

OPERATING INSTRUCTIONS

HALL EFFECT



SATISH BROTHERS

4309/20, MARBLE HOUSE, PUNJABI MOHALA
AMBALA CANTT 133 001

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THERMISTER CHARACTERISTICS



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THERMISTOR CHARACTERISTICS APPARATUS

Thermistor Characteristics Apparatus has been designed to plot.

1. Temperature Vs Resistance characteristics at different voltage.
2. Voltage Vs current characteristics at different temperatures.
3. Current Vs time characteristic at a different voltage.

The Instrument comprises of the following built in parts:-

1. 0-10 volts DC Regulated short circuit protected power supply.
2. Heater control is continuously variable for temperature upto 75°C.
3. Mercury Thermometer for different temperature indication.
4. Oven for temperature upto 75°C.
5. Two meters for measuring voltage and current.
6. Glass thermistor inside the oven.

THEORY;-

The Thermistor is a thermally sensitive resistance, the temperature coefficient of which is large and negative.

PROCEDURE;-

TEMPERATURE Vs RESISTANCE CHARACTERISTICS:-

1. Connect the mains leads to 220 volt AC.
2. Switch on the instrument keeping the heater switch off.
3. Adjust the voltage at 4.0 volt.
4. Note down the temperature in thermometer and current in current meter.
5. Calculate resistance of thermistor $R = V/I$.
6. Keep the heater control switch on maximum position and switch on the heater.
7. Note down I at different temperatures keeping voltage constant and calculate the value of R . (If increase in temperature is more then reduce temp rise using thermostat).
8. Repeat steps 4-7 for different values of voltages i.e. 6.0V, 8.0V etc.
9. Plot a graph between temperature and resistance for different voltage as shown in fig1.

VOLTAGE VS CURRENT CHARACTERISTICS:-

10. Switch on the instrument keeping the heater control knob at 1st position so that rise in temperature is very low.
11. Keep the voltage at 2v DC and note down the current.
12. Increase the voltage in the steps of 0.5v and note down the corresponding current.
13. Switch on the heater and repeat steps 11 & 12 after every 5°C.
14. Plot a graph between voltage and current at different temperature as shown in fig2.

Current Vs Time characteristics:-

15. Switch on the instrument and perform this part of experiment at room temperature.
16. Keep voltage constant say at 2v and note down the current.
17. Switch on the stop clock and note down the current after every 10 seconds.
18. Repeat steps 15-17 for different voltage keeping the gap of at least five minutes between two experiments so that the temperature of thermistor comes to room temperature.

Observations for Temp. Vs Resistance

S.No.	Temp	Current (mA)				Resistance $R = V/I$
		4V	6V	8V	10V	

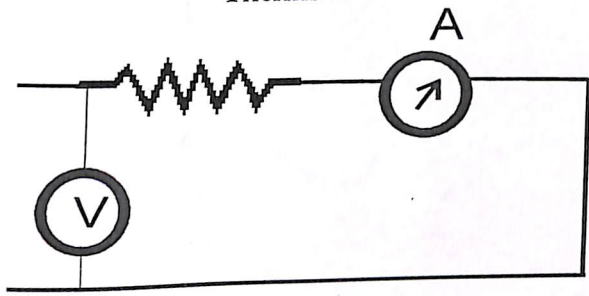
Observations for Voltage Vs Current

S.No.	Voltage	Current (mA)				
		30°C	40°C	50°C	60°C	70°C

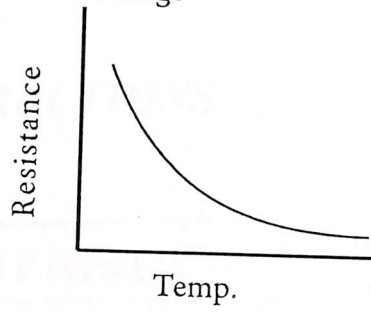
Observations for Current Vs Time

S.No.	Time	Current (mA)			
		4V	6V	8V /	10V

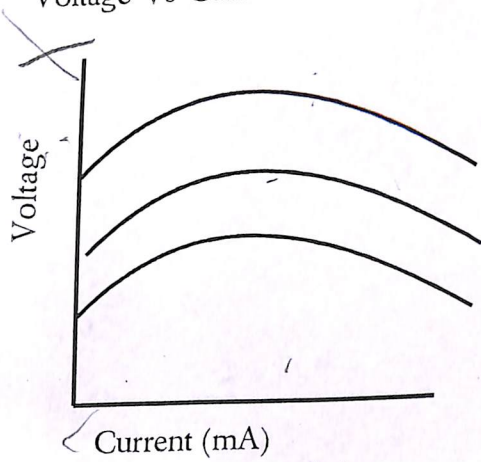
Circuit Diagram for VI characteristics of Thermistor Thermistor



Temperature Vs Resistance at constant Voltage



Voltage Vs Current



Current Vs Time at constant Voltage

