

## ELECTRICAL BUSHING RIV / HIPOT TEST SYSTEM

### Brief Description:

Emerging Technologies, LLC. was called upon to provide a replacement RIV/Hipot test system for electrical bushings. The existing Faraday cage, product test tanks, and high voltage switches were to be re-used. Up to 100KV was required for Hipot testing and 30KV for RIV (Radio Influence Voltage) testing.

The new system integrates a Phenix provided mtronix PD/RIV measurement system, a Phenix AC Dielectric test set, and field I/O control. The software test application was developed using National Instruments LabView 8.5.1 and interfaces the mtronix software and Dielectric Test set drivers via ActiveX. The result is a single operator interface used to run custom developed test routines for Hipot and RIV. Test results are stored and utilized by the existing 1<sup>st</sup> pass yield program previously developed by Emerging Technologies, LLC.

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

The design package included; bill of material, mechanical diagrams, electrical diagrams, and custom developed LabView 8.5.1 application software. Additionally, a field instruction package was issued to plant maintenance to install the power feed and field equipment.

### Customer Benefit:

The customer is able to perform automated 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 and analyzed for yield.

### Special Features:

- Remote Control of HV Equipment.
- Remote Control of RIV Measurement System.
- Optical Isolation.
- First Pass Yield Tracking.
- Rack-mounted Industrial PC, Power Supplies, and Instruments.



### Key Components Used:

- Phenix RIV Measurement Package (mtronix/Omicron).
- Phenix 100KV AC Dielectric Test Set.
- National Instruments LabView 8.5.1.
- Opto22 I/O.

### Emerging Technologies, LLC.

#### 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, ActiveX
- System Integration
- Other

### Customer Category:

- ✓ OEM
- Custom Equipment
- Utility
- R&D

**SPECIALISTS IN TEST, MEASUREMENT, AND DATA ACQUISITION**

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