

Automated Test Systems

EnGenius supplies turnkey single and multiple station test systems for development, DV, PV, and other engineering and manufacturing test applications.

Module Firmware Development and Validation

Firmware development and validation requires a test development and runtime environment that integrates network messages with analog and digital I/O to effectively and repeatably run the requirements test cases.

The EnGeniusTEST™ platform, built on National Instruments TestStand®, provides a highly capable test development and execution platform. Using EnGeniusTEST you can develop and execute test cases in a test environment that integrates networks, analog and digital I/O, and other data acquisition equipment with automated data collection and results.

DV & PV Testing



DV and PV testing requires continuous and intermittent powered operation of the module during an environmental chamber profile. During operation the module needs the appropriate sensor data stream, network messages, and analog and digital inputs to ensure that the module is in its normal operating state. During testing the module must be continuously monitored for proper operation by comparing network messages and analog and digital outputs against their expected contents, values, and timing to determine if the module is operating properly. Multiple modules can be tested in parallel with the fidelity of single module testing.

EnGeniusTEST supports the reuse of test components developed during software validation for DV and PV test applications – shortening the development time and prove-out of the test system and applications.

Manufacturing End-Of-Line (EOL) Testing

EOL testing of complex electronic control modules has changed over the years from a quick I/O test to more comprehensive process that includes a brief functional test in a simulated vehicle environment. This requires sensor data streams, network messages, and digital/analog I/O put the module in the desired operating states and analyzes the output for correct operation. Additionally, an automated test fixture may be needed to handle the module during the EOL test.

The reuse of test application components from the DV and PV test applications reduces the EOL test development and prove-out time.

In-Plant Recertification

As any supplier of electronic control modules knows, returned modules that report “No Problem Found” when retested can be a significant cost driver. Adding a recertification facility in the assembly plant or in a facility nearby can reduce the cost of returned components or provide early warning data on emerging problems.

A recertification test system can be built as an enhanced EOL tester that runs the tests required to confirm correct operation or flash updated module firmware without the cost and time associated with a trip back to manufacturing.

EnGeniusTEST

The EnGenius software validation process is based on EnGeniusTEST. The EnGeniusTEST™ platform, built on National Instruments TestStand®, provides a highly capable test development and execution platform that provides a powerful set of tools that can be applied to a broad range of test applications – from control modules to telematics to infotainment.

Tests developed in EnGeniusTEST integrate network messages with analog and digital I/O and other data acquisition hardware to effectively and repeatably run test cases in a “black box” test environment. This can reduce your test time by up to 90% over manual test case execution with the added benefit of automated data collection and results reporting.

Reduced test execution time allows multiple back-to-back runs of the test cases revealing failures that may not be revealed in a single pass through the test suite.

When needed, EnGeniusTEST can integrate with external high-fidelity real-time simulations of sensors, actuators, and other items such dynamic engine simulations to provide time critical stimulus and response to the module firmware.



The hardware abstraction facility in EnGeniusTEST allows us to use the best data acquisition components that meet will best meet the requirements of the test application.

Although EnGeniusTEST is our preferred development and runtime environment, test application software can be implemented in LabView®, TestStand, C/C++, Visual Basic, and/or 3rd party tools.

MultiCom™

EnGenius's MultiCom family of vehicle network interface adapters are used for diagnostic interface, network gateways, network simulation, and flight recorder functions. Key features of the MultiCom vehicle network adapters include: plug-in protocol modules; analog and digital I/O; standalone operation; and multiple host interfaces from serial to Ethernet to 802.11.

The MultiCom 4™ vehicle network interface adapter supports custom network drivers that can provide high fidelity simulations of sensor data playback while responding to commands from the controlling module to the sensor(s) to change operating state.

Although EnGenius sells a family network interface hardware, the hardware abstraction inherent in our EnGeniusTEST environment supports other network interfaces if required.

For more information

Visit our website at www.engenius.com.

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