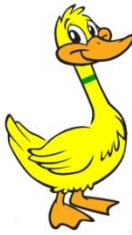


Irrigander® 4 V3
4 Zone Irrigation Expander

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Installation & User Guide
Model 4ZEX V3.0



<p style="text-align: center;">Irrigander[®] 4 V3 4 Zone Irrigation Expander</p>

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Introduction

Congratulations on your purchase of the **Irrigander 4 V3** irrigation expander! The third generation **Irrigander 4** expander incorporates a simplified version of our proprietary **Irrigander 2-Wire Technology** to control up to 4 irrigation valves using just one dedicated field wire and the system common connection.

The **Irrigander 4 V3** expander operates transparently to the irrigation controller. Each of the valves controlled by the **Irrigander 4 V3** expander can be individually controlled for easy system maintenance and irrigation controller programming. The **Irrigander 4 V3** expander can also control a master valve for systems that require one.

The **Irrigander 4 V3** expander can be used to add valves to an existing system that does not have enough wires in the irrigation cable to control the new valves, eliminating the cost and time to trench and pull new cable. The **Irrigander 4 V3** expander can also be used to bypass broken wires in irrigation cables, eliminating the time and expense of finding and fixing the fault.

The **Irrigander 4 V3** expander is built to industrial standards and will provide years of reliable service in harsh environments.

Please read the following information and installation instructions carefully before starting the installation.

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Overview

The **Irrigander 4 V3** expander is comprised of two modules: a transmitter that is installed close to or inside the irrigation controller; a receiver that is installed close to the irrigation valves to be controlled. The transmitter attaches to the irrigation controller using 6 wires: 4 inputs for the zones to be controlled; the system common; and 24 VAC. The transmitter is attached to the receiver using one dedicated field wire plus the system common wire. These wires are typically the existing field wires in the irrigation system to be expanded. The receiver has 4 outputs that are attached to each of the up to 4 valves to be controlled. See Figure 1 for a typical installation.

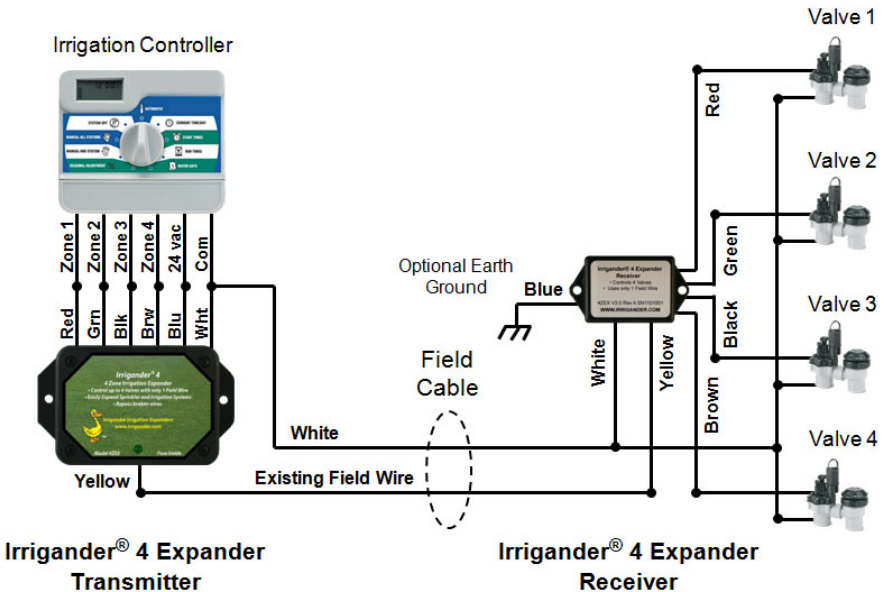


Figure 1 – Typical Installation

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Installation Instructions

Installing the Transmitter

1. Mount the transmitter (the larger module) next to the controller in a location protected from the weather. Locate the transmitter so that it can be easily accessed if it becomes necessary to replace the transmitter's fuse.
2. Connect the Zone Inputs on the transmitter to unused outputs on the irrigation controller.

Transmitter Cable Color Coding

Wire Color	Use
RED	Zone 1 input
GREEN	Zone 2 input
BLACK	Zone 3 input
BROWN	Zone 4 input

Table 1

3. Connect the transmitter common (**WHITE** wire) to any of the common points on the irrigation controller.
4. Remove power from the irrigation controller. Attach the transmitter 24 VAC input (**BLUE** wire) to one side of the 24 VAC transformer in the irrigation controller. Restore power to the controller. The LED on the front of the transmitter should light momentarily. If the LED does not light, remove power and connect the transmitter **BLUE** wire to the other side of the 24 VAC transformer in the controller and restore power.
5. Connect the transmitter output (**YELLOW** wire) to a field wire running to the valves. This field wire must not be connected to an irrigation controller output.

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Installing the Receiver

1. Install the receiver close to the valves to be controlled. The receiver is waterproof but should be installed where it will not be operating under water.
2. Connect each of the 4 receiver outputs to one wire on each of the valves to be controlled using waterproof wire connectors (we recommend using DryConn[®] Waterproof Connectors). See Table 2 for the color coding of the receiver outputs:

Receiver Output Color Coding

Wire Color	Use
RED	Zone 1 output
GREEN	Zone 2 output
BLACK	Zone 3 output
BROWN	Zone 4 output

Table 2

3. Connect the receiver common (**WHITE** wire) and one side of all the valves to be controlled by the receiver to a system common connection (typically the white field wire) using waterproof wire nuts or splices. See Figure 1 for details on the common connections of the receiver and valves.
4. Connect the receiver input (**YELLOW** wire) to the field wire connected to the transmitter. This should be the same field wire used in step 5 of “*Installing the Transmitter.*”

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Controlling a Master Valve

Zone 4 on the **Irrigander 4 V3** expander can be used to control a master valve. If the expander will be used to control a master valve follow the steps below:

1. Connect the transmitter Zone 4 input (**BROWN** wire) to the irrigation controller master valve output.
2. Connect the receiver Zone 4 output (**BROWN** wire) to the master valve.

Installation is now complete! Test each zone by manually cycling the irrigation controller according to the instructions for your controller.

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Surge Protection

Like any other field installed electronic device, surge protection is vital to the reliable operation of the **Irrigander 4 V3** expander. The transmitter and the receiver incorporate sophisticated surge suppression technology to minimize the potential damage from lightning. Installing a good Earth Ground connection is **optional** but following the steps below will improve the system's resistance to lightning damage:

1. Make sure the irrigation controller is properly grounded. See the irrigation controller's installation manual for instructions applicable to your controller. Irrigation controllers installed outside must be grounded per the requirements of the National Electrical Code and local ordinances.
2. For cable lengths greater than 600 feet between the **Irrigander 4 V3** expander's transmitter and receiver install an **Irrigander Surge Suppressor** (sold separately) every 300 - 400 feet.
3. If a metal pipe is available at the receiver location, connect the receiver's Earth Ground (receiver **BLUE** wire) to the metal pipe using a suitable grounding clamp. Do not put more than one wire under the clamp.
4. If a suitable ground is not present at the receiver location, install an 8' copper clad ground rod (not included) close to the receiver. Connect the receiver Earth Ground (receiver **BLUE** wire) to the ground rod using a copper clamp. Do not put more than one wire under the clamp.

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Operation Guide

Overview

All functions of the irrigation controller will operate normally with the **Irrigander 4 V3** expander added to the system.

Note: only one zone attached to an **Irrigander 4 V3** expander input can operate at a time. This is the default operation for most irrigation controllers. If the irrigation controller activates more than one of the expander's inputs at a time, only the lower numbered zone will be operated. If configured to control a master valve Zone 4 on the expander will operate simultaneously with Zones 1, 2 or 3.

Idle

While the **Irrigander 4 V3** expander is waiting for input from the irrigation controller the LED on the front of the transmitter will blink briefly once every 10 seconds. This indicates that the transmitter is functioning correctly and that a timing cycle has not yet started.

Operation

When the irrigation controller activates any of the zone inputs on the **Irrigander 4 V3** expander the LED on the transmitter will light and the corresponding zone will run.

Note: the transmitter will output 24 VAC whenever an input zone is active but will turn off the output 10 seconds after the inputs go inactive.

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Replacing the Transmitter Fuse

The transmitter is equipped with a fuse to protect the transmitter and receiver from overload. To replace the fuse:

1. Remove power from the irrigation controller
2. Remove the 4 screws on the front cover of the transmitter and remove the cover. Be careful not to bend the LED as you remove the cover.
3. Remove the old fuse and replace with a fuse of identical size and rating (1 amp, 5mm x 20mm). See Figure 2 below for the fuse location.
4. Replace the cover on the front of the transmitter. Be careful to align the LED with the hole in the cover.
5. Restore power to the irrigation controller

The fuse is a standard size and is commonly available but if you have difficulty locating a source for a replacement fuse, email us at support@irrigander.com.

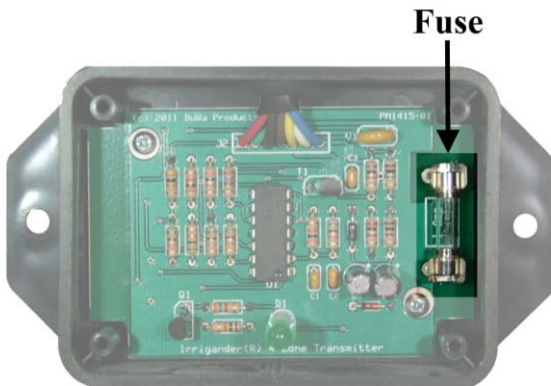


Figure 2 – Fuse Location

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Troubleshooting Guide

Problem	Cause	Solution
The Irrigation Controller will not turn on any valves connected to the expander, other zones work OK	Short circuit or overload has opened the protection fuse in the transmitter	Diagnose the short circuit or overload and correct. Replace fuse according to directions above.
	The connection between the transmitter and receiver is faulty	Check the connections
The master valve is not turning on when other zones are active on the expander	Master valve output is not connected to Zone 4 on the expander	Make sure the master valve is connected to Zone 4 on the expander. Only Zone 4 can control a master valve.
The valves on the receiver operate erratically	Poor field connection	Make sure all field wire connections between the transmitter and receiver are high quality and waterproof.
LED on front of transmitter does not blink when Idle	Short circuit or overload has opened the protection fuse in the transmitter.	Diagnose the short circuit or overload and correct. Replace fuse according to directions in “ <i>Replacing Transmitter Fuse</i> ”
	Transmitter does not have 24 VAC input	Double check wiring of 24 VAC. Move 24 VAC input to other side of the 24 VAC transformer in the irrigation controller

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Specifications

Expansion Capability

Each **Irrigander 4 V3** expander can control up to 4 zones. See Table 3 for expansion capability depending on the number of field wires available:

Number of Valves	Wires to Valves ¹		
	2	3	4
Without an Expander	1	2	3
Using the Irrigander 4 V3	4	8 ²	12 ³

Table 3 – Expansion Capability

Notes:

- ¹ One wire is the system common
- ² Using 2 **Irrigander 4 V3** expanders
- ³ Using 3 **Irrigander 4 V3** expanders

Physical Dimensions

	Width	Depth	Height
Transmitter	4.4"	2.4"	1.0"
Receiver	3.0"	2.0"	1.0"

Power Requirements

- 24 -30 VAC provided by the irrigation controller
- Power consumption: 1.0 watt max

Supported Irrigation Controllers

Virtually any irrigation controller that uses 24 VAC valves is compatible with the **Irrigander 4 V3** expander.

Supported Irrigation Valves

Virtually any 24 VAC irrigation valve is compatible with the **Irrigander 4 V3** expander. Low voltage DC valves will not work and should not be used.

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Operating Range

The **Irrigander 4 V3** expander receiver can be located up to 1000 feet from the transmitter using 18 gauge field wiring. The valves to be controlled can be up to 100 feet from the receiver using 18 gauge wiring.

Valves per Zone

The receiver can drive a maximum of 2 valves per output (1 valve per output if using a master valve).

Simultaneous Active Zones

The **Irrigander 4 V3** expander can only have one of Zones 1, 2, or 3 active at a time. When configured to control a master valve Zone 4 can operate simultaneously with Zones 1, 2, or 3.

Transmitter Environmental

Operating: 0°C to +50°C (32°F to +122°F)

Non-Operating: -40°C to +70°C (-40°F to +158°F)

The transmitter is not waterproof; enclose the transmitter unit in a suitable weather proof enclosure if installed outdoors.

Receiver Environmental

Operating: -20°C to +50°C (-4°F to +122°F)

Non-Operating: -40°C to +70°C (-40°F to +158°F)

The receiver is designed for harsh environments and is suitable for most outdoor conditions including wet environments. However the receiver should not be placed where it will be operated under water.

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Limited Warranty

DUWA PRODUCTS LLC, hereinafter referred to as the manufacturer, warrants the **Irrigander 4 V3 Expander** to be free from defects in workmanship and materials for 1 (one) year from the date of sale. In order for this warranty to apply the **Irrigander 4 V3 Expander** must be installed and used according to the installation instructions herein and cannot be altered in any way. This warranty covers damage from electrical surge (including lightning) providing that the **Irrigander 4 V3 Expander** is installed with a suitable earth ground as described herein. The use of the **Irrigander 4 V3 Expander** for any purpose for which it was not intended voids this warranty. Purchaser's rights under this warranty shall consist solely of requiring manufacturer to repair, or in manufacturer's sole discretion replace, free of charge, F.O.B. factory, any defective items received at said factory within 1 (one) year and determined by manufacturer to be defective. To exercise your warranty, return the unit to your dealer with a copy of the sales receipt.

This warranty is in lieu of all other warranties, expressed, implied, or statutory as to merchantability, fitness for purpose sold, description, quality, or any other matter and limits the manufacturer's liability for damages to the cost of the product. In no event shall manufacturer be liable for special or consequential damages or for delay in performance of this warranty. This warranty gives the purchaser specific legal rights, and the purchaser may have other rights, which vary from state to state.

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