

# **User Manual**

# Smart-UPS<sup>™</sup> X

**Uninterruptible Power Supply** 

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 SMT750X93

SMT1500X93

SMT1500RMX93

SMX3000RMX93

# **Important Safety Instructions**

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

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 manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol 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.

### **A** DANGER

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

### <u> WARNING</u>

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

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**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**













## **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.
- All wiring must be performed by a qualified electrician.
- Changes and modifications to this unit not expressly approved by APC by Schneider Electric could void the warranty.
- 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.

- For a UPS with a factory installed power cord, connect the UPS power cable directly to a wall outlet. Do not use surge protectors or extension cords.
- The equipment is heavy. Always practice safe lifting techniques adequate for the weight of the equipment.

#### **Deenergizing safety**

The UPS contains internal batteries and may present a shock hazard even when disconnected from the branch circuit (mains). Before installing or servicing the equipment check that the:

- Input circuit breaker is in the **OFF** position.
- Internal UPS batteries are removed.

#### **Electrical safety**

- Use tools with insulated handles.
- Do not handle any metallic connector before power has been disconnected.
- For models with a hardwired input, the connection to the branch circuit (mains) must be performed by a qualified electrician.
- 230 V models only: In order to maintain compliance with the EMC directive for products sold in Europe, output cords and network cables, attached to the UPS must not exceed 10 meters in length.
- The protective earth conductor for the UPS 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 UPS. 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.
- Leakage current for a pluggable, Type A UPS may exceed 3.5 mA when a separate ground terminal is used.
- The UPS input ground conductor must be properly bonded to protective earth at the service panel.
- If the UPS 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**

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#### **RISK OF HYDROGEN SULPHIDE GAS AND EXCESSIVE SMOKE**

- Replace the battery at least every 5 years or at the end of its service life, whichever is earlier.
- · Replace the battery immediately when the UPS indicates battery replacement is necessary.
- 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 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.

- The batteries typically last two to five years. Environmental factors impact battery life. Elevated ambient temperatures, poor quality utility power leading to frequent short duration discharges will shorten battery life. The battery should be replaced before end of life.
- APC by Schneider Electric uses sealed lead acid batteries. Under normal use and handling, there is no contact with the internal components of the battery. Over charging, over heating or other misuse of batteries can result in discharge of battery electrolyte. Released electrolyte is toxic and may be harmful to the skin and eyes.
- CAUTION: Before installing or replacing batteries, remove jewelry such as wrist watches and rings. High short circuit current through conductive materials could cause severe burns.
- CAUTION: Do not dispose off 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.

- CAUTION: A battery can present a risk of electrical shock and high short circuit current. Failed batteries can reach temperatures that exceed the burn thresholds for touchable surfaces. The following precautions should be observed when working on batteries:
- -Disconnect the charging source prior to connecting or disconnecting battery terminals.
- -Do not wear any metal objects including watches and rings.
- -Do not lay tools or metal parts on top of batteries.
- -Use tools with insulated handles.
- -Wear rubber gloves and boots.
- -Determine if battery is either intentionally or inadvertently grounded. Contact with any part of a grounded battery can result in electric shock and burns by high short-circuit current. The risk of such hazards can be reduced if grounds are removed during installation and maintenance by a skilled person.

#### **General information**

- 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.

#### FCC Class A radio frequency warning

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 intended 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.

**WARNING:** This is a category C2 UPS product. In a residential environment, this product may cause radio interference, in which case the user may be required to take additional measures.

# **Product Description**

The APC<sup>TM</sup> by Schneider Electric Smart-UPS<sup>TM</sup> 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 specified 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**

Inspect the contents upon receipt. Notify the carrier and dealer if the unit is damaged.

#### Common to all models



#### SMT1500RMX93



#### SMX3000RMX93

|                    | Front bezels        | Rail kit<br>(10x)   |                |                                |
|--------------------|---------------------|---|----------------|--------------------------------|
| EPO terminal block | Rack-mount brackets | Hardware for<br>securing railkit<br>to 4 post rack<br>(6x) $(6x)$ | Cage nuts (2x) | Ornamental<br>screws (4x)<br>3 |

### **Specifications**

For additional specifications, refer to the APC by Schneider Electric web site at www.apc.com.

#### Environmental

|                               | Operating | 0 to 40 °C (32 to 104 °F)                   |
|-------------------------------|-----------|---|
| Temperature                   | Storage   | -15 to 45 °C (5 to 113 °F)                  |
|                               | _         | charge UPS battery every six 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 |
| International Protection Code |           | IP20  |

### Physical

|  | SMT750X93  | SMT1500X93                                  | SMT1500RMX93                                 | SMX3000RMX93                                  |
|--|--|---|--|---|
| Dimensions without packaging<br>(Height x Width x Depth) | 6.3 x 5.4 x 14.5 in<br>(161 x 138 x 369 mm)      | 8.6 x 6.7 x 17.3 in<br>(219 x 171 x 439 mm) |  | 7.0 x 17.0 x 19.0 in<br>(178 x 432 x 483 mm)  |
| Dimensions with packaging<br>(Height x Width x Depth)    | 11.85 x 10.94 x 19.65 in<br>(301 x 278 x 499 mm) |   | 9.3 x 23.2 x 24.0 in<br>(235 x 590 x 610 mm) | 13.0 x 24.9 x 23.1 in<br>(330 x 633 x 586 mm) |
| Weight without packaging                                 | 27.6 lb (12.5 kg)                                | 54.2 lb (24.6 kg)                           | 58.4 lb (26.5 kg)                            | 85.19 lb (38.64 kg)                           |
| Weight with packaging                                    | 30.9 lb (14.02 kg)                               | 59.92 lb (27.18 kg)                         | 70.81 lb (32.12 kg)                          | 105.2 lb (47.73 kg)                           |

### Battery

|                              | SMT750X93            | SMT1500X93            | SMT1500RMX93           | SMX3000RMX93            |
|------------------------------|----------------------|-----------------------|------------------------|-------------------------|
| Туре                         | Se                   | ealed Maintenance Fro | ee Valve Regulated Lea | nd Acid                 |
| Rating                       | 12 V, 7.2 Ah, 2 nos. | 12 V, 17 Ah, 2 nos.   | 12 V, 9 Ah, 4 nos.     | 12 V, 5 Ah, 10 nos.     |
| <b>Typical Recharge Time</b> | 3                    | 8 hours to 90% capaci | ty                     | 9 hours to 90% capacity |
| External battery pack        |                      |                       |                        | SMX120BP                |

#### Electrical

|                        | SMT750X93      | SMT1500X93        | SMT1500RMX93   | SMX3000RMX93   |
|------------------------|----------------|-------------------|----------------|--|
| Input                  |                |                   |                |  |
| Voltage                |                | 120 Vac           |                | 100/110/120/127 Vac  |
| Frequency              |                | 4                 | 47 to 63 Hz    |  |
| Protection             |                | Ci                | ircuit breaker |  |
| Output                 |                |                   |                |  |
| Voltage (on battery)   |                | $120 \pm 2\%$ Vac |                | 100/110/120/127 Vac  |
| Frequency (on battery) |                |                   | $60\pm 1 \ Hz$ |  |
| Rating                 | 750 VA / 500 W | 1440 V            | /A / 1000 W    | 127 V: 3000 VA / 2700 W<br>120 V: 2880 VA / 2700 W<br>110 V: 2640 VA / 2640 W<br>100 V: 2400 VA / 2400 W |

# **Product Overview**

## **Front panel features**



| 0 | LCD Display                     |  |
|---|---------------------------------|--|
| 0 | Bezel                           |  |
| ₿ | Battery compartment / Battery   |  |
| 4 | UPS battery cable and connector |  |

## **Rear panel features**

SMT750X93



| 0 | Serial port   | To use PowerChute software, connect the serial cable (supplied), to the Serial port. Use only interface kits supplied or approved by APC by Schneider Electric. Any other serial interface cable will be incompatible with the UPS connector. |
|---|---|---|
| 0 | USB port  | Connect a USB cable from a computer to use power management software.<br><b>NOTE:</b> Serial and USB communication can only be used individually, they cannot be used at the same time.   |
| € | Chassis ground screw  | The UPS has a ground screw for connecting the ground leads on transient voltage devices. Prior to connecting a ground lead, disconnect the UPS from AC power.   |
| 4 | ENABLE Switch   | Enables or disables output power.<br>NOTE: This switch must be set to on before turning on the UPS.   |
| 0 | Reset Button of Input<br>Circuit breaker  | Press this button to reset the input circuit breaker after an overload condition has occurred.  |
| 6 | Utility power cable   | Use the power cable (supplied), to connect the UPS to utility power.  |
| 0 | Battery connector         Connect the internal battery.           NOTE: This connector must be connected before turning on the UPS. |   |
| 8 | Main outlet group   | Connect essential electronic devices such as a computer, monitor, modem or other data sensitive devices to these outlets.   |

#### SMT1500X93



| 0 | Serial port                              | To use PowerChute software, connect the serial cable (supplied), to the Serial port. Use only interface kits supplied or approved by APC by Schneider Electric. Any other serial interface cable will be incompatible with the UPS connector. |  |
|---|--|---|--|
| 0 | USB port                                 | Connect a USB cable from a computer to use power management software.<br><b>NOTE:</b> Serial and USB communication can only be used individually, they cannot be used at the same time.   |  |
| € | Reset Button of Input<br>Circuit breaker | Press this button to reset the input circuit breaker after an overload condition has occurred.  |  |

| 4 | Battery connector     | Connect the internal battery.<br>NOTE: This connector must be connected before turning on the UPS.  |
|---|-----------------------|---|
| 6 | Switched outlet group | Connect peripheral electronic devices to these outlets.   |
| 6 | Utility power cable   | Use the power cable (supplied), to connect the UPS to utility power.  |
| 0 | Chassis ground screw  | The UPS has a ground screw for connecting the ground leads on transient voltage devices. Prior to connecting a ground lead, disconnect the UPS from AC power. |
| 8 | Main outlet group     | Connect essential electronic devices such as a computer, monitor, modem or other data sensitive devices to these outlets.                                     |
| 9 | ENABLE Switch         | Enables or disables output power.<br>NOTE: This switch must be set to on before turning on the UPS.   |

#### SMT1500RMX93



| 0 | ENABLE Switch                            | Enables or disables output power.<br>NOTE: This switch must be set to on before turning on the UPS.   |
|---|--|---|
| 0 | Reset Button of Input<br>Circuit breaker | Press this button to reset the input circuit breaker after an overload condition has occurred.  |
| B | Utility power cable                      | Use the power cable (supplied), to connect the UPS to utility power.  |
| 4 | Switched outlet group                    | Connect peripheral electronic devices to these outlets.   |
| 6 | Chassis ground screw                     | The UPS has a ground screw for connecting the ground leads on transient voltage devices. Prior to connecting a ground lead, disconnect the UPS from AC power.   |
| 6 | Main outlet group                        | Connect essential electronic devices such as a computer, monitor, modem or other data sensitive devices to these outlets.   |
| 0 | Serial port                              | To use PowerChute software, connect the serial cable (supplied), to the Serial port.<br>Use only interface kits supplied or approved by APC by Schneider Electric. Any<br>other serial interface cable will be incompatible with the UPS connector. |
| 8 | USB port                                 | Connect a USB cable from a computer to use power management software.<br><b>NOTE:</b> Serial and USB communication can only be used individually, they cannot be used at the same time.   |

#### SMX3000RMX93



| 0 | SmartSlot                                 | Use the SmartSlot to install an optional Network Management Card (NMC).   |
|---|---|---|
| 0 | Chassis ground screw                      | The UPS has a ground screw for connecting the ground leads on transient voltage devices. Prior to connecting a ground lead, disconnect the UPS from AC power.   |
| ₿ | ENABLE Switch                             | Enables or disables input power.<br><b>NOTE</b> : This switch must be set to on before turning on the UPS.  |
| 4 | Reset Button of Output<br>Circuit breaker | Press this button to reset the circuit breaker after an overload condition has occurred.  |
| 6 | Switched Outlet Group 1                   | Connect essential electronic devices such as a computer, monitor, modem or other data sensitive devices to these outlets.   |
| 6 | Switched Outlet Group 2                   | Connect peripheral electronic devices to these outlets.   |
| 0 | Input Circuit breaker                     | Helps to provide overload protection.   |
| 8 | Utility power cable                       | Use the power cable (supplied), to connect the UPS to utility power.  |
| 0 | External battery connector                | Use the external battery cable to connect the UPS to an External Battery Pack (XLBP).   |
|   |   | XLBPs provide extended runtime during power outages. The UPS can support up to 10 external battery packs.   |
| 9 | EPO terminal                              | The Emergency Power Off (EPO) terminal allows the user to connect the UPS to a central EPO system.  |
| 0 | Serial port                               | To use PowerChute software, connect the serial cable (supplied), to the Serial port.<br>Use only interface kits supplied or approved by APC by Schneider Electric. Any<br>other serial interface cable will be incompatible with the UPS connector. |
| Ø | USB port                                  | Connect a USB cable from a computer to use power management software.<br><b>NOTE:</b> Serial and USB communication can only be used individually, they cannot be used at the same time.   |

# Installation

## 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  $^{\circ}$ 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 remove the batteries for easier installation. The UPS should be placed near the bottom of the rack.

## **Rack-mounting**

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#### **RISK OF FALLING EQUIPMENT**

- The equipment is heavy. Always practice safe lifting techniques adequate for the weight of the equipment.
- · Always use the recommended number of screws to secure brackets to the UPS.
- Always use the recommended number of screws and cage nuts to secure the UPS to the rack.
- · Always install the UPS at the bottom of the rack.
- · Always install the external battery pack below the UPS in the rack.

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

#### SMT1500RMX93





#### SMX3000RMX93

Install the railkit in the rack.



Install the UPS in the rack.

**NOTE**: The procedure is same for both 2 post rack and 4 post rack.





## PowerChute network management software

|          |   | _   |
|----------|---|-----|
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For installation instructions, refer to the PowerChute software CD supplied with the UPS. Installation instructions are also available on the APC by Schneider Electric web site, www.apc.com.

## **External battery pack (optional)**

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| ષ | _        |          |   |

For installation instructions, refer to the Smart-UPS X 2000-3000 VA External Battery Pack Installation Guide that is supplied with the external battery pack. The guide is also available on the enclosed User Manual CD and the APC by Schneider Electric web, site at www.apc.com.

# Operation

## Start Up

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#### **RISK OF ELECTRIC SHOCK**

- · 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 could result in minor or moderate injury.

**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.** 

- SMT750X93 and SMT1500X93: Connect battery using the battery connector on the rear panel of the UPS. Refer to "Rear panel features" on page 9, for identifying the battery connector.
   SMT1500RMX93 and SMX3000RMX93: Be sure that the battery connectors are connected during the installation of the UPS in a rack.
- 2. Connect equipment to the outlets on the rear panel of the UPS. Refer to "Switched Outlet Groups" on page 20, for details.
- 3. Connect the UPS to the building utility power. Connect the UPS to a two pole, three wire, grounded source only.
- 4. Set the ENABLE switch / Input Circuit Breaker to on position.
- 5. To turn on the UPS and all connected equipment. Press the OUTPUT ON/OFF button on the display interface of the UPS.
- 6. Follow the prompts to configure the UPS using the set up wizard the first time the UPS is turned on. Refer to "Configuration" on page 19 and "Menu overview" on page 17, for details.
- 7. To use the UPS as a MASTER ON/OFF switch, turn on equipment that is connected to the UPS.

## **Display Interface**



#### **Display interface operation**

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

#### Menu overview

The display interface has Standard and Advanced menu screens. The preference for Standard or Advanced menu selections is made during initial installation and can be changed at any time through the Configuration menu.

The Standard menu screens are the most commonly used screens. Default settings are included on the Standard menu screens.

The Advanced menu adds scrolling status screens and additional menus for UPS control and logs.

**NOTE:** Actual menu screens may differ by model and firmware revision.

| Main Menu     | Display Description  | <b>Standard Option</b> | <b>Advanced Option</b> |
|---------------|--|------------------------|------------------------|
| Status        | Operating mode   | Х                      | x (scrolling menu)     |
| Some of these | Efficiency   | Х                      | х                      |
| options are   | Load power (Watts, %, VA)  | X                      | x (scrolling menu)     |
| displayed as  | Load amperage  |                        | х                      |
| scrolling     | Load energy meter  |                        | Х                      |
| menus         | Battery charge level %   | X                      | х                      |
|               | Battery runtime (hours, min)   | Х                      | x (scrolling menu)     |
|               | Battery temperature  | Х                      | Х                      |
|               | Battery voltage  |                        | Х                      |
|               | Number of external battery packs                                       |                        | Х                      |
|               | Input voltage and frequency  | x                      | x (scrolling menu)     |
|               | Output voltage and frequency   | x                      | x (scrolling menu)     |
|               | Last transfer reason   | Х                      | x (scrolling menu)     |
|               | Last UPS self test result  | Х                      | Х                      |
|               | Outlet group status  |                        | x (scrolling menu)     |
|               | NMC IP address (if used)   |                        | X                      |
| Control       | UPS control  |                        | X                      |
|               | Group outlet control   |                        | х                      |
| Configuration | Language   | х                      | х                      |
| 0             | Output voltage setting   |                        | х                      |
|               | Green mode   | х                      | х                      |
|               | Power quality  | Х                      | Х                      |
|               | Menu type  | х                      | х                      |
|               | Audible alarms   | х                      | х                      |
|               | Display mode   | Х                      | Х                      |
|               | Sensitivity  |                        | Х                      |
|               | Low and high voltage transfer points                                   |                        | Х                      |
|               | Low battery alarm threshold  |                        | Х                      |
|               | Automatic self test interval   |                        | Х                      |
|               | Battery install date   | х                      | х                      |
|               | Reset energy meter   |                        | Х                      |
|               | Enter start up wizard  |                        | Х                      |
|               | Perform firmware update  |                        | Х                      |
|               | Reset to factory defaults  | Х                      | Х                      |
|               | Outlet group configuration (delays, reboot, min return, load shedding) |                        | х                      |
| Test and      | UPS self test  | х                      | х                      |
| Diagnostics   | UPS alarms test  | x                      | х                      |
|               | UPS calibration test   | x                      | x                      |
| Logs          | Last 10 transfer events (if applicable)                                |                        | х                      |
| 0             | Last 10 events (if applicable)   |                        | X                      |

| Main Menu | Display Description   | <b>Standard Option</b> | <b>Advanced Option</b> |
|-----------|---|------------------------|------------------------|
| About     | Model identification  | Х                      | Х                      |
|           | Part number   | X                      | х                      |
|           | Serial number   | х                      | х                      |
|           | UPS manufacture date  | х                      | х                      |
|           | Replace battery part number   | х                      | х                      |
|           | External battery part number  | X                      | х                      |
|           | Battery install date  | Х                      | X                      |
|           | Replace battery date  | X                      | х                      |
|           | UPS firmware revision   | х                      | х                      |
|           | NMC Information - part/serial/version numbers/manufacture date/MAC address/ firmware revision (if applicable) |                        | Х                      |

# Configuration

## **UPS Settings**

#### **Start up Settings**

Use the display interface to configure these settings at initial start up. The UPS will prompt for a response to each setting, if no response is given, the default setting will be used.

| Function                  | <b>Factory Default</b>            | Options  | Description  |
|---------------------------|-----------------------------------|--|--|
| Language                  | English                           | •English<br>•French<br>•German<br>•Spanish<br>•Italian<br>•Portuguese<br>•Japanese | The language for the display interface.<br>Language options will vary by model and firmware version.   |
| Output<br>Voltage         | 120 Vac                           | •100<br>•110<br>•120<br>•127   | Set the output voltage while the UPS is in <b>Standby</b> mode.  |
| Input<br>Power<br>Quality | Good                              | •Good<br>•Fair<br>•Poor  | <ul> <li>Select the desired utility power input quality.</li> <li>Good: The UPS will go on battery power more often to provide the cleanest power supply to the connected equipment.</li> <li>Fair: The UPS will tolerate some voltage fluctuations.</li> <li>Poor: The UPS will tolerate more voltage fluctuations and will go on battery power less often.</li> <li>If unsure of the local power quality, or the connected equipment is sensitive to voltage fluctuations set the sensitivity level to Good, using the Advanced menu.</li> </ul> |
| Menu<br>Type              | Standard                          | Standard or<br>Advanced  | The advanced menus include all parameters. The Standard menus display a limited set of menus and options.  |
| Date                      | UPS manufacture date<br>+ 90 days | mm-yyyy  | Enter the current date.  |

NOTE: The UPS will not turn on until all of these settings have been configured.

#### **General settings**

Configure these settings at any time, using the display interface, PowerChute<sup>™</sup> software, or a network management card.

| Function             | Factory<br>Default   | Options     | Description   |
|----------------------|--|-------------|---|
| <b>High Transfer</b> | 100 V: 108 Vac   | 108-114 Vac | To avoid unnecessary battery usage, set the transfer point higher   |
| Point                | 110 V: 116 Vac   | 116-125 Vac | if the utility voltage is chronically high and the connected  |
|                      | 120 V: 127 Vac   | 127-136 Vac | equipment is known to work under this condition. The power  |
|                      | 127 V: 134 Vac   | 134-143 Vac | quality setting will automatically change this setting.<br><b>Note:</b> Use the Advanced Menus to configure this setting. |
| Low Transfer         | 100 V: 92 Vac  | 86-92 Vac   | Set the transfer point lower if the utility voltage is chronically  |
| Point                | 110 V: 98 Vac  | 89-98 Vac   | low and the connected equipment can tolerate this condition. The  |
|                      | 120 V: 106 Vac   | 97-106 Vac  | POWER QUALITY setting will automatically change this setting.   |
|                      | 127 V: 112 Vac   | 103-112 Vac | <b>Note:</b> Use the Advanced Menus to configure this setting.  |
| Green Mode           | If the UPS input voltage is between the high transfer point and the lower transfer point, the UPS will operate in <b>Green Mode</b> . Configure this setting using the Advanced menus. |             |   |

| Function                               | Factory<br>Default                              | Options  | Description   |
|--|---|--|---|
| Transfer<br>Sensitivity                | Normal  | •Normal<br>•Reduced<br>•Low  | Select the level of sensitivity to power events that the UPS will<br>tolerate.<br>•Normal: The UPS will go on battery power more often to<br>provide the cleanest power supply to the connected equipment.<br>•Reduced: The UPS will tolerate some fluctuations in power.<br>•Low: The UPS will tolerate more fluctuations in power and will<br>go on battery power less often. |
|  |   |  | If the connected load is sensitive to power disturbances, set the sensitivity to Normal using the advanced Configuration menu.  |
| Low Runtime<br>alarm                   | 150 sec   | Value set in seconds   | The UPS will emit an audible alarm when the remaining runtime has reached this level.   |
| Date of Last<br>Battery<br>Replacement | Date set at factory                             | Reset this date when   | n the battery module is replaced.   |
| Audible Alarm                          | On  | On/Off   | The UPS will mute all audible alarms if this is set to Off or when<br>any of the display buttons are pressed.   |
| Display<br>Dimmer                      | Always on                                       | •Always on<br>•Auto dim<br>•Auto off   | To conserve energy, the display panel illumination dims or<br>extinguishes when no events are present. Full display panel<br>illumination returns when the UPS changes status as a result of<br>an event or if the display panel is touched.  |
| Auto Self-Test<br>Interval Setting     | On start up and<br>every 14 days<br>there after | •Last test + 14 days<br>•Last test + 7 days<br>•Turn on + 14 days<br>•Turn on + 7 days<br>•On startup only<br>•Never | The interval at which the UPS will execute a self-test.<br>The batteries much be charged to at least 70% capacity to<br>perform the self-test.  |
| Reset to Factory<br>Default            | No  | Yes/No   | Restore the UPS factory default settings.   |

### **Switched Outlet Groups**

NOTE: Switched Outlet Groups provide battery backup power to connected equipment.

#### Overview

The Switched Outlet Groups can be configured to independently turn off, turn on, shut down, go into sleep mode, and reboot connected equipment.

The Switched 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 utility power becomes available
- Reboot: Shut down and restart
- Sleep: Reboot after a long delay

In addition, the Switched Outlet Groups 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

#### **Use of Switched Outlet Groups**

- 1. Connect essential equipment to a Switched Outlet Group.
- 2. Connect peripheral equipment to the other Switched Outlet Groups.
  - -During a power outage, to conserve battery runtime, nonessential equipment can be configured to shut down after a short 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 connected to a separate group
- 3. Use the **Configuration** menus to configure how the Switched Outlet Groups will react in the event of a power outage.

#### **Customize Switched Outlet Groups**

Use the **Control** menus to customize the Switched Outlet Groups.

| Function                          | Factory Default   | Options   | Description  |
|-----------------------------------|---|---|--|
| Name String<br>Outlet Group       | SMT1500X93 and<br>SMT 1500RMX93:<br>Outlet Group 1<br>SMX3000RMX93:<br>Outlet Groups 1, 2 |   | es using an external interface, such as the Network<br>Card web interface.   |
| UPS Name String                   | APC UPS   |   |  |
| Turn On Delay                     | 0 sec   | Set the value<br>in seconds   | The amount of time the Switched Outlet Groups will wait<br>between receiving the command to turn on and the actual<br>startup.   |
| Turn Off Delay                    | 90 sec  | Set the value<br>in seconds   | The amount of time that the Switched Outlet Groups will<br>wait between receiving the command to turn off and the<br>actual shut down.   |
| Reboot Duration                   | 8 sec   | Set the value in seconds  | The amount of time that the Switched Outlet Groups must remain off before it will restart.   |
| Minimum Return<br>Time            | 0 sec   | Set the value<br>in seconds   | The amount of battery runtime that must be available<br>before the Switched Outlet Groups will turn on again after a<br>shutdown.  |
| Load Shed On<br>Battery           | Disabled  | •Shutdown<br>with Delay<br>•Shutdown<br>immediately<br>•Turn off<br>immediately<br>•Turn off with<br>delay<br>•Disabled | <ul><li>When the unit switches to battery power, the UPS can disconnect power to the Switched Outlet Groups to save runtime.</li><li>Configure this delay time, use the LOAD SHED TIME WHEN ON BATTERY setting.</li></ul>              |
| Load Shed Time<br>when On Battery | Disabled  | Set the value<br>in seconds   | The amount of time the outlets will function on battery power before they will turn off.   |
| Load Shed On<br>Runtime           | Disabled  | •Shutdown<br>with delay<br>•Shutdown<br>immediately<br>•Turn off<br>immediately<br>•Turn off with<br>delay<br>•Disabled | Configure this time using the LOAD SHED RUNTIME<br>REMAINING setting.  |
| Load Shed On<br>Runtime Remaining | Disabled  | Set the value in seconds  | When the remaining runtime reaches this level, the Switched Outlet Groups will turn off.   |
| Load Shed on<br>Overload          | Disabled  | •Disabled<br>•Enabled   | In the event of an overload (greater than 105% output), the<br>Switched Outlet Groups will immediately turn off to<br>conserve power for essential loads. The Switched Outlet<br>Groups will only turn on again with a manual command. |

#### **Network Management Card settings**

These settings are available only on units that have a Network Management Card (NMC).

- NMC IP Address Mode
- NMC Default Gateway

# **Emergency Power Off**

NOTE: This feature is available only in SMX3000RMX93.

#### Overview

The Emergency Power Off (EPO) option is a safety feature that will immediately disconnect all connected equipment from AC power. The UPS will immediately shut down and will not switch to battery power.

Connect each UPS to the EPO switch. In configurations where multiple units are connected in parallel, each UPS must be connected 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.

#### 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.





# Troubleshooting

| Problem and Possible Cause  | Solution  |  |
|---|---|--|
| The UPS will not turn on or there is no   | ) output  |  |
| The unit has not been turned on.  | Press the ON button once to turn on the UPS.  |  |
| The UPS is not connected to utility   | Be sure the power cable is securely connected to the unit and to the utility  |  |
| power.  | power supply.   |  |
| The input circuit breaker has tripped.  | Reduce the load on the UPS. Disconnect nonessential equipment and reset the circuit breaker.  |  |
| The unit shows very low or no utility power.  | 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 is not securely connected.  | Be sure that all battery connections are secure.  |  |
| An UPS internal fault is detected.  | Do not attempt to use the UPS. Unplug the UPS and have it serviced immediately.   |  |
| The UPS is operating on battery, while  | connected to input utility power  |  |
| The input circuit breaker has tripped.  | 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. |  |
| UPS is beeping  |   |  |
| The UPS is operating normally.  | None. The UPS is helping to protect the connected equipment.  |  |
| UPS does not provide expected backup  | ) time  |  |
| The UPS battery is weak due to a  | Charge the battery. Batteries require recharging after extended outages and   |  |
| recent power outage or is near the end  | wear out faster when put into service often or when operated at elevated  |  |
| of its service life.  | temperatures. If the battery is near the end of its service life, consider replacing the battery even if the replace battery LED is not illuminated.                                      |  |
| The UPS is experiencing an overload condition.                                      | Check the UPS load display. Unplug unnecessary equipment, such as printers.   |  |
| Display interface LEDs flash sequentia  | 1   |  |
| 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.  |  |
| The Alert LED is illuminated, the UPS   | displays a message and emits a constant beeping sound   |  |
| An internal UPS fault detected.   | Do not attempt to use the UPS. Turn the UPS off and have it serviced immediately.   |  |
| All LEDs are illuminated and the UPS  | is plugged into a wall outlet   |  |
| The UPS has shut down and the   | None. The UPS will return to normal operation when the power is restored  |  |
| battery has discharged from an  | and the battery has a sufficient charge.  |  |
| extended outage.  |   |  |
| The Replace Battery LED is illuminate   |   |  |
| The battery has a weak charge.  | Allow the battery to recharge for at least four hours. Then, perform a self-test. If the problem persists after recharging, replace the battery.  |  |
| The replacement battery is not properly connected.                                  | Be sure the battery connector is securely connected.  |  |

# **Service and Transport**

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 APC by Schneider Electric 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 parts 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.

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 or 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 web site: <u>www.apc.com</u>. 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 distributors from whom you purchased your APC by Schneider Electric product.



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