

# THE JOURNAL

COMMUNICATIONS

## SMOOTH AS CREAM

Dairy cooperative finds cost-effective way to bidirectionally exchange serial data from weighing scales with the creamery's Microsoft SQL server database for SPC applications.

By Ray Valentine, Online Development Inc.



Blocks are weighed before and after packaging at the Tillamook County Creamery Association's high-speed cheese block weighing operation. Weight data is sent by the xCoupler module to the plant's Microsoft SQL server as part of the SPC process.

Photo courtesy of Tillamook County Creamery Association.

➤➤ Tillamook County Creamery Association (TCCA), a farmer-owned dairy cooperative and marketer of cheese, ice cream, butter, sour cream and yogurt, needed a cost-effective way to bidirectionally exchange the serial data from seven scales with the creamery's Microsoft SQL server database that's used in the packaging-monitoring statistical process control (SPC) process. The solution was an enterprise transaction module that lets TCCA make changes without incurring programming costs. In addition, the creamery doesn't have to do anything to the module when other parts of the system are upgraded.

TCCA's 140 farmer-owners depend on the creamery's processing and quality-control systems to provide the consistent product quality that has made Tillamook a popular-selling brand throughout the northwest. Although the cooperative was founded in 1909 and is nearly a century old, the methods it employs for quality control are anything but ancient. Its latest investment is in an SPC system to monitor the creamery's cheese packaging process. Four high-speed

scales weigh cheese blocks before they're wrapped, and three scales are used to weigh the cheese again after packaging.

The challenge faced by TCCA in applying SPC in this area was developing a cost-effective way to bidirectionally exchange the serial data from the seven scales with the creamery's Microsoft SQL server database for the SPC process. Values such as product name, weight, packaging line, date and time needed to be sent to the database.

Dan Dodge, TCCA's information technology (IT) manager in charge of the SPC system, contacted Brent Boisen, a systems integrator in Costa Mesa, Calif., to help develop a solution for exchanging the serial weight data with the creamery's SPC system.

Boisen suggested a new data exchange technology that he first learned about in the Rockwell Automation magazine *The Journal*. Rather than us-

**“We don't have to do anything to the [xCoupler] module when other parts of the system are upgraded.”**

— Brent Boisen, Systems Integrator

ing custom-configurable software in the packaging room to translate and transport data, Boisen recommended using the xCoupler enterprise transaction module from Rockwell Automation Encompass™ Partner Online Development Inc. that installs into a ControlLogix® Programmable Automation Controller (PAC). Using the module as a basis, he designed a system using a converter to translate the scale's

serial data to EtherNet/IP data sent to the ControlLogix PAC via Ethernet.

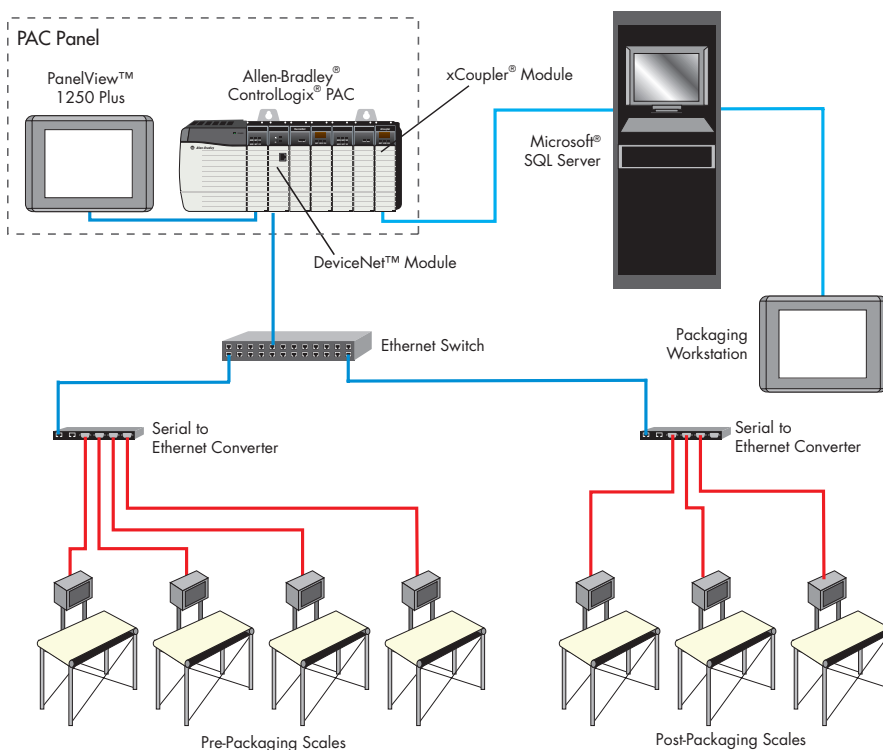
**Ready to Configure**

The xCoupler module reads the weight data from the ControlLogix backplane and sends it to the Microsoft database via Ethernet. The module is equipped with an MSSQL business system adapter specifically for bidirectional data exchange between the database and ControlLogix PAC.

“This was an easier and less costly solution for configuring software to exchange data,” Boisen says. “The xCoupler module simply snaps into the ControlLogix rack. After everything was installed and all connections were made, we opened up the module's WorkBench configuration software and could immediately see all of the ControlLogix tag data and Microsoft database tables. It was all ready to configure. If we had used other systems, it would have taken many hours of programming to get to that point.”

Configuring the xCoupler module to enter specific data, such as weight into a database table and receiving instructions from the database, was also quickly accomplished. The WorkBench software features intuitive screens and dragging and dropping of tags into actions called triggers to eliminate the need to write lines of code.

“While the WorkBench setup utility was easy to use, Online Development's Laurie Wilson showed us some extra features that further reduced setup time and added functionality,” Boisen explains. “One of those features is the module's ability to synchronize the PAC clock with the database clock. That's important because the PAC triggers the module to read the oldest scale data record and send it to the database. The module then sends a confirmation back to the database that the record has been sent to the database, and the process continues.”



The xCoupler module receives scale data through the backplane of the Allen-Bradley ControlLogix PAC and sends it directly to the SPC database.

