

APPLICATION BRIEF

2020

AUTOMATIC SYNCHRONIZED MULTI-UNIT PRODUCTION BURN-IN & COMPRESSOR TESTER

Brief Description:

Emerging Technologies, LLC. was requested to design and build an automated compressor test system for pressure, flow, power and speed that included an integral synchronized burn-in routine. The system automatically controls back pressure to 100PSIG at flowrates of air up to 1.75 SCFM. The system was also required to manually check max vacuum up to 30"Hg. The system monitors barometric pressure, and ambient temperatures. It required a single flow meter for the pressure circuit to allow for the accuracy required for testing across the product ranges. A single auto-backpressure regulator was used to allow for the pressure control accuracy.

This test system is a duplicate of a previous design with Enhancements that include an upgrade to the Five Unit Auto Burn-In Feature and Automatic Switching between pumps connected to the test system. Existing LabVIEW test software was modified to support the use of LFE for flow measurement, PWM output for speed control, tach feedback for speed input and sequence modification to support running a second speed / pressure set point as part of the functional test. Additional software enhancements were to allow PID parameters to be adjustable, easily visible duration timers, calculation of sequenced start times and the Auto Run-In function.

Customer Benefit:

The customer is able to automatically test 5 sequenced DUTs with minimal operator handling greatly increasing throughput. The customer received a fully validated, custom test system with proprietary software.



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, RS485, Ethernet, Modbus
- ✓ System Integration
- Other

Special Features:

- ✓ Automated DUT Switching
- ✓ Five Unit DUT Burn-In Station
- ✓ 200 Point Running Results Graph
- ✓ Barometric Pressure Sensing & Recording
- ✓ Dual Touch Screen Monitors
- ✓ Barcode Scanner with Integration