TEXAS A&M AGRILIFE EXTENSION

Homeowners Guide to Understanding Your Irrigation Controller Settings

Operating your homes landscape irrigation controller can be overwhelming without understanding the different settings. While the user interface can vary between a series of dials, buttons or using a mobile device, knowing the purpose of each setting can help reduce frustration when programming the controller. This guide will help explain the difference and purpose of the basic settings found in most residential irrigation controllers.

Current Date and Time

The current date and time are obviously the simplest setting, however one of the most important. As many cities and utilities move towards landscape water restrictions, it is important that your controller does not operate on the wrong day or time during the day in which it is programmed. Most controller settings are considered "non-volatile" memory which means they are permanently stored on the controller, like a file on your computer whether it is on or off. However, the current date and time is like your watch and could be reset any time the controller loses power. For this reason, many controllers have a "back-up" battery to ensure the time and date settings are maintained in the event of power failure. Most conventional controllers use a replaceable 9-volt battery, but newer digital controllers may use smaller batteries. Consult your controller's manual for the appropriate size battery. As a preventative measure, you should check or replace your controller's battery yearly.

Programs

Often identified as A, B, C, etc., programs allow users to set custom frequencies of irrigation for different irrigation zones or groups of zones. For example, if you want to irrigate Zone 1-Flowers three times a week but Zone 2-Turfgrass only two days a week and Zone 3-Shrubs only 1 day a week then you would place each zone in a different watering program. For example, the program schedule could look something like:

Program	Zones	Days to Water
A	1-Flowers	Mon, Wed, Fri
B	2-Turfgrass	Mon, Thurs
C	3-Shrubs	Mon

Days to Water

The frequency in which irrigation is needed is influenced by multiple factors. The goal with each irrigation day is to apply enough water to fill up the plants' root zone. The amount of water that can be held in the root zone varies based on the soil type and the depth of the plant's roots. Heavy clay soils can store more water than lighter sandy soils. The deeper the plant's roots are the more access the plant has to the stored water. Plants with shallower root zones (such as flowers) will require more frequent irrigation than plants with deeper root zones (such as trees and shrubs).

However, when drought occurs and water supplies are stressed, cities and utilities may enact watering restrictions that limit how often you can irrigate your landscape. It is important to adjust your controller's setting to follow these watering restrictions. By establishing landscapes that have

deeper root zones, your plants will show less signs of stress when managed under less frequent watering restrictions.

Start Times

Irrigating during the daytime reduces efficiency as some of the irrigation applied can evaporate before it can infiltrate into the soil. By irrigating in the early morning hours, you can minimize evaporative losses. Winds are also generally at their lowest in the early morning hours which helps the irrigation water be applied more uniformly across the landscape. Many cities and utilities now have watering restrictions that can limit times during the day when irrigation can occur (a common restriction is no watering from 10am to 6pm). When setting each program's start time, make sure it begins early enough to finish before the no watering window occurs.

Most controllers can set multiple start times for each program. Multiple start times are used when the amount of irrigation needed to fill the plants root zone requires a long runtime. In some landscapes, running the irrigation for long periods of time can create runoff. To prevent runoff, the daily irrigation can be divided into two or three "cycles". Commonly referred to as "Cycle and Soak", irrigation is applied for a short duration then stopped to allow the water to soak deeply into the root zone. After the water has been given sufficient time to "soak", another cycle of irrigation water can be applied. See the Preventing Runoff with Cycle and Soak Irrigation Publication for more information. When programming for multiple start times or cycle and soak irrigation it is important to make sure the start times are "stacked" in order of operation and do not result in overlapping times with the other programs. For example, the start time schedule could look something like:

Program	Zones	Days to Water	Start Time(s)
A	1-Flowers	Mon, Wed, Fri	5:00am
B	2-Turfgrass	Mon, Thurs	5:30am, 7:00am
C	3-Shrubs	Mon	6:15am

Runtimes

Runtimes can be the most challenging for anyone programming a controller, "How long do I run my sprinklers?" To answer this question, you need to know two things: 1) how much water does the plants need and 2) how much water does the irrigation system apply? If you research different landscape resources, you may find generic recommendations like 1-inch of water a week. However, the water requirements of plants vary throughout the year. A plant may peak at 1-inch of water in August but only require less than 0.5 inches per week in the spring or fall. The TexasET Network (http://TexasET.tamu.edu) is a great resource that calculates irrigation needs based on the current and local weather.

The next challenge is identifying how much water the irrigation system applies. This is called the *Precipitation Rate* (measured in inches per hour) and it varies based on the sprinkler type, spacing, pressure and manufacturer. Precipitation rates can vary from 0.25 up to 1.50+ inches per hour, resulting in significant differences in required irrigation runtimes to apply the needed amount. To determine your irrigation system's precipitation rate, you can 1) look it up in the manufacturers performance catalog or 2) measure it in the landscape using catch can devices. In some areas of Texas, the WaterMyYard Program (http://WaterMyYard.org) is available to help determine how long you should run your irrigation system based on the local weather and your sprinkler type.