

AVR models ($\pm 20\%$)

VRp-3000-9230-200M

3KVA

 230V $\pm 1\%$

Single phase

VRp-5000-9230-200M

5KVA

 230V $\pm 1\%$

Single phase

VRp-7500-9230-200M

7.5KVA

 230V $\pm 1\%$

Single phase

VRp-10000-9230-200M

10KVA

 230V $\pm 1\%$

Single phase

Static voltage regulator with automatic bypass

Precision fast-PWM ac mains voltage correction

TSi Elecpower's VRp is manufactured in a joint venture under license & technology transfer from TSi Power Corporation, USA. This automatic precision voltage regulator allows trouble-free operation of electronic equipment over a very wide mains ac voltage fluctuation range of 160 - 300 V found in many developing countries.

There is no switching of taps or otherwise a break in the power path thanks to continuous pulse-width-modulation (PWM) switching of a buck-boost transformer.

Typical applications

Designed for applications needing absolutely safe and precisely regulated ac power, such as

- Residential & Commercial applications
- Process Industries
- Industrial process controller (PLC)
- Computer Controlled (CNC) Machines
- Medical (MRI, CT) and diagnostics
- Analytical measurement equipment
- Mobile communications (BTS sites)
- Radio / TV broadcasting/Transmission sites

Key VRp Series 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 insulated gate bi-polar transistor (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 precisely regulated 230 vac output.

The automatic bypass will be activated when there is a fault condition. Green LEDs are used to indicate Normal (regulating mode) operation.



Key features of the VRp Series precision voltage regulator

- Outstanding voltage regulation: under standard design voltage range, output regulation will be within $\pm 1\%$, but still higher voltage fluctuation can be covered to achieve liberal regulation within usable output voltage range of 200-250 vac, P-N.
- No switching of active power path
- Fail-safe: automatic bypass
- Instantaneous Correction: boon for CNC Machines & hi-tech electronic gadgets
- Low impedance
- Low weight
- Quiet operation
- Soft switch-on
- Energy efficient


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CATEGORY	VRp series Single Phase AVR's designed for $\pm 20\%$ fluctuation			
FEATURE	STANDARD SINGLE PHASE MODELS			
	VRp-3000-9230-200M	VRp-5000-9230-200M	VRp-7500-9230-200M	VRp-10000-9230-200M
ELECTRICAL				
Capacity in KVA (KW)	3 KVA	5 KVA	7.5 KVA	10 KVA
Regulator engine	High frequency 20 Khz IGBT driven voltage regulation convertor			
INPUT				
*Nominal voltage	230 volts ac, single phase			
*Normal operating voltage (typical output regulation within +/- 1% of nominal)	184 - 276 volts ac ($\pm 20\%$) for full regulation			
Relaxed operating voltage (relaxed output regulation within functional range of 200-250V P-N)	160-300 volts ac ($\pm 30\%$) within maximum rated input current capacity.			
Maximum rated input current	16A	27A	40 A	54A
Nominal frequency	47 - 63 Hz			
Input circuit breaker rating	20 A X 2 phase (ganged MCB)	32 A X 2 phase (ganged MCB)	40 A X 2 phase (ganged MCB)	63 A X 2 phase (ganged MCB)
Input wire size	4 mm ² (AWG 12)	4 mm ² (AWG 12)	6 mm ² (AWG 10)	10 mm ² (AWG 8)
Ac connection	Terminal block (L1 in , neutral and ground wires) provided			
OUTPUT				
*Nominal voltage	230 volts ac, three phase			
Power efficiency	typically over 96 % (with 20 - 100% load conditions)			
Voltage regulation (typical, excluding meter error)	+/- 1 %			
Maximum rated output current	13A	22A	32A	43A
System status indicator	Green LED (ON) indicates Normal (regulating mode) operation			
Ac connection	Terminal block (L1 op , neutral and ground wires) provided			
PHYSICAL				
Dimensions (IN MM)	300 W x 165 H x 435 D		400 W x 280 H x 540 D	
Weight (approx.)	20 kgs	23 kgs	40 Kgs	50 Kgs
Annunciation	LED display for Regulation mode, Bypass mode & Fault conditions			
Mounting	Pad Mounted			
ENVIRONMENTAL				
Ambient temperature	0°to + 45°centigrade (32° to +113° farhenite). 10 to 90% RH non-condensing			
Cooling method	Natural Cooled			
PROTECTIVE FEATURES				
Standards & Safety	Designed to meet protection class IP 20.			
OV/UV cut off	Automatic trip in event of High/Low/Missing Voltage, auto reset			
Overload & Short Circuit Protection	Through suitably rated input circuit breaker			
Soft Switch-On	This feature ensure that output voltage is never higher than input voltage upon switch-on, before it commences full stabilization.			
Automatic bypass	Automatic bypass will be activated when there is a fault condition			
Surge test conditions	Per Class 2 Surge (combination wave)			
Surge let-through voltages	1.2 X 50 μ s, 6kV, 8 X 20 μ s, 3 kA waveform. L-N < 300V			

All * marked voltage regulation ranges are based on 230 V nominal output voltage. They would proportionately change in case nominal output voltage is required to be preset at any other value between 215-240 V.



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VRp system architecture

