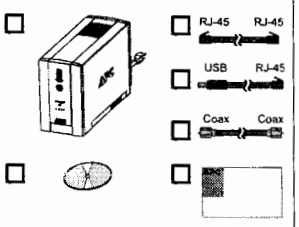
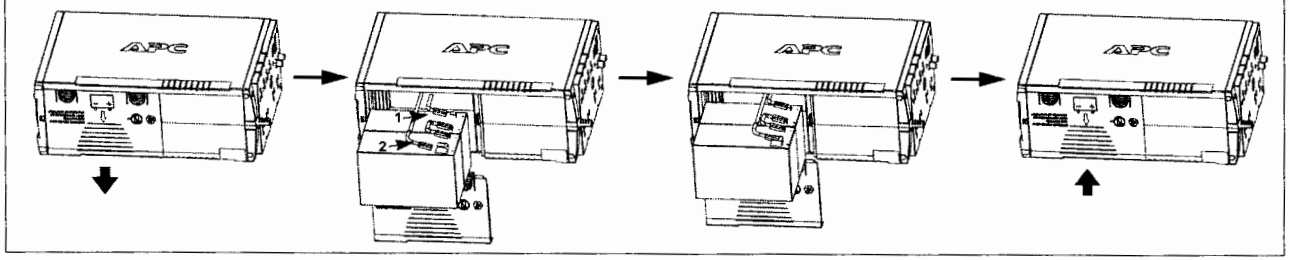
Back-UPS® XS 900
Back-UPS® XS 1200
User's Manual

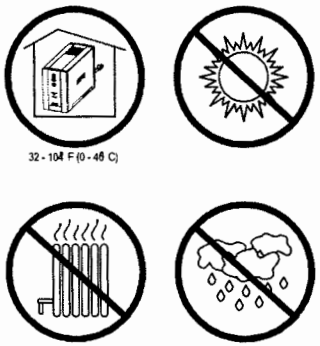
1 CONTENTS



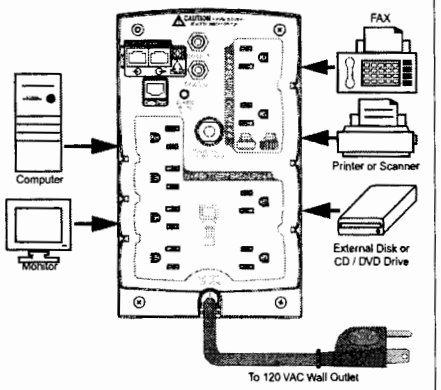
2 CONNECT BATTERY CARTRIDGE



3 OPERATING ENVIRONMENT



4 CONNECT EQUIPMENT / POWER



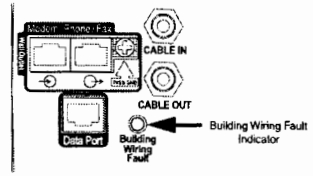
5 CHECK BUILDING WIRING FAULT INDICATOR

If the rear panel Building Wiring Fault (red) indicator is lit, a potential shock hazard exists due to one of the following conditions:

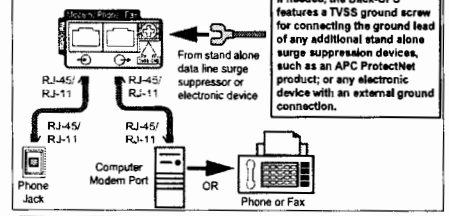
- Open or high resistance ground
- Hot and Neutral polarities are reversed
- Overloaded neutral circuit

Improper building wiring should be corrected by a qualified electrician. Do not use the Back-UPS until the condition that caused the fault is corrected.

Note: Improper building wiring will not prevent the Back-UPS from operating, but it will limit its protection capability.

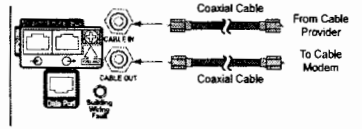


6 CONNECT MODEM/PHONE/FAX and TVSS Ground



If needed, the Back-UPS features a TVSS ground screw for connecting the ground lead of any additional stand alone surge suppression devices, such as an APC ProtectNet product; or any electronic device with an external ground connection.

7 CONNECT COAXIAL CABLES

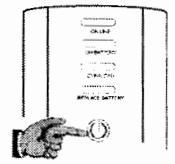


8 SWITCH ON THE BACK-UPS

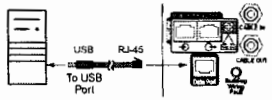
Note: Allow the Back-UPS to charge for a full 18 hours (XS 900) or 24 hours (XS 1200) prior to use.

Press the front panel Power ON/OFF switch and observe that the following events occur after pressing and releasing the switch:

- The green On Line indicator flashes.
- The yellow On Battery indicator lights while a Self-Test is being performed.
- When Self-Test has successfully completed, only the green On Line indicator will be lit.
- If the internal battery cartridge is not connected (see Step 2 above), the green On Line indicator and red Replace Battery indicators will light. The Back-UPS will also emit a chirping sound.



9 CONNECT DATA LINE AND INSTALL SOFTWARE ON COMPUTER (Optional)



1. Insert CD into computer, and on-screen instructions should appear automatically. Follow instructions to complete installation. **Note**: if the on-screen instructions do not appear automatically (Autoplay is disabled), then perform steps 2 and 3 below.
2. On the computer desktop of the display, double-click on My Computer.
3. Double-click on the CD-ROM drive icon and follow the on-screen instructions.

Installation of the included software is the only way to take advantage of the auto shutdown capabilities that Back-UPS offers.

STATUS INDICATORS, ALARMS and CIRCUIT BREAKER

There are four status indicators (lights) on the front panel of the Back-UPS (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 is powering equipment connected to the Battery Backup Outlets.

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. Shut down the operating system, computer and the Back-UPS.

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.

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.

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

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

TRANSFER VOLTAGE and SENSITIVITY ADJUSTMENT

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:

1. Plug the Back-UPS into the utility power source but do not turn the unit on. The Back-UPS will be in Standby Mode (no indicators lit).
2. Press and hold the front panel ON/OFF switch fully inward for 10 seconds, until all LED indicators on the Back-UPS flash to acknowledge it has entered Programming Mode. Release the ON/OFF button, and the Back-UPS's LEDs will flash per table below, indicating it's current sensitivity setting.

   Note: the Back-UPS automatically exits programming mode in 5 seconds if no buttons are pressed.
3. Use the table below to decide which Sensitivity setting is desired.

Indicators Flashing	Sensitivity Setting	Input Voltage Range (for utility operation)	Use When
1 (yellow)	Low	78 - 142 Vac	Input voltage is extremely low or high. Not recommended for computer loads.
2 (yellow, and red)	Medium (factory default)	88 - 139 Vac	Back-UPS frequently goes On Battery.
3 (yellow, red, and red)	High	88 - 136 Vac	Connected equipment is sensitive to voltage fluctuations.

4. To select the Low Sensitivity setting, press and hold the ON/OFF switch for 1-2 seconds (until beep is heard). Upon release, the yellow indicator will flash, indicating Low Sensitivity.
5. To select the Medium Sensitivity setting (the unit's default), press and hold the ON/OFF switch for 1-2 seconds (until beep is heard). Upon release, the yellow indicator will flash. Press and hold the ON/OFF button again for 1-2 seconds (until beep is heard). Upon release, the yellow and one red indicator will flash, indicating Medium Sensitivity.
6. To select the High Sensitivity setting, press and hold the ON/OFF switch for 1-2 seconds (until beep is heard). Repeat this two more times. Upon final release, the yellow and two red indicators (bottom three) will flash, indicating High Sensitivity.
7. The Back-UPS will automatically exit Programming Mode in five seconds, and is ready for use.

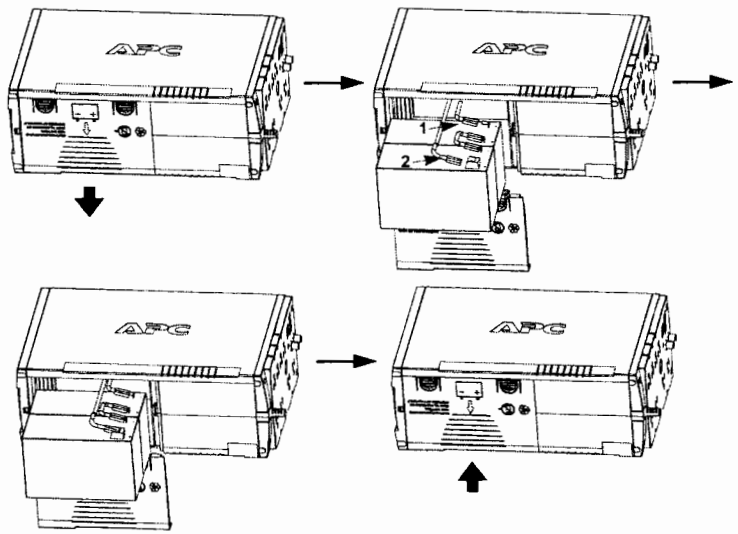
ORDER REPLACEMENT BATTERY

The battery cartridge typically lasts 3-6 years, shorter if subjected to frequent outages or elevated temperatures. For the XS 900, order part number **RBC5** , for the XS 1200, order **APCRBC109**. Please recycle spent battery cartridges.

TROUBLESHOOTING

Problem	Possible Cause	Corrective Action
Back-UPS will not switch on.	Back-UPS not connected to AC power source.	Ensure the Back-UPS is securely connected to an AC outlet.
	Back-UPS circuit breaker "tripped".	Disconnect non-essential equipment from the Back-UPS. Reset (push in) the rear panel circuit breaker. Switch on the Back-UPS and plug in devices one at a time. If the circuit breaker trips again, disconnect the device that caused the breaker to trip.
	Internal battery is not connected.	Connect battery cartridge (see *Connect Battery Cartridge*).
	Utility input voltage quality is out of range.	Consider adjusting the transfer voltage and sensitivity. See *Transfer Voltage and Sensitivity Adjustment*.
Back-UPS does not power essential equipment during an outage.	Equipment was plugged into a Surge Only outlet.	Unplug device from 'Surge Only' outlet and move to a 'Battery Backup' outlet.
Back-UPS operates on battery although utility power exists.	The UPS's plug has partially pulled out of the wall outlet, wall outlet has been turned off, or its circuit breaker has tripped.	Verify the UPS's plug is fully inserted into the wall, and that power is present at the wall outlet.
	Unit is in the midst of performing an automatic self test.	No action is neccessary.
	Utility input voltage is out of range, frequency is out of range or the wave form is distorted.	Consider adjusting the transfer voltage and sensitivity. See *Transfer Voltage and Sensitivity Adjustment*.
Back-UPS does not provide expected backup time.	Back-UPS is heavily loaded.	Unplug non-essential equipment (printers, scanners, etc) from the Battery Backup outlets and plug into 'Surge Only' outlets.
	Back-UPS battery cartridge is discharged due to recent power outage and has not had time to recharge.	Charge the battery cartridge for 18 hours (XS 900) or 24 hours (XS-1200). Back-UPS runtime is reduced until the battery cartridge is fully charged.
	Battery has reached the end of its life.	Replace battery cartridge (see *Order Replacement Battery Cartridge*).
Red Replace Battery indicator is on.	Battery has reached the end of its life.	Refer to *Replace Battery Cartridge*, and replace the battery cartridge.
Red Overload indicator is on or flashing.	Connected equipment is drawing more power than the Back-UPS can provide.	Move one or more equipment power plugs from Battery Backup outlets to Surge Only outlets.
Green On Line indicator is on and all other front panel indicators are flashing.	Internal UPS fault.	Contact APC Technical Support (see *Contact Information*).

REPLACE BATTERY CARTRIDGE



SPECIFICATIONS

Item	900 VA	1200 VA
On-line Input Voltage Range (default settings)	88 - 139 VAC	
Automatic Voltage Regulation (AVR)	+12% (Boost Only)	
On-line Frequency Range	57 - 63 Hz (Autosensing)	
On-battery Waveshape	Stepped Sine Wave	
Maximum Load	900 VA: 540 W	1200 VA: 720 W
Typical Recharge Time	900 VA: 18 Hours	1200 VA: 24 Hours
Operating Temperature	32° to 104°F 0° to 40°C	
Storage Temperature	23° to 113°F -5° to 45°C	
Operating / Storage Relative Humidity	0 to 95% non-condensing	
Size (H x W x D)	8.7 inch X 5.1 inch X 13.8 inch 220 mm X 130 mm X 350 mm	
Weight	900 VA: 27.5 lbs (12.5 kg) 1200 VA: 29.7 lbs (13.5 kg)	
Shipping Weight	900 VA: 31.0 lbs (14.1 kg) 1200 VA: 33.2 lbs (15.1 kg)	
EMI Classification	FCC / DOC Class B Certified	
On Battery Run-Time	See http://www.apc.com/product	
Approvals	CSA NRTL/C, NOM	

Notice: This device complies with part 68 and 15 of the FCC rules.Operation is subject to the following two conditions: (1) This device may not cause harmful interference. (2) This device must accept any interference received, including interference that may cause undesired operation.

On the bottom of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

LIMITED WARRANTY

The standard warranty is three (3) 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 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.

SERVICE

If the Back-UPS arrived damaged, notify the carrier.

If the Back-UPS 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. If the problem persists, go to http://www.apc.com/support/.
3. If the problem still persists, contact APC Technical Support.
   - Have the Back-UPS model number, serial number and date of purchase available. Be prepared to troubleshoot the problem with an APC Technical Support representative. If this is not successful, APC will issue a Return Merchandise Authorization (RMA) number and a shipping address.

CONTACT INFORMATION

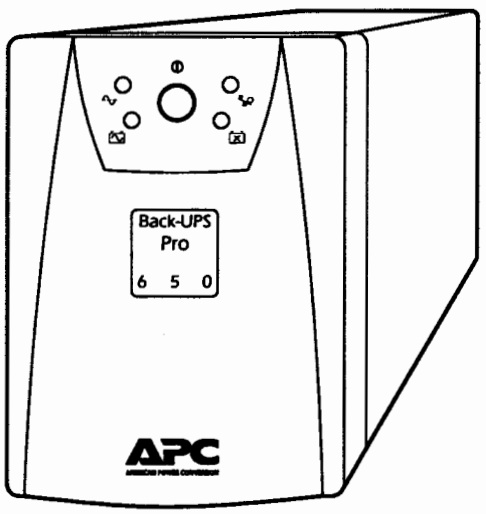
Technical Support	http://www.apc.com/support
Internet	http://www.apc.com
USA / Canada	1.800.800.4272
Mexico	292.0253 / 292.0255
Worldwide	+1.401.789.5735

AMERICAN POWER CONVERSION

Back-UPS Pro™

120 VAC
Uninterruptible Power Source
Onduleur
Sistema de Alimentación Ininterrumpida

Models 280, 420, 650, 1000, 1400



User's Manual/Manuel de l'utilisateur/Manual de Usario
English/Français/Español

Contents/Sections/Indice

English

Français

Español

Please note: The troubleshooting section (section 8) offers solutions for most of the difficulties you may encounter with this UPS. Before calling customer service, please have available your UPS's serial number (see label on the rear of the UPS). A returned materials authorization (RMA) number is required for all return shipments to APC. Do not send return shipments to APC without an RMA number. See section 9.

Veuillez noter : La section «En cas de problème» (section 8) offre des solutions pour la plupart des difficultés rencontrées lors de l'utilisation de l'onduleur. Si vous appelez notre service clientèle, veuillez avoir à portée de main le numéro de série de votre onduleur (sur l'étiquette située sur le panneau arrière de l'onduleur). Un numéro d'autorisation de retour de marchandise (RMA) est nécessaires pour tous les renvois à APC (les conditons de service et d'intervention varient selon les pays. Veuillez contacter votre agence APC pour tout renseignement sur les spécificités relatives à votre pays). Ne renvoyez aucun appareil à APC sans ce numéro. Reportez-vous à la section 9.

Sírvase tomar nota: La sección de detección y solución de problemas (sección 8) ofrece soluciones para la mayoría de las dificultades que puede usted encontrar con este UPS. Antes de llamar a servicio al cliente, sírvase tener disponible su número de serie del UPS (verlo en la etiqueta en la parte posterior del UPS). Se requiere un número de autorización de devolución de materiales (RMA) para todos los envíos de devolución a APC. No envíe despachos de devolución a APC sin un número RMA. Vea la sección 9.

Serial number:/Numéro de série:/Número de serie: _____

Toll free technical support:
Numéro vert de l'assistance technique:
Número de teléfono sin costo para apoyo técnico:

United States and Canada	1-800-800-4272
Ireland	1-800-702000
U. K.	0800-132990

Others/Autres/Otras:
+1 401 789 5735 (USA) or
+353 91 702020 (Ireland)

Return shipment addresses:
Adresse d'expédition des renvois :
Direcciones para devolver mercadería:

American Power Conversion Corporation
132 Fairgrounds Road
P. O. Box 278
West Kingston, Rhode Island 02892
USA

American Power Conversion Corporation
(A. P. C.) b. v.
Ballybritt Business Park
Galway
Ireland

English

1. Introduction

1.1 Thank you!

Thank you for selecting this uninterruptible power source (UPS). It is designed for many years of reliable, maintenance-free service.

Important safety instructions!!

Please read this manual. It provides safety, installation, and operating instructions that should be followed during installation and maintenance of the UPS and batteries. It will help you get the fullest performance and service life from your UPS. This manual describes the inner workings of the UPS and how they relate to providing superior protection from utility power problems such as blackouts, brownouts, sags, swells, EMI/RFI noise, and surges. Also included are instructions for obtaining factory service, if necessary.

If you have a problem with the UPS, please refer to this manual before calling customer service. The troubleshooting section (section 8) can help with most situations typically encountered when using the UPS.

Please save the packaging materials!

The UPS's shipping materials are designed with great care to provide protection during shipping. These materials are invaluable if you ever have to return the UPS for service. Damage sustained during transit is not covered under the warranty.

1.2 Radio Frequency Interference

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 and the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications. 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.

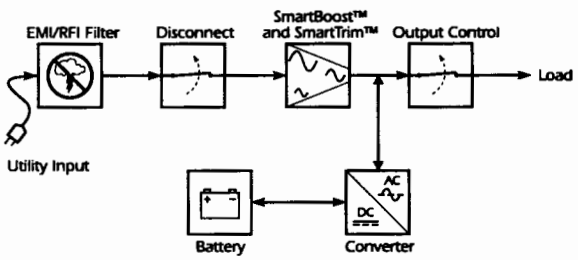
However, there is no guarantee that interference will not occur in a particular installation. If this equipment causes interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient the receiving antenna
- increase the separation between the equipment and the 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.

Shielded communications interface cables must be used with this product.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

1.3 Theory of Operation



This high-performance, line-interactive, uninterruptible power source (UPS) provides clean, reliable, AC power to computer systems — protecting them from power blackouts, brownouts, swells, sags, surges, and interference.

Normally, the UPS operates "on-line," supplying power from the **utility input** to the **load** (workstation, server, or other device). The **converter** circuitry is used to maintain an optimal float charge level on the **battery**.

When the utility fails, the **disconnect** switch opens and the **converter** supplies AC power to the **load**. The loads operate normally until shut down or until the battery is exhausted. The UPS automatically transfers the load back to utility power and recharges the batteries when the line voltage returns to normal.

The UPS also provides surge protection and **EMI/RFI filtering**, as well as **SmartBoost™** and **SmartTrim™** automatic voltage regulation, which corrects high and low input voltage without drawing power from the battery.

Output control uses the UPS's remote interface to turn the load on or off, without disabling other UPS functions.

1.4 Features

CellGuard™ Intelligent Battery Management

The UPS provides visual and audible indications of the battery's status including low battery and replace battery conditions.

The UPS exercises the battery during its self-test, and will detect a weak battery before it is put into service. The UPS normally performs a self-test at power up and every 14 days thereafter. Self-tests can also be conducted manually with the on/off button at any time. See section 5.2.

The UPS features user-replaceable hot-swappable batteries. Batteries can be replaced without having to remove power from the loads or send the UPS in for service.

Power Management Software

This UPS offers advanced features when connected via the computer interface to a device using power management software.

Telephone Line and Network Surge Protection

This UPS provides advanced single telephone line or 10Base-T network surge suppression through the modular connectors on the back panel. See section 4.

2. Safety

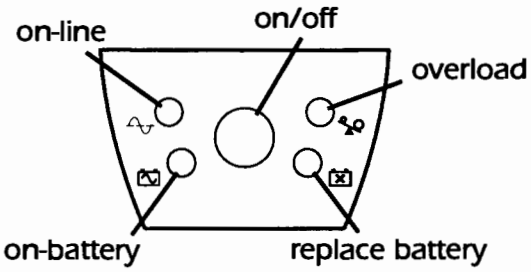
CAUTION!

- To reduce the risk of electric shock in conditions where load equipment grounding cannot be verified, disconnect the UPS from the AC power outlet before installing a computer interface or accessory slot signal cable. Reconnect the power cord only after all signaling connections are made.
- Connect the UPS to a two-pole, three-wire grounding AC power outlet. The receptacle must be connected to appropriate branch protection (fuse or circuit breaker). Connection to any other type of receptacle may result in a shock hazard and violate local electrical codes.
- The UPS has an internal energy source (the battery). **The output may be energized when the unit is not connected to an AC power outlet.**
- To deenergize the outputs of the UPS:
  1. If the UPS is on press the on/off button to switch the UPS off.
  2. Disconnect the UPS from the AC power outlet.
  3. To deenergize the UPS completely, disconnect the battery. See section 10.
- Never install telephone wiring during a lightning storm.

- Use of this equipment in life support applications where failure of this equipment can reasonably be expected to cause the failure of the life support equipment or to significantly effect its safety or effectiveness is not recommended.

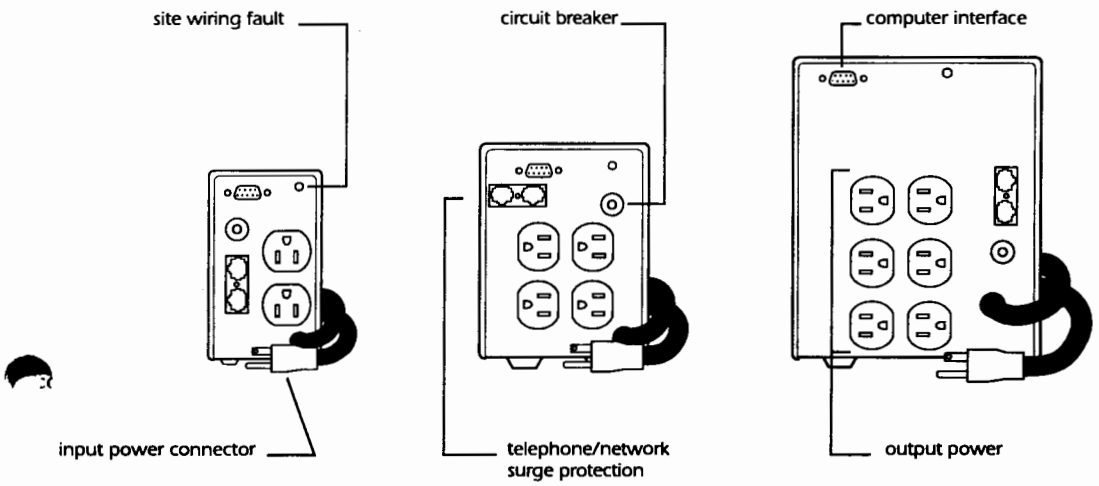
3. Presentation

3.1 Front panel



Press the **on/off** button with the UPS plugged in to turn the UPS on or off. See Sec. 5.1.
On/off also activates the UPS's self-test. See section 5.2.
The **overload** LED illuminates when the loads connected to the UPS exceed the UPS's power capacity. See section 6.2.
The **replace battery** LED illuminates when the UPS's battery is no longer useful and must be replaced. See section 10.
The **on-battery** LED illuminates when the UPS is supplying battery power to the loads.
The **on-line** LED means that filtered utility line is passing through the UPS to your equipment.

3.2 Rear Panel



The **input power connector** is a power cord with a NEMA 5-15P connector.

The **output power** receptacles are NEMA 5-15R type.

The RJ-45/RJ-11 modular combination is used for **telephone/network surge protection** with single telephone lines and 10Base-T networks. See section 4.5.

The **computer interface port** is for UPS monitoring and control. See section 4.4.

The **site wiring fault indicator** illuminates when the UPS is connected to an improperly wired AC power outlet. See section 4.9.

The **input circuit breaker** trips when loads exceed the UPS's capacity. The resettable center plunger of the circuit breaker extends when tripped.

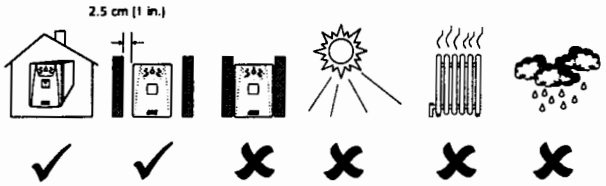
4. Installation

Please fill out and return the warranty registration card now.

4.1 Inspection

Inspect the UPS upon receipt. Notify the carrier and dealer if there is damage. The packaging is recyclable; save it for reuse or dispose of it properly.

4.2 Placement



Install the UPS in a protected area with adequate air flow that is free of excessive dust. Do not operate the UPS where the temperature and humidity is outside the specified limits. See section 12. Allow the UPS to come to room temperature before continuing.

4.3 Protection Strategies

This UPS provides high performance power line protection to the loads. There are, however, other potential entry points for damaging surges in information systems. These include serial ports (RS-232, RS-422, RS-485, etc.), parallel ports, telephone lines, and LAN connections. These other entry points must be considered in developing a comprehensive protection strategy for your system. Contact your dealer or call the number in the front of this manual for information on related products designed to accomplish total system protection.

Sensitive information systems can be further safeguarded by following these guidelines:

- Verify that all electrical outlets are properly grounded. See section 4.9.
- Connect computer leads to a different electrical service branch than heavy motor loads like air conditioners, copiers, refrigerators, and heavy industrial machinery.
- Plug all power protection and computer equipment into outlets connected to the same service branch (controlled by the same fuse or circuit breaker) where possible.

4.4 Connect Computer Interface (Optional)

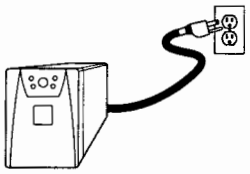
Power management software and interface kits can be used with this UPS. Use only kits supplied or approved by the manufacturer. If used, connect the interface cable to the 9-pin computer interface port on the back panel of the UPS. Secure the connector's screws to complete the connection.

Note: Computer interface connection is optional. The UPS works properly without a computer interface connection.

4.5 Connect Telephone/Network Surge Suppression (Optional)

Connect a single line telephone or a 10Base-T network cable into the telephone/network surge protection sockets on the back of the UPS. The RJ-45/RJ-11 modular combination sockets accept all standard single line telephone and 10Base-T connections. This connection will require another length of telephone cable (supplied) or network cabling (not supplied) to complete the connection. **Note:** This connection is optional. It is not needed to use the UPS.

4.6 Connect to Utility



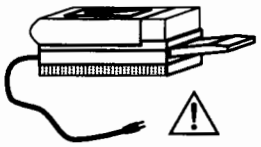
Plug the UPS into a two-pole, three-wire, grounded receptacle only. Avoid using extension cords and adapter plugs.

4.7 Charge the battery

The UPS charges its battery whenever it is connected to utility power. For best results, charge the battery for 4 hours before use. It is acceptable to use the UPS without first charging the battery, but on-battery run time may be reduced until the battery charges.

4.8 Connect the Loads

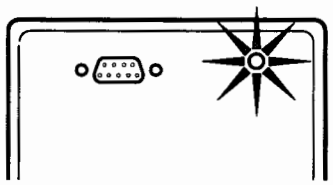
Plug the loads into the output connectors on the rear of the UPS. To use the UPS as a master on/off switch, make sure that all of the loads are switched on.



Caution: Do not connect a laser printer to the UPS along with other computer equipment unless the UPS is rated 1400 VA. A laser printer periodically draws significantly more power than when idle, and may overload the UPS. Verify that the UPS can support the loads when the printer is in full operation (printing).

Test the system with all loads operating to make sure that the UPS is not overloaded. See section 6.2.

4.9 Check the Site Wiring Fault Indicator



After plugging in the loads and the UPS, check the site wiring fault indicator on the rear panel. See section 3.2 for the location of the indicator on the back panel. It lights if the UPS is plugged into an improperly wired AC power outlet. Wiring faults detected include missing ground, hot-neutral polarity reversal, and overloaded neutral circuit.

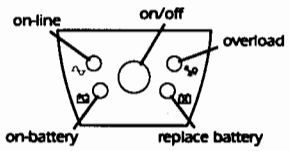
Caution: If the UPS indicates a site wiring fault, get a qualified electrician to correct the building wiring.

4.10 Plug and Play

This UPS provides Plug and Play installation with those computers and operating systems that support it. See the optional software and cable package included with the UPS for more information.

5. Operation

5.1 Switch On — Switch Off



With the UPS plugged in, press and release the on/off button to supply power to the loads. The loads are immediately powered while the UPS performs a self-test. See section 5.2. Press and release the button again to turn off power to the loads. It may be convenient to use the UPS as a master on/off switch for the protected equipment.

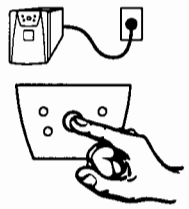
Note: The UPS is on (the internal processor is operating) whenever it is plugged in and utility voltage is present. Even when switched off the UPS maintains the battery charge.

5.2 Self-test

The UPS performs a self-test automatically when turned on and every two weeks. Automatic self-test eases maintenance requirements by eliminating the need for periodic manual self-tests.

During the self-test, the UPS briefly operates the loads on-battery. If the UPS passes the self-test, it returns to on-line operation.

If the UPS fails the self-test it immediately returns to on-line operation and lights the replace battery LED. The loads are not affected. Recharge the battery overnight and perform the self-test again. If the replace battery LED is still on, see section 10 for information on replacing the battery.



It is possible to perform a manual self-test at any time. To start a self-test:

- Press and hold the on/off button until the UPS beeps twice (about 2 seconds).
- Release the on/off button to start the self-test.

5.3 Shutdown Mode

If there is no utility power present, external devices (e. g., servers) connected to the computer interface can command the UPS to shut down. This is normally done to preserve battery capacity after the graceful shutdown of protected PC devices. In shutdown mode the UPS stops supplying power to the load, waiting for the return of utility power. The UPS alternately illuminates the upper front panel LED indicators in shutdown mode.

5.4 Cold Start

When the UPS is off and there is no utility power, it is possible to cold start the UPS to apply power to the loads from the UPS's battery.

- **Press** and hold the on/off button until the UPS beeps twice (about two seconds).
- **Release** the on/off button to start the UPS.

Note: Cold start is not a normal operating condition. On-battery and low battery alarms work as described in section 6.

6. Alarms

6.1 On Battery

In on-battery operation, the on-battery LED illuminates and the UPS sounds an audible alarm consisting of four beeps every 30 seconds. The alarm stops when the UPS returns to on-line operation.

6.2 Overload

When the UPS is overloaded (i. e., when the connected loads exceed maximum listed in section 12) the overload LED illuminates and the UPS emits a sustained tone. The alarm remains on until the overload is removed. Disconnect nonessential load equipment from the UPS to eliminate the overload. The UPS test for overloads when operating on-battery and when performing self-tests.

6.3 Replace Battery

The UPS emits short beeps for one minute and the replace battery LED illuminates if the battery fails the self-test. The UPS repeats the alarm every five hours. After one week the alarm becomes continuous.

6.4 Low Battery

On-battery, when the energy reserve of the battery runs low, the UPS beeps continuously until the UPS shuts down from battery exhaustion or returns to on-line operation.

7. Options

7.1 Interface kits

For computer systems that have built-in UPS monitoring features, a series of interface kits are available to connect the UPS to your system. Each kit includes the appropriate interface cable to convert the UPS's sta-

tus signals into signals your system recognizes (use only factory supplied or authorized UPS monitoring cables). See your dealer or call the number at the front of this manual for more information.

7.2 Wall Mount Bracket

A special wall mount bracket is available for this UPS. See your dealer or call the number at the front of this manual for more information.

8. Troubleshooting

Problem	Possible Cause	Solution
UPS will not turn on.	On/off button not pushed.	Press the on/off button to power the UPS and the load
	UPS input circuit breaker tripped.	Reduce the load on the UPS by unplugging equipment and reset the circuit breaker by pressing the plunger back in.
	Very low or no utility voltage.	Check the AC power supply to the UPS with a table lamp. If very dim or off, have the utility voltage checked.
UPS will not turn on or off.	Computer interface or accessory problem.	Disconnect the computer interface or accessory. If the UPS now works normally, check the interface cable, the attached computer, and the accessory.
UPS operates on-battery even though normal line voltage is thought to exist.	UPS's input circuit breaker tripped.	Reduce the load on the UPS by unplugging equipment and reset the circuit breaker by pushing the plunger back in.
UPS beeps occasionally.	Normal UPS operation.	None. The UPS is protecting the load.
UPS does not provide expected back up time.	The UPS's battery is weak due to recent outage or is near the end of its service life.	Charge the battery. The UPS's batteries require recharging after an extended outage. Batteries age faster when put into service often and when operated at elevated temperatures. If the battery is near the end of its service life, consider replacing the battery even if the replace battery indicator is not yet lit.
Top front panel indicators flash alternately.	The UPS has been shut down by the UPS interface kit.	None. The UPS will restart automatically when utility power returns.
All indicators are illuminated and the UPS emits a constant tone.	Internal UPS fault.	Do not attempt to use the UPS. Turn the UPS off and have it serviced immediately.
The UPS operates normally, but the site wiring fault indicator is lit.	Building wiring error such as missing ground or hot to neutral wire reversal.	Have a qualified electrician correct the building wiring.

Problem	Possible Cause	Solution
All indicators are off and the UPS is not operating.	The UPS is shut down and the battery is discharged from an extended power outage.	None. The UPS will return to normal operation when the power is restored and the battery has a sufficient charge.
The replace battery light is illuminated.	Weak batteries.	Allow the batteries to recharge for at least four hours. If the problem persists after recharging, replace the batteries. See section 10.
	Replacement batteries not connected properly.	Confirm the battery connections. See section 10.

9. Service

If the UPS requires service:

1. Use the troubleshooting section (section 8) to eliminate common problems.
2. Verify that no circuit breakers are tripped. A tripped circuit breaker is the most common UPS problem!
3. Go to section 5.2 and perform a manual self-test to check the battery.
4. If the problem persists, see the front of this manual for the correct telephone number and call customer service. If customer service is not available in your area, call the dealer that sold the UPS. Note the model number of the UPS, the serial number, and the date purchased. A technician will ask you to describe the problem and try to solve it over the phone, if possible. If this is not possible the technician will issue an RMA#. If the UPS is under warranty, repairs are free. If not, there will be a charge for repair.
5. Pack the UPS in its original packaging. If the original packing is not available, ask customer service about obtaining a new set. It is important to pack the UPS properly to avoid damage in transit. Never use styrofoam beads for packaging. Damage sustained in transit is not covered under warranty. Include a letter with your name, RMA#, address, copy of the sales receipt, description of the trouble, your daytime phone number, and a check (if necessary).
6. Mark the RMA# on the outside of the package. The factory cannot accept any package without this marking.
7. Return the UPS by insured, prepaid carrier to the address at the front of this manual.

10. Replacing the Battery

This UPS has an easy to replace hot-swappable battery. Please read section 10.1 before performing the procedure in sections 10.3 or 10.4.

10.1 Warning

- This Uninterruptible Power Source (UPS) contains potentially hazardous voltages. Do not attempt to disassemble the unit beyond the battery replacement procedures below. Except for the battery, the unit contains no user serviceable parts. Repairs are performed only by factory trained service personnel.

- The batteries in this UPS are recyclable. Dispose of the batteries properly. The batteries contain lead and pose a hazard to the environment and human health if not disposed of properly. Refer to local codes for proper disposal requirements or return the battery to a factory authorized service center. See the instructions with the new battery for more information.

CAUTION—Do not dispose of batteries in a fire. The batteries may explode.

CAUTION—Do not open or mutilate batteries. They contain an electrolyte which is toxic and harmful to the skin and eyes.

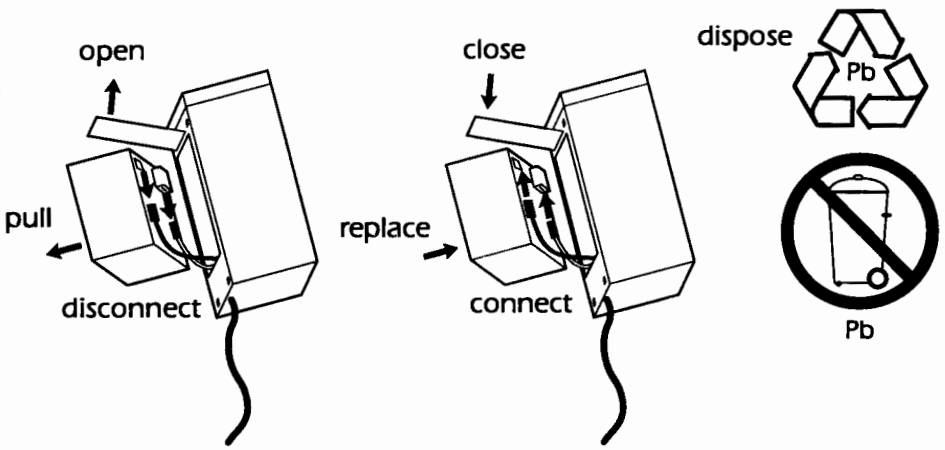
CAUTION—To avoid personal injury due to energy hazard, remove wrist watches and jewelry such as rings when replacing the batteries. Use tools with insulated handles.

CAUTION—Replace batteries with the same number and type of batteries as originally installed in the UPS.

10.2 Replacement Batteries

See your dealer or call the number at the front of this manual for information on battery recycling and replacement battery kits.

10.3 Battery Replacement Procedure (280, 420 and 650 VA models)



Note: Please read the cautions in section 10.1.

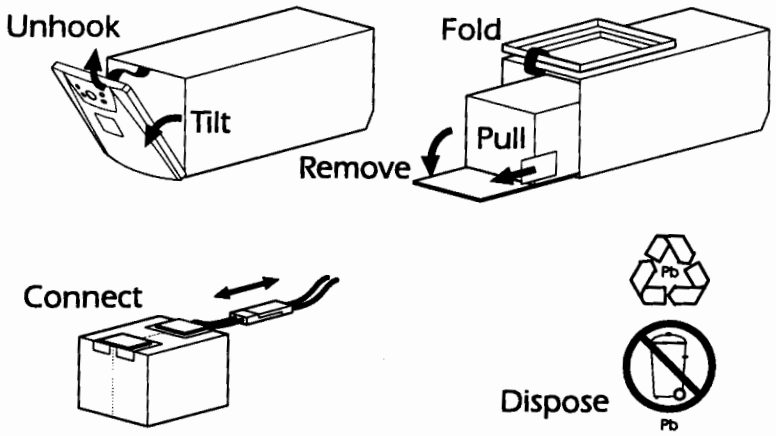
Battery replacement is a safe procedure, isolated from electrical hazards. You may leave the UPS and loads on for the following procedure.

1. Lay the UPS on its left side. Remove the two screws holding on the battery door and **open** the door.

Note: The battery door may need to be pulled away from the hinges somewhat to allow it to become fully swung open.

2. Gently **pull** out the battery by grasping the white tab.
3. **Disconnect** the two wires connecting the battery to the UPS. Loosen the wires by gently wiggling them while pulling straight back from the battery connector.
4. **Connect** the new battery in place of the old. Note: Small sparks at the battery connections are normal during connection.
5. **Replace** the new battery in the UPS. Use care to avoid pinching the wires.
6. **Close** the battery compartment door and replace the screws.
7. **Dispose** of the old battery properly at an appropriate recycling facility or return it to the supplier in the packing material for the new battery. See the new battery instructions for more information.

10.4 Battery Replacement Procedure (1000 and 1400 VA models)



Note: Please read the cautions in section 10.1.

Battery replacement is a safe procedure, isolated from electrical hazards. You may leave the UPS and loads on for the following procedure.

1. Grasp the top of the front cover and tilt it out and down.
2. Unhook the bottom of the cover from the chassis and lift it upward to expose the battery door. Be careful not to strain the ribbon cable. Do not touch the exposed printed circuit board.
3. Fold the front cover on top of the UPS as shown.
4. Use a screwdriver or a coin to remove the two battery door screws and open the door.
5. Grasp the tab and gently pull the battery out of the UPS.
6. Disconnect the battery leads. Pull the two gray couplers apart to disconnect the battery.
7. Connect the battery leads to the new battery. Note: Small sparks at the battery connectors are normal during battery connection.
8. Slide the battery into the UPS, close the battery door, replace the battery compartment screws, and replace the front cover.
9. Dispose of the old battery properly at an appropriate recycling facility or return it to the supplier in the packing material for the new battery. See the new battery instructions for more information.

11. Storage

11.1 Storage conditions

Store the UPS covered and upright in a cool, dry location, with its battery fully charged. Before storing, charge the UPS for at least 4 hours. Disconnect any cables connected to the computer interface port to avoid unnecessarily draining the battery.

11.2 Extended storage

During extended storage in environments where the ambient temperature is –15 to +30 °C (+5 to +86 °F), charge the UPS's battery every 6 months

During extended storage in environments where the ambient temperature is +30 to +45 °C (+86 to +113 °F), charge the UPS's battery every 3 months.

12. Specifications

	280 VA	420 VA	650 VA	1000 VA	1400 VA
Acceptable input voltage	0 - 160 VAC				
Input voltage (on-line operation)	92-150 VAC				
Output voltage	103-132 VAC				
Nominal input frequency	50 or 60 Hz, autosensing				
Input Protection	Resettable circuit breaker				
Frequency limits (on-line operation)	50 or 60 Hz, ±5%				
Transfer time	2 ms typical, 4 ms maximum				
Maximum load	280 VA 180 W	420 VA 260 W	650 VA 410 W	1000 VA 670 W	1400 VA 950 W
On-battery output voltage	115 VAC				
On-battery frequency	50 or 60 Hz, ±0.1 Hz; unless synchronized to utility during brownout.				
On-battery waveshape	Stepped sine-wave			Trapezoid	
Protection	Overcurrent and short-circuit protected, latching shutdown on overload.				
Surge energy rating (one time, 10/1000 µs waveform)	320 J			480 J	
Surge current capability (one time, 8/20 µs waveform)	19.5 kAmps total			39 kAmps total	
Surge response time	0 ns (instantaneous) normal mode; <5 ns common mode				
Surge voltage let-through (percentage of applied ANSI C62.41 Cat. A ±6 kV test waveform)	<5%			<0.5%	
Noise Filter	Normal and common mode EMI/RFI suppression, 100 kHz to 10 MHz				
Battery type	Spill proof, maintenance free, user replaceable, sealed lead-acid				
Typical battery life	3 to 6 years, depending on number of discharge cycles and ambient temperature				
Typical recharge time	2 to 5 hours from total discharge				

	280 VA	420 VA	650 VA	1000 VA	1400VA
10Base-T surge protection let-through (as a percentage of an applied ±6 kV 1.2/50 µs, 125 A 8/20 µs test)	<5%				
Telephone line surge protection let-through (as a percentage of an applied ±6 kV 1.2/50 µs, 500 A 8/20 µs test)	<1%				
Operating temperature	0 to +40 °C (+32 to +104 °F)				
Storage temperature (see section 11)	-15 to +45 °C (+5 to +113 °F)				
Operating and storage relative humidity	0 to 95%, non-condensing				
Operating elevation	0 to +3,000 m (0 to +10,000 ft)				
Storage elevation	0 to +15,000 m (0 to +50,000 ft)				
Electromagnetic immunity	IEC 801-2 level IV, 801-4 level IV, 801-5 level III				
Audible noise at 1 m (3 ft)	<45 dBA			<50 dBA	
Size (H x W x D)	Model 280, 420 16.8 x 11.9 x 36.8 cm (6.6 x 4.7 14.5 in.)		16.8 x 11.9 x 36.8 cm (6.6 x 4.7 x 14.5 in.)	21.6 x 17 x 43.9 cm (8.5 x 6.7 x 17.3 in.)	
	Model 280B, 420B 15 x 8.6 x 33.8 cm (5.9 x 3.4 x 13.3 in.)				
Weight - net (shipping)	Model 280 8.8 (9.6) kg; 19.3 (21.2) lb.	Model 420 9.3 (10.2) kg 20.5 (22.4) lb.	11.3 (12.2) kg; 24.9 (26.8) lb.	18.8 (20.9) kg; 41.5 (46) lb.	24.1 (26.1) kg; 53 (57.5) lb.
	Model 280B 6.6 (7.5) kg; 14.5 (16.6) lb.	Model 420B 7.2 (8.1) kg; 15.9 (18) lb.			
Safety and approvals	UL 1778, UL 497A, CSA 22.2				
EMC verification	FCC/DOC Class B certified				

13. How to Determine On-battery Run Time

Knowing the on-battery run time of the UPS is an important part of UPS use, especially in situations where the protected device uses an operating system that requires some time to gracefully shut down.

1. To calculate the on-battery run time first determine the total load protected by the UPS in Volt-Amps. Obtain load figures from either the labelling on the protected equipment or the accompanying literature. For loads specified in watts, multiply the specified figure by 1.4. For loads specified in Amps, multiply the specified figure by 120.
2. Add the individual loads to determine the total load.
3. Compare the total load of your system to the run time table below.

Typical On-Battery Run Time Versus Load, in Minutes									
Load	280 VA	420 VA	650 VA	1000 VA	1400 VA	Load	650 VA	1000 VA	1400 VA
50 VA	35	41	90	167	306	500 VA	7.2	14	29
75 VA	25	27	64	125	236	550 VA	6.5	13	26
100 VA	18	21	49	98	190	600 VA	5.8	11	23
150 VA	12	14	29	64	133	700 VA	-	9	19
200 VA	8	10	22	47	99	800 VA	-	7.7	16
250 VA	6	7.5	17	35	74	900 VA	-	6.6	13
300 VA	-	6.2	14	27	60	1000 VA	-	5.8	11
350 VA	-	5.1	11	22	50	1200 VA	-	-	8.8
400 VA	-	4.3	9.3	19	42	1400 VA	-	-	7.2
450 VA	-	-	8.2	17	35				

Windows 95 - PowerChute Pro Troubleshooting Guide

In This Document

Pre-Installation

Major Components of PowerChute Pro for Windows 95

Component	Purpose
Gray Cable #940-0095	This cable must be used in order for the Plug and Play functionality to operate.
PowerChute Pro Server (c:\pwrchute\pwrchute.exe)	This is the background process which communicates directly with the UPS. This process must be running on the Taskbar. The icon associated with this executable file is the battery which says UPS Monitor.
WinChute (c:\pwrchute\winchute.exe)	User Interface Module. This is the executable file which allows you to view the log files, perform UPS self tests, and Schedule UPS Shutdowns, etc. This module should only be running when making configuration changes or when examining log files.
Initialization File (c:\pwrchute\pwrchute.ini)	This is the configuration file which holds default parameters and any changes made in the User Interface Module. This file can also be modified manually using a text editor.

Port Configuration Settings

In order to ensure full communication between your computer and the UPS, the serial communications port must be configured properly. Please perform the following steps to check port settings:

1. Go to the My Computer icon from the Desktop, and click on the right mouse button to view the Context Menu.
2. Select Properties and then select Device Manager from tabs at the top of the screen.
3. In the Device Manager, using the left mouse button, click twice on Ports (COM & LPT), this will open up a list of available ports on your system.
4. Using the left mouse button, click twice on the Communications Port (COMx) connected to the UPS, this will bring up the Communication Port Properties menu.

5. Select Port Settings from the tabs at the top of the menu. Ensure the settings are as follows:

Bits per second:	2400
Data bits:	8
Parity:	None
Stop bits:	1
Flow Control:	Xon/Xoff

6. Click once on the Advanced button in the lower left corner of the screen. The Advanced Port Settings menu will display.

7. Ensure the Use FIFO buffers (requires 16550 compatible UART) option is NOT selected.

The serial port selected for the UPS must be dedicated exclusively to the UPS. It also must have a dedicated interrupt (IRQ).

Installation

PowerChute Pro can be installed by two methods as follows:

1. **Plug and Play Installation** (Tech Support preferred method of installation.)

a. Connect the gray cable #940-0095 to an available serial port on the back of your computer. A serial port can be either 9 pin or 25 pin. If using a 25 pin serial port, you will need to use the 9 to 25 pin adapter supplied with PowerChute Pro (#940-0017).

b. Reboot your computer. Windows 95 should automatically detect the Back-UPS Pro and bring up a dialogue box indicating New Hardware Has Been Found.

c. Select the option Driver from Disk Provided by Manufacturer, insert the PowerChute Pro for Windows 95 disk into the disk drive. Input the Destination Drive as A:\ (unless the disk drive is associated with another drive letter), and then press <ENTER>.

d. The PowerChute Pro software will automatically be installed. Once the installation is complete, reboot the system.

e. To check the communications between the computer and the UPS, use the mouse to select the PowerChute option from the Taskbar and click twice to open. You should see a line indicating PowerChute Started and then another line indicating Communications Established.

2. **Manual Installation**

a. Connect the gray cable #940-0095 to an available serial port on the back of your computer. A serial port can be either 9 pin or 25 pin. If using a 25 pin serial port, you will need to use the 9 to 25 pin adapter supplied with PowerChute Pro (#940-0017).

b. From the Windows 95 main screen, use the mouse to select and click twice on My Computer, then select and double click on the Control Panel icon.

c. In the Control Panel window, double click on the Add New Hardware option to invoke the New Hardware Wizard. This tool will walk you through a hardware installation using dialog screens. Click on the Next button to start using the tool.

d. You will then be asked Do you want Windows to search for your new hardware?. Click on the No button (this will avoid a time-consuming and unnecessary search). Then click on the Next button.

e. The New Hardware Wizard then instructs you to Select the type of hardware you want to install. In the New Hardware Types list, scroll down to and double click on Other Devices. A Driver Information Database information window appears containing a bar graph which displays the progress of the database creation. Wait for this process to complete.

f. A message is displayed If your hardware is not listed, or if you have an installation disk, click have disk. Click on the Have Disk button.

g. When the Install from disk dialog box appears, insert the PowerChute Pro installation disk into the drive displayed below the label Copy Manufacturers Files From in the lower part of the box. Then click the OK button.

h. The next screen which displays the message Windows can install your hardware with the following settings requires NO CHANGE. Click on the Next button to continue.

i. A Copying Files information box appears which displays a bar graph showing the progress of the installation. When this procedure is complete, click on the Finish button.

j. Now the System Settings Change dialog box displays a message indicating you must now shut down your computer, turn it off, and install the care for new hardware. Since the UPS is connected to a serial port, there is no card to install. Click on the No button to avoid an unnecessary shutdown.

k. At this point, the installation is now complete. To check the communications between the computer and the UPS, use the mouse to select the PowerChute option from the Taskbar and click twice to open. You should see a line indicating PowerChute Started and then another line indicating Communications Established.

Common Installation Questions/Issues

QUESTION: The New Hardware Detected message was never received after installing the cable and rebooting the machine for the Plug and Play installation.

SOLUTIONS: This problem is seen when there is a problem sending a signal out to the UPS to detect the unit. This signal needs to be returned to Windows 95 in order for the new equipment to be recognized. Please follow the checklist below to determine the root of this problem.

1. Check the part number of the attached interface cable. The part number is located on the end casing of the cable and should read 940-0095.

2. Examine your system configuration carefully as follows. Approximately 80% of the Plug and Play problems are identified as COM port/system configuration issues. **If you need assistance with configuring your system and working in the system BIOS, please contact the manufacturer of your system.**

a. If you have a mouse located on one of your serial ports and also have an internal modem, check to see where the modem is assigned (COM1, COM2, etc.). Also determine which interrupt the modem is using.

Most manufacturers are setting up systems direct from the factory with the mouse located on the COM1 port and the internal modem configured for the COM2 port (in some cases, these are reversed). In order to have the communications directed to the modem on COM2, they need to disable the external COM2 port on the back of the CPU thus not allowing any signaling between the UPS and the computer.

This configuration can be confirmed in a couple of ways. If you are familiar with your system BIOS, you can check the status of the external COM2 port. An easier test for a conflict of this type is to move the serial mouse to the COM port in question, reboot the system and see if the mouse is detected and is operational.

Some suggestions for changing the system configuration to fix this problem are:

- Reconfigure the modem (this may be done using dip switches or jumpers on the modem by making changes in the system BIOS). Make changes so the modem is going to communications port (such as COM3 or COM4), also ensure the modem is using dedicated IRQ. Once the modem has been changed, enable the external COM port

  Reboot the system with the 940-0095 cable attached and see if the new hardware is now detected.

- Some computer systems allow reconfiguration of the COM port on the motherboard (external COM port which is disabled). If this is a possibility, you will need to make changes to your system BIOS so the port is a dedicated COM port device with a dedicated IRQ.

- Another option is to purchase a bus mouse to be installed in an available expansion slot.

or another another again.

b. If your system is not configured as in Section 2.a above, you still need to determine if any conflicts exist. This can be done in the system BIOS or in Window 95.

If using Windows 95, perform the following:

- Go to Start

- Go to Settings
- Go to Control Panel
- Double click on the System icon. This will bring up the System Properties menu.
- Click on the Device Manager tab.
- Double click on Ports (COM & LPT). This will bring up a list of available communications ports.
- Double click on the port where you are trying to install the UPS.
- When the Communications Port (COMx) Properties menu comes up, click on the Resources tab.

At the bottom of the Resources window, there is a box Conflicting device list:. This will tell you of any IRQ conflicts which may exist with the COM port selected.

c. If you have determine you have a dedicated COM port and a dedicated IRQ, the integrity of the COM port needs to be tested. One of the fastest ways to determine if a port is operational is to move the serial mouse to the port in question and reboot the system. If the mouse comes up and is functional, then the port is now working. If it does not, there still may be a problem. To do a hardware test on the integrity of the COM port, you may need to check the port with a loop-back tester. Your local computer support center or computer manufacturer can help you with this.

3. Test the integrity of the UPS by doing the following:

a. After booting Windows 95, attach the black cable provided with PowerChute Pro (#940-0024) to a functional COM port on the computer and then to the UPS.

b. If PowerChute Pro is running in the background (e.g. it is showing up on the Taskbar), close the application by double clicking on the Taskbar icon and then clicking on the X in the upper-right corner of the screen.

c. Start a HyperTerminal session:

- Go to Start
- Go to Programs
- Go to Accessories
- Select and click on HyperTerminal to bring up the HyperTerminal menu.
- Double click on Hypertrm.exe to bring up the Connection Description screen.
- Under Name, enter UPS and click on OK. A Phone Number screen will now come up.
- At the bottom of the screen, there is a selection Connect using: This is where you select Direct to COM X where X is the COM port being used for the test.
- A ComX Properties screen is displayed which has a tab for Port Settings. Ensure:

Bits per second:	2400
Data bits:	8
Parity:	None
Stop bits:	1
Flow control:	Xon / Xoff

- Click on the Advanced... button in the lower left of the Port Settings tab.
- Ensure the Use FIFO buffers (requires 16550 compatible UART) box is NOT selected.
- Click OK on this window and then the Port Settings window. This will bring you to a blank window with a blinking cursor. If an error message such as selected serial port is either not support or is being used by another device appears, then another application is using the COM port.
- Type a capital Y at the blinking cursor.
- If an SM is returned, the port and UPS are operational.

QUESTION: After doing the manual installation, when checking for communications between the UPS and the computer in the PowerChute Pro Monitor, there is a message Communications Lost after PowerChute Started.

SOLUTION: Please refer to the previous question/solution to ensure you do not have any system configuration issues causing this problem.

QUESTION: When installing, you receive Cannot find keymacro.dll error.

SOLUTION: During the installation, the New Hardware Detected dialog box has an option to Install from manufacturers disk. The default path for installation is set to something other than the drive where the PowerChute Pro disk is located (such as C:\ when it needs to be A:\). Change the drive and then press <ENTER> to continue the installation.

Common Post-Installation, Operational Questions/Issues

QUESTION: Received an error message General Protection Fault has occurred in your application. If problem persists contact manufacturer.

SOLUTIONS: This occurs when some of the files have not installed completely. In order to resolve this problem, you will need to de-install the PowerChute Pro and then re-install the software by rebooting the system in order to Plug and Play again. Use the instructions below to remove the PowerChute Pro installation:

a. Go to your Start button
b. Select Run
c. Type in REGEDIT on the Open: line and press <ENTER> or click on the OK button. This will take you into the Registry Editor. It is important to follow the directions carefully in the Registry due to the fact that your entire Windows 95 configuration is stored in the Registry.
d. Once in the Registry Editor screen, double click on HKEY_LOCAL_MACHINE. This will expand to additional options.
e. Double click on Enum to expand the Enum tree.
f. Double click on SERENUM which should be located at the bottom of the Enum list.
g. Under the SERENUM option, there should be a file APC0001. Click on this file with the right mouse button and select DELETE.
h. Double click on ENUM to compress the expanded file listing.
i. Double click on SYSTEM.
j. Double click on CurrentControlSet
k. Double click on Services
l. Double click on Class
m. Double click on Unknown
n. Delete all files under Unknown with filenames of 000X, where X is some number.
o. Close out of the Registry by clicking on the X in the upper-right corner of the window.
p. Go to the Start button.
q. Select Programs.
r. Select Windows Explorer.
s. Highlight the PWRCHUTE directory, click on the right mouse button and press Delete.
t. PowerChute Pro has now been removed from your system.

QUESTION: PowerChute Pro Server is not showing up on the Taskbar when booting Windows 95.

SOLUTIONS: You can add PowerChute Pro to the Start-up group in order to have the PowerChute Pro icon show up on the Taskbar when booting the system by doing the procedure below:

a. Go to the Start button.
b. Select Settings
c. Select Taskbar. This will bring up the Taskbar Properties window.
d. Click on the Start Menu Programs tab.
e. Click on the Add button under the Customize Start Menu section of the menu. This will bring up a window entitled Create Shortcut.
f. On the Command line:, enter c:\pwrchute\pwrchute.exe and press the Next button located at the bottom of the window. This will bring up a window Select Program Folder.

g. A Select Program Folder window will come up where a shortcut folder needs to be selected. Double click on the StartUp folder and click on the Next button at the bottom of the window.

h. The next window is the Select a Title for the Program window. Enter a shortcut name on the line such as PowerChute and click on the Finish button at the bottom of the window.

I. The Taskbar Properties window will come up again. Close out of this window by clicking on the X in the upper right corner of the screen.

Appendix A - Using a Logitech Mouse with a Back-UPS Pro Plug and Play Unit

If you are using a Logitech Mouse with the proper drivers installed and are experiencing the UPS going to battery power upon bootup of Windows 95, you will need to perform the following steps:

1. Go to Start

2. Go to Run

3. Double click on the following folders in order:

   - HKEY_LOCAL_MACHINE
   - SOFTWARE
   - Logitech
   - MouseWare
   - CurrentVersion
   - Global

4. Edit the string value for SearchOrder. Change this to reflect only the type of port where the mouse is connected (i.e. serial).

5. Edit the string for PortSearchOrder. Change this to reflect only the port where the mouse is connected (i.e. COM1).

6. Edit the string for MaximumConnections. Change this value to 1.

7. Edit the string for MaximumDevices. Change this value to 1.

8. Exit the Registry and restart Windows 95 for these changes to take effect.

APC™
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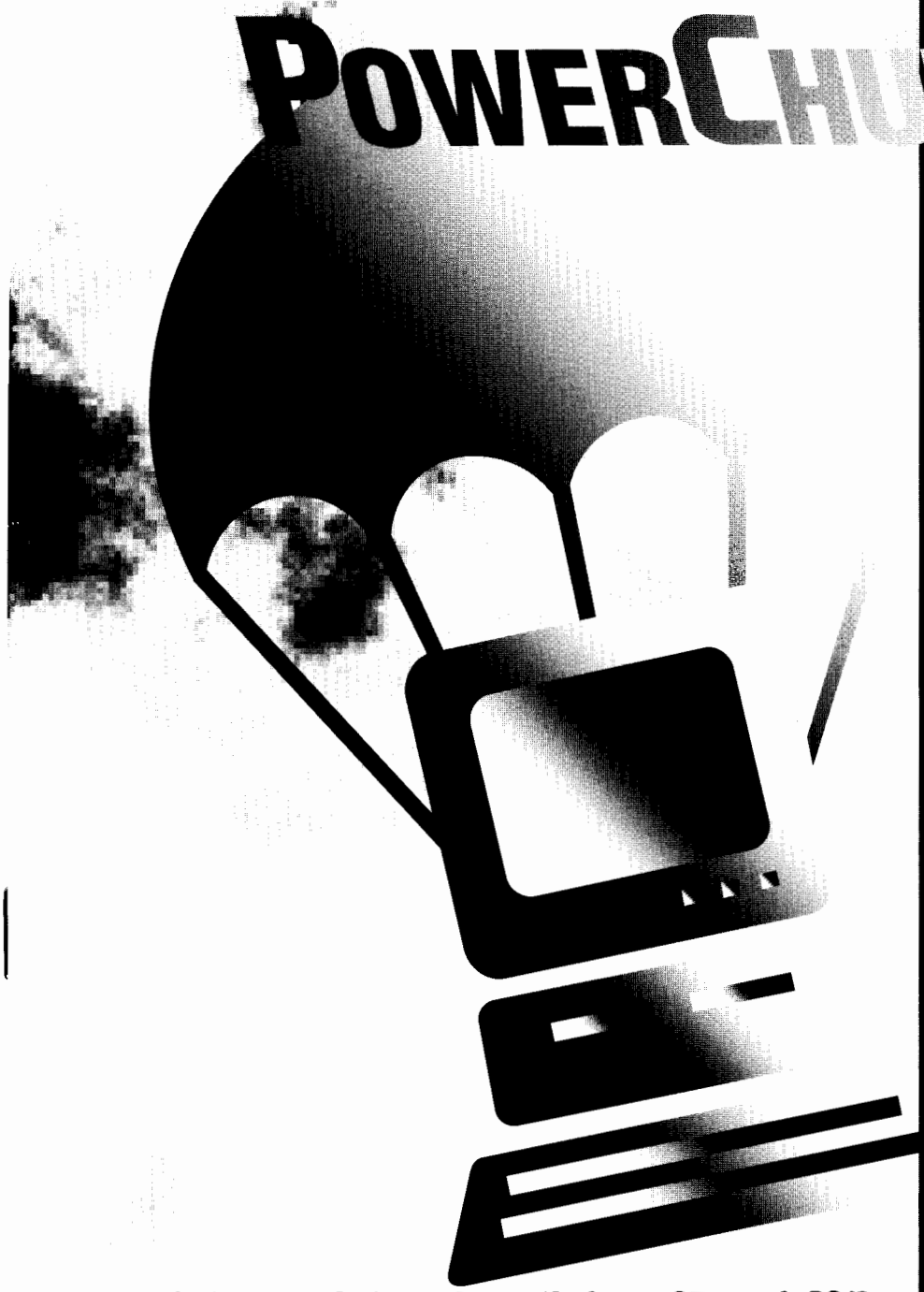

User's Guide

For Windows, Windows NT, Windows 95, and OS/2

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Getting Started

Introduction

This manual provides information for those users installing PowerChute Pro on platforms such as Windows, Windows 95, Windows NT, and OS/2. This manual contains detailed information on how to install, configure and operate PowerChute Pro for these platforms in conjunction with an American Power Conversion (APC) Uninterruptible Power Supply (UPS) - the Back-UPS Pro series.

PowerChute Pro Structure

The PowerChute Pro software consists of two main components. The first is the **UPS Monitoring Module** that runs as a background process. It communicates with the UPS and the User Interface Module, logs events, notifies users of impending shutdowns, and when necessary, shuts down the operating system. This background process is referred to in this manual as the **UPS Monitoring Module** or the **Server Module**.

The second component is the **User Interface Module**. It is also referred to as PowerChute Pro since that is what you will see and use. The User Interface Module is comprised of the PowerChute Pro **Main Screen** and the **System, Logging, Configuration, Diagnostics** and **Help** menu options. The user interface communicates either locally or via a network to available host computers. It gathers real-time data such as UPS events and allows you to perform self-tests, log event data and schedule workstation shutdowns. Please note that only local communication is available for PowerChute Pro for Windows and Windows 95.

Chapter 1: Installing PowerChute Pro

Package Contents

PowerChute Pro is bundled with the Back-UPS Pro. It consists of the following:

- This manual
- Diskettes containing installation software for the five platforms: Windows, Windows 95, Windows NT, and OS/2
- One 9-pin UPS custom serial interface cable - 940-0024B (black) or 940-0024C (black)
- One Plug and Play UPS custom serial interface cable - 940-0095 - for Windows 95 only
- 9-pin male to 25-pin female serial port adapter
- 9-pin male to 25-pin male serial port adapter

System Requirements

- An available RS-232 serial port dedicated for the UPS
- PowerChute Pro requires that you have a Back-UPS Pro model UPS
- PowerChute Pro supports but does not require a mouse

- One of the following operating systems:

  1. Windows 3.1 or above
  2. Microsoft Windows for Workgroups - Version 3.1 and Version 3.11
  3. Windows NT Workstation for Intel - Version 3.x
  4. Windows NT Server for Intel - Version 3.x
  5. Windows 95
  6. IBM OS/2 - Version 2.0 or above with either Microsoft LAN Manager v2.x or IBM LAN Server v2.0, 3.0 or 4.0

Installation for Windows

PowerChute Pro General Information

The PowerChute Pro software is comprised of two modules:

1. A **UPS Monitoring Module** (**pwrchute.exe**), which communicates to the UPS via the serial port.

2. A **User Interface Module** (**winchute.exe**) which enables you to control and configure PowerChute Pro through the drop down menus and dialog boxes. It also allows you to monitor the UPS through the Main Screen.

Installing PowerChute Pro

The main steps to install PowerChute Pro for Windows are outlined below:

1. Install the APC UPS as the system power source:

2. Install the signaling cable (black cable marked 940-0024B or 940-0024C) for your UPS. The cable should connect the UPS to your system via a system serial port. See the "Back-UPS Pro User's Manual" for more information.

3. Boot your system.

4. Open the File Manager or a Command Prompt Window and select the install source drive and directory. The installation file is **setup.exe** found in the root directory of the PowerChute Pro for Windows installation disk.

5. The setup program will prompt you to supply the installation path and to select the serial port the UPS cable is attached to. Click OK when done.

6. The setup program will create a PowerChute Pro group and add icons for the User Interface Module, Monitoring Module, PowerChute Pro initialization file and PowerChute event log file. The last two files are text files and may be viewed through Notepad.

   The "UPS Monitor" icon represents the UPS Monitoring Module. This module communicates to the UPS via a serial port and passes UPS information to the User Interface Module. The UPS Monitor icon is also placed in the StartUp group so that it may load automatically whenever Windows is started. The "PowerChute Pro" icon represents the User Interface Module. You may change configuration parameters, activate event log functions and perform UPS diagnostics through this module.

   The "**pwrchute.ini**" file icon allows you to see and modify PowerChute Pro initialization settings. It is recommended that only experienced users modify the initialization file. The "**pwrchute.log**" file icon contains a record of the event data collected by PowerChute Pro from the UPS.

7. Reboot your system.

Installation for Windows NT

PowerChute Pro General Information

The PowerChute Pro software is comprised of two modules:

1. A UPS Monitoring Module (**ups.exe**), which runs in the background as a Windows NT Service and communicates to the UPS via a serial port.

2. A User Interface Module (**pwrchute.exe**), which enables you to control and configure PowerChute Pro through the drop down menus and dialog boxes. It also allows you to monitor the UPS through the Main Screen.

Installing PowerChute Pro

PowerChute Pro must be installed by the system **Administrator** or someone with **Administrator** privileges.

The main steps to install PowerChute Pro for Windows NT are as follows:

1. Install the Back-UPS Pro as the system power source.

2. Install the signaling cable (black cable marked 940-0024B or 940-0024C) for your UPS. The cable should connect the UPS to your system via a system serial port. See the "Back-UPS Pro User's Manual" for more information.

3. Boot your system.

4. Open the File Manager or a Command Prompt Window and select the install source drive and directory. The installation file is **setup.exe** found in the root directory of the PowerChute Pro for Windows NT installation disk.

5. The setup program will prompt you to supply the installation path and to select the serial port the UPS cable is attached to. Click OK when done.

6. If you are using Windows NT v3.1, the setup program will display a message saying that the NTLDR and NTDETECT.COM programs are incompatible. If you have not installed the NT Service Pack 2, select "Yes" to update these files. If Service Pack 2 has been installed, select "No".

7. The setup program will create a PowerChute Pro group and add the PowerChute Pro User Interface icon to that group.

8. Reboot your system.

Configuring the NT UPS Service

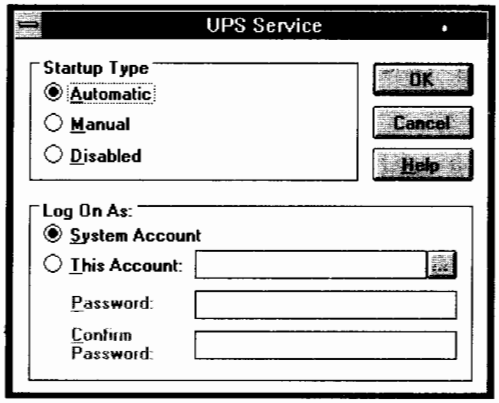
The PowerChute Pro UPS Service allows the UPS Monitoring Module to start automatically and run as a background process. This step is essential in making sure that PowerChute Pro functions properly and should be performed after the installation program completes its task.

To configure the PowerChute Pro UPS Service, follow the steps below:

1. From the Control Panel, select the **Services** icon.

2. The Services dialog box will appear. Highlight **UPS** and click on the **Startup...** button.

3. Configure the UPS Service dialog box as shown below. Make sure that you have selected the **Automatic** radio button. Click **OK** to save your changes:



Installation for Windows 95

PowerChute Pro General Information

The PowerChute Pro software is comprised of two modules:

1. A **UPS Monitoring Module** (**pwrchute.exe**), which communicates to the UPS via the serial port.

2. A **User Interface Module** which enables you to control and configure PowerChute Pro through the drop down menus and dialog boxes. It also allows you to monitor the UPS through the Main Screen. The User Interface Module for Windows 95 is called **winchute.exe**.

Installing PowerChute Pro

The main steps to install PowerChute Pro for Windows 95 are outlined below:

1. Install the APC UPS as the system power source.

2. Install the signaling cable (940-0095) for your UPS. The cable should connect the UPS to your system via a system serial port. See the "Back-UPS Pro User's Manual" for more information.

3. Boot your system.

4. On starting, Windows 95 will show a dialog box saying that it has found new hardware - APC BACK-UPS PRO. It will then display the "**New Hardware Found**" dialog box which contains three options:

   a. Driver from disk provided by the hardware manufacturer

   b. Do not install a driver (Windows will not prompt you again)

   c. Select from a list of alternate drivers

Select the first option - "**Driver from disk provided by the hardware manufacturer**". The second option is explained in the "Manually Installing PowerChute Pro" section later in this chapter. The third option is not recommended.

5. Windows 95 will display the "Install from Disk" dialog box. Insert the PowerChute Pro disk in the appropriate drive, select "**OK**", and Windows 95 will copy all files to appropriate directories. The User Interface module and related files will be placed in a directory called \PWRCHUTE. The UPS Monitoring Module will be placed in the \Windows\Start Menu\Programs\Startup directory so that it will automatically start whenever Windows 95 boots. To start the User Interface, run the WINCHUTE.EXE file from the \PWRCHUTE directory.

Manually Installing PowerChute Pro

If Windows 95 is running when you install PowerChute Pro or you select the second option in the "**New Hardware Found**" dialog box, please follow the steps below:

1. Install the signaling cable (940-0095) for your UPS. The cable should connect the UPS to your system via a system serial port. See the "Back-UPS Pro User's Manual" for more information.

2. If this is the first time you are installing this software, you will now need to go to **"Device Manager"** and manually install the driver for the UPS. The follow the steps outlined below:

   a. In the upper left hand corner of the screen click the right mouse button on the icon **<My Computer>** and select **"Properties"** from the drop down box.

   b. Select the **"Device Manager"** tab from the **"System Properties"** window in the upper section of the window.

   c. Click the plus sign (+) next to the **"Unknown Hardware"**. At this point you should see the branch for the APC BACK-UPS PRO. Double click on this branch.

d. Select the **"Driver"** tab from the **"APC BACK-UPS PRO"** window in the upper section of the window.

e. Select **"Change Driver"** in the lower right hand section of the **"Driver"** window.

f. Select **"Unknown Hardware"** from the **"Select Hardware Type"** window.

g. Select **"Have Disk"** in the lower right hand section of the **"Select Device"** window.

h. Insert the PowerChute Pro disk into Drive A: and select **"OK"** from the **"Install From Disk"** window.

i. Select **"APC BACK-UPS Pro"** from the **"Select Device"** window and click **"OK"** in the lower right hand section of the window.

j. Select **"OK"** from the **"Driver"** window.

k. Select **"Yes"** from the **"System Settings Change"** window to reboot your system.

3. Open Explorer or a Command Prompt Window and select the install source drive and directory. The installation file is **setup.exe** found in the root directory of the PowerChute Pro for Windows installation disk.

4. The setup program will prompt you to supply the installation path and to select the serial port the UPS cable is attached to. Click OK when done.

5. The setup program will place the UPS Monitoring Module (**pwrchute.exe**) in the "\Windows\Start Menu\Programs\Startup" directory. This will allow the Monitoring Module to load automatically. The User Interface module (winchute.exe) will be placed in the directory you specified during installation. To load the User Interface module, open Explorer, go to the PowerChute directory and run "**winchute.exe**".

Installation for OS/2

PowerChute Pro General Information

The PowerChute Pro software is comprised of two modules:

1. A UPS Monitoring Module (**upsd.exe**), which runs in the background and communicates to the UPS via a serial port. In a LAN environment, the UPS Monitoring Module runs as a Service. It is used to notify other network users of power events and shutdowns.

2. A User Interface Module (**pwrchute.exe**), which enables you to control and configure PowerChute Pro through drop down menus and dialog boxes. It also allows you to monitor the UPS through the Main Screen.

Installing PowerChute Pro

Installation of PowerChute Pro on a standalone workstation is straightforward. However, installation of PowerChute Pro on a workstation that is part of a network requires an understanding of network file server configuration.

If your workstation is connected to a Local Area Network (LAN), PowerChute Pro must be installed by the system **ADMINISTRATOR** or someone with **ADMINISTRATOR** privileges.

The main steps to install PowerChute Pro for OS/2 are as follows:

1. Install the Back-UPS Pro as the system power source.

2. Install the signaling cable (black cable marked 940-0024B or 940-0024C) for your UPS. The cable should connect the UPS to your system via a system serial port. See the "Back-UPS Pro User's Manual" for more information.

3. Boot your system.

4. Insert the PowerChute Pro for OS/2 diskette into an available disk drive on your computer.

5. Open an OS/2 Window or Full Screen and select the install source drive. At the command line type "**setup <Enter>** ".

   The install routine will copy the necessary files to your hard drive. In addition, the setup routine will also update the "**config.sys**", "**startup.cmd**" files. For a network station, the "**ibmlan.ini** (**lanman.ini**)" file will also be modified.

   The changes made to the **config.sys** will add PowerChute Pro to the LIBPATH and add a variable, **PWRCHUTE**, to the environment string. The original file will be saved with as **config.apc** in the same directory as **config.sys**.

   The changes made to the **startup.cmd** file will allow the PowerChute Pro software to load and run every time the computer is turned on.

   The original files will be saved as **ibmlan.apc** or **lanman.apc** extension in the same directory as the IBMLAN.INI (LANMAN.INI) file. The changes made to the INI file modifies the UPS parameters so that LAN Server/LAN Manager will load the UPS Service upon start up.

6. When all the files are copied, the install program will automatically start the configuration routine. You will then be prompted to enter the installation directory and the communication port. Reply appropriately and after a brief interval, you will be returned to the OS/2 prompt.

7. Shut down and reboot your system. Changes to **startup.cmd** and **ibmlan.ini** (**lanman.ini**) will load the UPS Monitoring Module/Service (**upsd.exe**) automatically.

8. Run PowerChute Pro.

Manually Starting PowerChute Pro (Standalone)

This section is relevant only if you are having problems after installation and wish to load PowerChute Pro manually.

If you are running OS/2 on a standalone system, you need to start the Monitoring Module (**upsd.exe**) and then the User Interface Module (**pwrchute.exe**). To do this, change your working directory where PowerChute Pro is installed and type "**upsd <Return>**" and "**pwrchute <Return>**". The Monitoring Module will run as an independent background process, communicating with the UPS, logging data and supplying UPS data to the User Interface Module.

Manually Starting PowerChute Pro (LAN Server)

If you are running OS/2 with LAN Server, you need to start the Monitoring Module/ Service (**upsd.exe**), LAN Server and then the User Interface Module (**pwrchute.exe**). To do this, change your working directory to where PowerChute Pro is installed and type "**net start server**", "**net start ups**" and "**pwrchute <Return>**" in the same sequence.

This will ensure that, during a power failure, the Service will immediately pause the server. It will then send out an alert to the Domain notifying users that the server is running on battery power.

The UPS Monitoring Module/Service also logs broadcast messages to the "**messages.log**" file in the LAN directory. In addition, alerts are sent to the "**net.err**"file.

The UPS Monitoring Module/Service also informs all users on the network when the server is about to shut down. It then stops the server and requester services. The OS/2 operating system is shut down and the Back-UPS Pro is put to sleep, waiting for power to return.

To make sure that the UPS Service module started, type the "**net start**" command to view the network services that are running. "UPS" should be among the services listed. The fileserver must be also be running the "**messenger**", "**netpopup**", and "**alerter**" services in order for the UPS service to work properly. In addition, the workstations must have Enhanced DOS or OS/2 as an operating system, be logged onto the Domain and be running the "**messenger**" and "**netpopup**" services.

The "**messenger**" service supports sending and receiving messages; the "**netpopup**" service displays messages as popup panels on a requester or server; the "**alerter**" notifies the generic Alerter when UPS problems arise.

Adding the PowerChute Logon to Domain - LAN Server 3.0 and 4.0

If you are running PowerChute in a **LAN Server** network with **OS/2 2.x** , you have the ability to access the PowerChute *plus* screen on other servers provided they are running the UPS Monitoring Module/Service. Since the PowerChute interface screen is password protected, it is necessary to add "**PWRCHUTE**" as a valid user in your domain. PowerChute does not log on to the domain, but does do a password validation.

In order to configure the PowerChute password, enter the "USER PROFILE MANAGEMENT SERVICES" in LAN Server. Add "PWRCHUTE" as a user with administrator privileges. The password that you give to the PWRCHUTE account will be the password that you will need to enter in order to gain access to remote PowerChute servers. You will not need to have a password to access the local PowerChute server.

In addition to adding the PWRCHUTE user to the domain, it is also necessary to activate a named pipe on the domain controller. Each server which will run the UPS Monitoring Module/Service must have a Named Pipe called **SRVRCON** with permissions RWCP (Read, Write, Create, Permission) assigned to it. You will have to execute this procedure once for each server on which you run PowerChute. The following two sections discuss this procedure for LAN Server 3.0 and 4.0 since each version of LAN Server performs this differently.

LAN Server 3.0

For LAN Server 3.0 use the NET interface as follows:

1. Logon as administrator in the domain with the server to be modified.
2. Start the LAN Requester Full Screen Interface.
3. Select **D**efinitions ->Access Control ->**S**ervers ->**D**isplay profiles by server.
4. Select a server by name.
5. A list of resources available on the selected server will appear. Under the word **Profile** is the selection **—New—**.

6. From the menu, select **A**ctions, then **C**reate. The "Create an Access Control Profile" entry screen will appear.

7. The "profile" field will be highlighted. Type \PIPE\SRVRCON into this field. Then set the "Permissions for USERS group" field to RWCP.

8. Next, select \PIPE\IBMLAN\SERVER.RNS and Select **A**ctions, **U**pdate.

9. The "Permissions" screen will appear, and the "Permissions for USERS group" field will be highlighted. Change its contents to RWCP, and then press Enter.

10. Again at the resource list for the selected server, select the resource \PIPE.

11. Select **A**ctions, **U**pdate.

12. The "Permissions" screen will appear, and the "Permissions for USERS Group" field will be highlighted. Change its contents to RWCP, and press Enter.

13. Exit LAN Requester Interface.

LAN Server 4.0

For LAN Server 4.0, the procedure to activate the SRVCON named pipe is as follows:

1. Logon as administrator in the domain with the server to be modified.

2. Open an OS/2 window.

3. At the command prompt, type NET ACCESS \PIPE\SRVCON /ADD USERS:WRCP and press Enter.

4. At the command prompt, type NET ACCESS \PIPE\IBMLAN\SERVER.RNS /CHANGE USERS:WRCP and press Enter.

5. At the command prompt, type NET ACCESS \PIPE /CHANGE USERS:WRCP and press Enter.

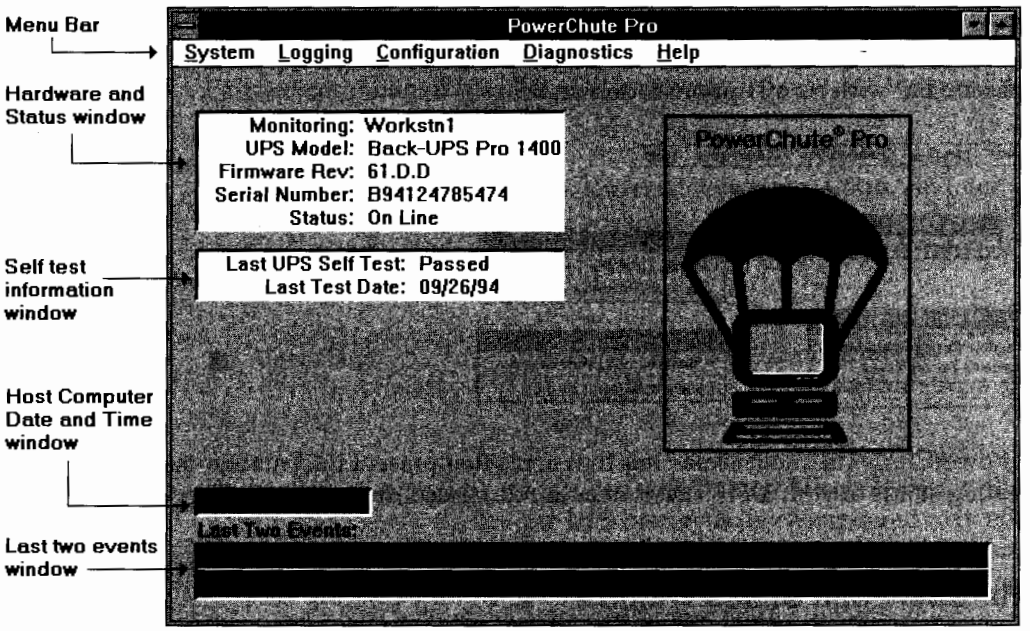
Reinstalling PowerChute Pro

If you need to reinstall PowerChute Pro, please make sure that the UPS Monitoring Module/Service and the User Interface Module are not running. Edit the **startup.cmd** file by adding a **REM** statement at the beginning of the line that contains the command to load the UPS Monitoring Module/Service (**upsd.exe**). Save the **startup.cmd** file as a text file and reboot your system.

Chapter 2: PowerChute Pro Main Screen

PowerChute Pro Main Screen

The PowerChute Pro Main Screen is what you will see and work with. This screen allows you to monitor a Back-UPS Pro and displays self-test, server, UPS model and status data:



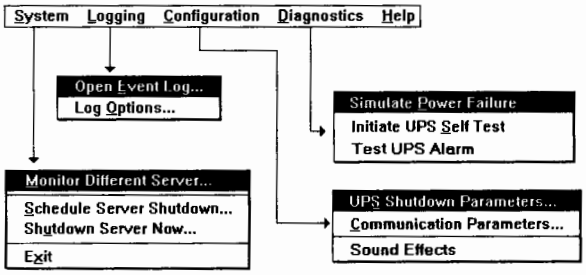
The Menu Bar

The PowerChute Pro Main Screen has a menu bar at the top with five main options:

- **System**. This menu allows you to monitor a different workstation, schedule workstation shutdown times and dates, shutdown a workstation immediately and exit PowerChute Pro.

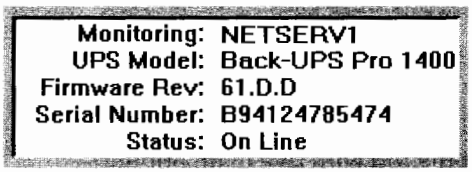
- **Logging**. This menu allows you to set log file options and view the event log.
- **Configuration**. The Configuration menu allows you to configure UPS shutdown parameters, set communications parameters, and enable sound effects.
- **Diagnostics**. The Diagnostics menu allows you to test your UPS and make sure that it is in good working order. Specifically, this menu allows you to initiate UPS self tests, simulate a power failure, and initiate a UPS alarm test.
- **Help**. The Help menu allows you to access the on-line help system.

The Menu Bar with menu options is shown below:



The PowerChute Pro main screen has four areas that present information on the operating status of your UPS. These areas are discussed in the following sections.

Hardware and Status Window



In the upper left-hand corner of the main screen is a display of the host computer's name, UPS model, and UPS status:

Monitoring: Identifies by name the host computer for which you are viewing UPS data. It is possible to be logged into one host computer while viewing the status of another host computer's UPS.

UPS Model: The UPS model which is being monitored by PowerChute Pro.

Firmware Rev: Firmware Revision is an internal code indicating the revision status of the UPS internal software.

Serial Number: This is the UPS serial number. It is factory set and cannot be changed.

UPS Status: Current condition of the UPS. The following list contains the possible entries for this field:

- Abnormal Condition: May also read **Abnormal Cond**. An internal fault within the UPS will generate this event. Call APC Technical Support for corrective procedures.
- Alarm Test: Selecting **Test UPS Alarm** from the **Diagnostics** menu will cause this status indicator to be displayed.
- Battery Discharged: May also read **Battery Disch**. Indicates that the UPS battery is discharged and may not support connected equipment with battery power. If the UPS comes back on line after an extended power failure during which it supported connected equipment through battery power, the battery would be discharged and this message be displayed. The battery will eventually recharge after some time.
- Low Battery: The UPS battery has reached its run time shutoff point.

- No Comm: There is no communication between PowerChute Pro and the Back-UPS Pro. Ch that the interface cable is securely connecte and that the COM port selected is enabled matches the COM port to which the cable i connected. **For UNIX platforms, please ensure that the port to which the UPS is attached is configured according to UNIX installation instructions.**

- No Server: PowerChute Pro has lost contact with the Monitoring Module running on the selected host computer. This may be because the hos computer is not currently running. The Monitoring Module is responsible for loggi all data and communicating with the UPS a User Interface Module.

- On Line: The UPS is providing utility power.

- On Battery: The UPS is providing battery power to connected equipment.

- Replace Battery: On some screens, might read **Repl Battery**. T UPS senses that the battery is no longer usab Contact APC Tech Support.

- Resetting Port: If you select a different COM port than the currently selected port, "Resetting Port" will be momentarily indicated. You can select CO ports from the Communication Parameters menu option from the Configuration menu.

- Self Test: Indicates that the UPS is undergoing a self te Self tests can be user-initiated or scheduled. See the **UPS Diagnostics** chapter for further details.

- Smart Boost: The UPS brownout correction feature, SmartBoost, is ON. (SmartBoost is a special Back-UPS Pro function that boosts a low utility line voltage without the UPS having to run on battery.)

- UPS Overloaded: The rated load capacity of the Back-UPS Pro has been exceeded. Reduce the load on the UPS and perform the self-test using the diagnostic functions. If the UPS still indicates overload, contact APC Technical Support for corrective procedures.

Self Test Information Window

Self Test information is shown below the hardware and UPS status. The result of the last UPS self test is displayed:

Last UPS Self Test: Results of the last self-test. PowerChute Pro will show "Self Test N/A" if a self test has never been performed since PowerChute Pro installation. Other possible results follows:

- Failed: The UPS has failed a battery test because of a bad battery. Charge the battery for 8 hours and perform the self test again. If the UPS still fails the battery test, contact APC Technical Support to determine corrective procedures.

- Passed: Self test passed.

Message Delay

This is the time, in seconds, from initial power failure to the transmission of the first warning message to the users. If power returns before this time has elapsed, users wi not receive notification of the failure. PowerChute Pro will, however, record the event the Main Screen and in the Event Log file.

Message Interval

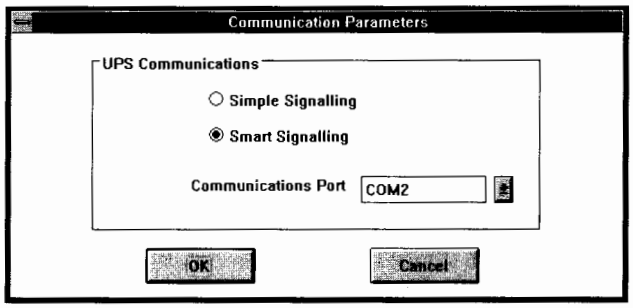
This is the time interval, in seconds, between messages during a power failure. Increasing this number cuts down on network traffic; decreasing this number gives us log off reminders more often. The default is 30 seconds.

Maximum Battery Run Time

This is the time, in seconds, from initial power failure until server shutdown is initiate If you select the **No Limit** button, shutdown will start when a low battery condition is detected. If you select the **Fixed Duration** button, shutdown will start the specified number of seconds after a power failure. The default is 300 seconds. If a low battery condition is detected before this time elapses, however, shutdown is initiated immediately.

Communications Parameters

This menu option allows you to select the communications port used by PowerChute Pro. This option will not be provided for PowerChute Pro for Windows 95 since that operating system automatically configures communication parameters.



UPS Communications

The Communications Parameters dialog box allows you to select the communications port to which the UPS is connected and also to select the signalling mode. In this release of PowerChute Pro, **simple signalling mode is NOT supported** however. You must use the default mode, **smart signalling**, since the Back-UPS Pro communicates via smart signalling. Smart signalling offers a larger feature set than simple signalling. Once an option is selected through the Communications Parameters dialog box, the option takes effect immediately.

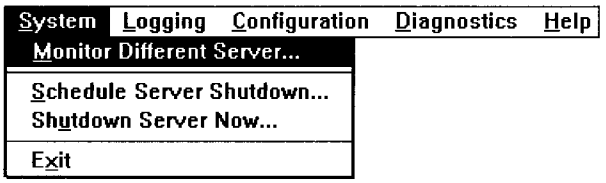
Note: Communication Ports will be different for the various platforms.

Sound Effects

PowerChute Pro polls data at four second intervals from the UPS Monitoring Module. The UPS Monitoring Module, in turn, monitors and receives data from the attached UPS. Enabling Sound Effects allows PowerChute Pro to sound a tone ("beep") every four seconds, letting you know that the software is operating.

Chapter 4: Monitoring Other Systems

The System Menu



The System menu allows you to select other systems to monitor, schedule shut down times for these systems and exit PowerChute Pro. When you select the System menu from the Main Menu bar, a drop down menu appears offering you the following menu options:

- **Monitor Different Server...**
- **Schedule Server Shutdown...**
- **Shutdown Server Now...**
- **Exit**

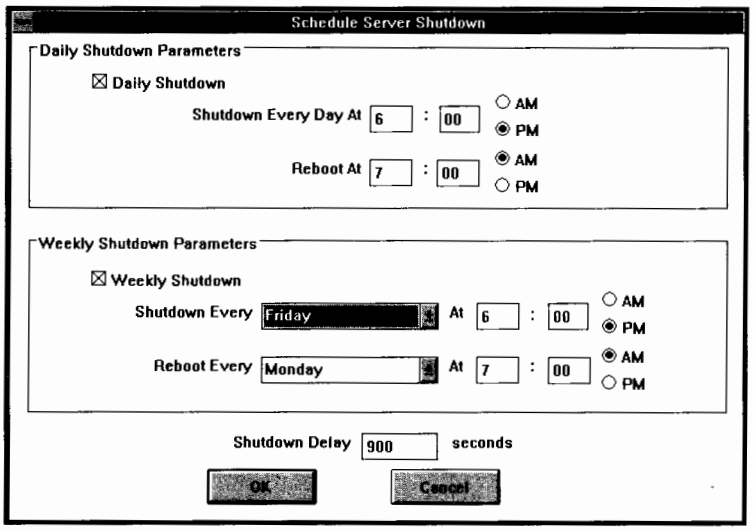
The following sections will examine these menu options in detail.

Monitor Different Server...

If your workstation is part of a network and you have the necessary authorization, you can use this option to monitor a Back-UPS Pro connected to another server. If you have a workstation that is not part of a network, this option will be dimmed and unavailable to you.

When you select the Monitor Different Server... option, a list of other server names appears. Select one of these servers for monitoring and the PowerChute Pro main screen for the selected server will appear. The selected server name appears in the "Monitoring:" field in the PowerChute Pro main screen. Please note that PowerChute Pro for Windows and Windows 95 do not currently support monitoring workstations across a network.

Schedule Server Shutdown...



The Schedule Server Shutdown dialog box has areas for daily and weekly shutdown parameters. Each of these areas has check boxes to enable or disable scheduled shutdowns on a daily or weekly basis. Each area has data entry fields for the time of shutdown and reboot. Radio buttons allow you to select AM or PM. The Weekly Shutdown area also has list boxes for selection of the day of the week for shutdown and reboot.

Please note that Weekly Shutdown Parameters take precedence over Daily Shutdown Parameters.

For example:

1. Daily Shutdown is configured for 5:30 p.m.

2. On Friday however, you leave at 5:00 p.m so Weekly Shutdown is configured as Friday at 5:00 p.m.

   On Friday of every week, your system will shut down at 5:00 p.m. For the rest of the week, your system will shut down at 5:30 p.m.

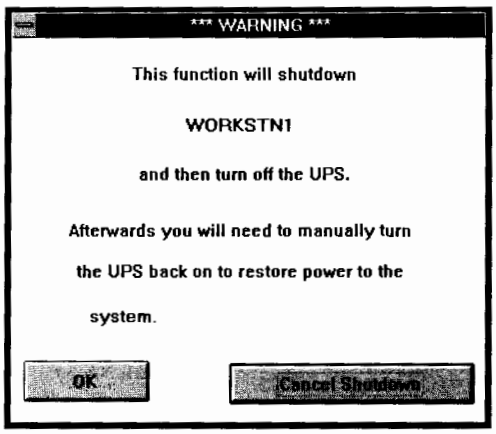
The Shutdown Delay data entry box is at the bottom of the Schedule Shutdown box. This box sets the time period, in seconds, between the first shutdown warning message and actual shutdown. Once the server has been shut down, the UPS will go into **sleep mode**.

Sleep mode is a state where the UPS conserves energy by turning off its power outlets. That is, it will no longer supply power to connected equipment.

When you have completed entering/changing the shutdown parameters, select the OK button to store the new values or the Cancel button to exit without saving any changes.

Shutdown Server Now...

When you select the Shutdown Server Now option, a warning box appears.



The workstation which is about to be shut down is identified. Please note that selecting this option will not put the UPS into "sleep mode". Once the UPS has shut down the system, it will turn off. You will need to manually turn on the UPS to restore power to your system.

You have the option of continuing the shutdown by selecting (clicking) the OK button, or canceling by clicking on the Cancel Shutdown button. If you continue the shutdown, the

normal shutdown sequence will be executed using the parameters in the Schedule Ser
Shutdown dialog box (see previous section).

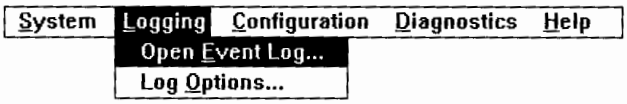
Note: During the Shutdown Server Now... process, the menu option will change to "Cancel Server Shutdown" in case you change your mind and wish to stop shutting down your system.

Exit

Selecting this option from the System menu causes you to exit the PowerChute Pro program (the User Interface Module). The background program (Server Module) continues to monitor the UPS and log events.

Chapter 5: Event Logging

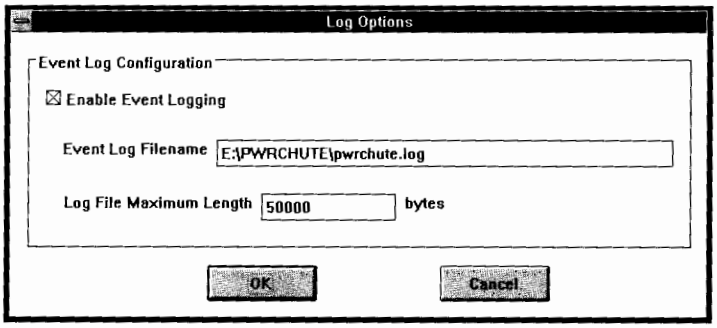
The Logging Menu



The Logging menu allows you to log power event data gathered from the UPS. When you select the Logging menu from the Main Menu bar, a drop down menu appears offering you two menu options:

- **Open Event Log...**
- **Log Options...**

Log Options...



Event Log Configuration

Every time an event is generated, it will be displayed on the bottom section of the main screen (in the Last Two Events window) and also written to the event log file. This box allows you to configure parameters for the event log file such as filename, location, and size of file.

To configure event logging:

1. Click on the Enable Event Logging check box so that a "X" appears in the box. This will ensure that PowerChute Pro starts event logging.

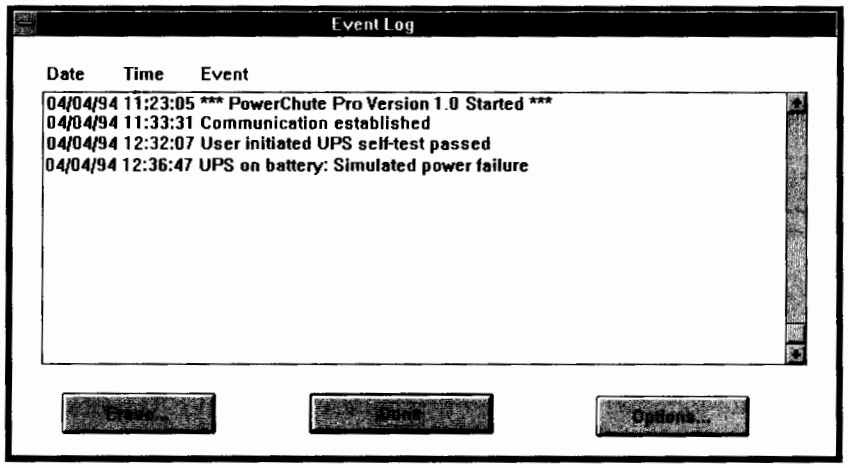
2. Type the drive letter (not applicable to UNIX platforms), path and filename for the PowerChute Pro event log file. The default is **pwrchute.log** for Windows, NT, Windows 95 and OS/2. For UNIX platforms, the default filename is **powerchute.log**. The default directory is the PowerChute Pro directory.

3. Supply the log file maximum length in bytes; the default is 50,000.

When the event log file reaches its maximum length, PowerChute will erase the first 33% of the file and continue writing data.

When you have completed entering/changing the log parameters, select the OK button to save the new values. Selecting the Cancel button allows you to exit without saving any changes.

Open Event Log...



This screen lists the most recently logged events by date and time of occurrence. You may use the right hand scroll bar to view the entire log.

At the bottom of the Event Log screen are three buttons: Erase, Done and Options. You may use the **Erase** button to erase the event log. Use the **Done** button to return to the main screen. The **Options** button takes you to the Log Options box - see previous section for more information.

Note: Another way to open the event log is to click anywhere in the Last Two Events window in the Main Screen.

PowerChute Pro Event Log File

All events and associated message texts are logged in the event log file along with a date and time stamp. These entries are logged in the PowerChute Pro Event Log file and are also sent to the PowerChute Main Screen where the two most recent events are displayed.

The default filename for UNIX platforms is **powerchute.log**. The default for Windows, Windows NT, Windows 95 and OS/2 is **pwrchute.log**.

The log file is an ASCII file and may be read by any ASCII text editor. The entries in the log file are arranged by **"date", "time", "message"**.

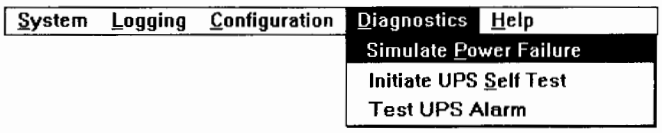
PowerChute Pro can be used to view the Event Log file. The events in the Log File can also be output on screen by using the UNIX "**more**" command (i.e. *more powerchute.log* <*Enter*>) or the DOS "**type**" command (i.e. *type pwrchute.log | more* <*Enter*>).

The size of this file is limited. When the file exceeds its maximum size, the first 33% of the file containing older data is erased to allow more recent information to be saved.

You may turn event logging off by unchecking the Enable Event Logging check box.

Chapter 6: UPS Diagnostics

The Diagnostics Menu



The Diagnostics menu allows you to test your Back-UPS Pro using various menu options:

- **Simulate Power Failure**
- **Initiate UPS Self Test**
- **Test UPS Alarm**

Simulate Power Failure

Switches the UPS to battery momentarily. It allows you to test and make sure that the UPS is capable of going on battery. This action generates the "**UPS on Battery: Simulated Power Failure**" event.

After a few seconds, the UPS will resume normal operation and generate the "**Normal Power Restored**" event.

Initiate UPS Self Test

This menu option switches the UPS to battery momentarily and performs internal diagnostics. The Status field on the main screen will change to "Self Test" momentarily.

Test UPS Alarm

Causes the UPS to light its front panel lights momentarily and emit a beep. This is a diagnostic test to make sure that PowerChute Pro is communicating with the UPS. The Status indicator on the main screen changes to "**Alarm Test**". No event is generated by this menu option.

This option may also be used to locate the UPS in a crowded machine room, wiring closet or computer center.