

# UniStar® C Series

Rack/Tower Universal Design

1, 2, 3 kVA



## On-line, Single Phase, Double Conversion UPS

The UniStar® C 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® C is an ideal power protection solution for servers, networks, telecommunications, industrial equipment and manufacturing processes.

## Full Three Year Warranty

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## The UniStar® C Series Double Conversion UPS



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



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

### Three Year Warranty

#### **Electronics:**

A full **Three 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 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.*

**UniStar® C Rack/Tower Universal Design**

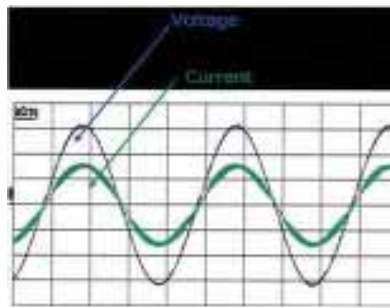
# On-line, Single-phase UPS System

## 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 45Hz - 65Hz and 60-144Vac (for 120Vac input), or 120-288Vac (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.

## Applications

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

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Your tailored power solutions provider™

### Emergency shutdown control

through EPO allows users to shut down the UPS completely in an emergency to ensure a safe operating environment.



**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 and also
- Alert users via SMS messages against specific events

### Custom options slot

allows further flexibility in network configuration. An internal WEB/SNMP card, AS/400 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-type battery

minimizes the need for frequent after-sales service. The hot swappable battery feature can enable 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.



### 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

### Battery Run Time Chart (shown in minutes)

UPS Size	Part Number	Quantity	25% Load	50% Load	75% Load	100% Load	H x W x D (inches)	Weight (lbs. each)
1 kVA	Internal USC-BP1K	0	50	20	10	7	N/A	N/A
		1	380	160	95	66	3.5" x 17.3" x 25.6"	83
		2	740	320	195	130	3.5" x 17.3" x 25.6"	83
		3	1150	505	310	215	3.5" x 17.3" x 25.6"	83
		4	1575	695	430	300	3.5" x 17.3" x 25.6"	83
2kVA	Internal USC-BP3K	0	45	18	10	7	N/A	N/A
		1	195	80	45	33	3.5" x 17.3" x 25.6"	87
		2	320	155	95	66	3.5" x 17.3" x 25.6"	87
		3	550	240	145	100	3.5" x 17.3" x 25.6"	87
		4	745	325	195	135	3.5" x 17.3" x 25.6"	87
3kVA	Internal USC-BP3K	0	40	15	8	5	N/A	N/A
		1	163	65	40	25	3.5" x 17.3" x 25.6"	87
		2	305	130	75	53	3.5" x 17.3" x 25.6"	87
		3	460	195	120	80	3.5" x 17.3" x 25.6"	87
		4	650	280	170	120	3.5" x 17.3" x 25.6"	87

**Notes:** Battery rated at 12V; 1/2kVA 7A/hour, 3kVA 9A/hour, 1kVA 36V, 2/3kVA, 72V

# UniStar® C 1kVA, 2kVA & 3kVA

Model	USCH-10001	USCH-20001	USCH-30001	USCH-10002	USCH-20002	USCH-30002
<b>INPUT</b>						
Voltage Range	60Vac – 144Vac Software Selectable			120Vac – 288Vac Software Selectable		
Frequency	50/60 Hz Auto-Select, +/- 5Hz					
Phase/Wire	Line + Ground					
Power Factor	>0.99 at Rated Full Linear Load					
Transfer Time	0 ms					
AC Leakage Current	5mA			<3.5mA		
Surge Protection	400 joules			300 joules		
<b>OUTPUT</b>						
Capacity	1kVA/800 Watts	2kVA/1600 Watts	3kVA/2400 Watts	1kVA/800 Watts	2kVA/1600 Watts	3kVA/2400 Watts
Voltage	100/110/115/120/127Vac Software Selectable			200/208/220/230/240Vac Software Selectable		
Voltage Regulation	+/- 1%					
Frequency (Sync Range)	3Hz or 1Hz Software Selectable					
Frequency Battery Mode	+/- 0.1% (0.05 ~0.06Hz)					
Crest Factor	3:1					
Harmonic Distortion	< 3% THD (Linear Loads), < 7% THD (Non-Linear Loads)					
Transient Response	< = 60ms/5%					
Waveform	Pure Sine Wave					
Efficiency AC Mode	85%	85%	88%	85%	85%	88%
Efficiency Bat. Mode	83%	83%	85%	83%	83%	85%
DC Start	Yes					
Cooling	Load Dependent Variable Speed Fans					
Over temperature	Normal Mode -Transfer to bypass; Battery Mode – UPS shuts down immediately					
Overload	<105% continuous, >120% for 30 seconds, >150% for 10 seconds					
<b>DISPLAY, ALARMS, DIAGNOSTICS, COMMUNICATIONS &amp; EMERGENCY FUNCTION</b>						
Status On LCD	Line Mode, Backup Mode, ECO Mode, Bypass Supply, Battery Low, Battery Bad/Disconnected, Overload, Transferring with interruption & UPS Fault					
Readings On LCD	Input Voltage, Input Frequency, Output Voltage, Output Frequency, Load Percentage, Battery Voltage & Units Inner Temperature					
Power Up	ON/OFF Button, Test Alarm & Reset Button					
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 and USB, optional SNMP/WEB, USB or Dry Contact Cards					
Emergency Power Off (EPO) Connection	Emergency Power Off shuts down UPS when activated by customer supplied EPO Circuit					
<b>CONNECTIONS</b>						
Input	6' Cord w/ 5-15P	6' Cord w/ 5-20P	6' Cord w/ L5-30P	6' Cord with 10A, IEC 320-C14	6' Cord with 10A, IEC 320-C146	6' Cord with 16A, IEC 320-C20
Output	(6) 5-15R	(2) 5-15R & (2) 5-20R	(4) 5-15R & (1) L5-30R	(6) 10A, IEC 320-C13	(6) 10A, IEC 320-C13	(4) 10A, IEC 320-C13 & (1) 16A, IEC 320-C19
Output Control	(2) ON/OFF Software controlled receptacle banks for load shedding					
<b>PHYSICAL</b>						
Dimensions H" x W" x D"	Rack Configuration		1kVA 3.5 x 17.3 x 16	2/3kVA 3.5 x 17.3 x 25.6		
	Tower Configuration		1kVA 17.3 x 3.5 x 16	2/3kVA 17.3 x 3.5 x 25.6		
Weight (lbs.)	34.5	64.7	65.3	34.5	64.7	65.3
Safety and Performance	UL1778, c-UL, CE, IEC/EN 62040-1-1, IEC 60950-1, IEC/EN 62040-2 Class A, IEC/EN55011, CISPR11, IEC61000-4-2/-3/-4/-5, IEC61000-2-2, IEC61000-3-2/-3, FCC Part 15 Subpart B Class A					
<b>ENVIRONMENTAL</b>						
Operating Temp.	0°C – 40°C					
Noise Level	<50dBA @ 1 Meter					
Relative Humidity	0 to 90% non-condensing					
<b>INTERNAL BATTERY</b>						
Battery Run Time @ Full Load	7 Minutes		5 Minutes	7 Minutes		5 Minutes
Type	3 each, 12V/7AH Sealed Lead Acid Maintenance Free	6 each, 12V/7AH Sealed Lead Acid Maintenance Free	6 each, 12V/9AH Sealed Lead Acid Maintenance Free	3 each, 12V/7AH Sealed Lead Acid Maintenance Free	6 each, 12V/7AH Sealed Lead Acid Maintenance Free	6 each, 12V/9AH Sealed Lead Acid Maintenance Free
Charging Current	1.1Amps	2.16Amps	2.7Amps	1.1 Amps	2.16 Amps	2.7 Amps
Charging Voltage	41.0Vdc +/-0.5V	82.0Vdc +/-0.5V	82.0Vdc +/-0.5V	41.0Vdc +/-0.5V	82.0Vdc +/-0.5V	82.0Vdc +/-0.5V
Hot – Swappable	Yes					
Recharge Time	4 hours to 90%					
Extended Battery	Yes – Hot Swappable (Refer To Run Time Chart)					

**UniStar® C Rack/Tower Universal Design**

# UniStar® C 1kVA, 2kVA & 3kVA Rack/Tower Universal Design

## About Staco Energy Products Company

Since 1937, customers worldwide 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® C 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**



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