AUTOMATIC TRANSFER SWITCH TEST SYSTEM

Application Brief

Emerging Technologies, LLC. was called upon to develop and build a pair of functional test systems for a new addition to an existing line of automatic transfer switches including single phase and three phase units. Additionally, the customer required the new systems be backwards compatible with existing products.

Emerging Technologies implemented a voltage transformer with several secondary taps to accommodate the range of product to be tested. The system was designed to prove the proper operation of both the contactor and the controller. Noteworthy items tested include the controller's communication via Modbus/TCP over Ethernet or Modbus over RS485, front panel membrane switches, and voltage and current calibration. Configuration data identifying the device to be tested is read from a barcode. While primarily an automated system, the operator has the opportunity to manually test the membrane switches. Results of the test, as well as unique device data, are stored to local disk in an Access database. A label is then printed with the unit's serial number, operator ID, and date.

Additionally, a manual-operation mode was included to allow for manual control of all internal contactors, as well to facilitate manual communications with the device under test. The test software was developed using Visual Basic, and is capable of operation from the touch-screen monitor alone. However, a keyboard and touchpad are available.

Customer Benefit:
The customer is able to fully test the functionality of their entire product line using a single test system. By having two identical systems built at the same time, the customer was able to take advantage of additional savings.

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

TECHNOLOGIES:
Embedded Computers
Microcontrollers
✓ Visual Software
✓ Control Software
✓ Data Acquisition
✓ Computer Based Control
✓ Communications - RS232,RS485, Ethernet, Modbus
✓ System Integration

SPECIAL FEATURES:
✓ Touch-screen monitor
✓ Compatible with entire line of transfer switches
✓ Manual mode for troubleshooting product
✓ Storage of test results to Access database
✓ Barcode Scanner
✓ Modbus over RS485 and Ethernet