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Manufacturer & Exporter · Ambala, Haryana, India

PRODUCT DATA SHEET
Catalogue reference for product evaluation

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Thermoelectric Engine | ThermoFlux - 7085

Category: Thermodynamics Lab Equipment · **Country of Origin:** India

Product Overview

The Thermoelectric Engine ThermoFlux - 7085 is a laboratory apparatus that demonstrates heat-to-electricity conversion using a multi-cell semiconductor thermoelectric generator sandwiched between a 100 W electric hot source and an air-cooled or water-cooled cold sink. This thermoelectric engine produces an open circuit EMF of a few volts at a maximum current of approximately 1 amp and a generator power output of 5 W, with the generated current driving an electric motor and fan propeller. Temperature is measured across two channels from -100 to 400°C, and electrical current and voltage are displayed digitally. For the water-cooled option, a shared water circuit with tank, pump, and rotameter flow meters is included. Cooling system type, air or water, must be selected at the time of order.

View this product online: https://scienticoindia.com/product/thermoelectric-engine-thermoflux-7085/



Request a model-specific quotation
Include quantity and delivery country.

Technical Specifications

Thermoelectric Engine ThermoFlux - 7085, Technical Specifications

Parameter	Value
Operating Principle	Thermocouple technology, multi-cell thermoelectric generator
Heater Power	100 W
Heater Type	Electric, integrated into hot surface
Alternative Heat Source	Spirit lamp or other external source (user option)
Generator Power Output	5 W
Open Circuit EMF	Few volts
Maximum Current	Approx. 1 amp
Power Adjustment	Potentiometer, freely adjustable
Cold Sink Options	Air-cooled (fan propeller) or water-cooled (select at order)
Temperature Measuring Range	2x -100 to 400°C
Temperature Display	Digital

Parameter	Value
Measurements	Electrical current, voltage, temperature
Water-Cooled System	Shared water circuit with tank, pump, and rotameter flow meters
Component Arrangement	All components visible at front of unit

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Technical Data

Thermoelectric Generator

Parameter	Value
Type	Multi-cell, semiconductor thermocouple-based
Generator Power Output	5 W
Open Circuit EMF	Few volts
Maximum Current	Approx. 1 amp

Heater

Parameter	Value
Power	100 W
Type	Electric, integrated into hot surface
Alternative Source	Spirit lamp or other external heating source

Cooling System

Parameter	Value
Options	Air-cooled (fan propeller) or water-cooled
Selection	At time of order

Water-Cooled System (where selected)

Parameter	Value
Circuit	Shared water circuit for heating and cooling
Components	Tank, pump, rotameter flow meters
Flow Measurement	Rotameters

Measuring Ranges

Parameter	Value
Temperature	2x -100 to 400°C
Electrical Current	Measured and displayed digitally
Voltage	Measured and displayed digitally

Power Control

Parameter	Value
Adjustment Method	Potentiometer, freely adjustable

Key Features

Key Features

- **Thermoelectric Engine Operating Principle:** Multi-cell thermoelectric generator using semiconductor thermocouple technology
- **Heater Power:** 100 W electric heater integrated into hot surface
- **Alternative Heating:** Spirit lamp or other external source usable
- **Generator Power Output:** 5 W
- **Open Circuit EMF:** Few volts, maximum current approx. 1 amp
- **Power Adjustment:** Potentiometer, freely adjustable
- **Cold Sink:** Air-cooled via fan propeller or water-cooled (select at order)
- **Motor Load:** Current drives electric motor with fan propeller mounted
- **Temperature Measurement:** 2x thermocouples, -100 to 400°C, digital display
- **Electrical Measurement:** Current and voltage measured and displayed digitally
- **Water-Cooled Option:** Shared water circuit with tank, pump, and rotameter flow meters
- **Component Layout:** All components arranged clearly at front of unit
- **Cooling System Selection:** Air or water cooling specified at time of order

Experiments

- Function and operation of a Peltier element for cooling and as a heat pump
- Determination of refrigeration and heating capacity
- Recording typical characteristics such as refrigeration capacity via temperature differences
- Energy balance
- Calculating the coefficient of performance

Construction and Design

The Thermoelectric Engine ThermoFlux - 7085 is constructed with all components arranged clearly at the front of the unit for direct observation. The multi-cell thermoelectric generator is sandwiched between a hot source and a cold sink. The hot source is a 100 W electric heater integrated directly into the hot surface. A spirit lamp or other external heating source can also be used as an alternative. The cold sink is either air-cooled via a fan propeller or water-cooled, with the cooling system selected at the time of order. The current generated by the thermoelectric effect drives an electric motor on which the fan propeller is mounted. On open circuit, this thermoelectric engine produces an EMF of a few volts at a maximum current of approximately 1 amp, with a generator power output of 5 W. Electrical power is freely adjustable via a potentiometer. Two thermocouple channels measure hot and cold surface temperatures from -100 to 400°C with digital display. Electrical current and voltage are also measured and displayed digitally. For the water-cooled system, a shared water circuit with a tank, pump, and rotameter flow meters measures and controls both heating and cooling water flows.

Scope of Delivery

- 1 experimental unit
- 1 instructional manual

Ordering & Delivery

- Send the product name, quantity, delivery country and destination with your enquiry.
- Production schedule, freight, payment terms and export documents are confirmed in the written quotation.

Frequently Asked Questions

Q1: What is the operating principle of the Thermoelectric Engine ThermoFlux - 7085?
The unit operates on the thermocouple principle. Multiple semiconductor thermocouples are mounted on a cell to form a multi-cell thermoelectric generator sandwiched between a hot source and a cold sink. The temperature difference generates an EMF of a few volts and a maximum current of approximately 1 amp, which drives an electric motor with a fan propeller.

Q2: What heating source is used in this thermoelectric engine unit?
The standard hot source is a 100 W electric heater integrated directly into the hot surface. Alternatively, the user can use a spirit lamp or any other external heating source.

Q3: What cooling options are available and how are they selected?
The cold sink can be either air-cooled using a fan propeller or water-cooled. The cooling system must be selected at the time of order. The water-cooled system includes a shared water circuit with a tank, pump, and rotameter flow meters.

Q4: What parameters are measured and displayed on the unit?
The unit measures and displays temperature across two channels (-100 to 400°C), electrical current, and voltage, all on digital displays.

Q5: What experiments can be performed with this thermoelectric engine apparatus?
Experiments include studying the function and operation of a Peltier element for cooling and as a heat pump, determining refrigeration and heating capacity, recording characteristics such as refrigeration capacity via temperature differences, performing energy balance calculations, and calculating the coefficient of performance.

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