

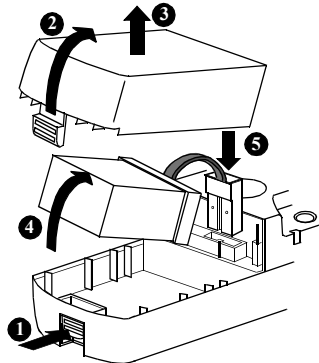
Back-UPS™ ES 350/500 User's Manual

990-2101A-001 1/04

Installation

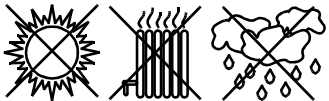
1 Connect Battery

The Back-UPS is shipped with the internal battery disconnected. Remove the battery cover and connect the battery, as shown below. Refer to Replacing the Battery for additional information.



2 Placement

Avoid placing the Back-UPS in direct sunlight, excessive heat, excessive humidity or in contact with fluids of any type. For convenience, the Back-UPS can be mounted on a wall (see Wall Mount of UPS on the back page).

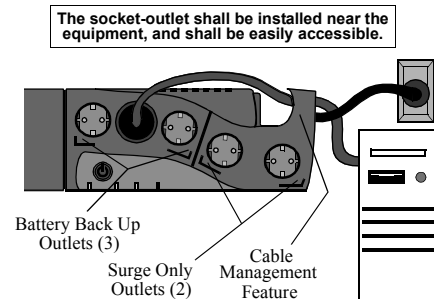


3 Connect Equipment to the Back-UPS

Battery Back Up Outlets (qty. of 3). These outlets provide battery back-up, surge protection, and Electro-magnetic Interference (EMI) filtering. In case of power outage, battery power is automatically provided to these outlets. Power (facility or battery) is not supplied to these outlets when the Back-UPS is switched **Off**. Connect a computer, monitor, external disk or CD-ROM drive to these outlets.

Surge Only Outlets (qty. of 2). These outlets are always **On** (when facility power is available) and are not controlled by the **On/Off** switch. These outlets do not provide power during a power outage. Connect a printer, fax machine or scanner to these outlets.

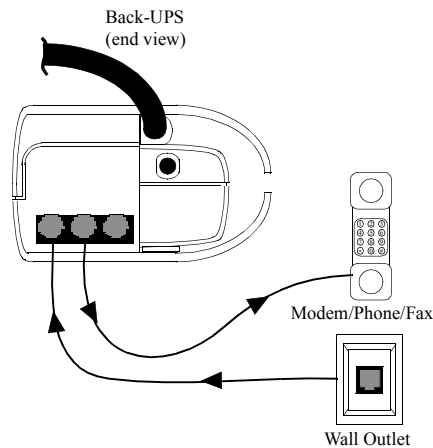
Cable Management Feature. For convenience, the Back-UPS provides a method for integral cable management (see below).



4 Connect the Phone Line to Surge Protection

The telephone ports provide lightning surge protection for any device connected to the telephone line (computer, modem, fax or telephone). The telephone ports are compatible with Home Phoneline Networking Alliance (HPNA) and Digital Subscriber Line (DSL) standards, as well as all modem data rates. Connect as shown.

The optional USB Data Port connection is described in step 5.

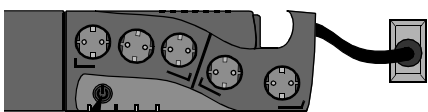


5 Switch on the Back-UPS

Note: Allow the Back-UPS to charge for a full eight hours prior to use.

Caution: The plug on the supply cord is the disconnect device for the product. The socket-outlet that you plug into shall be located near the equipment and shall be easily accessible. The socket outlet must be a grounding type.

Press the Power On/Off push-button on the Back-UPS.

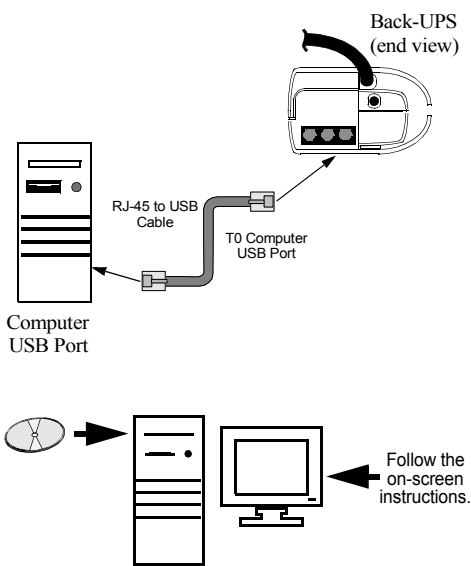


Power On/Off Push-button

Observe that the following events occur after pressing and releasing the push-button:

- The green **On-Line** indicator flashes.
- The yellow **On Battery** indicator lights while the **Self-Test** is being performed.
- When **Self-Test** has successfully completed, only the green **On Line** indicator will be lit.
- If the internal battery is not connected, (see step 1) the green **On Line** indicator and red **Replace Battery** indicator will light. The Back-UPS will also emit a series of short beeps for one minute.

6 Connect USB Cable and Install Software (optional)

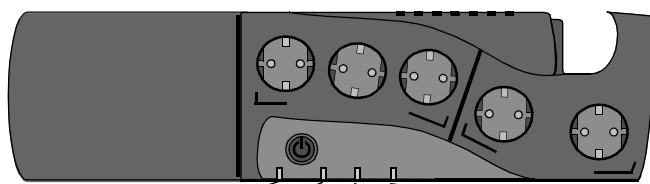


NOTE: Macintosh Users - for full USB performance, use Mac OS 10.1.5 or higher.

If Autoplay is not enabled on the computer, proceed as follows:

- On the computer desktop of the display, double-click on My Computer.
- Double-click on the CD-ROM drive icon and follow the on-screen instructions.

Status Indicators and Alarms



On Line (green) - is lit whenever facility power is powering the Battery Backup outlets.

On Battery (yellow) - is lit whenever the battery of the Back-UPS is powering equipment connected to the Battery Back Up Outlets.

Single Beep - a short power loss has occurred and the Back-UPS briefly goes on battery.

Four Beeps Every 30 Seconds - this alarm is sounded whenever the Back-UPS is running On Battery. Consider saving work in progress.

Continuous Beeping - this alarm is sounded whenever a low battery condition is reached. Battery run-time is very low. Promptly save any work in progress and exit all open applications. Shutdown the operating system, computer and the Back-UPS.

Replace Battery (red) - is lit whenever the battery is near the end of its useful life, or if the battery is not connected (see above). A battery that is near the end of its useful life has insufficient run-time and should be replaced.

Beeps for 1 Minute Every 5 Hours - this alarm is sounded whenever the battery has failed the automatic diagnostic test.

Overload (red) - is lit whenever power demand has exceeded the capacity of the Back-UPS.

Continuous Tone - this alarm is sounded whenever the Battery Backup outlets are overloaded.

Circuit Breaker - the circuit breaker button located at the side of the Back-UPS will stick out if an overload condition forces the Back-UPS to disconnect itself from facility power. If the button sticks out, disconnect non-essential equipment. Reset the circuit breaker by pushing the button inward.

Circuit Breaker

Replace the Internal Battery

To replace the internal battery, proceed as follows:

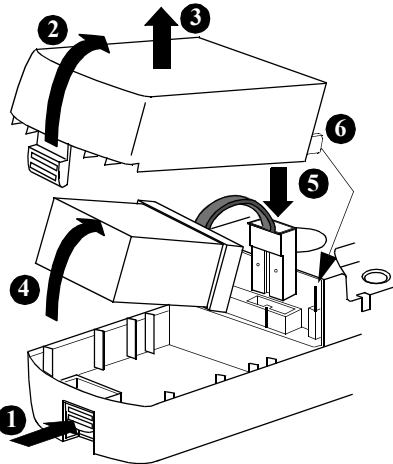
Note: Replacing the battery is a safe procedure. However, small sparks may occur during the process. This is normal.

1 2 3

Place the unit on a flat surface. Press the battery cover latch and remove the battery cover.

4

Pull the battery out of the housing, exposing the battery wire and connector. Pull up on the battery connector. Recycle the old battery.



5

Connect the new battery to the battery connector. Place the battery into the housing.

6

Slide the tabs on the battery cover into the slots in the chassis. Push the battery cover downward until the battery cover latches to the housing.

Order Replacement Battery

The typical battery lifetime is 3-6 years (depending on the number of discharge cycles and operating temperature). A replacement battery can be ordered over the phone from APC, or the battery can be ordered on-line from the APC web site (see below, a valid credit card is required).

When ordering, please specify Battery Cartridge: 350 VA order **RBC29**, 500 VA order **RBC30**.

Transfer Voltage Adjustment (optional)

In situations where the Back-UPS or connected equipment appears too sensitive to input voltage, it may be necessary to adjust the transfer voltage. This is a simple task requiring use of the front panel pushbutton. To adjust the transfer voltage, proceed as follows:

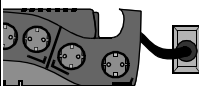
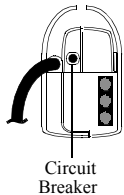

- Plug the Back-UPS into the utility power source. The Back-UPS will be in a Standby Mode (no indicators lit).
- Press the front panel pushbutton fully inward for 10 seconds. All indicators on the Back-UPS will flash to acknowledge going into Programming Mode.
- The Back-UPS will then indicate its current Sensitivity Setting, as shown in the following table.

Indicators Flashing	Sensitivity Setting	Input Voltage Range (for utility operation)	Use When
1 (yellow)	Low	160 - 278 Vac	Input voltage is extremely low or high. Not recommended for computer loads.
2 (yellow, and red)	Medium (factory default)	180 - 266 Vac	Back-UPS frequently goes On Battery.
3 (yellow, red, and red)	High	196 - 256 Vac	Connected equipment is sensitive to voltage fluctuations (recommended).

- To select the Low Sensitivity setting, press the pushbutton until the yellow indicator is flashing.
- To select the Medium Sensitivity setting, press the pushbutton until the yellow and red indicators are flashing.
- To select the High Sensitivity setting, press the pushbutton until yellow and both red indicators are flashing.
- To exit without changing the Sensitivity Setting, press the pushbutton until the green indicator is flashing.
- Once in Programming Mode, if the pushbutton is not pressed within 5 seconds, the Back-UPS will exit Programming Mode; all indicators will extinguish.

Troubleshooting

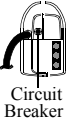
Use the tables below to solve minor Back-UPS installation and operation problems. Consult APC On-line Technical Support or call APC Technical Support for assistance with problems that cannot be resolved using this document:

Possible Cause	Procedure	
Back-UPS will not switch on		
Back-UPS not connected to an AC power source.	Check that the Back-UPS power plug is securely connected to the wall outlet.	
Back-UPS circuit breaker “tripped”.	Disconnect non-essential equipment from the Back-UPS. Reset the circuit breaker (located on the rear panel of the Back-UPS) by pushing the circuit breaker button fully inward until it catches. If the circuit breaker resets, switch the Back-UPS on and reconnect the equipment one-at-a-time. If the circuit breaker trips again, it is likely that one of the connected devices is causing the overload.	 Circuit Breaker
Very low or no facility voltage.	Check the wall outlet that supplies power to the Back-UPS using a table lamp. If the lamp bulb is very dim, have the facility voltage checked by a qualified electrician.	

Back-UPS does not power computer/monitor/external drive during an outage

Internal battery is not connected.	Check the battery connections. (refer to <i>Replace the Internal Battery</i>).
Computer, monitor or external disk/CD-ROM drive is plugged into a Surge Only outlet.	Move computer, monitor, or external drive power cord plug to the Battery Back Up outlets.

Back-UPS operates on battery although normal facility voltage exists

Back-UPS circuit breaker “tripped”.	Disconnect non-essential equipment from the Back-UPS. Reset the circuit breaker (located on the rear panel of the Back-UPS) by pushing the circuit breaker button fully inward until it catches.	 Circuit Breaker
The wall outlet that the Back-UPS is connected to does not supply facility power to the unit.	Connect the Back-UPS to another wall outlet or have a qualified electrician check the building wiring.	

Back-UPS does not provide expected backup time

Back-UPS is excessively loaded.	Unplug non-essential Battery Backup connected equipment, such as printers and plug them into Surge Only outlets. Note: Devices that have motors or dimmer switches (laser printers, heaters, fans, lamps, and vacuum cleaners, for example) should not be connected to the Battery Backup outlets.
Back-UPS battery is weak due to recent outage and has not had time to recharge.	Charge the battery. The battery charges whenever the Back-UPS is connected to a wall outlet. Typically, eight hours of charging time are needed to fully charge the battery from total discharge. Back-UPS run-time is reduced until the battery is fully charged.
Battery requires replacement.	Replace battery (see Order Replacement Battery). Batteries typically last 3-6 years, shorter if subjected to frequent power outages or elevated temperatures.

Replace Battery indicator is lit

Battery is not connected properly.	Check the battery connections. Refer to <i>Replace the Internal Battery</i> .
Battery requires replacement.	The battery should be replaced within two weeks (see "Order Replacement Battery"). Failure to replace the battery will result in reduced run-time during a power outage.

Overload indicator is lit or flashing

Battery Back Up outlets are drawing more power than the Back-UPS can provide.	Move one or more equipment power plugs to the Surge Only outlets. Turn the Back-UPS off and then on to reset the Overload indicator
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Replace Battery indicator is flashing

Back-UPS failure.	Disconnect the Back-UPS from facility power. Call APC for service.
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Specifications

Input Voltage (on line)	180 - 266 Vac (default setting)
Frequency Limits (on line)	47 - 63 Hz (autosensing)
On Battery Waveshape	Stepped Sine Wave
Maximum Load	350 VA - 225 W 500 VA - 325 W
Typical Recharge Time	4 Hours
Operating Temperature	0° to 40°C (32° to 104°F)
Storage Temperature	-5° to 45°C (23° to 113°F)
Operating and Storage Relative Humidity	0 to 95% non-condensing
Size (H x W x D)	8.1 x 11.1 x 45.3 cm (3.2 x 4.4 x 17.8 inches)
Weight	350 VA - 3.1kg (6.8 lb) 500 VA - 3.4 kg (7.5 lb)
Shipping Weight	350 VA - 3.8 kg (8.3 lb) 500 VA - 4.1 kg (9.0 lb)
EMI Classification	EN 55022 Class B
On Battery Run-Time	350 VA - 11 minutes, 500 VA - 20 Minutes Desktop Computer and 15 inch (38.1 cm) monitor (110 watts)

Back-UPS Storage

Before storing, charge the Back-UPS for at least eight hours. Store the Back-UPS covered and upright in a cool, dry location. During storage, recharge the battery in accordance with the following table:

Storage Temperature	Recharge Frequency	Charging Duration
-5 to 30°C (23 to 86°F)	Every 6 months	8 hours
30 to 45°C (86 to 113°F)	Every 3 months	8 hours

Service

Note: If the UPS requires service, do not return it to the dealer. The following steps should be taken:

- Consult the Troubleshooting section to eliminate common problems.
- Determine if the circuit breaker is tripped. If the circuit breaker is tripped, reset the breaker and determine if the problem still exists.
- If the problem persists, consult the APC Worldwide Web site (www.apc.com) or call customer service.
 - Record the model number of the UPS, the serial number, and the date purchased. Be prepared to troubleshoot the problem over the telephone with a technician. If this is not successful, the technician will issue a Return Merchandise Authorization Number (RMA#) and a shipping address.
 - If the UPS is under warranty, repairs are free. If not, there is a repair charge.
- Pack the UPS in its original packaging. If the original packing is not available, ask customer service about obtaining a new set. Pack the UPS properly to avoid damage in transit.

Note: Never use Styrofoam™ beads for packaging. Damage sustained in transit is not covered under warranty (insuring the package for full value is recommended).

- Write the RMA# on the outside of the package.
- Return the UPS by insured, prepaid carrier **to the address provided by customer service.**

Wall Mount of UPS

The UPS can be mounted vertically or horizontally to a wall surface. Use the template below to position the mounting fasteners (not supplied). Wall mount the UPS as follows:

- Hold this page against the wall in the desired mounting location.
- Use thumbtacks or tape to hold this page in place against the wall. Use a sharp nail or pin to puncture the center of each template circle to mark the wall.
- Install the mounting fasteners at the marked locations. Leave the head of both fasteners 8 mm (5/16") out from the face of the wall. The fasteners must be able to support 6.8 kg (15 lb).
- Mount the UPS by positioning the key-hole slots over the mounting fastener heads. For vertical mounting, slide the UPS down into place. For horizontal mounting, turn it slightly counterclockwise until it is securly in place.

