



Fail-safe

PWM automatic voltage regulator

with precision

## VRp model

3000-02xx

3 kVA  
3 kW  
230 volts

5000-02xx

5 kVA  
5 kW  
230 volts

# 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 172–276 vac.

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

For OEMs and exporters to countries with unstable ac mains. Typical equipment applications include, but are not limited to, medical imaging, analytical/laboratory instruments, telecommunications, wireless sites, broadcast transmitters, semiconductor production, industrial automation and digital printing/graphics.

## Key benefits

The low-weight, high efficiency VRp is easy to install in any environment. The automatic bypass assures that connected equipment will not shut down, even if VRp fails. VRp is compatible with all loads as it does not switch any components in the power path. VRp's ultra-low impedance assures stability even with the most demanding loads.

## How the VRp Series works

The high frequency IGBT driven converter takes the incoming ac power, measures against the input voltage and adds or subtracts voltage, 20,000 times per second, to achieve the nominal output voltage +/-3%.

The automatic bypass is activated when a fault condition has occurred. Green LED On indicates normal operation; yellow LED indicates start-up or overcurrent bypass; green LED Off indicates a fault condition.



## Key features of the VRp Series

- Outstanding voltage regulation: under normal input range of 172–276V (47–63Hz), output regulation will be 230V+/-3%.
- Fail-safe: No switching of power path
- Fast regulation
- Automatic bypass
- Low impedance
- Low weight
- Quiet operation
- 2 year limited depot warranty, parts and labor

*Power with a  
precision attitude™*



**TSi Power Corporation**

1103 West Pierce Ave  
Antigo, WI 54409 USA  
800 874 3160 (USA only)  
Phone +1 715 623 0636  
Fax +1 715 623 2426  
sales@tsipower.com  
www.tsipower.com  
Copyright © 2008 TSi



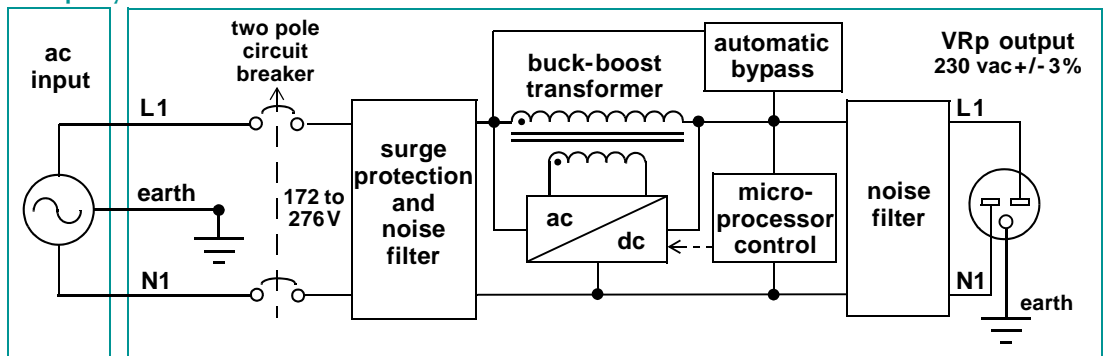
Precision  
PWM  
voltage  
regulator

Specification	VRp-3000-0228/ -0236/0238	VRp-5000-0228/0238/ -0239/0240/0241
<b>Electrical</b>		
Capacity in VA (watts)	3 kVA (3000W)	5 kVA (5000W)
Regulator engine	High frequency 20 kHz IGBT driven voltage regulation converter	
<b>Input</b>		
Nominal voltage	230 volts ac, single phase	
Operating voltage	172–276 volts ac	
Nominal frequency	47–63Hz	
Over-current protection	Circuit breaker	
Circuit breaker rating	2 x 20A	2 x 30A
Input wire size for HW	Model -0228: 6mm <sup>2</sup> (AWG 10)	Model -0228: 10mm <sup>2</sup> (AWG 8)
Cordset and plug	Model -0236: L6-20P Model -0238: 6-20P	-0238: L6-30P -0239: 14-30P -0240: L14-30P -0241: L6-30P
<b>Output</b>		
Nominal voltage	230 volts ac, single phase	
Power efficiency	96% (typical)	
Voltage regulation	Combined 3% maximum under 0 to 100% load and input of 172 to 276 V	
Automatic bypass	Automatic bypass will be activated when there is a fault condition.	
Status indicators	Green LED indicates normal operation; yellow LED indicates temporary bypass during starting and over-current conditions.	
Ac output connections	Models with -0228: hardwired output terminals (L1, N1, and earth).	
Receptacle(s)	Model -0236: L6-20R Model -0238: 6-20R	-0238: L6-30R -0239: 14-30R -0240: L14-30R -0241: two L6-30R
<b>Physical/environmental</b>		
Dimensions	279 mm (11") wide x 159 mm (6.25") high x 378 mm (14.9") deep	
Weight	18.2kg (40 lbs)	22.7kg (50 lbs)
Wall/floor mounting kit	MK-5019C (optional)	
Ambient temperature	0° to +25°C (32° to +77°F). 10 to 90% RH non-condensing.	
<b>Safety</b>		
ETL Intertek mark	ETL Intertek listed (UL 60950-1, 1st Edition).	
RoHS compliance	RoHS compliant per Directive 2002/95/EC. Unit does not contain lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE).	

TSi'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.



### VRp system architecture



**TSi Power Corporation**  
1103 West Pierce Ave  
Antigo, WI 54409 USA  
800 874 3160 (USA only)  
Phone +1 715 623 0636  
Fax +1 715 623 2426  
sales@tsipower.com  
www.tsipower.com  
Copyright © 2008 TSi