IGBT BASED STATIC VOLTAGE REGULATOR (SVR)

Introduction

Prima's Static Voltage Regulator is an IGBT based PWM type buck-boost voltage regulator which has tight regulation and fast correction speed. This is a switching topology where PWM is made directly in AC-to-AC switching, without any harmonic distortion. The power stage is an IGBT chopper control. The chopping frequency is around 40 KHz which ensures absolutely silent operation and pure sine wave output. The Static Voltage Regulator is compatible with all loads as it does not switch any components in the power path.

Single Phase 1kVA – 70 kVA

Three Phase 10 kVA – 200 kVA

Key Features:

- ✓ Fast Rate of Correction: 4000 V/Sec
- ✓ High Efficiency of more than 97%
- ✓ Designed for 100% continuous duty cycle
- ✓ Natural/Forced Air Cooling
- ✓ No harmonic distortion
- ✓ No distortion in output waveform
- ✓ LCD display for data monitoring
- ✓ Overload cutoff and short circuit cut off
- ✓ Over voltage and under voltage cutoff
- ✓ Automatic bypass in case of failure
- ✓ Compact size and light weight
- ✓ Silent operation
- ✓ No mechanical or moving parts (no wear and tear)
- ✓ Long life and maintenance free

Applications:

- Hospitals/Medical Equipment
- Hotels
- Commercial/ Shopping Malls
- Residences
- Industrial Application
- Military Facilities
- Radio & TV Systems
- Textile Industry
- CNC & PLC based Machine

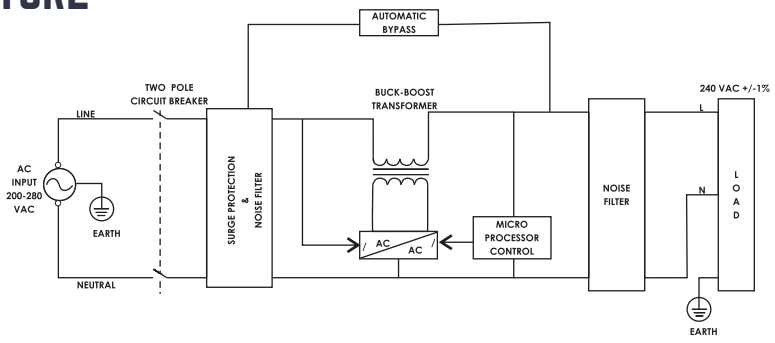
SPECIFICATION

Capacity	**Single Phase: 1 kva to 70 kva Three Phase: 10 kva to 200 kva**
Technology	**DSP based IGBT PWM switching**
Type of Connection	**L1, L2, L3, N, G**
Input Voltage Range	**340 V-460 V L-L (+/-15%), customized range available**
Output Voltage	**400 VAC L-L +/- 1%**
Response Time	**20 ms**
Rate of Correction	**4000 V/Sec**
Frequency Range	**45Hz to 65Hz**
EMI Filter	**Equipped with EMI filtering for proper operation of the unit**
Efficiency	**> 97 %**
Display	**LCD for I/P Voltage, Output Voltage, Over Voltage, Under Voltage,**
	Load VA, Overload, Cut off Mode
Protection	**Overload, Short Circuit, High Voltage, Low Voltage**
Trip and Restart	**Auto**
Nature of Cooling	**Natural/Forced Air Cooled**
Duty Cycle	**Continuous**
Operating Temperature	**0 to 50 *C**
Enclosure	**IP 21**
Wave Form	**Same as Input**
Effect on Power Factor	**Nil**
Voltage Surge Protection	**Class 2 Surge (1.2 x50uS, 6kV, 8x20uS, 2kA L-N<300V)**

WORKING THEORY:

In this IGBT based PWM type static voltage regulator only the difference voltage is switched through IGBT and will be added or subtracted from the mains. This is done electronically without any step changing in voltage which occurs when the system regulates. This is achieved by a feedback control system using digital signal processor (DSP). The output voltage is sensed by the DSP and corrections are made by varying the duty cycle of the PWM.

SYSTEM ARCHITECTURE



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