

**FOUR - PROBE METHOD FOR
RESISTIVITY MEASUREMENT**
OMEGA TYPE MCH-29



OMEGA TYPE MCH-29 Experimental Set Up has been designed specifically for measuring the resistivity of semiconductors at different temperatures and determination of the Band Gap by Four Probe Method.

OBJECT

- 01 To measure resistivity of semiconductor at different temperatures by Four Probe Method.
- 02 To plot a graph of resistivity as a function of inverse temperature for a semiconductor.
- 03 To determine Band Gap of the semiconductor.

FEATURES

The Experimental Set-up consists of the following :

- 01 Probes Arrangement : It has four individually spring loaded probes. The probes are collinear and equally spaced. Whole arrangement is mounted on a suitable stand.
- 02 Sample : Germanium Crystal in the form of a chip.
- 03 Oven : For variation of temperature from room temperature to about 200°C (max.)
- 04 Thermometer (0-200°C) : For measuring temperature.
- 05 **Four probe Method** :- Consisting of the following in cabinet.
- 06 Constant current Source : To provide a constant current to outer probes. Variation in current is achieved by a potentiometer provided.
 - Open Circuit Voltage : 18V
 - Current range : 0-20mA
 - Resolution : 10uA
 - Accuracy : $\pm 0.25\%$ of the reading ± 1 digit
 - Load regulation : 0.03% for 0 to full load
 - Line Regulation : 0.05% for 10% changes
- 07 Digital panel meter (for measuring voltages & current).
 - Voltage range : 0-200mV & 0-2V
 - Current range : 0-20mA
 - Resolution : 100 uV at 200mV range.
 - Display : 3½ digit, 7 segment LED (12.5mm height) with auto polarity and decimal indications.
 - Over Load Indication : Sign of 1 on left and blanking of other digits.
- 08 Oven power supply : Suitable voltage for the oven is obtained through a step down transformer with a provision for low & high rates of heating. A glowing LED indicates, when the oven power supply is "ON"
- 09 Mains ON/OFF switch, Fuse and Jewel light.
- 10 Strongly supported by detailed Operating Instructions
- 11 Weight : 6 Kg. (Approx.)
- 12 Dimension : W 340 x H 160 x D 230
- 13 Strongly supported by detailed Operating Instructions, giving details of Object, Theory, Design procedures, Report Suggestions and Book References.

We are committed to the continuous development of our products, and therefore reserve the right to amend specifications without prior notice.

OMEGA ELECTRONICS