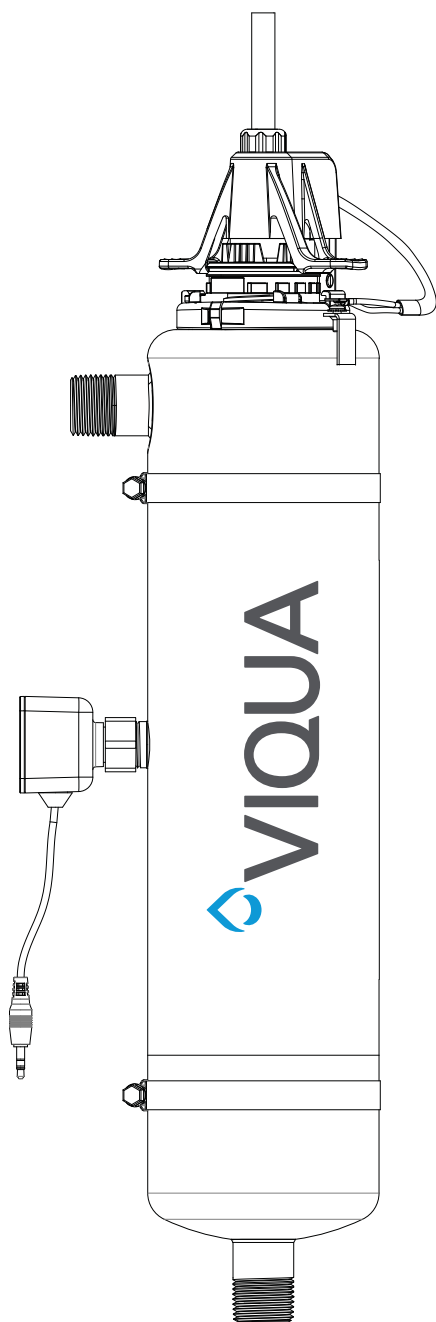# VIQUA

Owner's Manual

Model:
D4 Premium, E4, F4
+ Models:
D4+, E4+, F4+, E4-50+, F4-50+
Validated Models:
E4-V, F4-V
D4-V+, E4-V+, F4-V+

Powered by
UV MAX™

NSF
C US
System Tested and Certified by
NSF International against CSA
B483.1 and NSF/ANSI 55 for
Disinfection Performance, Class B

c UL us LISTED CE TRC CERTIFIED ISO 9001

MEMBER
Water Quality ASSOCIATION

520351-R_RevB

Congratulations on the purchase of your ultraviolet (UV) water disinfection system!

This system uses the most advanced UV technology on the market and is designed to provide you with years of trouble free operation with minimal maintenance required to protect your drinking water from microbiological contaminants.

To ensure ongoing disinfection of your water, UV lamps need to be replaced annually with VIQUA factory-supplied replacements. VIQUA lamps are the result of extensive development resulting in a highly efficient disinfection platform with extremely stable UV output over the entire 9000 hour lifetime. Its success has led to a proliferation of non-genuine copies in the market.

The UV lamp is the heart of the disinfection system, and there should be no compromise when it's time for a replacement.

Why should you insist on genuine factory supplied VIQUA replacement lamps?

- Use of widely available, non-genuine, replacement lamps has been shown to damage the control module of VIQUA UV disinfection equipment.

- An increasing number of calls to VIQUA Technical Support are connected with non-genuine lamps being used (unknowingly) as replacements.

- Damage arising from the use of non-genuine lamps poses a safety risk and is not covered by equipment warranty.

- Unless the UV equipment is equipped with a UV sensor (monitor), it is not possible to verify the UV (invisible) output of replacement lamps.

- Similar appearance to the original lamp and the presence of (visible) blue light does not mean equivalent disinfection performance.

- VIQUA replacement lamps undergo rigorous performance testing and strict quality control processes to ensure that the safety and performance certifications of the original equipment are not compromised.

So, you can see that it's simply not worth the risk! Insist on genuine VIQUA replacement lamps.

Section 1   Safety Information

These are the original instructions. Please read this entire manual before operating this equipment. Pay attention to all danger, warning, and caution statements in this manual. Failure to do so could result in serious personal injury or damage to the equipment.

Make sure that the protection provided by this equipment is not impaired. Do not use or install this equipment in any manner other than that specified in the installation manual.

1.1   Potential Hazards

Read all labels and tags attached to the system. Personal injury or damage to the system could occur if not observed.

	Waste electrical and electronic equipment (WEEE). This symbol indicates that you should not discard wasted electrical or electronic equipment (WEEE) in the trash. For proper disposal, contact your local recycling/reuse or hazardous waste center.		This symbol indicates not to store any combustible or flammable material close to the system.
Hg	This symbol indicates there is Mercury present.		This symbol indicates that the contents of the transport package are fragile and the package should be handled with care.
	This is the safety alert symbol. Obey all safety messages that follow this symbol to avoid potential injury. When on the equipment, refer to the Operational and Maintenance manual for additional safety information.		This symbol indicates safety glasses with side protection is required for protection against UV exposure.
	This symbol indicates a risk of electrical shock and/or electrocution exists.		This symbol indicates gloves must be worn.
	This symbol indicates the marked equipment may contain a component that can eject forcibly. Obey all procedures to safely depressurize.		This symbol indicates safety boots must be worn.
	This symbol indicates the system is under pressure.		This symbol indicates the operator must read all available documentation to perform required procedures.
	This symbol indicates there is a potential UV hazard. Proper protection must be worn.		This symbol indicates the plumber must use copper piping.
	This symbol indicates the marked item could be hot and should not be touched without care.		This symbol indicates that the system should only be connected to a properly grounded, grounding-type controller receptacle that is protected by a Ground Fault Circuit Interrupter (GFCI).
	This symbol indicates there is a potential for VERY hot water when flow is started.		

Warning: This product may contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

1.2   Safety Precautions

⚠**DANGER**
Failure to follow these instructions will result in serious injury or death.

- **Electric Shock:** To avoid possible electric shock, special care should be taken since water is present near the 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.
- **GROUNDING:** This product must be grounded. If it should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electrical shock. This system is equipped with a cord having 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. Improper connection of the equipment-grounding conductor can result in a risk of electrocution. Check with a qualified electrician or service personnel if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with this system – if it does not fit in the outlet, have a proper outlet installed by a qualified electrician. Do not use any type of adapter with this system.
- **GROUND FAULT CIRCUIT INTERRUPTER PROTECTION**: To comply with the National Electrical Code (NFPA 70) and to provide additional protection from the risk of electric shock, this system should only be connected to a properly grounded, grounding-type controller receptacle that is protected by a Ground Fault Circuit Interrupter (GFCI) or to a residual current device (RCD) having a rated residual operating current not exceeding 30 mA. Inspect operation of GFCI as per manufacturer's suggested maintenance schedule.
- DO NOT operate the disinfection system if it has a damaged cord or plug, if it is malfunctioning or if it has been dropped or damaged in any manner.
- 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.
- 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.

Safety Information

<table>
<tr><td colspan="2" align="center">⚠️ **WARNING**</td></tr>
<tr>
<td>⚠️</td>
<td>
• During extended periods of no water flow, the water in your chamber can become very hot (Approx. 60 °C) and potentially lead to scalding. It is recommended to run your water until this hot water has been purged from your chamber. Do not allow water to contact your skin during this time. To eliminate this condition, a temperature management valve can be installed at the outlet of your UV system.

• This system contains a UV Lamp. Do not operate the UV Lamp when it is removed from the chamber. Unintended use or damage of the system may result in the exposure of dangerous UV radiation. UV radiation may, even in little doses, cause harm to the eyes and skin.

• Changes or modifications made to this system without the consent of the manufacturer could render the system unsafe for operation and may void the manufacturer's warranty.
</td>
</tr>
</table>

<table>
<tr><td colspan="2" align="center">⚠️ **CAUTION**</td></tr>
<tr>
<td>⚠️

(Hg)</td>
<td>
Failure to follow these instructions could result in minor or moderate injury.

• Carefully examine the disinfection system after installation. It should not be plugged in if there is water on parts not intended to be wet such as, the controller or lamp connector.

• Due to thermal expansion concerns and potential material degradation due to UV exposure, it is recommended to use metal fittings and at least 10" of copper pipe on the outlet of your UV chamber.

• **Hg EXPOSURE**: The UV lamp contains mercury. If the lamp breaks, then avoid inhalation or ingestion of the debris and avoid exposure to eyes and skin. Never use a vacuum cleaner to clean up a broken lamp as this may scatter the spilled mercury. Obey local regulations and guidelines for the removal and disposal of mercury waste.
</td>
</tr>
</table>

<table>
<tr><td colspan="2" align="center">*NOTICE*</td></tr>
<tr>
<td>📖</td>
<td>
• The UV lamp inside the disinfection system is rated at an effective life of approximately 9000 hours. To ensure continuous protection, replace the UV lamp annually.

• The UV system is not to be used or played with by children. Persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, are also not to handle the UV system unless they have been given supervision or instruction.

• This system is intended to be permanently connected to the water lines.

• This system is not intended to be used in or above water or outdoors or used in swimming pools when persons are in the pool.

• **EXTENSION CORDS**: If an extension cord is necessary, use only 3-wire extension cords that have 3-prong grounding-type plugs and 3-pole cord connectors that accept the plug from this system. Use only extension cords that are intended for outdoor use. Use only extension cords having an electrical rating not less than the rating of the system. A cord rated for less amperes or watts than this system rating may overheat. Exercise caution when arranging the cord so that it will not be tripped over or pulled. DO NOT use damaged extension cords. Examine extension cord before using and replace if damaged. DO NOT abuse extension cord. Keep extension cord away from heat and sharp edges. Always disconnect the extension cord from the receptacle before disconnecting this system from the extension cord. Never yank cord to pull plug from outlet. Always grasp the plug and pull to disconnect.

• If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its service agent.

• **SYSTEM PROTECTION:** To protect your Controller, a UL1449 certified (or equivalent) transient voltage surge suppressor is strongly recommended.

• The UV lamp in this system conforms to the applicable provisions of the Code of Federal Regulations (CFR) requirements including, Title 21, Chapter 1, Subchapter J, Radiological Health.

• Read and understand the Owner's Manual before operating and performing any maintenance on this equipment.
</td>
</tr>
</table>

1.3 Water Chemistry

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

Water Quality and Minerals	Level
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, Standard Models	> 75% (call factory for recommendations on applications where UVT < 75%)
UV Transmittance, 50+ Models	50% - 85%

* Where total hardness is less than 7 gpg, the UV unit should operate efficiently provided the quartz sleeve is cleaned periodically. If total hardness exceeds 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*.
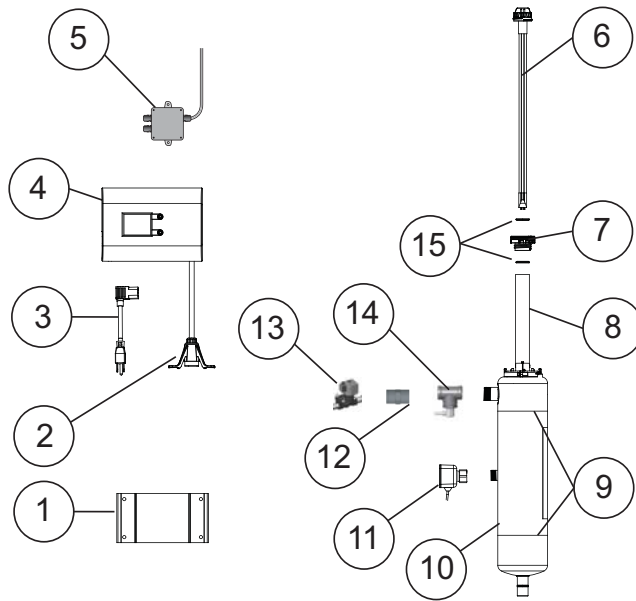
VIQUA

Section 2   General Information

Figure 1 Model Components

Item	Description	Part Number	UV Systems
1	Controller mounting bracket	-	Used for all models
2	Lamp Connector	-	Used for all models
3	Power cord	602636 (120V)	Used for 120V models
		602637 (230V)	Used for 230V models
4	Controller (includes controller mounting bracket)	650733R-001	Used for all models
5	Junction box (optionlal)	650705	Used for all models
6	Lamp (includes O-rings)	602805	D4 Premium, D4+, D4-V+
		602806	E4, E4+, E4-V, E4-V+, E4-50+
		602807	F4, F4+, F4-V, F4-V+, F4-50+
7	Sleeve bolt	602665	Used for all models
8	Sleeve (includes O-rings)	602732	D4 Premium, D4+, D4-V+
		602733	E4, E4+, E4-V, E4-V+, E4-50+
		602734	F4, F4+, F4-V, F4-V+, F4-50+
9	Chamber clamp(s)	-	Used for all models
10	UV Chamber	650712-001	E4, E4-V
		650712-002	E4+, E4-V+, E4-50+
		650712-005	F4, F4-V
		650712-006	F4+, F4-V+, F4-50+
		650712-013	D4 Premium
		650712-014	D4+, D4-V+
11	Sensors	650703	Plus models
		650731	E4-50+, F4-50+
12	Flow Restrictor*	440267-R	D4-V+
		440268-R	E4-V, E4-V+
		440269-R	F4-V, F4-V+

Item	Description	Part Number	UV Systems
13	Solenoid valve kit (optional) (includes junction box)	650717-001	D4 Premium, D4+ (3/4")
		650717-002	E4, E4+, E4-V, E4-V+, F4, F4+, F4-V, F4-V+, E4-50+, F4-50+
14	CoolTouch valve (optional)	650537	D4 Premium, D4+, D4-V+ (3/4")
		650538	E4, E4+, E4-V, E4-V+, F4+ (1") F4-V (1"), F4-V+ (1"), E4-50+, F4-50+
15	O-ring	002045	Used for all models
* For -V models, optional for all other models			

To find out what model you have, look at the label on the side of the controller as depicted below:

Figure 2 Model D/E/F- Controller Components

Operating Parameters	D4 Premium/D4+/D4-V+	E4/E4+/E4-V/E4-V+/E4-50+	F4/F4+/F4-V/F4-V+/F4-50+
No-tools maintenance	Yes	Yes	Yes
Locking Lamp Connector	Yes	Yes	Yes
LCD Colour Display	Yes	Yes	Yes
Sensor status indicator	D4+, D4-V+	E4-V+, E4+, E4-50+	F4-V+, F4+, F4-50+
Sensor	D4+, D4-V+	E4-V+, E4+, E4-50+	F4-V+, F4+, F4-50+
Lamp timer display	Yes	Yes	Yes
Lamp timer reset button	Yes	Yes	Yes
Mute button	Yes	Yes	Yes
Solenoid valve	Optional	Optional	Optional
External control relay	Optional	Optional	Optional

Support Screen Programming - *For Dealers and Installers Only*

Dealers/Installers can personalize this Screen with their company logo and contact information such as Company Name, Company Phone Number and Company Website. This can be easily done by downloading the Dealer Logo Programming Software from the Viqua website: WWW.VIQUA.COM/LCD.
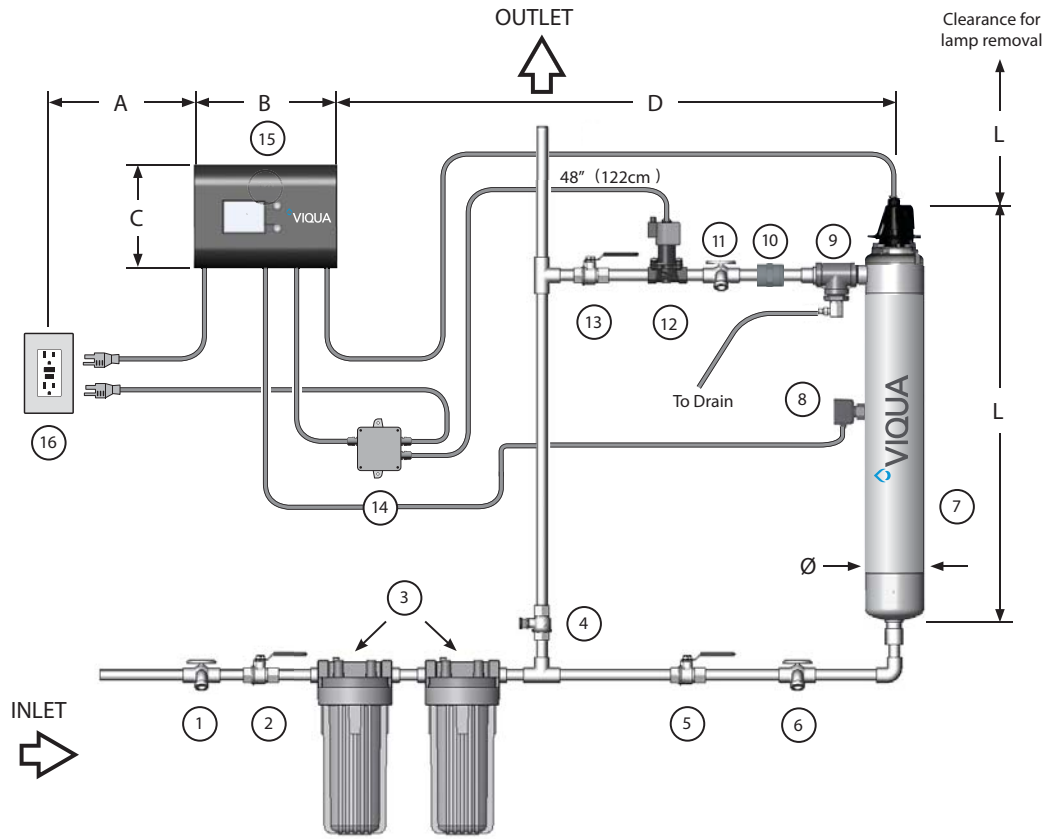
2.1 Dimensions and Layout

Figure 3 System - Dimension and Layouts

Item	Description	Function
1	Sample valve	Allows for sampling of raw water.
2	Shut-off valve	Required to allow maintenance of pre-treatment equipment.
3	Pre-treatment	Refer to Section 1.3. ***Note:** A 5 micron (nominal) sediment filter must be installed before the UV system and after any water softening equipment.*
4	Bypass shut-off valve	Bypass line and valve are optional. Intended to provide emergency water supply in the event that the UV system is unavailable.
5	Shut-off valve	Required to allow maintenance of UV system.
6	Sample valve	Allows for sampling of water entering UV chamber; necessary in order to confirm water being treated is of adequate quality.
7	UV chamber	Provides disinfection of the water. Must install + model chambers vertically.
8	Sensor	Optional item included with + models. Monitors UV output to ensure proper dose (UV exposure) is being provided.
9	CoolTouch™ valve	Drains water from the chamber that's been warmed by the lamp during periods of no flow.
10	Flow Restrictor	Restricts water from flowing over the maximum NSF certified flow rate ensuring an adequate UV dose is maintained.
11	Sample valve	Allows for sampling of water immediately following UV treatment; necessary in order to confirm proper operation of UV system.
12	Solenoid valve	Optional piece of equipment must be used with a junction box. Allows water supply to be shut-off when proper disinfection cannot be assured. ***Note:** If the ground from your electrical panel is tied to your copper water lines, and you are using a solenoid valve, installation of an approved ground strap is required. This ground strap will maintain continuity between the lines that have been cut to install the solenoid. Check your local electrical code for the correct clamp and cable size.*
13	Shut-off valve	Required to allow maintenance of UV system.
14	Junction box	Optional - Powers solenoid valves, remote alarms and auto-dialers.

Item	Description	Function
15	Controller	Powers and controls the UV lamp and other devices. Provides human interface, displaying system status information and allowing control inputs (such as muting the audible alarm).
16	Power source	Provides power to the controller. For safety reasons the outlet must be protected by a Ground Fault Circuit Interrupter (GFCI). *Note: To protect the controller, a UL1449 certified (or equivalent) transient voltage surge suppressor is required.*

Model	L	Ø	A (maximum)	B	C	D (maximum)
D4 Premium/D4+/D4-V+	20.5" (52cm)	4" (10cm)	72" (183cm)	8.5" (22cm)	6" (15cm)	54" (137cm)
E4/E4+/E4-V/E4-V+/E4-50+	30" (76cm)	4" (10cm)	72" (183cm)	8.5" (22cm)	6" (15cm)	54" (137cm)
F4/F4+/F4-V/F4-V+/F4-50+	44.25" (112.4cm)	4" (10cm)	72" (183cm)	8.5" (22cm)	6" (15cm)	54" (137cm)

Section 3   Installation

⚠ CAUTION

Electronic controller must be connected to a Ground Fault Protected Circuit (GFCI) receptacle. Ensure green ground wire ring terminal is securely fastened to ground stud on UV chamber.

Note: Red wire is only used as a strain relief for the ground wire.

3.1 Installing UV System

The disinfection system is designed to be mounted either horizontally or vertically at the point-of-use or point-of-entry depending on the specific flow rate of the unit.

If installing the chamber in horizontal position the outlet port must be pointing upwards to ensure all air is fully purged from the chamber.
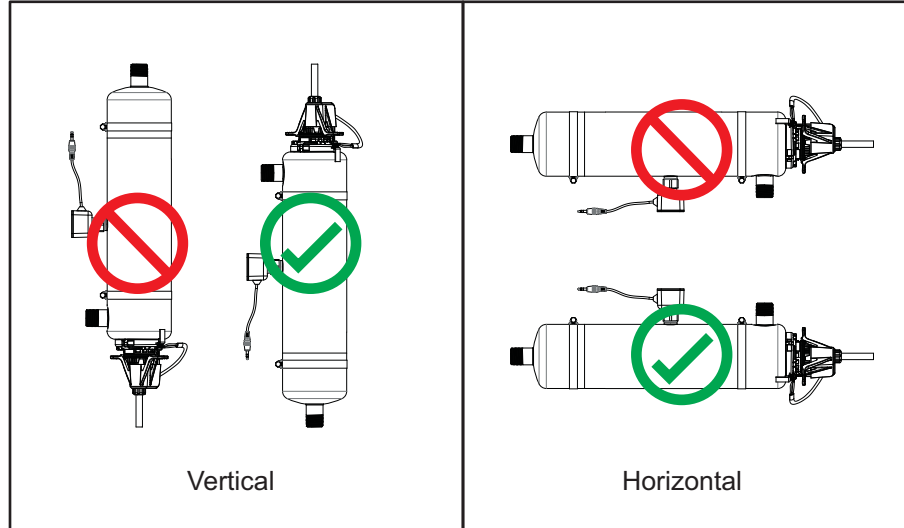

Figure 4 Disinfection Installation - Vertical and Horizontal

Note: The ideal installation is vertical with the lamp connector on top. This is to prevent water damage from occurring on the lamp pins and lamp connector.

Prerequisites:

- Determine appropriate indoor location of the controller and chamber. Refer to Figure 3.
- Ensure adequate clearance above chamber to allow for removal of the lamp and sleeve.
- Make sure to turn off the main water supply.
- Mount the system to the wall with appropriate lag bolts through the two mounting holes located on the metal bracket. The supplied lag bolts are suitable for attachment to wood. (Attachments to other materials will require purchasing of alternative hardware).
- Make all necessary plumbing connections. Refer to Figure 3.

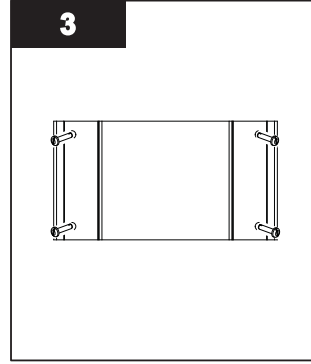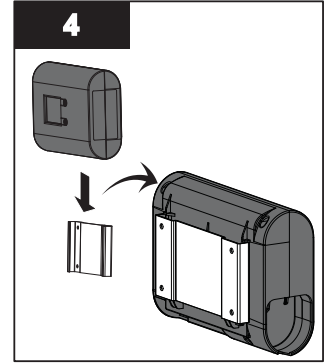**Procedure:**

1
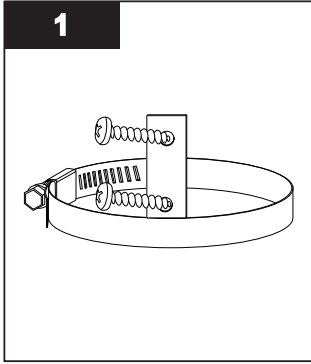
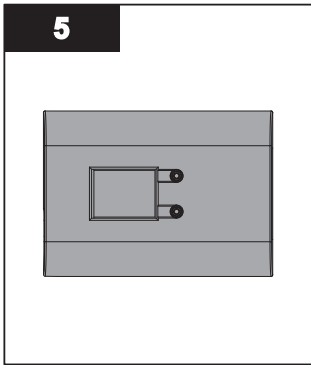- Screw chamber clamp(s) to the wall (#10 screws recommended.)

2
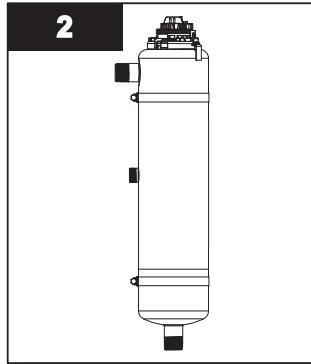
- Insert chamber and tighten clamp(s).
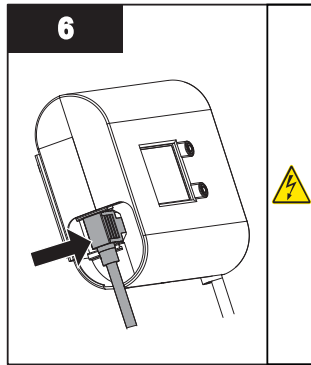- Make all necessary plumbing connections. Refer to Section 2.1.

3

- Mount controller mounting bracket to wall using four #8 screws (not provided).
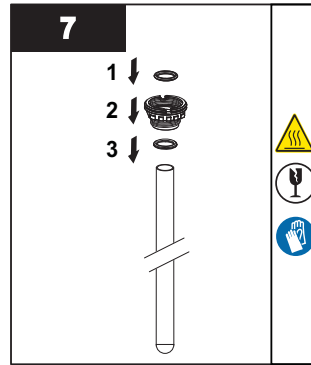
4

- Slide controller onto mounting bracket.

5

Note: Outlet must be protected by a Ground Fault Circuit Interrupter (GFCI).

6

- Connect power cord to controller.
- DO NOT connect the power cord to the GFCI outlet at this time.
- Some lamp assembly may be required. If wires are on outside of glass, lamp/sleeve are separate. Proceed to step 7. If wires are inside glass, skip to step 9.
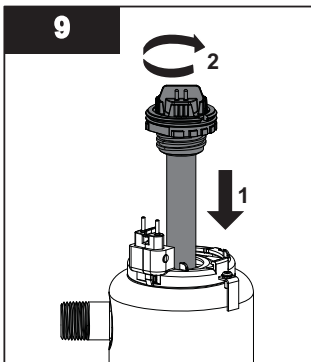
7

- Install the sleeve bolt with 2 new O-rings to the sleeve.

8
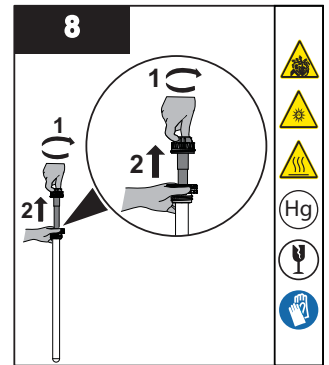
- Install the lamp into sleeve and hand tighten.

Note: Over tightening will break the sleeve.

9

- Insert the lamp/sleeve assembly into chamber, screw hand tight.

Note: Over tightening will break the sleeve.
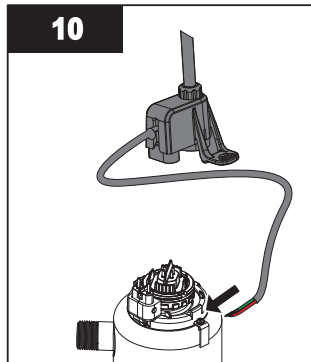
10

- Connect the green ground wire and red strain relief wire to the chamber using the grounding screw.

11

- Align connection pins with the lamp connector by rotating the ring clamp.
- Push the lamp connector down onto the lamp pins and the ring clamp pins until an audible click is heard.

Note: Ensure the connector is engaged on both sides.

12
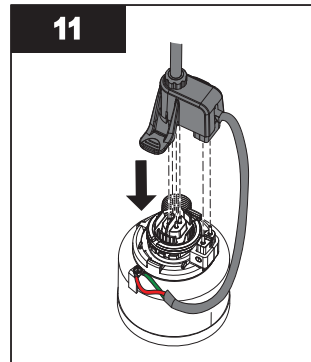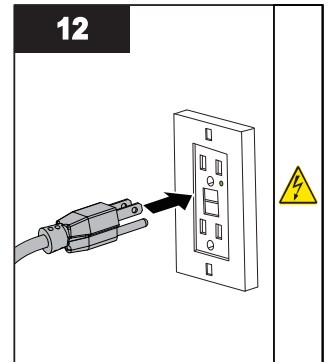
- Connect power.
- Open all faucets and turn on water supply. Inspect for any leaks.

Note: Outlet must be protected by a Ground Fault Circuit Interrupter (GFCI).

VIQUA

3.2   Disinfection Procedure

UV disinfection is a physical disinfection process and does not add any potentially harmful chemicals to the water. As UV does not provide a disinfection residual, it is imperative that the entire distribution system located after the UV be chemically disinfected to ensure that the plumbing system is free from any bacteriological contaminants. The disinfection process must be performed immediately after the UV unit is installed and repeated thereafter whenever the UV is shut down for ser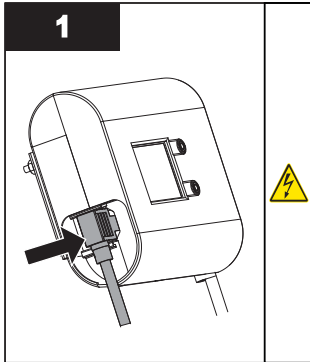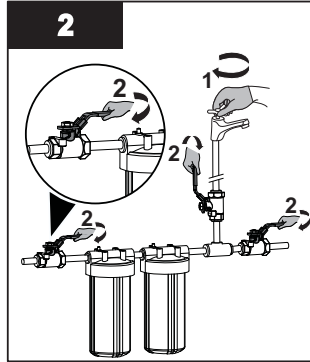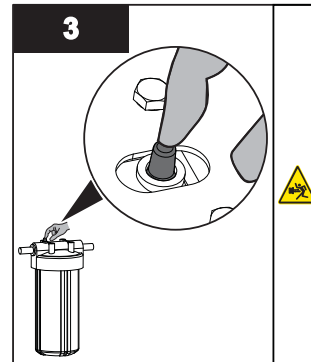vice, without power, or inoperative for any reason. The procedure for sanitizing the plumbing system is readily accomplished as follows:

1

- Ensure only the controller plug is plugged in for entire disinfection process.

2

- Shut off the water supply.
- Close each faucet.

3

- Press the pressure button to release the pressure from the cartridges.

4

- Remove sump housing(s) using sump wrench.
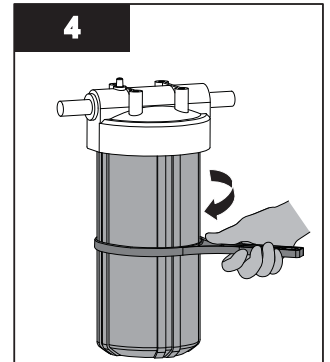
5   Household 5.25% Bleach Solution
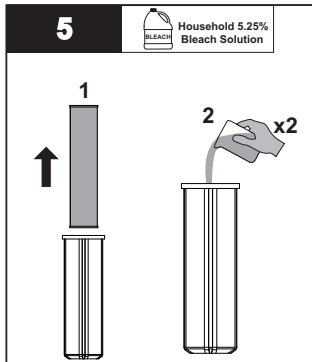
- Remove cartridge(s) and pour 2 cups of household bleach solution into the sump housing(s).

  Note: *DO NOT use Hydrogen Peroxide.*

6
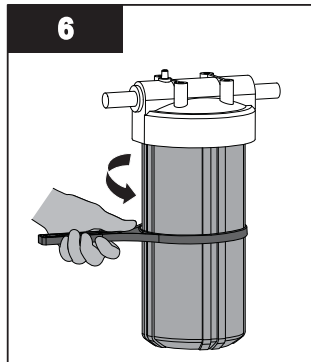
- Reinstall sump only to filter head.

7
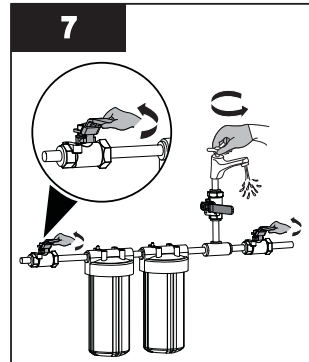
- Turn on water supply.
- Allow water to fill the chamber.

8
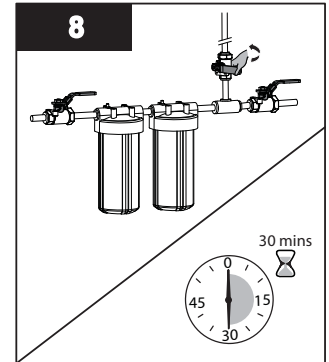
30 mins

- Turn on the cold water supply followed by hot water (if available) until you smell the bleach.
- Close all faucets and allow bleach to settle in the water lines for 30 minutes.

9

- Press the pressure button to release the pressure.

10
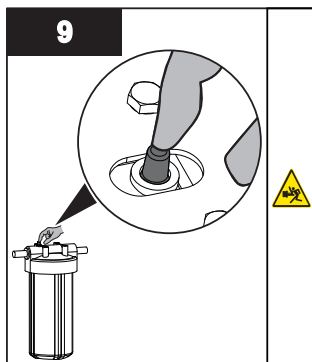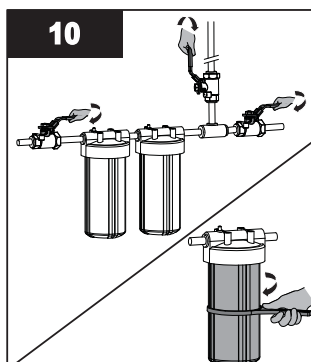
- With all faucets closed, remove sump housing(s) using sump wrench.

11
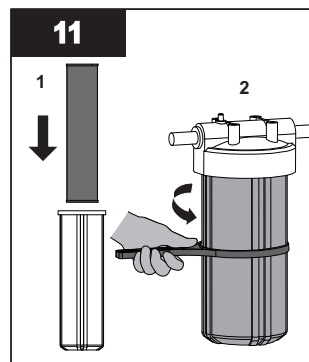
- Reinstall the cartridge(s) into sump housing(s) and connect to the unit.
- Flush all water outlets until bleach can no longer be smelled (at least 5 minutes).

12
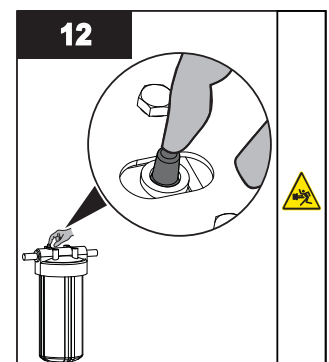
- Press the pressure button to purge air and to complete the disinfection procedure.

VIQUA
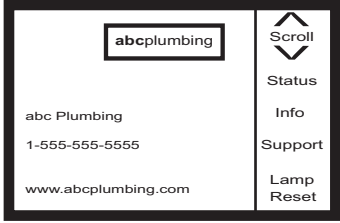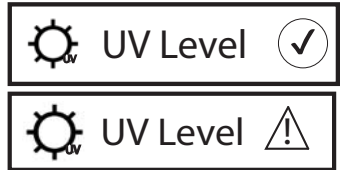
Section 4   Operation

4.1 Control Panel
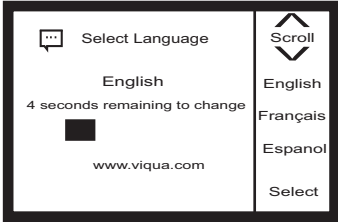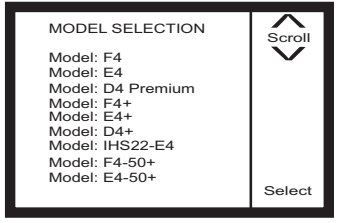
Figure 5 Control Panel

Buttons and Display		
Feature	**Description**	**Function**
A	Status Screen	Displays the following: • Lamp life days • Product information • Product support • UV level status • Active alarms
B	Pushbutton 1	• Scroll • Mute • 24Hr Mute • Cancel
C	Pushbutton 2	• Lamp reset • Select • Close • Reset hold 5 Sec
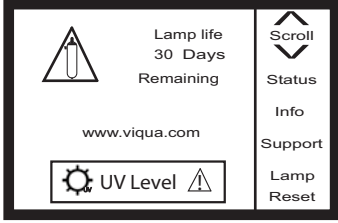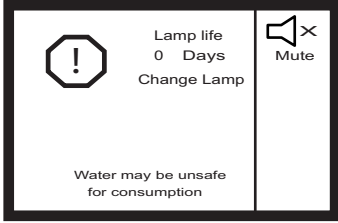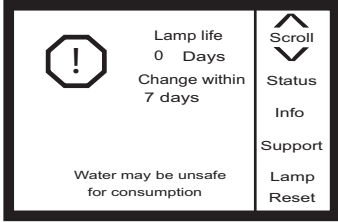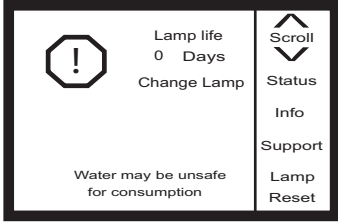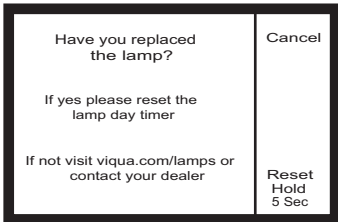
Status Screens		
Description	**Display**	**Function**
Product Information Screen	i Product Information / Scroll / Status / Info / Support / Lamp Reset — Model: F4+ / Lamp/Sleeve Kit:602810-104 / UV Lamp:602807 / Quartz Sleeve:602734 / UV Sensor:650703 / Controller:650733R-001	Displays with Replacement part numbers: • Model • UV Lamp/Sleeve Kit • Quartz Sleeve • UV Sensor • Controller
Support Screen	**abc**plumbing / Scroll / Status / Info / Support / Lamp Reset — abc Plumbing / 1-555-555-5555 / www.abcplumbing.com	Displays Dealer contact information: • Dealer Logo • Name • Phone Number • Website
UV Level Status	UV Level ✓ UV Level ⚠	Acceptable UV Dose Level (Normal operation) Minimum UV Dose Level (Service required)

4.2 Controller Start Up
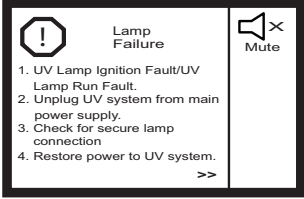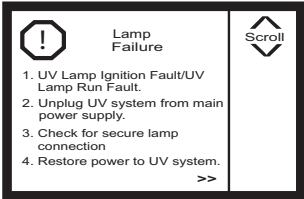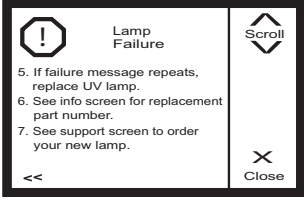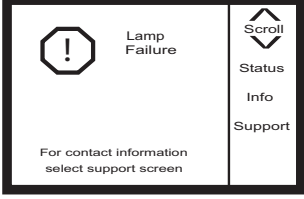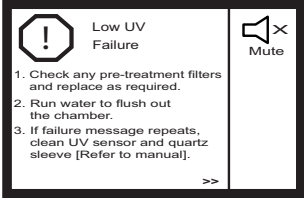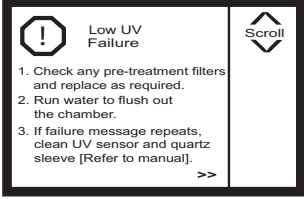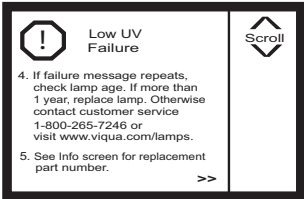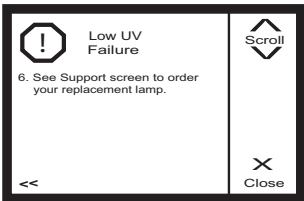
The following screens appear for 4 seconds when you connect the controller to power:
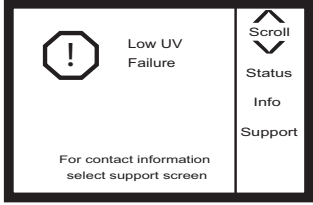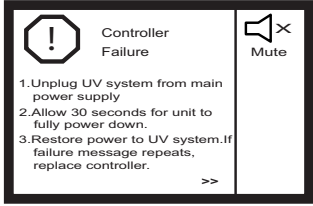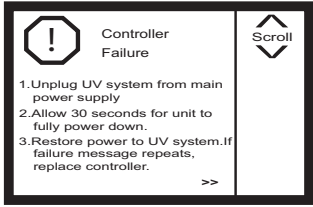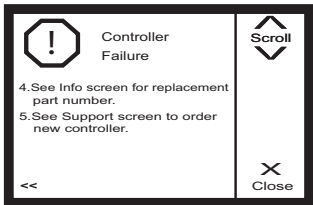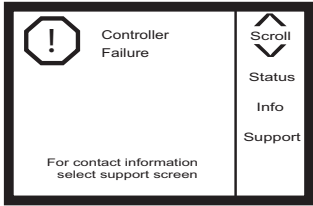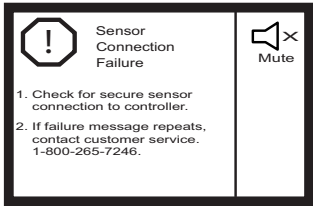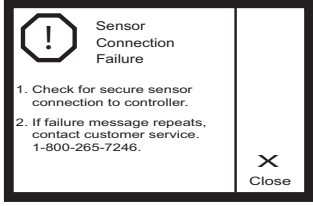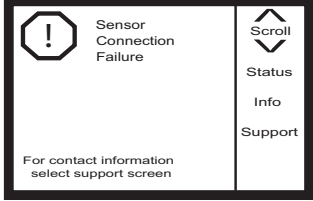
Description	Display	Function
Select Language	Select Language / Scroll / English / Français / Espanol / Select — English / 4 seconds remaining to change / www.viqua.com	• Scroll to highlight language preferred. • Select to enter the language into the controller.
Model Selection- Factory Pre-Set for Systems	MODEL SELECTION / Scroll / Select — Model: F4 / Model: E4 / Model: D4 Premium / Model: F4+ / Model: E4+ / Model: D4+ / Model: IHS22-E4 / Model: F4-50+ / Model: E4-50+	• Scroll to advance thru the models. • Select to enter the model preferred. This ensures the correct replacement parts are displayed in the Info screen.
Product Registration	Product Registration / Have you registered your product for annual lamp replacement reminders? / www.viqua.com/register	Reminds USER to register their product for product updates and lamp replacement reminders.

VIQUA

4.3   Resetting the Lamp Life Timer back to 365 Days
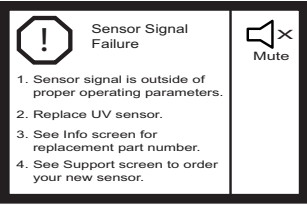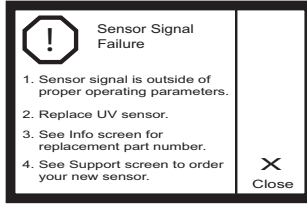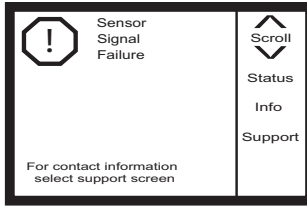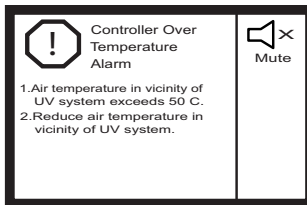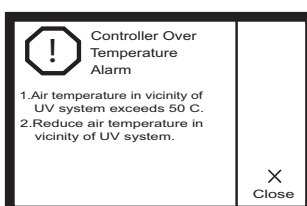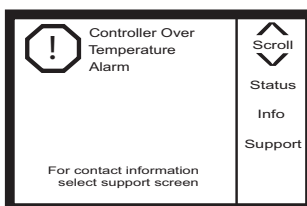
Description	Display	Function
End of Lamp Life Warning	Lamp life 30 Days Remaining / www.viqua.com / UV Level / Scroll Status Info Support Lamp Reset	Indicates that your UV lamp is nearing the end of its operating life.
End of Lamp Life Alarm	Lamp life 0 Days Change Lamp / Water may be unsafe for consumption / Mute	• Indicates that your UV Lamp has reached its end of operating life. • Alarm can be silenced for 7 days by pressing mute button.
Alarm Deferrals	Lamp life 0 Days Change within 7 days / Water may be unsafe for consumption / Scroll Status Info Support Lamp Reset	The EOL alarm can be differed for 7 days up to 4 times.
Lamp Reset	Lamp life 0 Days Change Lamp / Water may be unsafe for consumption / Scroll Status Info Support Lamp Reset	Pressing the Lamp Reset button will bring up the Lamp Replacement RESET screen.
Lamp Replacement RESET	Have you replaced the lamp? / If yes please reset the lamp day timer / If not visit viqua.com/lamps or contact your dealer / Cancel / Reset Hold 5 Sec	• Press and hold button for 5 seconds until you here an audible beep. • Your Lamp Life Days is now reset to 365 days.

4.4 List of All Alarms

Description	Display	Function
Lamp Failure Alarm	Lamp Failure — Mute 1. UV Lamp Ignition Fault/UV Lamp Run Fault. 2. Unplug UV system from main power supply. 3. Check for secure lamp connection 4. Restore power to UV system. >>	Pressing the Mute button will silence the alarm for 24 hours and will display the troubleshooting guide.
	Lamp Failure — Scroll 1. UV Lamp Ignition Fault/UV Lamp Run Fault. 2. Unplug UV system from main power supply. 3. Check for secure lamp connection 4. Restore power to UV system. >>	Pressing the Scroll button will advance to the next troubleshooting guide screen.
	Lamp Failure — Scroll 5. If failure message repeats, replace UV lamp. 6. See info screen for replacement part number. 7. See support screen to order your new lamp. << — Close	Pressing the Close button brings up the Status screen.
Lamp Failure Status Screen	Lamp Failure — Scroll Status Info Support For contact information select support screen	Press the Scroll button to access the replacement part numbers and Dealer contact information.
Low UV Failure Alarm	Low UV Failure — Mute 1. Check any pre-treatment filters and replace as required. 2. Run water to flush out the chamber. 3. If failure message repeats, clean UV sensor and quartz sleeve [Refer to manual]. >>	Pressing Mute button will silence the Alarm for 24 hours and will display the troubleshooting guide.
	Low UV Failure — Scroll 1. Check any pre-treatment filters and replace as required. 2. Run water to flush out the chamber. 3. If failure message repeats, clean UV sensor and quartz sleeve [Refer to manual]. >>	Pressing the Scroll button will advance to the next troubleshooting guide.
	Low UV Failure — Scroll 4. If failure message repeats, check lamp age. If more than 1 year, replace lamp. Otherwise contact customer service 1-800-265-7246 or visit www.viqua.com/lamps. 5. See Info screen for replacement part number. >>	Pressing Scroll button will advance to the next troubleshooting guide screen.
	Low UV Failure — Scroll 6. See Support screen to order your replacement lamp. << — Close	Pressing the Close button brings up the Status screen.

VIQUA

Description	Display	Function
Low UV Failure Alarm Status Screen	Low UV Failure — Scroll / Status / Info / Support — For contact information select support screen	Press the Scroll button to access the replacement part numbers and Dealer contact information.
Controller Failure Alarm	Controller Failure — Mute — 1.Unplug UV system from main power supply 2.Allow 30 seconds for unit to fully power down. 3.Restore power to UV system.If failure message repeats, replace controller. >>	Pressing the Mute button will silence the alarm for 24 hours and will display the troubleshooting guide.
	Controller Failure — Scroll — 1.Unplug UV system from main power supply 2.Allow 30 seconds for unit to fully power down. 3.Restore power to UV system.If failure message repeats, replace controller. >>	Pressing the Scroll button will advance to the next troubleshooting guide
	Controller Failure — Scroll — 4.See Info screen for replacement part number. 5.See Support screen to order new controller. << — Close	Pressing the Close button brings up the Status screen.
Controller Failure Alarm Status Screen	Controller Failure — Scroll / Status / Info / Support — For contact information select support screen	Press the Scroll button to access the replacement part numbers and Dealer contact information.
Sensor Connection Failure Alarm	Sensor Connection Failure — Mute — 1. Check for secure sensor connection to controller. 2. If failure message repeats, contact customer service. 1-800-265-7246.	Pressing the Mute button will silence the alarm for 24 hours and will display the troubleshooting guide.
	Sensor Connection Failure — 1. Check for secure sensor connection to controller. 2. If failure message repeats, contact customer service. 1-800-265-7246. — Close	Pressing the Close button brings up the Status screen.
Sensor Connection Failure Alarm Status Screen	Sensor Connection Failure — Scroll / Status / Info / Support — For contact information select support screen	Press the Scroll button to access the replacement part numbers and Dealer contact information.

VIQUA

Operation

Description	Display	Function
Sensor Signal Failure Alarm	Sensor Signal Failure 1. Sensor signal is outside of proper operating parameters. 2. Replace UV sensor. 3. See Info screen for replacement part number. 4. See Support screen to order your new sensor. Mute	Pressing the Mute button will silence the alarm for 24 hours and will display the troubleshooting guide.
	Sensor Signal Failure 1. Sensor signal is outside of proper operating parameters. 2. Replace UV sensor. 3. See Info screen for replacement part number. 4. See Support screen to order your new sensor. Close	Pressing the Close button brings up the Status screen.
Sensor Signal Failure Alarm Status Screen	Sensor Signal Failure Scroll Status Info Support For contact information select support screen	Press the Scroll button to access the replacement part numbers and Dealer contact information.
Controller Over Temperature Alarm	Controller Over Temperature Alarm 1.Air temperature in vicinity of UV system exceeds 50 C. 2.Reduce air temperature in vicinity of UV system. Mute	Pressing the Mute button will silence the alarm for 24 hours and will display the troubleshooting guide.
	Controller Over Temperature Alarm 1.Air temperature in vicinity of UV system exceeds 50 C. 2.Reduce air temperature in vicinity of UV system. Close	Pressing the Close button brings up the Status screen.
Controller Over Temperature Alarm Status Screen	Controller Over Temperature Alarm Scroll Status Info Support For contact information select support screen	Press the Scroll button to access the replacement part numbers and Dealer contact information.
Catastrophic Failure		• This failure occurs when all the main fuses have blown. • The display will be blank and a solid audible tone will sound. • Replace Controller.

VIQUA

4.5 Model Selection For Replacement Controllers ONLY

Determine the part number of your System below and find the associated MODEL for that system. When power is applied the new Controller will show the MODEL SELECTION Screen for 4 seconds. During this time press the Scroll button until the Model that represents your system is highlighted in RED. Press the Select button to select the model. This ensures the associated replacement parts for your system are displayed on the Product Information Screen.
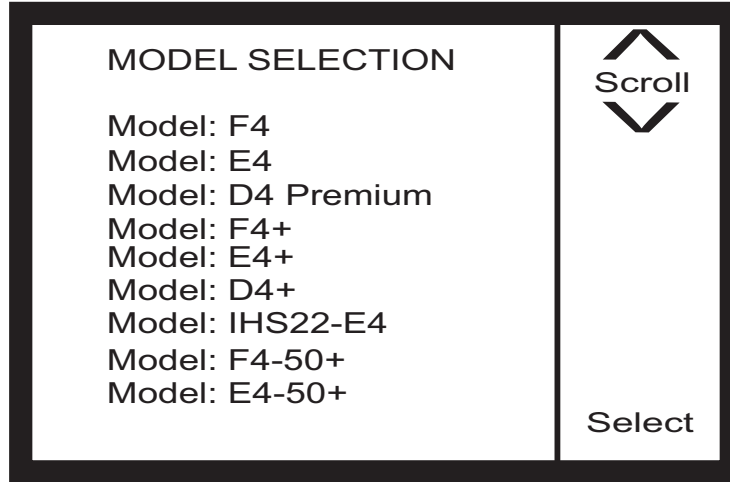
```
┌─────────────────────────────────────┐
│ ┌───────────────────────┬─────────┐ │
│ │  MODEL SELECTION      │   ∧     │ │
│ │                       │ Scroll  │ │
│ │  Model: F4            │   ∨     │ │
│ │  Model: E4            │         │ │
│ │  Model: D4 Premium    │         │ │
│ │  Model: F4+           │         │ │
│ │  Model: E4+           │         │ │
│ │  Model: D4+           │         │ │
│ │  Model: IHS22-E4      │         │ │
│ │  Model: F4-50+        │         │ │
│ │  Model: E4-50+        │ Select  │ │
│ └───────────────────────┴─────────┘ │
└─────────────────────────────────────┘
```

Figure 6 Model Selection

Part Number	Description	Model
650695-R	SYS, D4+ HOME 120V	D4+
650697-R	SYS, D4+ HOME 230V	D4+
660042-R	SYS, D4-V+ NSF Class B 120VAC	D4-V+
660089-R	SYS, D4 PREMIUM 120V	D4 Premium
660090-R	SYS, D4 PREMIUM 230V	D4 Premium
650682	SYS, E4 PROFESSIONAL 120VAC	E4
650718	SYS, E4 PROFESSIONAL 230VAC	E4
660040-R	SYS, E4-V NSF Class B 120VAC	E4-V
650683	SYS, E4+ PROFESSIONAL 120VAC	E4+
650719	SYS, E4+ PROFESSIONAL 230VAC	E4+
660043-R	SYS, E4-V+ NSF Class B 120VAC	E4-V+
650638-R	SYS, E4+ PROFESSIONAL+ 50%UVT 120V	E4-50+
650639-R	SYS, E4+ PROFESSIONAL+ 50%UVT 240V	E4-50+
IHS22-E4	SYS, E4 PROFESSIONAL 2SUMP 120VAC	IHS22-E4
IHS22-E4/2	SYS, E4 PROFESSIONAL 2SUMP 230V CEE7/7	IHS22-E4
IHS22-E4/2A	SYS, E4 PROFESSIONAL 2SUMP 230V AS3112	IHS22-E4
IHS22-E4/2B	SYS, E4 PROFESSIONAL 2SUMP 230V BS1363	IHS22-E4
650686	SYS, F4 PROFESSIONAL 120VAC	F4
650686	SYS, F4 PROFESSIONAL 230VAC	F4
660041-R	SYS, F4-V NSF Class B 120VAC	F4-V
650687	SYS, F4+ PROFESSIONAL 120VAC	F4+
650721	SYS, F4+ PROFESSIONAL 230VAC	F4+
660044-R	SYS, F4-V+ NSF Class B 120VAC	F4-V+
650640-R	SYS, F4+ PROFESSIONAL 50%UVT 120V	F4-50+
650641-R	SYS, F4+ PROFESSIONAL 50%UVT 240V	F4-50+

![VIQUA]

Section 5   Maintenance

⚠️ WARNING

- Always disconnect power before performing any work on the disinfection system.
- Always shut-off water flow and release water pressure before servicing.
- Regularly inspect your disinfection system to ensure that the power indicators are on and no alarms are present.
- Replace the UV lamp annually (or biennially if seasonal home use) to ensure maximum disinfection.
- Always drain the chamber when closing a seasonal home or leaving the unit in an area subject to freezing temperatures.
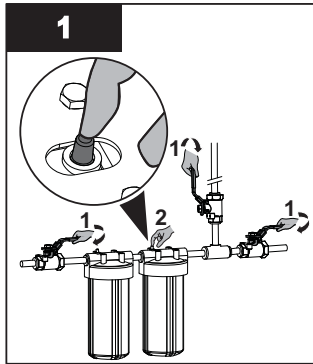
5.1 Replacing UV Lamp

NOTICE

Do not use water during replacement of UV lamp.

Lamp replacement is a quick and simple procedure requiring no special tools. The UV lamp must be replaced after 9000 hours of continuous operation (approximately one year) in order to ensure adequate disinfection.

Procedure:

- Close all faucets and water supply.
- Press the pressure release button to relieve the pressure from the cartridges.
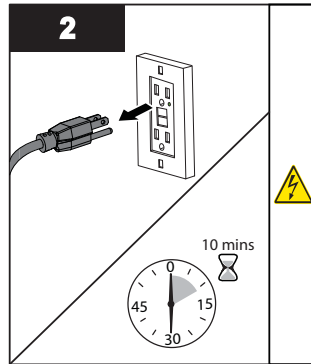
- Disconnect main power source and allow the unit to cool for 10 minutes.
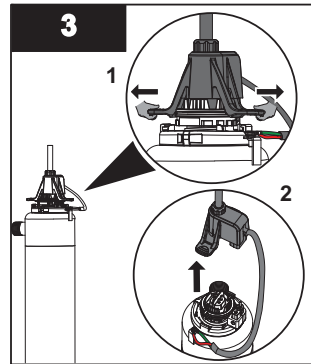
- Remove the lamp connector by pulling the tabs out and then upwards.
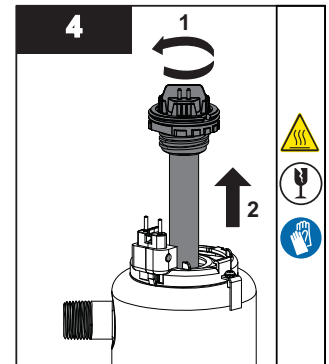
- Remove lamp/sleeve assembly along with sleeve bolt from chamber.
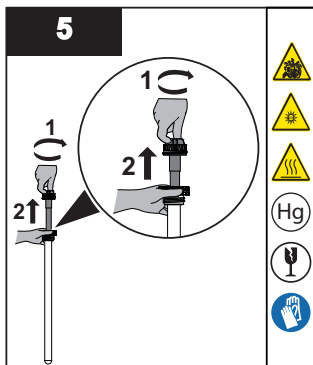
- Unscrew the UV lamp by holding the sleeve bolt.
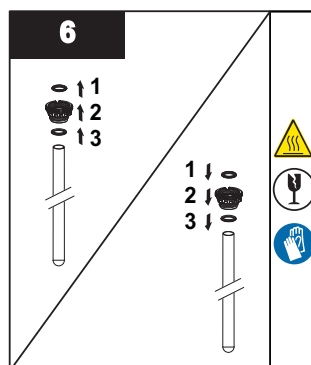
- Remove the sleeve bolt and remove 2 O-rings from the sleeve.
- Install 2 new O-rings onto sleeve on either side of sleeve bolt as pictured.
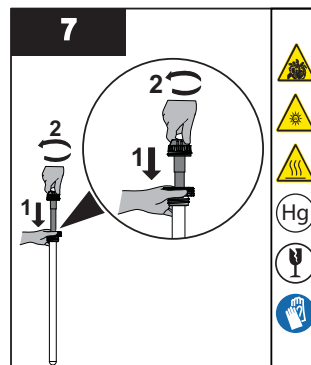
- Install and secure the new lamp into sleeve.

    Note: *Over tightening will break the sleeve.*
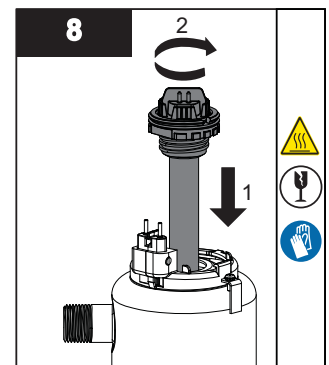
- Insert and secure the lamp/ sleeve assembly.

    Note: *Over tightening will break the sleeve.*
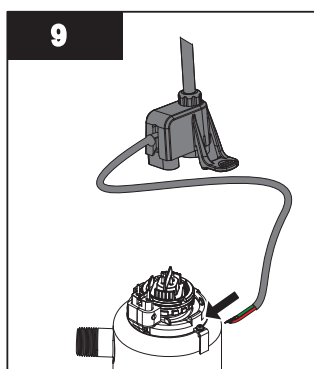
VIQUA

- Connect the green ground wire and red strain relief wire to the chamber using the grounding screw.
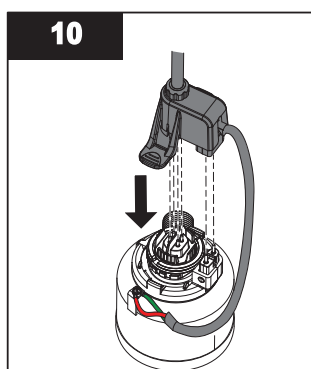
- Align connection pins with the lamp connector by rotating the ring clamp.
- Push the lamp connector down onto the lamp pins and the ring clamp pins until an audible click is heard.

  Note: Ensure the connector is engaged on both sides.
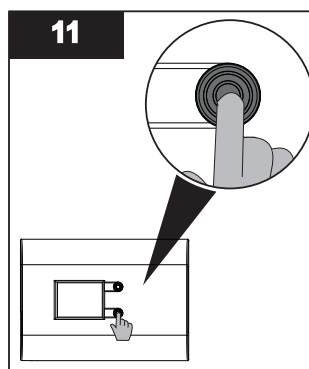
- Reset lamp timer.

5.2 Cleaning and Replacing Quartz Sleeve

Note: Minerals in the water slowly form a coating on the quartz sleeve. This coating must be removed because it reduces the amount of UV light reaching the water, thereby reducing disinfection performance. If the sleeve can not be cleaned, it must be replaced.

Prerequisites:

- Shut off water supply and drain all lines.
- Depressurize the unit. Place a small pail under the unit to catch any spills.
- Remove the UV lamp. Refer to Section 5.1.

Procedure:
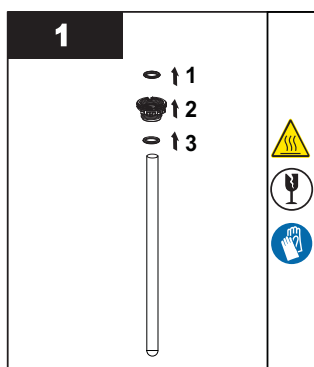
- Unscrew the sleeve bolt and remove O-rings from the quartz sleeve.

- Clean the quartz sleeve with a cloth soaked in CLR, vinegar or some other mild acid and then rinse with water.

  Note: If sleeve cannot be cleaned completely or it is scratched or cracked, then replace the sleeve.
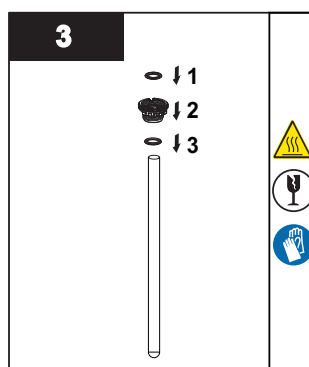
- Insert new O-rings and tighten the sleeve bolt to the quartz sleeve.
- When service is complete, assemble the prerequisites in the reverse order of disassembly.
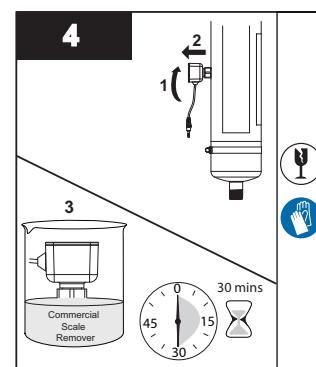
- Remove the UV sensor.
- Submerge the end of sensor for 30 minutes in Commercial Scale Remover and wipe with clean cotton swab.
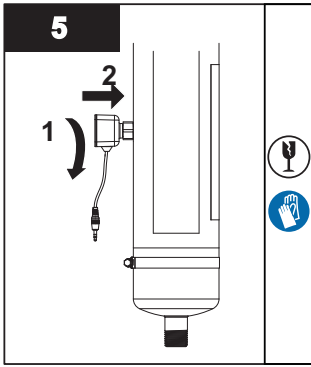
- Reinstall the UV sensor.
- When service is complete, assemble the prerequisites in the reverse order of disassembly.

Notes: *1) After replacing the UV lamp or quartz sleeve perform the disinfection procedure, refer to Section 3.2.*

2) If the system is put on a temporary by-pass or if it becomes contaminated after the disinfection system, it is necessary to complete the disinfection procedure, refer to Section 3.2.

Section 6   Troubleshooting

| Symptom	Possible Cause	Possible Solution
No power	GFCI and/or breaker tripped	Reset GFCI and/or breaker
	Transient voltage surge suppressor (TVSS) damaged	Replace TVSS
	Controller damaged	Replace controller and use a TVSS
GFCI or breaker repeatedly trips	Connection between lamp and lamp plug is wet	Clean and dry lamp pins and lamp plug, check unit for leaks or condensation
	Short-circuit in the electrical assembly	Replace controller
Leak at inlet or outlet	Threaded pipe fittings are leaking	Clean threads, reseal with Teflon tape and retighten
Leak detected from area of UV chamber	Condensation of moist air on cold chamber (slow accumulation)	Control humidity or relocate unit.
	O-ring damaged, deteriorated or incorrectly installed	Inspect and replace if deteriorated.
	Lamp/sleeve assembly not properly installed (too tight or not tight enough)	Tighten assembly hand-tight.
Leak detected at sensor (if so equipped)	UV sensor O-rings are damaged, deteriorated, or incorrectly installed	Inspect and replace O-rings if deteriorated
Alarm	Refer to Section 4.4.	Follow Fault Screen Instructions
System is operating but water tests reveal bacterial contamination	Equipment downstream of UV system is acting as a breeding ground for pathogens	Ensure UV is the last piece of treatment equipment
	Pathogens are residing in the distribution lines post-UV	Ensure all distribution lines have been disinfected with chlorine. Refer to Section 3.2.
	Recontamination from pipe dead-ends	Remove any pipe dead-ends and flush with chlorine. Refer to Section 3.2.

VIQUA

6.1 Low UV Alarms (+ models only) Certified and Non-certified

```
                    ( Low UV Alarm )
                           |
                           v
              [ Flush system* ] ------> < No audible alarm > ------> ( Problem is corrected )
                           |
                           v
              < Audible alarm >
                           |
                           v
          [ Clean sleeve & sensor** ] ----> < No audible alarm > ------> ( Problem is corrected )
                           |
                           v
              < Audible alarm >
                           |
                           v
              [ Check UVT*** ] --------> < UVT below recommended level > ------> [ Increase UVT using pretreatment ]
                           |
                           v
          < UVT above 75%  
            or  
            UVT between 50%-85%**** >  ----> [ Ensure lamp is less than 1 year old ] ----> [ If answer is no, replace lamp ]
                                                          |                                          |
                                                          v                                          v
                                              [ If answer is yes, replace sensor ]
```

*	In some cases, short-term flows of low ultraviolet transmittance (UVT) water can be created following and during the regeneration cycle of a water softener, resulting in a sensor alarm. Flushing the UV system alleviates this condition until the softener goes through another regeneration cycle. In the longer term, the softener's settings must be modified. To flush the UV system, disinfect the water lines. Refer to Section 3.2.
**	Refer to Section 5.2.
***	Contact VIQUA or your water treatment dealer for a test of the UVT of the water.
****	For 50%UVT systems if the water UVT is >85%, UV sensor failure alarm will occur. Reducing water UVT will clear this alarm.

Section 7   Specifications

Operating Parameters	General (All Models)	50+ Models	NSF Standard 55 Class B Models (-V)
Maximum operating pressure	125 PSI (862 kPa)	125 PSI (862 kPa)	125 PSI (862 kPa)
Minimum operating pressure	4 PSI (27.5 kPa)	4 PSI (27.5 kPa)	4 PSI (27.5 kPa)
Maximum ambient air temperature	122 °F (50 °C)	122 °F (50 °C)	122 °F (50 °C)
Minimum ambient air temperature	32 °F (0 °C)	32 °F (0 °C)	32 °F (0 °C)
Maximum humidity	100%	100%	100%
Maximum hardness	120 ppm (7 grains per gallon)	120 ppm (7 grains per gallon)	120 ppm (7 grains per gallon)
Maximum iron	0.3 ppm	0.3 ppm	0.3 ppm
UVT	Minimum 75%	50%-85%	Minimum 75%
Installation	Vertical or horizontal*	Vertical or horizontal*	Vertical or horizontal*
Flow Restrictor	-	-	Yes
NSF Certification	-	-	NSF Standard 55 Class B
Rated service life of lamp	1 year	1 year	1 year
UV System Certification	UL LISTED, CE	UL LISTED, CE	UL LISTED, CE, NSF

* Systems with sensors must be installed vertically.

	Model	D4 Premium/D4+ D4-V+	E4/E4+ E4-V/E4-V+	E4-50+	F4/F4+ F4-V/F4-V+	F4-50+
Flow Rate	Maximum rated flow at dose of 16 mJ/cm^2 @ 95% UVT	23 gpm (87 lpm) (5.22 m^3/hr)	42 gpm (160 lpm) (9.54 m^3/hr)	-	45 gpm (170 lpm) (10.22 m^3/hr)	-
	Maximum rated flow at dose of 30 mJ/cm^2 @ 95% UVT	12 gpm (45 lpm) (2.73 m^3/hr)	22 gpm (83 lpm) (5 m^3/hr)	-	36 gpm (136 lpm) (8.18 m^3/hr)	-
	Maximum rated flow at dose of 40 mJ/cm^2 @ 95% UVT	9 gpm (34 lpm) (2.04 m^3/hr)	16 gpm (60 lpm) (3.63 m^3/hr)	-	27 gpm (102 lpm) (6.13 m^3/hr)	-
	Rated flow for NSF Std 55, Class B (-V versions only)	8.9 gpm (33.7 lpm) (2.02 m^3/hr)	15.8 gpm (59.8 lpm) (3.6 m^3/hr)	-	26.1 gpm (98.8 lpm) (5.93 m^3/hr)	-
	Maximum rated flow at dose of 16 mJ/cm^2 @ 50% UVT	-	-	16 gpm (60 lpm) (3.63 m^3/hr)	-	28 gpm (106 lpm) (6.36 m^3/hr)
	Maximum rated flow at dose of 30 mJ/cm^2 @ 50% UVT	-	-	9 gpm (34 lpm) (2.04 m^3/hr)	-	15 gpm (57 lpm) (3.4 m^3/hr)
	Maximum rated flow at dose of 40 mJ/cm^2 @ 50% UVT	-	-	7 gpm (26 lpm) (1.6 m^3/hr)	-	12 gpm (45 lpm) (2.73 m^3/hr)
Electrical	Voltage	100-240V AC	100-240V AC	100-240V AC	100-240V AC	100-240V AC
	Frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
	Max. current	1.0 Amp	1.0 Amp	1.0 Amp	1.0 Amp	1.0 Amp
	Max. power consumption	50 Watts	83 Watts	83 Watts	130 Watts	130 Watts
	Lamp power	40 Watts	70 Watts	70 Watts	110 Watts	110 Watts
Other	UV Chamber Material	304 SST	304 SST	304 SST	304 SST	304 SST
	Inlet/Outlet	3/4" NPT	1" NPT	1" NPT	1" NPT	1" NPT

VIQUA

Section 8   Manufacturer's Warranty

Our Commitment

VIQUA is committed to ensuring your experience with our products and organization exceeds your expectations. We have manufactured your UV disinfection system to the highest quality standards and value you as our customer. Should you need any support, or have questions about your system, please contact our Technical Support team at 1.800.265.7246 or technicalsupport@viqua.com and we will be happy to assist you. We sincerely hope you enjoy the benefits of clean, safe drinking water after the installation of your VIQUA disinfection system.

How to Make a Warranty Claim

Note: To maximise the disinfection performance and reliability of your VIQUA product, the system must be properly sized, installed and maintained. Guidance on the necessary water quality parameters and maintenance requirements can be found in your Owner's Manual.

In the event that repair or replacement of parts covered by this warranty are required, the process will be handled by your dealer. If you are unsure whether an equipment problem or failure is covered by warranty, contact our Technical Support team at 1.800.265.7246 or e-mail technicalsupport@viqua.com. Our fully trained technicians will help you troubleshoot the problem and identify a solution. Please have available the model number (system type), the date of purchase, the name of the dealer from whom you purchased your VIQUA product ("the source dealer"), as well as a description of the problem you are experiencing. To establish proof of purchase when making a warranty claim, you will either need your original invoice, or have previously completed and returned your product registration card via mail or online.

Specific Warranty Coverage

Warranty coverage is specific to the VIQUA range of products. Warranty coverage is subject to the conditions and limitations outlined under "General Conditions and Limitations".

Ten-Year Limited Warranty for VIQUA UV Chamber

VIQUA warrants the UV chamber on the VIQUA product to be free from defects in material and workmanship for a period of ten (10) years from the date of purchase. During this time, VIQUA will repair or replace, at its option, any defective VIQUA UV chamber. Please return the defective part to your dealer who will process your claim.

Three-Year Limited Warranty for Electrical and Hardware Components

VIQUA warrants the electrical (controller) and hardware components to be free from defects in material and workmanship for a period of three (3) years from the date of purchase. During this time, VIQUA will repair or replace, at its option, any defective parts covered by the warranty. Please return the defective part to your dealer who will process your claim.

One-Year Limited Warranty for Lamps, Sleeves, and UV Sensors

VIQUA warrants lamps, sleeves, and UV sensors to be free from defects in material and workmanship for a period of one (1) year from the date of purchase. During this time, VIQUA will repair or replace, at its option, any defective parts covered by the warranty.Your dealer will process your claim and advise whether the defective item needs to be returned for failure analysis.

Note: Use only genuine VIQUA replacement lamps and sleeves in your system. Failure to do so may seriously compromise disinfection performance and affect warranty coverage.

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. The warranties also do not cover products that are not installed as outlined in the applicable Owner's Manual.

Parts repaired or replaced under these warranties will be covered under warranty up to the end of the warranty period applicable to the original part.

The above warranties do not include the cost of shipping and handling of returned items

The limited warranties described above are the only warranties applicable to the VIQUA range of products. These limited warranties outline the exclusive remedy for all claims based on a failure of or defect in any of these products, whether the claim is based on contract, tort (including negligence), strict liability or otherwise. These warranties are in lieu of all other warranties whether written, oral, implied or statutory. Without limitation, no warranty of merchantability or of fitness for a particular purpose shall apply to any of these products.

VIQUA does not assume any liability for personal injury or property damage caused by the use or misuse of any of the above products. VIQUA shall not in any event be liable for special, incidental, indirect or consequential damages. VIQUA'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 applicable warranty period.