



Product Specifications

Models:

SC10001T, SC10002T

SC20001T, SC20002T

SC30001T, SC30002T

Guide Specification for UniStar® III Series

Tower 1, 2, 3Kva

Single-Phase, On-Line Double Conversion

Uninterruptible Power Supply

9-1-2010

SECTION 1.0

SCOPE AND SYSTEMS RATINGS

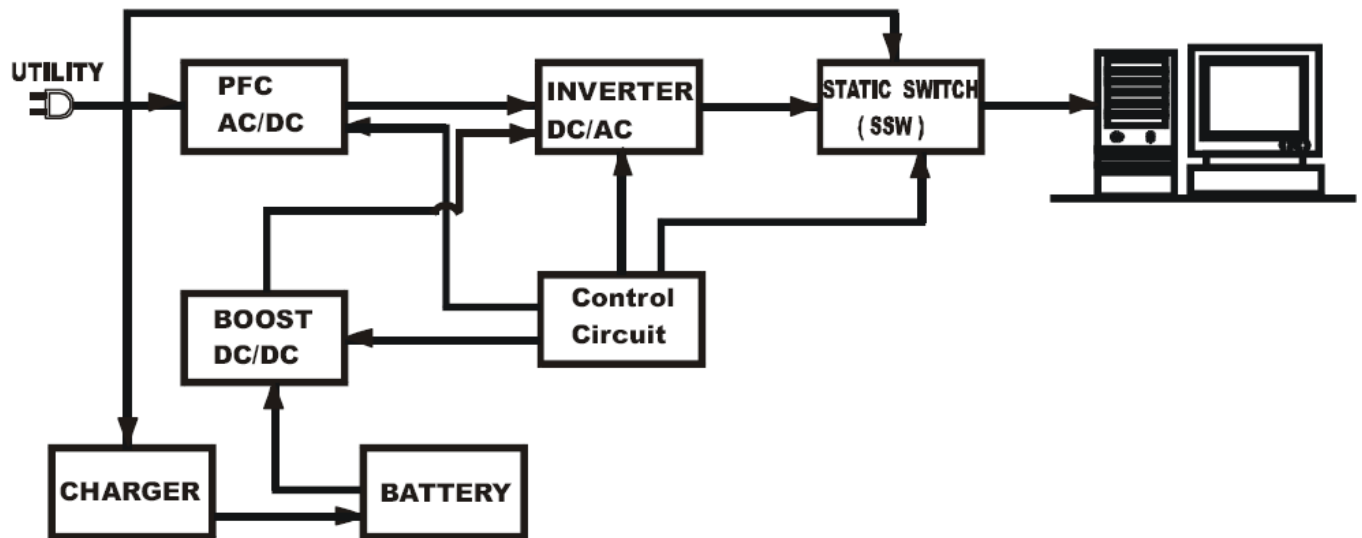
1.1 Specification

This specification defines the electrical and mechanical characteristics and requirements for a continuous duty, single-phase, tower design uninterruptible power system. The specification identifies 1Kva, 2Kva and 3Kva double conversion equipment, hereafter referred to as the UPS.

The UPS shall utilize "true on-line" pulse width modulated (PWM) inverter incorporating power switching Mosfet Transistor technology . The inverter is a microprocessor controlled, solid-state device within the uninterruptible power system. The uninterruptible power system, hereafter referred to as the UPS, shall provide high quality AC power for sensitive electronic equipment loads.

The UPS shall consist of a rectifier/charger, battery, inverter, protective devices, static transfer switch, synchronizing and phase lock circuitry, and controls required to provide regulated, uninterrupted, conditioned power to the critical load.

The UPS shall include all mechanical and electrical devices that will automatically provide continuity of electrical power within the defined limits without interruption, failure or degradation of the commercial power source. Continuity of conditioned electric power shall be maintained for the defined period of time by the battery system. Upon return of the utility power source, the UPS shall automatically assume the load, while simultaneously recharging the batteries.



1.2 UPS Modes of Operation

The UPS shall be designed to operate as an on-line reverse transfer system in the following modes:

1.2.1 Normal: The critical AC load is supplied continuously by the inverter. The rectifier/charger derives power from a utility AC source and supplies DC power to the inverter while simultaneously float charging a battery system. The inverter converts the DC power into clean and regulated AC power that is then supplied to the critical load through the static transfer switch.

1.2.2 Emergency: Upon failure or degradation of the utility AC power, the critical AC load supplied by the inverter will draw its power from the batteries. There shall be no interruption of power switching from utility AC power to batteries or while switching from batteries back to utility AC power upon its restoration. While the battery powers the UPS, indication for actual battery backup time shall be provided.

1.2.3 Recharge: Upon restoration of utility AC power, even if the batteries are completely discharged, the UPS will restart. The rectifier/charger shall assume the inverter and battery recharge loads. If the bypass source is within acceptable limits, the UPS will retransfer the critical load back to the inverter.

1.2.4 Bypass: When the inverter overload capacity is exceeded, the static transfer switch shall perform a transfer of the load from the inverter to the bypass source with no interruption in power to the critical load.

1.3 System Ratings

1.3.1 Input

Voltage Range (Vac)	80 - 140 or 160 - 280
Frequency	50/60 +/- 5% (auto sensing)
Phase	Single
Input Power Factor	>.98 (full load)

1.3.2 Output

Rating	1000VA/1KVA	2000VA/2KVA	3000VA/3KVA
Voltage (VAC)	120 or 240 Vac, 1, 2, 3, kva Available for 100/110Vac or 220/230Vac, through factory software		
Capacity (VA/W)	1000VA/700W	2000VA/1400W	3000VA/2100W
Rated Power Factor	0.7 lagging		
Load Power Factor Range	0.5 lagging to unity within kW rating of unit		
Wave Form	Sine wave, THD <3% (no load to full load)		
Voltage Regulation	+/- 2%		
Transient Response (ms)	+/- 4% under full load, change and corrected within 60 ms		
Frequency Stability	+/- 5% Hz (free running)		
Synchronization	Slew Rate: 1 Hz/sec. max. synchronizing window +/-5%		
Transfer Time	0 ms		
Crest Factor	3:1		
Run-time (Full Load)	>7 min.	>7 min.	>6 min.
DC Start	Yes		
Full Load Heat Rejection BTU/hr	326	652	977

1.3.3 Internal Battery

Internal battery shall be maintenance-free sealed type to minimize the need for servicing.

Ratings	1000VA/1KVA		2000VA/2KVA		3000VA/KVA
Type	Sealed lead acid maintenance free 12 Vdc 7.2 AHr				
Quantity per string (pcs)	3		6		8
Voltage (VDC)	36		72		96
Recharge Time	8 hours to 90%				

SECTION 2.0

ENVIRONMENTAL

2.1 Environmentl

Operating Temperature:	0° C - 40° C
Altitude:	0 - 2,000 m up to 40° C. 3,000 m up to 35° C
Humidity:	90% RH maximum, non-condensing
Noise;	< 45 dB at 1 meter

SECTION 3.0

GENERAL REQUIREMENTS

3.1 System Description

3.1.1 Rectifier/Charger

The rectifier section shall be capable of receiving utility input and rectifying it to produce Direct Current (DC) power at levels sufficient enough to supply the load via the inverter, and recharge the battery.

3.1.2 Inverter

The inverter section of the power converter module shall utilize Mosfet Transistors technology. This solid-state device that incorporates pulse width modulation (PWM) technology is capable of accepting the output of the rectifier/charger or the battery system voltage and delivering AC power within specified limits to the critical load bus. The inverter shall be microprocessor controlled and include all necessary timing logic and control circuits.

3.1.3 Static Transfer Switch

An internally mounted static transfer switch and bypass circuit shall be provided as an integral part of the UPS. The static switch shall be high speed power electronic devices rated to conduct full load current continuously while on inverter or bypass power. The static switch shall include all necessary logic circuitry for fully automatic frequency synchronization and phase locking of the UPS inverter output to the bypass/reserve power source.

SECTION 4.0

WIRING AND CONNECTIONS

4.1 Description

Wiring practices, materials and coding shall be in accordance with the requirements of the National Electric Code, NFPA 70 and other applicable codes and standards. The UPS shall provide the following configurations:

4.1.1 Output Receptacles

<u>120v Models</u>	<u>230v Models</u>
1Kva (4) 5-15R	1Kva (4) 10A IEC320-C13
2Kva (4) 5-15R, (2) 5-20R	2Kva (6) 10A IEC320-C13
3Kva (6) 5-15R, (2) 5-20R	3Kva (4) 10A IEC320-C13 & (1) –C19

4.1.2 Input Power Cord

<u>120V Models</u>	<u>230Vac Models</u>
1Kva 6' with 5-15P	1Kva 6', 10A IEC320-C14
2Kva 6' with 5-20P	2Kva 6', 10A IEC320-C14
3Kva 6' with L5-30P	3Kva 6', 16A IEC320-C14

SECTION 5.0

MECHANICAL STANDARDS

5.1 Cabinet Description

The UPS unit, comprised of the rectifier/charger, inverter, static transfer switch shall be housed in an enclosure offering indoor protection and provide a compact physical footprint.

5.1.2 Dimensions (inches)

	1000VA/1KVA	2000VA/2KVA	3000VA/3kVA
Height:	9.2"	14.4"	14.4
Width:	5.75"	5.2"	7.5"
Depth:	15.8"	18.9"	17.9"

5.1.3 Weight (lbs.)

1Kva 35
2Kva 64
3Kva 86

SECTION 6.0

MONITORING, CONTROLS, ALARMS AND COMMUNICATION

6.1 General

6.1.1. Control Panel

The UPS unit shall incorporate the necessary controls, instruments and indicators to allow the operator to monitor the system status and performance, as well as take any appropriate action.

LED Indicators	Utility, Battery low, Inverter, Bypass, Test OK, Overload fault, Load/Battery level, and Fault Conditions
Self Diagnostics	On-demand push button
Alarms	Audible and VisualLine failure, Battery low, Transfer to bypass, Overload, System fault conditions

6.1.2. Communications

The communication port on the rear panel of the UPS shall be RS232 serial type, allowing for computer connection to monitor the status of the UPS, and allow for the control and operation of the UPS. Communication software will be bundled with the UPS for use with MS Windows.

SECTION 7.0 STANDARDS

7.1 Applicable Documents

The UPS shall be designed in accordance with the applicable sections of the current revision of the following documents.

SAFETY CONFORMANCE

Quality Assurance	ISO 9001:2000 certified company
Safety Standard	EN500091-1, UL1778
EMC Standard	EN500091-2, EN61000-3-2, EN61000-3-3, FCC class A
Agency Marks	CE, UL, c-UL (Note 230vac not UL, c-UL listed)

SECTION 8.0

OPTIONS

8.1 Extended Battery Modules

Extended run time battery packs shall be available to provide the system with extended operational run times. Battery run times shall be as follows:

UPS Size	Watt Charger	Quantity Cabinets	25% Load	50% Load	75% Load	100% Load
1 kVA	Internal	0	45	18	10	7
	N/A	1	280	120	70	49
	N/A	2	550	238	143	100
	N/A	3	840	365	225	155
	N/A	4	1150	505	400	215
2kVA	Internal	0	45	18	10	7
	N/A	1	280	120	70	49
	N/A	2	550	238	143	100
	N/A	3	840	368	225	155
	N/A	4	1150	525	310	215
3kVA	Internal	0	40	16	9	6
	N/A	1	170	70	40	25
	N/A	2	320	135	80	40
	N/A	3	480	205	125	85
	N/A	4	650	280	170	120
	200	1	320	135	80	55
	200	2	650	280	170	120
	200	3	1005	440	270	190
	200	4	1375	605	370	260

8.2 Communications

The UPS shall have a card slot to receive an optional:

SNMP/WEB kit to include **SNMP/Web browser adapter card**, MIB software, interface cable and operators manual. Support HP Open View, Sun SunNet Manager, IBM NetView, Novell NMS, Accton AccView and other SNMP Compliant NMS's, or **USB Interface Card** or **Opto-coupler type Dry Contact Card, DB9 (AS/400)** or **Relay Contact Board Card**, True Relay 10 Pin.

SECTION 9.0

FACTORY TESTING

9.1 Factory Testing

Before shipment, the manufacturer shall completely test the system to factory standards to assure compliance with the specification.

SECTION 10.0

INSTALLATION AND OPERATION DATA

10.1 Operating and Maintenance Manuals

The specified UPS system shall be supplied with one copy of the User's Manual. Additional copies may be downloaded from manufacturers web site or ordered at an additional charge from the manufacturer.

SECTION 11.0

LIMITED WARRANTY

11.1 UPS and Battery Limited Warranty

The UPS parts with depot repair warranty shall be in effect for 36 months. The battery shall provide for a one year warranty, prorated for a period of four years.

SECTION 12.0

QUALIFYING EXPERIENCE

12.1 Qualifying Experience

The manufacturer shall have a minimum of ten years experience in the design, manufacture, and testing UPS systems. This specification outlines the minimum requirements for a UPS. Every supplier shall provide a specification compliance statement with its proposal referencing each section of this specification.

12.2 Approved Manufacturer

Staco Energy Products Company

301 Gaddis Blvd

Dayton, Ohio 45403

www.stacoenergy.com

(866) 261-1191 fax (937) 253-1723