

LINSEIS

SPECIFICATIONS

Thermoelectric power generation is a method of direct electric power generation from heat, based on the thermoelectric effect which was discovered by J. T. Seebeck, a German physicist in 1821. In the face of recent global warming, caused by carbon dioxide and depletion of fossil fuels, thermoelectric conversion devices are attracting attention because of its effective utilization of waste heat energies. LINSEIS has developed the LSR-1 system for a reliable, easy and fast characterization of thermoelectric materials at room temperature or in the temperature range from -196C up to +200°C.

LSR 1

Temperature range:	Basic unit: Room temperature to 200°C (hot side temperature) Cryo option: -160°C to +200°C (cold side and hot side temp.)
Heating rate:	0.01 – 100 K/min
Temperature precision:	+/-1.5K + or -0.25%
Sample size:	Seebeck L: 8 mm to 25 mm; W: 2 mm to 25 mm; T: thin film to 2 mm Resistivity L: 18 mm to 25 mm; W: 18 mm to 25 mm; T: thin film to 2 mm
Measuring Range / Method:	
Sample holder:	Integrated PCB Board with Primary and Secondary Heater
Seebeck coefficient	Seebeck Coefficient measurement range: 0 to 2.5 mV/K
Static dc method:	Temperature measuring range: +-200°C Seebeck Voltage measurement: range +-8 mV
Electric Resistivity	10 ⁻⁴ up to 10 ⁷ (Ωcm)
Four-terminal method:	
Resolution:	
Thermovoltage:	0.5 nV/K (nV = 10 ⁻⁹ V)
Electric Resistivity:	10 nOhm (nOhm = 10 ⁻⁹ Ohm)
Temperature:	0.01°C
Accuracy:	
Seebeck coefficient:	+/-6% Semiconductor* +/-4% Metal*
Electric Resistivity:	+/-9% Semiconductor* +/-4% Metal*
Repeatability:	
Seebeck coefficient:	+/-3,5%*
Electric Resistivity:	+/-2%*
Atmosphere:	Inert, reducing, oxidising, vacuum Low pressure helium gas or N2, recommended
Power requirement:	230V / 110V 50Hz / 60 Hz
Vacuum Pump:	optional