

# OZOTECH

## Enhanced Oxygen Generator EOG 200 & EOG 400

### Operation & Maintenance Manual



## Table of Contents

1.0	Caution	3
2.0	Installation and Operation	4
	2.1 Operating Environment	4
	2.2 Installation	4-5
	2.3 Operation	6
3.0	Maintenance	7
	3.1 Ozone Generator Maintenance	7
	3.2 Timer Service Reset Instructions	7
	3.3 Cleaning a CD Cell	8
	3.4 Replacing a CD Cell	9
4.0	Spare/Replacement Parts	10
5.0	Specifications	10
6.0	Troubleshooting Guide	11
7.0	Limited Warranty	12
8.0	Service Returns	13
9.0	Figure 1.0 Ozotech EOG Internal Layout	14

## Maintenance Notes

Dear Valued Customer:

Welcome to the Enhanced Oxygen Generator (EOG) User Manual

Congratulations on your purchase of an EOG! This comprehensive user manual is designed to be your ultimate guide to unlocking the full potential of your new EOG. Whether you're a first-time user or an experienced water treatment professional, this manual will provide you with the knowledge and insights you need to make the most out of your EOG.

### **What's Inside**

In this manual, you'll find clear and concise instructions on how to set up, operate, and maintain your EOG. We've organized the content in a logical sequence, from initial unboxing to advanced usage techniques, making it easy for you to navigate and find exactly what you need. Each section is accompanied by illustrative diagrams, helpful tips, and troubleshooting suggestions, all aimed at enhancing your experience.

### **Your Feedback Matters**

We're dedicated to continuous improvement, and your feedback is invaluable to us. If you have suggestions for improving this manual please [contact us](#) If you encounter any challenges, please reach out to your local dealer.

Thank you for choosing Ozotech.

## 1.0 Caution



Read the following safety guidelines thoroughly before attempting to operate or install your equipment.



As with all electrical devices, this equipment should never be allowed to come in contact with water.



Only qualified personnel should be allowed to set up, maintain and operate this equipment



The equipment must be operated using a properly grounded electrical circuit that is protected by either a fuse or circuit breaker.



Do not use an extension cord to supply power to this equipment.



**WARNING:** This product contains a chemical known to the State of California to cause cancer. For more information, go to [www.p65Warnings.ca.gov](http://www.p65Warnings.ca.gov).

\* Ozotech, Inc., assumes no liability for damages or injuries incurred by misuse of this product.

## 2.0 Installation and Operation

Your generator requires special operating conditions in order to maintain performance and reliability. Your ozone generator is designed to be operated under a negative pressure situation.

Warranty coverage of your equipment is contingent upon strict compliance with the operating conditions specified in this manual.

### 2.1 Operating Environment

#### External

It is most important to choose a cool, clean external operating environment. Consideration of these factors should be a priority. Mount your ozone generator in the best possible operating environment that is available at the chosen site. If possible, mount in an area that is free of airborne moisture particles.

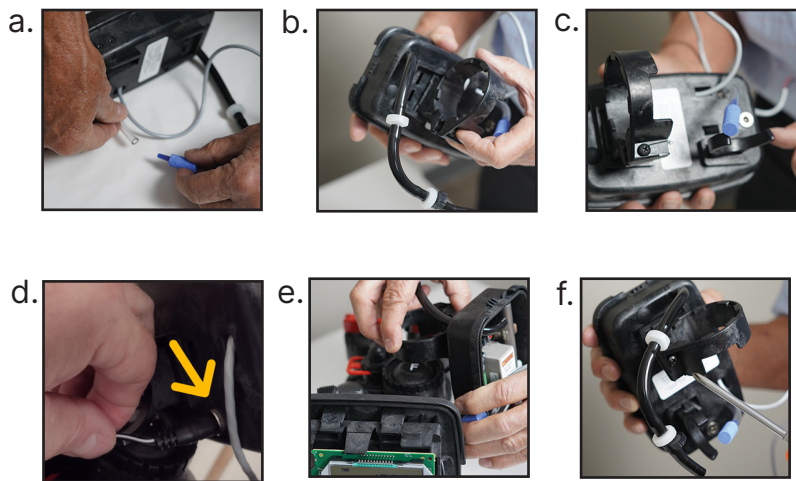
#### Internal

Keep the inside of the generator chassis clean and dry. Dust particles and condensation pose a challenge to the consistent operation of all ozone generators. Make a note to inspect the internal cleanliness of the equipment when scheduled maintenance is performed. For additional information, refer to Section 3.0.

## 2.2 Installation

**Tools required:** #2 Philips screwdriver

1. Mount the EOG to the Clack® control valve.
  - a. Place inlet filter into the clear tube.
  - b. Install clamp ring into EOG backplate receiver.
  - c. Install port clip into EOG backplate receiver.
  - d. Connect the EOG power supply plug to the DC jack on the EOG.
  - e. Loosen clamp screw, slide clamp over valve injector cap. Rotate EOG counterclockwise to secure port clip.
  - f. Tighten clamp screw using a #2 Philips screwdriver.

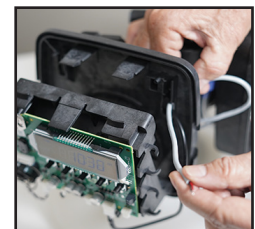


2. Unplug the power supply to the control valve from the wall outlet. Remove the front cover from the valve backplate. Release the control board bracket from the backplate.

3. Route the gray control wire from the EOG into Clack® valve housing through the hole in the backplate, and through the strain relief channel above the Clack® power supply cable to keep wiring in place.

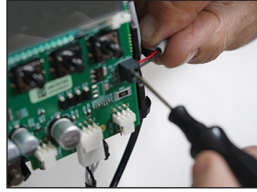
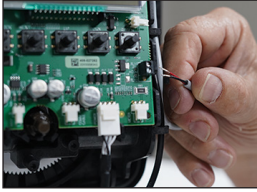
- a. Leave enough wire length to connect to the signal relay terminal block of the control circuit board. Make sure the wire is flush in the channel for proper bracket installation.

- b. Replace the control board bracket into backplate until it “snaps” into place.



## 2.2 Installation Continued

- Secure red wire into RLY 1 terminal, and black wire into +COM terminal on Clack® control board.



- Replace control valve front cover.
- Plug the EOG and control valve power supplies into a wall outlet.
- Program ozone start and end schedule using the control valve PCB:  
Refer to the specific service manual for your Clack® control valve model. Programming steps are based on an WS-1 EE control valve and parameters or settings may vary depending on the particular valve and tank combination used.

Enter "Configuration Settings" mode using the selection buttons.

- Set valve size to (1.5)
- Set the flow meter size to (1.0r) (Press next until the home screen is displayed)

Enter "Cycle Programming" mode using the selection buttons.

- Set control valve to (softening) mode
- Set Brine (Down)
- Set Fill (Post)
  - Set Backwash to (14) minutes
  - Set Draw to (40) minutes
  - Set second Backwash to (OFF)
  - Set Rinse to (OFF)
  - Set Fill to (OFF)
- Set System Capacity to (5)
- Set Volume Capacity to (OFF)
- Set Regen to (OFF)
- Set Regen to (7 or 28 days)  
(Go to "Installer Display Settings" to select regeneration day(s) and time)
- Set Relay (ON TIME)
- Activate Relay (15) minutes
- De-Activate Relay (38) minutes (Press next until the home screen is displayed)

### **EOG 200**

10, 12, 14-inch diameter tanks  
10" = 40 Minute draw  
12" = 60 Minute draw  
14" = 80 Minute draw

### **EOG 400**

14, 16, 18-inch diameter tanks  
14" = 40 Minute draw  
16" = 60 Minute draw  
18" = 80 Minute draw

### **Important Notes:**

- Draw times based on 30% freeboard.
- Relay turns ozone on 1 minute after draw starts and turns ozone off 1 minute before draw ends. Clack Corp. recommends venturi relative to tank size should be used.

## 2.3 Operation

The EOG will automatically turn on and off by the Clack® control PCB defined timing schedule. The EOG control board utilizes an on-board diagnostic LED light to convey real-time status of the unit. The control board within the EOG has several inputs and outputs. The following key addresses the various LED statuses regarding the operation of the EOG.

### **LED Light Indicator Key:**

**Green Light Blinking Slowly:** Standby mode; unit is powered, pilot input is OFF.

**Green Light Blinking Quickly:** High voltage startup (up to 3 seconds).

**Green Light Solid:** High voltage is ON & stable; CD cell(s) producing ozone.

**Red Light Solid:** Unstable operation; CD cell may need cleaning.

**Green/Red Light Alternating Twice/Second:** HV is ON, but operating current is low. If persistent, CD cell(s) may need cleaning.

**Red Light Flashing:** NO or NC contacts are shorted. Remove short condition.

**Orange Light:** 1-year timer has expired; clean CD cell(s), then reset timer by pressing red “alarm reset” button on PCB once.

### **Control Input:**

The EOG PCB is activated to produce ozone when a pilot input signal is applied across “+” and “pilot” terminals.

### **Auxiliary Outputs:**

The NO/NC auxiliary outputs have a 3 second on and off-delay, after the pilot signal is activated or deactivated. These outputs are capable of providing a maximum of 60mA @ 70°F and are intended to be used as a control circuit only.

### **Fusing:**

The control PCB is equipped with automatically resetting on-board fuses. If these fuses trip, due to a short of the HV transformer, or an excessive load on the auxiliary output(s), remove the excessive load/cause of short, and cycle main power on/off to reset. If the HV transformer is shorted, the LED indicator will stay solid red until the condition is remedied. If either NO or NC output is active and experiences excessive load, the LED indicator will quickly flash red until the condition is removed.

## 3.0 Maintenance

The EOG ozone generator is delivered factory tested, calibrated, and adjusted for maximum efficiency and long life. Simple maintenance and appropriate operating conditions are the only requirements to keep the unit functioning within manufacturer's specifications.

Performing any other modifications or adjustments to internal components will cause the unit to function outside of manufacturer's specifications and will cause damage to the unit not covered under warranty terms.

### 3.1 Ozone Generator Maintenance

Frequency of Maintenance:

**Every 12 months, more frequently in high humidity areas.**

Perform the following general maintenance procedure:

1. Disconnect the EOG from the power source.
2. Remove cover.
3. Inspect the inside of the generator for dust and moisture.
4. Thoroughly clean and dry the inside of the generator.
5. Replace top cover.
6. Replace any in-line and brine elbow check valves.

Normally the EOG controller board will signal cell maintenance after one year of service by changing the LED indicator light to orange. Once service has been performed, the timer can be reset by following the timer reset instructions below. However, if the cell is serviced or replaced prior to the one-year service signal, a "forced reset" on the timer should be performed.

### 3.2 Maintenance Timer Service Reset Instructions:

Follow these instructions to perform a reset on the EOG board:

1. Disconnect power from the EOG.
2. Press and hold reset button while re-powering the EOG.
3. Pulsing orange LED will indicate timer rest function is active.
  - \* Press reset button again to complete reset. LED will pulse green when finished.
4. The EOG is now ready to operate as normal.



**Notes:** This feature only applies to EOGs manufactured after May 2020 (See program rev code on side of transformer and/or date code in serial number).

To abort the timer reset once timer reset function is active (pulsing orange), disconnect then reconnect power without pressing any buttons.

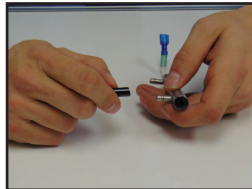
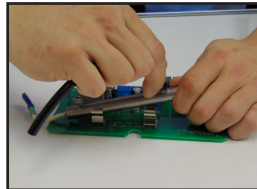
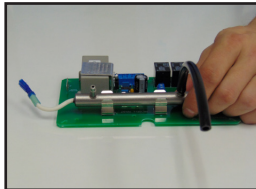


### 3.3 Cleaning the Corona Discharge Cell

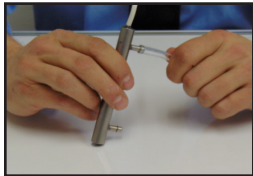


**\*CAUTION: UNPLUG POWER SUPPLY TO EOG BEFORE PERFORMING SERVICE\***

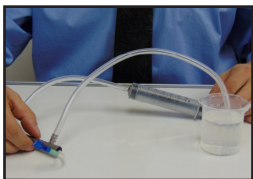
1. Disconnect the cell from the unit by removing cell-to-board electrical connections and the CD cell from its mounting clips. Remove the tubing from the cell barbs.



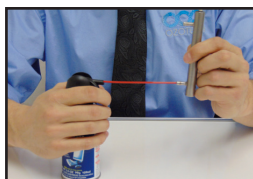
2. Connect the longer piece of clear tubing from your cleaning kit to one of the cell barbs. Attach the shorter piece of clear tubing from the kit to the open CD cell barb. Insert the tubing adapter, attached to the syringe, into the open end of the short piece of tubing. Fill the beaker included in your kit with warm water. Place the open end of the long clear tube into the beaker. Now you're ready to flush the cell. **Note:** Hot water can be used if nitric acid buildup is severe.



3. Flush water through the cell by pulling back and pushing the syringe plunger. Water may become cloudy or discolored as the nitric byproducts are released from the CD cell during flushing. Discard and replace warm water in the beaker as cloudiness continues. Flush the CD cell until the water is clear.



4. Remove both pieces of tubing from the CD cell barbs. Dry the cell using the can of compressed air supplied in your kit. Place the nozzle of the compressed air into one of the barbs of the CD cell. Depress the trigger on the can to dry the cell until all moisture is evacuated from the cell.



### 3.4 Replacing a Corona Discharge Cell



**\*CAUTION: UNPLUG POWER SUPPLY TO EOG BEFORE PERFORMING SERVICE\***

1. With the cover of your specific unit removed, remove the CD cell from the ozone generator:
  - a. Disconnect any electrical connections between the CD cell and the electronics board.
  - b. Remove and discard any shipping ties that may be securing the CD cell(s).
  - c. Disconnect the air inlet and ozone outlet hoses from the CD cell barb fittings.
  - d. Pull the CD cell straight up from the retaining clips.
  
2. Replace with a new CD cell in reverse order, making sure all air and electrical connections are secure.



*New CD cell as installed on the EOG 200*

## 4.0 Spare/Replacement Parts

Part #	Description
33218-R	Replacement CD cell and adapter kit
47049	Ozone resistant in-line check valve* (1)
40080-01	Wall transformer, 100-240Vac to 12Vdc/2A, regulated (domestic customers only)
47044-1	CD cell maintenance kit

\* Denotes recommended spare maintenance parts with initial purchase. Followed by additional quantity recommended for one year's scheduled maintenance.

## 5.0 Specifications

Specification	EOG 200	EOG 400
Operating Voltage	12 Vdc via 120/240Vac 50/60Hz switching power supply	12 Vdc via 100-240Vac 50/60Hz switching power supply
Power Consumption	600mA @ 12Vdc (7.2 Watts) nominal	1.2A @ 12 Vdc (14.4 watts) nominal
Ozone Output	220 mg/hr	440 mg/hr
Size	6.8" x 4.4" x 5.4"	6.8" x 4.4" x 7"
Shipping Weight	2 lbs.	3 lbs.
Enclosure	ABS	ABS

## 6.0 Troubleshooting Guide

System	Possible Cause	Solution
Unit doesn't turn on	Unit is not connected to power source, or is connected to improper power source	Refer to input power requirements on pg. 10, and Figure 1 on pg. 14 for proper electrical connections.
	Electrical short circuit	Visually inspect unit and check for loose connections. Inspect printed circuit board (PCB) for burn marks. Inspect HV wire from PCB to CD cell for disconnection or burn marks. Repair any and all problems prior to placing unit back into service, or contact factory for service.
	Unit is connected to improper power source	Refer to pg. 10 to ensure that unit is plugged into proper voltage outlet.
Unit turns on, but no ozone output	Frequency driver high voltage lead not connected to ozone cell	Connect red flag terminal to CD cell spade connection.
	Water has been allowed to back up into the CD cell(s) and has caused a direct short	Dry CD cell using drying procedure on page 8. Replace CD cell(s).
	Cell is plugged with build-up of nitrous byproducts and particulate matter. Usually caused by the lack of proper air preparation	Refer to section 3.3 on page 8 to clean CD cell. Replace CD cell(s).
	Frequency driver is defective	Contact dealer for service.

## 7.0 Limited Warranty

OZOTECH, Inc., warrants the EOG ozone generator to be free from defects in parts and workmanship for (12) months from date of invoice, under conditions of normal use. The corona discharge cell is warranted against catastrophic electrical failure for 3 years from date of invoice. All other parts, repaired or replaced, will be warranted only for the remainder of the original warranty period.

OZOTECH, Incorporated will refund the purchase price, perform repairs or replace equipment, at the option of OZOTECH, Incorporated.

The warranty shall be null, void, and non-binding upon OZOTECH, Incorporated if OZOTECH, Incorporated (or authorized service center) determines the cause of malfunction or defect to be a result of:

1. Failure to perform proper maintenance as defined and recommended in this manual.
2. Failure to adhere to and provide proper operating conditions, as defined in this manual, including operation outside of temperature range, operating in wet or dirty environment, operation outside of manufacturer's specifications.
3. Adjustments made by user other than product output flow rate within ranges specified by manufacturer.

OZOTECH, Incorporated assumes no liability for damages incurred by deliberate or incidental misuse of this product, or damages incurred in transit.

Read Limited Product Warranty > [Link](#)

## 8.0 Service Returns

If the need arises to return your equipment for service, the following procedure must be followed to ensure accurate and timely processing of repairs.

- ✓ Obtain model number/name of unit to be returned.
- ✓ Contact Ozotech, Inc and request a Return Material Authorization (RMA) form. Make sure to give the factory representative an accurate and current shipping address.
- ✓ Provide a description detailing the problem with the unit. Be as specific as possible.
- ✓ After receipt of RMA form, package unit for shipment. Enclose the RMA form with the unit. Use the original packaging materials if possible. If not, please package the product to ensure against shipping damage.
- ✓ Clearly write the RMA number on the outside of the shipping package.
- ✓ Verify that the address is correct and current.
- ✓ Shipments that are not factory authorized will be refused.

It is recommended that you ship with a reputable and reliable shipping company, and that the contents of the package are insured. Ozotech, Inc. accepts no responsibility for damage or loss of equipment in transit.

### **ALL FREIGHT CHARGES INTO THE FACTORY MUST BE PREPAID.**

If the repair is covered under warranty, the factory will pay return shipping charges (surface rates only) to the address listed on the RMA, within the Continental United States.

If the repair is not covered under warranty, the returning party is responsible for payment of return shipping and handling charges, as well as labor and equipment costs associated with the repair.

# 9.0 Figure 1.0

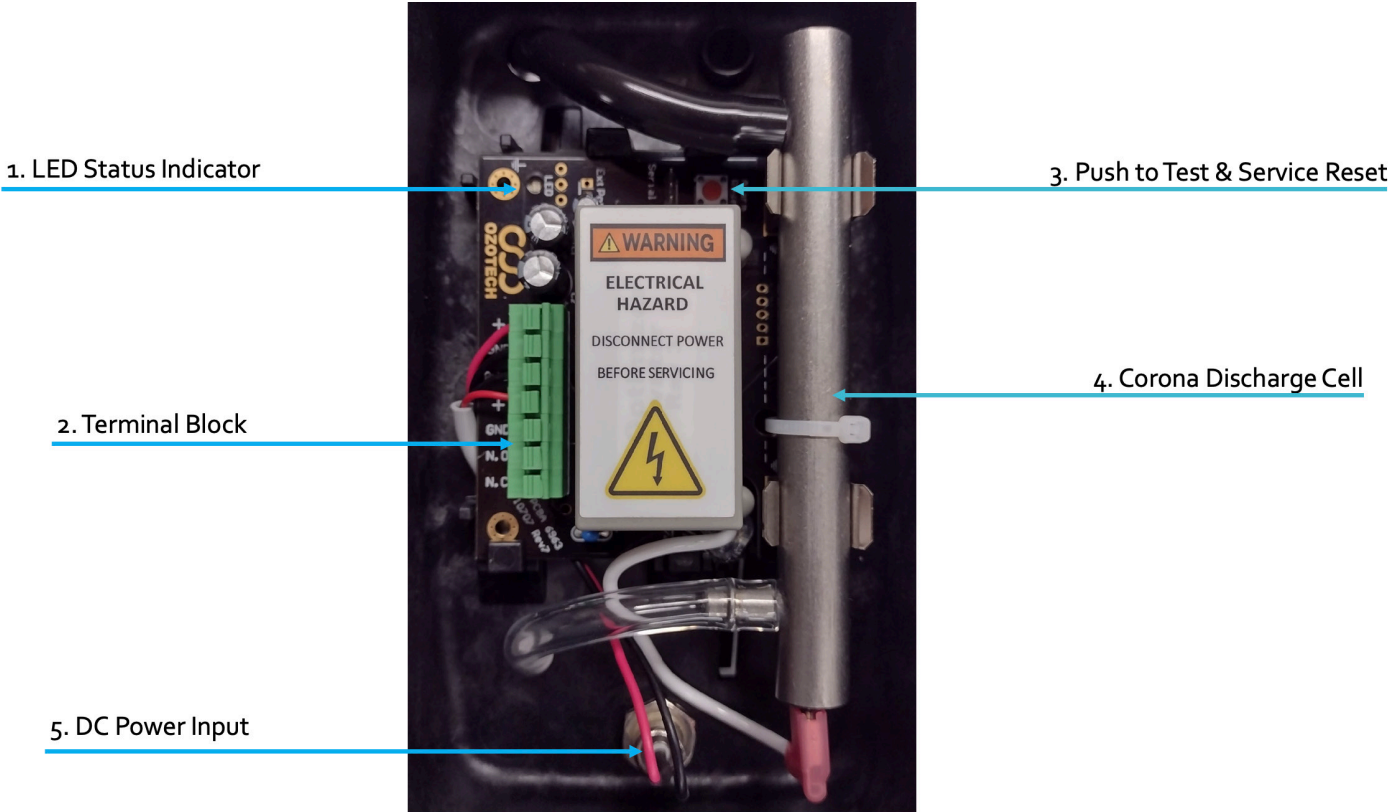


Figure 1: EOG internal layout

# Maintenance Notes