



STACO SV+

SINGLE PHASE ON-LINE DOUBLE CONVERSION UPS
DOE COMPLIANT

1 - 3 kVA | 120/120VAC

APPLICATIONS INCLUDE

- Broadcast
- Processing Manufacturing
(Food/Beverage, Pharmaceutical, Plastics, Packaging)
- Water and Waste Water Treatment
- Hospitals/Medical
- Education/Research Laboratories
- Computer Networks
- Retail
- Robotics
- Printing
- Paper Production





STACO SV+

The Staco SV+ features a field-proven Digital Signal Processor (DSP) achieving high reliability, while providing protection from electrical power disturbances to the connected load. Industry-leading functionality is standard and includes hot swappable battery, powerful internal charger, emergency shut-down and programmable receptacles. XL Models are for those critical applications that require extended battery backup times.

FEATURES

TRUE DOUBLE CONVERSION ON-LINE UPS

The UPS will provide clean AC power with voltage and frequency independently from the utility to fully protect mission-critical devices such as sensitive networks, small computer center servers, telecom applications, as well as for industrial applications.

UNITY OUTPUT POWER FACTOR

Staco SV+ Series is a high-density UPS with an output power factor up to 1.0 as well as <5% THD to provide higher performance and efficiency to critical applications.

RACK/TOWER DESIGN

The Series SV is designed in a true universal-mount case. It can be easily installed as a free-standing tower or in a 19-inch rackmount configuration.

LCD/LED MIMIC SCREEN PERSONALIZATION

A concise LCD/LED display provides real-time status and readings such as operation modes, AC voltage, frequency, battery voltage, load level, inner temperature, and more. A full-size microprocessor-based graphical LCD display provides advanced monitoring functions. The front panel digital display can be easily shifted through LCD setting to suit the installation format, Tower or Rack mount. Digital signal processing (DSP) also provides the UPS with powerful communication capability, which enhances the flexibility for easy remote control and monitoring.



PROGRAMMABLE POWER MANAGEMENT OUTLETS

Offer the capability to load shed during any power interruption, while in battery power mode or during overload condition, via the use of special communication software provided, thus reserving backup power for priority loads.

ECO AND ADVANCED ECO MODE FOR ENERGY SAVING

Allows the UPS to operate in high efficiency up to 97% in energy-saving ECO mode. In this operation mode, load is supplied by the mains. In the event of a mains failure, the inverter takes over the load and provides supply continuity to the connected systems. In ECO operation mode, the Staco SV+ normally supplies power to load via bypass utility. It will automatically transfer to inverter supply with SmartECO Mode if the bypass utility becomes out of tolerance.

EMERGENCY POWER OFF FUNCTION (EPO)

This feature can secure the personnel and equipment in case of fires or other emergencies. The Emergency Power Off Function enables user shutdown of the UPS in an emergency situation.

COMMUNICATIONS CAPABILITY

The Staco SV+ is shipped with standard monitoring/shutdown software. The software allows control of the UPS and graceful shutdown when the utility power fails, but also allows the user to: Completely test the major operating functions of the UPS, Communicate via SNMP/Web/Network adapter, Access UPS functions via the Web, Alert users via SMS messages against specific events. Remotely test the major operating functions of the UPS, Communicate via optional SNMP/WEB card, Access UPS functions via the WEB.

INTELLIGENT SELF-DIAGNOSTICS

The DSP self-diagnostics assists the service engineer in pinpointing system faults rapidly, making repairs fast and easy.



ON-LINE, SINGLE PHASE UPS SYSTEM

HIGH-EFFICIENCY AND PROTECTION

High crest factor of the inverter handles all high in-rush current loads without the need to upgrade the power rating. The AC to AC efficiency of the UPS may reach up to 91% at 25% load, and better with larger loads and normal VFI operation. Wide frequency and voltage windows of 40-70Hz and 55-150Vac (for 120Vac input) are provided, which help to extend the life of the battery. To protect the unit from overloading, the UPS will automatically switch to bypass mode in 30 seconds if loading is at 105%~120% of rated capacity. It will automatically switch back to inverter mode once overload condition ceases. Selectable bypass input voltage tolerance (low/high sensitivity) prevents under or over voltage being supplied to the loads while in bypass mode.

ADVANCED BATTERY MANAGEMENT

The Staco SV+ automatically manages the end of discharge voltage according to load. This function prevents deep-discharge of the built-in battery during a power failure and saves battery life. Analyzes battery discharging status to adjust battery cut-off point and extend the batteries' life span.

SILENT FAN CONTROL

The Staco SV+ employs forced air cooling by internally mounted fans with speed control that is based on load percentage. This means low audible noise levels, suitable for most environments.

PROGRAMMABLE FREQUENCY CONVERTER

Using the front panel keypad, you may reprogram the Staco SV+ to act as a frequency converter for either 50 Hz or 60 Hz.

DC-START FUNCTION

Ensures the start-up of UPS even during power outages.

BUILT-IN CHARGER

Provides ability to re-charge internal battery to approximately 95% in three hours. Matching battery cabinets are available to extend the UPS runtime easily to several hours.

HOT SWAPPABLE BATTERY DESIGN

Ensures clean and uninterrupted power to protected equipment during battery replacement. The Staco SV+ allows users to replace external batteries without electric shock hazard, while the UPS supplies continuous power to your application.

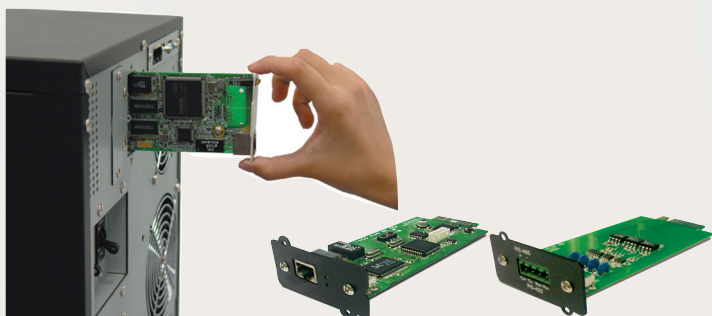




OPTIONAL FEATURES

VARIETY OF CUSTOMER OPTIONS SLOT

This UPS also provides one customer option communication slot in addition to the standard RS232 port. An internal SNMP/Modbus card, USB card, and True Relay card provide isolated contacts for industrial and remote alarm panel application. All communications cards are designed for simple installation; electrical connections are made through a 26-pin edge card connector.



OPTIONAL EXTENDED RUNTIME CAPABILITY

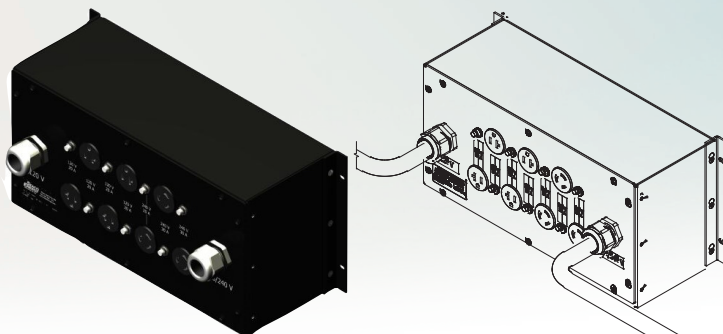
by simply connecting additional battery packs. Just plug in the battery connectors between the UPS and battery packs without the requirement for additional chargers. Extended run time battery packs are available for all models. Size, capacity, and estimated run times are shown in the table below. Back-up time is for the battery pack used with the UPS internal batteries. Battery packs are external and hot swappable.

OPTIONAL CABINET

The Optional Cabinet allows the Staco SV+ to be custom configured into a mobile rack application. The cabinet can be configured with or without a front and rear door for security if required.

MANUAL MAINTENANCE BYPASS WITH PDU

The optional external maintenance bypass ensures a continuous supply of power to the critical load during service or periodic maintenance of the UPS system, by isolating the UPS Electronic Module from the load.



STACO SV+ RACK/TOWER MOUNT, ON-LINE DOUBLE-CONVERSION UPS, 120VAC

120VAC - LCD Panel, USB and RS-232 Standard

Model Number (SP)	VA/Watts	Internal Battery (Minutes)	Input Cord	Output Connection	*Dimensions H" x W" x D" / [mm]	*Wt. lbs. / (kg)
Standard Runtime Models (RT):						
1000RT120	1000VA / 1000W	4	5-15P	(8) 5-15R	3.46" x 17.24" x 16.14" (2U) / [87.9 x 438.0 x 410.0]	26 / (12)
1500RT120	1500VA / 1300W	4	5-15P	(8) 5-15R	3.46" x 17.24" x 16.14" (2U) / [87.9 x 438.0 x 410.0]	34 / (15)
2000RT120	2000VA / 1850W	4	5-20P	(8) 5-20R	3.46" x 17.24" x 20.08" (2U) / [87.9 x 438.0 x 510.0]	43 / (20)
3000RT120	3000VA / 2740W	4	L5-30P	(6) 5-20R & (1) L5-30R	3.46" x 17.24" x 24.80" (2U) / [87.9 x 438.0 x 629.9]	61 / (28)
Extended Runtime Models (RTXL):						
1000RTXL120	1000VA / 1000W	0	5-15P	(8) 5-15R	3.46" x 17.24" x 16.14" (2U) / [87.9 x 438.0 x 410.0]	20 / (9)
1500RTXL120	1500VA / 1300W	0	5-15P	(8) 5-15R	3.46" x 17.24" x 16.14" (2U) / [87.9 x 438.0 x 410.0]	26 / (12)
2000RTXL120	2000VA / 1850W	0	5-20P	(8) 5-20R	3.46" x 17.24" x 20.08" (2U) / [87.9 x 438.0 x 510.0]	28 / (13)
3000RTXL120	3000VA / 2740W	0	L5-30P	(6) 5-20R & (1) L5-30R	3.46" x 17.24" x 24.80" (2U) / [87.9 x 438.0 x 629.9]	33 / (15)

Standard Models: Maximum (1) External Battery Pack (SP1000EBC120, SP1500EBC120, SP2000EBC120, SP3000EBC120)
XL Models: Maximum (5) External Battery Pack (SP1000EBC120, SP1500EBC120, SP2000EBC120, SP3000EBC120)

- Note:
1. XL Models do not have internal batteries.
 2. Unit ships with bundled NetAgent 9 Shutdown Software.
 3. All units ship with floor stand and rack mount hardware.

*Always reference Spec Control Drawing (SCD) for the most current & accurate dimensions and weights

WARRANTY

ELECTRONICS

A full Three Year parts with depot repair or replacement warranty is standard.

BATTERY

A full One Year Warranty on the Battery System ensures that your batteries are protected from system failure now and in the future. (Warranty provided by battery manufacturer.) Extended warranties, customized service plans and preventative maintenance are also available. Please refer to our warranty statement for complete details.

SPECIFICATION FOR 120/120VAC

Standard Runtimes (RT) and Extended Runtime (RTXL) Models: 1000VA, 1500VA, 2000VA & 3000VA

MODEL (SP)		1000RT120	1000RTXL120	1500RT120	1500RTXL120	2000RT120	2000RTXL120	3000RT120	3000RTXL120
Capacity VA / Watts		1000 VA		1500 VA		2000 VA		3000 VA	
		1000 W		1300 W		1850 W		2740 W	
INPUT									
Capacity	Rated Volts	120VAC							
	Low Line Transfer	Low Voltage 80 VAC/70 VAC/60 VAC/55 VAC ± 5 % (based on load percentage 100%-80% / 80%-70% / 70%-60% / 60%-0)							
	Low Line Comeback	87 VAC/77 VAC/67 VAC/62 VAC ± 5 %							
	High Line Transfer	150 VAC ± 5 %							
	High Line Comeback	145 VAC ± 5 %							
Frequency Range		40Hz/ 70Hz							
Power Factor		≥0.99 @nominal voltage							
THDi		≥ 5% @ 100-130VAC THDU < 1.6% @ input and full linear load condition							
OUTPUT									
Output Voltage		100*/110*/115*/120/127VAC							
AC Voltage Regulation		± 1% (Bat. Mode)							
Frequency Range		47 ~ 53 Hz or 57 ~ 63 Hz (Synchronized Range)							
Frequency Regulation		50Hz ± 0.1 Hz or 60Hz ± 0.1 Hz (Bat. Mode)							
Current Crest Ratio (CF)		3:1 (max.)							
Harmonic Distortion (THDU)		≤ 2% (Linear load)							
		≤ 4% (Non-Linear load)							
Transfer Time		Zero							
Waveform (Battery Mode)		Pure Sinewave							
EFFICIENCY									
AC Mode		≥ 89%				≥ 91%			
Battery Mode		≥ 88%				≥ 90%			
ECO Mode		≥ 96%							
BATTERY (NON-XL MODELS)									
Battery Type		(2) 12V/9Ah	No Internal	(3) 12V/9Ah	No Internal	(4) 12V/9Ah	No Internal	(6) 12V/9Ah	No Internal
Typical Recharge Time		3 hours recover to 95% capacity (for Non-XL models only)							
Charging Current (max.)		2A (default) / up to 8A (adjustable)							
Charging Voltage		27.4 VDC ± 1%		41.1 VDC ± 1%		54.7 VDC ± 1%		82.1VDC ± 1%	
LCD DISPLAY									
Status		Load level, Battery Level, Alarms, Operating Mode							
Readings		Input Voltage and Frequency, Output Voltage and Frequency, Battery Backup Time (hours/minutes),							
Control/Select Buttons		(3) buttons to turn UPS On/Off, navigate LCD screen & Mute Alarms							
AUDIBLE & VISUAL ALARMS									
Warning Indicators		Low battery, Overload, Battery Not Connected, Overcharge, Site Wiring Fault, EPO Enabled, Over Temperature, Charger Failure, Battery Fault, Bypass Out of Range and Bypass Frequency Unstable							
**PHYSICAL WEIGHT & DIMENSIONS H" x W" x D" / [mm]									
Rack Mount		3.46" x 17.24" x 16.14" (2U) [87.9 x 438.0 x 410.0]		3.46" x 17.24" x 16.14" (2U) [87.9 x 438.0 x 410.0]		3.46" x 17.24" x 20.08" (2U) [87.9 x 438.0 x 510.0]		3.46" x 17.24" x 24.8" (2U) [87.9 x 438.0 x 629.9]	
Tower		17.24" x 3.46" x 16.14" (2U) [438.0 x 87.9 x 410.0]		17.24" x 3.46" x 16.14" (2U) [438.0 x 87.9 x 410.0]		17.24" x 3.46" x 20.08" (2U) [438.0 x 87.9 x 510.0]		17.24" x 3.46" x 24.80" (2U) [438.0 x 87.9 x 629.9]	
Net Weight lbs. / (kg)		26 / (12)	15 / (7)	34 / (15)	18 / (8)	43 / (20)	24 / (11)	61 / (28)	24 / (11)
ENVIRONMENT (Electronics)									
Operating		32°F (0°C) to 104°F (40°C)							
Humidity		20-95% RH (non-condensing)							
Storage		-13°F (-25°C) to 104°F (40°C) BATTERIES (REFRESH Charge @ 3 months)							
Noise Level		Less than 50dBA @ 1 Meter							
MANAGEMENT / COMMUNICATION									
Smart RS-232/USB		Supports Windows 2000/2003/XP/Vista/2008/7/8/10, Linux, Unix, and MAC							
Optional SNMP/MODBUS		Power management from SNMP manager and web browser							
Optional AS400 Card		With DB9 or 9 Pin Connector							
AGENCY									
Listing		cUL 1778: 5th Edition CSA C22.2 No 107.3-14 FCC Class A							

* Derate capacity to 95% when the output voltage is adjusted to 115VAC. Derate capacity to 90% when the output voltage is adjusted to 110VAC. Derate capacity to 80% when the output voltage is adjusted to 100VAC.

**Always reference Spec Control Drawing (SCD) for the most current & accurate dimensions and weights

STACO SV+ MATCHING EXTERNAL BATTERY CABINETS

Model SP	SP1000EBC120	SP1500EBC120	SP2000EBC120	SP3000EBC120
Battery Type	12V / 9Ah			
Battery Quantity (2-strings)	4	6	8	12
Dimensions H" x W" x D"	3.46" x 17.24" x 14.96" (2U) [88 x 438.0 x 380.0]		3.46" x 17.24" x 18.90" (2U) [88.2 x 438.0 x 480]	3.46" x 17.24" x 23.62" (2U) [88 x 438.0 x 600]
Wt. lbs. / (kg)	37.7 / (17.1)	47.4 / (21.5)	63.9 / (29)	90.8 / 41.2

STACO SV+ BATTERY RUN TIME CHARTS

Extended Battery Run Time Chart - 34 W Batteries

UPS Rating	# Strings	25% Load	50% Load	75% Load	100% Load
1000VA/1000W	1	23.2	10.1	5.5	3.2
	2	54.7	25.0	15.1	10.2
	3	89.6	41.3	25.3	17.6
	4	126.8	58.8	36.2	25.3
	5	165.8	77.2	47.7	33.5
1500VA/1300W	1	27.8	12.3	7.0	4.3
	2	65.1	29.9	18.2	12.5
	3	106.5	49.3	30.3	21.1
	4	150.7	70.0	43.2	30.3
	5	196.8	91.8	56.8	39.9
2000VA/1850W	1	25.6	11.2	6.3	3.7
	2	60.2	27.5	16.7	11.4
	3	98.5	45.5	27.9	19.4
	4	139.3	64.7	39.9	27.9
	5	182.1	84.8	52.5	36.9
3000VA/2740W	1	26.0	11.4	6.4	3.8
	2	61.1	28.0	17.0	11.6
	3	100.0	46.2	28.4	19.8
	4	141.5	65.7	40.5	28.4
	5	184.8	86.1	53.3	37.4

Extended Battery Run Time Chart - 90 W Batteries

UPS Rating	# Strings	25% Load	50% Load	75% Load	100% Load
1000VA/1000W	1	74.1	34.0	20.1	13.6
	2	169.1	80.8	49.0	34.0
	3	271.5	131.6	80.8	56.7
	4	375.9	184.5	114.3	80.8
	5	482.1	238.9	149.0	105.8
1500VA/1300W	1	88.3	40.2	24.3	16.6
	2	200.8	94.8	58.5	40.8
	3	319.5	153.7	96.1	67.7
	4	441.2	215.0	135.6	96.1
	5	564.6	277.8	176.3	125.6
2000VA/1850W	1	81.5	37.1	22.3	15.2
	2	186.1	87.6	54.0	37.6
	3	296.7	142.2	88.0	62.5
	4	410.2	199.4	125.5	88.8
	5	525.5	257.9	163.3	116.2
3000VA/2740W	1	82.8	37.7	22.6	15.4
	2	1883.9	89.0	54.8	38.2
	3	301.0	144.5	90.2	63.5
	4	416.1	202.3	127.4	90.2
	5	532.9	261.6	165.8	118.0

STACO SV+ BATTERY RUN TIME CHARTS (CONTINUED)

Extended Battery Run Time Chart - 150 W Batteries

UPS Rating	# Strings	25% Load	50% Load	75% Load	100% Load
1000VA/1000W	1	146.8	71.7	43.9	29.6
	2	312.3	156.6	101.3	72.7
	3	487.2	243.4	158.6	115.6
	4	668.1	333.2	216.8	158.6
	5	852.5	425.6	276.4	202.1
1500VA/1300W	1	171.6	84.8	52.7	36.1
	2	365.3	183.0	118.9	86.0
	3	570.2	284.5	185.3	135.4
	4	781.5	389.8	253.3	185.3
	5	995.6	498.0	323.2	236.2
2000VA/1850W	1	159.9	78.6	48.5	33.0
	2	340.1	170.5	110.6	79.7
	3	530.8	265.0	172.7	126.0
	4	727.8	362.9	236.0	172.6
	5	927.8	463.6	301.0	220.0
3000VA/2740W	1	162.1	79.8	49.3	33.6
	2	344.8	172.9	112.2	80.9
	3	538.2	268.7	175.1	127.8
	4	737.9	368.0	239.3	175.1
	5	940.6	470.1	305.2	223.1

STACO SERVICE

FIELD SERVICE PROGRAM

Staco specializes in providing choice and flexibility by developing tailored solutions for preventive and remedial maintenance services, as well as emergency repairs for all of our products. Staco Service is built upon a nationwide network of highly trained and motivated customer support engineers and technicians who can provide professional services and care throughout the life of your equipment.

- Start-Ups
- Preventive Maintenance
- Spare Parts
- Battery Analysis/Refresh/Replacement
- On-Site Training
- Time & Material Services

WHY STACO ENERGY PRODUCTS?

BECAUSE WE ARE YOUR POWER SOLUTIONS PROVIDER!

Unique application design demands, harsh environment concerns, the need to meet non-standard physical space requirements; providing the "not so usual" is what we do best. From leading edge uninterruptible power supplies, power conditioners, power factor and harmonic correction equipment, to the world's most stable voltage control systems, we have the technology you need to protect and manage your business, and the knowledge to make it work for you.

Since 1937, customers worldwide have relied on Staco Energy as their custom solutions provider, to solve a wide range of electrical power problems. Headquartered in Miamisburg, Ohio, Staco Energy Products is a wholly owned subsidiary of Components Corporation of America, located in Dallas, Texas.

Voltage Control



UPS & Emergency Lighting



Power Factor & Harmonics



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