

Case Study

## Water control

# Affordable PLCs provide powerful control for water automation system

### Summary

- Control Networks Plus, LLC, a system integrator in Leander, Texas, needed a cost-effective but powerful solution for an automated water control system
- The client required a PLC that could handle multiple I/O and provide plenty of power and programming capabilities, but had a limited budget for this project
- Phoenix Contact's ILC 150 met the demands of the application, at a price point far below similar PLCs on the market



ILC 150 by Phoenix Contact

### Customer Profile

## Control Networks Plus

Control Networks Plus, LLC, ([www.controlnetworksplus.com](http://www.controlnetworksplus.com)) is a system integrator based in Leander, Texas. The company specializes in new and retrofit control systems using the newest and most effective systems.

Control Networks Plus helped pioneer the development of the "Hybrid DCS" using PLCs and HMI running on personal computers. Clients represent a wide variety of industries, including power generation, mineral processing, food preparation and ethanol and chemical plants.

### Challenge

A client contacted Control Networks Plus to redesign its sophisticated water control system. The job involved scheduling the water system to turn on or off by zone. The customer wanted to improve the accuracy of its system and prevent wasted water.

Originally, the client built its own controllers. The homegrown controller, however, was not designed for the high temperature of boxes sitting in the Texas sun, and they experienced a lot of failures.

According to Jack Krohmer, president of Control Networks Plus, cost was a critical factor in selecting a new programmable logic controller (PLC) for the new system. "Our client wanted to keep the unit cost way down, but they also needed a PLC with lots of power and programming capabilities," he said.

## Solution

Krohmer said that Control Networks Plus looked at several brands of PLCs, but ultimately chose Phoenix Contact's ILC 150. The controller's low price was a major factor in the decision.

"To get the same power, you have to spend at least double – and usually quadruple – the price of the ILC 150," he stated. "But in addition to the cost, the reliability of the Phoenix Contact PLCs was also very important."

The application required complex calculations. The ILC 150 can perform calculations based on environmental inputs, such as rain gauges, temperatures, the amount of sunlight, etc. Because the ILC 150 is based on the IEC 61131 standards, Krohmer said it was easy to pick up on and write the program.

"The environmental capabilities of the Phoenix Contact PLCs were well received, and we haven't had any trouble with them operating," said Krohmer.

The client uses the system at hundreds of sites. Although the controllers have not been replaced in all locations yet, there will eventually be at least one ILC 150 at each site. Control Networks Plus also installed Phoenix Contact's power supplies, I/O for PLCs, radios and Ethernet switches in the system.

## Results

Krohmer said that the application worked as planned, but it was smarter about it.

"The customer was constrained by the amount of money they had to spend per controller. The fact that the ILC 150 was less expensive per unit reduces the cost of the entire system," he said. "The customer could not afford to perform this type of control at this price point with any other existing PLCs on the market."

While the ILC 150's price point was the primary reason he selected it, Krohmer says he was "blown away by how powerful this small PLC was."

"After we finished programming it, it was much more powerful than I believed a PLC could be, both in terms of the number of I/O it could handle and its calculating capability. The program we used would be 500 pages long if you printed it out."

Krohmer said Control Networks Plus was so pleased with the results, that the company is now using the ILC 150 for a similar application in a water treatment upgrade that his company is currently performing.

"Graybar originally brought us this project to consider, and was a big deal in this project. Phoenix Contact's excellent technical support was a big help."

He concluded: "It's amazing the amount of power crammed into this small box in the \$500 range. It hurts my head. We could not have fit this into our traditional programs."