SPECIFICATIONS

The Linseis HCS 1 System with high performance permanent magnets allows the characterization of metal and semiconducting samples according to the well-known Van-der-Pauw technique. It measures: Electrical Conductivity / Resistivity, Hall-Constant, Charge Carrier Concentration and Hall-Mobility. An optional Seebeck Coefficient measurement stage is available as extension kit. The system can be used to characterize various materials including Si, SiGe, SiC, GaAs, InGaAs, InP, GaN (N Type & P Type can be measured), metal layers, oxides and many more.

HCS 1

Measuring current	~ 1 nA up to 125 mA (8 decades, compliance +/- 12V)
Input impedance	100 MΩ
Hall tension	1µV up to 2.500µV (4 decades). Low noise, low drift electronics.
Digital resolution	300 pV
Carrier concentration	10^{7} ~ 10^{21} cm^{3*}
Resistivity	10^{-4} ~ 10^{7} Ωcm*
Mobility	0.1 ~ 10^{7} cm^{2} V^{-1} s^{-1*}
Sample geometry	Wire board for samples smaller than 8 mm x 8 mm 8 mm x 8 mm to 15 mm x 15 mm 18 mm x 18 mm to 25 mm x 25mm 43 mm x 43 mm to 50 mm x 50 mm From thin films up to thin bulk samples High temperature board 10mm x 10mm
Magnetic field	2x permanent magnets with +/- 0.7T** and Ø 120mm for highest uniformity (+/- 1% over 50 mm)
Atmospheres	Vacuum, red., oxid, inert
Temperature	LN2 up to 600°C in different versions (continuously from LT to HT) -160°C (controlled cooling) -196°C (quench cooling)

Seebeck option:	
Sample geometry	L x W x H: 6 mm to 15 mm, 1 mm to 10 mm, thin film to 2 mm
Temp. Gradient	0.1 up to 20k
Technique	Slope technique with up to 10 readings per second
Thermocouple	Type K (other on request)
Illumination option	on request

Software:	
Linseis Platinum Package	Including configuration wizards, NIST routine, connection test, IV-plotting options, automatic data evaluation, comprehensive plotting capabilities, integrated database and many more.

*for most materials

**depends on batch can vary by +/- 9%