

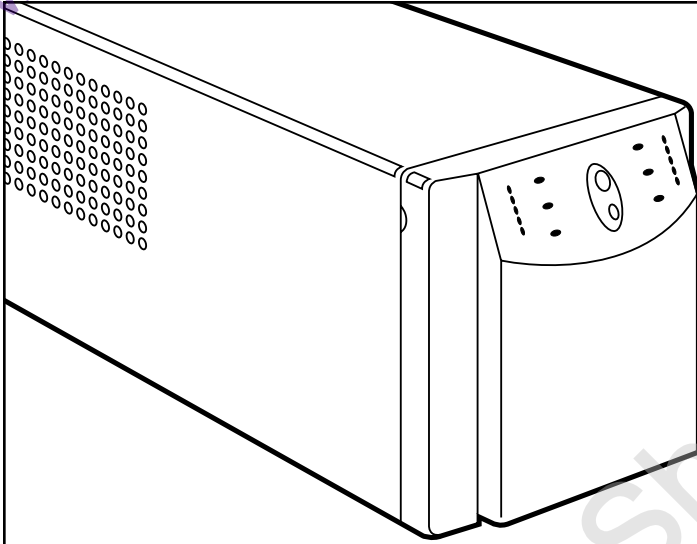
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Black Box Corporation.

# BLACK BOX<sup>®</sup>

## NETWORK SERVICES

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## SMART-UPS SERIES



***Protect your equipment and your data with reliable backup power and orderly shutdowns.***

### Key Features

- ▶ **APC \$25,000 lifetime equipment protection.**
- ▶ **Lightning and surge protection.**
- ▶ **Automatic shutdown protection if your primary utility input fails.**
- ▶ **Instant emergency backup power.**
- ▶ **Network interface facilitates automatic shutdown for file servers.**
- ▶ **EMI/RMI filtering, SmartBoost™ to correct brownouts, and SmartTrim™ to correct overvoltages.**

With the APC line of uninterruptible power supplies (UPSs), your sensitive computer systems will be protected in the event of power blackouts, brownouts, swells, sags, surges, and interference.

Each UPS provides enough backup power for you to perform an orderly shutdown should a power failure occur. In addition, each UPS is equipped with high-grade surge suppression and noise filtering to give your equipment a constant supply of clean power—whether from utility or battery power.

Under normal conditions, the UPS supplies power from the utility input to the load. But if the utility fails, the converter supplies AC power to the load and the disconnect switch opens. The load continues to operate normally until shutdown or until the battery wears down. Once the

line voltage returns to normal, the UPS automatically transfers the load back to utility power.

Visual and audible indications keep track of the battery's capacity and current condition, including when it is low or overloaded, or when it needs to be replaced. The UPS performs a self-test on the battery during power-up and every 14 days—which gives you enough time to replace it before a problem develops. You can also manually perform a self-test with the on/test button. And batteries can be replaced without removing power from loads or sending the UPS in for service.

The Smart-UPS Series has numerous varieties of backup power supplies. Choose the one that offers the most protection to fit your needs from standalone and rackmount models.

All include PowerChute® Plus management software. Install the PowerChute® software on your PC; then connect to the Smart-UPS through the serial port. This lets you access a myriad of powerful management features such as periodic server shutdown and reboot, alarm settings, self-tests, calibration, predictive failure analysis, data logs, and more.

The SUA1000 and SUA1500 standalone UPSs and all of the rackmount Smart-UPSs feature a convenient USB port which may be used instead of the serial port.

Rackmount models fit into any standard 19" rack to provide power protection for switches, routers, and other vital network devices.

## Operation: Smart-UPS Standalone Models

	SU420NET	SU620NET	SP540A	SUA1000	SUA1500	SP543A	SP544A	SU5000T
Includes PowerChute software	Supports Linux®, Novell®, Solaris®, Windows® 2003, Windows XP, Windows 2000, and Windows NT®							
Normal Input Voltage	120 VAC, single phase, 50 or 60 Hz (autosensing)							
Transfer Time	2 ms typical, 4 ms maximum							
SmartBoost and SmartTrim	On-line operation for input between 90–145 VAC; Output is 103–132 VAC; SmartBoost increases voltage 12% if input is 90–103 VAC; SmartTrim reduces voltage 12% if input is 145–132 VAC; Transfer points are user-adjustable with software							
Rated Power/Nom. Input Voltage	420 VA/260 W	620 VA/390 W	700 VA/450 W	1000 VA/670 W	1400 VA/950 W	2200 VA/1600 W	3000 VA/2250 W	5000 VA/3750 W
Load Power Factor Range, Crest Factor Range	0.5 to 1.0 < 5							
Surge Energy Rating	320 joules, 6.5 kA							480 joules
Normal Mode Surge Voltage Let-Through	<0.7% of peak typical			<0.3% of peak typical				

## Operation: Smart-UPS Rackmount Models

	SUA750RM2U	SUA1000RM2U	SUA1500RM2U	SU3000RMNET
Includes PowerChute software	Supports Linux, Novell, Solaris, Windows 2003, Windows XP, Windows 2000, and Windows NT			
Nominal Input Voltage	120 VAC, 50/60 Hz ±3 Hz (autosensing)			
Transfer Time	2 ms typical, 4 ms maximum			
SmartBoost and SmartTrim	On-line operation for input between 90–145 VAC; Output is 103–132 VAC; Smart Boost increases voltage 12% if input is 90–103 VAC; SmartTrim reduces voltage 12% if input is 145–132 VAC; Transfer points are user-adjustable with software			
Output Power Capacity	750 VA/ 480 W	1000 VA/ 670 W	1500 VA/ 1005 W	3000 VA/ 2700 W
Load Power Factor Range, Crest Factor Range	0 to < 5 nanoseconds			
Surge Energy Rating	480 joules		800 joules	880 joules
Sealed, maintenance-free lead acid batteries with 3–6 year typical life	(2) 12 V, 4.5 AH	(2) 12 V, 7 AH	(4) 12 V, 9 AH	(8) 12 V, 7 AH

## Determining On-Battery Run Time

Knowing the on-battery run time of your UPS is important—especially if your protected devices use an operating system that needs time to shut down

without losing valuable information.

To determine on-battery run time, find out the load time protected by the UPS in Volt-Amps.

Load figures can be found on the protected equipment itself or in the manuals that came with it.

Multiply the figure by 1.4 for loads specified in watts; multiply

the specified figure by 120 for loads specified in amps.

Add the individual loads to determine the total load. Compare your system's total load to the table below.

### Typical On-Battery Run Time versus Load, in Minutes

Time (unless noted, is in minutes)												
Model	Watts	50	100	200	300	400	500	600	700	800	900	1000
	VA	70	140	280	420	560	700	840	980	1120	1260	1400
SU420NET		55	21	6	—	—	—	—	—	—	—	—
SU620NET		1 hr. 40 min.	45	15	7	—	—	—	—	—	—	—
SP540A		2 hr. 4 min.	1 hr. 0 min.	23	11	7	—	—	—	—	—	—
SUA1000		3 hr. 3 min.	1 hr. 40 min.	45	25	15	10	7	—	—	—	—
SUA1500		5 hr. 1 min.	2 hr. 52 min.	1 hr. 0 min.	35	23	15	11	—	—	—	—
SP543A		8 hr. 51 min.	5 hr. 36 min.	3 hr. 6 min.	2 hr. 2 min.	1 hr. 28 min.	1 hr. 0 min.	52	42	34	28	24
SP544A		8 hr. 51 min.	5 hr. 36 min.	3 hr. 6 min.	2 hr. 2 min.	1 hr. 28 min.	1 hr. 6 min.	52	42	34	28	24
SU5000T		5 hr. 19 min.	3 hr. 6 min.	1 hr. 28 min.	1 hr. 4 min.	47	37	30	28	21	18	16
SUA750RM2U		2 hr. 4 min.	1 hr. 0 min.	23	11	7	—	—	—	—	—	—
SUA1000RM2U		2 hr. 10 min.	1 hr. 11 min.	31	16	10	7	6	—	—	—	—
SUA1500RM2U		5 hr. 21 min.	3 hr. 5 min.	1 hr. 31 min.	55	37	26	19	14	11	9	—
SU3000RMNET		8 hr. 51 min.	5 hr. 36 min.	3 hr. 5 min.	2 hr. 2 min.	1 hr. 28 min.	1 hr. 6 min.	52	42	34	28	24
Model	Watts	1200	1400	1600	1800	2000	2500	3500	Full Load		Half Load	
	VA	1680	1960	2240	2520	2800	3500	4200				
SU420NET		—	—	—	—	—	—	—	9 min. (165 watts)	30 min. 82.5 watts		
SU620NET		—	—	—	—	—	—	—	5 min. (260 watts)	14 min. (130 watts)		
SP540A		—	—	—	—	—	—	—	6 min. (450 watts)	19 min. (225 watts)		
SUA1000		—	—	—	—	—	—	—	6 min. (670 watts)	21 min. (335 watts)		
SUA1500		—	—	—	—	—	—	—	7 min. (980 watts)	24 min. (490 watts)		
SP543A		17	13	10	—	—	—	—	10 min. (1600 watts)	34 min. (800 watts)		
SP544A		17	13	10	8	7	—	—	6 min. (2250 watts)	19 min. (1125 watts)		
SU5000T		12	10	8	6	—	—	—	5 min. (1980 watts)	16 min. (800 watts)		
SUA750RM2U		—	—	—	—	—	—	—	6 min. (480 watts)	17 min. (240 watts)		
SUA1000RM2U		—	—	—	—	—	—	—	5 min. (640 watts)	15 min. (320 watts)		
SUA1500RM2U		—	—	—	—	—	—	—	7 min. (980 watts)	26 min. (490 watts)		
SU3000RMNET		17	13	10	8	7	—	—	6 min. (2250 watts)	19 min. (1125 watts)		

# Specifications

## Interface:

SU420NET, SU620NET:  
 (1) RS-232 DB9, (1) RJ-11,  
 (1) RJ-45;  
 SP540A, SP543A–SP544A:  
 (1) RS-232 DB9, (1) SmartSlot;  
 SUA1000, SUA1500,  
 SUA750RM2U, SUA1000RM2U,  
 SUA1500RM2U, SU3000RMNET:  
 (1) RS-232 DB9, (1) SmartSlot,  
 (1) USB;  
 SU5000T: (1) RS-232 DB9,  
 (2) SmartSlots, (1) 10BASE-T  
 Ethernet for Web/SNMP/  
 Telnet management

## Connectors (Number of Outlets):

SU420NET, SU620NET, SP540A:  
 (4) NEMA 5-15R;  
 SUA750RM2U, SUA1000RM2U,  
 SUA1500RM2U: (6) NEMA 5-15R;  
 SP543A–SP544A,  
 SU3000RMNET, SUA1000,  
 SUA1500: (8) NEMA 5-15R;  
 SU5000T: (1) NEMA L6-30R  
 (30 amp), (2) NEMA L6-20R  
 (20 amp), (2) NEMA 5-15R  
 (15 amp)

## Indicators: SU420NET, SU620NET:

LEDs: On Line, On Battery,  
 Replace Battery, Overload,  
 Site Wiring Fault;  
 Audible Alarms: On Battery,  
 Low Battery;  
 SP540A, SUA1000, SUA1500,  
 SP543A–SP544A,  
 SUA1500RM2U, SU3000RMNET,  
 SU5000T:  
 LEDs: On Battery, Replace  
 Battery, Overload, Site  
 Wiring Fault, Load and  
 Volt Meters, Automatic  
 Diagnostic Testing;  
 Audible Alarms:  
 On Battery, Low Battery,  
 Configurable Delays;  
 SUA750RM2U, SUA1000RM2U:  
 LED status display with Load  
 and Battery bar-graphs;  
 Additional LEDs: On Line,  
 On Battery, Replace  
 Battery, and Overload;  
 Audible Alarms: On Battery,  
 Low Battery,  
 Configurable Delays;

## Temperature Tolerance:

Operating: 32 to 113°F (0 to  
 45°C);  
 Storage: 5 to +149°F (-15 to  
 +65°C)

## Humidity Tolerance: Up to 95%, noncondensing

**Size:** SU420NET, SU620NET:  
 6.6"H x 4.7"W x 14.5"D  
 (16.8 x 11.9 x 36.8 cm);  
 SP540A: 6.2"H x 5.4"W x 14.1"D  
 (15.7 x 13.7 x 35.8 cm);  
 SUA1000, SUA1500: 8.5"H x  
 6.7"W x 17.3"D (21.6 x 17 x  
 43.9 cm);  
 SP543A–SP544A: 17"H x  
 7.7"W x 21.5"D (43.2 x 19.6 x  
 54.6 cm);  
 SUA750RM2U, SUA1000RM2U:  
 SUA1500RM2U: 4"H x 19"W x  
 18"D (10.1 x 48.3 x 45.7 cm);  
 SU3000RMNET: 8.75"H (5U) x  
 19"W x 17.8"D (22.2 x 48.3 x  
 45.2 cm);  
 SU5000T: 17.3"H x 9"W x 26.2"D  
 (43.9 x 22.9 x 66.5 cm)

**Weight:** SU420NET: 22 lb. (10 kg);  
 SU620NET: 27 lb. (12.2 kg);  
 SP540A: 29 lb. (13.2 kg);  
 SUA1000: 41 lb. (18.6 kg);  
 SUA1500: 53 lb. (24 kg);  
 SP543A: 112 lb. (50.8 kg);  
 SP544A: 123 lb. (55.8 kg);  
 SU5000T: 230 lb. (104.3 kg);  
 SUA750RM2U: 48 lb. (21.8 kg);  
 SUA1000RM2U: 62 lb. (28.1 kg);  
 SUA1500RM2U: 63 lb. (28.6 kg);  
 SU3000RMNET: 129 lb. (58.5 kg)

## Ordering Information

ITEM	APC PART #	CODE
<b>Standalone Smart-UPS</b>		
Smart-UPS 420 (SmartSlot not included) .....		SU420NET
Smart-UPS 620 (SmartSlot not included) .....		SU620NET
Smart-UPS 700 .....	SU700NET	SP540A
Smart-UPS 1000 USB .....		SUA1000
Smart-UPS 1500 USB .....		SUA1500
Smart-UPS 2200 .....	SU2200NET	SP543A
Smart-UPS 3000 .....	SU3000NET	SP544A
Smart-UPS 5000 .....		SU5000T
<i>To provide additional run time for your SP544A, order...</i>		
3000 Battery Pack .....		BP544
<i>For rackmountable models, choose...</i>		
<b>Rackmountable Smart-UPS Series</b>		
750 VA, 2U .....		SUA750RM2U
1000 VA, 2U .....		SUA1000RM2U
1500 VA, 2U .....		SUA1500RM2U
3000 VA, 5U .....		SU3000RMNET
<i>To customize your SmartSlot equipped Smart-UPS for easier power management, order...</i>		
Expansion Chassis .....		AP9600
Web/SNMP Management Card .....		AP9617
Smart-UPS Interface Expander .....		AP9607
Relay I/O Module .....		AP9610
Measure-UPS Temperature/Humidity .....		AP9612TH