Emriver Dye Injector User Manual

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Introduction

The 12 V powered dye injection system consists of two 1-liter reservoirs feeding into solenoid valves. Dye pulses may be injected into the stream using two push buttons on the controller. Dye pulses may also be automated.

Dye pulses allow for better visualizations of water movement in a stream system. The dye allows observation of how streambed characteristics affect stream flow. For example, concentrations of dye in the channel indicate location of the thalweg. When the dye pulses, the user can observe how the thalweg changes over time.

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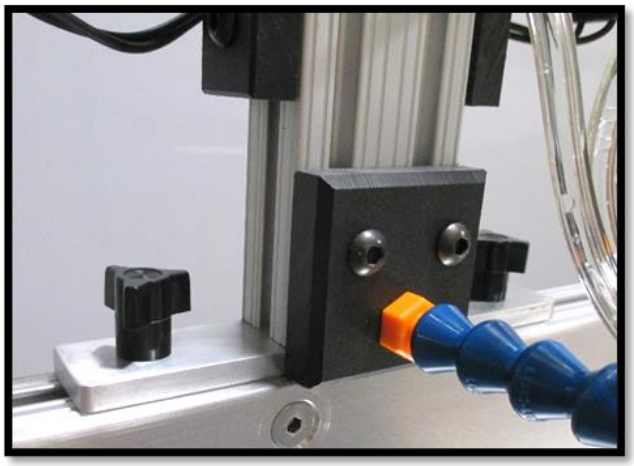
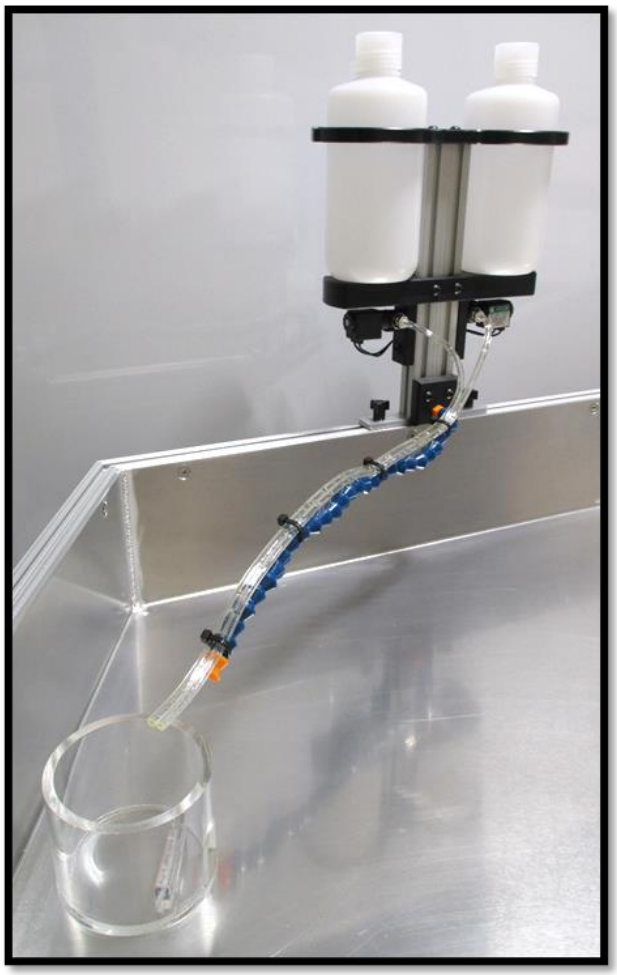
Mount the dye injector assembly to the rail of the model near the upstream outlet, so that colored dye can be added to the water as it enters the model.

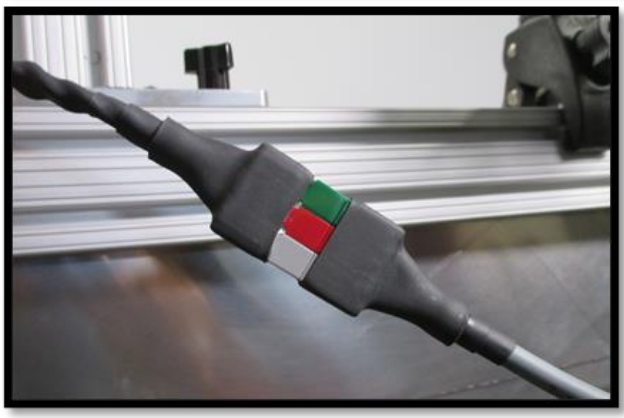
This can be done using (2) drop-in t-slot fasteners and (2) included thumb screws.



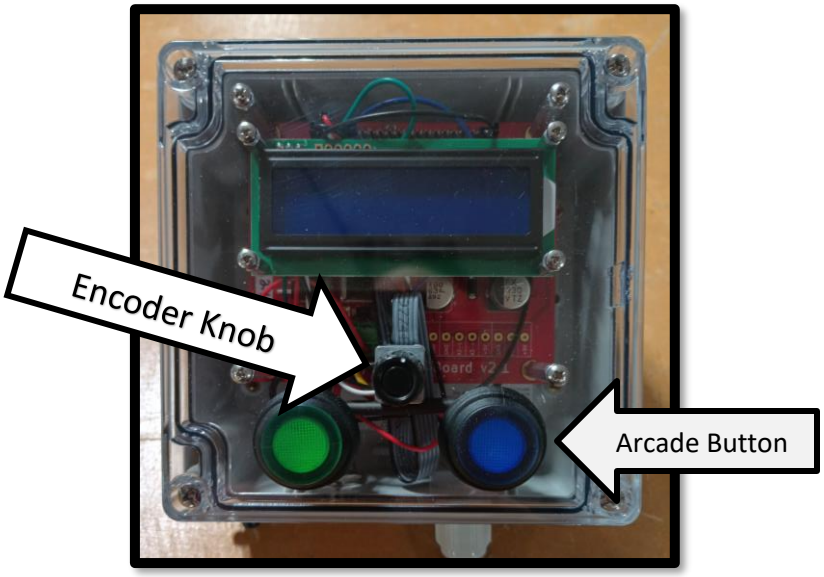


Mount the controller to the model using the adjustable claw mount.

The power supply can be mounted on the model or support using the included mushroom tape. Plug in the dye injector controller to the power supply by connecting the matching red and black contacts. Plug the dye injector controller to the dye injector assembly by matching the colored contacts.



Add water to both dye bottles. Press the green arcade button and watch which bottle water is injected from, and add the green concentrated dye to this bottle. The concentrated dye should be diluted heavily; overconcentration can cause clogs in the solenoid valve. The desired ratio is **1:20**. If the bottle is nearly full (900ml), add 45ml (3 tablespoons/1.5oz) dye. Add concentrated blue dye to the other bottle. Do not tighten bottle caps completely, air needs to be able to enter in and out of the bottle for proper injections.



Dye Injector Operations

The colored arcade buttons can be used at any time during operation to inject that color dye.

The encoder knob and button are used to navigate through the menu to set up an automated dye injection.

Options are **Blue Dye**, **Green Dye**, or **Alternating Dye modes**. Scroll to the desired mode by turning the knob. The selection is indicated by a cursor to the left of the text. Press the knob to select the option.

Set the time between each pulse by turning the knob at the '**Dye Injection Interval X seconds'** screen. Press the button after the interval has been set. **NOTE:** The interval is the time between the beginning of one pulse to the beginning of the next. For example, if the interval is 30 seconds and the pulse length is 5 seconds, the dye will flow for 5 seconds, stop for 25 seconds, and repeat.

Set the duration of the dye injection by turning the knob at the '**Dye Pulse Length X seconds'** screen. Press the button after the duration has been set. **NOTE**: The length of the dye pulse cannot exceed the interval between pulses. If these are set as equal there will be a constant flow.

Press the encoder button during an automated sequence to stop the routine.

Cleaning and Maintenance

When the instrument is not going to be used for more than a few days, empty the dye containers and run water through the system to prevent clogs.

1. Crimp the soft tubing using the attached clips, remove the tubing from the solenoids, and remove each bottle for easy emptying and filling.
2. Empty out the dye and fill with warm water. Reinstall the bottle, attach the tubing and open the crimping clamp.
3. Inject warm water through each solenoid until the color comes out clear. To get a steady flow, you can manually press and hold an arcade button or set equivalent numbers for the Injection Interval and the Pulse Length.

If the instrument becomes clogged, empty out the dye, fill the dye bottles with hot water and try to run the instrument.

If the clog persists, set equivalent numbers for the Injection Interval and the Pulse Length to open the solenoid valve, then completely tighten the cap and squeeze the bottle to force hot water through the open solenoid.

The process may need to be done a few times to fully clear a clog.

If you have questions with setup or operations, please visit our website, emriver.com, or call 618-529-7423.