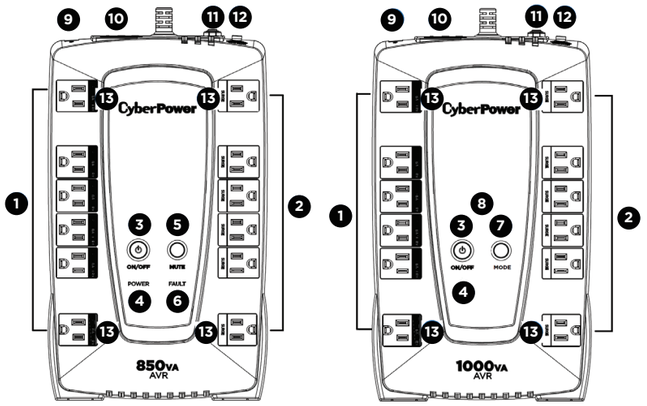
CyberPower®

YOUR ULTIMATE ALLY IN POWER

AVR UPS SERIES

LE850G / LE1000DG

USER MANUAL



LE850G LE1000DG

FEATURES

1. Battery and Surge Protected Outlets
2. Full-Time Surge Protection Outlets
3. Power Switch
4. Power On Indicator
5. MUTE Button (LE850G)
6. Fault Indicator (LE850G)
7. Mode Switch (LE1000DG)
8. LCD Module Display (LE1000DG)
9. USB Port
10. Communication Protection Ports
11. Circuit Breaker
12. Ground Screw
13. Widely-Spaced Outlets Designed for AC Adapters

PRODUCT REGISTRATION

Thank you for purchasing a CyberPower product. Please take a few minutes to register your product at: **www.cyberpower.com/registration**.
Registration certifies your product's warranty, confirms your ownership in the event of a product loss or theft and entitles you to free technical support.
Register your product now to receive the benefits of CyberPower ownership.

IMPORTANT SAFETY WARNINGS (SAVE THESE INSTRUCTIONS)

This Manual Contains Important Instructions that should be followed during Installation and Maintenance of the UPS and batteries.

CAUTION! To prevent the risk of fire or electric shock, install in a temperature and humidity controlled indoor area free of conductive contaminants. (Please see specifications for acceptable temperature and humidity range).

CAUTION! To reduce the risk of electric shock, do not remove the cover except to service the battery. Turn off and unplug the unit before servicing the batteries. There are no user serviceable parts inside except for the battery.

CAUTION! Hazardous live parts inside can be energized by the battery even when the AC input power is disconnected.

CAUTION! Not for use in a computer room as defined in the Standard for the Protection of Electronic Computer/Data Processing Equipment, ANSI/NFPA 75.

CAUTION! The UPS must be connected to an AC power outlet with fuse or circuit breaker protection. Do not plug into an outlet that is not grounded. If you need to de-energize this equipment, turn off and unplug the unit.

CAUTION! To avoid electric shock, turn off the unit and unplug it from the AC power source before servicing the battery.

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

DO NOT USE FOR MEDICAL OR LIFE SUPPORT EQUIPMENT! CyberPower Systems does not sell products for life support or medical applications. DO NOT use in any circumstance that would affect the operation and safety of life support equipment, medical applications, or patient care.

DO NOT USE WITH OR NEAR AQUARIUMS! To reduce the risk of fire or electric shock, do not use with or near an aquarium. Condensation from the aquarium can cause the unit to short out.

DO NOT USE THE UPS ON ANY TRANSPORTATION! To reduce the risk of fire or electric shock, do not use the unit on any transportation such as airplanes or ships. The effect of shock or vibration caused during transit and the damp environment can cause the unit to short out.

INSTALLING YOUR UPS SYSTEM

INTRODUCTION

Thank you for selecting a CyberPower Systems UPS product. This UPS is designed to provide unsurpassed power protection, operation and performance during the lifetime of the product.

UNPACKING

Inspect the UPS upon receipt.
The box should contain the following:

(a) UPS
(b) User's manual
(c) USB device cable

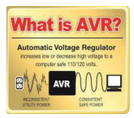
*PowerPanel® Personal software is available on our website. Please visit www.cyberpower.com and go to the Software Section for free download.

OVERVIEW

The LE850GL/LE1000DG provides complete power protection from utility power that is not always consistent. The unit provides long-lasting battery backup during power outages with maintenance free batteries. The LE850GL/LE1000DG ensures consistent power to your computer system and includes software that will automatically save your open files and shutdown your computer system during a utility power loss.

AUTOMATIC VOLTAGE REGULATOR

The LE850G / LE1000DG stabilizes inconsistent utility power to nominal levels that are safe for equipment. Unstable utility power can be damaging to important data and hardware. With Automatic Voltage Regulation (AVR), damaging voltage levels are corrected to safe levels. AVR automatically increases low utility power to a consistent and safe 110/120 volts.



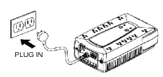
DETERMINE THE POWER REQUIREMENTS OF YOUR EQUIPMENT

1. Ensure that the equipment plugged into the outlet does not exceed the UPS's rated capacity. If the rated capacity of the unit is exceeded, an overload condition may occur and cause the UPS to shut down or the circuit breaker to trip.
2. There are many factors that can affect the amount of power that your computer system will require. It is suggested that the load placed on the battery outlets not exceed 80% of the unit's capacity.

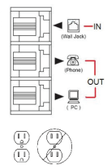
INSTALLING YOUR UPS SYSTEM - Continued

HARDWARE INSTALLATION GUIDE

1. Your new UPS may be used immediately upon receipt. However, after receiving a new UPS, to ensure the battery's maximum charge capacity, it is recommended that you charge the battery for at least 8 hours. Your UPS is equipped with an auto-charge feature. When the UPS is plugged into an AC outlet, the battery will automatically charge whether the UPS is turned on or off.



2. With the UPS unit turned off and unplugged, connect your computer, monitor, and any other peripherals requiring battery backup into the battery power supplied outlets. **DO NOT plug a laser printer, paper shredder, copier, space heater, vacuum, sump pump or other large electrical devices into the "Battery and Surge Protected Outlets". The power demands of these devices may overload and damage the UPS.**
3. To protect a fax, phone, or modem line, connect a telephone cable from the wall jack outlet to the IN jack of the UPS. Connect a telephone cable from one of the UPS OUT jacks to the modem port on the computer. The other UPS OUT jack can be used to protect a telephone or fax machine.



4. Plug the UPS into a 2 pole, 3 wire grounded receptacle (wall outlet). Make sure the wall branch outlet is protected by a fuse or circuit breaker and does not service equipment with large electrical demands (e.g. air conditioner, copier, etc...). The warranty prohibits the use of extension cords, outlet strips, and surge strips.
5. Press the power switch to turn the unit on. The Power On indicator light will illuminate and the unit will "beep" once.
6. If an overload is detected, an audible alarm will sound and the unit will emit one long beep. To correct this, turn the UPS off and unplug at least one piece of equipment from the battery power supplied outlets. Make sure the circuit breaker is depressed and then turn the UPS on.
7. To maintain optimal battery charge, leave the UPS plugged into an AC outlet at all times.
8. To store the UPS for an extended period, cover it and store with the battery fully charged. While in storage, recharge the battery every three months to ensure battery life.
9. Ensure the wall outlet and UPS are located near the equipment being attached for proper accessibility.

BASIC OPERATION

1. **Battery and Surge Protected Outlets** The unit has six battery powered and surge protected outlets to ensure temporary uninterrupted operation of your equipment during a power failure. **(DO NOT plug a laser printer, paper shredder, copier, space heater, vacuum cleaner, sump pump, or other large electrical device into the "Battery and Surge Protected Outlets." The power demands of these devices will overload and possibly damage the unit.)**
2. **Full-Time Surge Protection Outlets** The unit has six surge suppression outlets.
3. **Power Switch** Used as the master on/off switch for equipment connected to the battery power supplied outlets.
   To turn the UPS ON, press the power button for approximately 2 seconds - you will hear a constant tone (1 second) - and release after a short beep.
   To turn the UPS OFF, press the power button for approximately 2 seconds - you will hear a constant tone (1 second) - and release after two short beeps.
   Alarm setting (LE1000DG): The audible alarm can be turned Off or On by quickly pressing the POWER button twice. The default setting is for the Alarm On. To turn the Alarm Off, quickly press the power button twice. You will hear two short beeps when the Alarm is turned Off. To turn the Alarm back On, quickly press the power button twice. You will hear a single short beep when the Alarm is turned On. *When the Alarm is turned Off, there will be no audible notification when the UPS reaches a low battery state.
4. **Power On Indicator**
   This LED is illuminated when the utility power is normal and the UPS outlets are providing power, free of surges and spikes.
5. **Mute Button (LE850G)**
   Press the button for 2 seconds to enable the audible alarm (beeps once) or disable (beeps twice) the audible alarm.
6. **Fault Indicator (LE850G)** This LED is illuminated if there is a problem with the UPS.
7. **Mode Switch (LE1000DG)** Press the Mode Switch for approximately 3 seconds to enter setup mode to select three functions: Utility High Voltage Range, Utility Low Voltage Range, and LCD sleep ON/OFF. When a function is selected, press Mode Switch for 3 seconds to view options. When an option is selected, wait for 8 seconds for the setting to be confirmed. After the setting has been confirmed the LCD screen will leave setup mode and go back to status display. If there is no action for 8 seconds during setup, the LCD will also leave setup mode and go back to the status display.
   a. Utility High Voltage Range:
   Adjust the value of high voltage range.
   b. Utility Low Voltage Range:
   Adjust the value of low voltage range.
   c. LCD: L1/L0 (ON/OFF):
   * When LCD is set to L1, LCD will be always ON. When LCD is set to L0, LCD will dim if untouched for 1 minute.
   * In battery mode, LCD is always on regardless if the setting is L1 or L0.
8. **LCD module display (LE1000DG)**
   LCD display shows all the UPS information using icons and messages. For more information please review the "Definitions for Illuminated LCD Indicators" section.
9. **USB Port** The USB port allows connection and communication between the USB port on the computer and the UPS unit.
10. **Communication Protection Ports**
    Communication protection ports will protect any standard modem, fax, or telephone line. (RJ11)
11. **Circuit Breaker** Located on the side of the UPS, the circuit breaker provides overload and fault protection.
12. **Ground Screw** The ground screw is used for any equipment that needs a chassis ground connection.
13. **Outlets Designed for AC Adapters** The UPS unit has four widely-spaced outlets. AC power adapters can be plugged into the UPS without overlapping or blocking adjacent outlets.

REPLACING THE BATTERY

Replacement of batteries located in an **OPERATOR ACCESS AREA**

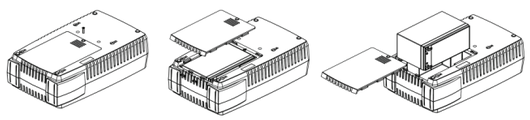
1. When replacing batteries, replace with the same number of the following battery: CyberPower / RB1270B for LE850G; CyberPower / RB1290A for LE1000DG.
2. **CAUTION!** Risk of Energy Hazard, 12V, maximum 9 Ampere-hour battery. Before replacing batteries, remove conductive jewelry such as chains, wrist watches, and rings. High energy through conductive materials could cause severe burns.
3. **CAUTION!** Do not dispose of batteries in a fire. The batteries may explode
4. **CAUTION!** Do not open or mutilate batteries. Released material is harmful to the skin and eyes. It may be toxic.
5. **CAUTION!** A battery can present a risk of electrical shock and high short circuit current. The following precautions should be observed when working on batteries:
   1) Remove watches rings, or other metal objects.
   2) Use tools with insulated handles.

CAUTION - RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO LOCAL REGULATIONS

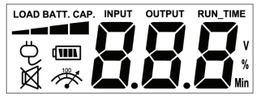
REMINDER: Batteries are considered HAZARDOUS WASTE and must be disposed of properly. Most retailers that sell lead acid batteries collect used batteries for recycling, as required by local regulations.

BATTERY REPLACEMENT PROCEDURE

1. Turn off and unplug all connected equipment.
2. Unplug it from the AC power source.
3. Turn the UPS upside down.
4. Remove the 1 retaining screw.
5. Slide the battery compartment cover completely off of the unit.
6. Remove the battery from the compartment.
7. Disconnect the battery wires from the battery.
8. Install the replacement battery by connecting the red wire and black wire to the positive (+) and negative (-) terminal of the battery.
9. Put the battery back into the compartment.
10. Slide back the battery compartment cover and tighten the retaining screw.
11. Charge the unit for 8 hours to fully charge the battery.



DEFINITIONS FOR ILLUMINATED LED INDICATORS



The LCD display indicates a variety of UPS operational conditions. All descriptions apply when the UPS is plugged into an AC outlet and turned on or when the UPS is on battery

INPUT voltage meter:
This meter measures the AC voltage that the UPS system is receiving from the utility wall outlet. The UPS is designed to continuously supply connected equipment with stable output voltage. In the event of a complete power loss, severe brownout, or over-voltage, the UPS relies on its internal battery to supply consistent 110/120 output voltage. The INPUT voltage meter can be used as a diagnostic tool to identify poor-quality input power.

OUTPUT voltage meter:
This meter measures, in real time, the AC voltage that the UPS system is providing to the computer during normal AC/Utility Power mode, and battery backup mode.

ESTIMATED RUNTIME:
This displays the run time estimate of the UPS with the current battery capacity and load.

NORMAL icon:
This icon appears when the UPS is working under normal conditions.

BATTERY icon:
During a severe brownout or blackout, this icon appears and an alarm sounds (two short beeps followed by a pause) to indicate the UPS is operating from its internal batteries. During a prolonged brownout or blackout, the alarm will sound continuously to indicate the UPS's batteries are nearly out of power. You should save files and turn off your equipment immediately or allow the software to shut the system down.

OVER LOAD icon:
This icon appears and an alarm sounds to indicate the battery-supplied outlets are overloaded. To clear the overload, unplug some of your equipment from the battery-supplied outlets until the icon turns off and the alarm stops.

BATT. CAPACITY meter:
This meter displays the approximate charge level of the UPS's internal battery in 20% increments. During a blackout or severe brownout, the UPS switches to battery power (the BATTERY icon appears) and the battery charge level decreases.

LOAD CAPACITY meter:
This meter displays the approximate output load level of the UPS battery outlets in 20% increments.

FAULT:
The following number appears if there is a problem with the UPS. Press the POWER button to turn the UPS off.

E22: Battery Mode or AC/Utility Power Mode Overload fault (Unplug at least one piece of equipment from battery outlets and turn the UPS on again.)

E21: Battery Output Short fault (Unplug at least one piece of equipment from battery outlets and turn the UPS on again.)

E01: Charger Fault (Contact CyberPower Systems for support)

E24: Internal Fault (Contact CyberPower Systems for support)

Power	Fault (LE850G)	Alarm	Condition
On	Off	Off	**Normal**
On	Off	Beep twice every 30 seconds	**Utility Failure -** The UPS is providing power to battery protected outlets from its battery.
On	Off	Rapid beeping every 1/2 second	**Utility Failure -** The UPS is providing battery power. Rapid beeping indicates the unit will run out of power shortly.
On/Off	Flash once every 5 seconds	Constant tone	**Overload Fault -** Occurs when connected equipment exceeds the listed capacity of the UPS. Turn the UPS off, unplug at least one piece of equipment from battery outlets, wait 10 seconds, reset the circuit breaker and turn the unit on.
Off	Flash twice every 5 seconds	Constant tone	**Short Fault -** Unplug at least one piece of equipment from battery outlets and turn the UPS on again. **UPS Fault –** Contact CyberPower Systems for support.
On	Flash 3 times every 5 seconds	Constant tone	**Charger Fault -** Contact CyberPower Systems for support.

TROUBLESHOOTING

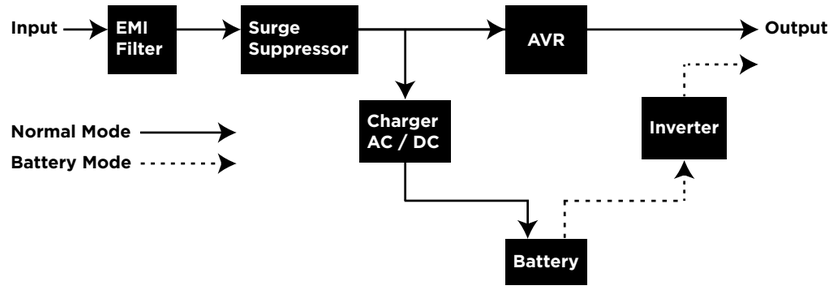
Problem	Possible Cause	Solution
Circuit breaker button is projecting from the back of the unit.	Circuit breaker has been tripped due to an overload.	Turn the UPS off and unplug at least one piece of equipment. Wait 10 seconds, reset the circuit breaker by pressing the button, and then turn the UPS on.
The UPS does not perform expected runtime.	Battery not fully charged.	Recharge the battery by leaving the UPS plugged in.
	Battery is worn out.	Contact CyberPower Systems about replacement batteries at: cyberpowersystems.com/support.
The UPS will not turn on.	The on/off switch is designed to prevent damage from rapidly turning it off and on.	Turn the UPS off. Wait 10 seconds and then turn the UPS on.
	The unit is not connected to an AC outlet.	The unit must be connected to a 120V 60Hz outlet.
	The battery is worn out.	Contact CyberPower Systems about replacement batteries at: cyberpowersystems.com/support.
	Mechanical problem.	Contact CyberPower Systems at: cyberpowersystems.com/support.
	The frequency is outside of the operating range of 57 to 63Hz.	Turn the UPS off. Make sure the frequency range is within 57 to 63Hz. Or you can turn the UPS on in battery mode.
PowerPanel® Personal is inactive (all icons are gray).	The USB / serial cable is not connected.	Connect the USB / serial cable to the UPS unit and an open USB / serial port on the back of the computer. You must use the cable that came with the unit.
	The USB / serial cable is connected to the wrong port.	Check the back of the computer for an additional USB / serial port. Move the cable to this port.
	The unit is not providing battery power.	Shutdown your computer and turn the UPS off. Wait 10 seconds and turn the UPS back on. This should reset the unit.

Additional troubleshooting information can be found at "Support" at www.CyberPowerSystems.com

TECHNICAL SPECIFICATIONS

Model	LE850G	LE1000DG
Capacity	850VA / 460W	1,000VA / 530W
Nominal Input Voltage	120Vac	
Input Frequency	60 Hz +/- 3 Hz	
On-Battery Output Voltage	120Vac +/- 5%	
Automatic Voltage Regulator (AVR)	Yes	
On-Battery Output Frequency	60 Hz +/- 1%	
Max. Load for UPS Outlets	850VA / 460W	1,000VA / 530W
Max. Load for Full-Time Surge Protection outlets	12 A	
On-Battery Output Wave Form	Simulated Sine Wave	
Operating Temperature	+ 32°F to 104° F / 0° C to 40° C	
Operating Relative Humidity	0 to 90% non-condensing	
Size (width x height x depth)	12.2 x 7 x 3.5 in.	
Net Weight	13.9 lbs.	14.3 lbs.
Typical Battery Recharge Time	8 hours to 90% capacity from total discharge	
Typical Battery Life	3 to 6 years, depending on number of discharge/recharge cycles	
Recommended Battery	Sealed Maintenance Free Lead Acid Battery	
Safety Approvals	UL1778(UPS), cUL107., FCC/DoC Class B	

SYSTEM FUNCTION BLOCK DIAGRAM



CYBERPOWER GREENPOWER UPS™ TECHNOLOGY

Advanced Energy-Saving Design

The GreenPower UPS™ has a high-efficiency charger, which makes it the most energy-efficient UPS in its class. The advanced high-frequency charging system significantly improves charging efficiency and conserves energy. As a result of this advanced design, the GreenPower UPS™ uses less energy compared to competitive models. The GreenPower UPS™ is manufactured in accordance with the Restriction on Hazardous Substances (RoHS) directive making it one of the most environmentally-friendly UPS systems on the market today.

GREENPOWER UPS™
Energy-Saving Technology

FCC COMPLIANCE STATEMENT

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.
Warning: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Canadian Compliance Statement
CAN ICES-3 (B)/NMB-3(B)

LIMITED WARRANTY AND CONNECTED EQUIPMENT GUARANTEE

Please visit www.CyberPowerSystems.com for a copy of the Limited Warranty and Connected Equipment Guarantee.

Where Can I Get More Information?

The application of the United Nations Convention of Contracts for the International Sale of Goods is expressly excluded. CyberPower is the warrantor under this Limited Warranty. For further information please feel free to contact CyberPower at:

Cyber Power Systems (USA), Inc.
4241 12th Ave E., STE 400
Shakopee, MN 55379

call us at **(877) 297-6937**; or submit a web ticket online at:
cyberpowersystems.com/support.

Cyber Power Systems (USA), Inc. encourages environmentally sound methods for disposal and recycling of its UPS products. Please dispose and/or recycle your UPS and batteries in accordance to the local regulations of your state.

WARNING: This product can expose you to chemicals including bisphenol A (BPA) and styrene, which is known to the State of California to cause reproductive harm and cancer. For more information, go to www.P65Warnings.ca.gov.