IMMERSION HEATER
019

CENTRE FOR MICROCOMPUTER APPLICATIONS

https://cma-science.nl

Short description

The CMA Immersion Heater can be used with the CMA Calorimeter 074 to heat liquids and with CMA Calorimeter Blocks to heat metal blocks. The heat element is housed in a 100 mm stainless steel tube. The heater is provided with two 4 mm plugs and can be powered:

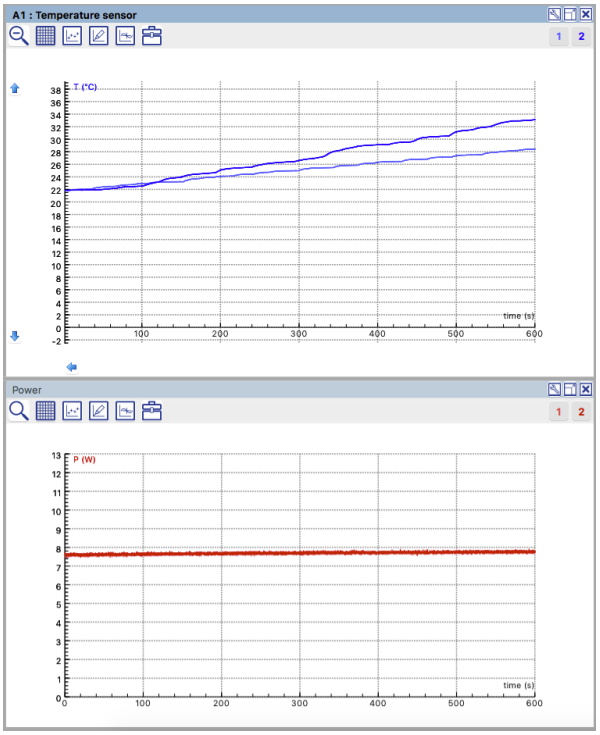
- by 10 V AC/DC power supply, or
- by CoachLab II+ interface when used as an actuator connected to one of the control outputs of CoachLab II+. When using this connection the output can be powered with 12 V because due to the load of the heater the actual voltage drops below 10 V.

Note that when used in liquid the metal tube of the heater should be immersed in liquid when powered.

The Immersion heater can be used in experiments to determine specific heat capacities of different liquids such as water or vegetable oils, and of different metals. In such experiments the temperature change is measured with a temperature sensor. Current and voltage sensors are used to determine the energy supplied by the immersion heater.

The graphs show an example of measurement results for such experiment:

1. Upper graph shows the temperature changes of 150 mL of water and 150 of mL olive oil heated in the calorimeter.
2. The lower graph shows the calculated, based on the current and voltage measurements, power of the heater.



Technical Specifications

Supply Voltage *Power Output*	10 V (max) 10 W (max)
Tube *Cable*	100 mm stainless steel Length = 80 cm
Connections	two 4 mm plugs for power supply
In Coach 7 Library select	Immersion heater (019) (CMA)

Warranty: The Immersion Heater 019 is warranted to be free from defects in materials and workmanship for a period of 24 months from the date of purchase provided that it has been used under normal laboratory conditions. This warranty does not apply if the product has been damaged by accident or misuse.

Note: *This product is to be used for educational purposes only. It is not appropriate for industrial, medical, research, or commercial applications.*

Rev. 04/03/2019