THERMO-GENERATOR - Peltier effect

Cat: HL4052-001 thermo-generator

DESCRIPTION:

This demonstration device consists of a special cell mounted to a heat sink to demonstrate an unusual principle of absorbing heat and liberating heat on the one device. This is called the **'Peltier Effect'**. There are no specific experiments associated with this instrument, although other instruments are available where quantitative experiments can be performed using similar cells and by measuring rises and falls in temperature of vessels containing water.

A Thermocouple is a simple device consisting of two wires of different metals intimately bonded together at one end. When the bond is heated, a small current flows between the non-heated ends of the wires. The Thermocouple is used as a temperature measuring sensor in various instruments, especially where high temperatures of thousands of degrees are to be measured in furnaces and kilns.

This 'Peltier Effect' cell is the reverse of a Thermocouple. It consists of many thermocouple joints all bonded to two flat plates. When electricity is passed through these joints, one side of the cell becomes hot and the other side becomes cold. It is important that the cold and the hot sides cannot conduct heat to each other.

These cells are used in electronic circuits to keep electronic devices cool. They are used also in food and drink mini coolers for cars and they run from the 12 volt car battery.

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Physical size: 115x110x40mm LxWxH **Weight: 0.23 kg**

USING THE CELL:

Max.supply voltage: 8V.DC. Max.current: 4 amps.

Observing the polarity, apply DC voltage to the terminals provided. Begin at low voltages of 2 or 3 volts and begin to feel the heat sink becoming warmer and the top surface becoming colder. Raise the voltage but do not increase beyond 8 Volts. To demonstrate the fall in temperature, place a drop of water on the cold side and watch it rapidly turn to ice.

CAUTION:

- The hot side of the cell can become very hot, so ALWAYS provide supervision when this equipment is being used.
- If the current is flowing the opposite direction, the cold side will become hot. Since the cold side has very little heat sinking, it can become VERY HOT and can burn skin. Also it can destroy the joints inside the cell to make the cell useless. Do not permit the surface to become too hot.

Designed and manufactured in Australia