

\* The output of the system is the desired temperature and it depends on the time during which the supply to heater remains ON.



\* The switching ON and OFF of the relay is controlled by a controller which is a digital system or computer. The desired temperature is i/p to the system through keyboard or as a signal corresponding to desired temperature via ports.

\* The actual temperature is sensed by sensor and converted to digital signal by the A/D converter. The computer reads the actual temperature and compares with desired temperature. If it finds any difference then it sends signal to switch ON or OFF the relay through D/A converter & amplifier. Thus the system automatically corrects any changes in o/p. Hence it is a closed loop system.

Distinguish b/w open loop & closed loop systems.

open loop systems

- \* Inaccurate & Unreliable
- \* Simple & economical
- \* changes in o/p - due to external disturbances are not corrected automatically
- \* Generally stable

closed loop systems

- \* Accurate & reliable
- \* complex & costly
- \* changes in o/p due to external disturbances are corrected automatically.
- \* Great efforts are needed to design a stable s/m.