



PowerUPS 100 Lithium

Installer/User Guide

350 VA UPS; 120 VAC; Lithium

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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.

TABLE OF CONTENTS

1 Important Safety Information	1
2 Product Description	3
2.1 Available Model	3
2.2 Front and Rear Panel Overview	4
3 Installation	5
3.1 What's Included	5
3.2 Unpacking and Inspection	5
3.3 Preparation for Installation	5
3.3.1 Installation Environment	5
3.3.2 Installation Clearances	5
3.4 Installing the UPS	6
3.4.1 Connecting Loads	6
3.4.2 Connecting AC Input	6
4 Operation	7
4.1 Modes of Operation	7
4.1.1 Off/Standby Mode	7
4.1.2 On/Normal Mode	7
4.1.3 On/Battery Mode	7
4.1.4 Fault Mode	7
4.1.5 Battery Self Test Mode	7
4.2 Controls	8
4.3 Normal Startup	9
4.4 Normal Shutdown	9
4.5 Full Shutdown	9
5 Maintenance	11
5.1 Precautions	11
5.2 Battery Charging	11
6 Troubleshooting	13
6.1 Status Indicators	13
6.2 Faults	14
7 Specifications	15
7.1 Battery Run Times	17
Appendices	19
Appendix A: Technical Support and Contacts	19

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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 100 Lithium is a compact and lightweight standby/offline UPS designed to provide 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 100 Lithium UPS delivers dependable power protection designed to meet your needs.

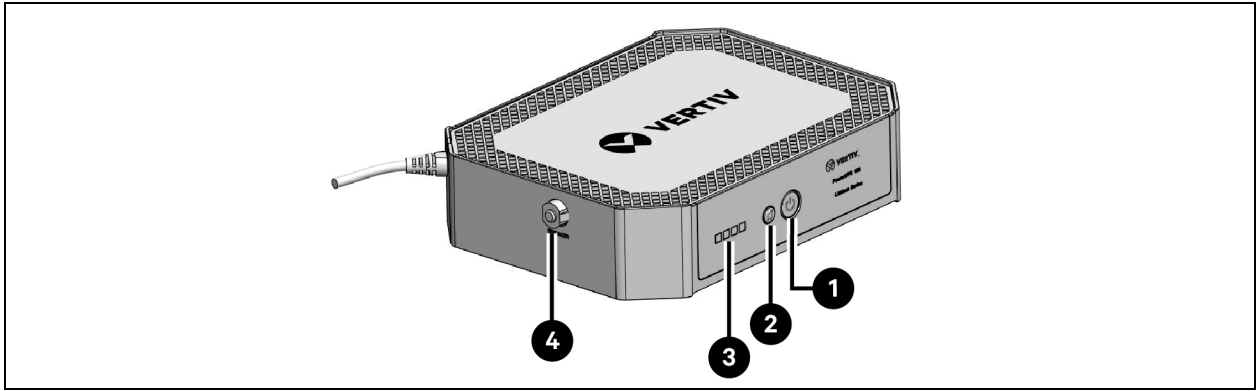
2.1 Available Model

Table 2.1 Vertiv PowerUPS 100 Lithium 120V Model

Model Number	Nominal Power Rating
PUL-350LVT	350 VA / 210 W

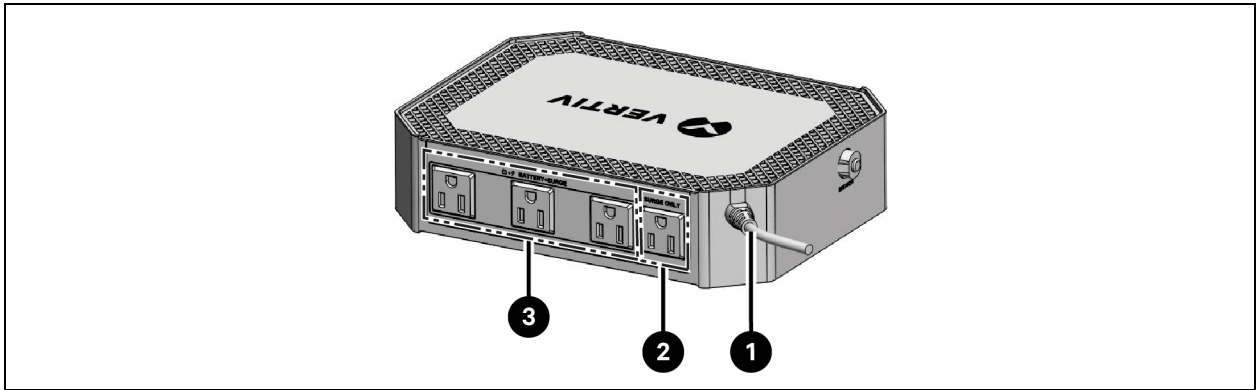
2.2 Front and Rear Panel Overview

Figure 2.1 Vertiv™ PowerUPS 100 Lithium 120V Model—Front Panel



Item	Description
1	Power button
2	Mute button
3	Battery capacity LED
4	Circuit breaker

Figure 2.2 Vertiv™ PowerUPS 100 Lithium 120V Model—Rear Panel



Item	Description
1	Input power cord
2	Surge only protected outlet receptacles
3	Battery-backed and surge-protected receptacles

3 Installation

3.1 What's Included

- Vertiv™ PowerUPS 100 Lithium UPS
- Quick Installation Guide
- Safety and Regulatory Guide
- Wall Mount Hardware

3.2 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.

3.3 Preparation for Installation

3.3.1 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 15.
- 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.

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

3.3.2 Installation Clearances

Maintain at least 4 in. (100 mm) clearance in the front and rear sides of the UPS. Do not obstruct the air inlets on the UPS enclosure surface with the vertiv logo and on the opposite surface where the product labels of the UPS. Blocking the air inlets reduces ventilation and heat dissipation, shortening the service life of the UPS.

3.4 Installing the UPS

3.4.1 Connecting Loads

The Vertiv™ PowerUPS 100 Lithium UPS model have 3 battery-backed and surge-protected outlet receptacles and 1 surge-protected- only outlet receptacle. Plug your critical equipment (such as computers, monitors, printers and other peripherals) into the battery-backed and surge-protected outlet receptacles. Ensure that the load does not exceed the output load rating of the UPS.

3.4.2 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 15, 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 backup time protection for any utility power abnormality.

4 Operation

4.1 Modes of Operation

In all of the following modes, the UPS provides surge protection and input fuse protection to all outlets.

4.1.1 Off/Standby Mode

The UPS input is plugged into a stable, 120 VAC source, but the outlets are turned off. The internal batteries are charging.

NOTE: The surge-only outlet will still have power.

4.1.2 On/Normal Mode

The UPS input is plugged into a stable, 120 VAC source, and the outlets are turned on. The internal batteries are charging.

4.1.3 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, usable voltage to the outlets.

4.1.4 Fault Mode

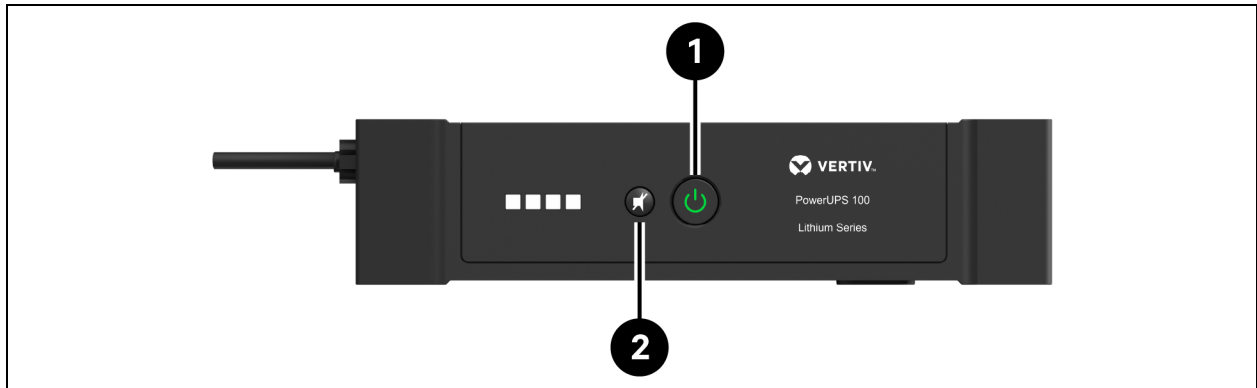
An error or fault condition has occurred. The outlets are shut off, and the internal batteries are not charging.

4.1.5 Battery Self Test Mode

The battery self test mode occurs automatically every 8 weeks as a self check. The UPS enters a cycle of approximately 10 seconds during which it tests the internal battery. The outlets are temporarily powered by the internal battery. If the system determines the battery needs replacement, it will issue a warning (beep every 5 seconds) and exit the test. If the battery is healthy, the UPS will complete the self check and return to normal mode.

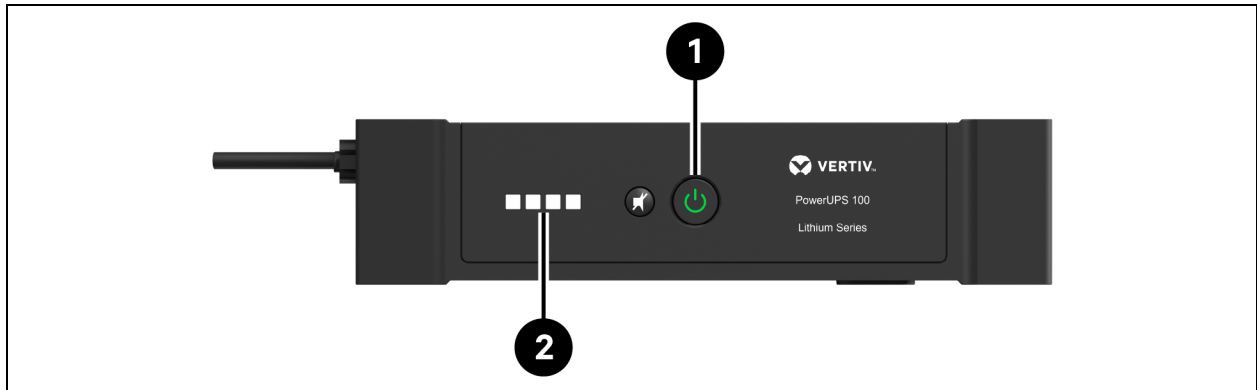
4.2 Controls

Figure 4.1 Front Panel Buttons



Item	Description
1	<p>Power button</p> <ul style="list-style-type: none"> • Press and hold for 3 seconds to cycle between <i>On</i> and <i>Off</i> mode. • Press and hold for 10 seconds to set voltage sensitivity. <ul style="list-style-type: none"> • Quick press to cycle between low (green), medium (white) and high (red) voltage sensitivity. • Low: Equipment less sensitive to voltage fluctuations. • Medium: The factory default for normal operating conditions. • High: Equipment sensitive to voltage fluctuations.
2	<p>Mute button</p> <ul style="list-style-type: none"> • Press for at least 1 second to mute or unmute an alarm.

Figure 4.2 Front Panel Indicators



Item	Description
1	Power button LED <ul style="list-style-type: none"> • Solid white: Normal operation • Blinking green: Battery mode • Blinking red: <ul style="list-style-type: none"> • Overload warning • Low battery warning • Battery replacement • Solid red: UPS fault
2	Indicator—Battery capacity LED display in 25% increment.

4.3 Normal Startup

1. Make sure that the UPS connected to AC input.
2. Press and hold the power button for 3 seconds.

4.4 Normal Shutdown

1. Press and hold the power button for 3 seconds. The outlets are turned off.
2. Disconnect AC input power.

4.5 Full Shutdown

1. Press and hold the power button for 3 seconds. The outlets are turned off.
2. Disconnect AC input power.
3. Remove the battery cover and disconnect the battery wires. The unit is fully shut down.

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5 Maintenance

5.1 Precautions

Even though the Vertiv™ PowerUPS 100 Lithium model is 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 Lithium and should be kept charged to attain their design life. The Vertiv PowerUPS 100 Lithium UPS charges the batteries continuously when it is connected to the utility input power. If the Vertiv PowerUPS 100 LithiumUPS 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.

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6 Troubleshooting

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

6.1 Status Indicators

The UPS has the following warning indicators that allow the UPS to function normally for a short period before the outputs are shut off. An audible alarm accompanies various events during UPS operations. **Table 6.1** below describes the warnings and sounds and their meaning.

Table 6.1 Audible Alarm and LED Indicator Description

Power Button LED Indicator	Sound	Indicates
Blinking green	One beep every 2 seconds	Battery mode
Blinking red	One beep every 0.5 seconds	UPS overload warning
Blinking red	One beep every second	Low battery warning
Solid yellow	No audible noise	Battery self-check
Blinking red	One beep every 5 seconds	Battery has a defect
Solid red	Continuous beep	UPS fault

6.2 Faults

The Vertiv™ PowerUPS 100 Lithium model 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 6.2** 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 6.2 Troubleshooting

Symptom	Possible Cause	Corrective Action
UPS does not turn on.	The power button is not pressed.	Press and hold the power button for 3 seconds and then release it to power on the UPS.
UPS operates only in battery mode, even when there is normal AC present.	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.
	The wall outlet is without electricity due to the tripping of an external AC circuit breaker.	Reset the circuit breaker on the external panel. If the AC circuit breaker trips after UPS starts up, contact Vertiv Technical Support for assistance or replacement.
Power button is illuminated red.	UPS input circuit breaker is tripped.	Reset the circuit breaker by pressing the plunger back in. If the AC circuit breaker trips after UPS starts up, reduce the load to below the UPS rating specified in Table 21 on page 3.
Power button is illuminated red.	UPS has detected an internal fault.	Contact Vertiv Technical Support for assistance or replacement.
UPS does not provide expected runtime.	The batteries may be fully discharged or at the end of useful services life.	Charge the batteries for at least 8 hours and retest. If runtime is still less than expected, check that the UPS is not overloaded.
	Battery has a defect.	Contact Vertiv Technical Support for assistance or replacement.
Equipment shuts off when operating in battery mode.	UPS has shutdown.	The battery has discharged, wait for input AC power to return for the UPS to restart and provide output power.
Battery mode/green LED is blinking in normal mode.	Power cord is loose.	Reconnect the power cord properly.
NOTE: Call 1-800-543-2378 for service/warranty replacement. Find country specific support lines in Appendices on page 19.		

7 Specifications

Table 7.1 Vertiv™ PowerUPS 100 Lithium UPS Specifications

Model Number	PUL-350LVT
Capacity (VA / W)	350 / 210
Unit Dimensions, in. (mm) W x D x H	9.6 x 7.4 x 2.3 (243 x 187 x 58)
Unit Weight, lbs. (kg)	3.3 (1.5)
Shipping Dimensions, in. (mm) W x D x H	13.4 x 11.1 x 5.9 (340 x 283 x 150)
Shipping Weight, lbs. (kg)	5.3 (2.4)
Input AC	
Nominal Voltage	120 VAC
Voltage Range	88 to 142 VAC
Input Voltage Measurement Tolerance	±5%
Frequency Range	50/60 Hz, ±5 Hz (auto-sensing)
Internal Rear Panel Input Breaker	6 A, 250 VAC
Surge Energy Rating	375 Joules
Input Cord Length and Connector	6 ft (attached with NEMA 5-15P)
Output AC (On Utility)	
Nominal Voltage	120 VAC
Voltage Range	88 to 142 VAC
Frequency Range	50/60 Hz, ±5 Hz (auto-sensing)
Efficiency	>98% at full load
Overload Capacity in Normal Mode (measurement tolerance ±10%)	110%—Alarm warning and shutdown after 5 minutes 120%—Alarm warning and immediate shutdown
Output AC (On Battery)	
Nominal Voltage	120 VAC
Voltage Range	Nominal ±8% VAC
Frequency Range	50/60 Hz, ±1 Hz (auto-sensing)
Waveform	Simulated Sine wave
Transfer Time	8 ms (10 ms, maximum)
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	9.6 V / 3 Ah (LiFePO4)
Battery Manufacturer / Model	Vertiv™ / KLi-9.6S3PF

Table 7.1 Vertiv™ PowerUPS 100 Lithium UPS Specifications (continued)

Model Number	PUL-350LVT
Series Connected Battery Quantity x VDC x Ah	1 x 9.6 V x 3 Ah
Battery Backed and Surge Protected Outlets	3 (NEMA 5-15R)
Surge-Only Protected Outlets	1 (NEMA 5-15R)
Environmental Requirements	
Operating Temperature, °F (°C)	32 to 104 (0 to 40)
Operating Elevation, feet (meter)	0 to 9,842 (0 to 3,000)
Relative Humidity	0 to 95% non-condensing
Storage Temperature, °F (°C)	14 to 122 (-10 to 50)
Storage Elevation, feet (meter)	0 to 49,212 (0 to 15,000)
Audible Noise	<45 dBA at 3 ft (1 m) from all sides
Agency	
Safety	cTUVus, UL 1778, UL 1973, NOM
RFI / EMI	FCC Part 15 Class B/ ICES-003-Category B
Surge Immunity	EN61000-4-5, Level 2 (Line-Neutral) EN61000-4-5, Level 3 (Line-Ground) EN61000-4-5, Level 3 (Neutral-Ground)
Environmental	RoHS, REACH, WEEE, TSCA, 3TG, Energy Star 2.0, DOE
Transportation	ISTA Procedure 3A, UN 38.3

7.1 Battery Run Times

Table 7.2 Battery Run Times in Minutes

Load Percent of Capacity	Model (Rating)
	PUL-350LVT (350 VA / 210 W)
10%	46
20%	27
25%	24
30%	18
40%	9.5
50%	8
60%	6
70%	5
75%	3.8
80%	3.7
90%	3
100%	2.5

NOTE: Run times in this table are approximate. They are based upon new, fully charged standard battery modules at a temperature of 77 °F (25 °C) with 100% resistive UPS loading. Run time may vary ±5% due to manufacturing tolerances of the batteries.

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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 100 Lithium

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@vertiv.com

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

Monitoring support:

e: liebert.monitoring@vertiv.com

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

Warranty support:

e: microups.warranty@vertiv.com

p: 1-800-543-2378 menu option 5

A.3 Locations

United States

Vertiv Headquarters
505 N Cleveland Ave
Westerville, OH, 43082, USA

Europe

Victor-von-Bruns Strasse 21,
8212 Neuhausen am Rheinfall, Switzerland

Asia

7/F, Dah Sing Financial Centre
3108 Gloucester Road, Wanchai
Hong Kong

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