

AutoCal 230°C Piezoelectric Thermal Test Chamber

The AutoCal 230°C Piezoelectric Thermal Test Chamber Includes - Displacement Sensor, Heated Piezoelectric/Pyroelectric Measurement Test Fixture, Pyroelectric/Chamber Software and Advanced Piezoelectric Software. The Self-calibration will allow fully automatic temperature (to be internally heated to 230°C) profiles for both electrical and piezoelectric tests. The heating unit is built-in to the self-contained fixture so no additional temperature chamber is necessary. The bundle's simple user interface is controlled by Radiant's fully automated Vision Data Acquisition Software.



The heated test fixture provides a safe operating environment for testing at high voltages (10kV) and is rated to 230°C. The fiber optic sensor detects the amplitude of non-coherent light reflected from the sample surface to determine the distance from the sensor wand to the sample surface. The AutoCal 230°C Piezoelectric Chamber is a cost effective option for researchers measuring piezoelectric displacements on the order of one micron or larger using Radiant testers. Converse D33 Measurements are easily extracted.

Features:

SAFE HIGH VOLTAGE TESTING

Test Fixture rated to 230°C. Constructed from 50kV Teflon with 25kV connectors rated to 250°C.

BUILT-IN OIL BATH

Warning: Only oil rated above 230°C may be used to prevent fire or toxic gas generation.

SIMPLE TO OPERATE

VERSATILE

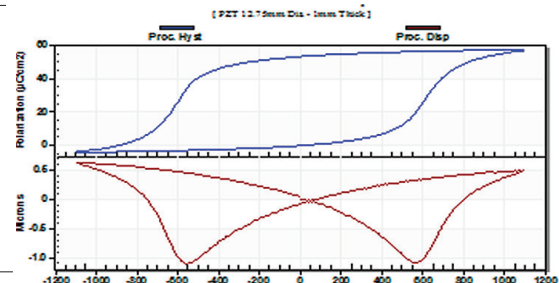
Production or research

FLEXIBLE

Accommodates sample diameters ranging from 5mm to 30mm with a maximum thickness of 12mm.

AUTOMATED Calibration

The self-calibration system for the AutoCal 230°C Piezoelectric Thermal Test Chamber will allow Vision and its driver to retract the sensor wand within a Test Definition and then return it to its calibrated position when the new chamber temperature stabilizes. Self-calibration will allow fully automatic temperature profiles for both electrical and piezoelectric tests.



Data Taken with Bulk Piezo/Pyro Test Bundle

Measurements with The AutoCal 230°C Piezoelectric Thermal Test Chamber

Measurements include, but are not limited to:

-
- | | |
|-----------------------------|---|
| ■ Displacement vs Thickness | ■ Composition Comparison |
| ■ Displacement vs Voltage | ■ Displacement vs Temperature |
| ■ Piezoelectric Fatigue | ■ Multiple Plotting and Averaging |
| ■ Piezoelectric Ageing | ■ All Standard Electrical Measurements vs Temperature |
-

The AutoCal 230C Piezoelectric Thermal Test Chamber Includes:

■ **PIEZOELECTRIC/PYROELECTRIC HEATED TEST FIXTURE**

The test fixture provides a safe operating environment for testing of bulk ceramics at high voltages (10kV) and high temperatures (up to 230°C). The test fixture connects to a Radiant Non-linear Materials Tester via rubber coated high voltage cables rated to 50kV DC or 10kV AC. The unit is constructed with Teflon and holds the sample under test during high voltage application. When combined with the insulated high voltage cables from the tester, the entire high voltage test path is completely enclosed with insulation rated to 10,000 volts to provide a safe operating environment for the user despite the high voltages.

■ **PIEZOELECTRIC DISPLACEMENT SENSOR**

Radiant's Piezoelectric Displacement Sensor Specifications

0.1 micron with a range of 6mm. The Piezoelectric Displacement Sensor analog outputs is calibrated to generate 5microns/volt (or =0.2V/micron) on the near side slope.

When the Piezoelectric Displacement Sensor analog output is connected to a Precision Test System Sensor port that output voltage is measured by an ADC whose resolution is .079mV per step.

■ **ADVANCED PIEZOELECTRIC SOFTWARE**

Advanced piezoelectric software executes automated tests and provides clean displacement measurements for bulk piezoelectric films or piezoelectric MEMs. The software can be configured for different measurements and generate multiple plots at the touch of a button. It corrects multiple measurements for test stand drift and then averages/smooths the measurements to correct high and low frequency noise.

Chamber Software

Sets the sample to a series of temperature by performing GPIB control of an external thermal device. At each temperature, it captures the sample's polarization response and/or small-signal capacitance.

More Information on Radiant Technologies, Inc., product line can be found at www.ferrodevices.com