



# TSi-VRP

## Static Voltage Regulator Single Phase 1kVA to 15KVA, $\pm 20\%$

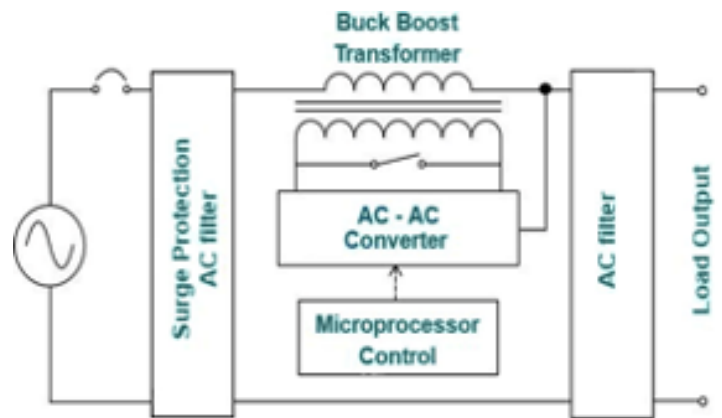


TSi's Static Voltage Regulator with Precision (VRP) is an automatic precision AC voltage regulator that ensures maintenance-free operation of electronic equipment over a wide input voltage range. The VRP series is designed to provide high precision power with a typical response cum correction time of 20 milliseconds to comply with the requirements of the ITIC curve for power supply to electronics.

Three phase as well as single phase versions are available.

### How the VRP works:

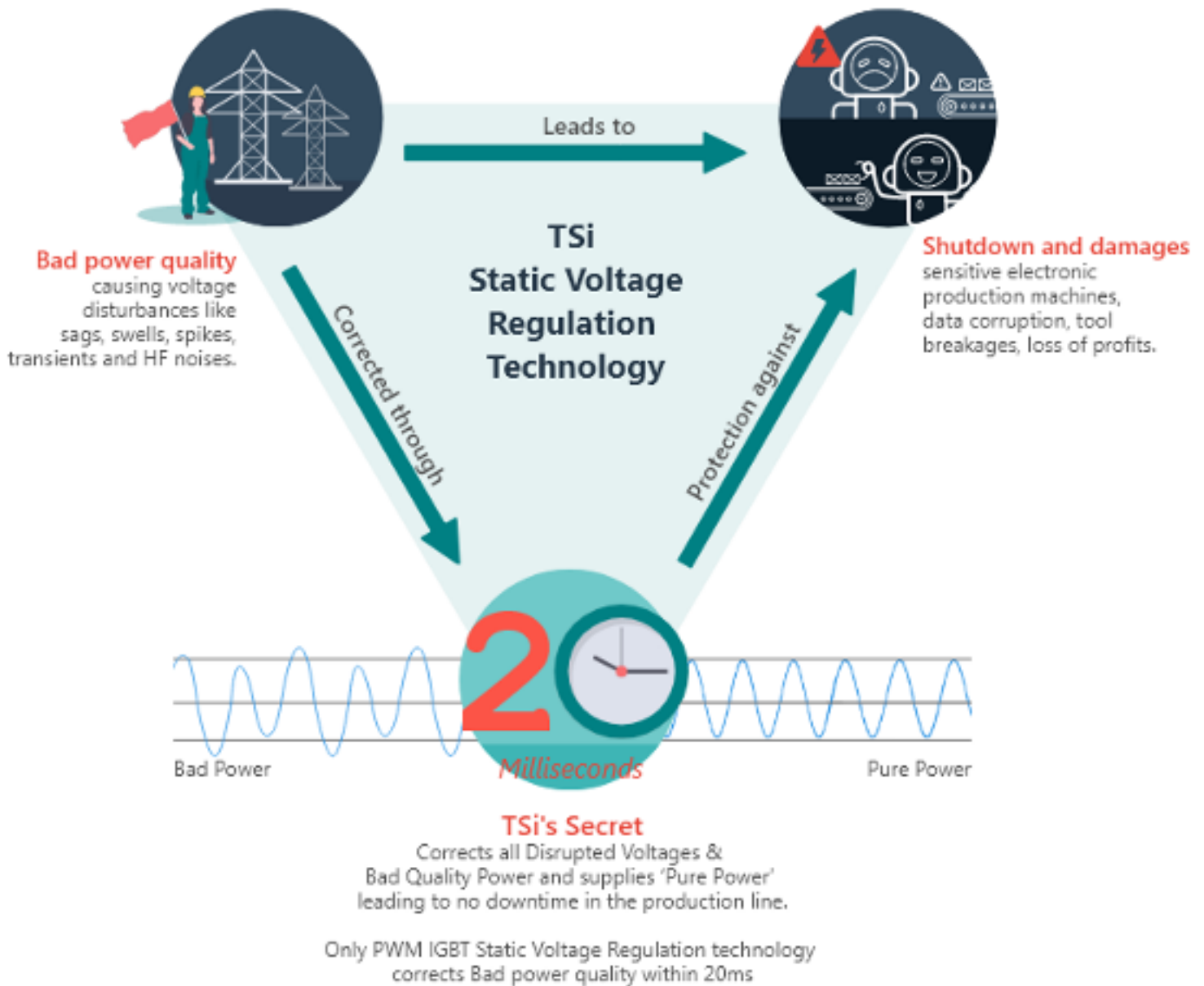
The high frequency Insulated Gate Bipolar Transistor (IGBT) driven converter takes the incoming AC power, measures it against the nominal voltage reference and adds or subtracts voltage to achieve a precisely regulated 230 V output. The automatic bypass will be activated when there is a fault condition. Green LEDs are used to indicate Normal (regulating mode) operation.



### Features and Benefits:

- Static technology results in quiet operation, high product up-time & low maintenance.
- Provides optimum voltage compensation, sag control, swell control, spike & noise control.
- Provides output voltage to within  $\pm 1\%$  for superior regulation.
- Internal surge voltage protection assures trouble-free operation.
- AC input circuit breakers and load over current protection prevents costly equipment damage.
- Tight control over electronic card failures, data corruption and machine breakdowns result in higher productivity, lower operating costs, and greater consumer comfort.
- Lightweight and compact size makes for ease of installation.

# Reliable TSi Static Voltage Regulation Technology for Next Gen Electronic Machinery



# Technical Specifications

Model	VRP-1000-9230-200M
<b>Electrical</b>	
Capacity (in KVA)	1
Switching Technology	20 kHz IGBT AC chopper/inverter
Voltage Compensation Time	20 ms typical
<b>AC Input</b>	
Nominal Input Voltage (V)	Single phase 230
Designed Input Voltage Range (V) (voltage regulation accuracy of +/-1%)	184 - 276
Input Voltage Range (V) (for relaxed output regulation within functional range of 200-250V P-N)	160 - 300
Nominal Operating Frequency	47 – 63 Hz
AC Input Connector	L1, Neutral & Ground input wires
Overload & Short Circuit Protection	Through suitably rated input circuit breaker
<b>AC Output</b>	
Nominal Output Voltage (V)	Single phase 230
Efficiency	Typical 96% (under 20 – 100 % load condition)
Output Voltage Compensation Range	+/- 1 %
Maximum Rated Output Current (A)	4
System Status Indicator	Green LED ON-Normal operation - Amber LED ON-Bypass operation Red LED ON-Fault
Output Connector	L1, Neutral & Ground output wires
Surge Protection	Class II Surge Protection
<b>Physical</b>	
Cabinet Construction	Powder coated CRCA cabinets
Automatic AC-AC Converter Bypass	Standard, will get activated when there is a fault condition
Cabinet Weather Protection Ratings	IP 20 (for use in protected indoor environments)
Mounting	Pad mounted
Overall Dimension (approx.)	As per Dimension Diagram of Cabinet Type 460x300x170
Unpacked Weight (approx.)	15 kg
<b>Environmental</b>	
Cooling Method	Forced air
Operating Temperature Range	0 to + 45 °C
Operating Humidity Range	10 to 90% relative humidity (non-condensing)

**Note:** The voltage regulation is based on 230V P-N nominal output voltage. This would proportionately change in case nominal output voltage is required to be preset at any other value between 215V-240V P-N.

# Technical Specifications

Model	VRP-2000-9230-200M
<b>Electrical</b>	
Capacity (in KVA)	2
Switching Technology	20 kHz IGBT AC chopper/inverter
Voltage Compensation Time	20 ms typical
<b>AC Input</b>	
Nominal Input Voltage (V)	Single phase 230
Designed Input Voltage Range (V) (voltage regulation accuracy of +/-1%)	184 - 276
Input Voltage Range (V) (for relaxed output regulation within functional range of 200-250V P-N)	160 - 300
Nominal Operating Frequency	47 – 63 Hz
AC Input Connector	L1, Neutral & Ground input wires
Overload & Short Circuit Protection	Through suitably rated input circuit breaker
<b>AC Output</b>	
Nominal Output Voltage (V)	Single phase 230
Efficiency	Typical 96% (under 20 – 100 % load condition)
Output Voltage Compensation Range	+/- 1 %
Maximum Rated Output Current (A)	9
System Status Indicator	Green LED ON-Normal operation - Amber LED ON-Bypass operation Red LED ON-Fault
Output Connector	L1, Neutral & Ground output wires
Surge Protection	Class II Surge Protection
<b>Physical</b>	
Cabinet Construction	Powder coated CRCA cabinets
Automatic AC-AC Converter Bypass	Standard, will get activated when there is a fault condition
Cabinet Weather Protection Ratings	IP 20 (for use in protected indoor environments)
Mounting	Pad mounted
Overall Dimension (approx.)	As per Dimension Diagram of Cabinet Type 460x300x170
Unpacked Weight (approx.)	15 kg
<b>Environmental</b>	
Cooling Method	Forced air
Operating Temperature Range	0 to + 45 °C
Operating Humidity Range	10 to 90% relative humidity (non-condensing)

**Note:** The voltage regulation is based on 230V P-N nominal output voltage. This would proportionately change in case nominal output voltage is required to be preset at any other value between 215V-240V P-N.

# Technical Specifications

Model	VRP-3000-9230-200M
<b>Electrical</b>	
Capacity (in KVA)	3
Switching Technology	20 kHz IGBT AC chopper/inverter
Voltage Compensation Time	20 ms typical
<b>AC Input</b>	
Nominal Input Voltage (V)	Single phase 230
Designed Input Voltage Range (V) (voltage regulation accuracy of +/-1%)	184 - 276
Input Voltage Range (V) (for relaxed output regulation within functional range of 200-250V P-N)	160 - 300
Nominal Operating Frequency	47 – 63 Hz
AC Input Connector	L1, Neutral & Ground input wires
Overload & Short Circuit Protection	Through suitably rated input circuit breaker
<b>AC Output</b>	
Nominal Output Voltage (V)	Single phase 230
Efficiency	Typical 96% (under 20 – 100 % load condition)
Output Voltage Compensation Range	+/- 1 %
Maximum Rated Output Current (A)	13
System Status Indicator	Green LED ON-Normal operation - Amber LED ON-Bypass operation Red LED ON-Fault
Output Connector	L1, Neutral & Ground output wires
Surge Protection	Class II Surge Protection
<b>Physical</b>	
Cabinet Construction	Powder coated CRCA cabinets
Automatic AC-AC Converter Bypass	Standard, will get activated when there is a fault condition
Cabinet Weather Protection Ratings	IP 20 (for use in protected indoor environments)
Mounting	Pad mounted
Overall Dimension (approx.)	As per Dimension Diagram of Cabinet Type 460x300x170
Unpacked Weight (approx.)	20 kg
<b>Environmental</b>	
Cooling Method	Forced air
Operating Temperature Range	0 to + 45 °C
Operating Humidity Range	10 to 90% relative humidity (non-condensing)

**Note:** The voltage regulation is based on 230V P-N nominal output voltage. This would proportionately change in case nominal output voltage is required to be preset at any other value between 215V-240V P-N.

# Technical Specifications

Model	VRP-5000-9230-200M
<b>Electrical</b>	
Capacity (in KVA)	5
Switching Technology	20 kHz IGBT AC chopper/inverter
Voltage Compensation Time	20 ms typical
<b>AC Input</b>	
Nominal Input Voltage (V)	Single phase 230
Designed Input Voltage Range (V) (voltage regulation accuracy of +/-1%)	184 - 276
Input Voltage Range (V) (for relaxed output regulation within functional range of 200-250V P-N)	160 - 300
Nominal Operating Frequency	47 – 63 Hz
AC Input Connector	L1, Neutral & Ground input wires
Overload & Short Circuit Protection	Through suitably rated input circuit breaker
<b>AC Output</b>	
Nominal Output Voltage (V)	Single phase 230
Efficiency	Typical 96% (under 20 – 100 % load condition)
Output Voltage Compensation Range	+/- 1 %
Maximum Rated Output Current (A)	22
System Status Indicator	Green LED ON-Normal operation - Amber LED ON-Bypass operation Red LED ON-Fault
Output Connector	L1, Neutral & Ground output wires
Surge Protection	Class II Surge Protection
<b>Physical</b>	
Cabinet Construction	Powder coated CRCA cabinets
Automatic AC-AC Converter Bypass	Standard, will get activated when there is a fault condition
Cabinet Weather Protection Ratings	IP 20 (for use in protected indoor environments)
Mounting	Pad mounted
Overall Dimension (approx.)	As per Dimension Diagram of Cabinet Type 460x300x170
Unpacked Weight (approx.)	25 kg
<b>Environmental</b>	
Cooling Method	Forced air
Operating Temperature Range	0 to + 45 °C
Operating Humidity Range	10 to 90% relative humidity (non-condensing)

**Note:** The voltage regulation is based on 230V P-N nominal output voltage. This would proportionately change in case nominal output voltage is required to be preset at any other value between 215V-240V P-N.

# Technical Specifications

Model	VRP-7500-9230-200M
<b>Electrical</b>	
Capacity (in KVA)	7.5
Switching Technology	20 kHz IGBT AC chopper/inverter
Voltage Compensation Time	20 ms typical
<b>AC Input</b>	
Nominal Input Voltage (V)	Single phase 230
Designed Input Voltage Range (V) (voltage regulation accuracy of +/-1%)	184 - 276
Input Voltage Range (V) (for relaxed output regulation within functional range of 200-250V P-N)	160 - 300
Nominal Operating Frequency	47 – 63 Hz
AC Input Connector	L1, Neutral & Ground input wires
Overload & Short Circuit Protection	Through suitably rated input circuit breaker
<b>AC Output</b>	
Nominal Output Voltage (V)	Single phase 230
Efficiency	Typical 96% (under 20 – 100 % load condition)
Output Voltage Compensation Range	+/- 1 %
Maximum Rated Output Current (A)	33
System Status Indicator	Green LED ON-Normal operation - Amber LED ON-Bypass operation Red LED ON-Fault
Output Connector	L1, Neutral & Ground output wires
Surge Protection	Class II Surge Protection
<b>Physical</b>	
Cabinet Construction	Powder coated CRCA cabinets
Automatic AC-AC Converter Bypass	Standard, will get activated when there is a fault condition
Cabinet Weather Protection Ratings	IP 20 (for use in protected indoor environments)
Mounting	Pad mounted
Overall Dimension (approx.)	As per Dimension Diagram of Cabinet Type 560x450x300
Unpacked Weight (approx.)	45 kg
<b>Environmental</b>	
Cooling Method	Forced air
Operating Temperature Range	0 to + 45 °C
Operating Humidity Range	10 to 90% relative humidity (non-condensing)

**Note:** The voltage regulation is based on 230V P-N nominal output voltage. This would proportionately change in case nominal output voltage is required to be preset at any other value between 215V-240V P-N.

# Technical Specifications

Model	VRP-10000-9230-200M
<b>Electrical</b>	
Capacity (in KVA)	10
Switching Technology	20 kHz IGBT AC chopper/inverter
Voltage Compensation Time	20 ms typical
<b>AC Input</b>	
Nominal Input Voltage (V)	Single phase 230
Designed Input Voltage Range (V) (voltage regulation accuracy of +/-1%)	184 - 276
Input Voltage Range (V) (for relaxed output regulation within functional range of 200-250V P-N)	160 - 300
Nominal Operating Frequency	47 – 63 Hz
AC Input Connector	L1, Neutral & Ground input wires
Overload & Short Circuit Protection	Through suitably rated input circuit breaker
<b>AC Output</b>	
Nominal Output Voltage (V)	Single phase 230
Efficiency	Typical 96% (under 20 – 100 % load condition)
Output Voltage Compensation Range	+/- 1 %
Maximum Rated Output Current (A)	44
System Status Indicator	Green LED ON-Normal operation - Amber LED ON-Bypass operation Red LED ON-Fault
Output Connector	L1, Neutral & Ground output wires
Surge Protection	Class II Surge Protection
<b>Physical</b>	
Cabinet Construction	Powder coated CRCA cabinets
Automatic AC-AC Converter Bypass	Standard, will get activated when there is a fault condition
Cabinet Weather Protection Ratings	IP 20 (for use in protected indoor environments)
Mounting	Pad mounted
Overall Dimension (approx.)	As per Dimension Diagram of Cabinet Type 560x450x300
Unpacked Weight (approx.)	50 kg
<b>Environmental</b>	
Cooling Method	Forced air
Operating Temperature Range	0 to + 45 °C
Operating Humidity Range	10 to 90% relative humidity (non-condensing)

**Note:** The voltage regulation is based on 230V P-N nominal output voltage. This would proportionately change in case nominal output voltage is required to be preset at any other value between 215V-240V P-N.



# Technical Specifications

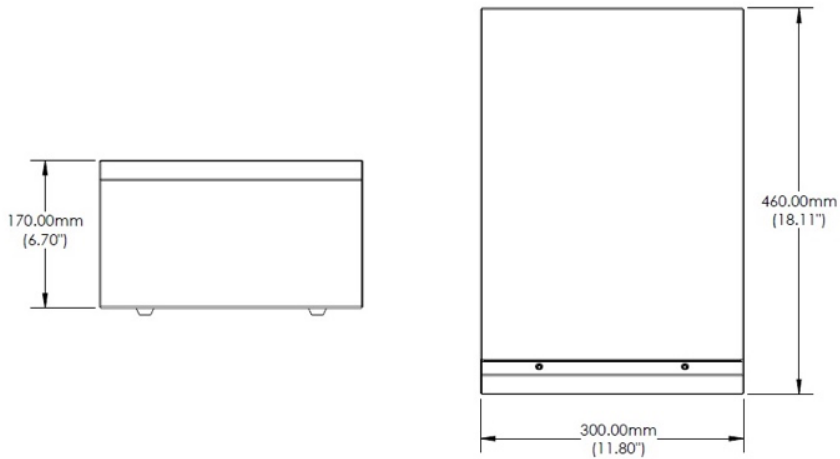
Model	VRP-15000-9230-200M
<b>Electrical</b>	
Capacity (in KVA)	15
Switching Technology	20 kHz IGBT AC chopper/inverter
Voltage Compensation Time	20 ms typical
<b>AC Input</b>	
Nominal Input Voltage (V)	Single phase 230
Designed Input Voltage Range (V) (voltage regulation accuracy of +/-1%)	184 - 276
Input Voltage Range (V) (for relaxed output regulation within functional range of 200-250V P-N)	160 - 300
Nominal Operating Frequency	47 – 63 Hz
AC Input Connector	L1, Neutral & Ground input wires
Overload & Short Circuit Protection	Through suitably rated input circuit breaker
<b>AC Output</b>	
Nominal Output Voltage (V)	Single phase 230
Efficiency	Typical 96% (under 20 – 100 % load condition)
Output Voltage Compensation Range	+/- 1 %
Maximum Rated Output Current (A)	65
System Status Indicator	Green LED ON-Normal operation - Amber LED ON-Bypass operation Red LED ON-Fault
Output Connector	L1, Neutral & Ground output wires
Surge Protection	Class II Surge Protection
<b>Physical</b>	
Cabinet Construction	Powder coated CRCA cabinets
Automatic AC-AC Converter Bypass	Standard, will get activated when there is a fault condition
Cabinet Weather Protection Ratings	IP 20 (for use in protected indoor environments)
Mounting	Pad mounted
Overall Dimension (approx.)	As per Dimension Diagram of Cabinet Type 560x450x300
Unpacked Weight (approx.)	60 kg
<b>Environmental</b>	
Cooling Method	Forced air
Operating Temperature Range	0 to + 45 °C
Operating Humidity Range	10 to 90% relative humidity (non-condensing)

**Note:** The voltage regulation is based on 230V P-N nominal output voltage. This would proportionately change in case nominal output voltage is required to be preset at any other value between 215V-240V P-N.

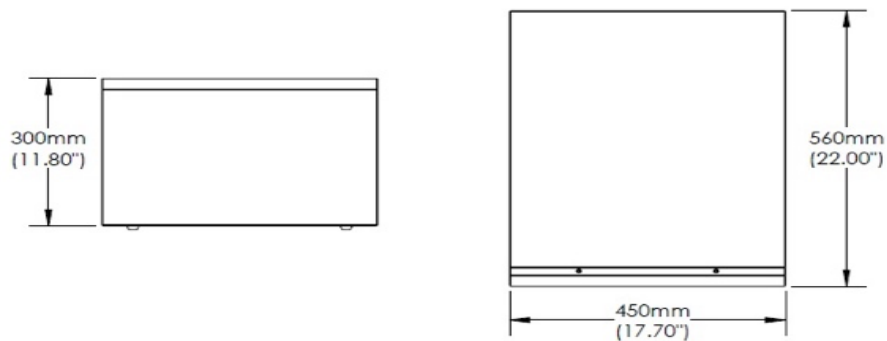
# Technical Specifications

## Dimension Diagrams

### CABINET TYPE 460x300x170



### CABINET TYPE 560x450x300



**TSi Power Pvt. Ltd.**

| 154-155, Siddhi Industrial Infra Park |  
| Waghodia, Vadodara, Gujarat, India 391760 |  
| Tel: + 91-80004 55999 / +91-75677 22666 |  
| info@tsipower.in | <https://tsipower.in> |