

## RECLOSER CONTROL TEST SYSTEM

### Brief Description:

Emerging Technologies, LLC. was called upon to provide a new (current technology) Recloser Control Test System for a new Recloser Control product.

The new system employs modular PXI chassis hardware and modular test code sequenced using NI Test Stand. The PXI hardware allowed for the use of modular interface with I/O and metering.

This test application was developed using individual test modules created using LabView. The test modules are executed via configurable TestStand sequences. A database is interfaced for test specifications on a per model basis (selected via barcode). Results are stored to the database, reports are generated in multiple formats, and results are analyzed for first pass yield.

Multiple communication protocols and formats are required to facilitate communication with various option communication modules available with the standard DUT. RS232, RS485, Ethernet, and USB are among the list. Modbus (serial & TCP), IEC 61850, and DNP3 are among the protocols used.

The design package included; bill of material, mechanical diagrams, electrical diagrams, custom application specific labeling, and custom developed TestStand/LabView test application software.

### Customer Benefit:

The customer is able to perform automated testing of a diverse set of options via one easy to use test system. Results are stored to the database by serial number. The sequence is customer modifiable allowing flexibility to assemble the appropriate test sequence for existing product with the ability to support testing of future product.

### Special Features:

- PXI Hardware.
- Built in Mains Power Conditioning.
- Custom Cable Rack.
- Configurable Test Sequence via NI Test Stand.
- Mobile Test Enclosure for Easy Transport.



### Key Components Used:

- National Instrument PXI hardware including DMM, Multiplexer, and High Density Relay Driver modules.
- National Instruments Test Stand/LabView Test Application.
- Custom AC Current Source.
- Multi-style Fiber Optic Communication Interface.

### 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 – GPIB, RS232, E-Net, USB
- System Integration
- Other

### Customer Category:

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

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

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