OZOTECH
Applied Ozone Technologies

OzotechEOG

Enhanced Oxidation Generator

Installation and Service Manual

Table of Contents

1.0 Limited Warranty

Ozotech, Inc., warrants the OzotechEOG series ozone generators to be free from defects in parts and workmanship for (12) months from date of invoice, under conditions of normal use. The corona discharge (CD) cell is warrantied 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.

2.0 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.

3.0 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.

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

4.0 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.

4.1 Operating Environment

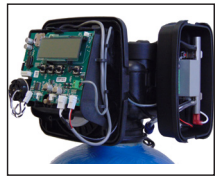
External
It is most important to choose a cool, clean external operating environment. Consideration of these factors should be a priority. Mount your ozone generator in the best possible operating environment that is available at the chosen site. If possible, mount in an area that is free of airborne 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 further information, refer to section 5.0.

4.2 Installation

1. Mount the OzotechEOG to the Clack® control valve. A #2 Philips screwdriver will be required.
    a. Install clamp ring into OzotechEOG backplate receiver.
    b. Install port clip into OzotechEOG backplate receiver.
    c. Loosen clamp screw, slide clamp over valve injector cap. Rotate OzotechEOG counterclockwise to secure port clip. Tighten clamp screw.

2. Disconnect power to the control valve. Remove the front cover from valve backplate. Release the control board bracket from backplate.



3. Route the grey control wire from the OzotechEOG into Clack® valve housing through the hole in the backplate, and through the strain relief channel above 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.

4.2 Installation Continued

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

5. Replace control valve front cover.

6. Plug the supplied wall transformer into a wall outlet. Plug the male DC plug into the female DC jack located at the back of the OzotechEOG. Press alarm reset button on OzotechEOG PCB to reset 365 day maintenance timer.

7. Program ozone start and end schedule using control valve PCB.

    a. Enter cycle programming mode

    b. Set backwash to 14 minutes

    c. Set draw time to 40 minutes

    d. Turn off fill

    e. Turn off rinse

    f. Set relay to "on"

    g. Set the relay on time to 15 minutes (one minute longer than backwash)

    h. Set the relay duration for 38 minutes (2 minutes less than draw time)

    i. Return to service

    j. Press regeneration button to lock in timing

4.3 Operation

The OzotechEOG will automatically turn on and off by the Clack® control PCB defined timing schedule. The OzotechEOG control board utilizes an onboard diagnostic LED light to convey real-time performance status of the unit. The control board within the OzotechEOG has several inputs and outputs. The following will address functions of the diagnostic LED, control input, and auxiliary outputs.

LED Diagnostic Functions:

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 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 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, then reset timer by pressing red "alarm reset" button on PCB once.

4.3 Operation Continued

Control Input:
The OzotechEOG PCB is activated to produce ozone when a pilot input signal is applied across "+" & "pilot" terminals.

Auxiliary Output Functions:
The NO/NC auxiliary outputs have a 3 second off-delay, after the pilot signal is shut off. These outputs are capable of outputting a maximum of 60mA @ 70°F and are intended to be used as a control circuit only. Attach positive wire to NO or NC output terminal, and negative wire to GND terminal to complete the desired circuit. See figure 1, on page 14 for auxiliary output locations.

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 excessive load on the auxiliary output(s), remove 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 condition is remedied. If either NO or NC output is active and experiences excessive load, the LED indicator will quickly flash red until condition is removed.

5.0 Maintenance

The OzotechEOG 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.

5.1 Ozone Generator Maintenance

Frequency of Maintenance: **Every 12 months, more frequently in high humidity areas.**

Perform the following CD cell cleaning procedure:

Note: A CD cell cleaning kit may be purchased from Ozotech, Inc. Reference section 6.0 for more information.

__CAUTION:__ UNPLUG POWER SUPPLY TO OzotechEOG BEFORE PERFORMING SERVICE

1. With the front cover removed, remove the CD cell from the ozone generator:

a. Disconnect the red spade terminal connector from the CD cell connection terminal.

b. Cut the CD cell retaining strap holding the cell into the cell clips, and discard.

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. Flush the CD cell with warm water until the water comes out entirely clean:

a. Connect a 3/16" I.D. piece of tubing to either of the CD cell barb fittings.

b. Using a syringe or rubber bulb pump to work the warm water through the CD cell, flushing until all nitric acid or obstructions are removed, and the water runs clean.

(NOTE: Hot water can be used if nitric acid buildup is severe)

3. Ensure that the CD cell is completely dry, inside and out, before re-installation:

a. Use dry, compressed air to blow through either CD cell barbed fitting until no moisture is ejected from the opposite barbed fitting.

5.1 Ozone Generator Maintenance Cont.

4. Reinstall clean, dry CD cell into OzotechEOG in reverse order, making sure all air and electrical connections are secure.

Frequency of Maintenance: Every 12 months

Perform the following general maintenance and CD cell cleaning procedure:

1. Disconnect OzotechEOG from 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 inline and brine elbow check valves.

Maintenance timer service reset instructions:

Normally the EOG II controller board will signal cell maintenance is due by changing the LED indicator light to an orange color, once service has been performed then the timer will be reset simply by pressing the "Alarm Reset" button.
However, if a technician services or replaces the cell prior to the 1-year service signal is displayed, a "forced reset" on the timer should be performed.

Follow these instructions to do the reset...

1. Power off device by removing DC plug from back of EOG.
2. Remove front cover to access circuit board.
3. Find and press "Alarm Reset" button. Continuing to hold reset button, return power to device by plugging power plug back in. Hold button for 3 seconds, no indicator lights should be on.
4. After 3 seconds, release button. LED indicator light should pulse slowly in an orange-red color. This indicates maintenance timer reset function has been triggered.
   Note: If a technician wants to abort the reset, power cycle device again without pressing any buttons now and original condition will be restored.
5. Press alarm reset button again to reset maintenance timer. LED should turn green.
6. EOG is now ready to operate as normal.

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

6.0 Spare/Replacement Parts

Part #	Description
33218	Replacement CD cell, w/tubing
47035	Ozone resistant inline check valve* (1)
40080-03	Wall transformer, 120/240VAC to 12VDC, regulated (domestic customers only)
47044-1	Kit, CD cell maintenance

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

7.0 Specifications

Input Power Requirements:

Operating Voltage: 12VDC via 120/240VAC 50/60Hz switching power supply

Power Consumption: 600mA @ 12VDC (7.2 watts) nominal

Size (L x W x H): 6.8" x 4.4" 5.4"
Shipping Weight: 2 lbs.
Ozone Output: 220 mg/hr.
Enclosure: ABS

8.0 Component Replacement

CD Cell Replacement

CAUTION: UNPLUG POWER SUPPLY TO OzotechEOG BEFORE PERFORMING SERVICE

1. With the front cover removed, remove the CD cell from the ozone generator:

a. Disconnect the red spadeterminal connector from the CD cell connection terminal.

b. Cut the CD cell retaining strap holding the cell into the cell clips, and discard.

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.

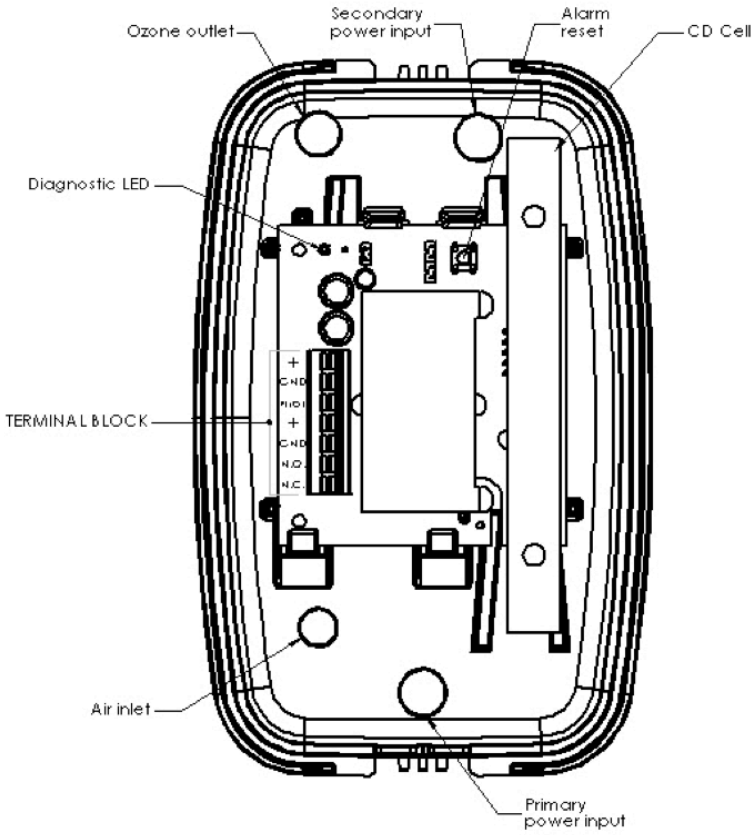
2. Replace with new CD cell in reverse order, making sure all air and electrical connections are secure.

9.0 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. 12, 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. 12 to ensure that unit is plugged into proper voltage outlet.
Unit turns on, but no ozone output	Frequency driver is defective	Replace PCB board.
	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 and has caused a direct short	Dry CD cell using drying procedure on pg. 10. Replace CD cell.
	Cell is plugged with build-up of nitrous byproducts and particulate matter. Usually caused by the lack of proper air preparation	Refer to section 5.1 on pg. 10 to clean CD cell. Replace CD cell.

10.0 Illustrations

Figure 1: OzotechEOG internal layout



Maintenance Notes

Maintenance Notes

Ozotech, Inc. • 1015 S. Main, Yreka, CA 96097 • Ph. 530.842.4189
ozotech.com