

Ozone Systems

Installation & Operation Manual

PRO-10, PRO-12

Recirculation System

Timed recirculation system for use with ozone generator on water storage tanks



ClearWater Tech, LLC.

Integrated Ozone Systems

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INTRODUCTION

This Installation and Operation Manual is written to assist in the installation, operation and maintenance of recirculation system manufactured by ClearWater Tech, LLC. This equipment has been designed using the most modern materials and technology available.

Please read this manual carefully and in its entirety before proceeding with any installation, operation or maintenance procedure associated with this equipment. Failure to follow these instructions could result in personal injury, damage to the equipment or reduced product performance.

In an ongoing effort to improve reliability and operating efficiency, ClearWater Tech may find it necessary to make changes to its products. Therefore, the information contained in this manual may not conform in every respect to earlier versions of ClearWater Tech recirculation systems found in the field. If you have any questions, please contact your ClearWater Tech dealer or the ClearWater Tech service department.

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Safety Information

IMPORTANT SAFETY INSTRUCTIONS

When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

1. READ AND FOLLOW ALL INSTRUCTIONS.

2. SAVE THESE INSTRUCTIONS.

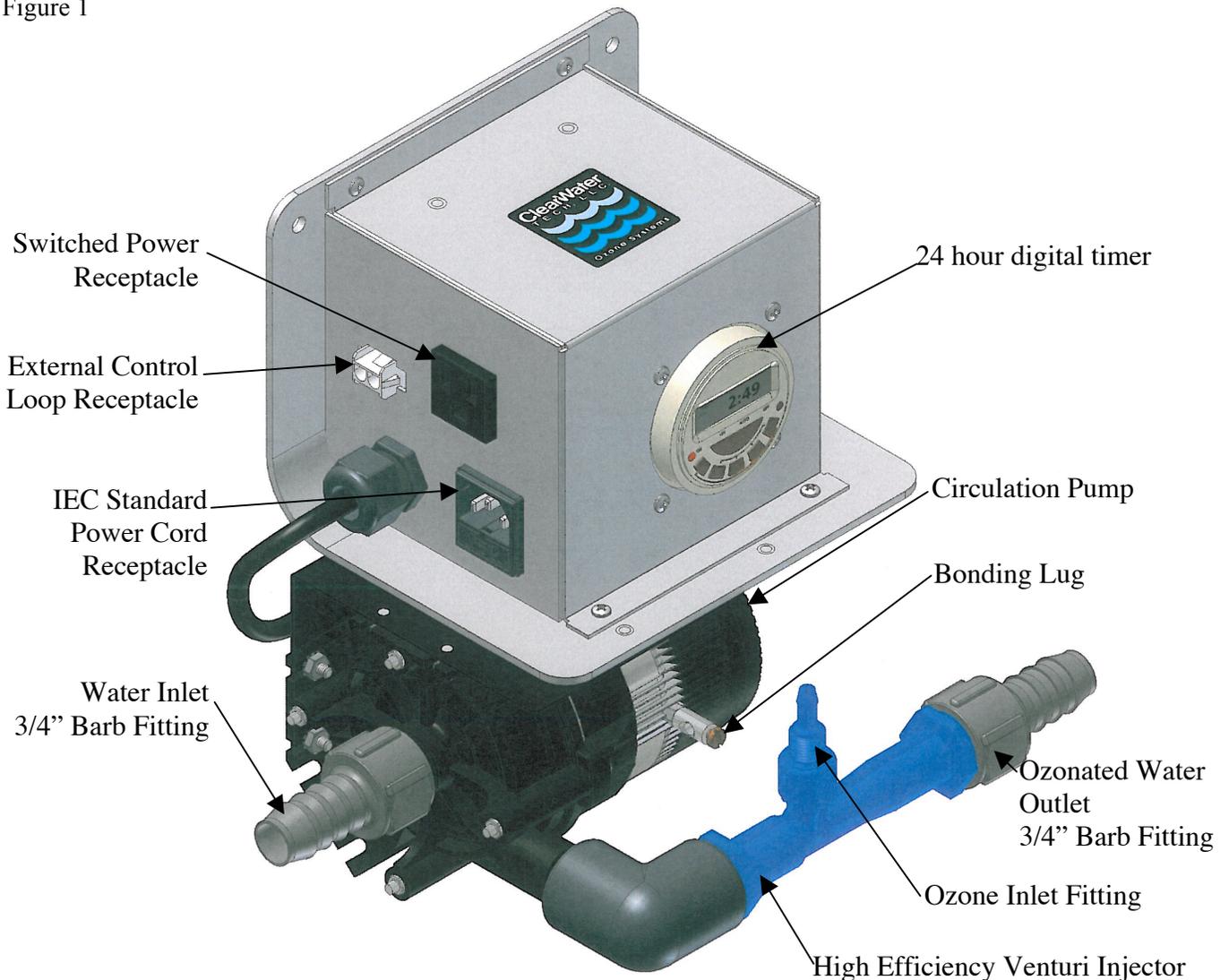
3. Install all electrical equipment at least five feet from any open body of water using non-metallic plumbing.
4. The electrical supply for this product must include a suitably rated switch or circuit breaker to open all ungrounded supply conductors to comply with Section 422-20 of the National Electrical Code, ANSI/NFPA 70-1987. The disconnecting means must be readily accessible to the operator(s) but installed at least five feet from any open body of water.
5. Be sure to bond (ground) the system using the copper-bonding lug on the pump chassis. The system should be bonded with solid copper wire conforming to all local, state and national electrical codes.
6. The system should be sized appropriately for its intended use by a qualified professional familiar with the application. This equipment must be validated by the manufacturer for its intended use; failure to do so may void the warranty.

Theory of Operation/Product Description

The PRO-10 and PRO-12 recirculation system kits are for use with ClearWater Tech ozone generators in the 0.25 to 8.0 gram of ozone per hour range. It consists of a pump with an injector/check valve assembly attached and a timer/controller.

Complete PRO Recirculation System

Figure 1



Shown: PRO-10

Recommended Sizing

- For one or more tanks totaling up to 300 gallons, use a ClearWater Tech S-1200 ultraviolet ozone generator
- For one or more tanks totaling up to 600 gallons, use a ClearWater Tech CS-1400 ultraviolet ozone generator.
- For one or more tanks totaling up to 900 gallons, use a ClearWater Tech CD10/AD corona discharge ozone generator.
- Larger generators available.

Installation Procedures

Unpacking

Compare the ozone system equipment received to the packing list provided. Before beginning any installation procedures, thoroughly inspect all components for damage. If damage is noticed, promptly notify the freight carrier and request an on-site inspection. Inspect all packing materials for small parts before discarding. Inspect all plumbing, fittings and tubing for packing material that may have become lodged in openings.



The PRO-10 and PRO-12 Kit

The PRO-10 and PRO-12 kit consists of the following components:

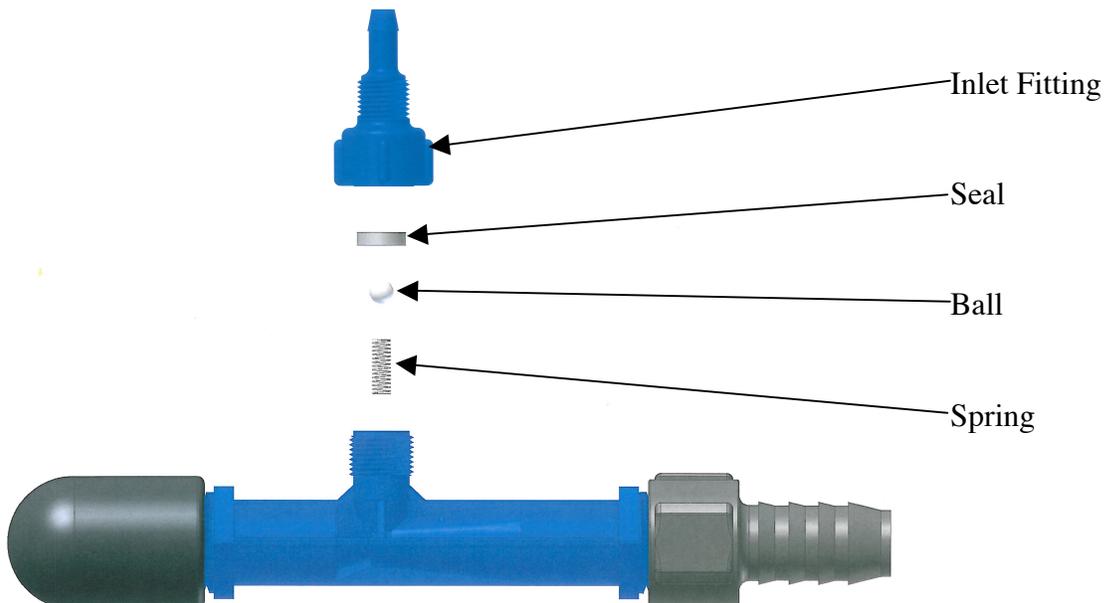
- 1 PRO-10 (120VAC/60Hz) or PRO-12 (240VAC/50Hz) unit
- 1 Kynar® check valve assembly with a 1/4" O.D. Kynar® compression ozone inlet fitting
- 1 IEC standard power cord (120 VAC NEMA or selection of 240 VAC 50Hz configurations available)
- 20' 3/4" I.D braided PVC tubing
- 4 3/4" tubing nipple x 3/4" male thread fittings for tubing (two are installed on the recirculation system)
- 4 Hose clamps for above fittings

Installation

1. Securely mount the PRO unit and the ozone generator adjacent to each other on a sheltered surface.
 - Within 5 ft of the tank(s) if possible
 - Below the normal median water level (no higher than 3 ft from the bottom) of the tank(s)
2. Install the supplied ozone check valve assembly, located in the parts bag, into the injector on the PRO as show in Figure 2.

Check Valve Assembly

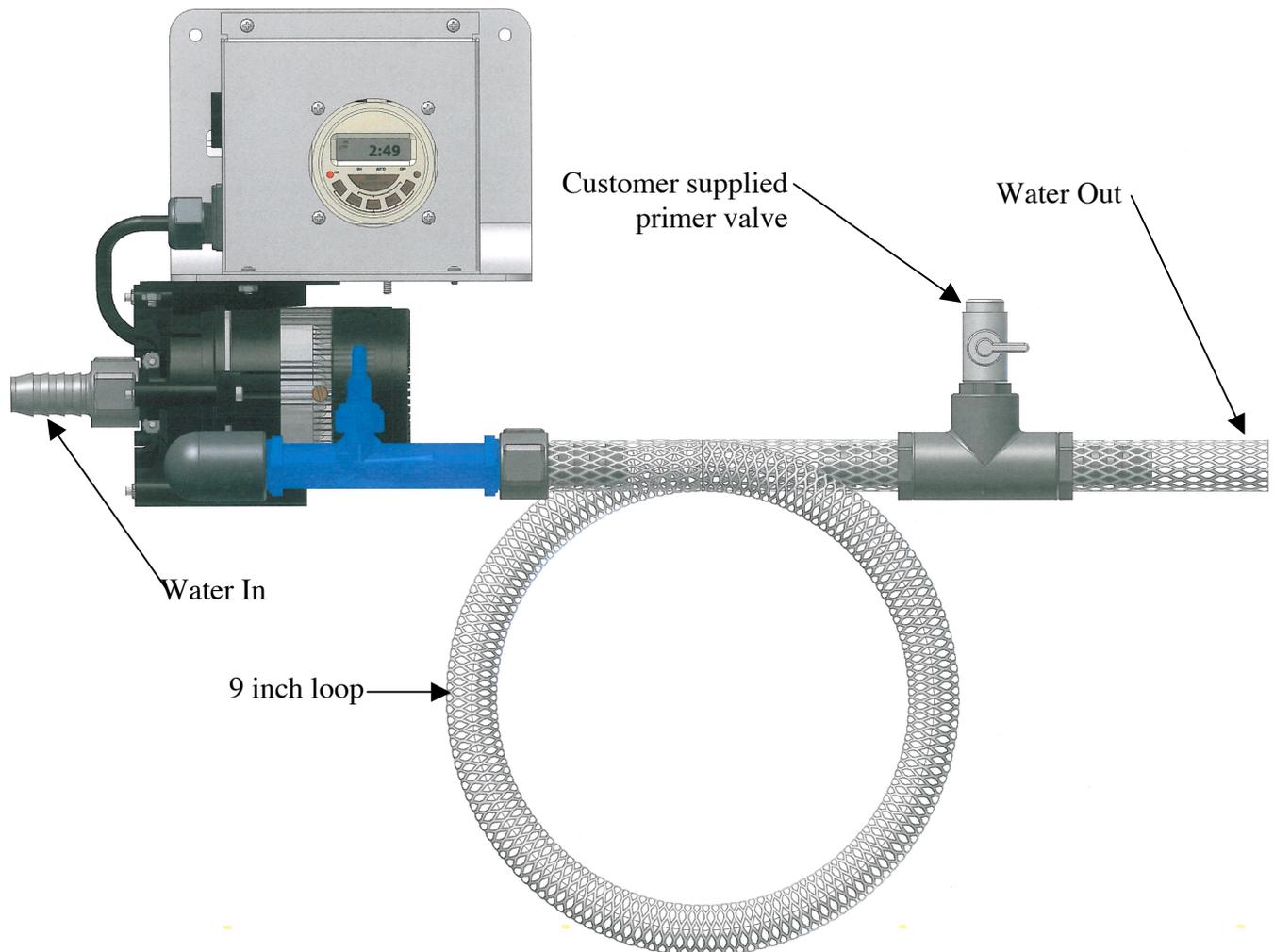
Figure 2



3. Using Teflon® tape on the threads, install the other two 3/4" tubing nipple X 3/4" male thread fittings into the inlet and outlet fittings on the water tank(s).
4. Cut the 3/4" tubing supplied with the PRO unit to fit between the unit and the tank. Install with the supplied hose clamps on both ends to secure tubing.
5. To keep the pump from cavitating when the system is "off", create a loop on the outlet side of the pump with a diameter of approximately 9 inches. Connect a primer valve (customer supplied) in line for use when priming (See Figure 3). **NOTE: Failure to a loop on the outlet side of the pump can cause the pump to cavitate which can lead damage of the pump impellor.**

Anti-Cavitation Loop

Figure 3



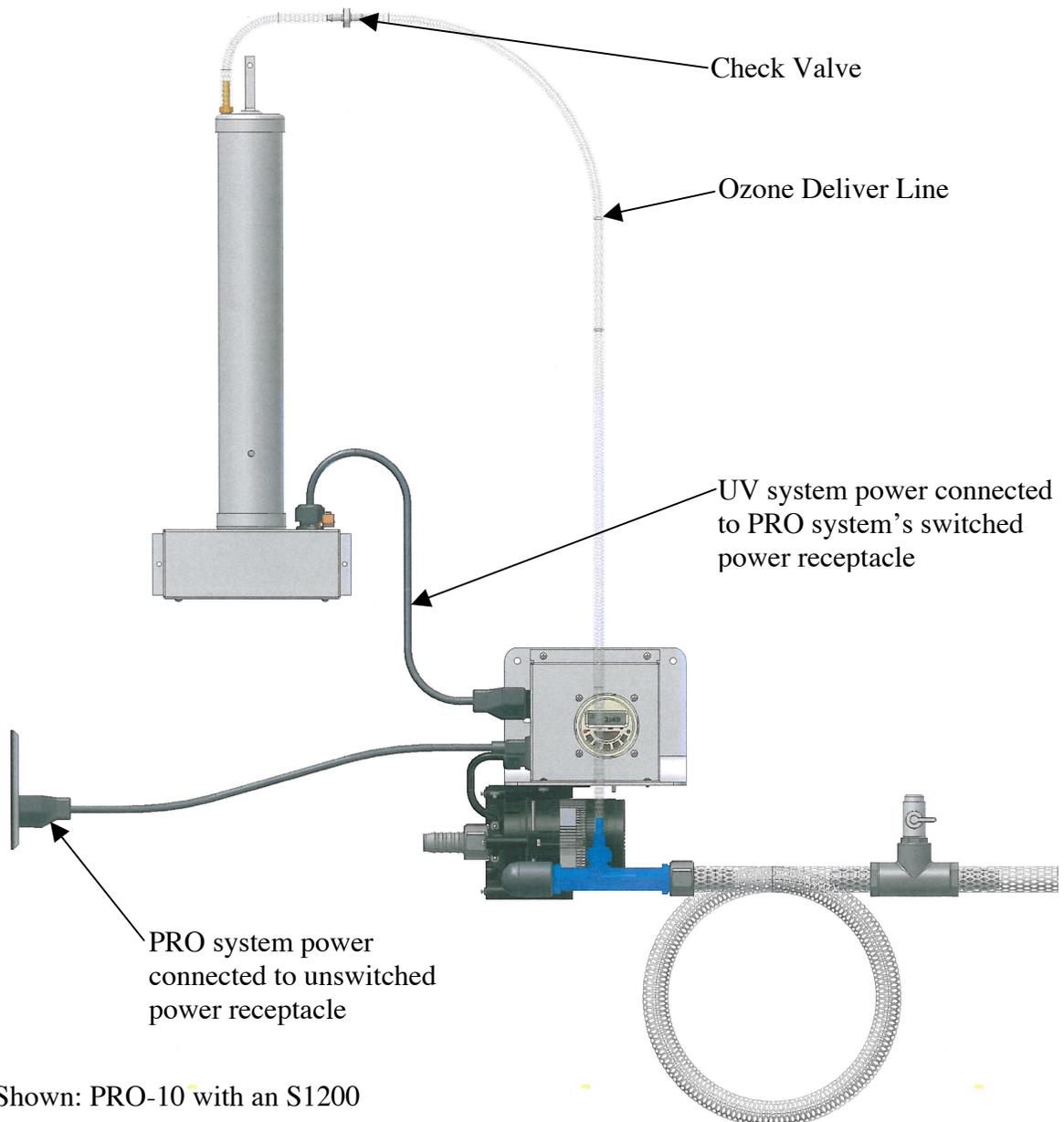
6. Supply main power to the unit.
7. Prime the pump by initiating water flow toward the pump. Open the primer valve (See Figure 3) allowing water to flow to drain. Once there is flow across the pump initiate power by setting the timer.
8. Once power is "ON" and the pump is primed, close the primer valve. Be sure that all valves down stream are open.
9. If you are using a ClearWater Tech ULTRAVIOLET ozone generator, you can supply power to the ozone generator into the switched power receptacle (See Figure 1) on the side of the PRO unit (See Figure 4). **NOTE: If you are using a ClearWater Tech CD10/AD, CD12/AD, M-15/AD, or CD15/AD corona**

discharge ozone generator, it must be plugged into a continuously powered electrical source, as the air dryer in the unit must run at all times (See Figure 5). If a CD10/AD, CD12/AD, M-15/AD, or CD15/AD ozone generator is being used, connect the external control loop connecting wire between the external control loop receptacles on the ozone generator and the PRO unit (See Figure 5). PRO-12 users refer to figure 6 for how to wire into the switched power receptacle.

10. Connect delivery line supplied with the ozone generator from the ozone generator to the PRO system. **NOTE: Make sure to install the provided back flow prevention device provided with the ozone generator to reduce the chance of water getting into the ozone generator. Refer to Figures 4 and 5 below.** If you are using an ozone system that requires Teflon delivery line, cut off the barb of the ozone injector fitting on the injector and install the supplied Kynar fitting (See Figure 5)

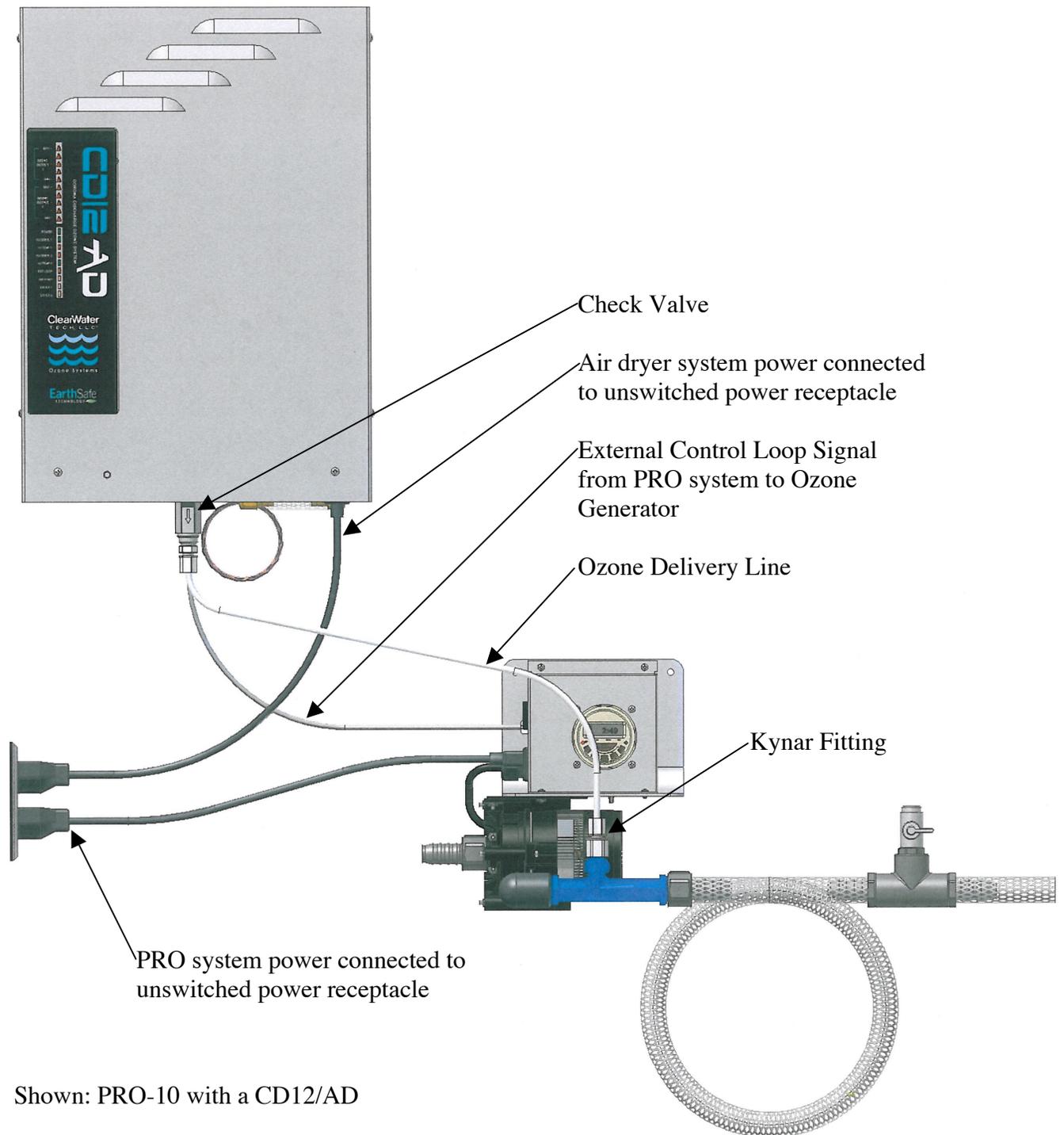
UV Ozone System Electrical and Pneumatic Setup

Figure 4



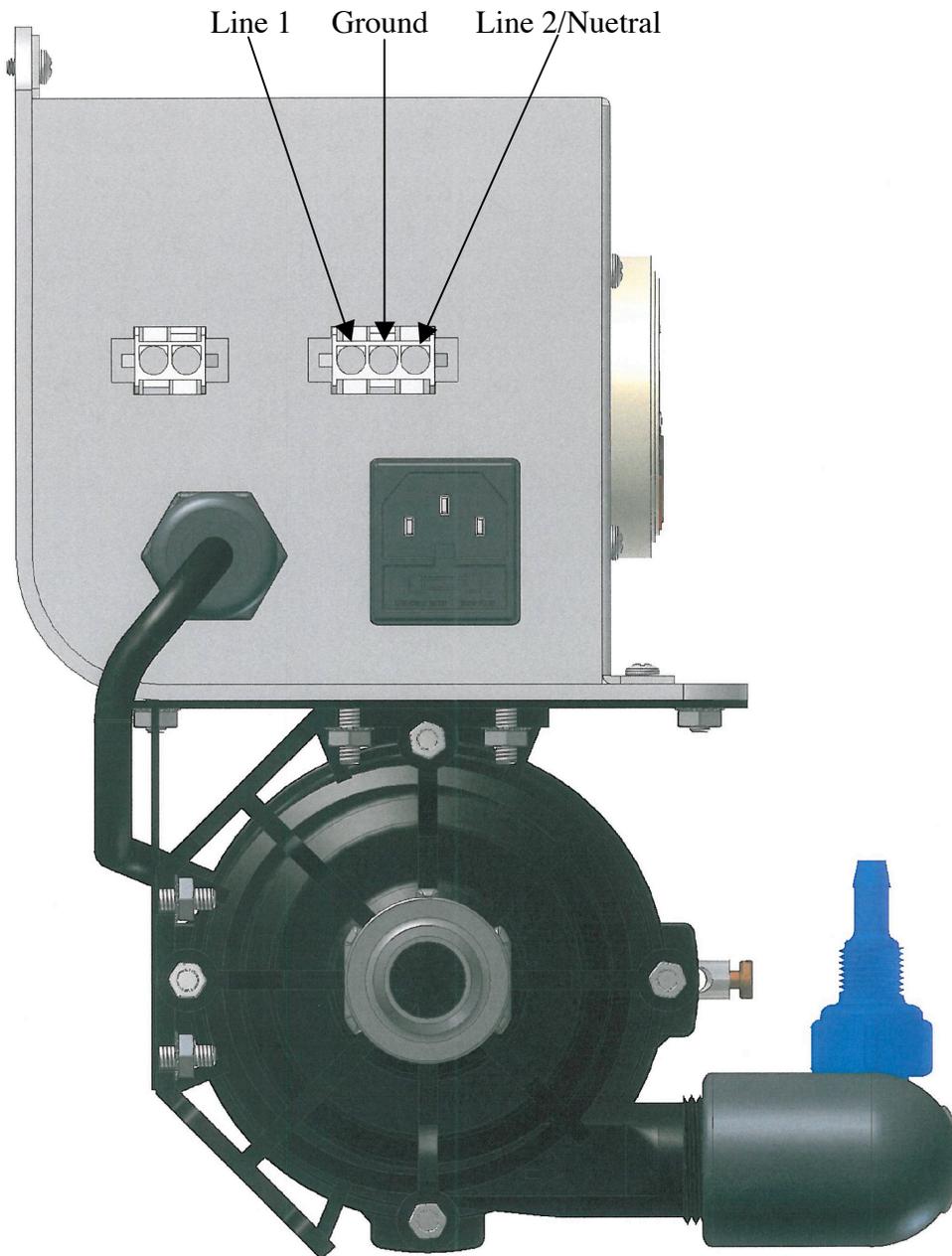
Air Dryer Ozone System Electrical and Pneumatic Setup

Figure 5



PRO-12 Switched Electrical Receptacle Wiring

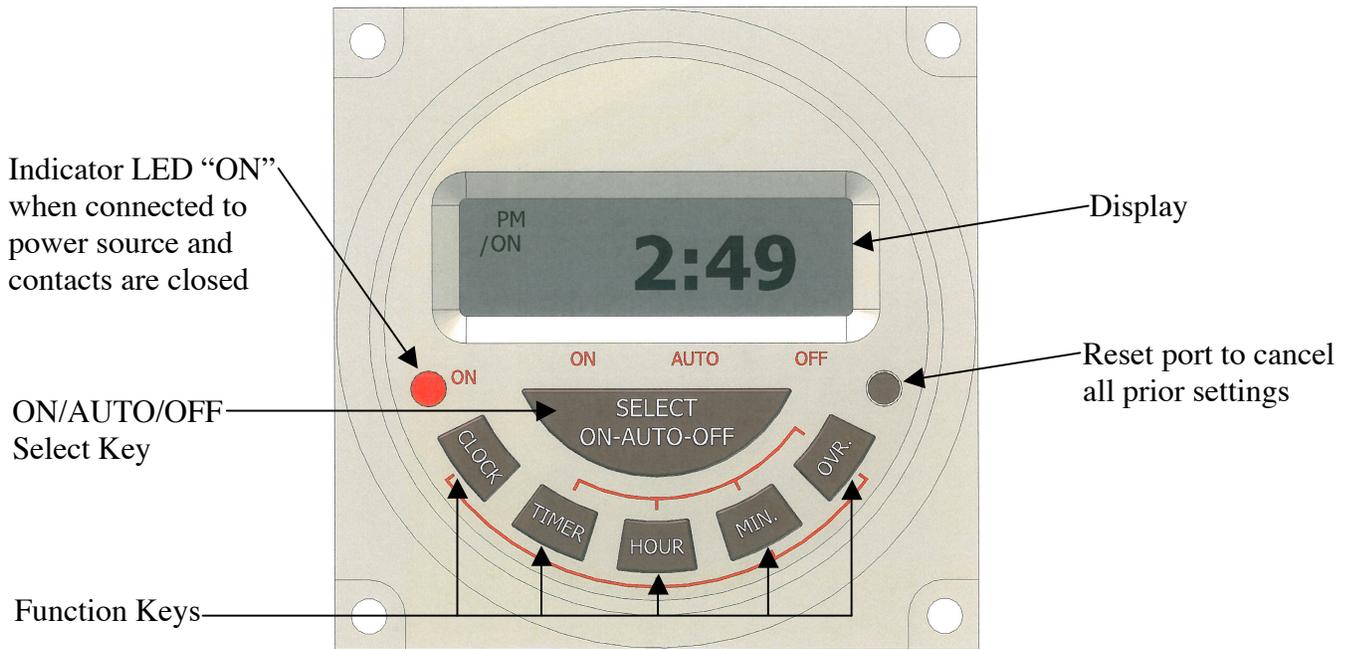
Figure 6



Timer Setup

Control Timer - Front

Figure 7



Programming Instructions To Set or Change the Time:

To Clear entire memory, press the "Reset" key.

Hold down the CLOCK Key while pressing either the HOUR or MINUTE keys. Continue pressing until the desired number is shown. Then simply lift finger off the CLOCK Key to set.

To Set Program (ON/OFF Times):

Press TIMER key once to enter into program mode. Display will show "1 ON -- --"

Press the HOUR key and then the MINUTE key to select the desired first ON time.

Press TIMER key one. Display will show "1 OFF -- --".

Repeat previous step to select the desired first OFF time.

Repeat the entire sequence to complete up to eight ON/OFF times as desired.

When programming is down, press the CLOCK Key. Then press the ON/AUTO/OFF SELECT key repeatedly until the indicator bar is above the word "AUTO".

To Review Program:

Press TIMER key repeatedly. When done, press CLOCK Key to return to the time of day.

To Cancel/Change Part of the Program:

Press TIMER key repeatedly until the particular ON or OFF time appears. Set new ON or OFF time. (See: To Set Program)

To Override Automatic Operation:

Press SELECT key to move indicator bar to the desired ON or OFF position. Note: Timer will not resume automatic operation until indicator bar is repositioned above the word AUTO.

To Override Timer Status (ON or OFF)

Press the “OVR” key. Timer will resume automatic operation with the next opposite set point.

For Older Versions

To initiate operation, set the timer dial clockwise, matching the current time of day to the “TIME” arrow. Pull outwards on tabs to set the “ON” time of the system. Each tab represents 30 minutes.

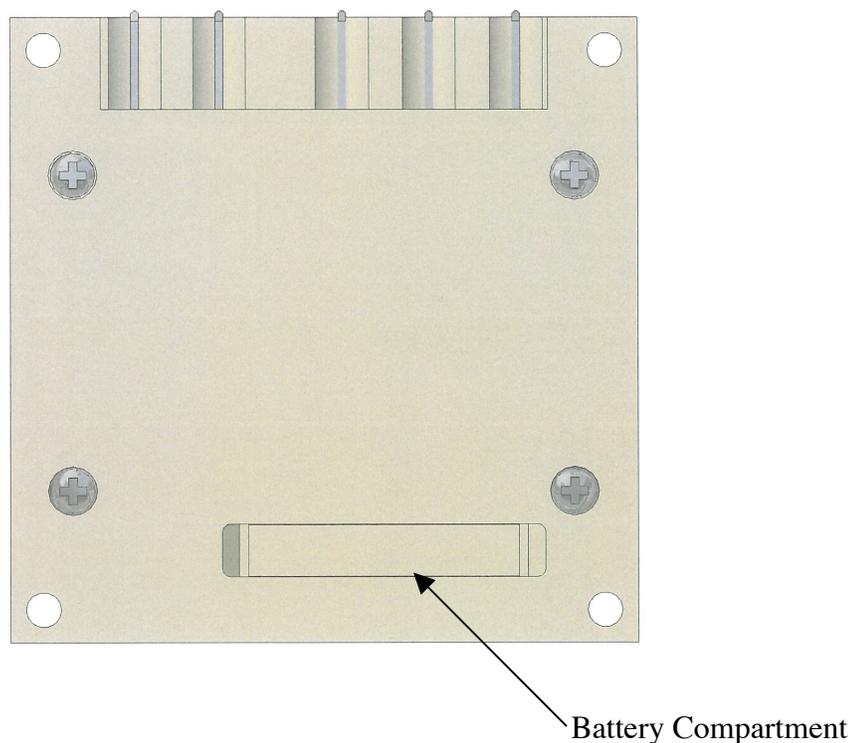
Battery Replacement

Replace only with Lithium batter type CR2032.

Battery should be available locally should it need to be replaced. Disconnect the power to the unit, remove the power cord for the ozone generator (if connected to the PRO system), and remove external control wire (if used). Remove the four screws securing the cover. Carefully remove the top cover. NOTE: The cover will remain connected to the pump. Once the cover can be turned over, the battery compartment is visible on the back side of the timer (See Figure 8). To replace the battery, open the battery compartment and install a new battery. Replace parts in reverse order.

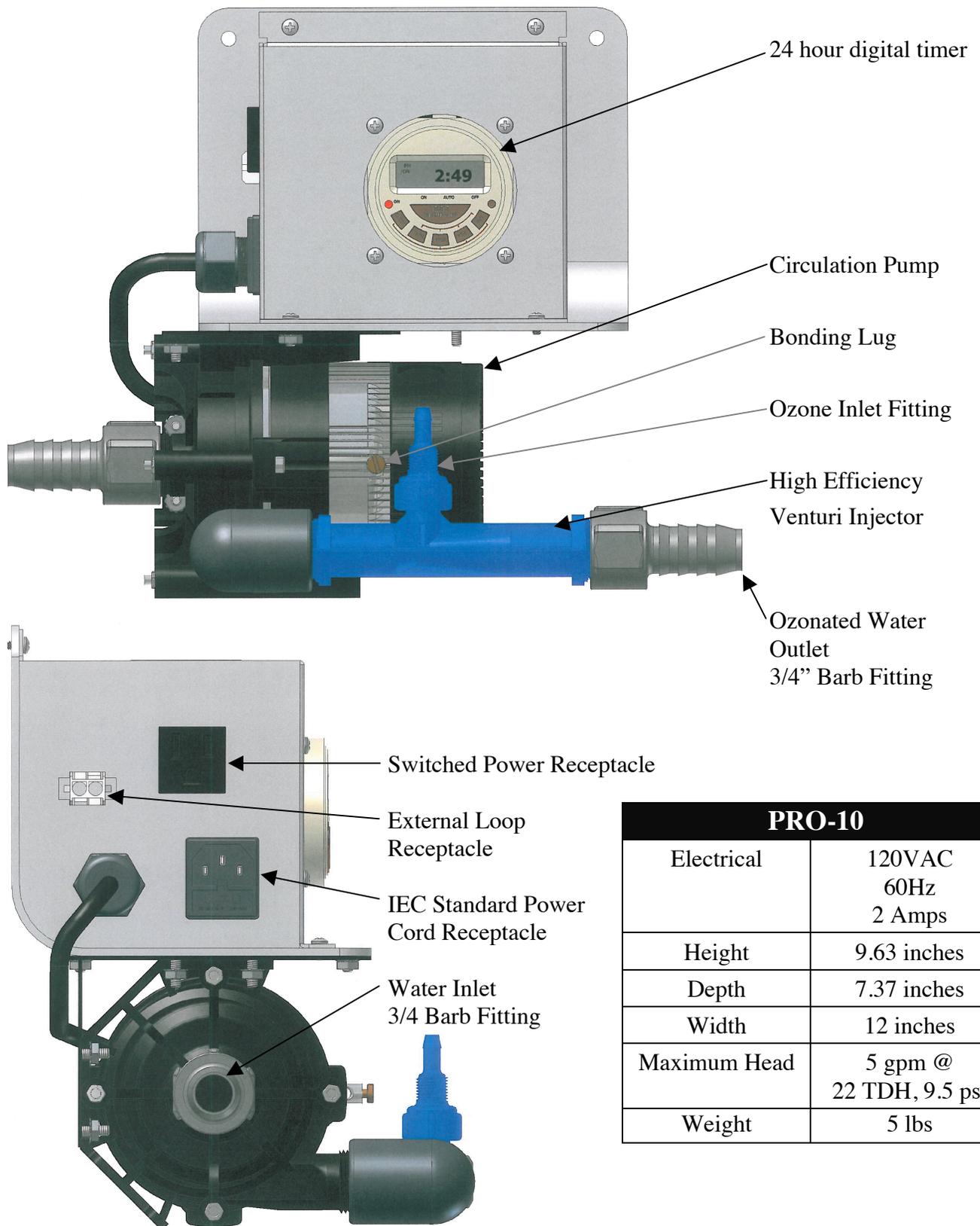
Control Timer - Back

Figure 8



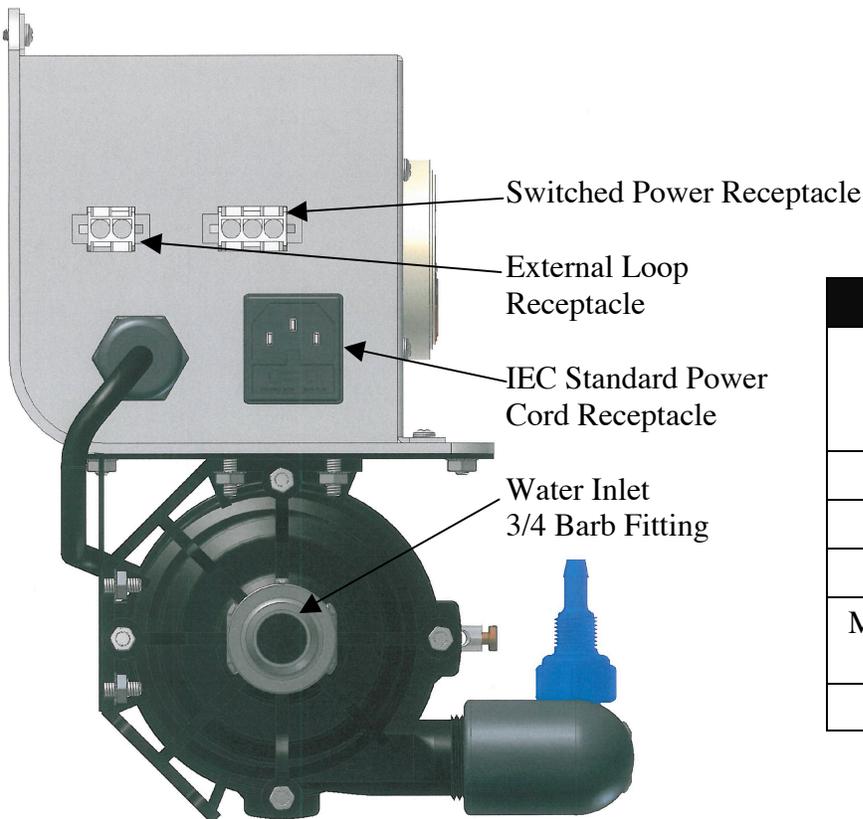
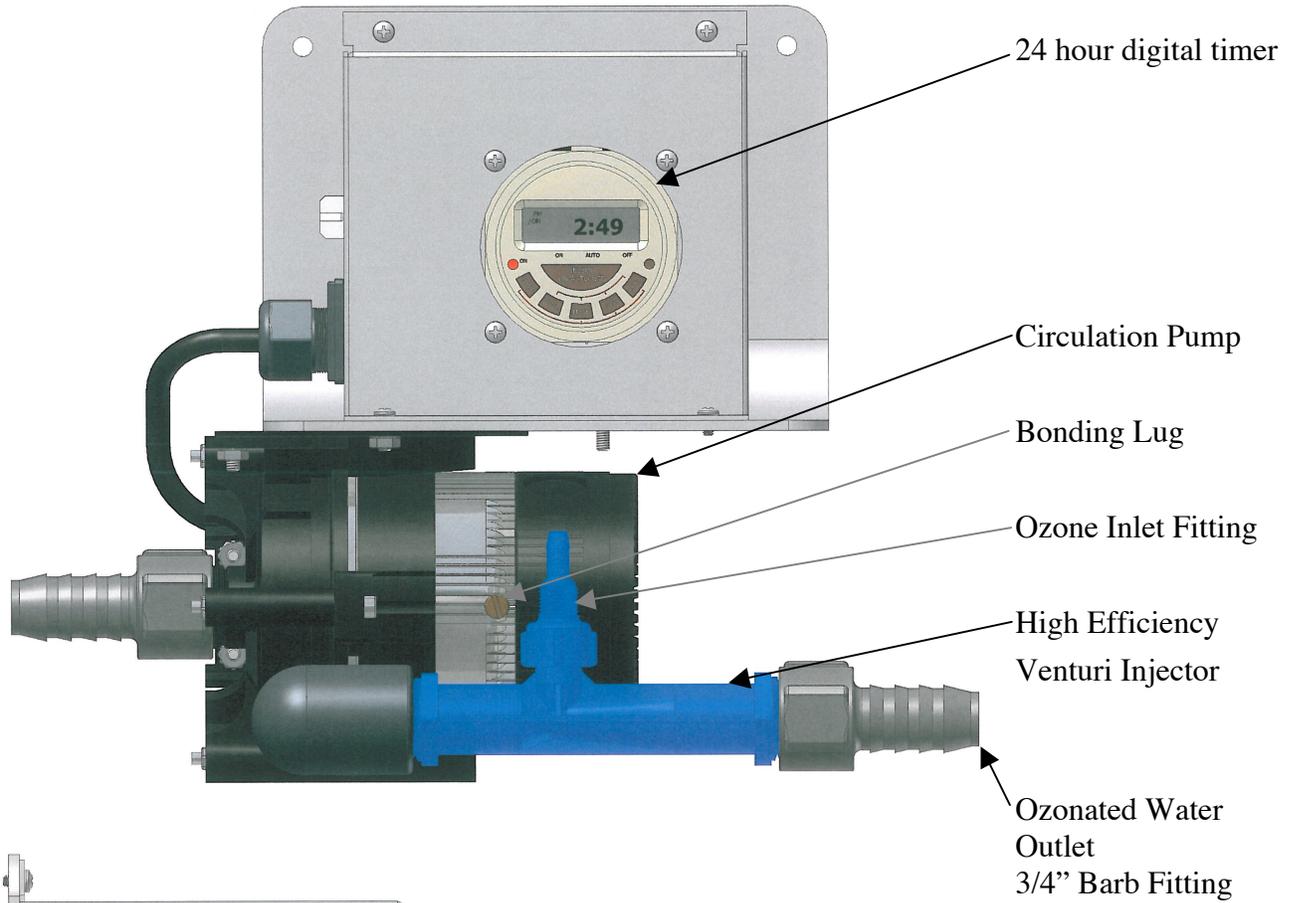
Appendix A – Specifications

PRO-10



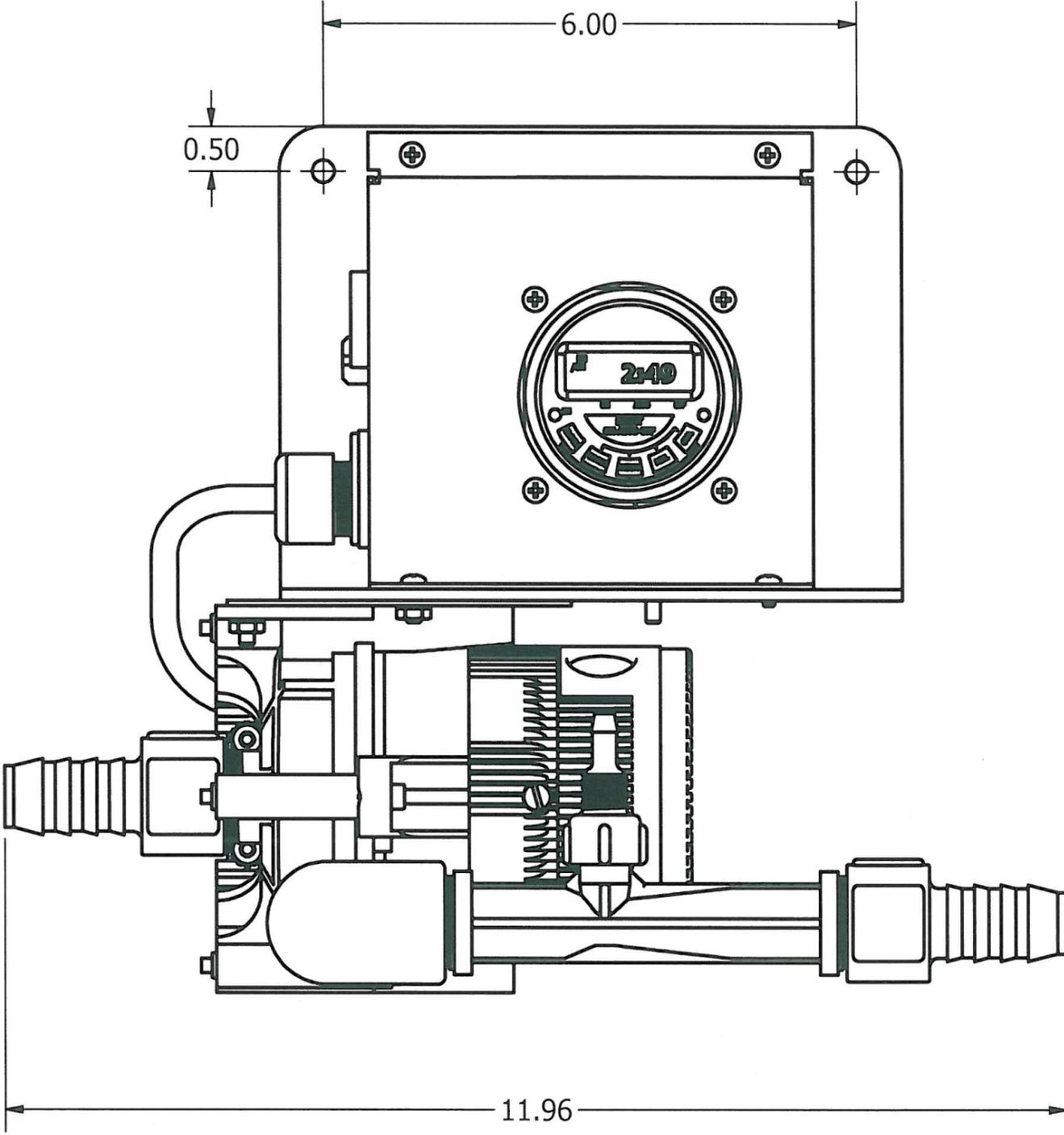
PRO-10	
Electrical	120VAC 60Hz 2 Amps
Height	9.63 inches
Depth	7.37 inches
Width	12 inches
Maximum Head	5 gpm @ 22 TDH, 9.5 psi
Weight	5 lbs

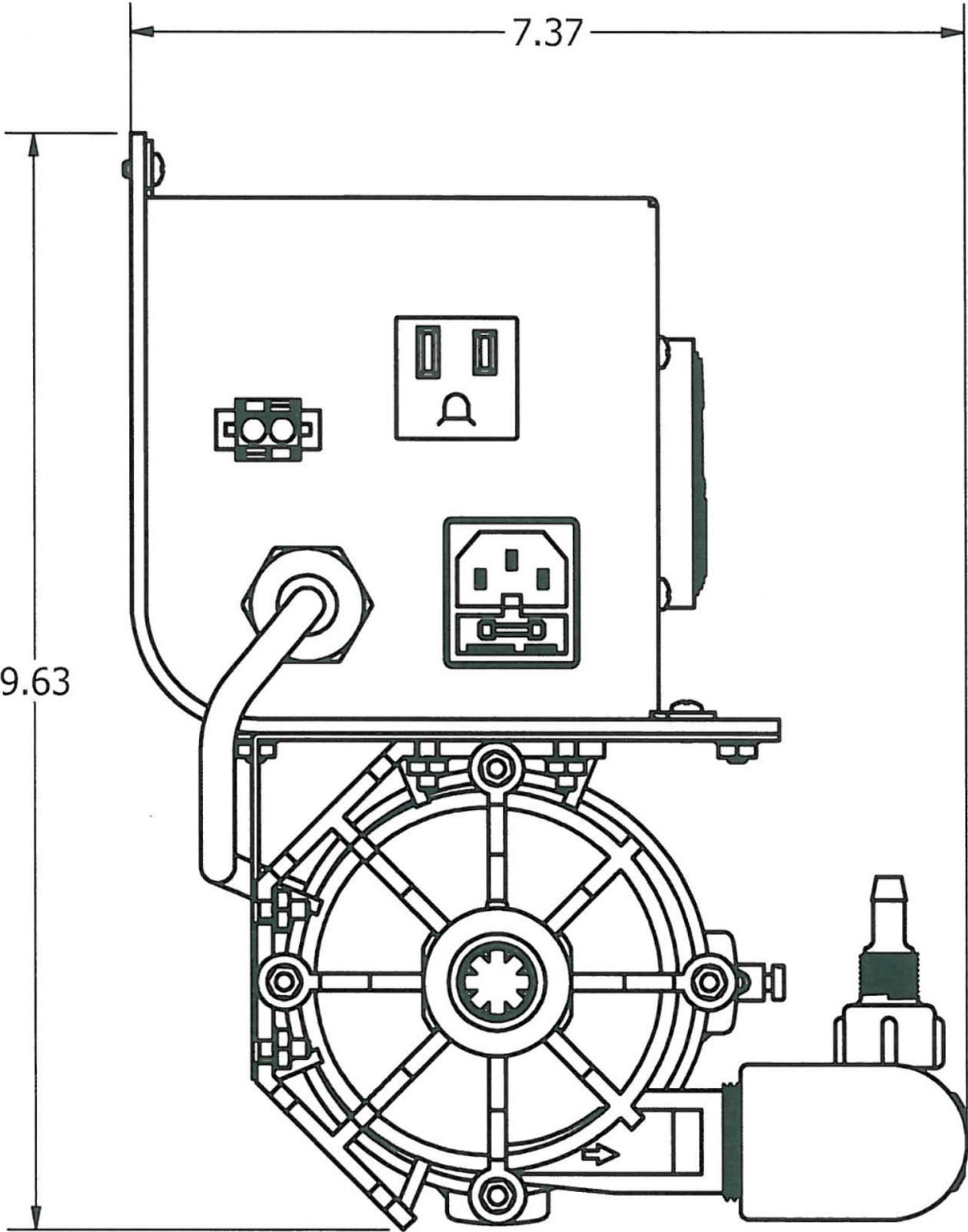
PRO-12



PRO-12	
Electrical PRO-12	240VAC 50Hz 1.6 Amps
Height	9.63 inches
Depth	7.37 inches
Width	12 inches
Maximum Head	5 gpm @ 14 TDH, 6.0 psi
Weight	5 lbs

Appendix B – Mounting Detail





Appendix C – Parts List

PRO-10

Description	Part Number
Circulation Pump	PUC40
Control Timer – 120VAC	TM10
Venturi Injector	VO276
Fuse – 5 Amp, 250VAC	FUS50
Venturi Injector Check Valve Assembly	CKV33

PRO-12

Description	Part Number
Circulation Pump	PUC70
Control Timer – 220/240VAC	TM9
Venturi Injector	VO262
Fuse – 5 Amp, 250VAC	FUS50
Venturi Injector Check Valve Assembly	CKV33

Appendix D – Warranty Information

ClearWater Tech, LLC. Limited One-Year Warranty

Summary of the Warranty

ClearWater Tech, LLC (“CWT”) makes every effort to assure that its products meet high quality and durability standards and warrants the products it manufactures against defects in materials and workmanship for a period of one (1) year, commencing on the date of original shipment from CWT, with the following exceptions: 1) The warranty period shall begin on the installation date if the installation is performed within 90 days of the original shipment from CWT; 2) The warranty period shall begin on the date of the bill of sale to the end user if the installation date is more 90 days after the original shipment date. To validate the warranty, a warranty card, accompanied by a copy of the bill of sale, must be returned to CWT and must include the following information:

- End user name
- Complete address, including telephone number
- Date installed
- Complete model and serial number information
- Name of company from which the unit was purchased

Repairs and replacement parts provided under this warranty shall carry only the unexpired portion of this warranty or 90 days, whichever is longer.

Items Excluded from the Warranty

This warranty does not extend to any product and/or part from which the factory assigned serial number has been removed or which has been damaged or rendered defective as a result of:

- An accident, misuse, alteration or abuse
- An act of God such as flood, earthquake, hurricane, lightning or other disaster resulting only from the forces of nature
- Normal wear and tear
- Operation outside the usage parameters stated in the product user’s manual
- Use of parts not sold by CWT
- Service or unit modification not authorized by CWT
- Check valve/solenoid valve failure
- Damage which may occur during shipping
- Failure to meet service requirements as outlined in the I & O manual

Obtaining Service Under the Warranty

Any product and/or part not performing satisfactorily may be returned to CWT for evaluation. A Return Goods Authorization (RGA) number must first be obtained by either calling or writing your local authorized dealer, distributor or CWT direct, prior to shipping the product. The problem experienced with the product and/or part must be clearly described. The RGA number must appear prominently on the exterior of the shipped box(es). The product and/or part must be packaged either in its original packing material or in comparable and suitable packing material, if the original is not available. You are responsible for paying shipping charges to CWT and for any damages to the product and/or part that may occur during shipment. It is recommended that you insure the shipment for the amount you originally paid for the product and/or part.

If, after the product and/or part is returned prepaid and evaluated by CWT, it proves to be defective while under warranty, CWT will, at its election, either repair or replace the defective product and/or part and will return ship at lowest cost transportation prepaid to you except for shipments going outside the 50 states of the United States of America. If upon inspection, it is determined that there is no defect or that the damage to the product and/or part resulted from causes not within the scope of this limited warranty, then you must bear the cost of repair or replacement of damaged product and/or part and all return freight charges. Any unauthorized attempt by the end user to repair CWT manufactured products without prior permission shall void any and all warranties. For service, contact your authorized dealer or distributor or CWT direct at (805) 549-9724.

Exclusive Warranty

There is no other expressed warranty on CWT products and/or parts. Neither this warranty, nor any other warranty, expressed or implied, including any implied warranties or merchantability of fitness, shall extend beyond the warranty period. Some states do not allow limitation on how long an implied warranty lasts, so that the above limitation or exclusion may not apply to you.

Disclaimer of Incidental and Consequential Damages

No responsibility is assumed for any incidental or consequential damages; this includes any damage to another product or products resulting from such a defect. Some states do not allow the exclusion or limitation of incidental or consequential damages, so that above limitation or exclusion may not apply to you.

Legal Remedies of Purchaser

This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

THIS STATEMENT OF WARRANTY SUPERSEDES ALL OTHERS PROVIDED TO YOU AT ANY PRIOR TIME.