PowerUPS 200 Essential Line Interactive Series

Installer/User Guide

600VA / 1000VA / 1600VA / 2200VA UPS; 230 V; VRLA

The information contained in this document is subject to change without notice and may not be suitable for all applications. While every precaution has been taken to ensure the accuracy and completeness of this document, Vertiv assumes no responsibility and disclaims all liability for damages result from use of this information or for any errors or omissions.

Vertiv recommends installing a monitored fluid detection system that is wired to activate the automatic closure of field-installed coolant fluid supply and return shut off valves, where applicable, to reduce the amount of coolant fluid leakage and consequential equipment and building damage. Refer to local regulations and building codes relating to the application, installation, and operation of this product. The consulting engineer, installer, and/or end user is responsible for compliance with all applicable laws and regulations relation to the application, installation, and operation of this product.

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Technical Support Site

If you encounter any installation or operational issues with your product, check the pertinent section of this manual to see if the issue can be resolved by following outlined procedures.

Visit https://www.vertiv.com/en-us/support/ for additional assistance.

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1 Important Safety Information

IMPORTANT! This manual contains important safety instructions that must be followed during the installation and maintenance of the UPS and batteries. Read this manual thoroughly and the safety and regulatory information, available at https://www.vertiv.com/ComplianceRegulatoryInfo, before attempting to install, connect to supply, or operate this UPS.

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2 Product Description

The Vertiv™ PowerUPS 200 Essential Series is an economical, line interactive UPS designed with the features you need, providing reliable power protection for computers, workstations, retail point of sale (POS) equipment, wireless networks, and surveillance systems. Designed with controls for user friendly operation, the Vertiv™ PowerUPS 200 Essential UPS delivers dependable power protection designed to meet your needs.

2.1 Available Models

Table 2.1 PowerUPS 200 Essential Series Models

MODEL NUMBER	NOMINAL POWER RATING
PSA6E-600IT-IEC	600 VA / 315 W
PSA6E-600IT-SCH	600 VA / 315 W
PSA6E-1000IT-IEC	1000 VA / 525 W
PSA6E-1000IT-SCH	1000 VA / 525 W
PSA6E-1600IT-IEC	1600 VA / 925 W
PSA6E-1600IT-SCH	1600 VA / 925 W
PSA6E-2200IT-IEC	2200 VA / 1225 W
PSA6E-2200IT-SCH	2200 VA / 1225 W

2.2 Front and Rear Panel Controls and Features

Figure 2.1 Vertiv™ PowerUPS 200 Essential Series Controls and Features

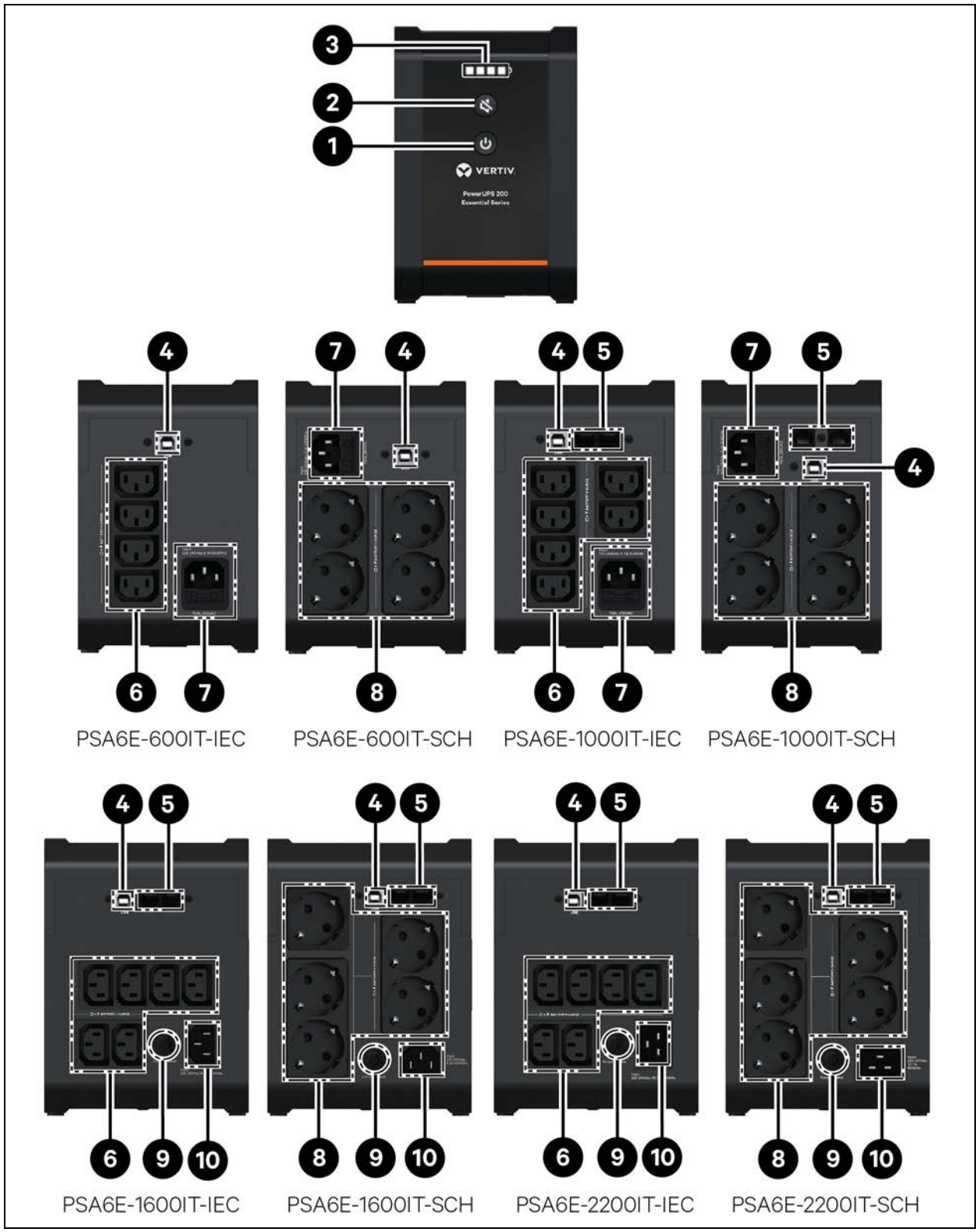

Table 2.2 Vertiv™ PowerUPS 200 Essential Series Controls and Features

Item	Description
1	Power button
2	Mute button
3	Battery capacity LED
4	USB communication port (Type B)
5	RJ45 connectors for network surge protection
6	Battery-backed and surge-protected receptacles (IEC)
7	Fused AC input socket
8	Battery-backed and surge-protected receptacles (Schuko)
9	Input circuit breaker
10	AC input socket

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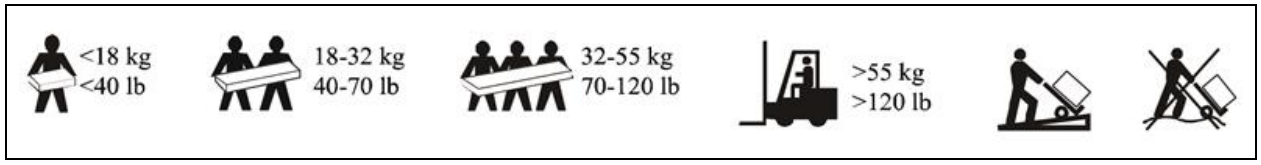
3 Installation

3.1 What's Included

- Vertiv™ PowerUPS 200 Essential Series UPS
- Quick Installation Guide
- Safety and Regulatory Guide
- USB cable: one 1.2 m (4 ft)
- Power cable: one 1.8 m (6 ft)

3.2 Product Handling Guidelines

Figure 3.1 Product Handling Guidelines



3.3 Unpacking and Inspection

Unpack the UPS and conduct the following checks:

- Inspect the UPS for shipping damage. If any shipping damage is found, report it to the carrier and your local dealer or your Vertiv representative immediately.
- Check the accessories included in the packaging list. If there is any discrepancy, contact your local dealer or your Vertiv representative immediately.

3.4 Preparation for Installation

3.4.1 Installation Environment

- Install the UPS indoors in a controlled environment, where it cannot be accidentally turned Off. The installation environment should meet the criteria as listed in Specifications on page 19.
- Place it in an area of unrestricted air flow around the unit, away from water, flammable liquids, gases, corrosives, and conductive contaminants. Avoid direct sunlight.
- The mains socket outlet that supplies the UPS should be near the UPS and easily accessible.
- This UPS is not for use in a computer room as defined in the standard for the Protection of Electronic Computer/Data Processing Equipment ANSI/NFPA 75.

NOTE: Operating the UPS in temperatures above 77°F (25°C) reduces battery life.

3.4.2 Installation Clearances

Maintain at least 4 in. (100 mm) clearance in the front and rear. Do not obstruct the air inlets on both sides of the UPS. Blocking the air inlets reduces ventilation and heat dissipation, shortening the service life of the UPS.

3.5 Installing the UPS

3.5.1 Connecting Loads

All UPS outlet receptacles have surge protection and battery backup. Plug your critical equipment (such as computer, monitors, printers and other peripherals etc.) into the outlet receptacles. Note that the load should not exceed the output load rating of the UPS.

3.5.2 Connecting for Network, Telephone or TV Protection

All Vertiv™ PowerUPS 200 Essential Series models except the 600 VA models feature a separate RJ45 port on the rear panel for network/telephone surge protection. Connect the IN port to the line from the wall jack and the OUT port to your device port. Use of this port is optional and does not interfere with the normal operation of the UPS.

3.5.3 USB Communication Connection

User can connect the Vertiv™ PowerUPS 200 Essential Series UPS to a computer via USB allowing unattended, controlled shutdown of your computer in case of UPS input power failure. The UPS works with the computer running software built-in within the Microsoft Windows operating system. To use this feature, plug the provided USB cable into USB Type-B port located on the rear panel of the UPS and the other end into an open USB port on your computer. Use of this port is optional and does not interfere with the normal operation of the UPS.

3.5.4 Connecting AC Input

Ensure that all the loads are first powered off. Connect to an input power supply/wall outlet that is properly protected by a circuit breaker in accordance with national and local electrical codes. The input receptacle must be grounded. See Specifications on page 19, for input cord rating.

Once the UPS is plugged into the wall outlet, it begins charging the battery.

NOTE: While every precaution has been taken to ensure that the battery is in good condition, we recommend allowing the UPS to be plugged into AC input and to charge the battery for at least 24 hours prior to providing full back-up time protection for any utility power abnormality.

4 Operation

4.1 Modes of Operation

NOTE: In all the following modes:
The UPS always provides surge protection and input breaker protection to all the outlets.
The outlets are voltage regulated and always have the same voltage level as the UPS mode voltage (±10%).

4.1.1 Off Mode

The UPS input is plugged into a stable, 230V AC source, but the outlets are turned off. The internal batteries are charging.

4.1.2 On/Normal Mode

The UPS input is plugged into a stable, 230V AC source, and the outlets are turned on. The internal batteries are charging.

4.1.3 On/Automatic Voltage Regulation (AVR) Mode

The UPS input is plugged in, but the voltage source is abnormally low (brownout) or high (spike). The UPS automatically corrects the low or high voltage and allows the outlets to be on with the normal, expected voltage. The internal batteries are charging.

4.1.4 On/Battery Mode

The UPS input is not plugged in, or the voltage source has become extremely low or high and unusable. The UPS will automatically switch to the internal battery to provide normal, useable voltage to the outlets.

4.1.5 Fault Mode

An error or fault condition has occurred. The outlets are shut off and the internal batteries are not charging.

4.1.6 Battery Self Test Mode

The Battery self test mode occurs at startup turning the UPS On. The UPS enters a cycle of approximately 10 seconds during which it tests the internal battery. The outlets are still temporarily powered by the internal battery.

4.2 Controls

Figure 4.1 Buttons and Indicator on the Front Panel

Item	Description
1	Power button • Press and hold for 1 second to cycle between *On* and *Off* mode.
2	Mute button. • Press and hold for 1 second during On/Battery mode to mute the battery alarm beep. • Press and hold for 4 seconds to cycle between voltage mode selection in off charging mode.
3	Indicator—Battery capacity LED display in 25% increments.

4.3 Normal Startup

With the UPS connected to AC input, press and hold the power button for 1 second.

4.4 Normal Shutdown

1. Press and hold the power button for 1 second. The outlets are turned off.
2. Disconnect AC input power.

4.5 Full Shutdown

1. Press and hold the power button for 1 second. The outlets are turned off.

2. Disconnect AC input power.
3. Remove the battery cover and disconnect the battery connector. The unit is fully shut down.

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5 Maintenance

5.1 Precautions

Although the Vertiv™ PowerUPS 200 Essential Series models are designed and manufactured to ensure personal safety, improper use can result in electrical shock or fire. To ensure safety, observe the following precautions:

- Turn off and unplug the UPS before cleaning it.
- Clean the UPS with a dry cloth. Do not use liquid or aerosol cleaners.
- Never block or insert any objects into the ventilation holes or other openings of the UPS.
- Do not place the UPS power cord where it might be damaged.

5.2 Battery Charging

The batteries are valve regulated, non-spillable, lead acid and should be kept charged to attain their design life. The PowerUPS 200 Essential UPS charges the batteries continuously when it is connected to the utility input power. If the UPS will be stored for a long time, we recommend connecting the UPS to input power for at least 24 hours every 4 to 6 months to ensure full recharge of the batteries.

5.3 Battery Replacement

IMPORTANT! Before you proceed, please review the battery safety precautions available at https://www.vertiv.com/ComplianceRegulatoryInfo.

WARNING! Risk of explosion. Can cause equipment damage, injury and death.
Do not dispose of the battery in a fire, as it may explode. Released electrolyte is toxic and is harmful to skin and eyes. If electrolyte comes into contact with the skin, wash the affected area immediately with plenty of clean water and get medical attention.

WARNING! Risk of electric shock. Can cause equipment damage, injury and death.
A battery can present a risk of electrical shock and high short circuit current.

WARNING! Risk of explosion. Can cause equipment damage, injury and death.
A battery can explode if the battery is replaced by an incorrect type. Dispose of used batteries according to the instructions included with the battery pack.

User may safely replace the internal battery pack. See Specifications on page 19, for the part number of the replacement battery for your UPS model number.

To replace the battery, follow the steps below and refer to the applicable Figure 5.1 on page 15 or Figure 5.2 on page 16:

1. Turn the UPS on its side.
2. Remove the battery compartment cover.
   a. Unscrew the battery compartment cover.

   b. Slide the cover in the direction of the arrow indentation on it.
   c. Remove the cover to access the battery.
3. Slide out the existing battery and disconnect the battery by pulling the red and black cables from the two battery terminals.

NOTE: Make sure to disconnect the red wire first, then the black.

4. Plug the removed cables into the terminals of the new replacement battery.

NOTE: Always plug in the black wire first, then the red. Ensure the black wire connects to the black terminal and the red wire to the red terminal.

5. Orient the cables and the replacement battery in the same way as the removed battery and slide into the UPS.
6. Install the battery compartment cover.
   a. Slide the cover in the direction opposite to the arrow indentation.
   b. Secure it by tightening the screw.
7. Return the UPS to its upright position.
8. Press and hold the power button for 1 second to initiate the battery self test and clear any previous battery fault warning.
9. Properly dispose of the old batteries at an appropriate recycling facility or return them to Vertiv using the packing material of the new batteries.

Figure 5.1 Battery Replacement—600/1000 VA UPS Models

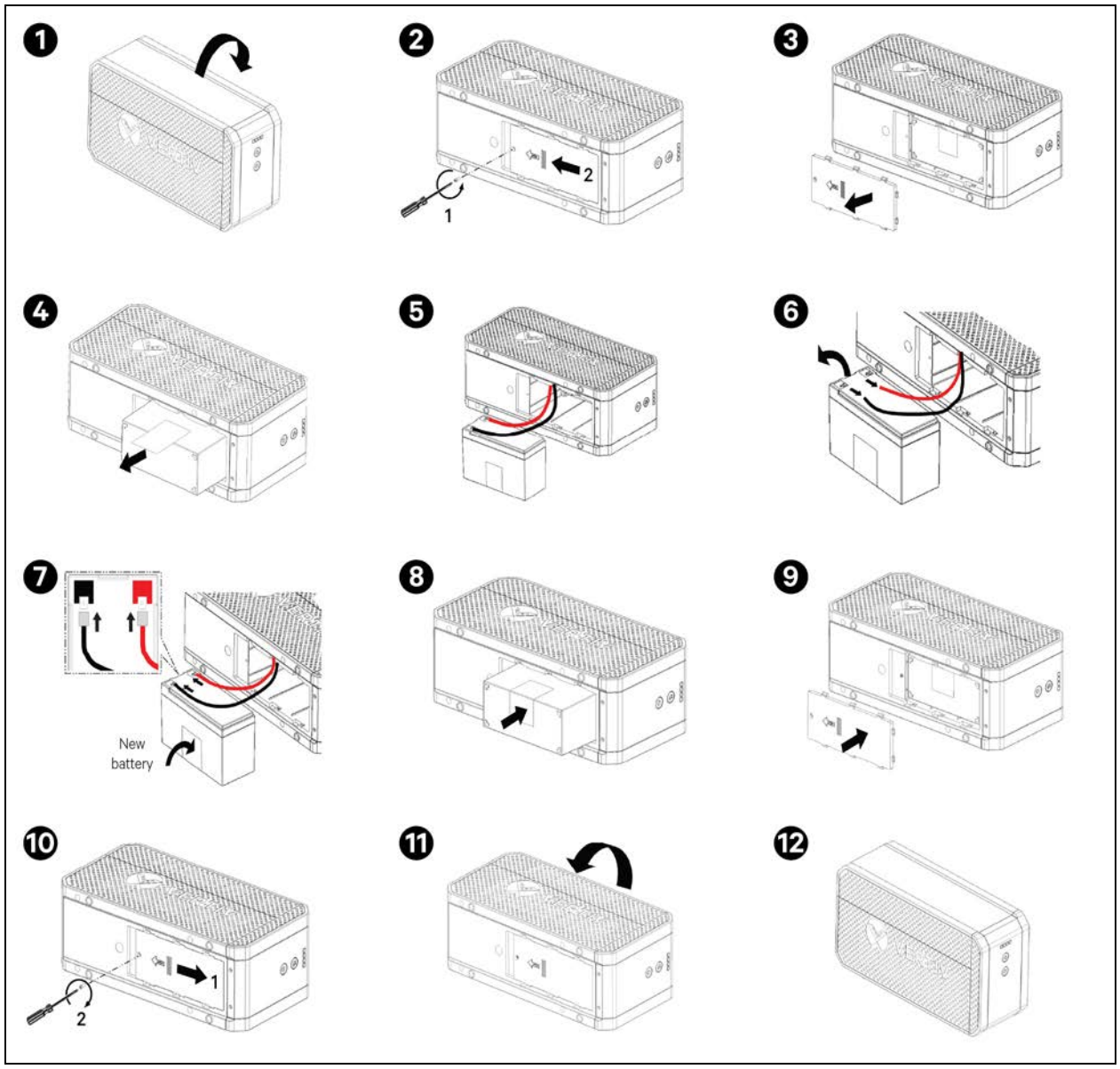
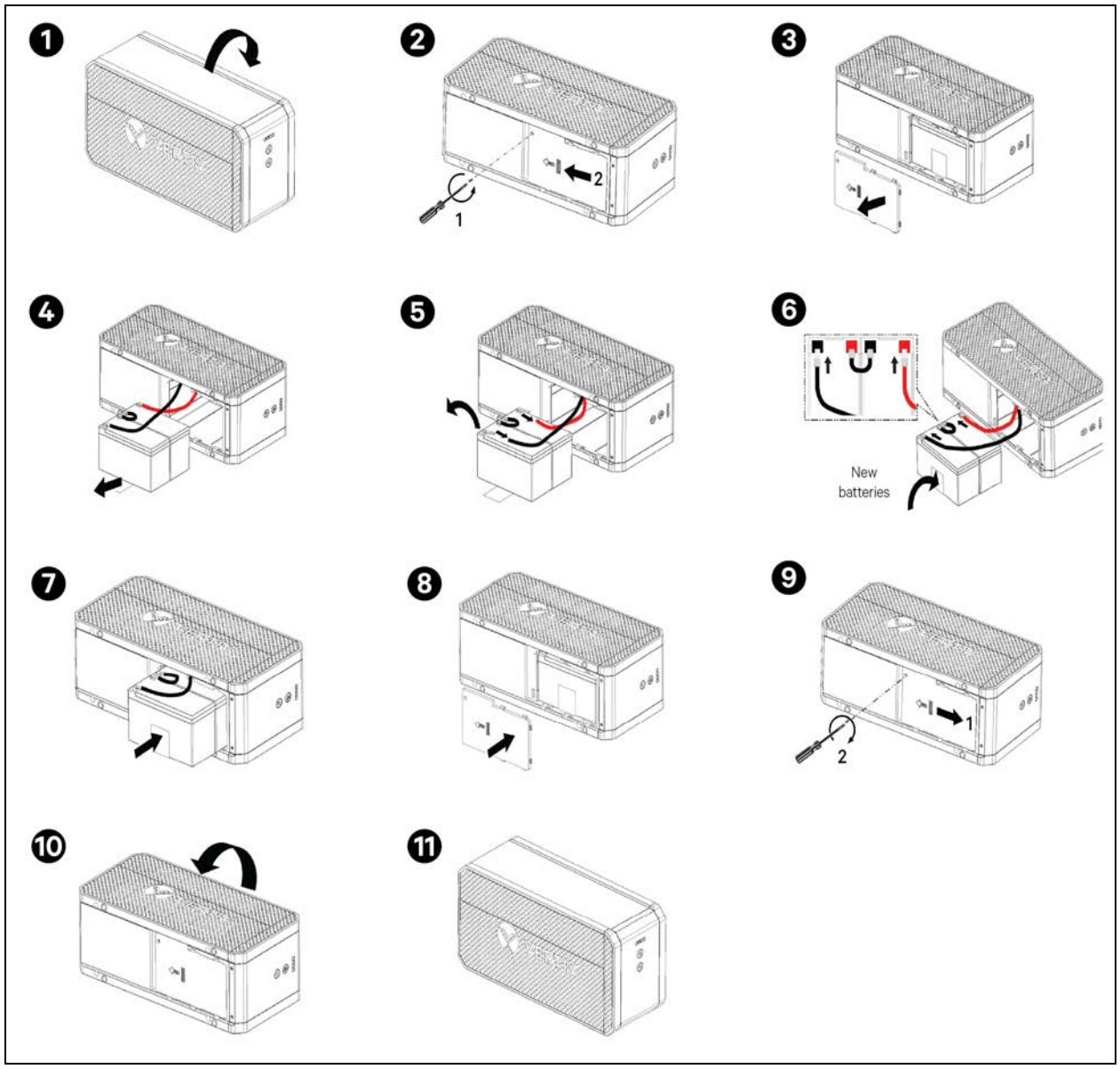


Figure 5.2 Battery Replacement—Series 1600/2200 VA Models



6 Troubleshooting

This section indicates various UPS symptoms you may encounter and provides a troubleshooting guide in the event the UPS develops a problem. Use the following information to determine whether external factors caused the problem and how to remedy the situation.

6.1 Audible Alarm (Buzzer)

An audible alarm accompanies various events during UPS operations. Table 6.1 below, describes the sounds and their meaning.

Table 6.1 Audible Alarm Descriptions

Sound	Indicates
One beep every 10 seconds	Battery mode
One beep every 0.5 seconds	UPS warning
One beep every second	Low battery warning
One beep every 2 seconds	Battery replacement warning. To replace the battery, refer Battery Replacement on page 13.
Continuous beep	UPS fault
One long beep	Power on

6.2 Warning Indicator

The UPS has two early warning indicators that allow the UPS to function normally for a short period before the outputs are shut off.

Table 6.2 Warning Indicators and Actions

Yellow LED	Audible Alarm	Description	Corrective Action
On solid	One beep every 0.5 seconds	The load devices plugged in to the UPS output are utilizing more power than the UPS rating.	Reduce the load to below the UPS rating specified in **Table 7.1** on page 19.
Blinking	One beep every 2 seconds	The battery is weak or damaged.	Charge the UPS battery for at least 8 hours, or replace the battery, see Battery Replacement on page 13.

6.3 Faults

The Vertiv™ PowerUPS 200 Essential Series models fault indicator is the red LED on the front panel. If this warning/fault LED is on solid, and there is a continuous audible beep, the UPS has detected a problem and automatically shut off the output.

To troubleshoot the fault:

1. Turn off the UPS, disconnect all connected equipment (loads), and restart the UPS.
2. Check the fault status:
   - If the fault is still active, refer to the Table 6.3 below to identify and resolve the issue. If the fault persists after referring to the table, contact Vertiv Technical Support for assistance or replacement.
   - If the fault is no longer active but the connected equipment is still not receiving power, the issue may be with the equipment itself. Reconnect devices one at a time to identify the faulty device.

Table 6.3 Troubleshooting

Symptom	Possible Cause	Corrective Action
UPS does not turn on	The power button is not pressed.	Press and hold the power button for 1 second and then release it to power on the UPS.
	UPS input cord is not plugged in or outside AC circuit breaker is tripped.	Ensure the UPS is plugged into a properly wired and grounded outlet. Avoid using extension cords, adapters or other connectors.
No LED display	Battery is low.	Charge battery for up to 8 hours.
	Battery is defective.	Call 1-800-543-2378 for service/warranty replacement.
Alarm beeps continuously when AC supply is normal	Overload of the UPS.	Verify that the load matches the UPS capacity specified.
UPS does not provide expected runtime	Overload of the UPS.	Remove some non-critical load.
	Battery defect due to high temperature, or improper operation.	Call 1-800-543-2378 for service/warranty replacement.
Battery mode/green LED is blinking in normal mode	Power cord is loose.	Reconnect the power cord properly.
Power button red	UPS has detected an internal fault.	Call 1-800-543-2378 for service/warranty replacement

7 Specifications

Table 7.1 UPS Specifications

Model Number	PAS6E-600IT-IEC	PAS6E-1000IT-IEC	PAS6E-1600IT-IEC	PAS6E-2200IT-IEC
	PAS6E-600IT-SCH	PAS6E-1000IT-SCH	PAS6E-1600IT-SCH	PAS6E-2200IT-SCH
Capacity (VA / W)	600 / 315	1000 / 525	1600 / 925	2200 / 1225
Unit Dimensions, in. (mm) W x D x H	4.72 x 13.98 x 7.1 (120 x 355 x 180)		5.71 x 15.75 x 7.68 (145 x 400 x 195)	
Unit Weight, lbs. (kg)	11.0 (5.0)	13.7 (6.2)	27.6 (12.5)	28.4 (12.9)
Shipping Dimensions, in. (mm) W x D x H	7.8 x 16.9 x 10.8 (197 x 430 x 275)		9.3 x 19.5 x 12.0 (235 x 495 x 305)	
Shipping Weight, lbs. (kg)	13.4 (6.1)	16.1 (7.30)	30.9 (14.0)	31.8 (14.4)
Input AC				
Nominal Voltage	220-240 VAC			
Voltage Range	140-300 VAC			
Input Voltage Measurement Tolerance	±5%			
Frequency Range	50/60 Hz, ±1 Hz (auto-sensing)			
Internal Rear-panel Input Breaker/Fuse Rating	5 A, 250 VAC (Replaceable fuse)	8 A, 250 VAC (Replaceable fuse)	10 A, 250 VAC	15 A, 250 VAC
Surge Energy Rating	400 Joules minimum			
Input Cord Length and Connector	6 ft (IEC C14)			6 ft (IEC C20)
Output AC (On Utility)				
Nominal Voltage	220-240 VAC			
Voltage Range	195–255 VAC (±5%)			
Frequency Range	50/60 Hz, ±1 Hz (auto-sensing)			
Ipeak—Short Circuit Current	276 A	393 A	411 A	409 A
Irms—Short Circuit Current	29.3 A	29.9 A	51.3 A	55.8 A
Efficiency	>95% at full load			
Output AC (On Battery)				
Nominal Voltage	230 VAC			
Voltage Range	230 ±10% VAC			
Frequency Range	50/60 Hz, ±1 Hz (auto-sensing)			
Waveform	Simulated Sine wave			
Transfer Time	2-6 ms (10 ms, maximum)			
Overload Capacity in Normal Mode (measurement tolerance ±10%)	110% - alarm warning and shutdown after 5 minutes 120% - alarm warning and immediate shutdown			

Table 7.1 UPS Specifications (continued)

Model Number	PAS6E-600IT-IEC PAS6E-600IT-SCH	PAS6E-1000IT-IEC PAS6E-1000IT-SCH	PAS6E-1600IT-IEC PAS6E-1600IT-SCH	PAS6E-2200IT-IEC PAS6E-2200IT-SCH
Overload Capacity in Battery Mode (measurement tolerance ±10%)	110% - alarm warning and shutdown after 5 seconds 120% - alarm warning and immediate shutdown			
Protection	Electronic (over current, short circuit, over charge)			
Battery Type	Valve Regulated Lead Acid (VRLA)			
Battery Manufacturer / Model	Vertiv / VBATKIT201	Vertiv / VBATKIT202	Vertiv / VBATKIT204	Vertiv / VBATKIT205
Series Connected Battery Quantity x VDC x Ah	1 x 12V x 7.0Ah	1 x 12V x 9.0Ah	2 x 12V x 9.0Ah	2 x 12V x 9.4Ah
Battery Backed and Surge Protected Outlets				
IEC Models	4 IEC	6 IEC		
Schuko Models	4 Schuko		5 Schuko	
Environmental Requirements **(Power grid power distribution system: TN Power System)**				
Operating Temperature, °F (°C)	32-104 (0-40)			
Operating Elevation, feet (meter)	0-9,842 (0-3,000)			
Relative Humidity	0-90% non-condensing			
Storage Temperature, °F (°C)	-4 to 104 (-20 to 40)			
Storage Elevation, feet (meter)	0-9,842 (0-3,000)			
Audible Noise	<45dBA at 3 ft (1 m) from all sides			
Pollution	PD2			
Overvoltage Category	Category II: Normal mode Category I: Stored energy mode			
Agency				
Safety	CB, CE, IEC/EN IEC 62040-1: UKCA, RCM, EAC			
RFI / EMI	EN/IEC 62040-2, EN/IEC 61000-3-2, EN 61000-3-3, CAT: C2			
Surge Immunity	EN61000-4-5, Level 2 (Line-Neutral) EN61000-4-5, Level 3 (Line-Ground) EN61000-4-5, Level 3 (Neutral-Ground)			
Transportation	ISTA Procedure 3A			
NOTE: This is a category C2 UPS product, as defined by IEC 62040-2, may cause radio interference when used in a residential environment. Users may be required to take additional measures.				

7.1 Battery Run Times

Table 7.2 Battery Run Times in Minutes

Load Percent of Capacity	Model Rating			
	600 VA / 315 W	1000 VA / 525 W	1600 VA / 925 W	2200 VA / 1225 W
10%	32	52	80	63
20%	25	26	41	30
25%	23	26	31	24
30%	16	15	25	18
40%	9.8	10	17	12
50%	9	9	12	9.4
60%	6	3	10	5
70%	4	2	6	3
75%	4	2	6	3
80%	1.5	1	5	2
90%	1	0.6	3	2
100%	1	0.6	3	2

NOTE: Run times in this table are approximate. They are based upon new, fully charged standard battery modules at a temperature of 25 °C (77 °F) with 100% resistive UPS loading.

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Appendices

Appendix A: Technical Support and Contacts

A.1 Technical Support/Service in the United States

Vertiv Group Corporation

24x7 dispatch of technicians for all products.

1-800-543-2378

Liebert® Thermal Management Products

1-800-543-2778

Liebert® Channel Products

1-800-222-5877

Liebert® AC and DC Power Products

1-800-543-2378

A.2 Vertiv™ PowerUPS 200

Our Technical Support staff is ready to assist you with any installation or operating issues you may encounter with your Vertiv product. Visit https://www.vertiv.com/en-us/support/ for additional assistance. Alternatively, please call or email us:

Technical support:

e: liebert.upstech@vertivco.com

p: 1-800-543-2378 menu option 1

Monitoring support:

e: liebert.monitoring@vertivco.com

p: 1-800-543-2378 menu option 2

Warranty support:

e: microups.warranty@vertivco.com

p: 1-800-543-2378 menu option 3

A.3 Locations

United States

Vertiv Headquarters

505 N Cleveland Ave

Westerville, OH, 43082, USA

Europe

Via Leonardo Da Vinci 8 Zona Industriale Tognana

35028 Piove Di Sacco (PD) Italy

Asia

7/F, Dah Sing Financial Centre

3108 Gloucester Road, Wanchai

Hong Kong

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