Responding to Data Logging Events Using Action Scripts
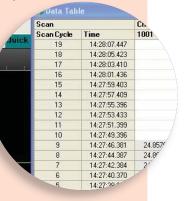
Combining data logging hardware and software can give you more techniques to automate extensive and repetitious measurements. When engineers run lengthy tests to verify or qualify a design, many check on the progress of the scan throughout the day, either to find out if the scan has successfully finished or to check for failures. These checks allow you to be more efficient with your test time, but the constant interruptions throughout the day keep you from focusing on other projects. Instead, you can write a program or use software such as Agilent's BenchLink Data Logger Pro, you can add other actions, such as running a script, launching an external program, sending an email message or performing a combination of actions. This will let you run a scan until the test either finishes or fails, then take additional actions, such as turning off the oven in the environmental test chamber and sending a text message to your cell phone.

USING ACTION SCRIPTS

Snapshot: Testing Product Reliability

A highly accelerated life test (HALT) is a reliability test that places a product under more stress than typical user conditions so the test can be completed in a shorter amount of time. An electric fence manufacturer wanted to implement a HALT test in addition to design verification tests. Unlike the design verification tests, which look for a pass/fail result, the HALT test runs until the product breaks. The manufacturer found that the product could be broken for a few days before anyone noticed, resulting in unreliable data when the original cause of failure could not be determined. To improve the efficiency and the reliability of the HALT test, the manufacturer used Agilent BenchLink Data Logger Pro software to set up multiple tests and check for product failure. Now when a failure is detected, the test is stopped, the failure is logged, and an email alert of the failure is sent to the test engineer. The combination of running action scripts and adding notification to the test now provides the test engineer with more reliable data and a more efficient test.

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Using action scripts

Action scripts can be useful for adding additional actions at the beginning or end of a scan, when a test limit has been reached, or to transition from one scan to another when you are using multiple scan lists. Action scripts are sequences of one or more actions that can control other parts of your test system. For example, you can use action scripts to:

- Open and close switches on the data acquisition hardware
- Write digital data to a digital I/O module in the test system
- Send instrument commands (such as SCPI - standard commands for programmable instrumentation) to other instruments in the system
- Insert timing delays between scan lists or within a single scan list

Agilent's BenchLink Data Logger Pro simplifies this process by providing an action script manager to help you create, edit, delete, and order the sequence of execution of multiple action scripts.

MEASUREMENT TIP

Combine action scripts with limit testing or multiple scan lists for even more control. At the completion of one phase of the test, send commands to other instruments in preparation for the next test. Or if the test fails, send commands to shut down the test and send an email message to let you know the test has aborted.

Adding notification

Including notification in your test sequence is a helpful way to keep tabs on the progress of the test, or to alert you when the test has completed or reached a test limit. Notifications can be as easy as including an audible beep in your program. If you are creating your own Java program, the command System.out.print("\007"); will print the ASCII bell character to the console and produce a beep.

Sending email from your program or software is a great way to notify you of the progress of the test. You can even have a text message sent to your cell phone to alert you to the most critical portions of the test. Sending messages will require accessing your email server. If your programming environment does not provide an email module, you can download a number of examples of command line utilities or batch files that send email.

Agilent's BenchLink Data Logger Pro software allows you to run external programs or batch files as a part of the test. Go to Configure Events and select the types of notification. You can even specify a text argument to pass to the program, such as "test complete" or "test aborted."

MEASUREMENT TIP

Using state diagrams to visually represent the sequence of different scan lists, action scripts, and notifications can help segment complex test routines into smaller portions for verification. Agilent's BenchLink Data Logger Pro software will generate a state diagram of the test, providing a graphical representation to help you more easily review complex sequences.

Summary

Using action scripts and notifications can help you automate more of your test and stay updated on the progress of your test without periodic checks interrupting your day. We have reviewed types of action scripts, looked at ways to add notification to your test routine, and explained how Agilent BenchLink Data Logger Pro makes it easy to add these advanced actions to your test.

See how easy it is to collect and analyze your data with no programming required. View these short videos:

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