

INTEGRATED CIRCUITS
ELECTROINC INDUSTRIES

Flat Plate Collector

ICF-STH-FP-I02

2024

1. Overview

The ICF-STH-FP-I02 is an educational system designed to teach students about solar thermal energy. This trainer allows for hands-on experimentation and learning about the fundamental principles of thermal energy, its collection, storage, and supply. The system provides students with a practical understanding of solar technology and energy efficiency, enabling them to explore various parameters that affect thermal energy systems.

2. Specification

- Accumulator Tank
 - Volume: 150 liters.
 - Dimensions: 50 cm (diameter) x 150 cm (height).
- Pump
 - Flow Rate: 900 liters per minute (LPM).
 - Power: 200 W.
- Buffer Tank
 - Volume: 40 liters.
 - Radius: 35 cm.
- Heat Exchanger
 - Type: 4-bore heat exchanger.
- Pressure Rating: 4 bar.
- Plate Dimensions: 2 m².
- Trainer Dimensions: 320 cm (width) x 200 cm (depth) x 230 cm (height).
- Irradiance
 - Value: 2000 W/m².
 - Lux: 4 lux = 1000 watts each.
- Temperature Sensor
 - Range: 0°C to 200°C.
 - Accuracy: ±0.1°C
- HMI: 7 inch.

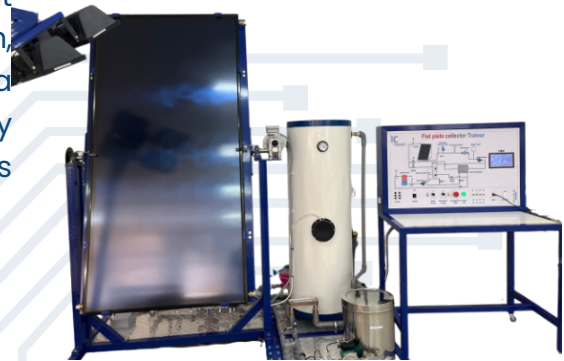


Fig: ICF-STH-FP-I02

3. Learning Outcomes

- 1-Familiarization of Solar Thermal Trainer, Flat plate Solar Collector Type.
- 2-Normal Operation of Solar Thermal Trainer, Flat plate Solar Collector Type.
- 3-System Performance of Solar Thermal Trainer, Flat plate Solar Collector Type.
- 4-Effect of Water Flow Rate on Solar Thermal trainer, Flat plate Solar Collector Type.
- 5-Effect of Angle of Incidence on Solar Thermal Trainer, Flat plate Solar Collector Type.
- 6-Effect of Illuminances on Solar Thermal Trainer, Flat plate Solar Collector Type.