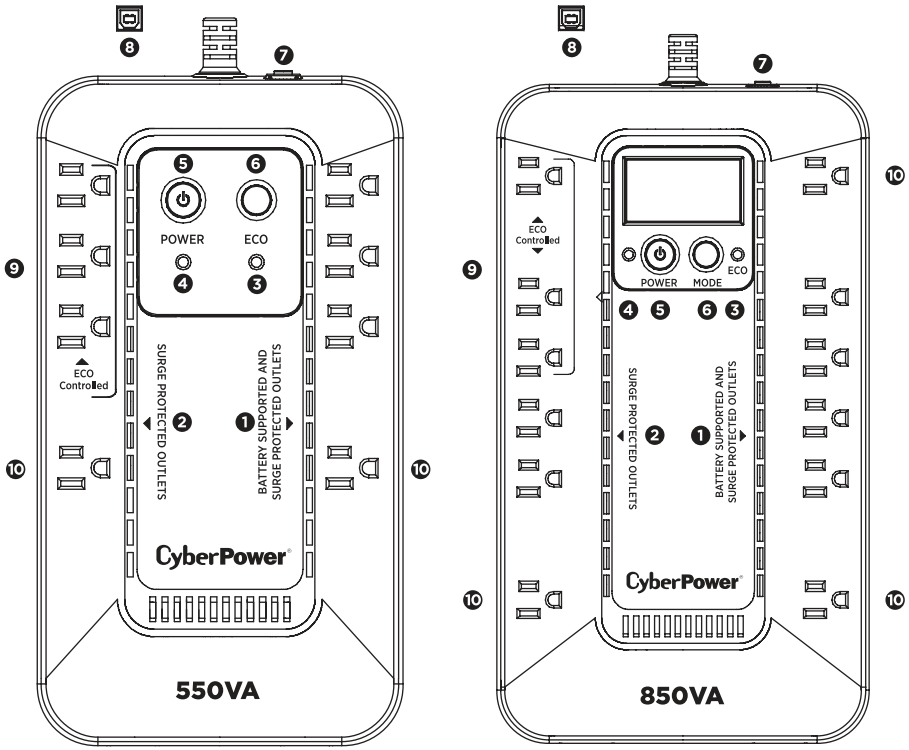
CyberPower®

YOUR ULTIMATE ALLY IN POWER

ECOLOGIC UPS SERIES

EC450G / EC550G / EC750G / EC650LCD / EC850LCD

USER MANUAL



EC450G / EC550G (8 outlets)
EC750G (12 outlets)

EC650LCD (8 outlets)
EC850LCD (12 outlets)

FEATURES

1. Battery and Surge Protected Outlets
2. Full-Time Surge Protection Outlets / ECO Controlled Outlets
3. ECO Indicator
4. Power On Indicator (green)
5. Power Switch
6. Mode Switch (EC650LCD and EC850LCD only) or ECO Button (EC450G, EC550G, and EC750G only)
7. Circuit Breaker
8. USB Port to PC
9. ECO Mode, Surge Protected Outlets
10. Widely-Spaced Outlets

PRODUCT REGISTRATION

Thank you for selecting the CyberPower UPS 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 by visiting: **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.

IMPORTANT SAFETY WARNINGS (SAVE THESE INSTRUCTIONS)

This manual contains important safety instructions. Please read and follow all instructions carefully during 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, 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. There are no user serviceable parts inside.

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 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! 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! 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 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 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

Thank you for selecting a CyberPower Systems Uninterruptable Power Supply (UPS). This UPS meets the Energy Efficiency Certification of the California Energy Commission (CEC). CyberPower Systems is dedicated to producing energy efficient products to maximize our contribution to the environment.

UNPACKING

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

(a) UPS unit
(b) User's manual
(c) USB A+B type cable

*PowerPanel® Personal software is available as a free download at:CyberPowerSystems.com/products/software.

DETERMINE THE POWER REQUIREMENTS OF YOUR EQUIPMENT

1. Ensure that the equipment plugged into the UPS does not exceed the UPS unit's rated capacity (450VA/260W for EC450G, 550VA/330W for EC550G, 750VA/450W for EC750G, 650VA/390W for EC650LCD, and 850VA/510W for EC850LCD). 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. There are many factors that can affect the amount of power that your electronic equipment will require. 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 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 turned off.

   Note: This UPS is designed with a safety feature to keep the system from being turned on during shipment. The first time you turn the UPS on, you will need to have it connected to AC power or it will not power up.
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. Plug the other peripheral equipment (e.g. 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 other large electrical device into the "Battery and Surge Protected Outlets". The power demands of these devices will overload and possibly damage the unit.**
3. 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.
4. Press the power switch to turn the unit on. The Power On indicator light will illuminate green and the unit will "beep" twice.
5. 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.
6. To maintain optimal battery charge, leave the UPS plugged into an AC outlet at all times.
7. To store the UPS for an extended period of time, cover it and store with the battery fully charged. While in storage, recharge the battery every three months to ensure optimal battery life.
8. 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 battery powered/surge suppression 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 / ECO Controlled Outlets**

   The unit has surge suppression outlets to provide surge and line noise protection. Three of the surge-only outlets are also ECO controlled outlets.
3. **ECO Indicator**

   ECO Indicator shows the condition of ECO function. For more information, refer to *ECO Function Setup* section.
4. **Power On Indicator (green)**

   This LED is illuminated when the utility power is normal and the UPS outlets are providing power, free of surges and spikes.
5. **Power Switch**

   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: The audible alarm can be turned Off or On by double click the POWER button. The default setting is for the Alarm On. To turn the Alarm Off, double click the button. You will hear two short beeps when the Alarm is turned off. To turn the Alarm back On, double click the button. 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.
6. **Mode Switch**
   (EC650LCD and EC850LCD only)

   Press the Mode Switch for approximately 3 seconds to enter setup mode to select four functions: Utility High Voltage Range, Utility Low Voltage Range, ECO ON/OFF, 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. ECO: Eon/EoF (ON/OFF):
   Turn on or turn off ECO function. For more information, refer to *ECO Function Setup* section.

   d. 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.

   ECO Button (EC450G, EC550G, and EC750G only)

   Press ECO button for 3 seconds to turn on or turn off ECO function in line mode.
7. **Circuit Breaker**

   Located on the side of the UPS, the circuit breaker serves to provide overload and fault protection.
8. **USB Port to PC**

   The USB port allows connection and communication between the USB port on the computer and the UPS unit. The UPS communicates its status to the PowerPanel® Personal software. The USB port is also used for operating the UPS in ECO mode. For more information, refer to *ECO Function Setup* section.
9. **ECO Mode, Surge Protected Outlets**

   ECO Mode outlets automatically cut power to peripherals when your computer is in Sleep mode or is turned off (USB connection required).
10. **Widely-Spaced Outlets**

    The UPS unit has widely-spaced outlets so AC power adapters can be plugged into the UPS without overlapping or blocking adjacent outlets.

ECO FUNCTION SETUP

ECO Function

When the ECO function is active the UPS can detect whether the PC that is connected to the USB port is turned on or off. If the PC is turned off, the UPS will turn off the ECO controlled outlets and cut power to the devices connected to them in order to save power.

Generally, these are peripherals that are not used when the PC is not turned on.

ECO Controlled Outlets

Three of the surge-only outlets are also ECO controlled outlets. When the PC that is connected to the USB port is turned off, the UPS will turn off the ECO controlled outlets to save energy.

ECO Setup

1. The factory default setting is OFF. ECO mode can only be enabled/disabled and will only be active when the UPS is receiving utility power and not in battery mode.

2. For the EC650/850LCD, press the Mode switch for approximately 3 seconds to enter setup mode and select the ECO function. When the ECO function is selected, press the Mode switch for 3 seconds to turn the function ON or OFF. Once ON or OFF is selected, wait 8 seconds for the setting to be confirmed and the LCD screen will return to status mode. For the EC450/550/750G, press the ECO button for 3 seconds to turn ON or OFF the ECO function.

3. When the ECO function is OFF, utility power from the ECO outlets will always be on. When the ECO function is ON, utility power from the ECO outlets will turn off if the PC connected to the UPS via the USB port is turned off or if there is no PC is connected to the UPS via USB.

ECO Indicator

The LED will blink when the ECO function is turned ON but the PC is either off or not connected. The LED will be solid if the ECO function is turned on and the connected PC is on. The LED is off when the ECO function is disabled. See below table for more information.

ECO Indicator	ECO Function	ECO Outlet Status	Condition
Solid (green)	ON	With Utility Power	When PC is ON and USB port on the UPS is connected, Peripherals will receive power to operate.
Blinking	ON	Without Utility Power	When PC is OFF or the USB port on the UPS is not connected, power to the Peripherals will be turned off.
OFF	OFF	Always with Utility Power	When PC is ON/OFF, Peripherals is always ON.

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 shortly.
On/Off	Constant tone	**Battery Overload -** 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.

DEFINITIONS FOR ILLUMINATED LCD INDICATORS

(EC650LCD and EC850LCD only)

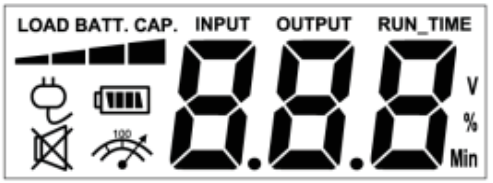
INPUT voltage meter: This meter measures the AC voltage that the UPS system is receiving from the utility wall outlet. The UPS is designed to continuously supply connected equipment with stable output voltage. In the event of a complete power loss, extended power reduction, or over-voltage, the UPS relies 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 connected equipment 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 an extended power reduction or power outage, this icon appears and an alarm sounds (two short beeps followed by a pause) to indicate the UPS is operating from its internal battery. The alarm will continue to sound during a prolonged power reduction or power outage. The BATT.CAPACITY meter will show one 20% capacity segment remaining to indicate the UPS's battery is nearly out of power. You should save files and turn off your equipment immediately.



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.

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.

BATTERY CAPACITY meter: This meter displays the approximate charge level of the UPS's internal battery in 20% increments. During a power outage or extended power reduction, 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.

TROUBLESHOOTING

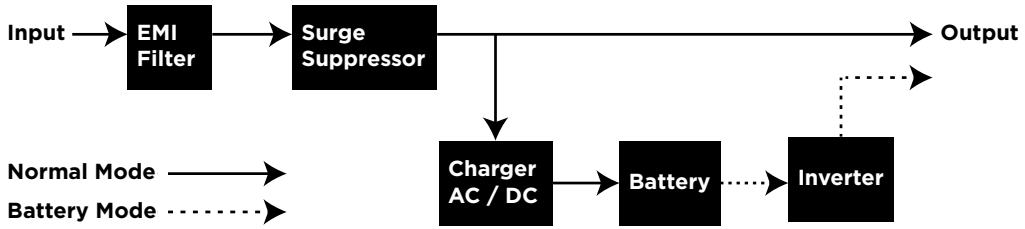
Problem	Possible Cause	Solution
Circuit breaker button is projecting from the side of the unit.	Circuit breaker has been tripped due to an overload.	Turn the UPS off and unplug at least one piece of equipment. Wait 10 seconds, reset the circuit breaker by pressing the button, and then turn the UPS on.
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
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 110/120V 50/60Hz outlet.
	The battery is worn out.	Contact CyberPower Systems about replacement batteries
	Mechanical problem.	Contact CyberPower Systems
	The frequency is outside of the operating range of 47-63Hz.	Turn the UPS off. Make sure the frequency range is within 47-63Hz. 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.	Shutdown your computer and turn the UPS off. Wait 10 seconds and turn the UPS back on. This should reset the unit.

Additional troubleshooting and contact information can be found online at CyberPowerSystems.com/support

TECHNICAL SPECIFICATIONS

Model	EC450G	EC550G	EC750G	EC650LCD	EC850LCD
Capacity	450VA / 260W	550VA / 330W	750VA / 450W	650VA / 390W	850VA / 510W
Nominal Input Voltage	120 VAC				
Input Frequency	47 Hz to 63 Hz				
On-Battery Output Voltage	120Vac ± 5%				
On-Battery Output Frequency	50Hz/60Hz ± 1% (auto-sensing)				
Max Load for UPS Outlets	450VA / 260W	550VA / 330W	750VA / 450W	650VA / 390W	850VA / 510W
Max Load for Full-time Surge Protection Outlets	10 Amps				
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 W x H x D	5.9 x 3.1 x 10.6 in. 150 x 79 x 269 mm	5.9 x 3.1 x 10.6 in. 150 x 79 x 269 mm	7 x 3.1 x 12.2 in. 178 x 79 x 310 mm	5.9 x 3.1 x 10.6 in. 150 x 79 x 269 mm	7 x 3.1 x 12.2 in. 178 x 79 x 310 mm
Net Weight	4.5 lbs / 2.1 kg	6.0 lbs / 2.7 kg	7.7 lbs / 3.5 kg	6.4 lbs / 2.9 kg	7.7 lbs / 3.5 kg
Typical Battery Recharge Time	8 hours typical from total discharge				
Typical Battery Life	3 to 6 years, depending on number of discharge/recharge cycles				
Battery	Sealed Maintenance Free Lead Acid Battery				
Safety Approvals	UL1778(UPS), cUL CSA C22.2 No.107.3-05, 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)

CyberPower encourages environmentally sound methods for disposal and recycling of its UPS products. Please dispose and/or recycle your UPS and batteries in accordance to your local regulations.
This device is manufactured using environmentally-safe procedures in compliance with the Restriction of Hazardous Substances directive.

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.

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