



Nine Key Questions When Choosing Irrigation Control

While every aspect of an irrigation design and specification project is important, finding just the right control solution has a tremendous impact on a system's efficiency and performance for years to come. That's why it's important to ask yourself the following questions about the project before making a final decision. The type of control chosen will need to take into account the overall size of the project, the number of sites to be managed, the use of satellites or two-wire decoders, the desired level of automation and many other details unique to the project. Because every situation is different, the weight assigned to each of your answers to these questions will vary. The key to specifying the best control system is to determine your "must-have" features, and then let those findings lead you to the best control system for your project.

1. How large and complex is the project?

An irrigation project's overall size and complexity are primary considerations when selecting a control system. Some sites can be sufficiently managed using a traditionally wired satellite controller or two-wire, decoder-based controller. In fact, the more advanced commercial controllers available today, like Rain Bird's traditionally wired ESP-LXME and two-wire, decoder-based ESP-LXD, can expand to a large number of stations and incorporate sophisticated options like weather-based smart control, flow management and secure programming capabilities.

If your project requires irrigation to be managed remotely from a central computer, you will need to investigate your central control options. The use of satellites or two-wire decoders on-site will dictate the type of central control system you can integrate. Some central control systems may only be compatible with satellites or decoders. Other systems, like the IQ™ v2.0 Central Control and SiteControl™ Central Control from Rain Bird, are compatible with both.

The number of valves and the number of different sites that the central control will be expected to manage also affects the overall scope of the project, as well as the geographic proximity of those sites to one another. Certain types of central control systems are designed to manage one large site while others are specifically designed to manage multiple sites. For example,

Rain Bird's Maxicom²® Central Control System can manage hundreds of commercial and industrial locations, making it a top choice for municipalities, school districts and parks and recreation departments. Meanwhile, SiteControl is specifically for large single-site applications including cemeteries, sports fields or vacation resorts. Rain Bird's IQ v2.0 Central Control System has the versatility to handle either single- or multi-site control.

A project's budget and development plan can also impact the choice of central control product. For sites that are being developed in stages, such as housing developments, a more modular central control system can save money up front while still making it possible to add advanced features as they are needed. Rain Bird's IQ v2.0 is a great example of such a system, incorporating distinct "feature packs" that allow users to add reporting, flow management, weather data and security features as needs arise and budgets permit.

Determining the need for additional system automation is also a significant consideration when choosing the right control solution. Some central controls, such as Maxicom², can be programmed to operate security systems, lights, fountains and gates in addition to irrigation systems.

2. What are your water conservation objectives?



It's always important for an irrigation system to perform efficiently, but in some situations, it's absolutely imperative. For example, when specifying control for an irrigation system in a particularly drought-prone or arid region, water efficiency is likely to be a high priority. The best control system in this type of situation will need to include a high level of programming flexibility to accommodate changing water restrictions. The ability to interpret ET data and link to weather stations and rain sensors is also important, as the watering schedule can be suspended when significant precipitation begins to fall.

However, the need for water efficiency isn't always triggered by concern for conservation. In some parts of the country, irrigation users can get water for little or no cost, but the expense of the electricity used to run the irrigation pumps can quickly add up. In this case, the control system will need to coordinate irrigation demand so that pumps are operating at peak efficiency, saving the customer money on electric bills rather than on water bills. Regardless of the final objective, Rain Bird's SiteControl and Maxicom² Central Controls are able to take advantage of advanced weather station technology and react to current conditions based on user-defined options. IQ v2.0 also provides smart, weather-based control with the addition of an Advanced ET Feature Pack.

3. What are your water sources?

The use of municipally supplied potable water or reclaimed water also affects the choice of a control system. Because reclaimed water may contain potentially harmful chemicals or bacteria, its use must be reported to environmental agencies. In most situations, systems using both potable and reclaimed water will require flow sensors to measure the amount of water being used from both sources so that the system manager can create a report. The greater the number of water sources, the more flow sensors required for reporting purposes. This can get expensive if there are multiple points of connection into the irrigation system. All of Rain Bird's central control products—Maxicom², IQ v2.0 and SiteControl—as well as the ESP-LX Series Controllers, can be outfitted with flow sensors.



4. What type of water are you using?

If your site is using non-potable water for irrigation, it's important to use that water wisely. Non-potable water may be produced by an on-site water harvesting system or it may be chemically-treated reclaimed water supplied by the local water agency. In either case, its use requires adherence to a number of specific guidelines depending upon its level of treatment. The use of non-potable water may also require careful reporting to environmental agencies due to public health and safety concerns. In this situation, it's important to choose a control system with the ability to create detailed reports that include the type and amount of water used during specific time periods. Each of Rain Bird's three central control products—Maxicom², SiteControl and IQ v2.0—can create water usage reports for this purpose.



5. What are your watering windows?

The amount of time, or watering window, that an irrigation site has available for water application can be influenced by the levels of pedestrian traffic and the number of outdoor events experienced throughout the day. For example, a high school football field cannot be watered during a game, and a park cannot be watered during an outdoor concert. In these situations, the control system must be flexible enough to quickly and easily accommodate scheduling changes.

Watering windows can also be affected by a completely different type of consideration. Over time, as metropolitan areas have grown, the size of the pipes that deliver water throughout some of those areas have not. This can make it difficult to deliver enough water to the site to meet the peak needs of the irrigation system. To counter this demand issue, cities often enforce odd/even day watering restrictions to balance the load. In this situation, it's important to design a system that can apply the peak amount of water needed in the limited amount of time available for irrigation. Rain Bird's Maxicom², IQ v2.0 and SiteControl systems offer an integrated Flo-Manager™ feature that provides real-time monitoring and sequencing of the order in which valves operate to lower water demand, reduce system wear-and-tear and save energy. Flow management tools like these are particularly helpful at facilitating multi-station operation, as they can shorten total system runtimes and watering windows.

6. How many people will manage the system?

There are two possible scenarios for irrigation control management: one person is in complete control of the system, or multiple individuals share control. In the majority of applications, one person manages irrigation control. In some cases, however, such as city parks and recreation departments using central control, the various individuals tasked with maintaining certain parks or sports fields may all use the same system for a variety of reasons. Certain multi-site central control systems are far better suited to meet the challenges of multiple users, so it's important to find out how the system will be managed before selecting a central control solution. This type of system management may require the need for a system with integrated security features to prevent unauthorized users from accessing the system. For example, Rain Bird's IQ v2.0 optional Advanced Programming Feature Pack can prevent unauthorized individuals from making programming changes by requiring users to first enter a Personal Identification Code (PIN).

7. What communication options are available at the project site(s)?

When implementing central control, there are two types of communication involved. Primary communication is the type of communication used between the computer and the irrigation site(s); secondary communication is the method used for the satellites on the site(s) to communicate with each other. Potential communication solutions include telephone, cellular, Ethernet, Wi-Fi, radio, direct cable connection and fiber optic communication. The characteristics of the site or sites determine which communication method(s) are the most reliable and cost-effective.

_____ 8. Do you need the ability to monitor the system's water flow?

At one time, flow monitoring was an expensive add-on option to most central control systems; now, it's far more common. Flow monitoring is necessary to generate the water usage reports that businesses, cities and school districts often require.

Flow sensors record the actual flow of every valve in the system for reporting purposes. Because a valve's actual flow is the best indicator of any potential problems at the site, the system can automatically compare the typical flow rate to the actual flow rate to see if problems exist. For example, if

vandals kick off the sprinkler heads at a site, the flow sensors will show a much higher flow than normal. Or, if a sprinkler head has gotten clogged with grass or mud, the flow will appear abnormally low. Many control options now offer flow monitoring. Some, such as Rain Bird's Maxicom² and IQ v2.0, even automatically react to high-flow situations by shutting off one valve or the entire system based on pre-determined parameters. In a low-flow situation, the central control can even be programmed to purge filters automatically.



_____ 9. What reports will you need to generate?

It's crucial to determine a customer's reporting needs and make certain that the chosen central control system can meet them. Some projects require reporting that extends beyond flow monitoring. Sites irrigating with non-potable water are often required to report usage amounts to federal and state environmental agencies. Clients located in regions supplied with water from an aquifer may also be asked to document their usage so that local water agencies are aware of the demand being placed on the water supply. These reports are especially significant when the aquifer level is dropping, or the area is experiencing a drought. Systems like Maxicom² incorporate software that can easily provide water usage, station run time and water cost logs for multiple sites. This type of functionality is optional for IQ v2.0, and SiteControl is able to create these reports for one large contiguous site. Other systems may not offer this type of reporting.

Choosing the right control solution can initially appear to be a somewhat daunting task. However, after answering these nine basic questions, you should be able to narrow down your choices significantly and simplify the decision-making process. For more information about irrigation control, call **1-800-RAIN BIRD**, visit www.rainbird.com or contact your local Rain Bird distributor.

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