# 1 Connect Equipment

☐ **Battery Backup** ⚡ **Surge Protection**

These outlets are powered whenever the Back-UPS is switched ON. During a power outage, or other utility problems (brownouts, over-voltages), these outlets will be powered for a limited time by the Back-UPS. Plug the computer and monitor into these two outlets.
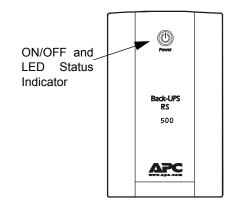
Connect AC Power Cord

Plug the Back-UPS power cord into a wall outlet, not a surge protector or power strip. The outlet should be near the equipment and easily accessible.
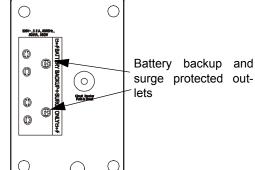
# 2 Turn on the Unit

Press ON/OFF to turn on the unit.

A single short beep, and the green "Power On" indicator confirms that the Back-UPS is on and ready to provide protection.

The Back-UPS should charge for at least 10 hours to ensure sufficient runtime. The unit is being charged whenever it is connected to utility power, whether the unit is turned ON or OFF.

# 3 Adjust Transfer Voltage and Sensitivity Settings

Automatic Voltage Regulation boosts the utility voltage when it drops below safe levels. This allows the equipment plugged into the unit to operate during low voltage conditions, conserving the battery power in the event of a power cut.

The Back-UPS will switch to battery power if the input voltage level becomes too low for the Automatic Voltage Regulation to compensate, or if the utility power is distorted.

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

1. Ensure the Back-UPS is off. Plug it into utility power.

2. Press and hold ON/OFF until the LED repeatedly flashes. The unit is now in Program Mode.

3. Release the button. The LED will flash once, twice, or three times per second, indicating the current setting. See *Transfer Voltage and Sensitivity Settings*.

4. Press ON/OFF within two seconds to change the setting. Each time the button is pressed, the LED will flash at a different rate: once, twice, or three times per second, indicating the new 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 exit Program Mode, release the button and wait for the LED to stop flashing.

Place the Back-UPS to avoid:
- Direct sunlight
- Excessive heat
- Excessive humidity or contact with fluids

ON/OFF and LED Status Indicator

Battery backup and surge protected outlets

## Status Indicators

The Back-UPS ES indicates its operating status using a combination of visual and audible indicators. Use the following table to identify the status of the Back-UPS ES.

| Power On LED | Buzzer | Condition |
|---|---|---|
| On | Off | **On-line** - Back-UPS is supplying conditioned utility power to the connected equipment |
| On (Off during 4 beeps) | 4 beeps repeated every 30 seconds | **On-Battery** - Back-UPS is supplying battery power |
| Flashing | Rapid Beeping (every 1/2 second) | **Low Battery Warning** - The Back-UPS has 1.5 minutes of remaining battery power |
| Flashing | Constant tone | **Bad Battery Detected** - Battery needs to be charged, or is at end of life. (See *Battery Replacement.)* |
| Off | Short beep every 4 seconds | **Low Battery Shutdown** - During On Battery operation the battery power was almost completely exhausted, and the Back-UPS is waiting for utility power to return to normal |
| Off | Constant Tone | **On Battery Overload** - Connected equipment requires more power than provided by the Back-UPS battery. Unplug devices one at a time to remove overload, if not corrected Contact APC Technical Support |
| On | Constant Tone | **On Line Overload** - The power drawn by the connected equipment exceeds the power capacity of the Battery Backup |
| Flashing | Chirp every 2 seconds | **Charger Warning** - Back-UPS has experienced an internal problem, but continues to power the load. Contact APC Technical Support |
| Off | Constant Tone | **Charger Fault** - Back-UPS has an internal problem, and is no longer powering the load. Contact APC Technical Support |

## Transfer Voltage and Sensitivity Settings

| LED Flashing | Transfer Voltage Setting | Input Voltage Range (For Utility Operation) | Usage |
|---|---|---|---|
| Once per second | Low | 155 - 280 | The Back-UPS will switch to battery power less often. Use with equipment that is not sensitive to low or high level voltage levels or minor voltage waveform distortions. |
| Twice per second | Medium (factory default) | 160 -280 | Default, use in normal conditions. |
| Three times per second | High | 165 - 270 | The Back-UPS will switch to battery power during any small fluctuation in voltage. Use with equipment that is sensitive to low or high level voltage levels or minor voltage waveform distortions. |

# Troubleshooting

| Problem | Probable Cause | Solution |
|---|---|---|
| Back-UPS will not turn on. | Circuit Breaker has tripped. | Reduce the amount of equipment plugged into the "Battery Backup + Surge Protection" outlets. Reset the circuit breaker by pushing it back in. |
| | Utility power is not available at the wall outlet. | Ensure the fuse or circuit breaker for the wall outlet is okay, and the wall switch controlling the wall outlet (if any) is in the ON position. |
| Connected equipment loses power. | The Back-UPS is overloaded. | Ensure the equipment plugged into the outlets of the unit are not overloading the capacity of the unit. Try disconnecting some of the equipment one device at a time, and see if the problem continues. |
| | The Back-UPS has exhausted its available battery power. | The unit can only operate on battery power for a limited amount of time. The unit will eventually turn off when the available battery power has been used. Allow the unit to recharge for 10 hours before continuing to use the unit. |
| | 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. |
| The ON/OFF button is lit, and the unit is beeping four times every 30 seconds, or it is emitting a constant tone. | The unit is using battery. | The unit is operating normally and using battery power. Save any current work, turn off all equipment, and turn the unit OFF. Once normal power is restored, turn the unit back ON, and turn on all equipment. |
| The On/Off button flashes once per second, and the Back-UPS beeps once per second at the same time. | Battery capacity is low (there is about 2 minutes of use remaining). | The unit is about to shut down due to a low battery charge condition! When the unit beeps once every second, the battery has about 2 minutes of power remaining. Immediately power down your computer, and turn the unit OFF. When power returns to normal, the unit will recharge the battery. |
| Inadequate runtime. | The battery is not fully charged. | Allow the unit to charge by leaving it plugged in, and switched on for 10 hours. |
| | The battery is near the end of useful life. | As a battery ages, the amount of runtime available will decrease. Batteries also age prematurely if the unit is placed near excessive heat. If the battery will not charge, the Back-UPS is no longer operable. |

# Specifications

| Input | Voltage | 230 VAC nominal |
|---|---|---|
| Input | Voltage | 230 VAC nominal |
| | Frequency | 45-65 Hz |
| | Brownout Transfer | 160 ±8% VAC, typical |
| | Over-voltage Transfer | 280 VAC, typical |
| Output | UPS Capacity (total) | 500 VA / 300 W |
| | Voltage On Battery | 230 Vac rms (step-approximated sine wave) |
| | Frequency - On Battery | 50 Hz ±1 Hz, 60 Hz ±1 Hz |
| | Transfer Time | 50 Hz: 6ms typical, 10ms maximum 60 Hz: 5ms typical, 8ms maximum |
| Protection and Filter | AC Surge Protection | Full time, 160 joules |
| | AC Input | Resettable circuit breaker |
| Battery | Type (maintenance-free) | 12V, 40 Watts/5 min |
| | Average Life | 2 - 5 years depending on the number of discharge cycles and environmental temperature |
| | Typical Recharge Time | 10 Hours |
| Physical | Net Weight | 5.1 kg |
| | Dimensions (H x W x D) | 18.55 cm (H) x 11.5 cm (W) x 21.3 cm (D) |
| | Operating Temperature | 0 $^o$C to 40 $^o$C (32 $^o$F to 104 $^o$F) |
| | Storage Temperature | -15 $^o$C to 45 $^o$C (5 $^o$F to 113 $^o$F) |
| | Operating Relative Humidity | 0 to 95% non-condensing |
| | Operating Elevation | 0 to 3000 m (0 to 10,000 ft) |

# Service

Please DO NOT RETURN Back-UPS to the place of purchase under any circumstances.

1. Consult the Troubleshooting section to eliminate common problems.

2. If you still have problems or questions, please contact APC via the internet or at one of the phone numbers listed below.

3. Before contacting APC, please be sure to record the date purchased, UPS model, and serial number (on bottom of unit).

4. Be prepared to troubleshoot the problem over the telephone with a Technical Support Representative. If this is not successful, the representative will issue a Return Material Authorization Number (RMA#) and a shipping address.

5. Pack the unit in its original packaging. If the original packaging is not available, ask APC Technical Support about obtaining a new set. Pack the unit properly to avoid damage in transit. Never use foam beads for packaging. Damage sustained in transit is not covered under warranty (insuring the package for full value is recommended).

6. Write the RMA# on the outside of the package.

7. Return the unit by insured carrier to the address given to you by APC Technical Support.

# Warranty

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

# Battery Replacement

The battery in the Back-UPS 500 is not user-replaceable. Contact APC Sales and Technical Support for a list of authorized service centers near you.

# APC Contact Information

APC Corporate Office (India)
27 Lavelle Road, Bangalore 560 001
Phone: 080 - 3987 2000
www.apc.com/in

APC Corporate Office (USA)
132 Fairgrounds Rd.
West Kingstown, RI 02892, USA
Phone: 401-789-0204
www.apc.com/in

Toll Free Helplines.................MTNL: 1800 4254 877, 1800 4254 272,
All other operators: 39022272 (add STD code of the city you're calling from when using your mobile)
Customer Service Email.......indiainfo@apcc.com

Technical Support Email......isbtech@apcc.com