

Hall Effect Experimental Setup (PC Based)



ME 825L - Hall Effect Apparatus

Setup Consist of Following :

Hall Probe (Ge Crystal) :

- Contacts : Spring type (Solid Silver)
- Hall Voltage : 0.1- 1 Volt/100 mA/KG
- Thickness of Ge Crystal : As per mention on sample
- Resistivity : ~ 10 Ohm cm

Hall Effect Set-up (MCU Based) Consist of following :

a) Digital Voltmeter (display on LCD):

- Range : 0 - 4000 mV
- Resolution : 1 mV
- Accuracy : $\pm 0.1\%$ of reading 1digit

b) Constant Current Power Supply (display on LCD):

- Current Range : (0-20 mA) or as required for the particular Hall Probe
- Resolution : 10 mA
- Accuracy : $\pm 0.2\%$ of the reading \pm digit
- Load regulation : 0.03% for 0 to full load
- Line regulation : 0.05% for 10% changes

c) Digital Gauss Meter (display on LCD):

- Range : 0-2 K gauss
- Resolution : 1 gauss at 0-2K gauss range.
- Accuracy : $\pm 0.5\%$
- Display : (display on LCD)
- Power : 200V, 50 Hz
- Special : Indicates the direction of the magnetic field.
- Memory capacity : 8 KB
- Logging : up to 255 readings storage
- PC interface : USB
- Selection keys : Keypad
- Display : 16x2 Alphanumeric LCD

Electromagnet :

- Field Intensity : $75,00 \pm 5\%$ gauss in an air-gap of 10 mm.
- Air-gap is continuously variable upto 100 mm with two way knobbed wheel screw adjusting system.
- Pole piece : 50 mm diameter.
- Normally flat faced pole pieces are supplied with the magnet.
- Energising coils : Two, each coil is wound on non magnetic formers and has a resistance of about 3.0 ohm.
- Yoke Material : 'U' shaped soft iron
- Power Requirement : 0-30 V @ 4.0 A, if coils are connected in series.

Constant Current Power Supply

Variable Output

- Output Voltage : 0 ~ 30VDC
- Output Current : 0 ~ 5A
- Source Regulation : $\leq 0.05\% + 10\text{mV}$
- Load Regulation : $\leq 0.05\% + 10\text{mV}$
- Ripple & Noise : $\leq 1\text{mV}$ (rms)
- Digital Display : 3 digit voltage & current display
- Accuracy : $\pm 1\%$, +1 Digit
- PC interface : USB
- Software : Easy Log Pro v825
- PC / Laptop : Window Based **(Cost Extra If Required)**

Standard Accessories:

- Power Cords, Patch Cords, Instruction Manual.