

APPLICATION BRIEF

2020

TILTING FIXTURE FUNCTIONAL TEST SYSTEM

Brief Description:

Emerging Technologies, LLC. was called upon to design and build a functional test system with a tilting fixture. Cost was to be kept down by designing a manually operated system with the capability to be automated in the future.

Emerging Technologies, LLC. worked from a customer provided test specification and sample product. Cost saving design was utilized throughout the effort. Use of a basic stock enclosure and a simple fixture design provided significant cost savings. Additionally, the customer provided drafting services for the test system drawings.

The test operation is performed manually by following a test procedure to actuate switches, potentiometers, and selection of pre-set power supply voltages. The design incorporates a simple tilt fixture design allowing the device under test (DUT) to easily slip onto the tooling pins and be tilted manually by the operator during the test.

A custom PCB was developed to allow easy interface of future automated I/O hardware. The required variable DC power supply is capable of up to ten voltage presets that are recalled by the operator via the front panel. Additionally, the power supply has communication capability for future automation interconnect. Further savings were realized by using a plug in style wire harness interconnect to the DUT vs. a spring probe style interface.

Customer Benefit:

The customer is able to test sub-assemblies, using the Emerging Technologies, LLC. developed test system, to verify correct operation prior to assembly into the final product. The simplified manual (upgradeable to automated) design provided a significant cost savings now with a clear path to future cost savings via automation once production levels increase.



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 - future
- System Integration
- ✓ Other – custom tilt fixture

Special Features:

- ✓ Upgrade path for automation in the future.
- ✓ Tilting Fixture.
- ✓ External Meter and Power Supply.
- ✓ Replaceable DUT interface cabling.
- ✓ Portable Enclosure.