

# hp uninterruptible power system R3000 xr models installation instructions



***Read Instructions Completely  
Before Beginning Installation Procedures***

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HP Uninterruptible Power System R3000 XR Models Installation Instructions

Second Edition (August 2002)  
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192130-022

## Overview

These instructions show how to install an uninterruptible power system (UPS). For detailed information about the UPS, refer to the UPS user guide on the Power Products Documentation CD.

## Important Safety Information

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



**WARNING:** To prevent personal injury from electric shock and hazardous energy levels, the installation of options and routine maintenance and service of this product must be performed by individuals who are knowledgeable about the procedures, precautions, and hazards associated with AC power products.



**WARNING:** To prevent personal injury from earth 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. Refer to the UPS user guide for more information on the operation of the UPS.

**NOTE:** The rating label on the device provides the class (A or B) of the equipment. Class B devices have a Federal Communications Commission (FCC) logo or FCC ID on the label. Class A devices do not have an FCC logo or FCC ID on the label. After you determine the class of the device, refer to the UPS user guide for complete regulatory compliance notices.

## Weight



37 kg  
82 lb

**WARNING:** The UPS weighs 37 kg (82 lb) when fully assembled. To prevent personal injury or damage to the equipment:

- Observe local occupational health and safety requirements and guidelines for manual material handling.
- Obtain adequate assistance to lift and stabilize the UPS during installation or removal. The UPS is unstable when not fastened to the rails.

## Position



**WARNING:** To prevent personal injury or damage to the equipment, take the following precautions when installing the equipment:

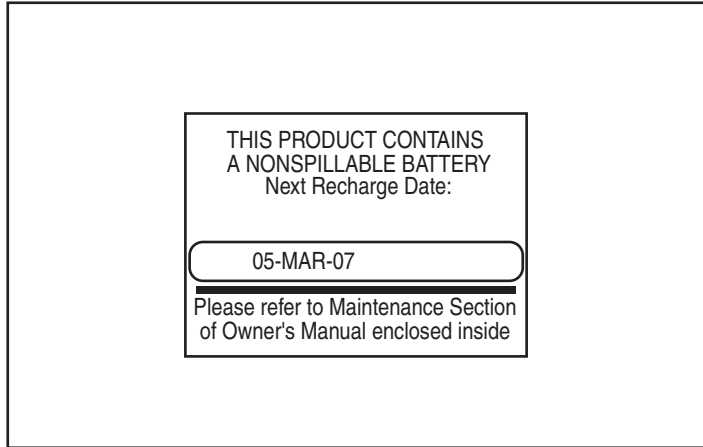
- The UPS must be installed at the bottom of the rack. If placed in the rack with existing equipment, the rack must be reconfigured to allow installation of the UPS at the bottom of the rack.
- The UPS must be mounted on the rails included in the UPS kit. Use the rack template tool included in the kit to align the rails.

# Checking the Battery Recharge Date

Before unpacking the UPS, check the battery recharge date specified on the battery recharge date label that is affixed to the shipping carton.

**IMPORTANT:** Do not use the battery if the recharge date has passed. If the date on the battery recharge date label has passed without the battery being recharged, contact an HP authorized service representative for directions.

**NOTE:** The following label is only an example date. The date on your carton may be different.



## Kit Contents

### Documentation

- *International Regulatory Compliance* guide
- *Important Safety Information* guide
- Power Products Documentation CD
- Rack and Power Management Pack CD
- This document

### Rails

- Rails, with mounting hardware
- Rack template tool 2U (295523-023)

### UPS

- UPS chassis
- Battery module
- Electronics module
- Front bezel
- Rear stabilization brackets (2)
- Communications port/option slot, preinstalled (200388-001)
- Remote Emergency Power Off (REPO) port and connector block
- Cord retention clips

## Additional Hardware

The following items are supplied for shipping a rack with a UPS installed:

- M6 nuts (4)
- M6 flat washers (4)
- M6 split washers (4)

## Cables

- The R3000h XR-NA, R3000h XR-JPN, R3000i XR-EURO, R3000i XR-SCHUKO, R3000i XR-SA, and R3000e XR-INT'L models ship with:
  - Two 10 A, 1.83-meter (6-foot) IEC-to-IEC power cords (142263-001)
  - Two 10 A, 2.44-meter (8-foot) IEC-to-IEC power cords (142263-002)
  - Two 10 A, 3.05-meter (10-foot) IEC-to-IEC power cords (142263-003), for load equipment power
  - A 3.66-meter (12-foot) UPS/computer interface cable (201092-002)
- The R3000 XR-NA and R3000j XR-JPN models ship with a non-detachable input power cord with an L 5-30 plug and a 3.66-meter (12-foot) UPS/computer interface cable (201092-002).
- The R3000h XR-NA and R3000h XR-JPN models ship with a non-detachable input power cord with an L 6-20 plug.
- The R3000e XR-INT'L models ship with a non-detachable input power cord. It has an IEC 320-C19 input power receptacle for a country specific cord.

**NOTE:** All models ship with a computer interface cable. The computer interface cable is not needed for normal operation. To administer the UPS with power management software, connect the interface cable between the UPS communications port and the serial port on the host computer.

## Tools and Materials Required

The following tools are required:

- Medium flat-bladed screwdriver
- #2 Phillips screwdriver

The following items are supplied with the rack:

- Screws
- Cage nuts
- Cage nut-fitting tool

# Electrical Requirements

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

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



**WARNING:** To prevent fire or electric shock, install the UPS in a temperature- and humidity-controlled indoor environment, free of conductive contaminants.



**WARNING:** Risk of personal injury from electric shock. The 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 [www.hp.com](http://www.hp.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 model.

**IMPORTANT:** If the UPS does not include a power cord that is suitable for your application, contact an HP authorized service representative to obtain the appropriate power cord.

## Preparing for Installation

### Unpacking the UPS



**WARNING:** The battery module is charged from the factory. To prevent personal injury, do not touch the connectors.

Transport the packaged UPS to its installation location. Unpack the UPS near the rack where it will be assembled. Follow the unpacking instructions on the carton.

### Mounting the Rails

The UPS must be mounted on the fixed rails supplied with the UPS. Before beginning this installation process, review and adhere to the following precautions.



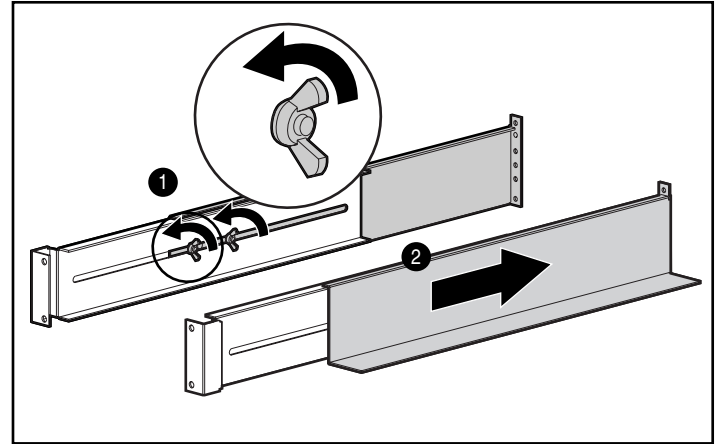
**WARNING:** To prevent personal injury, verify that the rack containing the UPS is stable. The following conditions must be met:

- 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 if it is a multi-rack installation.
- Only one component should be extended at a time. A rack may become unstable if more than one component is extended for any reason.

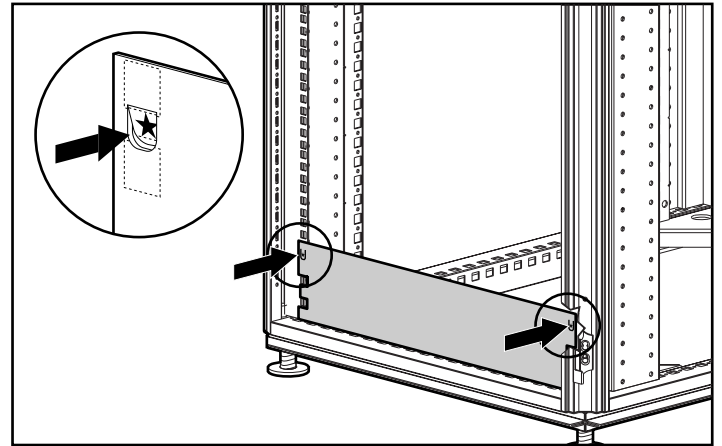
**IMPORTANT:** Power down the UPS to safely perform the following tasks.

To mount the rails:

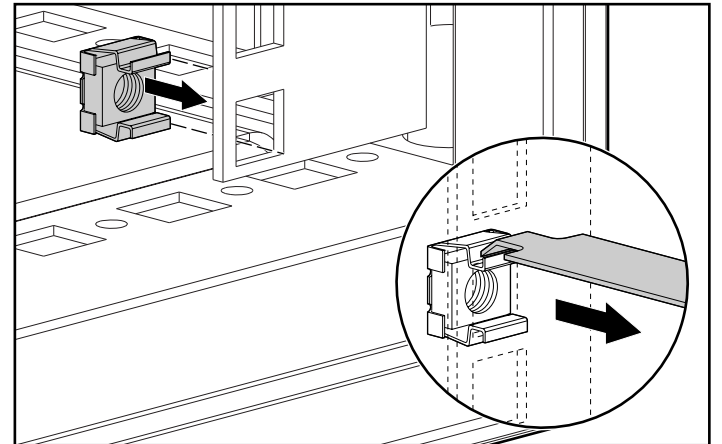
1. Loosen the wing nuts (1) and extend the brackets to the desired length (2). Tighten the wing nuts slightly to stabilize the bracket.



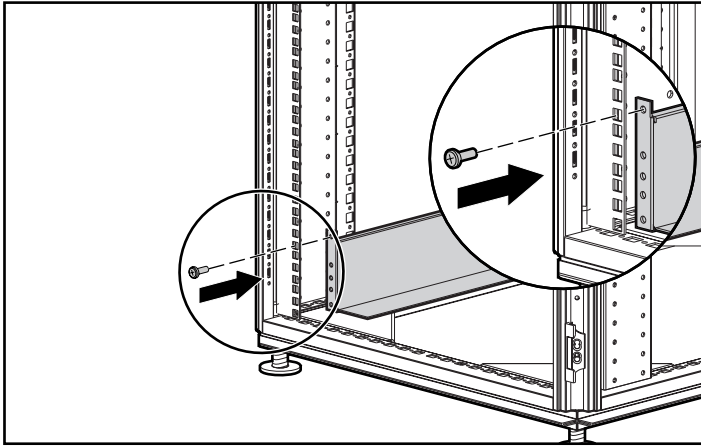
2. Use the rack template tool to measure and mark the screw locations on the front and rear of the rack.



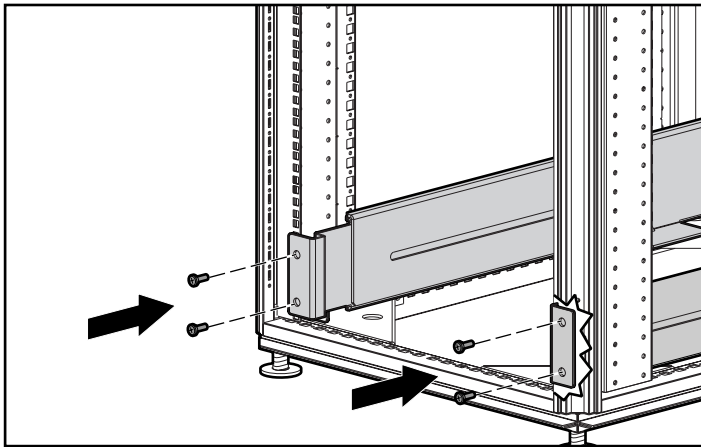
3. Use the cage nut tool to install the cage nuts in the rear rack-mounting rails.



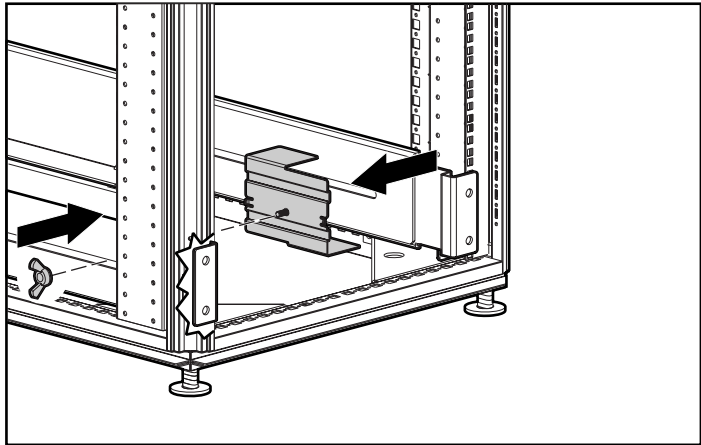
4. Insert the screws supplied in the UPS kit through each rack-mounting rail and into the front of each rack.



5. Insert the screws into the back of each rail and through the cage nuts that were installed in step 3.



6. Install the rear stabilization bracket.



## Installing the UPS in the Rack

Before attempting to install the UPS, review and adhere to all warnings provided in the “Important Safety Information” section of this document.

To install the UPS in the rack:

1. With one person on each side of the carton, remove the UPS chassis using the lift-out tray.
2. Gently lower the chassis to the floor in front of the rack.
3. Cut the band holding the chassis, freeing it from the lift-out tray.
4. With one person on each side, lift the chassis to rail level and slide it into place on the rack-mounting rails.
5. Attach the chassis to the rack using the screws and the cage nuts supplied with the rack.

**NOTE:** After installing the UPS chassis, insert additional screws for support if any screw holes are unoccupied.

## Completing the UPS Assembly

### Connecting the Communications Port

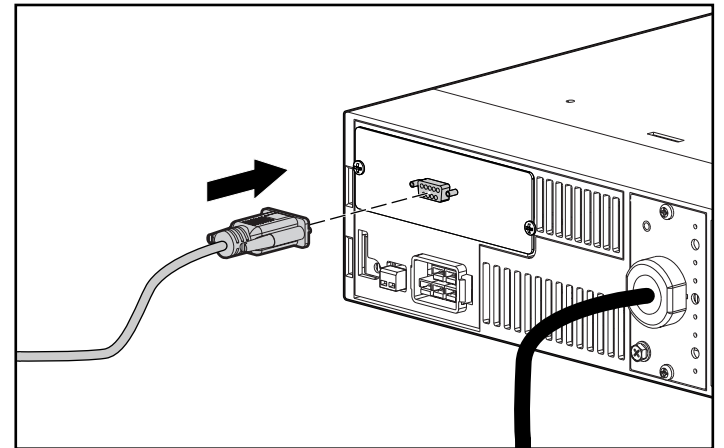
The UPS includes a communications port that allows the unit to exchange data with the host computer.

**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:** Use only the specific cable supplied with the UPS to connect the communications port to the host computer.



## Connecting the REPO Port

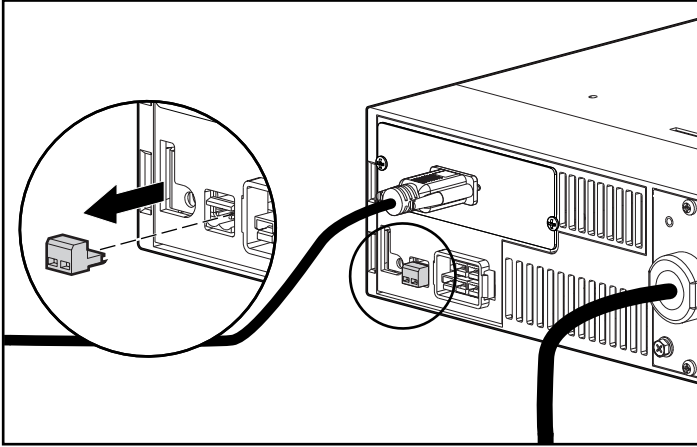


**WARNING:** If the UPS is to be installed in a computer equipment room, it must be connected to a REPO circuit. The REPO port is designed to meet the requirements stated in National Electrical Code (NFPA 70) Articles 645-10 and 645-11.

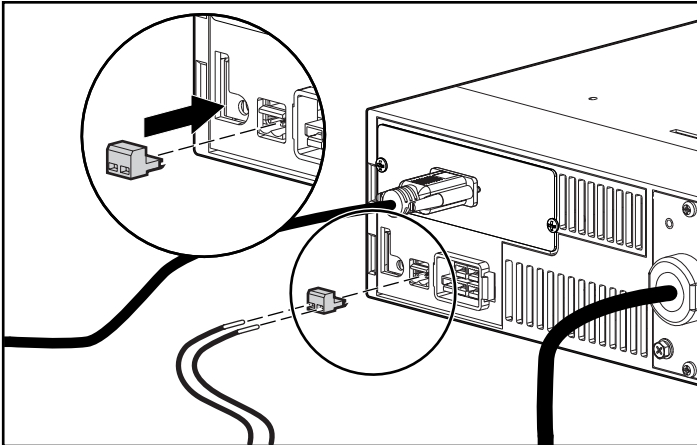
The REPO port allows power to the UPS output receptacles to be switched off from a remote location.

To activate the REPO port:

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



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



### IMPORTANT:

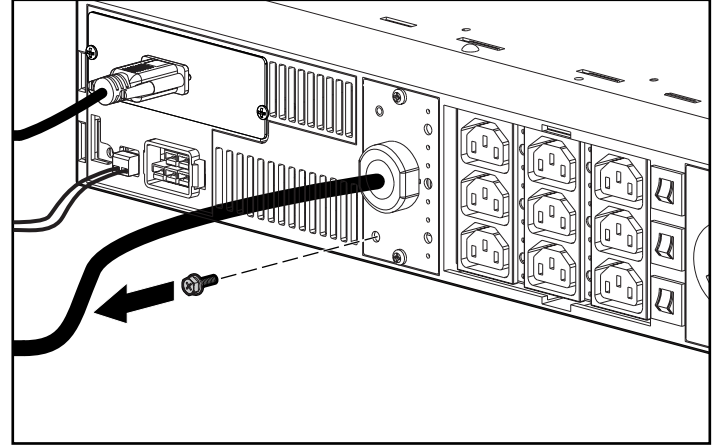
- The REPO port must meet the requirements of the NFPA Articles 645-10 and 645-11 for a disconnecting means.
- The remote switch must be in the Off (open) position to enable power to the output receptacles.

## Connecting the Ground Bonding Screw

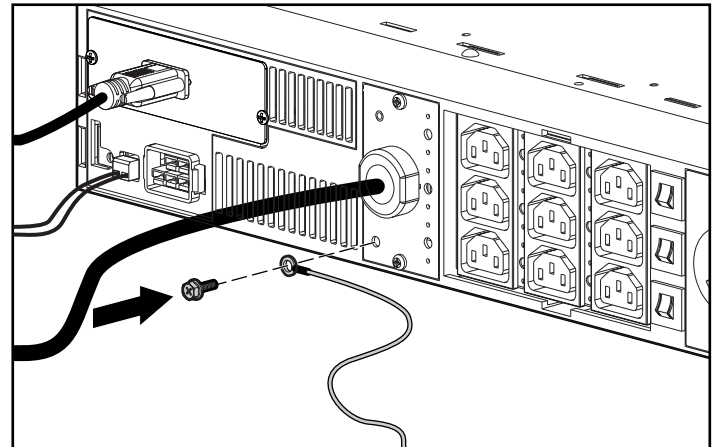
The ground bonding screw on the rear of the unit is provided as an attachment point for conductors. Use the ground bonding screw if the rack contains any conductors for the purpose of functional grounding or bonding of ungrounded metal parts.

To connect the ground bonding screw:

1. Remove the ground bonding screw.



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





## Connecting the UPS to Utility Power

Connect the UPS to a grounded utility power outlet.

**WARNING:** To prevent personal injury from electric shock or damage to the equipment:

- 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 the UPS will not overload by checking that the ratings of the devices do not exceed the UPS capacity. 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.

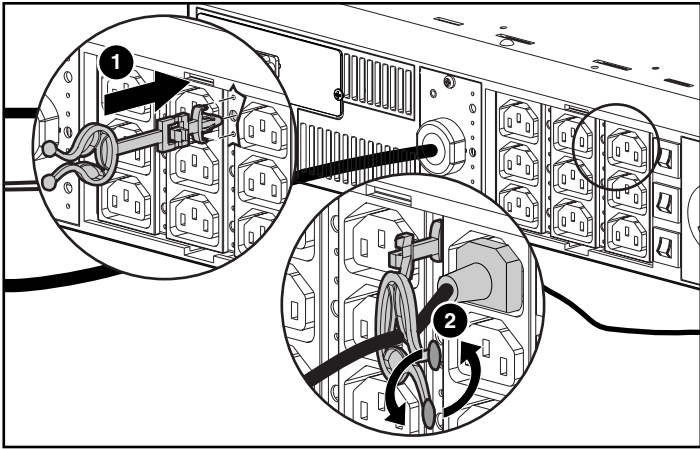
**CAUTION:** Do not plug laser printers into the UPS. The instantaneous current drawn by this type of printer can overload the UPS.

**IMPORTANT:** To provide additional receptacles, plug a Power Distribution Unit (PDU) into the high-current receptacle associated with load segment 1. Refer to the UPS user guide for a list of supported PDUs.

## Connecting Cord Retention Clips

Insert the cord retention clip (included with this kit) into the attachment location (1). Stabilize connected device cords by fastening (twisting) the cord retention clip (2).

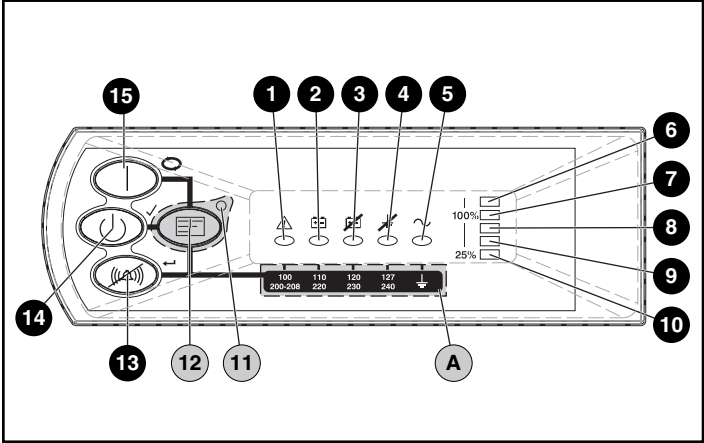
**NOTE:** UPS appearance may vary depending on the specific unit installed.



## Powering Up the UPS

To power up the UPS:

1. Connect the UPS to utility power using the input power cord. The UPS automatically initiates a self-test. If the self-test is completed successfully, the UPS enters Standby mode.
2. Check the front panel LED display. The Utility LED should be flashing green. The load segments are not energized.



1	General Alarm	9	26% to 50% load
2	On Battery	10	0% to 25% load
3	Bad Battery	11	Configure Mode On LED
4	Site Wiring Fault Indicator	12	Configure button
5	Utility LED	13	Test/Alarm Reset button
6	Overload LED	14	Standby button
7	76% to 100% load	15	On button
8	51% to 75% load	A	Voltage configuration panel

- Utility LED (5):
  - Red – UPS is in Auto-Bypass mode.
  - Flashing Red – Utility input voltage is outside the  $\pm 12\%$  configured nominal range.
  - Green – Utility voltage is present and output is on or utility voltage has returned to the voltage range that was configured (UPS is supplying utility power and audible alarm should be reset).
  - Flashing Green – Utility voltage is present and UPS is in Standby mode. Output is off. Batteries charge if needed.
- Overload LED (6): Red – UPS load exceeds maximum power available.
- 76% to 100% load LED (7): Green – UPS load is approximately 76% to 100% of maximum power.
- 51% to 75% load LED (8): Green – UPS load is approximately 51% to 75% of maximum power.
- 26% to 50% load LED (9): Green – UPS load is approximately 26% to 50% of maximum power.
- 0% to 25% load LED (10): Green – UPS load is approximately 0% to 25% of maximum power.

Refer to the UPS user guide for more information on the front panel LED display and for procedures on configuring the UPS.

**IMPORTANT:** If any of the front panel LEDs is red (indicating an alarm condition), press the Test/Alarm Reset button to clear the red LEDs. If this does not clear the LEDs, refer to the UPS user guide for more information.

## Charging the Batteries

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

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**IMPORTANT:** The battery module charges to:

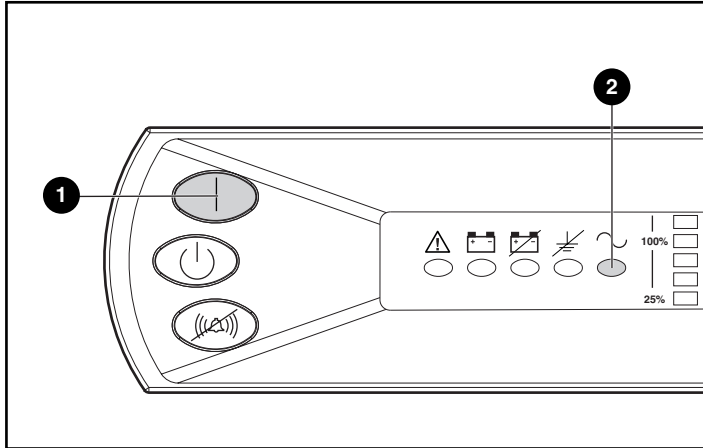
- 90% of its capacity within 3 hours.
- 100% of its capacity within 48 hours.

Charge the batteries for at least 24 hours before supplying backup power to the devices.

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## Placing the UPS in Operate Mode

Press and hold the On button (1) until the Utility LED (2) turns solid green, indicating that power is available at the UPS output receptacles. The UPS acknowledges compliance with a short beep.



## Shutting Down the System

To shut down the system:

1. Shut down all load devices.
2. Press the Standby button to take the UPS out of Operate mode. Power to the load receptacles ceases.
3. Disconnect the UPS from utility power.
4. Wait at least 60 seconds while the UPS internal circuitry discharges.

For more information, refer to the HP website at

[www.hp.com/products/ups](http://www.hp.com/products/ups)