



Model UPS9AC-1000

Uninterruptible Power Supply
User & Installation Manual

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Important Safety Warning

Save this manual properly and carefully read the following instructions before installing the unit. Please strictly comply with all warnings and operating instructions in this manual. Do not operate this unit before reading through all safety information and operating instructions carefully.

Transportation

Please transport the UPS system only in the original package to protect against shock and impact.

Preparation

- Condensation may occur if the UPS system is moved directly from cold to warm environments. The UPS system must be absolutely dry before being installed. Please allow at least two hours for the UPS system to acclimate to the environment.
- Do not install the UPS system near water or in moist environments.
- Do not install the UPS system where it would be exposed to direct sunlight or near a heater.
- Do not block ventilation holes in the UPS housing.

Installation

- Do not connect appliances or devices which would overload the UPS system (e.g. laser printers) to the UPS output receptacles.
- Place cords in such a way that no one can step on or trip over them.
- Do not connect domestic appliances such as hair dryers to UPS output receptacles.
- The UPS can be operated by any individuals with no previous experience.
- Connect the UPS system only to a grounded shockproof outlet which must be easily accessible and close to the UPS system.
- When installing the equipment, it should ensure that the sum of the leakage current of the UPS and the connected devices does not exceed 3.5mA.

Operation

- Do not disconnect the mains power cord on the UPS system or the building wiring outlet (shockproof socket outlet) during operations since this would cancel the protective earthing of the UPS system and of all connected loads.
- The UPS system features its own internal current source (batteries). The UPS output receptacles or output may be electrically live even if the UPS system is not connected to the building wiring outlet.
- Prevent fluids or other foreign objects from getting inside the UPS system.

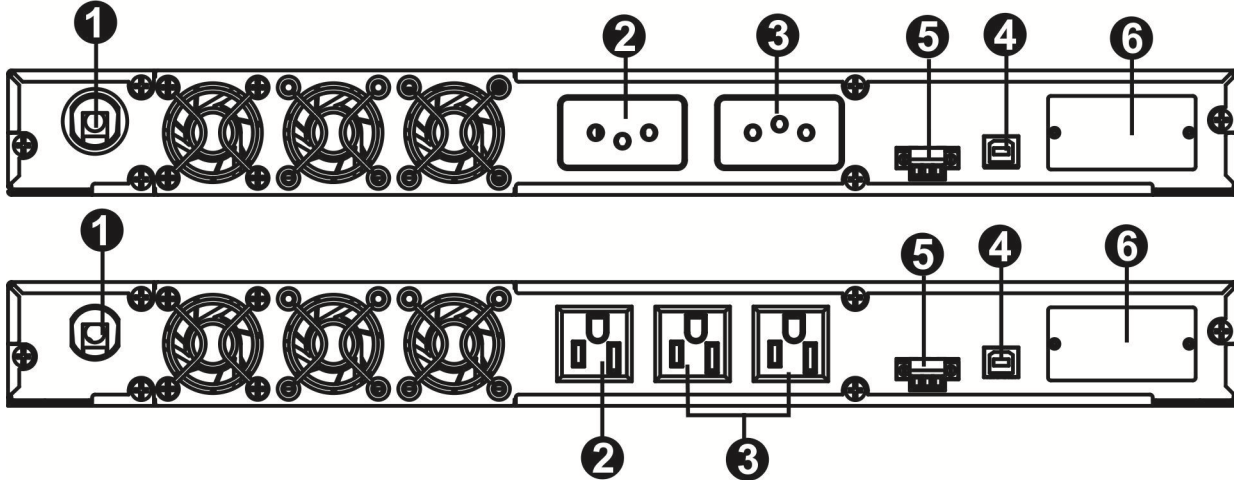
Maintenance, service, and faults

- The UPS system operates with hazardous voltages. Repairs may be carried out only by qualified maintenance personnel.
- Caution—risk of electric shock. Even after the unit is disconnected from the mains (building wiring outlet), components inside the UPS system are still connected to the battery and electrically live and dangerous.
- Before carrying out any kind of service or maintenance, disconnect the batteries and verify that no current is present, and no hazardous voltage exists in the terminals of high capability capacitor such as BUS-capacitors.
- Only people that are adequately familiar with batteries and with the required precautionary measures may replace batteries and supervise operations. Unauthorized personnel must be kept well away from the batteries.
- Caution – risk of electric shock. The battery circuit is not isolated from the input voltage.
- Hazardous voltages may occur between the battery terminals and the ground. Before touching, please verify that no voltage is present!
- Batteries may cause electric shock and have a high short-circuit current. Please take the precautionary measures specified below and any other measures necessary when working with batteries:
 - a) Remove wristwatches, rings and other metal objects
 - b) Use only tools with insulated grips and handles.
 - c) Wear rubber gloves and boots.
 - d) Do not lay tools or metal parts on top of batteries.
 - e) Disconnect charging source and load prior to installing or maintaining the battery.
- When changing batteries, install the same number and same type of batteries.
- Do not attempt to dispose of batteries by burning them. This could cause battery explosion.
- Do not open or destroy batteries. Escaping electrolyte can cause injury to the skin and eyes. It may be toxic.
- Please replace the fuse only with the same type and amperage in order to avoid fire hazards.
- Do not dismantle the UPS system.
- **NOTE:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
- **WARNING:** Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

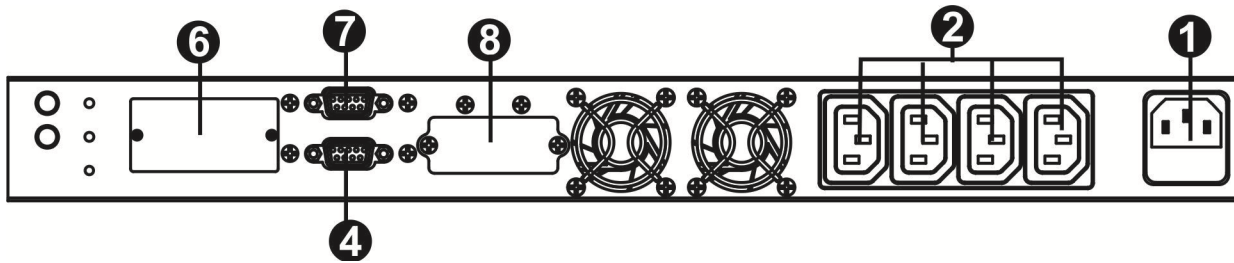
Installation and setup

NOTE: Before installation, please inspect the unit. Be sure that nothing inside the package is damaged. Please keep the original package in a safe place for future use.

Rear panel view



1KL



1. AC input power cord
2. Output receptacle: connect to mission-critical loads.
3. Programmable outlets: connect to non-critical loads
4. USB serial communication port
5. ROO/RPO function connector
6. Intelligent slot

Setup the UPS

Step 1: UPS input connection

Plug the UPS into a two-pole, three-wire, grounded receptacle only. Avoid using extension cords. The power cord is attached to the UPS. The input plug is a NEMA 5-15P.

Step 2: UPS output connection

There are two kinds of output receptacles: programmable outlets and general outlet. Please connect non-critical devices to the programmable outlets and critical devices to the general outlets. During power failure, you may extend the backup time to critical devices by setting shorter backup time for non-critical devices.

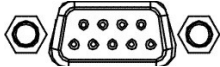
Step 3: Communication connection

Communication port:

USB port



RS-232 port

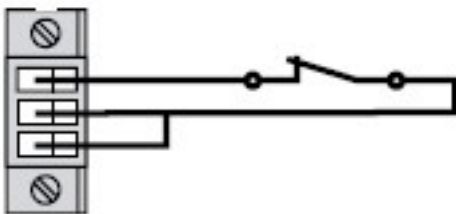


To allow for unattended UPS shutdown/start-up and status monitoring, connect the communication cable one end to the USB port and the other to the communication port of your PC. With the monitoring software installed, you can schedule UPS shutdown/start-up and monitor UPS status through PC.

The UPS is equipped with intelligent slot perfect for Relay card. When installing with SNMP card in the UPS, it will provide advanced communication and monitoring options.

Step 4: Disable/Enable ROO/RPO function

ROO

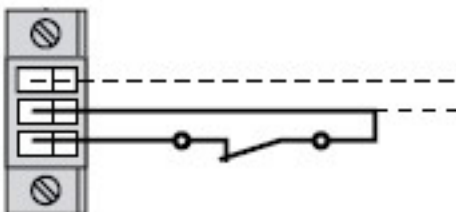


Contact open: UPS shuts down.

Contact closed: UPS start-up (UPS is connected to AC power and AC power is available).

Note: The local ON/OFF control by pressing On/Off button overrides the remote-control function.

RPO



Contact open: UPS shuts down and Fault LED (3) will be ON.

To return to normal operation, de-activate external remote contact (Fault LED (3) will be OFF) and restart.

Step 5: Turn on/off the UPS:

Press the ON/OFF button on the front panel for two seconds to power on the UPS.

Step 6: Install software

For optimal computer system protection, install UPS monitoring software to fully configure UPS shutdown. You may insert provided CD into CD-ROM to install the monitoring software. If not, please follow steps below to download and install monitoring software from the internet:

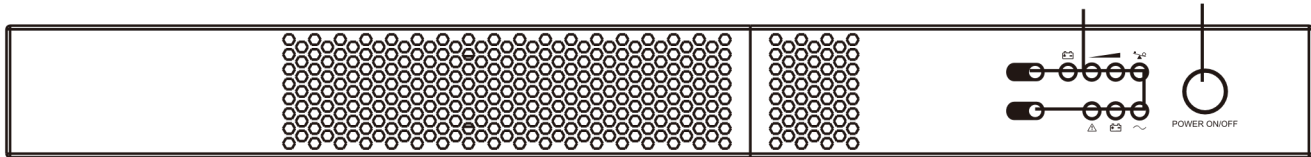
1. Go to the website **<http://www.power-software-download.com>**
2. Click ViewPower software icon and then choose your required OS to download the software.
3. Follow the on-screen instructions to install the software.
4. When your computer restarts, the monitoring software will appear as an orange plug icon located in the system tray, near the clock.

Operations

Button operation

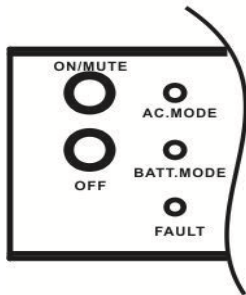
LED indicators On/Off button

1K View:



Button	Function
ON/OFF Button	<ul style="list-style-type: none"> • <u>Turn on the UPS</u>: Press and hold button for at least 2 seconds to turn on the UPS. • <u>Turn off the UPS</u>: Press and hold this button at least 2 seconds to turn off the UPS. UPS will be in standby mode when utility power is normal or transfer to bypass mode if bypass mode is enabled via software.

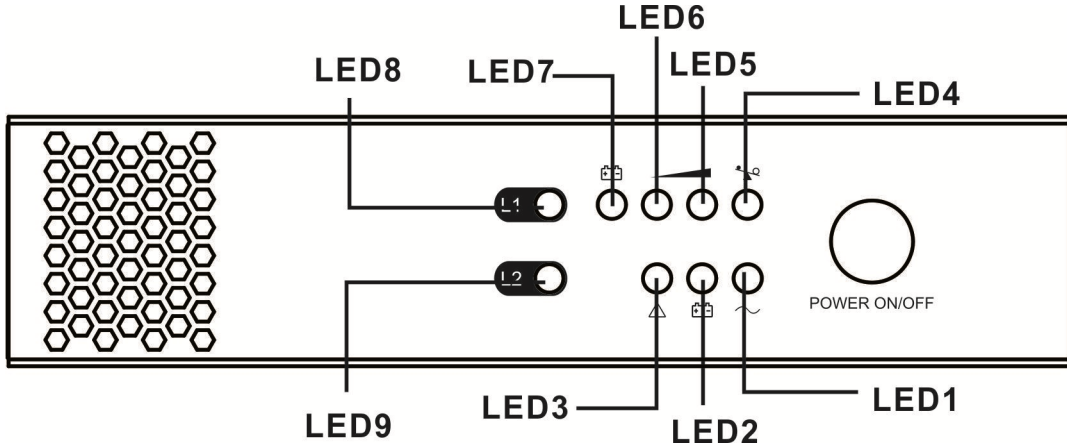
1KL View:



Button	Function
On/Mute Button	<ul style="list-style-type: none"> • <u>Turn on the UPS</u>: Press and hold ON/Mute button for at least 2 seconds to turn on the UPS. • <u>Mute the alarm</u>: When the UPS is on battery mode, press and hold this button for at least 5 seconds to disable or enable the alarm system. But it's not applied to the situations when warnings or errors occur.
Off/Enter Button	<ul style="list-style-type: none"> • <u>Turn off the UPS</u>: Press and hold this button at least 2 seconds to turn off the UPS in battery mode. UPS will be in standby mode under power normal or transfer to Bypass mode if the Bypass enable setting by pressing this button.

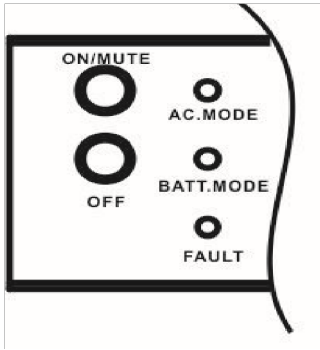
3-2. LED Indicators

1K View:



UPS Status	LED	Color	On/Flashing
Line Mode	<u>LED1</u>	Green	On
	<u>LED4 to LED7</u> : indicate load level during line mode. <u>LED4</u> : > 75% load level <u>LED5</u> : 50% ~ 75% load level <u>LED6</u> : 25% ~ 50% load level <u>LED7</u> : 0% ~25% load level	Green	On
Battery Mode	<u>LED2</u>	Yellow	Flashing
	<u>LED4 to LED7</u> : indicate battery capacity during battery mode. <u>LED4</u> : battery voltage > 26V <u>LED5</u> : battery voltage > 24.5V <u>LED6</u> : battery voltage > 23V <u>LED7</u> : battery voltage > 21V	Green	On
Low battery	<u>LED7</u>	Green	On
	<u>LED3</u>	Red	On
Battery replacement	<u>LED3</u>	Red	Flashing
Fault	<u>LED3</u>	Red	On
On/off status of output receptacles	<u>LED 8</u> : indicating on/off status of general output receptacles (2) <u>LED 9</u> : indicating on/off status of programmable outlet (3)	Green	On

1KL View:



Three indicators to display UPS status:

UPS Status	Indicators
AC Mode	Green LED lighting.
Battery Mode	Yellow LED flashing.
Fault	Red LED lighting.
Off-mode charging.	Green LED flashing.

Audible Alarm:

Battery Mode	Sounding every 4 seconds
Low Battery	Sounding every second
Overload	Sounding twice every second
Fault	Continuously sounding
Bypass Mode	Sounding every 10 seconds

Troubleshooting

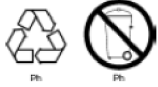
If the UPS system does not operate correctly, please solve the problem by using the table below.

Symptom	Possible cause	Remedy
No indication and alarm even though the mains is normal.	The AC input power is not connected.	Ensure if input power cord is firmly connected to the mains.
	The AC input is connected to the UPS output.	Plug AC input power cord to AC input correctly.
The mains is normal but red LED is flashing. The alarm is sounding every second.	The internal battery connection is wrong.	Please re-connect battery wires with correct polarity.
The alarm is sounding twice every second and red LED is flashing.	UPS is overloaded	Remove excess loads from UPS output.
	After repetitive overloads, the UPS is locked in the Bypass mode. Connected devices are fed directly by the mains.	Remove excess loads from UPS output first. Then, shut down the UPS and restart it.
The mains is normal. But the unit is on battery mode.	Battery is not fully charged.	Please charge battery at least 5 hours. If battery is still in low battery level, please contact local dealer.
	Battery defect.	Replace the battery with the same type of battery.
Red LED is on and alarm is sounding continuously.	UPS fault.	Please contact local dealer directly.

Storage and Maintenance

Operation

The UPS system contains no user-serviceable parts. If the battery service life (3~5 years at 25°C ambient temperature) has been exceeded, the batteries must be replaced. In this case, please contact your dealer.



Be sure to deliver the spent battery to a recycling facility or ship it to your dealer in the replacement battery packing material.

Storage

Before storing, charge the UPS 5 hours. Store the UPS covered and upright in a cool, dry location. During storage, recharge the battery in accordance with the following table:

Model	Storage Temperature	Recharge Frequency	Charging Duration
UPS9AC-1000	-25°C -50°C	Every 3 months	1-2 hours
	50°C -55°C	Every 2 months	1-2 hours

Specifications

MODEL NUMBER		UPS9AC-1000
CAPACITY	Power rating	1000VA (800W)
INPUT	Voltage/frequency	50–150VAC* / 50/60Hz auto sensing
OUTPUT	Voltage	120VAC
	Waveform	Pure sine wave, < 2% at full load
	Frequency	50/60Hz ± 0.5Hz
	Efficiency	Up to 98% ECO mode, 90% online mode
	Overload capacity	≤ 130% for 2 min; ≤ 200% for 10 sec; >200% for 1 sec
BATTERY	Battery type	Sealed, maintenance-free lead acid
	Battery quantity & size	(4) 6V 290W
	Typical recharge	< 6 hours to 90%
PHYSICAL	Dimensions (W x D x H)	17.2 x 18.8 x 1.7 in
	Weight	28 lbs
	Line cord	5 ft, 5–15P
	Receptacles	(3) NEMA 5–15R
ENVIRONMENT	Operating temperature	32–104°F (0–40°C)
	Altitude	11,500 ft above sea level
APPROVALS		UL, cUL, RoHS
WARRANTY		3 years electronics, 3 years battery warranty (USA and Canada)
COMMUNICATIONS INTERFACE		USB, EPO, intelligent slot for optional cards (Web/SNMP, Relay/dry contact)
INCLUDED IN BOX		ViewPower software CD, horizontal brackets, tower pedestals, 4-pt. rail kit

Obtaining Service

If the UPS requires service:

1. Use the TROUBLESHOOTING section in this manual to eliminate obvious causes.
2. Verify there are no circuit breakers tripped.
3. Call your dealer for assistance. If you cannot reach the dealer or if they cannot resolve the problem, call Lowell Manufacturing Company at (800) 325-9660. Technical support inquiries can also be made by email to sales@lowellmfg.com. Please have the following information available BEFORE calling:
 - Your name and address.
 - The serial number of the unit.
 - Where and when the unit was purchased.
 - All of the model information about your UPS.
 - Any information on the failure, including LEDs that may or may not be illuminated.
 - A description of the protected equipment, including model numbers if possible.
 - A representative will ask you for the above information and, if possible, help solve the problem over the phone. In the event that the unit requires factory service, the representative will issue you a Return Material Authorization number (RMA).

If you are returning the UPS for service, please follow these procedures:

1. Pack the UPS in its original packaging. If the original packaging is no longer available, ask the Lowell representative about obtaining a replacement set of packaging material. It is important to pack the UPS properly in order to avoid damage in transit. Never use Styrofoam beads for a packing material.
2. Include a letter with your name, address, daytime phone number, RMA number, a copy of your original sales receipt, and a brief description of the problem.
3. Mark the RMA number on the outside of all packages. Lowell Manufacturing cannot accept any package without the RMA number marked on the outside of the boxes.
4. Return the UPS by insured, prepaid carrier to the address provided by the Lowell representative.
5. Refer to the Warranty statements in this manual for additional details on what is covered.

Limited Warranty

Lowell Manufacturing Company warrants Lowell UPS equipment, when properly applied and operated within specified conditions, against faulty materials or workmanship for a period of **three years for model UPS9AC-1000** from the date of purchase. Lowell Manufacturing Company warrants **internal batteries for a period of three years** from the date of purchase. For equipment sites within the United States and Canada, this warranty covers repair or replacement, at the sole discretion of Lowell Manufacturing Company. The customer is responsible for the costs of shipping the defective product to Lowell Manufacturing Company. Lowell Manufacturing Company will pay for ground shipment of the repaired or replacement product. This warranty applies only to the original purchaser.

If equipment provided by Lowell Manufacturing Company is found to be **Dead-on-Arrival (DOA)**, Lowell Manufacturing Company will be responsible for the costs of shipping product to and returning equipment from the customer in a timely manner as agreed to with the customer, once the customer has requested and received a **Return Material Authorization (RMA)** number. DOA equipment is defined as equipment that does not properly function according to user documentation when initially received and connected in conjunction with proper procedures as shown in the user documentation or via support provided by Lowell Manufacturing Company personnel or authorized agents.

This warranty shall be void if (a) the equipment is repaired or modified by anyone other than Lowell Manufacturing Company or a Lowell Manufacturing Company approved third party; (b) the equipment is damaged by the customer, is improperly used or stored, is subjected to an adverse operating environment, or is operated outside the limits of its electrical specifications; or (c) the equipment has been used or stored in a manner contrary to the equipment's operating manual, intended use or other written instructions. Any technical advice furnished by Lowell Manufacturing Company or a Lowell Manufacturing Company authorized representative before or after delivery with regard to the use or application of Lowell Manufacturing Company equipment is furnished on the basis that it represents Lowell Manufacturing Company's best judgment under the situation and circumstances, but it is used at the recipient's sole risk.

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