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POWER PURIFIER

Double Magnetic Conversion Line-Interactive Power Conditioner

Power Purifier
General
Specification

TECHNICAL SPECIFICATIONS

1.0 General

This specification describes the features, design, and benefits of the *Power Purifier*. All systems are designed to assure maximum reliability, serviceability and performance. The overall function of the *Power Purifier* is to receive raw, extremely polluted electrical power and purify it for use by sensitive electronic equipment. The *Power Purifier* is used where isolated, regulated, transient and noise free sinusoidal power is required.

2.0 Standards

Power Purifiers are designed and manufactured in accordance with the following:

- 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 Listed

3.0 Performance Specifications

- 3.1 Power Output - Single phase, continuous 100% duty-rated KVA capacity. Designed to supply power for linear or non-linear, high crest factor, resistive and reactive type loads.
- 3.2 Line Voltage Regulation - Output voltage automatically regulated to within $\pm 2\%$ or better with input voltage fluctuations of $+10\%$ to -20% of nominal when system is loaded 100%. Exceeds Computer and Business Equipment Manufacturers Association (CBEMA) voltage regulation requirements. Utilizes Variable Range Regulation (VRR) to obtain improved line voltage regulation when operating under less than full load conditions.
 - 3.2.1 At 75% load - output voltage automatically regulated to within $\pm 3\%$ 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 $\pm 3\%$ 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%.
- 3.4 Load Regulation - Output voltage automatically regulated to within $\pm 2.5\%$ when load (resistive) changes from 0% to 100% or 100% to 0%.
- 3.5 Voltage Recovery - Output voltage returns to 95% of nominal level within two cycles and to 100% within three cycles when the output is taken from no load to full resistive load or vice-versa. Recovery from partial resistive load changes are corrected in a shorter period of time.
- 3.6 K Factor - 30, designed to operate with non-linear, non-sinusoidal, high crest factor 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 23dB at the input.
- 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 - Complies with UL 1449 rating 330 volts when subjected to a category B3 (6000 volt/3000 amp) combination waveform as established by ANSI / IEEE C62.41.

- 3.11 Common Mode Noise Attenuation - 140dB.
 - 3.11.1 Inner winding capacitance -.001pf.
- 3.12 Transverse Mode Noise Attenuation - 120dB.
- 3.13 Ride Through Capability - With loss of input power for up to 16.6 milliseconds 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 one meter distance, the following noise levels are not exceeded:
 - 3.15.1 Units 500VA through 2KVA - 52dB.
 - 3.15.2 Units 2.5KVA through 8KVA - 54dB.
 - 3.15.3 Units 10KVA and 25KVA - 56dB.
- 3.16 Efficiency - Approximately 92% at full load.
- 3.17 Operating Temperature - -20 degrees C to +40 degrees C, without derating.

4.0 **Transformer Construction**

- 4.1 Transformers are ferroresonant, dry type, convection cooled, 600 volt class.
- 4.2 All transformer windings are class N (200 degrees C) insulated copper.
- 4.3 A class N installation system is utilized throughout with operating temperatures not to exceed 115 degrees C over a 40 degree C ambient temperature.
- 4.4 Transformer primary is multi-input voltage configured. Input terminals are provided for source conductors and ground.
 - 4.4.1 Nominal input voltage for units 500VA - 5KVA is 120/208/240/480 VAC, single phase, 60 Hertz.
 - 4.4.2 Nominal input voltage for units 8KVA - 25KVA is 208/240/480VAC, single phase, 60 Hertz.
 - 4.4.3 600VAC, single phase, 60 Hertz available upon request.
 - 4.4.4 Single phase, 50 Hertz available upon request.
- 4.5 Transformer core manufactured utilizing M-6 grade, grain oriented, stress relieved transformer steel.
- 4.6 Transformer secondary is configured in a 240/120 split with 208 volt tap. Transformer secondary windings are electrically isolated from primary windings. Newly derived neutral conductor is effectively bonded to cabinet enclosure and output neutral terminal.
- 4.7 Output voltage for units 500VA to 25KVA is 120/208/240VAC, single phase, 60 Hertz.
- 4.8 Interface terminals are provided for output power hot, neutral and ground conductors.
- 4.9 All leads, wires and terminals are labeled to correspond with circuit wiring diagram.
- 4.10 Transformers are vacuum impregnated with epoxy resin.

5.0 **Cabinet Construction**

- 5.1 Cabinet for units 500VA - 3KVA are designed for panel or floor mounting.
- 5.2 NEMA 1, general purpose, indoor type enclosure.
 - 5.2.1 NEMA type 2 indoor use, protected against falling non-corrosive liquids and dirt (option).
 - 5.2.2 NEMA type 3R outdoor use, protected against falling non-corrosive liquids or dirt, and driving rain or snow (option). NEMA 3R models are offered as a non-UL listed product.
- 5.3 Cabinet for units 5KVA - 25KVA are designed for floor mounting.
- 5.4 Cabinet manufactured from heavy gauge steel. Base sub-structure adequate for forklifting.
- 5.5 Texture baked on paint finish with proper pre-treatment provided.



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1955 Stephenson Hwy. Troy MI 48083
 www.controlledpwr.com email: info @ controlledpwr.com
 Phone: (800) 521-4792 Fax: (248) 528-0411