

Using Water Wisely with Automated Irrigation Systems



*Prepared by Rose Mary Seymour, Public Service Assistant
Department of Biological and Agricultural Engineering*

Why Should I Worry About How Much Water My Irrigation System Uses?

Over-irrigation can produce unhealthy plants. In Georgia, irrigation supplements rainfall and most years, even in summer, irrigation isn't needed every day. For most of the year, irrigating once a week could be excessive. Homeowners with automated irrigation systems are most likely to over-water landscapes. Plants stressed by excess water are more susceptible to disease and pest infestations.

Water is a limited resource that needs to be used wisely. Outdoor water use can account for as much as 50 percent of the total water use for a home during summer months. Studies have shown that automated irrigation systems often apply water to plants unnecessarily and too frequently. Outdoor water use can easily be reduced by irrigating only when plants need water. With a little careful observation, you can learn to determine your landscape plants' water needs.

How do I adjust my automated irrigation system to prevent wasting water?

To efficiently use outdoor water for irrigation, you need to know how to adjust, reset and program your controller. What makes an automated irrigation system automated is the controls that turn the water on

and off. These controls may be "the timer," "the time clock" or "the controller." The controller is a combination of a clock and calendar and instructions that you provide.

Together these components turn valves on and off in your irrigation system by electronic signals.

The installer or contractor of your irrigation system should provide you with two things: the manufacturer's instruction manual for your controller and a "**controller chart**." A controller chart is a drawing of your landscape showing areas covered by each irrigation zone of the system. Each zone is controlled by the corresponding station number within the controller.

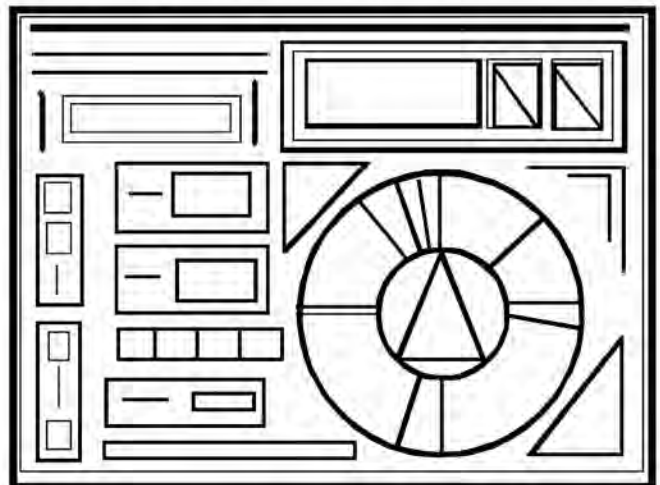


Figure 1. Automated Irrigation Controller.

The controller chart shows the irrigation zones in the landscape related back to the irrigation station numbers of the controller. The manufacturer's instruction manual gives detailed instructions and explains the options for managing the irrigation system.

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

- Cost, quality and warranty
- Ease of programming
- Number of stations that can be programmed
- Location and enclosure requirements
- Repair alternatives
- Programming flexibility
- Battery backup for power outage

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

Any manufacturer or his local irrigation distributor can supply you with a set of instructions on request. A phone call to the manufacturer or their local irrigation distributor is all it should take to get a copy of the instructions for your controller. When contacting the manufacturer, have the model number or model name of the controller with you. Another easy way to get instruction manuals is to visit the manufacturer's website. Most manufacturers put at least their newest instruction manuals on the web.

If you don't have a controller chart, you can make one. To do this, draw a sketch of the landscape and the irrigated area. Then set the controller to run each station and draw an outline on your landscape sketch of the area irrigated for each station. Label each station with the appropriate controller number on the drawing. It is also good to note what types of plants are in each irrigation zone, so you can adjust each station's runtime for the plants' needs.

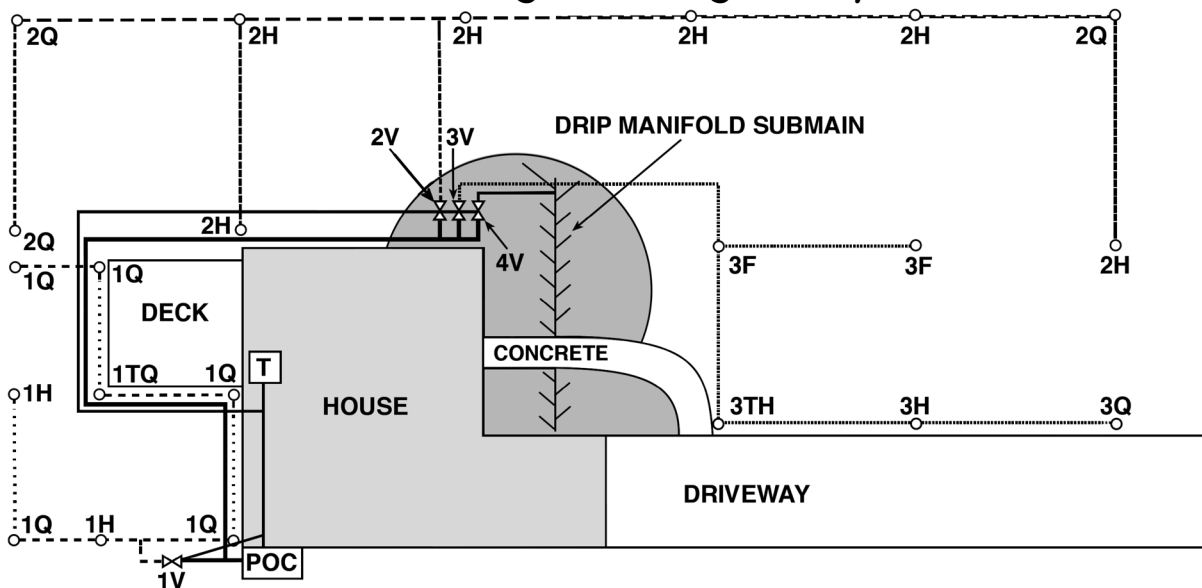
How much irrigation water does my landscape need?

Let rainfall be the main water source for your landscape whenever possible. The frequency of rainfall and the resulting amount of irrigation needed changes from week to week and month to month. The water needs of plants change with the seasons as well. A controller that will let you easily adjust the operating time of each irrigation zone for the seasons 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 on weather reports for your community may not represent what is actually happening in your own landscape. Using your own rain gauge is a better way to manage your irrigation system.

A rain sensor is an essential component of the automated irrigation system. The easiest way to

"As-Built" Diagram of Irrigation System



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
 XY00 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 space 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.

make good use of rainfall is to connect a rain sensor to your control system. A rain sensor detects rainfall and prevents the irrigation system from operating during rain. Rain sensors are add-on equipment, but they are inexpensive and usually pay for themselves in water savings in one or two years. You can purchase a rain sensor at your local home improvement store and install it yourself or have an irrigation contractor install it. Either way, the rain sensor needs to be in a location that is not covered by building eaves and does not collect irrigation water. For homes, the rain sensor can be attached to the roof edge where there are no interfering trees.

Conform to the watering schedule imposed by your state and local governments. Be aware of the current outdoor watering restrictions in your community and use them as a guide in determining when to water. However, do not feel compelled to water every day that irrigation is allowed unless your plants need watering.

The maximum operating time for a zone should be no longer than it takes for runoff to begin. The time it takes for runoff to begin depends on the soil texture, the land slope and the cover on the soil. Soil covered with mulch will not produce runoff as quickly as bare soil. Once runoff begins to occur, the water needs to be turned off or re-directed to another station.

Irrigate infrequently and deeply according to the root system depth of the plants. The irrigation applied is a combination of the frequency and operating time of the irrigation system. Watering as infrequently as possible helps plants develop deep, strong root systems that can handle hotter and drier conditions with less stress. Plants that are watered very frequently, such as every day or every other day, have no tolerance for dry conditions and will show this weakness quickly on a hot summer day.

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

The amount of irrigation water needed depends on the kind of plant materials.

Turf grass needs irrigation just as it begins to wilt. Telltale signs include a change in color to dull, grayish or bluish green, and leaf blades that begin to fold or roll.

Annual flowers have shallow root zones, so they usually have a high demand for water and need to be watered more frequently than any other plants in the landscape.

Perennial flowers usually have deeper and more developed root systems, and can be watered much like small shrubs. Many, but not all, are very drought tolerant and do not require nearly as much water as annual flowering plants.

Trees and Shrubs have deeper, more extensive root systems, so they can take advantage of water far beneath the surface. They don't need irrigation as soon after a rainfall as turf grass or annual flowers. Most established trees and shrubs can survive prolonged periods without rainfall.

Where can I get more information on water conservation in landscape management?

Other Georgia Cooperative Extension Service publications give more detailed management information for different plant materials in landscapes. Some of these, and their Web sites, are listed below. For specific questions or problems, contact your local county agent.

Resource List

Irrigation for Lawns and Gardens. GCES Bulletin No. 894. www.ces.uga.edu/pubcd/b894-w.html

Coping with Watering Restrictions in the Landscape. GCES Unnumbered Leaflet. www.ces.uga.edu/Agriculture/horticulture/Drought.htm

Lawns in Georgia. GCES Bulletin No. 773. www.ces.uga.edu/pubcd/b773-w.html

A Compilation of Low-Maintenance Plants for Georgia Landscapes. GCES Bulletin No. 91-009. www.ces.uga.edu/Agriculture/horticulture/H-91-009.htm





All figures and drawings by Audrey Thain, except Figure 2, drawn by Carol Williamson.

Learning *for* **Life**

Circular 870

Reviewed May, 2009

The University of Georgia and Ft. Valley State University, the U.S. Department of Agriculture and counties of the state cooperating. Cooperative Extension, the University of Georgia College of Agricultural and Environmental Sciences, offers educational programs, assistance and materials to all people without regard to race, color, national origin, age, gender or disability.

**An Equal Opportunity Employer/Affirmative Action Organization
Committed to a Diverse Work Force**