Automating Irrigation systems – does it really save water?

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Introduction

The early-pressurised irrigation systems of the 1960's were manually operated systems. The 1970's saw the first irrigation controllers which were predominantly electro-mechanical operated, that is they consisted of an electrically operated timing mechanism with mechanical pins and dials which controlled the irrigation. The 1980's saw the advent of the microchip and solid-state electronic controllers were born. Today's controllers range from inexpensive solid-state units through to fully computer integrated systems. The basic principle though is still the same the controllers operate irrigation schedules based on times required for operation. So with all of today's sophistication does an irrigation controller save you water??

The basics

A basic irrigation controller is really just a timing mechanism that will turn on and off your watering system based on the times you have set for the system. A controller will in its basic form:

- Start a watering cycle – at a specific time/s and on specific days
- Operate the zones (stations) sequentially – run each zone of the system for a set operating time.

Controllers are normally rated in a number of stations i.e. a 6 station controller will control six separate zones (solenoid valves).

So if an irrigation controller in it's basic form just turns on and off your system can it save you water?

Well it depends how you, the operator programs the controller. You need to ensure you schedule your irrigation to weather conditions correctly. A lot of operators at the first sign of warm weather will operate peak watering schedules and continue them until the end of the irrigation season. In a temperate climate this one decision could cost you dearly as you may put on up to 70% more water that required.

If you compare an automatic irrigation system with a manually operated one then the main advantage of the automatic system is it will shut off after a set period of time and doesn't rely on the user remembering to turn off the system.

So the message here is an automatic system is a tool, which gives you the potential to save money, but it still requires the intervention of an operator to ensure it is correctly operated.

The climate factor

We all wish we could predict the weather and although modern technology has come a long way in weather prediction, nature is still unpredictable and as such I think irrigation scheduling should never be viewed as an exact science but we should accept reasonable levels of response to weather conditions. The simplest way to irrigation schedule is to use the law of averages by obtaining average climatic data for your region and base you irrigation scheduling on these averages. The next consideration is to react to rainfall events and this can be achieved with the use of a quality rain sensor, which prevents the system operating when significant rainfall events occur.

More sophisticated systems may also consider wind effects and prevent operation when too windy.

What to look for in irrigation controllers

Basic Models

- Multiple programs allowing different watering schedules for different areas.
- Rain off function.
- Back-up Battery

Intermediate models – Basic features plus

- Water budget - % changing of programs for climate changes.
- Sensor Input – Rain/Wind Override
- More program flexibility

Advanced Models – Intermediate features plus

- Remote Communication options
- PC linkable
- Logging and recording of sensors

Summary and Conclusion

Automatic systems definitely have the potential to save water and time but it relies on how they are applied by the operator. Some people have made the comment that an Automatic system actually has increased their water use and this could be true if you do not manage the system correctly and were not watering effectively with a manual system to begin with (i.e. under-watering). Automatic controllers provide an excellent tool for you to schedule your irrigation system and in turn manage your water resource and create a beautiful environment.