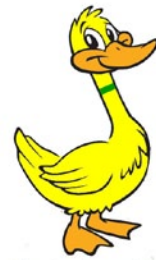


# Installing Irrigander<sup>®</sup> 2-Wire Technology Systems

## Application Note

### Application Note Overview

This application note describes how to install **Irrigander Pro** irrigation expanders utilizing our proprietary **Irrigander 2-wire Technology**.



**The Irrigander™**

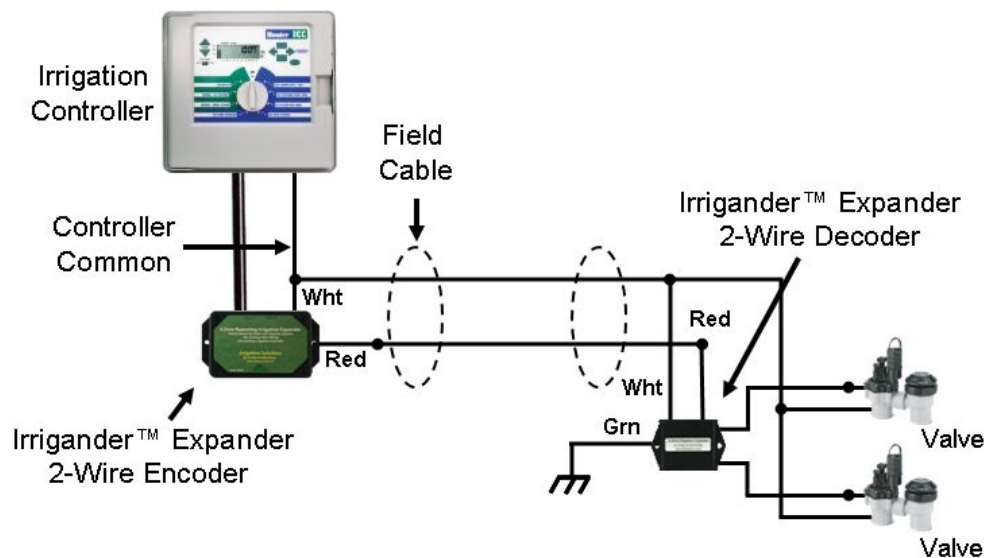
### Irrigander 2-Wire Technology

“Two-wire” irrigation control is a low-voltage irrigation control system that utilizes a two-conductor wire to power all of the valves in an irrigation system. The two-conductor wire provides power and control signals to decoders connected to the valves to be controlled. For large systems such as golf courses and commercial irrigation sites, “two-wire” irrigation systems are more economical to install than the typical multi-wire system. “Two-wire” systems are also easy to expand since additional decoders and valves are simply connected to the already installed field wires.

Until now “two-wire” systems have been too expensive for use in residential or other small installations. The **Irrigander 2-wire Technology** is specifically designed for cost conscious medium size systems. **Irrigander Pro** expanders using **Irrigander 2-wire Technology** can easily expand existing systems or reduce the cost of new installations. **Irrigander Pro** expanders using **Irrigander 2-wire Technology** will work with virtually any irrigation controller using 24 VAC valves and a common ground connection. Decoders can be located up to 2000 feet from the Encoder and valves can be located up to 100 feet from a Decoder. Unlike other “two-wire” systems, the **Irrigander 2-wire Technology** removes power from the field wires when the system is inactive.

### Irrigander 2-Wire Technology Systems

**Irrigander Pro** irrigation expanders using **Irrigander 2-wire Technology** are comprised of two modules: an Encoder that is installed close to or inside the sprinkler controller; one or more Decoders that are installed close to the valves to be controlled. The Encoder and Decoder are connected by one dedicated field wire and the shared system common (see Figure 1):



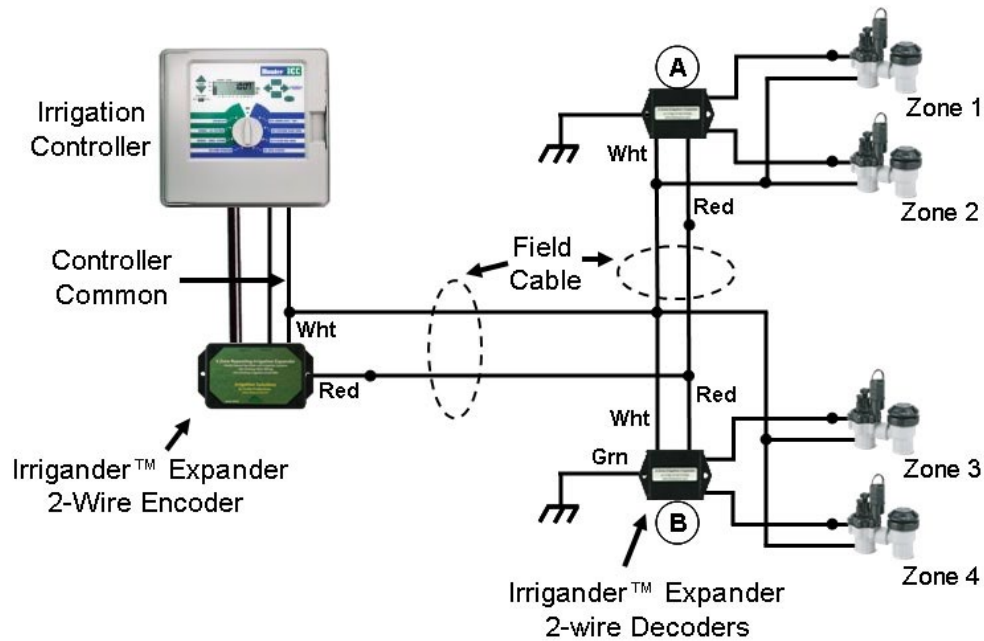
**Figure 1 - Irrigander 2-wire Technology Expander Typical Installation**

# Installing Irrigander<sup>®</sup> 2-Wire Technology Systems

## Application Note

### Irrigander 2-Wire System Installation Options

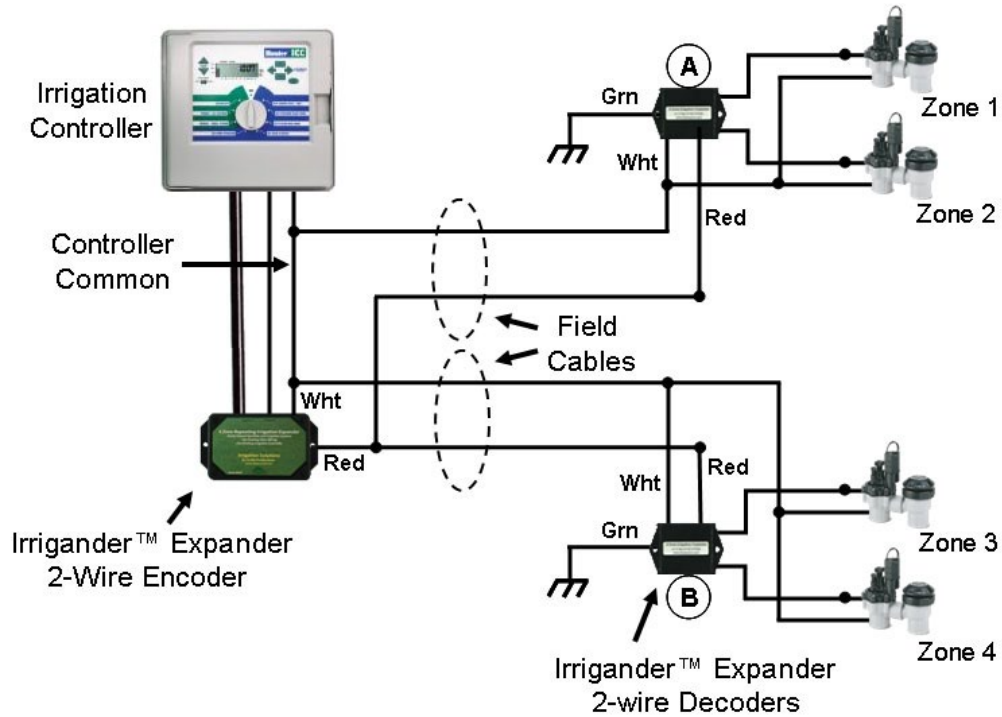
**Irrigander Pro** irrigation expanders incorporating **Irrigander 2-wire Technology** that drive multiple decoders can be installed in a variety of different ways depending on the layout of the system and the desired expansion. The Decoders can be installed on a single field wire at multiple locations by “Daisy Chaining” the field wire from one Decoder location to the next. In this installation method the start of the field wire at the irrigation controller will be connected to the output on the Encoder and each Decoder will be connected to the next Decoder in the field (see Figure 2):



**Figure 2 – Irrigander Pro Expander Daisy Chain Installation**

## Installing Irrigander® 2-Wire Technology Systems Application Note

Separate field wires can also be used to connect each Decoder location to the Encoder in a “Home Run” configuration. In this installation method all of the field wires running to the Decoder locations will be connected together and to the output of the Encoder (see Figure 3):



**Figure 3 – Irrigander Pro Expander Home Run Installation**

Any combination of “Daisy Chain” and “Home Run” will also work. Note that each field wire should terminate in a connection to a Decoder in order to maximize the protection from lightning and other electrical surges.

## Installing Irrigander® 2-Wire Technology Systems Application Note

### Installing Multiple 2-Wire Technology Irrigation Expanders

Larger systems can be very easily expanded using multiple **Irrigander Pro** irrigation expanders. Table 1 lists potential expansion scenarios using multiple **Irrigander Pro** expanders:

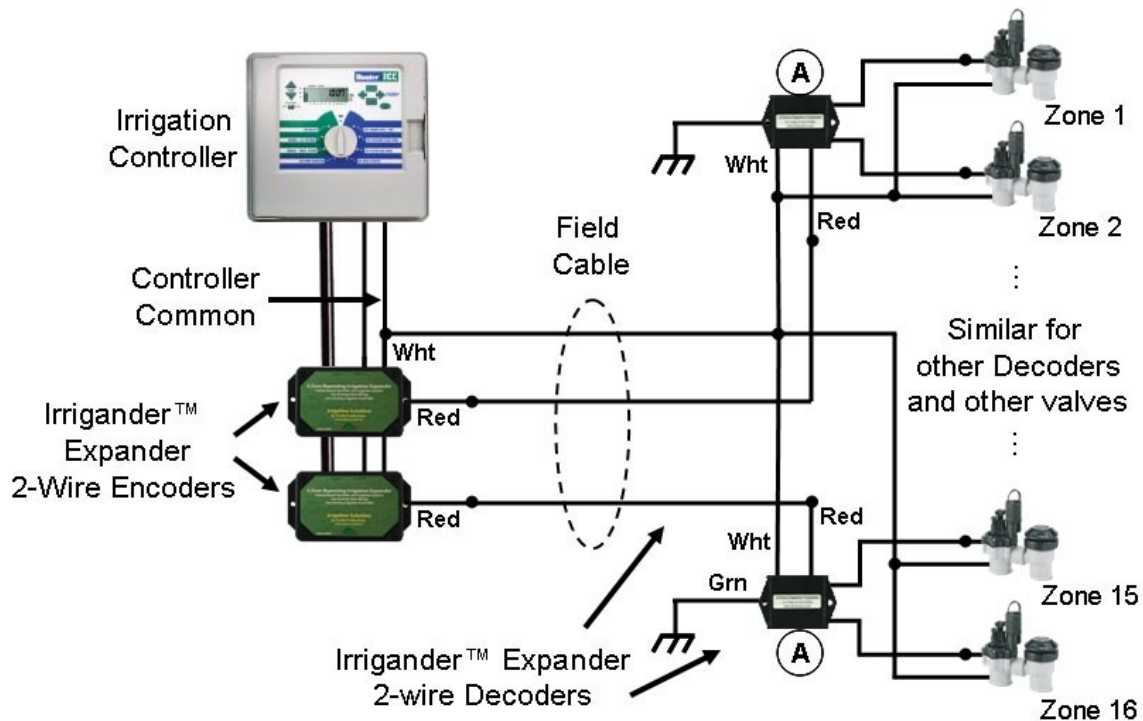
Wires to Valves <sup>1</sup>	2	3	4
# Valves w/out Expander	1	2	3
# Valves w/ <b>Irrigander Pro</b> expander	8	16 <sup>2</sup>	24 <sup>3</sup>

**Table 1 – Irrigander Pro Expander Expansion Capability**

Notes:

- <sup>1</sup> One wire is the system common
- <sup>2</sup> Using 2 **Irrigander Pro** expanders
- <sup>3</sup> Using 3 **Irrigander Pro** expanders

Figure 4 shows an installation using 2 **Irrigander Pro** expanders:

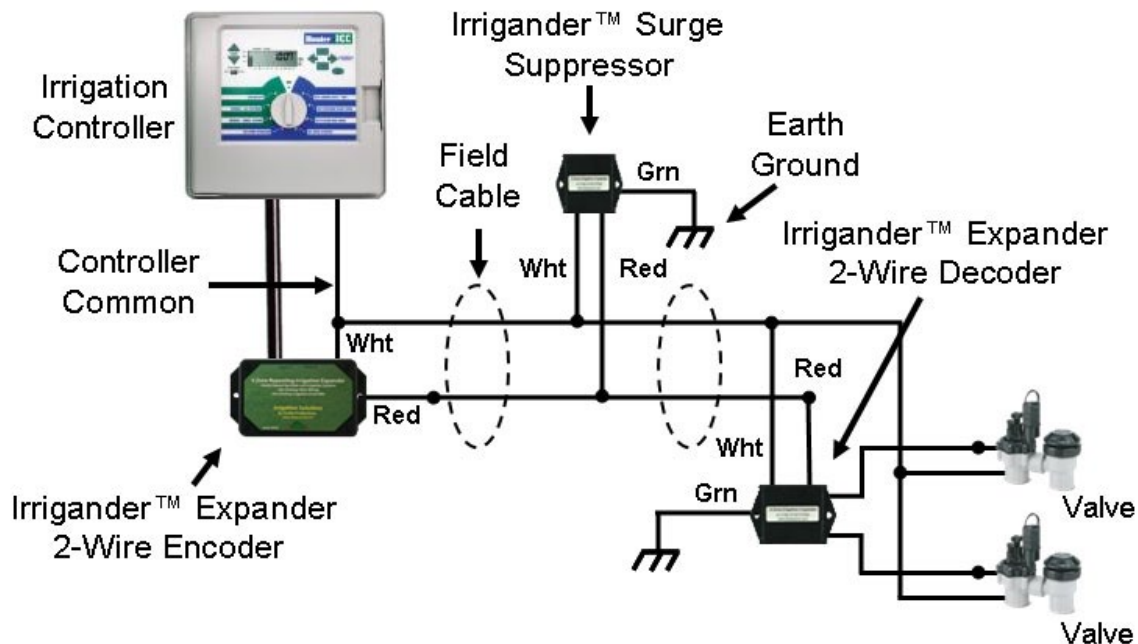


**Figure 4 – Installation of Multiple Irrigander Pro Expanders**

## Installing Irrigander<sup>®</sup> 2-Wire Technology Systems Application Note

### Irrigander 2-Wire Technology Surge Suppression

The Decoder and the Encoder in **Irrigander Pro** expanders incorporating **Irrigander 2-wire Technology** use metal oxide varistor (MOV) surge suppression technology to minimize the potential damage from lightning and other electrical surges. **Irrigander Surge Suppressors** can be installed along the 2-wire path to further minimize potential damage from lightning (see Figure 5):



**Figure 5 – Irrigander 2-wire Technology Surge Suppressor Installation**

More information on installing **Irrigander Pro** irrigation expanders to optimize protection from lightning is available in the application note “*Protecting Irrigander 2-wire Systems from Lightning*” available on the Support page of our website [www.irrigander.com](http://www.irrigander.com).

### Summary

**Irrigander Pro** irrigation expanders using our proprietary **Irrigander 2-wire Technology** enable professional irrigation installers and homeowners to easily control new irrigation and sprinkler valves without having to dig trenches or pull new cable. Visit [www.irrigander.com](http://www.irrigander.com) for information on **Irrigander Pro** irrigation expanders incorporating **Irrigander 2-wire Technology**. Send any questions on the **Irrigander 2-wire Technology** or any of our products to [support@irrigander.com](mailto:support@irrigander.com).

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