**POWERCON CATLOGUE DETAILS**

**POWERCON** Series of Servo Stabilizers provide un-paralleled performance and reliability in voltage correction systems, with their outstanding features and design. They are built ruggedly to work reliably in any environment and are so compact.

Sensitive electronic & electrical equipment are designed to operate at rated voltage if actual voltage becomes too low or too high, equipment malfunction or failure will occur. **POWERCON** Series Stabilizers are cost effective solution to eliminate the above problem by delivering constant voltage to above equipment even when there is wide fluctuations in the input voltage.

**What is Servo Voltage Stabilizer?**

**What is a Servo controlled stabilizer? Why should I install one?**

A Servo Stabilizer is a Servo motor controlled stabilization system that performs optimum voltage supply using a Buck\Boost transformer booster that captures voltage fluctuations from input and regulates current to the correct output. An AC synchronous motor adjusts voltage in clockwise or anticlockwise direction and manages the output voltage with components like control card,dimmer,comparator, transistors, mocs, etc.

Main Components & their Functioning

**There are seven main components in a servo voltage stabilizer:-**

1. Dimmer (Variable Transformer)
2. Buck Boost Transformer (Series Transformer)
3. Servomotor – Synchronizing Motors
4. Contactor or Relay
5. MCB, MCCB
6. Electronic Circuit
7. Carbon Brush

**1. Dimmer (Variable Transformer) –** It is normally round in the shape. Silicon CRGO toroidal core is used for the base & copper wire with specific turn ratio according to the capacity is used. The basic purpose of dimmer is to increase or decrease the voltage which is fed to the buck boost transformer. 50% of the output voltage is increased or decreased by dimmer only.

Let us take an example: If the input voltage is 160V, the dimmer will increase it to 190V & rest of the 30V (since 220V is required to run any single phase load) will be done by Buck Boost Transformer.

**2. Buck Boost Transformer –**Contrary to dimmer it is in rectangular shape. Bobin is fitted with EI CRGO core. When the transformer structure is built, it is dipped in varnish tank for extra protection.
This type of Insulating varnish also called transformer varnish is put on all the windings used in buck boost transformers to encapsulate them before the servo stabilizer is ready for regress testing. Transformer varnish enhances coil life and protects windings in the transformer from environmental exposure that would otherwise get damaged due to vibrations. This varnish can be used as a great insulator for any coil of wire.

**3. Servomotor (Synchronizing Motors) –** Servomotor as the name suggests is the main part of servo stabilizer. The motor rotates the arm connected on the dimmer in clockwise or anti clockwise direction according to input voltage.

**4. Carbon Brush –** This is a moving part in servo stabilizer, it is fitted in the shaft to make the contact with dimmer. If the input voltage variation is very frequent, this carbon brush will erase early and customer has to replace it very frequently. That is why servo stabilizer manufacturer should use best quality carbon brush.

**5. Contactor –** The function of contactor is to cut the output of any servo stabilizer if it exceeds a prescribed limit.

**6. MCB, MCCB –** The MCB is used to switch on /off the servo stabilizer and gives short circuit protection whereas MCCB is normally for overload protection.

**7. Electronic Circuit –** As the name suggests, it sends the signal to various parts of a servo stabilizer like motor, dimmer, etc., so it works according to that signal & does their part to correct the voltage.

[**Why do I use a Servo stabilizer**](https://www.servostabilizer.org.in/usages/)**?**

A Servo Stabilizer is not just a voltage fixing system, but a completely reliable energy device that is advantageous over the traditional relay based stabilizer. We have quite a number of benefits of using Servo:

1. High voltage correction accuracy with output of ±1 voltage correction.

2. Switch less system to adjust fluctuating voltage at desired levels.

3. High load capacity that supports up to 5000 KVA or above.

4. Voltage is based on step less correction.

5. Perfect stabilization for hospitals best for intricate machineries like X-ray machines, CAT scans, radiation

and diagnostic equipments.

6. Wide functioning area from schools, offices, homes and industries.

7. Oil cooled and air cooled transformers that fit your budget.

Eventually, Servo stands the winner because of its unmatched performance and longer life features

**SALIENT FEATURES:**

* Micro-Controller Control Module
* LCD/Digital Display Module
* Short circuit Protection
* Single Phase Preventer Protection
* Over-current electronic protection
* Overload protection
* Output Time Delay
* Quick response time 10 milli sec (half a cycle) very high efficiency above 98% excellent regulation as high as +- 0.5% micro controller
* 3ph input voltage ph to ph and ph to neutral
* Output current on each ph protections
* Input short circuit protection with mcb
* Input over load protection with mcb
* Output low voltage protection
* Output high voltage protection

**TECHNICAL SPECIFICATIONS OF SERVO CONTROLLED VOLTAGE REGULATOR**

**Input Voltage:** 170V to 270V (single phase) 350V to 520V or

340V to 480V (line to line),3-phase 4-wire system.

**Output voltage:** 220V/230V/240V (single phase) & 380VI400V/415V

(Three phase) + or-1% line to line nominal or specified by customer

**Rate of correction:** Up to 35V/sec

**Response time:** 10m sec

**Efficiency:** 98%

**Wave form distortion:** Same as Input

**Effect of power factor:**  Same as Input

**Line frequency:** 47 to 63 Hz

**Cooling:** Air cooled up to 100kva Oil-cooled for higher KVA rating (transformer grade oil of IS-335)

**KVA Rating:** 1kva to 25kva in single phase and 3KVA to 1000KVA in three phase

**Protections:** Automatic high/low voltage cut off, overload and short circuit protection. single phasing preventer

**By pass Facility:** On request of customer

**Input Range:** As required by customer

**LCD :** LED display for Regulation mode & Fault conditions

**Mode of system :** Fully automatic system

**Ac - systems :** Unbalanced

**Enclosure :** IP 21

**NOTE : Customizable voltages also available.**

Ratings

|  |  |  |  |
| --- | --- | --- | --- |
| **Supply System** | **Input Voltage\*** |   | **Ratings (KVA)** |
| Single phase | 170-270V | Air cooled | 3, 5, 10, 7.5, 10, 15,20, 25 KVA |
| Three phase | 350-520V | Air cooled | 3, 6, 9, 12, 15, 20, 25, 30, 40, 50,60, 75, 100 KVA |
|   |   | Oil cooled | 25, 30, 40, 50, 75, 100,125, 150, 175, 200, 250,300, 350, 400, 500, 600, 750 up to 1000 KVA |

**TYPICAL APPLICATION SERVO CONTROLLED VOLTAGE REGULATOR**

* **CNC machines**
* **Plastic molding machines**
* **Food processing unit**
* **Textile machinery**
* **Air conditioning plants**
* **Pharmaceutical units**
* **Scientific laboratories**
* **Cement plants**
* **Paper, flour mills**
* **Footwear & leather units**
* **Process Industries**
* **Domestics & Industrial Equipments**
* **CNC machines**

**APPLICATIONS**

* **Computer and Data centers**
* **Manufacturing and Process Control units**
* **Fixed and Mobile voice and Data Transmission systems**
* **Security systems**
* **Financial systems and services**
* **Medical equipment and Healthcare facilities**
* **Industrial equipments**