

HMS3000

MANUAL HALL EFFECT MEASUREMENT SYSTEM



HIGHLIGHTS

- ▶ Compact Desktop Design
- ▶ Easy-to-Use
- ▶ Fast Measurement
- ▶ Several test modules

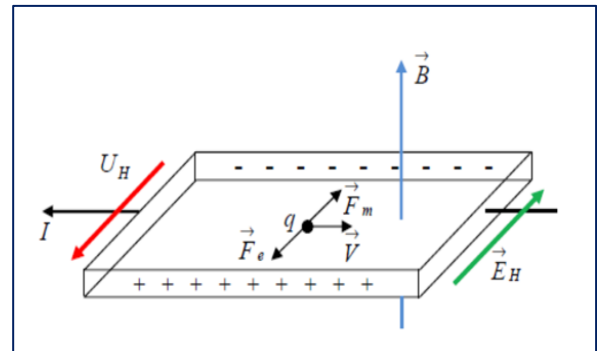
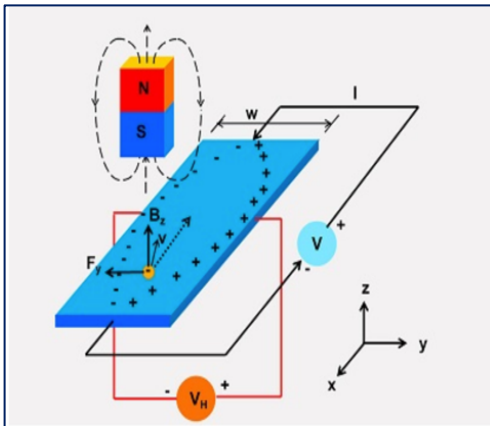
Specifications

- ▶ 5x5 to 25x25mm
- ▶ Mobility: 1 to $10^7 \text{ cm}^2 \cdot \text{V}^{-1} \cdot \text{s}^{-1}$
- ▶ Magnetic field: 0.25T to 0.9T
- ▶ Temperature: 77K or 350K



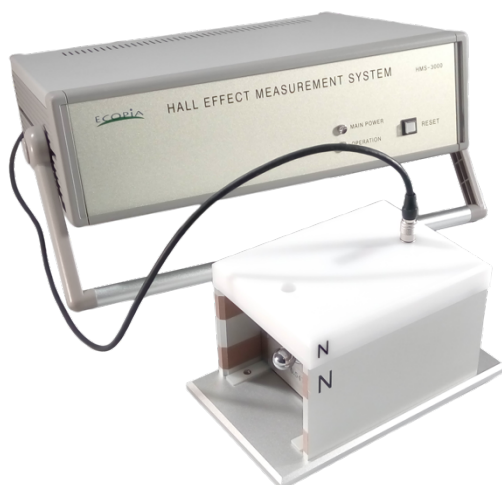
Hall Effect Measurement System is very useful for measuring Carrier Concentration, Mobility, Resistivity and Hall Coefficient that should be pre-checked in order to grasp the electrical specifications of semiconductor device. Therefore, it is essentially required system to understand the electrical characteristics of semiconductor device.

HMS series consist of constant current source , terminal conversion system by Van der Pauw technique, cold or hot temperature test system and magnetic flux density input system. So, it is well-established system that has all the things needed to Hall Effect Measurement System.



Hall effect Measurement Systems allow the ultra-fast characterization of several intrinsic parameters of conductive, semi-conductive materials. They use the Van Der Pauw method which is perfectly suited to thin film measurements and the Lorentz force in order to monitor around ten characteristics simultaneously under different environmental constraints.

Thanks to several module, the equipment permit to monitor the internal electrical parameters of a layer under different environmental constraints (variable temperature or variable magnetic field)

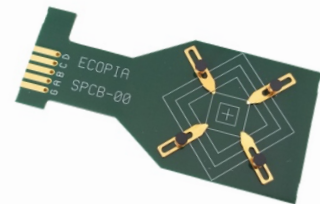


Technical specifications :

Sample size	5x5mm to 25x25mm
Sample thickness max	2.5 mm
Sample material	Si, SiGe, SiC, GaAs, InGaAs, InPGaN, AlZnO, FeCdTe, ZnO...
Magnetic field	From 0.25T to 0.9T
Magnet resolution	+/- 0.03T
Magnet type	Permanent/ Variable
Magnet material	Neodym
Magnet movement	Manual
Temperature range	77K or 350K
Temperature ramp	Yes
SMU	Internal
Current range	1nA to 20mA
Sheet resistance range	10^{-4} to $10^7 \Omega \cdot \text{cm}$
Concentration range	10^7 to 10^{21} cm^{-3}
Mobility range	1 to $10^7 \text{ cm}^2 \cdot \text{V}^{-1} \cdot \text{s}^{-1}$
Software	Windows
Data expot	.csv

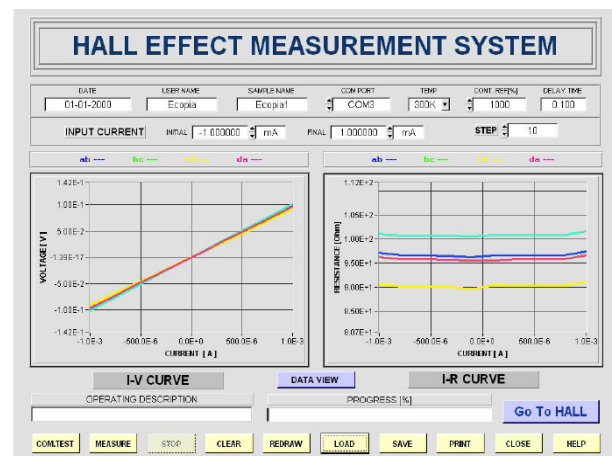
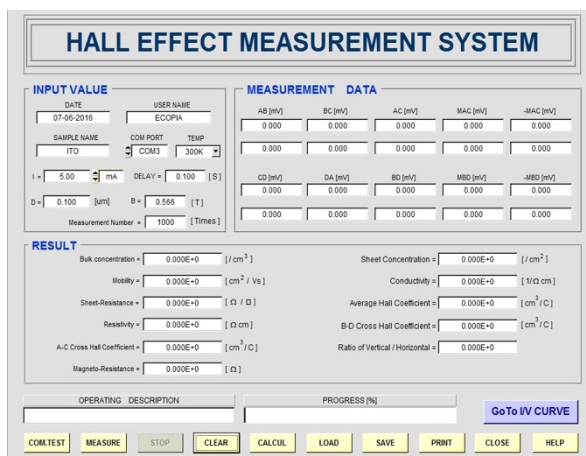
► Easy clip board SPCB:

- Sample size : 5x5mm to 20x20mm
- Gold plated pogo pins for sample contact
- SPCB1: for thickness between 0 and 2 mm
- SPCB2: for thickness between 2 and 4.5 mm
- SPCB3: for thickness between 3 and 5.5 mm



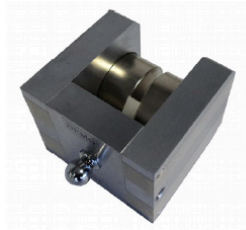
⇒ Refer to the SPCB brochure

► Software :



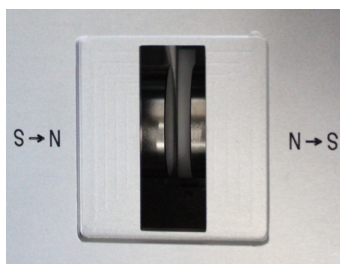
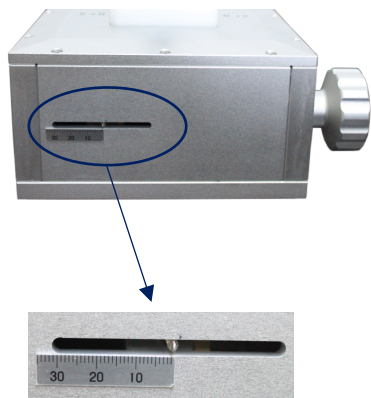
Soft calcul automatically all the electrical parameters of your sample and display the result. It is also possible to check the ohmic contact by trace I(V) curve

► Fixed Magnetic field

Flux density	0.37T	0.55T	1T
Magnet			
77K measurement	Yes	Yes	Room temp only
Diameter	30 mm	50 mm	50 mm
Pole gap	26 mm	26 mm	6,5 mm
Max. spl thickness	13 mm	13 mm	3 mm
Uniformity	+/- 1% over 20 mm diameter from the centre		
Stability	0.2% over one year		

► Variable magnetic field :

- EVM100R
 - Temperature : 350K only
 - Magnetic field : 0.25T to 0.9T
- EVM100N2R :
 - Temperature: 77K – Magnetic field : 0.25 to 0.5T
 - Temperature : 350K – Magnetic field : 0.25T to 0.9T



By moving the pull-out-shelf, the gap between the two magnet is adjusted.

A table makes the link between the distance of the two gaps and the applied magnetic field