

File E95463
Project 99ME48077

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REPORT

on

UNINTERRUPTIBLE POWER SUPPLY ACCESSORY

American Power Conversion Corp.
North Billerica, MA

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DESCRIPTION

PRODUCT COVERED:

Listed Accessory - Step-Down Transformer, Model AP9621, AP9621X215, SUTF2, SUTF3, SUTF3-PSX, SUTF3J, SUTF3J-PSX, SYTF2, SYTF2X215, SYTF2J, SYTF2JX215, SYTF3, SYTF3-PSX, SYTF3J, SYTF3J-PSX, SYTF4, SURT005, SURT006, FJTF2J.

Listed Accessory - Step-Up/Step-Down Transformer, Model SURT003, SURT004.

ENGINEERING CONSIDERATIONS (not for UL representative's use):

The product covered by this report is a step-down transformer for use with A.P.C. uninterruptible power supplies. All components are housed in a metal enclosure.

The SURT003 and SURT004 products covered by this report are Isolation Step-Up/Step-Down Transformers for use with A.P.C. uninterruptible power supplies. All components are housed in a metal enclosure.

ELECTRICAL RATINGS:

Model AP9621, AP9621X215, SUTF2, SUTF3, SUTF3-PSX, SUTF3J, SUTF3J-PSX, SYTF2, SYTF2X215, SYTF3, SYTF3-PSX, SYTF4, SURT005, FJTF2J.

Input: 208 V ac, 1 ϕ , 24 A, 57-63 Hz

Output: 120 V ac, 42 A, 57-63 Hz, 5000 VA, 3750 W

Model SYTF2J, SYTF2JX215, SYTF3J, SYTF3J-PSX, SURT006.

Input: 200 V ac, 1 ϕ , 24 A, 50/60 Hz

Output: 100 V ac, 35 A, 50/60 Hz, 3500 VA

Model SURT003 **Input: 208Vac, 1 ϕ , 30 A, 50/60 Hz**
Output: 208Vac, 30A, 50/60 Hz, 4800VA.

Model SURT004 **Input: 200Vac, 1 ϕ , 30 A, 50/60 Hz**
Output: 208Vac, 30A, 50/60 Hz, 4800VA.

MODEL DIFFERENCES:

Model SYTF2, same as the Model AP9621, except has a black bezel, no handles, and different mounting brackets.

Model SYTF2J, same as the Model SYTF2, except for electrical ratings and the transformer used.

Model AP9621X215, same as the Model AP9621 except equipped with a 15-foot power cord.

Model SYTF2X215, same as the Model SYTF2 except equipped with a 15-foot power cord.

Model SYTF2JX215, same as the Model SYTF2J except has a 15-foot power cord.

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Model SYTF3, SYTF3-PSX, same as the Model SYTF2, except has four L5-20 output receptacles and four 20 A rated supplementary protectors.

Model SYTF3J, SYTF3J-PSX, same as the Model SYTF2J, except has four L5-20 output receptacles and four 20 A rated supplementary protectors.

Model SUTF3, same as the model SYTF3, except it has the SYTF2 bezel added to it.

Model SUTF3-PSX, same as the model SUTF3, except it is shipped in a rack cabinet.

Model SUTF3J, same as the model SYTF3J, except it has the SYTF2J bezel added to it.

Model SUTF3J-PSX, same as the model SUTF3J, except it is shipped in a rack cabinet.

Model SYTF4, same as the Model SYTF2 except, that the input and output connectors are hardwired instead of the input cord-set and output duplex receptacle orientation of the SYTF2.

Model SURT005, same as the Model SYTF2, except bezel uses a different mold.

Model SURT006, same as the Model SYTF2J, except bezel uses a different mold.

Model SUTF2 is identical to Model AP9621 except for black bezel.

Model FJTF2J, same as Model SYTF2 except it contains a different bezel.

Model SURT003 is the same basic design as Model AP9621 except it contains a Fan Control PCB and a different bezel.

Model SURT004 is the same basic design as Model AP9621 except it contains a Fan Control PCB and a different bezel.

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</u>		<u>Over Surface</u>	
(1.2)	50 or less	3/64	(1.2)	3/64	
	51 - 150	1/16	(1.6)	1/16	(1.6)
(2.4)	151 - 300	3/32	(2.4)	3/32	

TABLE II

Spacings to Enclosures

<u>(mm)</u>	<u>Potential Involved, V</u>	<u>Minimum Spacing Through Air and Over Surface, Inches</u>	
	0 - 50	1/16	(1.6)
	51 - 150	¼	(6.4)
	151 - 300	½	(12.7)

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

Information moved to page 1.

MODEL AP9621

FIG. 1 (M0004145.P00)

General - Fig. 1 shows a front/top/right side view of the unit.

1. Enclosure Chassis (APC 870-1161). Constructed from pre-plated cold rolled steel 0.060 inch thick. One piece construction held together with rivets. Overall dimensions are 3.300 inches high by 17.000 inches wide by 23.940 inches deep. All sides of the panels are smooth and well rounded. No sharp edges.
2. Chassis Top Cover (APC 870-1163). Constructed from pre-plated cold rolled steel 0.060 inch thick. Secured to the enclosure by screws. Overall dimensions are 16.875 inches by 23.875 inches.
3. Bezel (APC 870-1169). R/C (QMFZ2) rated 94-HB. Secured to the chassis by spring clips and the end caps. (General Electric ABS GPM5500; Chi Mei Corporation PA-746).
4. Ventilation Openings - 288 openings 0.25 inch in diameter.
5. **Enclosure Chassis (Models SURT003 and SURT004) (APC 870-5292) Top Cover constructed from pre-plated cold rooled steel 0.060 inch thick. One piece, construction held together with rivets. Measure approximately 3.3 inches high, by 17 inches wide, by 23.9 inches deep. Secured to enclosure by screws.**

MODEL AP9621

FIG. 2 (M0004148.P00)

General - Fig. 2 shows a rear/bottom/left side view of the unit.

1. Ventilation Openings - 252 openings 0.25 inch in diameter.

2. **Ventilation Openings - For SURT003 and SURT004 - 85 openings, 0.25 inch in diameter and 228 openings approx. 0.25 x 0.10 inch each.**

MODEL AP9621

FIG. 3 (M00-04147)
FIG. 3A (M01-36712)

General - Fig. 3 and 3A show the rear view of the unit.

1. Output Receptacles - (APC 770-0102). R/C (RTRT2) six duplex type rated 20 A, 120 V. Receptacles are secured to rear panel by screws. Bonded to chassis by a buss bar, **4 provided on Model SURT003 and SURT004.**
2. Input Circuit Breaker - (APC 530-0077). R/C (QV GK2) 2 Pole, rated 30 A, 250 V ac. (Carlingswitch Inc., Type AB2-XO-06-302-XD1-C; Philips Technologies, Type IEG26-30509-1-V).
3. Output Circuit Breaker - (APC 530-0084). R/C (QVNU2) Four, Single Pole, rated 15 A, 125 V ac. (Airpax, PR11-62-15.0-30633-1-V).
4. Power Cord - (APC 650-0113). R/C Type SJ10-3, terminating in a NEMA L6-30P twist-lock plug, 38 inch length. (Manufactured by Rapid Manufacturing; Manage, Inc.).
5. Strain Relief - (APC 652-09P2). R/C (NYYV2) (Heyco Molding Products, No. SR9-P2).
6. Output Receptacles - (APC 770-0015). Four provided. Listed, NEMA L5-20, rated 20 A, 125 V. Provided on Model SYTF3, SYTF3-PSX, SYTF3J, SYTF3J-PSX.
7. Supplementary Protector - (APC 530-0221). R/C (QVNU2) rated 20 A, 125 V (Airpax, PR11-62-20.0A-30633-1-V). Provided on Model SYTF3, SYTF3-PSX, SYTF3J, SYTF3J-PSX.
8. Power Cord - (APC 650-0188). R/C Type SJ10-3, terminating in a NEMA L6-30P twist-lock plug, 24-inch length. (Manufactured by Rapid Manufacturing; Manage, Inc.) Provided on Model SYTF3, SYTF3-PSX, SYTF3J, SYTF3J-PSX.
9. Power Cord - (APC 650-0185). R/C Type SJ10-3, terminating in a NEMA L6-30P twist-lock plug, 15-foot length. (Manufactured by Rapid Manufacturing; Manage, Inc.) Provided on Model AP9621X215, SYTF2X215, SYTF2JX215.
10. **Power Cord - For Models SURT003 and SURT004 (APC 650-0188A). R/C Type SJ10-3, terminating in a NEMA L6-30P twist-lock plug, 24 inch length. (Manufactured by Rapid Manufacturing; Mange, Inc.)**
11. **Input Circuit Breaker - For SURT003 only - (APC 530-0023). R/C QV GK2, 2 Pole, rated 30A, 250Vac. (Calingswicch Inc., Type BB2-B0-26-630-421-D; AIRPAX IEG66-28195-1-V).**

12. Out Input Circuit Breaker - For SURT003 and SURT004 - (APC 530-0020). R/C QVNU2, 2 Pole, rated 30A, 250Vac. AIRPAX PR11-62-15.0-30633-1-v).
13. Input Circuit Breaker - For SURT003 only - (APC530-0393). R/C QVNU2, 2 Pole, rated 30A, 250Vac. (Calingswicth Inc., Type BB2-B0-26-620-421-D; AIRPAX IEG66-28195-3-V).
14. Output Recptacles -(APC 770-0015). R/C, RTRT2, 2 twist lock rated 20A, 120V. Receptacles are secured to rear panel by screws. Bonded to chassis by a buss on the SURT004.

MODEL AP9621

FIG. 4 (M00-04146)

General - Fig. 4 shows the front view of unit with the decorative bezel removed.

1. Fan - (APC 490-0019). R/C (GPWV2) rated 115 V ac, 3.15 inch square. (NMB Technologies, Inc., AC3115PS-12T-B30-A00).
2. Ventilation Openings - 128 concentric openings 0.195 wide varying in length between 0.26 inches to 0.66 inches.
3. Fan - (APC 490-0040). R/C (GPWV2) rated 100 V ac, (NMB Technologies, Inc., 3115-PS-10T-B30-A00). Provided on Model SYTF2J, SYTF2JX215, SYTF3J, SYTF3J-PSX.
4. **Fan - (APC OW2040). R/C, GPWV2, rated 24V, 100CFM, 4.7 inch square. (NBM Tech Inc) .,)W2040.**

MODEL AP9621

FIG. 5 (M00-04149)

General - Fig. 5 shows a top view of the unit with the cover removed.

1. Transformer - (APC 430-2057). Toroid, Class H (180°C) insulation system. (Amveco Magnetics, Inc., 27291B, Plitron Manufacturing Inc., 7177-V2-20).

Alternate - For Model SYTF2J, SYTF2JX215, SYTF3J, SYTF3J-PSX, (APC 430-2058). Toroid, Class F (155°C) insulation system. (Amveco Magnetics, Inc., 27291B, Plitron Manufacturing Inc., 7177-V2-20.)

Alternate - For Model AP9621 (APC430-2057C) toroid, Class H (180°C) insulation system (see File E226638). (Manufactured by Bicron Electronics, BX35NB8902.

Alternate - For Model SURT003 and SURT004 (APC 430-6000) Toroid, Class H (180°C) insulation system. (Amveco magnetics, Inc., 29141F, Plitron Manufacturing Inc., 8579-V2-06.)

2. Capacitor (APC 234-0126). R/C (CYWT2) Polypropylene, rated 12.5 uF, 250 V. (Cornell-Dubilier Electronics Inc., SMP37U1255M24 or Aerovox Inc., Z23P3712N50A1).

Alternate - Capacitor (APC)234-0126). R/C (CYWT2) Polypropylene, rated 12.5 uF, 370 V. (Cornell-Dubilier Electronics Inc., SMP24U1255M24).

3. Buss Bar (except Model SYTF3) (APC 880-0033A). 0.025 inch thick by 0.25 inch wide tin plated brass alloy.
4. Sponge Rubber Strip - (APC 825-0015). R/C (QMFZ2) 3/8 inch thick, rated 94V-0 (Rogers Corp. HT-800).

5. Connector - (APC 724-0012). R/C (ECBT2) 4 position connector plug, (AMP Inc., Mate-N-Lock 1-480703-0).
6. Connector - (APC 724-0005). R/C (ECBT2) two 6 position connector housing MNL plug, (AMP Inc., Mate-N-Lock 1-480704-0).