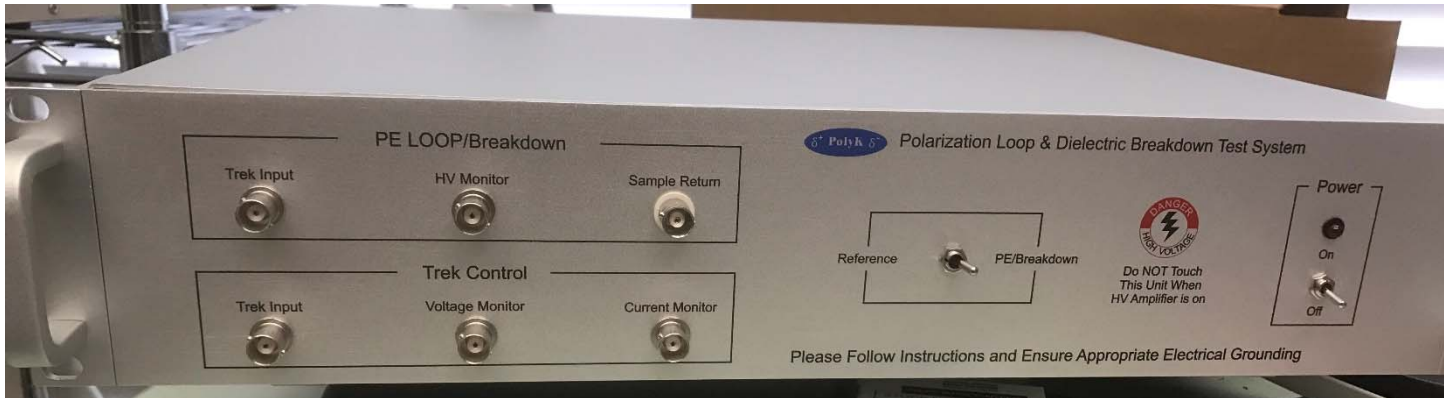


# Polarization Loop & Dielectric Breakdown Test System



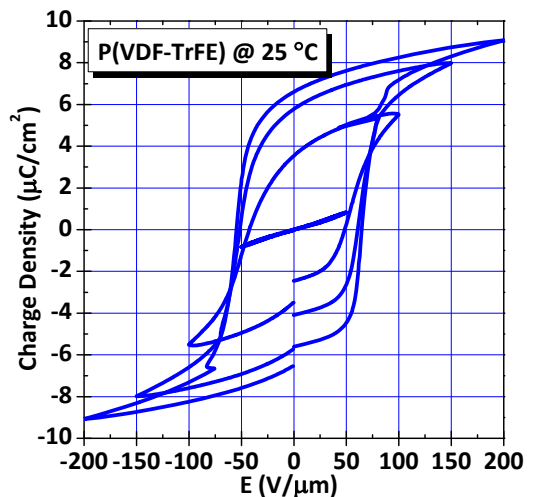
## Functions

- This test system can measure the electrical charge density of dielectric and ferroelectric materials as a function of electrical field and frequency. The test is based on an improved active Sawyer-Tower Circuit.
- The system has integrated protection circuit to protect the system even when the test specimens experience dielectric breakdown under high voltage.
- Working with Trek® high voltage amplifier, test can be performed at voltage >10 kV and frequencies up to 200 Hz. No HV interface required.
- Dielectric breakdown test can also be performed with the same test system by simply changing the electrical and signal connection.
- Uniquely designed test fixture will not damage soft polymer dielectric materials.

- Communications with host computer by USB.
- Powerful LabView® program (included) allows the user to control voltage, drive waveform (triangular, sin, unipolar, bipolar, arbitrary), frequency, etc.
- Selection of reference capacitor is controlled through the software without changing hardware wiring.
- For the test of charge-discharge of capacitor dielectric materials, the software can automatically provide the charged energy density, discharged energy density, as well as charge-discharge efficiency.
- Lifetime cycle test (DC or AC) can be performed and a summary file will be generated automatically.

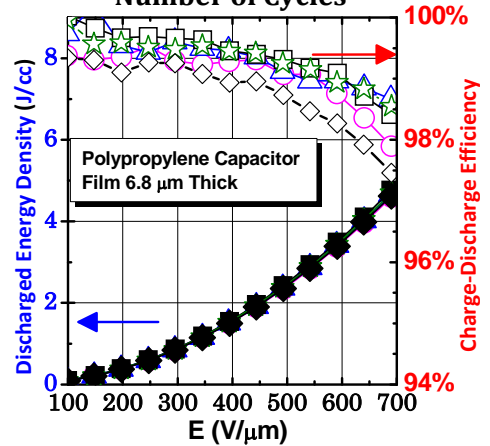
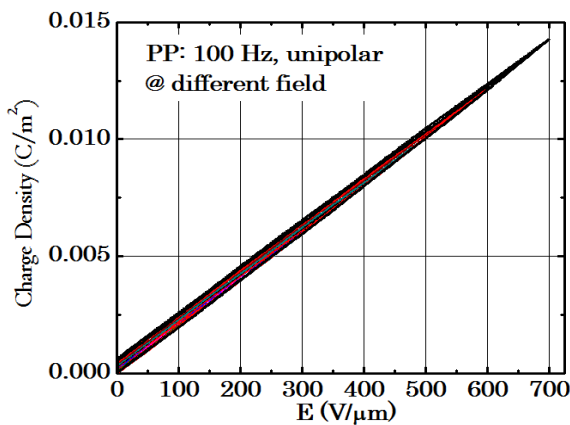
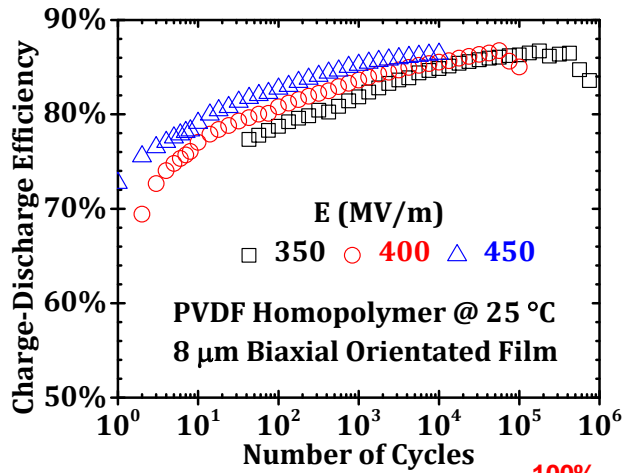
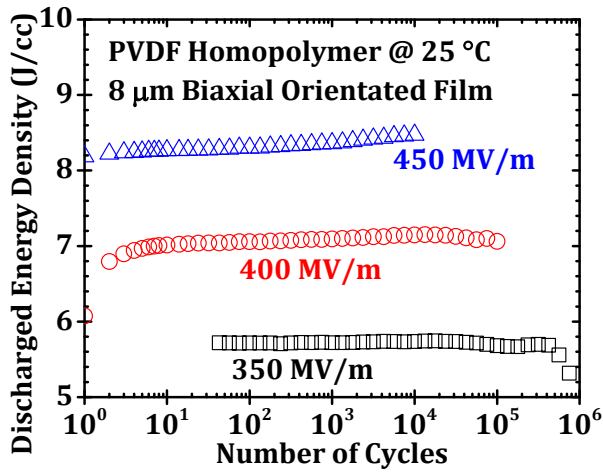
## Capability

- Voltage: > 10 kV (No interface)
- Charges: <1 nC to >1 mC (depend on amplifier output)
- Test frequency: 0.01 ~ 200 Hz



Contact Information:  
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www.polyk-lab.com

# CPE1701 Test Examples



PE Loop

Test Parameters System Setting Data Analysis

Signal Parameters

Ext Amplifier: 1000 Q range: 1uC

Signal Shape: Unipolar Signal Period (s): 0.10000

Peak Voltage (V): 100

Plot Parameters

X-axis: field Charge Range: 5.0

Y-axis: charge lok

Sample Parameters

Sample Name: 1 Sample #: 1

Area cm<sup>2</sup>: 1 Thickness μm: 1

MEASURE RE-ZERO

SAVE GRAPH QUIT

delta X: 0 V/m

delta Y: 0 C/m<sup>2</sup>

Ref Point: 0

Data Point: 0 1.06 V/m 41.8 C/m<sup>2</sup> 832

Field Charge

1023

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