

5.1 Introduction - AC voltage controllers

AC voltage controllers are thyristor based devices which convert fixed alternating voltage directly to variable alternating voltage without a change in the frequency. Some of the main applications of ac voltage controllers are for domestic and industrial heating, transformer tap changing, lighting control, speed control of single phase and three phase ac drives and starting of induction motors.

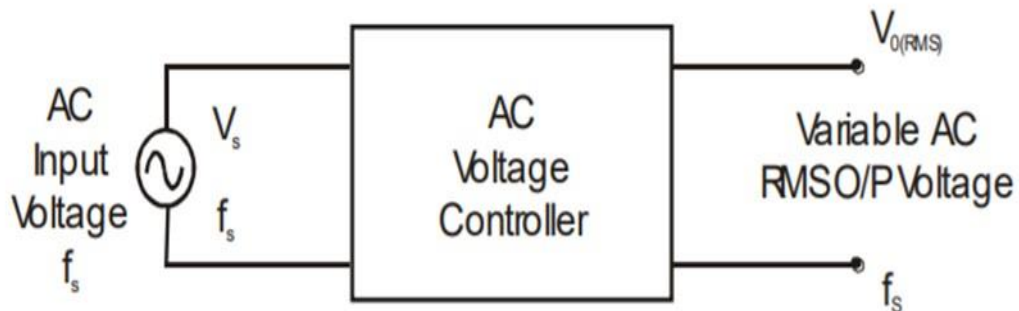


Figure 5.1.1 Block diagram of AC voltage controller

[Source: "Power Electronics" by P.S.Bimbra, Khanna Publishers Page: 392]

TYPE OF AC VOLTAGE CONTROLLERS

The ac voltage controllers are classified into two types based on the type of input ac supply applied to the circuit.

- Single Phase AC Controllers.
- Three Phase AC Controllers.

- ❁ Single phase ac controllers operate with single phase ac supply voltage of 230V RMS at 50Hz in our country.
- ❁ Three phase ac controllers operate with 3 phase ac supply of 400V RMS at 50Hz supply frequency.

APPLICATIONS OF AC VOLTAGE CONTROLLERS

- ❁ Lighting / Illumination control in ac power circuits. Induction heating.
- ❁ Industrial heating & Domestic heating.
- ❁ Transformers tap changing (on load transformer tap changing).
- ❁ Speed control of induction motors (single phase and poly phase ac induction motor control).