SANITAGN®

ULTRAVIOLET WATER PURIFIERS

Models S2400C, S5,000C – S25,000C High Capacity Systems

Read and Follow All Safety Instructions. Save These Instructions.



Installation,
Operation
& Maintenance



Manufacturers / Engineers / Sales / Service Germicidal Ultraviolet - Equipment & Lamps

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These instructions generally describe the installation, operation and maintenance of the **SANITRON**® Model S2400C line of water purifiers. Models S5,000C and S10,000C through S25,000C High-Capacity Systems utilize the Model S2400C single lamp water purifier in various configurations. Questions that are not specifically answered by these instructions should be directed to the Factory. Atlantic Ultraviolet Corporation® takes all possible precautions when packaging equipment to prevent damage. Carefully inspect and report all damages. Do not install damaged equipment.

WARRANTY & PRODUCT REGISTRATION24

Follow all instructions on any labels or tags. Carefully inspect all packing materials before discarding to prevent the loss of accessories, mounting hardware, spare parts or instructions.

The information and recommendations contained in this publication are based upon data collected by the Atlantic Ultraviolet Corporation® and are believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. Specifications and information are subject to change without notice.



SAFETY WARNINGS -

- All personnel should be alerted to the potential hazards indicated by the product safety labeling on this unit.
- The following conventions are used to indicate and classify precautions in this manual and on product safety labeling. Failure to observe precautions could result in injury to people or damage to property.

Obey all safet

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



Danger indicates an **IMMINENTLY** hazardous situation, which, if not avoided, **WILL** result in death or serious injury.



Warning indicates a **POTENTIALLY** hazardous situation, which, if not avoided, **COULD** result in death or serious injury.



Caution indicates a **POTENTIALLY** hazardous situation, which, if not avoided, **MAY** result in minor or moderate injury.



Caution used without the safety alert symbol indicates a potentially hazardous situation, which, if not avoided, may result in property damage.



This symbol/pictorial is used to identify an **ELECTRICAL SHOCK** or **ELECTROCUTION** hazard.



This symbol/pictorial is used to identify an **ULTRAVIOLET LIGHT** hazard.



This symbol/pictorial is used to identify the need to wear approved ultraviolet blocking eyewear.



This symbol/pictorial is used to identify the need to wear approved ultraviolet blocking face shield.



This symbol/pictorial is used to identify the need to wear protective gloves.



This symbol/pictorial is used to identify components which must not be disposed of in trash

SAFETY INSTRUCTIONS -

AWARNING To guard against injury, basic safety precautions should be observed, including the following:

- 1. Read and follow <u>ALL</u> safety instructions.
- 2. Do not use this water purifier for other than its intended purpose as described in this manual.
- 3. Do not alter design or construction.
- 4. Do not remove any labels or devices.
- 5. A DANGER To prevent the risk of severe or fatal electrical shock, special precautions must be taken since water is present near electrical equipment. Always disconnect power before performing any service or maintenance.
- 6. **AWARNING** Avoid exposure to direct or reflected germicidal ultraviolet rays. Germicidal ultraviolet rays are harmful to the eyes and skin.
- 7. Intended for indoor use only. The water purifier should be protected from the elements and from temperatures below freezing.
- 8. Do not operate water purifier if lamp cable, lamp connection, power cord and/or plug are damaged, or if any other damage to the water purifier is visible or suspected
- 9. Electrical power supplied, to the water purifier, MUST match power requirements listed on the water purifier.
- 10. A WARNING Plug the water purifier only into an approved ground fault circuit interrupt (GFCI) receptacle.
- 11. **A WARNING** Do not operate without proper electrical ground.
- 12. Do not exceed water purifier's maximum rated flow capacity.
- 13. Do not exceed maximum operating pressure of 100 PSI.
- 14. Read and follow all notices and warnings on the water purifier.
- 15. SAVE THESE INSTRUCTIONS.

SAFETY LABELS





Danger Label: Hazardous Voltage Location of Danger Label and Ultraviolet Radiation (00-0196A1) (00-0196A1)

CAUTION -

It is the user's responsibility to determine and validate the suitability of this equipment for use in the user's system or process.

No warranty or representation is made by the manufacturer with respect to suitability or performance of this equipment or to the results that may be expected from its use.

The user should periodically inspect, clean as necessary and confirm the presence and good legibility of the product safety labels. Contact the factory for replacement labels in the event that any of the labels are missing or illegible.

PRODUCT APPLICATION

CONSTRUCTION

- The water purifier is designed to mount horizontally.
- The water purifier's dual heads are removable and may be rotated independently. (See "Figure 3 Recommended Positions of Inlet/Outlet Fittings in the "Installation" section.) facilitates ease of installation, maintenance or the retrofitting of an existing system. A drain port on the chamber aids in draining of the purifier.
- The water purifier's chamber and chamber heads are passivated and electropolished type 316 Stainless Steel.
- The ballast housing is a combination of Stainless Steel Type 304 and Aluminum Alloy.
- Coated chambers are available for uses with special applications, consult Factory. Coated chambers are not recommended for use in drinking water applications or in applications where the treated product is consumed.
- The dual-action wiper mechanism allows for quick and easy quartz sleeve cleaning, without interrupting service.
- **EASY-OFF**[™] End Caps enable quick and easy lamp change, without disconnecting from the water supply or draining the purifier. No tools are required. <u>Always disconnect electrical power when changing lamp.</u>
- Certain versions of 220v units have been designed to be CE compliant. These units have been tested to and comply with the requirements of the Electromagnetic Compatibility Directive and the Machinery Directive. The Declaration of Conformity lists the European Norm (EN) standards to which these units were tested, to demonstrate conformity.

PRINCIPLE OF OPERATION

The **SANITRON**® design has been carefully conceived to provide adequate germicidal dosage throughout the disinfection chamber. The dosage, as it applies to ultraviolet disinfection, is a function of time and the intensity of ultraviolet radiation to which the water is exposed. The exposure time, in seconds, is the total time it takes the water to flow through the disinfection chamber exposing it to the germicidal lamp. Exposure time is related to the flow rate; the higher the flow rate, the lower the exposure time or the lower the flow rate, the higher the exposure time. The ultraviolet intensity is the amount of energy, per unit time, emitted by the germicidal lamp. The dosage is the product of ultraviolet intensity and the exposure time. The operation of the **SANITRON**® is as follows:

- Water enters the purifier and flows into the annular space between the quartz sleeve and the chamber wall.
- Suspended microorganisms are exposed to the ultraviolet rays emitted by the germicidal lamp.
- The translucent sight port, or optional ultraviolet monitor, provides visual indication of germicidal lamp operation.
- The dual action wiper mechanism facilitates periodic cleaning of the quartz sleeve without disassembly or interruption of purifier operation.
- Water leaving the purifier is instantly ready for use, no further contact time is required.

LIMITATION OF USE

The water purifier is intended for the use with visually clear water, not colored, cloudy or turbid. See "Water Quality" section below. The water purifier is <u>NOT</u> intended for the treatment of water that has an obvious contamination or intentional source, such as raw sewage; nor is the unit intended to convert wastewater to microbiologically safe drinking water.

WATER QUALITY

Water quality plays a major role in the transmission of germicidal ultraviolet rays. It is recommended that the water does not exceed the following maximum concentration levels:

Table 1 - Maximum Concentration Levels

Turbidity	< 1 NTU
Manganese	0.05 mg/1
Total Suspended Solids	10 mg /1
pH:	6.5 - 9.5
Color:	None
Hardness	6 GPG or 102.6 PPM
Iron	0.3 mg/1
Tannins:	< 0.1 ppm (0.1 mg/l)
UV Transmission	>85% per cm*

Effectively treating water with higher concentration levels than listed on **Table 1** can be accomplished, but may require added measures to improve water quality to treatable levels. If, for any reason, it is believed the ultraviolet transmission is not satisfactory, contact the factory.

^{*}Contact Factory for recommendations on applications where UV transmission is < 85%

INSTALLATION -

LOCATION

- 1. The water purifier is intended for indoor use only. The water purifier is designed to mount horizontally. The water purifier should be protected from the elements and from temperatures below freezing. The ambient temperature, in the area surrounding the water purifier, should be between 35° F and 100° F.
- 2. Electrical power supplied to the water purifier <u>MUST</u> match power requirements listed on the water purifier. Use of a voltage surge protector is recommended.
- 3. **CAUTION** Plug water purifier only into an approved ground fault circuit interrupt (GFCI) receptacle.
- 4. The water purifier should be located in a dry, well-lit area, which provides enough room to perform routine maintenance. This includes a minimum distance of one chamber length from the wiper end, to allow for cleaning and/or the changing of the lamp and quartz sleeve as well as a minimum of 6" on the opposite end of the water purifier. Minimum clearance to floor 18".
- 5. The water purifier should always be located closest to the point of use. This reduces the chance of the purified water being re-contaminated by bacteria in the water distribution system after the water purifier.
- 6. CAUTION As with any water handling device, the water purifier should be located in an area where any possible condensation or leakage from the water purifier, any purifier accessory and/or plumbing will not result in damage to the area surrounding the water purifier. For added protection, it is recommended that a suitable drain pan be installed under the purifier. The drain pan must be plumbed to an adequate, free flowing drain to prevent water damage in event of a leak. There are numerous leak detection/flood stop devices, available on the market today, designed to stop flow of water, reducing the chance of water damage due to leakage. For more details regarding leak prevention and/or limiting damages due to leaks please contact factory.
- 7. The water purifier should be located after all other water devices, such as De-ionizers, Water Softeners, Carbon Filters, Pre-Filters, Reverse Osmosis, Pressure Tanks, and Pumps. This eliminates the possibility of the purified water being re-contaminated by bacteria in any of these units.

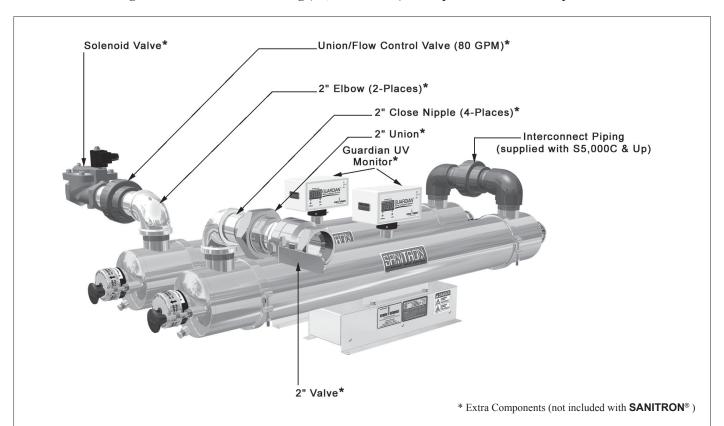


Figure 1 - SANITRON® Drawing (S5,000C shown) with options and extra components







- Remove water purifier from shipping carton. Inspect water purifier, power cord and plug for damage. Do not operate if there is any damage to the purifier, power cord or plug. SANITRON® Model S2400C is shipped with the lamp packed separately. Keep the lamp aside for installation once the purifier has been properly installed.
- 2. Units occasionally experience damage in shipment due to the fragility of the quartz sleeve. It is, therefore, recommended to inspect the water purifier for damage to the quartz sleeve after it has been removed from the shipping carton. Each end of the unit as well as the inlet and outlet should be viewed to see if the quartz sleeve has experienced damage. If the quartz sleeve shows signs of damage it should be replaced before the purifier is pressurized. See "Quartz Sleeve Installation or Replacement" in the "Maintenance" section for the proper method of replacing the quartz sleeve in your water purifier.

Solenoid plugs into the top of the Time Delay, Use of Metal Pipe is recommended for connection to and the Time Delay into the Ultraviolet Monitor both the purifer inlet and outlet 12" past the first elbow. (avoids ultraviolet degradation of exposed plastic pipe) OPTIONAL EQUIPMENT POINT OF USE Two Minute Time Delay **Cold Water Line** Elbow POU) COMMON Solenoid Valve Ultraviolet Water Purifiers should be installed closest to the point of use. Incoming PRE-TREATMENT or Flow Control Valve Water PUMPING DEVICES Supply Deionizer Outlet Line to 2. Water Softener point of use 3. Carbon Filters (GAC) 5 Micron Filter OPTIONAL EQUIPMENT to be as short 4. Pressure Tank 5. Pump as possible **Ultraviolet Monitor** Note: 6. Reverse Osmosis Audio Alarm 7. Prefilters Drain Pan Ultraviolet Water Purifiers Recommended Union Water purifier to the point of use. (POU) should be 6" Minimum installed at Manual Wiper Clearance for minimum of 18" 50" Gland Access above floor **Recommended Minimum Clearance** For Lamp or Quartz Sleeve Removal Ultraviolet Water Purifier Wall Mounting Kit OPTIONAL EQUIPMENT

Figure 2 - Recommended Installation

3. The water purifier's dual chamber heads are removable and may be rotated independently, which aids in the installation, maintenance or the retrofitting of an existing system.

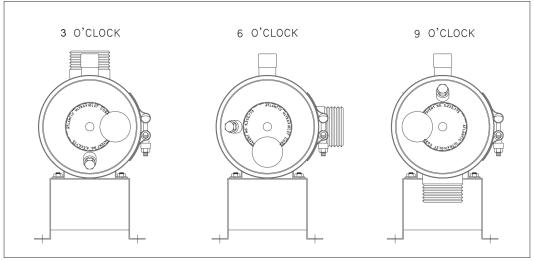


Figure 3 - Recommended Installation

Note: DO NOT rotate head so wiper knob is at 12 o'clock position

4. The water purifier should be mounted horizontally on a flat dry surface. Secure the water purifier using the mounting holes in the ballast housing or with the optional wall mounting kit. The purifier should not be solely supported by its plumbing connections.

- 5. The water purifier must be connected to the cold water line only. Inlet water temperature should not exceed 100°F
- 6. Installation requires that a 5-micron sediment filter or finer be installed, in line, prior to the water purifier. The sediment filter will stop or trap large particulates from entering the water purifier. Particulates may cause deposits on the quartz sleeve, as well as interfere with the purifier's ability to disinfect the water. The sediment filter may also help to reduce the amount of routine cleanings of the quartz sleeve.
- 7. Shut off valves should be installed on both the inlet and outlet sides of the water purifier. **The use of bypass valves is not recommended**. The shut off valves allow the purifier to be isolated from the water supply, which is required when removing the quartz sleeve.
- 8. Unions should be installed on both the inlet and outlet of the water purifier; this will allow easy removal of the water purifier from the plumbing, if required. Apply Teflon® tape to threads of inlet and outlet ports to ensure a tight seal.
- 9. When all plumbing connections are complete, allow water to enter the water purifier at a low flow rate, until the purifier is full. **NOTE:** Close the purifier outlet valve to pressurize the chamber. With the purifier pressurized, it should be checked for leaks. Once it is determined that there are no leaks, the inlet valve can be fully opened.
- 10. For Models with lamps packed separately, install lamp following the steps in "Lamp Installation or Replacement" section.
 - **ACAUTION** Lamp and quartz sleeve are easily damaged. Exercise care when handling.
- 11. A WARNING Plug water purifier into approved ground fault circuit interrupt (GFCI) receptacle. Confirm lamp operation indication at sight port.
- 12. Once the plumbing hook ups are made, it is a good practice to disinfect the "downstream" plumbing between the purifier and point of use. This is done by introducing chlorine or other disinfectant solution into the purifier chamber, a 100-ppm of chlorine is suggested. With the disinfectant in the purifier chamber, turn the ultraviolet purifier on. Open the "downstream" outlet until a chlorine or disinfectant solution odor is noticed. Close the outlet and allow the disinfectant to remain in the plumbing for three (3) hours. Flush the plumbing with ultraviolet purified water; allow the water to run for a minimum of 5 minutes prior to use (to ensure no chlorine or disinfectant smell can be detected). This will allow the chlorine or disinfectant solution to be flushed from the pipes.

RECOMMENDED OPTIONS

- 1. **GUARDIAN™ Ultraviolet Monitor*:** Visually indicates the level of germicidal ultraviolet energy that penetrates the quartz sleeve and the water within the water purifier. The ultraviolet monitor is capable of operating an optional **Promate™** Audio Alarm and/or **Promate™** Solenoid Valve. The ultraviolet monitor will detect reduction of ultraviolet levels due to:
 - Fouling or deposits on the quartz sleeve.
 - Poor ultraviolet transmission through the water; color, turbidity, and organic or other impurities in the water can reduce or interfere with the transmission of ultraviolet rays.
 - Lamp outage or component failure. (Monitor will not function in power outage.)
 - Depreciation of the lamp output due to usage or other cause. Lamp output gradually depreciates with use. Lamp replacement is recommended once each year.
- 2. **SENTRY™** Safety Sensor: Indicators provide constant visual monitoring of normal operation. In the event of ballast or lamp failure the safety sensor indicates an alarm condition. The safety sensor is capable of operating an optional **Promate™** Audio Alarm and/or **Promate™** Solenoid Valve.
- 3. **STERALERT™ Lamp Status Alarm:** Produces a high pitched, pulsed tone when the water purifier is no longer functioning when visible light fails.
- 4. **SureFLO™ Flow Control Valve*:** Limits water flow to the rated capacity of the purifier. The flow control valve is located in line prior to the water purifier, and should be protected from ultraviolet exposure by the use of a 90-degree elbow fitting between the flow control valve and the water purifier.
- 5. **Promate™ Audio Alarm*:** Activated by the Ultraviolet Monitor or Safety Sensor, alerts the user to any malfunction detected.
- 6. **Promate™ Solenoid Valve*:** Operated in conjunction with the Ultraviolet Monitor, Safety Sensor or Time Delay Mechanism, this valve prevents water flow through the water purifier when an abnormal condition is detected or in the event of power failure.
- 7. **Promate™ Elapsed Time Indicator:** A non-resettable display of the water purifier operating hours. Useful for scheduling and recording maintenance and lamp replacement.
- 8. **Promate™ Time Delay Mechanism*:** Provides a 2-minute warm up period during which the ultraviolet lamp achieves its full germicidal output before the water is allowed to flow through the water purifier. The time delay mechanism is used in conjunction with, and is electrically connected to the Solenoid Valve. ("Recommended Options" Continued on Page 8)

- 9. **Promate™ Wall Mount Kit:** Model S2400C Stainless steel wall brackets provide quick and easy installation and professional finish. Pre-drilled and ready to install. Optimizes free air circulation to cool ballast housing.
- 10. **QUANTUM™** Thermal Optimizer: Thermal relief valve used to help regulate the water temperature inside the water purifier's disinfection chamber. Since the relative ultraviolet output, of a germicidal lamp, is affected by temperature it is important to keep the lamp's temperature within the peak output temperature range.
- 11. **Promate™ Safety Goggles:** Safety eyewear should be used as general-purpose safety protection and for additional shielding from ultraviolet rays.
- 12. **Promate™** Face Shield: Adjustable headgear and lightweight visor provides eye and face protection from germicidal ultraviolet rays.
- * Use of this option is recommended by U.S. Public Health Service "Criteria for Acceptability of an Ultraviolet Disinfection Unit." Originally issued April, 1966.

<u>NOTE</u>: The recommended options above are available from Atlantic Ultraviolet Corporation[®] or a distributor of their products. For the other devices that may be required for your application, please contact your local water treatment dealer, plumber or plumbing supplier.

MAINTENANCE -

The water purifier is designed to operate with a minimal amount of maintenance, providing the water quality does not exceed maximum concentration levels, see "Water Quality" in the "Product Application" section. Ordinary maintenance consists of:

- Lamp replacement is recommended every 10,000 hours of operation, approximately 12 months of continuous service.
- Cleaning of the quartz sleeve, when conditions warrant. It is recommended that the inspection of quartz sleeve be performed after one month of use. If quartz sleeve is found to be coated (not clear), then frequency of cleaning must be done more often. Deposits or discoloration on the surface of quartz sleeve are caused by excessive levels of the subject contaminant within the water that is in contact with the quartz sleeve. Most deposits on the quartz sleeve are caused by an excess of calcium (hardness), iron or manganese. **Table 1** on **Page 4** lists the maximum recommended concentration of these minerals in the water that passes through the ultraviolet purifier. If you encounter difficulty due to deposits on the quartz sleeve, your dealer will be able to recommend suitable pretreatment to reduce or eliminate the offending contaminant. If quartz sleeve is clean (clear) then frequency of cleaning may be extended. **NOTE: SANITRON®** Ultraviolet water purifiers are equipped with a manual wiping mechanism making the process of routine cleaning easier and therefore, recommended weekly or at the very least monthly to insure your performance. **NOTE:** The use of optional GUARDIAN™ Ultraviolet Monitor will detect loss of transmission due to coating on the quartz sleeve.
- Always disconnect the water supply and completely drain the water purifier if it will be subjected to temperatures below freezing.
- Contact factory with questions.

INSP<u>ECTION</u>

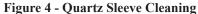
- 1. Regularly inspect the water purifier to ensure that the germicidal lamp is still in operation.
 - On purifiers not equipped with the Ultraviolet Monitor, lamp operation can be verified by a visible glow through
 the translucent sight port. This provides an indication of lamp operation and does not indicate the level of ultraviolet
 intensity or transmission through the water.
 - On purifiers so equipped, the **GUARDIAN**™ Ultraviolet Monitor provides visual indication of the ultraviolet intensity through the quartz sleeve and water in the purifier chamber.
- 2. To ensure proper operation of the water purifier, regular biological testing of the purifier output water should be performed on a schedule recommended by local public health authorities, or at minimum; at installation, quarterly for the first year of service and annually, at lamp replacement, for the life of the water purifier.
- 3. Additional testing should be performed whenever modifications, change, or additions are made to plumbing system, pumps, well source water etc. to ensure adequate disinfection under new condition.
- 4. As with any water purifier installation, routine maintenance is necessary to ensure you equipment is operating correctly. Regular inspection must also include confirmation that approved ground fault circuit interrupt (GFCI) receptacle is still operational and that water purifier is plugged into this GFCI. Any components which are damaged or broken should be replaced.

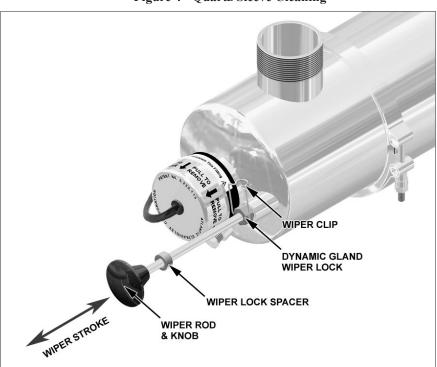
DISPOSAL OF MERCURY ADDED LAMPS



Germicidal ultraviolet lamps, like standard fluorescent lamps contain small amounts of mercury. Mercury added lamps should not be placed in the trash. Dispose of properly. For further information regarding the disposal and recycling of lamps containing mercury, along with Federal and State requirements visit LampRecycle.org. For more information on *STER-L-RAY*® Germicidal Ultraviolet Lamps, visit Ultraviolet.com or BuyUltraviolet.com.

QUARTZ SLEEVE CLEANING USING WIPER MECHANISM











Step 2 - Gently pull wiper knob out

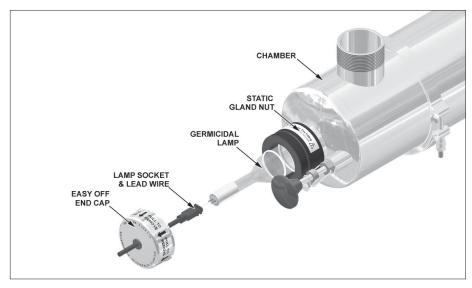


Step 3 - Push wiper back in

Routine cleaning of the quartz sleeve is easily accomplished, using the dual action wiper mechanism.

- 1. Lift wiper clip up and away from wiper rod.
- 2. Grasp wiper knob and gently pull out, away, from the purifier until it reaches its stop.
- 3. Push wiper back in, toward the purifier until it reaches its second stop.
- 4. Repeat steps 2 and 3 as necessary.
- 5. Holding wiper in place, return wiper clip and snap over wiper rod, in front of the wiper lock spacer.

Figure 5 - Lamp Replacement





Step 2 - Remove End Cap







Step 3 - Withdraw Lamp

Step 4 & 5 - Remove Sockets

Step 6 - Remove Lamp







- 1. **AWARNING** Disconnect power to water purifier.
- 2. Remove both **EASY-OFF**™ End Caps by pulling each cap off static gland nut. Slide each end cap along the wire away from the socket.
- 3. Carefully withdraw lamp approximately 2 inches from chamber while feeding lamp socket and lead wire on opposite end of chamber.
- 4. While holding lamp end, carefully remove lamp socket on end now exposed.
- 5. Next, carefully slide lamp back into chamber, until approximately 2 inches of the lamp is exposed on the opposite end. Hold lamp and remove lamp socket.
- 6. Lamp should now be disconnected on both ends. Carefully remove lamp from chamber. Be sure to withdraw lamp straight out without angling until completely clear of quartz sleeve.
 - **ACAUTION** Lamp and quartz sleeve are easily damaged. Exercise care when handling.
- 7. Reinstall lamp in reverse order.
 - **AWARNING** Germicidal ultraviolet rays are harmful to eyes and skin. Do not restore power to water purifier until lamp and both EASY-OFF™ End Caps have been properly reinstalled.

CHAMBER HEAD CLAMP
O-RING

CHAMBER HEAD CLAMP
O-RING

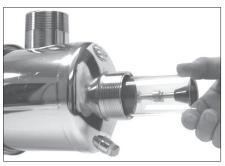
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Figure 6 - Quartz Sleeve Installation or Replacement







Step 4 - Remove Gland Nuts

Step 5 - Remove Washer & O-Ring

Step 6 - Remove Quartz Sleeve







- 1. **AWARNING** Disconnect power to water purifier.
- 2. Shut off water supply to water purifier via inlet and outlet shut off valves. Drain chamber. Once the chamber is completely drained, remove any old sealing tape from the threads of the drain plug, rewrap with 1/2" wide Teflon® thread sealing tape, reinstall and tighten the drain plug.
- 3. Follow the steps in "Lamp Installation or Replacement" to remove lamp.

ACAUTION Lamp and quartz sleeve are easily damaged. Exercise care when handling.

- 4. Unscrew static gland nuts from each end of the chamber. Avoid striking quartz sleeve with static gland nut.
- 5. Remove Teflon® washer and O-Ring from both ends of quartz sleeve. Teflon® washer will sometimes remain within the static gland nut. If so, remove Teflon® washer from static gland nut before proceeding.
- 6. Carefully remove quartz sleeve from chamber. **NOTE:** It is advisable to support the quartz sleeve on the opposite end with your finger so that it does not drop to the bottom of the chamber as it slides into the chamber.
- 7. Once the quartz sleeve is removed, clean with alcohol or a mild, non-abrasive detergent. Stubborn stains usually can be removed with a dilute hydrochloric acid. **NOTE:** Follow all manufacturer's instructions and precautions when handling chemicals.
- 8. Reassemble in reverse order. Make sure the quartz sleeve protrudes an equal distance past each threaded nipple. Be sure O-Rings are placed on quartz sleeve before Teflon® washer.
- 9. Tighten static gland nuts firmly by hand only, **DO NOT USE HAND TOOLS**. Tightening with hand tools is likely to cause quartz sleeve to break.
- 10. **Slowly** restore water supply to water purifier and check for leaks.
- 11. If no leaks occur, reinstall lamp, following the steps in "Lamp Installation or Replacement" section.

AWARNING Germicidal ultraviolet rays are harmful to eyes and skin. Do not restore power to water purifier until lamp and both EASY-OFF™ End Caps have been properly reinstalled.

CHAMBER HEAD CLAMP
O-RING

O-RING

O-RING

UNITED O-RING

GLAND NUT

GERMICIDAL

LAMP SOCKET

EASY OFF
END CAP

Figure 7 - Quartz Sleeve







A CAUTION Broken Quartz is <u>SHARP</u>. It is recommended that protective goggles and gloves are worn when handling.

AWARNING Disconnect power to water purifier. Shut off water supply to water purifier via inlet and outlet shut-off valves. Completely drain chamber.

Follow the steps in "Quartz Sleeve Installation or Replacement" to remove lamp and quartz sleeve.

- 1. To prevent damage to the electrical components, it is necessary to separate the ballast housing from the purifier chamber.
 - On **SANITRON**® Model S2400C the ballast housing is mounted to the purifier chamber using four (4) 1/4"-20 x 3/8" long hex head bolts. Using a 7/16" wrench or an adjustable wrench, carefully remove the four (4) bolts with the lock and flat washers, from along the top of the ballast housing, and set aside. Separate the housing from the chamber.
 - Keep ballast housing and mounting hardware in a clean, dry area.
- 2. **ACAUTION** Carefully remove as much of the broken quartz sleeve as possible, from each end of the chamber.
- 3. Remove chamber head clamp, by using a 7/16" wrench to loosen and remove the 1/4" nut from the head clamp.
- 4. Withdraw chamber head and wiper assembly, from the chamber.
- 5. Any broken pieces of the quartz sleeve can now be removed through the open end of the purifier chamber. Flush water through chamber being careful to remove all quartz fragments from the interior of the chamber.
- 6. **Carefully** discard all pieces of the broken quartz sleeve.
- 7. Inspect the large O-Ring used to seal the chamber and the chamber head. Make sure the O-Ring is seated properly between the chamber head ring and the flare of the chamber head.
- 8. Insert replacement quartz sleeve through each Teflon® wiper segment, starting from the furthest segment working towards the chamber head. Twisting the quartz sleeve will help work the quartz sleeve through the Teflon® segments. Align the end of the quartz sleeve with the threaded gland nipple of the chamber head, and pass the quartz sleeve through the chamber head.
- 9. To re-install, carefully slide the chamber head and wiper rod assembly, into the chamber, with drain port pointing down; using your finger, support the far end of the quartz sleeve when passing it through the gland fitting of the chamber. Push chamber head flange into the chamber until flared end, of the chamber and the head, mate against the O-Ring.
- 10. Replace the head clamp around the flared end of the head and chamber. Install the 1/4" nut and tighten, using a 7/16" wrench, until approximately 3/4" to 7/8" of the bolt protrudes past the nut.
- 11. Center the quartz sleeve in the chamber, making sure the quartz sleeve protrudes an equal distance past each threaded gland fitting, of the chamber. (Continued on Page 13)

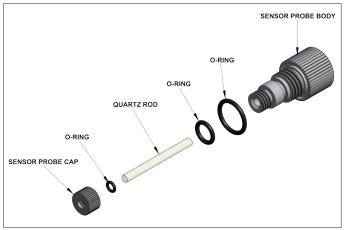
- 12. Re-install O-Rings, Teflon[®] washers, and static gland nuts. Be sure O-Rings are placed on quartz sleeve before Teflon[®] washer. Tighten static gland nuts firmly by hand only, **DO NOT USE HAND TOOLS**. Tightening with hand tools is likely to cause quartz sleeve to break.
- 13. Re-assemble ballast housing to purifier chamber, using hardware removed in Step 1. **NOTE:** When re-assembling ballast housing to purifier chamber, electrical power cord should exit ballast housing from the end mounted opposite the drain plug.
- 14. When all connections are complete, allow water to enter the water purifier at a low flow rate until the purifier is pressurized. With the purifier pressurized, it should be checked for leaks.
- 15. See "Lamp Installation or Replacement" section on Page 10 to properly re-install the lamp into the water purifier.

OPTIONAL GUARDIAN™ ULTRAVIOLET MONITOR SENSOR PROBE CLEANING

Figure 8 - Ultraviolet Monitor and Sensor Probe



Figure 9 - Sensor Probe



If, after cleaning the quartz sleeve, there is no significant improvement in the ultraviolet intensity, as shown on the intensity meter, it may be necessary to clean the Ultraviolet Monitor's sensor probe. The sensor probe body mounts in a fitting, located in the center of the disinfection chamber, and protrudes into the chamber.

1. **A WARNING** Disconnect power to water purifier.

- 2. Shut off water supply to the water purifier via the inlet and outlet shut off valves. Remove drain plug and drain the chamber. Once the chamber is drained, remove any old sealing tape from the threads of the drain plug, rewrap with 1/2" wide Teflon® thread sealing tape, reinstall and tighten the drain plug.
- 3. Disconnect power to the Ultraviolet Monitor; remove from chamber by loosening the two set screws on the aluminum collar and lifting it free from probe body.
- 4. Unscrew the sensor probe and remove from the chamber.
- 5. Remove the quartz rod sensor probe cap, from the probe body. Take care not to damage the quartz rod, O-Ring or the threads of the probe body. **NOTE:** It is recommended, when servicing the sensor probe, to work in a clean, dry area.
- 6. Once the quartz rod is removed, clean with alcohol or a mild detergent, and rinse with clean water. Stubborn stains usually can be removed with a dilute hydrochloric acid. **NOTE:** Follow all manufacturer's instructions and precautions when handling chemicals. Once the quartz rod has been cleaned, handle the rod by the sides, to avoid getting fingerprints on the quartz rod faces.
- 7. Clean the probe body, by removing any dirt or deposits on all surfaces. O-Rings should be inspected and can be replaced if worn or damaged.
- 8. Reassemble, replacing the O-Rings, quartz rod and securing in place with the quartz rod sensor probe cap. Tighten the quartz rod sensor probe cap by hand only, **DO NOT USE HAND TOOLS**. Tightening with hand tools may damage the quartz rod or O-Ring seal.
- 9. Reinstall sensor probe into the center fitting of the chamber and hand tighten.
- 10. **Slowly** restore water supply to the water purifier, pressurize, and check for leaks. Once it is determined that there are no leaks, inlet valve can be fully opened.
- 11. Reposition Ultraviolet Monitor on probe body and tighten set screws.
- 12. Restore power to the water purifier and ultraviolet monitor. If after the cleaning of the quartz rod, there is still no significant improvement in the ultraviolet intensity, as shown on the intensity meter, proceed to the "**Troubleshooting**" section.

TROUBLESHOOTING -

AWARNING Always disconnect power to the water purifier before performing any service or maintenance.

IMPORTANT: This unit is to be serviced ONLY by qualified, and appropriately licensed, personnel.

Table 2 - Troubleshooting

Problem	Possible Cause	Corrective Action	
Purifier not operating	No electrical power	Verify that the purifier is connected to a live power source.	
	Cracked or broken quartz sleeve	Shut down purifier, drain, and replace quartz sleeve. See "Quartz Sleeve Installation or Replacement" in the "Maintenance" section.	
Water leaking from purifier	Quartz sleeve sealing O-Ring(s) worn, damaged	Shut down purifier, drain, and remove static gland nut, replace sealing O-Ring. See "Quartz Sleeve Installation or Replacement" in the "Maintenance" section.	
	Poor, or loose, connections or fittings	Tighten suspect connection or fitting; or shut down purifier, drain, and remove fitting or connection. Clean threads; reapply thread sealing tape and reinstall.	
Poor purifier disinfection performance AND/OR Low UV intensity (As indicated on optional GUARDIAN™ Ultraviolet Monitor)	Quartz sleeve fouled	Clean quartz sleeve, see "Quartz Sleeve Cleaning" in the "Maintenance" Section.	
	Sensor Probe, if equipped, lens or quartz rod fouled	Clean lens or Quartz Rod, see "Optional Ultraviolet Monitor Sensor Probe Cleaning" in the "Maintenance" section.	
	Germicidal lamp output depreciating	Replace lamp, as it nears its end of life (EOL). See "Lamp Installation or Replacement" in the "Maintenance" section.	
	Germicidal lamp not functioning	Replace lamp. See "Lamp Installation or Replacement" in the "Maintenance" section.	
	Low input voltage	Verify input voltage to purifier.	
	Change in water quality	Have water tested to confirm that it does not exceed maximum recommended concentration levels for use with this purifier.	

OPTIONAL ACCESSORIES-

Table 3 - Optional Accessories

Optional Accessories	Available For:
GUARDIAN™ Ultraviolet Monitor - Analog/Digital	S2400C, S5,000C - S25,000C
SENTRY™ Safety Sensor	S2400C, S5,000C - S25,000C
STERALERT™ Lamp Status Alarm	S2400C, S5,000C - S25,000C
Promate™ Audio Alarm	S2400C, S5,000C - S25,000C
Promate™ Elapsed Time Indicator Universal Input	S2400C, S5,000C - S25,000C
Promate™ Time Delay Mechanism	S2400C, S5,000C - S25,000C
Promate™ Wall Mounting Kit	S2400C
Promate™ Solenoid Valve - (1-1/2") ①	S2400C
Promate™ Solenoid Valve - (2") ①	S5,000C - S25,000C
SureFLO™ Flow Control - PVC (2") ②	S2400C
SureFLO™ Flow Control Valve - Stainless Steel (2") ②	S2400C
SureFLO™ Flow Control Valve - PVC (2" Union) ②	S5,000C - S25,000C

Most options are available for operation at 120v 60Hz or 220v 50Hz. Please specify.

Not all options may be available for all models, consult factory for availability.

- Solenoid requires 2-150 PSI for satisfactory operation.
- ② Unless otherwise specified PVC flow control valves are supplied. All PVC and Stainless Steel flow control valves are male NPT. Consult Factory for other flow control valves.

TECHNICAL SPECIFICATIONS-

Table 4 - Technical Specifications

Model:	S2400C	S5,000C	S10,000C	S15,000C	S20,000C	S25,000C
Flow Rate (GPM):	40	83	166	250	333	416
Flow Rate (GPH):	2400	5000	10000	15000	20000	25000
Inlet\Outlet Size:	2"m NPT					
Number of Lamps:	1	2	4	6	8	10
Lamp Model No.:	05-1311-R	05-1311-R	05-1311-R	05-1311-R	05-1311-R	05-1311-R
Length:	52-1/8"	52-1/8"	52-1/8"	52-1/8"	52-1/8"	52-1/8"
Width:	6-9/16"	17"	17"	21-1/8"	21-1/8"	21-1/8"
Height:	11-1/8"	15"	34-3/4"	53-1/4"	71-3/4"	90-1/4"
Chamber Diameter:	5-1/2"	5-1/2"	5-1/2"	5-1/2"	5-1/2"	5-1/2"
Shipping Weight:	49 Lbs	116 Lbs	267 Lbs	400 Lbs	534 Lbs	670 Lbs
Voltage: ①	120V	120V	120V	120V	120V	120V
Amps:	1.17A	2.34A	4.68A	7.02A	9.36A	11.7A
Frequency:	60Hz	60Hz	60Hz	60Hz	60Hz	60Hz
Power Consumption: 3	140 Watts	280 Watts	560 Watts	840 Watts	1120 Watts	1400 Watts
Lamp Watts:	110 Watts	220 Watts	440 Watts	660 Watts	880 Watts	1100 Watts
Max Operating Pressure:	100 PSI					
Ambient Temperature:	35° F - 100° F					
Quartz Sleeve:	1	2	4	6	8	10
Drain Plug:	1/4" NPT					
Lamp Out Indicator:	Translucent Sight Port					
Ultraviolet Monitor: ②	Optional	Optional	Optional	Optional	Optional	Optional
Flow Control Valve: @	Optional	Optional	Optional	Optional	Optional	Optional
Audio Alarm: ②	Optional	Optional	Optional	Optional	Optional	Optional
Solenoid Valve: ②	Optional	Optional	Optional	Optional	Optional	Optional
Time Delay Mechanism: ②	Optional	Optional	Optional	Optional	Optional	Optional
Elapsed Time Indicator:	Optional	Optional	Optional	Optional	Optional	Optional

① 220V 50Hz, 220V 60Hz units are also available. Consult Factory for specific voltage requirements.

All specifications, dimensional data, etc. are approximate and subject to change without notice.

② Use of this option is recommended by U.S. Public Health Service "Criteria for Acceptability of an Ultraviolet Disinfection Unit." Originally issued April, 1966.

③ Total power consumption, including ballast loss (based on 120V unit).

Figure 10 - Exploded View S2400C

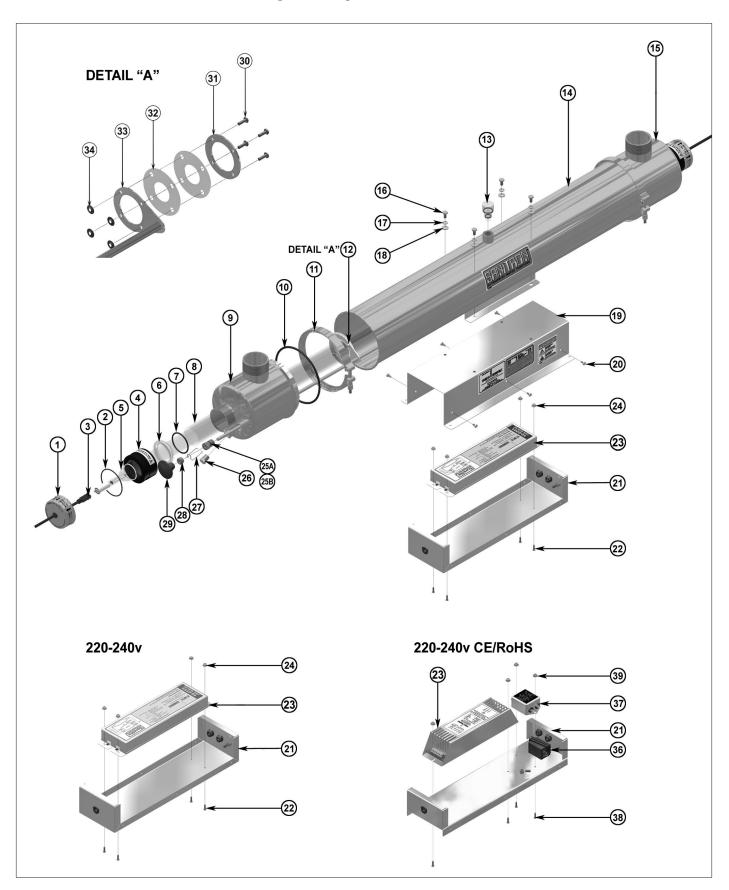


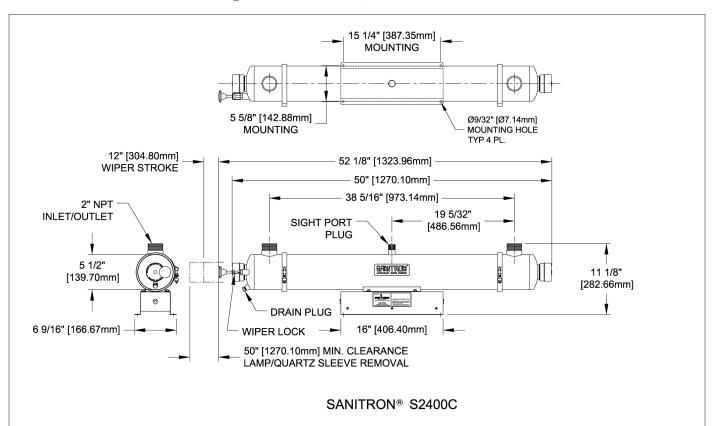
Table 5 - Replacement Parts S2400C

I4am N	D	120v/60Hz		220-240v/50Hz		CE/RoHS 220-240v	
Item No.	Description	Qty	Part Number	Qty	Part Number	Qty	Part Number
1	EASY-OFF™ End Cap	2	25-0389A	2	25-0389A	2	25-0389A
2	Rubber O-Ring, Static Gland	2	00-0085A	2	00-0085A	2	00-0085A
3	Steadfast™ Lead Wire & Socket	2	05-2400A	2	05-2400A	2	05-2400A
4	Promate™ Static Gland Nut	2	25-1232C	2	25-1232C	2	25-1232C
5	STER-L-RAY® Lamp	1	05-1311-R	1	05-1311-R	1	05-1311-R
6	Teflon® Washer	2	25-1236A	2	25-1236A	2	25-1236A
7	Rubber O-Ring, Quartz Sleeve	2	00-1239A	2	00-1239A	2	00-1239A
8	CRYSTAL CLEAR™ Quartz Sleeve	1	15-1082A	1	15-1082A	1	15-1082A
9	Head, Flared	1	25-0763A1	1	25-0763A1	1	25-0763A1
10	Rubber O-Ring, Flared Head	2	00-0020A	2	00-0020A	2	00-0020A
11	Chamber Head Clamp	2	25-4002A	2	25-4002A	2	25-4002A
12	Wiper Rod Assembly	1	25-0427A	1	25-0427A	1	25-0427A
13	Sight Port Plug	1	30-1075	1	30-1075	1	30-1075
14	Chamber	1	25-7060	1	25-7060	1	25-7060
15	Head, Flared	1	25-0764A1	1	25-0764A1	1	25-0764A1
16	Screw, 1/4"-20 x 3/8" long	4	50-1034	4	50-1034	4	50-1034
17	Lock Washer, 1/4"	4	50-1321	4	50-1321	4	50-1321
18	Flat Washer 1/4"	4	50-1317	4	50-1317	4	50-1317
19	Ballast Housing Cover	1	25-0417A	1	25-0417A	1	25-0417A
20	Screw, No. 8 x 3/8" long	6	50-0082	6	50-0082	6	50-0082
21	Ballast Housing	1	25-0418D	1	25-0125A	1	25-0125B
22	Screw, 6-32 x ½" long	4	50-0155	2	50-0155	2	50-0155
23	Surelite™ Ballast	1	10-0201	1	10-0155	1	10-0116
24	Speed Nut, 6-32	4	50-1314	2	50-1314	2	50-1314
25A	Dynamic Gland, Wiper Lock	1	25-1510C1	1	25-1510C1	1	25-1510C1
25B	Dynamic Gland, Wiper Lock	1	25-4041A	1	25-4041A	1	25-4041A
26	Drain Plug	1	27-1216	1	27-1216	1	27-1216
27	Wiper Clip	1	25-1507C1	1	25-1507C1	1	25-1507C1
28	Wiper Lock Spacer	1	25-1512A1	1	25-1512A1	1	25-1512A1
29	Wiper Knob	1	25-1222	1	25-1222	1	25-1222
30	Rivet	16	50-1300A	16	50-1300A	16	50-1300A
31	Wiper Backup Ring	4	25-1379A1	4	25-1379A1	4	25-1379A1
32	Teflon® Wiper Segment	8	25-1242A	8	25-1242A	8	25-1242A
33	Welded Wiper Rod	1	25-0425A	1	25-0425A	1	25-0425A
34	Push Nut	16	50-1223A	16	50-1223A	16	50-1223A
35	Lead Cord	1	35-1100	1	35-1452	1	35-1452
36	Ferrite: Broadband Clamp-on	-	-	-	-	1	35-1766
37	Filter: Power Multi-Stage	-	-	-	-	1	35-1765
38	Screw, 6-32 x 5/16" long	-	-	-	-	2	50-0087
39	Nut, 6-32 Tinnerman	-	-	-	-	2	50-0163

All specifications, dimensional data, etc. are approximate and subject to change without notice.

DIMENSIONAL DATA

Figure 11 - S2400C& S5,000C Dimensional Data



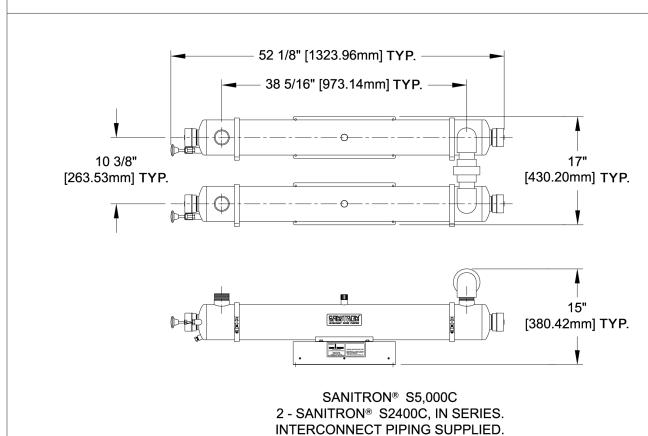
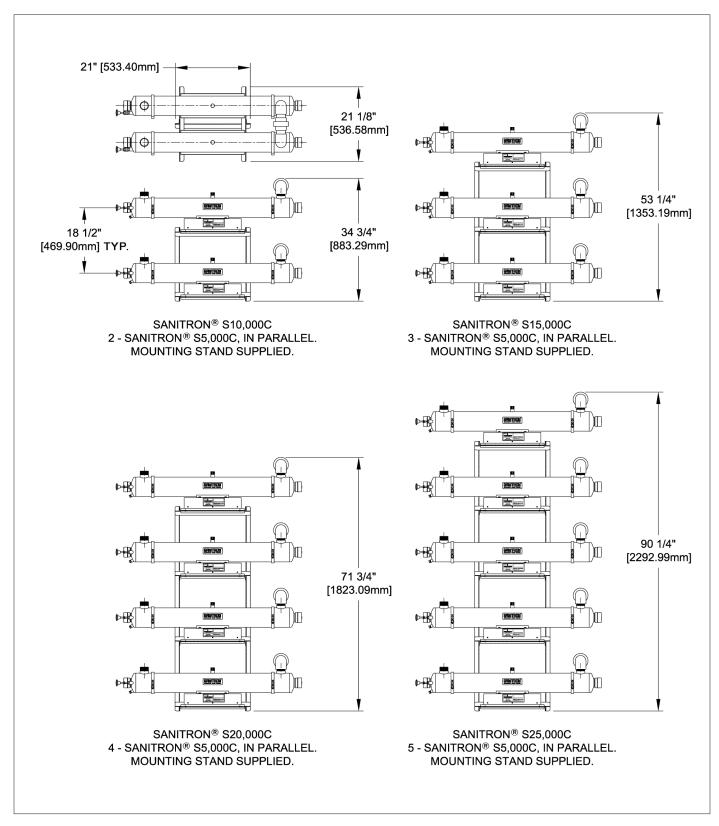


Figure 12 - S10,000C, S15,000C, S20,000C, S25,000C Dimensional Data





Manufacturers / Engineers / Sales / Service Germicidal Ultraviolet - Equipment & Lamps 375 Marcus Boulevard Hauppauge, New York 11788

Tel: 631.273.0500 Fax: 631.273.0771 631.273.0780

www.ultraviolet.com e-mail: info@ultraviolet.com

Declaration of Conformity

We

Atlantic Ultraviolet Corporation

of

375 Marcus Boulevard, Hauppauge, New York, 11788

United States of America

Declare that:

Equipment:

Water purifier using a germicidal ultraviolet lamp to produce short wave radiation

lethal to bacteria, viruses and other microorganisms. Sanitron® Ultraviolet Water Purifier, Model S2400C

Model Name / Number:

Serial Number: As specified on the equipment.

In accordance with the following Directives:

89/336/EEC

Electromagnetic Compatibility Directive

98/37/EC

Machinery Directive

Has been designed and manufactured to the following specifications:

EN 60335-1:2002 Specifi

Specification for safety of household and similar electrical appliances. General

requirements

EN 55011:1998

Limits and methods of measurement of radio disturbance characteristics of Industrial,

Scientific, and Medical (ISM) equipment

EN 61000-3-2:2000

EN 61000-3-3:1995

Electromagnetic Compatibility-Part 3: Testing and measurement techniques - Section

2: Harmonic current emissions test

Electromagnetic Compatibility-Part 3: Testing and measurement techniques -

Section 3: Voltage fluctuation and flicker test

EN 61547:1995 & A1:2000

EN 61000-4-2:1995

Equipment for general lighting purposes – EMC immunity requirements Electromagnetic Compatibility-Part 4: Testing and measurement techniques –

Section 2: Electrostatic discharge immunity test

EN 61000-4-3:2002

Electromagnetic Compatibility-Part 4: Testing and measurement techniques – Section 3: Radiated, radio-frequency, electromagnetic field immunity test

EN 61000-4-4:1995

Electromagnetic Compatibility-Part 4: Testing and measurement techniques –

Section 4: Electrical fast transient/burst immunity test

EN 61000-4-5:1995

Electromagnetic Compatibility-Part 4: Testing and measurement techniques -

Section 5: Surge immunity test

EN 61000-4-6:1996

Electromagnetic Compatibility-Part 4: Testing and measurement techniques -

Section 6: Conducted immunity test

EN 61000-4-11:1994

Electromagnetic Compatibility-Part 4: Testing and measurement techniques –

Date: JAN 30 2007

Section 11: Voltage dips and interruptions immunity test

I hereby declare that the equipment named above has been tested and found to comply with the relevant sections of the above referenced specifications. The unit complies with all essential requirements of the Directives.

Signed By:	Alon Bothal PRESIDENT
Full Name:	HILARY BOEHME
Position	PRESIDENT

GERMICIDAL LAMPS & FIXTURES / AIR PURIFICATION EQUIPMENT / WATER PURIFICATION EQUIPMENT / LIQUID DISINFECTION EQUIPMENT
OZONE GENERATORS / WASTE WATER DISINFECTION SYSTEMS / PHOTOTHERAPY EQUIPMENT / BLACK LIGHT LAMPS & EQUIPMENT







USER ASSISTANCE

Atlantic Ultraviolet Corporation® makes every effort to ensure that the **SANITRON**® Ultraviolet Water Purifiers are products of superior quality and workmanship. This manual describes the installation, operation and maintenance of the **SANITRON**® Ultraviolet Water Purifiers.

Please read and become familiar with the contents of this manual before installing or using this unit. If after reading the manual you still have questions, or concerns, regarding the installation or use of this unit, contact our offices, weekdays between 8:30 am and 5:00 pm Eastern Time, at:

Atlantic Ultraviolet Corporation® 375 Marcus Boulevard Hauppauge, New York, 11788

Tel: 631.273.0500 Fax: 631.273.0771

E-mail: info@ultraviolet.com Website: Ultraviolet.com BuyUltraviolet.com

PATENT NOTICE

No attempt has been made to determine the patent status of applications illustrated or described in this publication. Inclusion in this publication of any design or method of use, which may be patented, is not to be construed as promoting or sanctioning unauthorized use.

WARRANTY & PRODUCT REGISTRATION -

We warrant this product to the original owner to be free from defects in material and workmanship when installed in accordance with Atlantic Ultraviolet Corporation® specifications for a period of time as follows:

UV Water Purifier Chambers – Type 316 stainless steel chambers will have a Twelve (12) year Limited Warranty on the stainless steel chamber, from the date of original purchase while the Type 304 stainless steel chambers will have a Six (6) year Limited Warranty on the stainless steel chamber.

UV Air Disinfection Housing – Three (3) year Limited Warranty on the metal housing, from the date of original purchase.

Ballast – Three (3) year Limited Warranty, from the date of original purchase.

UV lamps and Other parts – One (1) year Limited Warranty from the date of original purchase.

Within the warranty period we shall repair or replace such products, which are returned to us with shipping charges prepaid and which are determined by us to be defective. This warranty will not apply to any product, which has been subjected to misuse, negligence or accident; or misapplied; or modified; or repaired by unauthorized person; or improperly installed. Warranty will be null and void if any of the product's original labels are removed. This Limited warranty excludes the cost of labor.

The Buyer shall inspect the product promptly after receipt and shall notify us at our main office in writing of claims, including claims of breach of warranty, within thirty (30) days after the Buyer discovers or should have discovered the facts upon which the claim is based. Failure of the Buyer to give written notice of a claim within the time period shall be deemed to be a waiver of such claim.

The provisions of the above warranty are our sole obligation and exclude all other remedies or warranties, expressed or implied, including warranties of merchantability and fitness for a particular purpose, whether or not purposes or specifications are described herein. We further disclaim any responsibility whatsoever to the customer, or to any person for injury to person, damage to, or loss of property or value caused by any product which has been subjected to misuse, negligence, accident; or modified or repaired by unauthorized persons; or improperly installed.

Under no circumstances shall the Company be liable for any incidental, consequential or special damages; losses or expenses arising from the contract for this product, or in connection with the use of, or inability to use, our product for any purpose whatsoever.

Be sure to register your product and validate purchase within 30 days — registration is simple and will take less than 2 minutes to do.

NOTE – failure to register your purchase may jeopardize warranty.

Go to Ultraviolet.com and scroll down to the bottom of the page, under "Trust" click the "Warranty Registration Form", complete and click "Submit". Or click on "Warranty Registration PDF" to download the warranty registration card as a PDF, complete and mail to us at 375 Marcus Boulevard, Hauppauge, NY 11788, or simply fax to 631-273-0771. If you prefer to register by phone, please call 631-273-0500 and our customer service staff will be glad to assist you.

For your convenience, record the following information below. The model and serial number can be found on a label located on the **SANITRON**® Ultraviolet Water Purifier. Keep this manual, along with proof of purchase, handy when contacting our offices.

Purchased From:	Date:
Model:	Serial No.: