

Thermal Energy Storage Training System (TES)

This system has been designed to perform TES related experiment by using PCM materials. As there are several types of PCM, the system has been design to perform experiment with at least two PCM separately. Provision is also kept to examine the combine (known as cascading) effect of two PCMs in thermal energy storage. To visualize the phase changes in the material another set of arrangement are there in the system.

Design

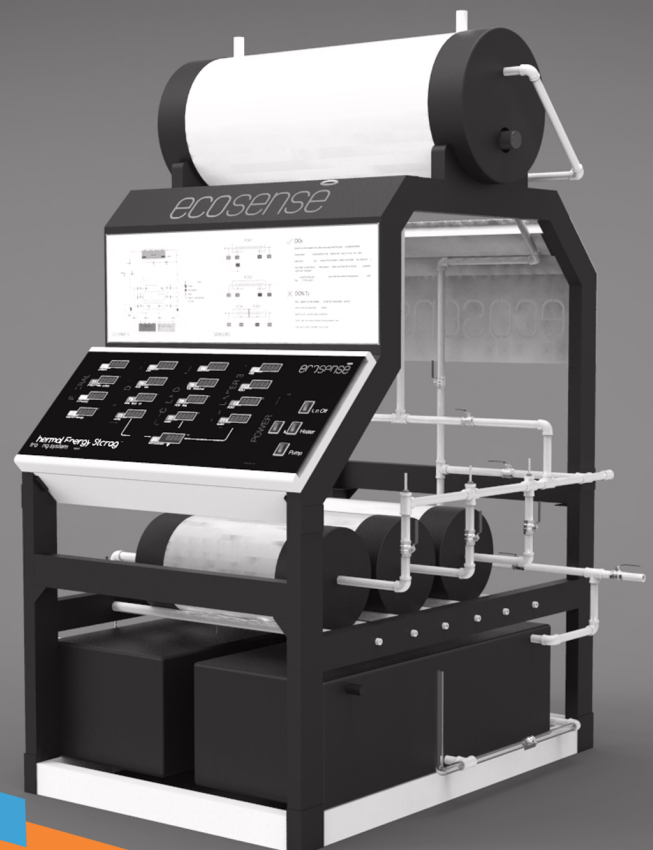
Compact Design

Usability

Can be used indoors only.

Specifications

Thermal Energy Storage with two PCM materials (Paraffin wax and fatty acid) to store thermal energy





Features

- Artificial Source of heat
- Simple to integrate with solar thermal devices such as parabolic trough collector
- Inbuilt storage for two PCMs
- Easy to change the storage unit for new PCM
- Provision to perform experiment in cascading of PCMs
- Provision to perform experiment under different operating conditions (temperature, HTF, flow rate)
- Capable to give experimental knowledge of thermal resistance.
- Capable to deliver in-depth knowledge about the charging, storing and discharging stages of latent heat thermal energy storage technology.
- Evaluation of heat transfer during charging and discharging of PCM
- Evaluation of system thermal efficiency during charging storing and discharging the PCM
- Evaluation of overall system thermal efficiency
- Calculate FOM of the system
- Comparison of some experimentally and theoretically calculated values