UPS DIRECT powerprotection

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APC®
www.apc.com

Back-UPS™ RS 500

User's Manual

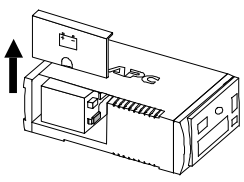
990-9217 6/02

Connect the Internal Battery

The Back-UPS RS is shipped with one battery wire disconnected. To connect the internal battery, proceed as follows:

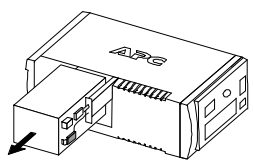
Note: Connecting the battery is a safe procedure. However, small sparks may occur during the process. This is normal.

1



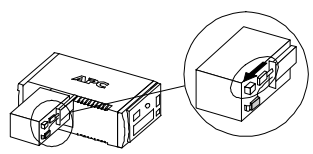
Place the unit on its side. Slide the battery compartment cover upward and off of the UPS.

2



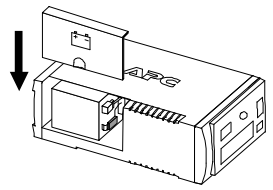
Pull the battery partially out of the chassis, exposing the battery terminals and wires.

3



Connect the black battery wire to the terminals as Ground (-) terminal. Slide the battery back into the chassis.

4



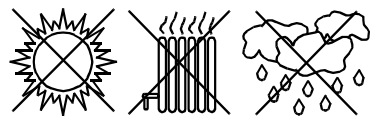
Align the battery compartment cover with the grooves in the Back-UPS RS. Slide the cover down until it locks.

Installation

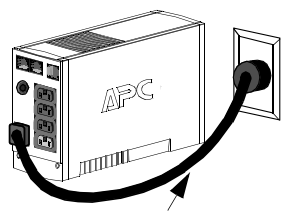
1 Placement / Power

Avoid placing the Back-UPS RS in:

- Direct sunlight
- Excessive heat
- Excessive humidity or in contact with fluids of any type



Plug the Back-UPS RS into a wall outlet, as shown.



Your computer's power cord.

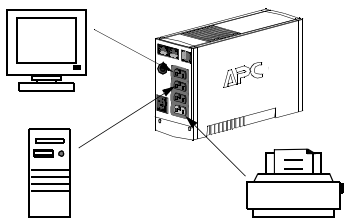
- The Back-UPS RS charges the internal battery any time it is connected to a wall outlet.

2 Connect Equipment to the Back-UPS RS

The rear panel of the Back-UPS RS consists of the following elements:

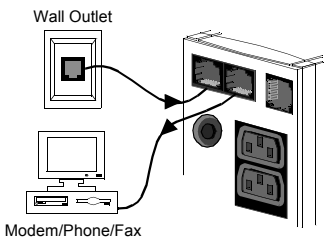
Battery Back Up Outlets (qty. of 3). These outlets provide battery back-up, surge protection, and Electro-magnetic Interference (EMI) filtering. In case of power outage, battery power is automatically provided to these outlets. Power (utility or battery) is not supplied to these outlets when the Back-UPS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

Surge Only Outlet. This outlet is always **On** (when utility power is available) and is not controlled by the **On/Off** switch. This outlet does not provide power during a power outage. Connect a printer, fax machine or scanner to this outlet.



3 Connect Phone Lines to Surge Protection

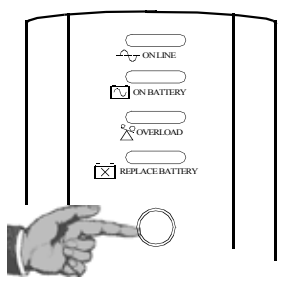
The telephone ports provide lightning surge protection for any device connected to the telephone line (computer, modem, fax or telephone). The telephone ports are compatible with Home Phoneline Networking Alliance (HPNA) and Digital Suscriber Line (DSL) standards, as well as all modem data rates. Connect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



4 Switch on the Back-UPS RS

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

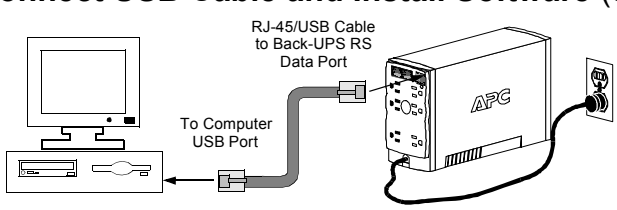
Press the push-button on the front panel of the Back-UPS RS.

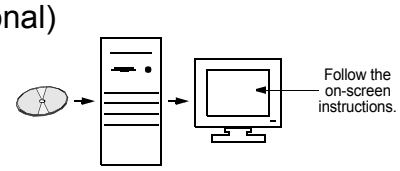


Observe that the following events occur after pressing and releasing the push-button:

- 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 above) the green **On Line** indicator will light and the red **Replace Battery** indicator will flash.

5 Connect USB Cable and Install Software (optional)





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

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

Status Indicators and Alarms

There are four status indicators (lights) on the front panel of the Back-UPS RS (On Line, On Battery, Overload, and Replace Battery).

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

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

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 RS.

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

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

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

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

Replace Battery (red) - is lit whenever the battery is near the end of its useful life, or flash 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.

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

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Back-UPS RS Storage

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

Storage Temperature	Recharge Frenquency	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

Please contact APC Online Technical Support to troubleshoot the unit before returning it to APC.

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 **RBC2**.

For further information contact UPS Direct Ltd:
Tel: 08456 445 002 - Fax: 08456 445 003 - Email: info@upsdirect.com - Website: www.upsdirect.com

UPS DIRECT powerprotection

08456 445 002
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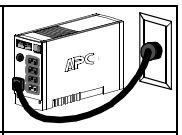
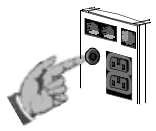
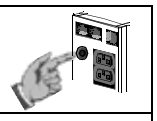
Troubleshooting

Use the tables below to solve minor Back-UPS RS 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 RS not connected to an AC power source.	Check that the Back-UPS RS power plug is securely connected to the wall outlet.	
Back-UPS RS circuit breaker "tripped".	Disconnect non-essential equipment from the Back-UPS RS. Reset the circuit breaker (located on the rear panel of the Back-UPS RS) by pushing the circuit breaker button fully inward until it catches. If the circuit breaker resets, switch the Back-UPS RS 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.	
Very low or no utility voltage.	Check the wall outlet that supplies power to the Back-UPS RS using a table lamp. If the lamp bulb is very dim, have the utility 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. (See "Connect the Battery" under "Installation" on the front page of this document.	
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 Backup outlets.	
Back-UPS operates on battery although normal utility voltage exists		
Back-UPS RS circuit breaker "tripped".	Disconnect non-essential equipment from the Back-UPS RS. Reset the circuit breaker (located on the rear panel of the Back-UPS RS) by pushing the circuit breaker button fully inward until it catches.	
The wall outlet that the Back-UPS RS is connected to does not supply utility power to the unit.	Connect the Back-UPS RS to another wall outlet or have a qualified electrician check the building wiring.	
Back-UPS does not provide expected backup time		
Back-UPS RS 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 RS battery is weak due to recent outage and has not had time to recharge.	Charge the battery. The battery charges whenever the Back-UPS RS is connected to a wall outlet. Typically, eight hours of charging time are needed to fully charge the battery from total discharge. Back-UPS RS 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.	
A red indicator is lit		
The Overload indicator is lit if equipment connected to the Battery Backup outlets is drawing more power than the Back-UPS RS can provide.	Move one or more equipment power plugs to the Surge Only outlets.	
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.	
Back-UPS RS failure.	Call APC for service.	
Replace Battery indicator flashing and an alarm sounds when the Back-UPS is turned on		
Internal battery not connected.	Check the battery connections.	
A red indicator is flashing with any other indicator flashing		
Back-UPS RS failure.	Contact APC Online Technical Support.	

Transfer Voltage Adjustment (optional)

In situations where the Back-UPS RS 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:

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

Indicators Lit	Low Transfer Voltage	Use When
1	166 VAC (default)	Normal power conditions exist.
2	160 VAC	Back-UPS RS frequently goes On Battery due to low input voltage.
3	154 VAC	Use only for extreme conditions of low input voltage. Not recommended for computer loads.

1. To select 166 volts as the Lower Transfer Voltage, press the pushbutton until 1 indicator is flashing.
2. To select 160 volts as the Lower Transfer Voltage, press the pushbutton until 2 indicators are flashing.
3. To select 154 volts as the Lower Transfer Voltage, press the pushbutton until 3 indicators are flashing.

Once in Programming Mode, if the pushbutton is not pressed within 5 seconds, the Back-UPS RS will exit the Programming Mode and all indicators will extinguish.

When selecting 154 volts and the Lower Transfer Voltage, the output current is limited to 2.2 amps to prevent the product from overheating.

Specifications

Output Voltage Regulation	166 - 278 Vac (default setting)
Frequency Limits (on line)	47 - 63 Hz (autosensing)
On Battery Waveshape	Stepped Sine Wave
Maximum Load	500 VA - 300 W
Typical Recharge Time	8 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)	3.6 x 6.5 x 11.2 in. (9.1 x 16.5 x 28.4 cm)
Weight	15.87 lb (7.2 kg)
Shipping Weight	500 VA - 15.3 lb (7.0 kg)
EMI Classification	EN 50091-2, Class B
On Battery Run-Time	19 Minutes typical - desktop computer and 15 inch (38.1 cm) monitor.

Service

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

1. Consult the Troubleshooting section to eliminate common problems.
2. Determine if the circuit breaker is tripped. If the circuit breaker is tripped, reset the breaker and determine if the problem still exists.
3. If the problem persists, consult the APC Worldwide Web site (www.apcc.com) or call customer service.
   - Record the model number of the Back-UPS RS, 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 Back-UPS RS is under warranty, repairs are free. If not, there is a repair charge.
4. Pack the Back-UPS RS 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).

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

Warranty

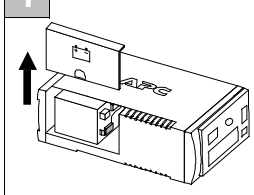
The standard warranty is two (2) years from the date of purchase. APC's standard procedure is to replace the original unit with a factory reconditioned unit. Customers who must have the original unit back due to assigned asset tags and set depreciation schedules must declare such a need at first contact with 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 to the customer.

Replace the Internal Battery

To replace the internal battery, proceed as follows:

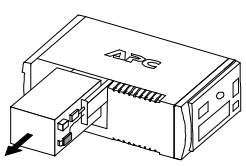
Note: Replacing the battery is a safe procedure. However, small sparks may occur during the process. This is normal.

1



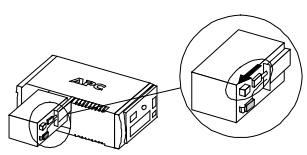
Place the unit on its side. Slide the battery compartment cover up and off of the Back-UPS RS.

2



Pull the battery out of the Back-UPS RS. Disconnect the wires from the terminals.

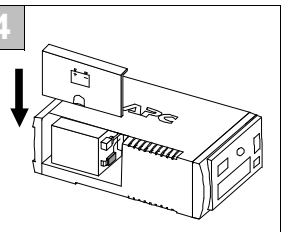
3



Slide the new battery into the battery compartment. Connect the battery wires to the terminals as follows:

Black wire to Ground (-) terminal
Red wire to Positive (+) terminal

4



Align the battery compartment cover with the grooves in the Back-UPS RS. Slide the cover down until it locks.

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