

UV SANITIZER

OWNER'S MANUAL

Important safety information
Read, follow and keep these instructions

SAFER, HEALTHIER & EASIER TO MANAGE THAN TRADITIONAL SANITIZERS

& specifically designed for your spa's demanding environment.



Currently, there isn't any system that eliminates the need for chemical sanitizers entirely, but our UV sanitizers maximize the effectiveness of ultraviolet light to minimize chemical consumption.

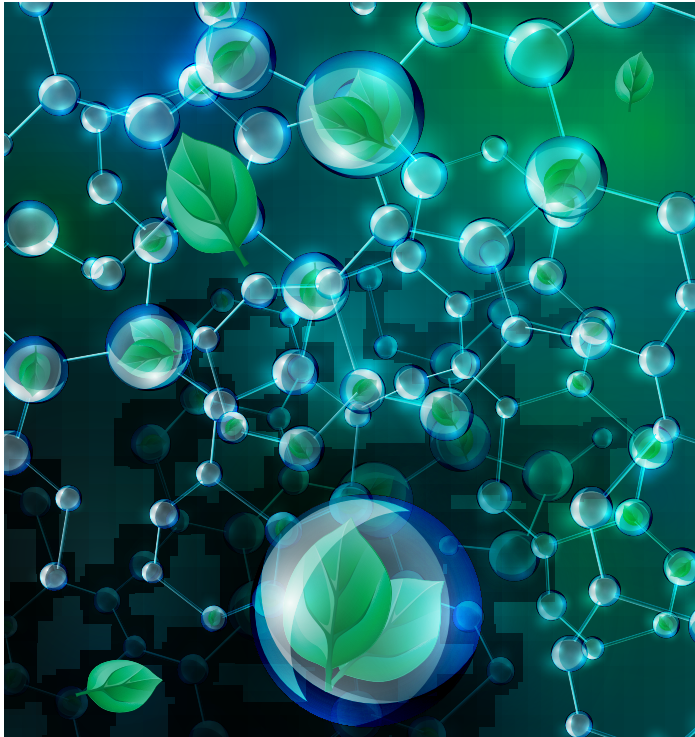
One of only four methods approved by the FDA for disinfecting water, UV light has been used commercially in the pharmaceutical, cosmetic, beverage, and electronics industries for decades. Unlike traditional sanitation which is a chemical process, disinfecting water with UV light is a physical process that alters the DNA of microorganisms and pathogenic bacteria, impeding their ability to grow, reproduce and infect other organisms.

The warm water in your hot tub is an ideal environment for bacteria to thrive and infect unsuspecting users when left unchecked. Highly concentrated UV light waves neutralize pathogens and other chemical resistant waterborne bacteria. While chlorine and other chemical sanitizers leave behind chemical by-products that make your water uncomfortable, UV light waves destroy organic matter in your water and eliminate chloramines that cause red, stinging eyes, skin irritation, respiratory issues, and allergies.

Combining UV light with ozone a short lived safe and environmentally friendly chemical reaction occurs creating hydroxyl radicals that maximize chloramine removal, disinfection, and water clarity and quickly convert back into oxygen after oxidation occurs.



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EPA Approved, UV disinfection is environmentally friendly, consumes very little energy, and requires very little maintenance making it an extremely cost efficient and convenient way to purify your water. It does, however, have some limitations. On its own, UV light can't eliminate all contaminants but when combined with ozone, the Advanced Oxidation Process that occurs creates hydroxyl radicals that helps eliminate sediments, metals, salts and complex organic matter that may be present in your water.

Whenever the water circulates in your spa, high intensity germicidal UV-C light waves pass through a specialized quartz sleeve destroying water-borne pathogens in untreated water as it passes through the sterilization chamber. Disinfection only occurs inside the sterilization chamber and eventually, all of the water circulates through, but chemical sanitizers must be used to inactivate microbes that survive or that are introduced into the water after treatment.

Since UV light must reach the bacteria for inactivation to occur, the effectiveness of UV sanitation is dependent upon exposure time, lamp intensity, and equipment maintenance. Your water must be clear, and the quartz sleeve must be kept clean. Murky water creates a barrier between the UV rays and micro-organisms, blocking the transmission of UV light waves and preventing the direct contact required for disinfection. Organic matter, sediment, and water with high mineral content can coat the quartz sleeve, resulting in lowered doses and reduced disinfection.

Safe for humans, animals, plants and our planet, UV sanitization minimizes the time, effort and expense of maintaining your water chemistry and requires very little maintenance. Following the instructions and maintenance recommendations in this guide will keep your UV system operating efficiently.



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SAFETY WARNINGS

Failure to follow these instructions may result in property damage or bodily injury.

- Always turn the GFCI off before servicing your spa or performing maintenance on this unit.
- Misuse of this product may be harmful to your health and the environment. This unit is designed for use in spas only. It is not intended for use in potable drinking water.
- This unit contains a UV-C lamp. Do not operate the UV-C lamp when it is removed from the unit enclosure.
- Never look at the UV lamp when lit, which can cause severe eye injury or blindness.
- Unintended use of the unit or damage to the housing may result in the escape of dangerous UV-C radiation. UV-C radiation may, even in small doses, cause harm to the eyes and skin.
- Do not inhale or blow into supply lines for the UV unit or ozonator for any reason.
- The UV-C lamp in this unit contains mercury. Dispose of lamps properly in accordance with disposal laws. To find laws regulating lamp disposal, visit www.LampRecycle.org
- This unit 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 and instruction. Do not allow children to play with this appliance.
- Do not submerge UV Unit in water.
- Disconnect UV Unit if quartz tube, UV lamp, water or power supply lines are damaged. Contact dealer for replacement parts and discontinue use of UV unit until installed.
- A splitter connects the UV unit and ozonator securely to the mating connector for the ozonator on the spa control circuit board. Refer to the diagram inside the lid of the spa controls to locate the ozonator circuit.
- This unit is provided with a grounding lug and must be electrically bonded to the spa common bonding grid. Connect the grounding lug with the spa common bonding grid with a #8 minimum solid copper wire.
- This unit must be installed entirely inside the spa cabinet and must be securely mounted to the spa frame.
- Only use replacement UV lamp recommended by the manufacturer and distributed by their authorized dealers and distributors.



Allow to cool completely prior to maintenance.

UV Light can reduce chlorine consumption up to 90% but doesn't eliminate chemical sanitizers entirely. Maintain free chlorine level of .5 to 1 PPM.

After cleaning or servicing UV sanitizer, make sure quartz sleeve is tightly sealed before reinstalling the UV lamp and securing mating connector to circuit board.

Always wear latex gloves when handling UV lamp.



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MAINTENANCE

Maintenance is minimal but essential for effectiveness & efficiency.

- Always turn the GFCI OFF before performing maintenance or service.
- Allow the UV lamp to cool completely before beginning maintenance.
- Always wear latex gloves when handling the UV lamp.
- Replace the UV-lamp every 12 months. UV-lamps gradually lose intensity.
- Clean the exterior of the quartz sleeve at least every six months. Over time, sediment and mineral deposits build up on the quartz sleeve, preventing UV Light penetration which reduces disinfection.
- Never clean quartz sleeve with abrasive cleaners, which will damage the surface. Wipe with a 50/50 mixture of vinegar and water and a soft cotton cloth. Household lime removal products may be used to remove more stubborn build-up.
- Each time you clean the quartz sleeve, inspect it carefully for chips, cracks, or other signs of damage. Do not reinstall if damaged. Contact your dealer for a replacement and discontinue use of your UV system until it is installed.
- The quartz sleeve and UV lamp do not bend. When removing them for maintenance, pull gently straight out. Do not attempt to remove them at an angle.
- Test your water at least twice each week even if you haven't used your spa. Take the appropriate steps to balance your water chemistry whenever necessary.
- Monitor bacteria levels. Steady increases can signal the need to change your filters or the accumulation of deposits on the quartz sleeve. Cleaning requirements vary upon many factors, including mineral content in your water, the frequency of use and bather loads.
- Clean filters each month. For optimal efficiency replace filters every three months.
- Like most of the components in your spa, the UV sanitizer must be permanently connected to a reliable power source when the spa is filled with water.
- Do not allow UV Unit to freeze. The quartz sleeve and UV lamp will be damaged if the water inside the sterilization chamber freezes. If you winterize your spa or if there is any risk of freezing, remove the entire unit, drain the water, clean and dry thoroughly and store in a warm location until it can be safely reinstalled.



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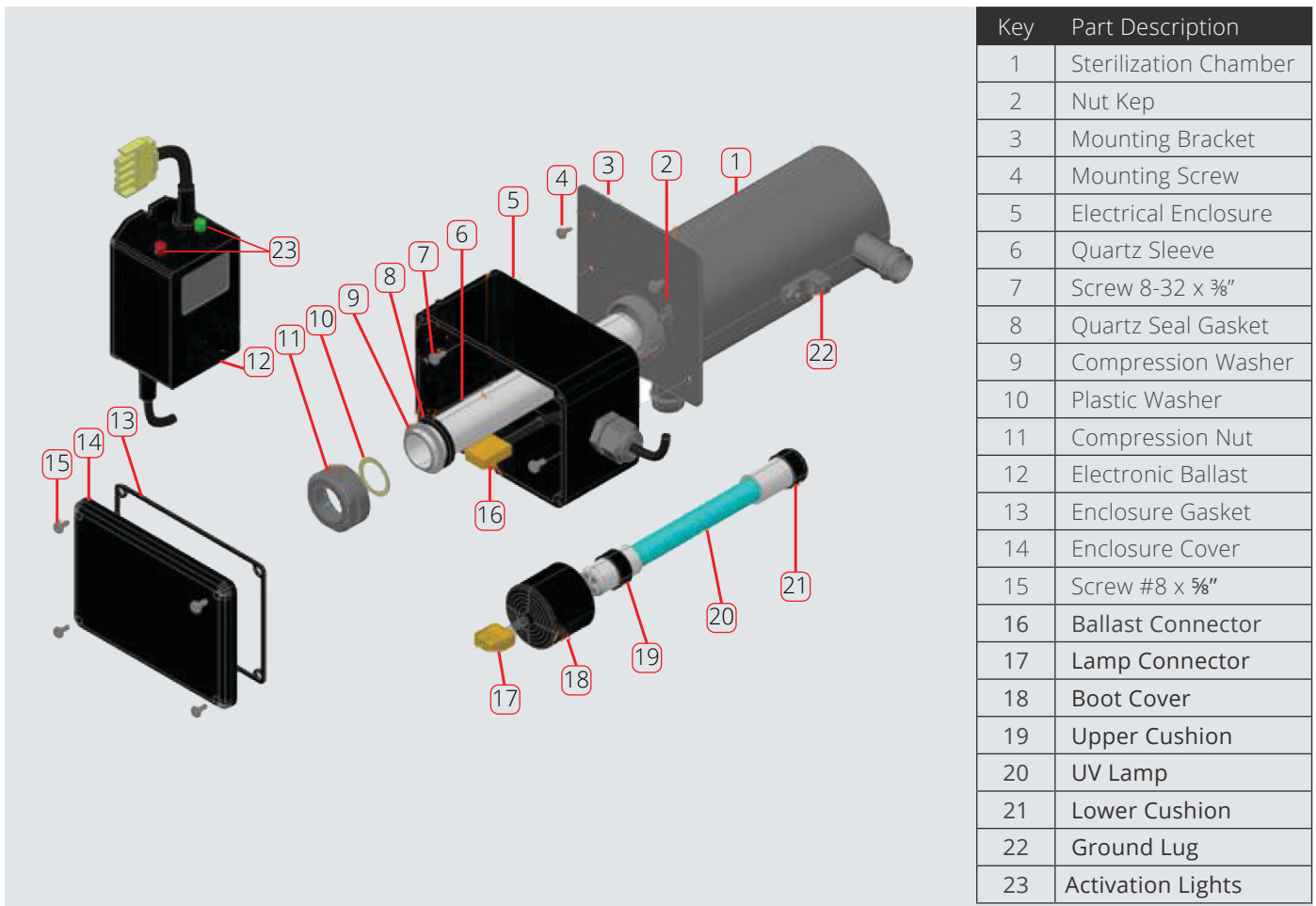
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REPLACING THE UV LAMP

THE UV LAMP SHOULD BE REPLACED EVERY 12 MONTHS.

Danger: Never look at the UV lamp when lit, which can cause severe eye damage or blindness.

Warning: Allow the UV lamp to cool completely before beginning maintenance.

Warning: Always wear latex gloves when handling UV lamp.

1. Turn the GFCI Off. Wait a minimum of 20 minutes before proceeding, allowing UV lamp to cool completely.
2. Remove the spa control cover and disconnect the UV unit from the spa circuit board.
3. Remove enclosure cover (#14).
4. Slowly and carefully disconnect the UV Lamp Connector (#17) from Ballast Connector (#16).
5. Slowly and carefully remove the UV lamp (#20) from the quartz sleeve (#6). Save the upper cushion (#19) and the lower cushion (#21).
6. Wearing latex gloves, install the upper cushion (#19) and the lower cushion (#21) to the new UV lamp (#20). Never touch the UV-lamp with your bare hands. Oil on your skin will permanently damage the lamp.
7. Slide the new UV lamp (#20) into the quartz sleeve (#6).
8. Reconnect the new UV lamp connector (#17) to the ballast connector (#16). Make sure the connectors mates completely. Do not force.
9. Reinstall the enclosure cover (#14) with a gasket (#13) and secure with screws (#15).
10. Reconnect the UV unit to the spa control circuit board and reinstall the cover.
11. Turn the GFCI on. When pumps are properly primed allow to run for 5 minutes making sure no water is dripping.
12. Check the ballast to see if the UV unit is functioning. A solid green light indicates power is being provided and should always be on. A solid red light indicates the UV lamp is activated.



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CLEANING THE QUARTZ SLEEVE

THE QUARTZ SLEEVE SHOULD BE CLEANED EVERY 6 MONTHS

Danger: *Never look at the UV lamp when lit, which can cause severe eye damage or blindness.*

Warning: *Allow the UV lamp to cool completely before beginning maintenance.*

Warning: *Always wear latex gloves when handling UV lamp.*

1. Turn the GFCI off. Drain the spa. Remove the cover on the spa controls. Refer to the wiring diagram inside the lid for the Ozonator circuit and disconnect it from the circuit board.
2. Remove UV unit enclosure cover (#14). Do not proceed until the UV unit is completely cool.
3. Disconnect UV lamp connector (#17) from ballast connector (#16).
4. Slowly and carefully remove Boot Cover (#18) and UV lamp (#20) from quartz sleeve (#6).
5. Remove quartz seal compression nut (#11).
6. Use bare hands to carefully remove quartz seal gasket (#8) and metal compression washer (#9) that go over the quartz sleeve. **DO NOT USE ANY METAL TOOLS!**
7. Carefully and slowly remove quartz sleeve (#6).
8. Clean the quartz sleeve (#6) with a 50/50 solution of vinegar and water and a soft cotton cloth. Do not use abrasive cleaners, which will permanently damage the quartz sleeve. Household tub and shower lime removal products can be used to remove stubborn debris. Rinse the quartz sleeve (#6) with clean water to completely remove cleaning products that were used.
9. Install the quartz seal gasket (#8) over the opened end of the quartz sleeve (#6). Place the quartz sleeve (#6) into the unit with the domed end first making sure it is inserted and seated inside the quartz end holder on the bottom of the sterilization chamber. Only about $\frac{1}{8}$ " of the quartz sleeve will be exposed when it is seated properly.
10. Reinstall the compression washer (#9) over the open end of the quartz sleeve (#6). Push it against the quartz seal gasket (#8)
11. Reinstall and hand tighten the quartz seal compression nut (#11) turning it clockwise until it stops. Add another quarter turn using a pair of channel lock pliers.
12. Fill the spa following the steps outlined in the owner's manual. Make sure no water is dripping from the seal at the compression nut (#11). If water is visible, STOP and tighten the compression nut another quarter turn with a pair of channel lock pliers. Make sure there is no water leaking anywhere before proceeding to the next step.
13. Turn the GFCI back on. When pumps are properly primed allow to run for 5 minutes making sure no water is dripping. If any water is visible from the UV system, STOP, fix the leak by repeating all of the steps.
14. When there are no visible leaks, turn the pumps off. Turn the GFCI off.
15. Slide the UV lamp (#20) back inside the quartz sleeve (#6). Install boot cover (#18) over the compression nut (#11).
16. Reconnect the UV clamp connector (# 17) to the ballast connector (#16). Make sure the connectors mate completely. Do not use force.
17. Reinstall the enclosure cover (#14) with the gasket (#13) and secure with screws (#15).
18. Reconnect the UV unit to the spa control circuit board and reinstall the cover.
19. Turn the GFCI on.
20. Check the ballast to see if the UV unit is functioning. A solid green light (#24) indicates power is being provided and should always be on. A solid red light (#24) indicates the UV lamp is activated.



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