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REPORT

on

Uninterruptible Power Supply

American Power Conversion Corp.
North Billerica, MA

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DESCRIPTION

PRODUCT COVERED:

Uninterruptible Power Supply, Model Smart-UPS SURT7500XLT,
SURT10000XLT, SURT10000XLJ, SURT7500XLJ SURT7500XLTW, SURT10000XLTW.

GENERAL CHARACTER:

The products covered by this Report are Online Uninterruptible Power Supplies intended to supply power to computers. They are provided with various methods of connections found in the installation procedures provided with this report, related to the T (Domestic/US), TW (Taiwan), J (Japan). All components are housed in a metal enclosure. Each unit may be fitted with a Battery (Module) Pack.

ELECTRICAL RATINGS:

Model SURT7500XLT/SURT7500XLTW

Input: 208-240 V ac, 1Ø, 37 A, 50-60 Hz

Output: 208V ac Programmable up to 240 V ac, 37A, 50-60 Hz, 6000 W

Model SURT10000XLT/SURT10000XLTW

Input: 208-240 V ac, 1Ø, 48A, 50-60 Hz

Output: 208V ac Programmable up to 240 V ac, 48A, 50-60 Hz, 8000 W

Model SURT7500XLJ

Input: 200-240 V ac, 1Ø, 37A, 50-60 Hz

Output: 200V ac Programmable up to 240 V ac, 37A, 50-60 Hz, 6000 W

Model SURT10000XLJ

Input: 200-240 V ac, 1Ø, 50A, 50-60 Hz

Output: 200V ac Programmable up to 240 V ac, 50A, 50-60 Hz, 8000 W

MODEL DIFFERENCES

All UPS models listed above are electrically identical in design and specific input/output configurations for each region are detailed in the installation guide selected.

The base models are the SURT7500XLT and SURT10000XLT, being electrically identical in design, they are microprocessor programmed by APC code, as selected for each particular region, per the customers or regional requirements.

Models SURT7500XLTW and SURT10000XLTW (TW: Taiwan versions) are electrically identical in design to the respective models SURT7500XLT and SURT10000XLT except for model name and marketing strategy.

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CONSTRUCTION DETAILS:

Spacings - This equipment has been evaluated to spacing requirements for controlled environments. Minimum spacing between live parts of opposite polarity and between live - and dead-metal parts shall be as indicated below.

TABLE I

Spacings Other Than at Field Wiring Terminals

<u>Potential Involved, V</u>	<u>Minimum Spacing, inches (mm)</u> <u>Through Air Over Surface</u>			
50 or less	3/64	(1.2)	3/64	(1.2)
51 - 150	1/16	(1.6)	1/16	(1.6)
151 - 300	3/32	(2.4)	3/32	(2.4)

TABLE II

Spacings to Enclosures

<u>Potential Involved, V</u> <u>(mm)</u>	<u>Minimum Spacing Through Air</u> <u>and Over Surface, Inches</u>	
0 - 50	1/16	(1.6)
51 - 150	1/4	(6.4)
151 - 300	1/2	(12.7)

Where the enclosure has been investigated for mechanical strength, spacing to the enclosure may be less that specified in Table II, but not less than the values specified in Table I..

Front view of the rack mount UPS.
With the Battery (Module) Pack: Fig. 1

- 1) Enclosure - Constructed from type SECC-K2 Electro Galvanized steel. The units measure approx. 10.4" (26.42CM by 17" (43.8CM) By 26" (66.04CM), approximate weight 244lbs 110.91kg) in thickness.
- 2) Front Bezel - (APC 870-2617). UL R/C (QMFZ2) rated 94HB (molded from Chi Mei Polylac ABS-PA-717C). Provided on SURT7500XLI, SURT7500XLT, SURT7500XLTW, SURT10000XLT, SURT10000XLTW, SURT7500XLJ. Front Bezel is provided with 104 opening. The largest measures approx. 53 cm by 3 cm wide, and the shortest measures 22 cm by 3 cm wide.
- 3) Battery Bezel - (APC 870-2912). UL R/C (QMFZ2) rated 94HB (molded from Chi Mei Polylac ABS-PA-717C). Provided On SURT7500XLT, SURT7500XLTW, SURT10000XLT, SURT10000XLTW, SURT7500XLJ & SURT10000XLJ. Battery Bezel is provided with 130 openings. The largest measures approx. 53 mm by 3 mm wide, and the shortest measures 9 mm by 3 mm wide.
- 4) Display Bezel - (APC 870-5269). UL R/C (QMFZ2) rated UL945VA (molded from Chi Mei Polylac FRABS-PA-765A. Provided on SURT7500XLT, SURT7500XLTW, SURT10000XLT, SURT10000XLTW, SURT7500XLJ & SURT10000XLJ.
- 5) Top Panel (Tower) - (APC 870-2424) COVER TOWER 3U 26" TOP Constructed from Chi Mei Polylac ABS-PA-717C with SURT7500XLT, SURT7500XLTW, SURT10000XLT, SURT10000XLTW, SURT7500XLJ & SURT10000XLJ.
- 5) Battery Door - (APC 970-3426). Constructed from type SECC-K2 Electro Galvanized steel. Secured to the chassis by screws. (Overall dimensions are Approximately 217mm/8.56 inches wide by 86.1mm/3.39 inches high, 3.05 mm/0.12 inches thick.
- 6) Battery Module - (APC OM-1863). 23.4" x 4.7" x 3.8" Constructed from type SECC-K2 0.9mm thick. Electro Galvanized the steel. 4 provided. Contains the following:
 - a) Ventilation Openings - 608 hexagonal openings. (0.1160in) (2.44mm) - each of the 6 sides.
 - b) Batteries - (APC 910-6003). Eight series connected batteries rated 12V, 5.1 Ah.
 - c) PCB Fuse - (APC 640-0195A) PCB Fuse Battery Module provided. PCB mounted fuses in parallel, rated 20A Listed. Manufacturer - (Electropac Inc : 640-0195)
 - d) Output Cable Wire Connetor - (APC 726-0099). R/C, ECBT by APC, part SBS 50 BRN-BK, rated 50 AMPS, 65 Deg, wire or cable 600 Volts.

A rear view of unit with the cover removed FIGURE 2.

- 1) AC Connector Outlet - (APC 770-0006) AC Connector CEEX22 (quad) SOCKET Rated 10A, 250V, Listed Manufacturers - (Qualtek Electronics Corp. : 742W-18/22B), (Well Shin Enterprises Co. Ltd : WS-045A), (Power Dynamics, Inc : 44R02-4121-200), (I-Sheng Electronics Wire&Cable : IS-111), (Richbay Company Ltd. : R-302G4), (Singapore Resource Management : SRM-045-1).
- 2) AC Connector Outlet - (APC 770-0051) Qty 4 Connector AC Receptacle 16A 250V C19. Listed. Manufacturers - (Schurter, Inc. : 6653.330), (Feller U.S. Corporation : OH5016-6), (Feller U.S. Corporation : OH5016-5), (Panasonic Elec. Components Division : 83011350), (Inalways : 0723-CW), (Well Shin Enterprises CO. : WS-042-3).
- 3) AC Connector Outlets - (APC 770-0025-001). Qty. 2, Listed, Rated 20A, 250V (L6-20 Receptacle) (Hubbell Inc.: HBL2320XS)
Alternate - (APC 770-0030-001) qty. 2, Rated 30A, 250V (L6-30 Receptacle) (Hubbell Inc.: HBL2620XS), Hubbell Inc. : HB2320XS).
- 4) AC Terminal Block input - (APC 740-0006) qty. 1, rated 80A, 800V 5 pos terminal block- Weco 327-HDS/05 (SURT7500XLI, SURT10000XLI, SURT7500UXI, SURT10000UXI).
- 5) AC Terminal Block input - (APC 740-0024) qty. 1, rated 80A, 800V 3 pos terminal block- Weco 327-HDS/03 SURT7500XLT, SURT10000XLT, SURT7500XLJ, SURT10000XLJ, SURT7500XLTW, SURT10000XLTW).
- 6) AC terminal block output - (APC 740-0024) qty. 1, rated 80A, 800V terminal block Weco 327-HDS/03 (SURT7500XLT, SURT10000XLT, SURT7500XLJ, SURT10000XLJ, SURT7500XLTW, SURT10000XLTW).
- 7) Circuit Breaker - (APC 530-0414). UL R/C, AXUT2 (AIRPAX IEG1-1-63-15.0-01-V) (Carlingswitch Inc BA1-X0-07-358-121-D) Rated 20A, 250V, Qty 2, or equivalent.
- 8) Circuit Breaker - (APC 530-0415). UL R/C, AXUT2 (AIRPAX IEG1-1-63-15.0-01-V) (Carlingswitch Inc BA1-X0-07-358-121-D) Rated 30A, 250V, Qty 2, or equivalent.
- 9) Circuit Breaker - (APC 530-0188). UL R/C, AXUT2, Rated 70 amps, 250 volts, (Carlingswitch Inc CA1-B0-26-670-321-D), or equivalent.
- 10) Accessory Slot - Panel approximately 4-3/16 by 1-1/4 inch, accommodates same size R/C (QMFZ2) box, rated 94V-2 min. 94V-2, secured by screws. Provided with steel cover plate with openings for signal connectors.

- 11) Cable XL Battery Connector - (APC 726-0099). R/C, by APC, part SBS 50 WHT-BK, rated 50 AMPS, 65 Deg wire or cable 600 Volts.
- 12) Rear Ventilation - 625 Square Openings as shown, Each measures approx. 0.0263 in by 0.0236 in (6.00mm by 6.mm)

An internal view of the unit/Printed Circuit Board. Fig. 3

- 1) Printed Circuit Board, Control Board - (APC 640-0761E). UL R/C (ZPMV2) Rated 105ØC,UL94V-0.
- 2) Printed Circuit Board, Power Board - (APC 640-0762E). UL R/C (ZPMV2) Rated 105ØC,UL94V-0.
- 3) Printed Circuit Board, Display Board - (APC 640-0751C). UL R/C (ZPMV2) Rated 105ØC, UL94V-0.
(Note: Display Board and Power Board share a common part number, Display board breaks away.)
- 4) Printed Circuit Board, PFC Control Board - (APC 640-0763C). UL R/C (ZPMV2) Rated 105ØC, UL94V-0
- 5) Printed Circuit Board, Inductor Board - (APC 640-0765B). UL R/C (ZPMV2) Rated 105ØC, UL94V-0
- 6) Heat Sink Shroud -(APC 850-0406). UL R/C (QMFZ2) rated 94V-0 (molded from .030" PVC sheet).
- 7) Fans - (APC 490-0006-A). 2 provided. UL R/C,GPWV2, by NMB, modell 4715KL..., rated 24VDC 5A 100CFM.
8. Metal Oxide Varistor (MV901-906)- (APC 380-4200) UL R/C,XUHT2, Panasonic ERZ-V14D681. Metal Oxide Varistor, 300 VAC, 125 joules, 14mm disk, 16.5mm max finished diameter, 7.5mm lead spacing, kinked leads.
- 9.Capacitor Y2 - (APC 221-0001) UL R/C,FOKY2 (C929-C931, C933-C936;C1403, C1404, C1405, C1440, C1441, C1442)CAPACITOR, CERAMIC DISC, CLASS Y, TYPE 2, 250 VOLT A.C., 20%, 4700P FARAD, RADIAL LEADED, 5.0 mm LEAD SPACE.
- 10.Capacitor X2 - (APC 232-0475) UL R/C,FOKY2 (C2001, C2002, C2003) Rated 250V, 4.7 uF, (Arcotronics America)part R46KW447000M1M, or Equivalent rated.
- 11) Relay - (APC 450-0029) UL R/C, NRNT2, (RY903-RY908, RY1401-RY1407)Hasco, HAT901CSDC24-1. Coil 24 Vdc, (N0: 40A120V/1HP; NC:30A, 277V/2HP.
- 12) Transformer - NOT FOR ISOLATION (APC 460-2002) R/C, (CT901, CT902, CT903, CT904) R/C OBJY2 CLASS B (130) Insulation system 230V Sense Cur Xmfr 1:1:2000T Inductance 10.5H min @ 1Khz, 0.25V. By Nanalem.

- 13) Transformer - NOT FOR ISOLATION (APC 430-0025B) R/C (T901); R/C OBJY2 Class B (130) Insulation system (5mm creepage, 4mm clearance). By Leader.
- 14) Fuse - (APC 515-1030A) (F1403-F1406)R/C, JDYX2 (Bussman GGBGBH-V-030A6F) ceramic body, Fast Fuse acting 30A 500V 20KA AXI. Fuses and fuseholders are intergal to PWB
- 15) OPTO Coupler - (APC 360-3120) R/C, FPQU2 (IC975), OPTO, GATE DRIVE, IGBT, 2A. Listed. (MFG - Hewlett Packard Inc. - QCPL-3121).
- 16) PFC IGBT Transistor (Q1403, Q1404) - (APC 325-4301). Rated 600 V, 60 A COPA.
- 17) PFC IGBT Transistor (Q1407, Q1408) - (APC 325-4308). Gen 4 IGBT UFST NC Rated 1200 V, 60 A COPA.
- 18) PFC IGBT Transistor (Q1405) - (APC 325-4067). Gen 4 IGBT UFST Rated 600 V, 11 A COPA.
- 19) FET (Q704) - (APC 325-1002). PWR N-CH Rated 1000V, 2 OHM.
- 20) Input Solenoid - (APC 451-0080) R/C, YCFT2, by Contact Industries, rated 70Amps (CT70A-24C5...)
- 21) Inverter Caps - (C901, C902) Electrolytic Capacitor, 450Volts, 2500uF.
- 22) Relays - R/C, NLDX2, (RY1405, RY901, RY902, RY1408) By Song Chuan, part 793-P-1C-S, 24Vdc Coil, 16A, 250V.