Hewlett Packard Enterprise

HPE R/T2200 G5 UPS, R/T3000 G5 UPS, and ERM User Guide

Abstract

This document is for the person who installs, administers, and troubleshoots power products. Hewlett Packard Enterprise assumes you are qualified in the servicing of high-voltage equipment and trained in recognizing hazards in products with hazardous energy levels.

Part Number: 881628-004b
March 2024
Edition: 5

© Copyright 2024 Hewlett Packard Enterprise Development LP
The information contained herein is subject to change without notice. The only warranties for Hewlett Packard Enterprise products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Hewlett Packard Enterprise shall not be liable for technical or editorial errors or omissions contained herein.

IMPORTANT SAFETY INSTRUCTIONS

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

The 2U UPS models that are covered in this manual are intended for installation in an environment within 0 to 40°C/32 to 104°F, free of conductive contaminant.

- For HPE R/T3000 HV NA/JP and HPE R/T3000 G5 INTL UPS models: FCC/EN55022 Class B IEC62040-2 C1.
- For HPE R/T2200 G5 NA/JP and HPE R/T3000 G5 LV NA/JP UPS models: FCC/EN55022 Class A, IEC62040-2 C2

Certification Standards

- UPS directives: UL 1778 (UL listed).
- Performance: IEC 62040-3: 2001.
- Radiated emission: FCC CFR 47 part 15 subpart B (Class A or Class B, depending on model).
- Surges withstand ability: IEEE ANSI C62.41 Category A2 (UL Listed).

Regulatory Notices

For more information, see HPE EG regulatory notices at www.hpe.com/support/Safety-Compliance-EnterpriseProducts.

Special Symbols

The following are examples of symbols used on the UPS or accessories to alert you to important information:



RISK OF ELECTRIC SHOCK - Observe the warning associated with the risk of electric shock symbol.



Important instructions that must always be followed.



Do not discard the UPS or the UPS batteries in the trash.
This product contains sealed lead acid batteries and must be disposed as stated in this manual.
For more information, contact your local recycling/reuse or hazardous waste center.



This symbol indicates that you should not discard waste electrical or electronic equipment (WEEE) in the trash. For proper disposal, contact your local recycling/reuse or hazardous waste center.

Personal Safety

- The system has its own power source (the battery). Consequently, the power outlets may be energized, even if the system is disconnected from the AC power source.
- Dangerous voltage levels are present within the system. The system should be opened exclusively by qualified service personnel.
- The system must be properly grounded.
- The battery supplied with the system contains small amounts of toxic materials.
- There are no user serviceable parts inside the system, except for the replaceable battery.
- To avoid accidents, observe the following directives:
  - Battery hot swap service MUST be performed by qualified service personnel knowledgeable about batteries and the required precautions.
  - When replacing batteries, replace with the same type and number of batteries or battery packs.
  - Do not dispose of batteries in a fire. The batteries may explode.
  - Batteries constitute a danger (electrical shock, burns). The short-circuit current may be very high.

Precautions must be taken for all handling:

- Wear rubber gloves and boots.
- Do not lay tools or metal parts on top of batteries.
- Battery removal and/or replacement, by the end user, requires powering down the load and UPS. Consider scheduling during a maintenance window.
- Determine if the battery is inadvertently grounded. If inadvertently grounded, remove source from ground. Contact with any part of a grounded battery can result in electrical shock. The likelihood of such shock can be reduced if such grounds are removed during installation and maintenance (applicable to equipment and remote battery supplies not having a grounded supply circuit).

Product Safety

- The UPS should only power IT equipment.
- Do not plug laser printers into the UPS output receptacles. The instantaneous current drawn by this type of printer can overload the UPS.
- The UPS connection instructions and operation described in this manual must be followed in order.
- A protection circuit breaker must be installed upstream and be easily accessible. The system can be disconnected from the AC power source by opening this circuit breaker.
- Verify that the indications on the rating plate correspond to your AC powered system and to the actual electrical consumption of all the equipment to be connected to the system.
- For pluggable equipment, the socket-outlet shall be installed near the equipment and shall be easily accessible.
- Never install the system near liquids or in an excessively damp environment.
- Never let a foreign body penetrate inside the system.
- Never block the ventilation grates of the system.
- Never expose the system to direct sunlight or source of heat.
- If the system must be stored prior to installation, storage must be in a dry place.
- The storage temperature range is -15°C to +50°C (5°F to 122°F).
- The system is not for use in a computer room as defined in the standard for the Protection of Information Technology Equipment, ANSI/NFPA 75 (US installations only).

Special Precautions

- All handling operations require at least two people (unpacking, installation in rack system).
- Before and after the installation, if the UPS remains de-energized for a period of more than 6 months, the UPS must be energized for a period of 24 hours, at least once every 6 months (for a normal storage temperature less than 25°C/77°F). This charges the battery and avoids possible irreversible damage.
- During the replacement of the battery module, use the same type and number of element as the original Battery Module provided with the UPS to maintain an identical level of performance and safety. For questions, contact your HPE representative.
- 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.

Table of Contents

1. Overview 6

1.1 Environmental protection 6
1.2 Weights and dimensions 7
1.3 Rear panels 8

2. User Interface 9

2.1 Control panel 9
2.2 LCD window 10
2.3 Display functions 11
2.4 User settings 11

3. Installation 14

3.1 Unpacking and contents verification 14
3.2 Battery module connection 16
3.3 Tower installation 17
3.4 Rack installation 17
3.5 Communication ports 20
3.6 UPS connection 21
3.7 Ground connection 22
3.8 ERM and UPS installation 23

4. Operation 25

4.1 Start-up and normal operation 25
4.2 Starting the UPS on battery 25
4.3 UPS shutdown 25
4.4 Operation on battery power 25
4.5 Return of AC input power 26
4.6 UPS remote control functions 26

5. Maintenance 27

5.1 Troubleshooting 27
5.2 Updating the UPS firmware 27
5.3 Battery module replacement 28
5.4 Spares 29

6. Technical Specifications 30

6.1 HPE R/T2200 G5 NA/JP UPS and HPE R/T3000 G5 LV NA/JP UPS 30
6.2 HPE R/T3000 G5 HV NA/JP UPS and HPE R/T3000 G5 INTL UPS 31
6.3 Glossary 32

7. Support 33

7.1 Accessing Hewlett Packard Enterprise Support 33
7.2 Accessing updates 33
7.3 Customer self repair 33
7.4 Remote support 34
7.5 Warranty information 34
7.6 Regulatory information 34

8. BSMI RoHS 35

9. Appendix A: Battery Replacement Alarm 36

1. Overview

Save these instructions. This document contains important safety instructions that should be followed during installation, operation, and maintenance of the UPS and batteries.

1.1 Environmental protection

Products are developed according to an eco-design approach.

Substances

This product does not contain CFCs, HCFCs , or asbestos.

Packing

To improve waste treatment and facilitate recycling, separate the various packing components.

- The cardboard used is comprised of over 50% of recycled cardboard.
- Sacks and bags are made of polyethylene.
- Packing materials are recyclable and bear the appropriate identification symbol 

.

Materials	Abbreviations	Number in the symbols
Polyethylene terephthalat	PET	01
High-density polyethylene	HDPE	02
Polyvinyl chloride	PVC	03
Low-density polyethylene	LDPE	04
Polypropylene	PP	05
Polystyrene	PS	06

Follow all local regulations for the disposal of packing materials.

End of life

Hewlett Packard Enterprise processes products at the end of their service lives in compliance with local regulations. Hewlett Packard Enterprise works with companies in charge of collecting and eliminating our products at the end of their service lives.

Product

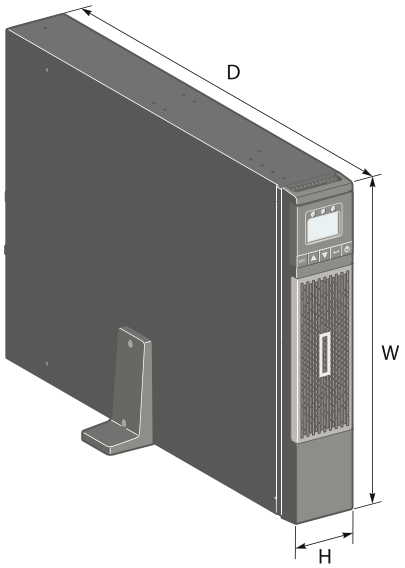
The product is made up of recyclable materials.
Dismantling and destruction must take place in compliance with all local regulations concerning waste.
At the end of its service life, the product must be transported to a processing center for electrical and electronic waste.

Battery

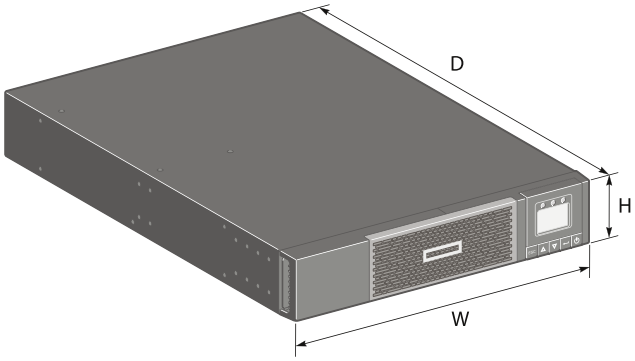
The product contains lead-acid batteries that must be processed according to applicable local regulations concerning batteries.
The battery can be removed to comply with regulations and correct disposal.

1.2 Weights and dimensions

Tower installation



Rack installation

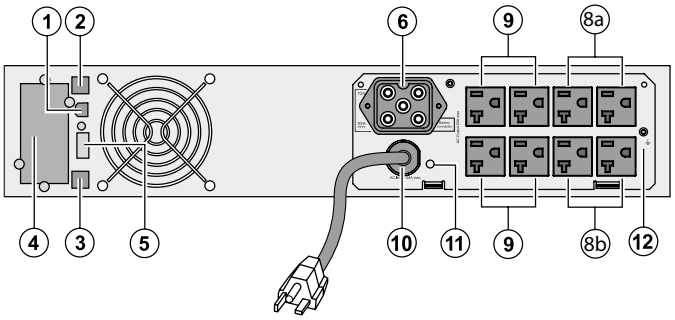


Description	Weights (kg/lb)	Dimensions (in/mm) D x W x H
HPE R/T2200 G5 NA/JP UPS	30.5 / 67.2	20.6 x 17.4 x 3.4 / 523 x 442 x 86
HPE R/T3000 G5 LV NA/JP UPS	39.9 / 88.0	25.4 x 17.4 x 3.4 / 645 x 442 x 86
HPE R/T3000 G5 HV NA/JP UPS	38 / 83.8	25.4 x 17.4 x 3.4 / 645 x 442 x 86
HPE R/T3000 G5 INTL UPS	38 / 83.8	25.4 x 17.4 x 3.4 / 645 x 442 x 86
HPE R/T2200 G4 ERM	32.2 / 71.0	20.0 x 17.4 x 3.4 / 508 x 442 x 86
HPE R/T3000 G4 ERM	45.2 / 99.7	25.5 x 17.4 x 3.4 / 648 x 442 x 86

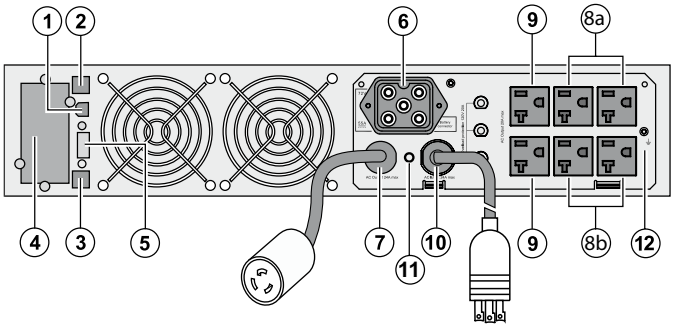
1. Overview

1.3 Rear panels

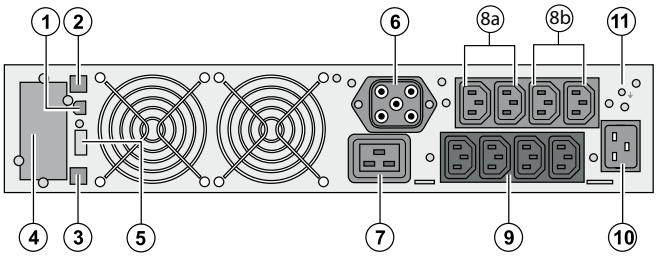
HPE R/T2200 G5 NA/JP UPS



HPE R/T3000 G5 LV NA/JP UPS

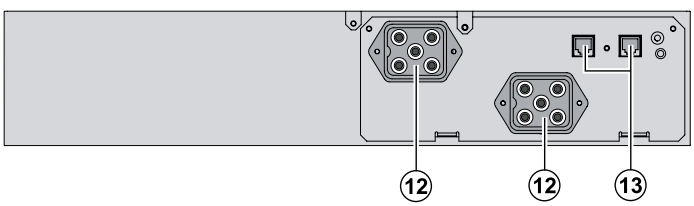


HPE R/T3000 G5 HV NA/JP UPS and HPE R/T3000 G5 INTL UPS



NOTE: The R/T3000 and R/T2200 have 3 programmable output load segments. These are defined as Group 1, Group 2, and Primary Group. The load segments/groups can be configured via software and the unit's user interface. For advice on configuration through software, see the HPEPP software or the Hewlett Packard Enterprise networking device documentation. To configure the UPS through the front panel, see "2.4 User settings". Load Groups 1 and 2 can be programmed to switch off/on independently. The Primary Load Group controls the outlets indicated and initiates a unit shutdown. The Primary Load Group is intended for the most critical loads.

HPE R/T2200 G4 ERM and HPE R/T3000 G4 ERM (optional battery module)



① USB communication port
② RS-232 communication port
③ Connector for automatic recognition of an additional battery module
④ Slot for optional communication card
⑤ Connector for ROO (remote on/off) or RPO (remote power off) control
⑥ Connector for additional battery module
⑦ 30A outlet (L5-30R) for connection of equipment (2U R/T3000 G5 LV NA/JP UPS only)
⑧a Group 1: Two programmable outlets for connection of equipment
⑧b Group 2: Two programmable outlets for connection of equipment
⑨ Primary Group: outlets for connection of critical equipment
⑩ Attached 8-ft. input power cord for AC power source
5-20P for 2200
L5-30P for 3000
⑪ LED indicating SWF (site wiring fault) alarm (Although the LED remains on the rear panel, this feature is disabled for low voltage models.)
⑫ Ground connection

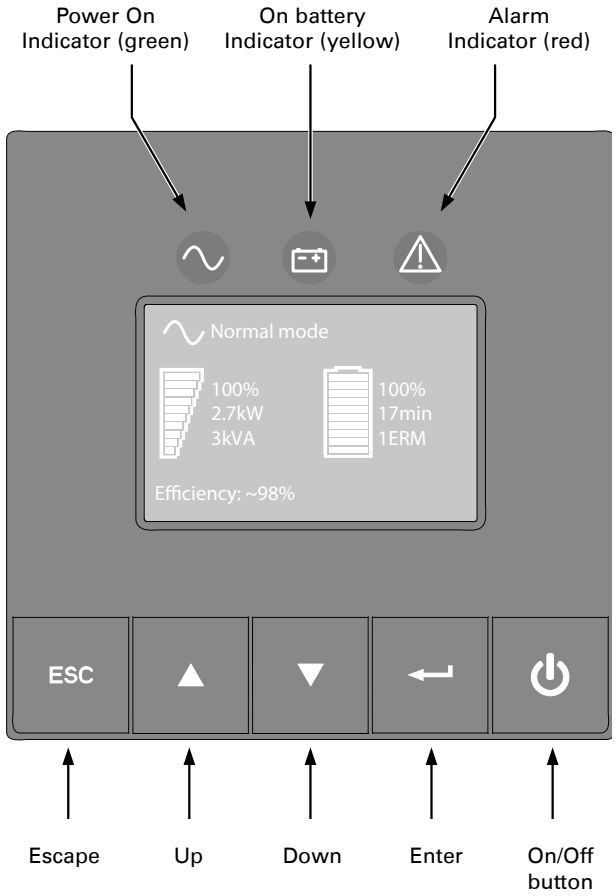
① USB communication port
② RS-232 communication port
③ Connector for automatic recognition of an additional battery module
④ Slot for optional communication card
⑤ Connector for ROO (remote on/off) or RPO (remote power off) control
⑥ Connector for additional battery module
⑦ 16A outlet for connection of equipment (primary group)
⑧a Group 1: Two programmable outlets for connection of equipment
⑧b Group 2: Two programmable outlets for connection of equipment
⑨ Primary Group: 4 outlets for connection of critical equipment
⑩ Outlet for connection to AC power source
⑪ Ground connection

⑫ Connectors for battery modules (to the UPS or to the other battery modules)
⑬ Connectors for automatic recognition of battery modules

2. User Interface

2.1 Control panel

The UPS has a five-button graphical control panel.



The following table shows the indicator status and description:

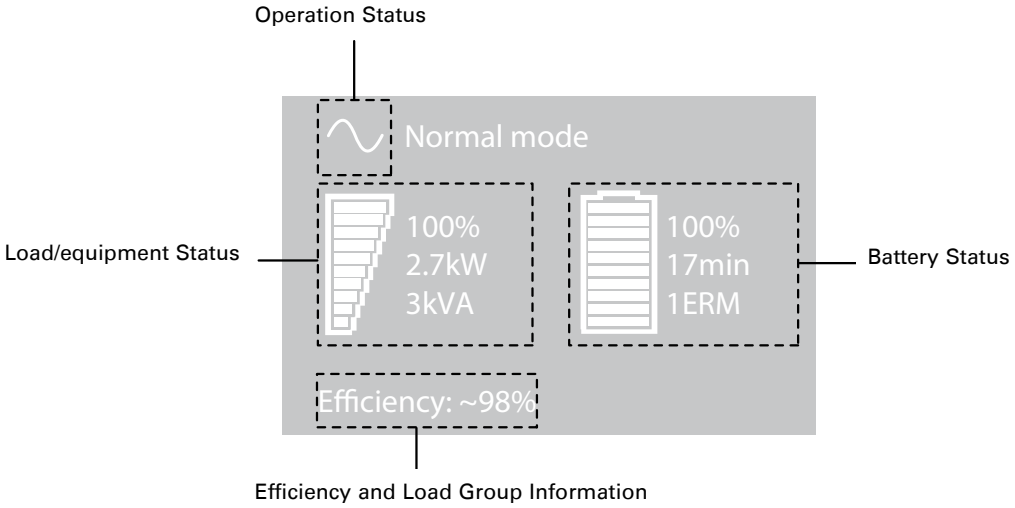
Indicator	Status	Description
Green	On	The UPS is operating normally.
Yellow	On	The UPS is on Battery mode.
Red	On	The UPS has an active alarm or fault. For more information, see "5.1 Troubleshooting".

2. User Interface

2.2 LCD window

The LCD window provides information about the UPS, load status, events, measurements, and settings. As the default, or after five minutes of inactivity, the LCD displays the screen saver.

The backlight LCD automatically dims after 10 minutes of inactivity. Press any button to restore the screen.



The following table illustrates the Operation Status icons that you could see and describes the condition associated with each icon.

NOTE: If other indicators appear, see "5.1 Troubleshooting".

Operation status	Possible cause	Action
Standby mode 	The UPS is off, waiting for start-up command from user.	Equipment is not powered until the ⏻button is pressed.
Normal mode 	The UPS is operating normally.	The UPS is powering and protecting the equipment.
In Automatic Voltage Regulation mode  No audio alarm.	The UPS is operating normally, but the utility voltage is outside normal mode thresholds.	The UPS is powering the equipment through an AVR device. The equipment is still normally protected.
On Battery  Battery LED is on. Audio alarm beeps every 10 seconds	A utility failure has occured and the UPS is in Battery mode.	The UPS is powering the equipment with the battery power. Prepare your equipment for shutdown.
End of backup time  Battery LED is flashing. The audio alarm beeps every three seconds	The UPS is in Battery mode and the battery is running low.	This warning is approximate and the actual time to shutdown may vary significantly. Depending on the UPS Load and number of ERMs, the Battery Low warning may occur before the battery reaches 20% capacity.

2.3 Display functions

Press the ↵ button to activate the menu options. Use the ▲ and ▼ buttons to scroll through the menu structure. Press the ↵ button to select an option. Press the ESC button to cancel or return to the previous menu.

Menu map for Display Functions.

Main menu	Submenu	Display information or Menu function
Measurements	—	Load W VA / Load A pf / Output V Hz / Input V Hz / Battery V min / Efficiency / Power usage
Control	Load Segments	Group 1: ON / OFF Group 2: ON / OFF These commands override user settings for load segments.
	Start battery test	Starts a manual battery test
	Reset fault state	Clears active fault (UPS restart required)
	Restore factory settings	Returns all settings to original values
	Reset power usage	Clears power usage measurements
Settings	Local settings	Sets general parameters
	Input / output settings	Sets input and output parameters
	ON / OFF settings	Sets on and off conditions
	Battery settings	Sets battery configuration
Fault log	—	Displays event log or alarms
Identification	—	UPS Type/Part Number/Serial Number/Firmware release/Com card address

2.4 User settings

The following table displays the options that can be changed by the user.

	Description		Available settngs	Default settings
Local settings	Language		[English] [French] [German] [Spanish] [Italian] [Portuguese] [Russian] Menus, status, notices and alarms, UPS fault, event log data and settings are in all supported languages.	English User selectable when UPS is powered the first time.
	LCD settings		Allows LCD screen brightness and contrast to be adapted to room light conditions.	—
	Audible alarm	Mode	[Enabled] [Disabled on battery] [Always disabled] Allows you to enable or disable the audio alarm if an alarm occurs.	Enabled
		Level	[High] [Low] Allows you to set the audio alarm level if an alarm occurs.	Low

2. User Interface

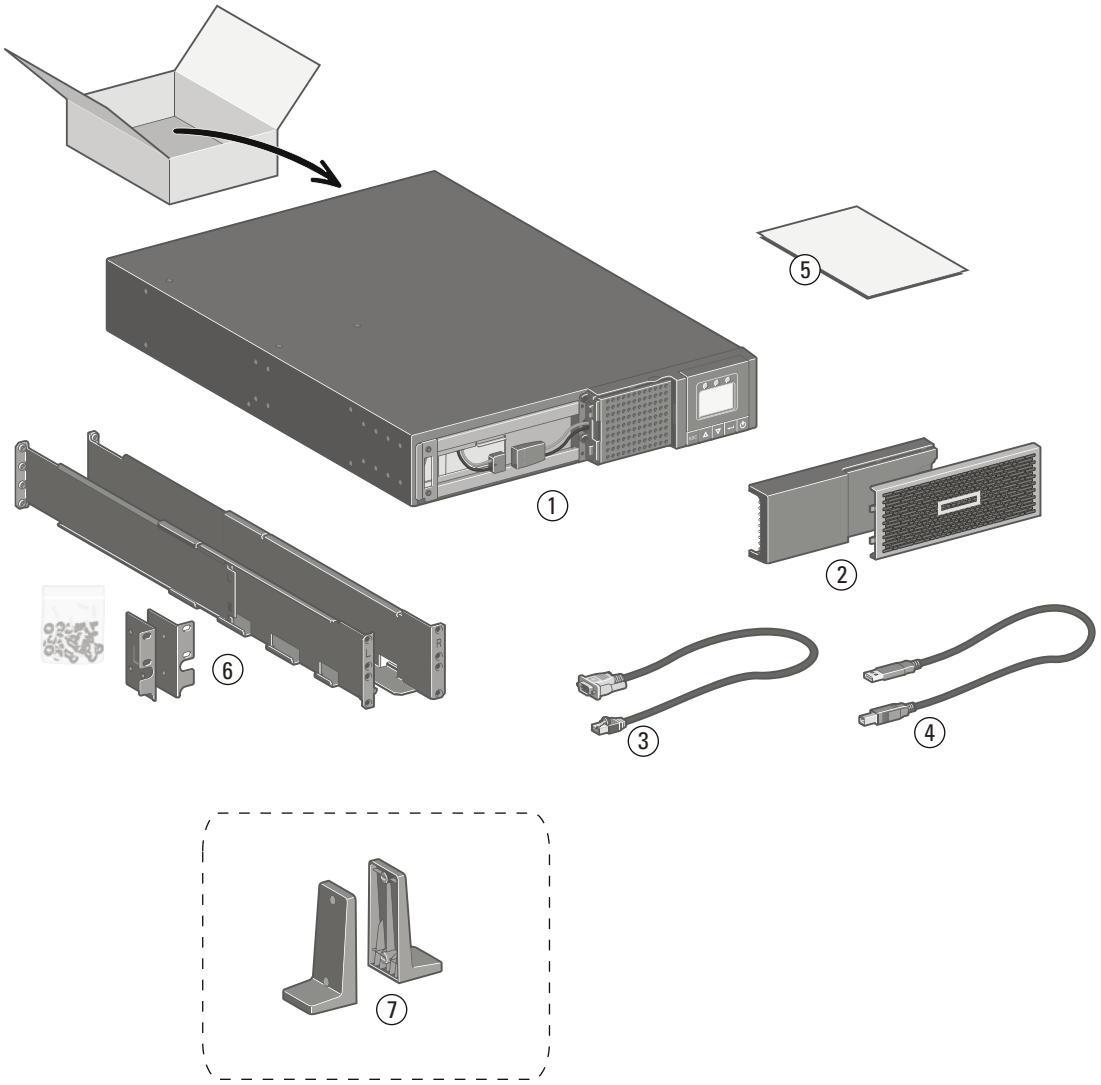
	Description	Available settngs	Default settings
In/Out settings	Output voltage*	[100V] [120V] [125V] **On INTL models: [200V] [208V] [220V] [230V] [240V]**	User selectable when UPS is powered the first time.
	***IMPORTANT:** The output voltage of the UPS must be set to the same nominal voltage as the facility input voltage for optimum UPS performance.		
	Input thresholds	[Normal mode] [Extended mode] Extended mode reduces lower input voltage to 70V before UPS transfers to battery. This can be used if the load can withstand low voltage supply.	Normal mode
	Sensitivity	[High] [Low] High: For sensitive equipment. The UPS transfers to battery when AC utility conditions are poor. Low: For equipment that can withstand poor utility conditions. The UPS does not transfer to battery when AC utility conditions are poor.	High
	Load segments - Auto start delay	[No Delay] [1 s] [2 s]...[65354 s] The connected equipment is powered after the specified delay.	Group 1: 3 s Group 2: 6 s
In/Out settings	Load segments - Auto shutdown delay	[Disable] [0 s] [1 s] [2 s]...[65354 s] During a power outage, authorizes UPS to turn off power to equipment connected to Group 1 and/or Group 2 outlets. This feature sheds non-critical loads in order to conserve battery power for critical loads connected to the primary group.	Group 1: Disable Group 2: Disable
	Overload prealarm	[10%] [15%] [20%] ... [100%] [105%] Sets alarm for critical percentage of load where alarm overload occurs.	[105%]

	Description	Available settngs	Default settings
ON/OFF settings	Cold start	[Disable] [Enable] Enables or disables the product to start on battery. The first cold start is always disabled.	Enable
	Forced reboot	[Disable] [Enable] If power returns during a shutdown sequence: If enabled, the shutdown sequence will complete and there is a 10 second delay prior to restart. If disabled, shutdown sequence does not complete and restart occurs immediately.	Enable
	Auto restart	[Disable] [Enable] Enables or disables the UPS to restart automatically when power returns after a complete battery discharge.	Enable
	Energy saving	[Disable] [Enable] If enabled, the UPS will shutdown after five minutes if no load is detected on the output.	Disable
	Sleep mode	[Disable] [Enable] If enabled, LCD and communication stays on 1h and 30 min after UPS turns off. If disabled, LCD and communication will turn off immediately after the UPS turns off.	Disable
	Remote command	[Disable] [Enable] If enabled, shutdown or restart commands from software are allowed. If disabled, shutdown or restart commands from software are not allowed.	Enable
	RPO delay	[0 s] [1 s] [2 s]...[180 s] Delays RPO command for the specified number of seconds.	[0 s]
Battery settings	Automatic battery test	[No test] [Every day] [Every week] [Every month] Available only if Battery Charge mode is set to constant charge.	Every week (in constant charge) otherwise following EBM
	Low battery warning	[1%] [2%] ... [100%] The alarm occurs when the value set for the low battery capacity warning is reached.	20%
	Restart battery level	[1%] [2%] ... [100%] If set, automatic restart occurs only when the percentage of battery charge you specify is reached.	0%
	Battery charge mode	[EBM cycling] [Constant charge]	EBM cycling
	Deep discharge protection	[Yes] [No] If set to Yes, the UPS automatically prevents the battery from deep discharge by adapting the end of the back-up time voltage threshold.	Yes

3. Installation

3.1 Unpacking and contents verification

HPE R/T2200 G5 NA/JP UPS and HPE R/T3000 G5 LV NA/JPN UPS



(1) HPE R/T2200 G5 NA/JP and HPE R/T3000 G5 LV NA/JPN

(2) Bezel parts

(3) RS-232 communication cable

(4) USB communication cable

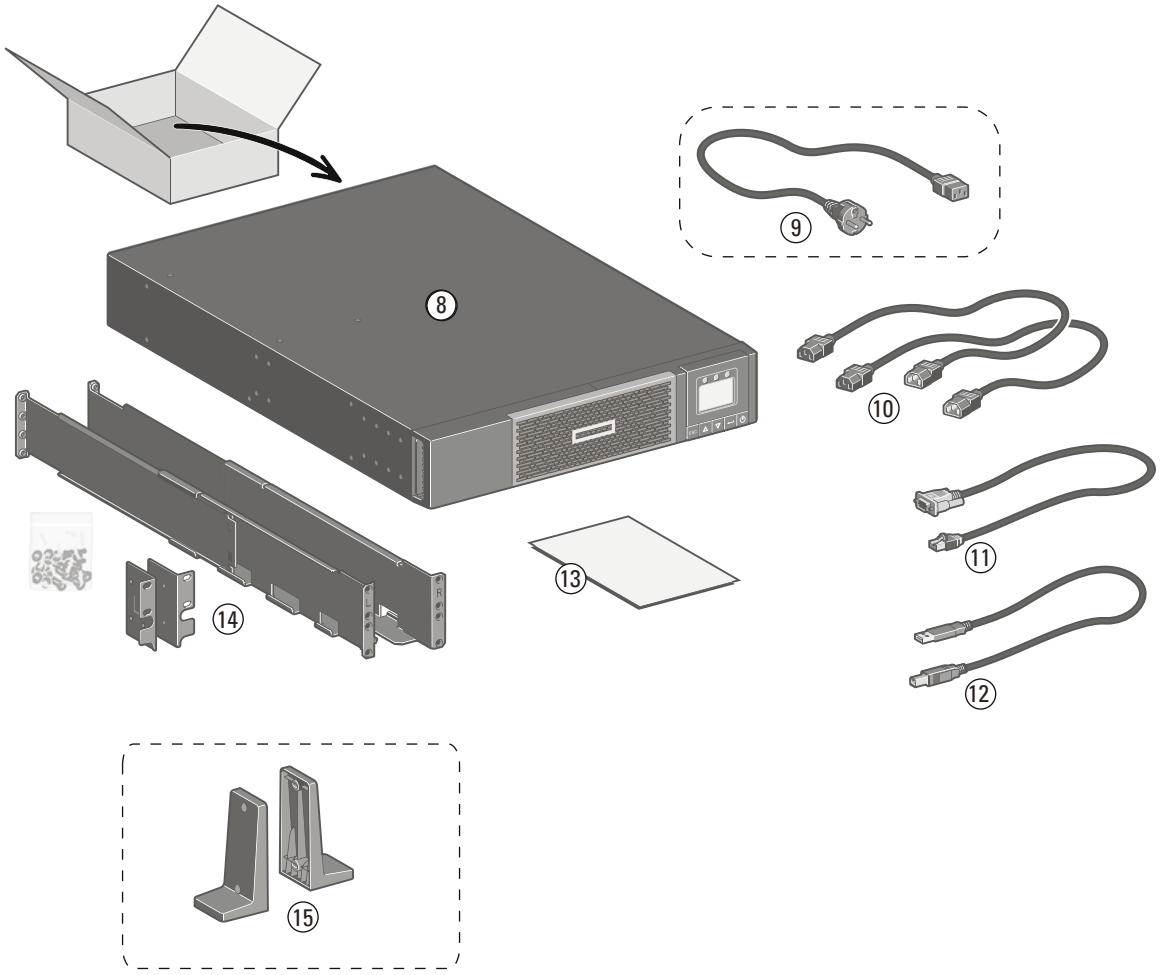
(5) Documentation

(6) Mounting brackets, rails, and hardware

(7) Tower stands

Packing materials must be disposed of in compliance with all local regulations concerning waste. Recycling symbols are printed on the packing materials to facilitate sorting.

HPE R/T3000 G5 HV NA/JPN UPS and HPE R/T3000 G5 INTL UPS



(8) HPE R/T3000 G5 HV NA/JPN and HPE R/T3000 G5 INTL

(9) Connection cable to AC power source (L6-20P for NA/JP model. Country-specific cord for INTL model)

(10) Two connection cables for the protected equipment

(11) RS-232 communication cable

(12) USB communication cable

(13) Documentation

(14) Mounting brackets, rails, and hardware

(15) Tower stands

Packing materials must be disposed of in compliance with all local regulations concerning waste. Recycling symbols are printed on the packing materials to facilitate sorting.

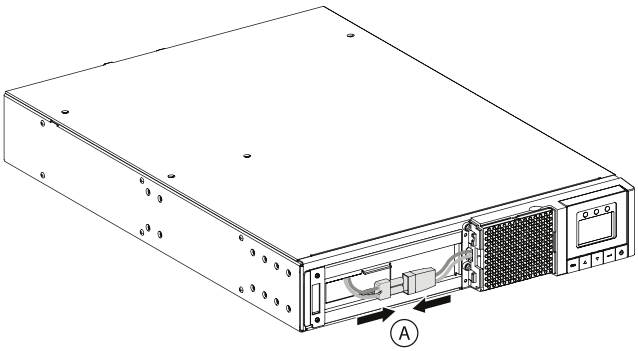
3. Installation

3.2 Battery module connection

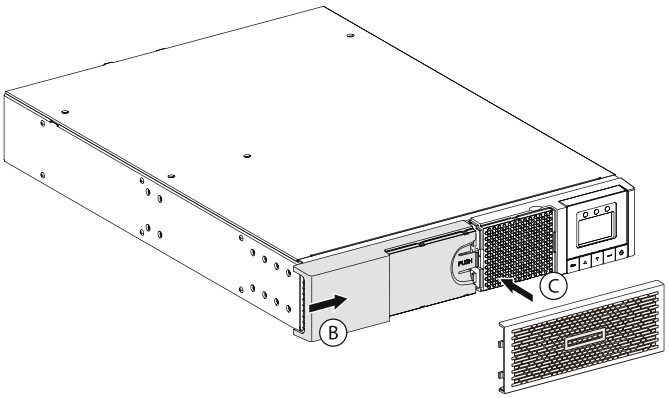
CAUTION: This operation must be performed when the UPS is switched off and unplugged from the AC source.

Do not disconnect the connector while the unit is operating from the AC source or in reserve mode.

NOTE: Before starting the UPS, connect the internal battery. A small amount of arcing may occur when connecting the batteries.This is normal and does not damage the UPS or present any safety concern.



Ⓐ Connect the battery module. Never pull on the wires.



Ⓑ Slide the left-hand side of the bezel to the right. Ensure that the push button locks.

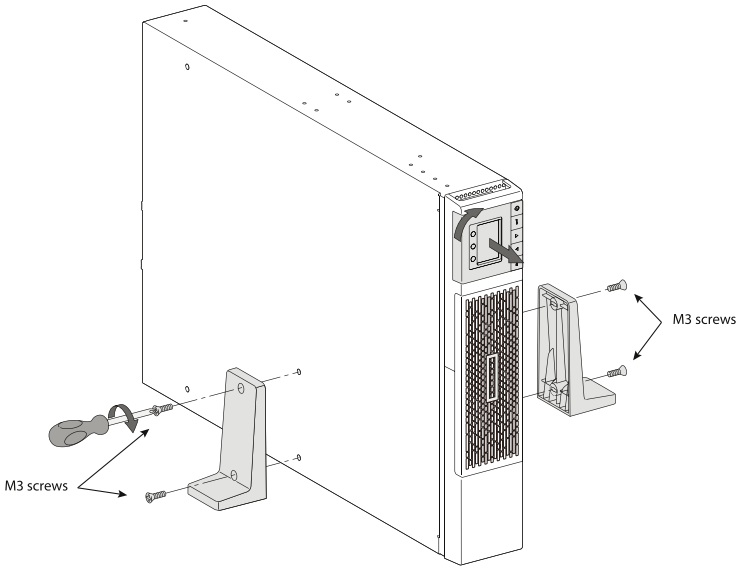
Ⓒ Attach the center panel.

Installing the new battery module

Perform the removal instructions in reverse order.

To ensure safety and high performance, only use batteries supplied by HPE.
Take care to firmly press together the two parts of the connector during remounting.

3.3 Tower installation



3.4 Rack installation

WARNING! To reduce the risk of personal injury or damage to the equipment, be sure that:

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

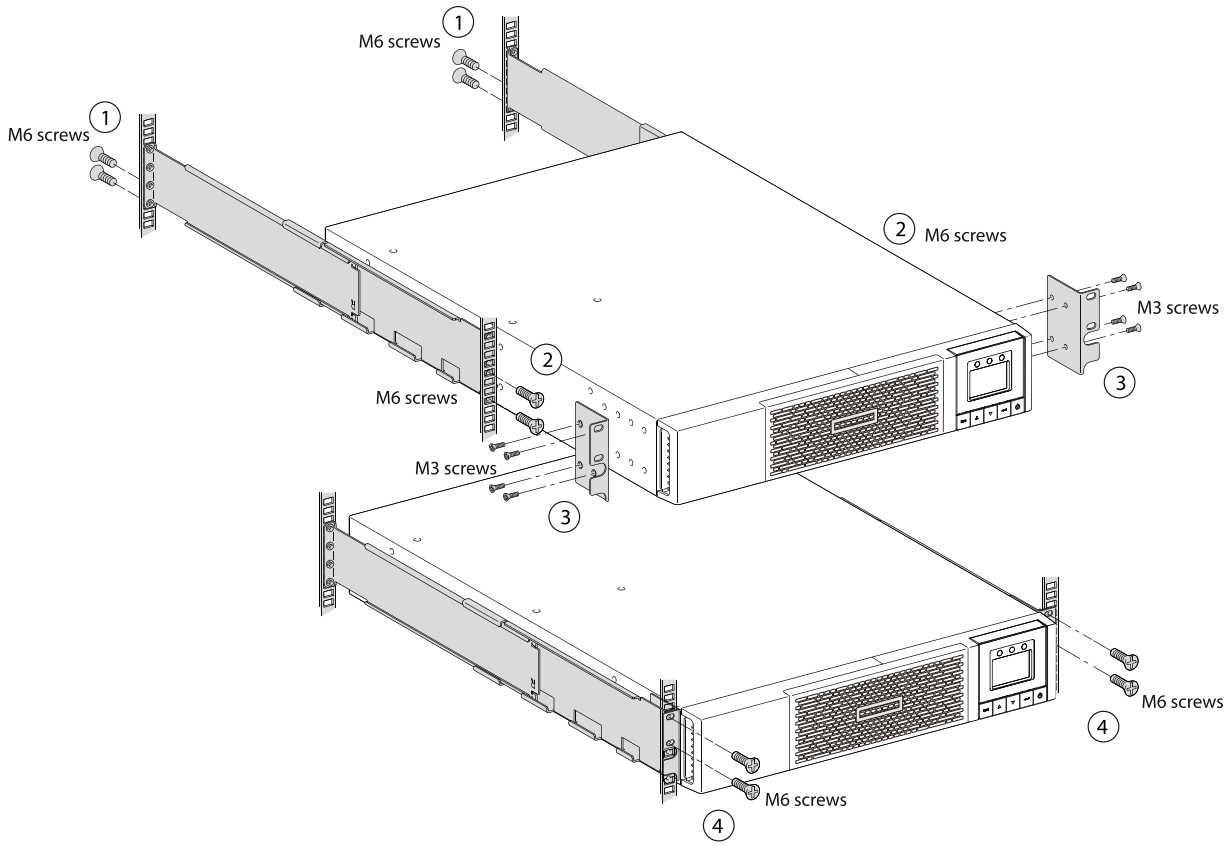
NOTE: If preparing the rails for integrated shipping, follow the same rack installation instructions.

NOTE: Mounting hardware for square and round-holed racks is included in the UPS kit.

3. Installation

Installing the mounting rails and the UPS

Follow steps 1 through 4 for installing the mounting rails and installing the UPS in the rack.



3. Installation

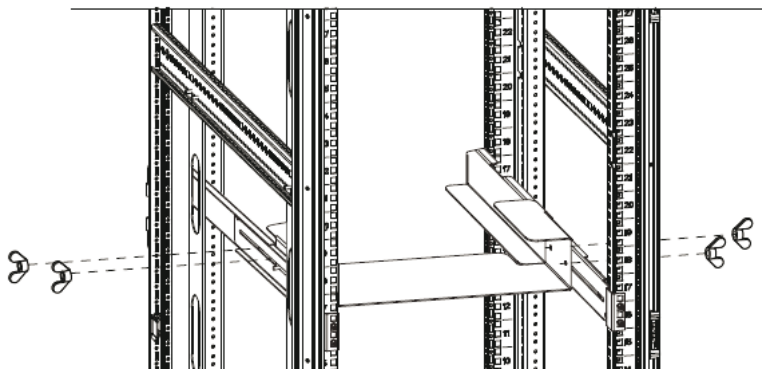
Shipping the UPS in the rack

Before shipping the UPS in the rack, you will need discard the rail kit that shipped with the UPS. You must purchase the shipping kit part number L4Q11A which will add a rear rail stabilizing bracket and install a protective cover over the bezel.

WARNING! To reduce the risk of personal injury or damage to the equipment, shipping kit part number L4Q11A is required prior to moving or shipping a rack with an installed UPS.

Install the rear stabilizing rail

Ⓐ



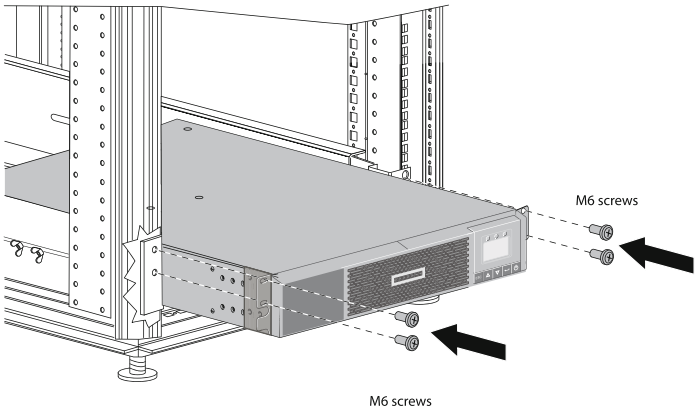
Ⓐ Install the rear stabilizing rail.

1. Using two wing nuts, secure the rear rail stabilizing bracket to screws in the rail (see diagram for position). Repeat on the other rail.

2. Wait until the unit is installed and the brackets are adjusted before tightening the nuts. (See the diagram at the left for inner and outer rail installation views.)

Reinstall the UPS

Ⓑ



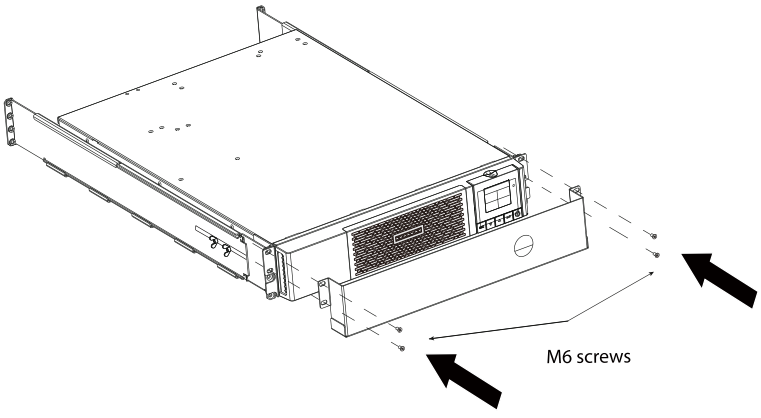
Ⓑ Reinstall the UPS chassis in the rack.

1. With one person on each side, lift the chassis to rail level and slide the chassis on the mounting rails.

2. Attach the chassis to the rack using the provided screws.

Attach the protective cover

Ⓒ



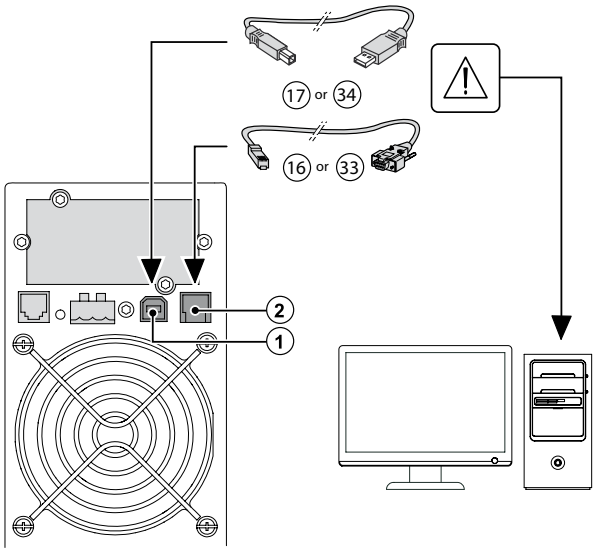
Ⓒ After the UPS chassis is installed in the rack, attach the protective cover over the bezel using the provided screws.

3. Installation

3.5 Communication ports

Connection of RS-232 or USB communication port (optional)

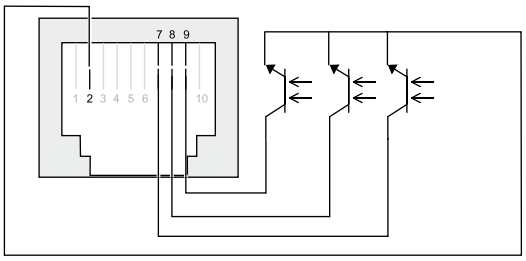
The RS-232 and USB communication ports cannot operate simultaneously.



1. Connect the RS-232(16 or 33) **or** USB (17 or 34) communication cable to the serial or USB port on the computer equipment.
2. Connect the other end of the communication cable to the USB 1 or RS-232 2 communication port on the UPS.

The UPS can now communicate with HPE power management software.

Characteristics of the optocoupler RS-232 communications port



- Pins 1, 3, 4, 5, 6, 10: not used
- Pin 2: common (user)
- Pin 7: low battery
- Pin 8: operation on battery power
- Pin 9: UPS on, equipment supplied

no: normally open contact

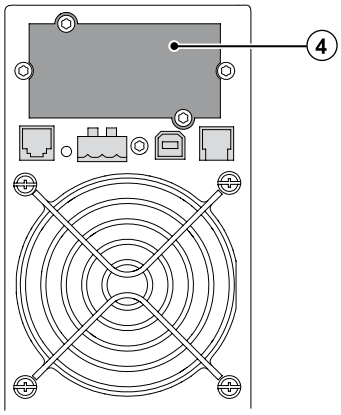
When a signal is activated, the contact is closed between the common (pin 2) and the pin for the corresponding signal.

Contact characteristics (optocoupler)

- Voltage: 48 Vdc max
- Current: 25 mA max
- Power: 1.2W

Installation of optional NMC Network Card

The UPS does not have to be powered down before installing a communication card.

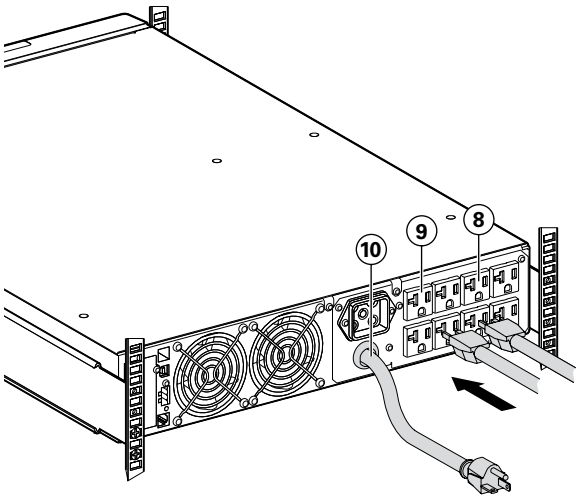


1. Remove the mounting screws and remove the slot cover 4.
2. Insert the communication card in the slot.
3. Secure the card cover with the screws removed in Step 1.

3.6 UPS connection

HPE R/T2200 G5 NA/JP UPS

Check that the specifications on the rear UPS name plate correspond to the AC power source and the true electrical consumption of the total load.



1. Connect the UPS input plug ⑩ to the AC power source.

2. Connect the protected equipment to the UPS.
   It is preferable to connect the critical loads to the 'Primary' outlet group ⑨ and the non-critical loads to either the Group 1 or Group 2 outlets ⑧. Group 1 and Group 2 outlets can be programmed to shed loads as desired.

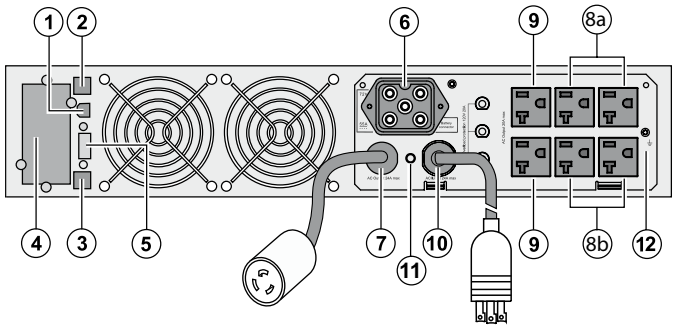
3. To optimize the available backup time, user the IN/OUT serttings to program shutdown of outlets ⑧ during operation on battery power (see "2.4 User settings").

The UPS charges the battery as soon as it is connected to the AC power source, even if the ⏻ button is not pressed.

After the UPS is connected to the AC power source, eight hours of charging is required before the battery can supply the rated backup time.

HPE R/T3000 G5 LV NA/JP

Check that the indications on the name plate located on the back of the UPS correspond to the AC-power source and the true electrical consumption of the total load.



1. Connect the UPS input plug ⑩ to the AC-power source.

2. Connect the loads to the UPS. It is preferable to connect the critical loads to the 'Primary' outlet group shown as ⑨ and the non-critical loads to either the Group 1 or Group 2 outlets shown as 8a and 8b. Group 1 and Group 2 outlets can be programmed to shed loads as desired. Connect any high-power device to the 30 A outlet ⑦.

3. To optimize the available backup time, use the in/out settings to program shutdown of outlets ⑧ during operation on battery power.

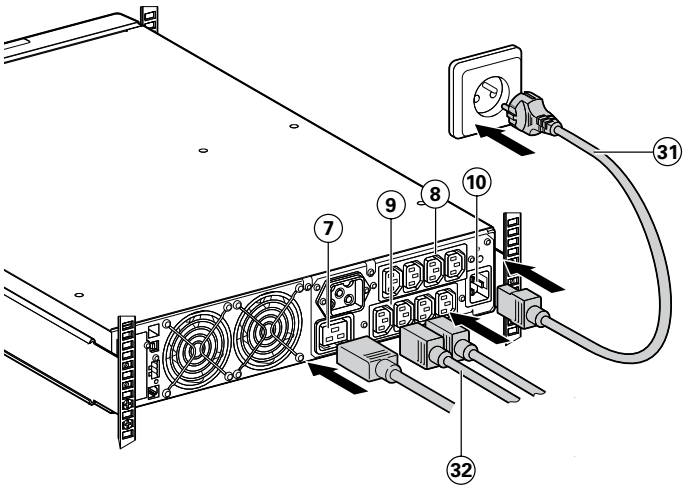
The UPS charges the battery as soon as it is connected to the AC power source, even if the ⏻ button is not pressed.

After the UPS is connected to the AC power source, eight hours of charging is required before the battery can supply the rated backup time.

3. Installation

HPE R/T3000 G5 HV NA/JP and R/T3000 G5 INTL UPS

Check that the indications on the name plate located on the back of the UPS correspond to the AC-power source and the true electrical consumption of the total load.

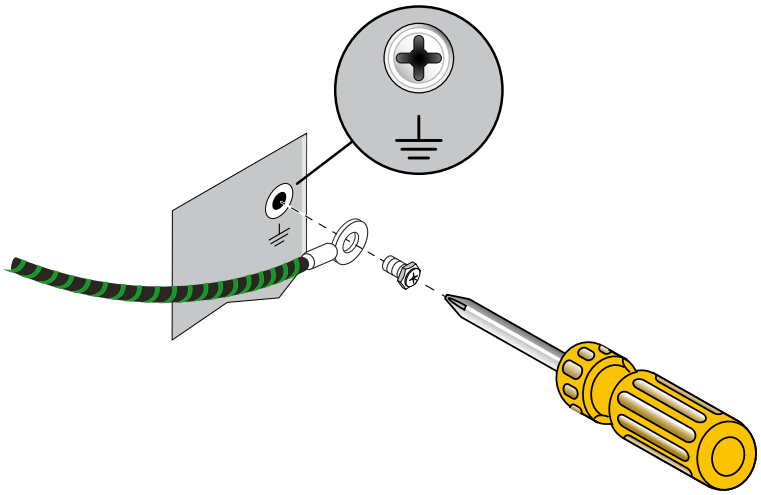


1. Connect the supplied cable (31) (250V - 16A) to the socket (10), then to the AC-power source.
2. Connect the loads to the UPS using the cables (32). It is preferable to connect the priority loads to the four outlets marked (9) and the non-priority loads to the four outlets marked (8) that can be programmed in pairs (1 and 2).
   For the **R/T3000 G5 HV NA/JP HV and R/T3000 G5 INTL models**, connect any high-power devices to the 16A outlet (7).
3. To program shutdown of outlets (8) during operation on battery power and thus optimize the available backup time, please check the in/out settings.

The UPS charges the battery as soon as it is connected to the AC power source, even if the ⏻ button is not pressed.

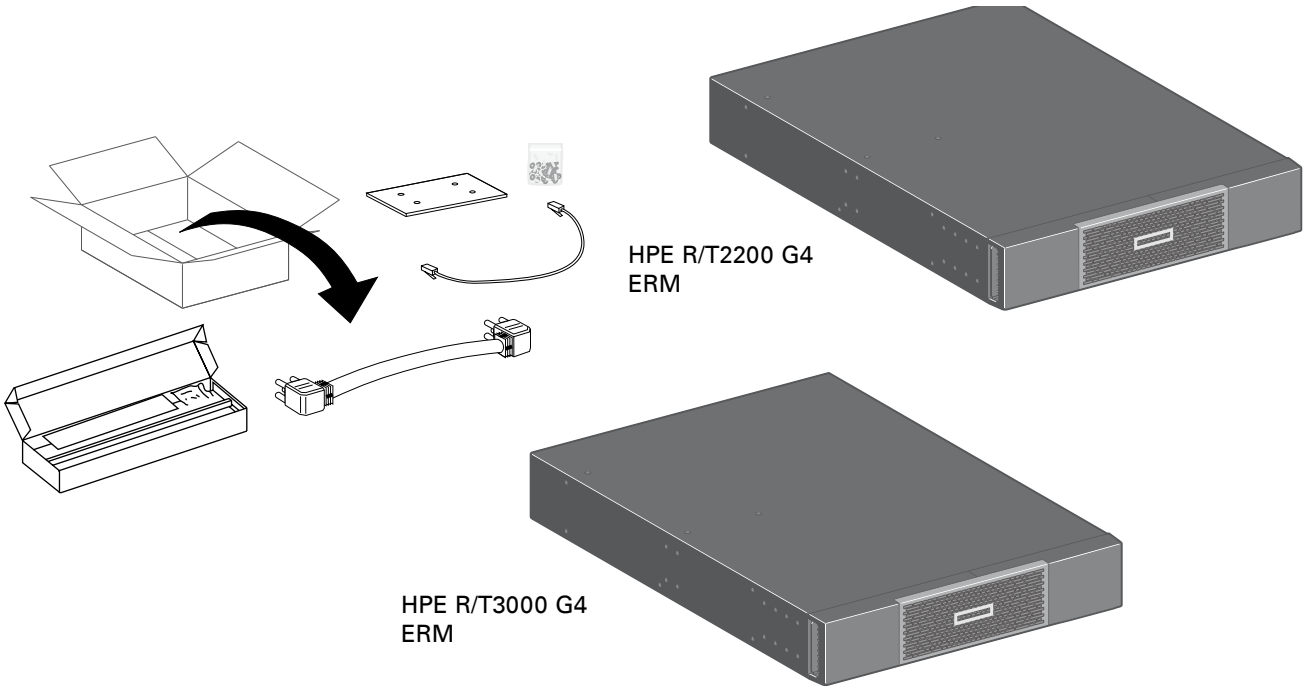
After the UPS is connected to the AC power source, eight hours of charging is required before the battery can supply the rated backup time.

3.7 Ground connection



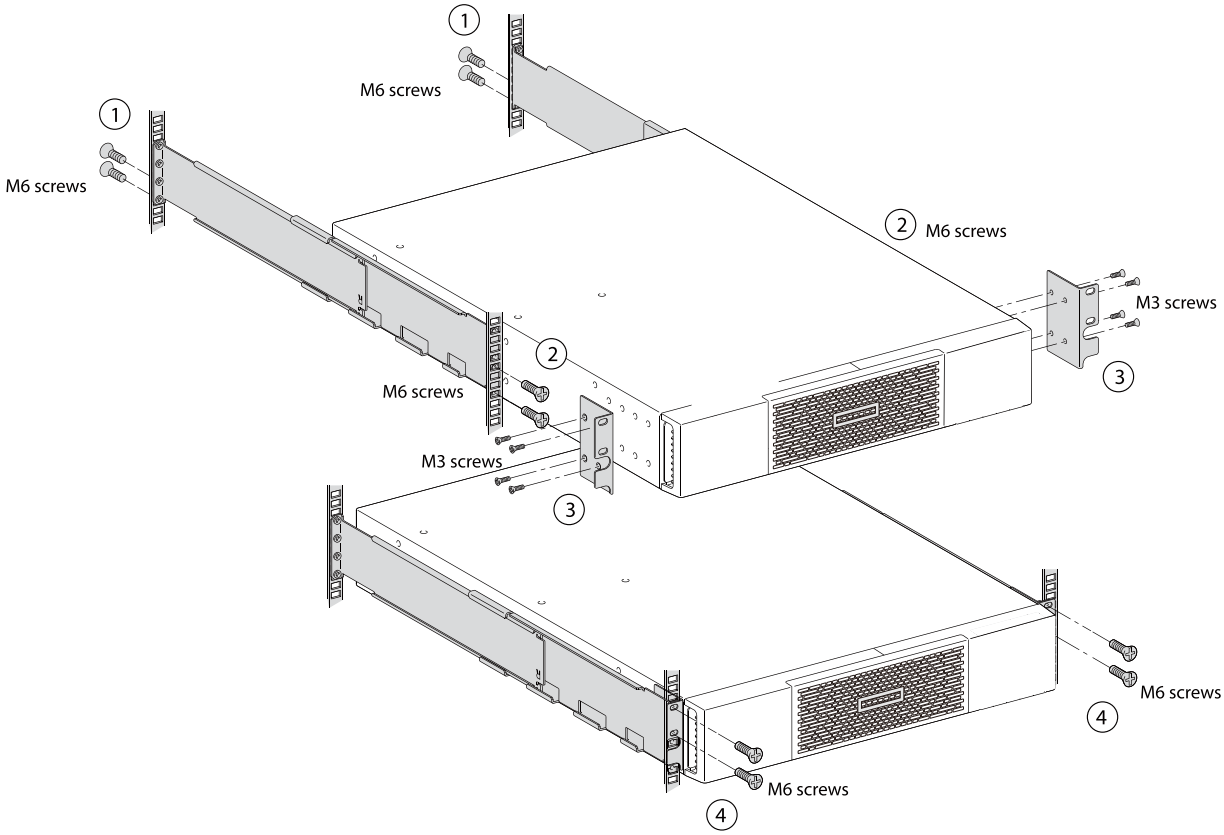
3.8 ERM and UPS installation

There are two ERM models. The ERMs can be installed with the UPS in both rack and tower installations. Up to four ERMs can be installed with each UPS.



Mounting ERM on the rails

Follow steps 1 through 4 for mounting the ERM on the rails.

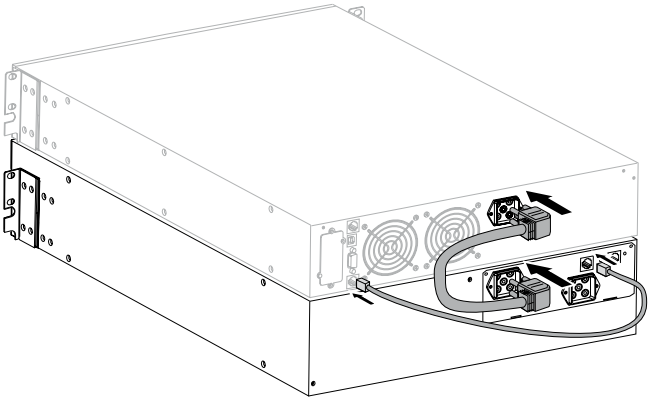


3. Installation

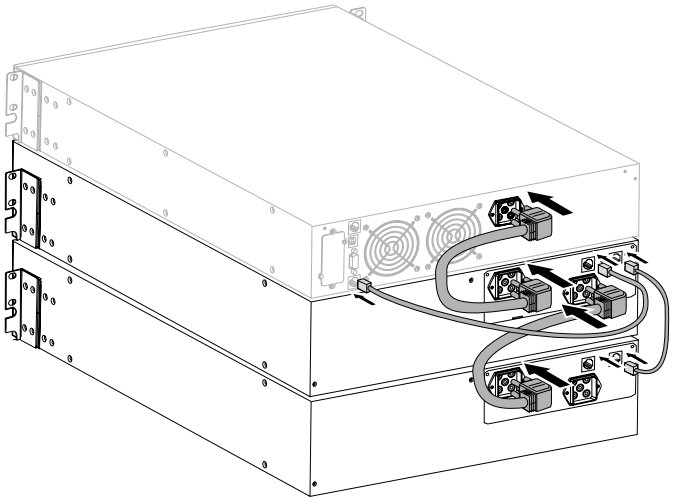
ERM and UPS connection

Rack configuration

1 x ERM

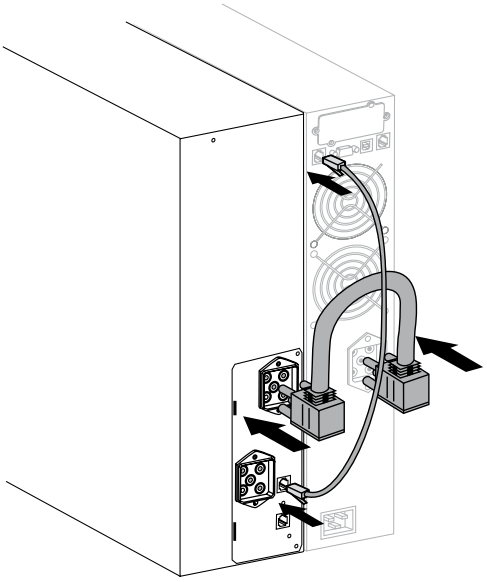


2 x ERM

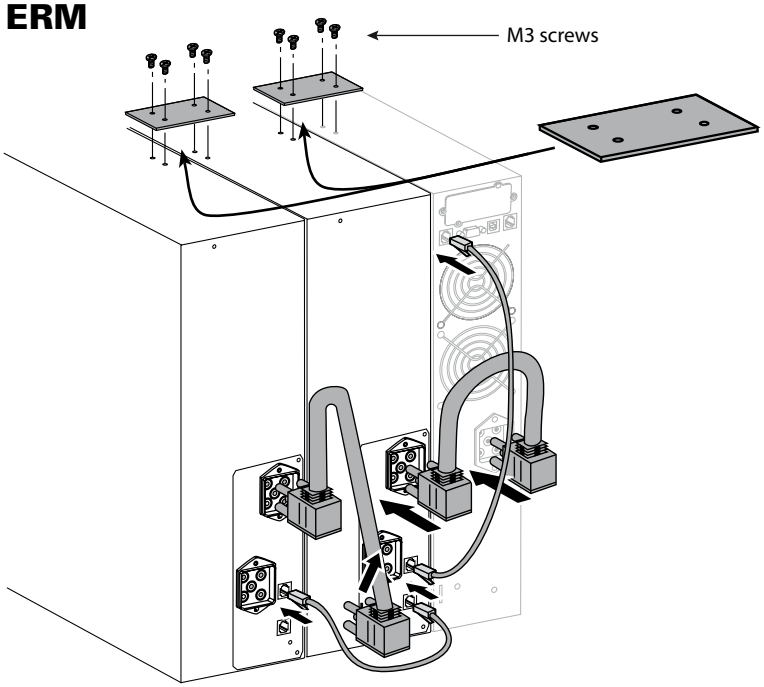


Tower configuration

1 x ERM



2 x ERM



NOTE: The connected power cord between UPS and ERM must be provided by original manufacturer only.

4. Operation

4.1 Start-up and normal operation

To start the UPS:

1. Verify that the UPS power cord is plugged in.
2. The UPS LCD window display illuminates and the logo displays.
3. Press the ⏻ button on the UPS control panel for at least two seconds.
4. Check the UPS LCD window display for active alarms or notices. Resolve any active alarms before continuing. See "5.1 Troubleshooting".
   If the ⚠ indicator is on, do not proceed until all alarms are cleared.
5. Verify that the ⏦ indicator illuminates, indicating that the UPS is operating normally and any loads are powered and protected.
   The UPS should be in Normal mode.

4.2 Starting the UPS on battery

Before using this feature, the UPS must have been powered by utility power with output enabled at least once.

NOTE: Battery start can be disabled. For more information, see the "Cold start" setting in "2.4 User settings".

To start the UPS on battery:

1. Press the ⏻ button on the UPS control panel until the UPS LCD window illuminates and displays "UPS starting...".
   The UPS cycles through Standby mode to Battery mode. The 🔋 indicator illuminates.
   The UPS supplies power to your equipment.
2. Check the UPS LCD window display for active alarms or notices. You should see the "Battery mode" notice and notices that indicate missing utility power. Resolve any active alarms before continuing. For more information, see "5.1 Troubleshooting".

4.3 UPS shutdown

To shut down the UPS:

1. Press the ⏻ button on the UPS control panel for three seconds.
2. The audio alarm beeps and displays a status of "UPS shutting OFF...".
3. The UPS then transfers to Standby mode, and the ⏦ indicator turns off.
4. The audio alarm stops.

4.4 Operation on battery power

Transfer to battery power

- The connected devices continue to be supplied by the UPS when AC input power is no longer available. The necessary energy is provided by the battery.
- The ⏦ and 🔋 indicator illuminates.
- The audio alarm beeps every 10 seconds.

The connected devices are supplied by the battery.

4. Operation

Low-battery warning

- The ∿ and [-+] indicator illuminates.
- The audio alarm beeps every 3 seconds.

The remaining battery power is low. Shut down all applications on the connected equipment because automatic UPS shutdown is imminent.

End of battery backup time

- The LCD displays "End of backup time."
- The LEDs are no longer illuminated.
- The audio alarms stops.

4.5 Return of AC input power

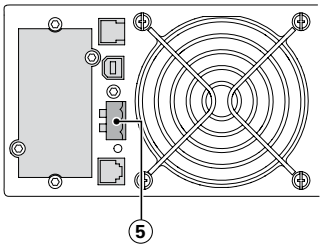
Following an outage, the UPS restarts automatically when AC input power returns (unless the restart function is disabled) and the load is supplied again.

4.6 UPS remote control functions

The 2U UPS offers a choice between two remote control functions.

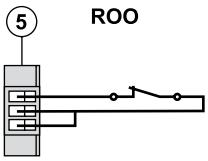
- **ROO**: Remote ON/OFF allows remote action of the ⏻ button to shut down the UPS.
- **RPO**: Remote Power OFF allows a remote contact to be used to disconnect all the equipment connected to the UPS. Restarting the UPS requires manual intervention.

Access these functions by opening a contact connected between the appropriate connector pins ⑤ on the rear panel of the UPS.



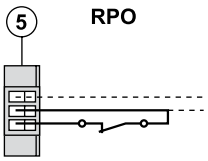
Remote control connection and test

1. Verify that the UPS is off and disconnected from the AC input source.
2. Remove the connector ⑤.
3. Connect a normally closed, volt-free contact (60 Vdc/ 30 Vac max., 20 mA max., 0.75 mm² [18 AWG] cable cross-section) between the two connector pins ⑤.



Contact open: UPS shutdown
Contact closed: UPS startup (UPS connected to AC power and AC power is available)

NOTE: The local on/off control using the ⏻ button overrides the remote control function.



Contact open: UPS shutdown, ⚠ LED illuminates.
To return to normal operation, deactivate the remote external contact and restart the UPS by pressing the ⏻ button.

4. Plug connector ⑤ into the back of the UPS.
5. Connect and restart the UPS following the previously described procedures.
6. Activate the external remote shutdown contact to test the function.

WARNING! This connector must only be connected to SELV (Safety Extra-Low Voltage) circuits.

5. Maintenance

5.1 Troubleshooting

Operation status	Possible cause	Action
Batteries disconnected 	The UPS does not recognize the internal batteries.	If the condition persists, contact your service representative.
	The batteries are disconnected.	Verify that all batteries are properly connected. If the condition persists, contact your service representative.
Overload 	Power requirements exceed the UPS capacity (greater than 105% of nominal).	Remove some of the equipment from the UPS. The UPS continues to operate, but may shut down if the load increases. The alarm resets when the condition becomes inactive.
End of battery life 	The end of the battery life is reached.	Contact your service representative for battery replacement. **NOTE**: Refer to Appendix A for alarm reset procedure.
Event 	A UPS event occurs.	
	Example: Remote Power OFF, the RPO contact is activated to shut down the UPS and prevent restart.	Set the contact back to its normal position and press the ⏻ button to restart.
UPS fault 	The UPS has an internal fault.	The UPS does not protect the equipment anymore. Note the alarm message and the UPS Serial Number, then contact your service representative.

5.2 Updating the UPS firmware

To update the UPS firmware, see the Hewlett Packard Enterprise website (www.hpe.com/info/rackandpower).

5. Maintenance

5.3 Battery module replacement

DO NOT DISCONNECT the batteries while the UPS is in Battery mode.

Batteries can be replaced by qualified service personnel knowledgeable of batteries and the required precautions without turning off the UPS or disconnecting the load.

If you prefer to remove input power to change the batteries, see "4.3 UPS shutdown" on page 25.

Consider all warnings, cautions, and notes before replacing batteries.

- Servicing MUST be performed by qualified service personnel knowledgeable of batteries and required precautions. Keep unauthorized personnel away from batteries.
- Batteries can present a risk of electrical shock or burn from high short circuit current. Observe the following precautions:
  * Remove watches, rings, or other metal objects.
  * Use tools with insulated handles.
  * Do not lay tools or metal parts on top of batteries.
  * Wear rubber gloves and boots.
- When replacing batteries, replace with the same type and number of batteries or battery packs. Contact your service representative to order new batteries.
- Proper disposal of batteries is required. Refer to your local codes for disposal requirements.
- Never dispose of batteries in a fire. Batteries may explode when exposed to flame.
- Do not open or mutilate the battery or batteries. Released electrolyte is harmful to the skin and eyes and may be extremely toxic.
- Determine if the battery is inadvertently grounded. If inadvertently grounded, remove source from ground. Contact with any part of a grounded battery can result in electrical shock. The likelihood of such shock can be reduced if such grounds are removed during installation and maintenance (applicable to equipment and remote battery supplies not having a grounded supply circuit).
- ELECTRIC ENERGY HAZARD. Do not attempt to alter any battery wiring or connectors. Attempting to alter wiring can cause injury.
- Battery removal and/or replacement, by the end user, requires powering down the load and UPS. Consider scheduling during a maintenance window.

Safety recommendations

WARNING! To prevent personal injury from hazardous energy:

- The battery connection must not be disconnected while running in reserve mode.

Replacing the batteries

- Read and observe the requirements in "Important battery safety information" and "Battery care and storage guidelines" in this section before replacing the battery module.
- Follow the instructions in this section to replace the battery module.

NOTE: Replace all battery modules at the same time.

Important battery safety information

WARNING: The unit contains sealed lead-acid battery modules. To prevent fire or chemical burns:

- Do not attempt to recharge batteries after removal from the unit.
- 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).

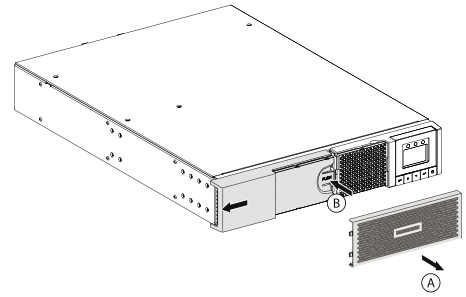
Battery care and storage guidelines

CAUTION: Because of the short shelf life of the batteries, avoid storing a battery spare as a backup. Do not maintain an inventory of spare batteries on site unless a procedure to keep these batteries charged while in storage is implemented.

To maintain the batteries:

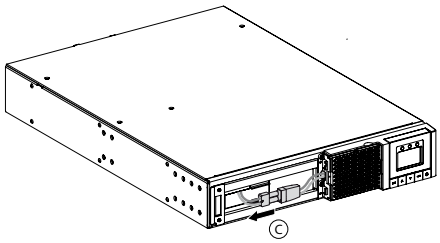
- Minimize the amount of time the UPS uses battery power by matching the UPS configuration with the utility voltage (see "6.1 HPE R/T2200 G5 NA/JP UPS and HPE R/T3000 G5 LV NA/JP UPS" and "6.2 HPE R/T3000 G5 HV NA/JP UPS and HPE R/T3000 G5 INTL UPS").
- Keep the area around the UPS clean and dust-free. If the environment is very dusty, clean the outside of the UPS regularly with a vacuum cleaner.

Battery module removal

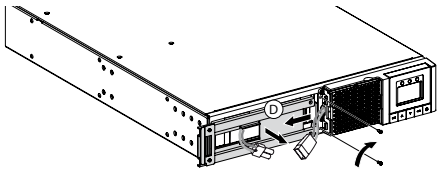


Ⓐ Remove the middle panel.

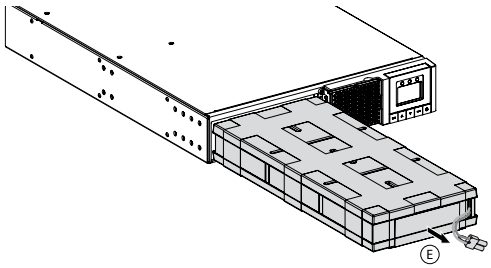
Ⓑ Remove the left-hand side of the bezel by pushing the button and sliding the part to the left.



Ⓒ Disconnect the battery module by separating the connectors. Never pull on the wires.



Ⓓ Remove the metal protection cover in front of the battery.



Ⓔ Pull the plastic tab to remove the battery block and replace the block.

Installing the new battery module

Perform the removal instructions in reverse order.

- To ensure safety and high performance, use only batteries supplied by Hewlett Packard Enterprise.
- Firmly press together the two parts of the connector during remounting.

5.4 Spares

Ordering Spares

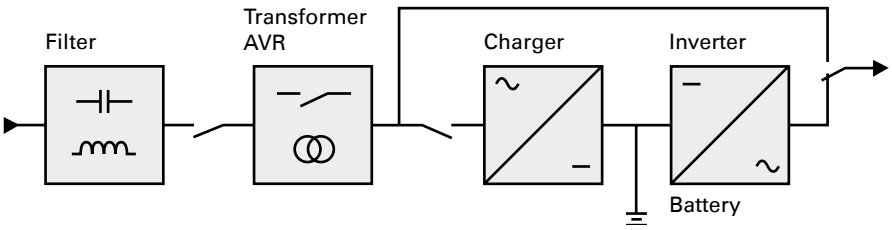
To order a spare, visit the Hewlett Packard Enterprise website (http://parts.hpe.com).
To replace parts under warranty, contact an Hewlett Packard Enterpris authorized service representative.

UPS spare parts list

Item	Spare Part Number
SPS-UPS R/T2200 G5 NA/JP (w/o battery)	881407-001
SPS-UPS R/T3000 G5 LV NA/JP (w/o battery)	881408-001
SPS-UPS R/T3000 G5 HV NA/JP (w/o battery)	881409-001
SPS-UPS R/T3000 G5 INTL (w/o battery)	881410-001
SPS-ERM MODULE R/T2200 G4	796761-001
SPS-ERM MODULE R/T3000 G4	796762-001
SPS-BATTERY KIT UPS R/T2200	795904-001
SPS-BATTERY KIT UPS R/T3000	796777-001
SPS-ACCESSORY KIT 2U ERM G4	P02754-001
SPS-ACCESSORY KIT RT2200/RT3000G5	P02753-001

6. Technical Specifications

6.1 HPE R/T2200 G5 NA/JP UPS and HPE R/T3000 G5 LV NA/JP UPS

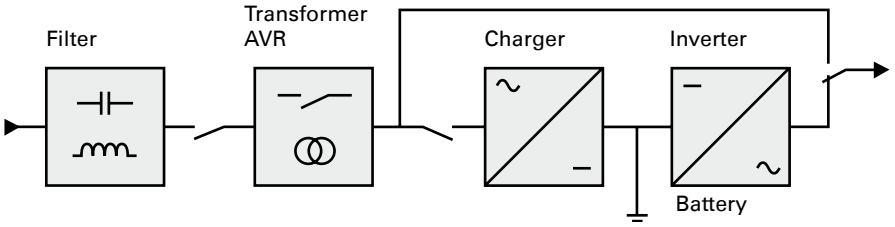


	HPE R/T2200 G5 NA/JP UPS	HPE R/T3000 G5 LV NA/JP UPS
Output Power @ 120 V	NA: 1920 VA 1920 W	NA: 2880 VA 2700 W
Output Power @ 100 V	JP: 1500 VA 1400 W	JP: 2400 VA 2250 W
AC Input power ● Rated input voltage ● Input voltage range ● input frequency range	Single phase 100-125 V 80 to 162 V (1) 47 to 70 Hz (50 Hz system), 56.5 to 70 Hz (60 Hz system) (2)	
Output on battery power ● Voltage ● Frequency	100/120 V (-10 % to +5 %) (3) 50/60 Hz ±0.1 Hz	
Battery **(sealed lead acid, maintenance free)** ● Standard	4 x 12 V 9 Ah	6 x 12 V 9 Ah
● Additional modules possible (up to 4 ERMs)	HPE R/T2200 G4 ERM 8 x 12 V 9 Ah (2 strings of x4)	HPE R/T3000 G4 ERM 12 x 12 V 9 Ah (2 strings of x6)
Environment ● Operating temperature range	0°C to 40°C (32°F to 104°F)	
● Storage temperature range	-15°C to +50°C (5°F to 122°F)	
● Relative humidity	20 to 90 % (without condensation)	
● Noise level	< 45 dBA	< 50 dBA

(1) The high and low thresholds can be adjusted using UPS settings.
(2) Up to 40 Hz in low -sensitivity mode (programmable using UPS settings).
(3) Adjustable to 120V, but must be set to the identical AC power source value.

CAUTION: To reduce the risk of fire, only connect to a circuit provided with 20A maximum branch circuit overcurrent protection in accordance with the National Electric Code, ANSI/NFPA 70.

6.2 HPE R/T3000 G5 HV NA/JP UPS and HPE R/T3000 G5 INTL UPS



	HPE R/T3000 G5 HV NA/JP UPS	HPE R/T3000 G5 INTL UPS
Output Power @ 200 V	2490 V 2241 W	2490 V 2241 W
Output Power @ 208 V	NA: 3000 VA 2700 W JP: 2490 VA 2241 W	—
Output Power @ 230 V	—	3000 VA 2700 W
AC Input power ● Rated input voltage ● Input voltage range ● input frequency range	Single phase 200-240 V 160 to 294 V (1) 47 to 70 Hz (50 Hz system), 56.5 to 70 Hz (60 Hz system) (2)	
Output on battery power ● Voltage ● Frequency	208/230 V (-10 % to +5 %) (3) 50/60 Hz ±0.1 Hz	
Battery (sealed lead acid, maintenance free) ● Standard	6 x 12 V 9 Ah	
● Additional modules possible (up to 4 ERMs)	HPE R/T3000 G4 ERM 12 x 12 V 9 Ah (2 strings of x6)	
Environment ● Operating temperature range	0°C to 40°C (32°F to 104°F)	
● Storage temperature range	-15°C to +50°C (5°F to 122°F)	
● Relative humidity	20 to 90% (without condensation)	
● Noise level	< 45 dBA	< 50 dBA

(1) The high and low thresholds can be adjusted using UPS settings (up to 150-294V).
(2) Up to 40 Hz in low -sensitivity mode (programmable using UPS settings).
(3) Adjustable to 200/208/220/230/240V, but must be set to the identical AC power source value.

When the UPS is used in the EU area, use an external circuit breaker in front of the line with rating 16 A, 250 V which is IEC/EN 60898-1 standard compliant.

When the UPS is used in the **NA/JP** area, use an external circuit breaker in front of the line with rating 20 A, 250 V.

CAUTION: To reduce the risk of fire, only connect to a circuit provided with 30A maximum branch circuit overcurrent protection in accordance with the National Electric Code, ANSI/NFPA 70.

CAUTION: This UPS is rated for use on a circuit capable of delivering no more than 5 kRMS symmetrical amperes, 240 V maximum.

6. Technical specifications

6.3 Glossary

Backup time	Time during which the load can be supplied by the UPS operating on battery power.
Battery test	Internal UPS test to check battery status.
Cold start	The devices connected to the UPS can be started even if AC input power is not available. The UPS operates on battery power alone.
Deep discharge	Battery discharge beyond the permissible limit, resulting in irreversible damage to the battery.
Load	Devices or equipment connected to the UPS output.
Low-battery warning	This is a battery voltage level indicating that battery power is low and that the user must take action in light of the imminent break in the supply of power to the load.
Normal AC input	The AC power line supplying the UPS under normal conditions.
Percent load	Ratio of the power effectively drawn by the load to the maximum output of the UPS.
Personalization	It is possible to modify certain UPS parameters set in the factory. Certain UPS functions can also be modified by the software to better suit user needs.
Programmable outlets	Controllable outlets for automatic load shedding, remote shutdown and sequential restart (personalized using software).
UPS	Uninterruptible power system.
UPS ON/OFF controlled by software	This function enables or disables initiation of UPS ON/OFF control sequences by computer power management software.

7. Support

7.1 Accessing Hewlett Packard Enterprise Support

- For live assistance, go to the Contact Hewlett Packard Enterprise Worldwide website (www.hpe.com/assistance).
- To access documentation and support services, go to the Hewlett Packard Enterprise Support Center website (www.hpe.com/support/hpesc).

Information to collect

- Technical support registration number (if applicable)
- Product name, model or version, and serial number
- Operating system name and version
- Firmware version
- Error messages
- Product-specific reports and logs
- Add-on products or components
- Third-party products or components

7.2 Accessing updates

- Some software products provide a mechanism for accessing software updates through the product interface. Review your product documentation to identify the recommended software update method.
- To download product updates:
  * Hewlett Packard Enterprise Support Center (www.hpe.com/support/hpesc)
  * Hewlett Packard Enterprise Support Center: Software downloads (www.hpe.com/support/downloads)
  * Software Depot website (www.hpe.com/support/softwaredepot)

7.3 Customer self repair

Hewlett Packard Enterprise CSR (customer self repair) programs allow you to repair your product.
If a CSR part needs to be replaced, it will be shipped directly to you so that you can install it at your convenience.
Some parts do not qualify for CSR. Your Hewlett Packard Enterprise authorized service provider will determine whether a repair can be accomplished by CSR.
For more information about CSR, contact your local service provider.

7. Support

7.4 Remote support

Remote support is available with supported devices as part of your warranty or contractual support agreement. It provides intelligent event diagnosis, and automatic, secure submission of hardware event notifications to Hewlett Packard Enterprise, which will initiate a fast and accurate resolution based on your product's service level. Hewlett Packard Enterprise strongly recommends that you register your device for remote support.
If your product includes additional remote support details, use the search function to locate that information.

Remote support and Proactive Care information:

- HPE Get Connected (www.hpe.com/services/getconnected)
- HPE Proactive Care services (www.hpe.com/services/proactivecare)
- HPE Proactive Care service: Supported products list (www.hpe.com/services/proactivecaresupportedproducts)
- HPE Proactive Care advanced service: Supported products list (www.hpe.com/services/proactivecareadvancedsupportedproducts)

Proactive Care customer information Proactive

- Care central (www.hpe.com/services/proactivecarecentral)
- Proactive Care service activation (www.hpe.com/services/proactivecarecentralgetstarted)

7.5 Warranty information

To view the warranty for your product or to view the *Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products* reference document, go to the Enterprise Safety and Compliance website (www.hpe.com/support/Safety-Compliance-EnterpriseProducts).
Additional warranty information:

- HPE ProLiant and x86 Servers and Options (www.hpe.com/support/ProLiantServers-Warranties)
- HPE Enterprise Servers (www.hpe.com/support/EnterpriseServers-Warranties)
- HPE Storage Products (www.hpe.com/support/Storage-Warranties)
- HPE Networking Products (www.hpe.com/support/Networking-Warranties)

7.6 Regulatory information

To view the regulatory information for your product, view the *Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products*, available at the Hewlett Packard Enterprise Support Center (www.hpe.com/support/Safety-Compliance-EnterpriseProducts).

Additional regulatory information:

- Hewlett Packard Enterprise is committed to providing our customers with information about the chemical substances in our products as needed to comply with legal requirements such as REACH (Regulation EC No 1907/2006 of the European Parliament and the Council). A chemical information report for this product can be found at:
  * www.hpe.com/info/reach
- For Hewlett Packard Enterprise product environmental and safety information and compliance data, including RoHS and REACH, see:
  * www.hpe.com/info/ecodata
- For Hewlett Packard Enterprise environmental information, including company programs, product recycling, and energy efficiency, see:
  * www.hpe.com/info/environment

8. BSMI RoHS

台灣限用物質含有情況標示

單元	限用物質及其化學符號					
	鉛 (Pb)	汞 (Hg)	鎘 (Cd)	六價鉻 (Cr^{+6})	多溴聯苯 (PBB)	多溴二苯醚 (PBDE)
風扇襯套、銅合金	—	○	○	○	○	○
外殼	—	○	○	○	○	○
半導體高溫焊料	—	○	○	○	○	○
電阻粘貼劑	—	○	○	○	○	○
玻璃管二極管	○	○	○	○	○	○

備考 1.〝○〞係指該項限用物質之百分比含量未超出百分比含量基準值。
備考 2.〝—〞係指該項限用物質為排除項目。

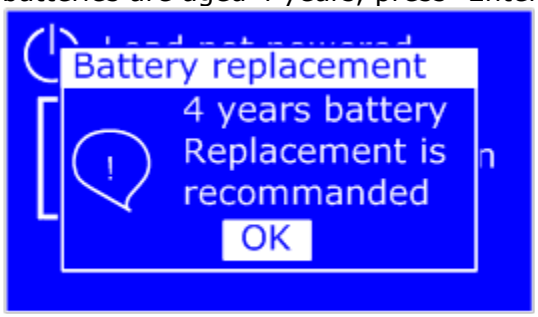
選配單元使用於特定產品型號，詳細規格請參照產品說明書。

Appendix A: Battery Replacement Alarm

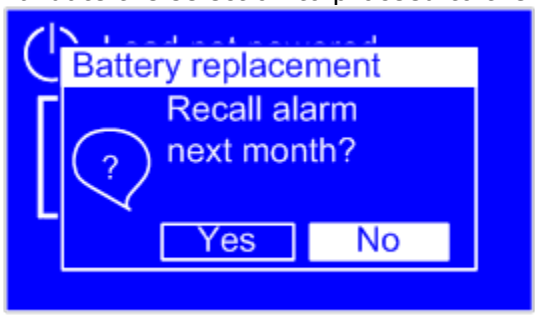
The HPE Gen5 UPS has a battery replacement alarm that sounds after 4 years of usage. This clock starts when the UPS is first powered on, and the alarm message can only be cleared after the alarm is displayed; it cannot be cleared proactively if the batteries are replaced before the alarm message is presented.

To reset the alarm for the "Recommended replacement" date, wait until the alarm is issued and perform the following:

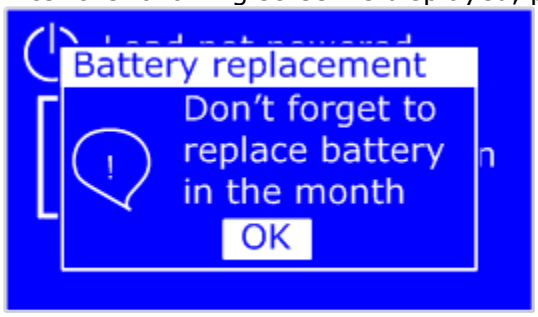
1. When the following alarm screen is displayed to warn the user to change its batteries because the batteries are aged 4 years, press "Enter" to go to the next screen:



2. When the following screen is displayed, press the "UP" arrow key to select "Yes" and press "Enter" to validate the selection to proceed to the next screen:



3. After the following screen is displayed, press Enter to go to the initial screen:



Note: If the option "No" has been selected and validated on step 2, the following screen will be displayed:

