

SPECIFICATIONS

The Linseis Thin Film Analyzer (TFA) is the perfect solution to characterize a broad range of thin film samples in a very easy and fast way. Based on integrated microchips, the instrument covers all requirements of a ZT-Meter and can determine the Electrical Resistivity / the Electrical Conductivity, the Seebeck-Coefficient, the Hall Constant, Charge Carrier Concentration, Hall Mobility as well as the Thermal Conductivity and Specific Heat Capacity (all parameters are measured in the in-plane direction).

TFA – Thin Film Analyzer

Setup:	Integrated Microchip Platform (disposable chips in a box of 24 pcs.)
Sample thickness	5nm up to 25µm
Temperature range	-160°C up to 280°C
Furnace	Heating cartridge in combination with LN2 cooling (for low temp.)
Heating and cooling rates	0.01 up to 20°C/min
Vacuum	10E-4mbar
Interface	USB
Thermal Conductivity	3 Omega Method, Hot Strip Technique (in-plane measurement)
Seebeck Coefficient	Variable temperature gradient, slope technique
Electrical resistivity	Van-der-Pauw Four probe measurement
Hall measurement	2x permanent magnets with +/- 0.5T*** and Ø 120mm Or Water-cooled Electromagnet wit 76mm pole Diameter and Bipolar power supply. Up to +/- 0.9T DC and  1T (0.1 to 0.2 Hz) AC.
Repeatability and Accuracy:	
Thermal Conductivity	+/- 10%*
Electrical Resistivity	+/- 6%*
Seebeck Coefficient	+/- 7%*
Hall Constant	+/- 9%*
Measurement range:	
Thermal Conductivity	0.05 W/mk up to 200 W/mK**
Electrical Conductivity	0.05 S/cm up to 1 x 10 ⁶ S/cm*
Seebeck Coefficient	5 µV/K up to 2500 µV/K*
Carrier concentration	10 ⁹ ~ 10 ²¹ cm ³ *
Mobility	10 ⁻² ~ 10 ⁷ cm ² V ⁻¹ s ⁻¹ *

Software:

Linseis Package	Platinum	Including configuration wizards, NIST routine, connection test, IV-plotting options, automatic data evaluation, comprehensive plotting capabilities, integrated database and many more.
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*for most materials. **measurement range depends on thickness times thermal conductivity of the sample

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