Energy Band Gap Four Probe Method (PC Based)

ME 545L - Energy Band Gap by Four Probe Method with PC Interface

Objective :

- 'MARS' made Four Probe Apparatus with Data Logging & PC interface has been designed to measure the value of forbidden energy band gap in germanium material.

Experiment consists of the following :

- Probes Arrangement :
  It has four individually spring loaded, coated with Zn at the tips. The probes are collinear and equally spaced. The Zn coating & individual spring ensure good electrical contacts with the sample. The probes are mounted in a teflon bush which ensure a good electrical insulation between the probe. A teflon spacer near the tips is also provided to keep the probes at equal distance. The whole arrangement is mounted on a suitable stand and leads are provided for current and voltage measurements.

Features :

- Sample : Ge (Germanium) crystal in the form of a chip slice.
- Oven : It is a small oven for the variation of temperature of the crystal from room Temperature to about 200Deg C. Operating Temperature is 180DegC
- Four Probes Set-up : (Measuring Unit)-LCD Display for all Parameters
- Soft Press Keys for Menu
- USB Interface
- Software provided for PC Interface
- Direct Graph Plot

Technical Specifications :

- Voltage Range : 0 – 4.000V
- Resolution : 1mV at 4V range
- Accuracy : ± 0.1 % of reading ± 1 digit
- Current range : 0 – 20 mA
- Resolution : 10 µA
- Accuracy : ± 0.25 % of the reading ± 1 digit.
- Memory capacity : 8 KB
- Logging : up to 256 readings storage
- PC interface : USB
- Selection keys : Keypad
- Display : 16x2 Alphanumeric LCD
- Oven : Temperature Range : 0 – 200 °C (with 1 °C resolution)
- Software : EasyLogPro v545
- Requirements : a) Serial Port Drivers
  b) USB Cable
- PC / Laptop : Window Based ***(Cost Extra If Required)***

Standard Accessories:

- Power Cords, Patch Cords, Instruction Manual.