



Fail-safe

PWM automatic voltage regulator

with precision

**VRp model****2100-0228/0233**

2100 VA

2100 watts

input:

208/220/

230/240 vac

output:

230 vac +/-3%

single phase

*Power with a  
precision attitude™*

# Precision PWM automatic 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 plus/minus 20%.

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

Designed for applications that require absolutely stable, high-reliability power, without switching components in the power path.

Applications include, but are not limited to: medical systems, high-performance color wide format digital inkjet printers and copiers, analytical equipment, radio/TV broadcast equipment, and mobile broadcast vans, and other 230 vac loads that are 2100VA or under.

## Key VRp-2100-02xx benefits

The light-weight, high efficiency VRp-2100-02xx 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 nominal voltage and adds or subtracts voltage, 20,000 times per second, to achieve the nominal output voltage +/-3%.

The Automatic Bypass will be activated when there is a fault condition. Green LED indicates Normal (regulating mode operation), and the Red LED indicates a Fault condition.



## Key features of the VRp Series

- Outstanding voltage regulation: under normal input range of nominal 172–276 vac, output regulation will be 230 vac +/-3%
- Fail-safe: no switching of the power path
- Fast regulation
- Automatic bypass
- Low impedance
- Low weight
- Quiet operation
- Two year limited depot warranty, parts and labor

**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



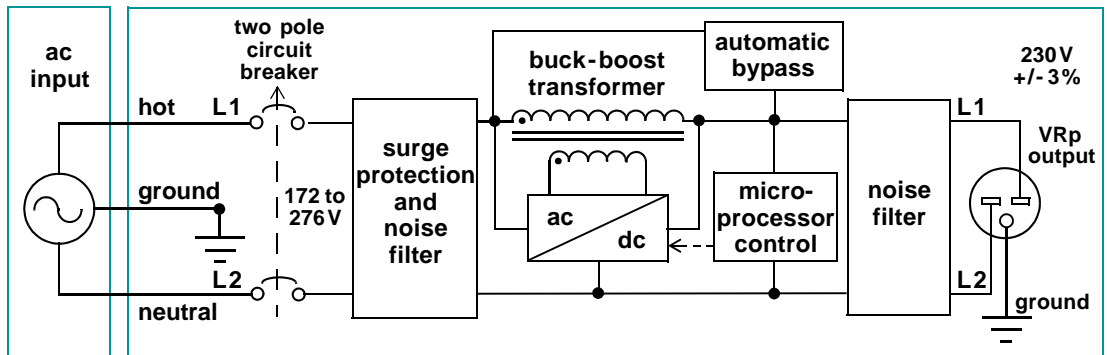
Precision automatic voltage regulator

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.



Specification	VRp-2100-0228/0233
<b>Electrical</b>	
Capacity in VA (watts)	2.1 kVA (2100W) maximum
Regulator engine	High frequency 20kHz IGBT driven voltage regulation converter
<b>Input</b>	
Nominal voltage	230 volts ac, single phase (and 208, 220, 240V)
Operating voltage	172–276 volts ac
Nominal frequency	47–63Hz
Over-current protection	magnetic circuit breaker
Circuit breaker rating	2 x 15 amperes
Ac input connections	Model -0228: hardwired input terminals (L1, N1, and earth).
Inlet line, cord-plug	Model -0233: 2.4m(8') cordset and NEMA L6-15P male plug.
<b>Output</b>	
Nominal voltage	Factory set for 230 vac (208,220,240V also available)
Current and efficiency	8.7 amperes (maximum) ~ 96% efficiency (typical)
Voltage regulation	Combined 3% maximum under to 100% load and input of 172 to 276V
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); Red LED indicates Fault.
Surge test conditions	Per ANSI/IEEE C62.41-1991 6kV normal-mode injection
Surge let-through voltages	Category A3, ring wave, 200A: L-N: 30V Cat. B3, combination wave, 3000A: L-N: 200V Note: unit should be installed as close as possible (within 30') 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 distance exceeds above, or for grounding systems without a neutral-to-ground bond.
Ac output connection	Model -0228: hardwired output terminals (L1, N1, and earth).
Receptacle	Model -0233: NEMA L5-15R.
<b>Physical/environmental</b>	
Dimensions	282mm (11.125") wide x 162mm (6.375") high x 377mm (14.875") deep.
Weight	16 kg (35 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).

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