

APPLICATION BRIEF

2020

MULTI-CHANNEL PARTIAL DISCHARGE TEST SYSTEM

Brief Description:

Emerging Technologies, LLC. was called upon to provide a replacement Partial Discharge Test System. The system was to be designed for testing up to 70KV with partial discharge testing up to 26KV. The new system was to test multiple DUTs simultaneously vs. a single DUT.

The new system integrates a Phenix AC High Voltage System, Omicron PD measurement system, and field safety hardware. An existing customer provided National Instruments LabView based test application was used as a starting point and updated for multiple DUT testing. The LabView test application interfaces the PD software and High Voltage Test set. Multiple PD measurement units are networked to the PD measurement software. The result is a single operator interface used to run custom developed test routines for various product and PD measurements. Test results are stored in a proprietary customer database and printed to a label to be applied to the DUT.

Multiple safety strategies were employed to protect the operator, equipment, and DUT; optical isolation, safety switches, software safeguards, and use of a Faraday cage.

Prior to the development of the system, field feasibility work was performed to determine the feasibility and method of multiple DUT PD testing.

Customer Benefit:

The customer is able to perform automated multiple DUT testing using a diverse set of hardware and software via one easy to use operator interface. Test reports are provided to the end user and results are stored for future recall.



ET Responsibilities:

- Functional Specification Generation
- ✓ Design / Engineering
- ✓ Fabrication
- ✓ Programming – Software
- Programming – Firmware
- Circuit & PCB Design
- ✓ On-Site Commissioning
- ✓ Post Commissioning Support
- Other

Technologies:

- Embedded Computers
- Microcontrollers
- ✓ Visual Software
- ✓ Control Software
- ✓ Data Acquisition
- ✓ Computer Based Control
- ✓ Communications – RS232
- System Integration
- Other

Special Features:

- ✓ Remote Control of HV Equipment.
- ✓ Remote Communication with the PD Measurement System.
- ✓ Simultaneous Multi-Channel DUT Testing.
- ✓ Optical Isolation.
- ✓ Rack-mounted Industrial PC, Power Supplies, and Instruments.