Smart Irrigation Controller FAQ

B-hyve pro · https://husqvarna-water.com/knowledgebase/smart-irrigation-controller-faq/

WHAT ARE SMART CONTROLLERS?

Smart controllers, also known as weather-based controllers or “ET-based” controllers, adjust their irrigation schedules automatically based on daily weather changes and estimated plant water requirements.

WHAT IS ET?

ET is a common abbreviation you may hear about smart controllers. It is short for “evapotranspiration.” In horticulture, evapotranspiration measures the amount of moisture depleted from the soil and plant surfaces through evaporation and biological plant transpiration. A smart controller's goal is to precisely replenish the amount of moisture depleted by evapotranspiration. For simplicity, think of ET as the “plant water requirement.”

WHAT FACTORS IMPACT PLANT WATER REQUIREMENTS AND HOW DO THEY CHANGE?

Plant water requirements can change significantly from one day to the next. The following five factors affect the amount of water required by plant material:

- Solar radiation plays the most significant role. Solar radiation varies with cloud cover, and the amount of sunlight plants are exposed to during the day. A long day in the summer will deplete a plant's water faster than a short and cloudy day in the winter.
- Humidity affects a plant's biological transpiration rate. If the air is dry with low humidity, plants will transpire more and need more water than plants growing in a humid environment.
- Temperature also matters. The higher the temperature, the more water is needed.

- Wind also makes a difference. On a windy day, moisture depletion increases, directly increasing the plant's water need.
- Natural precipitation offsets all of the above factors and is incorporated as a variable into all smart controller watering schedules. Depending upon the pace of rain and site conditions, a percentage of the rain will be effective for the plant, while a significant portion will run off. On average, a third of total rainfall is considered to be effective.

HOW DOES A SMART CONTROLLER DIFFER FROM MY CURRENT CONTROLLER?

Conventional controllers require users to enter desired watering days and watering durations manually. The watering frequencies and durations the landscape professional enters are typically based on an experienced estimate of how much water is required to maintain a healthy landscape for a specific season. Watering durations and frequencies are increased or decreased manually by the user during significant changes in weather conditions. The frequency of controller changes is limited by site visit frequency, and the precision of the watering requirement is limited by the time and technology required to calculate it precisely. Under-watering is identifiable, whereas over-watering, unless excessive, can be hard to detect by even the most skilled professional.

HOW NEW IS SMART CONTROLLER TECHNOLOGY?

ET data has been used for over 30 years in the golf sector to help automate irrigation controller scheduling. Historically, golf courses utilized very expensive and elaborate weather stations to adjust watering according to daily ET requirements automatically. The advancement and decrease in the price of technology have now made smart controllers affordable for commercial and residential landscapes.

There are many types and varieties of smart controllers. They run the spectrum from basic rain sensors to an ETwater or B-hyve powered irrigation control system that leverages predictive analytics. While traditional systems can suspend irrigation upon rain detection, ETwater and B-hyve anticipate rain events, stopping irrigation beforehand to maximize rainwater capture and prevent water waste. This forward-thinking approach extends to heat forecasts as well. By analyzing data and predicting heat waves, ETwater and B-hyve can auto-schedule strategic irrigation to ensure lawns and landscapes are well-hydrated before extreme temperatures arrive.

A higher-end smart controller available from ETwater or Hydro-Rain can also provide a wider variety of enhanced, on-demand reports, including run time, estimated and measured irrigation usage, and more, as well as the ongoing health of your landscaping, system performance, and water cost through daily/weekly/monthly notifications. See the amount of ET loss and replenishment by rain and running of the irrigation system.

WHICH SMART CONTROLLER IS BEST FOR MY SITE?

Communication-based smart controllers with sophisticated scheduling engines and internet accessibility generally have a higher potential for greater water savings, but they are also higher priced and often come with ongoing subscription fees. Other communication and sensor-based smart controllers with less sophisticated scheduling engines may have lower water-saving potential but come at a lower price.
The source of weather data is an important consideration. Is weather data from a single nearby sensor acceptable, or will it be inaccurate due to local microclimates? In this case, you would be best served by utilizing a smart controller that correlates data from a network of weather stations.

When selecting a smart controller and reviewing the options and features offered by each, we always consider if the expected water savings justify the cost of additional features. We are here to assist and can walk you through the benefits and features of each smart controller to help make your decision process easy.

DOESN’T THIS MAKE A LANDSCAPE CONTRACTOR’S JOB EASIER?

Like many new technologies, a smart controller will function only as well as it is programmed. It is important that the parameters for each irrigation zone (type of plant material, root depth, soil type, shade vs. sun, degree of slope, etc.) are correctly entered into the controller for water usage to be optimized. Plant health must also be monitored closely to ensure the controller is not over-adjusting to weather and under-watering your landscape.

After initial programming, a technician will need to periodically check on the controller to ensure it is functioning correctly and make any required adjustments. A landscape contractor's total amount of labor will increase after controller installation but should diminish somewhat after that. However,

these controllers do require a more technical set of skills than conventional controllers. Today, we believe the overall impact on a landscape contractor is neutral, although our perspective may change. Substantial savings are usually available to property owners from water cost reduction alone.

WILL A LANDSCAPE CONTRACTOR GUARANTEE MY SAVINGS?

Since weather and water requirements change yearly, as do water prices, it can be difficult to calculate baseline water usage and savings. A landscape contractor won't guarantee savings, although they'll work with you to ensure you achieve value from your controller. They can provide case studies of similar properties that illustrate typical savings. We encourage you and your landscape contractor representative should discuss your options to ensure the controller provides an adequate financial return with a conservative set of water savings assumptions (15-20%) so you can be confident that the investment makes sense for you.

FOR MORE INFORMATION,

Please contact your Husqvarna Group, Hydro-Rain, or ETwater representative.