

# Smart-UPS<sup>®</sup> v/s<sup>™</sup>

## Best Value Server protection

APC's Smart-UPS v/s translates into value for small businesses and department LANs who depend on the integrity of their network and its data.

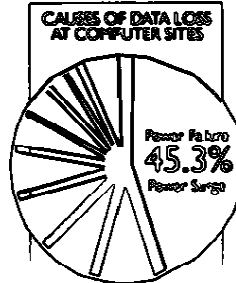
APC's Smart-UPS v/s provides a complete cost effective solution to power problems, protecting both your data and your hardware. In addition to battery backup power Smart-UPS v/s provide SmartBoost and SmartTrim which automatically corrects low and high voltage conditions, allowing you to work through them without using battery power. Multistage surge suppression and noise filtering protect your equipment and extend system life.

The PowerChute v/s software which is included with the UPS is easy to install and use. The

software provides graceful unattended shutdown and management of servers running Novell, Windows NT, OS/2, SCO Unix, and UnixWare.

It's been said there are two types of computer users; those who have lost data because of a power problem, and those who are going to. Over the past few years, we've helped create a new class... those who have recognized the

need for protection and taken proactive steps to ensure that they're prepared for the inevitable.



Source: Contingency Planning

### PROTECTION

▶ **SmartBoost<sup>™</sup>**  
Automatically corrects brownout conditions

Allows you to work through brownouts without unnecessary battery drain. SmartBoost automatically steps up low voltage to output that is safe for your system.

▶ **SmartTrim<sup>™</sup>**  
Automatically corrects overvoltage conditions

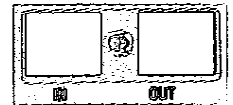
Allows you to work through overvoltages without unnecessary battery drain. SmartTrim automatically steps down high voltage to output that is safe for your system.

▶ **Lightning and Surge Protection shields hardware**

When measured using the test methods detailed in ANSI/IEEE 587 Category "A" and "B", the suppression performance of the APC Smart-UPS v/s is superior to virtually all separate surge suppressors. UL 1449 rated for maximum surge protection.

▶ **Modem/Fax/Network Surge Protection**

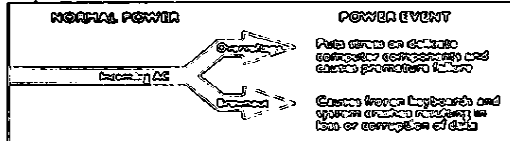
APC Smart-UPS v/s provides surge protection for a single line (2 wire) phone circuit (RJ11) or 10BT network cable (RJ45) to prevent "back door" damage to your computer system.



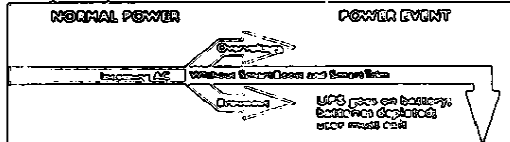
▶ **Network-grade Line Conditioning prevents glitches**

Full time EMI/RFI filters prevent line noise from causing data errors, meeting Novell's approval for network protection without the need for additional external conditioners.

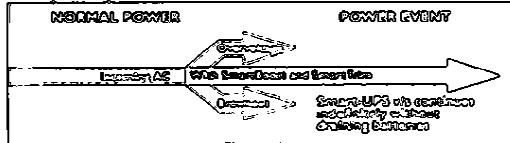
**Unprotected Computer**



**Computer protected with an average UPS**



**Computer protected with APC Smart-UPS v/s**



# Includes PowerChute® v/s Software: Essential Server UPS Power Management and Diagnostics

Power failures can occur at night, on weekends, or while the systems administrator is out of the building. APC Smart-UPS v/s work together with APC's PowerChute v/s UPS power management and diagnostic software to provide **Automatic Unattended System Shutdown**. PowerChute v/s automatically stores data and shuts down your system during extended power outages (before the UPS batteries are drained).

PowerChute v/s also provides important power management and diagnostic features such as UPS testing/status and Remote UPS management.

UPS testing/status automatically monitors the health of your UPS ensuring that problems such as weakened batteries are detected before they impact uptime.

Remote UPS management allows you to configure UPS parameters, reboot servers and diagnose power problems remotely.

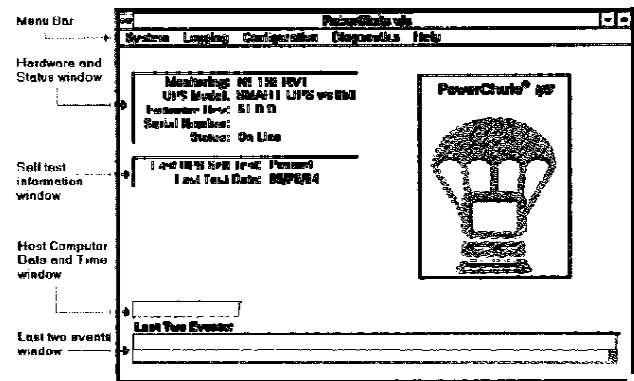
## Complete server protection solution

APC's Smart-UPS v/s comes complete with PowerChute v/s software included. PowerChute v/s software features:

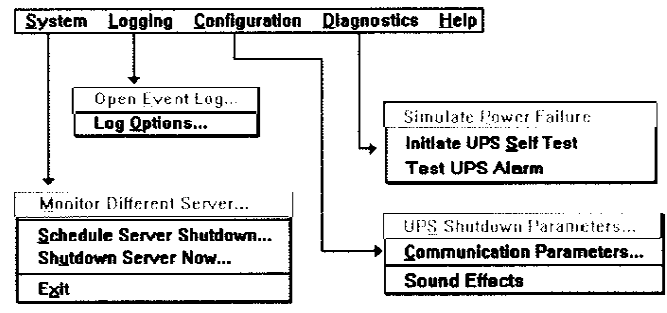
- Simple Installation
- Graceful Unattended System Shutdown
- UPS Power Management
- UPS and Power Diagnostics

## Operating systems supported

- Novell NetWare running Windows client
- Novell UnixWare
- Windows NT
- OS/2
- SCO Unix



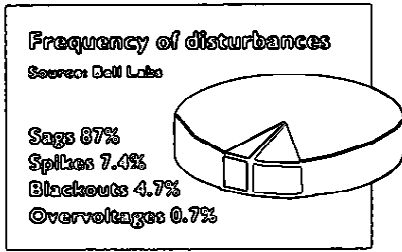
## PowerChute v/s Features



SYSTEM	
Monitor Different Servers...	Monitor all the Smart-UPS v/s units on the LAN from your workstation.
Schedule Server Shutdown...	Save on energy bills by automatically powering down systems safely when not in use.
Shutdown Server Now...	Safely shutdown your server on request
Exit	Exits PowerChute v/s
LOGGING	
Open Event Log	Quickly diagnose power problems at your site with the events log.
Log Options	Configure logging options for flexibility.
CONFIGURATION	
UPS Shutdown Parameters...	Safe automatic shutdown of your network to protect your data
Communication Parameters...	UPS communications is essential
Sound Effects	Enable or disable sound effects
DIAGNOSTICS	
Simulate Power Failure	Allows you to test and make sure that the UPS is capable of going on battery.
Initiate UPS Self Test	Performs internal diagnostics to verify UPS and battery status. (UPS automatically performs test every two weeks)
Test UPS Alarm	Diagnostic checks that PowerChute v/s is communicating with the UPS.

# Reliable power, even through prolonged or chronic power sags

A study by Bell Labs indicates that 87% of all power disturbances come in the form of a power sag, or "brown-out." Environments that experience frequent sags and overvoltages are often plagued with hours of computer network downtime. Most UPSs begin to drain batteries at the onset of brownouts, giving you a specific time frame in which to shutdown your computer, and wait for what could be hours to resume your important tasks, although lights may be functioning fine.



## Intelligent Battery Management system means longer battery life

Furthermore, the life of your batteries in the Smart-UPS v/s are prolonged by its Intelligent Battery Management system. The high precision fast charge system provides more uptime for you while enhancing battery reliability. The added reliability is achieved through redundant overcharge protection, continuous non-pulsed charging to prevent battery aging, brownout and overvoltage correction and battery exhaustion protection. In addition, the Smart-UPS v/s will automatically perform true-load battery test to warn you before your battery wears out.

## Modem/Fax/Network Surge Protection

The same spikes and surges on the AC line that threaten the health of your electronic equipment, also exist on data lines, network connections and telephone lines. Smart-UPS v/s provides surge protection for a single line (2 wire) phone circuit (RJ11) or 10BT network cable (RJ45) to prevent these problems from sneaking in the "back door".

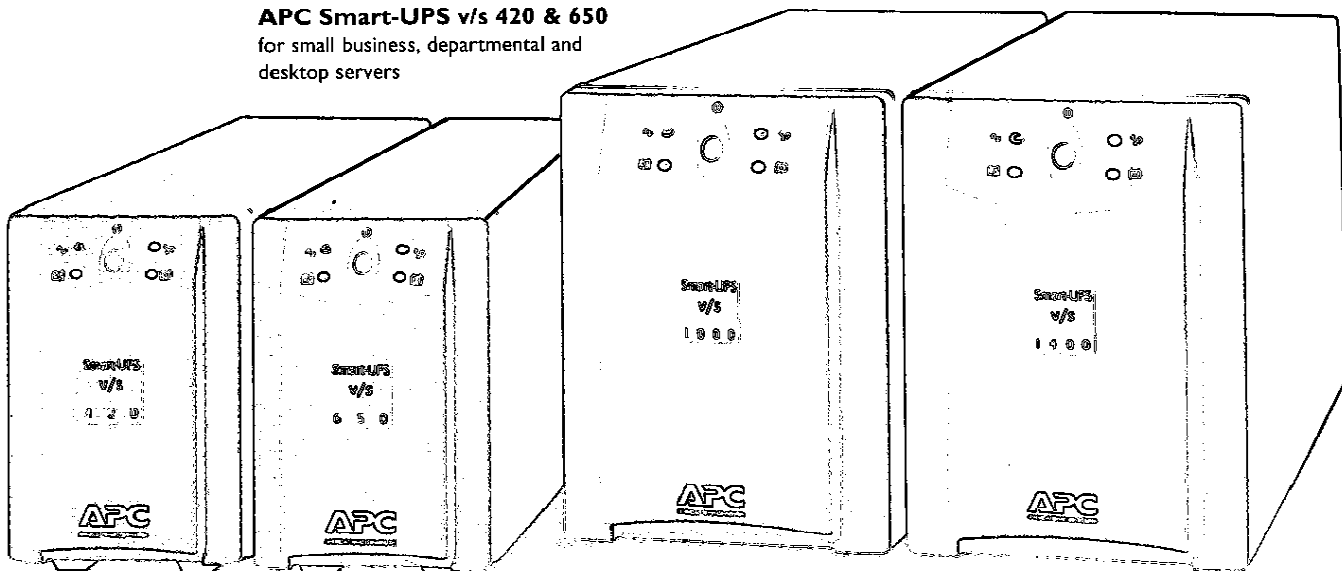
APC's Smart-UPS v/s allows you to work through brownouts and overvoltages without having to shutdown your computer. The SmartBoost and SmartTrim functions automatically step up low voltages and step down high voltages to output that is safe for your system without draining batteries.

## APC has won more awards than all other UPS vendors combined!



**APC Smart-UPS v/s 1000 & 1400**  
for small business and departmental servers

**APC Smart-UPS v/s 420 & 650**  
for small business, departmental and desktop servers



## FEATURES AT A GLANCE

PROTECTION	PERFORMANCE	DIAGNOSTICS
SmartBoost - brownout protection	Intelligent Battery Management System	Battery Replacement Warning
SmartTrim - overvoltage protection	User Replaceable, Hot Swappable Batteries	Site Wiring Fault Indicator
Lightning/Surge Protection	Line-Interactive Design	Overload Indicator
Network-Grade Line Conditioning	Network Interface port	Test Switch
Modem/Fax/Network Surge Protection		
WARRANTY & APPROVALS		
2 years, with \$25,000 Lifetime Equipment Protection		
UL listed, CSA certified, TUV certified, FCC Class B compliance		

### PERFORMANCE

- ▶ **Line-interactive design delivers unmatched performance and reliability**  
Uses the DC to AC power inverter "in reverse" as a battery charger during normal operation providing greater performance, filtering, and efficiency. Line-interactive topology is approx. 98% efficient which leads to extremely high reliability. In contrast other designs can operate at approx. 70% efficiency, producing life-cycle costs 30% higher than Smart-UPS and turning excess energy into heat which damages batteries and decreases reliability.

- ▶ **Network Interface port adds automatic safe system shutdown**  
Power failures can occur at night, on weekends, or while the system administrator is out of the building. So having automated safe shutdown is a must. All APC Smart-UPS v/s models provide a bidirectional communications port and PowerChute v/s software to coordinate a safe shutdown with these popular operating systems, Novell NetWare running Windows client, Windows NT, OS/2, SCO Unix and UnixWare. Without unattended shutdown, computer data is at risk every time the system manager leaves the room.

- ▶ **Intelligent Battery Management system - longer battery life**  
Improved reliability results from a high precision fast-charge battery charge system, with automatic true-load battery tests. Redundant overcharge protection and continuous, non-pulsed charging are other battery life enhancements provided by the APC Intelligent Battery Management system. Batteries last longer, and warning is provided before batteries wear out.

- ▶ **User Replaceable, hot swappable batteries**  
Smart-UPS v/s models have user replaceable batteries that can be easily swapped out without powering down the connected load. This saves the time and expense of returning the UPS to the factory for battery service.



### DIAGNOSTICS

- ▶ **Battery Replacement Warning prevents downtime**  
APC Smart-UPS automatically perform a self-test every two weeks. This insures that you will be alerted to degraded batteries before they wear out. Through optional software or a simple push of a button, you may perform self-tests as often as desired.
- ▶ **Site Wiring Fault Indicator saves you trouble and expense**  
Alerts you to potential problems such as missing ground and reversed polarity, two common miswirings which usually require an electrician's visit to diagnose.
- ▶ **Informative LED Display provides status at a glance**  
Instantly assess the status of your power and the Smart-UPS v/s without even pushing a button. Status indicators are simple to use and easy to understand.

### WARRANTY AND APPROVALS

- ▶ **2 year warranty**  
Unmatched reliability means you can purchase with confidence.
- ▶ **\$25,000 Lifetime Equipment Protection Policy**  
If your properly connected equipment is ever damaged by an AC surge, including surges due to lightning, APC will repair or replace our product and up to \$25,000 of connected equipment for as long as you own your APC Smart-UPS. (US and Canada only. See policy for details.)
- ▶ **Full approvals mean a safe, reliable solution**  
UL and CSA approvals mean a safe reliable solution to your power problems.

— **Replace Battery LED**  
LED lights and alarm sounds when the UPS's battery is no longer useful and must be replaced.

SPECIFICATIONS	SUVS420	SUVS650	SUVS1000	SUVS1400	
Input Line	6 ft. (1.8m) line cord				
Output Receptacles (NEMA 5-15R for 120V units)	4	4	6	6	
Maximum Dimensions (H x W x D)	6.6 x 4.6 x 14" (16.8 x 11.9 x 36.1cm)		8.5 x 6.7 x 17.3" (21.6 x 17 x 43.9cm)		
Net Weight	20.9 lb (9.5 kg)	24.9 lb (11.3 kg)	41.5 lb (18.8 kg)	53.6 lb (24 kg)	
Shipping Weight	22.9 lb (10.4 kg)	26.8 lb (12.2 kg)	46 lb (21 kg)	57.5 lb (26.1 kg)	
<b>OPERATION</b>	<b>SUVS420</b>	<b>SUVS650</b>	<b>SUVS1000</b>	<b>SUVS1400</b>	
Normal Input Voltage	120 Vac, single phase, 50 or 60 Hz (auto-selectable)				
Transfer Time (typical/max)	2/4 milliseconds, includes detection time				
On-Battery Output Voltage	115 Vac				
On-Battery frequency	50 or 60 Hz, +/-0.1Hz; unless synchronized to utility during brownout				
On-Battery waveshape	Quasi sine-wave				
SmartBoost and SmartTrim Operation	On-line operation for input 92 to 150 Vac will have output 103 to 132 Vac. SmartBoost increases voltage 12% above input if 92 to 103 Vac. SmartTrim reduces voltage 12% below input if 132 to 150 Vac.				
Capacity (Volt-Amps, Watts)	420, 280	650, 400	1000, 670	1400, 950	
Load power factor range, crest factor range	.5 to 1.0, <5				
Surge energy rating, peak current capability	320 Joules, 6500A		480 Joules, 6500A		
Normal, common mode clamping response time	0 ns, <5ns typical				
Normal mode surge voltage let through when subjected to IEEE 587 Cat. A 6kV test	<0.7% of peak typical		<0.3% of peak typical		
Normal mode noise suppression	Full time EMI/RFI filtering				
Battery type	Hot Swappable, sealed, maintenance-free lead acid batteries with 3-6 year typical lifetime				
Recharge time to 90% capacity after discharge into 50% load	2 to 5 hours				
Telephone line surge protection, 1.2 us/50 waveform	+/- 6KVA peak				
Telephone line protection let through when subjected to a 500A surge (8/20 us waveform, L-L, L-G)	<5%				
10Base-T protection let through (from 6KVA/125A normal mode surge)	<1%				
Ambient Operation	10,000 ft. (3,000.meters) max. elevation, 0-95% humidity non-condensing 32-113 deg F (0-45 deg C)				
Storage Elevation	50,000 ft. (15,000 meters) max.				
Max audible noise at 3 ft. from surface of unit	<45 dBA				
On-line/on bat. therm. dis (BTU/hr)	15/270	25/430	60/550	84/850	
<b>SYSTEM</b>	<b>LOAD(VA)</b>	<b>TYPICAL RUNTIME IN MINUTES</b>			
		<b>SUVS420</b>	<b>SUVS650</b>	<b>SUVS1000</b>	<b>SUVS1400</b>
Typical ASCII terminal	50	41	90	167	306
IBM PS/2 30 w/monochrome	100	21	49	98	190
Digital Celebris	150	14	29	64	133
Compaq Prolinea	200	10	22	47	99
Gateway 4DX2-6V	250	7.5	17	35	74
IBM PS/2-95 w/VGA	300	6.2	14	27	60
AT&T GIS 3350	350	5.1	11	22	50
Dell Dimension 486-66 w/VGA	400	4.3	9.3	19	42
Compaq Proliant 1000	420	4.1	8.8	18	39
Compaq ProSignia 486-66 w/VGA	500	-	7.2	14	29
Compaq Deskpro 486/50L w/14" VGA	550	-	6.5	13	26
Alpha Series: DEC 3000 model 400, 400S with 16" VGA	600	-	5.8	11	23
Compaq Systempro 486/33e w/monitor	650	-	5.2	10	21
IBM RS6000 model 375 w/19" monitor	700	-	-	9	19
Unisys U6000/35 (fully configured)	800	-	-	7.7	16
AST Manhattan SMP with monitor	900	-	-	6.6	13
Compaq ProSignia and 2 desktop workstations w/monitors	1000	-	-	5.8	11
HP 9000 Series with 21" monitor	1200	-	-	-	8.8
Sun SPARCserver 370	1400	-	-	-	7.2

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**APC**<sup>®</sup>  
 AMERICAN POWER CONVERSION