



Pool Freeze Protection

How freeze protection works in pool control systems.

Freeze protection for pools comes in many different forms these days. You still have the old fashioned standalone freeze protectors, but you also have freeze protection built into electronic control systems and now built into variable speed pumps. In this article we discuss how each of those work.

Standard Freeze Protectors

These are the old-fashioned electro-mechanical freeze protectors that have been around for generations.

They have a temperature sensor and a relay. When the temp sensor reaches the setpoint (usually 35-40 degrees F) it turns the pump on until the temperature rises above that point.

The only user setting is to turn the dial to the desired temperature where you want the pump to come on.

Integrated Freeze Protection (electronic control systems)

Electronic control systems have an air temperature sensor. When the temperature reaches the setpoint, it will turn the pumps on which have been assigned to freeze protection.

There are two user settings on this:

1. You have to set the freeze protection setpoint, usually between 35 and 40 degrees F.
2. You have to assign items to freeze protection. Your filter pump is normally assigned by default, but the other pumps are not.

What items need to be protected?

All of the pumps need to be freeze protected, with the exception of pool sweep booster pumps (since they have water circulation from the main pump). If you have an "in floor" cleaner system that uses a standard pool pump, you need to be sure that is freeze protected as well.

Your other items such as light, heater, blower, etc do not need to be freeze protection. The object of freeze protection is to keep water flowing through all the pieces of

equipment so you do not have freeze damage.

In the Dallas area, on a standard pool spa combo, it is not necessary to assign the spa mode to freeze protection in your electronic control system.

If you assign the spa mode to freeze protection, it will cause the pool to cycle between pool and spa mode, theoretically to keep the spa from freezing up.

Since the spa always has water going through it to overflow to the pool, it is not necessary to assign it to freeze protection. In fact, about the only difference it makes is that it shortens the life of the valve actuators from going back and forth so much.

Integrated Freeze Protection (Variable Speed Pumps)

Today's variable speed pumps all have a built-in freeze protection feature. There is a temperature sensor built into the pump that senses the internal temperature of the pump. When the temperature inside the pump drops below this setpoint, it will turn the pump on for a few minutes, then turn it off until the temperature drops again inside the pump.

The manufacturer stresses that this is designed to protect the pump and is not designed to protect the other pieces of equipment. However, in the Dallas area we have not seen any problems using this as primary freeze protection. We do recommend that you set the freeze temperature at 40-45 degrees just to be safe.

During extremely harsh weather (low 20's and windy) you might consider just leaving the pump running 24 hours per day until the weather gets back up into the upper 20's. You have to use your best judgment on this.