

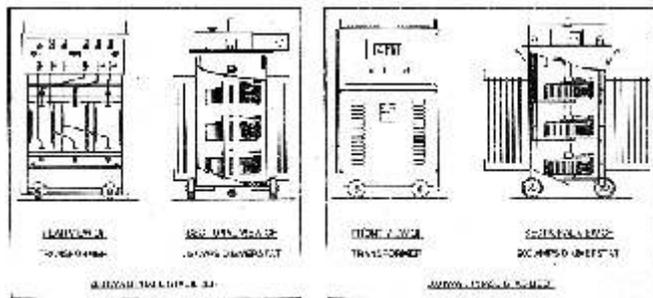
# AUTOMATIC VOLTAGE STABILIZERS

## TYPE EMS-12 FOR SINGLE PHASE & THREE PHASE POWER SYSTEMS



### **EMS-12 VOLTAGE STABILIZERS HAVE CERTAIN FEATURES WHICH MAKE THEM TECHNICALLY SUPERIOR TO ALL OTHER TYPES OF STABILIZERS.**

- Their size is small for their load-handling capacity.
- They have large short-time overload capacity-very necessary for withstanding starting surge of induction motors.
- Their losses are negligible, whether at no load or full load.
- They do not introduce waveform distortion or phase shift.
- They are not affected by load power factor.
- Their performance is unaffected by supply frequency variation over a wide range.
- They are simple in design & easy to understand, whereby, maintenance and servicing is not complicated.
- They need no consumable spares for maintenance.
- Their speed of correction is fast, upto 35V per second per phase.



### **WHAT YOU SHOULD KNOW BEFORE ORDERING A STABILIZER.**

Stabilizers are designed to work over a certain range of input voltage in which they give a stable output voltage. Therefore, the range over which the input voltage fluctuates must be known. Stabilizers are also designed to cater for certain maximum load on the stabilizer had to be ascertained. Based on these informations, the proper model can be selected. If the requirements are much beyond the standard models, a special one can be manufactured to meet the specifications.

For single phase systems, the declared standard supply voltage is 240V. However many customers prefer and specify 230V as the desired stabilized output voltage. Therefore the standard single phase stabilizers can be made either for 240V or for 230V output voltage and to take care of input voltage variations either in the range of 180 to 250 or 160 to 260 volts. There is also a provision by way of a screw driver adjustment for changing the level of output voltage within a narrow band.

Similarly, for 3 Phase systems, the output voltage can be either 400V or 415V and the stabilizers are made to cater for an input voltage range of either 360 to 460V or 300 to 460V. The standard 3 phase stabilizer presumes that the supply voltage fluctuations are equal on all the 3 phases. Therefore, only one of the three phases is monitored for error and necessary correction is effected equally on all the three phases. However, a switch is provided to select any of the three phases for monitoring. A voltmeter with a 5 way selector switch facilitates measurement of input and output voltage of any line or phase.

In cases, where the three phase voltages vary in an unbalanced manner, each phase will have to be corrected independently and this necessitates use of three single phase stabilizers connected in star.

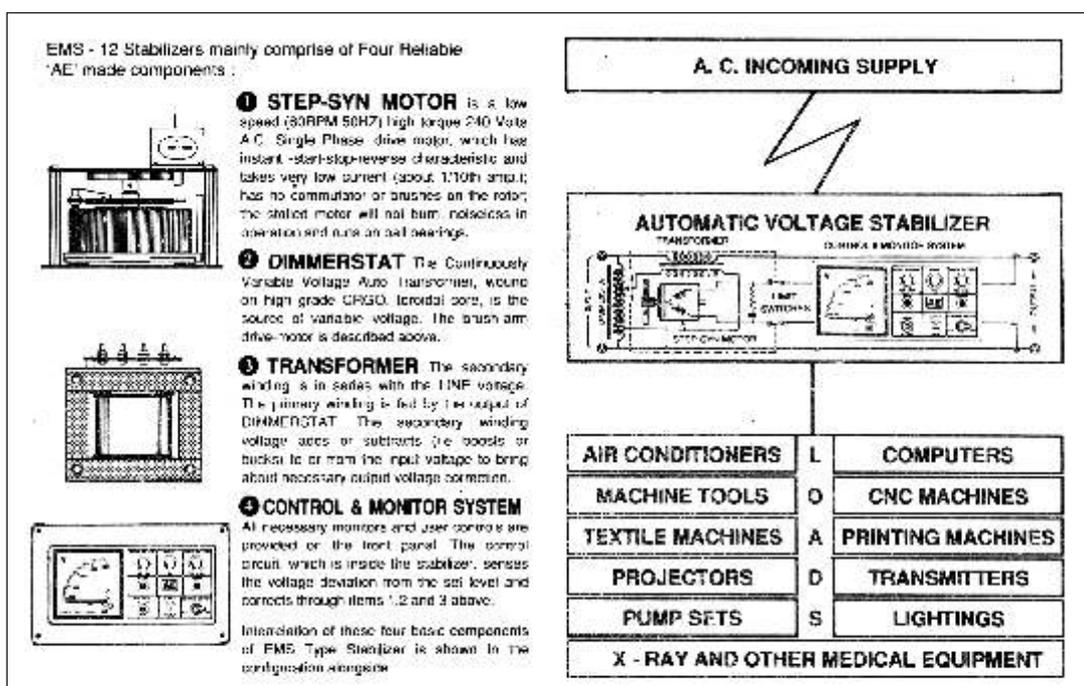
For input voltage beyond the specified range, two limit switches, operated by the Dimmerstat at its extreme end positions, cut off the supply to the drive motor, till the supply voltage returns within the specified band. For input voltage beyond the specified range, the output voltage changes proportionately. Lower input voltage for longer period is not harmful. However, higher input voltage for a long period could be detrimental to the stabilizer, as well as to the connected equipment.

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Automatic Voltage Stabilizers Type EMS-12, manufactured to ISS: 9815, have protected priceless equipments from being ruined by too low or too high power supply voltages. AE began their manufacture on a large scale in 1965, to protect various defence equipments. Other applications followed, and the range gradually extended to 200 KVA for three phase loads. Today, thousands of them are in commission and have reached a stage of customer acceptance and confidence to warrant worldwide recognition. For their capacity, their weight is moderate, their reliability for continuous operation, without attention, is good and their installation and maintenance is within reach of an average electrician.

All electrically operated equipments are made from a certain power supply voltage. If it deviates from the designated voltage, the performance of the equipment is affected. Both high and low voltage is detrimental to the life and the effectiveness of the equipment and the end result is economic loss. It is primarily the duty of the supply authority to provide power at the right voltage and it does fulfil its duty to the best of its ability. However, increasing and erratic load conditions, long transmission lines, and many other factors make its task difficult and the consumers consequently get voltages far too low to make their connected equipments work erratically or sometimes far too high to burn them out. Of the many ways in which the supply voltage fluctuations can be brought under control at the consumers' end, the Electromechanical Voltage Stabilizer (EMS) is the best.



### THE CONTROL & MONITOR SYSTEM OF THESE VOLTAGE STABILIZERS HAVE FOLLOWING STANDARD FEATURES:-

1. Alarm lamps which light up when the input voltage goes above or below the maximum or minimum specified voltage.
2. Voltmeter, with selector switch, to indicate either input or output voltage.
3. Screw driver adjustment to set the output voltage to the exact specified level.
4. 'Auto-Manual' selector switch to select the mode of working of the Stabilizer. In the event of failure of Automatic control, the unit can be used under Manual control.

5. Push Button Switches marked "Raise" & "Lower" to increase or decrease the output voltage when unit is under manual control.
6. Easily replaceable and serviceable printed circuit cards.

### Following deviations from standard types of Stabilizers are possible, subject to confirmation:

1. Non-standard input voltage range, output voltage and KVA rating.
2. Automatic Alarm/Power cut-off in case of over voltage, under voltage, overload and phase failure.