Decoders: The Future in Irrigation Control

ANDREW GAYDON, VANDEN BUSSCHE IRRIGATION & EQUIPMENT LTD.

Standard practice in Europe for years, decoder systems use a single pair of wires to operate a large number of stations with individual decoders connected along a two-wire path.

There is a new system of irrigation control available for commercial and municipal properties across North America. Decoders, technology long since proven in Europe and in the golf industry, are quickly gaining popularity on large turf sites.

Perhaps their most prominent feature is what you don't see. Because they are buried underground in valve boxes beside the solenoid valves, decoders are truly "out of sight, out of mind," making them a great weapon in the battle against vandalism.

What's a Decoder?

Decoders have been the standard irrigation control technology in Europe for years. Decoder systems use a single pair of wires to operate a large number of stations with individual decoders connected along a two-wire path. Each decoder is its own small control unit that is separately addressable with both power and signal sent over the same pair of wires.

Decoder systems offer many benefits to both the installer and system operator. First, less copper wire and associated labour reduces cost and simplifies troubleshooting. In addition, stations can be added easily in the field after initial installation without digging in new wires and fewer controllers are required to operate large numbers of stations over long distances. Also, decoders are electrically efficient, allowing more stations to run at once. Best of all, decoder systems are easy to operate. Either a computer or a simple programmable keypad is used.

Where Decoder Systems Work Best

Systems with 24 valves and larger are usually the best candidates for decoder applications. Phased projects where it would be difficult and expensive to run wires back to a controller, or where the final number of zones is undetermined, are ideal for this system as well.

Potential uses for decoder systems would be at such sites as industrial parks, sports fields, cemeteries, multi-family home projects, commercial projects and large estates.

Surge protection is vital to the reliable operation of all decoder systems. With the installation and use of grounded in-line surge protectors, decoders are readily equipped to handle sites where lightning strikes or electrical spikes are a big concern.

How Do They Work?

Decoders can make a large system more affordable and efficient to install since these small control units receive both power and signals over the same pair of wires (solid copper wires wrapped in a polyethylene jacket). The wires are designed for direct burial and when

possible, are run under pipe for maximum protection.

Controllers, available in stainless steel or plastic key-lockable pedestal versions, permit control of up to 100 stations (plus a pump/master valve) from a single controller. From the controller, a single twisted pair of wire is run through the area to be irrigated. A decoder is spliced into the two-wire path. Decoders, in turn, are connected to their solenoids and additional decoders are spliced in as needed.

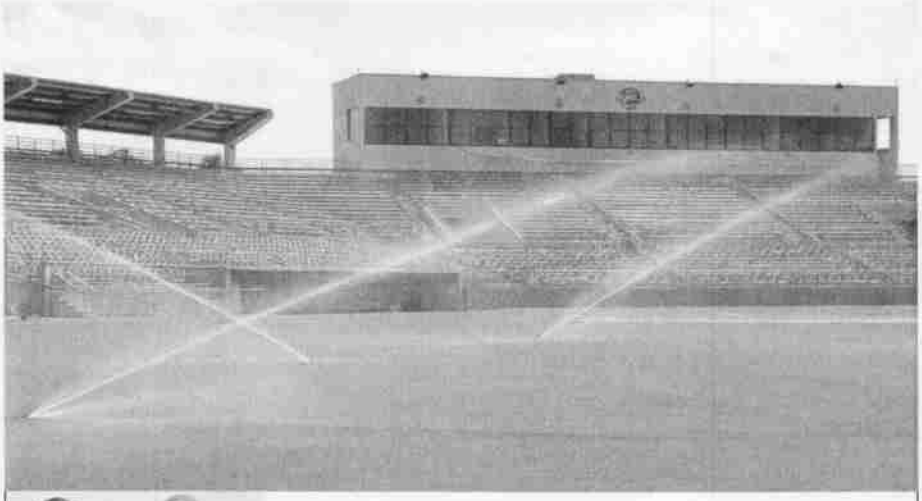
When the controller turns on a station, it sends power down the twisted wires along with a digital signal specific to a particular decoder. As the decoder hears its own signal, it applies voltage to the solenoid and communication from controller to the field is complete.

Of course there is the obvious benefit of being able to control and adjust irrigation in the field from a single location. Also, up to 65 programs can be stored in the controller's non-volatile memory allowing the system to water massive irrigation schedules.

With such a high capacity controller, your complete system will require fewer controllers to operate all of your sprinklers without giving up local access (in view of your plants) that field controllers provide. Plus, the two-wire decoder path also makes retrofitting new stations after the initial installation a snap – just snip the wires and splice in another decoder.

As a decoder is actually a simple switching device, there are many functions that it can perform for the benefit of the operator. For example, rain sensors and/or moisture sensors as well as flow sensors can be installed. The latter are particularly useful in shutting down the system if there is a water restriction or a pipe break.

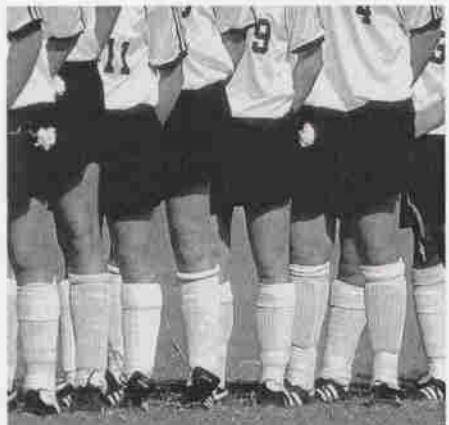
Finally, decoders can operate gates, lights and any other security applications on the park site. ♦



Projects that can benefit from a decoder irrigation system include:

School and Industrial Campuses
Parks and Cemeteries
Town Centres, Urban Plazas and Shopping Malls
Businesses with Branch Locations
Apartment Buildings and Condominiums
Large Residential Estates and Homeowner Associations
Sports Field Complexes

In addition to the standard four independent programs, two other distinctive programming options are available. One is blocks, from where 2-8 stations can all be turned on at once and irrigated together. The other is presets, custom programs created to perform special applications only run when instructed from the keypad.



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