

# APG-U

Advanced Plasma Gap

## APG Universal Voltage Installation Manual



  
**DEL ozone™**  
advanced sanitation solutions

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## IMPORTANT SAFETY INSTRUCTIONS

When installing and operating the DEL APG ozone generator, basic precautions should always be followed:

### READ AND FOLLOW ALL INSTRUCTIONS

- Read this manual completely before attempting installation.
- All permanent electrical connections should be made by a qualified electrician.
- Follow all applicable electrical codes.
- Be sure the electrical power is shut OFF at the main circuit breaker before installing the APG.
- If the APG electrical connection is to be attached to the spa controls, be sure the spa controls are protected by a Ground Fault Circuit Interrupter (G.F.C.I.). If the APG is connected to an independent electrical supply, then a G.F.C.I. must be installed between the APG and the electrical supply.
- **WARNING** - To reduce the risk of electrical shock, if the power cord is damaged, replace the entire unit immediately.
- The APG must be mounted indoors or sheltered, under a cover, from natural elements (rain, sun, sprinklers).
- Mount the APG so that it is inaccessible to anyone in the spa.
- Install a check valve in the tubing between the APG and the vacuum source.
- Plastic ozone supply tubing is available with the APG. Never replace this tubing with metal tubing.
- Do not operate the APG unless sufficient air flow is being drawn through the unit.
- **WARNING:** Short term inhalation of high concentrations of ozone and long term inhalations of low concentrations of ozone can cause harmful physiological effects. Do not inhale ozone gas produced by this device.

**SAVE THESE INSTRUCTIONS!**

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## INSTALLATION INSTRUCTIONS

### 1. Mounting

- The APG must be mounted horizontally with ozone tubing connection pointing down. Use both mounting flanges.
- Mount as high as possible within the protected equipment area.

### 2. Plumbing - DEL Mixing System

- For optimal dissolution of ozone into the water, install the DEL Mixing System in the water circulation line as generally shown in Figure 2.
- For other circulation systems or vacuum sources, DEL Industries provides a wide range of installation kits. Contact DEL Customer Service for assistance.

### 3. Plumbing - Ozone Generator

- Connect ozone compatible tubing (1/4" internal diameter) to the open hose barb on the APG.
- Run tubing to the ozone injector or appropriate vacuum source.
  - If the ozone generator is mounted above the water line, tubing may be run directly to the vacuum source.
  - If ozone generator is mounted below the water line, run tubing to a point above the water line and back down to the vacuum source.
- Install the check valve in the tubing above the water line. Ensure flow direction is from the APG to the vacuum source.
- Secure all tubing connections with hose clamps.

### 4. Electrical

- Verify that there is no power to the spa and connect the APG cord into the mating connector(s) on the spa control box.
- Where possible, route the APG power cord away from other electrical lines. Avoid routing the power cord parallel to any low-voltage signal wires.

### 5. Operation

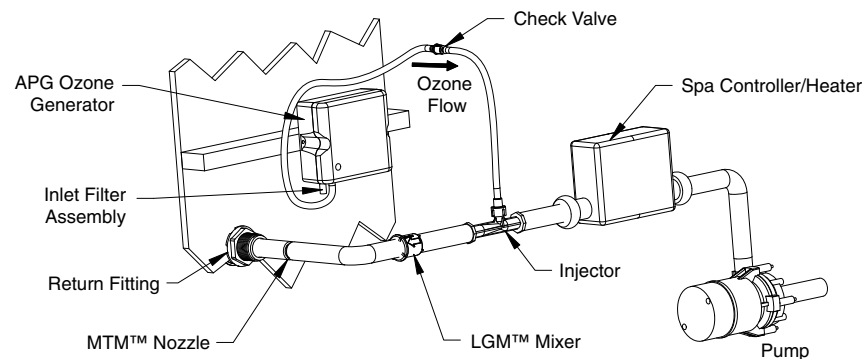
- With the spa filled to the proper level, run the spa controller through several cycles.

- Verify that the green light on the APG turns on and off as required by the controller.
- Verify that gas is flowing into the injector (there should be no water in the tubing and very small bubbles at the return).
- Verify that water does not push past the check valve during any spa cycle.
- Check for and correct any leaks in the ozone tubing.

Figure 1: APG Mounting & Connections



Figure 2: DEL Optimized Mixing System



**DEL OZONE  
LIMITED ONE YEAR WARRANTY**

The limited warranty set forth below applies to products manufactured by DEL OZONE – 3580 Sueldo Street, San Luis Obispo, California 93401, and sold by DEL OZONE or its authorized dealers. This limited warranty is given only to the first retail purchaser of such products and is not transferable to any subsequent owners or purchasers of such products.

DEL Ozone warrants that it or its authorized dealers will repair or replace, at its option, any part of such products proven to be defective in materials or workmanship within ONE (1) year from the date of retail purchase of such products. (All parts) ANY REPAIR OR REPLACEMENT WILL BE WARRANTED ONLY FOR THE BALANCE OF THE ORIGINAL WARRANTY PERIOD OR NINETY (90) DAYS, Whichever is greater.

**NOTE: USE ONLY DEL AUTHORIZED DEL REPLACEMENT PARTS. USE OF ANY OTHER PART(S) WILL VOID THIS WARRANTY.**

*Any replaced parts must be returned to DEL OZONE for warranty evaluation.*

**THIS LIMITED WARRANTY DOES NOT INCLUDE ANY OF THE FOLLOWING:**

- (a) Any labor charges for troubleshooting, removal, or installation of such parts.
- (b) Any repair or replacement of such parts necessitated by faulty installation, improper maintenance, improper operation, misuse, abuse, negligence, accident, fire, flood, repair materials, and/or unauthorized accessories.
- (c) Any such products installed without regard to required local codes and accepted trade practices.
- (d) Damage to unit caused by water backflow.
- (e) Any implied warranty of merchantability or implied warranty of fitness for particular purpose, and such warranties are hereby disclaimed.
- (f) DEL Ozone shall not be liable under any circumstances for loss of use of such product, loss of profits, direct damages, indirect damages, consequential damages, and / or incidental damages.

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

**TO OBTAIN WARRANTY SERVICE:**

DEL OZONE  
 3580 Sueldo, San Luis Obispo, CA 93401  
 Customer Service Number: (800) 676-1335  
 Fax Number: (805) 541-8459  
 E mail: [warrantysupport@delozone.com](mailto:warrantysupport@delozone.com) (residential)  
           [service@delozone.com](mailto:service@delozone.com) (commercial)

**PROVIDE:**

1. Customer name, mailing address, and telephone.
2. Installer/Mechanical Contractor or Dealer name.
3. Unit Part Number, Serial Number or Manufacture Date, and date of purchase.
4. The date of failure.
5. A description of the failure.

After this information is provided, DEL Ozone may release a RETURN GOODS AUTHORIZATION (RGA) NUMBER. After receiving the RGA number the part in question must be returned to DEL Ozone, freight prepaid, with the RGA number clearly marked on the outside of the package. All preauthorized defective parts must be returned to DEL Ozone within thirty (30) days. Under no circumstances may any product be returned to DEL Ozone without prior authorization. Returns without the assigned RGA number on the outside of the package will be refused and shipped back to the sender at their expense. Upon receipt of preauthorized returned goods, DEL Ozone will repair or replace, at DEL Ozone's option, the defective product(s) and return them (freight prepaid for products under warranty). Buyer's acceptance of the product and use thereof constitutes acceptance of these terms.

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**DEL OZONE WARRANTY REGISTRATION CARD**

Product Serial Date: \_\_\_\_\_

*Fill out completely and return to DEL Ozone within ten (10) days of purchase.*

**Customer Information**

Name: \_\_\_\_\_

Phone: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

**Dealer Info**

Dealer Name: \_\_\_\_\_

Phone: \_\_\_\_\_

Dealer Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

**Purchase/Product Info**

Purchase Date: \_\_\_\_\_

Date Installed: \_\_\_\_\_

Comments / Questions: \_\_\_\_\_

**DO NOT FORGET TO CUT OUT, PLACE IN ENVELOPE AND MAIL TO THE FOLLOWING ADDRESS FOR INSTANT WARRANTY COVERAGE!**

**DEL Ozone**

ATTN: Warranty Dept.

3580 Sueldo Street

San Luis Obispo, CA 93401



3580 Sueldo Street, San Luis Obispo, CA 93401

(800) 676-1335

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