



Bloomy Controls Inc.

839 Marshall Phelps Rd.
Windsor, CT 06095
Phone 860-298-9925
Fax 860-298-9535

100 Medway Rd., Ste. 202
Milford, MA 01757
Phone 508-902-0054
Fax 508-902-0058

www.bloomy.com

Bloomy Solutions technical newsletter focuses on computer-based and networked measurement and automation, which delivers greater system performance and lower total system cost.

Bloomy Controls receives multiple honors at the NIWeek 2002 worldwide conference on virtual instrumentation. See page 3 for details.

You can save time and money and increase productivity with the computer, using high-performance hardware to acquire measurement data, and easy-to-use software to analyze information, log data, and generate reports.

It is also easy to share data with colleagues through networked applications, using software and standard communication protocols.

Bloomy Controls, a National Instruments Select Integrator, has delivered these benefits to customers through our software development, systems integration, and training services since 1991.

To learn more, call Charles Wimberley at (860) 298-9925, e-mail info@bloomy.com, or visit www.bloomy.com.



Bloomy Solutions

For Computer-Based and Networked Measurement and Automation Users

Summer/Fall 2002 Volume III, Number III

TestStand™ and LabVIEW™ Automate Printed Circuit Board Functional Test

by Matthew Kennedy, Bloomy Controls, and Elaine Fasoli Bailey, Lifeline Systems

This paper was a semifinalist in the National Instruments NIWeek™ 2002 Best Applications of Measurement and Automation paper contest.

Lifeline Systems Inc., in Framingham, MA, provides 24-hour personal response monitoring services to its subscribers, primarily elderly individuals with medical or age-related conditions as well as physically challenged individuals. To summon assistance, a Lifeline subscriber presses a personal help button to initiate a call from the communicator, which is connected to the home telephone line, to the Lifeline central monitoring facilities or a local community hospital.

Due to an ever-increasing population of elderly people and the company's reputation for providing quality products and service, Lifeline increased its personal help buttons production by a factor of 4X to make 200,000 units per year. The company's existing functional test system was 10 years old and difficult to maintain. When the company hired a new contract manufacturer to assemble its printed wiring assemblies used in the personal help buttons, Lifeline asked National Instruments (NI) Select

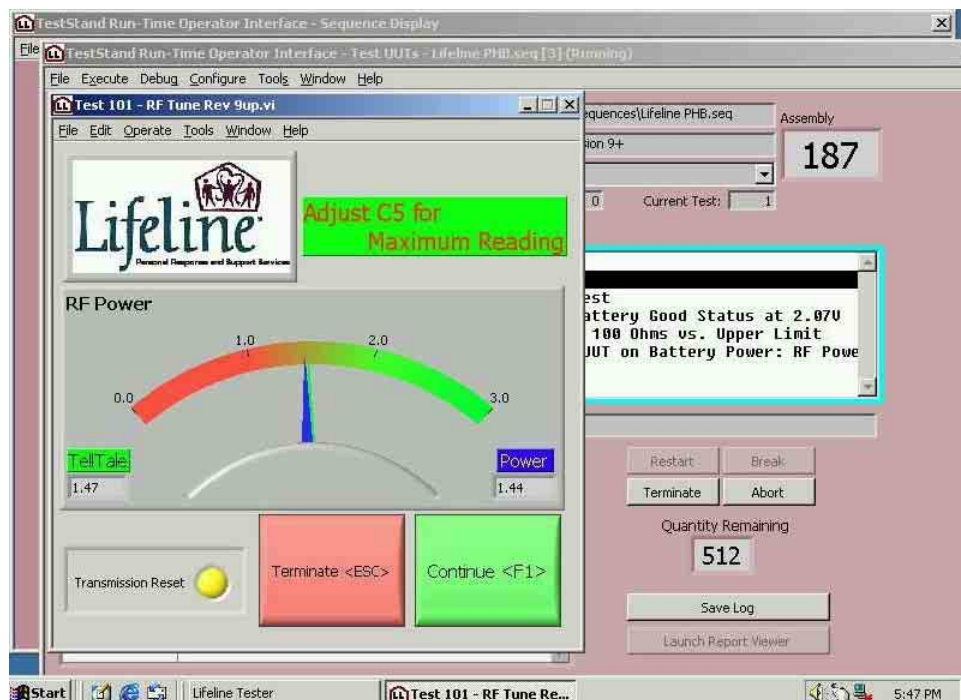


Figure 1. Personal help button tester operator interface

Continued on page 2

Need LabVIEW or TestStand training? See page 4.



Printed Circuit Board Functional Test (Continued from page 1)

Integrator Bloomy Controls to help create new printed circuit board (PCB) functional test software and provide test equipment to the contract manufacturer. The contract manufacturer will use the test system for final build testing, while Lifeline will use the system for Acceptable Quality Level audit testing.

Hardware

The test system (Figure 2) incorporates a standard desktop Pentium IV PC, which contains a NI PCI-GPIB card that controls the external RF power meter, and a NI PCI-6025E multifunctional

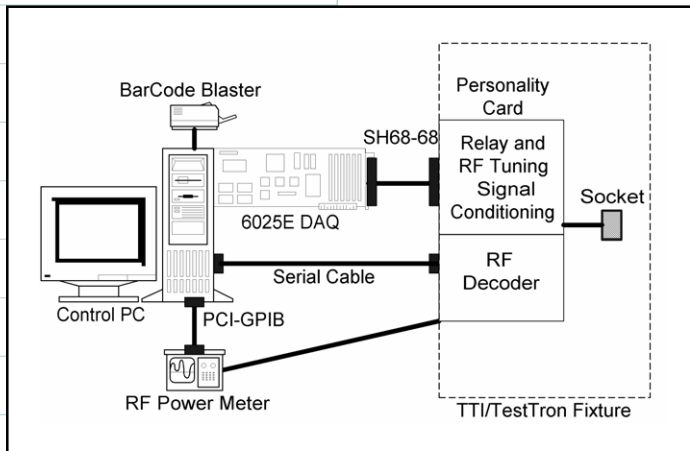


Figure 2. Test system set-up

DAQ card. The DAQ card provides all analog inputs, outputs, and digital I/O for measuring mixed signal parameters, controlling signals for custom signal conditioning circuitry, and providing fixture control. The standard serial port built into the computer reads information from the decoder. Much smaller than the previous test rack, the new computer-based test system saves space on the production floor and makes the test system much more portable.

Software

Bloomy Controls designed a software architecture that would address Lifeline's current and future personal help button testing needs. The software also needed to be versatile enough so that the same system could be applied toward Lifeline's other products.

Using TestStand, Bloomy Controls developed a custom operator interface. The operator interface allows an operator to log in, load a selected TestStand sequence, and monitor the operation of tests in progress (Figure 1) as well as provides a real-time log of pertinent information to the operator. Once a test is completed, the operator has the choice of printing the report and saving the log. In addition, all test data is saved to a Microsoft Access database for later analysis. This universal operator interface can also be used on Lifeline's other production lines.

The Microsoft Access database, to which all the test data is saved, enables Lifeline engineers to develop detailed production yield reports, troubleshooting guides, lot control, and production reports – abilities the previous test system did not provide. The database also records all test information to include parameters, limits, test times, and pass/fail status in a polymorphic, multi-level database. The database design is based on the standard database field design provided with TestStand. Minimal effort was required to add further customizations unique to Lifeline's PCB test record keeping, including PCB assembly date and PCB manufacture date. This database format can be applied to any PCB developed by Lifeline regardless of the product.

Results

The new functional test system delivered significant time savings to Lifeline, reducing the personal help button PCB test time from 11 seconds to less than 4 seconds per unit. And since the universal TestStand operator interface could manage testing for other Lifeline products, operators need to be trained only once on the operation of the main interface. Besides time savings, the user-friendly system also delivered comprehensive datalogging of test data.

"Continuous improvement, contract manufacturer control, and lot traceability has been greatly simplified, thanks to our new test systems developed by Bloomy Controls," says Elaine Fasoli Bailey, Lifeline manager of quality assurance and process control.

Since the completion of the personal help button test system, Bloomy Controls has developed two other testers for Lifeline. ➔

Bloomy Solutions is published quarterly by

Bloomy Controls Inc.,
839 Marshall Phelps Rd.,
Windsor, CT 06095 USA.

Subscription is free.

Newsletter Staff

Editor, Phia Pascua
phia.pascua@bloomy.com

© 2002 Bloomy Controls Inc. All rights reserved. Product and company names listed are trademarks or trade names of their respective companies.

