



International

Automatic Voltage Regulator

With Precision

**Models**

VRp-22500-0338

22.5 kVA  
3 Phase Wye  
230/400 V

VRp-30000-0338

30 kVA  
3 Phase Wye  
230/400 V

# Precision PWM Automatic Voltage Regulator With Automatic Bypass

## Precision Fast-PWM Mains Voltage Correction

TSi Power's VRp automatic precision regulator allows trouble-free operation of electronic equipment over a very wide mains AC voltage range of 160~300V found in many developing countries.

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 where absolutely safe and precisely regulated AC power is required, such as mobile communication (GSM/satellite/wireless broadband), radio/TV broadcasting, industrial process controller (PLC), medical (mobile MRI, CT) and laboratory or analytical measurement equipment.

### Key Benefits

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. The automatic bypass assures that connected equipment will not shut down, even if VRp fails.

### 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, 10,000 times per second, to achieve precisely regulated 230vac output.

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.



VRp-22500-0338

## Key Features Of The VRp Series Precision Voltage Regulator

- Outstanding Voltage Regulation: Under A Voltage Input Range Of 185~265V (47~63Hz) Per Phase, Output Regulation Will Be: Within +/- 1%.
- No Switching Of Power Path And Unit Always Starts Up On Sinewave Zero Crossing.
- Over-Under Voltage Cutoff, With Automatic Restart When Mains Voltage Decreases Back To Below 300vac, Or Above 160vac.
- Failsafe: Automatic Bypass
- Low-Impedance
- Lightweight
- Wall Fixing Kit Is Included
- Quiet Operation
- 2 Year Warranty

*Power With A  
Precision Attitude™*



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Power With A Precision Attitude™

## Precision Automatic Voltage Regulator



Left Side - Front View  
VRp-22500-0338

Note: VRp-30000-0338  
Is 253 mm Taller

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.



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Specification	VRp-22500-0338	VRp-30000-0338
<b>Electrical</b>		
Capacity in VA (Watts)	22.5kVA (22.5kW)	30kVA (30kW)
Regulator Engine	High Frequency 10kHz IGBT Driven Voltage Regulation Converter	
<b>Input</b>		
Nominal Voltage	Three Phase Wye: 230/400 Volts AC	
Normal Operating Voltage	Range: 160 ~ 300 Volts AC	
Maximum Operating Range	160 ~ 300 Volts AC (with reduced output capacity & wider regulation)	
Nominal Frequency	47~63 Hz	
Over-current Protection	Input Circuit Breaker & Over-under voltage cutoff (>300vac or <160vac)	
Circuit Breaker Rating	3 x 40 Amps (ganged)	3 x 60 Amps (ganged)
Input Wire Size	AWG 8 (8 square mm)	AWG 6 (13.3 square mm)
AC Connection	Terminal block (L1, L2, L3, Neutral & Ground wires) provided.	
<b>Output</b>		
Nominal Voltage	Three phase Wye: 230/400 Volts AC	
Power Efficiency	Better than 96%. (With 20-100% load conditions)	
Voltage Regulation	Factory set at 1%, Long-term stability: <2%.	
Relaxed Voltage Regulation	192 ~ 240Volts AC over wider input range of 160 ~ 300Volts AC	
Automatic Bypass	Automatic bypass will be activated when there is a fault condition.	
System Status Indicators	System status LED's provided as follows: Green LED (blinking) indicates Normal (regulating mode operation); Yellow LED (blinking) indicates Bypass (non-regulated output); Red LED indicates Overload (system may shut down).	
Surge Test Conditions	Per Class 2 & Class 3 Simulated Lightning Surge (Combination Wave)	
Surge Let-Through Voltages	Class 2 & 3, 4000V, 3000A. L-N: 200V, L-G: 200V <b>Note:</b> For maximum protection of the VRp and connected load equipment, TSi Power recommends that a matching isolation power conditioner (ILc) be placed adjacent to the VRp.	
Matching ILc (Mandatory)	ILc-22500-0338	ILc-30000-0338
AC Connection	Terminal block (L1, L2, L3, Neutral & Ground wires) provided.	
<b>Physical</b>		
Dimensions	610mm W x 610mm H x 305mm D	610mm W x 863mm H x 305mm D
Weight	89kg	110kg
<b>Safety</b>		
Standards	Designed to meet IEC 60950 standards. Protection class IP20.	
<b>Environmental</b>		
Ambient Temperature	0° to +40°C. 10 to 90% Relative Humidity (non-condensing).	
Cooling Method	Fan cooled.	
<b>Warranty</b>		
Warranty	2 Year Limited Warranty, Parts & Labor.	

## VRp System (Per Phase) Architecture

