



by Schneider Electric

User Manual Back-UPS™ BC500-RS, BC650-RS 650 VA 230 V

Important Safety Information

Read the instructions carefully to become familiar with the equipment before trying to install, operate, service or maintain it. The following special messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a Danger or Warning safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, **will result in death or serious injury**.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **can result in death or serious injury**.

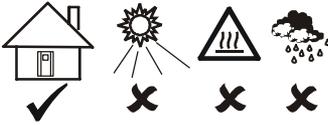
CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, **can result in minor or moderate injury**.

CAUTION

CAUTION addresses practices not related to physical injury including certain environmental hazards, potential damage or loss of data.

Safety



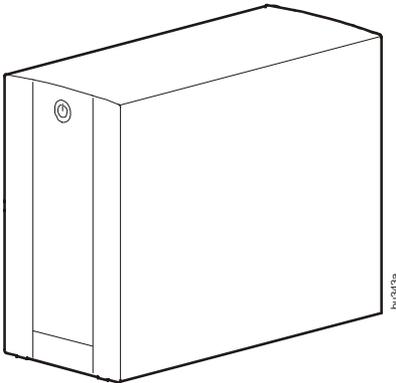
This UPS is intended for indoor use only. Do not operate this UPS in direct sunlight, in contact with fluids, or where there is excessive dust or humidity.

Be sure the air vents on the UPS are not blocked. Allow adequate space for proper ventilation.

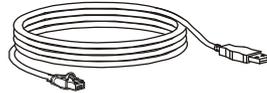
The battery typically lasts for two to five years. Environmental factors impact battery life. Elevated ambient temperatures, poor quality utility power, and frequent short duration discharges will shorten battery life.

Connect the Back-UPS power cable directly to a wall outlet. Do not use surge protectors or extension cords.

Inventory



BC650-RS only



BC650-RS only

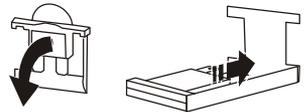


Connect the Battery

Connect the battery connector prior to using the UPS. Pull the battery connector handle down. Then push the connector into the UPS.

Do not expect full battery runtime capability during the initial charge period.

There are no serviceable parts in the Back-UPS. Do not attempt to open or repair the Back-UPS as this will void the warranty. The battery in this unit is not replaceable. Contact APC to order a new Back-UPS. Refer to the contact information at the end of this manual.



Turn On the Back-UPS

Press the Power ON button located on the front panel of the Back-UPS. The Power On/Replace Battery LED will illuminate and a single short beep will be audible to indicate that the Back-UPS is providing protection for connected equipment.

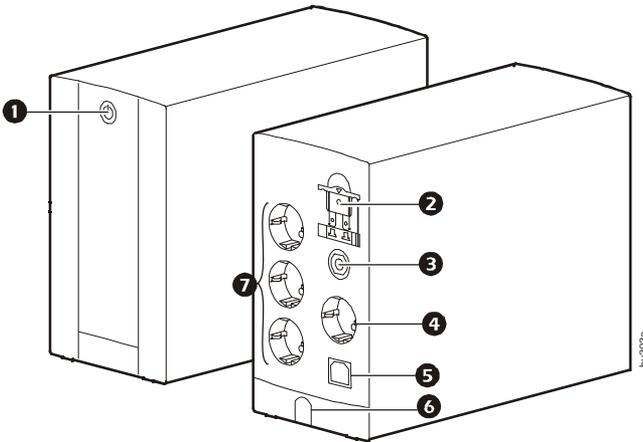
The Back-UPS battery charges fully during the first 10 hours while connected to utility power. The Back-UPS battery will charge while the Back-UPS is turned on or off and is connected to utility power. Do not expect full battery runtime capability during the initial charge period.

Specifications

Input	Voltage	230 VAC nominal
	Frequency	50/60 Hz
	Brownout Transfer	180 VAC (typical), 160 VAC (maximum adjustable)
	Over-voltage Transfer	266 VAC (typical), 278 VAC (maximum adjustable)
Output	UPS Capacity (total)	BC500-RS: 500 VA/300 W BC650-RS: 650 VA/390 W
	Voltage On Battery	230 Vac rms (step-approximated sine wave)
	Frequency - On Battery	50 Hz \pm 1 Hz, 60 Hz \pm 1 Hz
	Transfer Time	6 ms typical, 10 ms maximum
Protection and Filtering	AC Surge Protection	Full time, 273 joules
	AC Input	Resettable circuit breaker
Battery	Type (maintenance-free)	12 V, 7.2 Ah
	Average Life	2 - 5 years depending on the number of discharge cycles and environmental temperature
	Typical Recharge Time	8 Hours

Physical	Net Weight	BC500-RS: 5.5 kg
		BC650-RS: 5.8 kg
	Dimensions (H x W x D)	20 cm x 11.5 cm x 25.6 cm
	Operating Temperature	0°C to 40°C (32°F to 104°F)
	Storage Temperature	-15°C to 45°C (5°F to 113°F)
	Operating Relative Humidity	0 to 95% non-condensing
	Operating Elevation	0 to 3000 m (0 to 10,000 ft)

Connect the Equipment



1	ON/OFF button	Use to turn on/off the UPS.
2	Battery connector	Connect the internal battery before use.
3	Circuit breaker	Use to reset the system after an overload condition has occurred causing the circuit breaker to trip.
4	Surge protected outlet (no battery backup)	This outlet protects the connected equipment from damage by surge voltages but does not provide backup power during power interruption. Do not connect equipment that requires power backup during power interruptions to this outlet.
5	USB port	Available only for BC650-RS model. To use PowerChute software, connect a USB cable, to the USB port.
6	AC power cable	Use this cable to connect the Back-UPS to AC power.

7	Battery and surge protected outlets	<p>These outlets provide battery backup power to connected equipment for a limited period of time during power outages and voltage fluctuations.</p> <p>The Battery Backup + Surge Protection outlets provide battery power to connected equipment only when the Back-UPS is turned on.</p> <p>Connect critical equipment such as a computer, computer monitor, modem or other data sensitive devices to these outlets.</p> <p>Do not connect aquarium equipment, laser printers, paper shredders, sump pumps, or fans to these outlets as the modified sine wave output of the Back-UPS may cause these devices to experience a decrease in performance.</p> <p>Do not connect surge protectors or extension cords to these outlets.</p>
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PowerChute™ Personal Edition Software (Only for BC650-RS model)

Overview

PowerChute Personal Edition Software allows you to use your computer to access additional power protection and management features of the Back-UPS.

Using PowerChute, you can:

- Preserve work in progress during a power outage by putting your computer into Hibernate mode. When the power returns, the computer will appear exactly as it did before the power outage.
- Configure the Back-UPS management features, such as power-saving outlets, shutdown parameters, audible alarms, and more.
- Monitor and view the status of the Back-UPS, including the estimated runtime, power consumption, power event history, and more.

Available features will vary by Back-UPS model and operating system.

If you choose not to install PowerChute, the Back-UPS will still provide backup power and power protection to connected equipment. However, you will only be able to configure a limited number of features using the display interface.

Compatibility

PowerChute is compatible with Windows operating systems only. For a detailed list of supported operating systems, go to www.apc.com, select Software & Firmware.

For Mac operating systems, we recommend using the native shutdown application (within System Preferences) which recognizes your battery backup and allows you to configure shutdown of your system during power outages. To access this application, connect a USB cable from the Back-UPS DATA PORT (POWERCHUTE PORT) to a USB port on your computer, and see the documentation provided with your computer.

Installation

Connect the Back-UPS to a computer using a USB cable. Plug one end into the PowerChute Port on the rear panel of the Back-UPS and the other into a USB port on your computer.

Insert the PowerChute CD into your computer and follow the on-screen instructions.

If your Back-UPS did not come with a PowerChute CD, a free download is available on the APC Web site. On the computer, go to www.apc.com/tools/download. Select “Software Upgrades - PowerChute Personal Edition” in the “Filter by Software/Firmware” drop down menu. Select the appropriate operating system. Follow directions to download the software.

Transfer Voltage and Sensitivity Settings

Voltage regulation

The Back-UPS will switch to battery power if the AC input voltage level becomes too low or too high, or if the AC power is experiencing voltage fluctuations.

No-load shutdown

The UPS will shut down to conserve energy if while operating on battery power the UPS detects that connected equipment is using less than 15 W of energy for more than 15 minutes.

Disable this feature if low power consuming equipment like ADSL-modem or wi-fi router is connected to the Back-UPS.

No-load shutdown can be enabled or disabled through **Program** mode described below.

Voltage sensitivity adjustment

If the Back-UPS switches to battery power too frequently or too infrequently, adjust the transfer voltage and sensitivity settings:

1. Verify that the Back-UPS battery is connected. Connect the Back-UPS to a wall outlet. The Back-UPS should be turned off.
2. Press and hold the POWER ON/OFF button until the LED continuously flashes green. Release the button. The Back-UPS is now in **Program** mode.
3. The LED will flash once, twice, or three times per second, and emit audible beeps to indicate the current sensitivity level. The Back-UPS will beep to indicate that No-load Shutdown is enabled. Refer to the table for an explanation of the transfer voltage sensitivity levels.
4. Press the POWER ON/OFF button within two seconds to change the setting. Continue pressing the button until the desired setting is reached. If the button is not pressed within five seconds, the Back-UPS will exit the Program Mode.
5. To select LOW sensitivity, press the POWER ON/OFF button until the LED flashes green once per second.
6. To select MEDIUM sensitivity, press the POWER ON/OFF button until the LED flashes green two times per second.
7. To select HIGH sensitivity, press the POWER ON/OFF button until the LED flashes green three times per second.
8. To exit Program mode wait for five seconds, the LED will extinguish. Program mode is no longer active.

LED Flashes	Audible Indicator	Voltage Sensitivity Setting	Input Voltage Range	No-load Shutdown	Recommended Use
Once per second	None	Low	160-278	Disabled	The Back-UPS will switch to battery power less often. Use this setting for equipment that is not sensitive to low or high level voltage levels or minor voltage waveform distortions.
Twice per second	None	Medium	180-266	Disabled	Use when the input utility power is normal, without any fluctuation in voltage levels.
Three times per second	None	High	196-256	Disabled	The Back-UPS will switch to battery power during any small fluctuation in voltage. Use this setting for equipment that is sensitive to low or high level voltage levels or minor voltage waveform distortions.

LED Flashes	Audible Indicator	Voltage Sensitivity Setting	Input Voltage Range	No-load Shutdown	Recommended Use
Once per second	4 beeps per second	Low	160-278	Enabled	The Back-UPS will switch to battery power less often. Use this setting for equipment that is not sensitive to low or high level voltage levels or minor voltage waveform distortions.
Twice per second	4 beeps per second	Medium (factory default)	180-266	Enabled	Use when the input utility power is normal, without any fluctuation in voltage levels.
Three times per second	4 beeps per second	High	196-256	Enabled	The Back-UPS will switch to battery power during any small fluctuation in voltage. Use this setting for equipment that is sensitive to low or high level voltage levels or minor voltage waveform distortions.

Status Indicators

LED	Audible Alarm	Condition
Illuminates Green	None	Power On -The Back-UPS is supplying utility power to the connected equipment.
	Constant tone	Overload Alarm - The Back-UPS draws more voltage than the utility voltage rating allows. Disconnect non-essential equipment.
	Constant beeping	Overload Shutdown - While operating on utility power the Back-UPS experiences an overload condition. Disconnect non-essential equipment, one device at a time until the overload condition has been corrected. The Back-UPS will shutdown if the overload condition is not corrected.
Illuminates Green The LED is not illuminated during the beeps.	4 beeps once every 30 seconds	On Battery - The Back-UPS is supplying battery power to the battery backup outlet.

Flashes Green	Rapid beeps once every 1/2 second	Low Battery Warning - The Back-UPS is supplying battery power to the battery backup outlet and the battery is near a total discharge state. The Back-UPS has 2 minutes of runtime remaining before shutdown.
	Constant tone	Bad Battery Warning - The battery needs to be charged, or is at the end of its service life. The battery in this unit is not replaceable. Contact APC Technical Support.
	Chirps once every 2 seconds	Charger Warning - The Back-UPS has experienced an internal fault, and continues to provide power to the connected equipment. Contact APC Technical Support.
Not Illuminated	Constant tone	On Battery Overload - While operating on battery power the connected equipment draws more voltage than the battery capacity can provide. Disconnect non-essential equipment, one device at a time until the overload condition has been corrected. If the problem persists, contact APC Technical Support.
	Constant tone	Internal Charger Fault - The Back-UPS experiences an internal fault and no longer provides power to connected equipment. Contact APC Technical Support
	Constant tone	Temperature Fault - The Back-UPS has overheated and has shut down.
	Short beeps every 4 seconds	Low Battery Shutdown - During On Battery operation the battery is at a complete discharge state and the Back-UPS stops providing output power. (Once utility power is restored the Back-UPS will return to normal operation.)

Troubleshooting

Problem	Possible Cause	Corrective Action
The Back-UPS will not turn on.	The Back-UPS is not connected to AC power.	Be sure that the Back-UPS is securely connected to an AC outlet.
	The circuit breaker has been tripped.	Disconnect nonessential equipment from the Back-UPS. Reset the circuit breaker. Reconnect equipment one item at a time. If the circuit breaker is tripped again, disconnect the device that caused the short circuit.
	The internal battery is not connected.	Connect the battery using back panel battery key. See “Turn On the Back-UPS” section.
The Back-UPS is operating on battery power, while connected to AC power.	<ul style="list-style-type: none"> • The Back-UPS power cable is not securely connected to the wall outlet. • The wall outlet is no longer receiving AC power. • The circuit breaker has been tripped. 	Verify that the power cable plug is securely connected to the wall outlet. Verify that the wall outlet is receiving AC power by checking it with another device.
	The Back-UPS is performing an automatic self test.	No action is necessary.
	<ul style="list-style-type: none"> • The AC input voltage is out of range. • The frequency is out of range. • The waveform is distorted. 	Adjust the transfer voltage and sensitivity range.
The Back-UPS does not provide the expected amount of backup time.	The UPS battery is weak due to a recent power outage or is near the end of its service life.	Charge the battery. Batteries require recharging after an extended outage. Elevated ambient temperatures, poor quality AC power, and frequent short duration discharges will shorten battery life.

Problem	Possible Cause	Corrective Action
Connected equipment loses power.	The Back-UPS has experienced an overload condition.	Disconnect non-essential equipment one device at a time to reduce the overload condition.
	The Back-UPS has exhausted its available battery power.	The Back-UPS can operate on battery power for a limited amount of time. The Back-UPS will shut down when the available battery power has been exhausted. Allow the Back-UPS battery to charge for 10 hours before using the Back-UPS.
	The equipment connected to the Back-UPS does not accept the step approximated sine waveform from the unit.	The output waveform is designed for computers and computer-related equipment. It is not designed for use with motor-type equipment.
	The Back-UPS may require service	Contact APC Technical Support for further troubleshooting.

Service

If the unit requires service, do not return it to the dealer. Follow these steps:

1. Review the *Troubleshooting* section of the manual to eliminate common problems.
2. If the problem persists, contact APC Customer Support through the Web site, www.apc.com.
 - a. Note the model number and serial number and the date of purchase. The model and serial numbers are located on the rear panel of the unit and are available through the LCD display on select models.
 - b. Call APC Customer Support and a technician will attempt to solve the problem over the phone. If this is not possible, the technician will issue a Returned Material Authorization Number (RMA#).
 - c. If the unit is under warranty, the repairs are free.
 - d. Service procedures and returns may vary internationally. Refer to the APC Web site for country specific instructions.
3. Pack the unit properly to avoid damage in transit. Never use foam beads for packaging. Damage sustained in transit is not covered under warranty.

Note: When shipping within the United States, or to the United States always DISCONNECT A UPS BATTERY before shipping in compliance with U.S. Department of Transportation (DOT) and IATA regulations. The internal batteries may remain in the UPS.

4. Write the RMA# provided by Customer Support on the outside of the package.
5. Return the unit by insured, pre-paid carrier to the address provided by Customer Support.

Battery Replacement

WARNING

HAZARD OF EXPLOSION

Do not dispose of the batteries in a fire. The batteries may explode.
Do not open or mutilate the batteries. Release electrolyte may be toxic and it is harmful to the skin and eyes.

Failure to follow these instructions can result in death or serious injury

The battery in the Back-UPS is not user-replaceable. Contact APC Sales and Technical Support for a list of authorized service centers near you.

Warranty

The standard warranty is two (2) years from the date of purchase. APC standard procedure is to replace the original unit with a factory reconditioned unit. Customers who must have the original unit back due to the assignment of asset tags and set depreciation schedules must declare such a need at first contact with an APC Technical Support representative. APC will ship the replacement unit once the defective unit has been received by the repair department, or cross-ship upon the receipt of a valid credit card number. The customer pays for shipping the unit to APC. APC pays ground freight transportation costs to ship the replacement unit to the customer.

Contact Information

Internet	http://www.apc.com
Technical Support	http://www.apc.com/support

EAC Requirements

EAC	Product type	UPS
	Models	BC500-RS, BC650-RS
	Manufacturer contact information	International Precision Assemblies Inc. Lot 2 Block 17 Phase IV, PEZA Rosario 4106 Cavite, Philippines
Transportation conditions	Battery key should be disconnected prior to transportation.	
Type of atmosphere for operations	Normal	
Type of environment for operations	Normal	
Date of manufacturing	Printed on packaging.	
Made in Philippines		
Company representative in Russia	ZAO Schneider Electric 127018, Moscow, Dvintsev street 12, Building 1	
Product life time	3 to 5 years	
Warranty	2 years	

Visit our Web site www.apc.com for detailed information about regulations and declarations for these products.

