

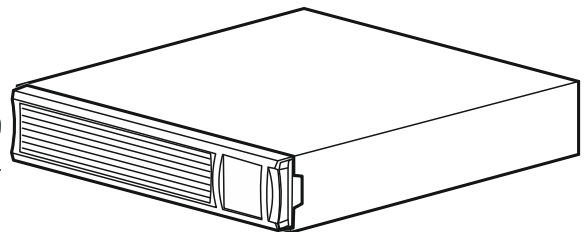


# Operation Manual

## Smart-UPS™ X 750/1000/1500 VA Rack-Mount 2U with APC™ SmartConnect

SMX750 VA  
SMX1000 VA  
SMX1500 VA

120 Vac





# IMPORTANT SAFETY INSTRUCTIONS

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

Read the Safety Guide supplied with this unit before installing the UPS.

- Adhere to all local and national 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 two to five years. Environmental factors impact battery life. Elevated ambient temperatures, poor quality utility power, and frequent short duration discharges will shorten battery life.
- Connect the UPS power cable directly to a wall outlet. Do not use surge protectors or extension cords.

## 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 expected 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).

## Battery

### 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 overtemperature condition, or UPS internal overtemperature, 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.
- \*Replace all battery modules (including the modules in External Battery Packs) which are older than one year, when installing additional battery packs or replacing the battery module(s).

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

\*Contact APC by Schneider Electric Worldwide Customer Support to determine the age of the installed battery modules.

### Battery safety

- Servicing of batteries should be performed or supervised by personnel knowledgeable about batteries and required precautions.
- Failed batteries can reach temperatures that exceed the burn thresholds for touchable surfaces.

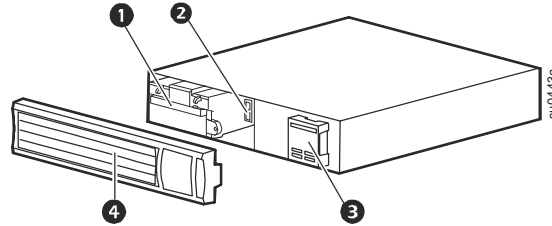
# FCC Warning

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

# Product Overview

## Front Panel Features

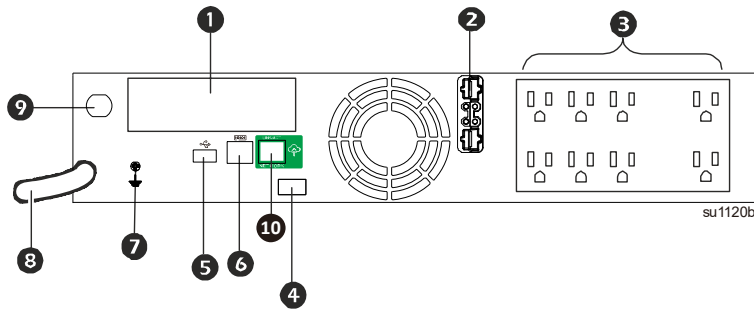
- ❶ Battery
- ❷ Battery connector
- ❸ Display interface
- ❹ Bezel



## Rear Panel Features

- ❶ SmartSlot
- ❷ External battery pack connector
- ❸ Outlets
- ❹ EPO connector
- ❺ USB port
- ❻ Serial port
- ❼ Chassis ground screw
- ❽ UPS input
- ❾ Circuit breaker
- ❿ APC SmartConnect port

120 Vac



# Specifications

## Environmental Specifications

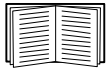
For additional specifications, refer to the APC by Schneider Electric Web site at [www.apc.com](http://www.apc.com).

<b>Temperature</b>	<b>Operating</b>	0° to 40° C (32° to 104° F)
	<b>Storage</b>	-15° to 45° C (5° to 113° F) Charge UPS battery every six 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	

# Installation

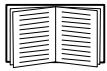
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## UPS



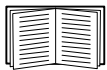
For UPS installation information, refer to the Smart-UPS X Installation Guide that is included with the UPS. The guide is also available from the APC by Schneider Electric Web site at [www.apc.com](http://www.apc.com).

## Network Management Card



For installation information, refer to the user manual provided with the Network Management Card (NMC). The user manual is also available from the APC by Schneider Electric Web site at [www.apc.com](http://www.apc.com).

## External Battery Pack



For installation information, refer to the SMX48RMBP2U external battery pack Installation Guide that is included with the external battery pack (XLBP). The guide is also available from the APC by Schneider Electric Web site at [www.apc.com](http://www.apc.com).

For UPS installation information, refer to the Installation Guide included with the UPS.

The Installation Guide is also available on the APC by Schneider Electric Web site, [www.apc.com](http://www.apc.com).

## Placement

The UPS is intended for IT environments. Avoid placement where there is excessive dust, temperature and humidity. Note that temperature in excess of 25° C may have an adverse effect on battery and UPS life. All vents on the side or rear of the UPS should be free of obstructions.

The UPS is heavy. For rack-mount units it is suggested that the batteries be removed for easier installation. The UPS should be placed near the bottom of the rack.

# Operation

## Connect to Equipment and Utilities

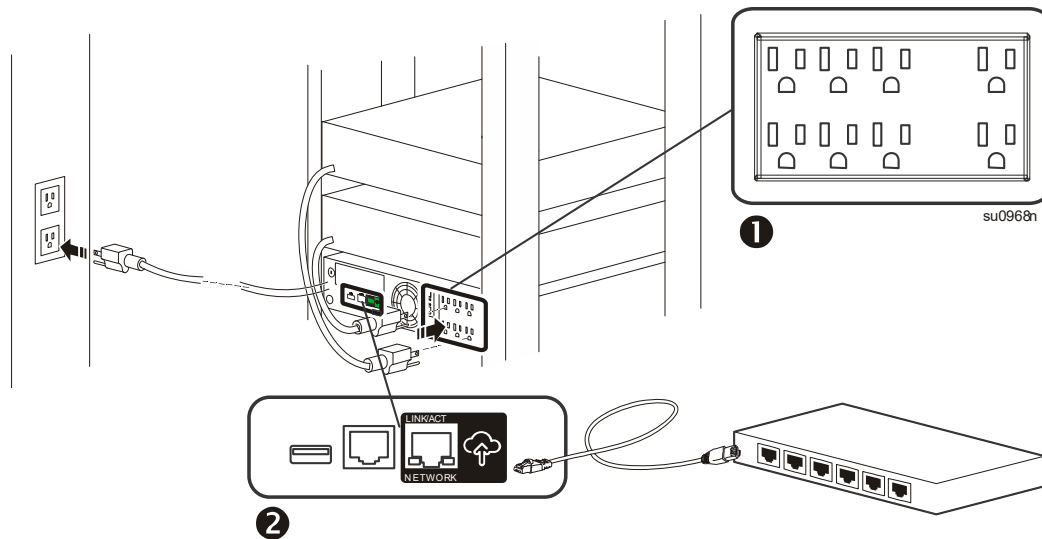
**Note:** The UPS will charge to 90% capacity in the first three hours of normal operation.  
**Do not expect full battery runtime capability during this initial charge period.**







### ⚠ CAUTION

#### RISK OF DAMAGE TO EQUIPMENT OR PERSONNEL

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






**Failure to follow these instructions can result in injury.**



1. Connect equipment to the outlets in the rear of the UPS. Some models are equipped with controlled outlet groups. Refer to the "Configuration" section of this manual for further instructions on the use of controlled outlet groups.
2. Connect the APC™ SmartConnect port  to your nearest network switch using the cable provided.
3. Connect the UPS input to AC power.  
**Note:** Once power is connected the display will be active.
4. Press the main power button  on the UPS display to turn on the UPS output.  
**Note:** The On-line LED  will light green when the output is on.
5. When the UPS is powered on for the first time the LCD screen displays the Setup Wizard and asks a number of basic set-up questions. They can be answered simply by using the arrow   and enter  keys on the display.
6. Log onto [www.smartconnect.apc.com](http://www.smartconnect.apc.com) or scan the QR code to launch the registration process. The website includes instructions to setup your online account, activate your warranty and begin managing your UPS remotely.



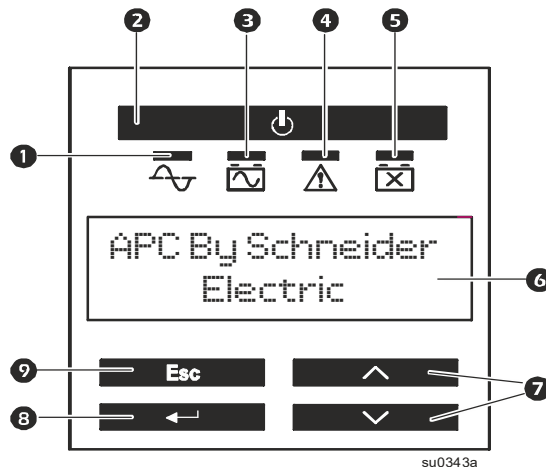
## Basic Connectors

	<b>Serial port:</b> Connect to a computer to use power management software.
	<b>USB port:</b> Connect to a computer to use power management software. <b>Note:</b> Serial and USB communication can not be used simultaneously.
	<b>External Battery Pack connector:</b> Connect external battery packs to provide extended runtime during power outages. The UPS can support up to five external battery packs.
	<b>Ground Screw:</b> The UPS features a ground screw for connecting the ground lead on surge suppression devices such as a telephone and network line protectors. When connecting a ground cable, disconnect the UPS from utility power.
	<b>APC SmartConnect Port:</b> APC™ SmartConnect allows you to monitor the health and status of your UPS from any device connected to the Internet. Log onto <a href="http://www.smartconnect.apc.com">www.smartconnect.apc.com</a> or scan the QR code to launch the registration process. The website includes instructions to setup your online account, activate your warranty and begin monitoring your UPS remotely.

## Display Panel

### Overview

- ❶ Online LED
- ❷ UPS Output ON/OFF button
- ❸ On Battery LED
- ❹ Error Detected LED
- ❺ Replace Battery LED
- ❻ Multi-lingual display screen
- ❼ UP/DOWN arrow buttons
- ❽ ENTER button
- ❾ ESCAPE button



### Using the display interface

Use the UP/DOWN arrow buttons to scroll through the main menu options. Press ENTER to view the submenus under each main menu option. Press ESCAPE to exit a submenu and return to a main menu.

## Standard menus

The Standard menus are the most commonly used menus. The following is a list of some items displayed in this menu mode. Visit [apc.com](http://apc.com) for additional details.

Menu	General Functions
<b>Status</b>	View UPS information: <ul style="list-style-type: none"> <li>• Operating Mode</li> <li>• Efficiency</li> <li>• Load Power</li> <li>• Load VA</li> <li>• Battery Charge state</li> <li>• Estimated Runtime</li> <li>• External Battery Packs, when external battery packs are installed.</li> <li>• Battery Temp</li> <li>• Input</li> <li>• Output</li> <li>• SmartConnect</li> <li>• Probe 1, Probe 2, when NMC and sensor probes are installed</li> </ul>
<b>Configuration</b>	Configures UPS settings: <ul style="list-style-type: none"> <li>• Language</li> <li>• Green Mode</li> <li>• Local Power Quality: Good, Fair, Poor</li> <li>• Menu Type: Standard or Advanced</li> <li>• Audible Alarm</li> <li>• Display (Auto Dim, Auto Off, Always On)</li> <li>• Reset to Factory Default</li> <li>• SmartConnect Control</li> <li>• Install FW?</li> </ul>
<b>Test &amp; Diags</b>	Performs UPS tests and diagnostic functions: <ul style="list-style-type: none"> <li>• UPS Self Test</li> <li>• UPS Alarms Test</li> <li>• Calibration Test</li> </ul>
<b>About</b>	View UPS information: <ul style="list-style-type: none"> <li>• UPS Model</li> <li>• UPS Part No.</li> <li>• UPS Serial No.</li> <li>• UPS Manufacture Date</li> <li>• Battery Part No.</li> <li>• XBP Battery (if installed)</li> <li>• Battery Install Date</li> <li>• Replace Battery by</li> <li>• Running UPS FW</li> <li>• Available UPS FW</li> <li>• UPS MAC</li> <li>• UPS IP Address</li> <li>• UPS Product Key</li> <li>• SmartSlot Card (if installed)</li> </ul>

## Advanced menus

The Advanced menus provide additional options for the UPS and are available only if the display interface is configured to use the Advanced menus.

Menu	General Functions
<b>Status</b>	View detailed UPS information: <ul style="list-style-type: none"> <li>• Operating Mode</li> <li>• Efficiency</li> <li>• Load Power</li> <li>• Load VA</li> <li>• Load Amps</li> <li>• Load Energy</li> <li>• Battery Charge State</li> <li>• Estimated Runtime</li> <li>• Battery Voltage</li> <li>• External Battery Packs, when external battery packs are installed.</li> <li>• Battery Temp</li> <li>• Input</li> <li>• Output</li> <li>• Outlet Groups</li> <li>• SmartConnect</li> <li>• Probe 1, Probe 2, when NMC and sensor probes are installed</li> </ul>
<b>Control</b>	Controls the Main and Controlled Outlet Group to turn on, turn off, shutdown, or reboot: <ul style="list-style-type: none"> <li>• UPS Control</li> <li>• Outlet Group Control</li> </ul>
<b>Configuration</b>	Configure advanced UPS settings: <ul style="list-style-type: none"> <li>• Language</li> <li>• Green Mode</li> <li>• Local Power Quality</li> <li>• Menu Type</li> <li>• Audible Alarm</li> <li>• Display</li> <li>• Sensitivity</li> <li>• Low Transfer</li> <li>• High Transfer</li> <li>• Low Battery Setting</li> <li>• Auto Self Test</li> <li>• Reset Energy Meter</li> <li>• Enter Setup Wizard</li> <li>• Reset to Factory Defaults</li> <li>• Site Wiring Fault</li> <li>• Config Main Group Outlets</li> <li>• Config Group Outlets (if Controlled Outlet is available)</li> <li>• ModBus Settings</li> <li>• SmartConnect Control</li> <li>• UPS IP Address Setting</li> <li>• NMC IP Address Settings (if NMC is available)</li> <li>• Install FW? (only available if a firmware update is available)</li> </ul>
<b>Test &amp; Diag</b>	Perform UPS tests and diagnostics functions: <ul style="list-style-type: none"> <li>• UPS Self Test</li> <li>• UPS Alarms Test</li> <li>• Calibration Test</li> </ul>
<b>Logs</b>	View the error log for information about UPS detected errors that have occurred.
<b>About</b>	View UPS information: <ul style="list-style-type: none"> <li>• UPS Model</li> <li>• UPS Part No.</li> <li>• UPS Serial No.</li> <li>• UPS Manufacture Date</li> <li>• Battery Part No.</li> <li>• XBP Battery (if installed)</li> <li>• Battery Install Date</li> <li>• Replace Battery by</li> <li>• Running UPS FW</li> <li>• Available UPS FW</li> <li>• UPS MAC</li> <li>• UPS IP Address</li> <li>• UPS Product Key</li> <li>• SmartSlot Card (if installed)</li> </ul>

# Configuration

## UPS Settings

### Start up settings

Configure these settings at initial start up, using the display interface or PowerChute™ software.

**Note:** During start up, use the display interface to configure these settings. If nothing is selected, the unit will use the default settings.

Function	Factory Default	Options	Description
<b>Language</b>	English	<ul style="list-style-type: none"> <li>• English</li> <li>• French*</li> <li>• German*</li> <li>• Spanish*</li> <li>• Italian*</li> <li>• Portuguese*</li> </ul>	<p>The language for the display interface.</p> <p>*Language options will vary by model.</p>
<b>Local Power Quality</b>	Good	<ul style="list-style-type: none"> <li>• Good</li> <li>• Fair</li> <li>• Poor</li> </ul>	<p>Select the quality of input utility power.</p> <ul style="list-style-type: none"> <li>• If Good is selected, the unit will go on <b>battery</b> power more often to provide the cleanest power supply to the connected equipment.</li> <li>• If Poor is selected, the UPS will tolerate more fluctuations in power and will go on battery power less often.</li> </ul> <p>If unsure of the local power quality, select Good.</p>
<b>Menu Type</b>	Standard	Standard or Advanced	<p>The Standard menus display a limited set of menus and options.</p> <p>The Advanced menus include all parameters.</p>

### General Settings

Configuration settings may be changed at any time using the LCD interface or PowerChute software. This table provides a brief description of the general settings, for more detailed information on each of these parameters consult application note 80 at [www.apc.com](http://www.apc.com).

Setting	Factory Default	Options	Description
<b>High Transfer</b>	120 V: 127 Vac	127 Vac - 136 Vac	<p>To avoid unnecessary battery usage, set the transfer point higher if the AC voltage is chronically high and the connected equipment is known to work under this condition. The Power Quality setting will automatically change this setting.</p> <p><b>Note:</b> Use the Advanced Menus to configure this setting.</p>
<b>Low Transfer</b>	120 V: 106 Vac	97 Vac - 106 Vac	<p>Sets the transfer point lower if the AC voltage is chronically low and the connected equipment can tolerate this condition. This setting may also be adjusted using the power quality setting.</p> <p><b>Note:</b> Use the Advanced Menus to configure this setting.</p>
<b>Sensitivity</b>	Normal	<ul style="list-style-type: none"> <li>• Normal</li> <li>• Reduced</li> <li>• Low</li> </ul>	<p>Selects the level of sensitivity to power events that the UPS will tolerate.</p> <ul style="list-style-type: none"> <li>• Normal: The UPS will go on battery power more often to provide the cleanest power supply to the connected equipment.</li> <li>• Low: The UPS will tolerate more fluctuations in power and will go on battery power less often.</li> </ul> <p>If the connected load is sensitive to power disturbances, set the sensitivity to Normal.</p>

Setting	Factory Default	Options	Description
<b>Date of Last Battery Replacement</b>	Date set at factory. Reset this date when the battery module is replaced.		
<b>Audible Alarm</b>	On	<ul style="list-style-type: none"> <li>• On</li> <li>• Off</li> </ul>	The UPS will mute all audible alarms if this is set to <b>Off</b> or when the display buttons are pressed.
<b>Auto Self Test</b>	On start-up and every 14 days since the last test	<ul style="list-style-type: none"> <li>• Never</li> <li>• Start-up only</li> <li>• Frequency of test (every 7 to 14 days)</li> </ul>	The interval at which the UPS will execute a self-test.
<b>Reset to Factory Default</b>	No	Yes/No	Restores the UPS factory default settings.
<b>Site Wiring Fault</b>	Enable	<ul style="list-style-type: none"> <li>• Enable</li> <li>• Disable</li> <li>• Can Ack</li> </ul>	Sets the Site Wiring Fault detection to Enable, Disable or User Can Acknowledge
<b>Output voltage</b>	120 V	• 120 Vac	Only supports 120 Vac
<b>Green Mode</b>	Enable	<ul style="list-style-type: none"> <li>• Enable</li> <li>• Disable</li> </ul>	This will enable or disable Green mode function. Green Mode conserves energy while the UPS is operating on line.
<b>SmartConnect Control</b>	Enable	<ul style="list-style-type: none"> <li>• Enable</li> <li>• Disable</li> </ul>	This will permit remote configuration changes.
<b>Low Battery Setting</b>	150 sec	Set the value in seconds	The UPS will emit an audible alarm when the remaining runtime has reached this level.
<b>Install FW?</b>	Don't Install	<ul style="list-style-type: none"> <li>• Next off (Updates the UPS Firmware next time that the UPS is turned off)</li> <li>• Now (Updates the UPS firmware immediately without interrupting operations)</li> <li>• Don't Install</li> </ul>	Firmware update: this only appears when new firmware is available in the flash memory of the UPS and is ready to be installed

## Outlet group configuration settings

The Main Outlet Group and the Controlled Outlet Group can be configured to independently turn off, turn on, shut down, and reboot connected equipment.

The Main and Controlled Outlet Groups can be configured to do the following:

- Turn off: Disconnect from power immediately and restart only with a manual command.
- Turn on: Connect to power immediately.
- Shutdown: Disconnect power in sequence, and automatically reapply power in sequence when AC power becomes available.
- Reboot: Shut down and restart.

In addition, the Main Outlet Group and the Controlled Outlet Group can be configured to do the following:

- Turn on or off in a specified sequence
- Automatically turn off or shut down when various conditions occur

**Note:** If the Main and Controlled Outlet Groups are not configured, all of the outlets on the unit will still provide battery back-up power.

**Note:** The Main Outlet Group functions as a master switch. It will turn on first when power is applied, and shut off last when there is a power outage and battery run-time has been exhausted.

The Main Outlet Group must be turned on for the Controlled Outlet Group to turn on.

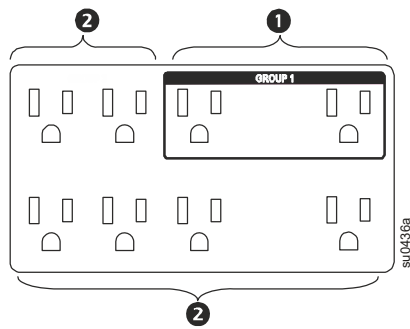
Setting	Factory Default	Options	Description
<b>Name String</b>	Outlet Group 1	Edit these names using an external interface, such as the Network Management Card Web interface.	
<b>Outlet Group</b>			
<b>UPS Name String</b>	UPS Outlets		
<b>Turn On Delay</b>	0 sec	Set the value in seconds	The amount of time the UPS or the Controlled Outlet Group will wait between receiving the command to turn on and the actual startup.
<b>Turn Off Delay</b>	<ul style="list-style-type: none"> <li>• 0 sec (UPS Outlets)</li> <li>• 90 sec (Controlled Outlet Groups)</li> </ul>	Set the value in seconds	The amount of time the UPS or the Controlled Outlet Group will wait between receiving the command to turn off and the actual shut down.
<b>Reboot Duration</b>	8 sec	Set the value in seconds	The amount of time that the UPS or the Controlled Outlet Group must remain off before it will restart.
<b>Minimum Return Time</b>	0 sec	Set the value in seconds	The amount of battery runtime that must be available before the UPS or the Controlled Outlet Group will turn on.
<b>Load Shed On Battery</b>	Disabled	<ul style="list-style-type: none"> <li>• Shutdown with Delay</li> <li>• Shutdown immediately</li> <li>• Turn off immediately</li> <li>• Turn off with delay</li> <li>• Disabled</li> </ul>	When the unit switches to battery power, the UPS can disconnect power to the Controlled Outlet Group to save runtime. To configure this delay time, use the LOAD SHED TIME WHEN ON BATTERY setting.
<b>Load Shed Time when On Battery</b>	Disabled	Set the value in seconds	The amount of time the outlets will function on battery power before they will turn off.
<b>Load Shed On Runtime</b>	Disabled	<ul style="list-style-type: none"> <li>• Shutdown with delay</li> <li>• Shutdown immediately</li> <li>• Turn off immediately</li> <li>• Turn off with delay</li> <li>• Disabled</li> </ul>	When the battery runtime falls below the specified value, the Controlled Outlet Group will turn off. Configure this time using the LOAD SHED RUNTIME REMAINING setting.
<b>Load Shed On Runtime Remaining</b>	Disabled	Set the value in seconds	When the remaining runtime reaches this level, the Controlled Outlet Group will turn off.
<b>Load Shed on Overload</b>	Disabled	<ul style="list-style-type: none"> <li>• Disabled</li> <li>• Enabled</li> </ul>	In the event of an overload (greater than 100% output power), the Controlled Outlet Group will immediately turn off to conserve power for essential loads. The Controlled Outlet Group will only turn on again with a manual command.

## Model specific controllable outlet groups

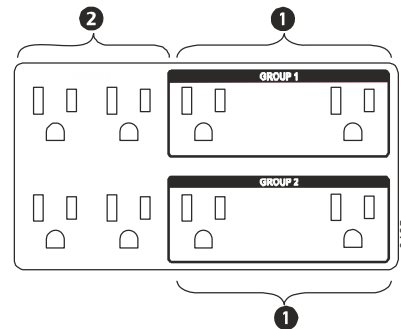
① Controllable Outlet Group(s)

② UPS outlets

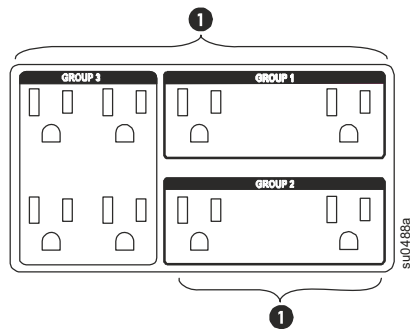
750 VA 120 Vac



1000 VA 120 Vac



1500 VA 120 Vac



## Using the controllable outlet groups and UPS outlets

**Note:** UPS outlets function as a master switch. They turn on first when power is applied, shut off last when there is a power outage and battery runtime has been exhausted.

The UPS outlets must be turned on for the Controllable Outlet Groups to turn on.

1. Connect essential equipment to the UPS outlets (The 1500 VA units do not have UPS outlets. Connect all essential equipment to the same outlet group.)
2. Connect peripheral equipment to the Controllable Outlet Groups.
  - Nonessential equipment that should shut off quickly in the event of a power outage to conserve battery runtime can be added to a short power off delay
  - If equipment has dependent peripherals that must restart or shut down in a specific order, such as an Ethernet switch that must restart before a connected server, connect the devices to separate groups
  - Equipment that needs to reboot independently from other equipment should be added to a separate group
3. Use the Configuration menus to configure how the Controllable Outlet Groups will react in the event of a power outage.

## Modbus settings

Setting	Factory Default	Options	Description
<b>Slave ID</b>	1	1- 223	Sets the Modbus slave address of UPS
<b>Ser+USB</b>	Disable	<ul style="list-style-type: none"> <li>• Enable</li> <li>• Disable</li> </ul>	Enables or disables UPS Modbus protocol over serial and USB ports
<b>TCP Settings</b> <ul style="list-style-type: none"> <li>• TCP Protocols</li> </ul>	Disable	<ul style="list-style-type: none"> <li>• Disable</li> <li>• Read-Only</li> <li>• Read-Write</li> </ul>	<p>Enables or disables UPS Modbus TCP/IP protocol provided by the embedded SmartConnect port.</p> <ul style="list-style-type: none"> <li>• <b>Disable:</b> Disables UPS Modbus TCP/IP protocol</li> <li>• <b>Read-Only:</b> Modbus master over TCP/IP protocol is only allowed to get UPS status.</li> <li>• <b>Read-Write:</b> Modbus master over TCP/IP protocol is allowed to get UPS status and control the UPS.</li> </ul> <p>The port number of UPS Modbus TCP/IP protocol is fixed at 502.</p>
<b>TCP Settings</b> <ul style="list-style-type: none"> <li>• Master IP Addr</li> </ul>	000.000.000.000	A valid IPv4 address	<p>Specifies the IPv4 address of the Modbus master.</p> <p>The <i>Master IP Addr</i> when set as 000.000.000.000 will allow connection of external Modbus master with any IP address. When not set as 000.000.000.000, only the Modbus master with the specified IP address is allowed to connect to the UPS.</p> <p>Example: <i>Master IP Address</i> is set to 192.168.0.10, only Modbus master with IP address 192.168.0.10 could connect to the UPS.</p>



## UPS IP Address settings

Setting	Factory Default	Options	Description
<b>UPS IP Address Mode</b>	DHCP	<ul style="list-style-type: none"> <li>• DHCP</li> <li>• Manual</li> </ul>	<p>Selects the IP address configuration mode of UPS embedded SmartConnect port:</p> <ul style="list-style-type: none"> <li>• <b>DHCP:</b> UPS will automatically configure its IPv4 address via DHCP protocol.</li> <li>• <b>Manual:</b> Manually assigns a static IPv4 address to UPS</li> </ul>
<b>IP Address</b>	000.000.000.000	A valid IPv4 address	<p>This is the IPv4 address assigned to the embedded SmartConnect port.</p> <p>When <b>DHCP</b> IP address mode is selected, it will display the UPS IPv4 address assigned by DHCP server.</p> <p>When <b>Manual</b> IP address mode is selected, you need to manually specify a static IPv4 address.</p>
<b>Subnet Mask</b>	000.000.000.000	A valid IPv4 subnet mask	<p>Assigns the subnet mask of the network where UPS IPv4 address belongs.</p> <p>When <b>DHCP</b> IP address mode is selected, it will display the subnet mask assigned by DHCP server.</p> <p>When <b>Manual</b> IP address mode is selected, you need to manually specify the subnet mask of the network where the specified static IPv4 address belongs.</p>
<b>Default Gateway</b>	000.000.000.000	A valid IPv4 address	<p>This is the IPv4 address of the host from where the UPS sends data to another network or Internet.</p> <p>When <b>DHCP</b> IP address mode is selected, it will display the default gateway assigned by DHCP server.</p> <p>When <b>Manual</b> IP address mode is selected, you need to manually specify the IPv4 address of default gateway.</p>
<b>DNS Server 1</b>	000.000.000.000	A valid IPv4 address	<p>The IPv4 address of first domain name server (DNS) the UPS uses to resolve host names to IPv4 addresses.</p> <p>When <b>DHCP</b> IP address mode is selected, it will display the IPv4 address of the first DNS server assigned by DHCP server.</p> <p>When <b>Manual</b> IP address mode is selected, you need to manually specify the IPv4 address of the first DNS server.</p>
<b>DNS Server 2</b>	000.000.000.000	A valid IPv4 address	<p>The IPv4 address of second domain name server (DNS) the UPS uses to resolve host names to IPv4 addresses (<i>only when UPS is unable to resolve IP address through first domain name server</i>). This setting is optional.</p> <p>When <b>DHCP</b> IP address mode is selected, it will display the IPv4 address of the second DNS server assigned by DHCP server.</p> <p>When <b>Manual</b> IP address mode is selected, you can manually specify the IPv4 address of the second DNS server or leave it as 000.000.000.000.</p>

## SmartConnect

APC SmartConnect allows you to monitor the health and status of your UPS from any device connected to the Internet. Visit [www.smartconnect.apc.com](http://www.smartconnect.apc.com) to learn more.

## Network Management Card Settings

These settings are available only on units that have a Network Management Card (NMC) and are set in the factory. These settings can only be modified using an external interface, like the NMC web interface.

- NMC IP Address Mode
- NMC IP Address
- NMC Subnet Mask
- NMC Default Gateway

# Emergency Power Off

## Overview

The Emergency Power Off (EPO) option is a feature that will immediately disconnect all connected equipment from mains power. The UPS will immediately shut down and will not switch to battery power. Connect each UPS to the EPO switch. If multiple units are to be controlled with an EPO switch, each UPS must be connected separately to the EPO switch.

The UPS must be restarted for power to return to connected equipment. Press the ON/OFF button on the front panel of the UPS.

## ⚠ CAUTION

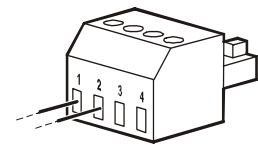
### RISK OF ELECTRIC SHOCK

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

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

## Normally open contacts

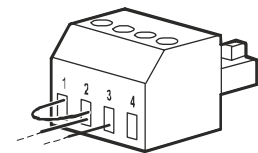
1. If the EPO switch or relay contacts are normally open, insert the wires from the switch or contacts at pins 1 and 2 of the EPO terminal block. Use 16-28 AWG wire.
2. Secure the wires by tightening the screws.



If the contacts are closed, the UPS will turn OFF and power will be removed from the load.

## Normally closed contacts

1. If the EPO switch or relay contacts are normally closed, insert the wires from the switch or contacts at pins 2 and 3 of the EPO terminal block. Use 16-28 AWG wire.
2. Insert a wire jumper between pins 1 and 2. Secure the wires by tightening the three screws at positions 1, 2, and 3.



If the contacts are opened, the UPS will turn OFF and power will be removed from the load.

**Note:** Pin 1 is the power source for the EPO circuit, it provides a few milliampere of 24 V power.

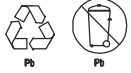
If the normally closed (NC) EPO configuration is used, the EPO switch or relay should be rated for dry circuit applications, the rating should be for low voltage and low current applications. This normally implies the contacts are gold-plated.

The EPO interface is a Safety Extra Low Voltage (SELV) circuit. Connect the EPO interface only to other SELV circuits. The EPO interface monitors circuits that have no determined voltage potential. SELV circuits are controlled by a switch or relay properly isolated from utility power. To avoid damage to the UPS, do not connect the EPO interface to any circuit other than a SELV circuit.

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.
- Installation in Canada: Use only CSA certified, type ELC, (extra low voltage control cable).
- Installation in countries other than Canada and the USA: Use standard low voltage cable in accordance with national and local regulations.

# Battery Replacement



**Always recycle used batteries.**  
**For information on recycling a used battery, refer to the Battery Disposal Information sheet included with the replacement battery.**

Battery life is highly dependent on temperature and use. To identify when to replace batteries, Smart-UPS have a predictive battery replacement date indicator in the “About” menu and automatic (and configurable) self-tests.

Proactively replace batteries to maintain the highest availability. To ensure protection and high performance, use only genuine APC replacement battery cartridges (RBC™). The APC RBC contains instructions for battery replacement and disposal. To order a replacement battery go to the APC by Schneider Electric Web site, [www.apc.com](http://www.apc.com).

UPS Model	Replacement Battery	Battery Module
SMX750C, SMX750CNC, SMX1000C, SMX1000CNC	APCRBC116	Lead acid, 1 module, 48Vdc
SMX1500RM2UC, SMX1500RM2UCNC	APCRBC115	

# Troubleshooting

<b>Problem and Possible Cause</b>	<b>Solution</b>
<b>The UPS will not turn on or there is no output</b>	
The unit has not been turned on.	Press the ON button once to turn on the UPS.
The UPS is not connected to utility power.	Be sure that the power cable is securely connected to the unit and to the utility power supply.
The input circuit breaker has tripped.	Reduce the load to the UPS, disconnect nonessential equipment and reset the circuit breaker.
The unit shows very low or no input utility voltage.	Check the utility power supply to the UPS by plugging in a table lamp. If the light is very dim, check the utility voltage.
The battery connector plug is not securely connected.	Be sure that all battery connections are secure.
UPS has detected an internal fault	Do not attempt to use the UPS. Unplug the UPS and have it serviced immediately.
<b>The UPS is operating on battery, while connected to utility power</b>	
The input circuit breaker has tripped.	Reduce the load to the UPS, disconnect nonessential equipment and reset the circuit breaker.
There is very high, very low, or distorted input line voltage.	Move the UPS to a different outlet on a different circuit. Test the input voltage with the utility voltage display. If acceptable to the connected equipment, reduce the UPS sensitivity.
<b>UPS is emits intermittent beeps</b>	
The UPS is in normal operation.	None. The UPS is helping to protect the connected equipment.
<b>UPS does not provide expected backup time</b>	
The UPS battery is weak due to a recent outage or is near the end of its service life.	Charge the battery. Batteries require recharging after extended outages and wear out faster when put into service often or when operated at elevated temperatures. If the battery is near the end of its service life, consider replacing the battery even if the replace battery indicator is not yet illuminated.
The UPS is overloaded.	Check the UPS load display. Unplug unnecessary equipment, such as printers.
<b>Display interface LEDs flash sequentially</b>	
The UPS has been shut down remotely through software or an optional accessory card.	None. The UPS will restart automatically when utility power is restored.

<b>Problem and Possible Cause</b>	<b>Solution</b>
<b>The Error Detected LED illuminates The UPS displays a message and emits a constant beeping sound</b>	
UPS has detected an internal fault.	Do not attempt to use the UPS. Turn the UPS off and have it serviced immediately.
<b>All LEDs are illuminated and the UPS is plugged into a wall outlet</b>	
The UPS has shut down and the battery has discharged from an extended outage.	None. The UPS will return to normal operation when the power is restored and the battery has a sufficient charge.
<b>The Replace Battery LED is illuminated</b>	
The battery has a weak charge.	Allow the battery to recharge for at least four hours. Then, perform a self-test. If the detected problem persists after recharging, replace the battery.
The replacement battery is not properly connected.	Be sure that the battery connector is securely connected.
<b>The UPS displays a site wiring fault message</b>	
Wiring faults detected include missing ground, hot-neutral, polarity reversal, and overloaded neutral circuit.	If the UPS indicates a site wiring fault, have a qualified electrician inspect the building wiring. (Applicable for 120 V units only.)

# 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 through the Web site, **www.apc.com**.
  - 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 Returned Material Authorization Number (RMA#).
  - c. If the unit is under warranty, the repairs are free.
  - d. Service procedures and returns may vary internationally. Refer to the APC by Schneider Electric Web site for country specific instructions.
3. Pack the unit in the original packaging whenever possible to avoid damage in transit. Never use foam beads for packaging. Damage sustained in transit is not covered under warranty.
  - a. **Always DISCONNECT THE UPS BATTERIES before shipping. The United States Department of Transportation (DOT), and the International Air Transport Association (IATA) regulations require that UPS batteries be disconnected before shipping.** The internal batteries may remain in the UPS.
  - b. External Battery Pack products are deenergized when disconnected from the associated UPS product. It is not necessary to disconnect the internal batteries for shipping. Not all units utilize an external battery pack.
4. Write the RMA# provided by Customer Support on the outside of the package.
5. Return the unit by insured, prepaid carrier to the address provided by Customer Support.

## Transport the unit

1. Shut down and disconnect all connected equipment.
2. Disconnect the unit from utility power.
3. Disconnect all internal and external batteries (if applicable).
4. Follow the shipping instructions outlined in the *Service* section of this manual.

# Limited Factory Warranty

Schneider Electric IT Corporation (SEIT), warrants its products to be free from defects in materials and workmanship for a period of two (2) years from the date of purchase. The SEIT obligation under this warranty is limited to repairing or replacing, at its own sole option, any such defective products. 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](http://warranty.apc.com).

SEIT 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 or any third person misuse, negligence, improper installation, testing, operation or use of the product contrary to SEIT recommendations of specifications. Further, SEIT 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, or 6) theft. In no event shall SEIT have any liability under this warranty for any product where the serial number has been altered, defaced, or removed.

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To obtain service under warranty you must obtain a Returned Material Authorization (RMA) number from customer support. Customers with warranty claims issues may access the SEIT worldwide customer support network through the APC by Schneider Electric Web site: [www.apc.com](http://www.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. Products must be returned with transportation charges prepaid and must be accompanied by a brief description of the problem encountered and proof of date and place of purchase.





# APC by Schneider Electric Worldwide Customer Support

Customer support for this or any other APC by Schneider Electric product is available at no charge in any of the following ways:

- Visit the APC by Schneider Electric web site to access documents in the APC by Schneider Electric Knowledge Base and to submit customer support requests.
  - **www.apc.com** (Corporate Headquarters)  
Connect to localized APC by Schneider Electric web sites for specific countries, each of which provides customer support information.
  - **www.apc.com/support/**  
Global support searching APC by Schneider Electric Knowledge Base and using e-support.
- Contact the APC by Schneider Electric Customer Support Center by telephone or e-mail.
  - Local, country specific centers: go to **www.apc.com/support/contact** for contact information.
  - For information on how to obtain local customer support, contact the APC by Schneider Electric representative or other distributor from whom you purchased your APC by Schneider Electric product.



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For more information on your specific model go to [www.apc.com](http://www.apc.com).

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