

# VERTEX



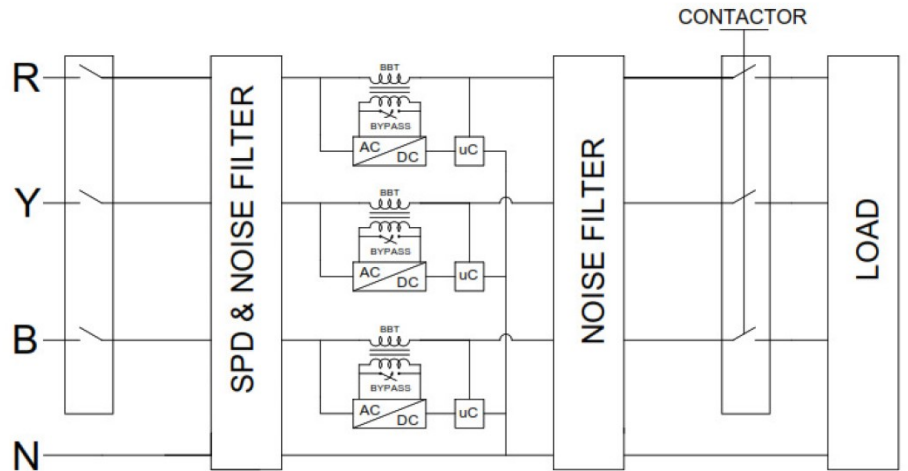
**Innovation, Quality & Service.. Par Excellence**



*Solutions In Power Conditioning*

## Static Voltage Stabilizer (SVS)

IGBT based PWM technology with Digital Signal Processor (dsPIC) Control System



SVS available in Single Phase & Three Phase

### SALIENT FEATURES:

VERTEX Static Voltage Stabilizer is an IGBT based PWM type buck-boost voltage stabiliser which has tight regulation and fast correction speed. This is an SMPS type voltage stabilizer for mains voltage (AC input and AC output). This is a new switching topology where **PWM is made directly in AC-to-AC switching**, without any harmonic distortion. In this topology there is no need to convert the AC input to DC and again convert it back to regulated AC output. This simplifies the design, reduces the component count and improves the efficiency and reliability. The power stage is an IGBT chopper control. The chopping frequency is around 20 KHz which ensures absolutely silent operation and pure sine wave output (no waveform distortion). 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 (dsPIC). The output voltage is sensed by the dsPIC and corrections are made by varying the duty cycle of the PWM.



- Direct AC-AC conversion without rectifying to DC improves the efficiency, reliability and reduces the components.
- Rapid cycle by cycle correction of output. It can correct sudden fluctuation in the line voltage.
- Small transformer size (1/5th of the capacity) / Compact size and light weight.
- 20KHz PWM control
- IGBT power stage. Highly reliable.
- Fully solid state. No moving parts, hence more life & no maintenance.
- Silent operation.

### APPLICATIONS:

- CNC Machines
- Injection Moulding Machines
- Medical Equipment
- Printing & Packaging Machines

## SPECIFICATIONS— STATIC VOLTAGE STABILISER (SVS)

Parameters	Single Phase SVS	Three Phase SVS
Construction	Indoor Purpose	
Type of Design	IGBT Based PWM technology Static Servo Stabiliser with O/P sensing feed-back system	
	NA	Independent Phase Control, Suitable for Unbalanced Loads
Type Of Cooling	Aircooled	
Input Voltage Range	I/P: $\pm 15\%$ / $\pm 20\%$ / $\pm 25\%$ of the designed O/P voltage	I/P: $\pm 15\%$ / $\pm 20\%$ / $\pm 25\%$ of the designed O/P voltage
Input Frequency	47 Hz - 65 Hz	
Output Voltage	230 V 1-Phase Settable - 220/240 V (L - N)	415 V 3-Phase Settable - 380/400 V (L - L)
Output Voltage Regulation	$\pm 1\%$	
Control Design	IGBT based PWM technology with Digital Signal Processor (dsPIC) Control System	
Waveform Distortion	NIL (Output Waveform same as Input Waveform)	
Effect of Load PF on O/P Voltage	NIL	
Correction Speed	20000 V/ Sec max	
Efficiency	> 97%	
High Voltage / Low Voltage Cut-Off	Input High / Low Voltage Cut-off to trip Output Relay / Contactor Output High / Low Voltage Cut-off to trip Output Relay / Contactor	
Short Circuit Protection	MCB (OR) MCCB at Input	
Output Overload Protection	Electronic Overload cut-off (CT based)	
Phase Reversal Protection	NA	Built-in
Single Phasing Prevention	NA	Built-in
Display Type	LED Display	20 x 4 Line Backlight LCD Display
Parameters Displayed	<ul style="list-style-type: none"> <li>I/P &amp; O/P Voltage</li> <li>O/P Amps</li> </ul>	<ul style="list-style-type: none"> <li>I/P &amp; O/P Voltage (L-L &amp; L-N)</li> <li>O/P Amps (R-Y-B), % Load,</li> <li>kVA, Hz, N-E Volts</li> </ul>
Front Panel Indications	LED Indication for – <ul style="list-style-type: none"> <li>Input</li> <li>Output</li> </ul>	LED Indication for – <ul style="list-style-type: none"> <li>Input Normal</li> <li>Output Normal</li> <li>Phase Fault</li> <li>Overload</li> </ul>
Event Recorder		<ul style="list-style-type: none"> <li>Error Log for Fault Condition (100 events log Storage)</li> </ul>
Front Panel User Interface	MENU / SET / START / STOP	MENU / START / STOP / LOG
Stabiliser "ON/OFF" Operation	Manual Mode - START / STOP Auto Mode - User Settable	Manual Mode - START / STOP Auto Mode - User Settable
Input / Output Connection	Input / Output Terminal Plate (Nut-Bolt arrangement)	
Emergency Manual Bypass	Optional	Built-in
System Auto Bypass	System bypass in case of IGBT current is more than the set value to protect the IGBT Controller	
Output Relay / Contactor	Built-in	
Surge Protection Device (SPD)	Class-B 25 kA	
EMI / RFI Filter	Optional	
Operating Temperature	0° C to 50° C	
Standard kVA Ratings	3 kVA to 25 kVA	10 kVA to 200 kVA

• Specifications are subject to change without notice, on account of development in product design.

**F**ounded in 2001 in Chennai, India, VERTEX is involved in manufacturing Electrical Power Protection Systems. Over the years, the company has earned a reputation for excellence and professionalism for continuously striving to meet and even exceed the standards thereby setting the environment for a sustainable business relationship with its clients.

Today we are one of the leading manufacturers of Servo Voltage Stabilisers and Isolation Transformers in India with **over 1 lakh installations.**

VERTEX employs technically skilled, qualified and highly dedicated personnel working cohesively to promote value-added solutions at competitive pricing to suit distinct clientele needs.

## **SOME OF OUR VALUED CUSTOMERS**

**Textiles:** Veejay Lakshmi, TVS (textile division), LMW, Lakshmi Mills, Premier Mills, KPR Group, Loyal textiles, SCM textiles, GTN Group, GMR Spintex, Bharat Silks, Raymond Mills, Ambika Mills, Paramount Group, Indian Rayon, Gopalakrishna Mills, Mangrool Mills, Mount Exports, etc

**Petroleum:** HPCL, Petro Araldite.

**Cellular/Telecom:** IDEA Cellular, Reliance.

**Educational /Research Institute:** Indian Institute of Science (**IISC**), Sri Venkateshwara University, SKBR Group, and Good Shepherd School of Education, etc

**Government & Public Sector:** ETDC, South Central Railways, LIC of India, State bank Of India, Bharat Electronics (BEL), BHEL, HIAL, NAL, CWSSSES, CONCOR, CSIR-SERC, IRCTC, IGCAR, etc

**Pharma /Analytical:** Dr.Reddy's Lab, Nicholas Piramal, NATCO Pharma, VIRCHOW Labs, AIMIL, Helppanel System, etc

**Engineering:** Veejay Lakshmi Engineering Pvt Ltd, Pride Machine Tools, Rane Madras group, Madras Engineering Industries P. Ltd., Alfa Laval, Yuken India, Deccan Hydraulics, Rolastar Group, Maini Precision, Ashok Leyland, Sundaram Clayton, Associated commercial, Nash Industries, Solidus Hitech, Indo Shell Cast, Virpan Precision, Kirby Building systems Pvt Ltd, Fenesta Building system, Gokul Industries, Dream Valley Castle Services Pvt Ltd, Myung Sung India Precision Pvt Ltd, SL Lumax Ltd., etc

**Others:** ITC Bhadrachalam Paper & board Ltd., The Andhra Sugars Ltd., L & T - ECC Div, ECLAT Auto pack, Ascents Circuits, AT & S (India), Reliance Fresh, India Cements, Ingersoll-Rand India, TUV Suddeutschland India, SKOL Breweries Ltd, Mission Hospital, Kotak Mahindra Bank Ltd, Hindustan Liver Ltd., Whirl pool of India Ltd., Vieston Automotive, Standard Chartered bank, Aachi Masala Pvt Ltd., Uniply Industries, Thirumala Milk products Pvt Ltd, APC Consultants Pvt Ltd, Sidra Foot Wear Pvt Ltd, Imaan Shoes Pvt Ltd., Harshal Printing, Wingtech Mobile, Amararaja Batteries, etc.

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