PENTAIR

AQUATIC ECO-SYSTEMS™

EMPEROR
SMART UV SYSTEMS™
UV STERILIZER

INSTALLATION AND USER'S GUIDE

IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS
SAVE THESE INSTRUCTIONS

CUSTOMER SERVICE / TECHNICAL SUPPORT

If you have questions about ordering Pentair Aquatic Eco-Systems replacement parts and products, please use the following contact information:

Customer Service
8 AM to 7 PM — Eastern and Pacific Times

US

Phone: (877) 347-4788

Fax: (407) 886-6787

International

Phone: (407) 886-3939

Fax: (407) 886-4884

Web site

Visit www.pentairaes.com

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P/N 02934-INS-SMART Rev. B 4/27/15

IMPORTANT UV SYSTEM WARNING AND SAFETY INSTRUCTIONS

IMPORTANT NOTICE

This guide provides installation and operation instructions for the SMART UV System. Consult Pentair with any questions regarding this equipment.

Attention Installer: This guide contains important information about the installation, operation and safe use of this product. This information should be given to the owner and/or operator of this equipment after installation or left on or near the pump.
Attention User: This manual contains important information that will help you in operating and maintaining this product. Please retain it for future reference.

IMPORTANT SAFETY INSTRUCTIONS! PLEASE READ PRIOR TO INSTALLATION AND OPERATION!
Strictly follow the instructions within this manual to ensure the health and safety of both, yourself and the UV system. The installation, operation and maintenance of the UV system can only be carried out after reading and understanding the information contained in this manual.
The installation of the UV system must be carried out in accordance with local regulations and codes.

READ AND FOLLOW ALL INSTRUCTIONS
SAVE THESE INSTRUCTIONS

This is the safety alert symbol. When you see this symbol on your system or in this manual, look for one of the following signal words and be alert to the potential for personal injury.

DANGER Warns about hazards that can cause death, serious personal injury, or major property damage if ignored.

WARNING Warns about hazards that may cause death, serious personal injury, or major property damage if ignored.

CAUTION Warns about hazards that may or can cause minor personal injury or property damage if ignored.

NOTE indicates special instructions not related to hazards.

Carefully read and follow all safety instructions in this manual and on equipment. Keep safety labels in good condition; replace if missing or damaged.

When installing and using this electrical equipment, basic safety precautions should always be followed, include the following:

WARNING **Ultraviolet light is damaging to your eyes and skin!** Do not handle or stare at an operating UV lamp. Note that the UV light rays are invisible to the human eye and precautions should be taken to prevent UV energy from entering the eyes.

CAUTION The quartz sleeve and or the UV lamp shipped with this product may have been broken or damaged during transit. It is therefore essential that the unit be carefully inspected before connecting to electric power.

WARNING DO NOT allow system to exceed 20 PSI (Pounds Per Square Inch).

DANGER To avoid possible electric shock, special care should be taken since water is employed is the use of aquarium and pond equipment. For each of the following situation, DO NOT attempt repairs yourself. Call Pentair Aquatic Eco-Systems, Inc. customer service department at 877-347-4788 for services or discard the appliance.

DANGER If unit falls into the water, DO NOT REACH FOR IT! First unplug it and then retrieve it. If the internal electrical components of the unit get wet, unplug the unit immediately.

DANGER If the unit shows any sign of water leakage, immediately unplug it from the power source.

CAUTION Carefully examine the unit after installation. It should not be plugged in if there is water on any part not intended to be wet.

DANGER DO NOT operate this unit if it has a damaged cord or plug, if it is malfunctioning, or if it has been dropped or damaged in any manner.

WARNING Close supervision is necessary when any appliance is used by or near children, and our equipment is no exception.

WARNING Always unplug the unit from an electrical outlet when not in use or before servicing, cleaning or removing parts. Never yank the cord to pull the plug from the outlet. Grasp the plug and pull to disconnect.

WARNING SMART UVs are designed for low-pressure water applications with or without aquatic livestock. DO NOT use these units for any application outside of their intended use. The use of attachments not recommended or sold by Pentair Aquatic Eco-Systems, Inc. may cause unsafe conditions and may void any warranty.

WARNING **This unit must be wired in conjunction with a properly grounded, Ground Fault Circuit Interrupter (GFCI)**. Only three (3) wire grounded cables suitable for outdoor use should be used to connect this unit. If joining cables for outdoor use, a suitable watertight cable connector must be used. 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 appliance's rating may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled. If in doubt consult a qualified electrician.

WARNING Warping of the UV body may occur when left in direct sunlight without water inside to help dissipate the heat.

WARNING DO NOT operate the unit in "no-flow" situations.

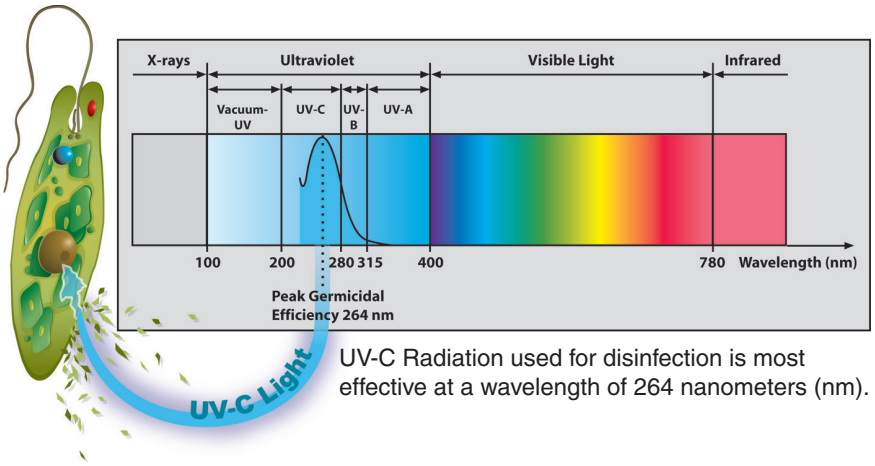
SECTION 1
SYSTEM FEATURES AND SPECIFICATIONS

What is Ultraviolet Sterilization?

Using a low-pressure mercury vapor germicidal lamp. Input watts (voltage + current) are supplied to the UV lamp creating an electrical arc with the mercury inside. This reaction creates UV-C light. The UV-C light between 250nm and 280nm (the germicidal action spectrum) when directly exposed to living microorganisms such as bacteria and Protozoa is very effective at altering their DNA, disabling them from reproducing or even destroying them.

Microorganisms vary in type and size. Identifying the targeted microorganism, (Algae, Bacteria etc...) and matching its type and size to its established UV exposure rate, are prerequisites for eliminating that particular microorganism. Successful UV sterilization requires the UV-C (UV radiation @ 250-280nm) light to penetrate the microorganism's cell wall/cell membrane and destroy its nuclear material as discussed and shown in the diagram to the right.

Successful UV sterilization in a water application requires the targeted waterborne microorganism to be in direct contact with the UV-C light (produced by the UV lamp) for a specific amount of time [UV exposure rate]. Established UV exposure rates must be applied to achieve successful UV sterilization.



UV-C Radiation used for disinfection is most effective at a wavelength of 264 nanometers (nm).

SMART UV Features

Our GPH T-5 and T-6 low pressure mercury vapor germicidal amps, convert approximately 40% of their electrical input watts into UV-C output watts within the germicidal action spectrum (meaning 40% of electricity used is converted into useful germicidal UV light), the highest UV-C output conversion among all UV lamps.

- UL listed for indoor and outdoor use, fresh and salt water use.
- Long lasting GPH/T5 and GPH/T6 UV lamps (9,000 hours to 80% efficiency).
- Protective Quartz Sleeve (maximizes UV lamp output and safety)
- Watertight Design
- Easy-to-Remove Power Assembly
- Remote Power Supply
- UV Resistant High Density Plastic UV Vessel (Lifetime warranty against UV degradation)
- Utilizes the UV lamp to its maximum potential (maximum UV exposure)
- Non-UV Transmitting Clear Lamp Viewing Ports

SMART UV Specifications Charts (See next page)

SMART UV Specification Charts

SMART UV Lite Models

Model No. /Watts	Maximum Pond Size	Maximum Aquarium Size	No. Lamps /Watt	Water Flow Rate Algae & Bacteria 30,000 µWs/cm² Suggested/Maximum	Water Flow Rate Protozoa 180,000 µWs/cm² Suggested/Maximum	Input Watts	UV-C Output Watts	Dim. (Inches)	Inlet /Outlet	Input Voltage
02218-B/18	1,100 Gal.	60 Gal.	1/18	219 GPH/356 GPH	37 GPH/60 GPH	18	5	21.75" x 2.5"	1/2" Barb	120VAC 50/60Hz
02225-B/25	1,600 Gal.	90 Gal.	1/25	332 GPH/554 GPH	55 GPH/98 GPH	25	8	29.75" x 2.5"	3/4" Barb	120VAC 50/60Hz
02240-B/40	2,900 Gal.	160 Gal.	1/40	589 GPH/983 GPH	98 GPH/164 GPH	40	14	44.75" x 2.5"	1" Barb	120VAC 50/60Hz
02218-S/18	1,100 Gal.	60 Gal.	1/18	219 GPH/356 GPH	37 GPH/60 GPH	18	5	21.75" x 2.5"	2" Socket	120VAC 50/60Hz
02225-S/25	1,600 Gal.	90 Gal.	1/25	332 GPH/554 GPH	55 GPH/98 GPH	25	8	29.75" x 2.5"	2" Socket	120VAC 50/60Hz
02240-S/40	2,900 Gal.	160 Gal.	1/40	589 GPH/983 GPH	98 GPH/164 GPH	40	14	44.75" x 2.5"	2" Socket	120VAC 50/60Hz
02280-S/80	5,900 Gal.	330 Gal.	2/40	1,178 GPH/1,967 GPH	196 GPH/328 GPH	80	28	44.75" x 14"	2" Socket	120VAC 50/60Hz
02218/18	1,100 Gal.	60 Gal.	1/18	219 GPH/356 GPH	37 GPH/60 GPH	18	5	21.75" x 2.5"	1.5" Union	120VAC 50/60Hz
02225/25	1,600 Gal.	90 Gal.	1/25	332 GPH/554 GPH	55 GPH/98 GPH	25	8	29.75" x 2.5"	1.5" Union	120VAC 50/60Hz
02240/40	2,900 Gal.	160 Gal.	1/40	589 GPH/983 GPH	98 GPH/164 GPH	40	14	44.75" x 2.5"	1.5" Union	120VAC 50/60Hz
02280/80	5,900 Gal.	330 Gal.	2/40	1,178 GPH/1,967 GPH	196 GPH/328 GPH	80	28	44.75" x 14"	1.5" Union	120VAC 50/60Hz
02218-W/18	1,100 Gal.	60 Gal.	1/18	219 GPH/356 GPH	37 GPH/60 GPH	18	5	21.75" x 2.5"	1.5" Union	120VAC 50/60Hz
02225-W/25	1,600 Gal.	90 Gal.	1/25	332 GPH/554 GPH	55 GPH/98 GPH	25	8	29.75" x 2.5"	1.5" Union	120VAC 50/60Hz
02240-W/40	2,900 Gal.	160 Gal.	1/40	589 GPH/983 GPH	98 GPH/164 GPH	40	14	44.75" x 2.5"	1.5" Union	120VAC 50/60Hz
02280-W/80	5,900 Gal.	330 Gal.	2/40	1,178 GPH/1,967 GPH	196 GPH/328 GPH	80	28	44.75" x 14"	1.5" Union	120VAC 50/60Hz

SMART UV Models

Model No. /Watts	Maximum Pond Size	Maximum Aquarium Size	No. Lamps /Watt	Water Flow Rate Algae & Bacteria 30,000 µWs/cm² Suggested/Maximum	Water Flow Rate Protozoa 180,000 µWs/cm² Suggested/Maximum	Input Watts	UV-C Output Watts	Dim. (Inches)	Inlet /Outlet	Input Voltage
02025/25	2,400 Gal.	130 Gal.	1/25	472 GPH/788 GPH	79 GPH/131 GPH	25	8	29" x 3.5"	1.5" Union	120VAC 50/60Hz
02040/40	4,700 Gal.	260 Gal.	1/40	943 GPH/1,574 GPH	157 GPH/262 GPH	40	14	43.75" x 3.5"	1.5" Union	120VAC 50/60Hz
02065/65	8,600 Gal.	480 Gal.	1/65	1,710 GPH/2,855 GPH	285 GPH/476 GPH	65	25	70.5" x 3.5"	1.5" Union	120VAC 50/60Hz
02080/80	9,400 Gal.	530 Gal.	2/40	1,885 GPH/3,148 GPH	314 GPH/525 GPH	80	28	44.5" x 15.5"	1.5" Union	120VAC 50/60Hz
02130/130	17,100 Gal.	960 Gal.	2/65	3,420 GPH/5,711 GPH	570 GPH/952 GPH	130	50	71.5" x 15.5"	1.5" Union	120VAC 50/60Hz
02025-W/25	2,400 Gal.	130 Gal.	1/25	472 GPH/788 GPH	79 GPH/131 GPH	25	8	29" x 3.5"	1.5" Union	120VAC 50/60Hz
02040-W/40	4,700 Gal.	260 Gal.	1/40	943 GPH/1,574 GPH	157 GPH/262 GPH	40	14	43.75" x 3.5"	1.5" Union	120VAC 50/60Hz
02065-W/65	8,600 Gal.	480 Gal.	1/65	1,710 GPH/2,855 GPH	285 GPH/476 GPH	65	25	70.5" x 3.5"	1.5" Union	120VAC 50/60Hz
02080-W/80	9,400 Gal.	530 Gal.	2/40	1,885 GPH/3,148 GPH	314 GPH/525 GPH	80	28	44.5" x 15.5"	1.5" Union	120VAC 50/60Hz
02130-W/130	17,100 Gal.	960 Gal.	2/65	3,420 GPH/5,711 GPH	570 GPH/952 GPH	130	50	71.5" x 15.5"	1.5" Union	120VAC 50/60Hz

SMART High-Output UV Models

Model No. /Watts	Maximum Pond Size	Maximum Aquarium Size	No. Lamps /Watt	Water Flow Rate Algae & Bacteria 30,000 µWs/cm² Suggested/Maximum	Water Flow Rate Protozoa 180,000 µWs/cm² Suggested/Maximum	Input Watts	UV-C Output Watts	Dim. (Inches)	Inlet /Outlet	Input Voltage
025050/50	5,900 Gal.	330 Gal.	1/50	1,560 GPH/1,980 GPH	260 GPH/330 GPH	50	16	28" x 5.75"	2" Union	120VAC 50/60Hz
025080/80	10,800 Gal.	600 Gal.	1/80	2,700 GPH/3,600 GPH	450 GPH/600 GPH	80	26	43" x 5.75"	2" Union	120VAC 50/60Hz
025120/120	13,800 Gal.	770 Gal.	1/120	3,840 GPH/4,600 GPH	640 GPH/767 GPH	120	36	56" x 5.75"	2" Union	120VAC 50/60Hz
025150/150	19,100 Gal.	1,060 Gal.	1/150	5,040 GPH/6,360 GPH	840 GPH/1,060 GPH	150	47	70" x 5.75"	2" Union	120VAC 50/60Hz
025050-W/50	5,900 Gal.	330 Gal.	1/50	1,560 GPH/1,980 GPH	260 GPH/330 GPH	50	16	28" x 5.75"	2" Union	120VAC 50/60Hz
025080-W/80	10,800 Gal.	600 Gal.	1/80	2,700 GPH/3,600 GPH	450 GPH/600 GPH	80	26	43" x 5.75"	2" Union	120VAC 50/60Hz
025120-W/120	13,800 Gal.	770 Gal.	1/120	3,840 GPH/4,600 GPH	640 GPH/767 GPH	120	36	56" x 5.75"	2" Union	120VAC 50/60Hz
025150-W/150	19,100 Gal.	1,060 Gal.	1/150	5,040 GPH/6,360 GPH	840 GPH/1,060 GPH	150	47	70" x 5.75"	2" Union	120VAC 50/60Hz

Note: PVC Adapter Kits not included

Note: *Suggested Water Flow Rates* are based on UV Lamp End of Useful Lamp Life, 9,000 hrs. @ 80% output. *Maximum Water Flow Rates* are based on New Lamp Condition. All water flow rates incorporate a 90% UV transmittance factor, considering “Green Water” conditions.

SECTION 2
PRE-INSTALLATION INSPECTION

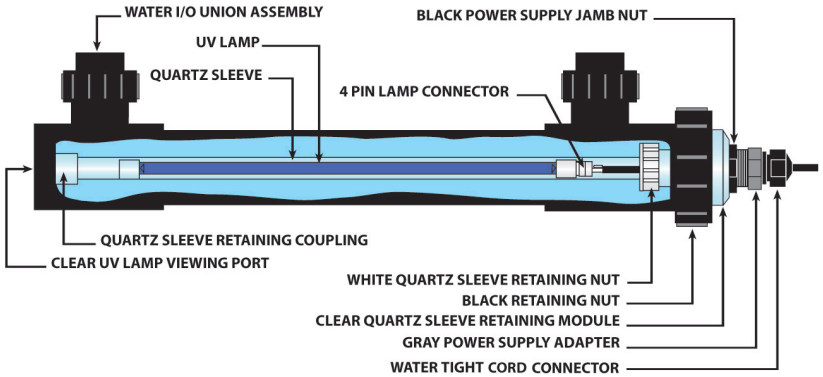
All SMART UV Systems™ UV Sterilizer models are packaged complete, with all necessary components that are required to operate the unit. When unpacking your SMART UV, we recommend that a complete component inventory be taken to ensure that all components are included and accounted for, prior to installation.

The serial number of your UV unit is located on a small white label near the electrical end of the unit's vessel. Smart HO UV units have their serial number labels located on the UV vessel and on the power supply (ballast) label.

The model number of your UV unit can be found in two locations:
1. On the bar code label at the end of the box.
2. On the label placed in the middle of the UV Vessel, with a hole punch indicating the model number.

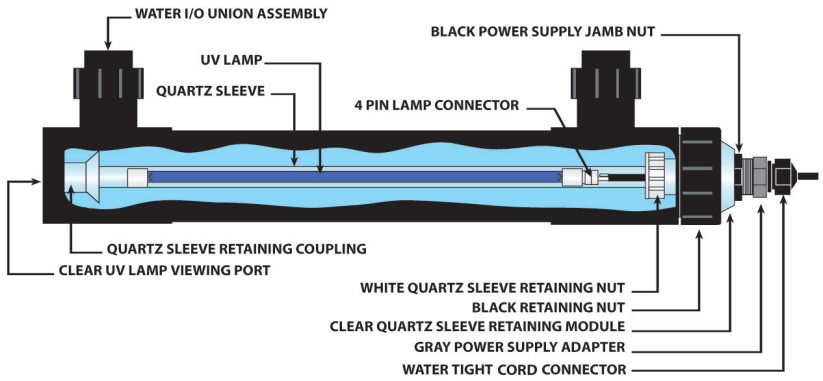
Component Diagrams

Please review the following SMART UV component diagrams, matching the proper diagram to the individual SMART UV model contained in this package. Unpack your SMART UV and lay out the packaged components for inspection. Please review the information listed in this section to become familiar with the equipment's various parts.



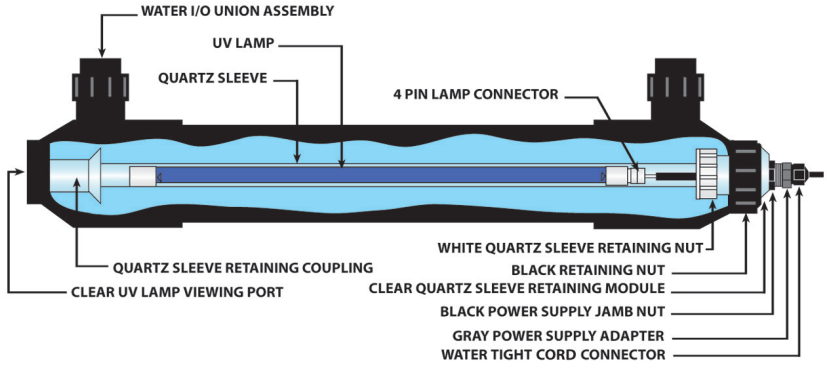
SMART UV Lite Models
(P/N 02218, 02225, 02240, 02280*)

***Note: Indicates dual body UVs. See page 23 for more information.**



SMART UV Sterilizer Models
(P/N 02025, 02040, 02065, 02080*, 02130*)

***Note: Indicates dual body UVs. See page 23 for more information.**



SMART HO UV Sterilizer Models
(P/N 025050, 025080, 025120, 025150)

Power Supplies

Part Numbers:
202150-1 - 150 W (120v)
202150-2 - 150 W (230v)

Fits SMART HO UV
Model 150 Watt

Part Number:
20100 - 18 - W, 25 - W, 40 - W, 65 - W
80 - W (x2), 130 - W (x2)

Fits SMART UV Lites and SMART UV
Models 18 through 130 Watt

Part Number:
20105- 37 - W, 50 - W, 80 - W, 120 - W

Fits SMART HO UV Models 37 through
120 Watt

Quartz Sleeve and UV Lamp Inspection -- When Packed in Tube

Note: The following SMART UV Systems UV Sterilizer Models are packaged with their quartz sleeve assembly pre-assembled inside the UV vessel, the lamp is packaged separately in a corrugated tube:

SMART Lite: P/N 02218, 02218-W, 02225, 02225-W, 02240, 02240-W, 02280, 02280-W

SMART UV: P/N 02025, 02025-W, 02040, 02040-W, 02080, 02080-W

SMART HO UV: P/N 025050, 025050-W, 025080, 025080-W

The Quartz Sleeve Assembly must be removed from the UV vessel and inspected for damage prior to installation. Extreme care should be used while this procedure is being performed.

Quartz Sleeve/UV Lamp Inspection Procedure

1. Carefully unpack the UV lamp(s) from their corrugated packing tubes and inspect for damage including broken glass, cracks, chips, fractures and pin holes. If damage has occurred please contact the place of original purchase immediately.

[Continue on to next page]

Quartz Sleeve/UV Lamp Inspection Procedure [Continued]

2. Carefully, remove the quartz sleeve by unthreading the Ⓐ Black Retaining Nut. Gently slide out the quartz sleeve assembly and inspect for damage including chips, cracks and pin holes. If damage has occurred please contact the place of original purchase immediately.

3. After inspection, reassemble the quartz sleeve back into the UV vessel. If installing the unit, perform the Mandatory Water Test (see page 10).

4. Inspect all other Smart UV components (power supply/power cord, UV vessel and unions) for damage.

(Adapter fittings available w/ SMART UV Sterilizer Models Only)

Quartz Sleeve and UV Lamp Inspection -- When Packed in Triangle Box

Note: The following SMART UV Systems™ UV Sterilizer Models are packaged with their UV lamp and quartz sleeve assembly separately wrapped and packaged in a corrugated triangle box:

SMART UV: P/N 02065, 02065-W, 02130, 02130-W

SMART HO UV: P/N 025120, 025120-W, 025150, 025150-W

1. Carefully unpack the clear quartz sleeve module/quartz sleeve and UV lamp from the triangle corrugated box and lay on a level, stable surface.

[Continue on to next page]

Quartz Sleeve/UV Lamp Inspection Procedure [Continued]

2. The quartz sleeve assembly and UV lamp are packaged inside the triangle box separately. Unpack, remove the packaging material, and inspect for shipping damage.

3. Inspect all other SMART UV components (power supply/power cord, UV vessel and unions) for damage.

After receipt and inspection of the unit, if broken glass is found (including cracks, chips, pin holes and hair line fractures of any kind) please contact the place of original purchase immediately for replacements. Do NOT call the manufacturer (Pentair Aquatic Eco-Systems, Inc.) regarding this problem.

SECTION 3
INSTALLATION

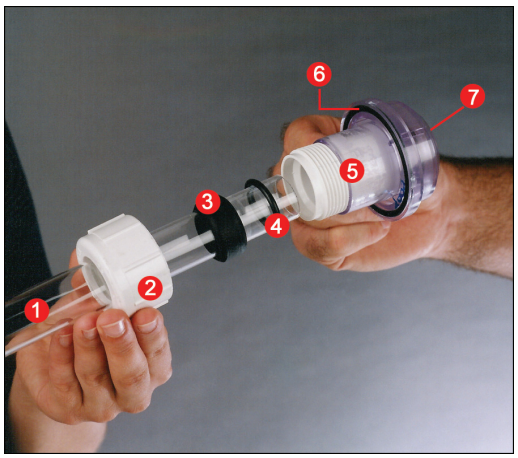
Quartz Sleeve Assembly

All SMART UV Systems™ UV Sterilizers utilize the same style quartz sleeve module assembly, with the only exception being the 5 Clear Quartz Sleeve Module

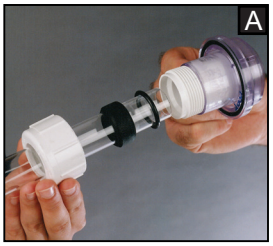
⚠WARNING Improper assembly may result in water damage to electrical components and unsafe conditions. Pentair Aquatic Eco-Systems, Inc. is not responsible for damage cause by improper re-assembly of these parts.

Quartz Sleeve Assembly Includes:

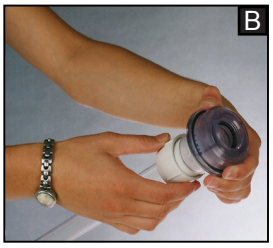
1. Quartz Sleeve
2. White Quartz Sleeve Retaining Nut
3. Rubber Gasket
4. Rubber O-ring
5. Clear Quartz Sleeve Module
   - --P/N 20622 - UV Lite Models
   - --P/N 20603 - UV Sterilizer & HO UV Sterilizer Models
6. Clear Quartz Sleeve Module O-ring
7. Power Supply Gasket



Assembly Instructions

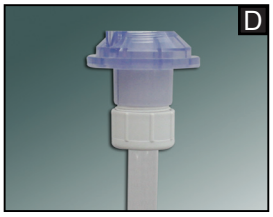


1. Position the white quartz sleeve retaining nut, rubber gasket and rubber o-ring over the open end of the quartz sleeve as shown in **Photo A**.
2. Slide the “open-end” of the quartz sleeve (with nut/gasket and o-ring in position) into the clear quartz sleeve module. See **Photo A**.



3. Thread the white retaining nut onto the clear quartz sleeve module’s male threads and hand-tighten. See **Photo B**.

4. While hand-tightening the white retaining nut onto the clear quartz sleeve module, use your index finger to ensure that the open-end of the quartz sleeve mates smoothly with the inside lip of the clear quartz sleeve module; this signifies a good fit. See **Photo C**.



5. With the quartz sleeve positioned inside the clear quartz sleeve module properly, finish hand-tightening the white retaining nut. When the white retaining nut is tights, the quartz sleeve should appear straight inside the clear quartz sleeve module (see **Photo D**).

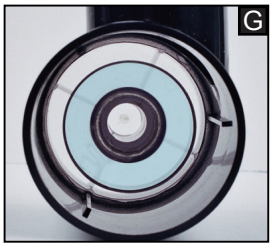
   Note: If the quartz sleeve appears crooked it may leak. Disassemble and try again.

6. Carefully slide the quartz sleeve assembly into the UV vessel (see **Photo E**). The domed-end of the quartz sleeve should slide into the coupling located on the non-electrical end of the UV vessel (see **Photo G** below).

7. With the quartz sleeve assembly properly in place, the quartz sleeve retaining module should sit flush against the top of the UV vessel. See **Photo F**.

   Note: Be sure that the clear quartz sleeve module o-ring (item #6 on page 7) is in place.

8. Thread the black retaining nut (see **Photo H)** onto the male threads of the UV vessel. Hand tighten only!



Mounting The Unit

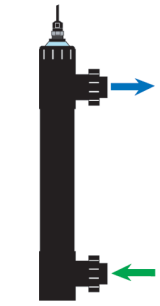
Note: The way UVs are mounted/positioned plays a very important role in the unit's performance and degree of safety. We STRONGLY RECOMMEND that you follow these instructions and guidelines precisely. Any deviation from these mounting instructions will void any warranty associated with the UV and all its components and may cause unsafe conditions.

⚠CAUTION Trapped air inside the UV vessel during operation may create excessive heat, thus damaging the UV's internal components.

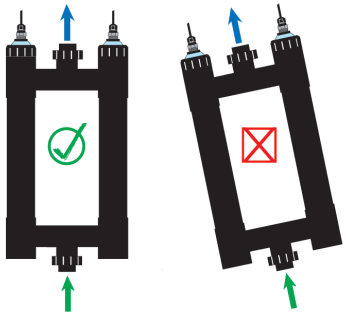
Vertical Mounting

Mount the SMART UV Systems™ UV Sterilizer with the electrical end up. Use the bottom post as the inlet with the top port as the outlet.

DO NOT mount or use the dual-body UV (80 and 130 watt models) with one "tube" on top of the other, or with one "tube" higher than the other. Keep unit as flat as possible.



Single-Body UV
Vertical Installation

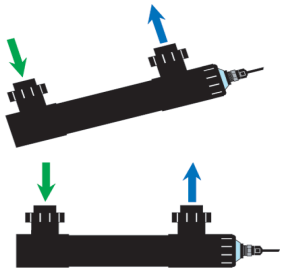


Dual-Body UV
Vertical Installation

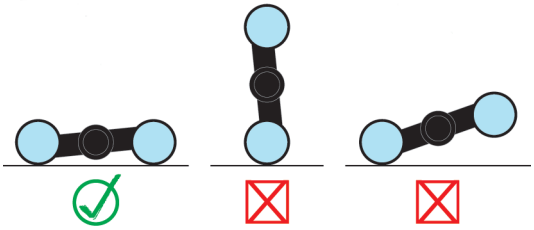
Horizontal Mounting

Mount the SMART UV horizontally with the inlet/outlet facing up. If the unit is mounted horizontally but not level, the electrical end of the unit should be positioned higher than the non-electrical end. Choose the lower port for the inlet.

DO NOT mount or use the dual-body UV (80 and 130 watt models) with one "tube" on top of the other, or with one "tube" higher than the other. Keep unit as flat as possible.



Single-Body UV
Horizontal Installation



Dual-Body UV
Horizontal Installation

Power Supply Mounting

DO NOT SUBMERGE THE POWER SUPPLY IN WATER. The power supply may be camouflaged using rocks.

Note: Do not bury the power supply where heat and moisture can be retained.

Note: The UV sterilizer may be covered in a thin layer of mulch but do not bury the unit.

Mandatory Water Test

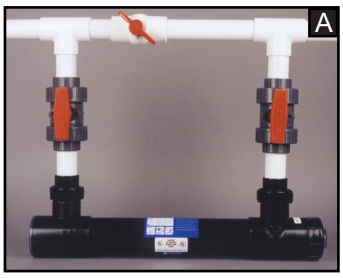
A water test should be performed each time the quartz sleeve(s) is installed inside the unit's vessel or when the quartz sleeve or gaskets and o-rings are replaced. [Once annually] Performing a water test is a precautionary measure that will determine whether or not the critical seal between the quartz sleeve and quartz sleeve module has been achieved.

Failure to achieve a proper quartz sleeve/quartz sleeve module seal during SMART UV Systems™ UV Sterilizer operation will allow water to leak into the inside of the quartz sleeve, potentially damaging the UV lamp and other electrical components, which could develop into dangerous situations.

IMPORTANT NOTE: Failure to perform a water test could lead to conditions that will void your product warranty.

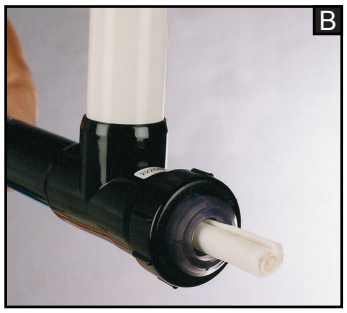
To Perform SMART UV Water Test:

1. Prepare the SMART UV for permanent operation by plumbing it in-line, into a filter system using the plumbing hardware of your choice. If PVC glue is used, follow the glue manufacturer's instructions. Use a bypass assembly for greater water flow control. See the **Image A**.
2. With the unit plumbed for operation and the clear quartz sleeve module securely in place, remove the UV lamp from the quartz sleeve module.



3. Roll-up a few paper towels creating a core approximately ¾" in diameter, 10" long then slide into the open quartz sleeve module port. Insert about six inches of the paper towel core down into the quartz sleeve, as shown in **Image B**.
4. With the paper towel in place, turn on the pump and recirculate water through the UV for at least thirty (30) minutes.
5. After thirty (30) minutes of recirculating water through the UV, remove the paper towels from the quartz sleeve module. Inspect closely for moisture. If the paper towels are completely dry, your water test is complete and successful.

   If moisture is detected on the paper towel the quartz sleeve's rubber gasket and o-ring have failed to achieve a seal and must be re-assembled; repeat the water test until a seal is achieved. See page 7 for assembly instructions.



Electrical Requirements

The electrical requirements for the UV sterilizer are marked on the unit's power supply label (Ex. 120VAC 50/60Hz.). The unit must be plugged into a well-grounded electrical outlet.

⚠WARNING Do not attempt to cut the ground post off of the 3-prong plug, doing so will void the unit's warranty.

This product must be grounded. If the unit should fail electrically, grounding provides a path of least resistance for electric current to pass to reduce the risk of electric shock. This product's cord is equipped with an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances. If in doubt consult a qualified electrician.

⚠WARNING DO NOT operate this equipment with timing devices.

⚠DANGER Improper connection of the equipment-grounding conductor can result in a risk of electrocution. Check with a qualified electrician or service personnel if unsure that the outlet is properly grounded. Do not modify the product's plug. If it will not fit into the electrical outlet, have a proper outlet installed by a qualified electrician. Do not use any type of plug adapter with this product.

Electrical Requirements (Continued)

Ground Fault Circuit Interrupter (GFCI) Protection

⚠WARNING **This unit must be wired in conjunction with a properly grounded, Ground Fault Circuit Interrupter (GFCI).** Only three (3) wire grounded cables suitable for outdoor use should be used to connect this unit. If joining cables for outdoor use, a suitable watertight cable connector must be used. 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 appliance's rating may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled. If in doubt consult a qualified electrician.

GFCI's are designed to sense an imbalance in electrical current flow within the main electrical leads (leakage current). When this imbalance (maximum 5 ma per UL) occurs in the main leads, a comparator within the GFCI outlet generates a trip signal which is applied to a coil that trips the main (normally closed) contacts. These contacts open and break the circuit.

Spurious Trips

Consider that all GFCI's must trip at a leakage current of 5 ma. GFCI "Spurious Trips" are caused by electrical devices that have small electrical leakage current to ground. Multiple outlets protected by one GFCI allow for potential cumulative leakage currents caused by multiple appliances each leaking small amounts of current.

Example: One pump plugged into a outlet that is part of a four outlet branch protected by one GFCI will not trip the GFCI with its 2 ma leakage current. However, two pumps and a UV with a cumulative leakage current of 7 ma will trip the GFCI. This is a common problem.

The solution to the GFCI "Spurious Trip" problem is to operate the device on its own GFCI protected outlet, or, remove other devices from the GFCI protected branch of outlets. If the GFCI is over ten years old, you may want to consider replacing it.

UV Lamp Installation

Lamp Styles

UV lamps are manufactured with color coded ceramic bases. White-capped UV lamps signify a Standard-Output UV lamp while red-capped UV lamps signify a High-Output UV lamp.

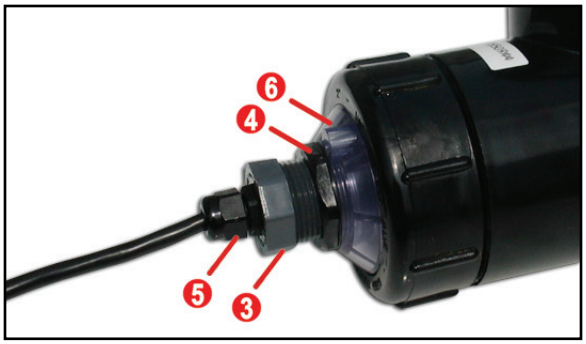
Power Cord Adjustment

There should be four (4) inches of cord between the Gray Adapter 3 and the 4-pin Lamp Connector 1. The four (4) inch cord distance 2 positions the lamp properly inside the quartz sleeve.

1. The 3/8 inch Threaded Watertight Cord Connector 5 is adjustable. Loosen it gently move the cord through it. Care must be taken when retightening. If the Connector's Rubber Gasket Seal 4 is dislodged during cord adjustment please make sure that it is properly re-seated inside the male threaded portion of the connector.

2. After a successful water test and without the power supply plugged into an electrical receptacle, attach the lamp's 4-pins to the power cord's white 4-pin Connector 1. Then slide the UV lamp back into the UV sterilizer's quartz sleeve.

3. Whether the SMART UV Systems™ UV Sterilizer vessel is mounted horizontally or vertically, care should be taken when installing the UV lamp into the vessel's quartz sleeve. Vertical installations require extra attention to eliminate the chance of the lamp dropping into the quartz sleeve and breaking.



4. With the UV lamp/power cord connection complete and the lamp entirely inside the quartz sleeve, carefully screw down the Gray Power Supply Adapter 3 onto the Clear Quartz Sleeve Module 6; hand tighten only.

5. Screw down the Black Power Supply Jamb Nut 4 until it makes contact with the Clear Quartz Sleeve Module 6.

   Note: By loosening the 3/8 inch Threaded Watertight Cord Connector 5, Power Cord 2 adjustments can be made. Make sure the 3/8 inch Threaded Watertight Cord Connector's gasket is properly in place before retightening.

   Note: If you do not have the Black Power Supply Jamb Nut 4 back far enough before tightening the Gray Power Supply Adapter 3, the gray adapter will not make contact with the power supply gasket and will enable outside moisture to enter the quartz sleeve assembly system failure.

Optional Quartz Sleeve Wipers (for SMART UV Lite Models)

Quartz Sleeve Wipers are recommended for freshwater applications only. If you did not purchase a wiper model skip to the next section on page 15.

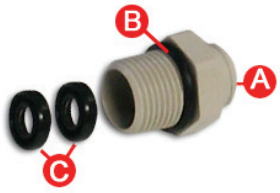
The quartz sleeve wiper seal for all Smart UV Lite Wiper models is located on the non-electrical end of the UV vessel. A Seal Nut creates the seal between the UV vessel and the quartz sleeve wiper rod. Inside the Seal Nut there is a replaceable rubber o-ring and two replaceable Rubber Seals. All are easily replaceable.

Replacing Rubber Seals

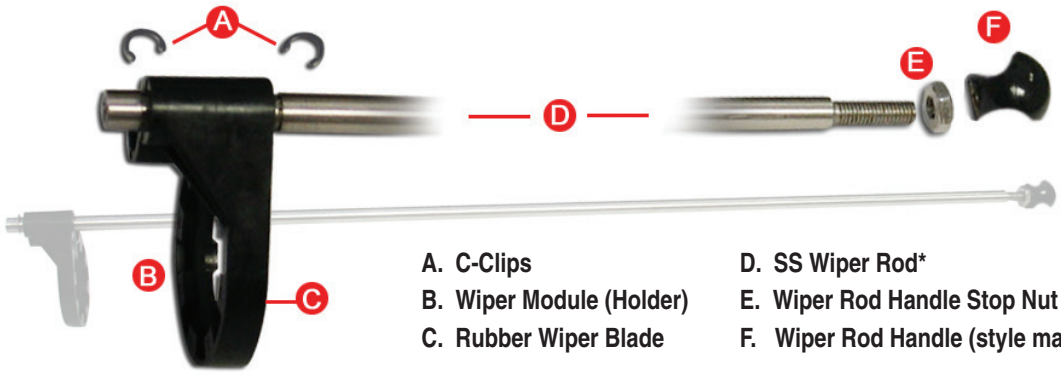
To replace rubber seals, use a small screwdriver to pry the old seals out of the plastic nut. Replace with new seals, ensuring the flat portion of the seals are facing into the nut.

Note: Wetting the seals before installation will assist in creating a watertight seal.

A. Seal Nut
B. Replaceable Rubber O-Ring
C. Replaceable Rubber Seals



Wiper Assembly Parts Breakdown



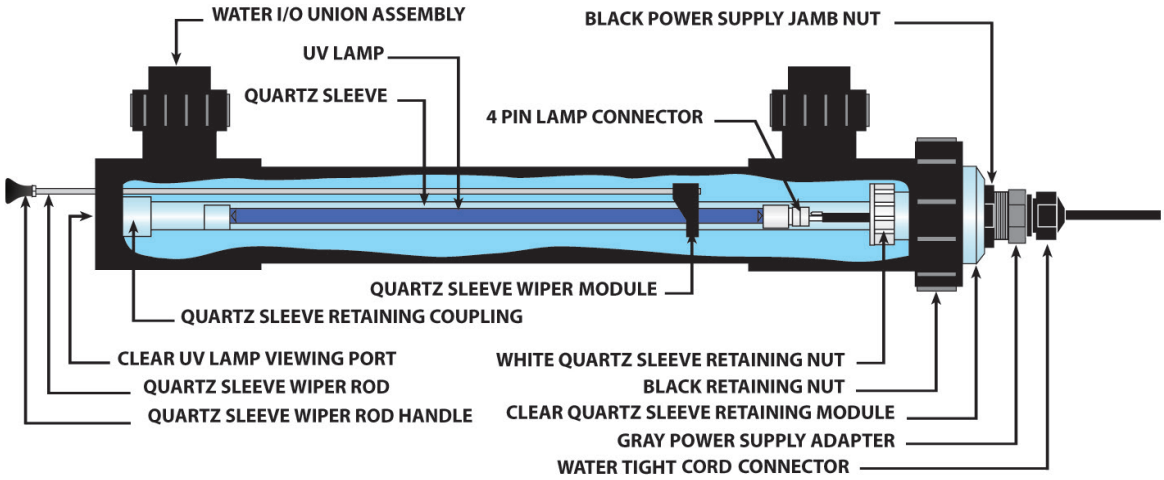
A. C-Clips
B. Wiper Module (Holder)
C. Rubber Wiper Blade
D. SS Wiper Rod*
E. Wiper Rod Handle Stop Nut
F. Wiper Rod Handle (style may vary)

***Larger units use additional wiper modules on a single rod.**

Quartz Sleeve Wiper Assembly

To install the quartz sleeve wiper:

1. Place the non-threaded side of the Wiper Rod through the hole in the Wiper Module and line up the Wiper Module in between the two grooves.
2. Push the C-Clips onto the rod (one into each groove, opposite sides of the wiper module).
3. Push the threaded end of the rod through the assembled and installed Seal Nut from the Inside of the UV vessel.
4. Thread on the Wiper Rod Stop Nut and Wiper Handle.
5. Push the Wiper Rod completely into the UV vessel.
6. Push the assembled Quartz Sleeve Assembly, domed end of the Quartz Sleeve, into the Wiper Module, gently continuing to push until the domed end of the Quartz Sleeve seats itself into the Quartz Sleeve Retaining Coupling.
7. Thread the Black Retaining Nut onto the UV vessel with the Clear Quartz Sleeve Module/Assembly in place, and tighten.
8. Follow the “Mandatory Water Test” instructions on page 10.



Optional Quartz Sleeve Wipers (for SMART UV and SMART HO Models)

Quartz Sleeve Wipers are recommended for freshwater applications only. If you did not purchase a wiper model skip to the next section on page 15.

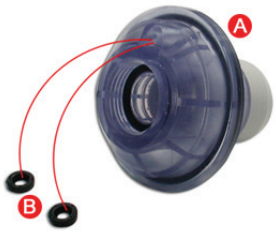
The quartz sleeve wiper seal for all SMART UV Systems™ Lite Wiper models is located on the clear quartz sleeve module. Two rubber seals create a seal between the clear quartz sleeve module and the quartz sleeve wiper rod. Both are easily replaced.

Replacing Rubber Seals

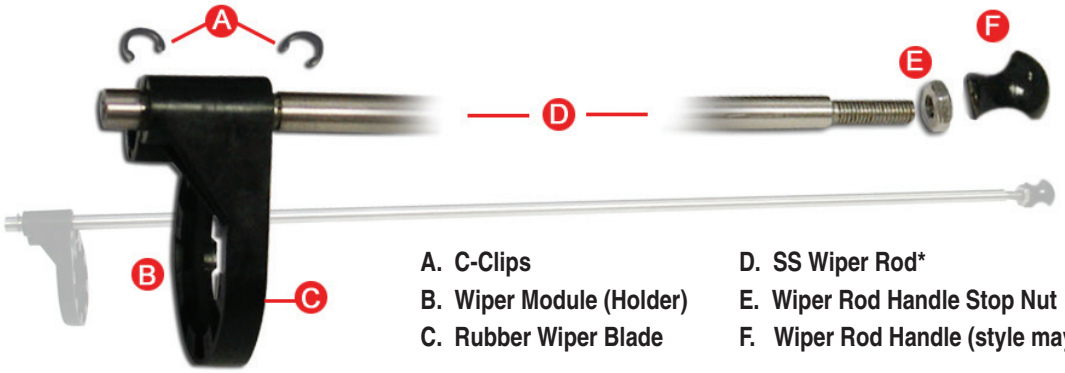
To replace rubber seals, use a small screwdriver to pry the old seals out of the Clear Quartz Sleeve Module. Replace with new seals, ensuring the flat portion of the seals are facing into the Clear Quartz Sleeve Module.

Note: Wetting the seals before installation will assist in creating a watertight seal.

A. Clear Quartz Sleeve Module
B. Replacement Rubber Seals



Wiper Assembly Parts Breakdown



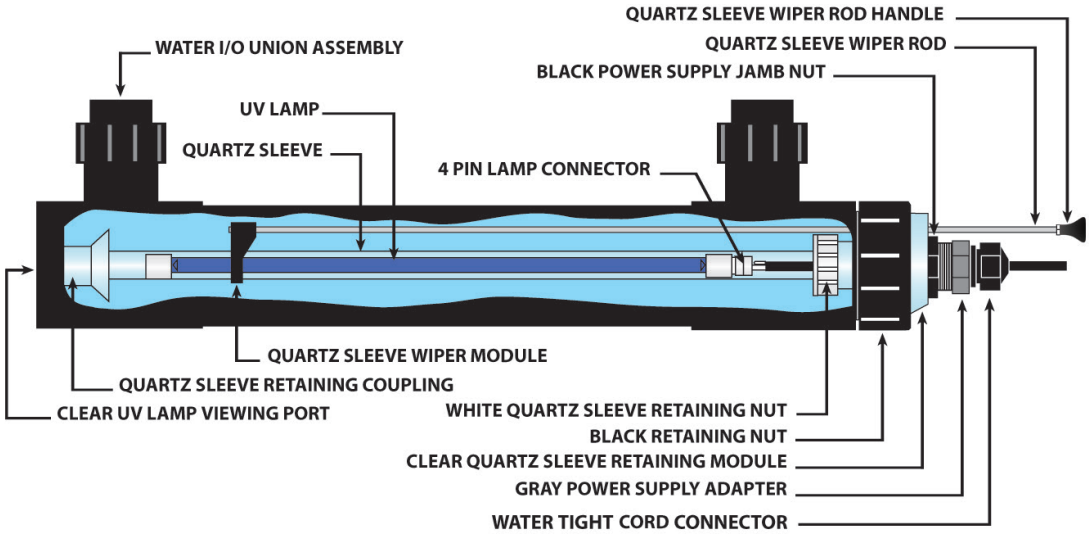
A. C-Clips
B. Wiper Module (Holder)
C. Rubber Wiper Blade
D. SS Wiper Rod*
E. Wiper Rod Handle Stop Nut
F. Wiper Rod Handle (style may vary)

***Larger units use additional wiper modules on a single rod.**

Quartz Sleeve Wiper Assembly

To install the quartz sleeve wiper:

1. Place the non-threaded side of the Wiper Rod through the top hole of the Wiper Module and line up the Wiper Module in between the two grooves.
2. Push the C-Clips onto the rod (one into each groove, opposite sides of the wiper module).
3. Push the domed end of the Quartz Sleeve through the Wiper Module that is attached to the Wiper Rod.
4. Slide the Wiper Module, with Rod attached, two-thirds of the way up the Quartz Sleeve.
5. Push the threaded end of the Wiper Rod completely into and through the Quartz Sleeve Module 1/4 inch hole with Rubber Seals.
6. Thread on the Wiper Rod Stop Nut and Wiper Handle.
7. Push the Quartz Sleeve (open end) with White Retaining Nut, Quartz Sleeve Rubber Gasket and O-ring into the Quartz Sleeve Module respectively, line-up properly and tighten down white nut by hand.
8. Gently slide the entire Quartz Sleeve/Wiper Assembly into the UV vessel. Ensure the domed end of the Quartz Sleeve slides into the Quartz Sleeve Coupling.
9. Thread the Black Retaining Nut onto the UV vessel with the Clear Quartz Sleeve Module/Assembly in place. Hand tighten only.
10. Follow the “Mandatory Water Test” instructions on page 10.



SMART UV Installation and Operation

SMART UV Systems™ UV Sterilizers are used in a variety of applications to control waterborne pathogens. Pentair Aquatic Eco-Systems, Inc. encourages the consideration of the installation/operation recommendations provided here.

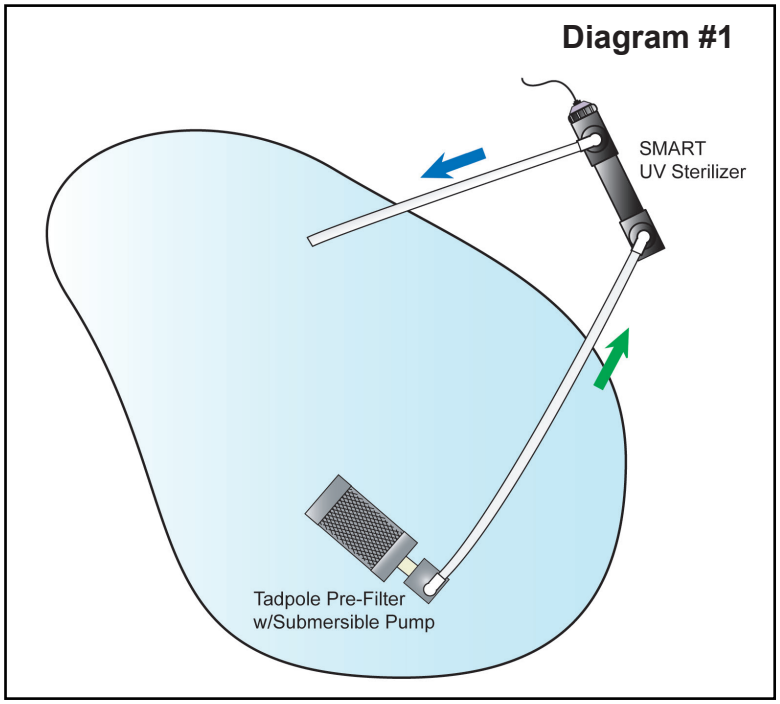
Suspended solid waste will absorb UV light and reduce the UV transmittance through water. By operating the SMART UV after the mechanical filter, the unit's overall performance will be increased.

When operating SMART UV sterilizers please consider the recommended water flow rates.

Pond Installation Configurations

Small Ponds (up to 1,000 Gallons) Using a Dedicated Submersible Pump

For small ponds, or for applications where the SMART UV is operated independently from other filters, this installation is ideal. Matching the submersible pump to the UV sterilizer's recommended flow rat is critical to the UV's overall performance. Installing an adequate mechanical pre-filter on the pump suction ensures that solids-free water will be sent to the SMART UV. See **Diagram 1**.



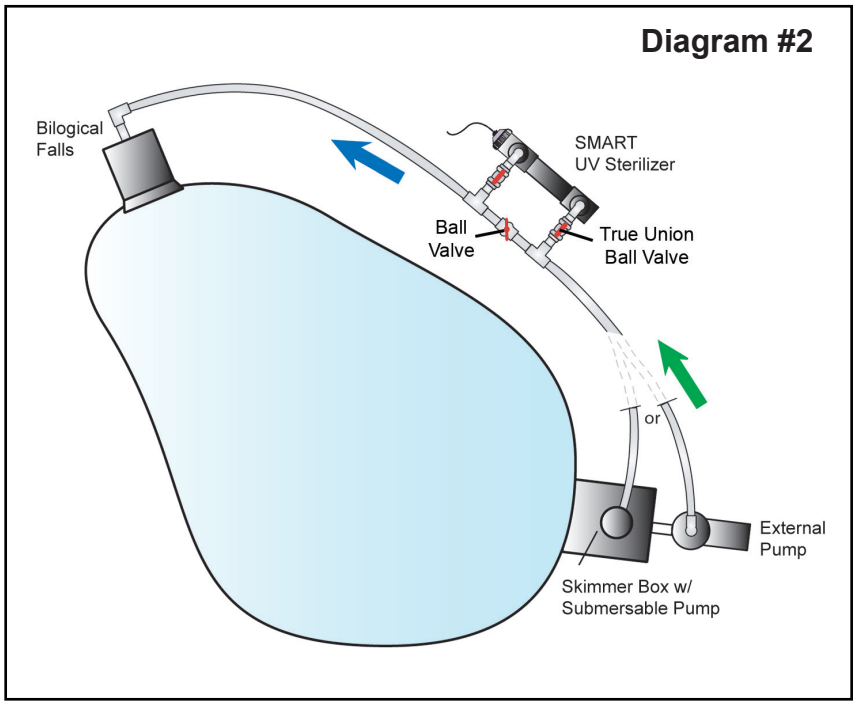
Small to Moderately Sized Ponds (up to 5,000 Gallons) Using Skimmers and Falls

Placing the UV between the skimmer box and the filter ensures that pre-filtered water reaches the UV, increasing its performance while reducing maintenance.

Often the capacity of the pump exceeds the capacity of the UV. If this is the case, install a bypass manifold. Be sure that the skimmer is equipped with mechanical filtering capacity. See **Diagram 2**.

Note: Before gluing piping or reducer bushing into the UV's union or socket, remove the quartz sleeve assembly to prevent glue from dripping onto the quartz sleeve.

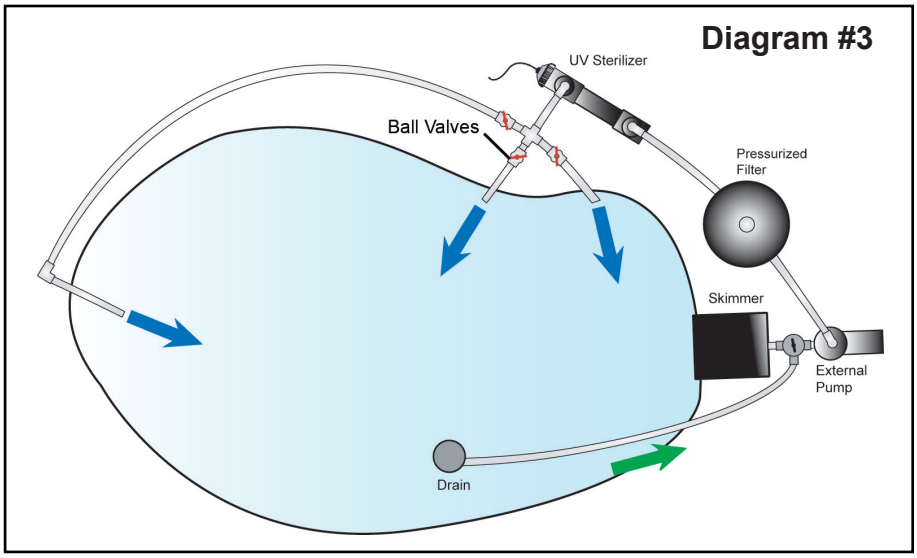
Note: Use threaded seal tape on all threaded connections.



Larger Sized Ponds (above 5,000 Gallons) Using Surface Skimmer and Pressurized Filter

This system is simple yet it achieves critical filtering goals, such as good water circulation for increased solid waste suspension. The bottom drain/surface skimming capabilities ensure maximum waste removal. See **Diagram 3**.

Diagram #3



The SMART UV Systems™ UV Sterilizer is positioned after the mechanical filter where it can receive only solid waste free water, optimizing UV transmittance/ performance. Notice the 3-way valve that regulates suction from the skimmer and drain to the pump, allowing flow control. Next, multiple “clean water returns” improve circulation in the pool suspending solid waste and helping it to find the filter. If you have a flow rate that exceeds the UV’s, install a by-pass manifold. See **Diagram 2** on page 15.

Note: Before gluing piping or reducer bushing into the UV’s union or socket, remove the quartz sleeve assembly to prevent glue from dripping onto the quartz sleeve.

Note: Use threaded seal tape on all threaded connections.

Aquarium Installation Configurations

Canister Filter/Aquarium Installation

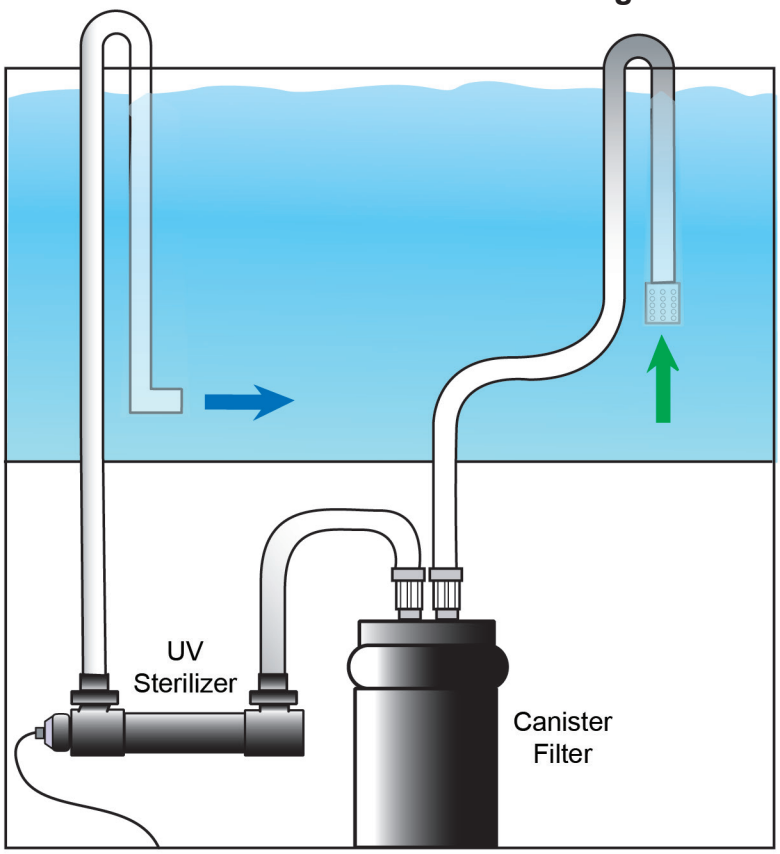
Pressurized Canister filters are commonly used with small freshwater/saltwater aquariums. **Diagram 4** shows a SMART UV Lite model.

It is important to match the Canister Filter’s flow rate to the capacity of the SMART UV. If this is not feasible, use a bypass manifold (see **Diagram 6** on page 17). To prevent back-siphoning, consider installing a check valve or ball valve (see filter instructions/recommendations). See **Diagram 4**.

Note: Before gluing piping or reducer bushing into the UV’s union or socket, remove the quartz sleeve assembly to prevent glue from dripping onto the quartz sleeve.

Note: Use threaded seal tape on all threaded connections.

Diagram #4



Wet-Dry With External or Submersible Pump Installation

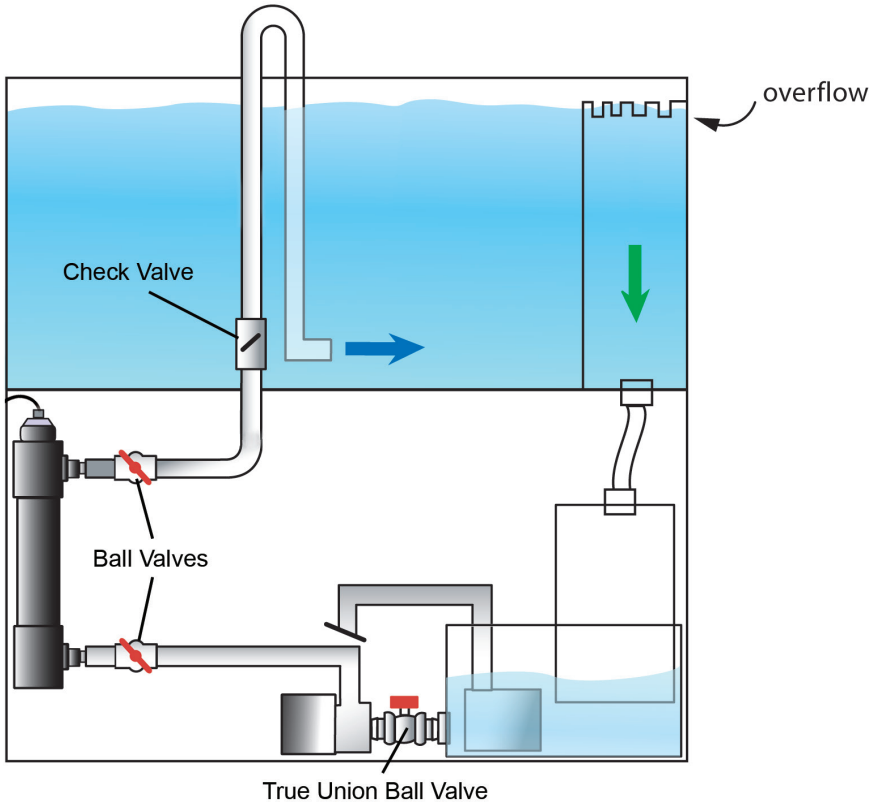
This installation configuration shows the SMART UV Systems™ UV Sterilizer capacity matched to the recirculating flow rate performance of the pump. We recommend mechanical filter media being used inside the over-flow and at the top of the wet-dry filter.

Installing a check valve after the UV will eliminate back siphoning. Installing true-union ball valves will allow flow adjustments and UV removal. For best results, install a saddle-style water flow meter, mounted horizontally on the outlet side of the UV. Follow the water flow meter manufacturer's instructions for proper installation and operation. See **Diagram 5**.

Note: Before gluing piping or reducer bushing into the UV's union or socket, remove the quartz sleeve assembly to prevent glue from dripping onto the quartz sleeve.

Note: Use threaded seal tape on all threaded connections.

Diagram #5



12-2C Wet-Dry w/External or Submersible Pump Installation

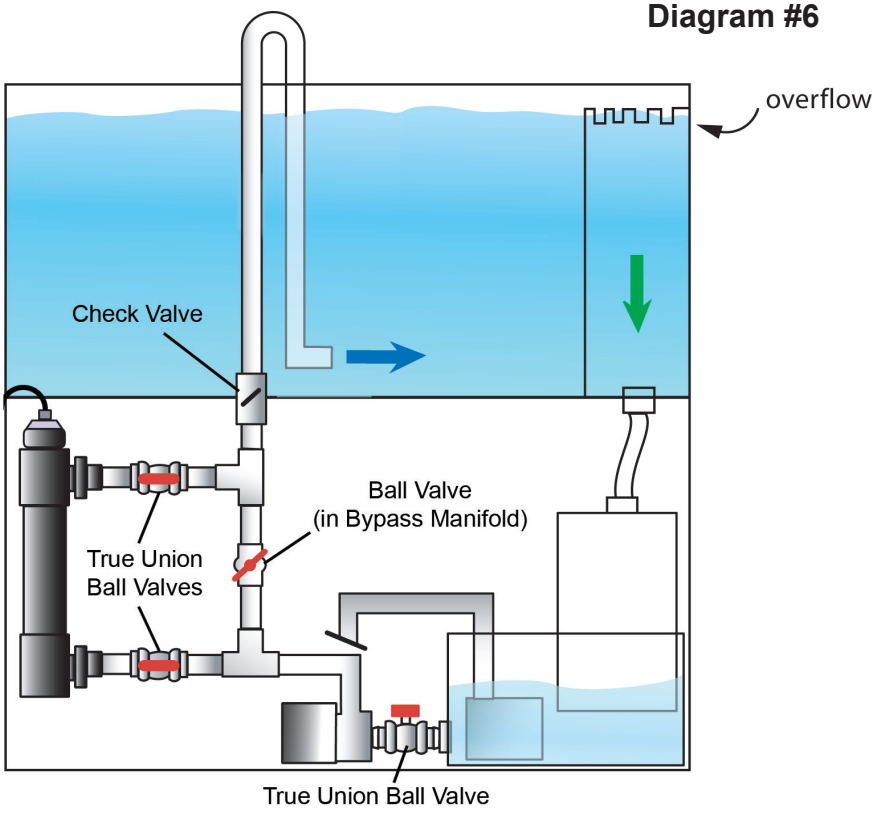
This installation configuration is identical to **Diagram 5** with the addition of a bypass manifold. The bypass is used to deliver a precise water flow to the SMART UV when the overall clean water return flow rate exceeds the UV's capacity.

Installing a check valve after the UV will eliminate back siphoning. Installing true-union ball valves will allow flow adjustments and easy UV removal for servicing. For best results, install a saddle-style water flow meter, mounted horizontally on the outlet side of the UV. Follow the water flow meter manufacturer's instructions.

Note: Before gluing piping or reducer bushing into the UV's union or socket, remove the quartz sleeve assembly to prevent glue from dripping onto the quartz sleeve.

Note: Use threaded seal tape on all threaded connections.

Diagram #6



SECTION 4
UNIT MAINTENANCE

Quartz Sleeve Cleaning

It is recommended that the UV's quartz sleeve be visually inspected for cleaning once every three months of operation. Even the slightest layer of material (slim/dirt) coating the outside of the quartz sleeve can have a substantial affect on UV-C light transmittance through the glass and into the water.

Cleaning frequency is also dependent on how well water is being filtered before reaching the SMART UV Systems™ UV Sterilizer. Water that contains solid waste will deposit greater amounts of material onto the quartz sleeve and will increase the frequency of necessary cleaning.

To Clean the Quartz Sleeve:

1. Unplug the UV sterilizer and disconnect power to the water pump at the circuit breaker.
2. Unthread the Black Retaining Nut and gently remove the Quartz Sleeve Assembly and lamp from the UV vessel.
3. Inspect the Quartz Sleeve and clean as needed with a soft, clean cloth.
4. If calcium deposits are present use vinegar or muriatic acid to dissolve the deposits. Be sure to remove any cleaners or acid from the quartz sleeve assembly before reassembling.

> **⚠ WARNING**
>
> 
>
> Muriatic acid is corrosive and can lead to inflammation or burns to body tissue. ALWAYS wear rubber gloves, safety glasses and an N-95 dust mask when handling acid to prevent serious bodily injury.
>
> To prevent degradation of the acid by UV light, store muriatic acid in an opaque container and away from direct sunlight.

Lamp Connector Removal

In the event that you would need to replace you 4-pin lamp connector, follow these steps:

1. Unplug the UV sterilizer and disconnect power to the water pump at the circuit breaker.
2. Remove UV lamp from the quartz sleeve.
3. Unplug the UV lamp from the connector/power cord.
4. Grasp the white 4-pin lamp connector with a pair of pliers while standing on the power cord itself.
5. Pull hard, while twisting slightly. The connector will disconnect.
6. Check to be sure the ends of the electrical wires are still tinned; they are pre-soldered before they're pushed into the connector. If they are no longer tinned, you will need to dip them in flux and then solder to make them firm enough to push back in the new lamp connector.

   Note: Clean away any residual flux off of the wires before assembling them into the lamp connector.

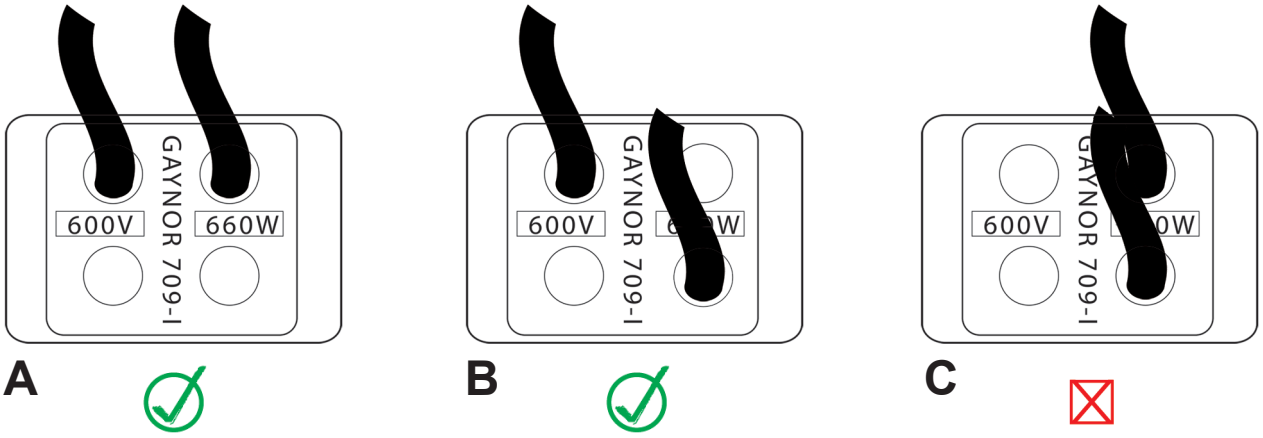
7. Using a "new" 4-pin lamp connector, push the power cord's tinned wires into the holes of the connector making sure that they are firmly attached. Once attached, the wires should not pull out of the connector. See Diagrams below for wire placement.

8. Plug lamp back into the connector.
9. When installing the lamp be sure to have Black Power Supply Jamb Nut all the way back on gray adapter. Tighten down the Gray Power Supply Adapter first and then secure the black jamb nut. See “UV Lamp Installation” on page 11.

   Note: If you do not have the Black Power Supply Jamb Nut back far enough before tightening the Gray Power Supply Adapter, the gray adapter will not make contact with the power supply gasket and will enable outside moisture to enter the quartz sleeve assembly system failure.

Avoid a configuration where the wires cross directly over the divider. See configuration C.

For either style power supply you can use wire configuration A or B.



Winterizing

Using the SMART UV Systems™ UV Sterilizer in extremely cold temperatures can cause damage to the unit, especially if the water is allowed to freeze inside the equipment. Please note that damage to the product by frozen water is not covered under warranty.

Pentair Aquatic Eco-Systems, Inc. recommends shutting the SMART UV down when the temperature consistently falls below 50°F (10°C).

1. Drain and remove the SMART UV from the filtration system.
2. Disassemble the entire unit and carefully clean both the outside and interior of the SMART UV body and components.
3. Once clean and dry, store the SMART UV in a dry place for the winter.
4. Return the SMART UV to service when temperatures consistently return to 50°F (10°C) or greater.

   Note: Be sure to replace the quartz sleeve gasket/o-ring and perform a water test prior to operating the equipment.

SECTION 5
TROUBLESHOOTING

Paper Towel Test Indicates a Leak

1. Turn off the water pump at the circuit breaker and be sure all flow to the unit has been stopped.
2. Refer to pages 7-8 for “Quartz Sleeve Assembly” and pages 11-12 for “UV Lamp Installation” (in reverse order) to disassemble the unit.
3. Ensure there are no cracks or breakages in the Quartz Sleeve, that the Quartz Sleeve Gasket and O-ring are properly installed, and that the Quartz Sleeve Retaining Nut has been tightened down completely
4. Reassemble the Quartz Sleeve (see page 7-8) and repeat the mandatory water test (see page 10) until there are no indications of a leak.

GFCI/Breaker is Tripping

1. Immediately unplug the SMART UV Systems™ UV Sterilizer.
2. Turn off the water pump at the circuit breaker and be sure all flow to the unit has been stopped.
3. Refer to pages 7-8 for “Quartz Sleeve Assembly” and pages 11-12 for “UV Lamp Installation” (in reverse order) to disassemble the unit.
4. Check for water/moisture inside the quartz sleeve.
5. Multiple appliance plugged into a brand of outlets protected by one GFCI create the potential for cumulative leakage current resulting in a tripped GFCI. Refer to the “Spurious Trips” on page 11 for more detailed information regarding GFCI breakers.

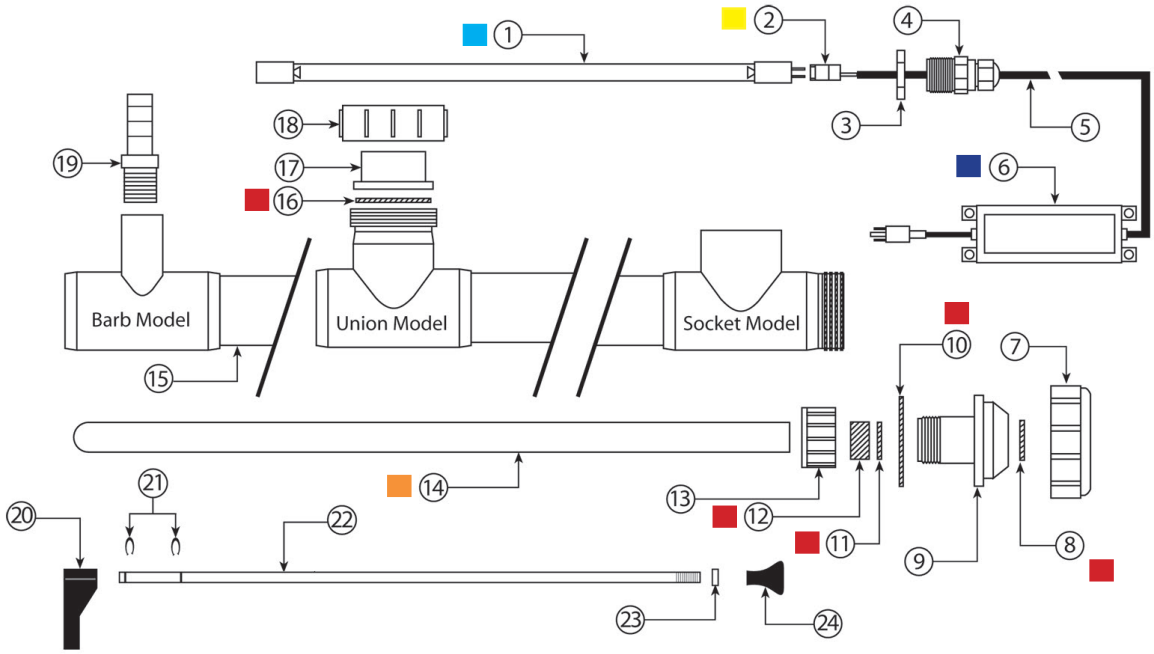
Pond Still Green After a Week of UV Operation

1. Ensure the UV lamp is lit by utilizing the safe viewing port.
2. A dirty quartz sleeve can reduce the UV sterilizer’s performance. If the Quartz sleeve is dirty refer to “Quartz Sleeve Cleaning” on page 18 for cleaning procedures.
3. Double check the unit’s flow rate and compare to the flow rate chart for your specific UV model.

SECTION 6
REPLACEMENT PARTS

SMART UV Lite Replacement Parts

P/Ns 02218, 02225, 02240, 02280, 02218-W, 02225-W, 02240-W, & 02280-W



Item #	Description
1	**UV Lamp**
2	4-Pin Lamp Connector
3	Black Power Supply Jamb Nut
4	Gray Power Supply Adapter
5	Power Supply Cord
6	Power Supply Module Assembly
7	Black Retaining Nut
8	Power Supply Gasket
9	Clear Quartz Sleeve Retaining Module
10	O-Ring for Clear Quartz Sleeve Retaining Module
11	**Quartz Sleeve O-Ring**
12	**Quartz Sleeve Gasket**
13	White Quartz Sleeve Gasket/O-Ring Retaining Nut
14	Quartz Sleeve
15	UV Sterilizer Vessel

Item #	Description
16	Water Inlet/Outlet Union O-Ring (union models only)
17	Water Inlet/Outlet Union Socket Half (union models only)
18	Water Inlet/Outlet Union Retaining Nut (union models only)
19	Hose Barb Insert (hose barb models only)
20	Quartz Sleeve Wiper Module (wiper models only)
21	C-Clips (wiper models only)
22	Quartz Sleeve Wiper Rod (wiper models only)
23	Wiper Rod Handle Stop Nut (wiper models only)
24	Wiper Rod Handle (wiper models only)

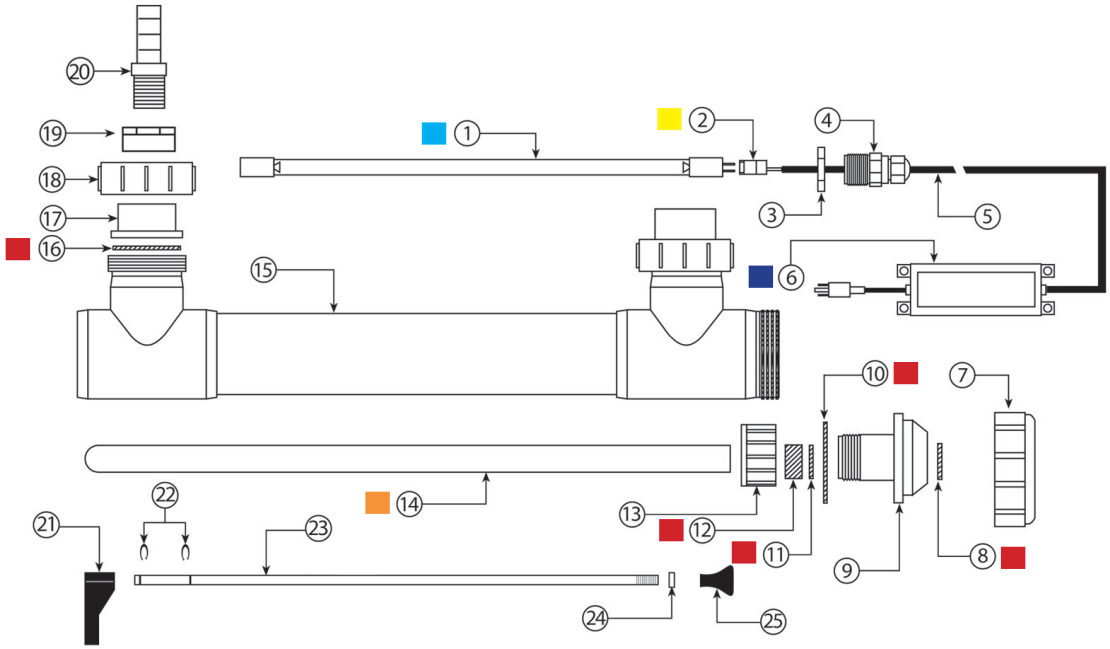
Bolded parts require annual replacement

SMART UV Lite Watts/Model No.	UV Lamp Part No.	Quartz Sleeve Part No.	Power Supply Part No.	Lamp Connector Part No.	Fittings/Mounting Clamps Kit Part No. for 1.5" Unions/2" Socket	Gasket Service Kit Part No.
18 Watt/02218	20018	20318	20225/20100	20077	20061/20062	20624
25 Watt/02225	20025	20325	20225/20100	20077	20061/20062	20624
40 Watt/02240	20040	20340	20100	20077	20061/20062	20624
80 Watt/02280	20040 x 2	20340 x 2	20100 x 2	20077 x 2	20061 x 2/20062 x 2	20625

NOTE: Clear Quartz Sleeve Retaining Module #20622, White Quartz Sleeve Retaining Nut #20079, both fit all SMART UV Lite Models; two required for #02280

SMART UV Sterilizer Replacement Parts

P/Ns 02025, 02040, 02065, 02025-W, 02040-W & 02065-W



Item #	Description
1	**UV Lamp**
2	4-Pin Lamp Connector
3	Black Power Supply Jamb Nut
4	Gray Power Supply Adapter
5	Power Supply Cord
6	Power Supply Module Assembly
7	Black Retaining Nut
8	Power Supply Gasket
9	Clear Quartz Sleeve Retaining Module
10	O-Ring for Clear Quartz Sleeve Retaining Module
11	**Quartz Sleeve O-Ring**
12	**Quartz Sleeve Gasket**
13	White Quartz Sleeve Gasket/O-Ring Retaining Nut
14	Quartz Sleeve
15	UV Sterilizer Vessel

Item #	Description
16	Water Inlet/Outlet Union O-Ring
17	Water Inlet/Outlet Union Socket Half
18	Water Inlet/Outlet Union Retaining Nut
19	Water Inlet/Outlet Union Reducer Bushing (optional fitting included)
20	Water Inlet/Outlet Union Threaded Hose Barb (optional fitting included)
21	Quartz Sleeve Wiper Module (wiper models only)
22	C-Clips (wiper models only)
23	Quartz Sleeve Wiper Rod (wiper models only)
24	Wiper Rod Handle Stop Nut (wiper models only)
25	Wiper Rod Handle (wiper models only)

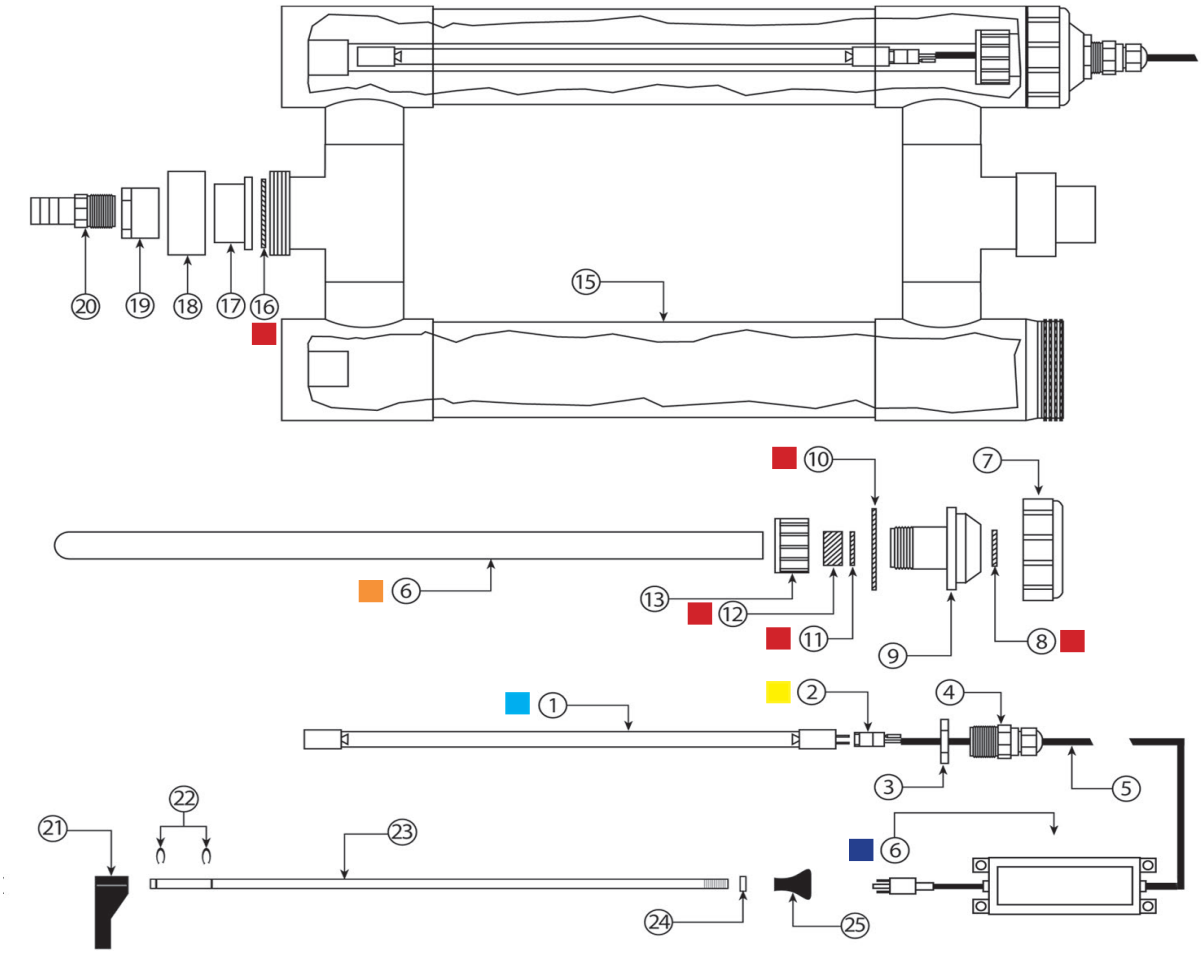
Bolded parts require annual replacement

SMART UV Watts/Model No.	UV Lamp Part No.	Quartz Sleeve Part No.	Power Supply Part No.	Lamp Connector Part No.	Mounting Clamps Kit Part No. for 1.5" Unions	Gasket Service Kit Part No.
25 Watt/02025	20025	20325	20225/20100	20077	20302	20375
40 Watt/02040	20040	20340	20100	20077	20302	20375
65 Watt/02065	20065	20365	20100	20077	20302	20375
80 Watt/02080	20040 x 2	20340 x 2	20100 x 2	20077 x 2	20302 x 2	20376
130 Watt/02130	20065 x 2	20365 x 2	20100 x 2	20077 x 2	20302 x 2	20376

NOTE: Clear Quartz Sleeve Retaining Module #20603, White Quartz Sleeve Retaining Nut #20079, both fit all SMART UV Sterilizer Models; two required for #02080, #02130

SMART UV Sterilizer Replacement Parts

For 80 & 130 Watt UV Sterilizers - P/Ns 02080, 02130, 02080-W & 02130-W



Item #	Description
1	**UV Lamp**
2	4-Pin Lamp Connector
3	Black Power Supply Jamb Nut
4	Gray Power Supply Adapter
5	Power Supply Cord
6	Power Supply Module Assembly
7	Black Retaining Nut
8	Power Supply Gasket
9	Clear Quartz Sleeve Retaining Module
10	O-Ring for Clear Quartz Sleeve Retaining Module
11	**Quartz Sleeve O-Ring**
12	**Quartz Sleeve Gasket**
13	White Quartz Sleeve Gasket/O-Ring Retaining Nut
14	Quartz Sleeve
15	UV Sterilizer Vessel

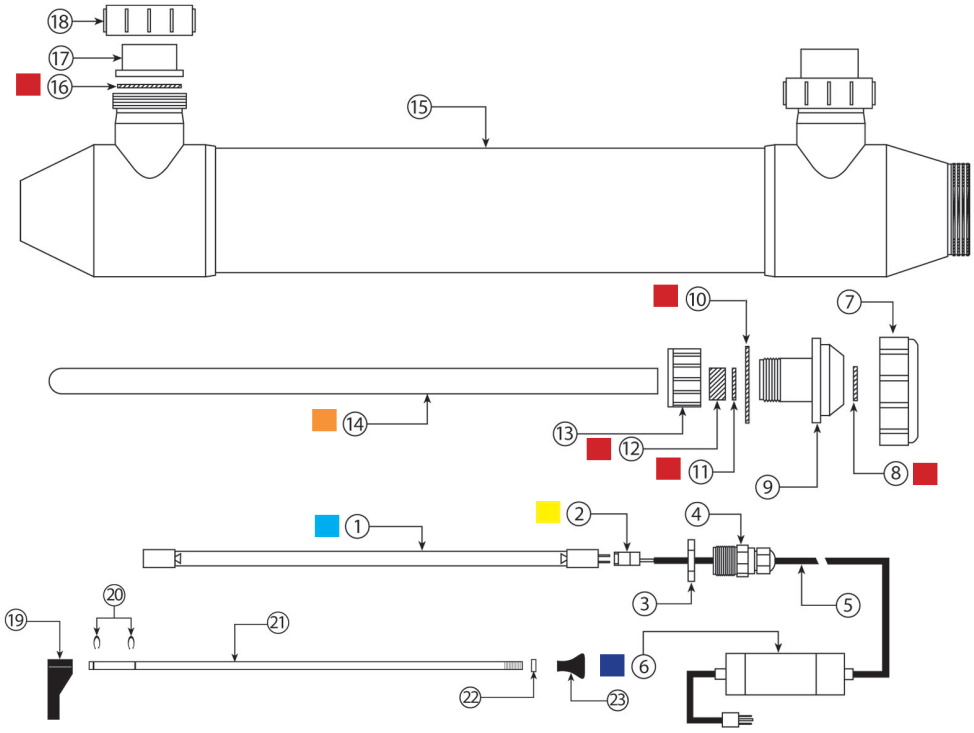
Item #	Description
16	Water Inlet/Outlet Union O-Ring
17	Water Inlet/Outlet Union Socket Half
18	Water Inlet/Outlet Union Retaining Nut
19	Water Inlet/Outlet Union Reducer Bushing (optional fitting included)
20	Water Inlet/Outlet Union Threaded Hose Barb (optional fitting included)
21	Quartz Sleeve Wiper Module (wiper models only)
22	C-Clips (wiper models only)
23	Quartz Sleeve Wiper Rod (wiper models only)
24	Wiper Rod Handle Stop Nut (wiper models only)
25	Wiper Rod Handle (wiper models only)

Bolded parts require annual replacement

See chart at the bottom of pg. 21 for part numbers

SMART HO UV Sterilizer Replacement Parts

P/Ns 025050, 025080, 025120, 025150, 025050-W, 025080-W, 025120-W, & 025150-W



Item #	Description
1	**UV Lamp**
2	4-Pin Lamp Connector
3	Black Power Supply Jamb Nut
4	Gray Power Supply Adapter
5	Power Supply Cord
6	Power Supply Module Assembly
7	Black Retaining Nut
8	Power Supply Gasket
9	Clear Quartz Sleeve Retaining Module
10	O-Ring for Clear Quartz Sleeve Retaining Module
11	**Quartz Sleeve O-Ring**
12	**Quartz Sleeve Gasket**
13	White Quartz Sleeve Gasket/O-Ring Retaining Nut

Item #	Description
14	Quartz Sleeve
15	UV Sterilizer Vessel
16	Water Inlet/Outlet Union O-Ring
17	Water Inlet/Outlet Union Socket Half
18	Water Inlet/Outlet Union Retaining Nut
19	Quartz Sleeve Wiper Module (wiper models only)
20	C-Clips (wiper models only)
21	Quartz Sleeve Wiper Rod (wiper models only)
22	Wiper Rod Handle Stop Nut (wiper models only)
23	Wiper Rod Handle (wiper models only)

Bolded parts require annual replacement

SMART HO UV Watts/Model No.	UV Lamp Part No.	Quartz Sleeve Part No.	Power Supply Part No.	Lamp Connector Part No.	Gasket Service Kit Part No.
50 Watt/025050	20050	20325	20105/20250-1	20077	20375
80 Watt/025080	20080	20340	20105/202120-1	20077	20375
120 Watt/025120	200120	203120	20105/202120-1	20077	20375
150 Watt/025150	200150	20365	202150-1	20077	20375

NOTE: Clear Quartz Sleeve Retaining Module #20603, White Quartz Sleeve Retaining Nut #20079, both fit all SMART UV Sterilizer Models as well as all SMART HO UV Sterilizers.

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