Installation Guide Smart-UPS™ On-Line SURT15K/20KUXI-IN 230 Vac Tower

Important Safety Information

SAVE THESE INSTRUCTIONS - This manual contains important instructions that should be followed during installation and maintenance of the Smart-UPS and batteries.

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this bulletin 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 either to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Product Handling Guidelines

<18 kg
<40 lb

18-32 kg
40-70 lb

32-55 kg
70-120 lb

>55 kg
>120 lb

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.
- All wiring must be performed by a qualified electrician.
- This UPS is intended for indoor use only.
- Do not operate this unit 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 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.
  Note: For each XLBP added, increased recharge time will be required.
- 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.

Deenergizing safety

- The unit may present a shock hazard even when disconnected from AC and DC power.
- The AC output connectors may be energized by remote or automatic control at any time.
- Before installing or servicing the equipment check that the:
  - Input power cables should not be connected to the input connector.
  - External batteries are disconnected.

Electrical safety

- Use tools with insulated handles.
- Do not handle any metallic connector before power has been disconnected.
- The protective earth conductor for the unit carries the leakage current from the load devices (computer equipment). An insulated ground conductor is to be installed as part of the branch circuit that supplies the unit. The conductor must have the same size and insulation material as the grounded and ungrounded branch circuit supply conductors. The conductor will typically be green, with or without a yellow stripe.
- This is a pluggable, Type A unit. The leakage current from the unit may exceed 3.5mA.
- Connect the unit input ground conductor to the protective earth screw located on the front of the chassis.
- If the unit input power is supplied by a separately derived system, the ground conductor must be properly bonded at the supply transformer or motor generator set.

Battery safety

- The UPS utilizes external batteries. It is not necessary to ground the battery system. The user has the option of referencing the battery system to chassis ground at either a positive or negative battery terminal.
- When replacing batteries, replace with the same number and type.
- Batteries typically last 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. Batteries should be replaced before end of life.
- The UPS must be used with recommended battery types from Schneider Electric.
- CAUTION: Before installing or replacing the batteries, remove jewelry such as wristwatches and rings. High short circuit current through conductive materials could cause severe burns.
- CAUTION: Do not dispose of batteries in a fire. The batteries may explode.
- CAUTION: Do not open or mutilate batteries. Released material is harmful to the skin and eyes and may be toxic.

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 acceptable levels or the batteries are fully discharged.

This user manual is available on the APC by Schneider Electric Web site, www.apc.com.

Package Contents

- UPS
- Input wiring tray
- Output wiring tray
- PowerView module
- Front bezel
- UPS serial cable
- Network Management Card (NMC) serial cable
- Ethernet jumper cable for rear panel network access
- Battery cable assemblies
- Ground wire
- Literature kit containing:
  - Product documentation
  - Network Management Card utility CD
  - Network Management Card documentation
  - Safety Guide
  - Warranty card

Specifications

NOTICE

RISK OF EQUIPMENT DAMAGE

- Smart-UPS must be used indoors only.
- The installation location should be sturdy to withstand the weight of the Smart-UPS.
- Do not operate Smart-UPS where there is excessive dust or where the temperature or humidity are outside specified limits.
- Be sure air vents on UPS are not blocked. Allow adequate space for proper ventilation.
- Environmental factors impact battery life. High temperatures, poor utility power, and frequent, short duration discharges will shorten battery life.

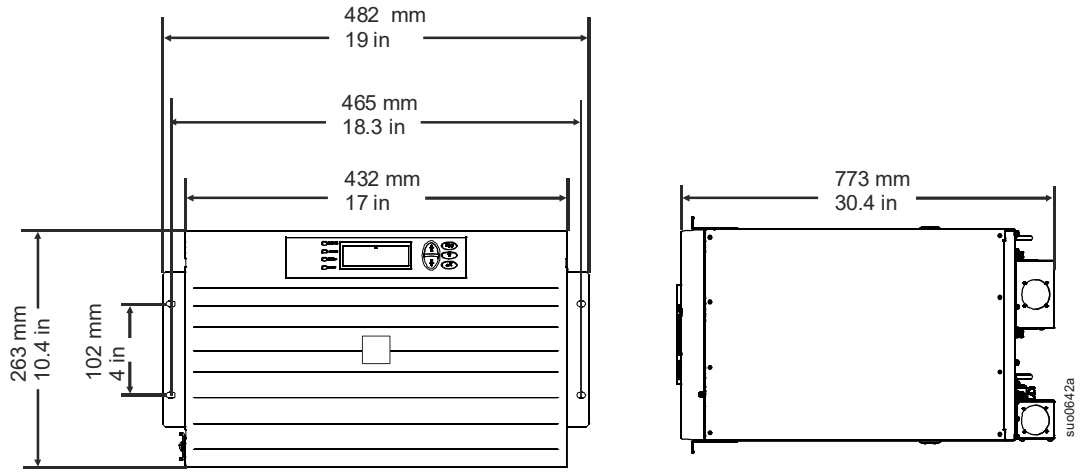
Failure to follow these instructions can result in equipment damage.

Environmental

Temperature	**Operating**	0 ° to 40 °C (32 ° to 104 °F)
	Storage	-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
Maximum Elevation	**Operating**	3,000 m (10,000 ft)
	Storage	15,000 m (50,000 ft)
Humidity		0 to 95% relative humidity, non-condensing

Physical

Weight	
UPS (with packing material)	129 kg (284 lb)
UPS (no packing material)	68 kg (150 lb)

Dimensions	UPS	XLBP
		

Accessories

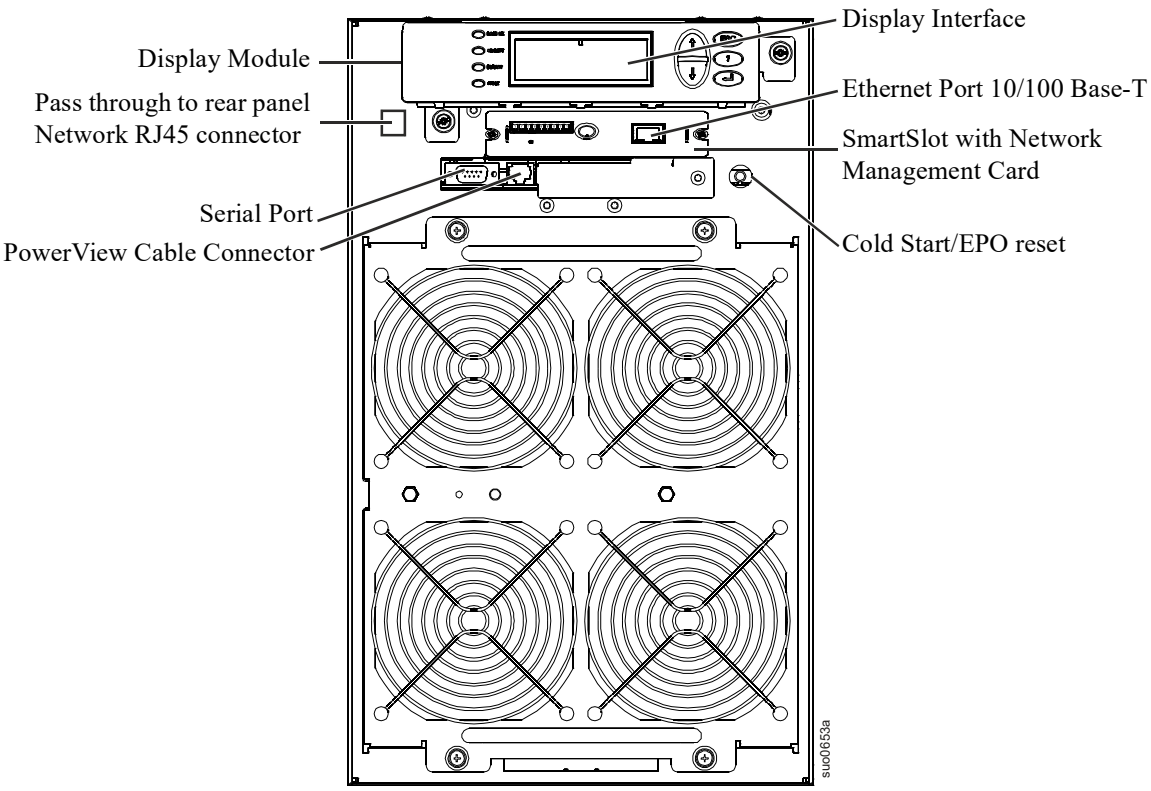
Install accessories before connecting power to the UPS.

- Refer to the APC by Schneider Electric Web site, **www.apc.com** 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

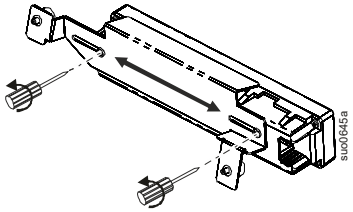


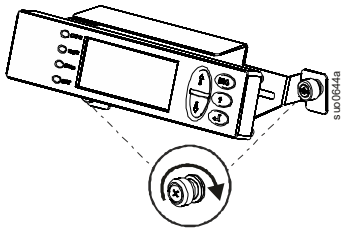
Installation

Install PowerView module

Before attaching the PowerView module to the UPS:

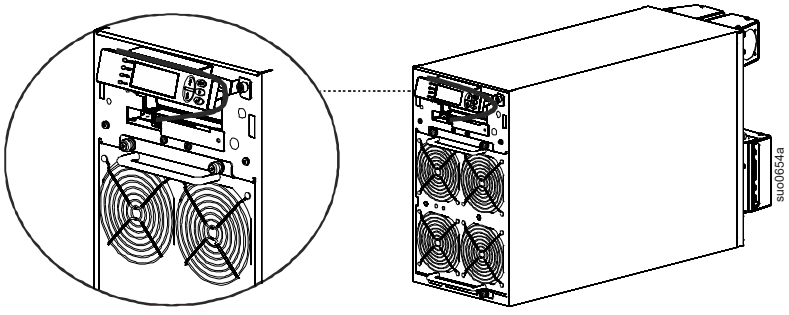
1. Loosen the two bracket screws on the back of the PowerView module.
   a. Slide the bracket to the position that will accommodate the screw holes on the UPS.
   b. Tighten the screws on the bracket.
2. Secure the PowerView module to the UPS using the two thumb screws attached to the module.





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:

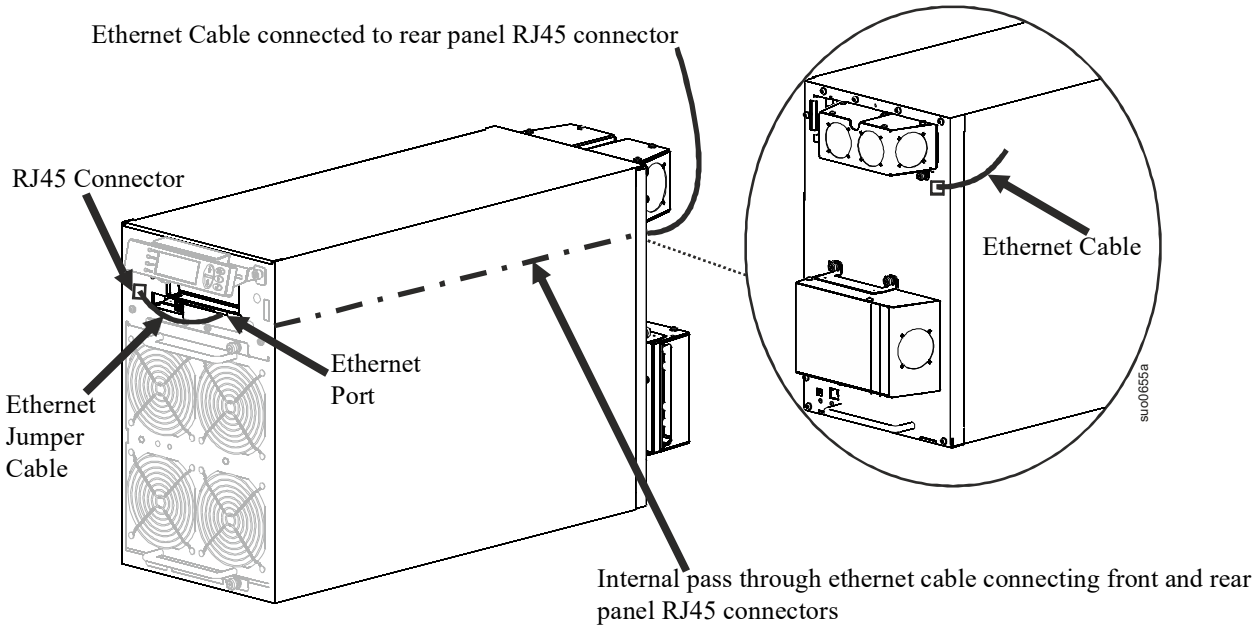
1. Rear panel access connecting the ethernet jumper cable to the front panel
2. Front panel access routing the ethernet cable under the top cover
3. Front panel access routing the ethernet cable through a notch in the bezel

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.

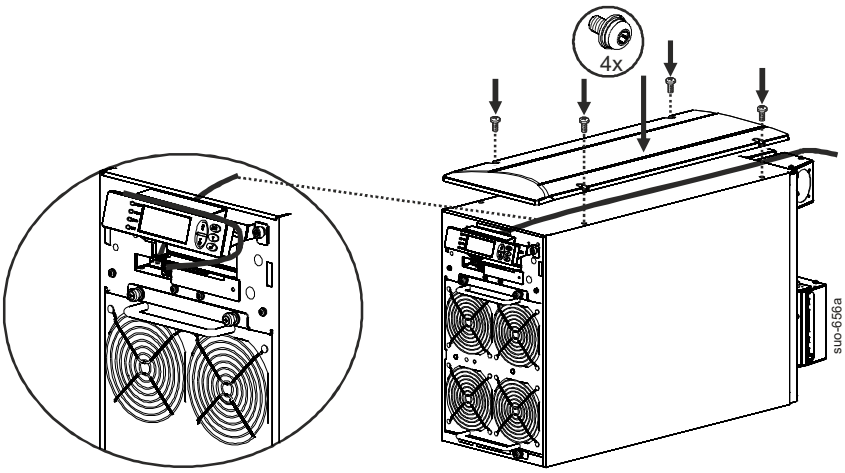
Connect a network cable (not supplied), to the RJ45 connector on the rear panel of the UPS.

Route the ethernet cable utilizing the internal pass through



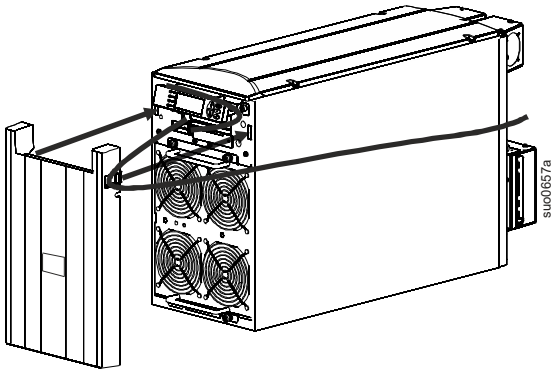
Route the ethernet cable under the top cover

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 ELECTRIC SHOCK

- Adhere to all national and local electrical codes.
- All electrical work must be performed by a qualified electrician.
- Turn off all power to this equipment before working on the equipment. Practice lockout/tagout procedures.
- Always connect the UPS to a grounded outlet.
- Do not wear jewelry when working with electrical equipment.
- Ensure that line, neutral and ground cables of the input and output terminals are connected.
- Actual wire size must comply with required amp capacity and national and local electrical codes.
- Recommended input terminal screw torque: 4.5 Nm (40 lb-in).
- All openings that allow access to UPS hardwire terminals must be covered.
- Select wire size and connectors according to national and local codes.

Failure to follow these instructions could result in minor or moderate injury or equipment damage.

⚠ CAUTION

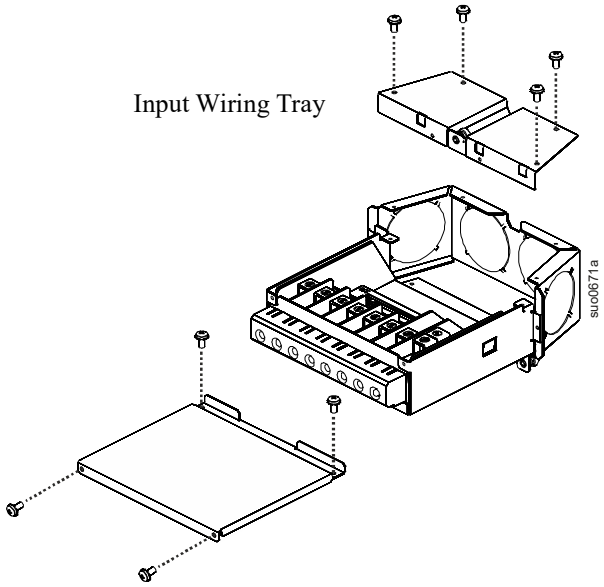
RISK OF FIRE

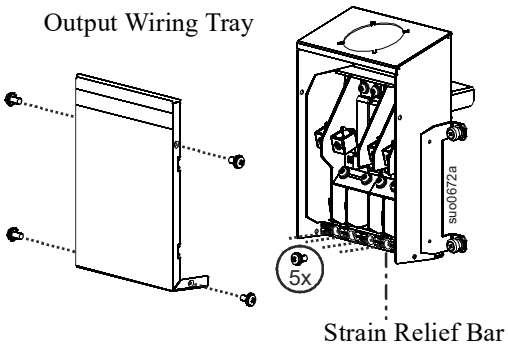
The UPS must be wired into a branch circuit, equipped with a circuit breaker rated as specified in this manual.

Failure to follow these instructions could result in minor or moderate injury or equipment damage.

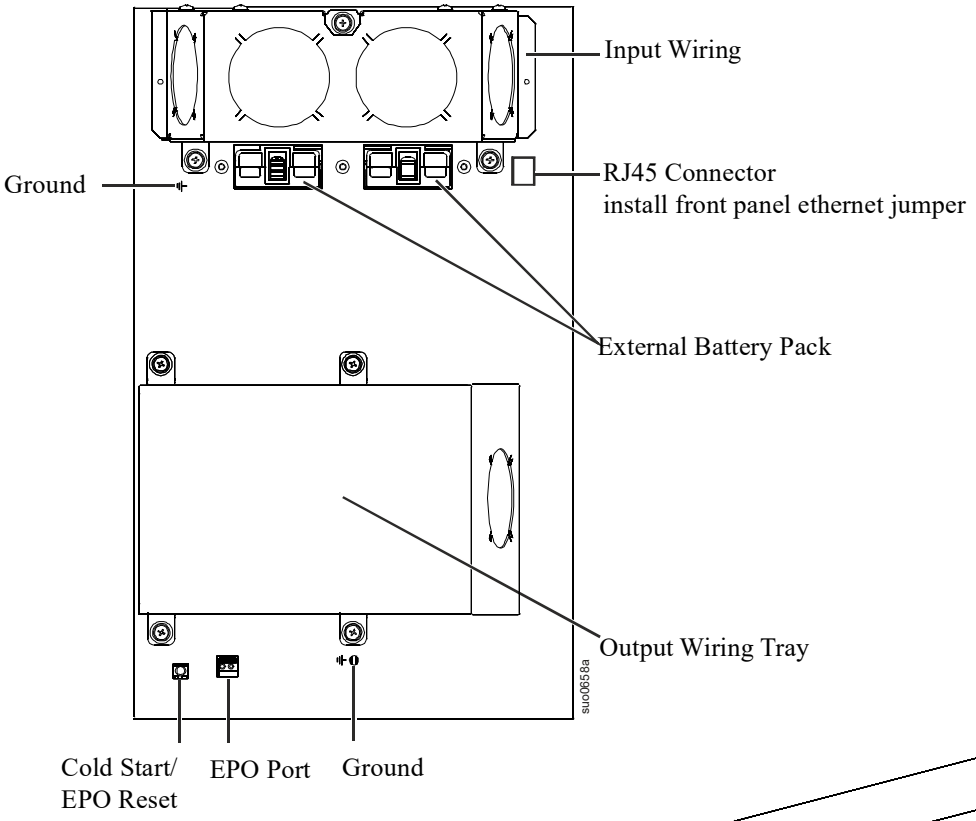
1. For input wiring only, install a utility circuit breaker in accordance with local electrical codes.
2. Switch the utility circuit breaker OFF.
3. Remove the appropriate circular knockouts from the input and output wiring trays.
4. Remove the screws that secure the covers and take the covers off of 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 9 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 9 in the this manual.

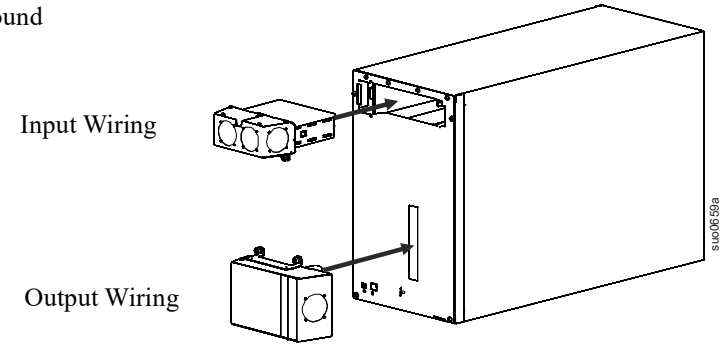
8. Use an appropriate strain relief (not supplied), on the hardwired input and output power cables.
9. Replace the wiring tray covers.





Install Input/Output Wiring Trays in UPS Rear Panel





Wiring specifications

Adhere to national and local electrical codes.

⚠ CAUTION

RISK OF FIRE

The UPS must be wired into a branch circuit, equipped with a circuit breaker rated as specified in this manual.

Failure to follow these instructions could result in minor or moderate injury or equipment damage.

Input Connections	Output Connections
Main Input Single-Phase: Wire to L1, N, and ⏚ Three-Phase: Wire to L1, L2, L3, N, and ⏚	**Hardwire** Single-Phase: Wire to L1, N, and ⏚ Three-Phase: Wire to L1, L2, L3, N, and ⏚

Input Connections	Output Connections
Bypass Input (optional) Single-Phase: Wire to B1, N, and ⏚ Three-Phase: Wire to B1, B2, B3, N, and ⏚	**Single-phase PDU** 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)**
SURT15KUXI-IN					
Input Output	1 1	220/230/240 VAC 220/230/240 VAC	83 A 66 A	100 A each phase Not required	35 mm^2 25 mm^2
Input Output	3 1	380/400/415 VAC 220/230/240 VAC	28 A each phase 66 A	100 A each phase** Not required	35 mm^{2**} 25 mm^2
Input Output	3 3	380/400/415 VAC 380/400/415 VAC	28 A each phase 22 A each phase	35 A or 40 A each phase Not required	16 mm^2 16 mm^2
SURT20KUXI-IN					
Input Output	1 1	220/230/240 VAC 220/230/240 VAC	105 A 87 A	125 A each phase Not required	50 mm^2 35 mm^2
Input Output	3 1	380/400/415 VAC 220/230/240 VAC	35 A each phase 87 A	125 A each phase** Not required	50 mm^{2**} 35 mm^2
Input Output	3 3	380/400/415 VAC 380/400/415 VAC	35 A each phase 29 A each phase	50 A each phase Not required	16 mm^2 16 mm^2

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

**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)**
SURT15KUXI-IN							
Input Output	1 1	220/230/240 VAC 220/230/240 VAC	83 A 66 A	100 A each phase Not required	100 A each phase Not required	35 mm^2 25 mm^2	35 mm^2 25 mm^2
Input Output	3 1	380/400/415 VAC 220/230/240 VAC	28 A each phase 66 A	35 A or 40 A each phase Not required	100 A each phase** Not required	6 mm^2 25 mm^2	35 mm^{2**} 25 mm^2

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)**
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^2	16 mm^2
Output	3	380/400/415 VAC	22 A each phase	Not required	Not required	6 mm^2	16 mm^2
SURT20KUXI-IN							
Input	1	220/230/240 VAC	105 A	125 A each phase	125 A each phase	50 mm^2	50 mm^2
Output	1	220/230/240 VAC	87 A	Not required	Not required	35 mm^2	35 mm^2
Input	3	380/400/415 VAC	35 A each phase	50 A each phase	125 A each phase**	10 mm^2	50 mm^{2**}
Output	1	220/230/240 VAC	87 A	Not required	Not required	35 mm^2	35 mm^2
Input	3	380/400/415 VAC	35 A each phase	50 A each phase	50 A each phase	10 mm^2	16 mm^2
Output	3	380/400/415 VAC	29 A each phase	Not required	Not required	10 mm^2	16 mm^2

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

**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

⚠ CAUTION

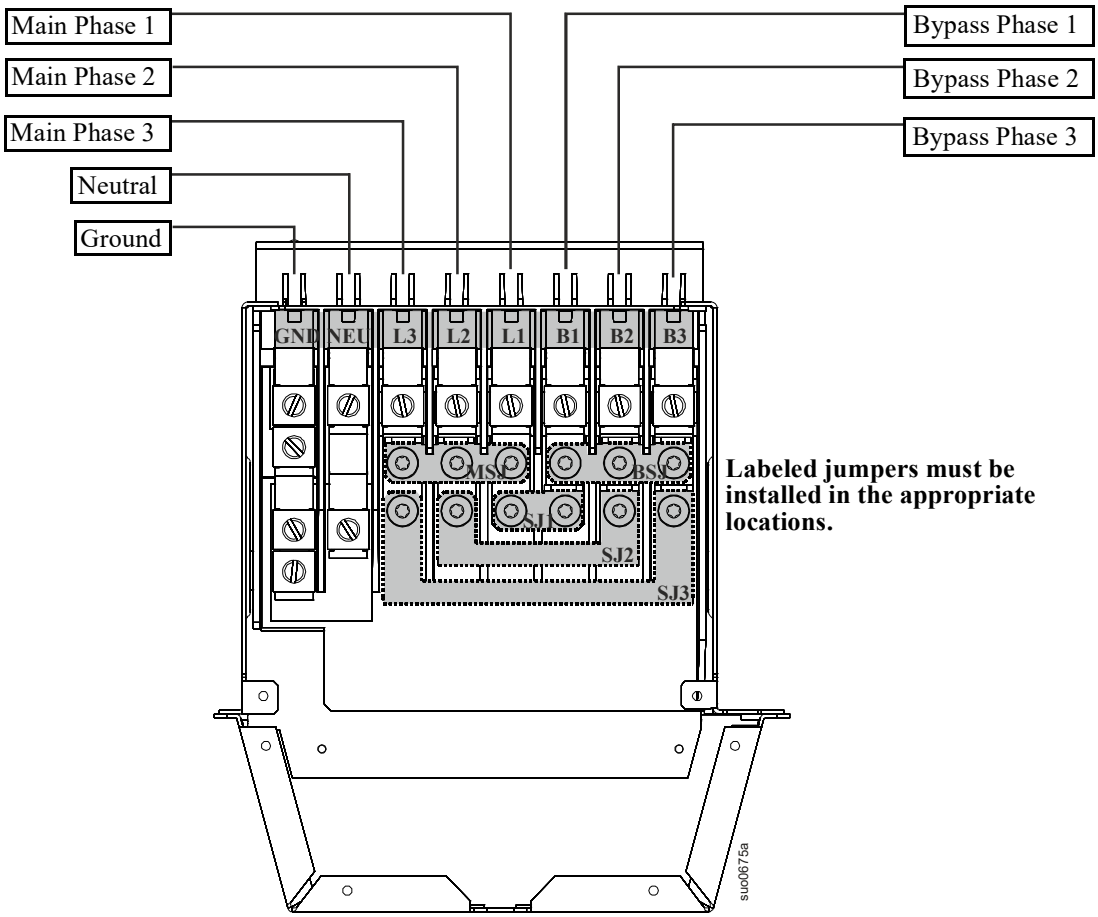
RISK OF ELECTRIC SHOCK AND EQUIPMENT DAMAGE

- All electrical work must be performed by a qualified electrician.
- Turn off all power to this equipment before working on the equipment. Practice lockout/tagout procedures.
- Do not wear jewelry when working with electrical equipment.

Failure to follow these instructions could result in minor or moderate injury or equipment damage.

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**

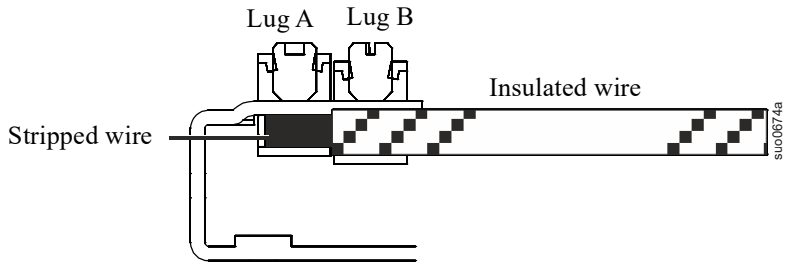


Input/Output Jumper Configurations		Input Jumpers					Output Jumpers
Power I/O Configuration Input:Output	**Separate Bypass Feed**	**SJ1**	**SJ2**	**SJ3**	**MSJ**	**BSJ**	**OSJ**
1:1**	No	✓	✓*	✓*	✓	✓	✓
1:1	Yes				✓	✓	✓
3:1	No	✓				✓	✓

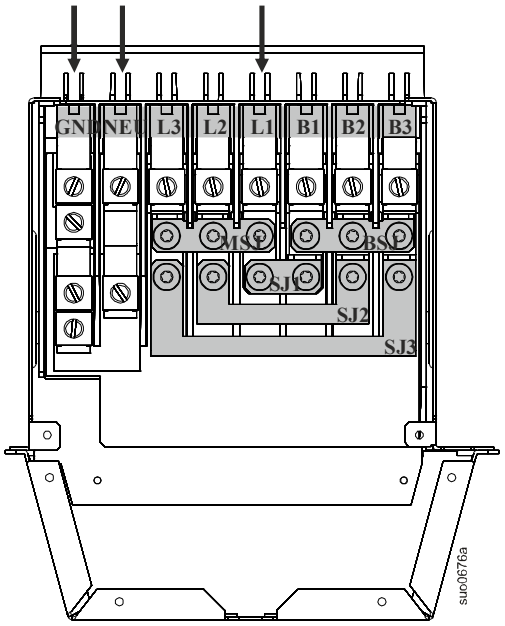
Input/Output Jumper Configurations		Input Jumpers					Output Jumpers
Power I/O Configuration Input:Output	**Separate Bypass Feed**	**SJ1**	**SJ2**	**SJ3**	**MSJ**	**BSJ**	**OSJ**
1:1**	No	✓	✓*	✓*	✓	✓	✓
1:1	Yes				✓	✓	✓
3:1	Yes					✓	✓
3:3	No	✓	✓	✓			
3:3	Yes						
* Optional ** Factory Default							

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

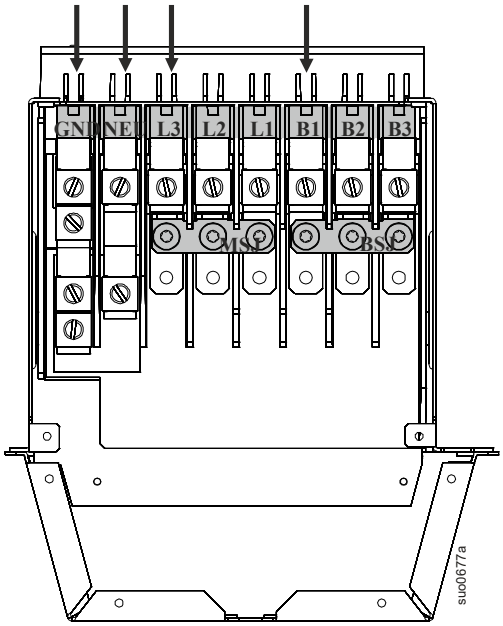
1. Strip the cable of insulation, exposing the wire. Secure the exposed wire with lug “A”.
2. Secure the insulated portion of the cable with lug “B”.



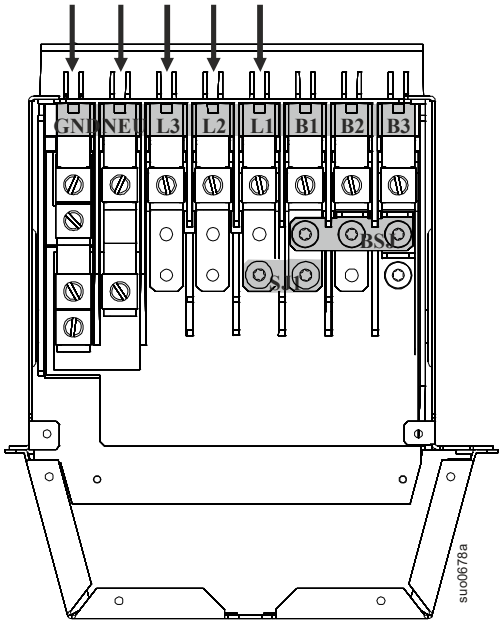
Input wiring option 1 Factory Default
Single phase input, single phase output, single feed



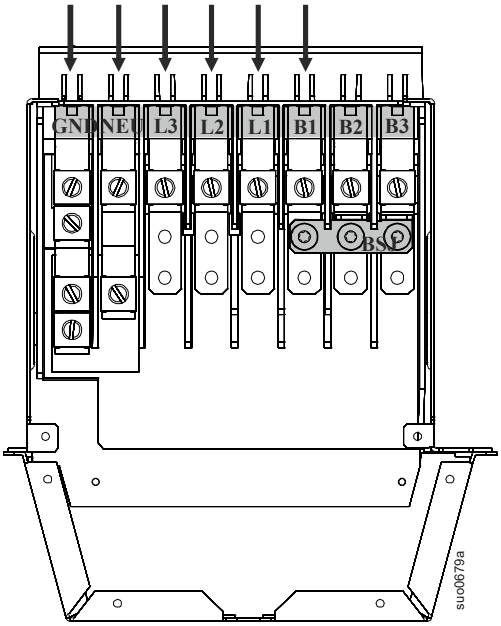
Input wiring option 2
Single phase input, single phase output, dual feed



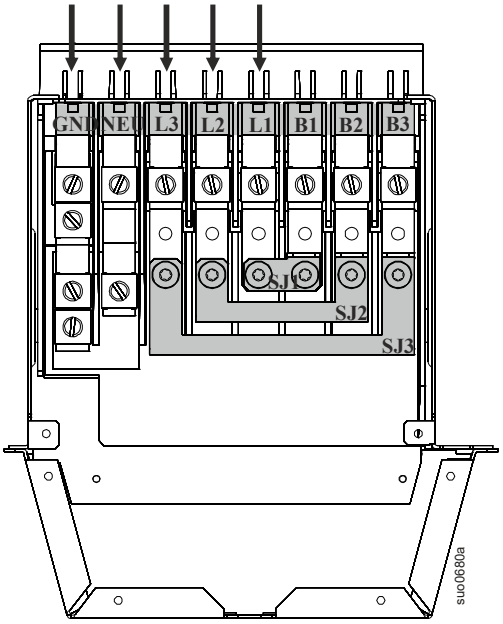
Input wiring option 3
Three phase input, single phase output, single feed



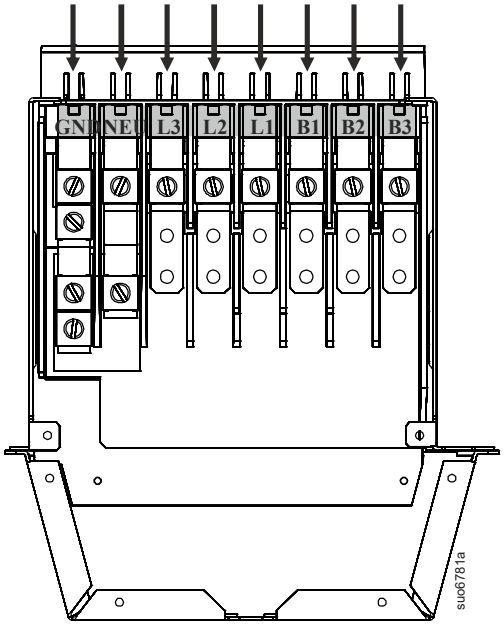
Input wiring option 4
Three phase input, single phase output, dual feed



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

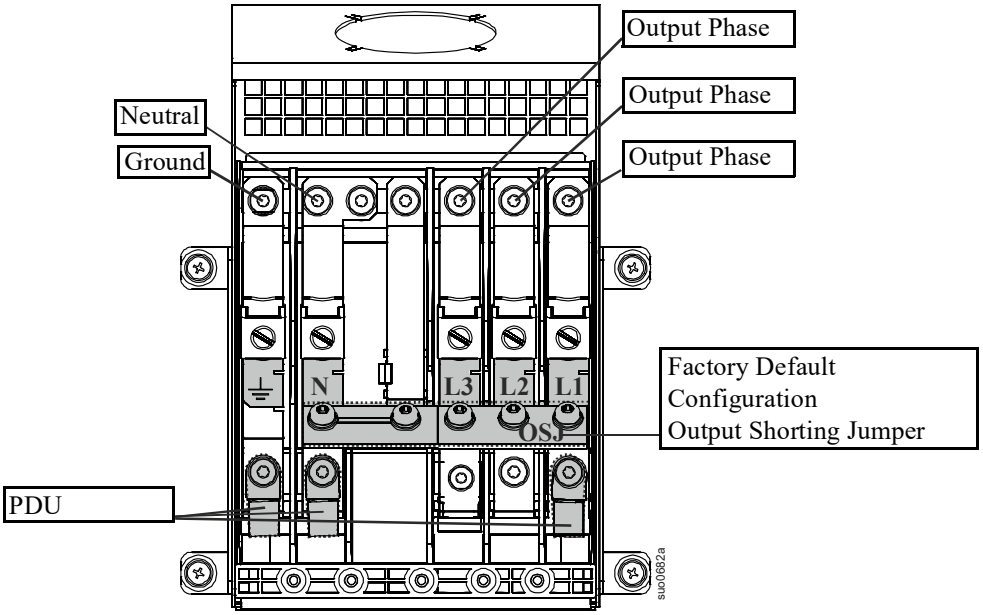
⚠ CAUTION

RISK OF ELECTRIC SHOCK AND EQUIPMENT DAMAGE

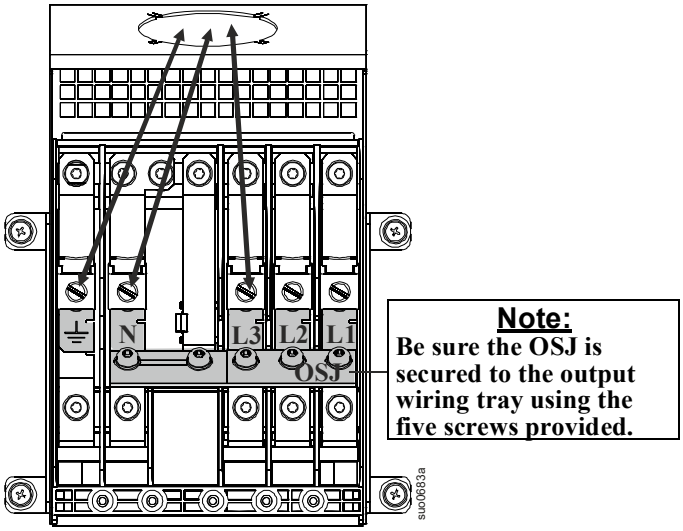
- All electrical work must be performed by a qualified electrician.
- Turn off all power to this equipment before working on the equipment. Practice lockout/tagout procedures.
- Do not wear jewelry when working with electrical equipment.

Failure to follow these instructions could result in minor or moderate injury or equipment damage.

Output wiring overview. Refer to the diagrams on the following pages for output wiring options.
Note: Labeled jumpers and connectors must be installed in the appropriate locations.

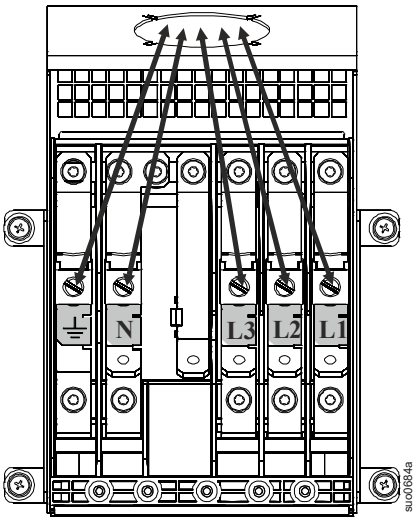


Output hardwire option 1
Single phase hardwire output



Note:
Be sure the OSJ is secured to the output wiring tray using the five screws provided.

Output hardwire option 2
Three phase hardwire output connection
XLBP PDU not connected



Connect External Batteries

⚠ CAUTION

RISK OF ELECTRIC SHOCK

- 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 remain energized even 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.
- Remove watches, rings, jewelry and other metal objects from your body.
- To avoid static build up, service personnel should establish a grounding contact prior working on batteries.

Failure to follow these instructions could result in minor or moderate injury or equipment damage.

⚠ CAUTION

RISK OF HYDROGEN SULPHIDE GAS AND EXCESSIVE SMOKE

- Replace the battery at least every 5 years.
- Replace the battery immediately when the UPS indicates battery replacement is necessary.
- Replace battery at the end of its service life.
- Replace batteries with the same number and type of batteries as originally installed in the equipment.
- Replace the battery immediately when the UPS indicates a battery over-temperature condition, or UPS internal over-temperature, or when there is evidence of electrolyte leakage. Power off the UPS, unplug it from the AC input, and disconnect the batteries. Do not operate the UPS until the batteries have been replaced.

Failure to follow these instructions could result in minor or moderate injury and equipment damage.

APC by Schneider Electric Battery Solution

Refer to the APC by Schneider Electric Web site 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 ≥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

⚠ CAUTION

RISK OF 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.
- Handle, transport and recycle batteries in accordance with local codes and regulations.

Failure to follow these instructions could result in minor or moderate injury or equipment damage.

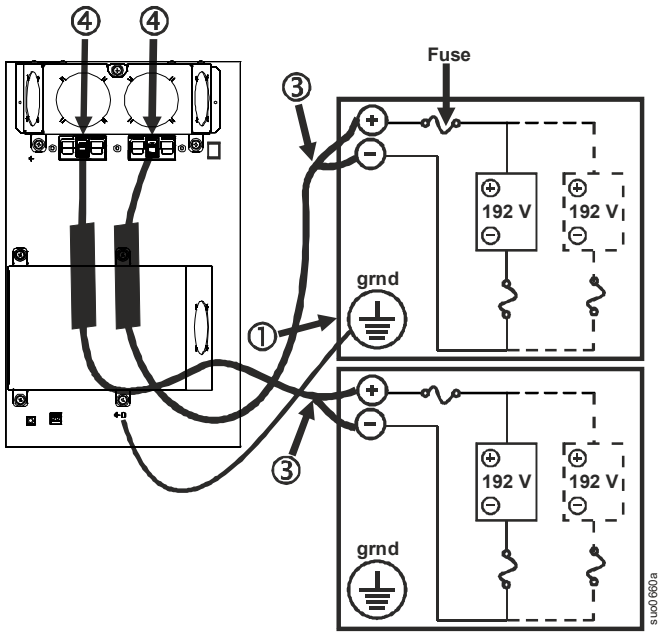
NOTICE

RISK OF EQUIPMENT DAMAGE

- Do not connect a battery string with voltage greater than 192 VDC.
- Do not exceed the maximum recommended charging current.

Failure to follow these instructions can result in equipment damage.

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 in case of utility power disruption or power fluctuations.

Bypass operation

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

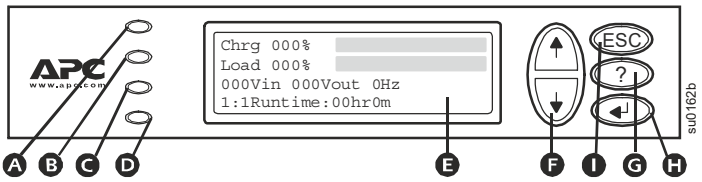
- Bypass mode can be selected through the **Control** menu screen on the PowerView display
- The UPS will automatically switch into bypass mode if:
  - Both normal and battery operation modes are unavailable
  - An output overload condition occurs
  - The UPS has detected an internal fault

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.



A	**LOAD ON**	When LED illuminates green, the UPS supplies power to the load
B	**ON BATT**	When LED illuminates yellow, power to load flows from the batteries to the power module
C	**BYPASS**	When LED illuminates yellow, power to the load is supplied through bypass
D	**FAULT**	When LED illuminates red, the UPS has detected an internal fault
E	**LCD interface**	Displays menu screens for visual alarms, status data, instructional help, and configuration items
F	UP/DOWN **arrow keys**	Used to scroll through and select menu items
G	HELP **key**	Opens context sensitive help
H	ENTER **key**	Opens menu items and updates changes to system parameters
I	ESC **key**	Returns to previous screen displayed

Navigating Menu Screens

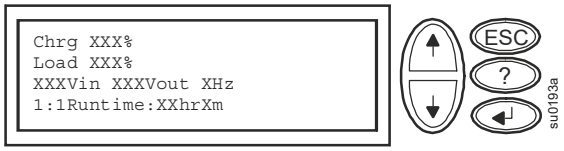
Use the ESC key to navigate between menu screens.

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.

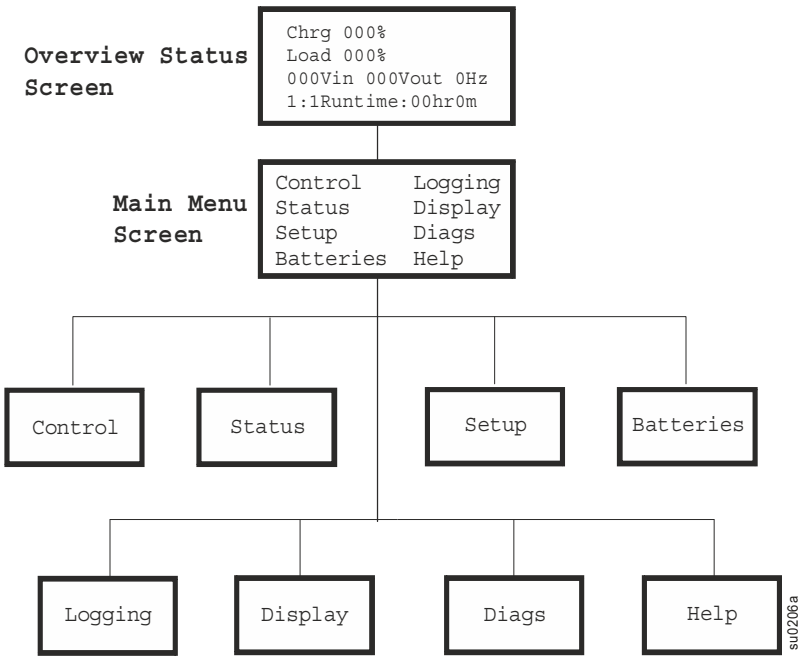
Navigating sub menu screens

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

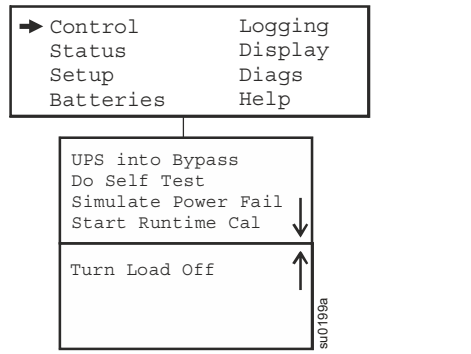
A ↓ after the last entry on a sub menu, indicates a continuation of the function command list.

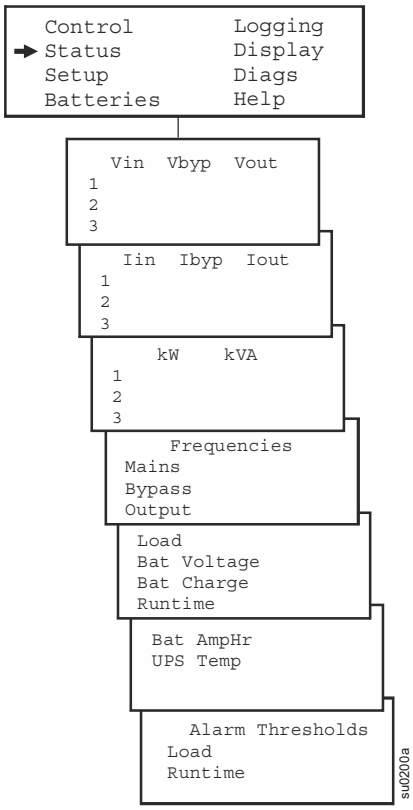
Use the UP/DOWN arrow keys to view the remaining entries in the list.

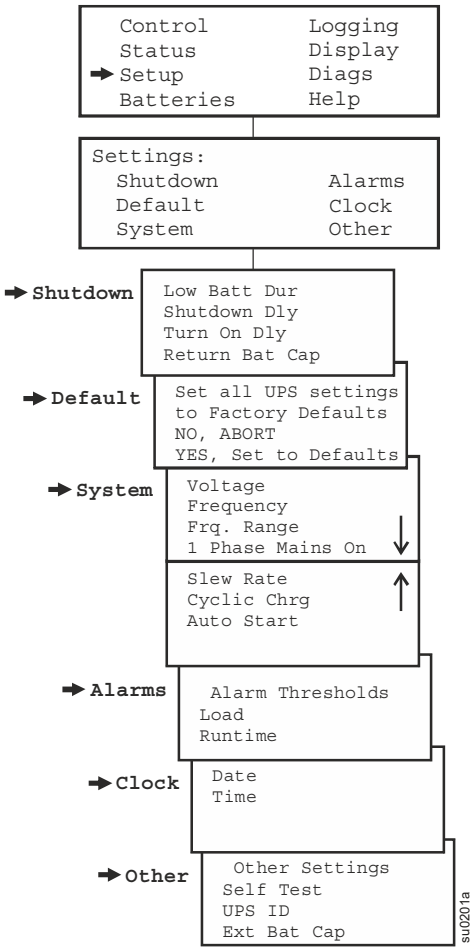
Use the ENTER key to select a command and move to sub menus associated with that function/command.



Sub menu screens







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

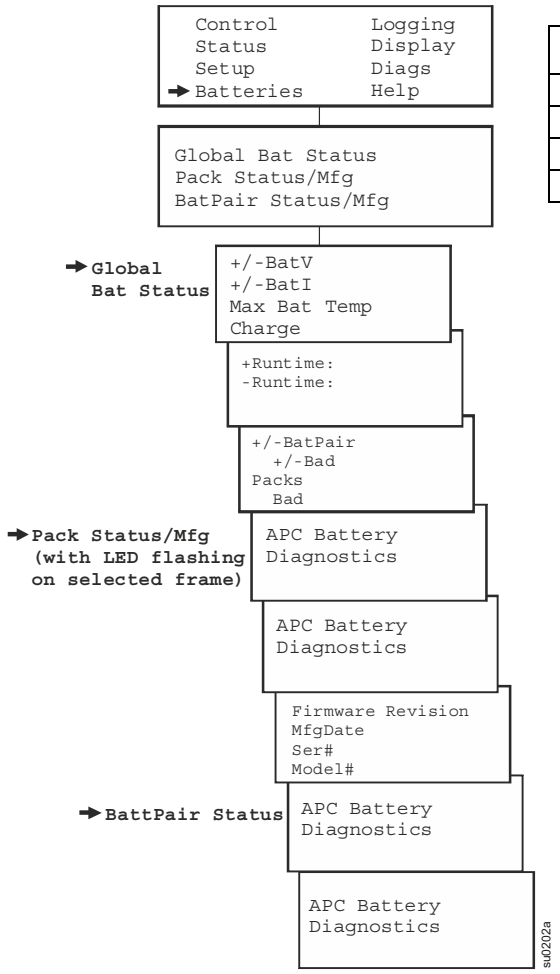
50 Hz frequency range: 50±3 Hz; 50±0.1 Hz

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

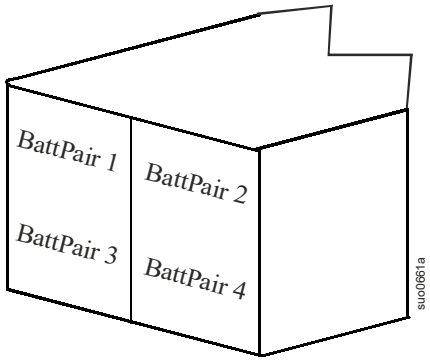
Clock: The date and time functions are used to time stamp events in the event log. To avoid inaccuracies, change the time setting to reflect day light saving time where applicable.

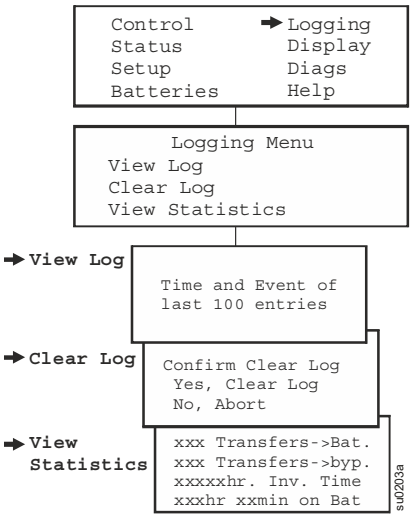
Ext Bat Cap: Press  . Use the UP/DOWN arrow keys to select the desired value. Press  to move to the next digit. Press  after selecting the final value, to lock in the battery capacity setting.

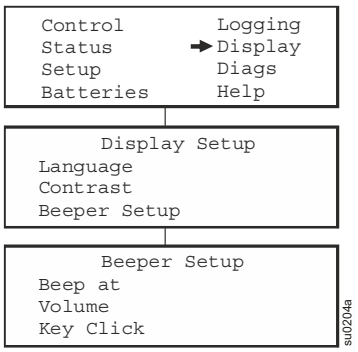
The PowerView will reference XLBP configuration in the following manner.

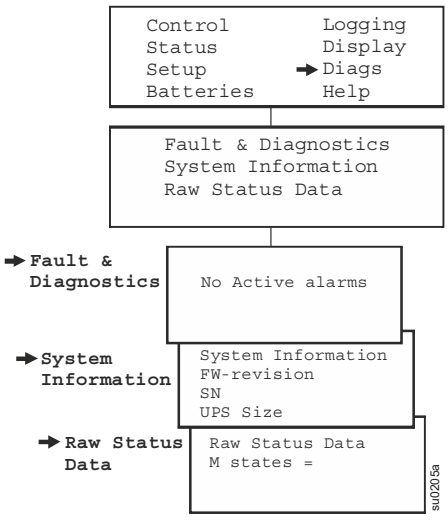


External Battery Pack			
BattPair_1		BattPair_2	
Module_1	Module_2	Module_3	Module_4
BattPair_3		BattPair_4	
Module_5	Module_6	Module_7	Module_8









Start Up

⚠ CAUTION

RISK OF ELECTRIC SHOCK

- All electrical work must be performed by a qualified electrician.
- Turn off all power to this equipment before working on the equipment. Practice lockout/tagout procedures.
- Do not wear jewelry when working with electrical equipment.

Failure to follow these instructions could result in minor or moderate injury.

Connect Load to UPS

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 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.
6. Add optional accessories to the SmartSlot located on the front panel.

For optimal computer system security, install PowerChute Network Shutdown 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

NOTICE

RISK OF EQUIPMENT DAMAGE

Do not connect the EPO interface to any circuit other than a unused circuit.

Failure to follow these instructions can result in equipment damage.

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

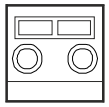
Adhere to national and local electrical codes when wiring.

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.

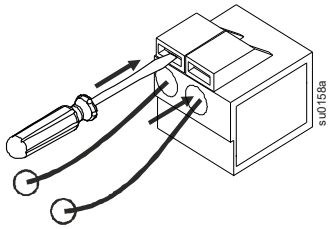
The EPO circuit is considered a Class 2 circuit, (UL, CSA standards) and an SELV circuit (IEC standard).

EPO port
located on rear



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.
- 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 for assistance with complex UPS problems.The PowerView reports various messages on the display, including visual 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.	No corrective action necessary.
	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.	UPS has detected a system configuration error.	Check for other visual alarms. If the problem persists contact APC by Schneider Electric Customer Support. See “APC by Schneider Electric Customer Support India” on page 28 for details.

Condition	PowerView Display Message	Reason for Message	Corrective Action
Start Up	Mains: Site Wiring Fault	Input and Output Jumpers are not configured correctly	Check input wiring tray jumpers and output shorting jumper for compatibility. See “Input/Output Jumper Configurations” on page 12 for details.
	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. See “Input/Output Jumper Configurations” on page 12 for details.
	Bypass: Site Wiring Fault	Input and Output Jumpers are not configured correctly	Check bypass jumpers in input wiring tray and output shorting jumper for compatibility. See “Input/Output Jumper Configurations” on page 12 for details.
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.	
Module has stopped working	Bad Battery Pair.	A battery pair has stopped working 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: 1. Additional battery modules were installed. 2. The existing battery modules were recharged. 3. The load was reduced. 4. The user specified threshold was decreased.	
General Alert	Need Batt 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.

Condition	PowerView Display Message	Reason for Message	Corrective Action
General Alert	Batt Temperature Exceeded Upper Limit.	The temperature of one or more battery packs has exceeded system specifications.	Contact APC by Schneider Electric Customer Support. See “APC by Schneider Electric Customer Support India” on page 28 for details.
	Battery Over-Voltage Alert.	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) has stopped working. UPS has detected an internal diagnostic fault. The UPS will continue to operate normally.	Contact APC Customer Support. See “APC by Schneider Electric Customer Support India” on page 28 for details.
	Fan Fault	A fan has stopped working.	Contact APC by Schneider Electric Customer Support. See “APC by Schneider Electric Customer Support India” on page 28 for details.
	Static Bypass Switch Fault.	The static bypass switch has stopped working.	
	System Failure Detected by Surveillance.	The system has detected an internal error.	Check for other visual alarms. If the problem persists contact APC by Schneider Electric Customer Support. See “APC by Schneider Electric Customer Support India” on page 28 for details.
	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. See “APC by Schneider Electric Customer Support India” on page 28 for details. 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 as UPS has detected an internal fault.	Contact APC by Schneider Electric Customer Support. See “APC by Schneider Electric Customer Support India” on page 28 for details.
	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

⚠ CAUTION

RISK OF FALLING EQUIPMENT

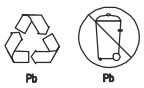
- The battery modules are heavy.
- Always practice of safe lifting techniques adequate for the weight of the equipment.

Failure to follow these instructions can result in moderate injury.

Replace battery modules

This UPS has provision for easy to replace, swappable battery modules. Refer to the appropriate replacement battery user manual for battery module installation instructions. See your dealer or contact APC by Schneider Electric at the Web site, www.apc.com for information on replacement battery modules.

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



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 there of. Repair or replacement of a defective product or part thereof does not extend the original warranty period.

This warranty applies only to the original purchaser who must have properly registered the product within 10 days of purchase. Products may be registered online at warranty.apc.com or by mailing in the completed warranty registration card that is included with the documentation.

SEITBIPL shall not be liable under the warranty if its testing and examination disclose that the alleged defect in the product does not exist or was caused by end user's or any third person's misuse, negligence, improper installation, testing, operation or use of the product contrary to SEITBIPL's recommendations or specifications. Further, SEITBIPL shall not be liable for defects resulting from: 1) unauthorized attempts to repair or modify the product, 2) incorrect or inadequate electrical voltage or connection, 3) inappropriate on site operation conditions, 4) Acts of God, 5) exposure to the elements, 6) theft. In no event shall SEITBIPL have any liability under this warranty for any product where the serial number has been altered, defaced, or removed, 7) normal wear resulting from frequent use.

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To obtain service under warranty you must call customer support. Customers with warranty claims issues may access the SEITBIPL worldwide customer support network through the SEITBIPL Web site: support.apc.com. Select your country from the country selection drop down menu. Open the Support tab at the top of the web page to obtain information for customer support in your region. Refer to the product user manual for more information on how to contact customer support.

APC by Schneider Electric Customer Support India

Internet	http://www.apc.com/support
Toll Free	18001030011/18004194272
E-mail	indiainfo@apc.com

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