COMPAQ

UPS R3000 XR

Operation and Reference Guide

First Edition (September 2000)
Part Number 192131-001
Compaq Computer Corporation

Notice

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About This Guide

This guide is designed to be used as step-by-step instructions for installation and as a reference for operation, troubleshooting, and future upgrades.

Text Conventions

This document uses the following conventions to distinguish elements of text:

Keys	Keys appear in boldface. A plus sign (+) between two keys indicates that they should be pressed simultaneously.
USER INPUT	User input appears in a different typeface and in uppercase.
FILENAMES	File names appear in uppercase italics.
Menu Options, Command Names, Dialog Box Names	These elements appear in initial capital letters.
COMMANDS, DIRECTORY NAMES, and DRIVE NAMES	These elements appear in uppercase.
Type	When you are instructed to *type* information, type the information **without** pressing the **Enter** key.
Enter	When you are instructed to *enter* information, type the information and then press the **Enter** key.

Symbols in Text

These symbols may be found in the text of this guide. They have the following meanings.

WARNING: Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or loss of life.

CAUTION: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

IMPORTANT: Text set off in this manner presents clarifying information or specific instructions.

NOTE: Text set off in this manner presents commentary, sidelights, or interesting points of information.

Symbols on Equipment

These icons may be located on equipment in areas where hazardous conditions may exist.

This symbol in conjunction with any of the following symbols indicates the presence of a potential hazard. The potential for injury exists if warnings are not observed. Review the documentation for specific details.

This symbol indicates the presence of hazardous energy circuits or electric shock hazards. Refer all servicing to qualified personnel.

WARNING: To reduce the risk of injury from electric shock hazards, do not open this enclosure. Refer all maintenance, upgrades, and servicing to qualified personnel.

This symbol indicates the presence of electric shock hazards. The area contains no user or field serviceable parts. Do not open for any reason.

WARNING: To reduce the risk of injury from electric shock hazards, do not open this enclosure.

This symbol on an RJ-45 receptacle indicates a Network Interface Connection.

WARNING: To reduce the risk of electric shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.

This symbol indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists.

WARNING: To reduce the risk of injury from a hot component, allow the surface to cool before touching.

These symbols on power supplies or systems indicate the equipment is supplied by multiple sources of power.

WARNING: To reduce the risk of injury from electric shock, remove all power cords to completely disconnect power from the system.

This symbol indicates that the component exceeds the recommended weight for one individual to handle safely.

82 lb
37 kg

WARNING: To reduce the risk of personal injury or damage to the equipment, observe local occupational health and safety requirements and guidelines for manual material handling.

⚠ Important Safety Information

Before installing this product, read the *Important Safety Information* document provided.

Precautions

WARNING: There is a risk of electric shock from high Earth (ground) conductor leakage current when connecting multiple pieces of Information Technology Equipment to Compaq Uninterruptible Power System (UPS) R3000e XR-INT:

The summation of the input power for multiple pieces of Information Technology Equipment through the use of a UPS can result in high Earth conductor leakage current. For UPS products that have detachable AC power cords, such as the UPS R3000e XR-INT model, the total combined Earth (ground) conductor leakage current should not exceed 3.5 mA.

WARNING: There is a risk of personal injury from the hazardous energy levels associated with UPS batteries. The maintenance and replacement of batteries must be carried out by qualified service personnel.

WARNING: The UPS R3000 XR models weigh 82 lb (37 kg) when fully assembled. To reduce the risk of personal injury or damage to the equipment:

82 lb
37 kg

- Observe local occupational health and safety requirements and guidelines for manual material handling.
- Obtain adequate assistance to lift and stabilize the chassis during installation or removal.
- Remove the battery pack to reduce the overall weight of the product by approximately 42 lb (19 kg).
- Adhere to the precautions and guidelines set forth in the “Rack Stability” section to follow.

Rack Stability

WARNING: To reduce the risk of personal injury or damage to the equipment, take the following precautions:

- The UPS R3000 XR models MUST be installed at the bottom of the rack. If placed in the rack with existing equipment, the rack must be re-configured to allow installation of the UPS at the bottom of the rack.
- If using an ERM, the UPS can be placed on top of the ERM, with the ERM at the bottom of the rack.
- Do not use slides to mount the UPS in the rack.
- Use the fixed rails supplied in the installation kit.
- Use a minimum of two people to place the UPS on the rails.

WARNING: Make sure that the rack containing the UPS is stable. The following conditions must be met:

- The leveling feet are extended to the floor.
- The full weight of the rack rests on the leveling feet.
- The stabilizing feet are attached to the rack, if it is a single rack installation.
- The racks are coupled together in multiple rack installations.
- A rack may become unstable if more than one component is extended for any reason. Extend only one component at a time.

Getting Help

If you have a problem and have exhausted the information in this guide, you can get further information and other help in the following locations.

Compaq Technical Support

In North America, call the Compaq Technical Phone Support Center at 1-800-652-6672 (1-800-OK-COMPAQ)[1]. This service is available 24 hours a day, 7 days a week.

Outside North America, call the nearest Compaq Technical Support Phone Center. Telephone numbers for world wide Technical Support Centers are listed on the Compaq website. Access the Compaq website at http://www.compaq.com.

[1] For continuous quality improvement, calls may be recorded or monitored.

Be sure to have the following information available before calling Compaq:

- Technical support registration number (if applicable)
- Product serial number(s)
- Product model name(s) and number(s)
- Applicable error messages
- Add-on boards or hardware
- Third-party hardware or software
- Operating system type and revision level
- Detailed, specific questions

Compaq Website

For more information on Compaq products, access the Compaq website at www.compaq.com.

Compaq Authorized Reseller

For the name of the nearest Compaq authorized reseller:

- In the United States, call 1-800-345-1518.
- In Canada, call 1-800-263-5868.
- Elsewhere, access the Compaq website at www.compaq.com.

Chapter 1

Overview

This chapter contains information on the following topics:

- Compaq Uninterruptible Power System (UPS) R3000 XR models
- UPS R3000 XR front panels
- UPS R3000 XR rear panels
- UPS R3000 XR features
- Warranties

Compaq UPS R3000 XR Models

The Compaq UPS R3000 XR includes the following UPS models:

Table 1-1
UPS R3000 XR Models

UPS R3000 XR Model	Part Number	Comments
R3000 XR-NA	192186-001	Domestic; low voltage; Rack-mountable with non-detachable NEMA L5-30 plug
R3000j XR-JPN	192186-291	Japanese; low voltage; Rack-mountable with non-detachable NEMA L5-30 plug
R3000h XR-NA	192186-002	North America; high voltage; Rack-mountable with non-detachable NEMA L6-20 plug
R3000h XR-JPN	192186-292	Japan; high voltage; Rack-mountable with non-detachable NEMA L6-20 plug
R3000e XR-INT	192186-B31	International; high voltage; Rack-mountable with detachable country-specific plug
R3000i XR-EURO	192186-B32	International; high voltage; Rack-mountable with non-detachable 16A IEC-309 plug
R3000i XR-SCHUKO	192186-B33	International; high voltage; Rack-mountable with non-detachable 16A CEE 7/7 SCHUKO plug
R3000i XR-SA	192186-AR1	International; high voltage; Rack-mountable with non-detachable 16A BS-546 plug

WARNING: Risk of personal injury from electric shock. The UPS R3000e XR-INT model is not suitable for installation where the total Earth (ground) conductor leakage current for all connected devices exceeds 3.5 mA. You may use RackBuilder Pro (obtainable from the Compaq website at www.compaq.com) to find the total system leakage current. If the total Earth (ground) conductor leakage current exceeds 3.5 mA, you should use the UPS R3000i XR-EURO, R3000i XR-SCHUKO, or R3000i XR-SA models.

Front Panels

The UPS R3000 XR models are rack-mountable.

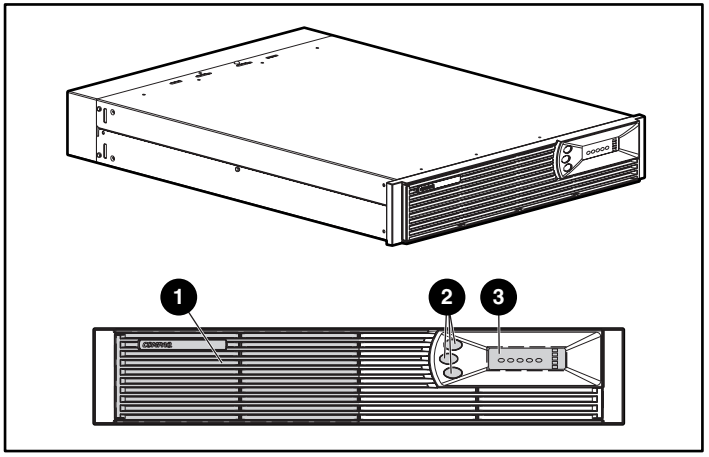


Figure 1-1. Front panel configuration

❶ Battery compartment

❷ Control buttons

❸ LED display

Rear Panels

The UPS R3000 XR models feature the following rear panel configurations:

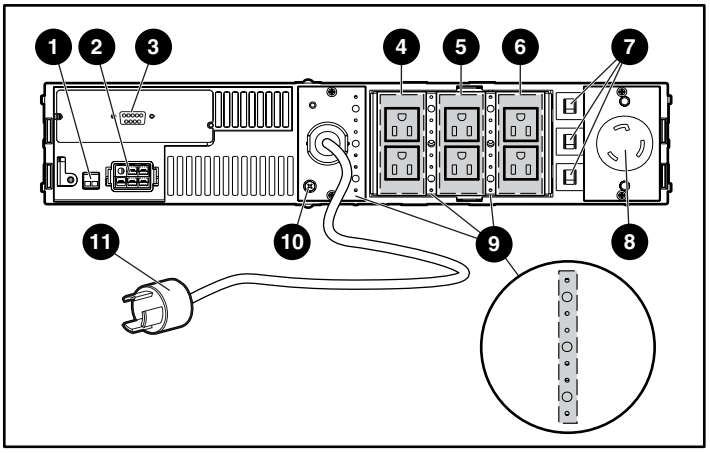


Figure 1-2. Rear panel of R3000 XR-NA

❶ REPO port

❷ ERM connector

❸ Communications port/Option slot

❹ Load segment 1

❺ Load segment 2

❻ Load segment 3

❼ Load segment circuit protectors

❽ Compaq PDU output (L5-30) receptacle (Load segment 1)

❾ Cord retention clip attachment locations

❿ Ground bonding screw

⓫ Power cord with L5-30 plug

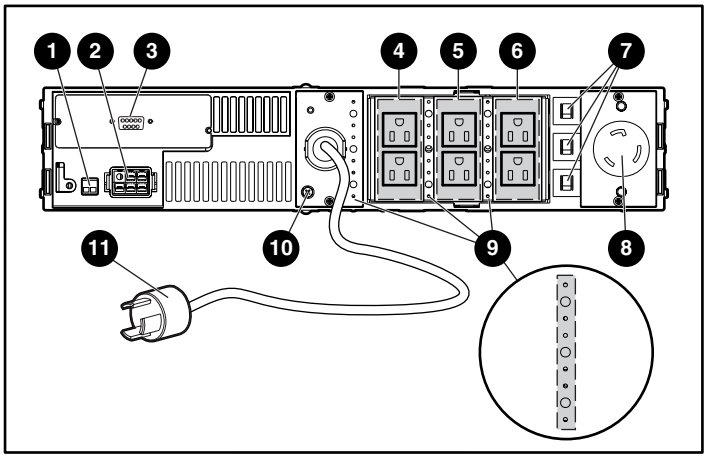


Figure 1-3. Rear panel of R3000j XR-JPN

❶ REPO port

❷ ERM connector

❸ Communications port/Option slot

❹ Load segment 1

❺ Load segment 2

❻ Load segment 3

❼ Load segment circuit protectors

❽ Compaq PDU output (L5-30) receptacle (Load segment 1)

❾ Cord retention clip attachment locations

❿ Ground bonding screw

⓫ Power cord with L5-30 plug

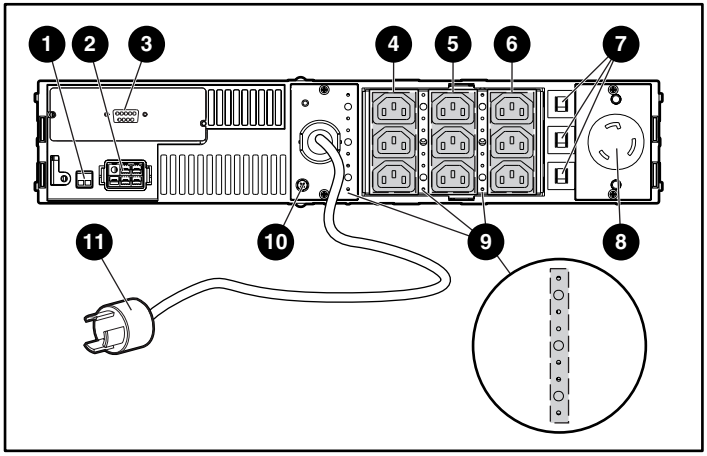


Figure 1-4. Rear panel of R3000h XR-NA

❶ REPO port

❷ ERM connector

❸ Communications port/Option slot

❹ Load segment 1

❺ Load segment 2

❻ Load segment 3

❼ Load segment circuit protectors

❽ Compaq PDU output (L6-20) receptacle (Load segment 1)

❾ Cord retention clip attachment locations

❿ Ground bonding screw

⓫ Power cord with L6-20 plug

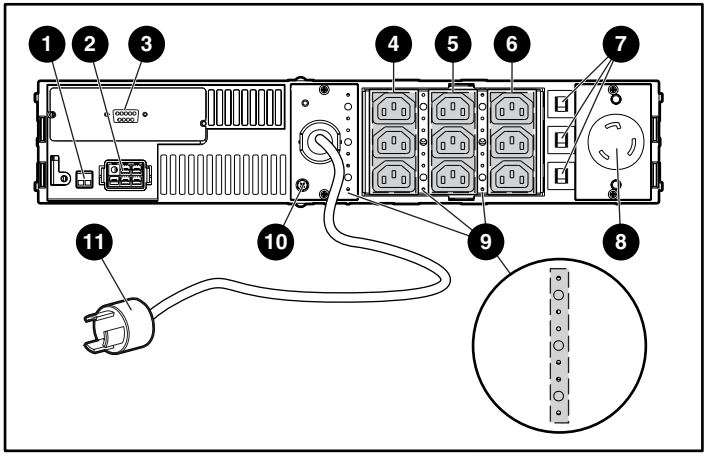


Figure 1-5. Rear panel of R3000h XR-JPN

❶ REPO port

❷ ERM connector

❸ Communications port/Option slot

❹ Load segment 1

❺ Load segment 2

❻ Load segment 3

❼ Load segment circuit protectors

❽ Compaq PDU output (L6-20) receptacle (Load segment 1)

❾ Cord retention clip attachment locations

❿ Ground bonding screw

⓫ Power cord with L6-20 plug

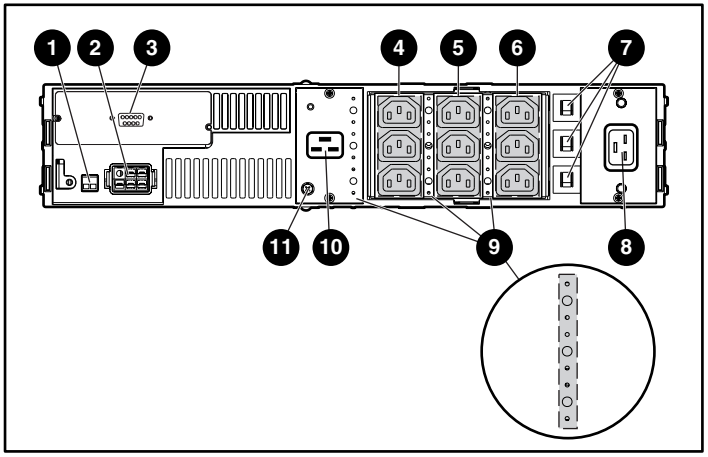


Figure 1-6. Rear panel of R3000e XR-INT

❶ REPO port

❷ ERM connector

❸ Communications port/Option slot

❹ Load segment 1

❺ Load segment 2

❻ Load segment 3

❼ Load segment circuit protectors

❽ Compaq PDU output (IEC-320-C20) receptacle (Load segment 1)

❾ Cord retention clip attachment locations

❿ Input power receptacle (IEC-320-C19) for country specific plug attachment

⓫ Ground bonding screw

WARNING: Risk of personal injury from electric shock. The UPS R3000e XR-INT model is not suitable for installation where the total Earth (ground) conductor leakage current for all connected devices exceeds 3.5 mA. You may use RackBuilder Pro (obtainable from the Compaq website at www.compaq.com) to find the total system leakage current. If the total Earth (ground) conductor leakage current exceeds 3.5 mA, you should use the UPS R3000i XR-EURO, R3000i XR-SCHUKO, or R3000i XR-SA models.

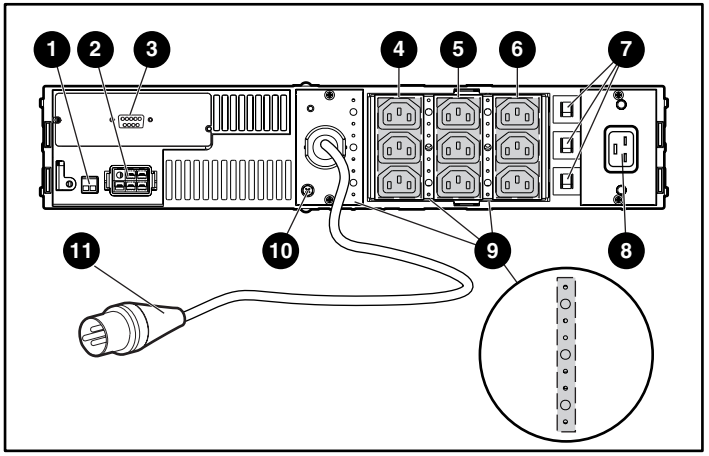


Figure 1-7. Rear panel of R3000i XR-EURO

❶ REPO port

❷ ERM connector

❸ Communications port/Option slot

❹ Load segment 1

❺ Load segment 2

❻ Load segment 3

❼ Load segment circuit protectors

❽ Compaq PDU output (IEC-320-C20) receptacle (Load segment 1)

❾ Cord retention clip attachment locations

❿ Ground bonding screw

⓫ Power cord with IEC-309 plug

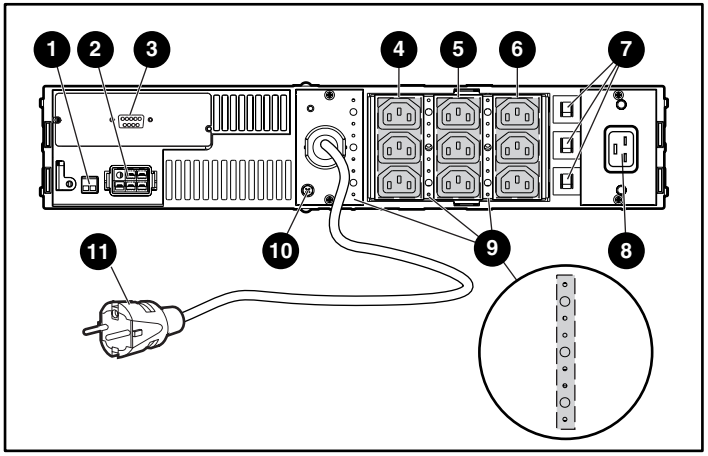


Figure 1-8. Rear panel of R3000i XR-SCHUKO

❶ REPO port

❷ ERM connector

❸ Communications port/Option slot

❹ Load segment 1

❺ Load segment 2

❻ Load segment 3

❼ Load segment circuit protectors

❽ Compaq PDU output (IEC-320-C20) receptacle (Load segment 1)

❾ Cord retention clip attachment locations

❿ Ground bonding screw

⓫ Power cord with CEE 7/7 SCHUKO plug

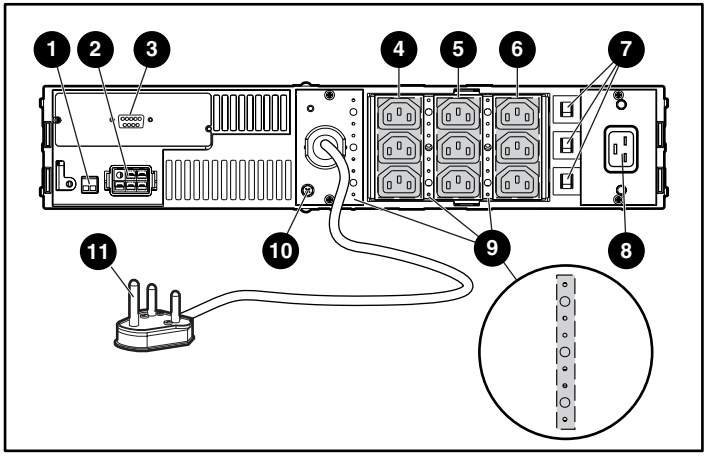


Figure 1-9. Rear panel of R3000i XR-SA

❶ REPO port

❷ ERM connector

❸ Communications port/Option slot

❹ Load segment 1

❺ Load segment 2

❻ Load segment 3

❼ Load segment circuit protectors

❽ Compaq PDU output (IEC-320-C20) receptacle (Load segment 1)

❾ Cord retention clip attachment locations

❿ Ground bonding screw

⓫ Input power receptacle with BS-546 power cord

Standard UPS Features

The UPS R3000 XR models provide the following features:

- Communications port for data exchange with the host computer
- Power protection for loads up to 3000VA/2700W
- Load segment control
- Support for power management software
- Support for Compaq Extended Runtime Modules, options that extend the available runtime of the UPS
- Support for Compaq hardware option cards, extending the power management capabilities of the UPS
- Support for Remote Emergency Power Off (REPO) circuitry
- Industry leading 2U design
- “Line Adaptive” technology which allows more efficient battery management, longer battery life, and dynamic voltage control (enabling improved voltage regulation)
- Ease of use and configuration
- Modular design for reduced downtime and ease of module replacement

Communications Port

The UPS R3000 XR includes a communications port for data exchange with the host computer. The UPS power management software supplied by Compaq enables the user to access status reporting and power management features.

CAUTION: Use only cables supplied by Compaq to connect the communications port to the host computer.

UPS Power Management Software

With each UPS, Compaq supplies a CD containing several power management software applications, to address a variety of installations. The power management software allows system administrators to monitor and manage the power being supplied to an entire network of servers and workstations.

Software capabilities include:

- Monitoring utility power, and the power supplied by the UPS
- Logging events, such as utility power blackouts and brownouts
- Prioritizing shutdown and start up of protected devices

For example, if the power management software detects an extended utility power blackout, it will initiate the prioritized shutdown sequence specified by the system administrator.

This sequence might include:

- Saving work-in-progress throughout the network
- Powering down non-critical devices, to extend the battery power available to other devices
- After saving the necessary information, completing the orderly device shutdown
- Restarting when utility power returns

For more information on using UPS power management software, refer to the Compaq Power Products Software Reference Guide section of the Power Products Documentation CD (included with the UPS kit).

Hardware Option Cards

The UPS R3000 XR includes an option slot that will accommodate one of these hardware option cards:

- Compaq Six Port Card (option kit part number 192185-B21)
- Compaq SNMP / Serial Port Card (option kit part number 192189-B21)

Compaq Six Port Card

A standard UPS can communicate directly with a single host computer. The Six Port Card expands the communications capability of the UPS so that a single UPS can exchange data with up to six host computers and/or a combination of UPS units when the power management software (supplied with the UPS) is installed.

NOTE: The Compaq Six Port Card is only compatible with Compaq UPS XR models.

The Six Port Card (Compaq option kit part number 192185-B21) serial port function can be used in the same manner as the pre-installed Communications port/Option slot (Compaq part number 200388-001), that ships in the UPS.

Compaq SNMP / Serial Port Card

In a network environment, the SNMP / Serial Port Card provides an interface that allows communication between the UPS and the network (when UPS power management software is installed).

Using the SNMP / Serial Port Card communication interface, system administrators can quickly ascertain if power-related problems exist anywhere on the network. A Compaq UPS, connected by an SNMP / Serial Port Card to power management software, can virtually eliminate costly downtime due to power outages or surges, and decrease day-to-day network management annoyances like spontaneous rebooting, lost files, and corrupted data—issues resulting from inconsistent power.

NOTE: The Compaq SNMP / Serial Port Card is only compatible with Compaq UPS XR models.

The serial port on the SNMP / Serial Port Card (Compaq option kit part number 192189-B21) can be used in the same manner as the pre-installed Communications port/Option slot (Compaq part number 200388-001), that ships in the UPS.

Extended Runtime Module (ERM)

The UPS R3000 XR also supports a Compaq Extended Runtime Module. The UPS rear panel includes a power receptacle to which the module can attach. The R3000 XR ERM consists of dual battery pack in a 2U chassis.

At the Compaq recommended 80 percent load, one ERM will extend the available UPS runtime up to 30 minutes.

Remote Emergency Power Off (REPO) Port

The UPS R3000 XR models include an isolated Remote Emergency Power Off (REPO) port. The REPO feature allows the UPS to be powered down from a remote location. To use this feature, the REPO port must be connected to a remote, normally open switch (not supplied). When this switch is closed, the UPS immediately disconnects power from its load segments.

To power down the entire network in the event of an emergency, the REPO ports of multiple UPS units can be connected to a single switch.

IMPORTANT: The REPO port meets the requirements of NFPA Articles 645-10 and 645-11 for a Disconnecting Means.

IMPORTANT:

- If the remote switch is closed, the REPO feature powers down protected devices immediately and does not utilize the orderly shutdown procedure initiated by Compaq power management software.
- The REPO feature shuts down UPS units operating under either utility or battery power.
- If the UPS was operating on battery power when the remote switch was closed, no power will be available to the devices until utility power is restored and manually powered up.

Warranties

$25,000 Computer Load Protection Guarantee

To back up the wide range of features offered with the UPS, Compaq provides a three-year limited warranty. In addition, Compaq offers a $25,000 Computer Load Protection Guarantee (provided by the original equipment manufacturer).

IMPORTANT: The $25,000 Computer Load Protection Guarantee is offered only in North America.

The $25,000 Computer Load Protection Guarantee only applies if:

- The UPS is plugged into a suitably grounded and wired outlet using no extension cords, adapters, other ground wires, or other electrical connections.
- The UPS installation complies with all applicable electrical and safety codes specified by the National Electrical Code (NEC).
- The UPS is used under normal operating conditions. Users comply with all instructions and labels.
- The UPS is not damaged by accident (other than a utility power transient), misuse, or abuse.

Pre-Failure Battery Warranty

The Pre-Failure Battery Warranty, standard on all Compaq Uninterruptible Power System (UPS) units, extends the advantage of a Compaq three-year limited warranty by applying it to the battery before it actually fails. Specifically, the Pre-Failure Battery Warranty ensures that when customers receive notification from Compaq Power Management Software that the battery may fail, the battery is replaced free of charge under the warranty.

Compaq maintains the highest standards in the industry, as evidenced by the Compaq Pre-Failure Battery Warranty. The Pre-Failure Battery Warranty is beneficial in at least two significant ways:

- Reduced total cost of ownership
- Reduced downtime

Chapter 2

Installation

This chapter provides information on the following topics:

- Installation requirements
- Procedures to complete before starting the UPS
- Starting the UPS
- Completing the installation

Installation Requirements

This section lists items required to install the Compaq UPS R3000 XR models.

Item(s) not supplied with the UPS kit

Tools

A medium flat-bladed and #2 Phillips screwdriver may be needed.

Other Hardware

A number of screws, cage nuts, and a cage nut-fitting tool (supplied with the Compaq rack) are required.

Electrical Requirements

All UPS R3000 XR models require a dedicated (unshared) branch circuit, suitably rated for your specific UPS model as follows:

- 30A for low voltage R3000 XR-NA and R3000j XR-JPN models
- 20A for high voltage R3000h XR-NA and R3000h XR-JPN models
- 16A for high voltage international R3000e XR-INT, R3000i XR-EURO, R3000i XR-SCHUKO, and R3000i XR-SA models

Item(s) supplied with the UPS kit

The UPS kit should contain the following components:

Software/Reference Material

- The Power Products Documentation CD containing the UPS R3000 XR Operation and Reference Guide and the Compaq Power Products Software Reference Guide
- UPS power management software and installation instructions (a booklet included with the CD)
- *Important Safety Information* guide to be reviewed before installing this product
- *Compaq Uninterruptible Power System Kit Quick Installation Guide for UPS R3000 XR Models*

Hardware

The UPS ships with one or more of the following:

- Depth-adjustable fixed rails
- Mounting brackets (2 rear)
- Communications port/Option slot (Compaq part number 200388-001)
- REPO port and connector block
- Front bezel
- Retention cord clips
- Cable(s)
  - The R3000 XR-NA and R3000j XR-JPN models ship with a non-detachable input power cord and a 12-foot UPS/computer interface cable, Compaq part number 201092-002.
  - The R3000h XR-NA, R3000h XR-JPN, R3000i XR-EURO, R3000i XR-SCHUKO, and R3000i XR-SA models ship with a non-detachable input power cord (the R3000e XR-INT model only ships with a detachable country-specific input power cord); a 12-foot UPS/computer interface cable, Compaq part number 201092-002; two 10-amp, 6-foot, IEC to IEC power cords, Compaq part number 142263-001; two 8-foot IEC to IEC power cords, Compaq part number 142263-002; and two 10-foot IEC to IEC power cords, Compaq part number 142263-003, for load equipment power.

All models ship with a computer interface cable. The computer interface cable is not needed for normal operation. If power management of the UPS is desired, connect the interface cable between the UPS communications port and the serial port on the host computer.

WARNING: Risk of personal injury from electric shock. The UPS R3000e XR-INT model is not suitable for installation where the total Earth (ground) conductor leakage current for all connected devices exceeds 3.5 mA. You may use RackBuilder Pro (obtainable from the Compaq website at www.compaq.com) to find the total system leakage current. If the total Earth (ground) conductor leakage current exceeds 3.5 mA, you should use the UPS R3000i XR-EURO, R3000i XR-SCHUKO, or R3000i XR-SA models.

IMPORTANT: If the UPS does not include a power cord that is suitable for your application, contact an authorized Compaq service representative to obtain the appropriate power cord. Please refer to the "Precautions for Power Products" section of the *Important Safety Information* (guide included with the UPS kit).

Before Starting the UPS

This section provides installation steps to be completed before starting the UPS.

Determine the steps required for the application:

- Rack-mounting the UPS
- Connecting the UPS communications port to the host computer
- Connecting the Remote Emergency Power Off port
- Connecting the ground bonding screw

NOTE: Although these steps can be carried out after the UPS is installed, it is recommended that the UPS be powered down to safely perform these tasks.

Rack-Mounting the UPS

The UPS R3000 XR models must be mounted on fixed rails. Refer to the *Compaq Uninterruptible Power System Kit Quick Installation Guide for UPS R3000 XR Models* (supplied with the UPS kit) to obtain instructions.

WARNING: The UPS R3000 XR models weigh 82 lb (37 kg). To reduce the risk of personal injury or damage to the equipment, take the following precautions:

- The UPS R3000 XR models MUST be installed at the bottom of the rack. If placed in the rack with existing equipment, the rack must be reconfigured to allow installation of the UPS at the bottom of the rack.
- If using an ERM, the UPS can be placed on top of the ERM, with the ERM placed at the bottom of the rack.
- Do not use slides to mount the UPS in the rack.
- Use the fixed rails supplied in the installation kit.
- Use a minimum of two people to place the UPS on the rails.

WARNING: Make sure that the rack containing the UPS is stable. The following conditions must be met:

- The leveling feet are extended to the floor.
- The full weight of the rack rests on the leveling feet.
- The stabilizing feet are attached to the rack, if it is a single rack installation.
- The racks are coupled together in multiple rack installations.
- A rack may become unstable if more than one component is extended for any reason. Extend only one component at a time.

Connecting to the Communications Port

The UPS R3000 XR models include a communications port that allows the UPS to exchange data with the host computer.

IMPORTANT: Power management software requires the communications port to be appropriately cabled to the host computer.

Connect the UPS/computer interface cable (supplied) from the communications port on the UPS to the appropriate communications port on the host computer.

CAUTION: To avoid damaging the equipment, do not use the communications cables (part numbers 142260-00X and 295245-00X) supplied with earlier UPS models. The UPS/computer interface cable is required to carry power and is wired differently than earlier communications cables.

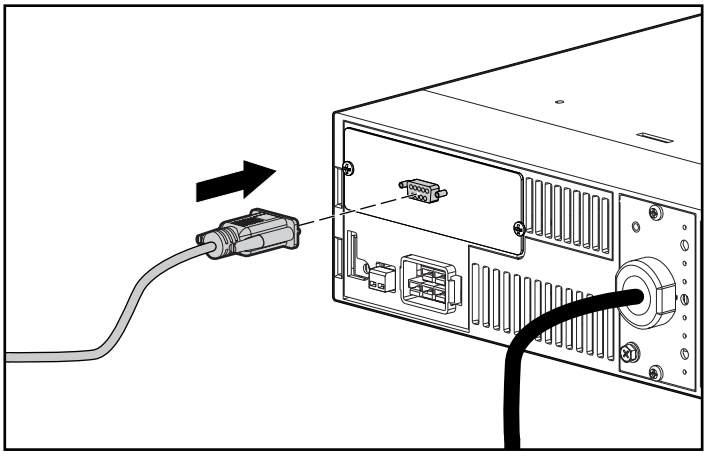


Figure 2-1. Connecting the UPS/computer interface cable

Connecting the Remote Emergency Power Off Port

The UPS R3000 XR models include a Remote Emergency Power Off (REPO) port. When properly wired, the REPO port allows the power to the UPS output receptacles to be switched off from a remote location.

Use this procedure to activate the REPO port:

1. Install a suitable switch at the required remote location.
2. Remove the connector block from the REPO port.

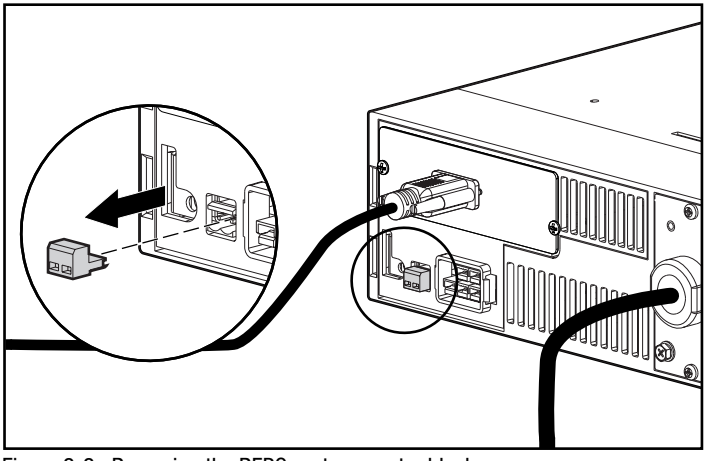


Figure 2-2. Removing the REPO port connector block

3. Wire the connector block using stranded, non-shielded wire (AWG #22 - #18, or equivalent).
4. Replace the connector block in the REPO port.

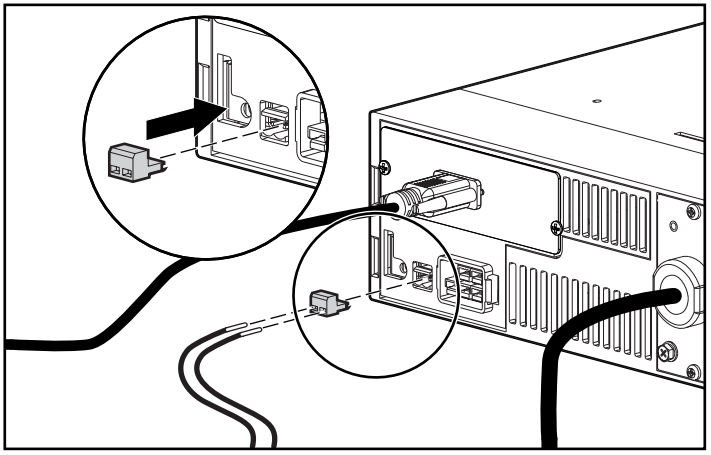


Figure 2-3. Replacing the REPO port connector block

IMPORTANT: The remote switch must be in the OFF (open) position to enable power to the output receptacles.

IMPORTANT: The REPO port meets the requirements of NFPA Articles 645-10 and 645-11 for a Disconnecting Means.

Connecting the Ground Bonding Screw

The ground bonding screw feature on the rear of the unit is provided as an attachment point for conductors if the rack contains any conductors used for the purpose of functional grounding or bonding of ungrounded metal parts. (Ground cable is not included.)

1. Remove the ground bonding screw.

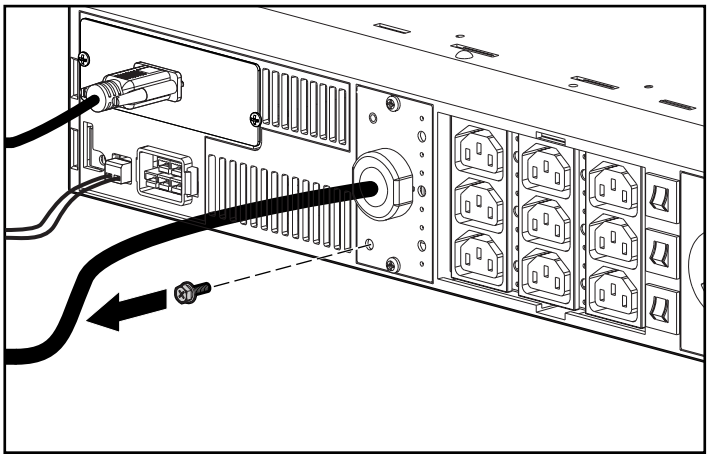


Figure 2-4. Removing the ground bonding screw

2. Attach the grounding cable and secure the ground bonding screw.

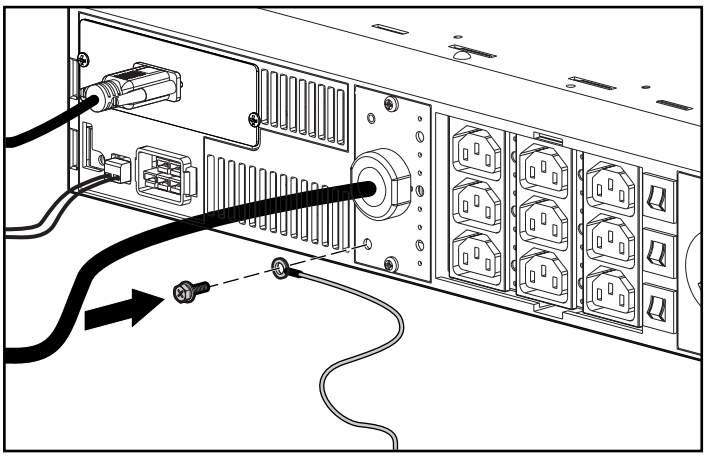


Figure 2-5. Replacing screw to secure ground bonding attachment

Starting the UPS

Starting the UPS for the first time requires the following procedures:

- Checking the Battery Recharge Date label on the UPS shipping carton
- Connecting the UPS to utility power via the input power cord
- Connecting devices to the UPS
- Connecting the retention cord clips
- Powering up the UPS
- Monitoring the automatic self-test to verify successful installation

Checking the Battery Recharge Date Label

Check the battery recharge date specified on the Battery Recharge Date label. This label is affixed to the UPS shipping carton.

IMPORTANT: Do not use the UPS if the battery recharge date has expired. If the date on the Battery Recharge Date label has passed without the batteries being recharged, contact an authorized Compaq service representative.

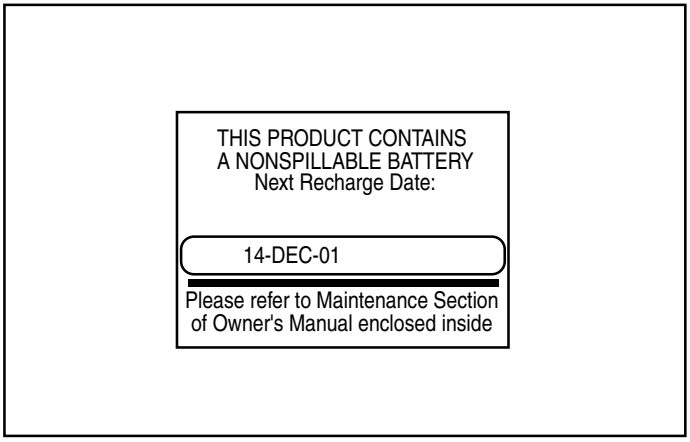


Figure 2-6. The Battery Recharge Date label

Connecting the UPS to Utility Power

Connect the UPS to a grounded utility power outlet.

WARNING: To reduce the risk of electric shock or damage to the equipment, take these precautions:

- Plug the input line cord into a grounded (earthed) electrical outlet that is installed near the equipment and is easily accessible.
- Do not disable the grounding plug on the input line cord. The grounding plug is an important safety feature.
- Do not use extension cords.

Connecting Devices to the UPS

Before connecting devices, verify that the UPS will not overload by making sure that the rating of the devices do not exceed the capacity of the UPS. Evenly distribute connected devices throughout all load segments.

After verifying that the UPS will not overload, connect the power cords from the devices to the appropriate output receptacles of the UPS.

WARNING: Risk of personal injury from electric shock. The UPS R3000e XR-INT model is not suitable for installation where the total Earth (ground) conductor leakage current for all connected devices exceeds 3.5 mA. You may use RackBuilder Pro (obtainable from the Compaq website at www.compaq.com) to find the total system leakage current. If the total Earth (ground) conductor leakage current exceeds 3.5 mA, you should use the UPS R3000i XR-EURO, R3000i XR-SCHUKO, or R3000i XR-SA models.

CAUTION: Do not plug laser printers into the UPS. The instantaneous current drawn by this type of printer may overload the UPS.

IMPORTANT: To provide additional receptacles, plug a Compaq Power Distribution Unit (PDU) into the high current receptacle associated with load segment 1. To connect the devices to the PDU, use IEC-320 jumper cords (supplied with the UPS kit) for the high voltage North America, Japan, International, and EURO models. Low voltage PDU models do not require jumper cords.

Connecting the Retention Cord Clip(s)

Perform the following procedures to install the retention cord clip(s).

1. Insert the retention cord clip (included with the UPS kit) into an appropriate attachment location (❶).
2. Stabilize connected device cords from movement by fastening (twisting) the retention cord clip (❷).

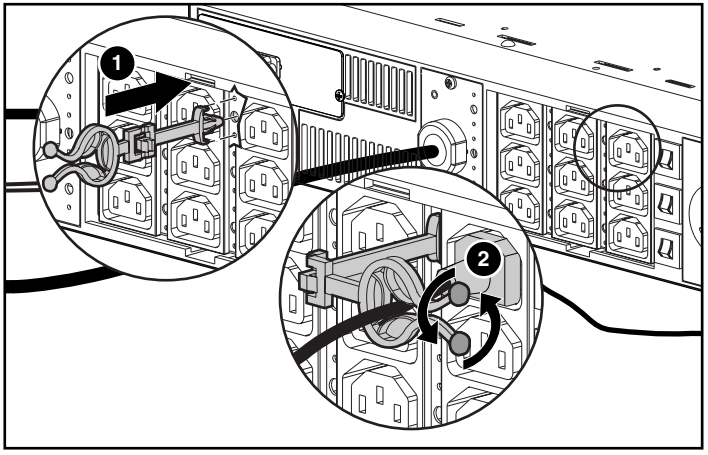


Figure 2-7. Attaching the retention cord clip(s)

Powering up the UPS

When the unit is plugged in for the first time, the UPS automatically initiates a self-test. The front panel LED display lights will go on and off during the self-test. If the self-test is completed successfully, the UPS enters Standby mode. The Utility LED display light will flash green, however, the load segments will not be energized.

NOTE: The self-test initiates when the UPS is plugged in for the first time. Afterward, when the UPS is disconnected from utility power, the unit will return to the mode the UPS was in when utility power was lost.

NOTE: When the UPS R3000 XR is initially plugged into utility, there may be an initial two seconds that the output load segments are energized before the unit goes into Standby mode. This is due to the Auto-Bypass mode of the UPS.

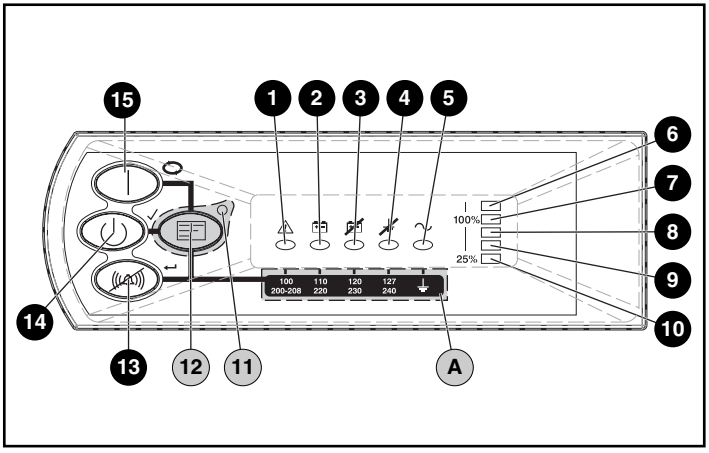


Figure 2-8. The front panel LED display and controls

❶	General Alarm	❾	26% to 50% load
❷	On Battery	❿	0% to 25% load
❸	Bad Battery/Low Battery	⓫	Configure mode ON LED
❹	Site Wiring Fault Indicator	⓬	Configure button
❺	Utility LED	⓭	TEST/ALARM RESET button
❻	Overload LED	⓮	STANDBY button
❼	76% to 100% load	⓯	ON button
❽	51% to 75% load	Ⓐ	Voltage configuration panel

NOTE: LED ⓫, button ⓬, and the voltage configuration panel are accessible only when the front bezel is removed.

Check the front panel LED display:

- LED 5 (Utility LED, ❺) will either:
  - flash green when utility is present, but UPS is in Standby mode (no power is available at output receptacles)
  - illuminate solid green when power to the output receptacles is available and utility present
  - flash red when utility input voltage is outside the ±12 percent configured nominal range
  - illuminate solid red when in Auto-Bypass mode
- LEDs 6, 7, 8, 9, and 10 indicate the load capacity.
  - LED ❻ = over load capacity (red LED)
  - LED ❼ = 76 to 100 percent load (green LED)
  - LED ❽ = 51 to 75 percent load (green LED)
  - LED ❾ = 26 to 50 percent load (green LED)
  - LED ❿ = 0 to 25 percent load (green LED)

For more information on the front panel LED display, see Chapter 3, "Operation."

IMPORTANT: If any of the LEDs on the front panel are red (indicating an alarm condition), press the TEST/ALARM RESET button to clear the red LEDs. If this does not clear the red LEDs, see Chapter 6, "Troubleshooting."

Red LEDs may be accompanied by an audio alarm. For information on silencing the alarm, see Chapter 3, "Operation."

Completing the Installation

With the UPS in Standby mode, allow the batteries to charge before putting the UPS into service.

IMPORTANT: The batteries will charge to 90 percent of their capacity within approximately 4 hours. Compaq recommends allowing the batteries to charge for 24 hours before using the UPS to supply backup power to devices. The load may not be fully protected for 24 hours.

Placing the UPS in Operate mode

Press and hold the ON button (❶) until LED 5 (Utility LED) turns solid green, indicating that power is available at the UPS output receptacles. The UPS will acknowledge compliance with a short beep.

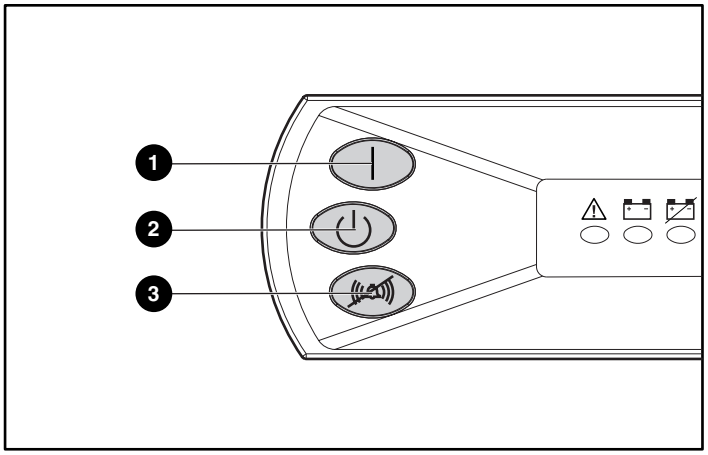


Figure 2-9. Operate mode controls

❶ ON button

❷ STANDBY button

❸ TEST/ALARM RESET button

Installation is Now Complete

- For information on operating the UPS, see Chapter 3, "Operation."
- For information on changing the configuration of the UPS, see Chapter 4, "Configuration."
- Use the Compaq website as an additional information source at www.compaq.com.

Chapter 3

Operation

This chapter contains information on the following topics:

- Precautions to be observed when using the UPS
- UPS modes of operation
- Front panel controls
- Front panel indicators
- Overcurrent protection
- Placing the UPS in Operate mode
- Returning to Standby mode
- Initiating a self-test
- The audio alarm

Precautions

Observe these precautions when using the Compaq UPS R3000 XR models.

WARNING: To reduce the risk of electric shock from Earth (ground) conductor leakage current:

- Do not operate a UPS that is disconnected from the utility power source.
- Disconnect protected devices from the UPS before disconnecting the UPS from utility power.
- Use the TEST/ALARM RESET button to test the batteries rather than unplugging the UPS. See "Initiating a Self-test" in this chapter for more information.

Modes of Operation

The UPS R3000 XR models have four modes of operation:

Standby Mode

- No power is available at the UPS output receptacles.
- The UPS charges the batteries as necessary.

Operate Mode

- Power is available at the UPS output receptacles.
- The UPS charges the batteries as necessary.

Configure Mode

- Power is available at the UPS output receptacles.
- The UPS charges the batteries as necessary.
- The user can update the UPS configuration.

NOTE: The Configure button is located behind the front bezel. For more information on configuring the UPS, see Chapter 4, "Configuration."

Auto-Bypass Mode

The UPS will automatically switch to Auto-Bypass mode if the following conditions occur:

- The power to unit reaches a percentage greater than 110 percent for 10 cycles or 103 percent for 30 seconds.
- The UPS power module fails or is removed.

Front Panel Controls

The UPS R3000 XR model front panels includes the controls required to:

- Place the UPS in Operate mode.
- Place the UPS in Standby mode.
- Place the UPS in Configure mode using button beneath front bezel.
- Initiate a self-test.
- Silence an audio alarm.

NOTE: For information about changing the configuration on the UPS, or to check the current configuration, see Chapter 4, “Configuration.”

The front panel includes the following LED indicators and button controls:

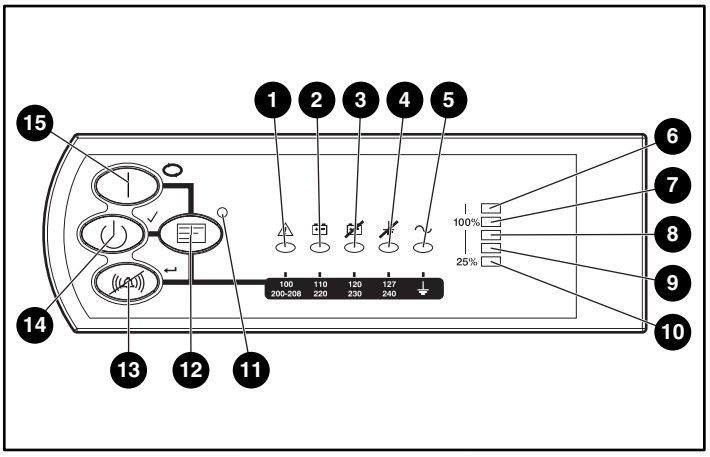


Figure 3-1. Front panel LED display and controls when front bezel removed

❶ General Alarm

❷ On Battery

❸ Bad Battery/Low Battery

❹ Site Wiring Fault Indicator

❺ Utility LED

❻ Overload LED

❼ 76% to 100% load

❽ 51% to 75% load

❾ 26% to 50% load

❿ 0% to 25% load

⓫ Configure mode ON LED *(accessed during Configure mode when front bezel removed)*

⓬ Configure button *(accessed during Configure mode when front bezel removed)*

⓭ TEST/ALARM RESET button

⓮ STANDBY button – Turn output segments off

⓯ ON button

Front Panel Indicators

The front panel LED display colors indicate the UPS status:

- Green LEDs indicate normal conditions
- Red LEDs provide warning of existing or potential problems

LEDs are referred to as LED 1 through 10, as described in this documentation.

When the UPS is in Configure mode, the LEDs do not operate as they do in the Standby and Operate modes (see Chapter 4, "Configuration").

Front Panel LEDs in the Standby and Operate Modes

Each LED (and the condition it indicates in the Operate and Standby modes) is described in the following tables:

General Alarm (LED 1)

Table 3-1
General Alarm - LED 1

LED	Color	Meaning
❶	Red	General Alarm Indicator.

Note: When LED ❶ is solid red, indicating a general alarm, perform a self-test. If a condition exists, contact an authorized Compaq service representative.

Battery Charge (LEDs 2 and 3)

Table 3-2
Battery Charge - LEDs 2 and 3

LED	Color	Meaning
❷	Red	On Battery Indicator.
❸	Red	Bad Battery Indicator and/or Low Battery Indicator.

Note: When LED ❸ is red, the audio alarm will sound, indicating the UPS has detected a potential battery failure. The UPS batteries may need to be replaced in 30 to 60 days.

Site Wiring Fault Indicator (LED 4)

Table 3-3
Site Wiring Fault Indicator – LED 4

LED	Color	Meaning
❹	Red	No ground connection between utility power and the UPS.
		The line and neutral connections between utility power and the UPS are reversed.
		The UPS voltage configuration may be incorrect.

Note: For units factory-configured for 200V or 208V, the Site Wiring Fault function has been disabled. If reconfiguring a 230V unit to operate at 208V, the Site Wiring Fault function must be manually disabled. See the section "Changing Configuration Parameters" in Chapter 4, "Configuration."

Utility (LED 5)

Table 3-4
Utility - LED 5

LED	Color	Meaning
❺	Flashing Red	The utility input voltage is outside the ±12 percent configured nominal range.
	Green	Utility voltage is present and output is on.
		Utility voltage has returned to the voltage range for which the UPS has been configured. The UPS is supplying utility power. The audio alarm should be reset.
	Flashing Green	Utility voltage is present and the UPS is in Standby mode. Output is off. Batteries charging if needed.
	Red	Indicates that unit is in Auto-Bypass mode.

Load Level (LEDs 6 to 10)

Table 3-5
Load Level - LEDs 6 to 10

LED	Color	Meaning
❻	Red	Load on the UPS exceeds the maximum power available.
❼	Green	Load on the UPS is approximately 76% to 100% of the maximum power available.
❽	Green	Load on the UPS is approximately 51% to 75% of the maximum power available.
❾	Green	Load on the UPS is approximately 26% to 50% of the maximum power available.
❿	Green	Load on the UPS is approximately 0% to 25% of the maximum power available.

Overcurrent Protection

Overcurrent protection is provided through resettable circuit protectors located on the UPS rear panel. The following models have overcurrent protection:

Table 3-6
Overcurrent Protection

UPS Model	Input Protection
R3000 XR-NA	Circuit protector for each load segment
R3000j XR-JPN	Circuit protector for each load segment
R3000h XR-NA	Circuit protector for each load segment
R3000h XR-JPN	Circuit protector for each load segment
R3000e XR-INT	Circuit protector for each load segment
R3000i XR-EURO	Circuit protector for each load segment
R3000i XR-SCHUKO	Circuit protector for each load segment
R3000i XR-SA	Circuit protector for each load segment

Placing the UPS in Operate Mode

The Compaq UPS R3000 XR models may be placed in Operate mode if either of the following conditions apply:

- The UPS is powered up and in Standby mode (LED 5 is flashing green)
- The UPS is powered off and no utility power is available

Press and hold the ON button (❶) until LED 5 (Utility LED) turns solid green, indicating that power is available at the UPS output receptacles. The UPS acknowledges compliance with a short beep.

IMPORTANT: If using battery power (no utility power present), press and hold the ON button (❶) until the audio alarm sounds.

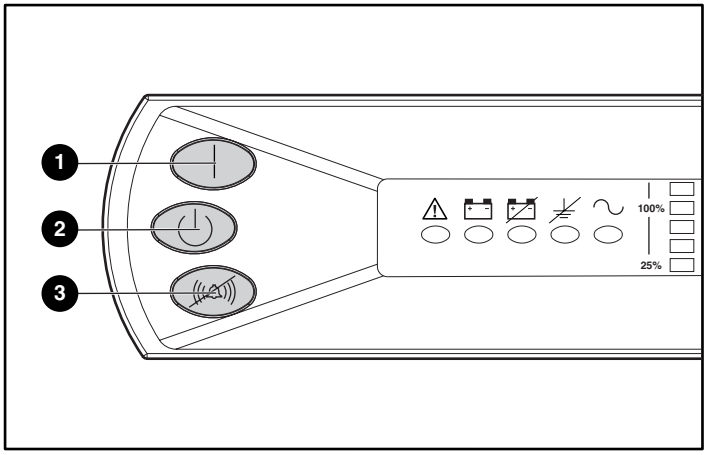


Figure 3-2. Operate mode controls

❶ ON button
❷ STANDBY button
❸ TEST/ALARM RESET button

⚠ LED 1 – General Alarm
LED 2 – On Battery
LED 3 – Bad Battery/Low Battery
LED 4 – Site Wiring Fault Indicator
LED 5 – Utility LED

Returning to Standby Mode

When the UPS is in Operate mode (LED 5, is solid green), press and hold the STANDBY button (❷) until the audio alarm sounds. This will place the UPS in Standby mode. LED 5 will flash, and power to the loads will cease.

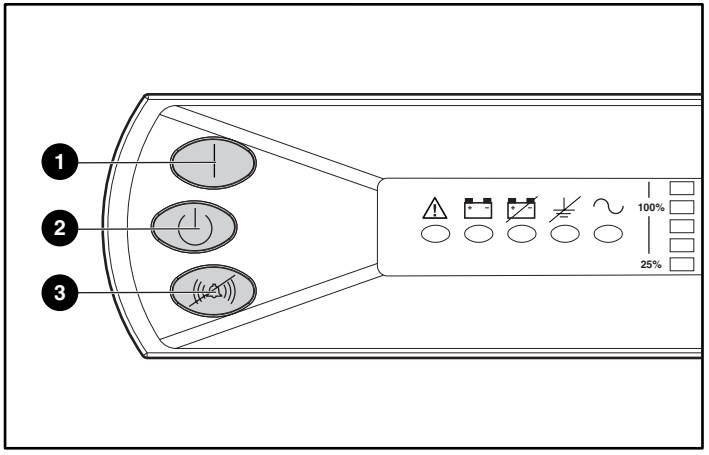


Figure 3-3. Standby mode controls

❶	ON button	⚠	LED 1 – General Alarm
❷	STANDBY button		LED 2 – On Battery
❸	TEST/ALARM RESET button		LED 3 – Bad Battery/Low Battery
			LED 4 – Site Wiring Fault Indicator
		∿	LED 5 – Utility LED

IMPORTANT:

- While in Standby mode, the UPS maintains the charge on the batteries, but no power is available at the output receptacles.
- The UPS remains in Standby mode until an alternate mode is selected, or until utility power is removed.

Initiating a Self-test

To initiate a self-test, press and hold the TEST/ALARM RESET button (❶) for three seconds.

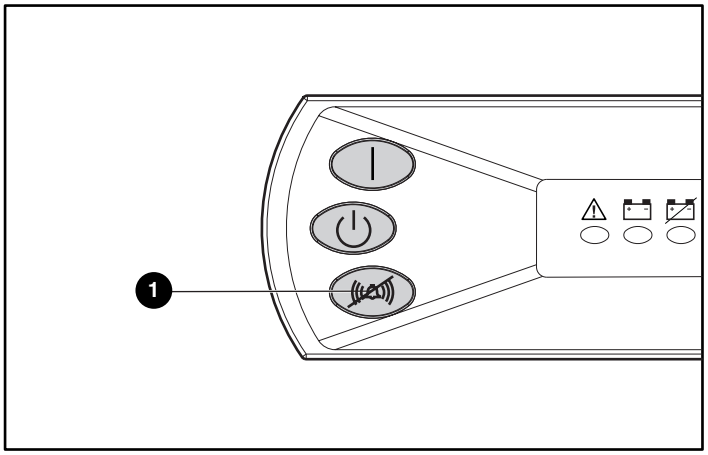


Figure 3-4. The TEST/ALARM RESET button

IMPORTANT: A portion of the self-test requires battery power; the self-test cannot be initiated if the batteries are less than 90 percent charged.

During the self-test, it is normal for the UPS to turn on individual LEDs momentarily; however, if an alarm condition is detected, the appropriate UPS LED will illuminate and an audio alarm may sound.

WARNING: To reduce the risk of electric shock from Earth (ground) conductor leakage current, use the self-test procedure to check the UPS batteries (rather than unplugging the UPS).

- For the meaning of individual LEDs, see "Front Panel LEDs in the Standby and Operate Modes," in this chapter.
- For information on what to do if the self-test detects a problem, see Chapter 6, "Troubleshooting."

Audio Alarm

The UPS may sound an audio alarm to warn the user that an alarm condition exists.

IMPORTANT: Certain audio alarms can be disabled. See Chapter 4, "Configuration," for more information.

Table 3-7
Audio Alarm Conditions

Alarm	Condition	Audio Alarm	Can be disabled?
General Alarm	Activated on ambient over temperature; REPO; Fan failure; Heatsink over temperature; Self-test fails; Charger fails; Any other transient condition.	ON-Steady	Yes
Site Wiring Fault Indicator	Earth (ground) connection is lost.	ON-5 second beep	Yes
UPS on Auto-Bypass	Load unprotected; transferred to Auto-Bypass due to inverter problems or general alarm.	ON-5 second beep	Yes
Normal	UPS operating from utility.	No audio alarm	N/A
UPS on Battery	Operating from battery.	ON-5 second beep	Yes
Battery Problem	Battery disconnected. Low battery.	ON-5 second beep ON-5 second beep	Yes No

Silencing an Audio Alarm

To silence the alarm, press the TEST/ALARM RESET button (❶).

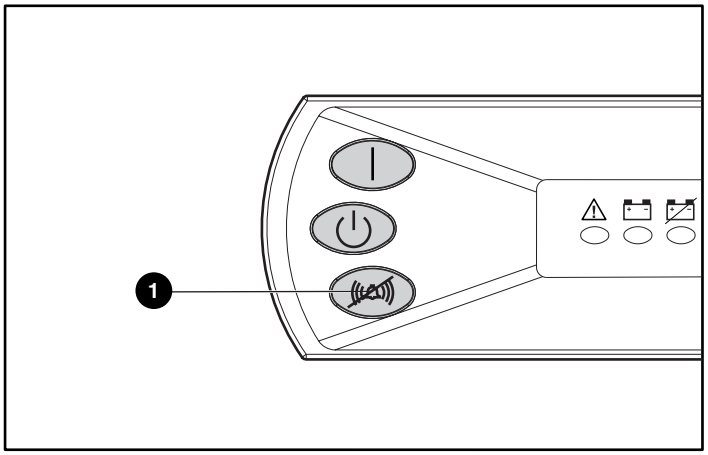


Figure 3-5. The TEST/ALARM RESET button

IMPORTANT:

- Even though an audio alarm may be silenced, the condition that caused the alarm may still exist. For information on procedures to follow if the UPS detects an alarm condition, see Chapter 6, "Troubleshooting."
- If a utility power failure caused the alarm (Utility LED 5 or General Alarm LED 1 illuminates red), the alarm will be silenced after utility power is restored.

Chapter 4

Configuration

This chapter contains information on the following topics:

- Placing the UPS in Configure mode
- Configuration parameters and the LED indicators
- Using the front panel LED display and controls to monitor and change configuration parameters

Placing the UPS in Configure Mode

The Compaq UPS R3000 XR can enter the Configure mode while in the Operate or Standby mode. In order to access the configuration controls, the UPS front bezel (❶) must be removed by snapping the bezel off.

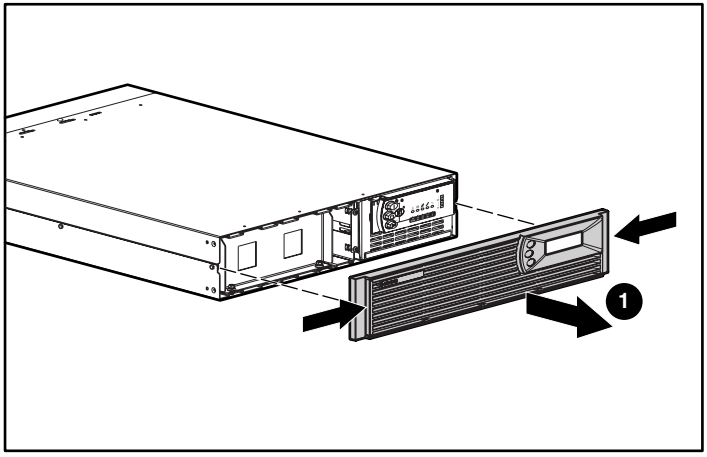


Figure 4-1. Removing the UPS front bezel

To place the UPS in Configure mode, press and hold the Configure button (❹) for three seconds. When the Configure button is released, the front panel configuration parameters (referenced below and further defined in Table 4-1) will flash in unison and the Configure mode ON LED (❺) will illuminate solid green.

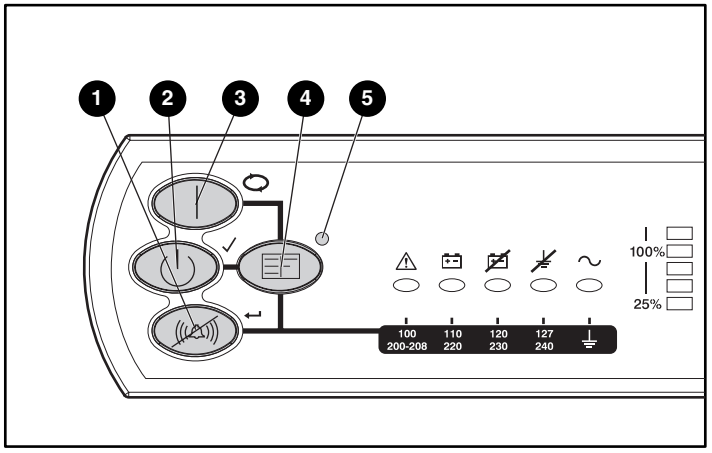


Figure 4-2. Configure mode controls and Configuration parameter LED display

Configure mode button controls

❶ TEST/ALARM RESET button *(accepts selected configuration)*

❷ STANDBY button *(turns LED configuration ON/OFF)*

❸ ON button *(advances to next configuration mode)*

❹ Configure button

❺ Configure mode ON LED

Configuration parameter LED display

⚠ LED 1 – General Alarm

LED 2 – On Battery

LED 3 – Bad Battery/Low Battery

LED 4 – Site Wiring Fault Indicator

∿ LED 5 – Utility LED

In the Configure mode, the front panel LED display changes function. The LED display and button controls allow the user to monitor and change the UPS configuration parameters.

Configuration Parameters and the LED Indicators

In the Configure mode, the front panel configuration parameters (referred to as LEDs 1 to 5) are detailed in the following table.

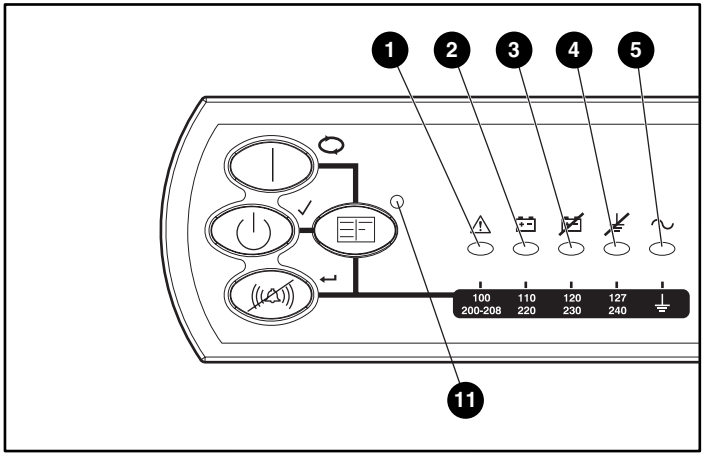


Figure 4-3. The front panel configuration parameters and LED indicators

Table 4-1
Configuration Parameters/LED Indicators

Parameter (LED)	Parameter Name	LED ⓫ Status	Explanation
❶ ⚠	100/200-208 Nom	ON[1]	Nominal utility voltage level is 100/200-208VAC. (Default for R3000j XR-JPN, R3000h XR-NA, and R3000h XR-JPN)
❷	110/220 Nom	ON[1]	Nominal utility voltage level is 110/220VAC.
❸	120/230 Nom	ON[1]	Nominal utility voltage level is 120/230VAC. (Default for R3000 XR-NA, R3000e XR-INT, R3000i XR-EURO, R3000i XR-SCHUKO, and R3000i XR-SA)
❹	127/240 Nom	ON[1]	Nominal utility voltage level is 127/240VAC.
❺ ∼	Wiring Fault	ON (default)	Enables an audio alarm if ground is missing, or if line and neutral connections have been reversed. (This option not available on the R3000j XR-JPN, R3000h XR-NA, and R3000h XR-JPN)
		OFF	Disables the audio alarm for site wiring detection. (Default for R3000j XR-JPN, R3000h XR-NA, and R3000h XR-JPN)

Note: [1] Only one nominal utility voltage can be configured.

Changing Configuration Parameters

The Configure mode may be entered from the Operate or Standby mode.

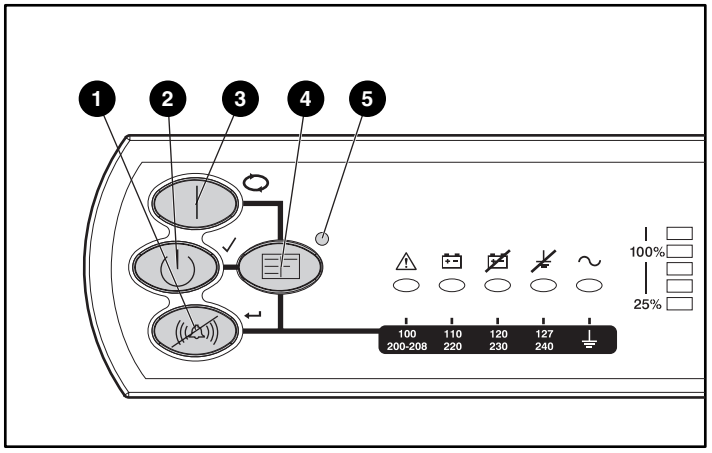


Figure 4-4. Configure mode controls and Configuration parameter LED display

Configure mode button controls		Configuration parameter LED display	
❶	TEST/ALARM RESET button *(accepts selected configuration)*	⚠	LED 1 – General Alarm
❷	STANDBY button *(turns LED configuration ON/OFF)*		LED 2 – On Battery
❸	ON button *(advances to next configuration mode)*		LED 3 – Bad Battery/Low Battery
❹	Configure button		LED 4 – Site Wiring Fault Indicator
❺	Configure mode ON LED	∼	LED 5 – Utility LED

To change configuration parameters:

1. To place the UPS in Configure mode, press the Configure button (❹) until the Configure mode ON LED (❺) turns solid green.
2. When the Configure button is released, the configurable LEDs will flash and the configurable LEDs are indicated by solid illumination.

   EXAMPLE: If unit is set at 110V, the On Battery LED and the Site Wiring Fault Indicator should illuminate solid.

3. To advance to the next configuration parameter value (to the right), press the ON button (❸). The selected voltage configuration LED will blink until activated by pressing the STANDBY button (❷) and the previously selected configuration parameter LED will turn off.
4. To toggle the Wiring Fault option from active to inactive, press the ON button (❸) to advance to the Site Wiring Fault LED and press STANDBY button (❷) to disable.

   NOTE: For nominal voltage configuration parameters 1, 2, 3, and 4 (see Figure 4-3), selecting an ON value for any one parameter automatically sets the other three possibilities to OFF.

5. To accept the configuration settings and exit the Configure mode at any time, press the TEST/ALARM RESET button (❶).

   EXAMPLE: To place the UPS in Configure mode, press and hold the Configure button (❹) until the five LEDs illuminate solid. Press the ON button (❸) once to advance to the 120V LED, which will begin flashing, and the 110V LED will remain solid. Press the ON button (❸) a second time to advance to the 127V LED, which will flash, and the 110V LED will extinguish. Press the ON button (❸) a third time to advance to the Site Wiring Fault LED, which will illuminate solid green. Press the STANDBY button (❷) at this time to disable the Site Wiring Fault LED (the LED will extinguish). Press the TEST/ALARM RESET button (❶) to accept the configuration changes and return to Operate mode.

   NOTE: If the unit remains idle for two minutes, the Configure mode will timeout and configuration settings will not be accepted.

Chapter **5**

Battery Maintenance

This chapter contains information on the following topics:

- Precautions to be observed when maintaining or replacing batteries
- Charging batteries
- When to replace batteries
- Pre-Failure Battery Warranty
- Obtaining new batteries
- Replacing batteries
- Care and storage of batteries

Precautions

WARNING: There is a risk of personal injury from the hazardous energy levels associated with UPS batteries. The maintenance and replacement of batteries must be carried out by an authorized Compaq service representative.

Replace the batteries with the Compaq spare designated for the UPS. The spare battery kit part number is 204503-001.

WARNING: The UPS contains sealed lead-acid batteries. To reduce the risk of fire or chemical burns take the following precautions:

- Do not attempt to recharge batteries after removal from the UPS.
- Do not disassemble, crush, or puncture the batteries.
- Do not short the external contacts of the batteries.
- Do not immerse the batteries in water.
- Do not expose to temperatures higher than 60°C (140°F).

WARNING: To reduce the risk of personal injury from hazardous energy, take these precautions:

- Remove watches, rings, or other metal objects.
- Use tools with insulated handles.

WARNING: The UPS R3000 XR models weigh approximately 82 lb (37 kg). Make sure that the rack containing the UPS is stable. The following conditions must be met:

- The leveling feet are extended to the floor.
- The full weight of the rack rests on the leveling feet.
- The stabilizing feet are attached to the rack, if it is a single rack installation.
- The racks are coupled together in multiple rack installations.
- A rack may become unstable if more than one component is extended. Extend only one component at a time.

Charging Batteries

The Compaq UPS R3000 XR models automatically charge the batteries when connected to utility power. No user intervention is required while the UPS is in use.

- For information on charging the batteries when installing the UPS, see "Completing the Installation" in Chapter 2, "Installation."
- For information on keeping the batteries charged while the UPS is in extended storage, see "Care and Storage of Batteries" in this chapter.

When to Replace Batteries

When the Bad Battery/Low Battery LED (❶) turns red, batteries may need to be replaced within 30 to 60 days.

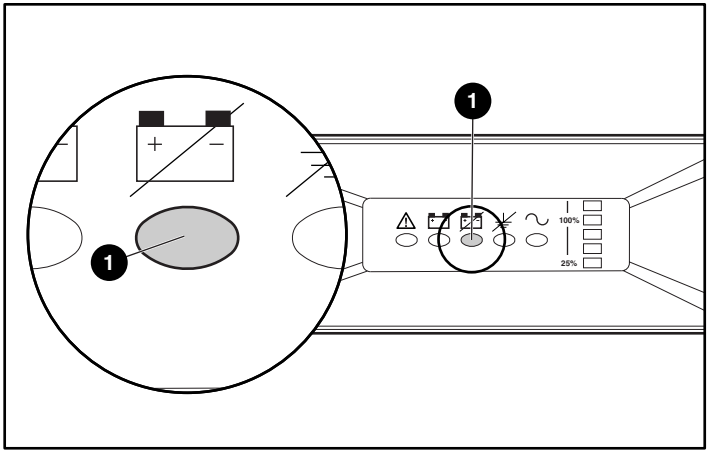


Figure 5-1. Bad Battery/Low Battery LED (❶)

Verify that battery replacement is required by initiating a UPS self-test. If the Bad Battery/Low Battery LED (❶) remains red, replace the batteries.

NOTE: Depending on usage and environmental conditions, the batteries should last three to six years.

For information on initiating a self-test, see Chapter 3, "Operation."

Pre-Failure Battery Warranty

The Pre-Failure Battery Warranty, standard on all Compaq Uninterruptible Power System (UPS) units, extends the advantage of a Compaq three-year limited warranty by applying it to the battery before it actually fails. Specifically, the Pre-Failure Battery Warranty ensures that when customers receive notification from Compaq Power Management Software that the battery may fail, the battery is replaced free of charge under the warranty.

Compaq maintains the highest standards in the industry, as evidenced by the Compaq Pre-Failure Battery Warranty. The Pre-Failure Battery Warranty is beneficial in at least two significant ways:

- Reduced total cost of ownership
- Reduced downtime

Obtaining New Batteries

Compaq supplies spare battery packs for UPS R3000 XR models. Obtain spare batteries for the UPS when the Bad Battery/Low Battery LED (❸) illuminates, meaning that new batteries may be required within 30 to 60 days.

The UPS R3000 XR spare battery kit is part number 204503-001.

IMPORTANT: Compaq recommends that an inventory of spare batteries not be maintained onsite unless a procedure to keep these batteries charged while in storage is implemented.

For information on the Bad Battery/Low Battery LED function, see Chapter 3, "Operation."

Replacing Batteries

There are two options for replacing UPS batteries:

- Powering off the UPS before removing the batteries
- In certain circumstances, hot-swapping the batteries without powering off the UPS

CAUTION: While hot-swapping batteries, the UPS will enter Auto-Bypass mode and will not be protected in the event of a utility power failure.

Step 1: Preparing the UPS

To replace batteries with the UPS Off

1. Shut down all load devices.
2. Press the STANDBY button to take the UPS out of Operate mode. The Configure mode ON LED will flash, and power to the load receptacles will cease.
3. Disconnect the UPS from utility power.
4. Wait at least 60 seconds, while the UPS internal circuitry discharges.

To replace batteries with the UPS in Operate mode (hot-swapping)

Batteries may be replaced (hot-swapped) without powering off the UPS if the UPS is not supplying battery power to devices (utility is present, indicating that the UPS is supplying utility power).

Step 2: Removing the Battery Pack

Follow this procedure to remove the battery pack:

1. To obtain access to the battery pack, remove the front bezel (❶) by pulling on both ends.
2. Remove two screws (❷) from the metal battery bracket (❸).

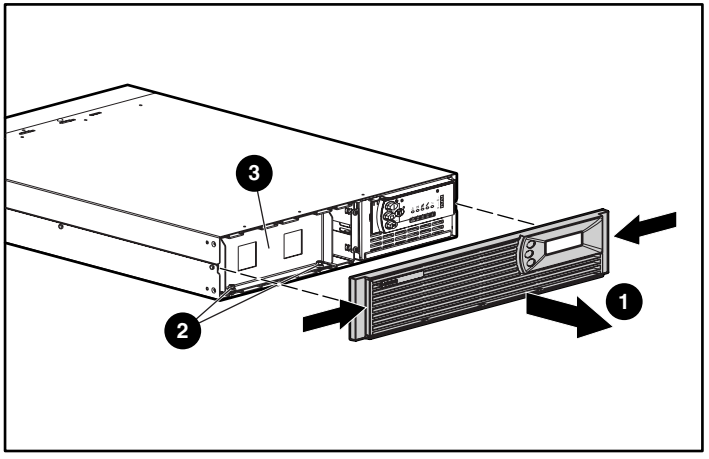


Figure 5-2. Removing the front bezel

3. Remove the battery pack. Set aside the used battery pack for proper disposal. See “Step 5: Disposing of Used Batteries,” in this chapter.

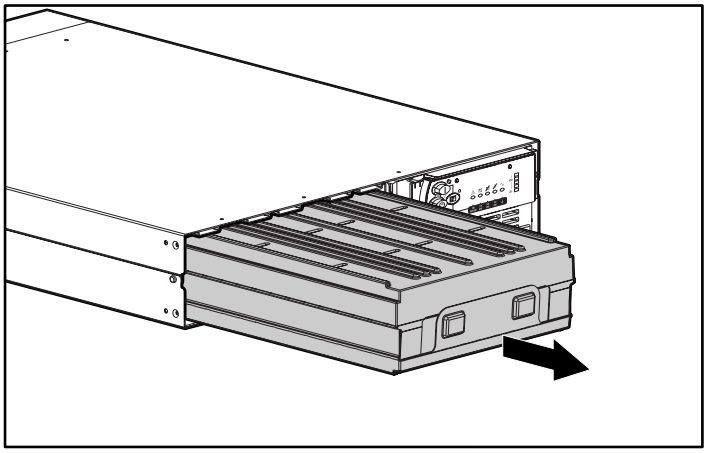


Figure 5-3. Removing (pulling out) the battery pack

WARNING: The UPS R3000 XR battery pack weighs 42 lb (19 kg). Prepare the area and observe all materials handling procedures for removing the battery pack.

Step 3: Installing New Batteries

To install new batteries, reverse the procedure outline in “Step 2: Removing the Battery Pack."

1. Slide the new battery pack into the chassis.
2. Replace the metal battery bracket and secure the two screws.
3. Snap on the front bezel.

Step 4: Testing New Batteries

After installing the new batteries, press the TEST/ALARM RESET button. For information on performing a self-test, refer to Chapter 3, “Operation.”

IMPORTANT: The UPS will not execute a self-test until the batteries are 90 percent charged.

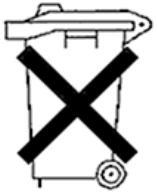
If the installation has been successful, the Bad Battery/Low Battery LED will not be illuminated.

If the installation has not been successful, the Bad Battery/Low Battery LED will turn red. If this occurs, repeat Step 1 through Step 4, and check the battery terminal connections. If the Bad Battery/Low Battery LED is still red, see Chapter 6, "Troubleshooting," for more information.

IMPORTANT: The batteries will charge to 90 percent of their capacity within approximately 4 hours. Compaq recommends allowing the batteries to charge for 24 hours before using the UPS to supply backup power to devices. The load may not be fully protected for 24 hours.

Step 5: Disposing of Used Batteries

The spare battery kit includes the instructions and packaging required to return used batteries to the appropriate location for disposal.



Do not dispose of used batteries with general office or household waste. Return the used module for proper disposal to either:

- Compaq, authorized Compaq Partners, or their agents.
- A recycling center that meets all local environmental standards.

Care and Storage of Batteries

To maximize the life of batteries:

- Minimize the amount of time the UPS uses battery power by matching UPS configuration with utility voltage. For more information, see Chapter 4, "Configuration."
- Keep the area around the UPS clean and dust-free. If the environment is very dusty, clean the outside of the UPS regularly with a vacuum cleaner.
- Maintain the ambient temperature at 25°C (77°F).
- If storing a UPS for an extended period, recharge the batteries every six months:
  a. Connect the UPS to utility power.
  b. Allow the UPS to remain in Standby mode.
  c. Allow the UPS to charge the batteries for 24 hours.
  d. Update the Battery Recharge Date label.

Chapter 6

Troubleshooting

This chapter provides information on the following topics:

- Troubleshooting problems that occur during UPS start
- Troubleshooting problems that occur after start
- Repairing the UPS

Troubleshooting During Start

If problems occur when starting the Compaq UPS R3000 XR models, select the appropriate symptom for possible causes and actions suggested.

Table 6-1
Troubleshooting Guide (UPS Start)

Symptom	Possible Cause	Suggested Action
UPS will not start	No utility power.	Check power at the utility power receptacle or contact a qualified electrician.
	UPS power cord disconnected.	Connect the power cord.
Site Wiring Fault LED ❹ (⚠) is red	Utility power receptacle ungrounded or no ground wire in UPS power cord.	Contact a qualified electrician to correct the condition.
	Line and neutral wires reversed in utility power receptacle or in UPS power cord.	For units factory-configured for 200V or 208V, the Site Wiring Fault function has been disabled. If reconfiguring a 230V unit to operate at 208V, the Site Wiring Fault function must be manually disabled. (high voltage models only)
Bad Battery/ Low Battery LED ❸ (⚠) is flashing red	Battery voltage is low because the UPS has been out-of-service for a long period.	Allow the UPS to charge the batteries for 24 hours. Initiate a self-test. If LED ❸ does not turn off, replace the batteries.
	Battery test failed.	Allow the UPS to charge the batteries for 24 hours. Initiate a self-test. If LED ❸ does not turn off, replace the batteries.
	Battery disconnected.	Install the battery tray. If the battery tray is installed, remove and then insert again.

Troubleshooting After Start

For problems that occur after the UPS has gone through the startup self-test sequence, these suggested actions address possible causes.

Table 6-2
Troubleshooting Guide (After Start)

Symptom	Possible Cause	Suggested Action
Audio Alarm	Alarm condition exists.	Identify red LED associated with this alarm condition. Check this troubleshooting guide to determine cause of the alarm.
Utility LED ❺ (∿) and On Battery LED ❷ (🔋) are flashing red	Utility voltage is too high.	The utility voltage is higher than the UPS operating range. The UPS switches to battery power. If this happens repeatedly, update the configuration.
		Contact a qualified electrician to ensure utility power is suitable for the UPS.
Utility LED ❺ (∿) and On Battery LED ❷ (🔋) are flashing red	Utility voltage is too low.	The utility voltage is lower than the UPS operating range. The UPS switches to battery power. If this happens repeatedly, update the configuration.
		Contact a qualified electrician to make sure that utility power is suitable for the UPS.
Utility LED ❺ (∿) and On Battery LED ❷ (🔋) are flashing red	Utility frequency out of tolerance.	Contact a qualified electrician to ensure utility power is suitable for the UPS.
Utility LED ❺ (∿) is flashing red	Utility input voltage outside ±12% nominal range.	If this happens repeatedly, check input voltage and reconfigure the unit.
		Contact a qualified electrician to ensure utility power is suitable for the UPS.
Utility LED ❺ (∿) is flashing green	Utility power within acceptable range, output off.	Press the ON button.

continued

Table 6-2
Troubleshooting Guide (After Start) *continued*

Symptom	Possible Cause	Suggested Action
UPS frequently switches between utility and battery power	Utility power variations.	The utility voltage is frequently outside the UPS operating range. Update the configuration.
		Contact a qualified electrician to make sure that utility power is suitable for the UPS.
Overload LED ❻ is red	Protected devices are exceeding the UPS power rating.	Remove one or more devices to reduce the power requirements.
	(UPS may switch from utility to battery power.)	Make sure that the devices are not defective.
On Battery LED ❷ (🔋) is flashing red	Low battery voltage.	If the UPS is supplying battery power, save current work and shut down the system. Allow the batteries to charge.
		If the UPS is supplying utility power, no user intervention is required. Allow the batteries to charge.
Insufficient warning of low batteries	Battery service required.	Allow batteries to charge for 24 hours, then initiate self-test. If LED ❸ is red, replace batteries.
	Shutdown Delay configuration inappropriate.	Update the Shutdown Delay from 5-seconds to 3-minutes.
		Use Compaq power management software to specify a suitable delay.

continued

Table 6-2
Troubleshooting Guide (After Start) *continued*

Symptom	Possible Cause	Suggested Action
Utility LED ❺ (⏦) and unit is in Auto-Bypass mode	Overload potential.	Reduce load.
	Over temperature condition may exist.	Ensure that no blockage of airflow to the front bezel and rear panel exists.
	Power module may have failed.	Contact an authorized Compaq service representative.
Bad Battery/ Low Battery LED ❸ (🔋) is flashing red	Potential battery failure detected.	Allow batteries to charge for 24 hours, then initiate self-test. If LED ❸ is red, replace batteries.
	New batteries improperly connected.	Re-insert battery tray.
All LEDs are flashing red; audio alarm cannot be silenced	Internal UPS fault condition exists.	Power down the UPS. Contact an authorized Compaq service representative.

Repairing the UPS

Repairs to the UPS must be carried out by Compaq or an authorized Compaq service representative. Other than battery replacement, there are no UPS user-serviceable parts.

Appendix ***A***

Regulatory Compliance Notices

Regulatory Compliance Identification Numbers

For the purpose of regulatory compliance certifications and identification, Compaq UPS R3000 XR models are assigned a Compaq Series Number. The Compaq Series Numbers for this product are shown below. The UPS R3000 XR Series Number can be found on the Regulatory Compliance label, along with the required approval markings and information. The Regulatory Compliance label is located on the top of the UPS unit. When requesting certification information for this product always refer to this Series Number. This series number should not be confused with the marketing name or model number for your Compaq UPS R3000 XR.

Table A-1
Compaq UPS R3000 XR Series Numbers

Series Number	UPS Model
EO3005	North America 100V to 120V models
EO3005h	North America/Japan 200V to 240V models
EO3005i	International 200V to 240V models
EO3005j	Japan 100V models
EO3005e	International 230V models

Federal Communications Commission Notice

Part 15 of the Federal Communications Commission (FCC) Rules and Regulations has established Radio Frequency (RF) emission limits to provide an interference-free radio frequency spectrum. Many electronic devices, including computers, generate RF energy incidental to their intended function and are, therefore, covered by these rules. These rules place computers and related peripheral devices into two classes, A and B, depending upon their intended installation. Class A devices are those that may reasonably be expected to be installed in a business or commercial environment. Class B devices are those that may reasonably be expected to be installed in a residential environment (that is, personal computers). The FCC requires devices in both classes to bear a label indicating the interference potential of the device as well as additional operating instructions for the user.

The rating label on the device shows which class (A or B) the equipment falls into. Class B devices have an FCC logo or FCC ID on the label. Class A devices do not have an FCC logo or FCC ID on the label. Once the class of the device is determined, refer to the following corresponding statement.

Class A Equipment

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, 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 personal expense.

Class B Equipment

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult dealer or experienced radio or television technician for help.

Declaration of Conformity for Products Marked with the FCC logo - United States Only

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

- For questions regarding your product, contact:
  Compaq Computer Corporation
  P. O. Box 692000, Mail Stop 530113
  Houston, Texas 77269-2000
  or call 1-800-652-6672 (1-800-OK COMPAQ)[1].
- For questions regarding this FCC declaration, contact:
  Compaq Computer Corporation
  P. O. Box 692000, Mail Stop 510101
  Houston, Texas 77269-2000
  or call (281) 514-3333.

To identify this product, refer to the Part, Series, or Model number found on the product.

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[1] For continuous quality improvement, calls may be recorded or monitored.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Compaq Computer Corporation may void the user's authority to operate the equipment.

Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods in order to maintain compliance with FCC Rules and Regulations.

Canadian Notice (Avis Canadien)

Class A Equipment

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Class B Equipment

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Union Notice

Products with the CE Marking comply with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms (in brackets are the equivalent international standards):

- EN50091-1 – UPS Product Safety Requirements
- EN50091-2 – UPS EMC Requirements

Japanese Notice

ご使用になっている装置にVCCIマークが付いていましたら、次の説明文をお読み下さい。

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

VCCIマークが付いていない場合には、次の点にご注意下さい。

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です　この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Taiwanese Notice

警告使用者：

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Battery Replacement Notice

Your UPS is provided with a sealed lead-acid battery pack. There is a danger of explosion and risk of personal injury if the battery is incorrectly replaced or mistreated. Replacement is to be done by an authorized Compaq service representative using the Compaq spare designated for this product. For more information about battery replacement or proper disposal, contact your Compaq authorized reseller or your Authorized Service Provider.

WARNING: Your UPS contains a sealed lead-acid battery pack. There is risk of fire and burns if the battery pack is not handled properly. To reduce the risk of personal injury:

- Do not attempt to recharge the battery.
- Do not expose to temperatures higher than 60°C (140°F).
- Do not disassemble, crush, puncture, short external contacts, or dispose of in fire or water.
- Replace only with the Compaq spare designated for this product.

Batteries, battery packs, and accumulators should not be disposed of together with the general household waste. In order to forward them to recycling or proper disposal, please use the public collection system or return them to Compaq, your authorized Compaq Partners, or their agents.

Appendix ***B***

Electrostatic Discharge

To prevent damaging the system, be aware of the precautions you need to follow when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

To prevent electrostatic damage, observe the following precautions:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Make sure you are always properly grounded when touching a static-sensitive component or assembly.

Grounding Methods

There are several methods for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm ±10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
- Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.
- Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, have a Compaq authorized reseller install the part.

NOTE: For more information on static electricity, or assistance with product installation, contact your Compaq authorized reseller.

Appendix C

Specifications

This appendix provides specifications that apply to Compaq UPS R3000 XR models:

- Physical specifications
- Input specifications
- Output specifications
- Overcurrent protection
- Battery specifications
- Battery runtime
- Environmental specifications

Physical Specifications

Table C-1
Physical Specifications – UPS R3000 XR Models

Feature		U.S.	Metric
Dimensions	Width	19.0 in	483 mm
	Height	3.50 in	89 mm
	Depth	24.5 in	622 mm
Weight		82 lb	37 kg

Input Specifications

Table C-2
Input Specifications – UPS R3000 XR Models

UPS Model	Utility Voltage Frequency (Hz)	Default Settings Nominal Voltage (VAC)	Available Settings Utility Voltage (VAC)	Power Cord Supplied
R3000 XR-NA	50/60	120	100, 110 120, 127	Non-detachable power cord with NEMA L5-30 plug
R3000j XR-JPN	50/60	100	100, 110 120, 127	Non-detachable power cord with NEMA L5-30 plug
R3000h XR-NA	50/60	208	200, 220 230, 240	Non-detachable power cord with NEMA L6-20 plug
R3000h XR-JPN	50/60	208	200, 220 230, 240	Non-detachable power cord with NEMA L6-20 plug
R3000e XR-INT	50/60	208	200, 220 230, 240	Detachable power cord with country-specific plug
R3000i XR-EURO	50/60	230	208, 220 200, 240	Non-detachable power cord with 16A IEC-309 plug
R3000i XR-SCHUKO	50/60	230	200, 208 220, 240	Non-detachable power cord with 16A CEE 7/7 SCHUKO plug
R3000i XR-SA	50/60	230	200, 208 220, 240	Non-detachable power cord with 16A BS-546 plug

Output Specifications

Table C-3
Output Specifications – UPS R3000 XR Models

UPS Model	Effective VA	Nominal Power Rating (W)	Load Segment #	Output Receptacles
R3000 XR-NA	2880	2700	1	2 x 5-15R 1 x L5-30R
			2	2 x 5-15R
			3	2 x 5-15R
R3000j XR-JPN	2400	2250	1	2 x 5-15R 1 x L5-30R
			2	2 x 5-15R
			3	2 x 5-15R
R3000h XR-NA	3000	2700	1	3 x IEC-320, C13 1 x L6-20R
			2	3 x IEC-320, C13
			3	3 x IEC-320, C13
R3000h XR-JPN	3000	2700	1	3 x IEC-320, C13 1 x L6-20R
			2	3 x IEC-320, C13
			3	3 x IEC-320, C13
R3000e XR-INT	3000	2700	1	3 x IEC-320, C13 1 x IEC-320, C19
			2	3 x IEC-320, C19
			3	3 x IEC-320, C13
R3000i XR-EURO; R3000i XR-SCHUKO; R3000i XR-SA	3000	2700	1	3 x IEC-320, C13 1 x IEC-320, C19
			2	3 x IEC-320, C13
			3	3 x IEC-320, C13

Table C-4
Output Specifications – UPS R3000 XR Models

Characteristics	Configuration Setting (VAC)	Available Nominal Output Voltage (VAC)
Voltage	100	100
	110	110
	120	120
	127	127
	200	200
	208	208
	230	230
	240	240
	Source of Power	**Regulation**
Output	Utility power (normal range)	-10% to +6% of nominal output voltage rating (within the guidelines of the Computer Business Equipment Manufacturers Association)
	Battery power	±5% of nominal output voltage rating
	Feature	**Specification**
Other features	On-line efficiency	96%
	Voltage wave shape	Sine wave; 5% THD with typical PFC load
	Surge suppression	High energy 6500A peak
	Noise filtering	MOVs and line filter for normal and common mode use

Overcurrent Protection

Table C-5
Overcurrent Protection – Per Model

UPS Model	Input Protection
R3000 XR-NA	Circuit protector for each load segment
R3000j XR-JPN	Circuit protector for each load segment
R3000h XR-NA	Circuit protector for each load segment
R3000h XR-JPN	Circuit protector for each load segment
R3000e XR-INT	Circuit protector for each load segment
R3000i XR-EURO	Circuit protector for each load segment
R3000i XR-SCHUKO	Circuit protector for each load segment
R3000i XR-SA	Circuit protector for each load segment

Battery Specifications

Table C-6
Battery Specifications – UPS R3000 XR Models

Feature	Specification
Type	Sealed lead-acid; maintenance-free
Voltage	120V Battery String
Charging	Compaq recommends 24 hours to allow full charge
	Approximately 4 hours to 90 percent capacity at default nominal utility voltage and no load

Battery Runtime

Table C-7
Estimated Battery Runtime

Load (Percent)	Estimated Battery Runtime (Minutes)	UPS with ERM Runtime (Minutes)
20	40	120
50	12	45
80	6.5	30
100	5	20

Before connecting devices, verify that the UPS will not overload by making sure that the rating of the devices do not exceed the capacity of the UPS. Evenly distribute connected devices throughout all load segments.

After verifying that the UPS will not overload, connect the power cords from the devices to the appropriate output receptacles of the UPS.

WARNING: Risk of personal injury from electric shock. The UPS R3000e XR-INT model is not suitable for installation where the total Earth (ground) conductor leakage current for all connected devices exceeds 3.5 mA. You may use RackBuilder Pro (obtainable from the Compaq website at www.compaq.com) to find the total system leakage current. If the total Earth (ground) conductor leakage current exceeds 3.5 mA, you should use the UPS R3000i XR-EURO, R3000i XR-SCHUKO, or R3000i XR-SA models.

Environmental Specifications

Table C-8
Environmental Specifications – UPS R3000 XR Models

Feature	Specification
Operating temperature	10°C to 40°C (50°F to 104°F) UL-tested at 25°C (77°F)
Relative humidity	0% to 95%; non-condensing
Operating altitude	Up to 2,000 m (6,562 ft) above sea level
Audible noise	Less than 45 dBA
Transit temperature	-25°C to +55°C (-13°F to 131°F)
Transit altitude	15,000 m (49,212 ft) above sea level

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