Installation Guide Smart-UPS™ On-Line External Battery Pack XBP48RM1U-LI/XBP48RM1U2-LI

Important Safety Messages

SAVE THESE INSTRUCTIONS - This manual contains important instructions that should be followed during installation and maintenance of the External Battery Pack (XLBP).

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



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



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

⚠ DANGER

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

⚠ WARNING

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

⚠ CAUTION

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

NOTICE

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

Product Handling Guidelines



<18 kg
<40 lb



18-32 kg
40-70 lb



32-55 kg
70-120 lb



>55 kg
>120 lb





Safety and General Information

- 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.
- Allow adequate space for proper ventilation.
- The equipment is heavy. Always practice safe lifting techniques adequate for the weight of the equipment.
- Always install XLBPs at the bottom in rack-mount configurations. The UPS must be installed above the XLBPs.
- UPS models will recognize external battery packs connected to the UPS. Refer to the user documentation of your UPS model for information about the maximum number of battery packs that can be connected.
  NOTE: For each XLBP added, increased recharge time will be required.
- Always recycle used batteries.
- Recycle the package materials or save them for reuse.

Battery safety

⚠ WARNING

RISK OF CHEMICAL HAZARD AND EXCESSIVE SMOKE

- Replace the battery at least every 10 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 type of batteries as originally installed in the equipment.

Failure to follow these instructions can result in death or serious injury.

- Servicing of batteries should be performed or supervised by personnel knowledgeable about batteries and the required precautions. Keep unauthorized personnel away from batteries.
- Schneider Electric uses Lithium-ion batteries. Under normal use and handling, there is no contact with the internal components of the battery.
- The battery typically lasts for eight to ten years. Environmental factors impact battery life. Elevated ambient temperatures, poor quality mains power causing frequent short duration discharges will shorten battery life.
- CAUTION: Before installing or replacing the batteries, remove conductive jewelry such as chains, wrist watches and rings. High energy through conductive materials could cause severe burns.
- CAUTION: Do not place or use the battery pack near heat or fire.
  Do not crush, do not dispose off a battery pack in a fire. The batteries may explode.
- CAUTION: Do not open the battery pack enclosure. Doing so will expose the cell terminals which pose an energy hazard.
- CAUTION: Do not open or mutilate the battery or batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.
- CAUTION: A battery can present a risk of electric shock and burns by high short-circuit current. 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.

- CAUTION: Failed batteries can reach temperatures that exceed the burn thresholds for touchable surfaces.
- Do not use a dropped, damaged or deformed battery pack.
- Do not short circuit battery pack.
- Do not drive nails into the battery pack.
- Do not strike the battery pack with a hammer.

Overview

- To verify that installation of an external battery pack (XLBP) has been successful, go to the UPS display interface.
  Perform a **Visible Alarm Test** to determine if the XLBP is recognized by the UPS.
  The green LED on the XLBP will illuminate 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.

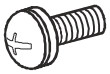
Package Contents

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

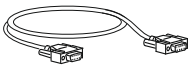
Ground cable



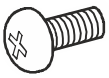
2 pan head screws to secure the ground cable



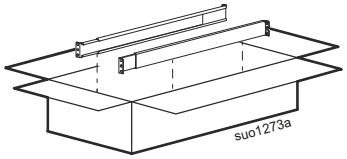
Communication cable



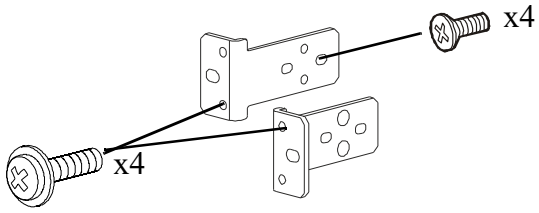
1 pan head screw to secure the XLBP battery cable connector to an XLBP or to the UPS.



Rail Kit with instructions and hardware for installing rails in a rack



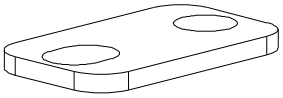
- 1 pair rack-mount bracket
- 4 flat head screws to secure rack-mount brackets to the XLBP
- 4 ornamental screws to secure the rack-mount bracket to the rack



4 flat head screws to secure rack-mount brackets to XLBP



Joining bracket



Specifications

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

Environmental

Temperature	Operating*	0 to 40 °C (32 to 104 °F)
	Storage	-15 to 45 °C (5 to 113 °F)
Elevation	Operating	0 - 3,000 m (0 - 10,000 ft)
	Storage	0 - 15,000 m (49,212 ft)
Humidity		0 to 95% relative humidity, non- condensing
International Protection Code		IP20

Physical*

The battery pack is heavy. Follow all lifting guidelines.

Unit weight, without packaging [1]	12.2 kg (26.90 lb)
Unit weight, with packaging [2]	16.9 kg (37.3 lb)
Rack-mount unit dimensions without packaging **Height x Width x Depth**	43 mm x 432 mm x 521 mm 1.7 in x 17 in x 20.5 in
Unit dimensions with packaging [3] **Height x Width x Depth**	200 mm x 555 mm x 815 mm 7.9 in x 21.9 in x 32.1 in
The model and serial numbers are on a small label located on the rear panel.	

NOTES:

* Specification in the table are applicable for battery packs manufactured after May 2021

[1] Unit weight without packaging: 13.0 kg (28.7 lb), for battery packs manufactured before May 2021.

[2] Unit weight with packaging: 16.4 kg (36.2 lb), for battery packs manufactured before May 2021.

3 Unit Dimensions with packaging: Height: 200 mm (7.9 in); Width: 600 mm(23.6 in); Depth: 850 mm (33.5 in), for battery packs manufactured before May 2021.

Battery

Replacement battery pack	XBP48RM1U-LI*	XBP48RM1U2-LI
Battery type	Lithium-ion	
Typical energy capacity	600 watt-hours	
Battery nominal voltage	48 Vdc	
Maximum continuous discharge power	1.5 kW	3 kW
Maximum charge rate	12 A	
Battery capacity - Typical	12 Ah	
Compatible UPS models	SRT1000UXI-NCLI SRT1500UXI-NCLI SRT1000UXI-LI SRT1500UXI-LI	SRT3000UXI-NCLI SRT2200UXI-NCLI SRT3000UXI-LI SRT2200UXI-LI
Max number of XLBPs supported	Refer to the UPS Manual for details.	
Battery power cable length	600 mm (23.6 in)	
Battery communication cable length	300 mm (11.8 in)	
NOTE: Charge the XLBPs immediately upon receipt / first installation and at least once in six months during storage or when not in use.		

NOTE: * Specifications in above table apply to all battery packs manufactured after May 2021 and power derating below 15 °C apply.

Rack-Mount Installation

NOTES:

- **Be sure that the depth of the rack is at least 800 mm.**
- **Maintain a clear space of 200 mm (minimum) from the front and back surfaces of the XLBP to any adjacent surface.**
- UPS model may differ in appearance from those depicted in the graphics. The XLBP installation process is identical for all models.

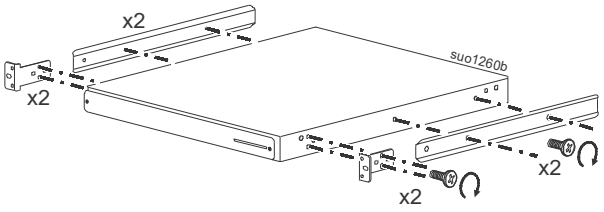
⚠ CAUTION

RISK OF FALLING EQUIPMENT

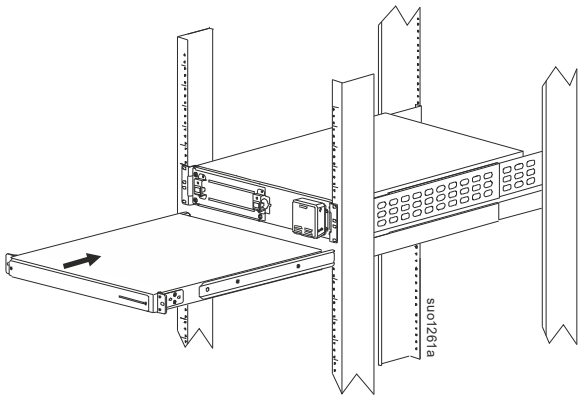
- The equipment is heavy. Always practice safe lifting techniques adequate for the weight of the equipment.
- Always use the recommended number of screws to secure brackets to the XLBP.
- Always use the recommended number of screws to secure the XLBP to the rack.
- Always install the XLBP at the bottom 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.

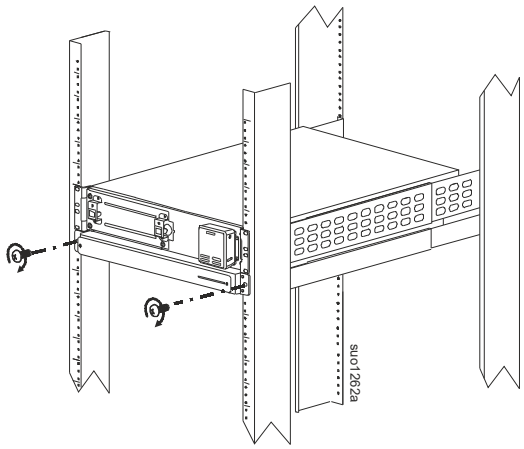
❶ Secure four brackets to the XLBP.
Use two screws in each bracket.



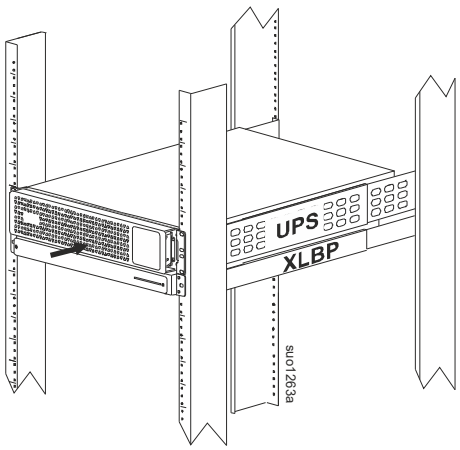
❷ Install the 1U Rail Kit included with the UPS. Refer to the installation instructions provided with the rail kit.
Slide the XLBP into the rack.



❸ Secure the XLBP to the rack.
Use one screw in each bracket.



❹ Install UPS bezel



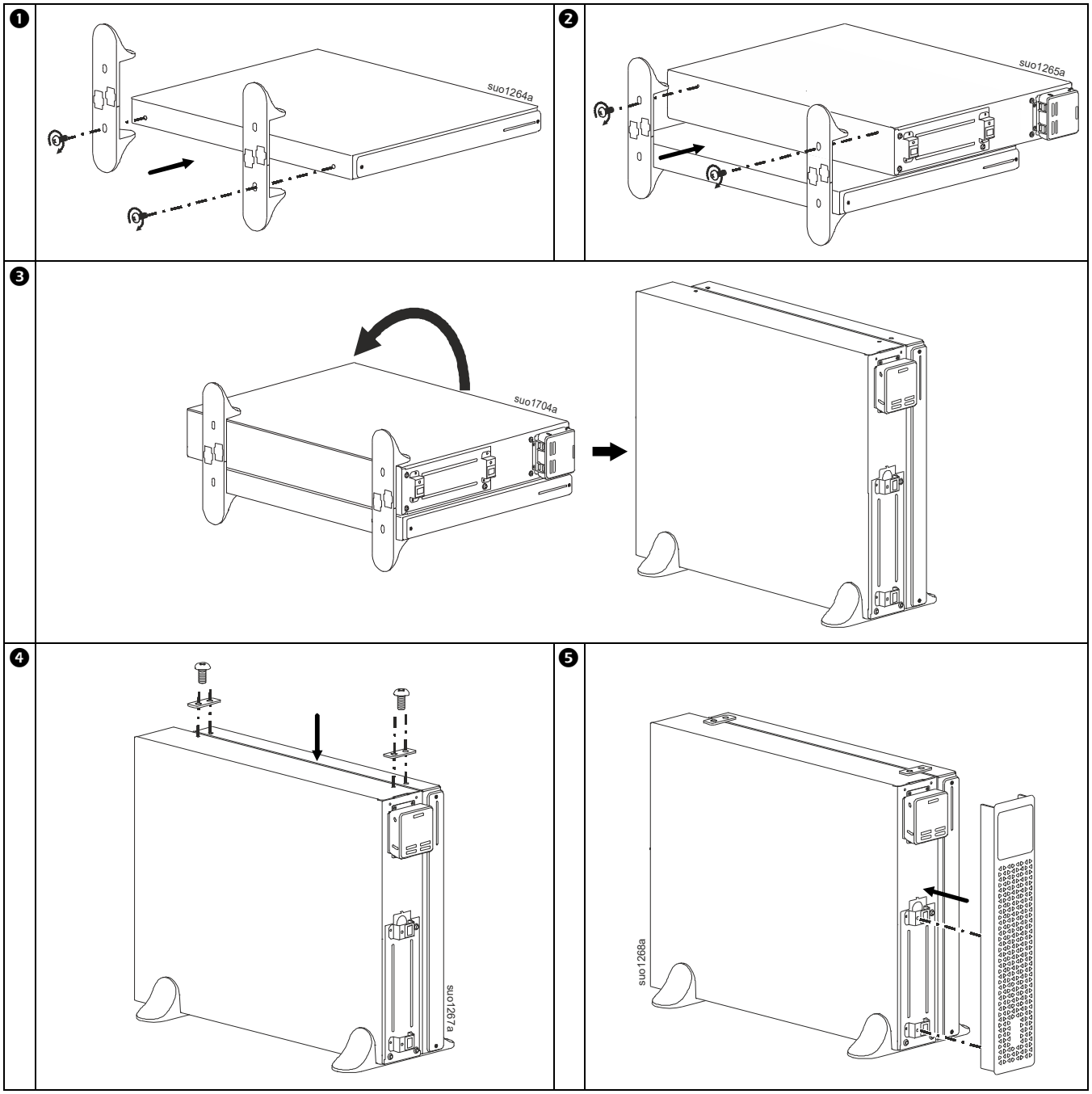
Tower Installation

⚠ CAUTION

RISK OF FALLING EQUIPMENT

- The equipment is heavy.
- Always practice safe lifting techniques adequate for the weight of the equipment.

Failure to follow these instructions can result in minor or moderate injury



NOTE: If multiple battery packs are to be connected in tower configuration, contact APC by Schneider Electric Customer Support for obtaining the additional accessories required.

Connect Battery and Ground Cables

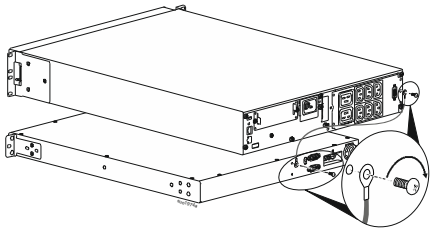
⚠ CAUTION

RISK OF ELECTRIC SHOCK

Ground both the UPS and the battery pack.

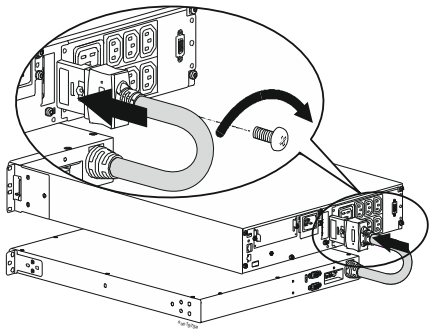
Failure to follow these instructions can result in minor or moderate injury

Connect ground cables



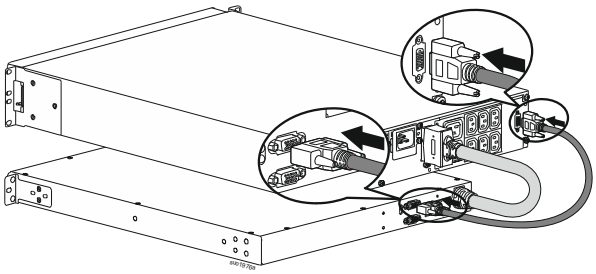
Connect one XLBP

❶ Connect battery cable.



NOTE: Be sure secure the battery connector with the supplied pan head screw.

❷ Connect communication cable from XLBP to UPS.



NOTE: Secure the communication cable to the UPS and the XLBP. The UPS will display inaccurate runtime if the connection is not secure.

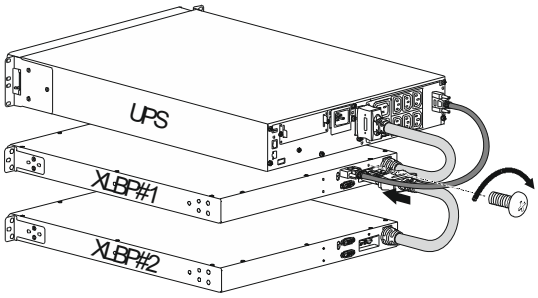
NOTE: The rear panel details shown in the above illustration may vary depending on the UPS rating. Follow the above instructions for all ratings.

Connect multiple XLBPs

NOTE: Refer to “Specifications” on page 4 for information on the maximum number of XLBPs that can be connected to the UPS.

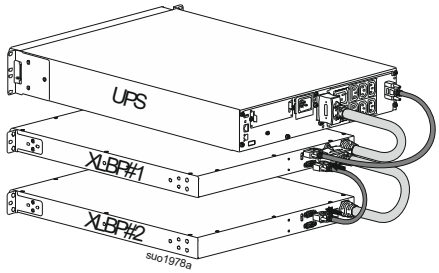
❶ Connect the XLBP#1 to the UPS. Refer to “Connect one XLBP” on page 7 for details.

❷ Connect battery cable of XLPB#2 to XLBP#1.



NOTE: Be sure secure the battery connector with the supplied pan head screw.

❸ Connect communication cable from XLBP#2 to XLBP#1.



NOTE: Secure the communication cable to the UPS and the XLBP. The UPS will display inaccurate runtime if the connection is not secure.

Smart Battery Management

Definitions

- Smart External Battery Pack (XLBP): An enclosure that contains cells and battery management electronics. Replacement XLBP can be ordered from the APC by Schneider Electric web site, www.apc.com.
- User Interface (UI): Any interface by which a user can interact with the system. This includes a UPS display interface.

NOTE: Do not use a battery that is not APC by Schneider Electric approved.
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

- **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:** A message will appear on the UPS display interface screen when each XLBP 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.
- **Needs replacement notification:** The UPS display interface screen shows when XLBP replacement is required. The XLBP must be replaced as soon as possible.
- Recycle the XLBP. Do not disassemble.

Recommended actions after installing new XLBPs

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

- Self Test
- Runtime Test
- Visible Alarm Test

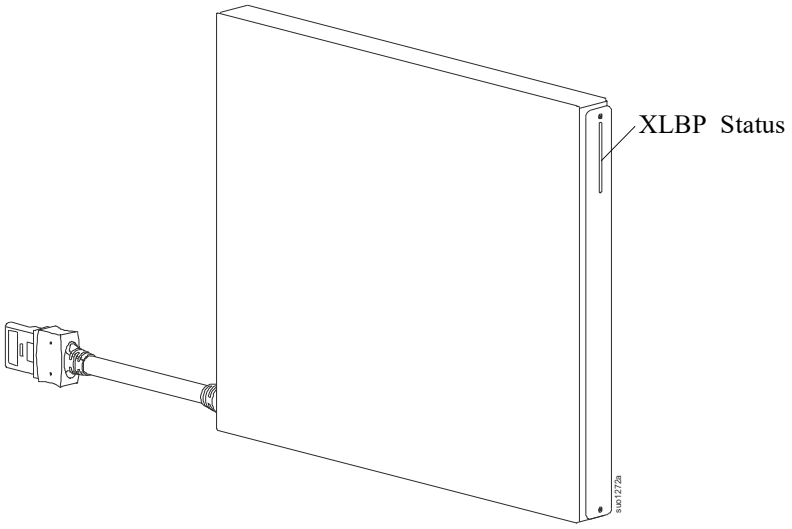
The following actions should be performed after installing a new XLBP:

- Verify that the UPS is connected to input power and output power is turned on.
- When a new XLBP is installed, verify that the XLBP is detected by the system.
  - Perform a UPS **Visible Alarm Test**.
  - Check that the LED on all installed XLBPs is lit.
- Verify that the UPS load is greater than 400 watts. This can be verified through 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 XLBPs.
  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 XLBPs are set to the current date. The installation dates can be changed manually on the UPS display interface.
  For configuration details refer to **Battery Install Date** in the UPS Operation Manual.
- When multiple battery packs are connected, discharge the battery packs completely with minimum 400 W load before charging the XLBPs for 24 hours to ensure full runtime capability.
- Initiate a **Runtime Calibration Test** through the UI.

User interface

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

- **XLBP Status LED:** The XLBP LED illuminate pattern indicates three possible states.
  - **Off:** XLBP IS not powering / communicating with UPS. Power / Communication cable is not connected.
  - **Solid red:** The XLBP is not functional.
  - **Flashing green and solid red:** user accessing the non functional XLBP from UI
    - **Flashing green**: user accessing the functional XLBP from UI
    - **Solid green**: Healthy functional XLBP
    - **Green LED flashing at a faster rate**: XLBP firmware upgrade in progress
    - 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 executing a **Visible 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 green LED flashes.	• The UPS display interface is requesting XLBP status • **Visible Alarm Test** has been requested by the UPS • XLBP firmware upgrade is in progress	No action is necessary.
XLBP red LED remains illuminated.	XLBP has detected a potential hardware error	Contact APC by Schneider Electric Customer Support.
XLBP is not recognized by UPS.*	• XLBP has detected a communication issue • XLBP has detected a potential hardware error	• Be sure the battery power connections to the XLBPs are secure. • Be sure the communication cable connection between the XLBPs and the UPS are secure. • Perform a **Visible Alarm Test** to verify that the LED flashes. • If the detected issue persists, contact APC by Schneider Electric Customer Support.
UPS display interface shows XLBP disconnected message.*	• Power cable / communication cable is not securely connected to an XLBP or to the UPS • XLBP has detected a hardware error	• Be sure the battery connections to the XLBPs are secure. • Perform a **Visible Alarm Test** to verify that the LED flashes. • If the detected issue persists, contact APC by Schneider Electric Customer Support.
XLBP red LED illuminates and green LED flashes	• XLBP is not functional and the UPS display is requesting XLBP Status	• Contact APC by Schneider Electric Customer Support.
* Refer to the troubleshooting section in the UPS operation manual for details.		

Limited Factory Warranty

Schneider Electric IT Corporation (SEIT), warrants its products to be free from defects in materials and workmanship for a period of five (5) 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's or any third person's 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.

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  - **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 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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EN 990-91021C
08/2022