



Tech notes

March 2005



Pre-engineered Package Lift Stations for Wastewater and Stormwater

Product Information & Updates • Installation & Technical Tips

T HIS EDITION OF **TECH NOTES** compares the PLC (programmable logic controller) to application-specific controls such as MultiTrode's MT2PC and MT3PC family of pump controllers offered by Romtec Utilities. MultiTrode, Inc. is an ITT Flygt strategic partner and the leading company in pump station management today. The MT2PC and MT3PC controllers adapt to virtually any lift station environment, from basic systems with onsite control to full-featured systems with sophisticated SCADA functionality. Next month, TECH NOTES will take a look at why customers are choosing pump controllers over PLCs.

Reconsidering the PLC

The PLC (programmable logic controller) has been around a long time. This popular control device is used across a wide range of process control applications, including the municipal pump station panel. Compared to the technology of a decade or so ago, when the municipal panel was controlled with a range of relays, timers, and other devices, the PLC is a great success. It's easy to program and, if changes are made to the lift station, users can change the control logic instead of rewiring the entire panel.

But just as PLCs replaced the cumbersome electrical systems of the past, something new has come along to replace the PLC – the application-specific controller that is pre-programmed, and off-the-shelf ready to do the job in a municipal pump station environment.

In the modern world, stations are commonly moving toward a SCADA-based standard, with multiple networked stations. The question becomes this: On what platform do we base our

SCADA system – a one-off system of PLCs, or a standardized network of pump controllers?

It's the difference between using a computer that came with a standard operating system pre-installed, or hiring someone to write the code for a custom OS. It's a simple difference but it has profound implications for the ease and reliability of running a lift station network.

Consider this: Municipalities across the country are specifying a MultiTrode pump controller even where a PLC-based RTU (the remote telemetry unit in a SCADA system) already exists in the panel. Here's why:

The code conundrum

A PLC requires the

services of a system integrator to write the code that makes it work. This process may be very straightforward in the beginning, but presents a problem as the lift station network evolves.

Part of the problem is



The open dead front of a Romtec Utilities control panel reveals components of the MultiTrode MT2PC Pump Controller and MonitorPro Pump Station Supervisor, circled items and inset photo. The Flygt technician's computer, at bottom, is used for programming and testing during lift station start up.

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Romtec Utilities is a dedicated integrator of submersible pumps and lift station equipment manufactured by ITT Flygt.



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Kelly Wood, OTAK project engineer, left, and Andy Dake, Romtec Utilities technical sales, discuss the MultiTrode components in the lift station at Hillshire subdivision in Camas, Wash., a project of Centex Homes.

interpreting the code over time. System integrators often write code in their own, unique way. The integrator who set up the system will write code differently from the integrator who comes in to add an additional set of duty/standby start and stop levels. Over time, there will be multiple software variants across the network.

“As the system evolves, many people get their hand in and that makes the system very unreliable,” says Aaron Parkinson, vice president of MultiTrode. “When you have a problem at 2 a.m., it’s very hard to go in and figure out what’s going on and what the previous integrator did.”

Cost quickly becomes a factor, as a municipal

authority has to hire a system integrator – at \$100+ an hour – every time a change is made in the network. Alternatively, specialists are added to the municipal staff to help develop, test and maintain the software, all at greater expense.

With a controller, such as MultiTrode’s MT2PC or MT3PC, municipalities do not have to go outside their core competencies. The pump controllers are already programmed, offering the ease of operation as well as standardization across the network.

The reliability factor

And then there’s the testing. In a PLC environment, the testing usually is limited to the particular function that

is being added. An integrator may test the code he has written, but not its effects on the other code. Too often, that means one problem is fixed, but others are created. The problem is not the competency of the contractors or the inherent reliability of a PLC – the problem is how to test the one-off code in all the situations that may occur.

In contrast, MultiTrode has more than 10,000 MT2PC and MT3PC controllers in the field. Dedicated MultiTrode programmers and designers work only on pump stations. Weeks of testing are done before a new version of the controller software is released.

The user interface and I/O

With a PLC, you don’t have a user interface until you make one. The selector switches and indicator lights must be wired in. Code has to be written to assign each of the inputs and outputs. If any of that fails, a system integrator has to be quickly brought in.

The MultiTrode controllers are pre-programmed and ready

to run without making any changes. They work the same every time; it doesn’t matter who installed the program. The pump controller is already written to communicate with SCADA. With a pump controller, every station is going to be the same.

“When you can buy a standard pump controller off the shelf, you’d be crazy to use a PLC,” Parkinson says.

FOR MORE INFORMATION:

The complete pre-engineered package submersible lift stations available from Romtec Utilities feature components from the industry’s leading manufacturers, including ITT Flygt and MultiTrode, Inc. Integrated systems include 6’ and 8’ diameter pre-cast concrete wet wells to 25’ deep with Flygt duplex or triplex submersible pumps, UL listed pump controls, pre-assembled valve vaults and Cummins/Onan standby generators. For more information, call Romtec Utilities at 541-496-3541 or visit our website at www.romtecutilities.com.