THE UNIVERSITY OF GEORGIA
COOPERATIVE EXTENSION
College of Agricultural and Environmental Sciences
College of Family and Consumer Sciences

Using Water Wisely with Automated Irrigation Systems

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Why should I worry about how much water my irrigation system uses?

Water is a limited resource and should be used wisely. As the population increases, the demand for water increases. Outdoor water use can account for 50 percent or more of the total water use for a home during summer months. Studies have shown that homeowners who have automated irrigation systems often apply too much water to plants too frequently. Outdoor water use can easily be reduced by irrigating only when plants need water. A routine, visual inspection of the landscape can help indicate when irrigation should be applied.

Over-irrigation can produce unhealthy plants. Most landscape plants do not need irrigation every day. Over-watering can create problems such as shallow root systems, causing the plant to become stressed in adverse environmental conditions. Plants stressed by excessive watering are more susceptible to disease and pest infestations.

How do I adjust my automated irrigation system to conserve water?

To efficiently use outdoor water for irrigation, it is important to know how to adjust, reset and program the controller. The "controller" or "time clock" can be programmed to tailor watering schedules and run times automatically based on plant water needs. The controller should be adjusted seasonally to match landscape water requirements since many plants do not need irrigation in cooler months. During frequent or heavy rainfall events, the controller may need to be reset if a rain sensor is not installed on the irrigation system. There are many "smart" controllers available that can be programmed to use weather information and specific site conditions to determine how much water to apply and when to irrigate. These weather-based smart controllers are often referred to as "ET" (evapotranspiration) controllers. ET refers to the amount of water lost from the soil through evaporation plus the plant's water loss through transpiration. These controllers use on-site climatic conditions, historic weather data and/or a subscription service to download daily ET values. In Georgia, daily ET values can be found on the Georgia Automated Environmental Monitoring Network, www.georgiaweather.net. Smart controllers have been shown to save up to 25 percent more water than traditional systems.

What if I don't have instructions or a controller chart for my system?

The irrigation installer/contractor should provide the homeowner with two things: the manufacturer's instruction manual for the controller and a "**controller chart**." A controller chart is a drawing of the landscape showing areas covered by each irrigation zone of the system. Each zone is controlled by the corresponding station number within the controller. The manufacturer's instruction manual gives detailed instructions and explains the options for managing the irrigation system.

Controller instructions can by supplied by manufacturers or local irrigation distributors upon request. The name and model number of the controller is necessary to get the proper instructions. Instruction manuals can be downloaded from most manufacturer websites.

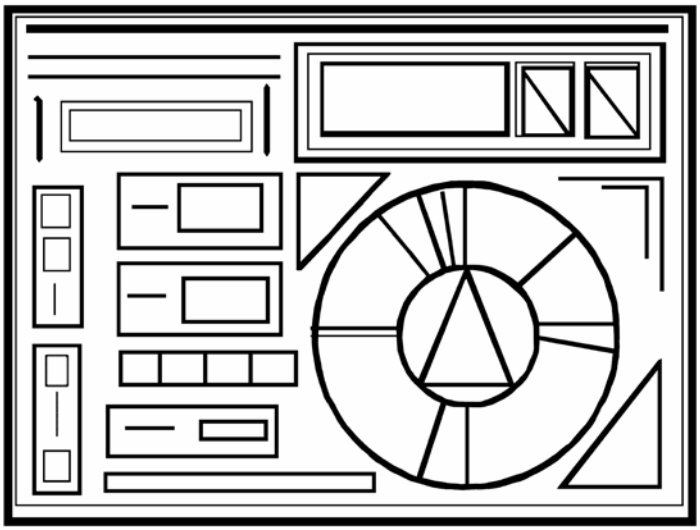


Figure 1. Automated Irrigation Controller. (Audrey Thain)

Homeowners can make their own controller charts. First, draw a sketch of the landscape and the irrigated area. Label each station with the appropriate controller number on the drawing. Also, note the types of plants in each irrigation zone so run times can be adjusted for each station depending on the plant water requirements.

Irrigation controllers come with a variety of features and options. Factors to consider before purchasing a controller include:

- Cost, quality and warranty
- Ease of programming and flexibility
- Number of stations and the option to add stations if needed
- Location and enclosure requirements
- Repair alternatives
- Battery backup for power outage

How much irrigation water does my landscape need?

Let rainfall be the main water source for your landscape whenever possible. The frequency of rainfall and the resulting amount of irrigation needed changes continuously. Plants' water needs change with the seasons as well. A controller that is easy to adjust seasonally is desirable and will save a considerable amount of water.

Place a rain gauge in the landscape to measure rainfall amounts. Rain amounts reported on the Web or weather reports for an area may not represent what is actually happening in a specific landscape. A rain gauge is a tool that can be useful when scheduling irrigation.

A rain sensor is an essential component of the automated irrigation system. A rain sensor detects rainfall and prevents the irrigation system from operating during a rainfall event. Rain sensors are add-on equipment, which are inexpensive and can pay for themselves in water savings. Rain sensors can be purchased at local home improvement or irrigation supply stores. They are relatively easy to install by either the homeowner or an irrigation contractor. The rain sensor should be placed in a location that is not covered by building eaves, does not have interference from trees and does not collect irrigation water.

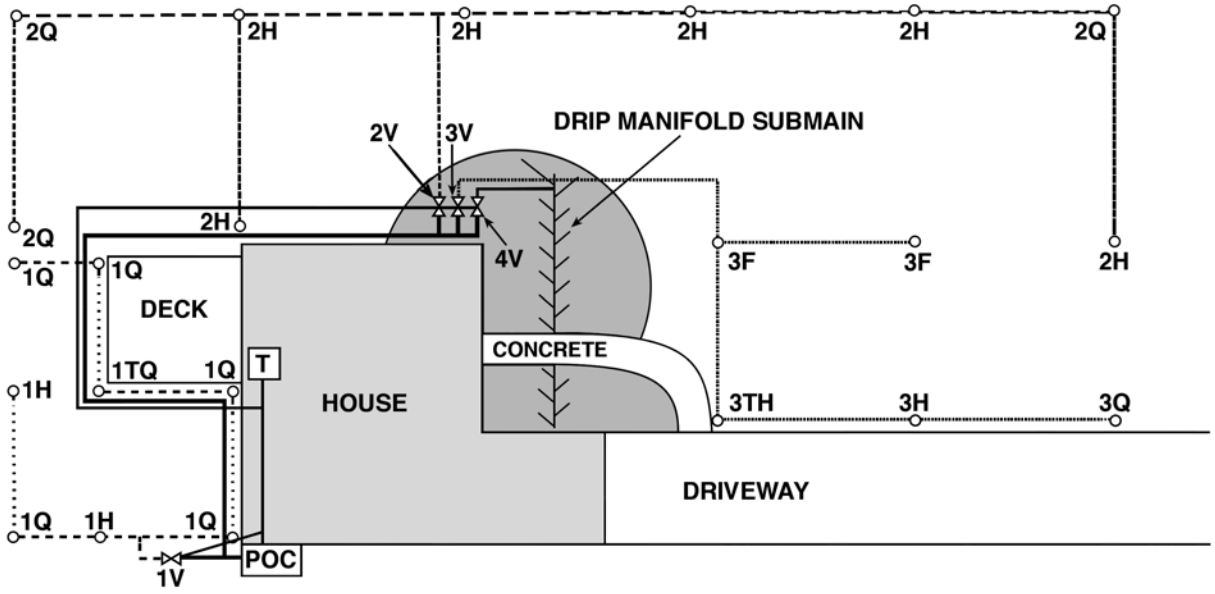
Soil moisture sensors can be installed on some automated irrigation systems. Soil moisture sensors measure the water content in soil and are a management tool that can help to determine when irrigation is necessary.

Conform to the watering schedule imposed by state and local governments. It is important to be aware of current outdoor watering restrictions in your community. However, do not feel compelled to water every day that irrigation is allowed unless plants need watering.

Avoid runoff. The factors affecting runoff are: soil texture, soil compaction, slope and cover on the soil. Heavy clay soils and compacted soils can produce runoff rapidly. The run time in clay soils and on slopes can be split into shorter cycles to reduce or prevent runoff from occurring. Soils covered with vegetation or mulch will not produce runoff as quickly as bare soil.

Irrigate deeply and infrequently, depending on the depth of the root system. Deep, infrequent irrigation cycles can contribute to the development of healthy root systems that can withstand adverse environmental conditions. Landscape plants that are watered every day will typically develop a shallow root system and the plant will become stressed in hot, dry conditions.

"As-Built" Irrigation System Diagram



POC = point of connection
T = controller
V = solenoid valve
F = full circle arc
Q = quarter circle arc
H = half circle arc
TH = third circle arc

Zone 1
XYOO rotor series @ 50 psi
F = 4.6 gpm
TQ = 3.25 gpm
H = 2.2 gpm
Q = 1.25 gpm

Zones 2 & 3
MN -- 50 series rotors @ 50 psi
F = 11.0 gpm
H = 5.5 gpm
Q = 2.8 gpm
TH = 3.7 gpm

Zone 4 -- Drip
1" PVC manifold
1/2" PE pipe laterals
1 GPH emitters spaced approx. 18"

Figure 2. This kind of diagram can be used as a controller chart, as it shows the irrigation zones by number labels on the applicators and valves. (Carol Williamson)

Should my lawn, flowers and trees receive the same amount of irrigation?

The amount of irrigation needed depends on the plant material and the conditions of the plant and root system.

Both cool and warm season **turfgrasses** can be grown in Georgia, depending on the location. Some species require more water than others. A visual indicator for water needs in turfgrass is when the color of the leaf blade changes to a dull, grayish or bluish green and begins to fold or roll.

Annual flowers typically have a shallow root system and a high demand for water compared to other plants in the landscape. Frequent irrigation is usually required for annuals.

Perennials typically have deeper, more developed root systems that require less water than annual flowering plants.

Trees and shrubs typically have deep, extensive root systems that can take advantage of water far beneath the surface. Most established trees and shrubs can survive prolonged periods without rainfall or irrigation.

Learning for Life

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