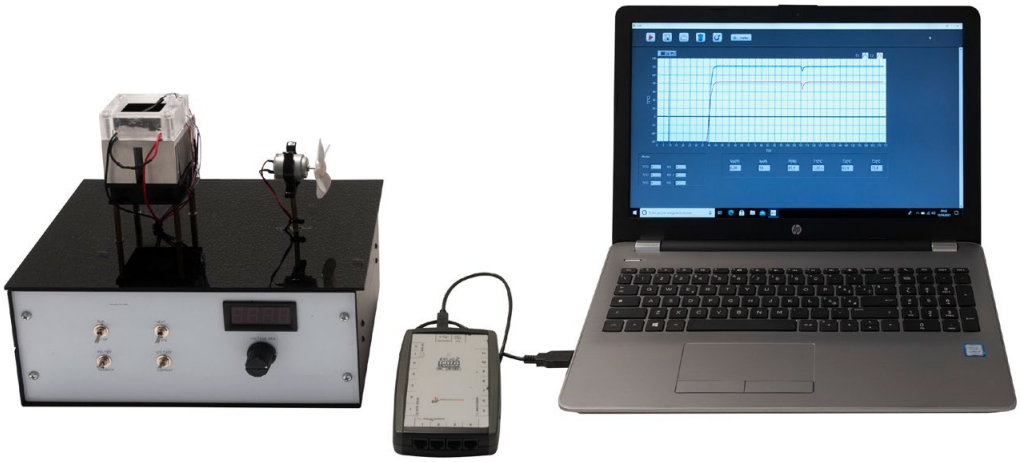
PELTIER CELL OPERATION
Mod. F-PE/EV



DESCRIPTION

Peltier cells, also called frigistors, consist of a series of junctions made of different metals which can either work as thermocouples or as a heat pump.

An educational kit, designed to study the behavior of a Peltier cell can also be used to investigate several interesting thermodynamics processes: liquid-solid and liquid-vapor phase transitions, supercooling, freezing point depression and boiling point elevation, latent heat of fusion measurements...

The kit consists of two coupled Peltier cells, connected in series, with the "hot" side kept at room temperature by a fan and with the "cold" side in contact with an aluminium cup.

Both the hot and the cold sides have a temperature sensor, and a third temperature sensor measures the temperature of the liquid inside the cup.

The system is mounted on a plate with a series of connectors to carry out various measurements, including the study of the efficiency of the cells when used as power supply for a fan on a dc motor.

The effect of evaporation is highlighted by repeating several times measurements on a cooling liquid with and without adiabatic cover (sheet of multilayer aluminized Mylar). Similar measurements without using any liquid highlight the importance of irradiation.

TRAINING PROGRAM

- Liquid-solid, liquid-vapor transitions
- Supercooling
- Freezing point depression
- Boiling point elevation
- Efficiency of a Peltier cell

TECHNICAL SPECIFICATIONS

- Two coupled Peltier cells
- 3 thermometers
- Liquid container
- Heat sink with blower
- DC power supply 15V
- DC power supply 12V, 0.2A

REQUIRED (NOT INCLUDED)

- **EVLAB DATALOGGER mod. EVS-EXP/EV** including **SOFTWARE EVLAB WORKSPACE mod. SW-F-PE/EV** for a total control of interactive experiments
- **PERSONAL COMPUTER**

SUPPLIED WITH

THEORETICAL - EXPERIMENTAL HANDBOOK