Little River Research & Design

514 East Main Street
Carbondale, IL 62901
618-529-7423 fax 618-529-0927
info@emriver.com www.emriver.com

Emriver Em2 Retrofit Kit
Instructions for Setup and Use

The following parts are included in the Emriver Em2 Retrofit Kit:

- Pump, with filter and tubing attached
- ¾-inch diameter tubing
- Energy Dissipater Unit
- Flow outlet
- Square outlet mount
- Crayfish Electronic Flow Controller
- Power supply brick and cables
- Ground Fault Circuit Interrupter outlet
- Emriver Battery Adapter

IMPORTANT:

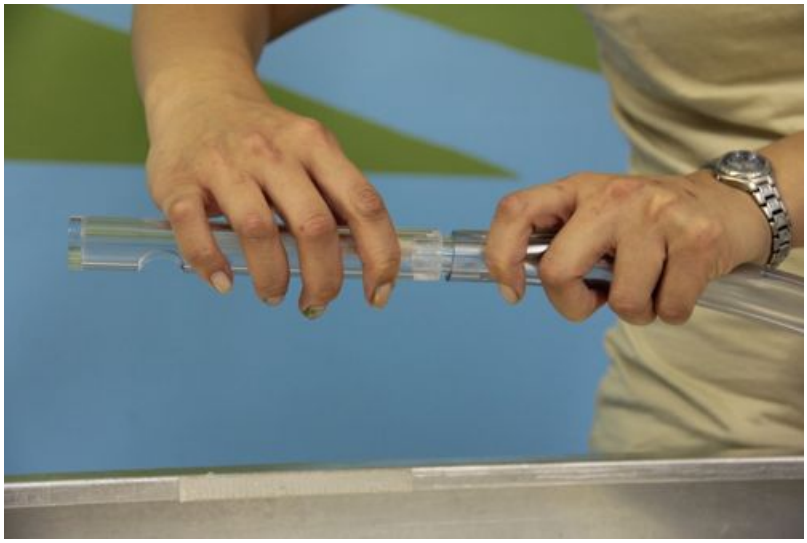
- **Use only the pump and power supply provided with the Emriver Em2 Retrofit Kit. Be certain to connect the power supply to a properly grounded outlet. Always use the Ground Fault Circuit Interrupter (GFCI) provided with the Emriver Em2 Retrofit Kit, and be sure to read the manual included with the GFCI.**

- **When using a 12-volt battery to power the model, always use the Emriver Battery Adapter from Little River Research & Design. Never bypass the fuses.**

- **When powering the model with a 12-volt battery, be sure you understand the dangers associated with charging and using lead-acid batteries, and consider using safer spill-proof batteries.**

Begin by placing the pump inside the reservoir, lying on its side. Tubing will run from the pump in the reservoir to the upstream end of the box, where it will attach to the flow outlet.

Connect the flow outlet and the tubing. Slide the outlet barb into the tubing as shown below.



Connect the flow outlet and tubing.

The flow outlet comes attached to a square mount that must be installed on the upstream end of the box.

Attach the outlet mount to the inside of the upstream end of the box, near the center.

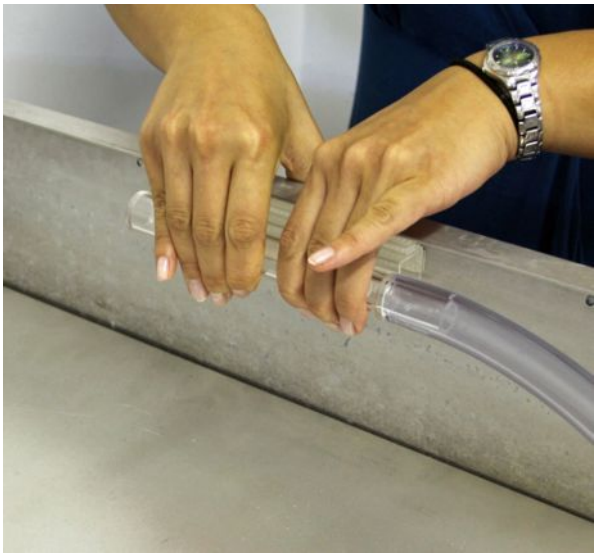
Attach the flow outlet to the upstream end of the box using the mushroom fasteners and the outlet mount.

When using the Retrofit Kit for the first time, you will need to attach two strips of mushroom fasteners to the inside of the box at the upstream end to hold the outlet mount in place. One strip will attach to the underside of the lip of the box, and the other will attach to the inside of the upstream end of the box. Be sure to clean the box surface before installing the mushroom fasteners to ensure the adhesive will bind permanently.

The mushroom fasteners to be installed on the box are packaged attached to the mount. Peel the backing off the adhesive and press the mount into place.

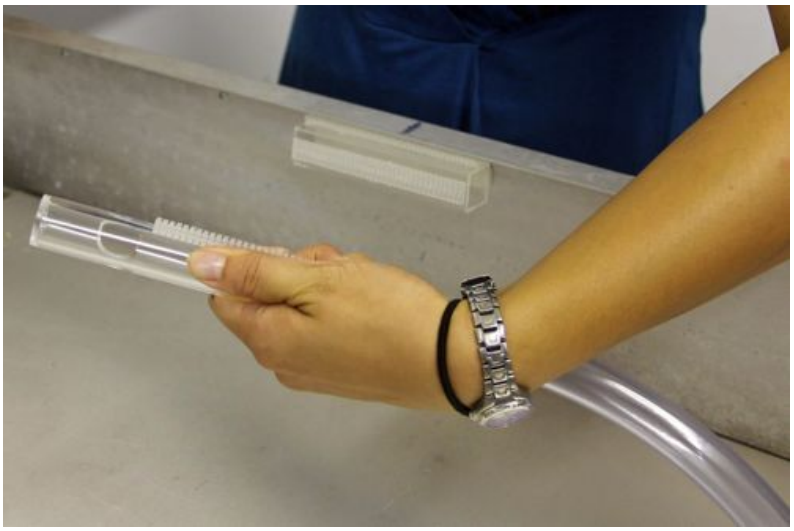
Peel the backing off of the adhesive on the mushroom fasteners.

Attach the outlet mount to the upstream end of the box using the two strips of mushroom fasteners.



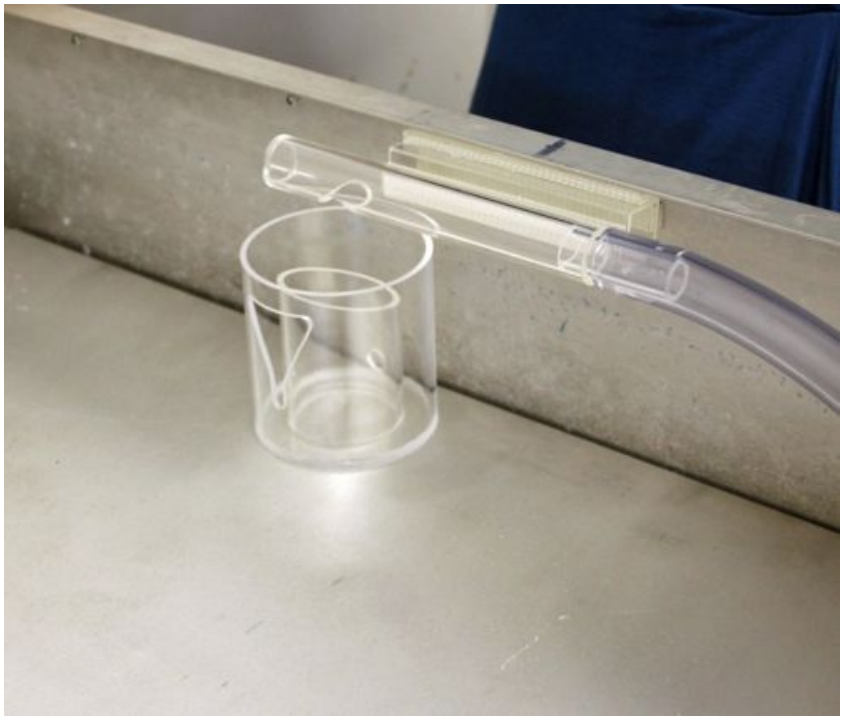
Press firmly to install the outlet mount.

After you install the outlet mount to the box, it should not need to be removed. Remove the outlet from the mount as need be (it attaches to the mount with mushroom fasteners), but leave the mount in place.



If you need to move or store the Em2, remove the outlet from the mount and leave the mount in place on the box.

Place the Energy Dissipater Unit (EDU) beneath the flow outlet at the upstream end of the box. The innermost cylinder of the EDU should sit directly below the mount of the flow outlet, with the EDU's Y-shaped opening facing downstream.

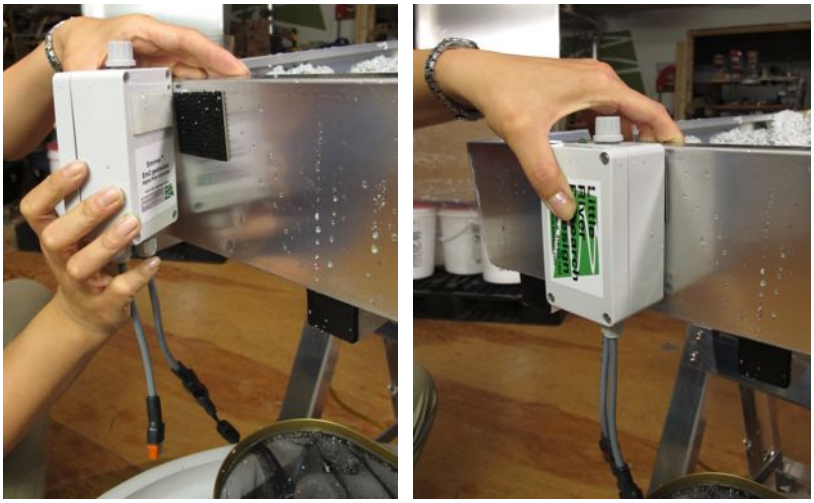


Place the EDU beneath the flow outlet.

Attach the Crayfish Electronic Flow Controller to the downstream end of the box.

When using the Retrofit Kit for the first time, you will need to attach a strip of mushroom fasteners to the outside of the box at the downstream end to hold the controller in place. Be sure to clean the box surface before installing the mushroom fasteners to ensure the adhesive will bind permanently.

Attach the controller to the downstream end of the box using the mushroom fasteners on the backside of the controller.



Attach the Crayfish Electronic Flow Controller to the downstream end of the box.

Attach the brick power supply to the downstream leg of the Emriver support closest to the controller. It is best to install the power supply to the leg of the downstream support that faces upstream (see photo on next page).

Install two strips of adhesive-backed mushroom fasteners to the downstream support leg to hold the brick power supply. Again, be sure the surface is clean so that the adhesive will bond permanently.
Install the mushroom fasteners to the support leg while they are attached to those on the power supply to ensure correct fastener placement.

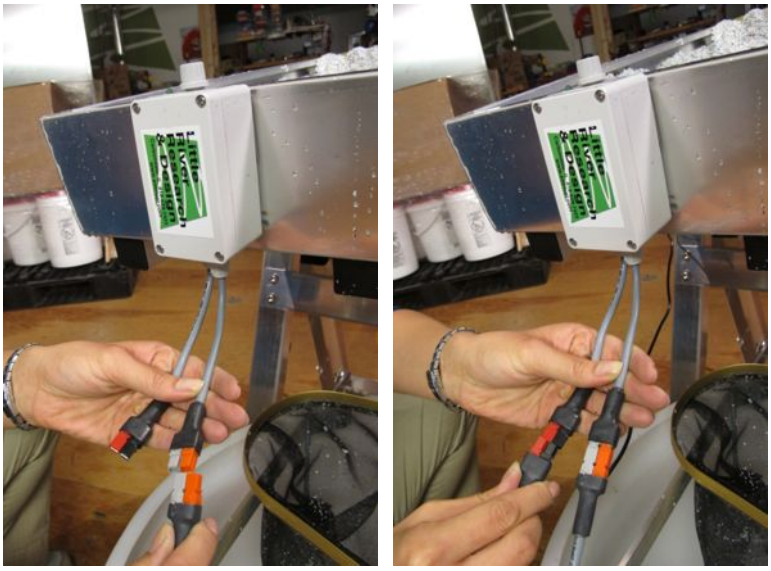
Attach the power supply to the support leg using the mushroom fasteners. Wrap the Velcro® strap around the support leg and the power supply to fasten securely.


Attach the brick power supply to the downstream support using mushroom fasteners. Wrap the Velcro® strap around the support leg and the power supply to fasten securely.

Connect the power cord to the Ground Fault Circuit Interrupter (GFCI). If you are using an extension cord, plug the extension cord into the GFCI. Do not plug the power cord directly into a wall outlet. **Always use the GFCI.**

Always connect the power cord to the GFCI. Never plug the model's power supply directly into a wall outlet

Connect the pump to the flow controller using the orange and gray connectors on the controller and the pump. Connect power to the controller using the red and black connectors on the controller and the power supply.



Emriver system connectors are color-coded.

Change flow rate using the knob on the controller. An indicator light displays when the power is on.

Note: The knob does not turn off the pump completely; it merely stops flow. The pump is on as long as the power is connected. To completely turn off the pump, the power must be disconnected.

Turn the knob on the controller clockwise to increase flow and counterclockwise to decrease flow.