

AVR models (± 20%)
VRp-15000-9339-200M
15KVA
400V ± 1%
Three phase
VRp-25000-9339-200M
25KVA
400V ± 1%
Three phase
VRp-30000-9339-200M
30KVA
400V ± 1%
Three phase
VRp-45000-9339-200M
45KVA
400V ± 1%
Three phase
VRp-70000-9339-200M
70KVA
400V ± 1%
Three phase
VRp-100000-9339-200M
100KVA
400V ± 1%
Three 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 ± 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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Specifications sheet : VRp series AVR's designed for $\pm 20\%$ fluctuation						
CATEGORY	STANDARD THREE PHASE MODELS					
FEATURE	VRp-15000-9339-200M	VRp- 25000-9339-200M	VRp-30000-9339-200M	VRp-45000-9339-200M	VRp-70000-9339-200M	VRp-100000-9339-200M
ELECTRICAL						
Capacity in KVA (KW)	15 KVA	25 KVA	30 KVA	45 KVA	70 KVA	100 KVA
Regulator engine	High frequency 20 KHz IGBT driven voltage regulation convertor					
INPUT						
*Nominal voltage	400 volts ac, three phase					
*Normal operating voltage (typical output regulation within +/- 1% of nominal)	320 - 480 volts ac ($\pm 20\%$) for full regulation					
Relaxed operating voltage (relaxed output regulation within functional range of 200-250V P-N)	277 - 520 volts ac ($\pm 30\%$) within maximum rated input current capacity					
Maximum rated input current	27A	45A	54A	80A	125A	180A
Nominal frequency	47 - 63 Hz					
Input circuit breaker rating	32 A X 3 phase (ganged MCB)	50 A X 3 phase (ganged MCB)	63 A X 3 phase (ganged MCB)	80 A X 3 phase MCCB	125 A X 3 phase MCCB	200 A X 3 phase MCCB
Input wire size	4 mm ² (AWG 12)	6 mm ² (AWG 10)	10 mm ² (AWG 8)	16 mm ² (AWG 6)	25 mm ² (AWG 4)	2x16 mm ² (AWG 6)
Ac connection	Terminal block (L1in , L2in, L3in, neutral and ground wires) provided					
OUTPUT						
*Nominal voltage	400 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	22A	36A	43A	65A	101A	144A
System status indicator	Green LED (ON) indicates Normal (regulating mode) operation					
Ac connection	Terminal block (L1op, L2op, L3op, neutral and ground wires) provided					
PHYSICAL						
Dimensions (IN MM) (approx.)	610 W x 570 H x 610 D			660W x 570H x 660D	813 W x 813 H x 813 D	
Weight (approx.)	105 kgs	115 Kgs	140 Kgs	160 Kgs	275 Kgs	300 Kgs
Annunciation	LED display for Regulation mode, Bypass mode & Fault conditions					
Mounting	4 caster wheels, 2 with brakes					
ENVIRONMENTAL						
Ambient temperature	0° to + 45° Centigrade (32° to + 113°Farhenite). 10 to 90% RH non-condensing.					
Cooling method	Fan Cooled					
PROTECTIVE FEATURES						
Standards & Safety	Designed to meet UL 60950-I standards. Protection class IP 20.					
OV/UV cut off with SPP	Automatic trip in event of High/Low/Missing Voltage, auto reset		Automatic trip in event of High/Low/Missing Voltage, manual reset			
Overload & Short Circuit Protection	Through suitably rated input circuit breaker					
Soft Switch-On	This feature ensure that the output voltage is never higher than the 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 400V nominal output voltage. They would proportionately change in case nominal output voltage is required to be preset at any other value between 380-415V.



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VRp
 VRp system
 architecture

