



15442 131 Ave
Edmonton, AB
T5V 0A1

780.468.3261

www.automatedaquatics.com

ORP Chemical Controller Operation Guide

Many basic pool water chemistry controllers use an ORP sensor to measure and dose chlorine. ORP is a qualitative measurement of disinfection (measures how well the chlorine works, not how much chlorine is in the water). ORP is a great indicator of water quality, but it does not guarantee consistent levels of chlorine in the water without some operator intervention. Visit our website to see some of the new options for modern chemical controllers that have free chlorine sensors to control the true ppm value of free chlorine.

Watching the relationship of free chlorine to ORP is really helpful for evaluating the overall result of your water treatment system. High ORP values (+800mV) with reasonable amounts of chlorine in the water (0.5 ppm – 1.0 ppm) are indicators of low demand in the water. This can be from a very low bather load or can be the result of highly efficient and well-designed filtration/treatment system that will deliver a dramatically good result even under high bather load conditions. Using a supplemental oxidizer (**Shock & Swim** or **HydroXan**) is a good practice that also yields a higher ORP with a reduced residual of free chlorine.

To keep your free chlorine consistent, you will have to move your ORP set point over time. This is done reactively to high or low chlorine measurements. It is important to react to the trend and not individual events. The only way to keep pool/hot tub water chemistry perfect is to keep the bathers out! Expect some variance day to day. Use the chart below to help fine tune your set points. It is also important to keep the ORP & pH sensors clean. Cleaning instructions can be controller specific so call if you need some guidance for best practices to clean and maximize the lifespan of your sensors. ORP sensor accuracy can be checked with a 470 mV reference solution. pH sensors can be checked against a 7.00 pH buffer & calibration can be done to maintain accuracy as the sensor ages. It's important to be aware that the phenol red pH indicator reagent used for **manual water testing is less accurate than an electronic pH sensor calibrated to a known buffer**. Most controller manufactures acknowledge that a tolerance of +/-0.3 can be expected when comparing manual tests to the controller. Higher free chlorine levels make pH testing less accurate. Calibrating your water chemistry controller to a manual pH test is going to make your sensor less accurate. In situations where the free chlorine is out of range of your standard test kit it's best to skip the manual pH test and trust the controller value.

free Cl ₂ Result	ORP	Action
low	below set point	Any time the ORP is below the set point, the controller should be feeding chlorine to increase the ORP. If the ORP continues to drop, there could be a problem with the chlorine feeder or controller programming.
low	at or above set point	Raise the set point above the current ORP by 15-20 mV.
high	at or below set point	Lower set point by 15-20 mV below current ORP.
high	above set point	Any time the ORP is above the set point, the controller should have stopped feeding chlorine. If the ORP continues to increase there could be a problem with the chlorine feeder or controller programming.

Consider upgrade to a modern water chemistry controller with free chlorine measurement and control:

[AutoPool 4.0 Demo Video Link](#)