SPECIFICATIONS

The HCS 10 System is a high-end Hall-Characterization system, working according to the well-known Van-der-Pauw technique. It can not only be used for DC, but also for AC Hall experiments (in combination with an integrated Lock-In Amplifier) in order to expand the measurement range to a maximum, and thus cover a range of materials as broad as possible. 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.

It measures: Electrical Conductivity / Resistivity, Hall-Constant, Charge Carrier Concentration and Hall-Mobility. An optional Seebeck Coefficient measurement stage is available as extension kit.

HCS 10

Input current	~ 1 nA up to 125 mA (8 decades, compliance +/- 12V)
Input impedance	100 MΩ
Hall tension	DC: 1µV up to 2.500µV (4 decades). AC: Low noise Lock-In technique.
Max. digital resolution	300 pV
Carrier concentration	10^{7} ~ 10^{21}cm^{3*}
Resistivity	10^{-4} ~ 10^{7}Ωcm*
Mobility	10^{-3} ~ 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 bulk samples with 5 mm in height. High temperature board 10mm x 10mm with 2 mm height
Magnetic field	+/- 1T as first option (current) +/- 1.4 T as second option (so max. value in the offers)
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)
Pole Diameter:	76 mm optional 100mm
Power supply for 1.4 T:	Power Supply, true bipolar, 85V, 70A, Output noise, <5mArms, analog voltage programmable, includes Energy Control option for inductive loads

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 20 K
Technique	Slope technique with up to 10 readings per second
Thermocouple	Type K
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