

**CONTROLLED POWER COMPANY**  
**COMMERCIAL POWER PURIFIER (SERIES 800A)**  
**GENERAL SPECIFICATIONS**

**1.0 General**

This specification describes the features, design, and benefits of the Series 800A Power Purification System. All systems are designed to assure maximum reliability, flexibility, serviceability and performance. The overall function of the Series 800A is to receive raw, extremely polluted electrical power and purify it for use by sensitive electronic equipment. The Series 800A is used where isolated, regulated, transient and noise free sinusoidal power is required. The 800A is available with output power distribution receptacle wired flexible cables and/or flush mounted receptacles.

**2.0 Standards**

Systems are designed and manufactured in accordance with applicable portions of the following standards:

- Institute of Electrical and Electronic Engineers (IEEE C62.41-1991)
- National Fire Protection Association (NFPA) 70, National Electric Code (NEC)
- Underwriters Laboratories (UL, C-UL 1012)
- Federal Information Processing Standards Publication 94 (FIBS Pub 94)

**3.0 Performance Specifications**

- 3.1 Power Output - Single phase, continuous duty rated capacity.
- 3.2 Line Voltage Regulation - Output voltage automatically regulated to within  $\pm 3\%$  with input voltage fluctuations of +10% to -20% of nominal under typical load conditions. Meets Computer and Business Equipment Manufacturers Association (CBEMA) voltage regulation requirements. Utilizes Variable Range Regulation (VRR) to obtain improved line voltage regulation when operating under low load conditions.
- 3.2.1 At 75% load - output voltage automatically regulated to within  $\pm 3\%$  or better with input voltage fluctuations of +10% to -35% of nominal.
- 3.2.2 At 50% load - output voltage automatically regulated to within  $\pm 3\%$  with input voltage fluctuations of +10% to -40% of nominal.
- 3.2.3 At 25% load - output voltage automatically regulated to within  $\pm 3\%$  or better with input voltage fluctuations of +10% to -45% of nominal.
- 3.3 Immunity to Distortion - With input voltage distortion of up to 40%, output voltage sine wave contains a maximum harmonic content of 5% under linear load.
- 3.4 Load Regulation - Output load regulation is 3-4% from 0% to 100% load.

- 3.5 Voltage Recovery - Output voltage returns to 95% of nominal level within two AC cycles and to 100% within three cycles when the output is taken from no load to full load or vice-versa. Recovery from partial load changes occurs in a shorter period of time.
- 3.6 K Factor-30, designed to operate with non-linear, non-sinusoidal, high crest factor switch mode power supply type loads without overheating.
- 3.7 Power Factor Correction - Input power factor within 0.95 approaching unity with load power factor as poor as 0.6.
- 3.8 Harmonic Attenuation - Attenuates load generated odd current harmonics in the order of 23 dB.
- 3.9 Isolation - Primary electrically isolated from secondary. Meets isolation criteria as defined by National Electric Code article 250-5d.
- 3.10 Lighting and Surge Protection - Attenuates voltage spikes 3000 to 1. Exceeds U/L 1449 rating 330 volts, ANSI / IEEE C62.41 - Category B3.
- 3.11 Common Mode Noise Attenuation - 140dB.
- 3.12 Transverse Mode Noise Attenuation - 120dB.
- 3.13 Ride Through Capability - With loss of input power for up to 1 cycle, the output sine wave remains at usable AC voltage levels.
- 3.14 Reliability - 200,000 hours (MTBF)
- 3.15 Audible Noise - At full load, when measured at three foot distance, the following noise levels are not exceeded:
  - 3.15.1 Units 1.0KVA through 2.1KVA - 45dB
  - 3.15.2 Units 2.5KVA through 7.5KVA - 50dB
  - 3.25.3 Units 10KVA and 15KVA - 60dB
- 3.16 Efficiency - Approximately 92% at full load.
- 3.17 Operating Temperature - -20° C to +40° C.

#### **4.0 Major System Components**

##### **4.1 Main Input Circuit**

- 4.1.1 Units 1KVA through 2.5KVA are rated for a nominal input voltage of 120 VAC, single phase, 60 hertz. Units at 3.5KVA are rated for nominal input voltages of 120 VAC, 208 VAC, or 240 VAC, single phase, 60 hertz. Units 1KVA through 3.5KVA include a pre-installed input plug with 8 foot input line cord. An optional hospital-grade 15A or 20A input plug, or locking type 120 VAC, 30A or 50A input plug is available upon request.

4.1.2 Units 5KVA through 15KVA are rated for nominal input voltages of 208 VAC or 240 VAC, single phase, 60 hertz. Input terminals for hard wiring of source conductors and ground are provided.

4.1.3 All units are provided with a pre-installed, molded case, thermal magnetic input circuit breaker.

#### 4.2 Main Output Circuit

4.2.1 Units 1KVA through 2.5KVA are rated for a nominal output voltage of 120 VAC, single phase, 60 hertz. Units at 3.5KVA are rated for nominal output voltages of 120/208/240 VAC, single phase, 60 hertz. Output distribution for units 1KVA through 3.5KVA is described in section 4.4 of this specification.

4.2.2 Units 5KVA through 15KVA are rated for nominal output voltages of 120/208/240 VAC, single phase, 60 hertz. Output distribution is described in section 4.5 of this specification.

#### 4.3 Transformer

4.3.1 Transformers are ferroresonant, dry type, fan air cooled, 600 volt class.

4.3.2 All transformer windings are class H (220 degrees C) insulated copper.

4.3.3 A class H installation system is utilized throughout with operating temperatures not to exceed 150 degrees C over a 40 degree C ambient temperature.

4.3.4 Transformer core manufactured utilizing M-6 grade, grain oriented, stress relieved transformer steel.

4.3.5 Transformer secondary windings are electrically isolated from primary windings. Newly derived neutral conductor is effectively bonded to cabinet enclosure, ground terminal strip and output neutral terminal strip.

4.3.6 All leads, wires and terminals are labeled to correspond with circuit wiring diagram.

4.3.7 Transformers are vacuum impregnated with an epoxy resin.

4.3.8 Leakage current to ground on units 1KVA through 3.5KVA measured at  $\leq 20$  microamps.

#### 4.4 Power Distribution (Units 1KVA through 3.5KVA)

4.4.1 Units 1KVA through 3.5KVA are provided with four (4) NEMA 5-20R output receptacles. Outlets are configured as (2) flush-mounted, fuse-protected duplex receptacles.

4.4.2 Optional quantity of one (1) L6-20R or L6-30R receptacle available on 3.5KVA models, in addition to the standard 120 VAC receptacles provided.

4.4.3 Optional hospital-grade 15A or 20A output receptacles are available upon request.

#### 4.5 Power Distribution (Units 5KVA through 15KVA)

4.5.1 Optional output power distribution receptacle wired flexible cables and/or flush mounted receptacles allow quick and easy power interface to the load. Simple patch panels allow maximum flexibility and reduce installation time.

4.5.2 Optional receptacle wired flexible cables are provided with pre-installed molded case thermal magnetic circuit breaker and customer specified receptacle type. Cables are provided at customer specified length.

4.5.3 Flush mounted output receptacle circuits are provided with pre-installed molded case thermal magnetic circuit breaker and customer specified receptacle type.

4.5.4 Optional hospital-grade 15A and 20A output receptacles are available upon request.

4.5.5 Terminals are provided for hard wiring of output conductors, neutral conductor and ground.

#### 4.6 Cabinet Construction

4.6.1 Cabinet is attractive, functional, general purpose, NEMA type 1 indoor enclosure.

4.6.2 Cabinet manufactured from 16 gauge steel.

4.6.3 Cabinet for units 1KVA - 3.5KVA is provided with rubber feet to prevent scratching of finished surfaces. Dimensions: 8.5"W x 12.75"D x 17.5"H.

4.6.4 Cabinet for units 5KVA - 15KVA is provided with swiveling lockable wheels to facilitate movement during installation. Dimensions: 15"W x 23.75"D x 22.5"H.

4.6.5 Powder-coat textured paint finish with proper pre-treatment provided.

### 5.0 Warranty

Manufacturer guarantees all systems to be free from material defects and poor workmanship for a period of 10 years on the transformer core and coil, and 2 years on all other unit components. The warranty period commences following the original factory ship date.