

# AQUANOVA™

UV + OZONE SPA SANITIZER



**READ AND FOLLOW ALL INSTRUCTIONS**  
**SAVE THESE INSTRUCTIONS**

International Patent #9,938,166

Patented Micro-Ozone cell ozone  
technology: Patent #8367007

## IMPORTANT SAFETY INSTRUCTIONS

### Read the maintenance instructions before opening the appliance.

The appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction. Children being supervised are not to play with the appliance.



Appliance contains a UV-C emitter.

### **IMPORTANT: Make sure the water circuit this appliance is connected to is bonded to earth.**

Warning: UV emitted from this lamp. Skin or eye injury could result. Avoid exposure of eyes and skin to unshielded lamp.

Warning: Do not operate the UV-C emitter when it is removed from the appliance enclosure.

Precautions to be taken when replacing UV-C emitters.

Unintended use of the appliance or damage to the housing may result in the escape of dangerous UV-C radiation. UV-C radiation may, even in little doses cause harm to the eyes and skin.

Appliances that are obviously damaged must not be operated.

### **DANGER!: Risk of Injury! READ AND FOLLOW ALL INSTRUCTIONS.**

The appliance is to be supplied through a residential current device (RCD) having a rated residual operating current not exceeding 30 mA.

If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons to avoid hazard.

The appliance shall only be connected to a similar non transparent, non metallic pipe to prevent UV radiation.

After the installation, the UV radiation shall not escape from both ends of the pipes.

- ALWAYS disconnect power to spa before removing spa sanitizer for service. Failure to do so could result in severe injury or death.
- No part of the appliance is to be located above the tub during use.
- This device incorporates electrical components, so it must be located or fixed so that it cannot fall into the tub.
- This device contains live parts, so it must be inaccessible to a person in the tub.
- Connect to a ground, grounding type receptacle only.
- NEVER install this device yourself. This device must be installed by a qualified service professional or electrician.
- NEVER submerge device in water.
- NEVER use product with damaged power cord. Replace damaged cord immediately.
- Do NOT bury cord.
- NEVER allow children to use this product.
- NEVER mount product to spa exterior.

## FOR THE RECORD

You should record the model and serial numbers, which can be found on the back of the unit, for future reference.

Warranty: One (1) year warranty on sanitizer, check valve assembly & UV-C Lamp

Model: AquaNova®

Serial Number: \_\_\_\_\_

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

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

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

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

International Patents Pending for the combination ozone injection  
& UV-C mixing process.

Patented Micro-Ozone cell ozone technology: Patent #8367007



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## Section 5

### Troubleshooting

#### 5A. Troubleshooting

**Improper servicing will void the warranty. Use only qualified technicians for internal repairs.**

1. Symptom: No Air Flow (bubbles)
  - A. Possible cause: Internal Injector is not supplying adequate suction.
  - B. Check that pump skimmer and filter are clean.
  - C. Check that the AquaNova® Spa Sanitizer is plumbed in the correct direction.
  - D. Ensure that there is no debris clogged inside the injector.
  - E. The device is not mounted high enough. Try to mount the device higher in the equipment bay. If this does not improve the bubbles see below.
  - F. Possible cause: the check valves are clogged. Replace the check valve and tubing assembly. We recommend the tubing and the check valve assembly be replaced annually.
  - G. Check that the air inlet is not clogged by removing it temporarily. If this fixes the issue contact your dealer for a replacement.
2. Symptom: Ozone tubing becomes yellow and brittle.
  - A. This is normal as long as the tubing does not crack or leak. Because of this we recommend the check valve assembly be replaced annually.
3. Symptom: UV-C Lamp is not illuminated.
  - A. Check that power is coming from the Spa Control Pack. Make sure the control pack is programmed to switch on the AquaNova® Spa Sanitizer during the filtration cycle.
  - B. Check UV Status LED. If red, it may be failed lamp, ballast or bad connection.
4. Symptom: Lights on the AquaNova®.
  - A. Two red lights: The main control pack has placed the Aqua Nova® in standby mode. This is due to the high-speed pump or booster pumps being turn on.
  - B. The two green lights will resume when the main control pack goes back to filtration mode and activates the Aqua Nova®.

#### **CAUTION: Risk of Personal Injury!**



- DANGER ULTRAVIOLET RADIATION. The appliance must be disconnected from the supply before replacing the UV-C emitter.
- WARNING: Disconnect the appliance from the supply before carrying out maintenance.
- Warning: UV emitted from this lamp. Skin or eye injury could result. Avoid exposure of eyes and skin to unshielded lamp.
- NEVER look at the UV lamp when powered on.
- NEVER breathe in or ingest the nitric acid crystals for any reason. Crystals from nitric acid can accumulate in the air lines of the spa ozonator. Wear protective gear when working on the ozonator. Nitric acid will cause chemical burns on skin, if unprotected.
- NEVER blow into the spa ozonator or connected plumbing for any reason.
- NEVER inhale concentrated ozone gas produced by this device for any reason because it can cause serious harmful effects.
- NEVER place tubing connected to this device in your mouth for any reason.



#### **SAFETY: Product Safety Agency Ratings**

This spa sanitizer has been tested and designed for safety and given the UL Certification. If properly installed, ozone performs its oxidizing function and separates before off gassing.

#### **Note:**

As with all alternate sanitizing systems, it will not replace the chlorine residual you need to retain in your system to ensure the health of your swimmers.

This product must be installed underneath the spa in the equipment compartment with extra care to ensure it is not exposed after installation.

## **Section 1**

### General Information

#### **Specifications:**

- For bodies of water up to 5,000 gallons (20,000 ltrs).
- Flow rate: will vary with installation: 4—12 GPM (15LPM—45LPM).
- Ozone output: 80mg/hr.
- UV: 254 nanometers

#### **Power requirements:**

- North America: 120V | 300mA | 22 Watts / 240V | 240mA | 23 Watts
- Europe: 230V | 240mA | 23 Watts

#### **Weight:**

- Approx. 3.3 pounds (1.5kg)

#### **Location Requirements:**

- Install AquaNova® after all other equipment and as high as possible.
- Operating Water Temp: 5°C to 40°C
- Ambient Temp: 30° F—113°F (0°C—45°C)

#### **Warranty Summary**

- Limited Warranty: One (1) year warranty on sanitizer, check valve assembly & UV-C Lamp. Contact Aqua Sun Ozone for warranty claims.

## **IMPORTANT**

**YOU MUST CONTINUE TO CHECK YOUR WATER CHEMISTRY REGULARLY AND SOME SANITIZING CHEMICALS WILL STILL BE NECESSARY TO TREAT THE WATER. CONSULT YOUR SPA PROFESSIONAL FOR FURTHER ADVICE.**

#### **4D.** Standard Replacement Parts List

1. Ozone Check Valve. (Replace annually to ensure optimal performance.)
2. Tubing
3. UV-C Replacement Lamp (replace every 10,000 hours, LED will flash yellow to indicate it is time to change the lamp.)
4. Quartz Tube
5. Ballast

Ordering information: Call 1.888.320.8500 for ordering assistance. Please have the following with you when calling for assistance.

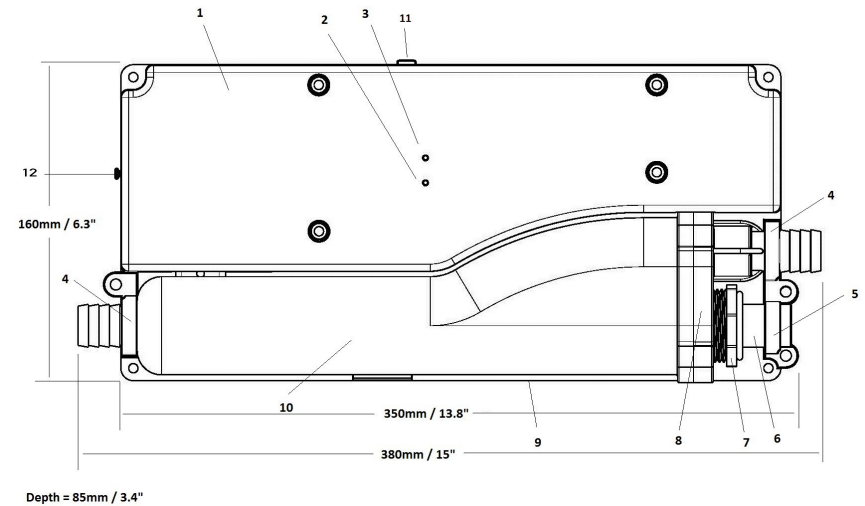
1. Contact information
2. Shipping address
3. Credit card for payment

If you experience complications, see TROUBLESHOOTING Section 5.

**4C. Cleaning the Quartz Tube**—AquaNova® Spa Sanitizer houses the UV-C Lamp in a Quartz Tube. It is critical that this tube remains clean and clear for optimum performance. Due to the benefits of the patent pending combined ozone/UV mixing chamber, it is very rare that the quartz tube will require cleaning. This is due to the fact the system self cleans throughout the hydroxyl radical production process. Never-the-less, it is a good idea to check, and clean if necessary, the Quartz Tube; this is best done when replacing the UV-C Lamp.

1. Remove the UV-C Lamp as per the previous instructions, ensuring lamp and tube have cooled.
2. Empty the spa or make sure the device is isolated by closing off valves (if fitted) to ensure water cannot drain out of the spa through the AquaNova® Spa Sanitizer.
3. Loosen the Quartz Tube Retaining Nut and remove. You may need to use a spanner.
4. Slide the Quartz Tube out of the Chamber Cap Housing.
5. Check Quartz Tube to ensure it is clean, clear, and free from deposits.
6. Clean the Quartz Tube with a general household glass cleaner, or rubbing alcohol. Do not use abrasive cleaners as they may scratch the high quality quartz glass. **ENSURE THE INSIDE OF THE TUBE IS COMPLETELY DRY BEFORE REINSTALLING THE LAMP.**
7. Check the rubber seals for cracking or any signs of brittleness. Replace if necessary.
8. Replace the Quartz Tube into the Chamber Cap and refit the seals with the hard plastic washer to the outside. This washer acts as a bearing surface when tightening against the retaining nut.
9. Refit the Retaining Nut being careful to **not** over tighten, as this may crack or break the Quartz Tube. You may need to use a spanner.
10. Refit the UV-C Lamp.
11. Open up valves or refill the spa and check for leaks.

**Parts Diagram:**



Reference	Description
1	Cover Cowling
2	LED Indicator - UV
3	LED Indicator - Ozone
4	UV Hose Barb Clamp
5	UV Boot Clamp
6	UV Boot/Lamp Connector
7	UV Quartz Tube Retaining Nut
8	UV Chamber Cap
9	Mounting Plate
10	UV Chamber
11	UV Lamp Life Timer Reset
12	Air inlet

## Section 2

### Overview

#### **AquaNova® Specifications**

- \* Ozone output: 80mg/hr.
- \* UV-C Lamp: 254 Nanometers
- \* Power input:
  - ◆ North America: 120V 60Hz or 240V 50/60Hz
  - ◆ Europe: 230V 50/60Hz
- \* Dimensions: 13.8" (350mm) x 6.3" (160mm) x 3.4" (85mm)
- \* Weight: 3.3 lbs (1.5kg).
- \* Air inlet: Filtered Ambient Air
- \* LED indicator to signal Ozone and UV operating normally (green)
- \* LED indicator to signal UV-C Lamp replacement (flashing yellow)
- \* LED indicator to signal non-operational (red)

#### **Features**

- \* UL / TUV / SAA Certified
- \* Water resistant to IPX5
- \* Ozone/UV-resistant components
- \* Can be mounted horizontally or vertically
- \* Compact design and quiet operation
- \* Patent pending combination ozone injection & UV-C mixing process all within the same chamber. No need for separate injector.
- \* Advanced Oxidation Process all in the one appliance.

#### **You Will Need:**

1. Drill with a Phillips head bit
2. 2ea hose clamps

#### **Components Included:**

1. UV-C + O3 Sanitizer

#### **Simple Annual Maintenance:**

1. To maintain the life your AquaNova® Spa Sanitizer, and your spa, replace the check valve assembly annually.
2. Replace UV-C Lamp every 10,000 hours or when flashing yellow LED indicates to do so.

## Section 4

### Maintenance and Service

While operating, check regularly to see if bubbles are entering the spa.

#### **4A. Internal Components:**

- Ozone Module
- UV-C Lamp
- Lamp Ballast
- Control Circuit Board
- Quartz Tube
- Check valve assembly—replace check valve assembly annually to ensure continued optimal performance from the AquaNova® Spa Sanitizer.

**4B. Replacing UV-C Lamp and Resetting Timer**—After 10,000 hours the UV LED will begin flashing yellow indicating it's time to replace the UV-C Lamp.

1. DANGER—ULTRAVIOLET RADIATION. Disconnect power before replacing UV-C Lamp.
2. Turn off power to spa and allow lamp to cool.
3. Remove the UV boot clamp and the hose barb clamp.
4. Disconnect the UV-C Lamp from the lamp socket, and slide it out from inside the tube. (Discard lamp at appropriate location-do not discard in garbage can. Visit [www.LampRecycle.org](http://www.LampRecycle.org) for disposal instructions).
5. **DO NOT TOUCH THE LAMP GLASS:** Ensure you handle the UV-C Lamp ONLY at the white ends. Insert new UVC it into the tube and reconnect the lamp socket. Ensure there is a good seal.
6. Refit UV boot clamp and hose barb clamp.
7. Turn power back on to the spa.
8. With power on, hold down the reset button, and the LED lights will both flash yellow. After about 10 seconds both lights will illuminate green, release reset button.
9. You're all set.

**Power & No Flow Protection:** The AquaNova™ Spa Sanitizer has no built-in flow protection. It relies solely on the spa control pack to provide electrical power and flow protection. When the spa pump comes on in filtration mode, the AquaNova™ Spa Sanitizer will come on. When the pump turns off, or the filtration mode finishes, the AquaNova™ Spa Sanitizer will turn off. Some spa control packs power the AquaNova™ Spa Sanitizer only on filtration cycles while others power it every time the filtration pump comes on. Check with your spa supplier as to how your spa is configured.

The filtration pump must be running with good flow every time the AquaNova™ Spa Sanitizer comes on.

## Section 3

### Operation

#### General

To achieve optimal performance from the AquaNova® Spa Sanitizer start with a clean spa.

1. Backwash or clean filters one day before installing AquaNova®.
2. Super chlorinate spa water using chlorine based shock treatment.
3. Test spa chemistry and adjust pH between 7.4 and 7.6. Adjust total alkalinity between 80ppm and 120ppm.
4. Run spa filtration continuously for 24 hours prior to starting AquaNova®.
5. Via the spa control system, set filtration cycles that combine the filtration pump and the AquaNova® Spa Sanitizer to run together. Refer to spa control owners manual for instructions on how to do this.
6. Set the filtration cycle frequency and duration to best suit your particular spa as per the spa manufacturer's recommendations. Longer filtration cycles may be required if the plumbing by-pass method has been used to plumb the spa.
7. A supplementary sanitizer will be required to use in conjunction with the AquaNova® Spa Sanitizer.

#### General Product Information

The AquaNova® Spa Sanitizing system is designed for use with portable spas and be controlled by the spa's equipment pack. Any application outside of this may void the warranty. Please check with the manufacturer or supplier for suitability before installing in other applications.

**THIS UNIT IS FOR USE ONLY ON PORTABLE SPAS. DO NOT USE THIS UNIT FOR DRINKING WATER SANITATION.**

This system combines the benefits of both Ozone and UV-C sanitization utilizing a patented UV Chamber to both inject ozone into the water, mix it and then expose it to powerful UV-C rays, all-in-one. This process not only kills and deactivates microorganisms in the water as it passes, but also creates a powerful hydroxyl radical to burn off contaminants and dissolved solids within the water to significantly increase the clarity of the spa water. The UV-C rays also breakdown chloramines which are the main cause of respiratory, eye, and skin irritation typically associated with chlorine. Harmful/corrosive off-gassing is also dramatically reduced through this process.

**System Sizing:** This unit is compatible with most typical spa installations. Refer to your spa manufacturer or supplier for details as to the most appropriate system for your spa. The AquaNova™ Spa Sanitizing system will accommodate most spa water capacities, but **flow rate through it must not exceed 19GPM (75LPM)**. Flow rates in excess of this will not allow the water sufficient exposure time to the UV-C Lamp to effectively deactivate microorganisms. For installations where the flow rate used for the filter/sanitization cycle exceeds 19GPM (75LPM) it is recommended the unit be installed by way of a plumbing bypass, or side stream, so as the flow can be regulated through the system at, or below, the maximum recommended flow rate (refer to plumbing diagrams for further information on this.)

## Installation

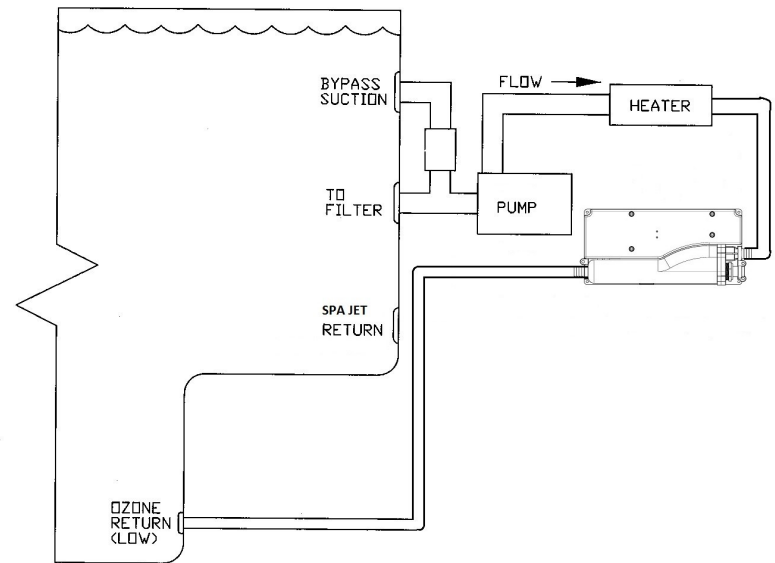
1. Turn off power to spa. You may choose to install isolation valves.
2. Install the spa sanitizer, positioning it where best suited for your spa. Bracket the device or use cable ties to secure it in the equipment bay as high as possible. The device can be mounted horizontally or vertically. **Do not mount to the spa shell.** If mounting horizontally, locate a spot 3/4 of the way up from the bottom of the spa.
4. If your spa has a venturi injector, remove it and skip to step 5. Otherwise, after the heater, locate the 3/4" hose and cut the hose ensuring there is enough hose on either side to reach in the inlet and outlet barbs of the AquaNova® Spa Sanitizer.
5. Connect the hose, coming out of the heater, to the inlet barb (right hand side of unit when mounted horizontally) and secure with hose clamp.
6. Connect the hose, returning to the spa, to the outlet barb (left hand side) and secure with hose clamp. See plumbing schematics for further detail.
7. Turn on spa and check for leaks, then plug in the AquaNova™ Spa Sanitizer into the appropriate power outlet on the spa control system (typically "Ozone Output.")
8. Check for illumination of two green LED lights. (It may take up to 3 minutes for the green LED light to illuminate. This is normal.)
9. Note small bubbles in the spa when in recirculation mode.

## System Shut-Down

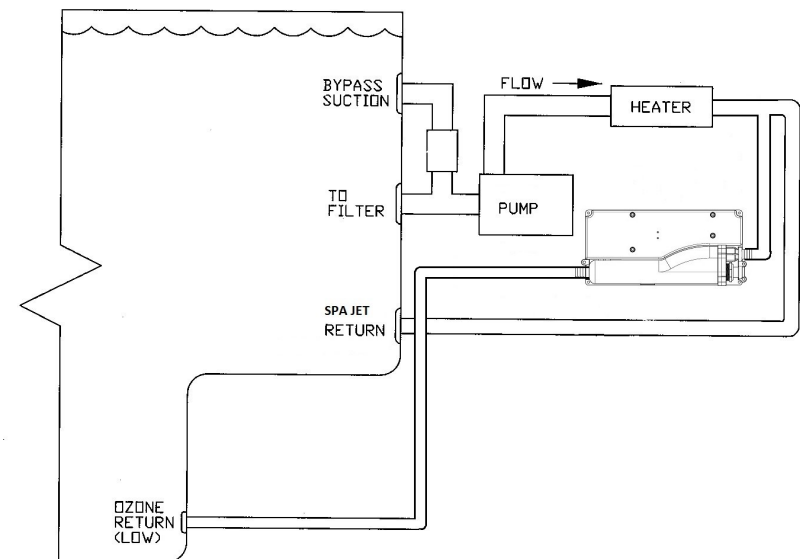
1. If the system is to be shut down for an extended period disconnect power to the AquaNova® Spa Sanitizer.

**Plumbing Detail:** The following diagrams illustrate full flow and bypass (side-stream) plumbing configurations. The by-pass method should be used for filtration flow rates exceeding 19GPM (75LPM).

**This diagram is for information only, and the AquaNova™ Spa Sanitizer should be mounted as high as possible.**



**Full Flow Plumbing Schematic**



**By-Pass (Side-stream) Plumbing Schematic**