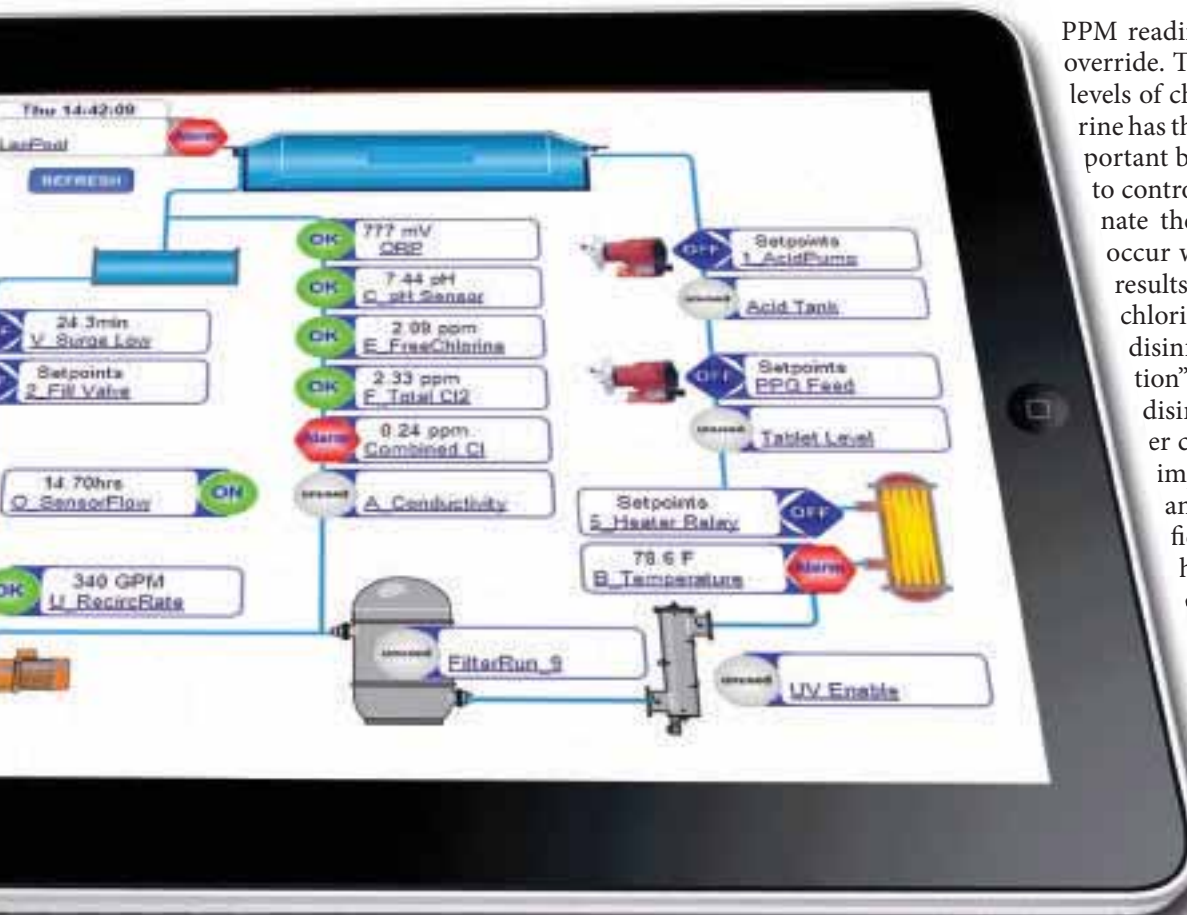


MAXIMIZE NEW CONTROLLER TECHNOLOGY

BY DUSTIN KAUFFMAN



Remote monitoring capabilities via a smart device or computer make monitoring your water quality easier and more efficient.

“Smart disinfection” allows you to maintain your pool’s disinfection.

AUTOMATED CHEMICAL controllers have been around for 30+ years, and recently some large, important advances have been made in their capabilities. Yet, most facilities are not maximizing the features of these new controllers and are simply using them as they always have—to control pH and oxidizers/sanitizers. Thanks to continued advancements, automated controllers have new features that, when used properly, makes swimmers safer, streamline operations and possibly save money.

One of the most important new advancements in controller technology is the ability for true parts per million measurement of chlorine in the water. With these chlorine sensors you are able to continuously measure—in real time—free chlorine and total chlorine levels in your water. When you combine these readings along with the traditional pH and ORP (Oxidation Reduction Potential) readings, you get a complete picture of your water’s disinfection ability. Some new controllers will then allow you to apply control based on the

PPM reading and use ORP levels as a back-up/override. This allows you to maintain the proper levels of chlorine and also insures that the chlorine has the proper disinfection abilities. The important benefit of using real-time PPM sensors to control chlorine levels is that you can eliminate the swings in your PPM readings that occur when controlling with ORP only. This results in being able to control your pool’s chlorine level in real-time utilizing “smart disinfection” technology. “Smart disinfection” allows you to maintain your pool’s disinfection ability safely while using fewer chemicals. Fewer chemicals equals less impact on your swimmers, saves money and helps you run your facility more efficiently. Additionally, some controllers have the ability to give you a real-time combined chlorine report.

This combined chlorine reading has multiple uses for operators. It is well documented that as combined chlorine levels increase, natatorium air quality decreases, mainly due to the DBPs (Disinfection by-Products)—specifically Monochloramine, Dichloramine and Nitrogen Trichloride. These DBPs lead to an unpleasant atmosphere for patrons, competitors and spectators.

Operators will then need to use breakpoint chlorination on their pool to break up these compounds. Some facilities instead use UV units to keep their combined chlorine levels in check. These new controllers can use this reading to turn the UV units on and off and/or up and down based on the combined chlorine reading. This leads to maintaining a better quality of water while saving energy and lamp life versus the old paradigm of running the UV unit at full-power at all times.

Another big advancement in controller technology is remote monitoring capabilities. Gone are the days when you have to be in front of the controller to know that an alarm has been tripped. The newest controllers now give the operator full control from any device that is Internet capable (laptop, tablet, smartphone, etc.). With this ability, the main operator no longer has to run back to work to check on the controller because no one else knows what that red blinking light means. They can pull up the controller via the Internet and see all current readings and alarms. They

can then direct the person on-site on the probable cause of the alarm and the solution. This remote viewing allows full control of changing set points, calibration, alarm settings, input/output configurations, as well as troubleshooting controller functions. This is much easier than going through multiple menus with a keypad on the actual controller. Many controllers can be set

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up to send emails or text message notifications of alarms. This helps the operator keep an ever watchful eye on their pool and ensure that they are running a safe facility.

In addition to controlling based low and high set points, some controllers can now control with full PID (Proportional-Integral-Derivative) control. By using PID control along with the pacing outputs offered on some controllers, you are able to speed up and slow down your chemical feed

pumps to help better maintain your levels and avoid troublesome over/underfeeds. While this can be a complex process to set up, with a little patience you can get your controller tuned in with your chemical feeders to maintain that perfect water chemistry to keep it clean and safe at all times. The ability to use PID control allows facilities to run more safely while using fewer chemicals, again implementing "smart disinfection."

Another option offered by new controllers is the ability to give real-time corrosion rates. This real time notification keeps the operator informed of how their current water chemistry is affecting the other metallic equipment in the system, for example circulation pump impellers, heat exchangers, light assemblies, rails and ladders. Information like this allows the operator to be aware of the problem before permanent damage happens. Operators are then able to look into the cause of their corrosion problem and correct their water chemistry as needed. This will help extend the life of equipment and prevent premature failures.

One additional example of advancements in controller technology is some new controllers have completely programmable inputs and outputs. Many inputs are able to take a signal from any piece of equipment as a low voltage/dry contact to notify the controller that something has changed. You can then program an output (be it a 120VAC powered output or a dry contact low voltage output) to control another piece of equipment. An example of this is using a float switch in the surge tank/pit to maintain the proper water level. When the level drops below where it is desired, the status of the switch changes. This change in status can then be set up to control a 120VAC output that powers a solenoid valve to open and fill the surge tank/pit with more water. Once the water level raises enough to lift the float and change the status again, the solenoid valve will then be powered off. A similar example is using a level sensor in your chemical tanks that can trigger an alarm when it is low. This tied in with the email alarm notifications can make the operator aware that the chemical tank is low and can be filled immediately. These are just a few examples of how these programmable inputs/outputs can be used.

As you are evaluating your controller technology, remember that these modern features are there to help make your life easier and allow you to operate a safer, more efficient facility. So, now is the perfect time to find that long forgotten controller manual and see how your controller can help you run your facility better. •

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