

## Plant Floor

**Integrated Packaging Control**—Manufacturing a product—say food, drink, or medicine—is one thing, and packaging and making it ready for shipment is quite another. The packages, bottles, or cans must be made (converted) or purchased, filled with product, sealed, packed in cartons, and palletized for shipment.

A production line that carries out these separate functions can require a variety of machines, each with its own controls and operators, can be difficult and time-consuming to set up, challenging to keep run-

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ning synchronously, and require one or more software systems to run it all.

A range of equipment is available for each step or combination of steps. Such equipment or machinery can come from multiple sources. And then comes the need for controlling it all and making it work well enough to produce products in economically viable quantities and times. Imagine the potential complexity.

Berkeley Process Control, Richmond, Calif., can do all of this with one control system. The company developed the skills in the manufacture of optical fiber, semiconductors, and aerospace components. The company has adapted this technological knowhow to the packaging and converting industries.

Fundamental Berkeley controllers have been around for years, and users speak highly of them. Procter & Gamble, Jackson, Mo., uses them for packaging Bounty paper towels and Charmin toilet paper. The factory produces paper from pulp, and packaging is done at the end.

Abbey Lee, electrical maintenance manager, says, "These machines are all controlled by Berkeley controllers. We've

been using them nine years. One wrapping machine puts the poly on the outside of the rolls, and the other wraps the large convenience package.

"The first layer has 13 different motors, and we have (Berkeley controllers) talking back and forth with each other to control that. The large compact pack machine has 18 motors."

P&G chose the Berkeley controllers because they were recommended by the manufacturer of its wrapping equipment. Berkeley was its standard control platform, "state-of-the-art then."

Lee says P&G is thinking of updating soon, and updated Berkeley technology will be considered along with other systems available now.

Tyco Adhesives, Franklin, Ky., has used Berkeley controllers since the late 80s to manufacture finger bandages. Several Berkeley controllers are used on different machines, and different setups can be used to put on different machines to make other products.

Jeff Enloe, principal manufacturing engineer, says before Berkeley "we had one DC motor with a flying shaft that we adjusted vis-a-vis the phase shifters to coordinate the various sections. It was all manual adjustments, and that was really very tedious."

Berkeley controls are used on six machines, four for making bandages and two for packaging them.

Enloe says, "We bought the individual machines from different companies. We make packages here from coated vinyl film for some of them, put pull tabs on them, and then put them in wrappers. The making machines do that. And then the packaging machines cut between the

individual bandages, count them, put them on a conveyor, and pack them in cartons—all automated."

Enloe says Berkeley controls attracted Tyco because they were very simple to program. "We didn't use the available software package; we actually went back and wrote the programs in Parasol 2 programming language supplied by Berkeley. It was a very simple program to write."

Now, the latest Berkeley controls operate on the same processor, leading to greater accuracy and increased throughput. The result, says Alain Descoins, director of business development, "is a user-friendly solution that eliminates the need to purchase, coordinate, and maintain multiple platforms."

At the heart of Berkeley's packaging-controls technology are the powerful, compact (about the size of a laptop computer) Berkeley BX2 controllers with built-in functionality that includes everything from complete machine control, touchscreens, and auto calibration.

Berkeley's controllers use Ethernet, a common high-speed networking technology, to provide easy connection

among widely accepted PCs and Internet-based technologies.

The connectivity of these controllers and machines to corporate intranets or the Internet enables realtime e-diagnostics—the remote monitoring, troubleshooting, and data-logging of all machinery.

Open architecture makes controllers and machines compatible and interoperable with a variety of devices as well as different types and generations of operating systems used by different manufacturers. Berkeley products are therefore also easy to customize and evolve.

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