

Sentry UV, Inc.



**SENTRY AQUA GUARD
LOW PRESSURE UV LIGHT
SYSTEM**

**Installation, Operation, and
Maintenance Manual**

FOR ALL SAG MODELS



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SECTION 1

DESCRIPTION

1.1 GENERAL INFORMATION

The Sentry Aqua Guard system is a low pressure, high output amalgam, ultra violet light sterilizer designed for commercial swimming pool/spa applications, low flow sewage, spray parks, drinking water, fountains and many other applications. The Sentry Aqua Guard is capable of sterilizing and some oxidizing up to 900 gallons per minute of water. The system operates at light wavelengths of 254nm for sterilizing and 185nm for oxidizing. Our lamps emit 30% more 254nm than MP systems. See the spec sheets of oxidation. The Sentry Aqua Guard is designed for commercial service and can be run 24 hours a day. The Sentry Aqua Guard components are outlined in **Figure 1**:

Figure 1



1.2 PRINCIPALS OF OPERATION

UV Light Chamber (See Figure 1)

The UV Light Chamber is made from highly polished 316 stainless steel or 316 stainless steel lined PVC. Quartz sleeves separate the low pressure, high output amalgam germicidal lamps from the water. The water to be treated flows into the bottom of the chamber. Once in the chamber, the germicidal bulbs produce a minimum 3-log reduction in pathogens. The water is then returned to the source.

Power Supply (See Figure 1)

The power supply provides the current to start and maintain the germicidal lamps. A visual indication of bulb output is displayed on the face of the power supply and a counter is located in the power to display hours of operation.

1.3 GENERAL SPECIFICATIONS AND SIZING GUIDELINES

MODEL NUMBERS AND DESCRIPTION:

SAG120A120 – Sentry Aqua Guard 120A 120
SAG120A230 – Sentry Aqua Guard 120A 230
SAG120A120PVC – Sentry Aqua Guard 120A 120 PVC
SAG240A120 – Sentry Aqua Guard 240A 120
SAG240A230 – Sentry Aqua Guard 240A 230
SAG240A120PVC – Sentry Aqua Guard 120A 120 PVC
SAG480A120 – Sentry Aqua Guard 480A 120
SAG480A230 – Sentry Aqua Guard 480A 230
SAG720A120 – Sentry Aqua Guard 720A 120
SAG720A230 – Sentry Aqua Guard 720A 230
SAG960A120 – Sentry Aqua Guard 960A 120
SAG960A230 – Sentry Aqua Guard 960A 230
SAG1200A120 – Sentry Aqua Guard 1200A 120
SAG1200A230 – Sentry Aqua Guard 1200A 230

FLOW, PRESSURE, AND CHAMBER SPECIFICATIONS:

Model #	Rated Pressure (psi)	Max Rated Flow (gpm)	Rated Power (KW)	Number of Bulbs	Volume of Chamber (Gallons)	Length and Diameter of Chamber
SAG120A120	50	38 to 51	120	1	2.16	40" L 4" D
SAG120A230	50	38 to 51	120	1	2.16	40" L 4" D

SAG120A120PVC	50	75 to 100	120	1	4.85	40" L 6"D
SAG240A120	50	90 to 120	240	2	4.85	40" L 6"D
SAG240A230	50	90 to 120	240	2	4.85	40" L 6"D
SAG240A120PVC	50	131 to 175	240	2	8.6	40" L 8"D
SAG480A120	50	233 to 311	480	4	13.48	40" L 10"D
SAG480A230	50	233 to 311	480	4	13.48	40" L 10"D
SAG720A120	50	394 to 525	720	6	23.55	48" L 12"D
SAG720A230	50	394 to 525	720	6	23.55	48" L 12"D
SAG960A120	50	487 to 649	960	8	23.55	48" L 12"D
SAG960A230	50	487 to 649	960	8	23.55	48" L 12"D
SAG1200A120	50	675 to 900	1200	10	42	48" L 16"D
SAG1200A230	50	675 to 900	1200	10	42	48" L 16"D

HEAD LOSS:

Head loss was determined to be .84 psi at 900 gpm based on inlet and outlet pressure readings on a SAG1200A120.

LAMP LIFE:

13,000 hours of operation

ELECTRICAL SPECIFICATIONS:

Model #	Rated Voltage (AC)	Rated Amps
SAG120A120	120	1.5
SAG120A230	230	.75
SAG120A120PVC	120	1.5
SAG240A120	120	3
SAG240A230	230	1.5
SAG240A120PVC	120	3
SAG480A120	120	6
SAG480A230	230	3
SAG720A120	120	9
SAG720A230	230	4.5
SAG960A120	120	10.5
SAG960A230	230	5.25
SAG1200A120	120	12.5
SAG1200A230	230	6.25

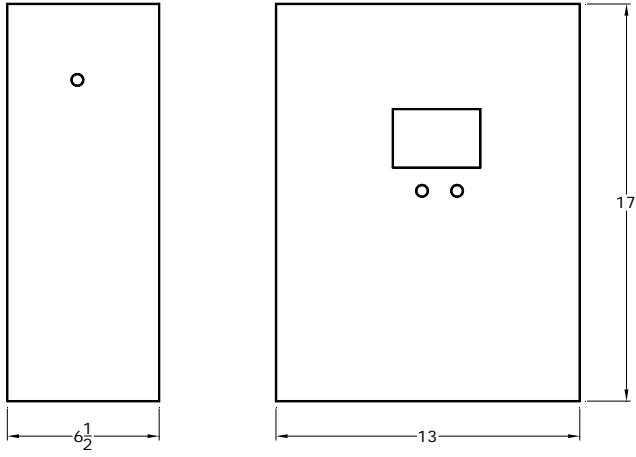
SIZING GUIDELINES

Sentry Aqua Guard UV Sterilizers will effectively treat water up to the maximum rated flow for each size unit.

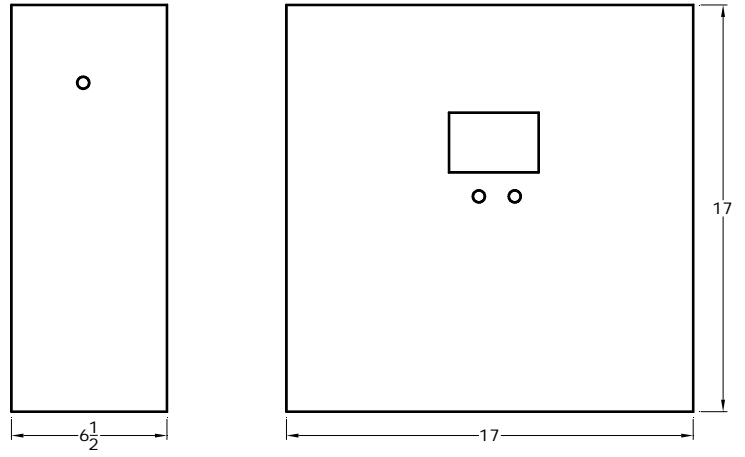
UV sizing must comply with local codes. Please contact your local health department for specific requirements or contact your local Sentry representative for assistance.

DIMENSIONS:

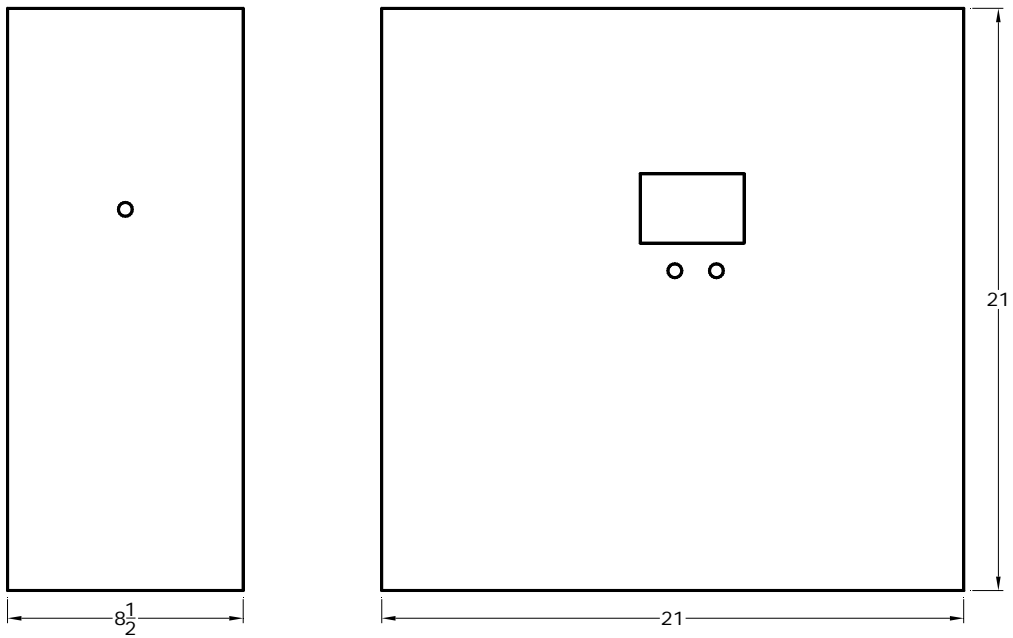
120W and 240W Power Supply



480W and 720W Power Supply

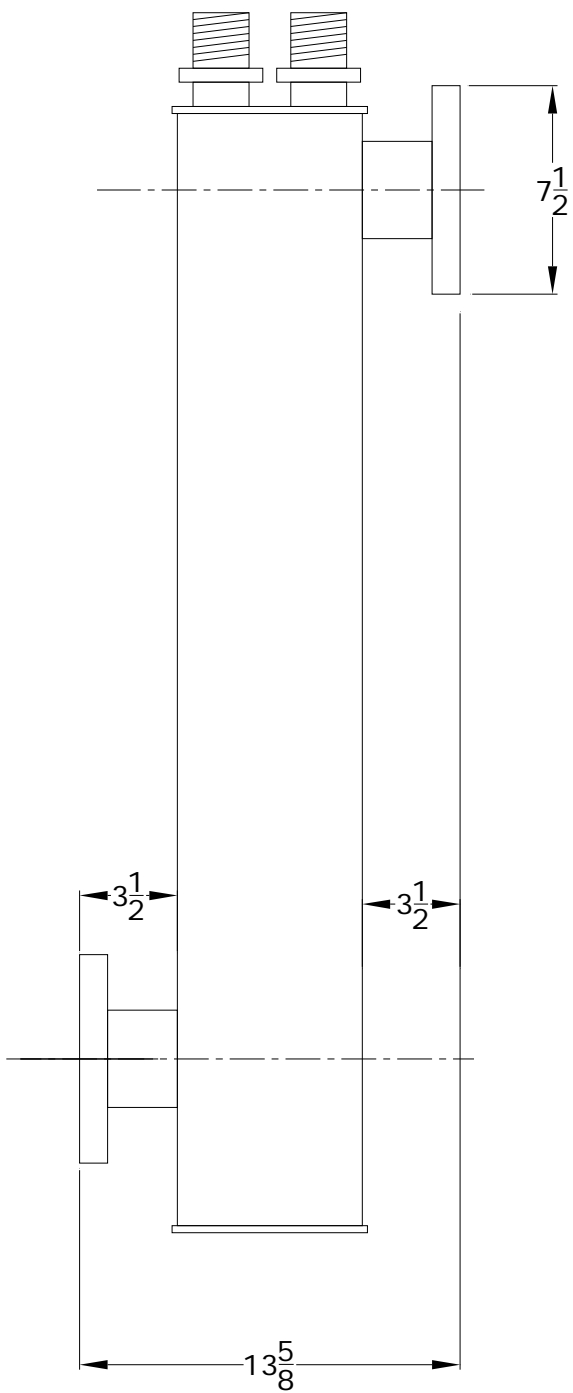


960W and 1200W Power Supply

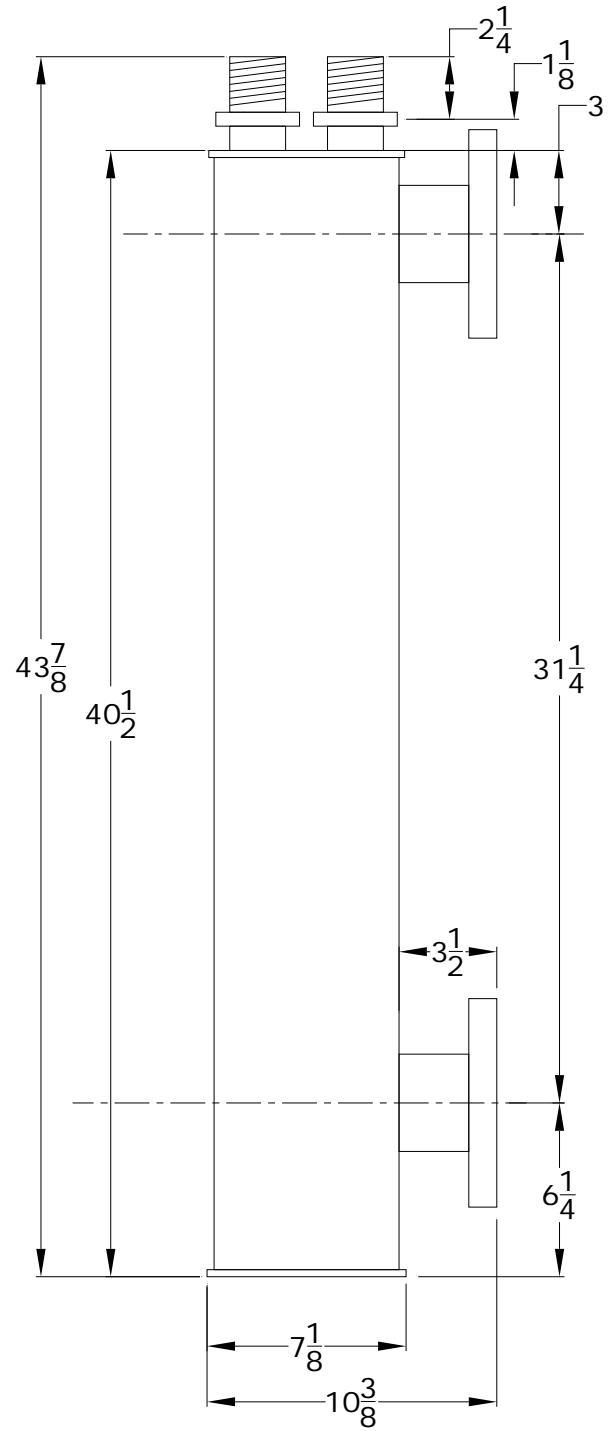


240 Watt Chamber 3" Flanges

Flanges Opposed

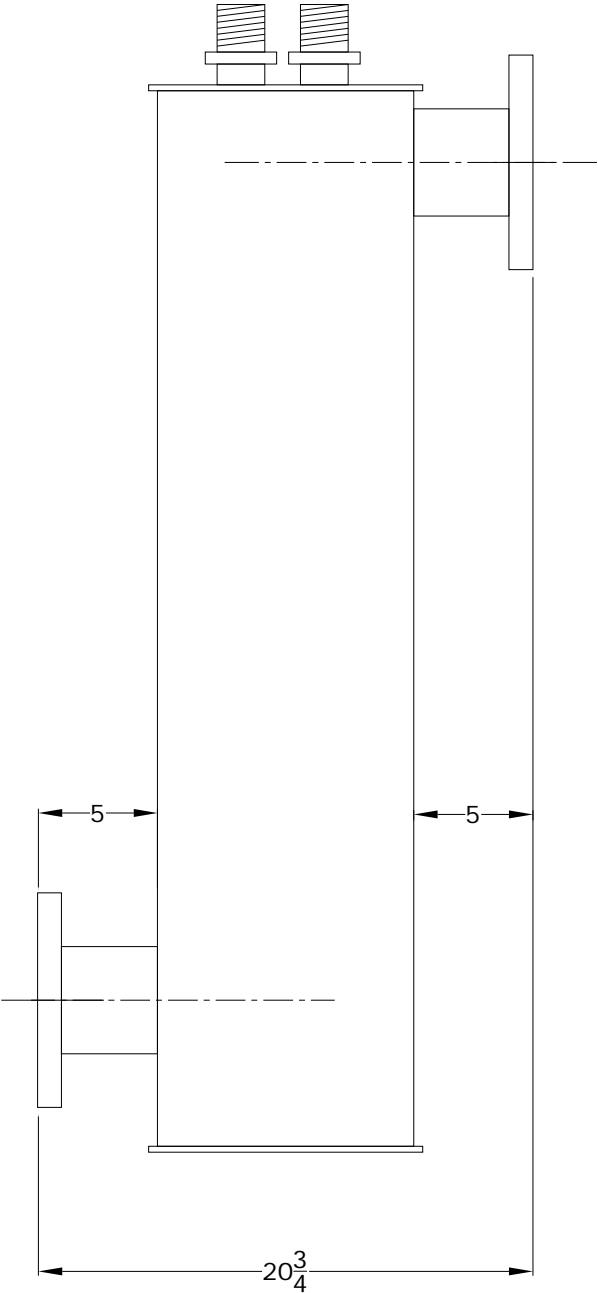


Flanges Same Side

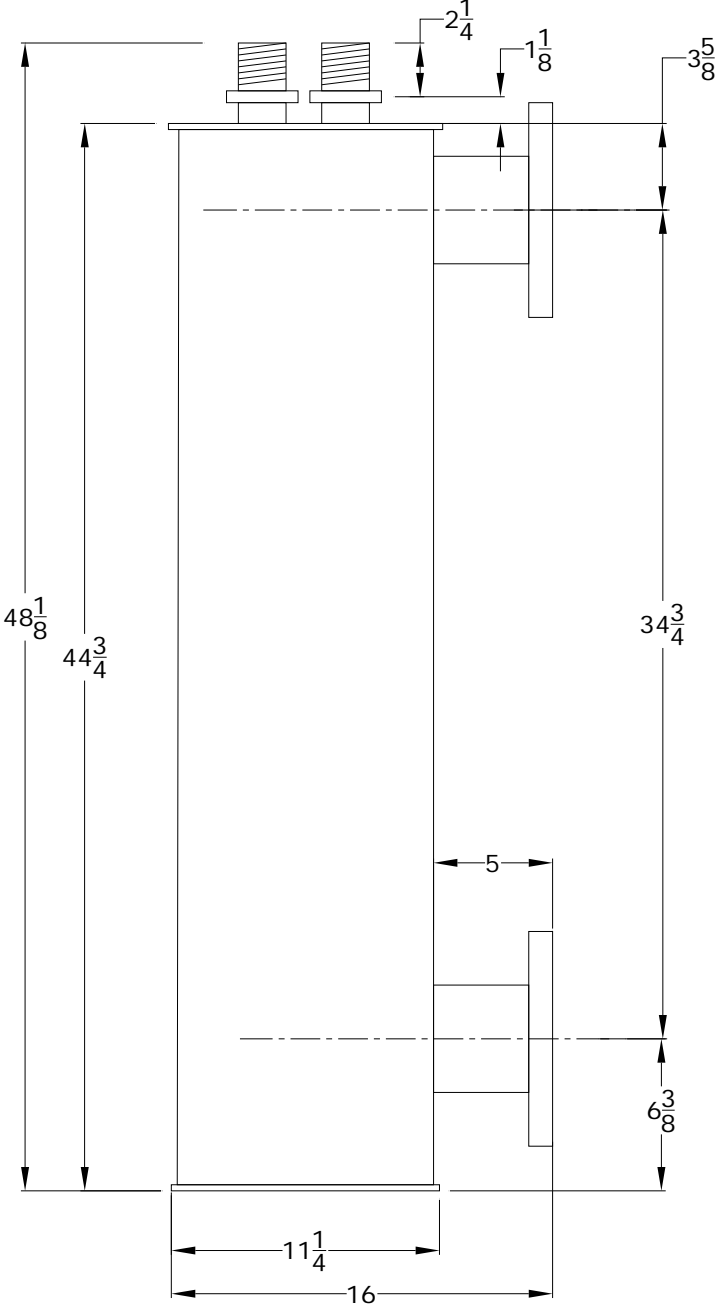


480 Watt Chamber
4" Flanges

Flanges Opposed

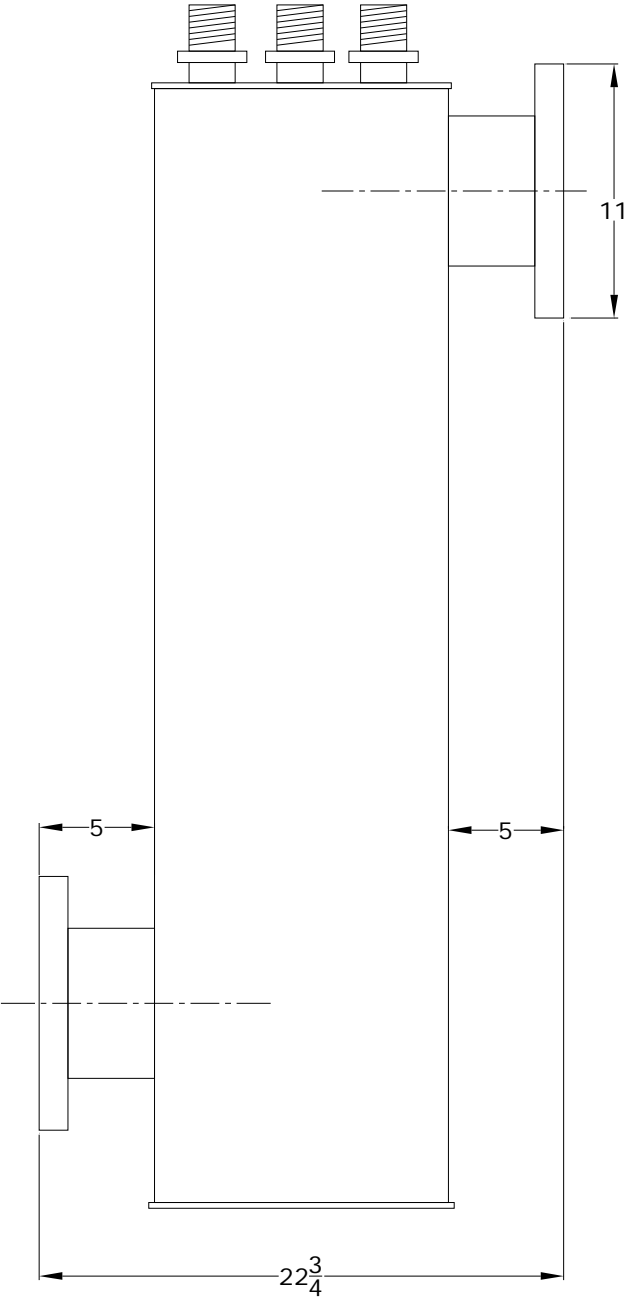


Flanges Same Side

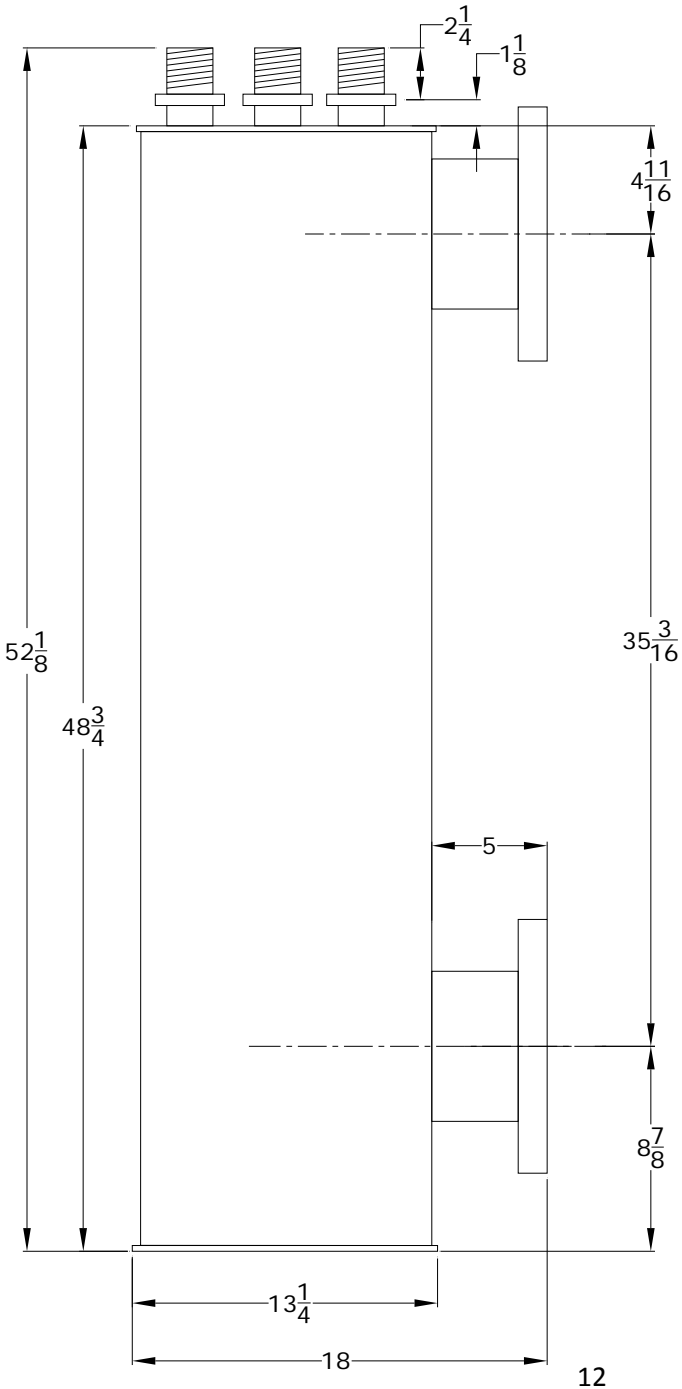


720 Watt & 960 Watt Chamber
6" Flanges

Flanges Opposed

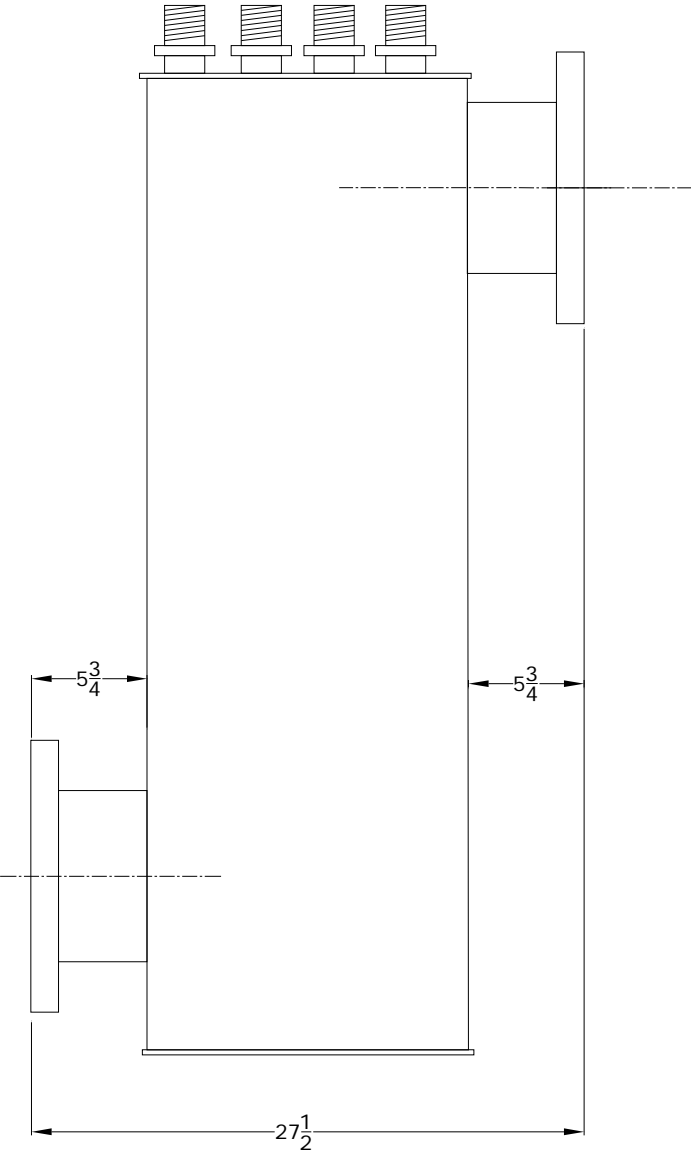


Flanges Same Side

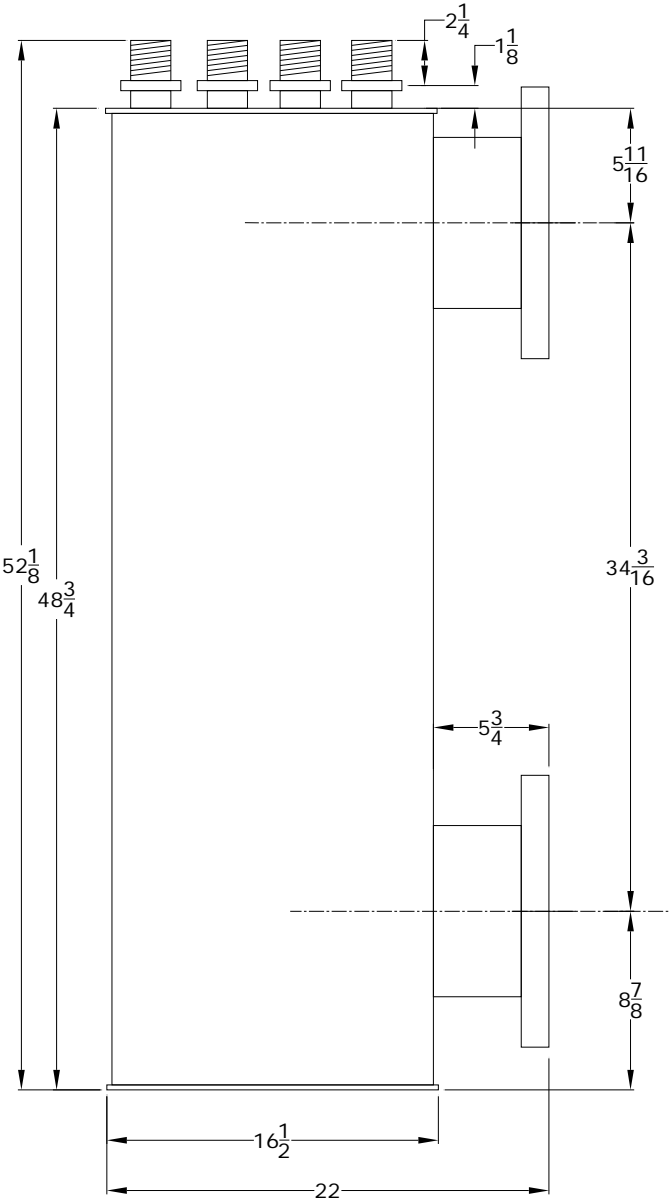


1200 Watt Chamber 8" Flanges

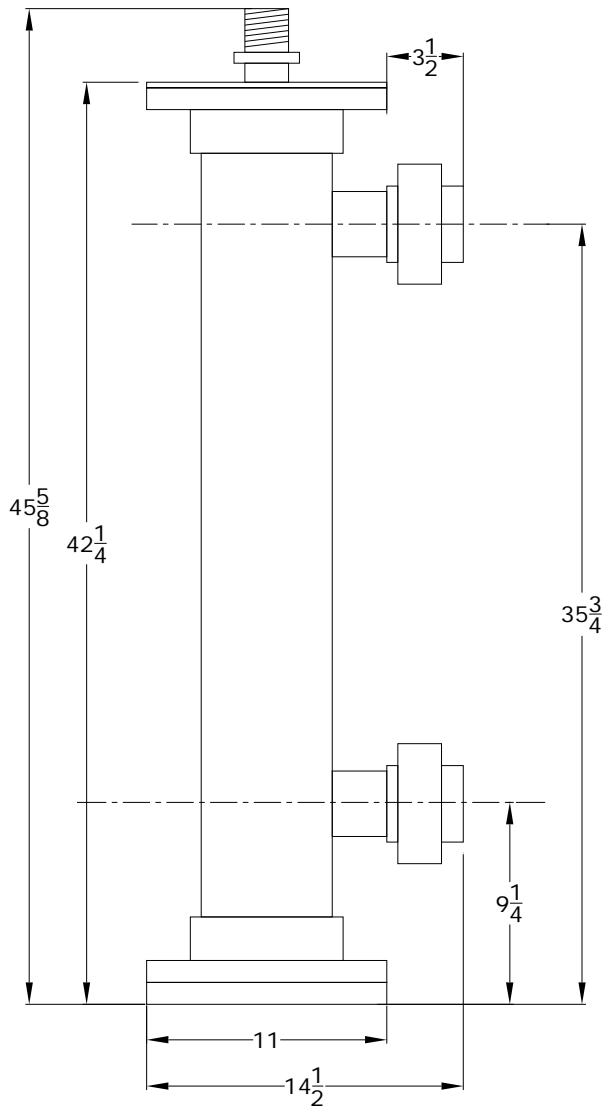
Flanges Opposed



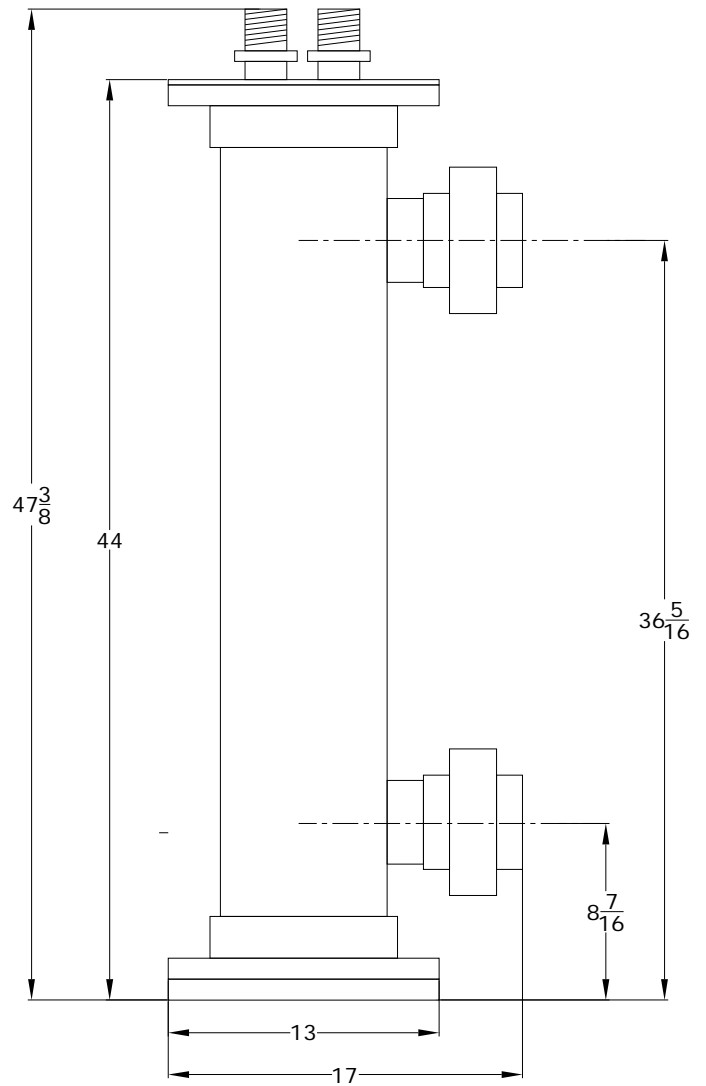
Flanges Same Side



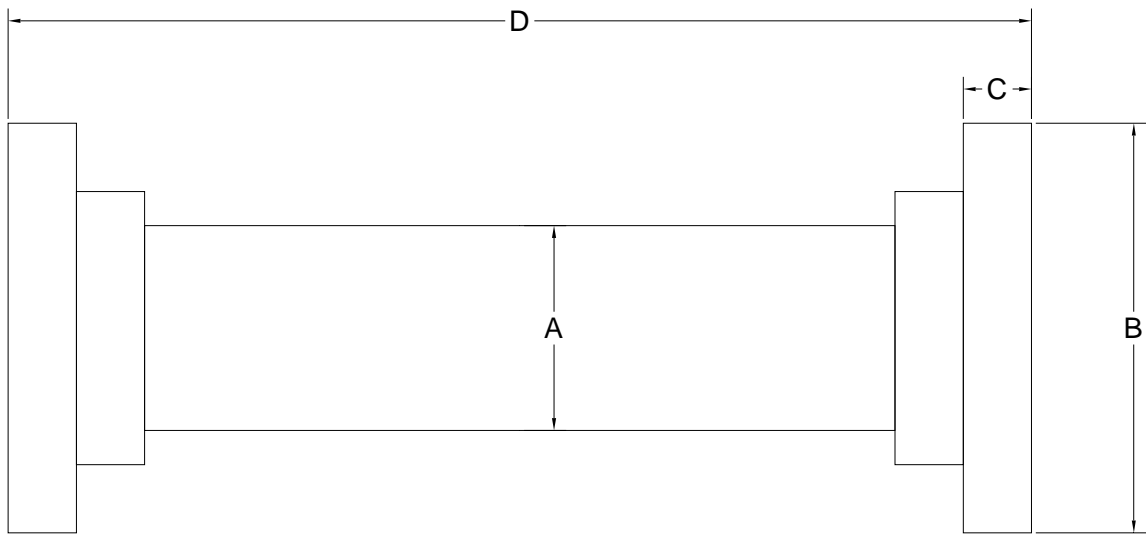
120 Watt PVC Chamber



240 Watt PVC Chamber



Strainer Spool Dimensions				
Nominal Pipe Size	Pipe OD (A)	Flange OD (B)	Flange Thickness (C)	Overall length (D)
2	2 1/2	6	3/4	15 1/2
3	3 1/2	7 1/2	1	17
4	4 1/2	9	1	17
6	6 1/2	11	1 1/4	18 1/2
8	8 1/2	13 1/2	1 3/8	20 1/2



SECTION 2

INSTALLATION

2.1 UNPACKING

Units are shipped from the factory. In the event of damages during shipping, it is the responsibility of the customer to notify the carrier immediately and to file a damage claim. Open the crate carefully and examine all material inside.

2.2 STORAGE

When storing units, use the original packaging and store under a shelter to protect the contents from weather.

2.3 SAFETY CONSIDERATIONS

IMPORTANT SAFETY INSTRUCTIONS

READ AND FOLLOW ALL INSTRUCTIONS

SAVE THESE INSTRUCTIONS

WHEN INSTALLING, OPERATING, AND MAINTAINING THIS EQUIPMENT, KEEP SAFETY CONSIDERATIONS FOREMOST. USE PROPER TOOLS, PROTECTIVE CLOTHING, AND EYE PROTECTION WHEN WORKING ON OR INSTALLING THE EQUIPMENT. FOLLOW THE INSTRUCTIONS IN THIS MANUAL AND TAKE ANY ADDITIONAL SAFETY MEASURES APPROPRIATE. BE EXTREMELY CAREFUL IN THE PRESENCE OF HAZARDOUS SUBSTANCES.

THE PERSONNEL RESPONSIBLE FOR INSTALLATION, OPERATION, AND MAINTENANCE OF THIS EQUIPMENT MUST BE FULLY FAMILIAR WITH THE CONTENTS OF THIS MANUAL.

ANY SERVICING OF THIS EQUIPMENT MUST BE DONE WITH THE UNIT FULLY OFF AND DISCONNECTED FROM THE POWER SOURCE AND ALL PRESSURE BLED FROM THE LIQUID LINES.

WARNING

- CONNECT THE EQUIPMENT ASSEMBLY TO A CIRCUIT PROTECTED BY A GROUND-FAULT CIRCUIT-INTERRUPTER.
- ONLY A CERTIFIED TECHNICIAN MAY INSTALL AND SERVICE THE **CHLORKING®** or **SENTRY UV** SENTRY AQUA GUARD SYSTEM.
- MODIFYING THE **CHLORKING®** or **SENTRY UV** SENTRY AQUA GUARD SYSTEM IN ANY WAY MAY CAUSE BODILY INJURY AND WILL VOID THE WARRANTY.
- DO NOT ALLOW CHILDREN TO OPERATE THE **CHLORKING®** or **SENTRY UV** SENTRY AQUA GUARD SYSTEM.
- ONLY REPLACE COMPONENTS WITH THOSE SPECIFIED BY THE MANUFACTURER, SENTRY UV, Inc.
- WHEN INSTALLING THE SYSTEM, ENSURE THAT POWER IS LINKED TO THE MAIN PUMP POWER SOURCE FOR THE SYSTEM TO ENSURE THAT THE **CHLORKING® SENTRY UV** SENTRY AQUA GUARD SYSTEM NEVER OPERATES WHEN THE PUMPS ARE OFF.
- ALL BOXES ON THE **CHLORKING® SENTRY UV** SENTRY AQUA GUARD SYSTEM CONTAIN HIGH VOLTAGE COMPONENTS. NEVER OPEN ANY BOX WHILE THE POWER IS ON.
- NEVER OPEN THE **CHLORKING®** or **SENTRY UV** SENTRY AQUA GUARD SYSTEM OR LOOK DIRECTLY AT THE UV LAMP WHEN IT IS OPERATING. DIRECT OR INDIRECT EXPOSURE TO THE LIGHT EMITTED BY THE LAMP WILL CAUSE SERIOUS EYE DAMAGE AND SEVERELY BURN UNPROTECTED SKIN.
- REPLACE DAMAGED CORDS IMMEDIATELY.

2.4 PLAN AHEAD

Almost every pump or mechanical room encountered is different. It is imperative to have prior knowledge of the facility in which the unit is to be installed and to evaluate what type of tools, wall anchors, etc. will be needed to make the installation as problem free as possible.

2.5 POWER SUPPLY INSTALLATION (See Figure 2)

WARNING

NEVER TRY TO SUPPORT THE WEIGHT OF THE POWER SUPPLY USING ONLY DRYWALL ANCHORS. THE POWER SUPPLY MUST HAVE A STUD FOR SUPPORT!

CAUTION

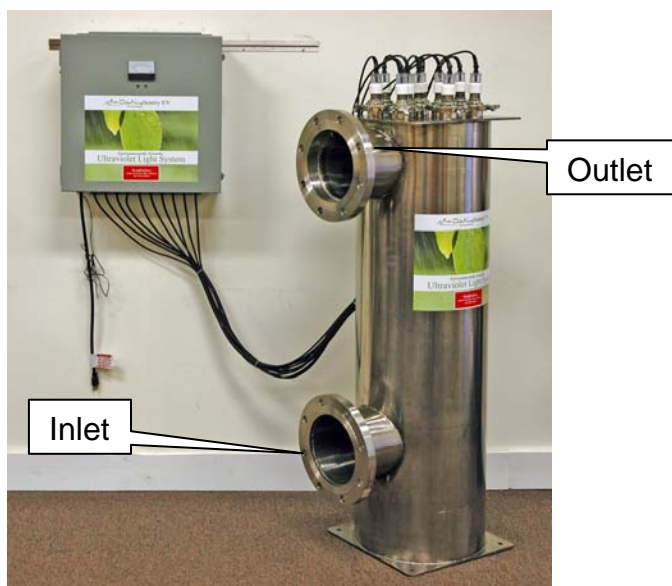
THE POWER SUPPLY MAY CAUSE INTERFERENCE WITH SENSITIVE ELECTRONICS. AVOID INSTALLING THE POWER SUPPLY NEAR SENSITIVE ELECTRONICS.

Locate a space on the wall, in the pump room, that will accommodate the dimensions of the power supply. The power supply must mount within 8 feet of the UV chamber to ensure that the cables can easily reach the chamber and within 3 feet of a 120 volt, 15-amp wall outlet protected by a ground fault circuit interrupter. On a drywall installation, locate studs to hold the weight of the power supply. Use concrete anchors for installations into concrete walls. Install in an easy to access location.

2.6 UV CHAMBER INSTALLATION (See Figure 2)

Place the UV Chamber on a level surface within eight feet of the power supply. The chamber may be installed in a vertical or horizontal position. Ensure that the unit is accessible. U shaped horizontal installations require that the water is plumbed going down into the inlet of the chamber and coming out in the up direction from the outlet of the chamber. Z shaped horizontal installations should be plumbed so the water is flowing up in to the chamber and up out of the chamber. Vertical installations require that the water is plumbed going into the inlet of the chamber and out of the outlet of the chamber. Secure the chamber with suitable hardware.

Figure 2



2.7 QUARTZ SLEEVE INSTALLATION

CAUTION

QUARTZ SLEEVES ARE MADE OF GLASS AND ARE EXTREMELY DELICATE. TAKE CARE WHEN HANDLING THESE COMPONENTS. DO NOT TOUCH THE QUARTZ SLEEVES WITH BARE HANDS. WIPE ANY FINGERPRINTS FROM LAMPS AND SLEEVES WITH ALCOHOL.

QUARTZ SLEEVES ARE SHIPPED WITH SMALL RUBBER STOPS AT THE BOTTOM OF THE SLEEVE. THIS RUBBER STOP MUST REMAIN IN PLACE TO PREVENT DAMAGE FROM BULB INSTALLATION.

Place a gasket on the quartz sleeve quick disconnect flange. Carefully lower the quartz sleeve assembly into the chamber. On chambers for SAG480 through SAG1200, the quartz sleeves sit on top of spring assemblies. Quartz sleeves must be carefully lined up with the spring or damage to the sleeve may occur. Gently press the quartz sleeve into place and install the quick disconnect clamp to secure the sleeve in place.

2.8 BULB INSTALLATION

CAUTION

THE WIRING CONNECTOR FOR THE BULB MUST BE INSTALLED ON THE BULB BEFORE THE BULB IS LOWERED INTO THE QUARTZ SLEEVE OR DAMAGE TO THE BULB MAY OCCUR.

Place the connector onto the bulb and lower the bulb all the way to the bottom of the quartz sleeve. Screw the viewing cap onto the quartz sleeve and tighten the liquid tight gland.

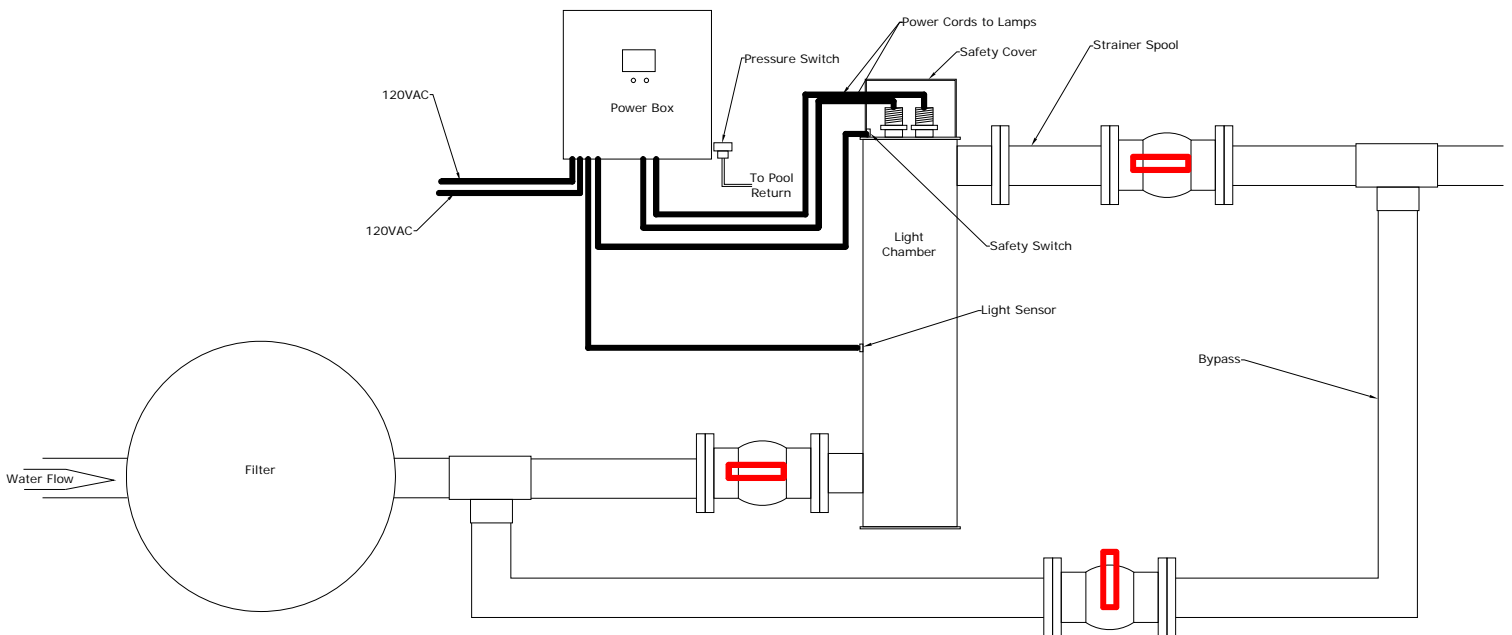


2.9 PLUMBING THE UV CHAMBER

WARNING

FOR PROPER OPERATION, DO NOT INSTALL IN A BYPASS. THE ENTIRE WATER VOLUME OF THE CIRCULATION SYSTEM SHOULD PASS THROUGH THE CHAMBER.

UV system installation diagram



The entire water volume of the circulation system should pass through the UV chamber. Plumb the inlet of the UV chamber as close to the outlet of the filter as possible. Plumb a bypass around the UV chamber to facilitate service. Use valves to isolate the chamber from the circulation system.

2.10 PLUMBING THE STRAINER (OPTIONAL)

The strainer is installed on outlet side of the UV chamber plumbing. The strainer can be installed anywhere in the return line plumbing that is downstream of the UV chamber outlet.

2.11 PLUMBING THE PRESSURE SWITCH

Plumb the pressure switch to the return line of the pool or water source with 1/4 tubing.



2.12 SYSTEM WIRING

All systems must be wired so that when the pool or the circulation pump is off the power to the Sentry UV, Inc. System is off.

120-VOLT SYSTEMS: These units are cord connected at the factory with two standard plugs for a 15-amp wall outlet. Connect both power cords to a 120V electrical outlet protected by a ground fault circuit interrupter.

230-VOLT SYSTEMS: These units are permanently wired to the electrical service in the pump room through a disconnect box. A Certified Electrician must do the permanent wiring. Connect the red and black wires to the appropriate wire nuts at the top of the contactor. (Labeled lines with wire nuts are provided.) Connect the ground wire at the wire nut provided. All units are equipped with a black control cord that plugs into a standard wall outlet protected by a ground fault circuit interrupter.

2.13 SAFETY COVER WIRING

Place the safety cover on top of the UV chamber and attach with the supplied bolts and nuts. Be sure the micro-switch is depressed when the cover is installed. Route the safety cover wire through the open liquid tight gland at the bottom of the power supply. Attach to the two wires from the safety cover to the two black wires in the power supply with the orange wire nuts supplied.

2.14 UV SENSOR WIRING

Connect the UV sensor located in the side of the chamber to the wiring harness located at the bottom of the power supply.

SECTION 3 OPERATION

3.1 START-UP PROCEDURES

Open the chamber isolation valves and close any bypass valves. Allow the chamber to fill with water. Open **the bleed valve located at the top of chamber and bleed all air from the chamber. Our newer systems come with auto-bleed system. Older systems can be upgraded. This air bleed must be opened from time to time to release the air.**

WARNING

FAILURE TO BLEED AIR FROM THE CHAMBER MAY CAUSE DAMAGE TO THE CHAMBER

Turn the system on with the switch located on the power supply. Operate the system for 15 minutes to allow the bulbs to warm up to full power. Calibrate the UV monitor if necessary.

3.2 UV MONITOR CALIBRATION

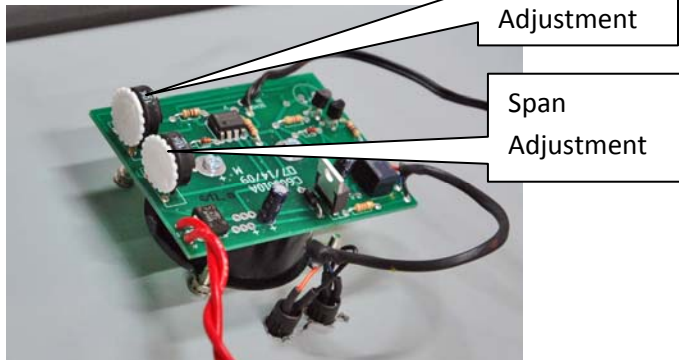
Operation

The UV monitor/sensor has been factory calibrated, however due to variations in water conditions the monitor/sensor may require field calibration at initial startup. Under normal operating conditions, the UV monitor will display 1, which means 100% operation. Any monitor display greater than 70% coincides with illumination of the green LED located under the monitor. When the UV monitor display falls to .7, or 70%, the green LED will go out and the yellow LED will illuminate indicating the need for quartz sleeve service or bulb replacement. The new microprocessors are pre-calibrated to read millijoules. Millijoules will decrease on the monitor screen as lamps age or water quality changes %-T or if the sleeves are fouled.

Calibration

In order to calibrate the UV monitor, the bulbs must be fully warmed up by allowing them to operate for at least 15 minutes. After the warm-up period, the display should indicate 1 on the meter. 1 represents 100%. If the display does not indicate 100%, adjust the span of the monitor with the lower white potentiometer knob on the back of

the monitor assembly until the display indicates 100%. If span cannot be set, see Section 3.3 Calibrating Sensors with Teflon Film.



Calibrating the 70% Warning Indicator

In order to calibrate the UV monitor 70% warning indicator, the bulbs must be fully warmed up by allowing them to operate for at least 15 minutes. After the warm-up period, the display should indicate 1 on the meter. 1 represents 100%. Using the span adjustment, adjust the meter so that the indicator is just below 70%. The green LED under the meter should turn off and the yellow indicator should turn on. Adjust the span so that the meter indicates just over 70%. The yellow LED should turn off and the green LED should turn on. If the warning indicator needs adjustment, set to 70% and adjust the warning indicator with the upper potentiometer on the back of the UV monitor until the yellow and green LED can be toggled back and forth at the 70% setting. Re-set the span to 100%. If the 70% warning level cannot be set, see Section 3.3 Calibrating Sensors with Teflon Film.

3.3 CALIBRATING SENSORS WITH TEFLON FILM

Cannot Reach 100% on the Meter

This calibration step assumes that all bulbs are illuminated and have been operating for at least 15 minutes. **Figure 3.1 and 3.2** show the unassembled parts of the UV monitor. The monitor includes an o-ring, a quartz window, Teflon film, and the sensor. The sensor may be shipped with no Teflon film in the assembly up to 2 pieces of Teflon film in the sensor assembly. If the sensor cannot be adjusted to 100% on the meter, remove one or more pieces of the Teflon film.

Cannot adjust the Meter Down to 70%

This calibration step assumes that all bulbs are illuminated and have been operating for at least 15 minutes. **Figure 3.1 and 3.2** show the unassembled parts of the UV monitor. The monitor includes an o-ring, a quartz window, Teflon film, and the sensor itself. The sensor may be shipped with no Teflon film in the assembly up to 2 pieces of

Teflon film in the sensor assembly. If the sensor cannot be adjusted down to 70% on the meter, add one or more pieces of the Teflon film.

Figure 3.1
UV Sensor Assembly for Stainless Steel Units



Figure 3.2
UV Sensor Assembly for PVC Units



SECTION 4

MAINTENANCE

4.1 ROUTINE MAINTENANCE

Daily Check

Check the UV meter and LED lights on the power supply daily. Under normal operating conditions, the UV meter will indicate a value over 70% and the green LED will be illuminated. If the UV meter falls below 70%, the green LED will go out and the yellow LED will illuminate. A meter display of less than 70% with a yellow LED is an indication that maintenance or repairs are needed. The most common cause is dirty quartz sleeves or a dirty sensor window.

Cleaning the Quartz Sleeve and UV Monitor Window Manually (Non-NSF Models)

CAUTION

QUARTZ SLEEVES ARE MADE OF GLASS AND ARE EXTREMELY DELICATE. TAKE CARE WHEN HANDLING THESE COMPONENTS. DO NOT TOUCH THE QUARTZ SLEEVES WITH BARE HANDS. WIPE ANY FINGERPRINTS FROM LAMPS AND SLEEVES WITH ALCOHOL.

QUARTZ SLEEVES ARE SHIPPED WITH SMALL RUBBER STOPS AT THE BOTTOM OF THE SLEEVE. THIS RUBBER STOP MUST REMAIN IN PLACE TO PREVENT DAMAGE FROM BULB INSTALLATION.

Unplug the unit from the power source to prevent the risk of electric shock or system damage. Isolate the chamber from the pool circulation system by closing the inlet and outlet valves and opening the bypass valve. Drain the chamber. Loosen the liquid tight gland and remove the viewing cap. Lift the bulb out of the quartz sleeve without disconnecting it from the wiring harness. Once the bulb is completely free of the quartz sleeve it can be safely disconnected from the wiring harness. Remove the quick disconnect clamp and remove the sleeve from the chamber.

Clean the quartz sleeve by wiping with a clean cotton cloth. If the inside of the sleeve needs to be cleaned brush with a tool similar to a gun barrel brush. Be sure not to lose the small rubber stopper in the bottom of the quartz sleeve.

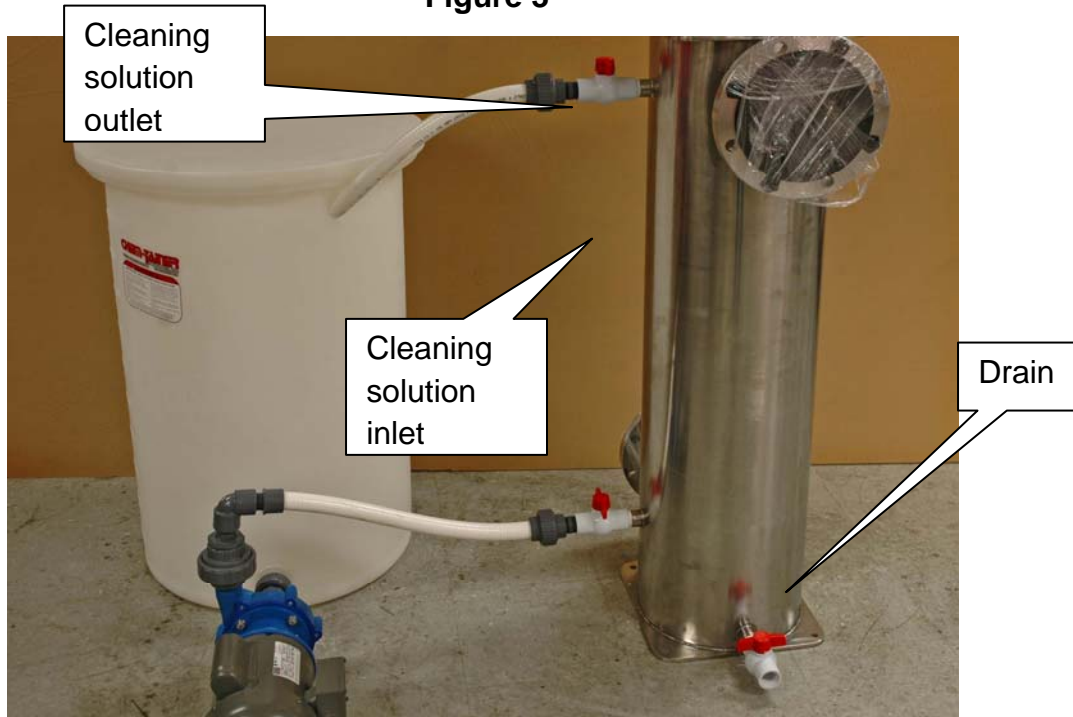
Check the gasket on the quartz sleeve quick disconnect flange. Carefully lower the quartz sleeve assembly into the chamber. On chambers for SAG480 through SAG1200 the quartz sleeves sit on top of spring assemblies. Quartz sleeves must be carefully lined up with the spring or damage to the sleeve may occur. Gently press the quartz sleeve into place and install the quick disconnect clamp to secure the sleeve in place.

Remove the UV monitor from the chamber and carefully remove the quartz window. Clean the window with a clean cotton cloth and reinstall the window and sensor.

Cleaning Quartz Sleeve and UV Monitor Window Chemically (NSF Models)

Unplug the unit from the power source to prevent the risk of electric shock or system damage. Isolate the chamber from the pool circulation system by closing the inlet and outlet valves and closing the bypass valve. Drain the chamber. Connect a Sentry UV Acid Washer or other suitable cleaning setup to the chamber. See examples in **Figure 3**. Water and muriatic acid are mixed in the cleaning solution tank at a ratio of 5:1. Five parts water to one part muriatic acid. Flush the chamber for 15 minutes with cleaning solution. Drain the cleaning solution from the chamber. When using the Sentry Acid Wash System the solution is pumped back into the cleaning solution tank for reuse. Remove the cleaning solution hoses from the chamber and close the cleaning solution valves. Open the inlet and out valves to restore water circulation to the chamber.

Figure 3



Lamp Replacement

Lamps are designed to provide a useful service life of 13,000 hours. After that time, the lamps will need replacing.

CAUTION

LAMPS AND QUARTZ SLEEVES ARE MADE OF GLASS AND ARE EXTREMELY DELICATE. CARE SHOULD BE TAKEN WHEN HANDLING OR REPLACING THESE COMPONENTS. WEAR COTTON GLOVES WHEN HANDLING LAMPS OR SLEEVES. HOLD BULBS BY THE ENDS ONLY. NEVER TOUCH THE GLASS WITH BARE HANDS. WIPE ANY FINGERPRINTS FROM LAMPS AND SLEEVES WITH ALCOHOL.

Unplug the unit from the power source to prevent the risk of electric shock or system damage. Loosen the liquid tight gland and remove the viewing cap. Lift the bulb out of the quartz sleeve without disconnecting it from the wiring harness. Once the bulb is completely free of the quartz sleeve it can be safely disconnected from the wiring harness.

CAUTION

THE WIRING CONNECTOR FOR THE BULB MUST BE INSTALLED ON THE BULB BEFORE THE BULB IS LOWERED INTO THE QUARTZ SLEEVE OF DAMAGE TO THE BULB MAY OCCUR.

Place the connector onto the bulb and lower the bulb all the way to the bottom of the quartz sleeve. Screw the viewing cap onto the quartz sleeve and tighten the liquid tight gland.

SECTION 5 WARRANTY INFORMATION

5.1 HOW TO OBTAIN HELP

To get help under this warranty, visit your local dealer or contact Sentry UV at 1-706-379-2670 or by email at www.sentryuv.com. Please have available the model number, the date of purchase, the name of the dealer from whom you purchased your ChlorKing® - Sentry UV product, as well as a description of the problem that you are experiencing. A ChlorKing® - Sentry UV technician will help you thoroughly troubleshoot the problem and locate the defective part.

5.2 RETURNING A CHLORKING® or SENTRY UV PRODUCT

To return a ChlorKing® or Sentry UV product, you must first call a ChlorKing® or Sentry UV technician at the number above and discuss the problem you are experiencing. The technician will then determine your warranty status, and will let you know whether you need to send the unit back for further observation and testing.

If so, ChlorKing® or Sentry UV will issue you a Return Authorization (RA) number that must be prominently displayed on all sides of the packaging. The unit must be properly packed in bubble wrap, placed in a cardboard box, then placed in another larger cardboard box filled with packing (Styrofoam) “peanuts” or bolted onto a secured pallet with side walls and shipped to the following address: (Insurance on the package is also required.)

**Sentry Ultraviolet, Inc.
Return Service Department
6767 Peachtree Ind. Blvd. Suite G
Norcross, GA 30092**

Warranty will be based on the ChlorKing® or Sentry UV technician’s opinion as to whether or not the defect was originated at the time of manufacture. Removing the unit from its current installed position, as well as, the return shipping charges to ChlorKing® or Sentry UV shall be at customer’s expense. This warranty does not include shipping and handling charges, which must be paid before package is shipped. Once the unit is received, evaluated, and the problem determined to be due to an error in manufacturing, the repairs/adjustments will be made and the unit will be shipped back to customer at ChlorKing® or Sentry UV’s expense. However, should ChlorKing® or Sentry UV determine that problem is NOT caused as a result of manufacturer error, ChlorKing® or Sentry UV will call customer to discuss findings and options.

If the item in question is no longer under warranty, ChlorKing® or Sentry UV will provide an estimate of cost to repair. Your authorization and a valid credit card will be required prior to making any repairs.

5.3 ACTIVATING/VALIDATING WARRANTY AND MAKING A WARRANTY CLAIM

To validate this warranty, establish proof of purchase, and make a warranty claim, you must complete and return the Owner Registration for Warranty Form, and submit a copy of the original receipt clearly showing the date and place of purchase. **Mail completed form and receipt within 10 days from the date of purchase to:**

**ChlorKing® or Sentry UV, Inc.
Warranty Registration Department
P.O. Box 80823
Atlanta, GA 30366**

5.4 WARRANTIES FOR HOUSING, PARTS, LAMPS, AND BALLASTS

ChlorKing® or Sentry UV will, to the original purchaser, warranty the Stainless Steel UV Light Product from defects in material and workmanship for 12 months or one (1) year from the original date of purchase as validated by the proof of purchase or receipt. During this time, ChlorKing® or Sentry UV will repair or replace, at its option, any defective parts covered by the warranty:

Housing. The housing carries a **three-year** warranty. You may be required to return item for inspection.

PVC Parts. All PVC parts carry a **one-year** warranty. You may be required to return item(s) for inspection.

Lamps/Bulbs. All lamps carry a **90-day** only warranty, and only for its intended electrical use. If there is a manufacturer's defect found with the lamp within the 90 days, Sentry UV will replace it.

Ballast Residential. Two-Years during normal use. If there is a manufacturer's defect found with the ballast within the two-year period, ChlorKing® or Sentry UV will replace it. You may be required to return the ballast for inspection.

5.5 WARRANTIES FOR QUARTZ SLEEVE

ChlorKing® or Sentry UV does not guarantee the quartz sleeve, because it is made entirely of glass and is easily broken. The Quick Disconnect allows for quick and easy inspection and cleaning our quartz sleeves. Inspection of sleeves often for fractures. New lamps on sleeves older that two years can cause sleeves to break or crack. We recommend replacing the quartz of sleeves and o-rings every two years.

5.6 GENERAL CONDITIONS AND LIMITATIONS

None of the above warranties cover damage caused by improper use or maintenance, accidents, acts of God, or minor scratches or imperfections that do not materially impair the operation of the product. Nor do the warranties cover products not installed as outlined in this document.

The warranty on lamps, ballasts, housings, or the unit in its entirety does not include shipping and handling charges, which will be collected at the time of shipment.

Parts replaced under the warranties above are covered to the end of the ORIGINAL warranty period.

Warranty is void if unit is not connected to a GFCI 120V/240V breaker.

The following also void warranty:

If product labels are defaced or removed.

If housing has been painted.

If product has been improperly installed or maintained by user. Product must be serviced by ChlorKing® or Sentry UV or authorized personnel only.

If product has been abused, misused or damaged by the user.

If product has been damaged by electrical surges, electrical spikes, electrical brownouts, or improper voltage.

We have set forth recommendations and certain installation requirements in this document. Provided they are followed, and the unit is operated in the environment and manner intended, we will repair or replace a defective part within the 12-month period from the time of purchase.

Any damage to the unit as a result of installation, shipping, packing, and/or handling is not covered by this warranty. Any implied warranty other than written herein is not part of this warranty. This warranty gives you specific rights. You may have other rights, which will vary from state to state. This warranty cannot be transferred. Any attempt to make repairs through any source other than ChlorKing® or Sentry UV or authorized person will void the warranty.

ChlorKing® or Sentry UV does not assume any liability for personal injury or property damage caused by the use or misuse of any of the above products. ChlorKing® or Sentry UV shall not in any event be liable for special, incidental, indirect, or consequential damages. ChlorKing® or Sentry UV's liability shall, in all instances, be limited to repair or replacement of the defective product or part and this liability will terminate upon expiration of the application warranty period.