RADIANT TECHNOLOGIES, INC.

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Premier II Ferroelectric Test System

The Precision Premier II, is one of Radiant's most advanced testers. The Premier II offers one of the largest test envelopes in terms of frequency response, voltage range, and accuracy of any ferroelectric tester in the world.

Premier II Specifications include

» ±10V, 30V, 100V, 200V and 500V built in output (10kV option)

» 16-bit Arbitrary Waveform Generator output

» 18-bit resolution with 2MHz single pass capture rate

» Executes Pulse Test at 500ns

» 32,000 Max Data Points

» Measures 200fC of charge in a single, 1 second pass

» 2 external 18-bit, ±10V SENSOR voltage inputs.

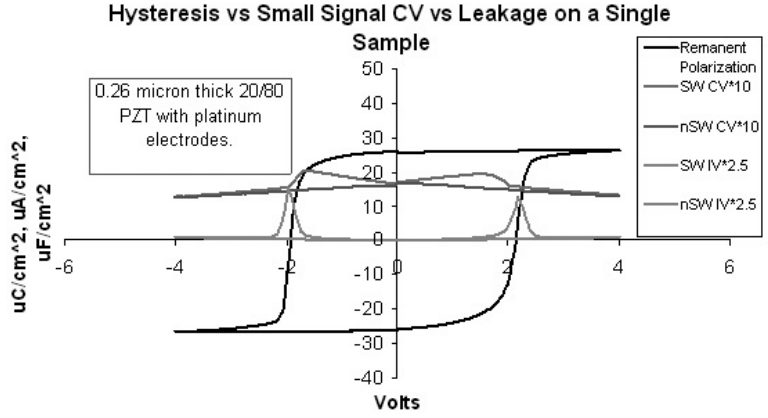
- **The Precision Premier II tester is capable of executing a single pass hysteresis loop in 100µs with no interlacing of the data acquisition. The Premier II uses a 40MHz clock through a down counter resulting in an effective maximum clock rate of 10MHz. The capture rate for the 18bit ADCs in the system is 2MHz. The maximum hysteresis frequency of the Premier II is 250kHz .**

- **The driver for the Premier II interlaces multiple loops to generate an effective capture rate of 10MHz on hysteresis and a total loop period of 10µs. This hysteresis measurement is compatible with the loops measured by all of the Precision testers made by Radiant. The Premier II will execute a PUND pulse measurement with pulse widths ranging from 0.5µs up to 1s on capacitors with areas ranging from 0.5u2 up to multiple square centimeters.**

Includes Vision Software Operating System

- **The Premier II Ferroelectric Test System is driven by Vision Software. Vision offers 155Tasks in Total. Vision is the only software package available for ferroelectric testers that provides exceptional freedom to design, conduct and review all procedures associated with any material experiment.**

- **Vision dramatically increases the productivity of the researcher, reducing the time required to acquire data in an experiment. Vision's enhanced productivity directly reduces cost of test. Vision dramatically increases the complexity of the research that may be accomplished by allowing researchers to combine different measurement tasks with environmental controls into an automated test procedure managed by programmable logic embedded with automated data collection, analysis and plotting tools.**



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The Vision Task Library Includes, but is not limited to the following:

- Hysteresis, Leakage, Charge, Retain, Resist,
- Fatigue, C(V), PUND, Imprint and Leakage Current
- Link multiple tasks to create a custom program
- Networking features allow researcher to share data from anywhere in the world
- Continuously variable pulse widths and hysteresis periods

Dimensions:

- Width-17” x Depth-13” x Height-4”
- Weight 20lbs

Hardware Specifications

TESTER PARAMETER	MULTIFERROIC
Voltage Range (no external amp)	±10V, 30V, 100V,200V, 500V
Voltage Range (w/external amp)	±10KV
Number of ADC Bits	18
Minimum Charge Resolution	0.8fC
Minimum Area Resolution (assuming 1 ADC bit = 1µC/cm2)	0.08µ2*
Maximum Charge Resolution	5.26mC
Maximum Area Resolution (assuming saturation polarization = 100µC/cm2)	52.6cm2
Max Charge Resolution w/HVI	526mC
Maximum Area Resolution (assuming saturation polarization = 100µC/cm2	>100cm2
Max Hysteresis Frequency	250KHz*
Min Hysteresis Frequency	0.03Hz
Minimum Pulse Width	0.5µs
Minimum Pulse Rise Time (5V)	400ns
Max Pulse Width	1s
Max Delay between Pulses	40ks
Internal Clock	25ns
Minimum Leakage Current (assuming maximum current integration period = 20 seconds)	2pA - +/-3.5% accuracy 1pA- +/-15% accuracy
Maximum Small Signal Cap Freq.	1MHz
Minimum Small Signal Cap Freq	1Hz
Output Rise Time Control	105 scaling
Input Capacitance	~60fF
Electrometer Input	Yes

Minimum Area under actual test conditions will be higher. 250KHz on 100 sq micron capacitor

