



Controls engineer Luther Kemp writes custom control programs and tests results prior to deployment on plant floor.

Uponor Wirsbo, provider of life, safety and comfort systems, is the nation's leading manufacturer of crosslinked polyethylene (PEX) tubing used in plumbing, fire sprinkler and hydronic radiant floor heating systems. More than 5 billion feet of Wirsbo PEX tubing is in service worldwide. Uponor Wirsbo is headquartered in Apple Valley, Minn., a suburb of Minneapolis and St. Paul.

→ When Luther Kemp joined Uponor Wirsbo in 2001 as Electrical Controls Engineer, the company was in the preliminary stage of upgrading industrial control systems at its Apple Valley, Minnesota plant. Working on a team with his manager and maintenance staff, Kemp implemented the transition from "older style" PLC technology to a contemporary automation control system for its lines producing crosslinked polyethylene piping products.

Industrial PC and Ethernet I/O for new control concept

Flexibility makes Beckhoff PC's and I/O the system of choice



Wirsbo retrofitted several pieces of equipment with Beckhoff IPC and touch screens.

Kemp received information on various systems collected by the company's master electrician. After comparing product capabilities, vendor support systems and price, the Beckhoff products were selected. The package included C3640 all in one Industrial PCs for the main controller running Visual Basic software code developed by Uponor Wirsbo. The Visual Basic code connects to the various I/O signals using the open Modbus TCP Ethernet Protocol and the BK9000 Ethernet Bus Couplers.

According to Kemp, application and component versatility were top priorities in the selection process. Uponor Wirsbo had many types of machinery and wanted a standardized system that would control all its equipment. "That way we have the flexibility to swap components if and when a problem arises."

Kemp said that the Ethernet coupler BK9000 series controller I/O interface used in conjunction with the built-in PC C3640 was a perfect fit with the company's requirements. It was PC-based, used Ethernet architecture, and offered the application flexibility Uponor Wirsbo required, at an affordable price. "We can build I/O modules exactly the way we want. With the other products, you have to buy the whole package and get either too much of one thing or too little," he said. "The Beckhoff system allowed us to spec out components that we needed at the time and then expand the system in the future as needed."

"PC-based Ethernet systems, like the Beckhoff, offer endless programming possibilities," noted Kemp. "It allows us the opportunity to write programs that control the machinery, create custom user interface screens, and collect real-time data, such as temperature and processing rates. This data can then be organized and communicated via programs such as Microsoft Word, Access and Excel."

Using Visual Basic, Kemp wrote the software programs with occasional help from Beckhoff application engineers. "They got me started and gave me examples so I could write the code," he said. Kemp also rated Beckhoff high in providing support on hardware related issues after the sale.

In addition to purchasing BK9000 controllers and add-on modules, Uponor Wirsbo has retrofitted several pieces of equipment with Beckhoff Industrial PCs and touch screens.

To date, half of Uponor Wirsbo's production lines have been converted to the new control system with minimal problems. Systems for the remaining lines are on order and "It's just a matter of scheduling the conversions," Kemp said.