

DIELECTRIC ANALYZER

HIGH TEMPERATURE-600



Visual is for representation purposes only. It will be changed according to the specificitions

Overview

HIGH TEMPERATURE DIELECTRIC MEASUREMENT SYSTEM

RT–600 °C Four-Probe Sample Stage & LCR Meter Integration

An end-to-end dielectric and impedance analysis solution designed for material science, semiconductor research and development, and high-temperature material characterization. The system integrates a high-precision LCR meter, a specialized atmospheric heating stage, and comprehensive control software into a unified platform.

SYSTEM OVERVIEW & KEY FEATURES

Providing precise temperature control from ambient up to 600 °C, this system enables real-time monitoring of temperature- and frequency-dependent electrical properties of materials. Utilizing auto-balance bridge technology and a 4-terminal pair configuration, it effectively minimizes parasitic effects to deliver high-accuracy measurements.

Thermal Control: High-stability heating stage utilizing resistance heating to achieve rapid heating rates up to 150 °C/min and cooling rates up to 40 °C/min.

Heating rate: 1- 20 °C/min is suitable to measure dielectric measurements. We can provide a furnace from rapid heating rates up to 150 °C/min and cooling rates up to 40 °C/min. But these heating rates are very high according ASTM standards.

Impedance Analysis: Simultaneous analysis of 13 electrical parameters across a 20 Hz – 1 MHz frequency sweep.

Optical Access: Features a easily removable and replaceable fused silica window for optical access and reflection measurements.

Integrated Software & Automation: Lifetime-licensed dielectric testing software offering multi-parameter graphic sweep capabilities and robust data storage.

Systems measure automatically dielectric constants at various temperatures wiht any temperature step

TECHNICAL SPECIFICATIONS

1. Heating Stage & Chamber Specifications

Temperature Range: Ambient (RT) to 600 °C

Temperature Stability: ±0.1 °C

Max Heating Rate: 150 °C/min is fvalid or a furnace

Max Cooling Rate: 40 °C/min is a valid for a furnace. We will provide also heating chamber for dielectric measurements.

Sample Holder: Silver, 23 mm × 23 mm or equivalent

Optical Path: Reflection mode

Top Window: JGS2 Fused Silica Glass (Transmission Range: 220 nm – 2500 nm), Ø25 mm × 1 mm, manually removable and replaceable

Chamber Height: 6.5 mm or equivalent according to IEC or ISO standards

Window-to-Sample Distance: 7.5 mm (from upper window surface to upper sample surface) or a suitable according to ASTM standards

Environment: Ambient Atmosphere

Probe Assembly: 4 × Fixed Probe Holders + 4 × Gold-plated tungsten steel probes or equialent a suitable according to ASTM standards

Interfaces: 4 × BNC probe ports or equivalent probes or equivalent a suitable according to ASTM standards

2. Digital LCR Meter Specifications

Measured Parameters: |Z|, |Y|, θ, Rp, Rs, G, X, B, Cp, Cs, Lp, Ls, D (tanδ)

Frequency Range: 20 Hz – 1 MHz

Basic Accuracy: ±0.05%

Measurement Technology: Auto-balance bridge, 4-terminal pair

Display: 7-inch TFT LCD (800×600 resolution)

Measurement Speed: High-speed testing up to 5.6 ms

Range Selection: Up to 15 measurement ranges

Current Output: Up to 100 mA or Expandable

This is not suitable for dielectric measurements. We will provide intenal voltage source: -5 V to + 5V programmable output

Independent Voltage Source: ±5V programmable output accoding to ASTM standards

Analysis Functions: 201-Point List Sweep, Multi-Parameter Graphic Sweep, Arithmetical Operations, 10-Bin Sorting with audio/visual alarm

Internal Storage: 100 groups of setup files, 10 groups of GIF image files

External Storage: Up to 100 setup files via USB interface

Connectivity: USB HOST, USB DEVICE, LAN, HANDLER, External DC Bias Control Interface

UNSPSC Classification: Impedance meters

3. Data Acquisition & Processing Workstation

Hardware: Intel Core i5 (10th/11th Gen or equivalent), 8 GB RAM, 512 GB SSD, 15-inch Full HD display, 4–6 hours battery backup

Software: Lifetime-licensed dielectric testing software with free updates

Accessories: Original power adapter and all required communication cables

SCOPE OF SUPPLY & SERVICES

Complete System Package: Main heating stage unit, Digital LCR Meter, laptop workstation, standard reference/calibration samples, all essential accessories, and interface cables for immediate operation.

Installation & Validation: Professional installation, system commissioning, performance verification, and calibration certification.

Training Services: Comprehensive online and on-site physical user training.

Documentation: User manuals, technical documentation, and Standard Operating Procedures (SOPs).

Warranty & Support: Minimum two (02) years comprehensive warranty, lifetime after-sales technical support, free software/hardware updates (where applicable), and long-term availability of spare parts and consumables.