

COMMERCIAL POOL

Natural Pool Water Treatment

PZ2-4V - Commercial and Residential Pools & Spas
Ozone Generator Systems

*INSTALLATION GUIDE and
OPERATION MANUAL*



T-O₃ NATURAL TECHNOLOGY

Reduces Chemical Usage,
Improves Sanitation
Produces Crystal Clear Water

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PZ2-4V

IMPORTANT SAFETY INSTRUCTIONS

Read and Follow All Safety Instructions

- Read and be familiar with this manual before installing, operating, or performing maintenance on the PZ2.
- Voltage must be determined before unit is installed.
- Replace damaged cord immediately.
- Do not bury cord.
- Connect only to a properly grounded, grounding type receptacle.
- Install at least 5 feet from the inside wall of the pool using non-metallic plumbing. The ozone generator is to be located one foot minimum above the maximum water level to prevent water from contacting electrical equipment. Install to provide drainage of compartment for electrical components.
- A pressure wire connector is provided in the control box inside the unit to permit connection of a minimum No. 8 AWG solid copper bonding conductor between this point and any metal equipment, metal enclosures of electrical equipment, metal water pipe, or conduit within 5 feet of the unit as needed to comply with local requirements.
- Wear safety glasses when drilling and tapping holes for installation of unit.

WARNING: Short term inhalation of high concentrations of ozone and long term inhalation of low concentrations of ozone can cause serious harmful physiological effects. Do not inhale ozone gas produced by this device.



WARNING: Disconnect all power to pool equipment prior to installation, maintenance, or removal of the PZ2.



WARNING: Do not permit children to operate this product



WARNING: To avoid risk of electric shock, fire, or injury, service should only be performed by a qualified pool service professional.



WARNING: Installation must be performed in accordance with the National Electric Code and any applicable local or state installation codes.



WARNING: When mixing acid with water, ALWAYS ADD ACID TO WATER, NEVER WATER TO ACID.

NOTE: The instructions in this document provide general installation guides. Consult your dealer for specific installation instructions. Additional information is available at www.prozoneint.com. Check system for any visible shipping damage. If damage has occurred, contact the delivery company and your dealer immediately. Before beginning installation, please turn to the Installation Kit Inventory Section and verify that all listed parts are on hand.

Tools Needed: Cordless Power Drill, Flat Head Screwdriver, Phillips Head Screwdriver, Hand Saw, Utility Knife, Adjustable Wrench, Pliers, PVC Glue, Teflon Tape, Wall Mount Screw Anchors

SAVE THESE INSTRUCTIONS

INTRODUCTION TO OZONE

Ozone (O₃) is generated by irradiating air or oxygen (O₂) with ultraviolet radiation. Ozone is a molecule of oxygen that is formed when three atoms of oxygen are bound together instead of the normal two atoms. The extra oxygen atom makes ozone the most powerful oxidizer and sanitizer readily available.

Since ozone is unstable and quickly decomposes to normal oxygen under normal conditions, it cannot be shipped or stored. Therefore, it must be manufactured on site for immediate use. In normal air it lasts about an hour. In normal pool water it lasts just long enough to purify the water - less than 1 second.

Although ozone is mainly thought of as a sanitizer, it acts primarily as an oxidizer in the pool environment. In a typical pool run on chlorine only, up to 90 percent of the chlorine may be used up in reactions unrelated to disinfection. The by-products of these reactions are combined chlorines. Combined chlorines are the cause of eye irritation, odor, and the other unpleasant side effects of chlorination. When ozone is used, it oxidizes a large portion of the contaminants (usually referred to as bather load) which result in the formation of combined chlorines. The result is that more chlorine is available for disinfection and less chlorine is required to maintain the pool. Ozone also provides some disinfection, but an ozone residual cannot be established, so the use of chlorine or bromine is always recommended.

PREPARING FOR INSTALLATION

1. Check electrical system: 240VAC double switched per N.E.C. standards; 120VAC single switched.
2. Check for all leaks in existing plumbing and correct where necessary.
3. Ensure you have the proper tools (see list).
4. Backwash the filter.
5. Brush the pool.
6. Balance the pH.
7. Shock the pool with a non-lithium-based material. The use of Calcium Hypochlorite or Sodium Hypochlorite is recommended.

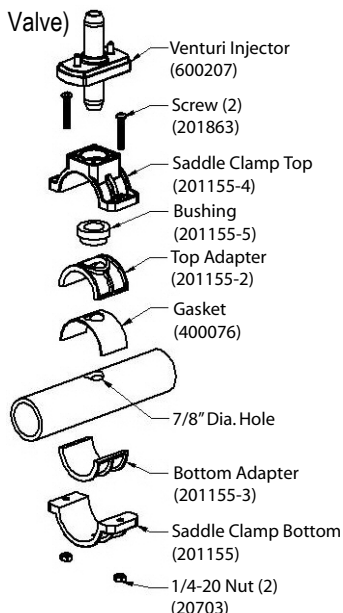
The Table below summarizes the levels that are recommended by The Association of Pool and Spa Professionals (APSP). It is important to maintain these levels in order to prevent corrosion or scaling and to ensure maximum enjoyment of the pool. Test your water periodically. Take a water sample in to be professionally tested by a Pool and Spa Professional at least once a month. See our web site for more information on Basic Pool Water Chemistry.

pH	7.2 – 7.6
Alkalinity	80 – 120 ppm
TDS	< 1,000
Cyanuric Acid	30 – 70 ppm
Free Chlorine	0.5 – 1.5 ppm
Calcium Hardness	60 – 400 ppm
Metals	0 ppm
Nitrates / Phosphates	< 30 ppm

SADDLE CLAMP ASSEMBLY

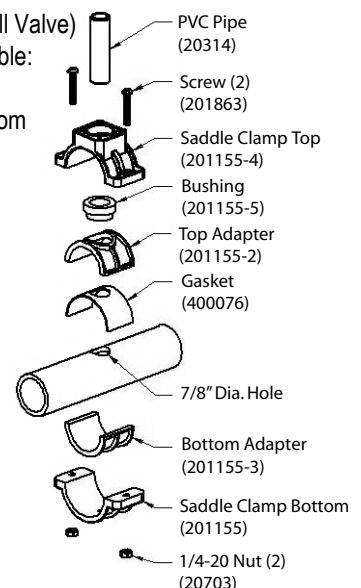
For bypass Entrance, (before Ball Valve)

Using 1-1/2" pipe, Assemble:
Venturi Injector (Note direction)
Saddle Clamp Top & Bottom
Top & Bottom Adapters
Bushing (Note direction)
Gasket
Screws (2)
Nuts (2)



For bypass Exit, (after Ball Valve)

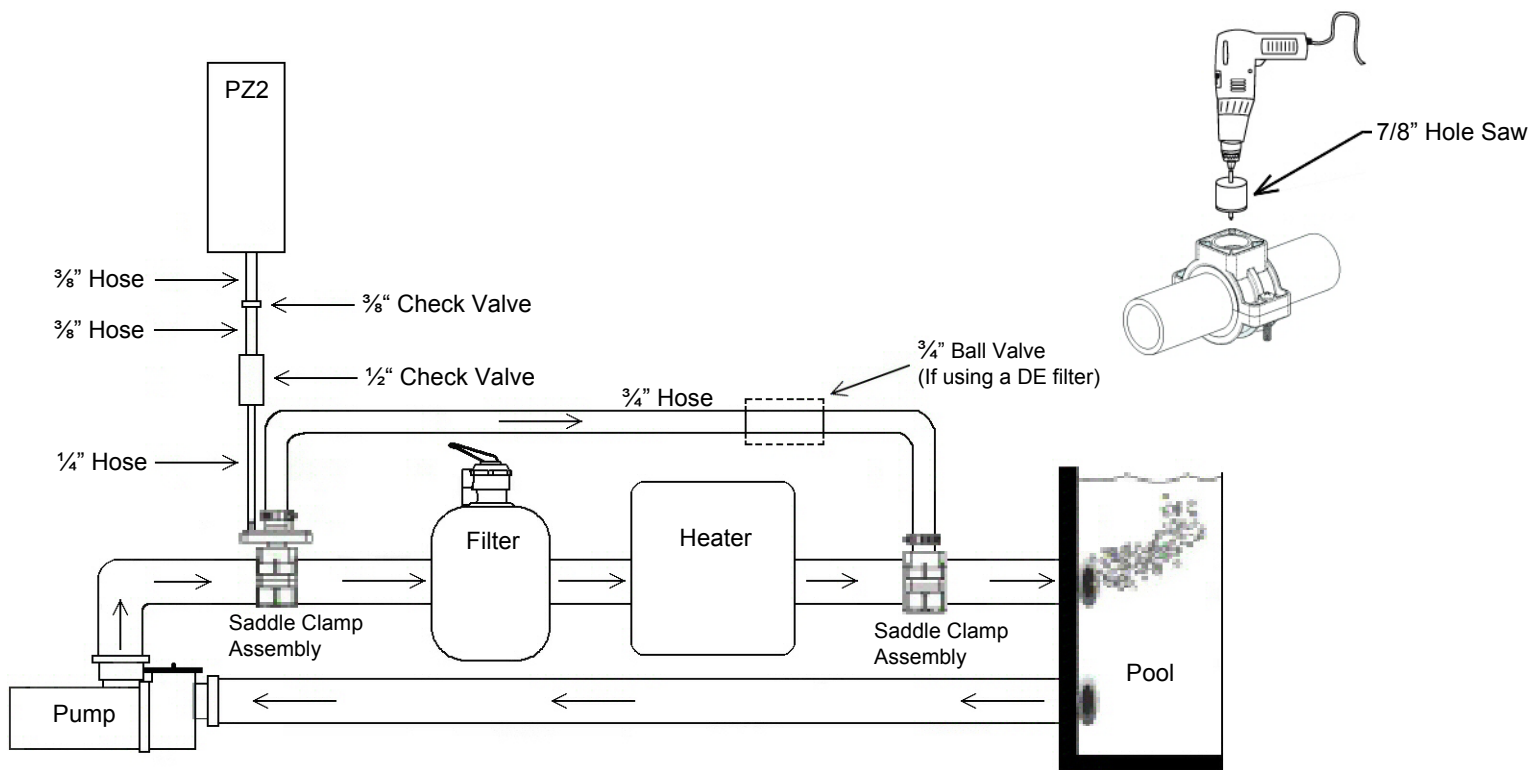
Using 1-1/2" pipe, Assemble:
PVC Pipe
Saddle Clamp Top & Bottom
Top & Bottom Adapters
Bushing (Note direction)
Gasket
Screws (2)
Nuts (2)



Note: For 2" pipe, do not use 1-1/2" adapters and gasket and turn Bushings so small end points toward Injector (for Entrance) or PVC Pipe (for Exit).

PZ2-4V

Bypass with Saddle Clamps Installation



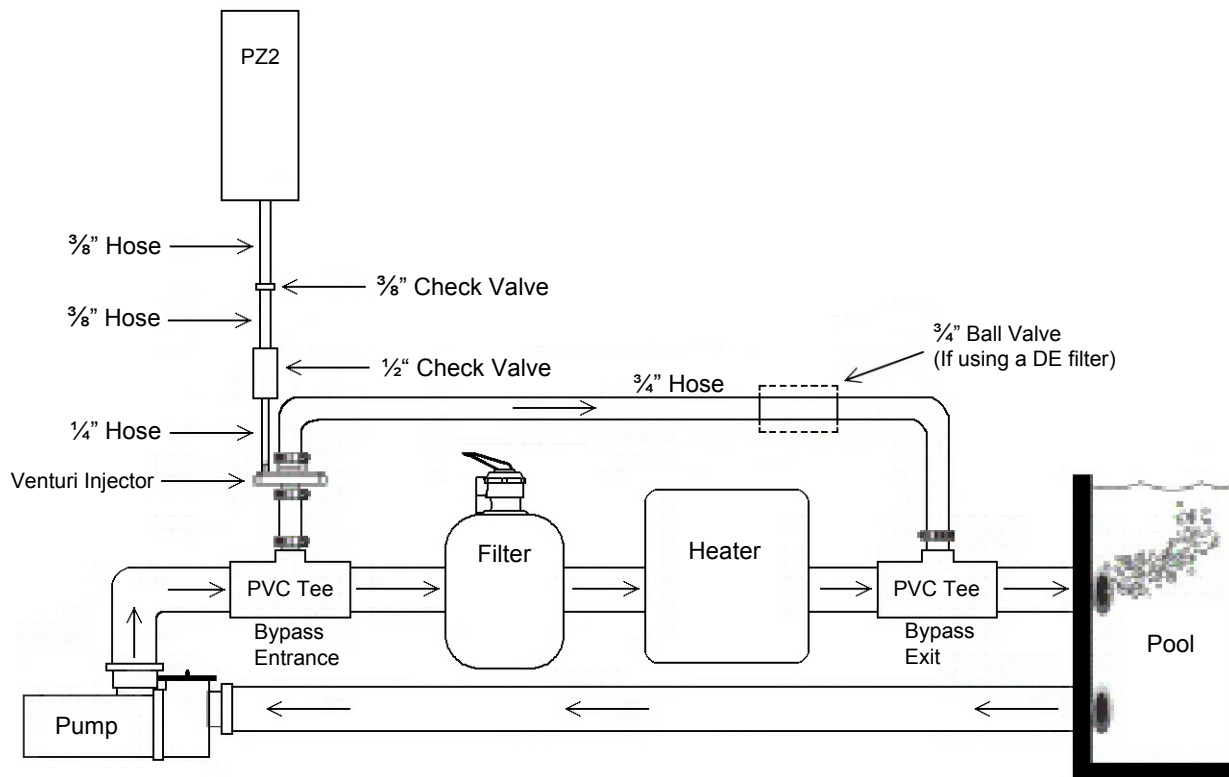
1. Turn pump OFF.
2. Locate section of existing plumbing in which you choose to install the ENTRANCE leg of the bypass. Location should be in any accessible area after the pump, but before the filter.
3. Install Saddle Clamp Top & Bottom, (and adapters if needed), without Bushing, (this will be used as a guide for your installation hole).
4. Drill a 7/8" hole through one wall of the pipe, using power drill, being careful not to drill too deep to avoid penetrating the opposite side of the plumbing.
5. Locate section of existing plumbing in which you choose to install the EXIT leg of the bypass. Location should be in any accessible area after the filter, and heater (if equipped).
6. Repeat steps 3 & 4.
7. Remove both Saddle Clamp Assemblies.
8. Using components listed, mount one Saddle Clamp Assembly on Entrance bypass location with the INLET side of the Venturi Injector mounted in the Saddle Clamp Bushing, (ozone ports should be facing upward).
9. Using components listed, mount the other Saddle Clamp Assembly on Exit bypass location with the 1/2" x 3" PVC pipe mounted in the Saddle Clamp Bushing.
10. Attach one end of 3/4" clear hose to Venturi Injector and secure with a metal clamp. Attach other end of 3/4" clear hose to 1/2" x 3" PVC pipe and secure with a metal clamp.
11. Mount the PZ2 Ozone Generator to a wall or surface. Unit orientation will not affect performance. Unit must be mounted a minimum of 1 foot above water level. If unit must be mounted below water level, loop the hose so that at some point it is above water level, (a solenoid control valve may be necessary).
12. Apply Teflon tape to the threads of a 1/2" MPT x 3/8" HB fitting, part number 20231, and screw into the end of the 1/2" Check Valve that has the spring in it, (This is the INLET side of the Check Valve). Mark this end as "INLET".
13. Apply Teflon tape to the threads of a 1/2" MPT x 1/4" HB fitting, part number 20230, and screw into the opposite of the 1/2" Check Valve, (This is the OUTLET side of the Check Valve). Mark this end as "OUTLET".
14. Cut a 6 inch length of 1/4" hose and connect one end to the OUTLET side of the 1/2" Check Valve and connect the other end to the open ozone port (Marked #1) on the Venturi Injector. Secure with 1/2" plastic clamps.
15. Cut a 12 inch length of 3/8" hose and connect one end to the INLET side of the 1/2" Check Valve. Connect the other end to the OUTLET side of the 3/8" Check Valve, (Make sure you can blow air through the Check Valve towards the Injector). Secure both ends with plastic clamps.
16. Attach one end of the remaining 3/8" hose to the INLET side of the 3/8" Check Valve and the other end to one of the PZ2-4V barbs on the bottom of the unit and secure both ends with plastic clamps. (Note: The other barb on the PZ2-4V will be for air inlet, no hose needs to be connected to this barb).
17. Electrical Installation: System is either 120 or 240 VAC, 50/60 HZ. Wire Prozone Ozone Generator system to circulation pump switch or timer. Prozone system and circulation pump should be started simultaneously. Use N.E.C. or local code grounding and installation procedures for swimming pool equipment.

CAUTION: Make sure the voltage is the same as prescribed on the side of the Prozone ozone generator. Overvoltage will void customer warranty.

Note: If using a Diatomaceous Earth filter, install a 3/4" ball valve in the 3/4" hose to the output side of the venturi, as shown.

PZ2-4V

Bypass with PVC Tees Installation



1. Turn pump OFF.
2. Locate section of plumbing in which you choose to install the ENTRANCE leg of the bypass. Location should be in any accessible area after the pump, but before the filter.
3. Cut away 1-1/2" out of the existing plumbing at this selected location.
4. Install a PVC Tee with the 3/4" FPT portion of the Tee facing upward, using the reducer bushings if necessary.
5. Locate section of plumbing in which you choose to install the EXIT leg of the bypass. Location should be in any accessible area after the filter, and heater (if equipped).
6. Cut away 1-1/2" out of the existing plumbing at this selected location.
7. Install a PVC Tee with the 3/4" FPT portion of the Tee facing upward, using the reducer bushings if necessary.
8. Apply Teflon tape to the threads of the (2) 3/4" MPT x 3/4" HB fittings, part number 20678, and screw the fittings into the (2) PVC Tees you just installed.
9. Cut a 6" length of 3/4" hose and connect one end to the fitting on the entrance side of the bypass, (after the pump, before the filter), and secure with a metal clamp.
10. Connect the other end of the 6" hose to the INLET side of the Venturi Injector and secure with a metal clamp.
11. Attach one end of the remaining 3/4" hose to the OUTLET side of the Venturi Injector and secure with a metal clamp.
12. Attach other end of 3/4" hose to the fitting on the exit side of the bypass, (after the filter/heater), and secure with a metal clamp.
13. Mount the PZ2 Ozone Generator to a wall or surface. Unit orientation will not affect performance. Unit must be mounted a minimum of 1 foot above water level. If unit must be mounted below water level, loop the hose so that at some point it is above water level, (a solenoid control valve may be necessary).
14. Apply Teflon tape to the threads of a 1/2" MPT x 3/8" HB fitting, part number 20231, and screw into the end of the 1/2" Check Valve that has the spring in it, (This is the INLET side of the Check Valve). Mark this end as "INLET".
15. Apply Teflon tape to the threads of a 1/2" MPT x 1/4" HB fitting, part number 20230, and screw into the opposite of the 1/2" Check Valve, (This is the OUTLET side of the Check Valve). Mark this end as "OUTLET".
16. Cut a 6 inch length of 1/4" hose and connect one end to the OUTLET side of the 1/2" Check Valve and connect the other end to the open ozone port (Marked #1) on the Venturi Injector. Secure with 1/2" plastic clamps.
17. Cut a 12 inch length of 3/8" hose and connect one end to the INLET side of the 1/2" Check Valve. Connect the other end to the OUTLET side of the 3/8" Check Valve, (Make sure you can blow air through the Check Valve towards the Injector). Secure both ends with plastic clamps.
18. Attach one end of the remaining 3/8" hose to the INLET side of the 3/8" Check Valve and the other end to one of the PZ2-4V barbs on the bottom of the unit and secure both ends with plastic clamps. (Note: The other barb on the PZ2-4V will be for air inlet, no hose needs to be connected to this barb).
19. Electrical Installation: System is either 120 or 240 VAC, 50/60 HZ. Wire Prozone Ozone Generator system to circulation pump switch or timer. Prozone system and circulation pump should be started simultaneously. Use N.E.C. or local code grounding and installation procedures for swimming pool equipment.

CAUTION: Make sure the voltage is the same as prescribed on the side of the Prozone ozone generator. Overvoltage will void customer warranty.

Note: If using a Diatomaceous Earth filter, install a 3/4" ball valve in the 3/4" hose to the output side of the venturi, as shown.

INSTALLATION KIT INVENTORY

P12 Installation Kit PZ2-4V Bypass with Saddle Clamps

Description	Part Number	Quantity
684 Venturi Injector	600207	1
Plastic Clamp 1/2"	20185	2
Plastic Clamp 5/8"	20186	4
Metal Clamp 1-1/4"	20067	2
PVC Pipe 1/2" x 3"	20314	1
Polybraid Hose 1/4"	20260	12"
Clear Vinyl Hose 3/4"	20264	96"
Polybraid Hose 3/8"	20261	144"
Check Valve - 1/2"	20215	1
Check Valve - 3/8"	20730	1
Fitting 1/2" MPT x 1/4" HB	20230	1
Fitting 1/2" MPT x 3/8" HB	20231	1
Saddle Clamp, Outer Top	201155-4	2
Saddle Clamp, Outer Bottom	201155	2
Saddle Clamp, Inner Top	201155-2	2
Saddle Clamp, Inner Bottom	201155-3	2
Saddle Clamp Gasket	400076	2
Saddle Clamp Bushing	201155-5	2
Screw #14 x 1-1/2" PPMS	201863	4
Nut 1/4-20	20703	4

P33 Installation Kit PZ2-4V Bypass with PVC Tees

Description	Part Number	Quantity
684 Venturi Injector Assembly	600207	1
Plastic Clamp 1/2"	20185	2
Plastic Clamp 5/8"	20186	4
Metal Clamp 1-1/2"	20068	2
Polybraid Hose 1/4"	20260	12"
Clear Vinyl Hose 3/4"	20264	96"
Polybraid Hose 3/8"	20261	144"
Check Valve - 1/2"	20215	1
Check Valve - 3/8"	20730	1
Fitting 1/2" MPT x 1/4" HB	20230	1
Fitting 1/2" MPT x 3/8" HB	20231	1
PVC Tee 2" SL x 3/4" FPT	201095	2
PVC Fitting 2" SP x 1-1/2" SL	201114	4
PVC Fitting 3/4" MPT x HB	20678	2

Note: For pools with Diatomaceous Earth filter and Bypass / Venturi Injector installation, add (1) 3/4" Ball Valve, (2) 3/4" MPT x HB fittings, and (2) 1 1/4" metal clamps.

TROUBLESHOOTING GUIDE

PROBLEM	PROBABLE CAUSE	REMEDY
No light from Prozone unit	Loose wiring	Check all wiring connections
	No power to unit	Check voltage compatibility Check power source
	Defective lamp or other internal component	Return unit to dealer
No bubbles from injector or no evidence of ozone in pool	Excessive back pressure	Check for kinks or clogs in hose or plumbing
	Leak in fitting	Replace fitting
	Filter not working	Check filter
Water in Ozone Generator	Check Valve failure	Verify Check Valve in Venturi is operating properly
Cloudy water; foamy water; scum	Water chemistry out of balance	Check readings and balance accordingly
	Total Dissolved Solids (TDS) level too high	Refer to dealer for proper water testing
	Filter not working	Clean or replace filter

NOTE: Cloudy water may occur when the ozone generator is started. Clean filter and backwash as necessary.

Run the circulation system for 48-72 hours before reverting to your normal cycle.