

## BACK DRIVE TEST SYSTEM

### Brief Description:

Emerging Technologies, LLC. was called upon to develop and build a back drive test system for a brushless DC motor assembly. The customer-provided specification called for easy loading and unloading of the product and the ability to store results to an SQL database. Verification of completion of end of line testing via a common database was required.

A multi-step test sequence consisting of discrete and analog I/O is employed to test the functionality of the product. Input torque, speed, and direction are verified while a servo drives the motor clockwise, then counterclockwise. Test results are stored locally to a CSV file and remotely to an SQL database. Test parameters are stored locally and are editable by a user with administrator level access to the machine.

Emerging Technologies, LLC. Prepared a design package for customer review prior to fabrication of the tester. The design package included: System Layout Diagrams, Electrical Diagrams, Fixturing Diagrams, and Software Sequence of Operation. Once approved, the tester was fabricated, tested, and operation was verified by the customer.

### Customer Benefit:

The customer is able to test a motor assembly, using the Emerging Technologies, LLC. custom test system, to verify correct operation prior to final assembly. The new system saves time and money by detecting faulty units before final assembly, resulting in reduction of final product rework.



### 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, Ethernet
- ✓ System Integration
- Other

### Special Features:

- ✓ Touch-screen monitor.
- ✓ Barcode Scanner
- ✓ Label Printer
- ✓ Automated DUT Clamping and Release
- ✓ Automated Test Sequence
- ✓ Results Stored to SQL Database
- ✓ Previous Testing Complete Verification