

INTEGRATED CIRCUITS
ELECTROINC INDUSTRIES

Evacuated Tube Collector

Software

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Overview

This software allows the user to perform six experiments on the Evacuated Tube Solar Collector Trainer. Data from the experiments can be monitored and recorded for analysis. The software provides two main tabs: **Data Experiment** and **Signal**, where all measurement data can be visualized over time.

System Connection

- **Connection Type:** USB from the device to the computer.
- **Procedure:**
 1. Connect the USB cable from the unit to the computer.
 2. Launch the software using the Run button.
 3. Select "Connect Trainer" and choose the correct port.

Available Experiments

Total Experiments: 6

1. **Familiarization of Solar Thermal Trainer** – Evacuated Tube Collector Type
Purpose: Learn the components, layout, and functions of the trainer.
2. **Normal Operation of Solar Thermal Trainer** – Evacuated Tube Collector Type
Purpose: Observe the system under normal operating conditions.
3. **System Performance of Solar Thermal Trainer** – Evacuated Tube Collector Type
Purpose: Analyze efficiency, heat transfer, and performance metrics.
4. **Effect of Water Flow Rate on Solar Thermal Trainer** – Evacuated Tube Collector Type
Purpose: Study the effect of different flow rates on temperature distribution and output.
5. **Effect of Angle of Incidence on Solar Thermal Trainer** – Evacuated Tube Collector Type
Purpose: Examine how changing the collector angle affects solar energy absorption.
6. **Effect of Illuminance on Solar Thermal Trainer** – Evacuated Tube Collector Type
Purpose: Investigate how varying light intensity impacts system performance.

Troubleshooting

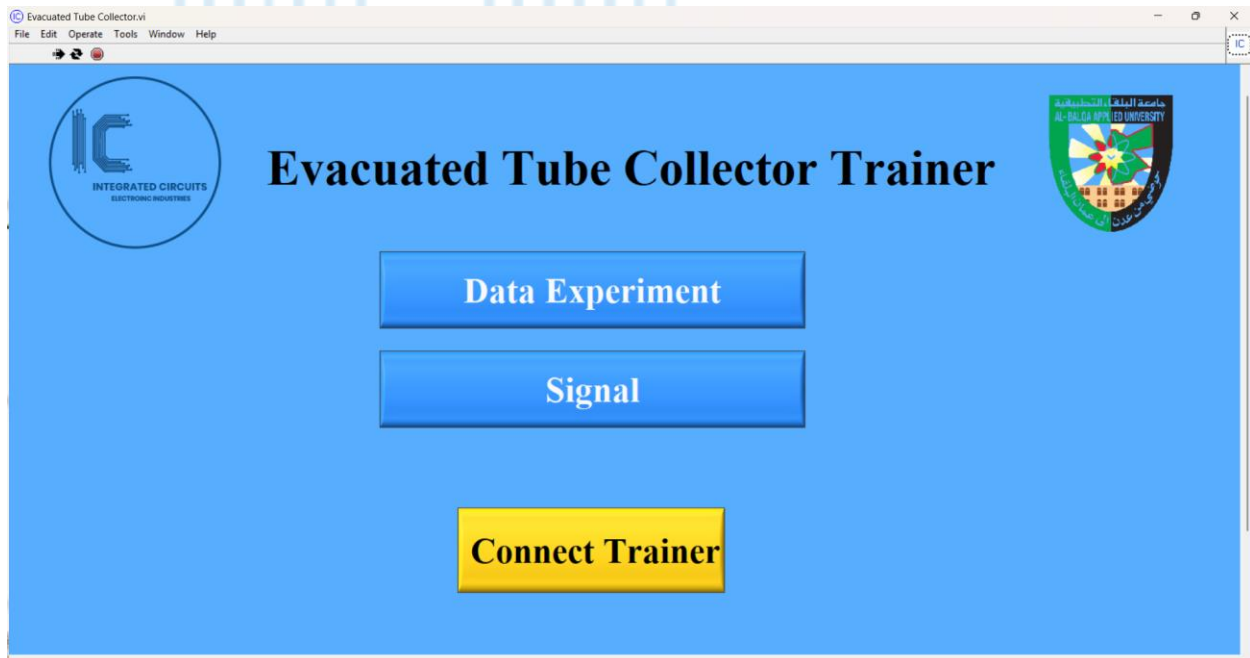
- **Port not visible:** Ensure the USB cable is connected properly and restart the software.
- **Data not displayed:** Check that the trainer is powered on, and the correct port is selected.
- **Signal graph not updating:** Ensure the experiment is running and the software is receiving real-time data.

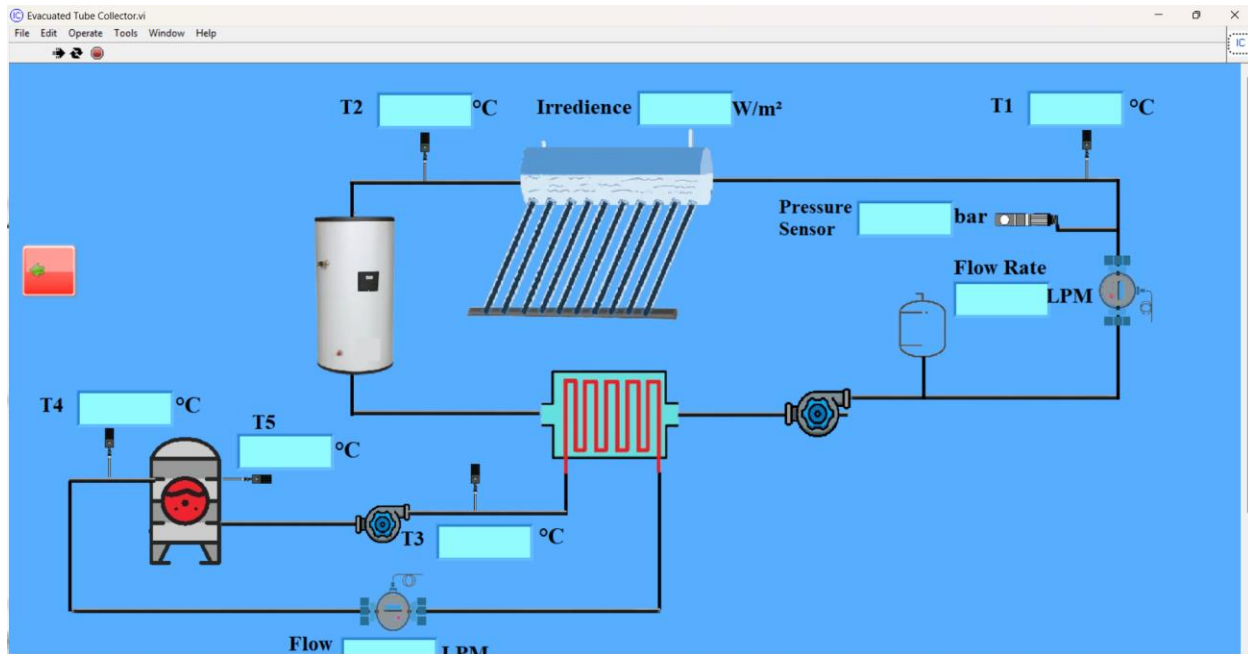
The software interface consists of two main tabs:

1. **Data Experiment Tab** – For viewing and recording experimental data.
2. **Signal Tab** – For plotting all data over time to observe changes during the experiment.

Data Experiment Tab

- Displays recorded experimental data for analysis.
- Data fields include:
 - **T_{in} (1):** Input water temperature
 - **T_{out} (2):** Output water temperature
 - **T₃, T₄, T₅:** Temperatures at various points in the system
 - **Flow Rate:** Controlled by the trainer
 - **Irradiance:** Measured solar radiation





Signal Tab

- Shows all data collected during the experiment plotted against time.
- Allows observation of changes and trends in real-time.

