UniStar® P Series

6 kVA
Rack/Universal Mount

On-line, Single-phase Parallel Redundant UPS System

UniStar® P is yet another tailored solution from Staco Energy offering the simplest and most flexible way to either add capacity or achieve redundancy for your mission critical applications. From the ability to parallel up to four units, to the intuitive control panel and the real-time digital signal processor, the UniStar® P Series on-line double conversion UPS systems were designed with our customers' needs in mind. Our customers will have years of trouble free operation, and we back it up with the best warranty in the industry.

Full Two Year Warranty

STACO ENERGY PRODUCTS CO.

Your tailored power solutions provider

ISO Certified 9001 : 2000

The UniStar® P Series Parallelable UPS

- Power range and run time scalability
- Full-time Digital Signal Processor Control
- LCD/LED mimic panel
- Easy-to-set user personalization
- Up to 98% energy efficiency
- Continuous power conditioning, even when not running on battery
- Smooth, uninterrupted switching from utility power to battery mode, and back again
- Wide fluctuations in utility power are handled without going to battery
- Parallel up to four units for added capacity or redundancy, using a simple connection on the rear panel without additional cabinets
- Unlike most UPSs in this size range, the UniStar® P has a very low rate of added and reflected harmonics, which protects the integrity of your entire electrical system
- Full Two Year Warranty on the UPS and a pro-rated warranty on the batteries

The UniStar® P's input power factor correction, high efficiency, and parallel redundancy capabilities always provide superior levels of power quality to protect sensitive electronics and computer equipment.

Two Year Warranty

Electronics:
A full **Two Year** parts with depot repair or replacement warranty is standard.

Battery:
A full **One Year Warranty**, 4-year pro-rated, on the Battery System ensures **t**hat 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.*

On-line, Single-phase Parallel Redundant UPS System

Proven Technology

Higher reliability and greater immunity from power anomalies is achieved through our field-proven Digital Signal Processor architecture. The front panel controls are intuitive and user friendly. The system display clearly communicates all major system parameters, system status, and system diagnostics, and includes access to system information and unit personalization via the front panel.

Simple Parallel Installation

For increasing power capacity, or making redundant systems, the UniStar® P can be installed in parallel. By simply connecting the parallel control lines through an RJ-45 connector on the rear panel and CAN-bus, communication is established to all units. Up to four units can be paralleled together without a paralleling cabinet.

Power Range and Runtime Scalability

The UniStar® P provides an excellent return on investment. The system is fully modular, allowing you to increase the overall power output and battery runtime as your system grows. It is important however, that you plan your electrical installation to fit your needs. Our worldwide network of sales representatives and distributors can assist you with a tailored solution that meets your needs.

Full Time Digital Signal Processor Control

The full-time DSP control system inside the UniStar® P provides a pure sine wave using our patented inverter control technology. The UniStar® P provides N+1 scalability without additional components.

Applications

- Broadcast
- Computer Networks
- Retail
- Robotics
- Printing
- Medical/Pharmaceuticals
- Paper Productlon
- Food Processing

UniStar® P Series
Rack Mount
shown paralleled and
with battery cabinet

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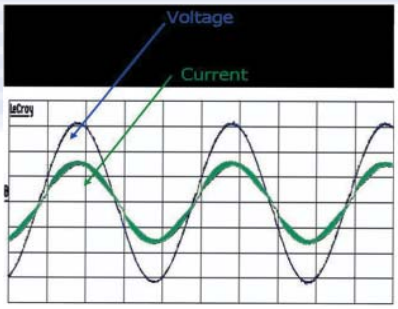


High Input Power Factor and Low Current THD

The UniStar®P meets today's industry standard for energy savings and low reflected harmonics, and achieves up to 0.99 Power Factor as well as <5% THD.

Energy Efficient UPS

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. Using the ECO mode, up to 98% efficiency can be achieved.

Smart ECO Mode

In ECO operation mode, the UniStar® P 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.

Programmable Frequency Converter

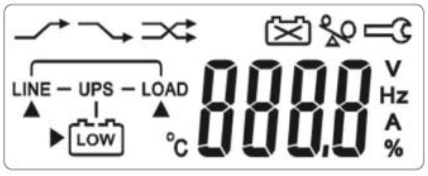
Using the front panel keypad, you may reprogram the UniStar® P to act as a frequency converter for either 50 Hz or 60 Hz. (Consult factory for further information)

EPO Function

The Emergency Power Off Function enables user shutdown of the UPS in an emergency situation.

Manual Maintenance Bypass

The internal manual bypass ensures a continuous supply of power to the critical load during service or periodic maintenance of the UPS system. The bypass switch is electrically interlocked with the inverter to provide safe operation.



LCD/LED Mimic Panel

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.

Intelligent Self-Diagnostics

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

Silent Fan Control

The UniStar®P 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.

Advanced Battery Management

The UniStar®P 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.

Galvanic Isolation Transformer

The galvanic isolation transformer provides not only complete isolation between the input and the output, but also various secondary voltages, such as 220/230/240 Vac, 208/120 Vac and 240/120 Vac.

User Personalization

Through the LCD front panel, you may easily change the parameters and settings built in to the DSP controllers, such as UPS operation modes, voltage configurations, synchronization frequency windows (for use with generators), bypass voltage tolerances and audible alarm.

Cold Start Function

Users can turn on the UPS without utility power available.

Variety of Customer Options Slots

This UPS also provides two customer option communication slots in addition to the standard RS232 port. All communications cards are designed for simple installation; electrical connections are made through a 26-pin edge card connector. The first RS232 port on the rear panel will remain active, even though optional communication cards are installed.

Communications Capability

The UniStar® P 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:

- Remotely test the major operating functions of the UPS
- Communicate via SNMP/WEB card
- Access UPS functions via the WEB

Hot-Swappable Battery

The UniStar® P allows users to replace batteries without electric shock hazard, while the UPS supplies continuous power to your application.

Optional External Battery Charger

The optional charger can be installed for fast recharge of the extended battery pack.

- Power Output: 1000W
- Mounting: UPS or wall mount

Matching Extended Battery Pack

Optional matching battery packs are available to easily extend the UPS runtime to several hours.

6kVA Single Phase UPS Rack Mount Extended Battery Run Times (minutes)

20 X Cabinet (1 string)						
UPS Size	**Part Number**	**Qty. of Cabinets**	**25% Load**	**50% Load**	**75% Load**	**100% Load**
6 kVA	No Internal Batteries	0	0	0	0	0
	SC-BP6000RM-1	1	56	22	12	8
		2	137	56	33	22
		3	226	95	56	38
		4	321	137	82	56
		5	420	180	109	75

Note 1: Battery times are based on new batteries +/- 5%

UniStar® P Series

6kVA

About Staco Energy Products Company

Since 1937, customers world-wide have been relying on Staco Energy Products Company to deliver voltage control and power quality solutions tailored to their needs.

As a leading power quality resource we offer our customers world-class support; from our thorough applications assessment; to our ability to design and deliver a solution that is tailored to the specific needs of our customers; through delivery and commissioning.

Our professional, factory trained service team is in place to ensure that our customers' revenues are protected, and their investment provides them with many years of trouble free operation.

Staco develops total power solutions for OEM and end user applications.

In addition to the UniStar® P we offer a wide array of power quality products, including:

- *Uninterruptible Power Supplies*
- *Power Conditioners*
- *Voltage Regulators*
- *Power Factor Correction and Harmonic Mitigation*
- *Active Harmonic Filters*
- *Variable Transformers*
- *Custom Engineered Test Sets*

Rack/Universal Mount Models	SC60021RM	SC60022RM
INPUT		
Connection	Hardwire / Optional 6ft. Line Cord with L6 30P Plug	
Voltage Range	160 -280Vac	
Frequency	45 ~ 65 Hz	
Phase/Wire	Single, Line + Common + Ground	
Power Factor	Up to 0.99 at 100% Linear Load	
Current THD	<5% at 100% Linear Load	
OUTPUT		
Connection	Hardwire	Hardwire
Voltage	208/120Vac or 240/120Vac	208/220/230/240Vac, Selectable 240/120, 208/120Vac
Voltage Adjustment	+/- 0%; +/- 1%; +/- 2%; +/- 3% For All Voltages	
Voltage Regulation	+/- 2%	
Capacity	6000VA/4200W	
Parallel Capability	Redundancy or Capacity – 4 Units Maximum	
Rated Power Factor	0.7 Lagging	
Wave Form	Sine Wave, THD < 3% (no load to full load)	
Frequency Stability	+/- 0.2% (Free Running)	
Frequency Regulation	+/- 1 Hz	
Transfer Time	0ms/instantaneous	
Crest Factor	3:1	
Efficiency (AC to AC Nominal)	91%	
Efficiency (AC to AC ECO Mode)	Up to 97%	
Leakage Current	< 3mA @ Full Load	
DC Start	Yes	
Cooling	Load Dependant Variable Speed Fans	
DISPLAY, ALARMS, DIAGNOSTICS, COMMUNICATIONS & EMERGENCY FUNCTION		
Status On LED + LCD	Line Mode, Backup Mode, ECO Mode, Bypass Supply, Battery Low, Battery Bad/Disconnected, Overload, Transferring with interruption & UPS Fault	
Readings On LED + LCD	Input Voltage, Input Frequency, Output Voltage, Output Frequency, Load Percentage, Battery Voltage & Unit's Inner Temperature	
Self-Diagnostics	Upon Power-on, Front Panel Setting & Software Control, 24 Hour self check	
Audible Alarms and Visual	Line Failure, Battery Low, Transfer to Bypass, System Fault Conditions	
Communications	RS232 Serial Port (2 slots available for optional SNMP/WEB, USB or Dry Contact Card)	
Emergency Power Off (EPO) Connection	Emergency Power Off shuts down UPS when activated by customer supplied EPO Circuit	
PHYSICAL		
Dimensions (H x W x D) inches	3.5 x 17.3 x 26 (2U)	
Weight (lbs.)	53	
Listing	UL1778, c-UL; CE – FCC Class A	
EXTERNAL BATTERY PACK – Module 2, Plug Connected to UPS Module (Note 1)		
***Model**	**SC-BP6000RM-1 (same battery used for extended run times)**	
Battery Run Time @ Full Load	8 minutes	
Type	Sealed Lead Acid Maintenance Free, 20 each 12V/7AH, 240Vdc	
Hot – Swap Batteries	Yes	
Recharge Time	4 hours to 90%	
Battery Connection	Plug Connector	
Extended Run Time Battery Packs	Yes	
Dimensions (H x W x D)	5.25" x 17.3" x 26" (3U)	
Weight (lbs.)	119	
OUTPUT TRANSFORMER / MANUAL BYPASS SWITCH - Module 3, (Hardwired to UPS Module (Note 1)		
Output Voltage	208/120Vac or 240/120Vac	208/120Vac or 240/120Vac
Manual Bypass Switch	Make – Before - Break	
Dimensions (H x W x D)	3.5" x 17.3" x 26.0" (2U)	
Weight (lbs.)	93	
OPTIONAL POWER DISTRIBUTION UNIT (PDU) for Model SC60021RM ONLY! – Module 4 Optional (Hardwired to Transformer Module)		
Model	**SC-6RMPDU1**	**SC-6RMPDU2**
Input Voltage of UPS Module	208 or 240Vac	208 or 240Vac
Output Voltage through Receptacles	208/120Vac or 240/120Vac	208Vac or 240Vac
Output Receptacles	(1) L6-30R, (1) L5-30R, (1) L5-20R, & (2) 5-15/2020R	(1) L6-30R, (1) L6-20R & (4) 6-20R
Dimensions (H x W x D)	3.5" x 12.8" x 2.8" (2U)	
Weight (lbs.)	7	
OPTIONAL COMMUNICATION Cards with Shutdown Software		
SC-SNMP1	SNMP/WEB Network Card and Shutdown Software	
SC-Contact/EPO	Dry Contact & EPO Card	
SC-PK	Parallel Cable kit contains two RJ45 cables and miscellaneous hardware for paralleling	

Note: (2) slots available; both cards can be used simultaneously; RS232 Port is disabled when communication cards are installed.

OPTIONAL EXTENDED BATTERY PACK CHARGER			
SC-CHG-1000	1000W External Mount Battery Charger (1) charger per every (2) External Battery Packs Required	6.6"W x 11.1"D x 3.4"H	7 lbs.
OPTIONAL PARALLEL DISTRIBUTION / BYPASS MODULE (Note 2)			
SC-PKIT-2	Parallel Distribution Bypass 60Amp for (2) UPS Modules	10.5"W x 9.5"D x 3.7"H	11 lbs.
SC-PKIT-4	Parallel Distribution Bypass 120Amp for (4) UPS Modules	10.5"W x 16.4"D x 3.7"H	20 lbs.

Notes:
1. Modules 1, 2 & 3 make up a complete hardwired 208/120Vac or 240/120Vac output system.
2. Parallel configurations with 208/120Vac or 240/120Vac require an Output Transformer
3. Parallel for capacity configurations can use (1) battery system sized for the ultimate capacity. Parallel for redundancy configurations require (1) battery system for each UPS.

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