Automotive Relay Modules Testing
Application Note 1270-12

Description
Automotive relay modules are tested in production on a pass-fail criteria on a variety of parameters including contact closure, impedance and current leakage.

Problem
A fast, easy to operate yet economical test system is required to test different types of relay modules in a production environment. The relay modules are subjected to a variety of operating conditions through simulation by applying corresponding stimuli and loads to the device under test (DUT) and measuring their performance. To accommodate a large variety of different types of relay modules, the test system must be easy to reconfigure and reprogram.

Solution
An HP VXI components based data acquisition system provides the configuration flexibility and ease of programmability required to accommodate a variety of relay module types, and test conditions. The HP test system, coupled with customer provided DUT holding fixtures and load components, provides all needed stimuli to be applied to the DUTs via electronic switches and measure the DUT’s performance under the applied conditions. An HP Vectra PC collects and interprets the measured parameters, issuing a pass-fail result to the system operator and prints a bar coded label to be applied to the passing DUTs. The operator interacts with the system via the computer mouse. The system keyboard, normally locked in the system cabinet, allows test supervisors and engineers to request statistics on test runs and to reprogram the system for other test configurations and conditions.

Key System Features
- Clear and Easy Operator Interaction
- Ease of Reconfiguration and Program Loading
- Maintenance of Test Run Data

Typical System Configuration

<table>
<thead>
<tr>
<th>Data Acquisition System Qty</th>
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<tbody>
<tr>
<td>7 Slot Mainframe 1</td>
</tr>
<tr>
<td>Multiplexer Channels 32</td>
</tr>
<tr>
<td>Form C Switch Channels 16</td>
</tr>
<tr>
<td>Digital I/O Channels 4</td>
</tr>
<tr>
<td>Programmable Power Supply 1</td>
</tr>
<tr>
<td>Fixed Output Power Supply 1</td>
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<tr>
<td>High-Speed DVM 1</td>
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</tbody>
</table>

Computer/Software
- HP Vectra 486/66 MHz PC
- Keyboard, Monitor and Mouse
- Disc Drive and Printer
- Software - HP Visual Basic

Other Equipment
- Test Fixture
- Leak Tester
- Label Printer

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