



**2000KVA SERVO VOLTAGE STABILIZER**

SERVO STABILIZERS | STATIC STABILIZER | DRY TYPE TRANSFORMER | DISTRIBUTION TRANSFORMER  
FREQUENCY CONVERTERS | PHASE CONVERTERS | RECTIFIER | LV PANEL | SOLAR ENERGY SYSTEM

## Servo Voltage Stabiliser: Three Phase -Oil Cooled Servo Voltage Stabilizer



## TECHNICAL SPECIFICATION CHART FOR SERVO STABILIZER

| Characteristics            | SINGLE PHASE                                                                                                                                                                                                                                                   | THREE PHASE                          |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| Capacity                   | 1KVA – 30KVA                                                                                                                                                                                                                                                   | 3KVA – 4000KVA                       |
| Input Voltage              | 208v -265v                                                                                                                                                                                                                                                     | 360v – 460v                          |
|                            | 197v - 277v                                                                                                                                                                                                                                                    | 340v – 480v                          |
|                            | 177v -277v                                                                                                                                                                                                                                                     | 310v -480v                           |
|                            | 140v - 265v                                                                                                                                                                                                                                                    | 240v - 460v                          |
|                            | Customized ranges are also available according to customer requirements.                                                                                                                                                                                       |                                      |
| Output voltage             | 220V/230V /240V $\pm$ 1% (Adjustable)                                                                                                                                                                                                                          | 380V/400V/415V $\pm$ 1% (Adjustable) |
| Connections                | 1Phase + Neutral , Ground                                                                                                                                                                                                                                      | 3Phase + Neutral , Ground            |
| Frequency                  | 50/60HZ                                                                                                                                                                                                                                                        |                                      |
| Correction Speed           | 20V/Sec , 70v/Second / , 110v /Sec (As Required)                                                                                                                                                                                                               |                                      |
| Response time              | Less than 20 milliseconds                                                                                                                                                                                                                                      |                                      |
| Correction method          | Step less correction using variac ( Microprocessor Based control system for measurement and correction )                                                                                                                                                       |                                      |
| Waveform Distortion        | Nil                                                                                                                                                                                                                                                            |                                      |
| Effect of power factor     | Nil                                                                                                                                                                                                                                                            |                                      |
| Efficiency                 | 98% As per IS standards                                                                                                                                                                                                                                        |                                      |
| Type of cooling            | Nature Air cooled up to 30kva / Forced Air cooled Above 30Kva / Oil cooled from 3kva to 4000Kva                                                                                                                                                                |                                      |
| Duty cycle                 | Continuous 24 hrs 100%                                                                                                                                                                                                                                         |                                      |
| No load losses             | 0.5% from the rated capacity/As per Is standards                                                                                                                                                                                                               |                                      |
| Operation mode             | Auto /Manual                                                                                                                                                                                                                                                   |                                      |
| Suitability                | Suitable for 3phase,4wire Unbalanced Voltage & Unbalanced/balanced load all power factors                                                                                                                                                                      |                                      |
| Operating Temperature      | -20° to 60 C°                                                                                                                                                                                                                                                  |                                      |
| Humidity                   | 95%                                                                                                                                                                                                                                                            |                                      |
| Noise Level                | <65dB For 1meter                                                                                                                                                                                                                                               |                                      |
| High voltage Test          | Can withstand 2.5kV for 5 seconds                                                                                                                                                                                                                              |                                      |
| System construction        | As per IS : 9815 & ISO 2015                                                                                                                                                                                                                                    |                                      |
| Degree of protection       | Ip21 - IP55 (As Required) & Epoxy Powder coated ( 7 Tank processes)                                                                                                                                                                                            |                                      |
| Insulation                 | Class- B /Class- H / Class – F (As Required)                                                                                                                                                                                                                   |                                      |
| MCB / MCCB                 | Short circuit Protection                                                                                                                                                                                                                                       |                                      |
| BYPASS                     | Inbuilt in up to 500KV A / above 500Kva optional<br>(Change over Switch to bypass the stabilizer and use main voltage direct to the load.)                                                                                                                     |                                      |
| CONTACTOR                  | Over load ,Under /Over voltage cut – Off Protection Through contactors                                                                                                                                                                                         |                                      |
| Log book memory            | History of error 100 logs                                                                                                                                                                                                                                      |                                      |
| Input /Output Terminations | 4Way Connectors up to 45Kva Above 45kva Busbar Connection                                                                                                                                                                                                      |                                      |
| Documentation              | We provide Factory Test Report (Routine Test) As per Standard & Instruction Operation Manual Book,<br>(Third party test certification SGS, SASO,INTEK Which can be incorporated additional cost)                                                               |                                      |
| Monitoring facility        | DIGITAL MICROPROCESSOR LCD DISPLAY FOR<br>A. Input Voltage - Phase to Neutral & Phase to Phase<br>B. Output Voltage – Phase to Neutral & Phase to Phase<br>C. Load Current in Three Phase<br>D. Frequency<br>E. Earth Neutral Voltage<br>F. Fault annunciation |                                      |

### FEATURES AND PROTECTIONS

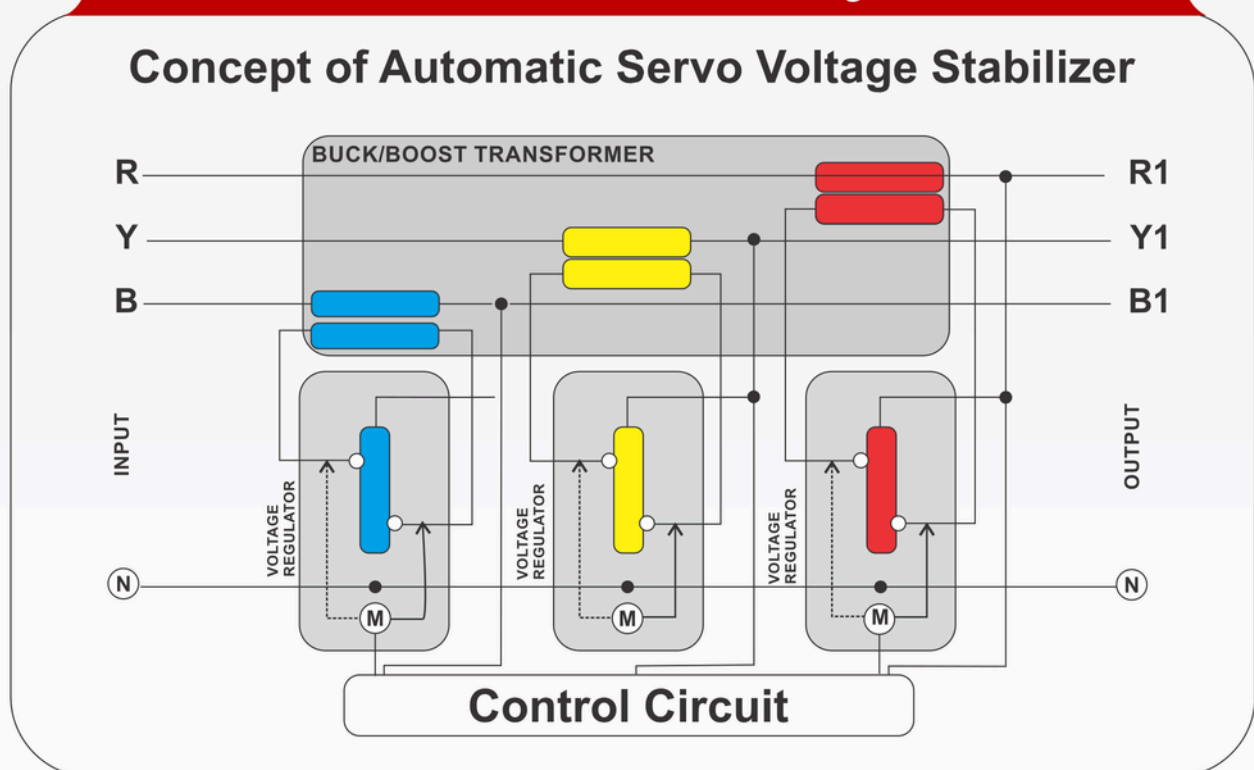
- Low voltage cut-Off & Alarm
- High voltage cut-Off & Alarm
- Over Load Cut-Off & Alarm
- Single Phase Prevention Cut-Off & Alarm
- Reverse Phase Cut-Off & Alarm
- Auto Phase Correction in case of Phase Reversal
- Neutral Trip
- Short Circuit Protection For Input MCB/MCCB/ACP
- Surge & spike Protection.
- Stabilizer ByPass System
- Delay on Circuits
- Auto / manual operation

## WORKING PRINCIPLE OF SERVO VOLTAGE STABILIZERS

Voltage received from mains at input of SCVS is continuously sensed by sensing circuit and gives feedback to main control circuit which consists of a microprocessor. This microprocessor continuously receives values of input voltages and compares with the reference value embedded in its program. Whenever there is high or low voltage at input of SCVS, the microprocessor gives trigger to motor driver. Based on amount of high voltage or low voltage observed at input, "motor driver" moves servo motor across winding of auto transformer (variac) so as to increase or decrease the number of winding and hence voltage across primary of buck-boost transformer.

The Servo motor connected to primary of Buck-Boost transformer and when there is change in voltage across primary of buck-boost transformer, the induced voltage across its secondary also changes. The motor moves in such a way that proper voltage is applied across the buck-boost primary so that the output voltage should be equal to set or desired output voltage of Servo stabilizer. This process takes place continuously so as to correct input voltages. In case of 3 Phase Automatic Voltage Regulator, there is an independent phase controlled unit for each of the three phases separately. (essentially) to check there are 3 number of Single Phase Servo Stabilizer in one three phase stabilizer.

### Schematic of Servo Controlled Voltage Stabilizer



**The Solution** The voltage stabilizer has proven to be an effective solution able to prevent potentially dangerous situations create

## STANDARD FEATURES



### Automatic Voltage Regulation

Should the incoming voltage rise or drop, the Stabilizers will automatically control the output to ensure the voltage reaching the load equipment remains within the load equipment's intended requisite input voltage window.



### Wide Range of Power Ratings & Voltages

Models are available in a wide range of power ratings from 3 to over 4000kVA, covering all the leading international three - phase with Neutral nominal voltages



### Broad Input Voltage Variation Ranges

Available with a wide range permissible input voltage window, SVS Series Voltage Stabilisers are ideal for virtually all types of load applications and the most challenging of power environments.



### Precise Output Voltage Regulation

With a default 1% accuracy on the output voltage, SVS Stabilisers are suitable for the most sensitive of loads. Where deemed appropriate the output voltage accuracy can be adjustable from between 1 to 5%.



### Transient Voltage Spikes & Surge Protection

Protection against all too common everyday high energy spikes and transient voltages typically introduced into the utility mains supply by nearby disturbances resulting from peak power demands or stop/start operation of electrical machines.



### Independent Phase Control

Each phase voltage remains stable, irrespective of load unbalance, even for situations where a 100% load imbalance may exist.



### High Overload Capability

Ability to support electrical and electronic equipment with inherent initial high current draws on start up.



### Start - Up Load Protection & Restart Time Delay

A preset time delay on system re- start is designed to prevent nuisance tripping. This feature ensures that load appliances are not switched on - off repeatedly during fluctuations, nor are they subjected to massive surges usually experienced when power returns after power outages.



### Over & Under Voltage Protection

Ability to configure the Voltage Stabiliser/Power Conditioner, if required, to shut down in the event of the incoming voltage supply going outside the normal input window.



### Class II Lightning Surge Protection

Protection of the load equipment from the potentially damaging effects of high transient over voltages introduced indirectly into the utility mains supply following a lightning strike.



### Phase Failure Protection

Any failure of phases on a three - phase supply will be immediately detected, and the system will automatically shut down to protect the load side equipment.



### Bypass Switch

A useful emergency feature which, in the unlikely event of a system malfunction, Change over Switch to bypass the stabilizer and use main voltage direct to the load



### Front Panel Status Monitoring & Metering

Mounted on the front of the enclosure with digital microprocessor lcd display, Input /Output Voltage ,Load Current , Frequency, Earth Nutral voltage ,Fault annunciation



Three-Phase Air-Cooled Servo Stabilizer



SERVO STABILIZER SINGLE PHASE