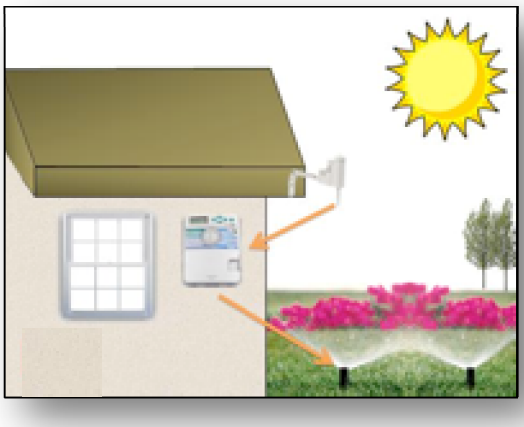
Smart Timer Giveaway Program
How a Smart Timer Works and How to Set It

How does your Smart Timer work?

Your Smart Timer is a weather-based irrigation controller that determines how much irrigation water to apply based on actual site specific weather conditions such as temperature and humidity. The weather data is collected on-site via a wireless mini weather station.



How to Set your Smart Timer…

Irrigation System Settings

Irrigation systems have input settings specific to their design and installation. Some common settings include application rate and efficiency. Both application rate and efficiency factors are determined by the type of sprinklers, such as spray heads, rotating nozzles, rotor heads, and/or drip irrigation.

Irrigation Type

The type of sprinkler used for the irrigation system affects the rate that water is applied to the irrigated area and the efficiency of the water application. This setting can generally be selected from a set of choices available in the Smart Timer.

Application Rate

Rates of water application vary depending on the brand, type, and installation of sprinklers. Typically, the application rates of rotors and rotating nozzles are lower than those of pop-up spray heads. Application rates are referred to as a measurement of depth over time (for example inches per hour). Application rate is sometimes referred to as precipitation rate, can be used to calculate the irrigation. The expected rate of application can be located in the sprinkler manufacturer's product specification literature. You can measure the actual application rate of your system by performing a distribution uniformity test more commonly referred to as a Catch-Can (or tuna can) Test.

Efficiency

Generally, landscape sprinkler systems are considered to be somewhat inefficient. If you are not performing a uniformity test, the following percentages of efficiency can used as an estimate when programming a Smart Timer: rotating, rotary, or impact sprinklers, 70-80%; spray heads, 60-80%; drip or other microirrigation, 80-90%. The lower the efficiency number entered into the controller, the more water that will be applied - the controller will compensate for the reduced efficiency by watering for longer. It is best to initially assume as high an efficiency value as possible to prevent over-watering.

Landscape Settings

Landscape conditions typically included as Smart Timer settings are soil type, plant type, slope, sun, and shade. The controller will generally have default options available for each condition.

Soil Type

To calculate the proper watering schedule, choosing the correct soil type is extremely important for the Smart Timer. Soil type affects the amount of water that can be held in the root zone and the infiltration rate of that water, meaning how much water is stored and how quickly it drains. Sand generally has high infiltration rates with low water holding capacity, while clay has a very low infiltration rate, but holds water extremely well. Soil type also affects the amount of runoff that can occur. If the infiltration rate is too low, most of the water will be lost to runoff and will not enter the root zone.

Plant Type

Every plant uses water differently, so each plant has a specific value, called a "crop coefficient," that represents the amount of water the plant might need relative to its seasonal growing stage. A plant's specific rate of water use (referred to as the evapotranspiration rate) will either increase or decrease based on the type of plant it is. With plant-specific evapotranspiration rates changing from week to week, month to month, and season to season, it becomes clear why your irrigation schedule needs to change as well. The amount of water that needs to be replaced in a plant is constantly changing.

The type of plant in a landscape affects the irrigation required. Plant types are selected for the purpose of defining the appropriate plant-water use multiplier (called a crop coefficient) and possibly defining an appropriate root depth. Deeper root systems allow for longer periods between irrigation events. Some controllers allow you to choose custom crop coefficients and root depths that will override the default settings given for the plant type option.

Slope

Smart Timers may use the slope of an irrigated area to create multiple irrigation start times with shorter run times for each irrigation event (cycle). This will reduce runoff, allowing water to infiltrate into the soil after each event.

Microclimate

The percentage of the irrigated area covered with shade may be used by the Smart Timer to adjust the amount of water applied. Evapotranspiration (ET) in a shaded area will be lower than ET in an area with full sun.

Weather Conditions

Smart Timers may have several options to limit irrigation during windy or rainy conditions. As wind speeds increase, the ability for the irrigation system to apply water efficiently decreases and evaporative loss of water increases. Irrigation should also be reduced or suspended during periods with adequate rainfall.

Rain Sensors

A Smart Timer may include a rain sensor in the system, such as the Weathermatic Smartline Series. Rain sensors prevent irrigation events when a specific amount of rainfall has occurred. Some Smart Timers will irrigate what additional water is needed by the plants after a rainfall event is sensed by the rain sensor, whereas other controllers will only pause irrigation until the rain sensor is dry. Unless a controller measures rainfall on site, a supplemental rain sensor is needed to determine site specific rainfall. It is important that the rain sensor be connected to a "sensor" port, if available on the Smart Timer, so that those events that are bypassed due to rainfall are accounted for properly in the controller.

Maintenance is Key

Smart Timers can be very useful tools for improving irrigation water application because they allow you to "set it and forget it." Most of these controllers calculate irrigation run times and cycles based on the inputted settings and weather conditions. However, these controllers cannot fix a poorly designed or poorly maintained irrigation system. It is important to have the irrigation system inspected regularly and to have necessary maintenance performed in a timely manner.

While these controllers can be programmed once and left alone, they need maintenance to ensure that the signal is not lost and they are working properly.

Some confusion may arise when dealing with the programming aspect of a Smart Timer. Manufacturers design the controllers to be installed by knowledgeable contractors who understand the various settings. Programming the controller correctly for each *unique* landscape is critical to the ability of a Smart Timer to reduce water use and maintain good landscape aesthetics.

For more information, check out the Science of Irrigation series on the Municipal Water District of Orange County's website.
http://www.mwdoc.com/services/science-of-irrigation

References

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