

VRP

Fail-safe

PWM automatic voltage regulator

With precision

VRP Model

VRP-30000-8775

30000 W
120/208 V \pm 3%
83.3 A
Three phase

VRP-45000-8775

45000 W
120/208 V \pm 3%
125 A
Three phase

VRP-50000- 8775

50000 W
120/208 V \pm 3%
139 A
Three phase

Precision PWM voltage regulator with automatic bypass

The VRP three-phase automatic precision AC voltage regulator allows trouble-free operation of electronic equipment over a wide mains AC voltage range of 96-144 V Line-Neutral, 166-250 V Line-Line.

Typical VRP applications

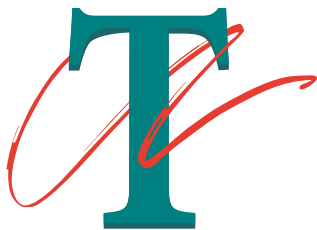
Typical equipment applications include, but are not limited to: CNC equipment, medical imaging, analytical / laboratory instruments, telecommunications, wireless sites, broadcast transmitters, semiconductor production, industrial automation and digital printing / graphics.

How the VRP works

The high frequency insulated gate bipolar transistor (IGBT) driven converter takes the incoming AC power, measures it against the nominal voltage reference and adds or subtracts voltage, 20,000 times per second, to achieve the nominal output voltage \pm 3%. The automatic bypass will be activated when there is a fault condition. Green LEDs are used to indicate Normal (regulating mode) operation.



Top view showing the internal components (VRP-45000-8775 shown)



TSi POWER

1103 W Pierce Avenue
Antigo, WI 54409 USA

Tel: + 1-715-623-0636

Fax: + 1-715-623-2426

Toll-Free: 1-800-874-3160

email: sales@tsipower.com

Web: www.tsipower.com

Features and Benefits

- Since the VRP does not switch components in the power path, it is compatible with all loads.
- Automatic bypass circuitry assures failsafe operation.
- Output voltage to within \pm 3 % is provided for superior regulation.
- Includes a two-year limited warranty.
- AC input/output DIN type wiring terminals facilitate wiring connections.
- Internal surge voltage protection assures trouble-free operation.
- AC input circuit breakers and load over current protection prevent costly equipment damage.
- Circuit board assemblies are connectorized for easy replacement.
- Display circuit board monitors each phase independently and displays operational status by means of colored LEDs.

SPECIFICATION	VRP-30000-8775	VRP-45000-8775	VRP-50000-8775
ELECTRICAL			
Capacity VA & Watts	30000	45000	50000
Switching Technology	High frequency 20 kHz IGBT AC chopper/inverter		
INPUT			
Nominal voltage & frequency	120/ 208 V \pm 20 % three-phase wye, 60 Hz		
Operating voltage	96-144 V L-N, 166-250 V L-L		
Current Amps per phase	100 A	163 A	180 A
Circuit breaker	3-pole, 100 A	3-pole, 200 A	3-pole, 200 A
Surge voltage withstand	ANSI/IEEE: 6 kV, 1.2 x 50 μ s / 3 kA, 8 x 20 μ s; L-N: 450 V L-G: 300 V N-G: 300 V		
OUTPUT			
Nominal voltage & frequency	120/208 V \pm 3 % three-phase wye, 60 Hz		
Output power	30000 W	45000 W	50000 W
Current Amps per phase	83.3 A	125 A	139 A
Overload protection	Electronic	Electronic	Electronic
Automatic bypass	Transfer to unregulated AC in case of failure		
Harmonic distortion	Sinusoidal, < 5 % THD		
Power efficiency @ 120 V nominal	98 %		
Power efficiency in max boost mode	96 %		
INDICATORS AND ALARMS			
LED System status indicators	Regulation LED: Green (ON [solid] = Normal operation) - Bypass LED: Yellow (Flashing [~ once per second] = Bypass operation) - Fault LED: Red (ON [solid] = VRP is being overloaded, Slow Flashing [~ once per second] = VRP heat sink temp is too high, Fast Flashing [~ 4 times per second] = AC is out of frequency range)		
PHYSICAL			
Dimensions: H x W x D inch (cm)	32.5" (82.6 cm) High x 32" (81 cm) Wide x 32" (81 cm) Deep		
Weights: lbs (kg)	400 lbs (181.4 kg)	493 lbs (223.6 kg)	493 lbs (223.6 kg)
Mounting option	Lockable wheel casters		
Input / output connections	10 position terminal block		
	1.95" (49.5 mm) holes for 1-1/2" (41 mm) conduit connectors		
	Recommended: 5 x min 4 AWG (21.14 mm ²) wiring	Recommended: 5 x min 2 AWG (33.61 mm ²) wiring	Recommended: 5 x min 2 AWG (33.61 mm ²) wiring
SAFETY			
Standards	Designed to conform to UL 60950-1 (IEC 60950-1) standards		
ENVIRONMENTAL			
Ambient operating temperature	32° to 104° F (0° to 40° C); Cooling method: Forced Air; Humidity: 0 - 95 % Non-condensing		
WARRANTY			
Warranty	Two-year limited warranty, parts and labor.		

TSi Power's ongoing product improvement process makes specifications subject to change. Other companies product names herein are for identification purposes only and may be trademarks of their respective companies.



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VRP system (per phase)

