

STACO ENERGY[®]

PRODUCTS CO.

UNI STAR[®] V Series

Standard Universal Tower/Rack Mount
1, 2, 3 kVA

On-line, Single Phase, Double Conversion UPS

The UniStar[®] V features a field-proven Digital Signal Processor (DSP) achieving high reliability, while providing protection from electrical power disturbances to the connected load. The convertible tower/rack design offers maximum flexibility, enabling UPS integration into a wide variety of environments.

Industry-leading functionality is standard and includes hot swappable battery, powerful internal charger, emergency shut-down and programmable receptacles. The UniStar[®] V is an ideal power protection solution for servers, networks, telecommunications, industrial equipment, and manufacturing processes.

True Double-Conversion On-Line UPS

- A true double conversion UPS will provide clean, high level quality power to fully protect mission-critical devices such as sensitive networks, small computer center servers, telecom applications, as well as for industrial applications.

Output Power Factor 0.9

- UniStar Series V is a high-density UPS with an output power factor 0.9 to provide higher performance and efficiency to critical applications.

User-Friendly and Easy-Shift LCD Display

- The front panel digital display can be easily shifted through LCD setting to suit the installation format, Tower or Rack mount

Rack/Tower Design

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

Programmable Power Management Outlets

- With programmable power management outlets, users can easily and independently control load segments. During power failure, this feature enables users to extend battery time to mission-critical devices by shutting down the non-critical devices.

50/60 Hz Frequency Converter Mode

- Lock output frequency at 50Hz or 60Hz to suit power sensitive equipment.

ECO and Advanced ECO Mode for Energy Saving

- It 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. The Series V 1, 2, and 3kVA even offers advanced ECO mode to allow UPS to operate at higher efficiency up to 98%.

Emergency Power Off Function (EPO)

- This feature can secure the personnel and equipment in case of fires or other emergencies.

Hot-Swappable Battery Design

- Ensures clean and uninterruptible power to protected equipment during battery replacement.





On-Line, Single Phase UPS System

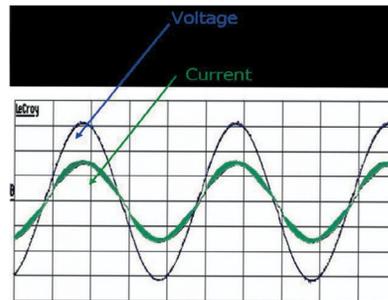
The UniStar[®] V represents the latest in single-phase technology at an affordable price. Its true on-line performance provides a constant clean, steady sine wave safeguarding the most sensitive equipment.

Double Conversion

The UPS provides clean AC power with voltage and frequency independent from the utility. On-line technology completely regenerates utility power to correct electrical disturbances in the mains.

High-Efficiency and Protection

PWM sine-wave topology yields excellent overall performance. The high crest factor of the inverter handles all high in-rush current loads without the need to upgrade the power rating.



Wide frequency and voltage windows of 40-70Hz and 55-150Vac (for 120Vac input), or 110-300Vac (for 230Vac input), are provided, which help to extend the life of the battery.

Near unity input power factor meets today's industry standard for energy savings and efficiency with low current harmonic pollution to the utility.

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.

User Controls

An easy-to-read user-friendly LCD display provides real-time indication of all major system parameters and status, including load level, battery remaining, and fault signals for easy service.



Digital signal processing (DSP) also provides the UPS with powerful communication capability, which enhances the flexibility for easy remote control and monitoring.

Features

DC-start function ensures the start-up of UPS even during power outages.

Programmable receptacles 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.

Emergency shutdown control through EPO allows users to shutdown the UPS completely in an emergency to ensure a safe operating environment.

Applications

- Broadcast
- Processing Manufacturing (food/beverage, pharmaceutical, plastics, packaging)
- Water and Waste Water Treatment
- Hospitals/Medical
- Education/Research Laboratories

Communication software allows not only the control of the UPS and its smooth shutdown when utility 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

Custom options slot allows further flexibility in network configuration.

An internal WEB/SNMP card, USB card, and True Relay card provide isolated contacts for industrial and remote alarm panel application.

User-friendly Plug-and-Play design

allows hassle-free installation. All units up to 3kVA are supplied with input cables and output receptacles as standard.

Innovative battery management circuit

analyzes battery discharging status to adjust battery cut-off point and extend the batteries' life span.

Internal maintenance-free sealed VRLA batteries

minimizes the need for frequent after-sales service. The hot swappable battery feature allows users to replace the batteries without the hazard of electric shock, while the UPS supplies power continuously to critical load applications.

Built-in Charger

provides ability to re-charge internal battery to approximately 90% in four hours.

Matching battery cabinets are available to extend the UPS runtime easily to several hours.

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 Make-Before-Break

Bypass Switch—manually operated, external—ensures continuous supply of power to the critical load in the event of unexpected or scheduled maintenance.

Three Year Warranty

Electronics:

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

Battery:

1 year full, 4-year pro-rated 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.*



Optional Maintenance Bypass

Model Number	Rating/Voltage	Input Connection	Output Receptacles
USC-MBPDU-11RT	1kVA / 120V	Attached 6' Cord with 5-15P	(8) 5-15R
USC-MBPDU-21RT	2kVA / 120V	Attached 6' Cord with 5-20P	(6) 5-15R & (2) 5-20R
USC-MBPDU-31RT	3kVA / 120V	Attached 6' Cord with L5-30P	(4) 5-15R & (1) 5-30R
USC-MBPDU-12RT	1kVA & 2kVA / 230V	Attached 6' Cord with IEC C14	(8) IEC C13
USC-MBPDU-32RT	3kVA / 230V	Attached 6' Cord with IEC C20	(6) IEC C13 & (1) IEC C18

Dimensions: 3.5" H (2U) x 17.3"W x 3.0"D

Standard Run Time Models

UPS On-line, Double-Conversion .9pf – LCD Panel, USB and RS-232 Standard

Model Number	kVA/kW	Internal Battery (Minutes)	Input Cord	Output Connection	Dimensions W" x H" x D"	Weight. (lbs.)
Voltage: 120/120 VAC – 50/60 Hz – UL1778/cUL						
SCV-10001	1kVA / .9kW	2.7	5-15P	(4) 5-15R	17.2 x 3.5 x 15 (2U)	29
SCV-20001	2kVA / 1.8kW	2.7	5-20P	(8) 5-20R	17.2 x 3.5 x 19 (2U)	47
SCV-30001	3kVA / 2.7kW	2.7	L5-30P	(4) 5-20R & (1) L5-30R	17.2 x 3.5 x 23.6 (2U)	62
Voltage: 230/230 VAC – 50/60 Hz – 1kva & 2kva - CE, 3kva UL1778/CE/cUL						
SCV-10002	1kVA / .9kW	2.7	(10A) IEC320-C14	(6) IEC60320	17.2 x 3.5 x 15 (2U)	29
SCV-20002	2kVA / 1.8kW	2.7	(10A) IEC320-C14	(6) IEC60320	17.2 x 3.5 x 19 (2U)	47
SCV-30002	3kVA / 2.7kW	2.7	(16A) IEC320-C20	(4) IEC60320	17.2 x 3.5 x 23.6 (2U)	62

Standard Models will accept (1) External Battery Pack (SCV-BAT-1K, SCV-BAT-2K or SCV-BAT-3K)

LB Extended Run Time Models

Extended Run Time Model - LCD Panel, USB, RS-232 and 8Amp Charger Standard

Model Number	kVA/kW	Internal Battery (Minutes)	Input Cord	Output Cord	Dimensions W" x H" x D"	Weight. (lbs.)
120/120 VAC – 50/60 Hz – UL1778/cUL						
SCV-10001-LB	1kVA / .9kW	NONE	5-15P	(4) 5-15R	17.2 x 3.5 x 15 (2U)	19
SCV-20001-LB	2kVA / 1.8kW	NONE	5-20P	(8) 5-20R	17.2 x 3.5 x 19 (2U)	25
SCV-30001-LB	3kVA / 2.7kW	NONE	L5-30P	(4) 5-15R & (1) L5-30R	17.2 x 3.5 x 23.6 (2U)	31
230/230 VAC – 50/60 Hz – 1kva & 2kva - CE, 3kva UL1778/CE/cUL						
SCV-10002-LB	1kVA / .9kW	NONE	(10A) IEC320-C14	(6) IEC60320	17.2 x 3.5 x 15 (2U)	19
SCV-20002-LB	2kVA / 1.8kW	NONE	(10A) IEC320-C14	(6) IEC60320	17.2 x 3.5 x 19 (2U)	25
SCV-30002-LB	3kVA / 2.7kW	NONE	(16A) IEC320-C20	(4) IEC60320	17.2 x 3.5 x 23.6 (2U)	31

The LB Models use External Battery Packs for long backup requirements. A maximum of (5) SCV-BAT-XK Battery Packs can be used with LB Models

UniStar® V 1kVA, 2kVA & 3kVA

Model	SCV-10001(LB)	SCV-10002 (LB)	SCV-20001 (LB)	SCV-20002 (LB)	SCV-30001 (LB)	SCV-30002 (LB)	
INPUT							
Capacity	VA	1000 VA	1000 VA	2000 VA	2000 VA	3000 VA	3000 VA
	W	900 W	900 W	1800 W	1800 W	2700 W	2700 W
Rated Input Voltage	120 VAC or 230 VAC						
Voltage Range	55-150 VAC ± 5% or 110-300 VAC ± 5%						
Frequency Range	40 Hz ~ 70 Hz						
Phase	Single phase with ground						
Power Factor	≥0.99 @nominal voltage (100% load)						
OUTPUT							
Output Voltage	120 VAC or 230 VAC						
AC Voltage Regulation (Battery Mode)	± 1%						
Frequency Range (Synchronized Range)	47 ~ 53 Hz or 57 ~ 63 Hz						
Frequency Range (Battery Mode)	50 Hz ± 0.5% or 60 Hz ± 0.5%						
Current Crest Ratio	5:1 (max.)						
Harmonic Distortion	≤ 2% THD (Linear Loads), ≤ 8% THD (Batt Mode before shut down)						
Transfer Time	Line Mode to Battery Mode	Zero					
	Inverter to Bypass	4 ms (Typical)					
Waveform (Battery Mode)	Pure Sine Wave						
EFFICIENCY							
AC Mode	86% (typical), 88% (peak)			88% (typical), 90% (peak)			
Battery Mode	83% (typical), 86% (peak)			85% (typical), 88% (peak)			
BATTERY (NON-LB MODELS)							
Battery Type/Qty.	12 V / 7 AH (2)		12 V / 9 AH (4)		12 V / 9 AH (6)		
Battery Time (minutes)	2.7		2.7		2.7		
Typical Recharge Time	4 hours recover to 90% capacity						
Charging Current (max.)	1.0 Amp	6 Amp	1.0 Amp	6 Amp	1.0 Amp	6 Amp	
Charging Voltage	27.4 VDC ± 1%		54.7 VDC ± 1%		82.1 VDC ± 1%		
Extended Run Time LB Models do not have internal batteries, 8 Amp Charger standard.							
LCD DISPLAY							
LCD Display - Status	Load level 0-25%, 26-50%, 51-75% and 76-100%, Low Battery and Battery Good, Programmable Management Outlets working, UPS On-Line, UPS in Frequency Converter Mode, UPS On Bypass, Alarm Disabled Indicator and Battery Charger Working						
LCD - Readings	Input Voltage and Frequency, Output Voltage and Frequency, Battery Backup Time (hours/minutes), Fault Indicator, Battery Voltage, Overload, and/or UPS Output is short circuited						
Select Buttons	Off/Enter - Turn UPS Off, Switch LCD Message, Mode Settings, Navigation Key, On/Mute + Select Button to switch to Bypass Mode						
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							
Rack Mount Dimension, H x W x D inches (mm)	3.5 x 17.2 x 15 (89 x 438 x 381)		3.5 x 17.2 x 19 (89 x 438 x 482)		3.5 x 17.2 x 23.6 (89 x 438 x 599)		
Tower Dimension, H x W x D inches (mm)	17.2 x 3.5 x 15 (438 x 89 x 381)		17.2 x 3.5 x 19 (438 x 89 x 482)		17.2 x 3.5 x 23.6 (438 x 89 x 599)		
Net Weight lbs. (kgs)	29 (13.2)	29 (13.2)	47 (21.4)	47 (21.4)	65 (29.6)	65 (29.6)	
ENVIRONMENT							
Operating	32°F (0°C) to 104°F (40°C)						
Humidity	20-90 % RH @ 0-40°C (non-condensing)						
Battery	Below 77°F (25°C). For every 15°F (8°C) above 77°F battery life is cut in half, and may void the battery warranty						
Storage (Electronics)	-25°F (-32°C) to 122°F (50°C)						
Noise Level	Less than 50 dBA @ 1 Meter						
MANAGEMENT							
Smart RS-232/USB	Supports Windows® 2000/2003/XP/Vista/2008/7, Linux, Unix, and MAC						
Optional SNMP Card	Power Management from SNMP Manager and Web Browser						
Optional MODBUS Card	Communication from MODBUS						
Optional AS400 Card	With DB9 Connector or 9 Pin Connector						
AGENCY							
Listing	UL1778/cUL	CE	UL1778/cUL	CE	UL1778/cUL	UL1778/CE/cUL	

The UniStar® V Series Battery Run Time Charts

Standard External Battery Run Time Chart - Minutes Used with UniStar V Series, Universal Tower/Rack 1kVA, 2kVA & 3kVA



UPS Rating	Part Number	Quantity Cabinets	Number Strings Internal/External	25% Load	50% Load	75% Load	100% Load	Dimensions W" x H" x D"	Weight. (lbs.)
1kVA	Internal	0	1/0	25	10	5	2.7	N/A	N/A
	SCV-BAT-1K	1	1/2		40	25	18	17.2 x 3.5 x 18.9 (2U)	40
2kVA	Internal	0	1/0	25	10	5	2.7		65
	SCV-BAT-2K	1	1/2		40	17	18	17.2 x 3.5 x 18.9 (2U)	
3kVA	Internal	0	1/0	25	10	5	2.7		90
	SCV-BAT-3K	1	1/2		40	25	18	17.2 x 3.5 x 23.6 (2U)	

1. A maximum of (1) Standard Battery Pack can be used with the SCV-X0001 and SCV-X0002 Models.
2. A maximum of (5) SCV-BAT-XK Battery Packs can be used on LB Models

Standard External Battery Run Time Chart - Minutes Used with UniStar V, LB Series, Universal Tower/Rack 1kVA, 2kVA & 3kVA

UPS Rating	Part Number	Quantity Cabinets	Number Strings Internal/External	25% Load	50% Load	75% Load	100% Load	Dimensions W" x H" x D"	Weight. (lbs.)
1kVA	Internal	0	0	0	0	0	0	N/A	N/A
	SCV-BAT-1K	1	2	60	25	15	10	17.2 x 3.5 x 18.9 (2U)	40
		2	4		60	35	25		80
		3	6			60	40		120
		4	8			85	60		160
		5	10				80		200
2kVA	Internal	0	0	0	0	0	0	N/A	N/A
	SCV-BAT-2K	1	2	60	25	15	10	17.2 x 3.5 x 18.9 (2U)	65
		2	4		60	35	25		130
		3	6			60	40		195
		4	8			85	60		260
		5	10				80		325
3kVA	Internal	0	0	0	0	0	0	N/A	N/A
	SCV-BAT-3K	1	2	60	25	15	10	17.2 x 3.5 x 23.6 (2U)	90
		2	4		60	35	25		180
		3	6			60	40		270
		4	8			85	60		360
		5	10				80		450

Extended Battery Run Time Chart - Minutes

Used with UniStar V Series, LB Universal Tower/Rack Mount Models, 1kVA, 2kVA & 3kVA

Rack Model Shown



UPS Rating	Part Number	Quantity Cabinets	Number Strings Internal/External	25% Load	50% Load	75% Load	100% Load	Dimensions W" x H" x D"	Weight. (lbs.)	
(2) HR1251 Batteries per string										
1kVA	SCV-BAT-51-1K-1	1	1	45	19	11	7	17.4 x 8.72 x 21.6 (5U)	60	
	SCV-BAT-51-1K-2	1	2		45	28	19	17.4 x 8.72 x 21.6 (5U)	75	
	SCV-BAT-51-1K-3	1	3			45	32	17.4 x 8.72 x 21.6 (5U)	90	
	SCV-BAT-51-1K-4	1	4				63	17.4 x 8.72 x 21.6 (5U)	105	
	SCV-BAT-51-1K-5	1	5				58	17.4 x 8.72 x 21.6 (5U)	125	
	SCV-BAT-51-1K-6	1	6				76	17.4 x 8.72 x 21.6 (5U)	140	
	SCV-BAT-51-1K-7	1	7				100	17.4 x 8.72 x 21.6 (5U)	155	
	SCV-BAT-51-1K-8	1	8				122	17.4 x 8.72 x 21.6 (5U)	190	
(2) HR1290 Batteries per string										
1kVA	SCV-BAT-90-1K-1	1	1	95	38	22	16	17.4 x 8.72 x 21.6 (5U)	70	
	SCV-BAT-90-1K-2	1	2	217	95	55	38	17.4 x 8.72 x 21.6 (5U)	105	
	SCV-BAT-90-1K-3	1	3	332	157	95	65	17.4 x 8.72 x 21.6 (5U)	135	
	SCV-BAT-90-1K-4	1	4	457	217	136	95	17.4 x 8.72 x 21.6 (5U)	165	
	SCV-BAT-90-1K-5	1	5	600	275	177	126	17.4 x 8.72 x 21.6 (5U)	190	
(2) HR12150 Batteries per string										
1kVA	SCV-BAT-150-1K-1	1	1	209	91	55	38	17.4 x 8.72 x 21.6 (5U)	85	
	SCV-BAT-150-1K-2	1	2		209	129	91	17.4 x 8.72 x 21.6 (5U)	135	
	SCV-BAT-150-1K-3	1	3			345	209	148	17.4 x 8.72 x 21.6 (5U)	190
(4) HR1251 Batteries per string										
2kVA	SCV-BAT-51-2K-1	1	1	45	19	11	7	17.4 x 8.72 x 21.6 (5U)	75	
	SCV-BAT-51-2K-2	1	2		45	28	19	17.4 x 8.72 x 21.6 (5U)	110	
	SCV-BAT-51-2K-3	1	3			76	45	32	17.4 x 8.72 x 21.6 (5U)	145
	SCV-BAT-51-2K-4	1	4				63	45	17.4 x 8.72 x 21.6 (5U)	175
(4) HR1290 Batteries per string										
2kVA	SCV-BAT-90-2K-1	1	1	95	38	22	16	17.4 x 8.72 x 21.6 (5U)	105	
	SCV-BAT-90-2K-2	1	2	217	95	55	38	17.4 x 8.72 x 21.6 (5U)	195	
	SCV-BAT-90-2K-2	2	4	457	217	136	95	17.4 x 17.44 x 21.6 (10U)	330	
	SCV-BAT-90-2K-2	3	6		332	217	157	17.4 x 26.2 x 21.6 (15U)	480	
(4) HR12150 Batteries per string										
2kVA	SCV-BAT-150-2K-1	1	1	209	91	55	38	17.4 x 8.72 x 21.6 (5U)	145	
	SCV-BAT-150-2K-1	2	2		209	129	91	17.4 x 17.44 x 21.6 (10U)	310	
	SCV-BAT-150-2K-1	3	6				345	17.4 x 26.2 x 21.6 (15U)	470	
(6) HR1251 Batteries per string										
3kVA	SCV-BAT-51-3K-1	1	1	45	19	11	7	17.4 x 8.72 x 21.6 (5U)	105	
	SCV-BAT-51-3K-2	1	2		45	28	19	17.4 x 8.72 x 21.6 (5U)	170	
	SCV-BAT-51-3K-2	2	4				63	45	17.4 x 17.44 x 21.6 (10U)	285
	SCV-BAT-51-3K-2	3	6					76	17.4 x 26.2 x 21.6 (15U)	420
(6) HR12150 Batteries per string										
3kVA	SCV-BAT-150-3K-1	1	1	209	91	55	38	17.4 x 8.72 x 21.6 (5U)	200	
	SCV-BAT-150-3K-1	2	2		209	129	91	17.4 x 17.44 x 21.6 (10U)	405	
	SCV-BAT-150-3K-1	3	3			345	209	148	17.4 x 26.2 x 21.6 (15U)	595

- Tower/Rack Mount Convertible Design
- Compact and Lightweight
- Advanced Digital Control Technology
- Wide Input Voltage and Frequency Ranges
- Hot Swappable Battery
- Extended Run Time Capability
- Optional Make-Before-Break Maintenance Bypass

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**
- **ServiStar: Providing security beyond our standard warranty**

Why Staco Energy Products?

Because we are your tailored 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 tailored solutions provider, to solve a wide range of electrical power problems. Headquartered in Dayton, Ohio, Staco Energy Products is a wholly owned subsidiary of Components Corporation of America, located in Dallas, Texas.



Contact Us:
US Toll Free: 866-261-1191
Phone: 937-253-1191
E-mail: sales@stacoenergy.com

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