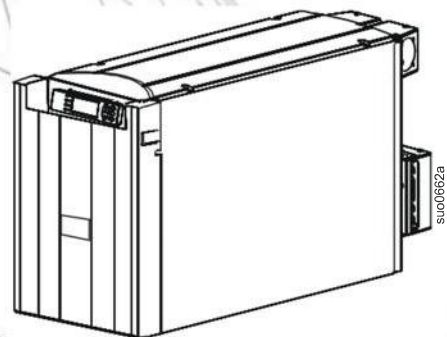


# Installation and Operation

## Smart-UPS<sup>™</sup> On-Line

SURT15k/20k  
UXI-IN  
230 Vac  
Tower





# Product Description

The APC™ by Schneider Electric Smart-UPS™ is a high performance uninterruptible power supply (UPS). The UPS provides protection for electronic equipment from utility power blackouts, brownouts, sags, and surges, small utility power fluctuations and large disturbances. The UPS also provides battery backup power for connected equipment until utility power returns to safe levels or the batteries are fully discharged.

This user manual is available on the APC by Schneider Electric Web site, [www.apc.com](http://www.apc.com).

## Important Safety Messages

Read the instructions carefully to become familiar with the equipment before trying to install, operate, service or maintain it. The following special messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a Warning or Caution product safety label indicates that a hazard exists that can result in injury and product damage if the instructions are not followed.

The following safety messages may appear throughout this manual to warn of potential hazards.

 <b>CAUTION</b>
<b>CAUTION</b> indicates a potentially hazardous situation which, if not avoided, <b>can result in</b> equipment damage and minor or moderate injury.

<b>CAUTION</b>
<b>CAUTION</b> indicates a potentially hazardous situation which, if not avoided, <b>can result in</b> equipment damage.

## Safety and General Information

**Inspect the package contents upon receipt. Notify the carrier and dealer if there is any damage.**

- Adhere to all national and local electrical codes.
- This UPS is intended for indoor use only.
- Do not operate this UPS in direct sunlight, in contact with fluids, or where there is excessive dust or humidity.
- Be sure the air vents on the UPS are not blocked. Allow adequate space for proper ventilation.
- The battery typically lasts for three to five years. Environmental factors impact battery life. Elevated ambient temperatures, poor quality utility power, and frequent short duration discharges will shorten battery life.
- The equipment is heavy. Always practice safe lifting techniques adequate for the weight of the equipment.
- The UPS will recognize as many as 10 external battery packs connected to the UPS. However there is no limit to the number of XLBPs that can be used with the UPS.
- The model and serial numbers are located on a small, rear panel label. For some models, an additional label is located on the chassis under the front bezel.
- Always recycle used batteries.
- Recycle the package materials or save them for reuse.

# Package Contents


<ul style="list-style-type: none"><li>• UPS</li><li>• Input wiring tray</li><li>• Output wiring tray</li><li>• PowerView module</li><li>• Front bezel</li><li>• UPS serial cable</li><li>• Network Management Card (NMC) serial cable</li><li>• Ethernet jumper cable for rear panel network access</li><li>• Battery cable assemblies</li><li>• Ground wire</li></ul>	<ul style="list-style-type: none"><li>• Literature kit containing:<ul style="list-style-type: none"><li>– Product documentation</li><li>– Network Management Card utility CD</li><li>– Network Management Card documentation</li><li>– Safety Guide</li><li>– Warranty card</li></ul></li></ul>
--	---

## Specifications

### Environmental

<b>Temperature</b>	<b>Operating</b>	0° to 40° C (32° to 104° F)
	<b>Storage</b>	-15° to 30° C (5° to 86° F) charge UPS battery every six months  30° to 70° C (86° to 158° F) charge UPS battery every three months
<b>Maximum Elevation</b>	<b>Operating</b>	3,000 m (10,000 ft)
	<b>Storage</b>	15,000 m (50,000 ft)
<b>Humidity</b>		0 to 95% relative humidity, non-condensing

### Physical

<b>Weight</b>		
<b>UPS (with packing material)</b>	129 kg (284 lb)	
<b>UPS (no packing material)</b>	68 kg (150 lb)	



Dimensions	UPS	XLBP

## Accessories

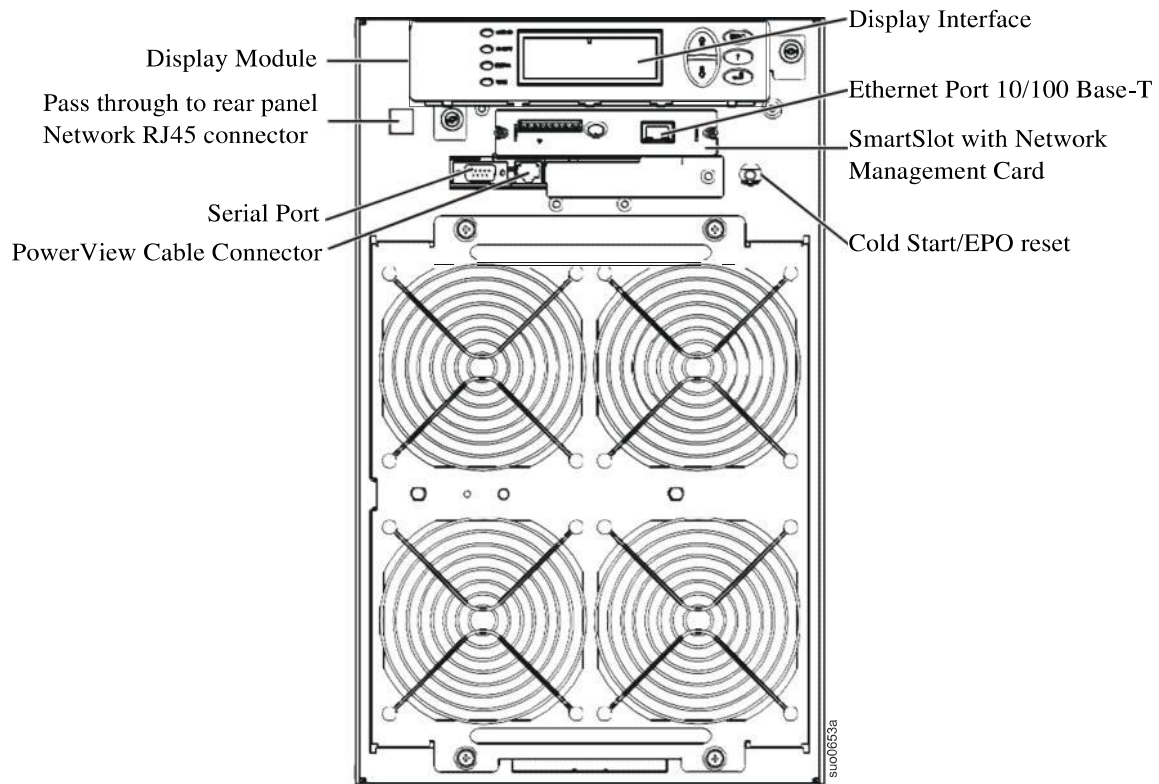
Install accessories before connecting power to the UPS.

- Refer to the APC by Schneider Electric Web site, [www.apc.com](http://www.apc.com) for available accessories.
- User documentation for the Network Management Card installed on this UPS is available on the utility CD included with this unit.

### Optional accessories

- Maintenance bypass
- External battery pack model SURT192RMXLBP2
- Equipment cart

# Front Panel Features

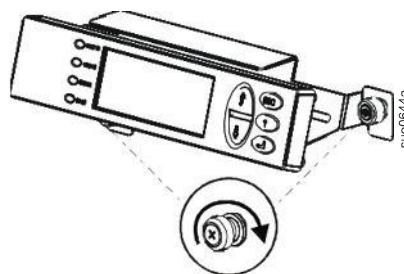
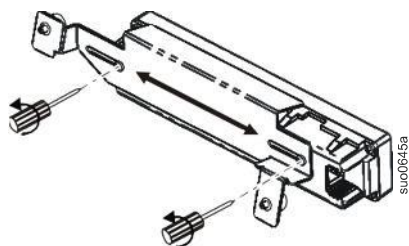


# Installation

## Install PowerView module

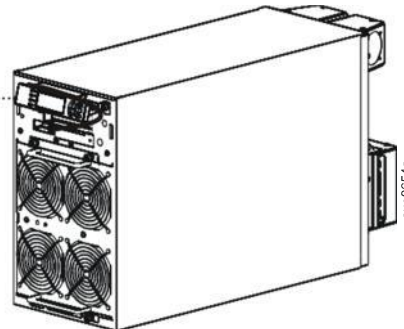
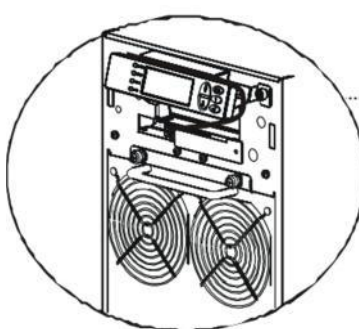
Before attaching the PowerView module to the UPS:

1. Loosen the two bracket screws on the back of the PowerView module.
  - a. Slide the bracket to the position that will accommodate the screw holes on the UPS.
  - b. Tighten the screws on the bracket.
2. Secure the PowerView module to the UPS using the two thumb screws attached to the module.



### Connect PowerView module

Connect the PowerView cable to the PowerView connector on the UPS.



## Connect ethernet cable, install top cover and bezel

There are three ways to access the ethernet port on this unit:

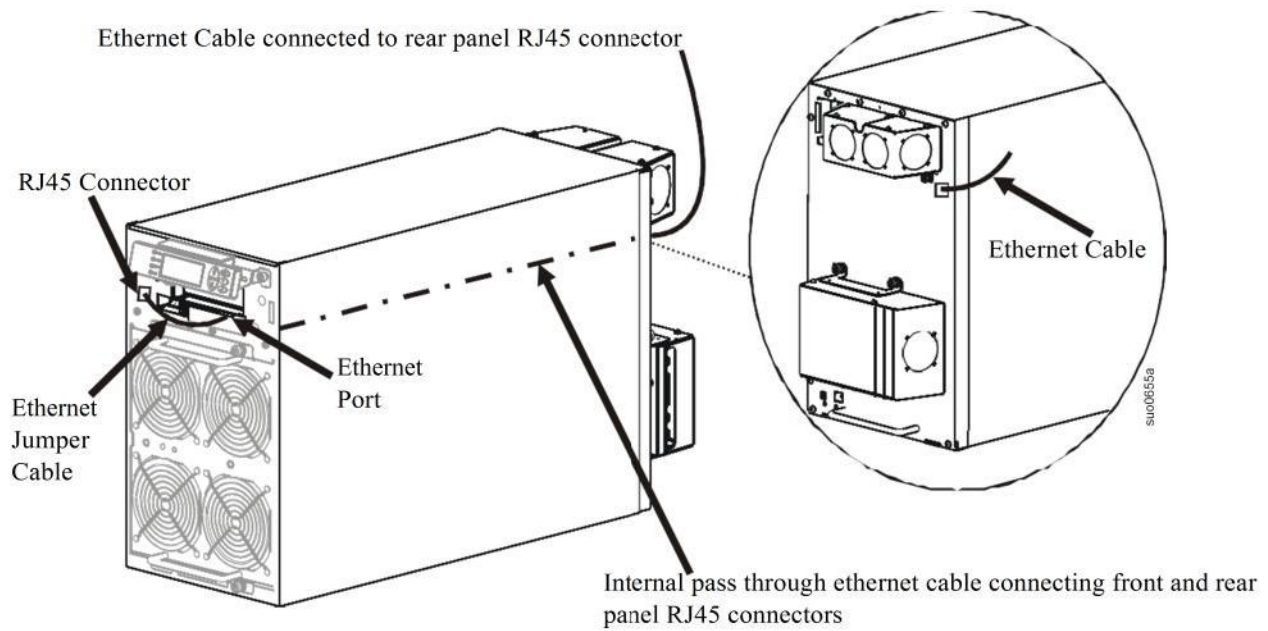
1. Rear panel access connecting the ethernet jumper cable to the front panel
2. Front panel access routing the ethernet cable under the top cover
3. Front panel access routing the ethernet cable through a notch in the bezel

### Rear panel access connecting the ethernet jumper cable to the front panel

Locate the RJ45 connector and the ethernet port on the front panel of the UPS. Connect the ethernet jumper cable (supplied), to the RJ45 connector and the ethernet port.

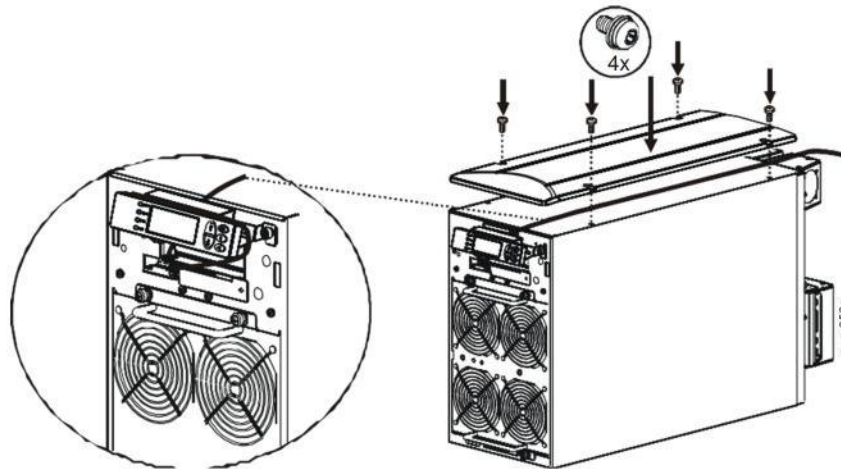
Connect a network cable (not supplied), to the RJ45 connector on the rear panel of the UPS.

## Route the ethernet cable utilizing the internal pass through



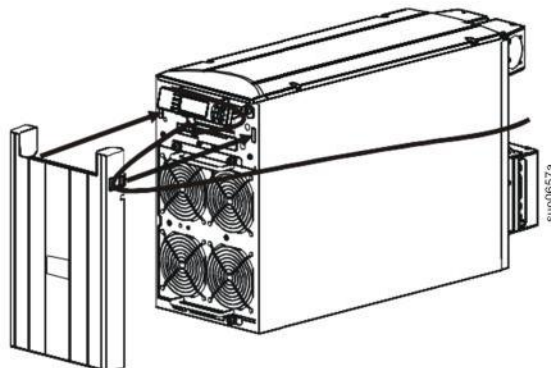
## Route the ethernet cable under the top cover

An ethernet cable can be routed behind the PowerView module, and over the top of the UPS before installing the top cover.



## Route the ethernet cable through a notch in the bezel

An ethernet cable can be routed from the UPS through one of the notches in the bezel before installing the bezel. After routing the ethernet cable install the bezel.



# Hardwire the UPS

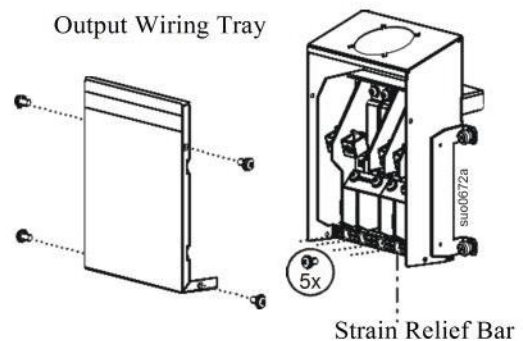
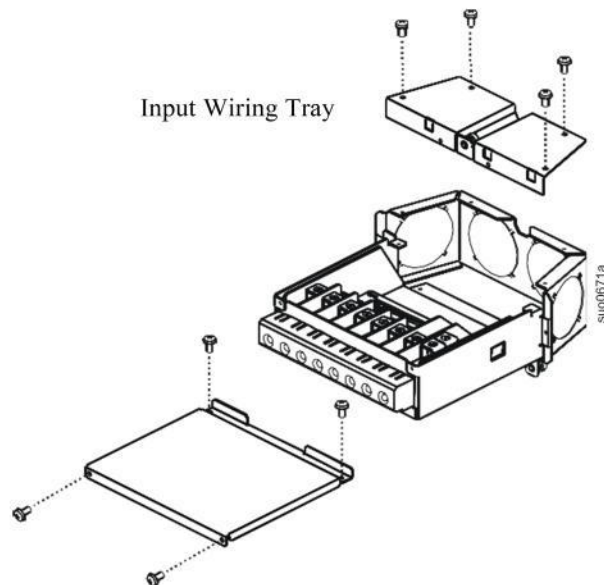
## CAUTION

### RISK OF EQUIPMENT DAMAGE

- Adhere to all local and national electrical codes.
- Wiring should be performed by a qualified electrician.
- Always connect the UPS to a grounded outlet.

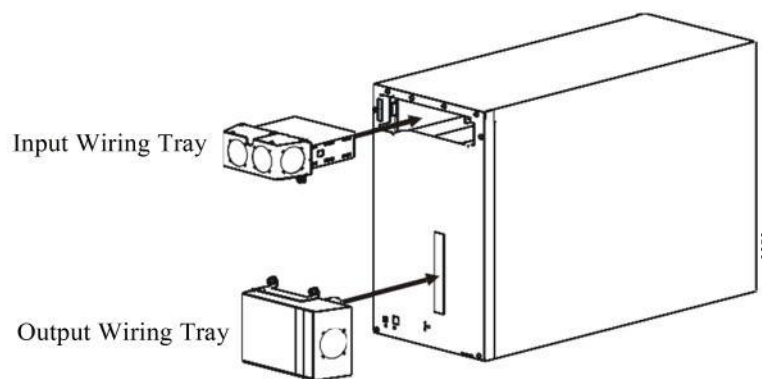
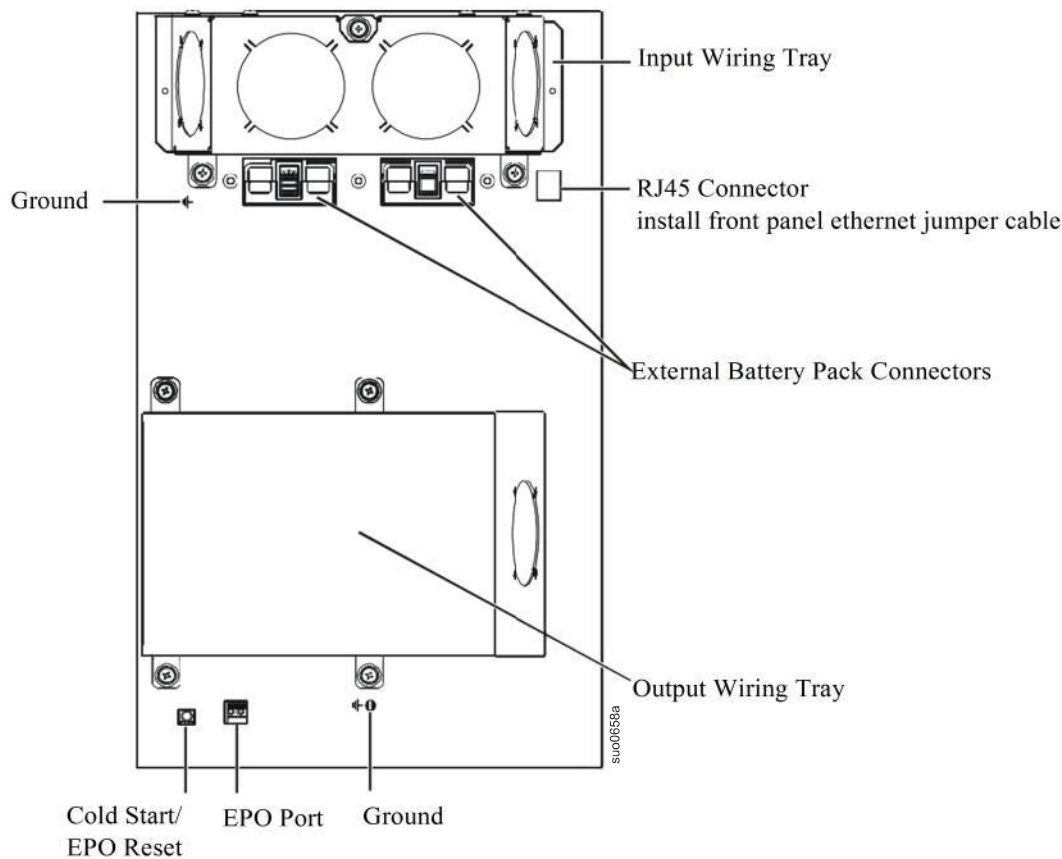
**Failure to follow these instructions can result in equipment damage**

1. For input wiring only, install a utility circuit breaker in accordance with local electrical codes.
2. Switch the utility circuit breaker OFF.
3. Remove the appropriate circular knockouts from the input and output wiring trays.
4. Remove the screws that secure the covers and take the covers off of the trays.
5. Remove the five screws that secure the strain relief bar.
6. Remove the appropriate jumpers for input power source compatibility and output wiring options. Refer to “Wiring specifications” on page 8 in this manual.
7. Insert the cables through the knockout holes to the terminal blocks. Connect the ground terminal before connecting any other terminal. Refer to “Wiring specifications” on page 8 in the this manual.
8. Use an appropriate strain relief (not supplied), on the hardwired input and output power cables.
9. Replace the wiring tray covers. Failure to do so can result in personal injury or equipment damage.












# Install Input/Output Wiring Trays in UPS Rear Panel



## Wiring specifications

Adhere to national and local electrical codes.

Input Connections	Output Connections
<b>Main Input</b>  Single-Phase: Wire to L1, N, and   Three-Phase: Wire to L1, L2, L3, N, and 	<b>Hardwire</b>  Single-Phase: Wire to L1, N, and   Three-Phase: Wire to L1, L2, L3, N, and 

Input Connections	Output Connections
<b>Bypass Input (optional)</b>  Single-Phase: Wire to B1, N, and   Three-Phase: Wire to B1, B2, B3, N, and 	<b>Single-phase PDU</b>  XL battery pack PDU to UPS: Wire L1, N, 

Single Feed					
Wiring	Number of Phases	Voltage	Current Full Load*** (maximum)	External Input Circuit Breaker (typical)	Wire Size* (typical)
<b>SURT15K UXI-IN</b>					
Input	1	220/230/240 VAC	83 A	100 A each phase	35 mm <sup>2</sup>
Output	1	220/230/240 VAC	66 A	not required	25 mm <sup>2</sup>
Input	3	380/400/415 VAC	28 A each phase	100 A each phase**	35 mm <sup>2**</sup>
Output	1	220/230/240 VAC	66 A	not required	25 mm <sup>2</sup>
Input	3	380/400/415 VAC	28 A each phase	35 A or 40 A each phase	16 mm <sup>2</sup>
Output	3	380/400/415 VAC	22 A each phase	not required	16 mm <sup>2</sup>
<b>SURT20K UXI-IN</b>					
Input	1	220/230/240 VAC	105 A	125 A each phase	50 mm <sup>2</sup>
Output	1	220/230/240 VAC	87 A	not required	35 mm <sup>2</sup>
Input	3	380/400/415 VAC	35 A each phase	125 A each phase**	50 mm <sup>2**</sup>
Output	1	220/230/240 VAC	87 A	not required	35 mm <sup>2</sup>
Input	3	380/400/415 VAC	35 A each phase	50 A each phase	16 mm <sup>2</sup>
Output	3	380/400/415 VAC	29 A each phase	not required	16 mm <sup>2</sup>

\*Terminal screw tightening torque: 4.5 Nm (40 lb-in) minimum

\*\*Use cables and input circuit breakers rated for specifications listed in these tables.

**NOTE:** Units configured for three phase input and single phase output operation, the entire load connected to the UPS will transfer to L1 and Neutral of the three phase input when the UPS is operating in Bypass mode.

\*\*\*The current is specified at nominal input voltage.

The acceptable input frequency range is 40 Hz to 70 Hz.

The output frequency is user selectable. Refer to the PowerView display menu screens for available options.

Dual Feed							
Wiring	Number of Phases	Voltage	Current Full Load*** (maximum)	External Input Circuit Breaker Mains (typical)	External Input Circuit Breaker Bypass (typical)	Wire Size Mains* (typical)	Wire Size Bypass* (typical)
<b>SURT15K UXI-IN</b>							
Input	1	220/230/240 VAC	83 A	100 A each phase	100 A each phase	35 mm <sup>2</sup>	35 mm <sup>2</sup>
Output	1	220/230/240 VAC	66 A	not required	not required	25 mm <sup>2</sup>	25 mm <sup>2</sup>
Input	3	380/400/415 VAC	28 A each phase	35 A or 40 A each phase	100 A each phase**	6 mm <sup>2</sup>	35 mm <sup>2**</sup>
Output	1	220/230/240 VAC	66 A	not required	not required	25 mm <sup>2</sup>	25 mm <sup>2</sup>
Input	3	380/400/415 VAC	28 A each phase	35 A or 40 A each phase	35 A or 40 A each phase	6 mm <sup>2</sup>	16 mm <sup>2</sup>
Output	3	380/400/415 VAC	22 A each phase	not required	not required	6 mm <sup>2</sup>	16 mm <sup>2</sup>
<b>SURT20K UXI-IN</b>							
Input	1	220/230/240 VAC	105 A	125 A each phase	125 A each phase	50 mm <sup>2</sup>	50 mm <sup>2</sup>
Output	1	220/230/240 VAC	87 A	not required	not required	35 mm <sup>2</sup>	35 mm <sup>2</sup>
Input	3	380/400/415 VAC	35 A each phase	50 A each phase	125 A each phase**	10 mm <sup>2</sup>	50 mm <sup>2**</sup>
Output	1	220/230/240 VAC	87 A	not required	not required	35 mm <sup>2</sup>	35 mm <sup>2</sup>
Input	3	380/400/415 VAC	35 A each phase	50 A each phase	50 A each phase	10 mm <sup>2</sup>	16 mm <sup>2</sup>
Output	3	380/400/415 VAC	29 A each phase	not required	not required	10 mm <sup>2</sup>	16 mm <sup>2</sup>

\*Terminal screw tightening torque: 4.5 Nm (40 lb-in) minimum

\*\*Use cables and input circuit breakers rated for specifications listed in these tables.

**NOTE:** Units configured for three phase input and single phase output operation, the entire load connected to the UPS will transfer to L1 and Neutral of the three phase input when the UPS is operating in Bypass mode.

\*\*\*The current is specified at nominal input voltage.

The acceptable input frequency range is 40 Hz to 70 Hz.

The output frequency is user selectable. Refer to the PowerView display menu screens for available options

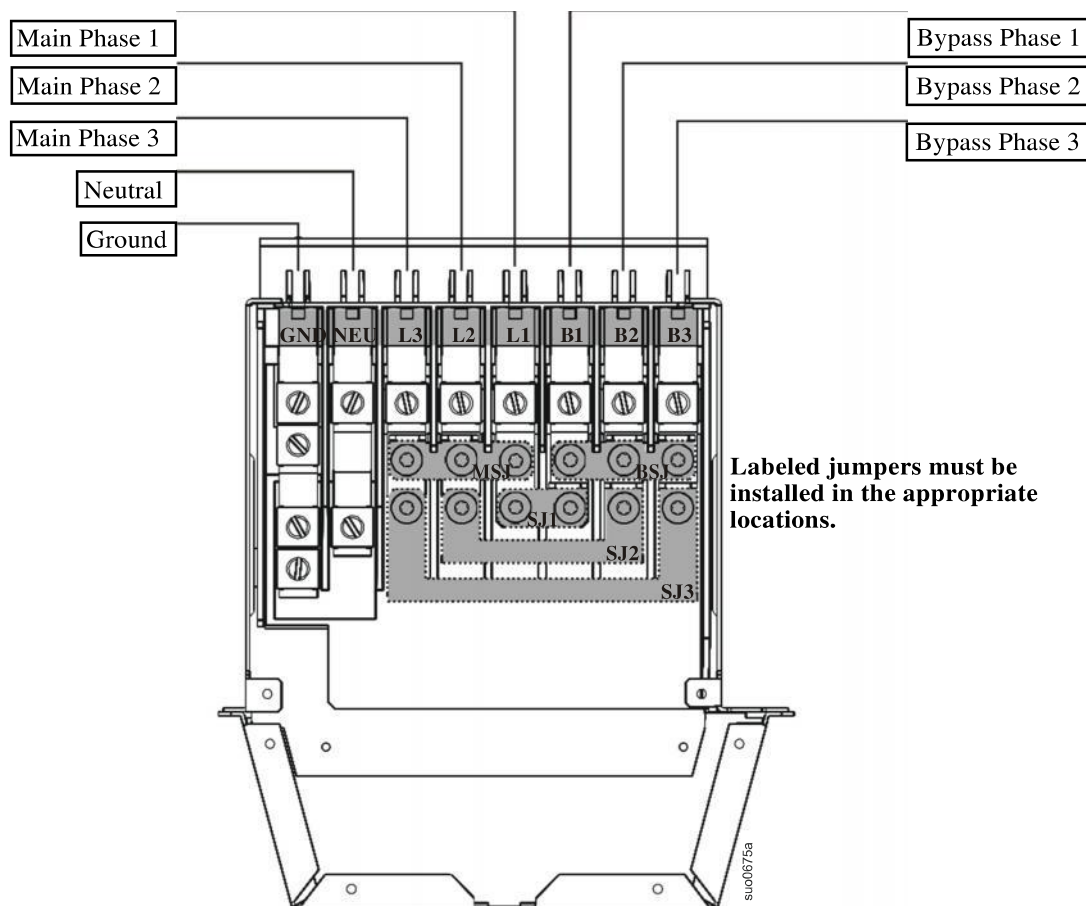


# Input Wiring Options

Input wiring overview: Refer to the diagrams on the following pages for input wiring options.

## Main Input Power Single and Three Phase

## Bypass Input Power Single and Three Phase

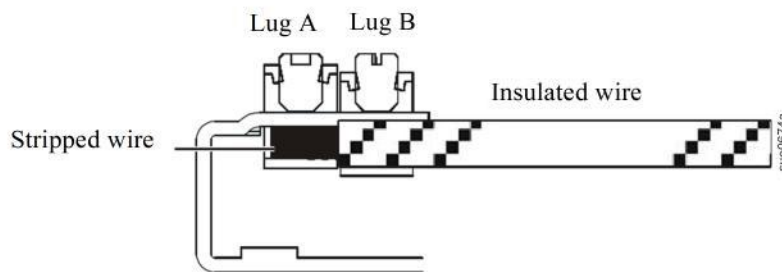


Input/Output Jumper Configurations		Input Jumpers					Output Jumpers
Power I/O Configuration Input:Output	Separate Bypass Feed	SJ1	SJ2	SJ3	MSJ	BSJ	OSJ
1:1**	No	✓	*	*	✓	✓	✓
1:1	Yes				✓	✓	✓
3:1	No	✓				✓	✓
3:1	Yes					✓	✓
3:3	No	✓	✓	✓			
3:3	Yes						

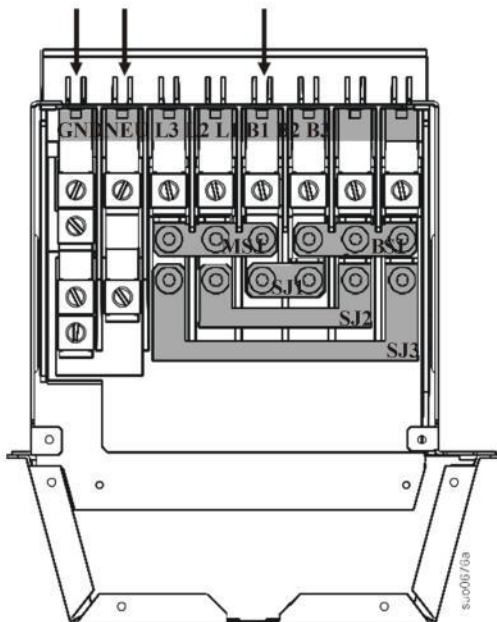
Input/Output Jumper Configurations		Input Jumpers					Output Jumpers
Power I/O Configuration Input:Output	Separate Bypass Feed	SJ1	SJ2	SJ3	MSJ	BSJ	OSJ
1:1**	No	✓	*	*	✓	✓	✓
1:1	Yes				✓	✓	✓
* Optional ** Factory Default							

Ensure ground wire conductor and insulator are securely fastened. To connect the ground wire:

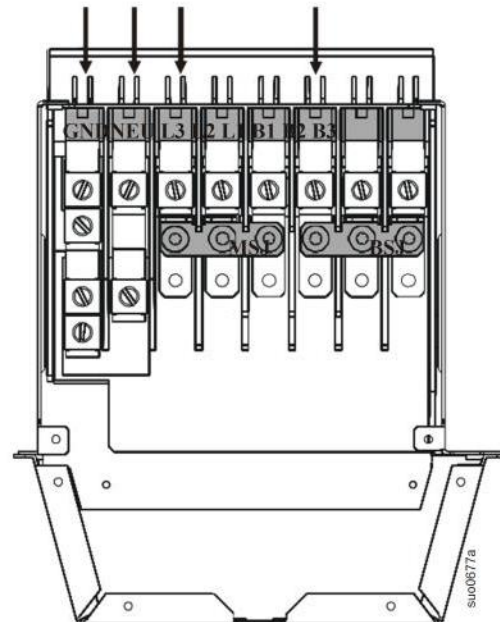
1. Strip the cable of insulation, exposing the wire. Secure the exposed wire with lug “A”.
2. Secure the insulated portion of the cable with lug “B”.



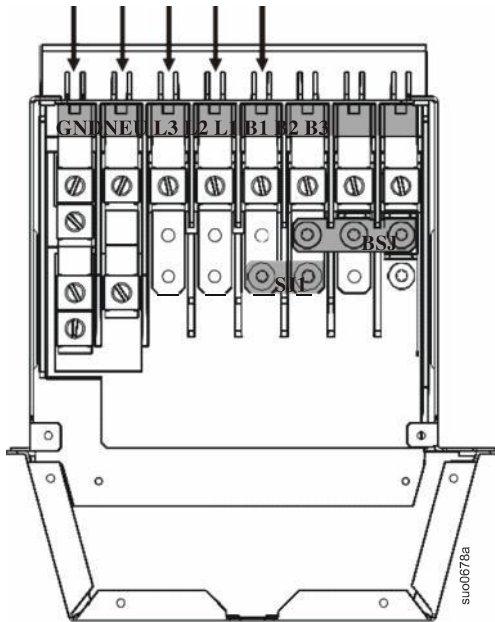
**Input wiring option 1 Factory Default**  
Single phase input, single phase output, single feed



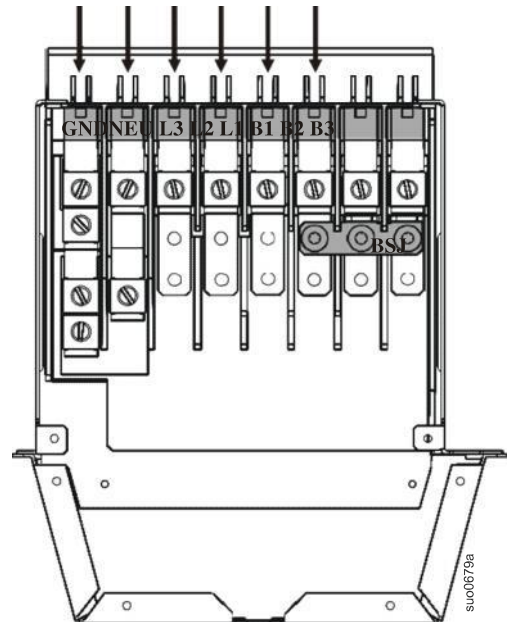
**Input wiring option 2**  
Single phase input, single phase output, dual feed



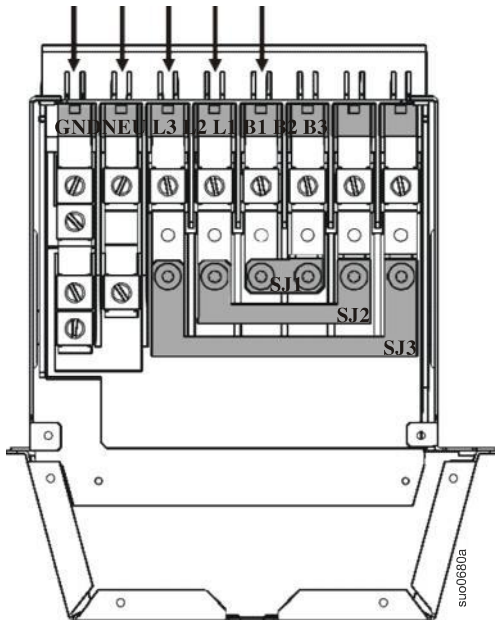
**Input wiring option 3**  
Three phase input, single phase output,  
single feed



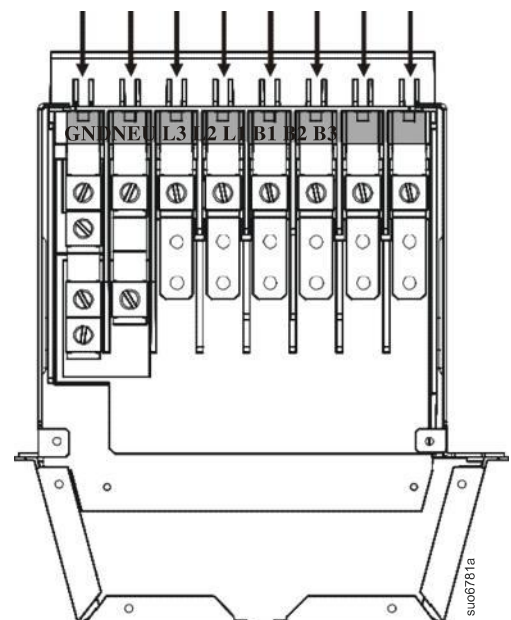
**Input wiring option 4**  
Three phase input, single phase output,  
dual feed



**Input wiring option 5**  
Three phase input, three phase output,  
single feed



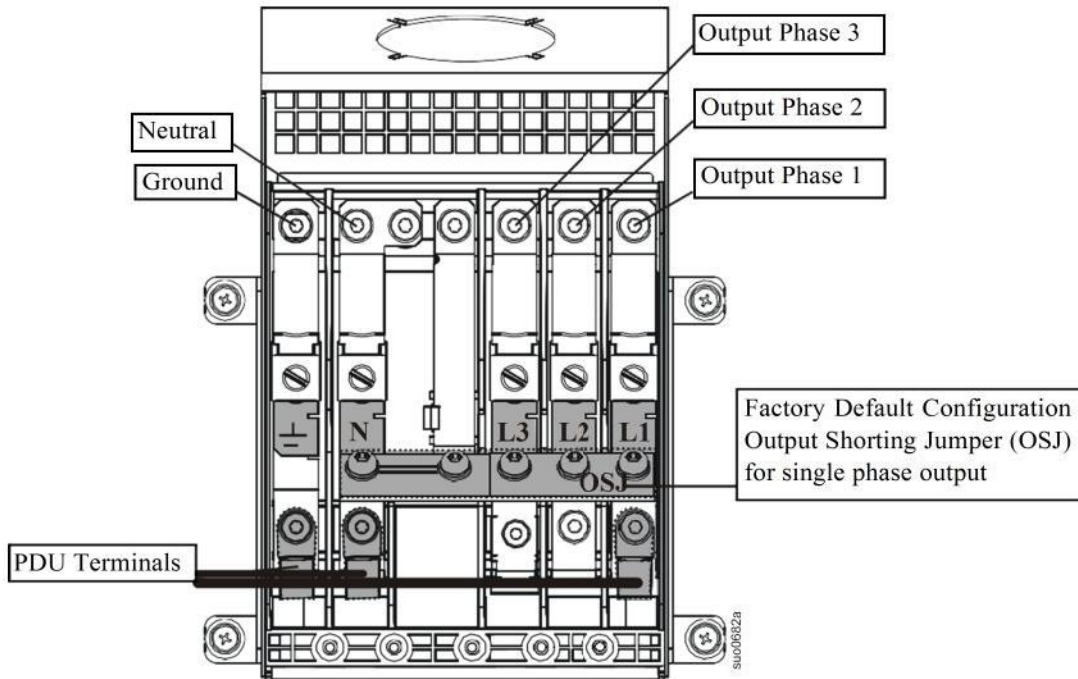
**Input wiring option 6**  
Three phase input, three phase output, dual  
feed



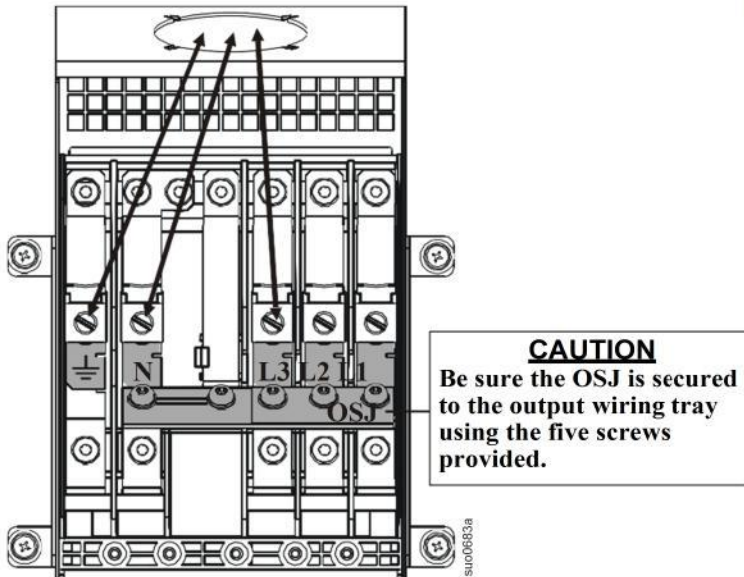
# Output Wiring Options

Output wiring overview. Refer to the diagrams on the following pages for output wiring options.

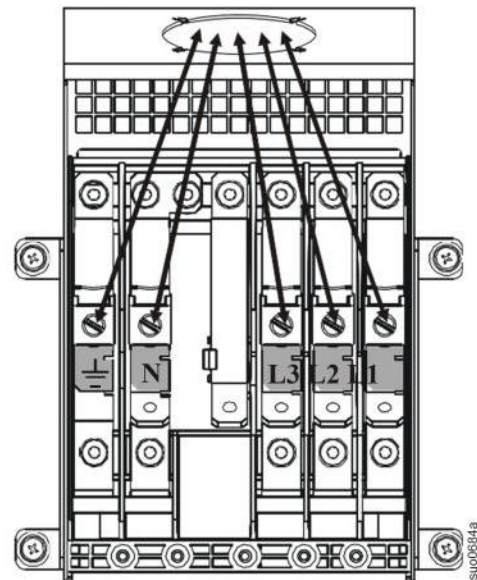
**Labeled jumpers and connectors must be installed in the appropriate locations.**



**Output hardwire option 1**  
Single phase hardwire output connection



**Output hardwire option 2**  
Three phase hardwire output connection  
XLBP PDU not connected  
Output shorting jumper (OSJ) removed



# Connect External Batteries

## CAUTION

### DAMAGE TO EQUIPMENT OR PERSONNEL

- Adhere to all local and national electrical codes.
- A qualified electrician should perform the installation and servicing of external batteries.
- Disconnect charging source(s) **BEFORE** connecting or disconnecting battery terminals.
- External batteries may retain lethal voltages after power has been disconnected and all switches are off.
- Use extreme caution when making terminal connections. Do not allow cables to touch anything except the intended terminal.

**Failure to follow these instructions can result in equipment damage or serious injury**

## CAUTION

### DAMAGE TO EQUIPMENT OR PERSONNEL

Always wear:

- Goggles or face shields
- Acid-resistant, insulated gloves
- Protective aprons

Always Use:

- Insulated tools
- Rubber mats to cover batteries during servicing
- Rubber mats or rubber stands on the floor
- Adequate lifting devices

Remove:

- Watches, rings, and other metal objects from your body

**Failure to follow these instructions can result in equipment damage or serious injury**

## CAUTION

### DAMAGE TO EQUIPMENT OR PERSONNEL

- To avoid static build up, service personnel should establish a grounding contact prior working on batteries.
- Do not lay tools or metal parts on top of batteries.
- lead acid batteries contain hazardous, toxic materials.
  - Do not open, alter or mutilate batteries. Internal materials may be harmful to the skin and eyes.
  - Do not dispose of batteries in a fire. There is danger of explosion.
- Handle, transport and recycle batteries in accordance with local codes and regulations. Failure to follow these instructions can result in equipment damage or death or serious injury

**Failure to follow these instructions can result in equipment damage or serious injury**

## APC by Schneider Electric Battery Solution

Refer to the APC by Schneider Electric Web site [www.apc.com](http://www.apc.com), or contact an APC by Schneider Electric dealer for information regarding APC by Schneider Electric external battery pack(s).



# Third Party Battery Solution

Batteries must be Sealed Lead Acid type. Use 90 A, 250 VDC fuses with an Interrupt rating of  $\geq 50,000$  A. Fuses are included with the battery cable assemblies supplied with this unit.

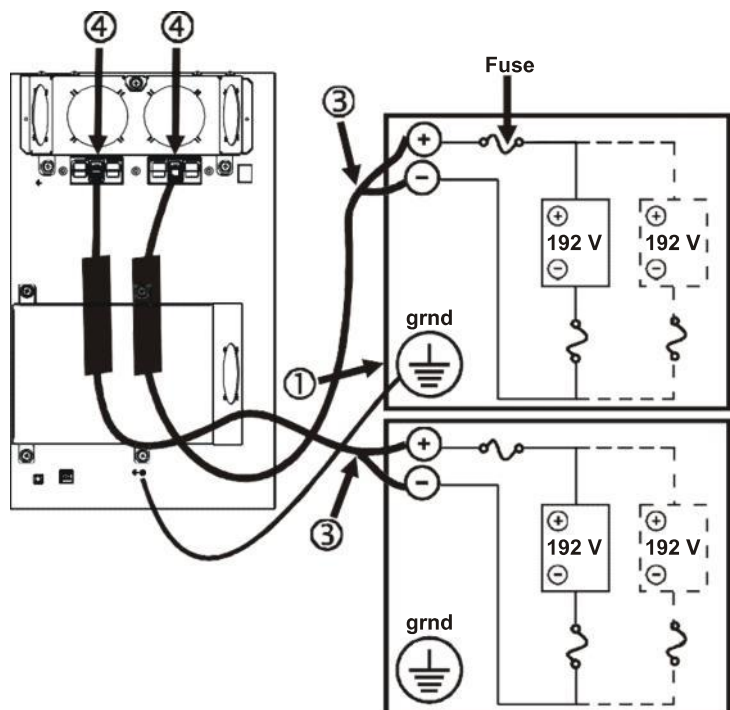
Connect the ground, positive and negative terminals on the external batteries before connecting the batteries to the UPS.

Two separate, isolated 192 V battery systems are required when using a third party battery solution. One cable assembly must be wired to each 192 V battery system. Two cable assemblies are included with the UPS, one for each 192 V battery system.

**Each battery system must have identical Amp hrs.**

## Connect Battery Cable Assemblies

1. Connect the ground wires (supplied), to each battery enclosure ground terminal and the ground screw on the back of the UPS.
2. Cut off one of the connectors on each cable assembly exposing the positive and negative wires in each cable.
3. Connect the positive and negative wires to the positive and negative terminals on each external battery system. Ensure that the proper polarities are connected.
4. Plug the cable connectors into the battery connector receptacles on the back of the UPS.
5. Enter the external battery capacity through the PowerView menu.
  - a. This setting determines battery runtime and battery charge rate.
  - b. The number entered in the menu screen Ext Bat Cap, must equal the number of Amp hrs in one of the identical battery systems.



# Operation

The UPS has three operation mode options.

## Normal operation

During normal operation, the UPS double converts utility power to conditioned power for the connected load.

## Battery operation

During battery operation, the UPS provides power to the connected load from batteries for a finite period of time. The UPS transfers to battery operation if the supply of utility power fails or is outside predefined limits.

## Bypass operation

Bypass mode is reached either as a user selection or automatically.

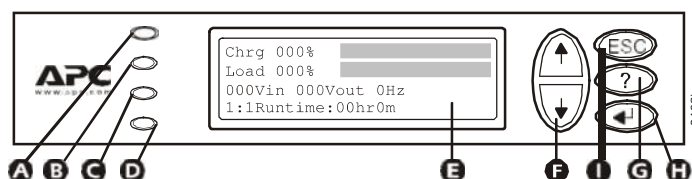
- Bypass mode can be selected through the **Control** menu screen on the PowerView display
- The UPS will automatically switch into bypass mode if:
  - Both normal and battery operation modes are unavailable
  - An output overload condition occurs
  - The UPS has an internal fault

During bypass operation the utility power is connected to the load, bypassing the internal converters. If bypass mode becomes unavailable the UPS will automatically switch to mains power. In the event that mains power is unavailable the system will switch to battery power.

## PowerView Interface Display

The four LEDs to the left of the LCD display indicate the operational status of the UPS.

The five navigation keys to the right of the LCD display are used to select and open menu items, to access information, change system parameters, and to access context sensitive help.




<input type="checkbox"/>	LOAD ON	When LED illuminates green, the UPS supplies power to the load
<input type="checkbox"/>	ON BATT	When LED illuminates yellow, power to load flows from the batteries to the power module
<input type="checkbox"/>	BYPASS	When LED illuminates yellow, power to the load is supplied through bypass
<input type="checkbox"/>	FAULT	When LED illuminates red, a fault condition exists
<input type="checkbox"/>	LCD interface	Displays menu screens for alarms, status data, instructional help, and configuration items
<input type="checkbox"/>	UP/DOWN arrow keys	Used to scroll through and select menu items
<input type="checkbox"/>	HELP key	Opens context sensitive help
<input type="checkbox"/>	ENTER key	Opens menu items and saves changes to system parameters
<input type="checkbox"/>	ESC key	Returns to previous screen displayed

# Navigating Menu Screens

Use the ESC key to navigate between menu screens.

Use the UP/DOWN arrow keys to scroll through the list of sub menus and commands on any screen.

➔ arrow indicates that there are sub menus containing user selectable commands.

Use the ENTER key  to navigate to a sub menu and to select user configurable commands.

To access the overview status screen on the LCD press the ESC key.



To access the main menu screen from the overview status screen, press the ENTER key.



## Main Menu Screen

From the main menu screen it is possible to command, configure, and monitor the system using the sub menu screens: **Control, Status, Setup, Logging, Display, Diags and Help** (refer to sub menu screens section in this manual).

Use the UP/DOWN arrow keys to select the menu to be accessed.

Press the ENTER key to open a sub menu screen.



## Menu tree

The menu tree provides an overview of the top level menu screens.

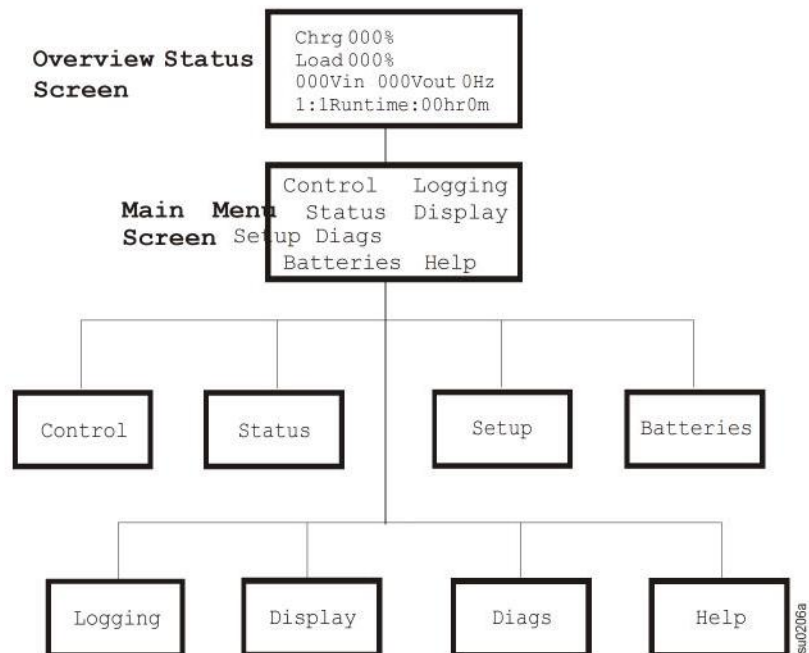
### Navigating sub menu screens

Use the UP/DOWN arrow keys to scroll through the list of functions and commands on a sub menu screen.

A ↓ after the last entry on a sub menu, indicates a continuation of the function command list.

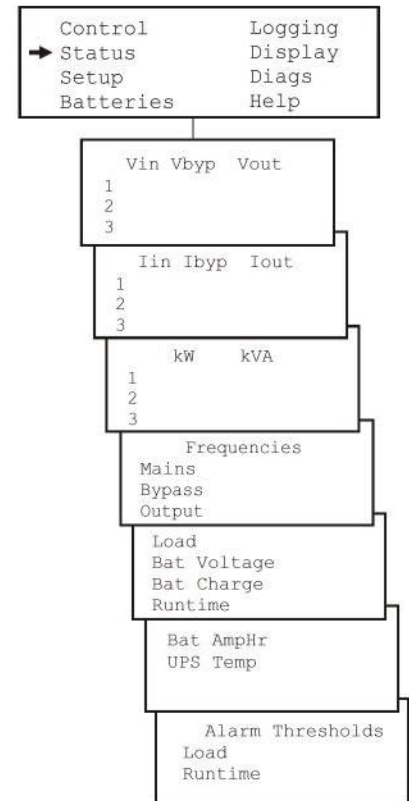
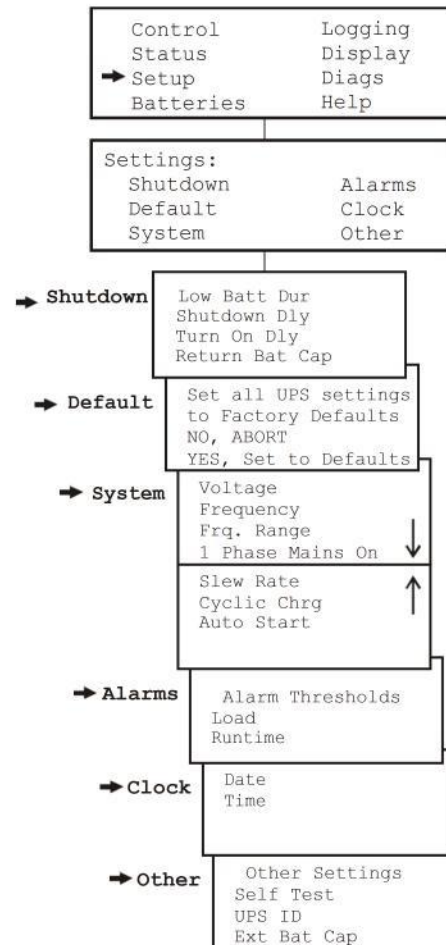
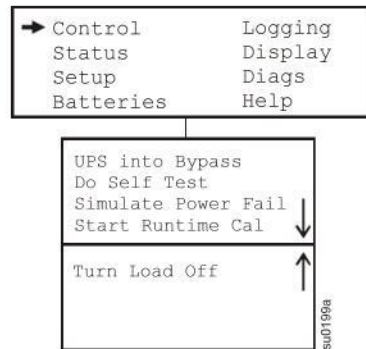
Use the UP/DOWN arrow keys to view the remaining entries in the list.

Use the ENTER key to select a command and move to sub menus associated with that function/command.





## Sub menu screens



Output Frequency Options: Auto Sensing; 50 Hz; 60 Hz

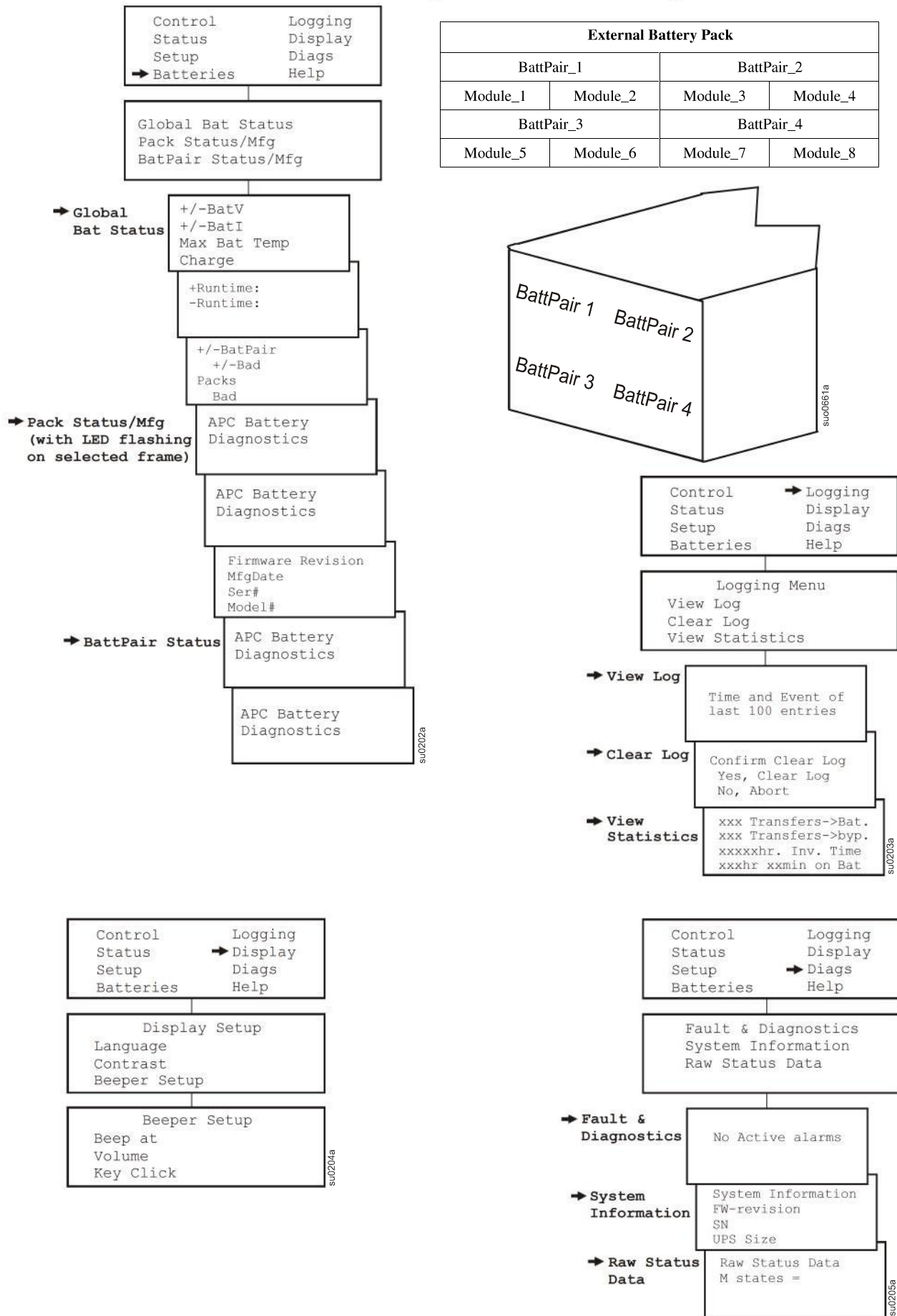
50 Hz frequency range: 50±3 Hz; 50±0.1 Hz

60 Hz frequency range: 60±3 Hz; 60±0.1 Hz

Clock: The date and time functions are used to time stamp events in the event log. To avoid inaccuracies, change the time setting to reflect day light saving time where applicable.

Ext Bat Cap: Press . Use the UP/DOWN arrow keys to select the desired value. Press to move to the next digit. Press after selecting the final value, to lock in the battery capacity setting.

The PowerView will reference XLBP configuration in the following manner.



# Start Up

## Connect Load to UPS new format

1. The UPS features chassis ground connection screws located on the rear panel, for connecting the ground leads on transient voltage devices.  
**Before connecting the ground cable, ensure that the UPS is NOT connected to utility or battery power.**
2. Connect equipment to the UPS.  
NOTE: This UPS is equipped with an external battery connector on the rear panel of the unit.
3. The battery charges to 90% capacity during the first three hours of normal operation. Do not expect full battery run capability during this initial charge period.
4. Refer to the APC by Schneider Electric Web site, [www.apc.com](http://www.apc.com) for battery runtimes.
5. Where appropriate use an APC by Schneider Electric extension battery cable. For ordering details contact your dealer or APC by Schneider Electric through the Web site [www.apc.com](http://www.apc.com).
6. Add optional accessories to the SmartSlot located on the front panel.

For optimal computer system security, install PowerChute Smart-UPS monitoring software.

## Connect power to UPS and load

1. Connect input power to the UPS.
2. Check the PowerView interface display for messages.
3. Turn on the load using the interface display menu options.

## Communication port

Serial Port



**Use only the supplied cable to connect to the serial port. A standard serial interface cable is incompatible with the UPS.**

The serial port can be used to configure that Network Management Card.

# Emergency Power Off

The output power can be disabled in an emergency by closing a switch connected to the emergency power off button (EPO).

## Adhere to national and local electrical codes when wiring.

The switch should be connected in a normally open switch contact. External voltage is not required; the switch is driven by 12 V internal supply. In closed condition, 2 mA of current are drawn.

The EPO switch is internally powered by the UPS for use with nonpowered switch circuit breakers.

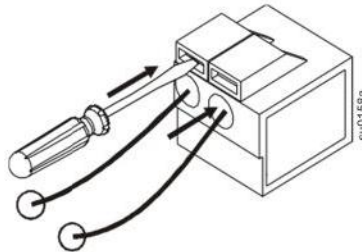
The EPO circuit is considered a Class 2 circuit, (UL, CSA standards) and an SELV circuit (IEC standard).

**EPO port**  
located on rear panel



**EPO  
connector**

Strip the insulation from one end of each wire to be used for connecting the EPO. Insert a screwdriver into the slot above the terminal to be wired. Insert the stripped wire into the terminal. Remove the screwdriver to secure the wire in the terminal. Repeat for each terminal.



Both Class 2 and SELV circuits must be isolated from all primary circuitry. Do not connect any circuit to the EPO terminal block unless it can be confirmed that the circuit is Class 2 or SELV. If circuit standard cannot be confirmed, use a contact closure switch.

Use one of the following cable types to connect the UPS to the EPO switch.

- CL2: Class 2 cable for general use.
- CL2P: Plenum cable for use in ducts, plenums, and other spaces used for environmental air.
- CL2R: Riser cable for use in a vertical run in a floor to floor shaft.
- CLEX: Limited use cable for use in dwellings and for use in raceways.
- For installation in Canada: Use only CSA certified, type ELC, (extra low voltage control cable).
- For installation in other countries: Use standard low voltage cable in accordance with national and local regulations.

# Troubleshooting Display Messages

Use the table below to solve minor installation and operation problems. Refer to the APC by Schneider Electric Web site, [www.apc.com](http://www.apc.com) for assistance with complex UPS problems. The PowerView reports various messages on the display, including alarm status and changes in system configuration. This section lists all the PowerView display messages, the reason for the message, and the appropriate corrective action.

Messages may occur simultaneously. If this happens, be sure to review all of the messages for a better understanding of the system condition.

Condition	PowerView Display Message	Reason for Message	Corrective Action
Start Up	#Batteries changed since last ON.	At least one battery module has been added or removed from the UPS since the last time the Pwr ON command was issued.	No corrective action necessary. Proceed with the start up.
	Automatic Self Test Started.	The UPS has started preprogrammed battery test.	
	Batt capacity less than Return Batt Cap.	The battery capacity of the UPS is less than the user specified minimum battery capacity required to turn on the load.	Option 1) Abort the start up and allow batteries to recharge. Option 2) Continue start up, with less than minimum battery capacity.
	System Start Up Configuration Failed.	System configuration error: Start up diagnostic fault.	Check for other alarms.  If the problem persists contact APC by Schneider Electric Customer Support. Refer to <i>Contact Information</i> in this manual.
	Mains: Site Wiring Fault	Input and Output Jumpers are not configured correctly	Check input wiring tray jumpers and output shorting jumper for compatibility. Refer to the <i>Input/Output Jumper Configurations</i> table in this manual.
	Bypass Not Available - Wrong Ph Seq		Check bypass jumpers in input wiring tray and output shorting jumper for compatibility. Check bypass phases for positive sequence. Refer to the <i>Input/Output Jumper Configurations</i> table in this manual.
	Bypass: Site Wiring Fault		Check bypass jumpers in input wiring tray and output shorting jumper for compatibility. Refer to the <i>Input/Output Jumper Configurations</i> table in this manual.
General Status	# of batteries increased.	At least one battery pair has been added to the system.	No corrective action is necessary.
	# of batteries decreased.	At least one battery pair has been removed from the system.	
	# External Battery Packs increased.	At least one external battery pack has been connected to the UPS.	
	# External Battery Packs decreased.	At least one external battery pack has been disconnected from the UPS.	

<b>Condition</b>	<b>PowerView Display Message</b>	<b>Reason for Message</b>	<b>Corrective Action</b>
Module Failure	Bad Battery Pair.	A battery pair has failed and requires replacement.	Refer to battery pair installation in the external battery pack user manual.
Threshold Alarm	Load Power Is Above Alarm Limit.	The load has exceeded the user specified load alarm threshold.	Option 1) Use the display interface to raise the alarm threshold. Option 2) Reduce the load
	Load Is No Longer Above Alarm Threshold.	The load exceeded the alarm threshold. The situation has been corrected. Either because the load decreased or the threshold was increased.	No corrective action is necessary.
	Min Runtime Restored.	The system runtime dropped below the configured minimum and has been restored: <ol style="list-style-type: none"> <li>1. Additional battery modules were installed.</li> <li>2. The existing battery modules were recharged.</li> <li>3. The load was reduced.</li> <li>4. The user specified threshold was decreased.</li> </ol>	

<b>Condition</b>	<b>PowerView Display Message</b>	<b>Reason for Message</b>	<b>Corrective Action</b>
<b>General Fault</b>	Need Bat Replacement.	One or more battery pairs are in need of replacement.	Refer to battery installation procedure.
	No Batteries Are Connected.	No battery power is available.	Check that batteries are installed and connected properly.
	Discharged Battery.	The UPS is on battery operation and the battery charge is low.	Shut down the system and the load or restore the incoming voltage.
	Low- Battery.	The UPS is on battery operation and the battery charge is low.	
	Weak Batt(s) Detected. Reduced Runtime.	One or more weak battery pairs detected (only applicable for internal battery modules).	Replace the weak battery pairs.
	Batt Temperature Exceeded Upper Limit.	The temperature of one or more battery packs has exceeded system specifications.	Contact APC by Schneider Electric Customer Support. Refer to <i>Contact Information</i> in this manual.
	Battery Over-Voltage Warning.	The battery voltage is too high and the charger has been deactivated.	
	Runtime Is Below Alarm Threshold.	The predicted runtime is lower than the user-specified minimum runtime alarm threshold. Either the battery capacity has decreased, or the load has increased.	Option 1) Allow the batteries to recharge. Option 2) If possible, increase the number of battery modules. Option 3) Reduce the load. Option 4) Decrease the alarm threshold.
	Shutdown Due To Low Battery.	The UPS shutdown while on battery operation.	No corrective action is necessary. Note: Should this situation reoccur, consider increasing battery capacity.
	Bypass Not Available Input Freq/Volt out Of Range.	The frequency or voltage is out of acceptable range for bypass. This message occurs when the UPS is online.	Correct the input voltage to acceptable frequency or voltage.
	Mains Not Available. Input Frq/Volt Out of Range.	The frequency or voltage is out of acceptable range for normal operation.	
	Emergency PSU Fault.	Redundant Emergency Power Supply Unit (PSU) is not working. Internal diagnostic fault. The UPS will continue to operate normally.	Contact APC Customer Support. Refer to <i>Contact Information</i> in this manual.



Condition	PowerView Display Message	Reason for Message	Corrective Action
General Fault	Fan Fault	A fan has failed.	Contact APC by Schneider Electric Customer Support. Refer to <i>Contact Information</i> in this manual.
	Static Bypass Switch Fault.	The static bypass switch has failed.	
	System Failure Detected by Surveillance.	The system has detected an internal error.	Check for other alarms. If the problem persists contact APC by Schneider Electric Customer Support. Refer to <i>Contact Information</i> in this manual.
	System Not Synchronized to Bypass.	System cannot synchronize to bypass mode. Bypass mode may be unavailable.	Option 1) Decrease input frequency sensitivity. Contact APC by Schneider Electric Customer Support. Refer to <i>Contact Information</i> in this manual. Option 2) Correct bypass input voltage to provide acceptable frequency or voltage.
	UPS In Bypass Due To Fault.	The UPS has transferred to bypass mode due to a fault.	Contact APC by Schneider Electric Customer Support. Refer to <i>Contact Information</i> in this manual.
	UPS In Bypass Due To Overload.	The load has exceeded the power capacity.	Decrease the load.
	UPS Is Overloaded.	The load has exceeded the system power capacity.	Option 1) Decrease the load. Option 2) Check the load distribution on the three phases through the PowerView display. If the load is unevenly distributed, adjust the load distribution.

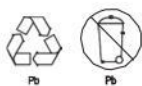
## Maintenance

### Replace battery modules

This UPS has provision for easy to replace, hot swappable battery modules. Replacement is a safe procedure, isolated from electrical hazards. You may leave the UPS and connected equipment on during the replacement procedure.

**Once the batteries are disconnected the connected equipment is not protected from power outages.**

Refer to the appropriate replacement battery user manual for battery module installation instructions. See your dealer or contact APC by Schneider Electric at [www.apc.com](http://www.apc.com) for information on replacement battery modules.



**Be sure to deliver the used battery(s) to a recycling facility or ship it to APC by Schneider Electric in the replacement battery packing material.**



# Service

**If the unit requires service, do not return it to the dealer. Follow these steps:**

1. Review the *Troubleshooting* section of the manual to eliminate common problems.
2. If the problem persists, contact APC by Schneider Electric Customer Support.
  - a. Note the model number and serial number and the date of purchase. The model and serial numbers are located on the rear panel of the unit and are available through the LCD display on select models.
  - b. Call APC by Schneider Electric Customer Support and a technician will attempt to solve the problem over the phone. If this is not possible, the technician will issue a Service Request Number.
  - c. If the unit is under warranty, the repairs are free.
3. An Authorised Service Representative will visit your location and try to resolve the issue.

# Limited Factory Warranty

Schneider Electric IT Business India Private Ltd. (SEITBIPL), warrants its products to be free from defects in materials and workmanship for a period of one (1) year from the date of purchase. The SEITBIPL obligation under this warranty is limited to repairing or replacing, at its own sole option, any such defective products or parts thereof. Repair or replacement of a defective product or part thereof does not extend the original warranty period.

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