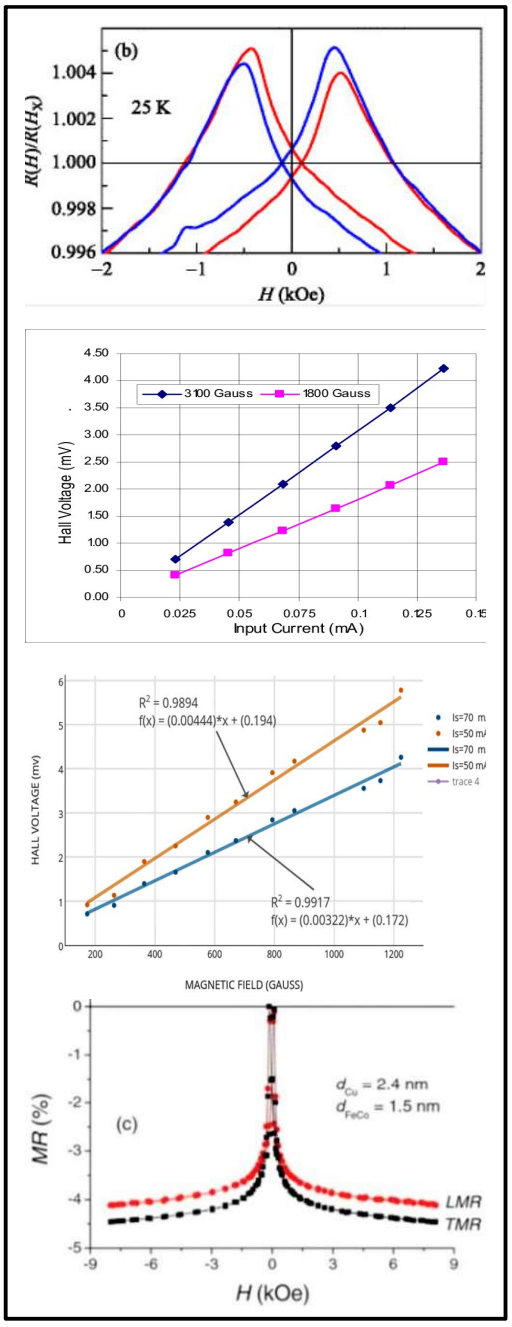
# HALL MEASUREMENT SYSTEM

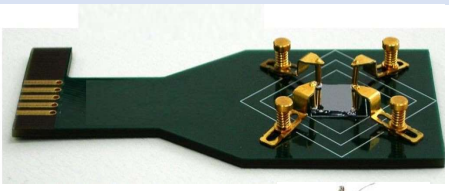



## ABOUT THE SYSTEM MODEL: HMS858

The Hall Effect is a phenomena that produce the voltage difference (The hall Voltage) across an electrical conductor, transverse to an electric current in the conductor and to and applied magnetic field Perpendicular to the current. The Hall coefficient is also defined as the ratio of the induced electric field to the product of the current density and the applied magnetic field. It is a characteristic of the material from which the conductor is made, since its value depends on the type, number, and properties of the charge carriers that constitute the current. The Hall measurement system is designed by our company and it is most advanced in its specifications and can undertake various tests needed by researchers. The complete system is fully automatic with temperature variation and can go down as low as Liquid Nitrogen. The system also has option to go from LN2 Level with high temperature options in the same sample holder such as 773K

## TESTS PERFORMED IN THIS MODEL

- Hall voltage vs Magnetic field
- Current vs Voltage (IV) at various magnetic field



## SOFTWARE FEATURES

- Magneto Resistance Measurement.
- Hall Coefficient, Hall Mobility, Resistivity, Conductivity & Carrier Concentration.
- Representation of data and graphs in automatic scale.
- Data in standard ASCII Format exportable to standard software's like excel origin etc.

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## TECHNICAL SPECIFICATION

| **Hall Measurement Range** | **HMS858** |
|---|---|
| Carrier Mobility Range | 0.01 to $10^6$ $cm^2/V.s$ |
| Carrier Concentration | $10^3$ to $10^{23}$ $cm^{-3}$ |
| Resistivity | $10^{-4}$ to $10^6$ Ω-cm |
| Sample Resistance | 20 mΩ to 900 MΩ |
| **Electromagnet & Power Supply** | **Specifications** |
| Magnetic Field Option | 0.5 / 1 / 1.5 / 1.8 Tesla |
| Field Resolution | 10 Gauss in 2 Tesla Range |
| Max Pole Gap | 20 - 80 mm (field vs. pole gap chart provided) |
| Pole Diameter | 10 - 100mm |
| Magnet Diameter | 4 - 12 Inches |
| Overload Protection | Current Controlled |
| Bipolar Power Supply | 100V, 12 Amps |
| Measurement | Four Quadrant |
| Field Control | Voltage |
| Hall Probe | Holzer Sensor |
| Hall Probe Range | 0 – 2 Tesla |
| Field Variation | Analog Input +10V |
| Stability | + 1% |
| Thermal Protection | Over Heating |
| Thermal Shut off | Relay Control |
| Interface | RS232/USB |
| Power | 220V/AC 50Hz |
| **Source Measure Unit** | **2450** |
| Current Range | 10nA – 1A |
| current Resolution | 500fA |
| Voltage Range | 500nV – 200V |
| Voltage Resolution | 10nV |
| Current / Voltage Accuracy | 0.01% |
| **Test Specimen/ Sample Holder** | **Two/Four Probe** |
| Sample Type | Bulk or film |
| Sample Dimension | 0.5 X 0.5 to 2 x 2 Cm |
| Sample Thickness | 0.1 mm to 2 mm (bulk) / up to 100nm (Film) |
| Sample Preparation | Sample Soldering Pins with Kit |
| **Temperature Stage (Optional Item)** | **100RT/300/500** |
| Temperature Range Option | LN2 – 473°K / RT – 573°K / RT – 773°K |
| Resolution/ Accuracy | 1°K |
| **Note* with LN2 - 473°K option magnetic field up to 0.5 T available** | |

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