



Fail-safe

Automatic voltage regulator

with PWM precision

VRp model**9000**

9 kVA
9 kW
220/380 or
230/400 volts
3 phase wye

16500

16.5 kVA
16.5 kW
220/380 or
230/400 volts
3 phase wye

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 between 172 to 276 vac, per phase.

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 VRp 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: analytical equipment, radio and TV broadcast equipment, mobile broadcast vans, industrial controllers (PLC), milking machines, lithographic equipment, recording studio equipment and electrolysis equipment.

Key VRp 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 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), Yellow LED indicates Bypass (non-regulated output), and the Red LED indicates a Fault condition.



Key features of the VRp Series precision voltage regulator

- Outstanding voltage regulation: under normal input range of 172 to 276V(47 to 63Hz) per phase, output regulation will be: nominal +/-3%
- Failsafe: no switching of power path
- Fast regulation
- Automatic bypass
- Low impedance
- Low weight
- Quiet operation
- Two year warranty

*Power with a
Precision Attitude™*



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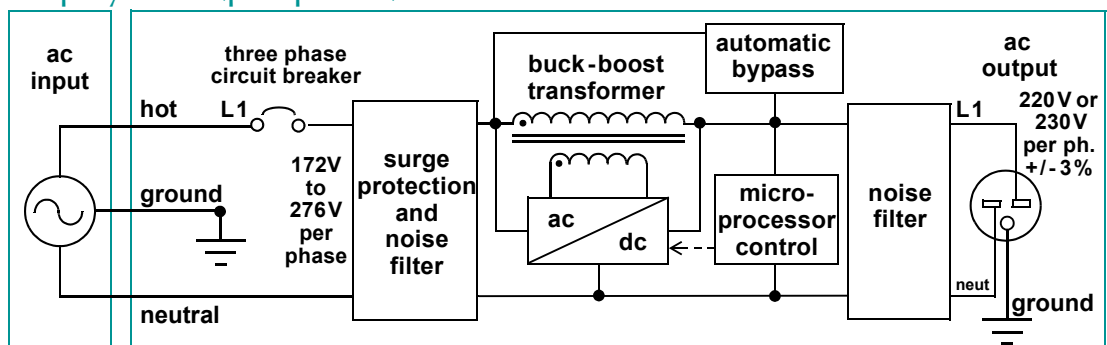
Voltage regulator with precision

Power with a Precision Attitude™

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-9000	VRp-16500
Electrical		
Capacity in VA (watts)	9kVA (9kW)	16.5kVA (16.5kW)
Regulator engine	High frequency 20 kHz IGBT driven voltage regulation converter	
Input		
Nominal voltage	220/380V or 230/400 volts ac, three phase wye	
Normal Operating Voltage	Range: 172 to 276 volts ac	
Maximum operating range	160 to 300 volts ac (with reduced output capacity and wider regulation).	
Nominal frequency	47 to 63Hz	
Over-current protection	Input circuit breaker	
Circuit breaker rating	3 x 20 amperes (ganged)	3 x 40 amperes (ganged)
Input wire size	AWG 12 (3.3 square mm)	AWG 8 (8 square mm)
Ac connection	Terminal block (L1, L2, L3, neutral and ground wires) provided.	
Output		
Nominal voltage	220/380V or 230/400 volts ac (<i>specify with PO</i>), three phase wye.	
Power efficiency	Better than 96% (under all load conditions)	
Voltage regulation	Nominal +/-3% maximum under 0 to 100% load and input of 172 to 276 vac	
Relaxed voltage regulation	192 to 240 volts ac over wider input range of 160 to 300 vac	
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 fault condition.	
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, L-G: 30V Category B3, Combination wave, 3000A: L-N: 200V, L-G: 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 (ILc) is recommended for installations where distance exceeds above, or for grounding systems without a neutral-to-ground bond. (Customized built-in ILc option is available).	
Ac connection	Terminal block (L1, L2, L3, neutral and ground wires) provided.	
Physical		
Dimensions	610mm(24")wide x 710mm(28")high x 560mm(22")deep	
Weight	73 kg(160 lbs)	86 kg(190 lbs)
Safety		
Agency approvals	Designed to meet UL/cUL1950 and IEC 60950 standards.	
Environmental		
Ambient temperature	0° to +25°C (32° to +77°F). 10 to 90% RH non-condensing.	
Warranty		
Warranty	Two year limited warranty, parts and labor.	

VRp system (per phase) architecture



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