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Smart Controllers and how they work.

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Smart Controllers and how they work

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Smart : operating as if by human intelligence by using automatic computer control. (dictionary.com) Everything is Smart these days. Your Phone, Heating, Air Conditioning, Alarm System, and even your Oven can all have Smart control options. Most of these items can operate and make changes based on calculations the equipment makes through either internal or external sensors. No longer do you have to change the temperature that your house produces when you are not at home. A Smart Thermostat can detect that no one is present in the building and can self modify the Temperature. When you return home the system resumes to the desired level of comfort. Even your Oven can detect the internal temperature of something is being cooked. Now your Irrigation System can be operated by a smart control system.

Sensors

What makes a smart system operate independently is the sensors that provide external information. This information could be Solar, Temperature, Evapotranspiration, Rain, Wind and Soil Moisture.

Solar: There is a difference between a sunny day at 80 degrees and a cloudy day at 80 degrees. Solar readings taken through-out the day can help to determine the water needs.

Temperature: For obvious reasons heat and cold have opposite effects on how the turf and plant material consume the water which is provided.

Evapotranspiration: This is the amount of water that comes out of the plant and soil. This number is included with the other variables to figure out what amount of water was diminished throughout the day.

Rain: When it rains a smart system not only detects the rain, but also the amount of rain.

Wind: Some systems will actually shut down if the wind is above 10 miles per hour, which would cause the system to be ineffective in coverage and eliminate wasted water hitting driveways and buildings.

Soil Moisture: An instrument called a tensiometer can be installed in the ground to measure the amount of moisture present and transmit the information to the smart controller or standard clock to determine if irrigation is needed or not.

Internal Programming

Outside sensing will give the elemental conditions, but delivering the right amount of water is ultimately the end result. The smart controller allows the installer to program the type of Sprinkler used, type of plant being watered, depth of the roots, soil type and slope.

Type of Sprinkler: Different sprinklers have different precipitation output. Rotors are .4-.6 inches per hour and sprays are .8-1.3 inches per hour. Drip and multi rotational sprays can range from .2-.4. All of these factors change the length of time that the system will operate.

Type of Plant: Each plant carries a different Crop Coefficient or (Kc), this value is used to determine how much water a plant will use in comparison to the Evapotranspiration rate. Knowing what type of plant is being watered will change this value.

Depth of Roots, Soil Type, and Slope: Knowing these three variables is crucial in eliminating run-off when watering. When determining the amount of water needed, we also need to know the depth of the roots. It makes no sense to water to a 12 inch depth if our roots are only 6 inches. Soil type will change the percolation of the soil. Sandy soil will percolate at 40 inches per hour and Heavy Clay will percolate at .5 inch per hour. The density of the plant material will also change the percolation rate. If it is really hot and the turf needs .5 inches of water and the sprinklers produce 1.2 inches of water per hour and the soil percolates at .25 inches per hour. The smart controller will operate the sprinklers for 15 minutes and wait for one hour and then operate for 15 minutes again to finish the cycle. The same holds true for slopes. If a Slope is greater than 8 degrees and the soil is Clay, the sprinklers can only run for 5 minutes before run-off will occur. The system would run for 5 minutes and repeat the cycle 5 times for the next 6 hours.

Installation

Having a qualified Irrigation Professional install a smart system is crucial to gaining all of the benefits that system can offer. Updating an existing system is a simple and painless process, which takes about 2-3 hours to install. We have taken the proper training steps with Toro, Weathermatic, Hunter and Rainbird. We are the premier experts in installing and programming Smart Irrigation Controllers and have been doing so for over 3 years. Give us a call at 320-310-4241 or email us at Info@UseYourWaterRight.com for more information.

Business Spotlight



Lawn maintenance is a crucial part of developing an efficient watering program. Aaron Haakonson has been operating Peerless Lawn Care in Sauk Rapids for 7 years. He displays and uses the knowledge of a seasoned turf-care professional. Peerless Lawn Care provides Mowing, Chemical Application, Snow Removal and Property Management in the Greater St. Cloud Area. For customer testimonials click here <http://peerlesslawncare.com/testimonials/>. You can contact Aaron directly for a consultation at 320-293-1539.

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Happy Writing
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