

## TRANSFORMER TEST SYSTEM

### Brief Description:

Emerging Technologies, LLC. was called upon to utilize our years of experience in transformer testing to develop and build a custom transformer test system for pole- and pad-mounted power transformers. The new system was based on an existing manual setup and was integrated into the customers' existing test lab utilizing a pre-existing test cage. The new system was to automatically run a set of tests using different parameters based on voltage and power ratings as well as store test result data. A wide variety of product needing test was taken into consideration and a configurable drop down list of part numbers was incorporated into the new design. A safety system was also integrated into the final product to protect personnel while testing is performed.

The system integrated several instruments to verify the integrity of transformers. A winding resistance meter is utilized to verify all connections inside the transformer between the connectors and coils. A transformer turns ratio meter verifies the transformer coils are in good condition and wired correctly. The insulation resistance meter checks the integrity of the insulation between coils and ground. A dielectric test set verifies that there are no breakdowns when applying working voltages (or higher) to the transformer. The system is capable of testing multiple primary taps in a common test sequence.

A crucial component of the project was the onsite commissioning of the test system. Once completed and verified at the Emerging Technologies facility, the system was packaged and shipped directly to the customer site where a team from Emerging Technologies installed the new system including detailed system verification and operator training. The transition from existing equipment to the new integrated test system was nearly seamless.

### Customer Benefit:

The customer is able to safely test pad- and pole-mounted power transformers to meet specifications with new and more capable equipment. All test results are stored automatically versus being hand recorded. Test reports are generated and populated automatically, reducing time and chance of human error.



### 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 – Ethernet, MODBUS
- ✓ System Integration
- Other

### Special Features:

- ✓ Barcode scanner input capability
- ✓ Fiber-optic isolation
- ✓ National Instruments LabVIEW software
- ✓ Omron safety hardware
- ✓ Phenix Technologies test equipment
- ✓ Raytech test equipment
- ✓ Schneider Modicon PLC