



55748 Experimental Set Up has been designed specifically for study of Hall Effect in semiconductor and determination of allied parameters. The set-up consists of Hall Effect Board, Hall Probe, Electromagnet, Constant Current Power supply (0-4A), Digital Gauss Meter with Hall Probe. The set up is complete in all respect and requires no other apparatus. Practical experience on this set up carries great educative value for Science and Engineering Students.

OBJECT

- 01 Study of Hall Effect in semiconductor and determination of allied parameters.
 - 1.1 Hall coefficient
 - 1.2 Charge carrier density
 - 1.3 Mobility
 - 1.4 Hall angle
 - 1.5 Conductivity

FEATURES

The complete Experimental Set-up consists of the following:

- 01 HALLEFFECTBOARD: It consists of a digital meter to read Hall voltage (0-200mV) and probe current (0-20mA) (DIGITAL) selectable by a switch. It also provide constant current power supply. Variation in current is achieved by a potentiometer provided.

SPECIFICATIONS : AMMETER VOLTMETER

Range : 0-20 mA, 0-200mV
Resolution : 10 μ A 0.1mV

- 02 HALL PROBE : Germanium Single Crystal N or P - type with four spring type pressure contact is mounted on a sunmica bakelite strip.

TECHNICAL DETAILS

Material : Ge single crystal n or p-type as desired.
Resistivity : 8-10 ohm.cm.
Contacts : Spring type (solid silver)
Zero-field potential : < 1mV (adjustable)
Hall Voltage : 25-35mV/10 mA/KG

- 03 ELECTROMAGNET : The electromagnet have the

most widely used 'U' shaped soft iron yoke. The soft iron is of a special quality, structurally uniform, well machined and finished to meet the rigid standards.

SPECIFICATIONS

Field intensity : 7.5 KG at 10mm air-gap which flat pole pieces.
Pole pieces : 50mm diameter.
Energising coils :
Two, each a resistance of about 3.0 ohm.
Power requirement :
0-30V DC, 4A, its coils are connected in series.

04 CONSTANT CURRENT :

Current range : 0 - 4 Amp.
POWER SUPPLY
Load regulation : Better than 0.5% of the highest specified output current.
Line regulation : Better than \pm 2% of the specified output (For \pm 10% Mains Variation) current.
Metering : 3 1/2 digit 7 segment LED DPM.

- 05. DIGITALGAUSS METER : Operates on the principle of Hall Effect in semiconductor. The small WITH HALL PROBE Hall Voltage is amplified through a high stability amplifier so that a millivoltmeter connected at the output of the amplifier can be calibrated directly in magnetic field unit (gauss).

SPECIFICATIONS

Range : 0-2 KG & 0-20 KG.
Resolution : 1G at 0-2 KG range
Accuracy : \pm 0.5%.

Special Feature :

- Indicate the direction of the magnetic field.
- 06 HALLPROBE STAND (WOODEN)
- 07 Weight : 58 Kg. (Approx.)
- 08 Dimension : W 340x H125 x D210.
- 09 Strongly supported by detailed Operating Instructions, giving details of Object, Theory, Design procedures, Report Suggestions and Book References.

Note: Specifications are subject to change.

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