55871 Experimental Set-Up has been designed specifically for the measurement of magnetoresistance of semiconductor. The resistance of a semiconductor changes according to strength of the magnetic field.
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

Measurement of magneto resistance of semiconductor by employing four probe technique

FEATURES

The Complete Experimental Set-up consists of following items:

01 Four Probe Arrangement :
It consists of 4 collinear, equally spaced (2mm) and individually spring loaded probes mounted on a PCB strip. Two outer probes for suppling the constant current to the sample and two inner probes for measuring the voltage developed across these probes.

02 Sample Ge Crystal (N-type) Dimmension :10 x 10 x 0.5 mm

03 Measurement of Magneto resistance o f Semiconductor: It consists of a digital meter to read Hall voltage (0-200mV) and probe current (0-20mA) 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 uA 0.1mV

04 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 ohms
Power requirement : 0-30V DC, 4A, its coils are connected in series

05 Constant Current Power Supply
Current range : 0 - 4 Amp
Load regulation : Better than 0.5% of the highest (No Load to Full Load) specified output current
Line regulation : Better than ± 2% of the specified output current (For ±10% Mains Variation).
Metering : 3 ½ digit 7 segment LED DPM

06 Digital Gauss Meter :
With Hall Probe (In As) Operates on the principle of Hall Effect in semiconductor. The small 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 : ± 0.5%
Special Feature : Indicate the direction of the magnetic field

07 Hall Probe Stand : Wooden

08 Adequate no. of patch cords stackable 4 mm spring loaded plug length 50cm.

09 Good Quality, reliable terminal/sockets are provided at appropriate places on panel for connections & observation of waveforms.

10 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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