Solar, software *and* savings

New trends in smart irrigation controllers take advantage of technology.

2021 Irrigation Controllers Specification Charts

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By Rodric Hurdle-Bradford

For irrigation controller manufacturers, the summer of 2021 has become a showcase to demonstrate the value of their products, as more than a dozen states deal with drought status, bringing water conservation issues even further to the forefront. Fresh technology trends have stepped up to provide solutions for current and new system installations.

"Controllers with smart features that are super intuitive are a necessity now, and they're easier to use to conserve water," says Dan Hymas, president at Smart Rain, Centerville, Utah. "Smart irrigation controllers are becoming more accessible, and people are becoming more educated on them. This is leading to more ease of use in the landscaping industry."

Before making any controller choices, it's important to take stock of what you need to take care of right away while keeping an eye to the future for your client, says Alexis Bookman, marketing communication manager for The Toro Company, Bloomington, Minnesota.

"Look for a controller that suits your immediate needs but also one that can grow and upgrade," says Bookman. "No one can predict the future, and replacing a controller every time new technology becomes available can get expensive. If you select an option that can grow as the landscape, water restrictions and other factors change, it will make adapting and ultimately water management that much easier."

"These control systems use electricity that is stored in super capacitors to power the system, regardless of the weather or environment," says Merlesena. "The super capacitor that runs these systems will outlast the electronic component of a controller and deliver substantial cost savings in the long run."

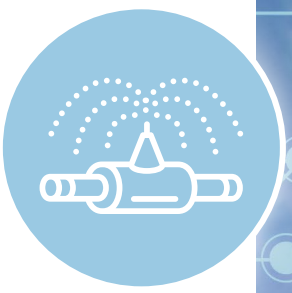
SCHEDULING SOFTWARE

Not only has predictive analytics taken over and changed the sport of baseball, it has done the same with irrigation and water management inside the landscaping industry. Trends in software management for forecasting and scheduling both simple and complex watering schedules are popular for landscape professionals who have seen their jobs be performed across even more remote locations in the past 18 months. Software that helps choose the best times for effective irrigation can make a big difference for clients, says Hymas.

"Using enhanced software for irrigation controllers should save 30% to 50% of water usage," he says.

Controllers that use artificial intelligence and predictive analysis can better utilize rainwater and reduce runoff and site visits, says Richard Restuccia, vice president of water management at Jain Irrigation Inc., Fresno, California. Predictive analytics software makes adjustments from lessons learned from past weather trends, giving the controllers insight into when it might be the best time to irrigate.

"On the East Coast it rains during the summer, so we use our predictive analysis to identify that there is not as strong of a need to put watering into the schedule compared to other portions of the country," Restuccia says.



"Smart irrigation controllers are becoming more accessible, and people are becoming more educated on them."

– Dan Hymas, Smart Rain

As energy sources face unstable, rising costs, one potentially helpful trend in irrigation controllers comes in using the sun to keep it powered, says Mike Merlesena, national sales product manager for Dig Corporation, Vista, California.

"Landscape consultants like this product because they do not have to worry about identifying power in common areas, and they can build a system without upfront costs," says Merlesena. "We know this is a new way of managing irrigation control systems, and we feel like this is going to be the major trend moving forward."

Solar-powered and ambient light-powered irrigation control systems do not require direct sunlight, further minimizing expenses compared to standard AC-powered control systems. Without having to rely on a power grid, station management isn't susceptible to issues like summer power outages that disturb carefully planned water management schedules.

When using a weather-tracking controller, a cloud-based system will allow for regular weather calculations and updates based on climate shifts for a more efficient system, he says. The more often a system checks in on the forecast, the more accurate that watering schedule will be. Hourly calculations compared to daily calculations can reduce water use by up to 60%, especially in areas with active rainy seasons. The controllers analyze the times of lowest probability for rain and precipitation and use that guidance as the foundation for a customized irrigation schedule. The feedback on the weather predictive system has been very positive in the past year.

While it's not a crystal ball, some predictive analytics software allows end users to look ahead into the next few weeks as well, says Rick Malkin, central controls product manager for Rain Bird, Azusa, California. That can include estimates of how much

A smart irrigation controller needs to do more for both the contractor and the client by using water effectively. One of the biggest trends in smart controllers is the addition of wireless capabilities either through Wi-Fi or Bluetooth to connected devices such as a smartphone or tablet. Some systems can provide a report of water usage statistics. Photo: Smart Rain

Remote access, whether via Wi-Fi or Bluetooth capabilities, streamlines work with controllers in installation and programming.

total water will be used, how many stations will be running and when irrigation will start and stop.

Providing an ongoing service to provide more effective water use can possibly allow contractors to add water management services as a separate line item to further drive revenue, says Restuccia.

"Promoting water management services to commercial properties, homeowner associations and other large entities is a way landscapers can add to their profits without having to make large capital or personnel investments," he says.

BUILT FOR BLUETOOTH

Remote access of the irrigation system and advanced water management features are important on any new irrigation controller, says Malkin. Web-based cloud services allow users to log in and control the irrigation system from smartphone or tablet touchscreens. They work well for organizations with multiple irrigation system administrators or users who are often off-site. That might make them a good fit for remote work environments, which have been expanding in the past year.

While weather tracking and schedule customization are both big trends in the irrigation controller space, having the capability to stay connected by internet or Bluetooth is one of the most important new features, says Darik Chandler, product manager of battery and standard controllers, Hunter Industries, San Marcos, California.

Bluetooth can be especially useful in areas where Wi-Fi service isn't an option and can reduce the amount of installation time needed in adding the controller to the client's home network, says Malkin.

Some systems include capabilities to remotely edit multiple watering schedules at once, if several stations need to be handled together, says Malkin. The schedules also include the capability to set days off in advance to manage irrigation around particular dates. That can be handy for dealing with weekends, but it also might keep an Independence Day barbecue from accidentally getting interrupted by sprinklers.

"Our system is designed to work with large irrigation systems where total water usage is being looked at as the key metric, so we always start from there when proving our results," says Rick Malkin, central controls product manager for Rain Bird. "It always comes back to 'Here's how much water we are using, and here's how much we are saving.'"

Despite a heavy reliance on technology, Chandler advises that landscapers do not solely rely on a quick technology pitch to the client when it comes to selecting an irrigation control system. Talking about the new features and how they all connect to a smartphone can leave some clients dizzy with terminology. Instead, he says to take a step back and look at the total offering that the system brings, including the software, the service and the supplier. Features like email reports on the irrigation system's efficiency including the amount of water saved over time can go a long way to showing a client the benefits. Even a retrofit of an old system should give an irrigation professional plenty of evidence that both water and money can be saved.

"New controllers should be saving around 50% of water use based on an unadjusted schedule," he says.

It's also important to think not only of benefits to the client when choosing a manufacturer, says Chandler. A good partnership with a reliable manufacturer will help streamline future installations and back you up when troubleshooting issues.

"Look for a manufacturer that has been in business for years serving the globe with not just controllers but the entire system, A-to-Z," he says. "Look for a manufacturer that provides at least a two-year warranty, as well as provides the controller, solenoids, flow meter, rain sensor, and sprinkler valves and heads for the best performance. That is going to save you time, money and energy in the long run."

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SMARTPHONE-FRIENDLY IRRIGATION CONTROLLERS FOR RESIDENTIAL/LIGHT COMMERCIAL APPLICATIONS

Manufacturer	Model name(s)	EPA WaterSense certified	Maximum stations	Weather data source	Rain data source	Rain delay?
Aeon Matrix	Yardian Smart Irrigation Controller	✓	48	Weatherbug	Weatherbug	auto.
Aifro	Water Eco and Water Eco Lite		36	real-time local weather data, uses OpenWeatherMap	real-time local weather data, uses OpenWeatherMap	auto.
Asante	Asante Irrigation Controller Kit		6			
Blossom	Blossom, Scotts Gro Controller	✓	12	current local weather and forecasts from multiple weather services	current local weather and forecasts from multiple weather services	auto.
BlueSpray	BlueSpray		64	NOAA	NOAA	auto.
Galcon	Cyberrain	✓	24	local weather stations		
Hunter	HC, Pro-HC, HPC-FP, Pro-C Hydrawise, HCC	✓	54	Weather Underground and The Weather Channel; local airport weather stations, personal weather stations and/or virtual weather station options available	Weather Underground and The Weather Channel forecasts, weather station data and/or on-site rain shutoff sensor	user conf.
HydroPoint	WeatherTRAK LC+	✓	36	proprietary ET Everywhere Weather Data (public and private weather stations, NOAA)	current local weather and forecast from weather stations	✓
Hydro-Rain	HRC 400 WiFi	✓	16	smart WeatherSense local weather data		user conf.
H2OPro	H2OPro		8	local weather stations or user-defined local weather stations	weather station, no sensor	auto.
Irritrol	Climate Logic proprietary plug in for Irritrol Kwik Dial, Rain Dial, Total Control and MC-E Controllers	✓ ✦	12	on-site sensor	rain sensor, no rainfall measurement	user conf.
Jain/ET Water	SmartBox, SmartWorks and Hermit Crab 2	✓	48	multiple streaming weather data sources	multiple streaming weather data sources	auto.
K-Rain	Pro EX 2.0 WiFi		16	WeatherIQ	WeatherIQ	user def.
Netro	Netro Sprite and Whisperer		12	local weather data from multiple sources, as well as historical climate data	based on address, with latitude and longitude, collection of weather data from multiple sources	✓
Nxeco	Nxeco	✓	36	real-time weather		
Orbit	B-Hyve	✓	12	smart WeatherSense local weather data	smart WeatherSense local weather data	user conf.
Rachio	Rachio Irrigation Controller	✓	16	NOAA, PWS	NOAA, PWS	user def.
Rain Bird	Lnk Wi-Fi Module works with ESP-TM2 and ESP-Me Series Controllers and WR2 Series Wireless Rain/Freeze sensors; ST8-Wi-Fi Controller	✓	22	World Weather Online	World Weather Online	user def.
Rain Machine	RainMachine Touch HD	✓	16	options include NOAA, MetNo, Weather Underground, DarkSky.net, FAWS and CIMIS (with subscription to CIMIS)	options include NOAA, MetNo, Weather Underground, DarkSky.net, FAWS and CIMIS (with subscription to CIMIS)	auto.
RainCommander	RainCommander RC1200		12	None		user def.
RainPal	RainPal Pro	✓	12			
Signature	EZ Connect and EZ Share series controllers	✓	24	integration of weather data feeds from NOAA, Accuweather, weather forecast data and weather alerts	integration of weather data feeds from NOAA, Accuweather, weather forecast data and weather alerts	user def.
Skydrop	Skydrop Halo Controller	✓	16	local weather stations	local weather stations	✓
Smart Rain	ComPro3	✓	48	NOAA/IBM New	NOAA/IBM New	auto.
Spruce Irrigation	Spruce Controller WiFi	✓	16	Darksky.net and optional soil moisture sensors		
Toro	TMC and Evolution Series Controllers	✓ ✦	24	on-site sensor and/or Toro Precision Soil Sensor with Evolution controller	on-site rain sensor, no measurement of rainfall	user def.
Weathermatic	SL and PL Series with SLW15 weather station	✓	48	on-site sensor	on-site rain sensor, no measurement of rainfall	user def.

✢ "discovery" mode | ✦ with Climate Logic | ★ yes, if more than one airport station is to be subscribed | ✱ yes, backup mode from panel | ✪ with Toro soil moisture sensors

PRINTABLE VERSION HERE

Thanks to Smart Rain for sponsoring this year's controller chart. smartrain

Subscription fee for weather data?	Automatic scheduling interval capable	Guest access (contractor)	Home automation?	Connectivity	Other product information	Sensor capabilities	Run time input	Watering restrictions	Predictive scheduling (rain, freeze)	Zone customization	Cycle and soak (custom or calculated)	Operation without internet connection
	✓	✓	✓	Wi-Fi	built-in security camera, motion detection	rain	✓	✓	✓	✓	✓	✓
	✓	✓		Wi-Fi	pause feature, winter dormancy, AiCan smart plug to operate house appliances, manually water more than one zone at a time, Aifro Cloud accessible via app	built-in temperature sensor, optional rain sensor	✓	✓	✓	✓	✓	
		✓		Wi-Fi plus	rain forecast feature	rain, freeze	✓	✓	✓			
	✓	✓	✓	Wi-Fi	only for indoor installation	rain, freeze	✓	✓	✓	✓	✓	
		✢	✓	Wi-Fi	run time in min/sec, can turn on multiple valves simultaneously, expands up to 64 zones via extension port	rain, freeze, flow	✓	✓	✓		✓	
		✓		RF, HW	flow monitor, alerts							
★	✓	✓	✓	Wi-Fi	automatic weather adjustments customizable by zone, contractor portal for multi-site management, real-time alerts and notifications, built-in milliamp sensor, event logs and reports	rain, freeze, soil moisture, flow	✓	✓	✓		✓	✓
✓	✓	✓	✓	Cell	centralized cloud control for multisite management, alerts, 30+ customizable reports, over the air updates	rain, flow (with optional key)	✓	✓	✓	✓	✓	✱
	✓	✓	✓	Wi-Fi	optional catch cups and irrigation audit input, smart watering options based on site conditions	rain, freeze, flow, soil moisture	✓	✓	✓	✓	✓	✓
				Wi-Fi	flow monitoring, alerts, restrictions, Watersense used to create auto or manual watering schedules, automatic schedule interval capable	rain, flow	✓	✓	✓		?	✓
		✓		RF plus	SMRT logic allows auxiliary wireless control up to 250 wireless relays	Climate Logic (rain, freeze)	✓	✓			✓	✓
✓	✓	✓		Cell	subscription-based product; standalone or add-on to various models of Hunter, Irritrol, Toro, Superior, Weathermatic, Rain Bird and Rain Master controllers	flow, rain	✓	✓	✓	✓	✓	✓
		✓		Wi-Fi	optional long-range antenna, virtual rain sensor, Wi-Fi hub plugs into internet router to use RF connection, increases router to controller distance through RF, can be configured as Wi-Fi/conventional/remote-controlled	rain, freeze	✓	✓	✓		✓	✓
	✓		✓	Wi-Fi			✓	✓	✓	✓	✓	✓
		✓	✓	Wi-Fi	24-zone extension module to build 36-zone controller	rain, freeze	✓	✓	✓		✓	✓
	✓	✓	✓	Wi-Fi			✓	✓	✓	✓	✓	✓
	✓	✓	✓	Wi-Fi	current and historic weather data used, real-time notifications	rain and soil, flow with Rachio 3	✓	✓	✓	✓	✓	✓
		✓	✓	Wi-Fi	off-site management, real-time alerts and advanced water management tools available	rain, freeze, soil, flow	✓	✓	✓		✓	✓
	✓	✓	✓	Wi-Fi		rain, freeze	✓	✓	✓	✓	✓	✓
				Wi-Fi		rain sensor	✓	✓			✓	✓
	✓		✓	Wi-Fi, cell	optional leak/freeze detection (FL-100), sensitive water leak/freeze detection, cloud-based server capability	rain, flow, freeze	✓	✓	✓	✓	✓	✓
	✓	✓	✓	HW, Wi-Fi, cell	programming accessed via the Signature Share app, end-user of contractor web portal	can integrate two sensors, such as flow, rain, pressure, freeze, ET, soil moisture; some models can use DC latching solonoids	✓	✓		✓	✓	✓
	✓	✓	✓	Wi-Fi			✓	✓	✓	✓	✓	
✓	✓	✓		Wi-Fi, cell		rain, freeze, soil moisture, flow, ET	✓	✓	✓	✓	✓	✓
	✓		✓	Wi-Fi	combines real-time moisture sensor data and weather predictions	rain, flow, spruce soil moistures sensors	✓	✓	✓	✓	✓	✓
	✓ ✪	✓		RF, Wi-Fi plus	grow-in schedule able to control fountains, gates, landscape lighting via a wireless relay	rain, freeze, ET, soil moisture sensor	✓	✓		✓	✓	✓
✓		✓	✓	RF, cell, Wi-Fi	SmartLine Air Card, no Wi-Fi or router required	rain, freeze, weather sensor, flow	✓	✓		✓	✓	✓

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