Sterilight® copper

SC1, SC2.5, SC4
SC1/2, SC2.5/2, SC4/2

Installation Instructions & Owner's Manual

Manufactured in Canada by:

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CE

C SP US

Water Quality Association MEMBER

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Table of Contents:

Symbols:

Caution ***(consult accompanying documents)***

Protective Earth

Risk of Electrical Shock

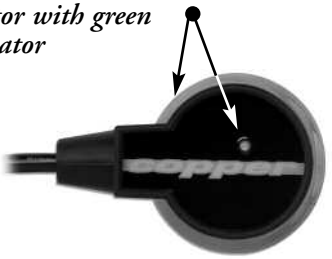
Fragile

Eye Protection

AC Current

PARTS:

Integral ballast and lamp connector with green LED Lamp/Power indicator



2 metres (6.5') power cord

retaining clip

Hard glass, coated Sterilume®-EX UV lamps for long, consistent life (9000 hours)

S212RL	(SC1, SC1/2)
S287RL	(SC2.5, SC2.5/2)
S330RL	(SC4, SC4/2)

o-ring OR-212

214 fused domed quartz sleeves with fire polished ends

QS-212D	(SC1, SC1/2)
QS-287D	(SC2.5, SC2.5/2)
QS-330D	(SC4, SC4/2)

ground wire *260120*

1/2" MNPT / 3/8" FNPT combination ports for application flexibility

Axial flow reactor design for increased hydraulic efficiency

304 stainless steel reactors with 600 grit polish (A249 pressure rated tube)

SAFETY INSTRUCTIONS:

WARNING - to guard against injury, basic safety precautions should be observed, including the following:

1. ***READ AND FOLLOW ALL SAFETY INSTRUCTIONS.***
2. **CAUTION** - Disconnect power before servicing.
3. **DANGER** - To avoid possible electric shock, special care should be taken since water is present near electrical equipment. Unless a situation is encountered that is explicitly addressed by the provided maintenance and troubleshooting sections, do not attempt repairs yourself, refer to an authorized service facility.
4. Carefully examine the disinfection system after installation. It should not be plugged in if there is water on parts not intended to be wet.
5. Do not operate the disinfection system if it has a damaged cord or plug, if it is malfunctioning or if it is dropped or damaged in any manner.
6. Always disconnect water flow and unplug the disinfection system before performing cleaning or maintenance activities. Never yank the cord to remove from an outlet; grasp the wall plug and pull to disconnect.
7. Do not use this disinfection system for other than intended use (potable water applications). The use of attachments not recommended or sold by the manufacturer / distributor may cause an unsafe condition.
8. Intended for indoor use only. Do not install this disinfection system where it will be exposed to the weather or to temperatures below freezing. Do not store this disinfection system where it will be exposed to the weather. Do not store this disinfection system where it will be exposed to temperatures below freezing unless all water has been drained from it and the water supply has been disconnected.
9. Read and observe all the important notices and warnings on the water disinfection system.
10. If an extension cord is necessary, a cord with a proper rating should be used. A cord rated for less Amperes or Watts than the disinfection system rating may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled.
11. **SAVE THESE INSTRUCTIONS.**

Warning: The UV light given off by this unit can cause serious burns to unprotected eyes and skin. Never look directly at an illuminated UV lamp. When performing any work on the UV disinfection system always unplug the unit first. Never operate the UV system while the UV lamp is outside of the UV chamber.

Note: The UV lamp inside of the disinfection system is rated at an effective life of approximately 9000 hours. To ensure continuous protection, replace the UV lamp annually.

WATER CHEMISTRY:

Water quality is extremely important for the optimum performance of your UV system. The following levels are recommended for installation:

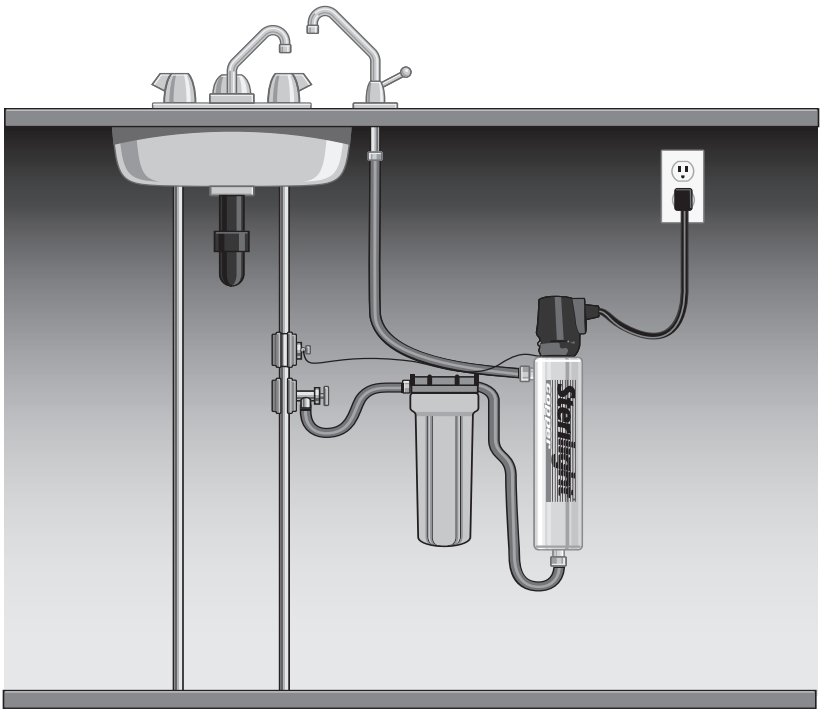
- **Iron: < 0.3 ppm (0.3 mg/L)**
- **Hardness*: < 7 gpg (120 mg/L)**
- **Turbidity: < 1 NTU**
- **Manganese: < 0.05 ppm (0.05 mg/L)**
- **Tannins: < 0.1 ppm (0.1 mg/L)**
- **UV Transmittance: > 75% (call factory for recommendations on applications where UVT < 75%)**

** Where total hardness is less than 7 gpg, the UV unit should operate efficiently provided the quartz sleeve is cleaned periodically. If total hardness is over 7 gpg, the water should be softened.*

If your water chemistry contains levels in excess of those mentioned above, proper pre-treatment is recommended to correct these water problems prior to the installation of your UV disinfection system. These water quality parameters can be tested by your local dealer, or by most private analytical laboratories. Proper pre-treatment is essential for the UV disinfection system to operate as intended.

INSTALLING YOUR UV DISINFECTION SYSTEM:

- The ideal installation is vertical, with the inlet at the bottom and the outlet at the top (side).
- The complete water system, including any pressure or hot water tanks, must be disinfected before start up by flushing with chlorine (household bleach) to destroy any residual contamination.
- For safety purposes, the disinfection system should be connected to a ground fault interrupt circuit.
- The disinfection system is intended for indoor use only, do not install disinfection system where it may be exposed to the weather.
- Install the disinfection system on cold water line only.
- If treating the entire house, install the disinfection system before any branch lines.
- A 5 micron sediment filter must precede the disinfection system. Ideally, the disinfection system should be the last treatment the water receives before it reaches the faucet.



1. For shipping purposes, the UV lamp is shipped in a separate cardboard tube. Carefully remove the UV lamp from the shipping tube being careful not to touch the glass portion with your fingers. Insert the UV lamp into the quartz sleeve and chamber making sure the connection end is inserted last. Mount the disinfection system to the wall with the supplied clamp. If required, a double-end clamp can be purchased from your dealer to affix to an RO membrane.
2. Make sure you leave enough clearance above the system connector to facilitate lamp service (a length equal to the length of the unit should suffice).
3. Various connection methods can be used to connect the water source to the disinfection system, however union type connectors are recommended. In addition, the use of a by-pass assembly is recommended for emergency use of untreated water when your disinfection system is being serviced.

   Note: When the UV unit is returned to service after being on by-pass the complete water system must be disinfected once again with chlorine (household bleach) to destroy any contamination that may have entered the distribution system while on by-pass. DO NOT SOLDER CONNECTIONS WHILE ATTACHED TO THE DISINFECTION SYSTEM AS THIS COULD DAMAGE THE O-RING SEALS.

4. Prior to connecting the power source, check all connections to ensure that they are indeed secure, slowly turn on water supply and check for any leaks.
5. To properly ground the stainless steel generating chamber, attach the supplied 3' long, No.10 AWG green/yellow wire to the ground lug on the UV reactor. Remove the green cap nut and slide the eyelet connector onto the screw. Fasten the cap nut to the screw with a 5/16" wrench. Affix the supplied pipe clamp (1/2" to 1") to the copper piping or an approved grounding source and securely fasten to the supplied green/yellow grounding wire.
6. The power source provided with your disinfection system must be located within five (5) feet of an electrical outlet. DO NOT USE AN OUTLET THAT CAN BE SWITCHED OFF (IE. A WASTE DISPOSAL OUTLET). Attach the lamp connector to the UV lamp (as outlined in steps 1-4 on page 6). Plug the ballast into the outlet and ensure the POWER-ON LED is illuminated.

Note: As the system requires time to reach its full operating capacity, please allow the disinfection system to operate 3 - 5 minutes prior to using the water from the unit. In addition, to clear any air or debris from the system, open the faucet and allow water to run through the disinfection system for 2 - 3 minutes (when using an RO application, run the water for 30 - 45 seconds).

Operating & Maintenance Instructions:

Caution: **PRIOR TO PERFORMING ANY WORK ON THE DISINFECTION SYSTEM, ALWAYS DISCONNECT THE POWER SUPPLY FIRST.**

1. To replace the lamp, there is NO need to disconnect the system from the water supply, nor to drain the water from the reactor chamber. Lamp replacement is a quick and simple procedure requiring no special tools. The UV lamp must be replaced after 9,000 hours of continuous operation (approximately one year) in order to ensure adequate disinfection.

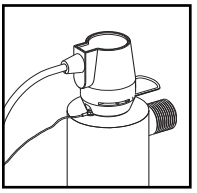


FIGURE 1

2. Disconnect main power source and allow the unit to power down. Remove the ballast/connector by sliding the metal retaining ring (Figure 1) away from the body of the connector. Remove connector and lamp from the reactor chamber. Separate the lamp from the connector (Figure 2). Do not twist the lamp from the connector, simply slide the two apart. Avoid touching the lamp on the glass portion. Handling the lamp at the ceramic ends is acceptable, however if you must touch the lamp glass, please use gloves, or a soft cloth. Fully remove the lamp from the reactor chamber being careful not to angle the lamp as it is removed from the chamber. If the lamp is removed on an angle, pressure will be applied on the inside of the quartz sleeve, causing the sleeve to fracture.

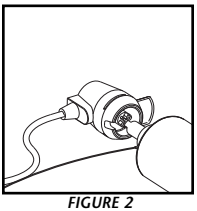


FIGURE 2

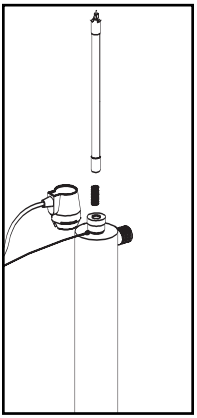


FIGURE 3

3. To install a new lamp, first remove the lamp from its protective packaging again being careful not to touch the lamp glass itself. Carefully insert the lamp into the reactor vessel (actually inside the quartz sleeve) (Figure 3). Insert the lamp fully into the chamber leaving about two inches of the lamp protruding from the chamber. Next, attach the ballast/connector on the UV lamp (Figure 2). The connector is "keyed" and will only allow correct installation in one position. Ensure the connector is fully seated onto the UV lamp (Figure 4).

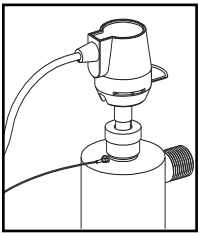


FIGURE 4

4. Once the lamp is fully seated on the connector, slide the ballast/connector over the aluminum retaining nut. Make sure the metal retaining ring on the ballast/connector is pulled away from the body of the connector in order that the connector may slide fully over the retaining nut. Once the connector is located fully over the retaining nut, slide the metal ring back in to lock the connector in place (Figure 5). As this ballast/connector is keyed to the reactor chamber, make sure the depression on the connector (Figure 1) is located over the ground lug located on the reactor chamber.

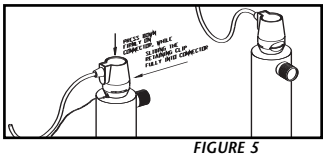


FIGURE 5

5. If the water contains any hardness minerals (calcium or magnesium), iron or manganese, the quartz sleeve will require periodic cleaning. To remove the quartz sleeve, first remove the UV lamp as outlined in steps 1-4 (on page 6) and follow the following steps:

CAUTION: disconnect power before servicing

a) Shut off water supply and isolate flow to reactor.

b) Remove aluminum gland nut from chamber.

c) Carefully remove o-ring from the quartz sleeve. As the o-ring may tend to adhere to the quartz sleeve, it is recommended to replace the o-ring annually.

d) Clean the outside of the quartz sleeve with a cloth soaked in CLR™ or Limeaway™. Repeat the process as often as necessary to keep the quartz sleeve clean. Be sure to remove all traces of cleaning fluid from the sleeve before it is reinstalled in the reactor (be sure not to allow liquid inside the sleeve).

e) Re-assemble the quartz sleeve in the UV chamber.

f) Wet the o-ring and slide onto end of the quartz sleeve and reassemble the gland nut (hand tight is sufficient).

g) Re-tighten all connections, turn on water slowly and check for leaks.

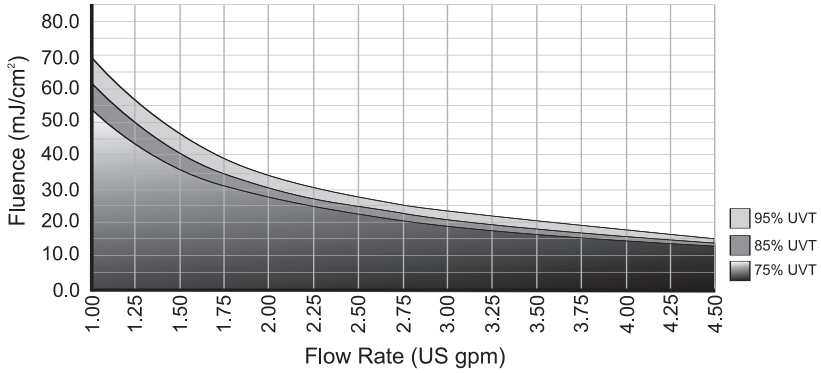
h) Re-install the UV lamp and lamp connector as per prior instructions.

i) Plug in ballast and verify the Lamp/Power LED is illuminated.

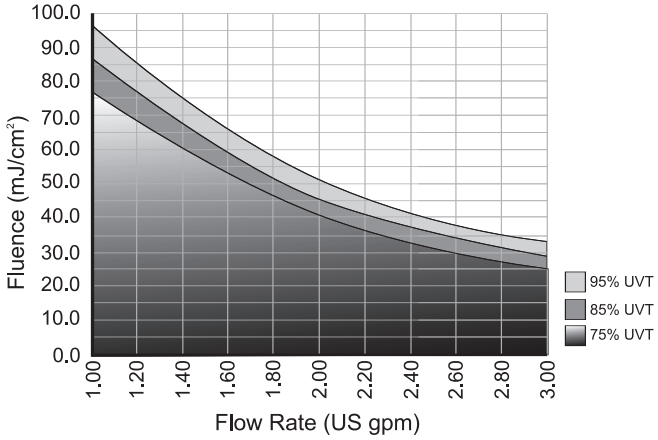
Note: **If the system is put on a temporary by-pass or if it becomes contaminated after the disinfection system, it will be necessary to shock the system with household bleach for a full 20 minutes before resuming the use of the water.**

Fluence Dose Curves:

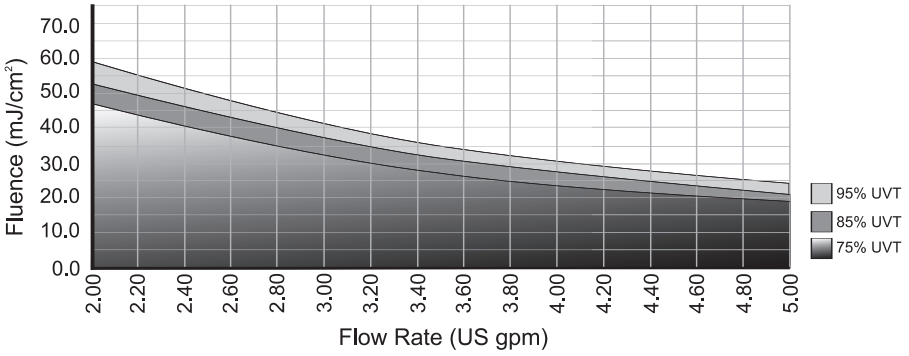
SC1 & SC1/2



SC2.5 & SC2.5/2



SC4 & SC4/2



MANUFACTURER'S WARRANTY:

Manufacturer warrants the ultraviolet disinfection system hardware and electrical systems to be free from defects in material and workmanship for a period of three (3) years from the date of purchase by the original owner (consumer) on a pro-rated basis. Manufacturer warrants the ultraviolet lamps to be free from defects in material and workmanship for a period of one (1) year and the reactor chamber for a period of seven (7) years. The warrantor will at its option and expense, either repair or replace such units subject to the following conditions, exceptions, and exclusions. No other warranties with respect to the units other than those expressly included in this warranty, have been made by the Warrantor.

CONDITIONS, EXCEPTIONS, AND EXCLUSIONS

The foregoing limited Warranty is subject to the following terms and conditions:

1. Water passed through the unit must fall within the following parameters:
   a) Iron: < 0.3 ppm (0.3 mg/L)
   b) Hardness*: < 7 gpg (120 mg/L)
   c) Turbidity: < 1 NTU
   d) Manganese: < 0.05 ppm (0.05 mg/L)
   e) Tannins: < 0.1 ppm (0.3 mg/L)
   f) UV Transmittance: > 75% (call factory for recommendations on applications where UVT < 75%)

   ** Where total hardness is less than 7 gpg, the UV unit should operate efficiently provided the quartz sleeve is cleaned periodically. If total hardness is over 7 gpg, the water should be softened.* ***Warranty will be void if the proper steps are not taken to ensure that these impurities are not present.***
2. This limited Warranty shall not apply to any unit which has been repaired or altered by anyone other than the Warrantor or by a person authorized by the Warrantor, nor to any units which have been subject to misuse, neglect, or accident.
3. This limited Warranty runs exclusively to the original Consumer and with respect to the original installation only.
4. WARRANTOR SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.
5. This limited Warranty excludes the cost of labour in removing any defective unit or installing any replacement unit. This limited Warranty applies only to a unit when returned to the Warrantor at the owner's expense and in accordance with shipping instructions received from the Warrantor.

SPECIFICATIONS:

		SC1	SC2.5	SC4
Flow Rate[1]	16 mJ/cm² US Public Health	7.5 lpm (2 gpm) (0.45 m³/Hr.)	15.9 lpm (4.2 gpm) (0.95 m³/Hr.)	28.4 lpm (7.5 gpm) (1.70 m³/Hr.)
	30 mJ/cm² R-Can Standard	4 lpm (1 gpm) (0.24 m³/Hr.)	9.5 lpm (2.5 gpm) (0.57 m³/Hr.)	15 lpm (4 gpm) (0.91 m³/Hr.)
	40 mJ/cm² NSF/EPA	2 lpm (0.5 gpm) (0.12 m³/Hr.)	7.2 lpm (1.9 gpm) (0.43 m³/Hr.)	10.6 lpm (2.8 gpm) (0.64 m³/Hr.)
Dimensions	Length	34.3 cm (13.5")	41.9 cm (16.5")	46.2 cm (18.2")
	Cell Diameter	6.5 cm (2.5")	6.5 cm (2.5")	6.5 cm (2.5")
Shipping Weight		4 lbs	4.5 lbs	6.5 lbs
Electrical	Volts	100-130V / 50-60 Hz	100-130V / 50-60 Hz	100-130V / 50-60 Hz
	Power Consumption	12W	16W	19W
	Lamp Watts	10W	14W	17W
Maximum Operating Pressure		8.62 bar (125 psi)	8.62 bar (125 psi)	8.62 bar (125 psi)
Ambient Water Temperature		2-40°C (36-104°F)	2-40°C (36-104°F)	2-40°C (36-104°F)
Inlet/Outlet Port Size		combo 1/2" MNPT / 3/8" FNPT	combo 1/2" MNPT / 3/8" FNPT	combo 1/2" MNPT / 3/8" FNPT
Visual Lamp/Power Indicator		YES	YES	YES
Reactor Chamber Material		304 SS	304 SS	304 SS

1. Flow rates based on UVT_{10}=95%

System Specifications:

- Pollution Degree, 2
- Installation Category, II
- Altitude & Humidity: 860-1060 hPa/20%-70%
- Electrical Ratings: 100-140VAC
- Maximum Ambient Temperature: 40°C
- Mains supply voltage fluctuations are not to exceed ±10% of the nominal supply voltage.

SPECIFICATIONS:

		SC1/2	SC2.5/2	SC4/2
Flow Rate[1]	16 mJ/cm² US Public Health	7.5 lpm (2 gpm) (0.45 m³/Hr.)	15.9 lpm (4.2 gpm) (0.95 m³/Hr.)	28.4 lpm (7.5 gpm) (1.70 m³/Hr.)
	30 mJ/cm² R-Can Standard	4 lpm (1 gpm) (0.24 m³/Hr.)	9.5 lpm (2.5 gpm) (0.57 m³/Hr.)	15 lpm (4 gpm) (0.91 m³/Hr.)
	40 mJ/cm² NSF/EPA	2 lpm (0.5 gpm) (0.12 m³/Hr.)	7.2 lpm (1.9 gpm) (0.43 m³/Hr.)	10.6 lpm (2.8 gpm) (0.64 m³/Hr.)
Dimensions	Length	34.3 cm (13.5")	41.9 cm (16.5")	46.2 cm (18.2")
	Cell Diameter	6.5 cm (2.5")	6.5 cm (2.5")	6.5 cm (2.5")
Shipping Weight		4 lbs	4.5 lbs	6.5 lbs
Electrical	Volts	200-250V / 50-60 Hz	200-250V / 50-60 Hz	200-250V / 50-60 Hz
	Power Consumption	12W	16W	19W
	Lamp Watts	10W	14W	17W
Maximum Operating Pressure		8.62 bar (125 psi)	8.62 bar (125 psi)	8.62 bar (125 psi)
Ambient Water Temperature		2-40°C (36-104°F)	2-40°C (36-104°F)	2-40°C (36-104°F)
Inlet/Outlet Port Size		combo 1/2" MNPT / 3/8" FNPT	combo 1/2" MNPT / 3/8" FNPT	combo 1/2" MNPT / 3/8" FNPT
Visual Lamp/Power Indicator		YES	YES	YES
Reactor Chamber Material		304 SS	304 SS	304 SS

1. Flow rates based on UVT_{10}=95%

System Specifications:

- Pollution Degree, 2
- Installation Category, II
- Altitude & Humidity: 860-1060 hPa/20%-70%
- Electrical Ratings: 100-140VAC
- Maximum Ambient Temperature: 40°C
- Mains supply voltage fluctuations are not to exceed ±10% of the nominal supply voltage.