Poolsmith® Organic pH™
Installation Instructions

Please read before installation.

Congratulations on purchasing Organic pH. See below for helpful hints and guides.

1. Don't forget the small flow settings chart that is included in your kit has an adhesive back. Be sure to apply it to the inside of system's control box cover.

2. If you're using a variable speed pump make sure there is at least 4-5 lbs of pressure in the filter or, no lower than 1400 rpm on pump.

3. Winterizing your system.
   - If you don't swim in your pool during the winter months, but your pool is full of water, then switch system of OFF and close the cylinder valves.
   - If you drain your pool during the winter months, then switch system to OFF and close the cylinder valves. You will also want to remove the Poolsmith injector and pressure fitting. Please keep them in a safe place to reinstall later. Make sure to reinstall the original drain plugs.

Before Installation

Important Notice: The InpHuser® injector and the pressure sensor fitting are designed to fit most swimming pool pumps with industry-standard ¼-18 NPSM Straight pipe drain plugs. This includes pumps manufactured by:

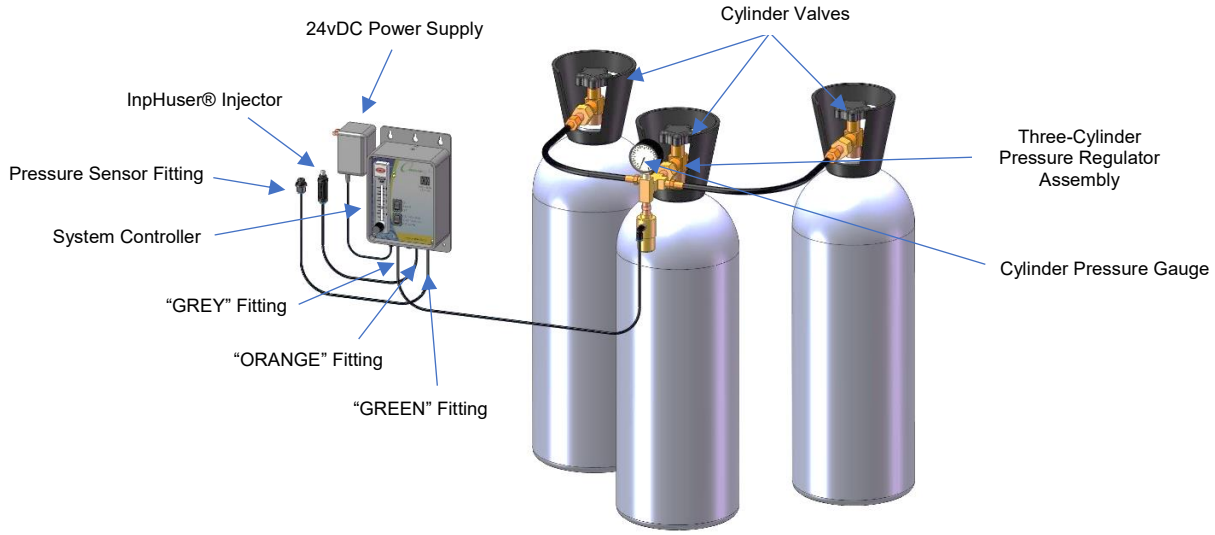
Pentair PacFab Sta-Rite Hayward

System Package Contents

1 - Low-voltage system controller
1 - 24vDC low-voltage power supply AC adapter
2 - Carbon Dioxide InpHusion™ Charts (small and large) and Instructions
1 - InpHuser® injector (black) with spare "O" ring
1 - Pressure-sensor fitting (black)
1 - Pressure regulator assembly with cylinder pressure gauge
1 - Package containing cylinder restraint chain and plastic washers for regulator assembly
1 - Package containing 30' of Poly-urethane tubing
1 - Package containing colored slip-on bands for tubing identification
1 - Bottle leak detector

Tools Required

- Screwdriver
- Drill
- 1 1/8" Adjustable Wrench



Begin Installation

1. Select a site to mount the system Controller within 5' of a **covered**, **weather-protected**, standard house voltage (110vAC), GFCI electrical outlet.
2. Securely mount the Poolsmith low-voltage Controller vertically with appropriate screws (wood, masonry, etc.).
3. Install the InpHuser injector and connect the poly-urethane tubing.

Important Notice: If the pump is located below the surface of the pool, assure that plumbing valves are positioned properly to prevent excess water pressure on pump before removing the drain plugs.

a. Remove the drain plug from the pump strainer housing drain port. **Retain the plug for future use or for winterizing your pump at the end of the swimming season.**
b. Securely install the InpHuser injector with "O" ring seal in the open drain port. Install by hand. Do NOT over-tighten. Do NOT use Teflon tape or caulk.
c. Cut a length of 5/32" poly-urethane tubing sufficient to span the desired route from the InpHuser to the Controller.
d. Insert one end of the tubing into the "BLUE" fitting at the end of the InpHuser injector and route the tubing to the Controller. *(See Illustration.)*

NOTE: *To **connect** the 5/32" poly-urethane tubing into any of the fittings, push the tubing firmly into the fitting then gently tug on the tubing to assure it is properly seated in the fitting.*

*To **disconnect** the tubing from any of the fittings, depress the outer plastic ring and pull firmly on the tubing until it releases.*

e. Slip the Orange colored band onto the other end of the tubing then insert the end of the tubing into the "ORANGE" fitting on the bottom of the Controller. *(See illustration on next page.)*

4. Install the pressure-sensor fitting and connect the poly-urethane tubing.
   a. Remove the drain plug from the pump impeller housing drain port. **Retain the plug for future use or for winterizing your pump at the end of the swimming season.**
   b. Install the pressure-sensor fitting with "O" ring seal in the open drain port. Using a small wrench, tighten the pressure-sensor firmly. Do NOT over-tighten. Do NOT use Teflon tape or caulk.
   c. Cut a length of poly-urethane tubing sufficient to match the route of the tubing from the InpHuser injector to the Controller.
   d. Insert one end of the poly-urethane tubing into the "quick-connect" fitting of the pressure-sensor fitting.
   e. Slip the Green colored band onto the other end of the tubing then insert that end of the tubing into the "GREEN" fitting on the bottom of the Controller.

IMPORTANT NOTE: ***To reduce the risk of damage,*** *do not allow the tubing to contact the ground.* ***Route tubing from the pressure-sensor fitting and the InpHuser injector*** *"upward" to any point above the pump using nylon wire ties to secure the tubing on its route to the Controller.*

5. Secure the carbon dioxide (CO_2) cylinders.

Warning: Using and transporting compressed gases can be dangerous if mishandled. Although carbon dioxide is non-flammable, it is stored at very high pressures. Damage to the top of the cylinder may result in high-pressure gas being released under tremendous energy. To prevent injury or damage caused by accidental toppling, cylinders must be secured to a wall or other stable object.

   a. Place the cylinders on a solid level base and against a wall or other stable object such as a wooden or metal post anchored securely in the ground.
   b. Fasten each end of the cylinder restraint chain to the wall or post with appropriate screws (not included) so the chain drapes around the cylinders above the midline.
   c. Open one link of the chain to create a hook to facilitate easy exchange of the cylinders.

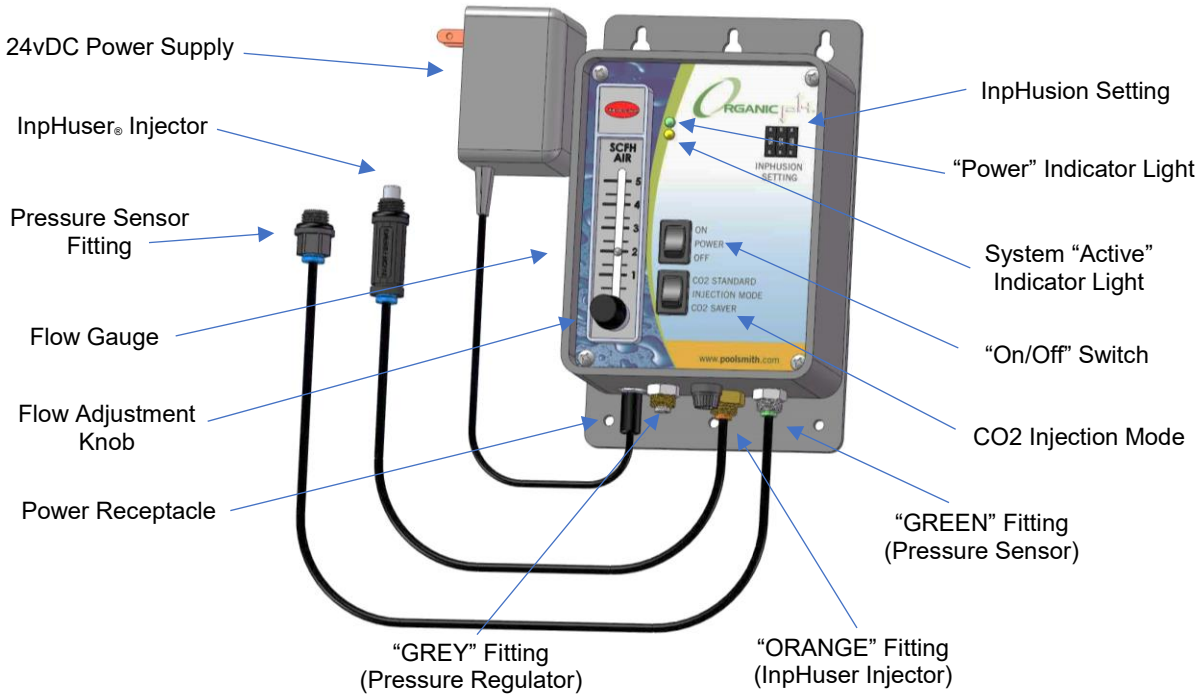
6. Mount the pressure regulator assembly to the cylinders and connect the tubing.
   a. Insert a plastic "washer" (included) between each hexagonal nut fitting (CGA-320) on the regulator assembly and the threaded fitting on the cylinder valves.
   b. While holding the pressure regulator with the gauge upright, firmly attach the nut collar to the cylinder valve with a 1 1/8" adjustable wrench. (DO NOT USE PLIERS.)
   c. Firmly attach the regulator hose fitting to any additional cylinders with a 1 1/8" wrench.

NOTE: *The plastic "washer" is squeezed between the threaded fitting on the cylinder valve and the regulator (CGA320) fitting when the nut collar is tightened thereby creating a leak-proof seal.* ***If the seal is not made properly, CO_2 will escape at the faulty connection. DO NOT over tighten the nut. It should only be tight enough to prevent CO_2 leakage. Plastic "washers" should be replaced every 2 or 3 cylinder exchanges.***

   d. Cut a length of tubing sufficient to connect the pressure regulator assembly to the Controller.
   e. Insert one end of the tubing into the fitting located on the pressure regulator.
   f. Slip the Red band onto the other end of the tubing and insert that end of the tubing into the "RED" fitting on the bottom of the Controller.

7. Leak test the pressure regulator assembly.
   a. Assure regulator fittings are securely attached to the cylinder valves.
   b. Assure the poly-urethane tubing from the regulator to the Controller is securely attached.
   c. Open the main valves on the cylinders by turning the valves counter-clockwise until they are completely open then turn them clockwise ½ turn.
   d. Use the Poolsmith "Leak Detector" or spray soapy water on all pressure regulator fittings including the tubing fitting on the regulator and the "GREY" fitting on the controller. Leaks will appear as small but enlarging bubbles.
   e. Using a cloth, wipe the leak detector residue from all surfaces.

8. Start the pump and check for water leaks at the pressure sensor fitting. If a water leak appears, gently tighten the fitting until the leak stops.



Important Notice: The Organic pH system controller is programmed with a proprietary injection formula. The formula is based on pool volume and pump run time. In most cases, setting the Controller according to the InpHusion® Chart will produce a pH range of 7.4 – 7.7. This result, however, may be dependent upon a Total Alkalinity (TA) level of <160.

a. Using the InpHusion Chart, locate your pool's "Volume (Gallons)" in the left column. Reading across to the right, identify the "Flow Rate" in column 2, the "InpHusion Setting" in column 3, and the "Pump Run Time" on the far right. **The small Chart has adhesive backing. Uncover the adhesive and attach the chart to the inside of the controller cover.**

NOTE: *"Minimum" Pump Run Time indicated on the Chart is the minimum time the pump must operate to assure the necessary amount of CO_2 will be injected. If the pump is scheduled to run for less than the minimum time indicated on the Chart, results may be adversely affected.*

NOTE: *If the volume of your pool falls between those on the Chart, round up to the next level. Keep in mind, the Controller is designed to be extremely adjustable. If the settings listed on the Chart for your pool volume do not achieve your objectives, we recommend changing the "InpHusion Setting" first. Unless otherwise instructed by Poolsmith, the "Flow Rate" should not exceed 5CFH.*

9. Set your three-digit code based on the flow settings chart (make sure numbers on dials are centered) and set the mode switch to "CO2 Standard".

10. Turn pump on.

11. Turn on Organic pH

12. Now you can adjust the flow meter to flow rate according to flow settings chart.

13. Turn off pump. Turn off Organic pH.

Important Information:

1. The Organic pH system is synchronized with your pool pump run time. You want to turn the Organic pH system on when your pump is scheduled to turn on. Two examples below:
   a. If you run your pump from 7pm to 4am. You will turn on the Organic pH system AFTER your pump turns on at 7pm.
   b. If you run your pump 24 hours per day, following installation of Organic pH, first start your pump, then start Organic pH.
   c. If you shut your pump off for any reason for more than one hour, switch off the Organic pH system. This situation will require re-synchronization of the system based on the examples above.

2. CO2 Saver Mode
   a. Set your system mode switch to CO2 Standard for a minimum of 14 days. After that you can switch to CO2 Saver mode (or vice versa). It is recommended you turn the Organic pH controller off then change the injection mode setting.

Cylinder Exchange Instructions:

1. Turn the Controller to the OFF position.

2. Close the cylinder valves (turn the knob clockwise until completely closed).

3. Disconnect the regulator assembly from the cylinders using the 1 1/8" adjustable wrench. **DO NOT** misplace the plastic washers.

4. Exchange the cylinders.

5. Connect the regulator assembly to the cylinders. Make sure the plastic "washers" are in place. **NOTE:** the plastic "washers" should be replaced every 2 or 3 cylinder exchanges.

6. Tighten the hexagonal nut collar to the cylinder valves using the adjustable wrench.

7. Open the cylinder valves.

8. Use the leak detector to check for leaks.

9. Turn the Controller to the ON position.