Manuals+ — User Manuals Simplified.

CyberPower®
**AVR Series
UPS System**

CyberPower AVR Series UPS System User Manual

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CyberPower®

CyberPower AVR Series UPS System

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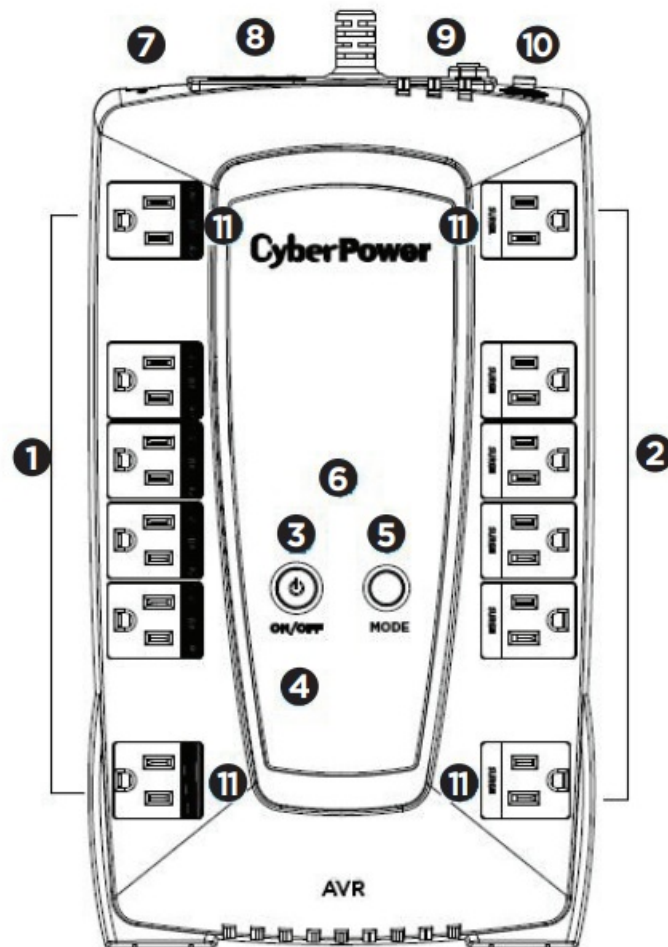
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PRODUCT REGISTRATION

Thank you for purchasing a CyberPower product. This UPS is designed to provide unsurpassed power protection, operation, and performance during the lifetime of the product. Please take a few minutes to register your product at: **www.CyberPowerSystems.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.

INSTALLING YOUR UPS SYSTEM – continued

### DETERMINE THE POWER REQUIREMENTS OF YOUR EQUIPMENT

1. Ensure that the equipment is plugged into the UPS and does not exceed the UPS unit's rated capacity. If the rated capacities of the unit are exceeded, an overload condition may occur and cause the UPS unit to shut down or the circuit breaker to trip.

2. many factors can affect the amount of power that your electronic equipment will be required. For optimal system performance keep the load below 80% of the unit's rated capacity.

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 eight 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 turned off.

2. With the UPS unit turned off and unplugged, connect your computer, monitor, and any other peripherals requiring battery backup to the battery power-supplied outlets. Plug the other peripheral equipment (ie. printer, scanner, speakers, etc.) into the full-time surge protection outlets. DO NOT plug a laser printer, paper shredder, copier, space heater, vacuum cleaner, sump pump, or another large electrical device into the "Battery and Surge Protected Outlets". The power demands of these devices will overload and possibly damage the unit.

3. To protect a fax, phone, or modem line, connect a telephone cable to 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.
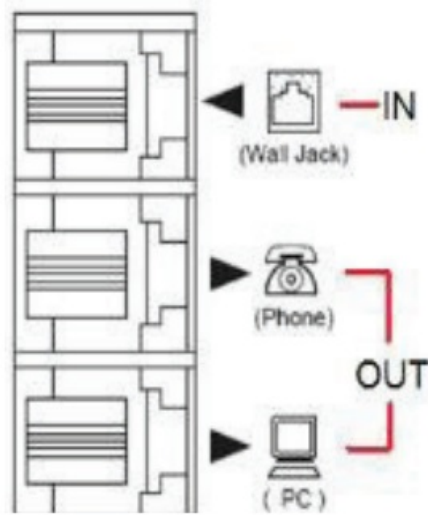
4. Plug the UPS into a 2-pole, 3-wire grounded receptacle (wall outlet). Make sure the wall branch outlet is protected by a fuse or circuit breaker and does not service equipment with large electrical demands (e.g. air conditioner, refrigerator, copier, etc.). The warranty prohibits the use of extension cords, outlet strips, and surge strips in conjunction with the UPS unit.

5. Press the power switch to turn the unit on. The Power On indicator light will illuminate green and the unit will "beep" once.
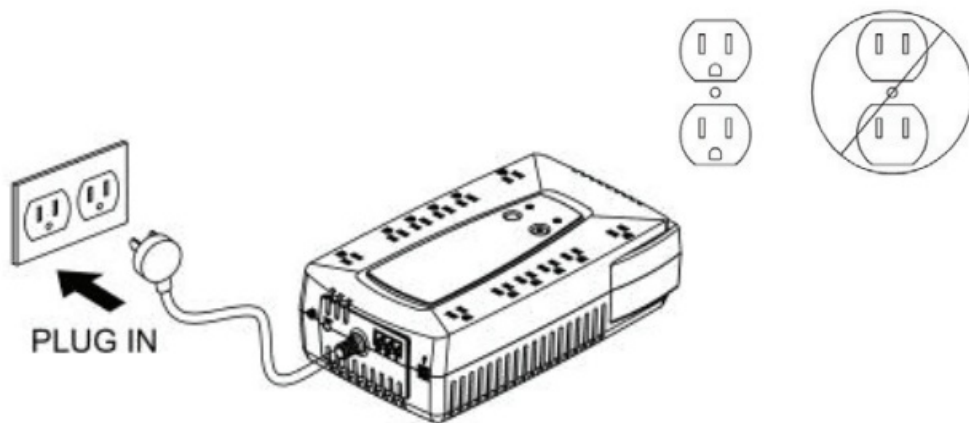
6. If an overload is detected, an audible alarm will sound and the unit will emit one long beep. To correct this, turn the UPS off and unplug at least one piece of equipment from the battery power-supplied outlets. Make sure the circuit breaker is depressed and then turn the UPS on.

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 it with the battery fully charged. While in storage, recharge the battery every three months to ensure optimal battery life.

9. Ensure the wall outlet and UPS are located near the equipment being attached for proper accessibility.

IMPORTANT SAFETY WARNINGS (SAVE THESE INSTRUCTIONS)
This manual contains important safety instructions. Please read and follow all instructions carefully during the installation and operation of the unit. Read this manual thoroughly before attempting to unpack, install, or operate your UPS.

- CAUTION! To prevent the risk of fire or electric shock, installed 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! The UPS must be connected to an AC power outlet with a 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 installing a computer component.
- CAUTION! To reduce the risk of fire, connect only to a circuit provided with a 20 amperes maximum branch circuit over the current protection by the National Electric Code, ANSI/NFPA 70.
- 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! Do not dispose of batteries in a fire. The batteries may explode.
- CAUTION! Do not open or mutilate batteries. Released electrolytes are harmful to the skin and eyes. It may be toxic.
- 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, any medical applications, or patient care.
- DO NOT USE WITH OR NEAR AQUARIUMS! To reduce the risk of fire or electric shock, do not use it 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
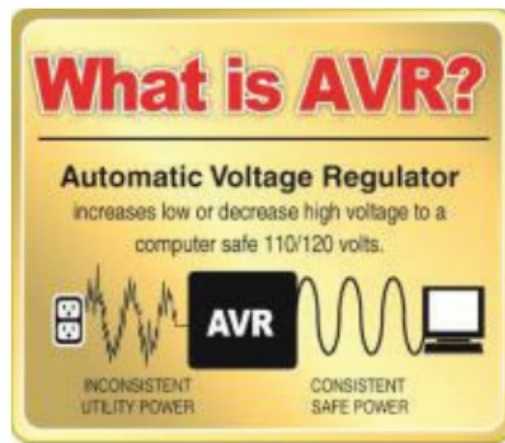
UNPACKING
Inspect the UPS upon receipt.
The box should contain the following:

- UPS unit
- User's manual
- USB device cable

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

AUTOMATIC VOLTAGE REGULATOR
The AVRG750 LCD / AVRG 900LCD 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 automatic cally increases low utility power to a consistent and safe 110/120 volts.

What is AVR?

Automatic Voltage Regulator increases low or decrease high voltage to a computer safe 110/120 volts.

INCONSISTENT UTILITY POWER — AVR — CONSISTENT SAFE POWER

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 another large electrical device into the Battery and Surge Protected Outlets. The power demands of these devices will overload and possibly damage the unit. Full-Time Surge Protection Outlets The unit has six surge suppression outlets

2. 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.

3. Alarm setting: 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. Mode Switch

   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 the 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.

   - Utility High Voltage Range: Adjust the value of the high voltage range.
   - Utility Low Voltage Range: Adjust the value of the low voltage range.
   - 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, the LCD is always on regardless if the setting is L1 or L0.

6. LCD Module Display

LCD shows all the UPS information using icons and messages. For more information please review the "Definitions for Illuminated LCD Indicators" section.

7. USB Port

   The USB port allows connection and communication between the USB port on the computer and the UPS unit.

8. Communication Protection PortsCommunication protection ports will protect any standard modem, fax, or telephone line. (RJ11)

9. Circuit Breaker

   Located on the side of the UPS, the circuit breaker serves to provide overload and fault protection.

10. Ground Screw

    The ground screw is used for any equipment that needs a chassis ground connection.

11. 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.
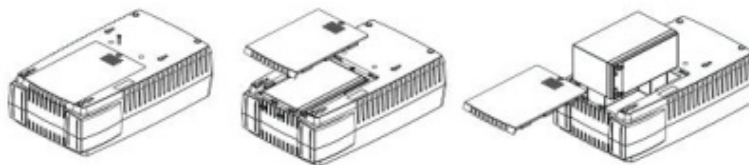
REPLACING THE BATTERY

Replacement of batteries located in an OPERATOR ACCESS AREA

1. When replacing batteries, replace with the same number of the following batteries: CyberPower/RB1270B for AVRG750LCD; CyberPower/RB1290A for AVRG900LCD

2. CAUTION! Risk of Energy Hazard, 12V, maximum 9 Ampere hour battery. Before replacing batteries, remove conductive jewelry such as chains, wristwatches, 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 – RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO LOCAL REGULATIONS
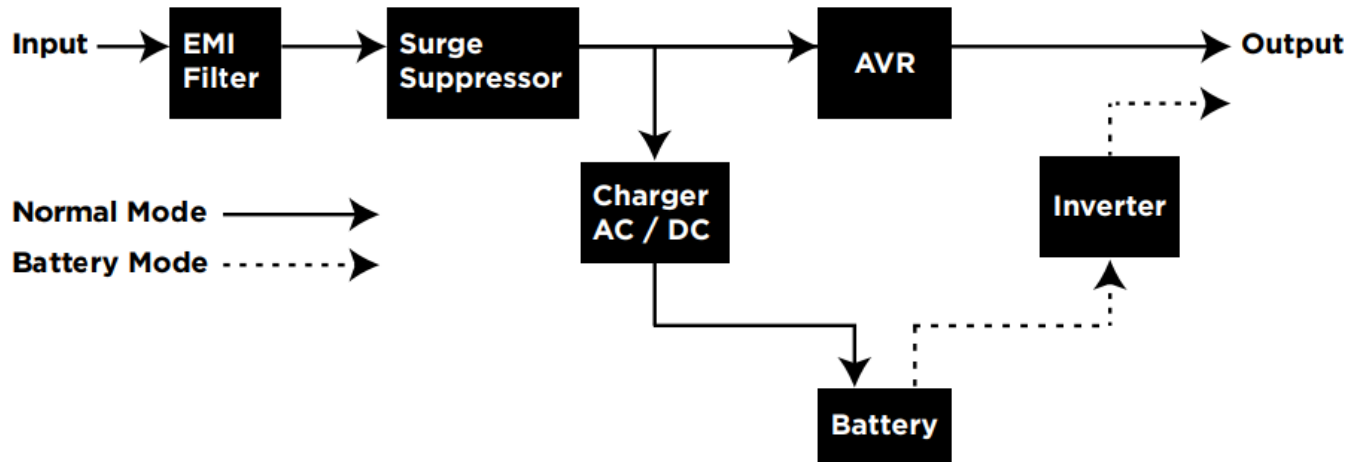
TO REPLACE THE BATTERY

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 one 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 (-) terminals 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 eight hours to fully charge the battery.

12. 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.

SYSTEM FUNCTION BLOCK DIAGRAM

```
Input ──▶ EMI      ──▶ Surge          ─────────┬──────────▶ AVR ──────────────────▶ Output
          Filter       Suppressor              │                              ┄┄┄┄▶
                                               ▼
Normal Mode ──────────▶              Charger              Inverter
                                     AC / DC
Battery Mode ┄┄┄┄┄┄▶                  │                      ▲
                                      │                      ┊
                                      └─────────┬─── ┄┄┄┄┄┄┄┘
                                                ▼
                                             Battery
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TROUBLESHOOTING

Problem	Possible Cause	Solution
Full-time surge protection outlets stop providing power to equipment. The circuit breaker button is projecting from the side of the unit.	The 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 the expected runtime.	The battery is not fully charged.	Recharge the battery by leaving the UPS plugged in.
	The 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 cyber power- **systems.com/support**.
	Mechanical problem.	Contact CyberPower Systems at cyber- **powersystems.com/support**.
	The frequency is outside of the operating range of 57-63Hz.	Turn the UPS off. Make sure the frequency range is within 57-63Hz. Or you can turn the UPS on in battery mode.
PowerPanel® Personal is inactive (all icons are gray).	The USB cable is not connected.	Connect the USB cable to the UPS unit and an open USB port on the back of the computer.
	The USB cable is connected to a bad USB port.	Check for a different USB port and plug the cable in.
	The unit is not providing battery power.	Shut down your computer and turn the UPS off. Wait 10 seconds and turn the UPS back on. This should reset the unit.

DEFINITIONS FOR LED INDICATORS & AUDIBLE ALARMS

POWER	ALARM	CONDITION
On	Off	**Normal**
On	**Beep twice every 30 seconds**	**Utility Failure -** The UPS is providing power to battery power-supplied outlets from its battery.
On	**Rapid beeping every 1/2 second**	**Utility Failure -** The UPS is providing battery power. Rapid beeping indicates the unit will run out of power soon.
On/Off	**Constant tone**	**Battery Mode or AC/Utility Power Mode Overload Fault -** Occurs when connected equipment exceeds the rating of battery outlets of the unit. Please unplug at least one piece of equipment from battery outlets.
Off	**Constant tone**	**Battery Output Short Fault -** Please unplug at least one piece of equipment from battery outlets and turn on the UPS again. If the fault still exists, please contact CyberPower Systems for support.
On	**Constant tone**	**Charger Fault -** Contact CyberPower Systems for support.

DEFINITIONS FOR ILLUMINATED LED INDICATORS

- INPUT voltage meter: measures the AC voltage that the UPS system receives 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, sustained
- Undervoltage, 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: measures, in real-time, the AC voltage that the UPS system is providing connected equipment during normal AC/Utility Power mode and battery backup mode.
- ESTIMATED RUNTIME: displays the runtime estimate of the UPS with the current battery capacity and load.
- NORMAL icon: appears when the UPS is working under normal conditions.
- BATTERY icon: appears during a sustained under-voltage or power loss, and an alarm sounds (two short beeps followed by a pause) to indicate the UPS is operating from its internal batteries. During a sustained Undervoltage or power loss, 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.
- OVERLOAD 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: displays the approximate charge level of the UPS's internal battery in 20% increments. The LCD 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. power loss or sustained low-voltage, the UPS switches to battery power (BATTERY icon appears) and the battery charge level decreases.
- LOAD CAPACITY meter: displays the approximate output load level of the UPS battery outlets in 20% increments.
- SENSITIVITY meter: displays the sensitivity level of the UPS. The sensitivity level of the
- UPS can be adjusted by entering setup mode on the multifunction LCD. When the sensitivity is increased, the UPS will switch to Battery Mode with less input power variation.
- FAULT: displays one of the following error codes below 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)

TECHNICAL SPECIFICATIONS

Model	AVRG750LCD	AVRG900LCD
Capacity	750VA / 450W	900VA / 480W
Nominal Input Voltage	120Vac	
Input Frequency	60 Hz +/- 3 Hz	
On-Battery Output Voltage	120Vac +/- 5%	
Automatic Voltage Regulator (AVR)	Yes	

TECHNICAL SPECIFICATIONS – continued

Model	AVRG750LCD	AVRG900LCD
On-Battery Output Frequency	60Hz +/- 1%	
Max. Load for UPS Outlets	750VA / 450W	900VA / 480W
Max. Load for Full-Time Surge Protection outlets	12 Amps	
On-Battery Output Wave Form	Simulated Sine Wave Form	
Operating Temperature	+ 32°F to 104° F / 0° C to 40° C	
Operating Relative Humidity	0 to 90% NON-CONDENSING	
Size (W x H x D)	12.2" x 7" x 3.5"	
Net Weight	14.0 lbs	14.3 lbs
Typical Battery Recharge Time	8 hours	
Typical Battery Life	3 to 6 years, depending on the number of discharge/recharge cycles	
Recommended Battery	Sealed Maintenance Free Lead Acid Battery	
Safety Approvals	UL1778 (UPS) / cUL107 / FCC/DoC Class B	

Run times based on testing fully-charged, new batteries at normal operating conditions. The runtime curve is approximate and varies based on battery age, level of charge at test, environment, and other variables.

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 by the Restriction on Hazardous Substances (RoHS) directive making it one of the most environmentally friendly UPS systems on the market today.

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, under part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment FC generates, uses, and can radiate radio frequency energy and, if not installed and used by 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 the 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

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**.

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Documents / Resources

CyberPower AVR Series UPS System [pdf] User Manual
AVRG750LCD, AVRG900LCD, AVR Series UPS System, AVR Series, UPS System, System

References

- **CP** **CyberPower UPS Systems, Battery Backup, PDUs, USB Surge Protectors**
- **CP** **Support | CyberPower**
- **CP** **CyberPower UPS Systems, Battery Backup, PDUs, USB Surge Protectors**
- **CP** **Registration | CyberPower**
- **User Manual**