

Measurement of: Thin films and devices

Equipment: Low temperature cryostat system (custom built) Make: Cryo Industries of America

Property Measured: 1) R-T (Temperature range: Room temperature - 1.5K)
2) I-V (Temperature range: Room temperature - 1.5K, Current range: 200nA - 100mA)
3) R-T with microwave power and magnetic field
4) I-V with microwave power and magnetic field

For '3' and '4'

[Temperature range: Room temperature - 1.5K, Current range: 200nA - 100mA

Microwave frequency: up to 31.8 GHz (lowest frequency: 250KHz)

Microwave power : -20 dBm to +14 dBm, Magnetic field: up to 100 Gauss]

Photograph (small size)



Basic Principle: Samples are cooled by insertion into flowing helium gas exiting from the vaporizer. Pumping on the sample zone provide temperatures below 2 K. Liquid helium flows from the reservoir through the adjustable flow valve down to the vaporizer located at the bottom of the sample tube. Applying heat vaporizes liquid and raises gas temperature. This gas then cools the sample.

Capabilities: The cryostat system is capable to measure the various transport properties of thin films and devices with/ without microwave power and magnetic field. The complete measurement facility is automated using LabVIEW software.

Sample Requirement: The sample must be mounted on a PCB. 4 wires must be provided for making contacts with sample (preferably wire bonded). Max. sample size : 15mm * 15 mm