

# Installation Guide Smart-UPS<sup>™</sup> On-Line External Battery Pack SRT192BP/ SRT192BP2/SRT192BPJ/SRT192BP2J

## **Safety Messages**

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

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



The addition of this symbol either to a "Danger" or "Warning" safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

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

### A 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.

### **A** 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**















## **Safety and General Information**

- Adhere to all national and local electrical codes.
- Changes and modifications to this unit not expressly approved by APC by Schneider Electric could void the warranty.
- This unit is intended only for indoor use in a controlled environment.
- Do not operate this unit in direct sunlight, in contact with fluids, or where there is excessive dust or humidity.
- Be sure the air vents on the unit are not blocked. Allow adequate space for proper ventilation.
- The UPS and external Battery Pack(s) must be properly grounded to each other and to the mains grounding system.
- Before installing or replacing the batteries, remove jewelry such as wristwatches and rings. High, short circuit current through conductive materials could cause severe burns.
- The battery typically lasts for two to five years. Environmental factors impact battery life. Elevated ambient temperatures, poor quality mains power, and frequent short duration discharges will shorten battery life.
- Replace the battery immediately when the UPS indicates battery replacement is necessary or when the batteries reach the end of their life. Failure to do so could result in equipment damage and/or injury.
- The UPS will recognize as many as 10 XLBPs connected to the UPS. Note: For each XLBP added, increased recharge time will be required.
- The equipment is heavy. Always practice safe lifting techniques adequate for the weight of the equipment.
- The batteries are heavy. Remove the batteries before installing the UPS and external battery packs (XLBPs) in a rack.
- Always install XLBPs at the bottom in rack-mount configurations. The UPS must be installed above the XLBPs.
- Do not dispose of batteries by burning them. The batteries may explode.
- Do not open or mutilate batteries. Released electrolyte is harmful to the skin and eyes, and may be toxic.
- Always recycle used batteries.
- Recycle the package materials or save them for reuse.
- Additional safety information can be found in the Safety Guide supplied with this unit.

### **Overview**

• To verify that installation of an external battery pack (XLBP) has been successful, go to the UPS display interface.

Perform an **Alarm Test** to determine if the XLBP is recognized by the UPS.

The LED on the XLBP will flash if successful communication has been established.

- When viewing the status of an XLBP on the UPS display interface screen, the LED on the corresponding XLBP will flash.
- When an RBC needs to be replaced, perform a **Runtime Calibration Test** to verify that battery replacement is required.

## **Package Contents**

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

| Included with all models   |  |  |  |  |
|--|--|--|--|--|
| Front bezel  | Ground cable<br>2 pan head screws to secure<br>the ground cable        | 2 tie brackets<br>4 flat head screws to secure tie<br>brackets | 1 pan head screw to secure<br>the XLBP battery cable<br>connector to an XLBP or to<br>the UPS. |  |
| Included with SRT192B  | P/SRT192BP2/SRT192BPJ  | only   |  |  |
|  | TT COMM) cable<br>RT6K Tower models only<br>plied with the SRT5K/SRT6K | 4 flat head screws to secure to<br>UPS                         | wer stabilizer brackets to the   |  |
|  |  |  |  |  |
| Included with Rack-Mou   | unt models only  |  |  |  |
| Rail Kit with instructions and hardware for installing rails in a rack |  |  | ack-mount brackets to the UPS<br>e rack-mount brackets to the                                  |  |

## **Specifications**

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

#### Environmental

| Temperature              | Operating   | 0 °C to 40 °C (32 °F to 104 °F)                                    |  |
|--------------------------|---|--|--|
|                          | Storage   | -15 °C to 45 °C (5 °F to 113 °F)                                   |  |
| Maximum                  | Operating   | 0 - 3,000 m (0 - 10,000 ft)  |  |
| Elevation                | Storage   | 0 - 15,000 m (50,000 ft)   |  |
| Humidity                 | 0% to 95% relative l  | 0% to 95% relative humidity, non-condensing                        |  |
| Protection Class         | IP 20 rating  | IP 20 rating   |  |
| Environmental factors in | modules every six months<br>npact battery life. Elevated<br>lischarges will shorten batte | ambient temperatures, high humidity, poor quality mains power, and |  |

#### Physical

The XLBP is heavy. Follow all lifting guidelines.

| Unit weight batteries included, without packaging                            | 91 kg (201 lb)   |  |
|--|--|--|
| Unit weight batteries included, with packaging                               | 102 kg (225 lb)  |  |
| Unit dimensions without packaging<br>Height x Width x Depth                  | 130 mm x 432 mm x 682.7 mm<br>5.1 in x 17 in x 26.9 in   |  |
| Unit dimensions with packaging<br>Height x Width x Depth                     | 420 mm x 600 mm x 1000 mm<br>16.5 in x 23.6 in x 39.4 in |  |
| The model and serial numbers are on a small label located on the rear panel. |  |  |

### **A** 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 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 type   | Sealed, maintenance-free, Valve Regulated Lead-Acid battery                      |  |
|--|--|--|
| <b>Replacement battery module</b><br>This UPS has replaceable battery modules.<br>Refer to the appropriate replacement battery user manual for<br>installation instructions. | SRT5KXLJ/SRT8KXLJ/SRT10KXLJ models:<br>APCRBC140J<br>All other models: APCRBC140 |  |
| Contact your dealer or go the APC by Schneider Electric Web site, <b>www.apc.com</b> for information on replacement batteries.   |  |  |
| Number of battery modules  | 4 battery modules  |  |
| Voltage for each battery module<br>Total voltage for the UPS<br>Ah rating  | 96 VDC<br>192 VDC<br>5 Ah per battery module                                     |  |
| XLBP cable length  | 500 mm (19.7 in)   |  |

| Battery module | UPS  | XLBP                  |
|----------------|--|-----------------------|
| APCRBC140      | SRT5KXLx/SRT5KRMXLx/SRT6KXLx/SRT6KRMXLx<br>(except for SRT5KXLJ)             | SRT192BP/SRT192RMBP   |
|                | SRT8KXLx/SRT8KRMXLx/SRT10KXLx/SRT10KRMXLx<br>(except for SRT8KXLJ/SRT10KXLJ) | SRT192BP2/SRT192RMBP2 |
| APCRBC140J     | SRT5KXLJ   | SRT192BPJ             |
|                | SRT8KXLJ/SRT10KXLJ   | SRT192BP2J            |

### **Remove Battery Modules**

### 

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

- The equipment is heavy. Each battery module weighs 17 kg (37 lb).
- Always practice safe lifting techniques adequate for the weight of the equipment.
- Remove the battery modules before installing the UPS.
- Use the battery module handle to slide the battery modules in or out of the UPS.
- Do not use the battery module handle to lift or carry the battery module.

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







## **Rack-Mount Installation**

UPS model may differ in appearance from those depicted in these graphics. The XLBP installation process is identical for all models.

Refer to the rail kit Installation Guide for instructions on rail installation.

### **A** CAUTION

#### 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 XLBP below the UPS in the rack.

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

• Secure two brackets to the XLBP. Use four screws in each bracket.



Rest the XLBP on the rail shelves. Slide the XLBP into the rack.



2 Install two cage nuts.



• Secure the XLBP to the rack. Use two screws in each bracket.



#### **5** Install four battery modules.



Reinstall the battery compartment doors. Tighten the thumbscrews to secure the doors.



**UPS models SRT8K or SRT10K with one XLBP** Install one XLBP bezel and two UPS bezels.



**6** Connect four battery modules.



**3** UPS models SRT5K or SRT6K with one XLBP Install one XLBP bezel and one UPS bezel.



### **Tower Installation**

### **A** CAUTION

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

- The equipment is heavy. Each battery module weighs 17 kg (37 lb).
- Always practice safe lifting techniques adequate for the weight of the equipment.
- Remove the battery modules before installing the UPS.
- Use the battery module handle to slide the battery modules in or out of the UPS.
- Do not use the battery module handle to lift or carry the battery module.

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

UPS model may differ in appearance from those depicted in these graphics. The XLBP installation process is identical for all models.

#### Stabilizer bracket installation UPS models SRT5K/SRT6K only

Stabilizer brackets are supplied with the SRT5K/SRT6K UPS models.





#### Tie bracket installation all UPS models

**1** UPS models SRT5K/SRT6K with one XLBP



#### Install battery modules and bezels SRT5K/SRT6K UPS models

• Slide four battery modules into the XLBP. Connect four battery modules.



3 Install two bezels.



**2** UPS models SRT8K/SRT10K with one XLBP



Reinstall the battery compartment doors. Tighten the thumbscrews to secure two doors.



#### SRT8K/SRT10K UPS models

- Slide four battery modules into the UPS and four battery modules into the XLBP.
   Connect eight battery modules.
- Reinstall the battery compartment doors.Tighten the thumbscrews to secure four doors.









## **Connect Ground and Battery Cables**

UPS model may differ in appearance from those depicted in these graphics. The process is identical for all models.

#### SRT5K/SRT6K models

#### **Connect ground cables**

Recommended screw torque, 2.72 Nm (24 lbf-in)

#### **Connect external battery pack cables**



The UPS external battery pack connector has a cover, secured with a screw.

Remove the screw and the cover.

Connect the external battery pack.



#### SRT8K/SRT10K models

#### **Connect ground cables**

Recommended screw torque, 2.72 Nm (24 lbf-in)



#### Connect UPS battery pack, external battery packs and communication cables

The UPS external battery pack connector has a cover secured with a screw. Remove the screw and the cover. Connect the external battery pack.



### Smart Battery Management

#### Definitions

- Battery Module: A string of battery cells arranged to produce a battery assembly with a connector.
- Replaceable Battery Cartridge (RBC): An APC battery cartridge consisting of two battery modules. Replacement RBCs can be ordered from the APC by Schneider Electric Web site, www.apc.com.
- Smart External Battery Pack (XLBP): An enclosure that contains RBC(s) and battery management electronics.
- User Interface (UI): Any interface by which a user can interact with the system. This may include a UPS display interface, a network management interface or PowerChute<sup>™</sup> Network Shutdown software.

Note: Do not use a battery that is not approved by APC by Schneider Electric. The system will not detect the presence of a non APC by Schneider Electric approved battery and may adversely affect the operation of the system.

Use of a non APC by Schneider Electric approved battery will void the manufacturer warranty.

#### Maintenance

- RBC maintenance: The APC by Schneider Electric RBC uses sealed lead acid battery cells and does not require maintenance.
- **Runtime Test (Calibration):** This should be performed anytime the steady state load is changed significantly, for example a new server is added to or removed from the UPS load.
- Battery health monitoring: The battery energy output and voltage are monitored to assess the health of the installed batteries when the UPS is operating on battery. Battery health monitoring is done during a UPS Self Test, a Runtime Calibration Test, and when the UPS is operating on battery power.

The UPS can be configured to perform periodic, automatic Self Tests.

#### End of useful life

• Near end of life notification: An alert message will appear on the UPS display interface screen when each RBC is approaching the end of its useful life. For configuration details refer to **Replacement Notification Time** and **Replacement Battery Alarm Time** in the UPS Operation Manual. The estimated replacement date for each RBC is available through the UI.

• Needs replacement notification: The UPS display interface screen shows when RBC replacement is required. The RBC must be replaced as soon as possible. When an RBC requires replacement, the UPS display interface may recommend that additional RBCs be replaced if they will soon reach the end of their useful life.

#### Note: Continued operation after end of useful life notification may cause damage to the batteries.

• **Recycling:** Remove the RBC from the XLBP. Recycle the RBC. Do not disassemble an RBC.

#### Recommended actions after installing new RBCs or XLBPs

Refer to the UPS Operation Manual for details on Test and Diagnostics Menu options for the following tests:

- Self Test
- Runtime Test
- Alarm Test

The following actions should be performed after installing a new RBC or XLBP:

- Verify that the UPS is connected to input power and output power is turned on. Refer to the *Operation* section in this manual for instructions.
- When a new XLBP is installed, verify that the XLBP is detected by the system.
  - Perform a UPS Alarm Test.
  - Check that the LED on all installed XLBPs continuously flashes.
- To verify that installation of a replacement battery cartridge (RBC), has been successful, go to the UPS display interface. Use the Status menus to verify that the UPS recognizes the RBCs.
- Verify that the UPS load is greater than 400 watts. This will appear on the UPS display interface.
- Perform a UPS Self Test.
- If at the time of XLBP installation UPS input power is not available, turn on the UPS output from battery power for 30 seconds. This will allow the UPS to detect all installed RBCs. Refer to the UPS Operation Manual for instructions on how to turn the UPS on and off.
- Verify on the UPS display interface that the installation dates for the replaced RBCs are set to the current date. The installation dates can be changed manually on the UPS display interface.
   If all RBCs have been replaced at the same time, all installation dates can be changed simultaneously. For configuration details refer to **Battery Install Date** in the Operation Manual.
- Allow the system to charge for 24 hours to ensure full runtime capability.
- Initiate a **Runtime Calibration Test** through the UI.

#### **User interface**

View Status/Error notifications: The status of connected XLBPs can be viewed using the UPS display interface menu options.

- XLBP Status LED: The XLBP LED illuminates red to indicate three possible states.
  - Off: No message. This is the default state.
  - Solid red: XLBP cannot communicate with the UPS. The XLBP controller is not functional.
  - Flashing red:
    - For identification purposes each XLBP is automatically assigned a number. To verify the number of a specific XLBP, use the UPS display interface menu options. Select an XLBP number. The LED will flash on the XLBP assigned to that number.
- XLBP LED test: From the UPS display interface, LED functionality can be tested by issuing an Alarm Test. This command causes the LED on each connected XLBP to flash.
- System interfaces: Battery status, alerts, and measurements are shown on the UPS display interface screen. Refer to the UPS Operation Manual.



## Troubleshooting

| Issues  | Possible Cause  | Solution  |
|---|---|---|
| XLBP LED flashes.   | <ul> <li>The UPS display interface is requesting<br/>XLBP status</li> <li>Alarm Test has been requested by the</li> </ul> | <ul><li>No action is necessary.</li><li>No action is necessary.</li></ul>   |
|   | UPS<br>• Indicates that an RBC needs to be replaced   | • Refer to the UPS display interface screen   |
| XLBP LED remains illuminated                              | Potential hardware error exists   | • Contact APC by Schneider Electric<br>Customer Support. Refer to the <b>Service</b><br>section in the Operation Manual for<br>contact information.   |
| UPS display interface shows an RBC disconnected message.  | <ul><li> RBC is not connected</li><li> RBC hardware error exists</li></ul>  | Connect the RBCs. Verify that the UPS recognizes the RBCs.  |
|   |   | Perform a UPS Self Test.  |
|   |   | If the message remains on the display interface screen replace the RBC.   |
| XLBP is not recognized.                                   | Communication issue exists     Potential hardware error exists  | <ul> <li>Be sure the battery connections to the XLBPs are secure.</li> <li>Be sure the connection between the XLBPs and the UPS are secure.</li> <li>Perform an Alarm Test to verify that the LED flashes.</li> <li>If issue persists, contact APC by Schneider Electric Customer Support. Refer to the Service section in the Operation Manual for contact information.</li> </ul> |
| UPS display interface shows<br>XLBP disconnected message. | <ul> <li>Power cable is not securely connected to<br/>an XLBP or to the UPS</li> <li>XLBP hardware error</li> </ul>       | <ul> <li>Be sure the battery connections to the XLBPs are secure.</li> <li>Perform an Alarm Test to verify that the LED flashes.</li> <li>If issue persists, contact APC by Schneider Electric Customer Support. Refer to the Service section in the Operation Manual for contact information.</li> </ul>   |

### **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 including the batteries 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 by Schneider Electric Web site: **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<sup>™</sup> by Schneider Electric Worldwide Customer Support

Customer support for this or any other APC<sup>™</sup> 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 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 Knowledge Base and using e-support.
- Contact 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.

Customer support and warranty information are available on the APC web site, www.apc.com.

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