

SureImage

IMAGING & TREATMENT SERIES

Power Conditioner

MODEL ULTRA-K/M

THREE PHASE ISOLATION TRANSFORMER

Power Processor

MODEL 700F/M

THREE PHASE VOLTAGE REGULATOR, WITH ISOLATION

Designed specifically to provide voltage regulation, isolation, and power distribution for medical imaging diagnostics / treatment equipment.

Superior protection against voltage spikes, sags, and surges.

Applications:

- MRI
- CT
- PET
- X-Ray
- Cardiology
- Linear Accelerator
- Simulator



UL 1012 and UL 1561 Listed



CONTROLLED POWER COMPANY

MEDICAL-GRADE POWER QUALITY

Controlled Power Company engineers and manufactures the industry's highest quality **electrical power solutions**, capitalizing on 40 years of expertise. We have an enviable reputation for quality, which is reflected in the design, workmanship, and performance of our products.

The **SureImage Power Conditioner (Model Ultra-K/M)** and the **SureImage Power Processor (Model 700F/M)** are the ideal power quality solutions for medical imaging and treatment systems. The voltage regulation, isolation, and performance characteristics of the **SureImage Power Conditioner and Power Processor** products offer significant advantages over competing products. Both models provide superior load regulation and proven performance that extends the life of your medical equipment. Our **Model 700F/M** assures steady, regulated-voltage of $\pm 2\%$.

Medical-Grade Power Quality for Imaging and Treatment Systems

"Power quality" refers to all electrical environment issues that affect the performance and reliability of electronics-based equipment, systems, and networks prevalent in hospitals and imaging / treatment centers. These issues include grounding and bonding, electrical wiring, electrical disturbances (outages, brownouts, surges, voltage spikes, harmonics, and high-frequency electrical noise), and radiated emissions (EMI, RFI, and ESD). Industry experts believe that as many as 75% of electronics-based equipment disruptions and failures are attributed to power quality issues. Think about it: what would it mean to a hospital or imaging / treatment center, if 7 out of 10 equipment problems were prevented? If power quality is affecting equipment performance, it's costing money!

"K(i) Rated" For Increased Surge Capability and High Efficiency

A "K(i) rating" refers to the intermittent kVA or momentary power demand rating. When performing an imaging scan or treatment procedure, most medical equipment has a high inrush current — meaning that the current will rise 3 to 5 times the steady state current, or higher! **SureImage** medical K(i) rated power conditioners and voltage regulators are designed to supply this demand, while continuing to provide tightly-regulated voltage. Most manufacturers of "standard" transformers, power conditioners, and voltage regulators "over-size" their units to regulate voltage well under these dynamic load conditions. This approach results in increased operating costs, a more expensive installation, and typically a larger unit footprint. Other manufacturers "over-size" their units to prevent automatic bypassing, misinterpreting this normal operation as a system overload. Such an approach results in exposing critical medical equipment to unregulated, unconditioned power.



In contrast, the **SureImage** products are sized properly for the continuous load rating, providing high efficiency and lower operating costs. In addition, all models are surge-rated to optimize performance, providing your medical equipment with exactly the power it needs.

Optional Power Metering and Data Logging

Standard Features:

- Real-time voltage, current, power, and energy measurements.
- Real-time remote monitoring.
- Programmable out-of-limit alarms.
- MODBUS RS485 communications.
- 3-line, bright LED display.
- IrDA port for PDA remote read.

Options:

- MODBUS TCP Ethernet connection.
- Integrated web server for real-time monitoring.
- Real-time waveform viewing.
- Power quality harmonic recording.
- Contact closure outputs.
- Power quality metering with waveform capture.
- Local event logging.

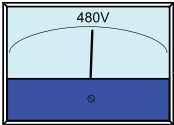
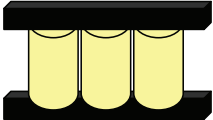
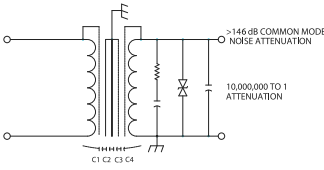
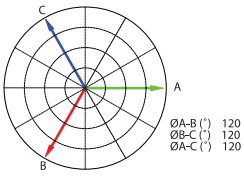
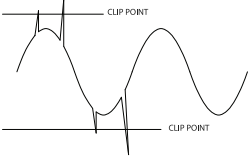


TYPICAL INPUT POWER REQUIREMENTS

Healthcare engineers, responsible for meeting the electrical needs of medical imaging and treatment equipment, must look closely at the OEM specified maximum allowable input voltage requirements. While the high line and low line limits may be stated at $\pm 10\%$, this does not reflect the stability or regulation of the line voltage that must be met during equipment operation. OEM's will specify the source impedance and other ratings, all of which point to a minimum variation in voltage when going from the steady state to maximum current draw of their equipment. Even more stringent, is the typical maximum phase imbalance specification of 2%. Still other OEM's specify line voltage regulation of $\pm 5\%$ or less!

So, is voltage regulation important? The answer is YES!

The **SureImage Power Conditioner (Model Ultra-K/M)** enables OEM and site engineers to meet and exceed the minimum recommended power requirements and provide additional power quality. For the optimum medical imaging / treatment power quality solution, the **SureImage Power Processor (Model 700F/M)** is recommended.

Power Elements	Typical OEM Power Requirements	Oversized Distribution Transformer	Ultra-K/M	700F/M
	Line Voltage Regulation Sags no more than 8% – 10% below nominal. Surges no more than 8% – 10% above nominal.			✓
	Load Regulation Size of facility transformer and feeder wires determine load regulation to the system. Total load regulation must not exceed 6%.	✓	✓	✓
	Common Mode & Transverse Mode Noise When the primary is exposed to a 6000 V, 3000 A (Cat. B) waveform, the secondary output increases 330 V peak, maximum.		✓	✓
	Phase Imbalance Resulting from utility / generator line voltage imbalance.			✓
	Phase Imbalance Resulting from step load change or load imbalance. The difference between the highest line-to-line voltage and the lowest line-to-line voltage must not exceed 2%.	✓	✓	✓
	Transient Voltage Limits the maximum transient voltage to 1500 V, peak.		✓	✓

NOTE: Power requirements stated are typical minimum OEM requirements. Modality-specific power requirements must be verified with medical equipment manufacturer.

Product Specifications for Both the Ultra-K/M and 700F/M

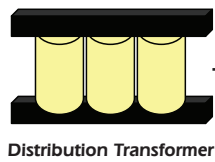
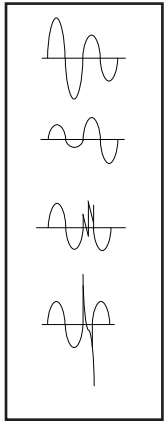
- Low Output Impedance: 2% typical
- Phase Imbalance: <2% typical
- Electrostatic Shielding: Triple shielded
- Reflected Harmonics: Load-generated triplen harmonics not reflected to input source
- TVSS: Secondary 3-phase, with high-frequency filter
- Model 700F/M Line Voltage Regulation: $\pm 2\%$
- Meets UL 1449 and ANSI / IEEE C62.41 cat B-3

PERFECT FIT FOR IMAGING & TREATMENT EQUIPMENT

“Image Quality” Is By Design Not By Accident

One inclination is to try to meet the power quality needs of medical imaging and treatment equipment by simply wiring to an existing up-stream distribution transformer. Even if care is taken to not exceed the maximum allowable feeder (voltage) regulation, **poor power quality can still exist**. Power disturbances such as high frequency voltage spikes, transients, and line voltage sags and surges must be eliminated. It is critical to take control of the electrical environment, **making “bad power” a non-issue**.

Poor Power Quality Often Translates Into:



- “Artifacts” in the digital image.
- Random error codes, and system lock-ups.
- Costly repeat scans.
- Unexplained system faults or restarts.
- Unscheduled downtime, and expensive emergency repairs.

Significant Benefits of Installing the Ultra-K/M Power Conditioner Near the Imaging / Treatment Equipment:

Isolation, superior “step load” voltage regulation, re-established N-G bond, and attenuation of voltage spikes result in:



- Significant reduction / elimination of “artifacts” in the digital image.
- Enhanced workflow and processing time.
- Preventing premature failure of imaging / treatment equipment.
- Lower cost to maintain imaging / treatment equipment.

As well as:

- Reduced installation expenses.
- Higher power efficiency, and lower operating costs.

Optimum Benefit of Installing the 700F/M Power Processor:

Tight line voltage regulation, combined with all the benefits of the Ultra-K/M Power Conditioner, result in:

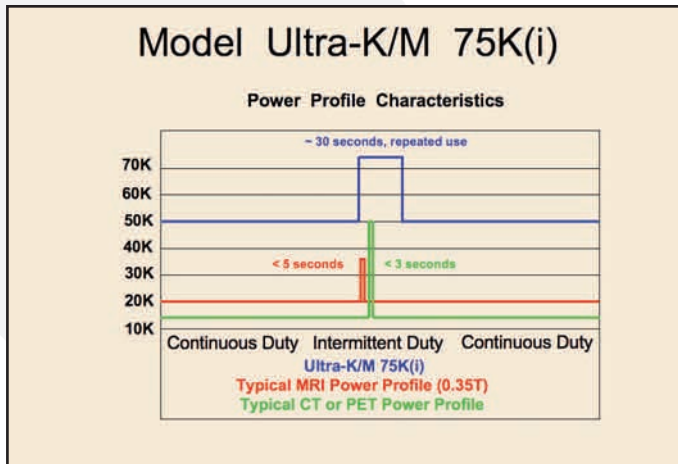


- Highest level of image quality and diagnostic reliability.
- Optimum workflow and patient satisfaction.
- Removal of voltage sags and surges associated with system restarts.
- Compensation for generator power voltage drops during scans.
- Ultimate component and system reliability.
- Permanent location or portable (optional casters).

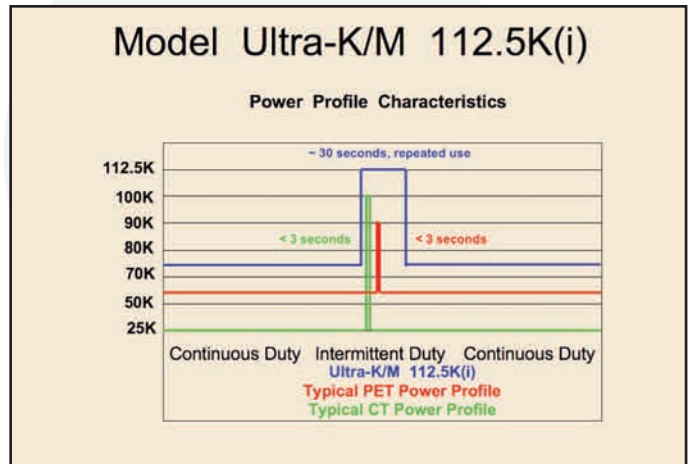
SUREIMAGE MODEL ULTRA-K/M POWER CONDITIONER

Ultra-K/M — Additional Product Specifications

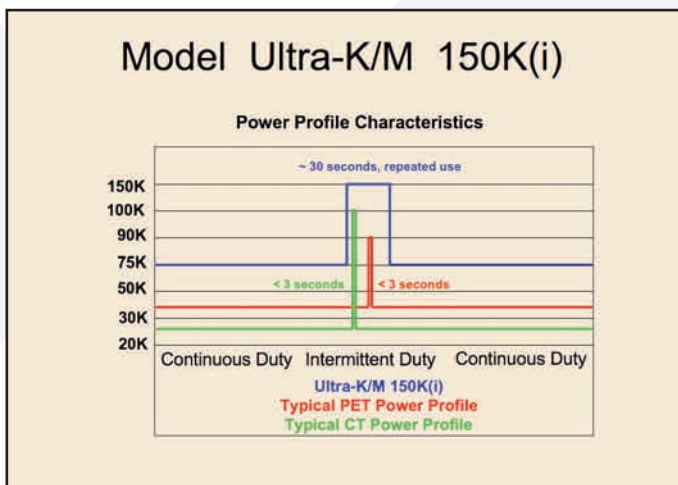
- Output Load Regulation: < 2% from typical steady state load to intermittent power demand
- Voltage Compensation Taps: Full capacity taps at 2.5% increments, 2 above and 4 below the nominal tap
- K-Factor Rating: K13
- Common Mode Noise Attenuation: 146 dB
- Transverse Mode Noise Attenuation: 3 dB down at 10 KHz, 40 dB down per decade
- Efficiency: 98% typical at full load, continuous rating
- UL, cUL 1561 Listed



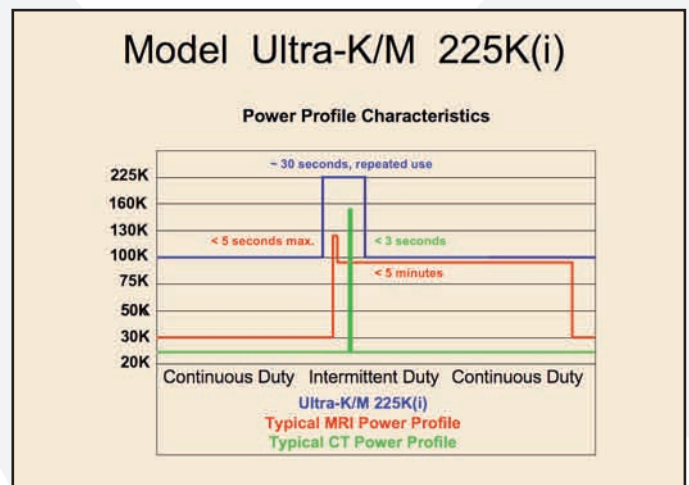
MODEL	INPUT VOLTAGE	* OUTPUT VOLTAGE	** INPUT BREAKER	BTU's / HR	DIMENSIONS	WEIGHT
8B*X-75K(i)-K/M	208V	L =	200A	3,410	35" w 25" d 40" h	950 lbs
8C*X-75K(i)-K/M	240V	208V/120V	175A			
8D*X-75K(i)-K/M	480V	N =	80A			
8E*X-75K(i)-K/M	600V	480V/277V	70A			



MODEL	INPUT VOLTAGE	* OUTPUT VOLTAGE	** INPUT BREAKER	BTU's / HR	DIMENSIONS	WEIGHT
8B*X-112.5K(i)-K/M	208V	L =	300A	5,115	35" w 25" d 40" h	970 lbs
8C*X-112.5K(i)-K/M	240V	208V/120V	250A			
8D*X-112.5K(i)-K/M	480V	N =	125A			
8E*X-112.5K(i)-K/M	600V	480V/277V	100A			



MODEL	INPUT VOLTAGE	* OUTPUT VOLTAGE	** INPUT BREAKER	BTU's / HR	DIMENSIONS	WEIGHT
8B*X-150K(i)-K/M	208V	L =	300A	5,115	35" w 25" d 40" h	970 lbs
8C*X-150K(i)-K/M	240V	208V/120V	250A			
8D*X-150K(i)-K/M	480V	N =	125A			
8E*X-150K(i)-K/M	600V	480V/277V	100A			



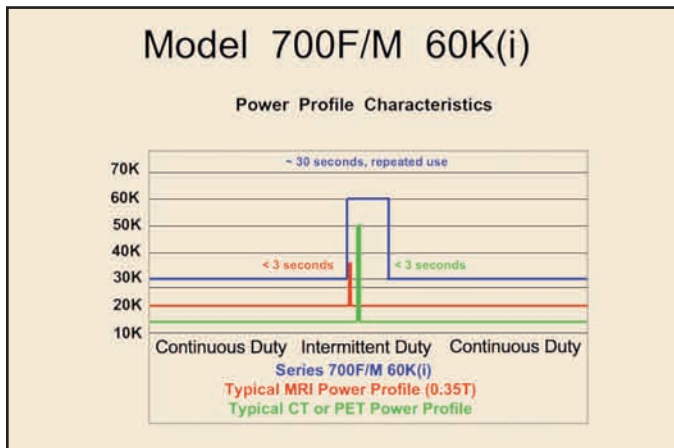
MODEL	INPUT VOLTAGE	* OUTPUT VOLTAGE	** INPUT BREAKER	BTU's / HR	DIMENSIONS	WEIGHT
8B*X-225K(i)-K/M	208V	L =	350A	6,820	42" w 28" d 39" h	1,300 lbs
8C*X-225K(i)-K/M	240V	208V/120V	300A			
8D*X-225K(i)-K/M	480V	N =	150A			
8E*X-225K(i)-K/M	600V	480V/277V	125A			

Notes: Stated BTU's / Hr is at rated load, 100% duty cycle. Operational BTU's / Hr is typical at 50% of rated load. ** Input breaker provided by others.

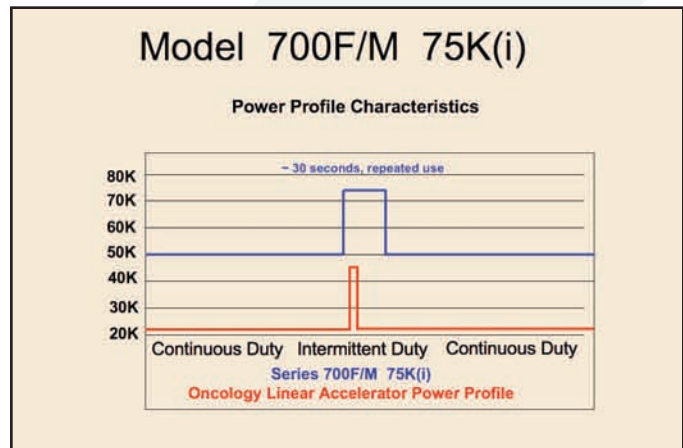
SUREIMAGE MODEL 700F/M POWER PROCESSOR

700F/M — Additional Product Specifications

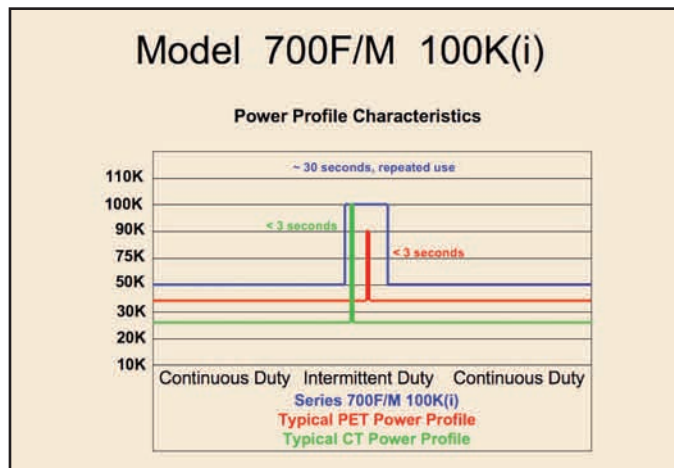
- Output Line Voltage Regulation: $\pm 2\%$
- Output Load Regulation: $< 2\%$ from typical steady state load to intermittent power demand
- K-Factor Rating: K13 design
- Internal regulator bypass
- Optional input and output digital metering
- Common Mode Noise Attenuation: 146 dB
- Transverse Mode Noise Attenuation: 3 dB down at 1 KHz, 40 dB down per decade
- Efficiency: 97% typical at full load, continuous rating
- UL, cUL 1012 Listed



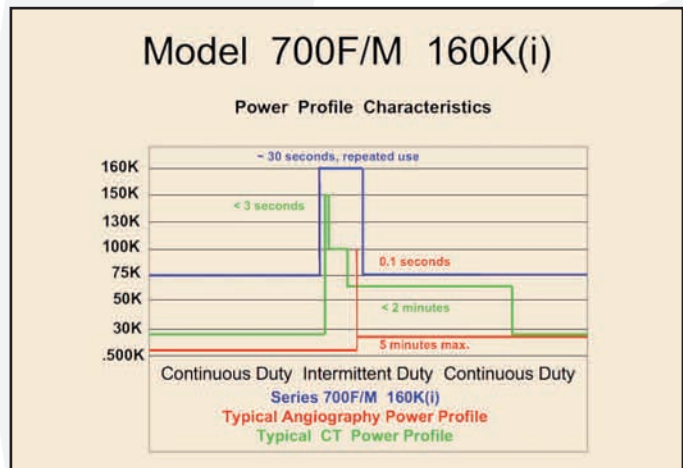
MODEL	INPUT VOLTAGE	* OUTPUT VOLTAGE	INPUT BREAKER	BTU's / HR
8B*X-60K(i)-7F/M	208V	L = 208V/120V	110A	3,069
8C*X-60K(i)-7F/M	240V		100A	
8D*X-60K(i)-7F/M	480V	N = 480V/277V	50A	
8E*X-60K(i)-7F/M	600V		40A	



MODEL	INPUT VOLTAGE	* OUTPUT VOLTAGE	INPUT BREAKER	BTU's / HR
8B*X-75K(i)-7F/M	208V	L = 208V/120V	200A	5,115
8C*X-75K(i)-7F/M	240V		175A	
8D*X-75K(i)-7F/M	480V	N = 480V/277V	80A	
8E*X-75K(i)-7F/M	600V		70A	



MODEL	INPUT VOLTAGE	* OUTPUT VOLTAGE	INPUT BREAKER	BTU's / HR
8B*X-100K(i)-7F/M	208V	L = 208V/120V	200A	5,115
8C*X-100K(i)-7F/M	240V		175A	
8D*X-100K(i)-7F/M	480V	N = 480V/277V	80A	
8E*X-100K(i)-7F/M	600V		70A	



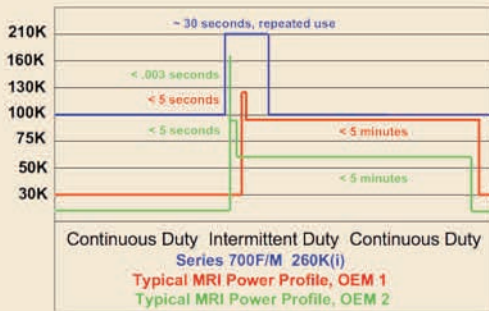
MODEL	INPUT VOLTAGE	* OUTPUT VOLTAGE	INPUT BREAKER	BTU's / HR
8B*X-160K(i)-7F/M	208V	L = 208V/120V	300A	7,673
8C*X-160K(i)-7F/M	240V		250A	
8D*X-160K(i)-7F/M	480V	N = 480V/277V	125A	
8E*X-160K(i)-7F/M	600V		100A	

Notes: Stated BTU's / Hr is at rated load, 100% duty cycle. Operational BTU's / Hr is typical at 50% of rated load.

SUREIMAGE MODEL 700F/M POWER PROCESSOR

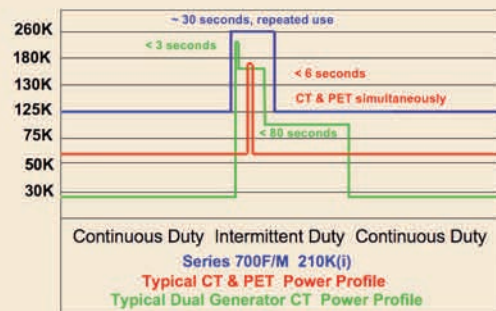
Model 700F/M 210K(i)

Power Profile Characteristics



Model 700F/M 260K(i)

Power Profile Characteristics



MODEL	INPUT VOLTAGE	* OUTPUT VOLTAGE	INPUT BREAKER	BTU's / HR
8B*X-210K(i)-7F/M	208V	L = 208V/120V	350A	10,230
8C*X-210K(i)-7F/M	240V		300A	
8D*X-210K(i)-7F/M	480V	N = 480V/277V	150A	
8E*X-210K(i)-7F/M	600V		125A	

MODEL	INPUT VOLTAGE	* OUTPUT VOLTAGE	INPUT BREAKER	BTU's / HR
8B*X-260K(i)-7F/M	208V	L = 208V/120V	450A	12,788
8C*X-260K(i)-7F/M	240V		400A	
8D*X-260K(i)-7F/M	480V	N = 480V/277V	200A	
8E*X-260K(i)-7F/M	600V		175A	

Notes: Stated BTU's / Hr is at rated load, 100% duty cycle. Operational BTU's / Hr is typical at 50% of rated load.

700F/M DIMENSIONS AND WEIGHTS

K(i) RATING	DIMENSIONS (IN INCHES)	WEIGHT
60K(i)	29" W x 22" D x 56" H	792 lbs
75K(i)	29" W x 36" D x 66" H	1,067 lbs
100K(i)	29" W x 36" D x 66" H	1,067 lbs
160K(i)	34.5" W x 36" D x 76" H	1,210 lbs
210K(i)	34.5" W x 36" D x 76" H	1,826 lbs
260K(i)	34.5" W x 36" D x 76" H	2,178 lbs

Advantages of Front Access

Optional Input and Output Meters

Status Lights and Alarm Indication

Regulator Bypass Switch

Note: System isolation transformer remains online when in the bypass mode, providing voltage transformation and power conditioning.

Front Access to Regulator Controls and Components if Service Required



Top Entry for Input / Output Power Connections

Optional Output Circuit Breakers to Protect Customer Equipment

Main Input Circuit Breaker for Overload Protection

No Right, Left, or Rear Access Required for System Operation or Service

Bottom Entry for Input / Output Power Connections

Warranty: Controlled Power Company guarantees the unit to be free from defects in materials and workmanship for a period of (1) year following shipment from the factory.



1955 Stephenson Hwy. Troy MI 48083
www.controlledpwr.com
email: info@controlledpwr.com
Phone: (248) 528-3700 Fax: (248) 528-0411
Call Toll Free: (800) 521-4792

Represented by:

