

VRP

Fail-safe

PWM automatic voltage regulator

With precision

VRP Model

VRP-1500-01xx

1500 W
120 V \pm 3%
15 A
Single phase

VRP-2000-01xx

2000 W
120 V \pm 3%
20 A
Single phase

VRP-3000-01xx

3000 W
120 V \pm 3%
30 A
Single phase

VRP-5000-0120

5000 W
120 V \pm 3%
50 A
Single phase

Precision PWM voltage regulator with automatic bypass

Precision fast - PWM AC mains voltage correction

TSi Power's VRP automatic precision regulator line conditioner provides output voltage within plus / minus 3% of nominal, for input voltage that varies between 95-145 V. There is no switching of taps or otherwise a break in the power path thanks to continuous PWM switching of a buck-boost transformer.

Typical applications

The VRP series is designed for applications that require absolutely stable, high-reliability power, without switching components in the power path. The VRP is ideal for applications such as analytical equipment, radio and TV broadcast equipment, mobile broadcast vans, industrial controllers (PLC), milking machines, lithographic equipment, recording studio equipment and electrolysis equipment

How the VRP Series works

The high frequency IGBT driven converter takes the incoming AC power, measures it against the nominal voltage



Front ISO view with cover removed.

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 LED indicates Normal (regulating mode operation), Yellow LED indicates Bypass (non-regulated output) and the Red LED indicates a fault condition.



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

- VRP's low weight makes installation easy.
- Connected equipment will not shut down even if the VRP fails due to the automatic bypass feature.
- Since the VRP does not switch any components in the power path, it is compatible with all loads.
- The ultra-low impedance of the VRP assures stability even with the most demanding loads.
- The quiet operation of the VRP makes the installation as unobtrusive as possible.
- Outstanding voltage regulation makes the VRP the choice for critical equipment.
- Input and output by means of either hardwire or NEMA receptacles provides flexible choices.
- Two-year limited warranty on parts and labor.

SPECIFICATION	VRP-1500-0120/0132	VRP-2000-0120/0132	VRP-3000-0131/0136	VRP-5000-0120
ELECTRICAL				
Capacity in VA (watts)	1.5 kVA (1500 W)	2 kVA (2000 W)	3 kVA (3000 W)	5 kVA (5000 W)
Regulator engine	High frequency 20 kHz IGBT driven voltage regulation converter			
INPUT				
Nominal voltage	120 V, single phase			
Operating voltage	96 - 144 V			
Input current	15 A	20 A	30 A	50A
Operating frequency	47 - 63 Hz			
Overcurrent protection	Circuit breaker			
Circuit breaker rating	15 A	20 A	40 A	70 A
Input wire size for hardwire	Model - 0120 - AWG 12 (3.31 mm ²)	Model - 120 - AWG 10 (5.26 mm ²)	Model - 0131 - AWG 8 (8.36 mm ²)	Model - 0120 - AWG 6 (13.29 mm ²)
Cordset and plug	Model - 0132: 5-15P	Model - 0132: 5-20P	Model - 0136: L5-30P	None
OUTPUT				
Nominal voltage	120 V, single phase			
Power efficiency	96 % typical			
Voltage regulation	Combined 3 % maximum under 0 to 100 % load and input of 96 - 144 V			
Automatic bypass	Automatic bypass will be activated when there is a fault condition			
Status indicators	System status LEDs provided as follows: Green LED indicates Normal (regulating mode operation); Yellow LED indicates Bypass (non-regulated output); Red LED indicates Fault.			
Surge test conditions	Per ANSI / IEEE C62.41-1991 6 kV normal-mode injection no more than 30 ft. away			
Surge let-through voltages	Category A3, Ring wave, 200 A: L-N: 30 V Cat. B3, Combination wave, 3000 A: L-N: 200 V Note: Unit should be installed as close as possible (within 30 ft.) of the neutral-to-ground bond at the service entrance in order to minimize potential difference between neutral and ground. A separate isolation transformer is recommended for installations where greater than 30 ft., or for grounding systems without a neutral-to-ground bond.			
AC output connections	Model - 0120 -	Model - 0120 -	Model - 0131	Hardwire - 0120 -
Receptacle(s)	Model - 0132 - (4x) 5-15R	Model - 0132 - (4x) 5-20R	Model - 0136 -Single L5-30R	None
PHYSICAL				
Dimensions	11.0" (279 mm) wide x 6.25" (159 mm) high x 14.88" (378 mm) deep			
Weights lbs / kg	28 lbs (12.7 kg)	28 lbs (12.7 kg)	40 lbs (18.2 kg)	50 lbs (22.7 kg)
Wall / Floor mounting kit	MK-5000C			
SAFETY				
Agency approvals	Designed to meet UL 60950.			
ENVIRONMENTAL				
Ambient temperature	32° to +104° F (0° to +40° C). 10 to 90 % RH non-condensing			
WARRANTY				
Warranty	Two-year limited warranty on 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 architecture

