

# RADIANT'S NEW D33 HEATED BULK PIEZOELECTRIC/PYROELECTRIC TEST BUNDLE (HB-PTB)

The bundle includes a Piezoelectric Displacement Sensor, Heated Piezoelectric/Pyroelectric Measurement Test Fixture, and Advanced Piezoelectric Software. The Bulk Piezoelectric/Pyroelectric Test Bundle allows samples to internally be heated to 230C in a self-contained test fixture. The heating unit is built-in to the sample holder, 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 230C. 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 Bulk Piezoelectric/Pyroelectric Test Bundle 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 230C. 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

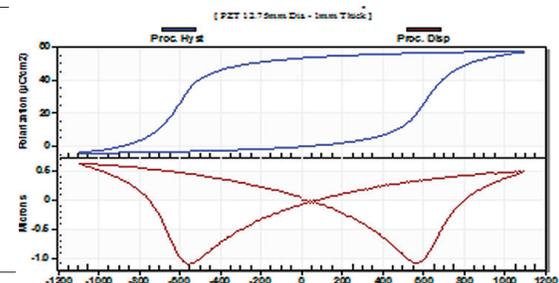
### FLEXIBLE

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

### AUTOMATED

Temperature assignments and electrical measurements are fully controllable from Vision Software.

Note: Piezoelectric displacement vs temperature profile requires manual recalibration of the displacement sensor at each test temperature due to changes in the test fixture dimensions.



Data Taken with Bulk Piezo/Pyro Test Bundle

## Measurements with The Bulk Piezoelectric Test Bundle Include, but are not limited to:

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- |                             |   |
|-----------------------------|---|
| ■ 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 |
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## Heated Bulk Piezoelectric/Pyroelectric Test Bundle Includes:

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### ■ 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 230C). The test fixture connects to a Radiant Non-linear Materials Tester via rubbercoated 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.

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### ■ 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.

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### ■ 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.

**For more information about Radiant Technologies, Inc product line, see [www.ferrodevices.com](http://www.ferrodevices.com)**