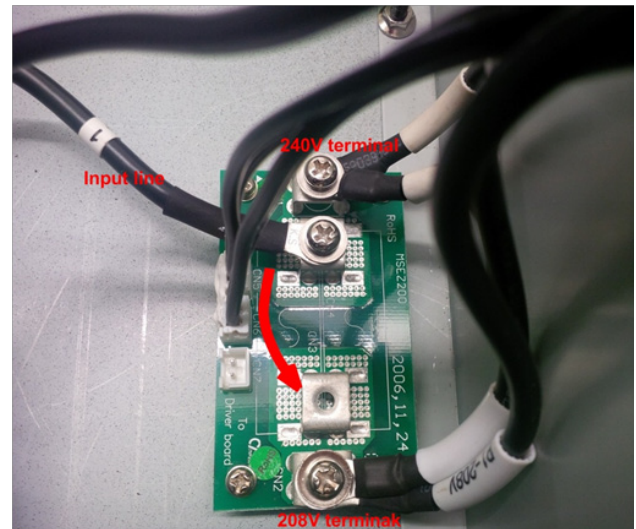
The drawing shown above is the default configuration. Jumpers are pre-installed for this configuration internally for 6kVA only. 10kVA jumpers are to be made in the field (shown below).



Contact Technical Support for additional voltage configurations if needed.



P90L-ISO6MB Internal Jumper



P90L-ISO10MB Internal Jumper

Connect Maintenance Bypass Switch communication cable (C1) from RJ45 port on P90L-ISO6MB or P90L-ISO10MB to green moxex connector on UPS. This prevents UPS damage should it not be in bypass prior to activating Maintenance Bypass Switch on P90L-ISO6MB or P90L-ISO10MB



### Troubleshooting

If the unit cannot be operated normally, please check if all the cables are properly connected and the Utility is under normal condition. If the problem cannot be solved, please consult with your dealer immediately.

### Specifications

Item	Description	Condition	Specifications		
			P90L-ISO6MB	P90-ISO10MB	
<b>AC Input Terminal</b>					
	Voltage	Unit w/o Bypass Switch		160 - 280Vac (1Φ)	
		Unit w/ Bypass Switch	INV	160 - 280Vac (1Φ)	
			BYPASS	184 - 280Vac (1Φ)	
	Current	N/A		30A (max)	50A (max)
Frequency	N/A		50Hz/60Hz ± 5Hz		
<b>Output Terminal</b>					
	Voltage	N/A		184 - 280Vac (1Φ)	
	Current	N/A		30A (max)	50A (max)
	Frequency	N/A		50Hz/60Hz ± 3Hz	
<b>Maintenance Bypass Switch</b>					
	Transfer Time	0-100% Load		<2ms	
<b>Communication</b>					
	Bypass Detection	For Unit w/ Maintenance Bypass Switch		RJ-45 connector	
<b>Overview</b>					
	W x D x H			17.3 x 28.7 x 3.5 in (P90L-ISO6MB) 17.3 x 28.7 x 5.2 in (P90L-ISO10MB)	
<b>Weight</b>		Unit w/ Maintenance Bypass Switch		92.6 lbs	116.8 lbs
		Unit w/o Maintenance Bypass Switch		90.4 lbs	114.6 lbs
<b>Current Leakage</b>		100% Load		<3mA	
<b>Marks</b>					CE, cUL, UL