



TSi-VRP

Static Voltage Regulator

Three Phase 6.5kVA to 75KVA, $\pm 26\%$

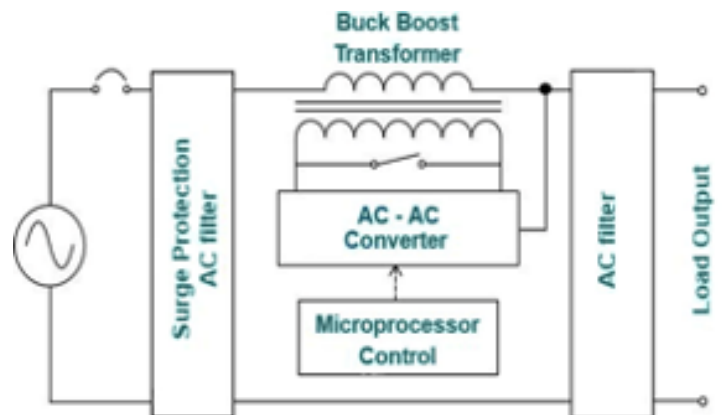


TSi's Static Voltage Regulator with Precision (VRP) is an automatic precision AC voltage regulator that ensures maintenance-free operation of electronic equipment over a wide input voltage range. The VRP series is designed to provide high precision power with a typical response cum correction time of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

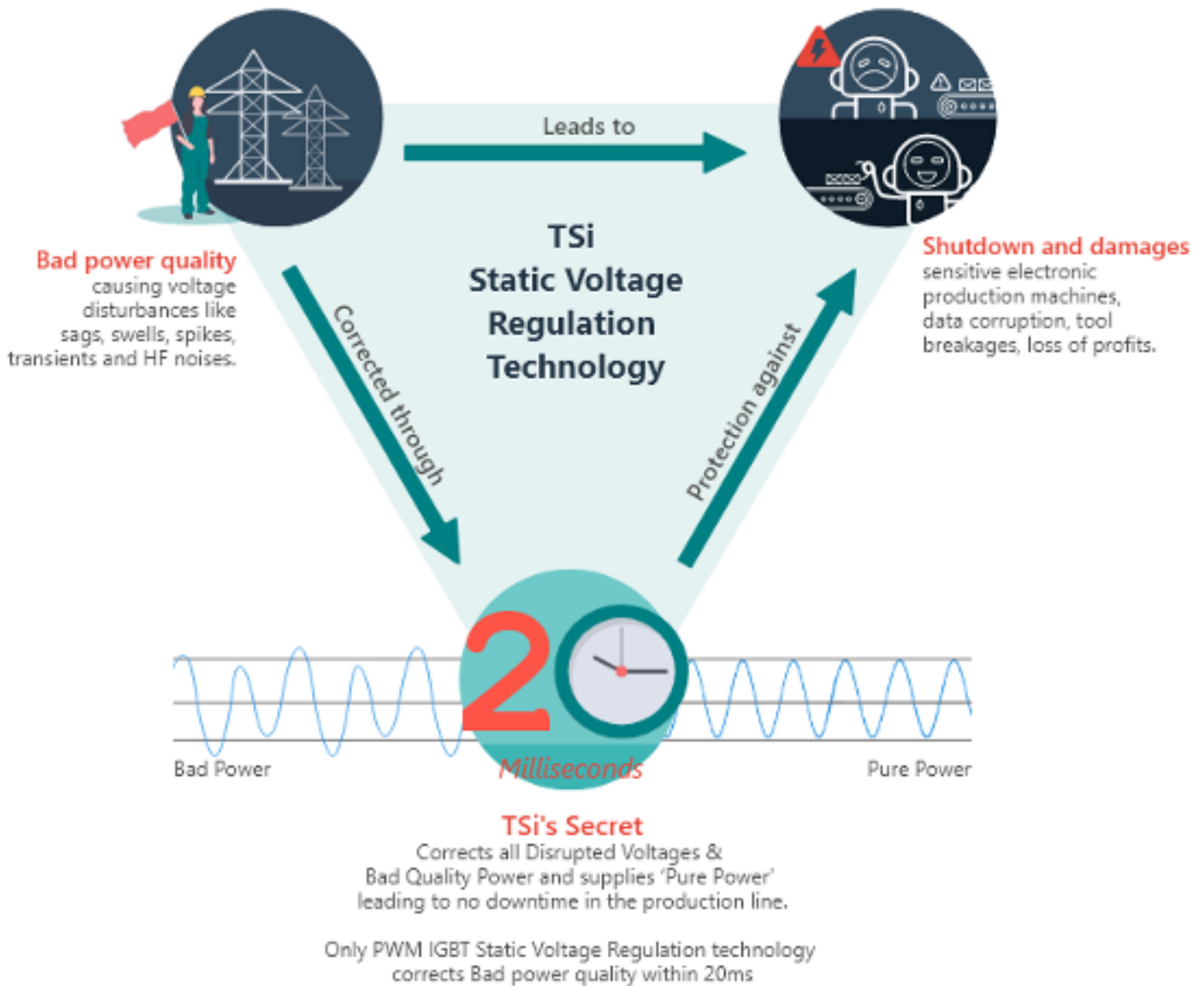
The high frequency Insulated Gate Bipolar Transistor (IGBT) driven converter takes the incoming AC power, measures it against the nominal voltage reference and adds or subtracts voltage to achieve a precisely regulated 230 V output. The automatic bypass will be activated when there is a fault condition. 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-6500-9339-260M
Electrical	
Capacity (in KVA)	6.5
Switching Technology	20 kHz IGBT AC chopper/inverter
Voltage Compensation Time	20 ms typical
AC Input	
Nominal Input Voltage (V)	Three phase 400
Designed Input Voltage Range (V) (voltage regulation accuracy of +/-1%)	295 - 500
Input Voltage Range (V) (for relaxed output regulation within functional range of 200-250V P-N)	256 - 541
Nominal Operating Frequency	47 – 63 Hz
AC Input Connector	L1, L2, L3, Neutral & Ground input wires
Overload & Short Circuit Protection	Through suitably rated input circuit breaker
AC Output	
Nominal Output Voltage (V)	Three phase 400
Efficiency	Typical 95% (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, L2, L3, Neutral & Ground output wires
Surge Protection	Class II Surge Protection
Physical	
Cabinet Construction	RAL 7035 light grey 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)
Display	Digital output voltage display thru selector switch
Mounting	4 High Quality Castor wheels, 2 with brakes
Overall Dimension (approx.)	As per Dimension Diagram of Cubical Type 610x610x640
Unpacked Weight (approx.)	85 kg
Environmental	
Cooling Method	Forced air
Operating Temperature Range	0 to + 45 °C
Operating Humidity Range	10 to 90% relative humidity (non-condensing)

Note:

1. The voltage regulation is based on 400V nominal output voltage. This would proportionately change in case nominal output voltage is required to be preset at any other value between 380V-415V.
2. All standard models are optionally available in IP54.

Technical Specifications

Model	VRP-10000-9339-260M
Electrical	
Capacity (in KVA)	10
Switching Technology	20 kHz IGBT AC chopper/inverter
Voltage Compensation Time	20 ms typical
AC Input	
Nominal Input Voltage (V)	Three phase 400
Designed Input Voltage Range (V) (voltage regulation accuracy of +/-1%)	295 - 500
Input Voltage Range (V) (for relaxed output regulation within functional range of 200-250V P-N)	256 - 541
Nominal Operating Frequency	47 – 63 Hz
AC Input Connector	L1, L2, L3, Neutral & Ground input wires
Overload & Short Circuit Protection	Through suitably rated input circuit breaker
AC Output	
Nominal Output Voltage (V)	Three phase 400
Efficiency	Typical 95% (under 20 – 100 % load condition)
Output Voltage Compensation Range	+/- 1 %
Maximum Rated Output Current (A)	14
System Status Indicator	Green LED ON-Normal operation - Amber LED ON-Bypass operation Red LED ON-Fault
Output Connector	L1, L2, L3, Neutral & Ground output wires
Surge Protection	Class II Surge Protection
Physical	
Cabinet Construction	RAL 7035 light grey 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)
Display	Digital output voltage display thru selector switch
Mounting	4 High Quality Castor wheels, 2 with brakes
Overall Dimension (approx.)	As per Dimension Diagram of Cubical Type 610x610x640
Unpacked Weight (approx.)	120 kg
Environmental	
Cooling Method	Forced air
Operating Temperature Range	0 to + 45 °C
Operating Humidity Range	10 to 90% relative humidity (non-condensing)

Note:

1. The voltage regulation is based on 400V nominal output voltage. This would proportionately change in case nominal output voltage is required to be preset at any other value between 380V-415V.
2. All standard models are optionally available in IP54.

Technical Specifications

Model	VRP-16000-9339-260M
Electrical	
Capacity (in KVA)	16
Switching Technology	20 kHz IGBT AC chopper/inverter
Voltage Compensation Time	20 ms typical
AC Input	
Nominal Input Voltage (V)	Three phase 400
Designed Input Voltage Range (V) (voltage regulation accuracy of +/-1%)	295 - 500
Input Voltage Range (V) (for relaxed output regulation within functional range of 200-250V P-N)	256 - 541
Nominal Operating Frequency	47 – 63 Hz
AC Input Connector	L1, L2, L3, Neutral & Ground input wires
Overload & Short Circuit Protection	Through suitably rated input circuit breaker
AC Output	
Nominal Output Voltage (V)	Three phase 400
Efficiency	Typical 95% (under 20 – 100 % load condition)
Output Voltage Compensation Range	+/- 1 %
Maximum Rated Output Current (A)	23
System Status Indicator	Green LED ON-Normal operation - Amber LED ON-Bypass operation Red LED ON-Fault
Output Connector	L1, L2, L3, Neutral & Ground output wires
Surge Protection	Class II Surge Protection
Physical	
Cabinet Construction	RAL 7035 light grey 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)
Display	Digital output voltage display thru selector switch
Mounting	4 High Quality Castor wheels, 2 with brakes
Overall Dimension (approx.)	As per Dimension Diagram of Cubical Type 610x610x640
Unpacked Weight (approx.)	120 kg
Environmental	
Cooling Method	Forced air
Operating Temperature Range	0 to + 45 °C
Operating Humidity Range	10 to 90% relative humidity (non-condensing)

Note:

1. The voltage regulation is based on 400V nominal output voltage. This would proportionately change in case nominal output voltage is required to be preset at any other value between 380V-415V.
2. All standard models are optionally available in IP54.

Technical Specifications

Model	VRP-21000-9339-260M
Electrical	
Capacity (in KVA)	21
Switching Technology	20 kHz IGBT AC chopper/inverter
Voltage Compensation Time	20 ms typical
AC Input	
Nominal Input Voltage (V)	Three phase 400
Designed Input Voltage Range (V) (voltage regulation accuracy of +/-1%)	295 - 500
Input Voltage Range (V) (for relaxed output regulation within functional range of 200-250V P-N)	256 - 541
Nominal Operating Frequency	47 – 63 Hz
AC Input Connector	L1, L2, L3, Neutral & Ground input wires
Overload & Short Circuit Protection	Through suitably rated input circuit breaker
AC Output	
Nominal Output Voltage (V)	Three phase 400
Efficiency	Typical 95% (under 20 – 100 % load condition)
Output Voltage Compensation Range	+/- 1 %
Maximum Rated Output Current (A)	30
System Status Indicator	Green LED ON-Normal operation - Amber LED ON-Bypass operation Red LED ON-Fault
Output Connector	L1, L2, L3, Neutral & Ground output wires
Surge Protection	Class II Surge Protection
Physical	
Cabinet Construction	RAL 7035 light grey 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)
Display	Digital output voltage display thru selector switch
Mounting	4 High Quality Castor wheels, 2 with brakes
Overall Dimension (approx.)	As per Dimension Diagram of Cubical Type 610x610x640
Unpacked Weight (approx.)	145 kg
Environmental	
Cooling Method	Forced air
Operating Temperature Range	0 to + 45 °C
Operating Humidity Range	10 to 90% relative humidity (non-condensing)

Note:

1. The voltage regulation is based on 400V nominal output voltage. This would proportionately change in case nominal output voltage is required to be preset at any other value between 380V-415V.
2. All standard models are optionally available in IP54.

Technical Specifications

Model	VRP-25000-9339-260M
Electrical	
Capacity (in KVA)	25
Switching Technology	20 kHz IGBT AC chopper/inverter
Voltage Compensation Time	20 ms typical
AC Input	
Nominal Input Voltage (V)	Three phase 400
Designed Input Voltage Range (V) (voltage regulation accuracy of +/-1%)	295 - 500
Input Voltage Range (V) (for relaxed output regulation within functional range of 200-250V P-N)	256 - 541
Nominal Operating Frequency	47 – 63 Hz
AC Input Connector	L1, L2, L3, Neutral & Ground input wires
Overload & Short Circuit Protection	Through suitably rated input circuit breaker
AC Output	
Nominal Output Voltage (V)	Three phase 400
Efficiency	Typical 95% (under 20 – 100 % load condition)
Output Voltage Compensation Range	+/- 1 %
Maximum Rated Output Current (A)	36
System Status Indicator	Green LED ON-Normal operation - Amber LED ON-Bypass operation Red LED ON-Fault
Output Connector	L1, L2, L3, Neutral & Ground output wires
Surge Protection	Class II Surge Protection
Physical	
Cabinet Construction	RAL 7035 light grey 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)
Display	Digital output voltage display thru selector switch
Mounting	4 High Quality Castor wheels, 2 with brakes
Overall Dimension (approx.)	As per Dimension Diagram of Cubical Type 660x660x720
Unpacked Weight (approx.)	155 kg
Environmental	
Cooling Method	Forced air
Operating Temperature Range	0 to + 45 °C
Operating Humidity Range	10 to 90% relative humidity (non-condensing)

Note:

1. The voltage regulation is based on 400V nominal output voltage. This would proportionately change in case nominal output voltage is required to be preset at any other value between 380V-415V.
2. All standard models are optionally available in IP54.

Technical Specifications

Model	VRP-32000-9339-260M
Electrical	
Capacity (in KVA)	32
Switching Technology	20 kHz IGBT AC chopper/inverter
Voltage Compensation Time	20 ms typical
AC Input	
Nominal Input Voltage (V)	Three phase 400
Designed Input Voltage Range (V) (voltage regulation accuracy of +/-1%)	295 - 500
Input Voltage Range (V) (for relaxed output regulation within functional range of 200-250V P-N)	256 - 541
Nominal Operating Frequency	47 – 63 Hz
AC Input Connector	L1, L2, L3, Neutral & Ground input wires
Overload & Short Circuit Protection	Through suitably rated input circuit breaker
AC Output	
Nominal Output Voltage (V)	Three phase 400
Efficiency	Typical 95% (under 20 – 100 % load condition)
Output Voltage Compensation Range	+/- 1 %
Maximum Rated Output Current (A)	46
System Status Indicator	Green LED ON-Normal operation - Amber LED ON-Bypass operation Red LED ON-Fault
Output Connector	L1, L2, L3, Neutral & Ground output wires
Surge Protection	Class II Surge Protection
Physical	
Cabinet Construction	RAL 7035 light grey 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)
Display	Digital output voltage display thru selector switch
Mounting	4 High Quality Castor wheels, 2 with brakes
Overall Dimension (approx.)	As per Dimension Diagram of Cubical Type 660x660x720
Unpacked Weight (approx.)	165 kg
Environmental	
Cooling Method	Forced air
Operating Temperature Range	0 to + 45 °C
Operating Humidity Range	10 to 90% relative humidity (non-condensing)

Note:

1. The voltage regulation is based on 400V nominal output voltage. This would proportionately change in case nominal output voltage is required to be preset at any other value between 380V-415V.
2. All standard models are optionally available in IP54.

Technical Specifications

Model	VRP-40000-9339-260M
Electrical	
Capacity (in KVA)	40
Switching Technology	20 kHz IGBT AC chopper/inverter
Voltage Compensation Time	20 ms typical
AC Input	
Nominal Input Voltage (V)	Three phase 400
Designed Input Voltage Range (V) (voltage regulation accuracy of +/-1%)	295 - 500
Input Voltage Range (V) (for relaxed output regulation within functional range of 200-250V P-N)	256 - 541
Nominal Operating Frequency	47 – 63 Hz
AC Input Connector	L1, L2, L3, Neutral & Ground input wires
Overload & Short Circuit Protection	Through suitably rated input circuit breaker
AC Output	
Nominal Output Voltage (V)	Three phase 400
Efficiency	Typical 95% (under 20 – 100 % load condition)
Output Voltage Compensation Range	+/- 1 %
Maximum Rated Output Current (A)	58
System Status Indicator	Green LED ON-Normal operation - Amber LED ON-Bypass operation Red LED ON-Fault
Output Connector	L1, L2, L3, Neutral & Ground output wires
Surge Protection	Class II Surge Protection
Physical	
Cabinet Construction	RAL 7035 light grey 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)
Display	Digital output voltage display thru selector switch
Mounting	4 High Quality Castor wheels, 2 with brakes
Overall Dimension (approx.)	As per Dimension Diagram of Cubical Type 888x888x838
Unpacked Weight (approx.)	240 kg
Environmental	
Cooling Method	Forced air
Operating Temperature Range	0 to + 45 °C
Operating Humidity Range	10 to 90% relative humidity (non-condensing)

Note:

1. The voltage regulation is based on 400V nominal output voltage. This would proportionately change in case nominal output voltage is required to be preset at any other value between 380V-415V.
2. All standard models are optionally available in IP54.

Technical Specifications

Model	VRP-50000-9339-260M
Electrical	
Capacity (in KVA)	50
Switching Technology	20 kHz IGBT AC chopper/inverter
Voltage Compensation Time	20 ms typical
AC Input	
Nominal Input Voltage (V)	Three phase 400
Designed Input Voltage Range (V) (voltage regulation accuracy of +/-1%)	295 - 500
Input Voltage Range (V) (for relaxed output regulation within functional range of 200-250V P-N)	256 - 541
Nominal Operating Frequency	47 – 63 Hz
AC Input Connector	L1, L2, L3, Neutral & Ground input wires
Overload & Short Circuit Protection	Through suitably rated input circuit breaker
AC Output	
Nominal Output Voltage (V)	Three phase 400
Efficiency	Typical 95% (under 20 – 100 % load condition)
Output Voltage Compensation Range	+/- 1 %
Maximum Rated Output Current (A)	72
System Status Indicator	Green LED ON-Normal operation - Amber LED ON-Bypass operation Red LED ON-Fault
Output Connector	L1, L2, L3, Neutral & Ground output wires
Surge Protection	Class II Surge Protection
Physical	
Cabinet Construction	RAL 7035 light grey 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)
Display	Digital output voltage display thru selector switch
Mounting	4 High Quality Castor wheels, 2 with brakes
Overall Dimension (approx.)	As per Dimension Diagram of Cubical Type 888x888x838
Unpacked Weight (approx.)	285 kg
Environmental	
Cooling Method	Forced air
Operating Temperature Range	0 to + 45 °C
Operating Humidity Range	10 to 90% relative humidity (non-condensing)

Note:

1. The voltage regulation is based on 400V nominal output voltage. This would proportionately change in case nominal output voltage is required to be preset at any other value between 380V-415V.
2. All standard models are optionally available in IP54.

Technical Specifications

Model	VRP-50000-9339-260MP
Electrical	
Capacity (in KVA)	50
Switching Technology	20 kHz IGBT AC chopper/inverter
Voltage Compensation Time	20 ms typical
AC Input	
Nominal Input Voltage (V)	Three phase 400
Designed Input Voltage Range (V) (voltage regulation accuracy of +/-1%)	295 - 500
Input Voltage Range (V) (for relaxed output regulation within functional range of 200-250V P-N)	256 - 541
Nominal Operating Frequency	47 – 63 Hz
AC Input Connector	L1, L2, L3, Neutral & Ground input BUSBAR
Overload & Short Circuit Protection	Through suitably rated input circuit breaker
AC Output	
Nominal Output Voltage (V)	Three phase 400
Efficiency	Typical 95% (under 20 – 100 % load condition)
Output Voltage Compensation Range	+/- 1 %
Maximum Rated Output Current (A)	72
System Status Indicator	Green LED ON-Normal operation - Amber LED ON-Bypass operation Red LED ON-Fault
Output Connector	L1, L2, L3, Neutral & Ground output BUSBAR
Surge Protection	Class II Surge Protection
Physical	
Cabinet Construction	RAL 7035 light grey 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)
Display	Digital output voltage display thru selector switch
Mounting	Pad mounted
Overall Dimension (approx.)	As per Dimension Diagram of Panel Type 650x1020x2150
Unpacked Weight (approx.)	400 kg
Environmental	
Cooling Method	Forced air
Operating Temperature Range	0 to + 45 °C
Operating Humidity Range	10 to 90% relative humidity (non-condensing)

Note:

1. The voltage regulation is based on 400V nominal output voltage. This would proportionately change in case nominal output voltage is required to be preset at any other value between 380V-415V.
2. All standard models are optionally available in IP54.

Technical Specifications

Model	VRP-75000-9339-260M
Electrical	
Capacity (in KVA)	75
Switching Technology	20 kHz IGBT AC chopper/inverter
Voltage Compensation Time	20 ms typical
AC Input	
Nominal Input Voltage (V)	Three phase 400
Designed Input Voltage Range (V) (voltage regulation accuracy of +/-1%)	295 - 500
Input Voltage Range (V) (for relaxed output regulation within functional range of 200-250V P-N)	256 - 541
Nominal Operating Frequency	47 – 63 Hz
AC Input Connector	L1, L2, L3, Neutral & Ground input wires
Overload & Short Circuit Protection	Through suitably rated input circuit breaker
AC Output	
Nominal Output Voltage (V)	Three phase 400
Efficiency	Typical 95% (under 20 – 100 % load condition)
Output Voltage Compensation Range	+/- 1 %
Maximum Rated Output Current (A)	108
System Status Indicator	Green LED ON-Normal operation - Amber LED ON-Bypass operation Red LED ON-Fault
Output Connector	L1, L2, L3, Neutral & Ground output wires
Surge Protection	Class II Surge Protection
Physical	
Cabinet Construction	RAL 7035 light grey 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)
Display	Digital output voltage display thru selector switch
Mounting	4 High Quality Castor wheels, 2 with brakes
Overall Dimension (approx.)	As per Dimension Diagram of Cubical Type 888x888x838
Unpacked Weight (approx.)	310 kg
Environmental	
Cooling Method	Forced air
Operating Temperature Range	0 to + 45 °C
Operating Humidity Range	10 to 90% relative humidity (non-condensing)

Note:

1. The voltage regulation is based on 400V nominal output voltage. This would proportionately change in case nominal output voltage is required to be preset at any other value between 380V-415V.
2. All standard models are optionally available in IP54.

Technical Specifications

Model	VRP-75000-9339-260MP
Electrical	
Capacity (in KVA)	75
Switching Technology	20 kHz IGBT AC chopper/inverter
Voltage Compensation Time	20 ms typical
AC Input	
Nominal Input Voltage (V)	Three phase 400
Designed Input Voltage Range (V) (voltage regulation accuracy of +/-1%)	295 - 500
Input Voltage Range (V) (for relaxed output regulation within functional range of 200-250V P-N)	256 - 541
Nominal Operating Frequency	47 – 63 Hz
AC Input Connector	L1, L2, L3, Neutral & Ground input BUSBAR
Overload & Short Circuit Protection	Through suitably rated input circuit breaker
AC Output	
Nominal Output Voltage (V)	Three phase 400
Efficiency	Typical 95% (under 20 – 100 % load condition)
Output Voltage Compensation Range	+/- 1 %
Maximum Rated Output Current (A)	108
System Status Indicator	Green LED ON-Normal operation - Amber LED ON-Bypass operation Red LED ON-Fault
Output Connector	L1, L2, L3, Neutral & Ground output BUSBAR
Surge Protection	Class II Surge Protection
Physical	
Cabinet Construction	RAL 7035 light grey 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)
Display	Digital output voltage display thru selector switch
Mounting	Pad mounted
Overall Dimension (approx.)	As per Dimension Diagram of Panel Type 650x1020x2150
Unpacked Weight (approx.)	430 kg
Environmental	
Cooling Method	Forced air
Operating Temperature Range	0 to + 45 °C
Operating Humidity Range	10 to 90% relative humidity (non-condensing)

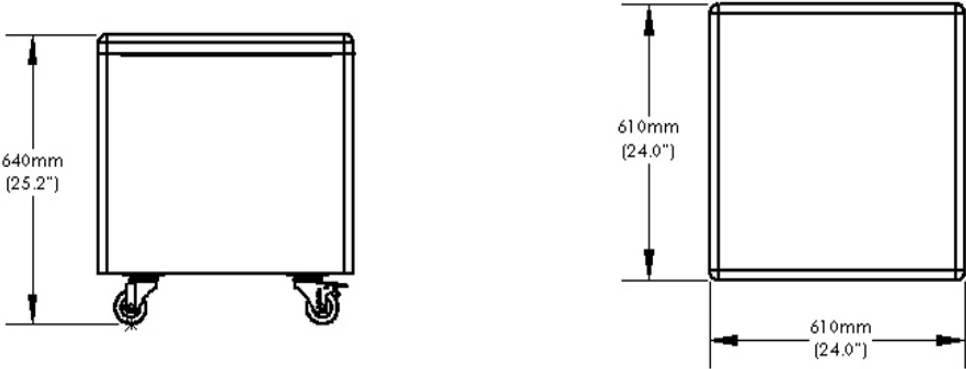
Note:

1. The voltage regulation is based on 400V nominal output voltage. This would proportionately change in case nominal output voltage is required to be preset at any other value between 380V-415V.
2. All standard models are optionally available in IP54.

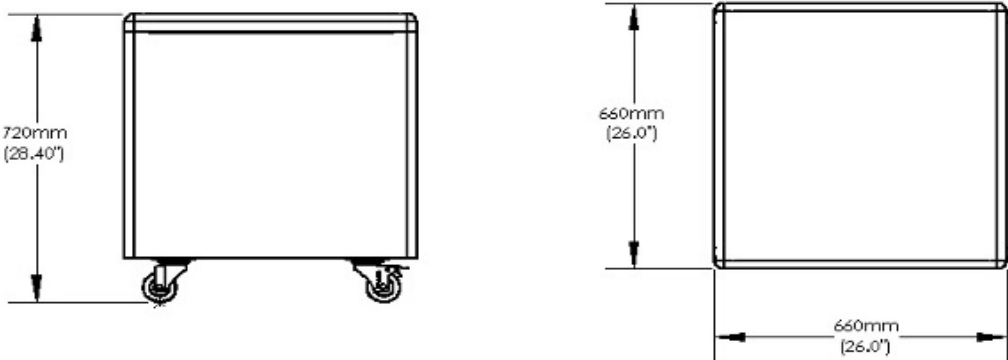
Technical Specifications

Dimension Diagrams

CUBICAL TYPE 610x610x640



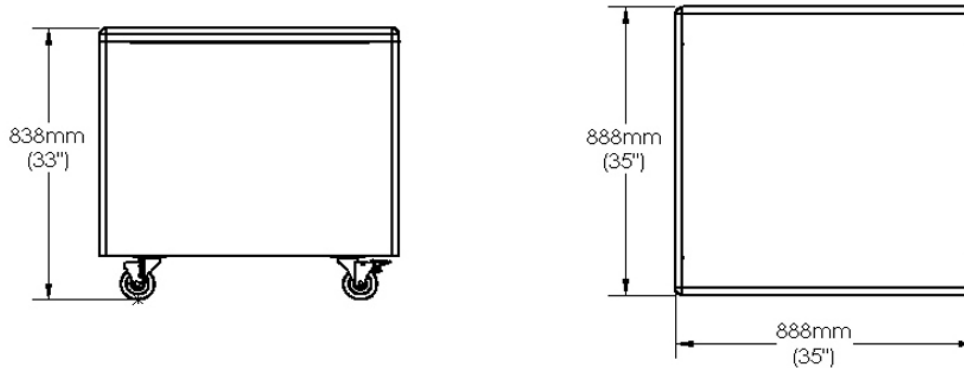
CUBICAL TYPE 660x660x720



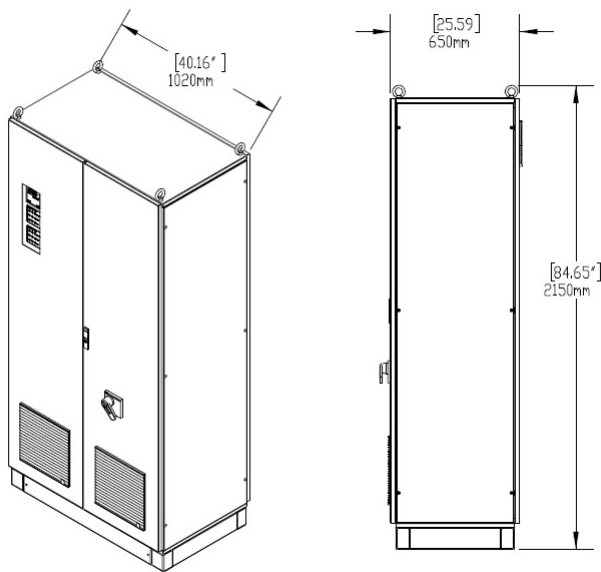
Technical Specifications

Dimension Diagrams

CUBICAL TYPE 888x888x838



PANEL TYPE 650x1020x2150



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