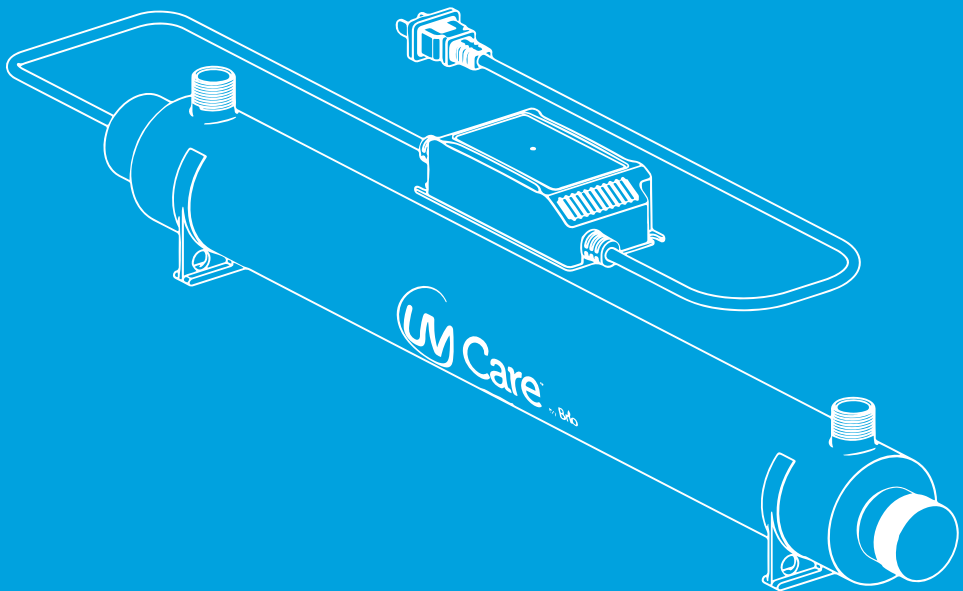




UV-C Water Disinfection System

User's Manual

**Models: UVS03, UVS05, UVS1, UVS2, UVS6, UVS8,
UVS9, UVS10, UVS12**

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Information

General Information

- The UV water purifier is intended for indoor use only. It should be protected from the elements and from temperatures below freezing. The ambient temperature in the area surrounding the water purifier should be 36°–104°F (2°–40°C).
- Electrical power supplied to the UV water purifier **MUST** match power requirements listed on water purifier. Use of a voltage surge protector is recommended.
- UV water purifier **MUST** be installed on a GFCI receptacle. If you do not have a GFCI receptacle, one must be installed by a qualified electrician, in accordance with all local codes and ordinances.
- The UV water purifier should be located in a dry, well-lit area which provides enough room to perform routine maintenance. This includes a minimum distance of one chamber length from the chamber end to allow for cleaning and/or changing of the lamp and/or quartz sleeve.
- The UV water purifier should always be located closest to the point of use to reduce the chance of the purified water being re-contaminated by bacteria.
- The UV water purifier should be located after all other water devices, such as de-ionizers, water softeners, carbon filters, pre filters, reverse osmosis, pressure tanks, and pumps. This reduces the chance of re-contamination by bacteria in any of these units.
- 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.
- Read and understand this manual before operating or performing any maintenance on this equipment.

Safety Information

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.
- DO NOT attempt to repair yourself. Contact an authorized service technician.
- DO NOT operate the 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 system for other than its 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 system where it will be exposed to the weather or to temperatures below freezing unless all water has been drained from it and the water supply has been disconnected.
- Never yank power cord. Always grasp by the plug and pull to disconnect.
- If the power cord is damaged, it must be replaced by the manufacturer or its service agent.
- Extension cords: Use only a 3-wire extension cord with a grounded plug. Use only extension cords that are intended for outdoor use and have an electrical rating not less than the rating of the system. Arrange the cord so that it will not be tripped over or pulled. DO NOT use a damaged extension cord. Keep extension cord away from heat and sharp edges. Always disconnect extension cord from power source before disconnecting from system.

WARNING: Failure to follow these instructions will result in serious injury.

- 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, even in small doses, causes 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.

CAUTION: Failure to follow these instructions could result in minor or moderate injury.

- Carefully examine the 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 using metal fittings of at least 10" of copper pipe on the outlet of your UV chamber.
- Hg exposure: The UV lamp contains mercury. If the lamp breaks, 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. ALWAYS follow local laws and regulations for the removal and disposal of mercury waste.

NOTICE:

- This system is intended to be permanently connected to a water line.
- This system is not intended for use in or above water or outdoors or used in swimming pools when people are in the pool.

Principle of Operation

The radiation has been carefully conceived to provide adequate UV dosage throughout the reactor chamber. The dosage is a function of time and intensity of ultraviolet radiation to which the water is exposed. Exposure time is related to the flow rate: the higher the flow rate, the lower the exposure time; the lower the flow rate, the higher the exposure. The operation of the UV filtration system is as follows:

- Water enters the purifier and flows into the space between the quartz sleeve and the chamber wall.
- The LED indicator light located on the ballast provides a visual indication of UV lamp operation.
- Water leaving the UV purifier is immediately ready for use. No further contact time is required.

Limitation of Use

The water purifier is intended for use with visually clear water. Do not use with water that is colored, cloudy, or turbid. The UV water purifier is NOT intended for the treatment of water that has obvious contamination or intentional source, such as raw sewage; nor is the UV water purifier intended to convert wastewater into safe drinking water.

Water Quality

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

Maximum Concentration Levels	
Turbidity	< 1 NTU
Total Suspended Solids	10 mg/L
Color	None
Iron	0.3 mg/L
Manganese	0.05 mg/L
pH	6.5 – 9.5
Hardness	6 gpg / 102.6 ppm
Tannins	< 0.1 ppm

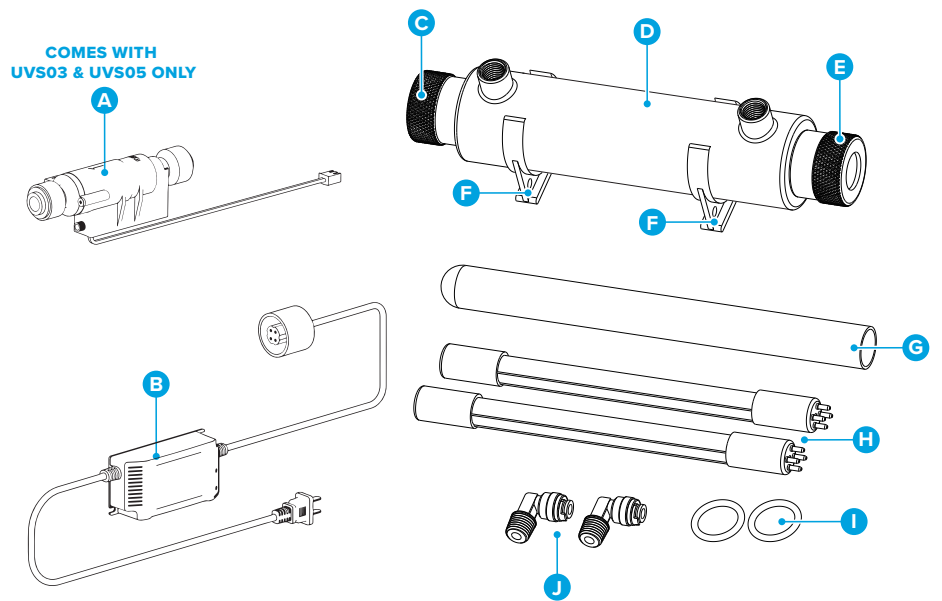
NOTE: Effectively treating water with higher concentration levels than those listed above can be accomplished but may require added measures to improve water quality to treatable levels.

Technical & Operational Specifications

Model	Dimensions (L x D)	Inlet/Outlet Port	Flow Rate (GPM)	Watts	Voltage	Current	Lamp Life (Hours)*	Max. Pressure (PSI)
UVS03	7.7 x 2 in.	1/4" FNPT	0.3	4 W	110V, 50/60Hz	0.17 A	8000	116.03
UVS05	10 x 2 in.	1/4" FNPT	0.5	6 W	110V, 50/60Hz	0.17 A	8000	116.03
UVS1	12.2 x 2 in.	1/4" FNPT	1	12 W	110V, 50/60Hz	0.425 A	8000	116.03
UVS2	14.6 x 2.5 in.	1/2" MNPT	2	16 W	110V, 50/60Hz	0.425 A	8000	116.03
UVS6	23.2 x 2.5 in.	1/2" MNPT	6	25 W	110V, 50/60Hz	0.425 A	8000	116.03
UVS8	35.8 x 2.5 in.	3/4" MNPT	8	30 W	110V, 50/60Hz	0.425 A	8000	116.03
UVS9	37.4 x 2.5 in.	3/4" MNPT	9	35 W	110V, 50/60Hz	0.425 A	8000	116.03
UVS10	34.8 x 2.5 in.	3/4" MNPT	10	40 W	110V, 50/60Hz	0.425 A	8000	116.03
UVS12	37.4 x 2.5 in.	3/4" MNPT	12	55 W	110V, 50/60Hz	0.425 A	8000	116.03

*To ensure continuous water protection, replace the UV lamp annually.

Product Components



Item	Description
A	Flow Sensor (UVS03 & UVS05 Models Only)
B	UVC Ballast with Cover Cap and 4-Pin Socket
C	Closed-End Nut
D	Reactor Chamber
E	Open-End Nut

Item	Description
F	Mounting Clamp x2
G	Quartz Sleeve
H	UV Lamp x2
I	O-ring x2
J	1/4" Quick Connect x2 (UVS03, UVS05 & UVS1 Models Only)

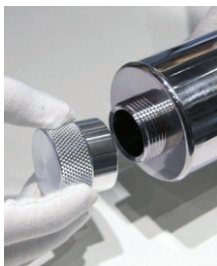
Installation

CAUTION: The UV water purifier should be located in an area where any possible condensation or leakage from the system will not result in damage to the area. For added protection, install a drain pan under the purifier. The drain pan must be plumbed to an adequate, free flowing drain to prevent water damage in the event of a leak.

Ensure quartz tube and UV lamp are clean before installation. If necessary, clean with alcohol or mild detergent. When handling quartz sleeve and UV lamp, wear soft non-abrasive gloves to prevent fingerprints.

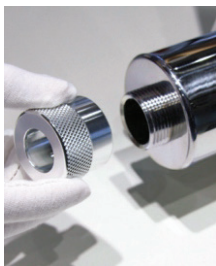
Unit Assembly

1



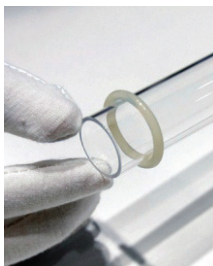
Remove closed-end nut (C) from reactor chamber (D).

2



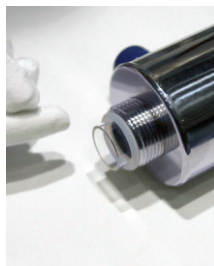
Remove open-end nut (E) from reactor chamber (D).

3



Slide one O-ring (I) onto open end of quartz sleeve (G), positioning it approximately 0.5 in. (1.2 cm) from edge.

4



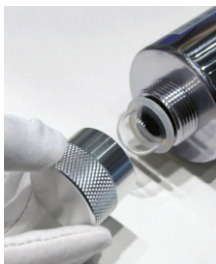
Insert quartz sleeve into open-end of reactor chamber as pictured, ensuring O-ring is properly seated. Reinstall open-end nut onto open end of reactor chamber. Do not overtighten.

5



Install second O-ring onto closed end of quartz sleeve that is protruding from reactor chamber. Ensure O-ring is properly seated.

6



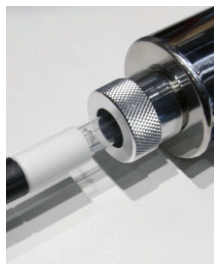
Hand-tighten closed-end nut onto closed end of quartz sleeve and reactor chamber to secure O-ring. Do not overtighten.

7



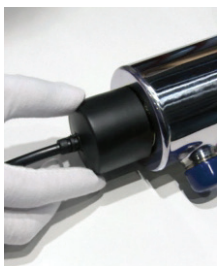
Connect lamp socket of the lamp ballast cap to the 4-pin end of the UV lamp as shown.

8



Carefully insert the UV lamp into the open-end nut of reactor chamber, guiding it into the quartz sleeve.

9

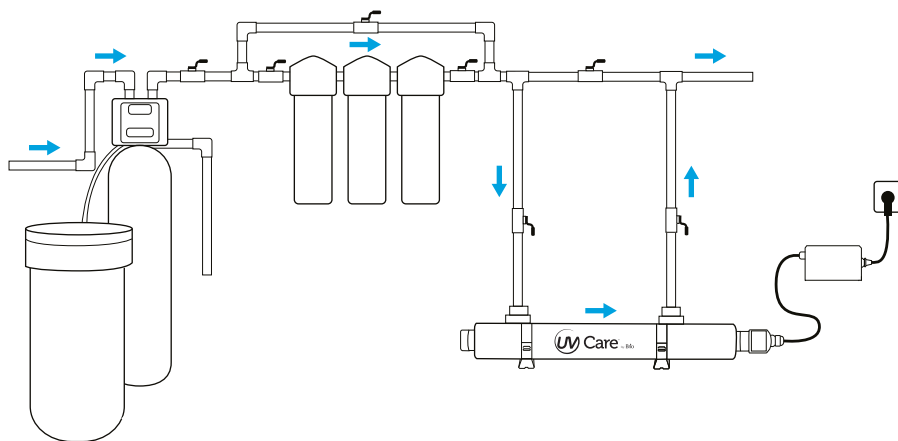


Secure cover cap onto the open-end nut as shown.

Install system in desired location, and after all other water devices, such as water softeners, carbon and sediment filters, reverse osmosis membrane, pressure tanks, etc. System can be installed horizontally or vertically. When all plumbing connections are complete, slowly turn on water supply and check for leaks. Allow water to run for a few minutes to purge any air or dust that may be in reactor chamber. Connect UV lamp to power. System is ready to use.

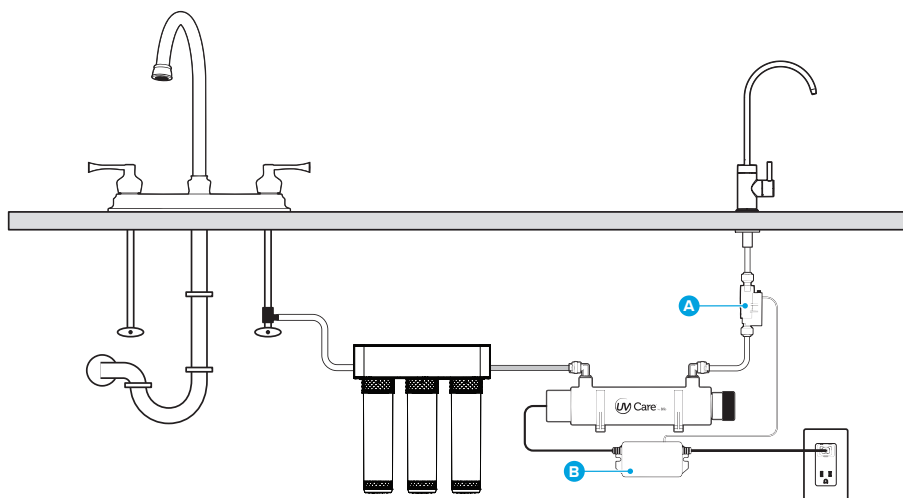
Installation Overview

NOTE: This overview is for illustrative purposes only. Depending on your filtration system, installation setup may differ.



Flow Sensor

Models UVS03 and UVS05 include a flow sensor (A), which switches the UV lamp on and off based on water flow. The flow sensor should be installed after the UV lamp but before the faucet. Once the flow sensor is installed, connect the flow sensor's dual wire to the socket on the UVC ballast (B).



Replacement Parts

Use only the replacement parts recommended in the table below. Any other type of replacement parts may damage UV system and void warranty.

System	UVS03	UVS05	UVS1	UVS2	UVS6	UVS8	UVS9	UVS10	UVS12
Replacement lamp	UVL03	UVL05	UVL1	UVL2	UVL6	UVL8	UVL9	UVL10	UVL12
Replacement ballast	UVB6	UVB6	UVB55	UVB55	UVB55	UVB55	UVB55	UVB55	UVB55
Replacement quartz sleeve	UVQ073	UVQ096	UVQ118	UVQ142	UVQ228	UVQ354	UVQ370	UVQ344	UVQ370

Troubleshooting

Symptom	Possible Causes	Solutions
High Bacteria Count	Stained or dirty quartz sleeve	Clean the quartz sleeve with alcohol or a mild detergent. Eliminate the source of the staining.
	Change in feedwater quality	Have feedwater tested to ensure it is still within allowable limits for UV system.
	Contamination in water after UV system	Purification system must have bacteria-free distribution to work effectively. Effluent water must be shocked with chlorine bleach before water leaves UV system.
Heated Water Production	Infrequent use of water	Run water until it returns to ambient temperature.
Water Appears Milky	Air in the water lines	Run water until air is purged.
Unit Leaking Water	Problem with O-ring seal	Ensure O-ring is fixed in place. If necessary, clean and reinstall, or replace.
	Condensation on reactor caused by excessive humidity and cold water	Check location of UV system and take steps to control humidity.
	Inadequate inlet/outlet port connections	Reseal threaded connections with plumber's tape, then retighten.
System Shutting Down Intermittently	Interrupted power supply	System must be installed on its own circuit. It should not be installed on a circuit incorporated with a light switch.
Lamp Failure Alarm on New Lamp	Loose connection between lamp base and socket	Disconnect lamp from socket, then reconnect, ensuring tight fit.
	Moisture buildup in connector is impacting lamp/socket connection	Eliminate source of moisture that's getting into socket/lamp pins.

Warranty

Brio ("Vendor") warrants to the original purchaser of the UV-C Water Disinfection System (the "Product"), and to no other person, that if the Product is assembled and operated in accordance with the printed instructions accompanying it, then for a period of one (1) year from the date of purchase, all parts in the Product shall be free from defects in material and workmanship. This Limited Warranty shall be limited to repair or replacement of parts, which prove defective under normal use and service and which Vendor shall determine in its reasonable discretion upon examination to be defective. To take advantage of this Limited Warranty, please follow these steps:

1. Please retain your sales slip or invoice, as Vendor may require reasonable proof of your date of purchase.
2. Contact Vendor's Customer Service Department using the contact information listed below.
3. Return parts to Vendor, per Vendor's instructions, at your cost and expense.
4. Upon receipt by Vendor, Vendor shall advise you in writing whether a defect covered by this Limited Warranty exists in any returned part and whether your claim has been approved or denied.
5. Upon Vendor's approval of your claim, Vendor will replace such defective part without charge to you.

WHAT THIS LIMITED WARRANTY DOES NOT COVER: This Limited Warranty does not cover any failures or operating difficulties of the Product due to accident, abuse, misuse, alteration, misapplication, improper installation or improper maintenance or service by you or any third party, or failure to perform normal and routine maintenance on the Product, as set out in the User's Manual. In addition, this Limited Warranty does not cover damages to the finish, such as scratches, dents, discoloration or rust after purchase.

This Limited Warranty is the only express warranty given on the Product and is in lieu of all other express warranties. Vendor disclaims all warranties for products that are purchased from seller other than authorized retailers or distributors. THIS LIMITED WARRANTY RESTRICTS THE DURATION OF ANY AND ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE TO THE ONE (1) YEAR TERM OF THIS LIMITED WARRANTY. UPON THE EXPIRATION OF THE ONE (1) YEAR TERM OF THIS LIMITED WARRANTY, VENDOR DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, THE PRODUCT BEING THUS SOLD AS-IS, WITH ALL FAULTS. FURTHER, VENDOR SHALL HAVE NO LIABILITY WHATSOEVER TO PURCHASER OR ANY THIRD PARTY FOR ANY SPECIAL, INDIRECT, PUNITIVE, INCIDENTAL, OR CONSEQUENTIAL DAMAGES. OTHER THAN THIS LIMITED WARRANTY, THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. Vendor assumes no responsibility for any defects caused by third parties. This Limited Warranty gives you specific legal rights, and you may have other rights which vary from state to state. State law may also override statements in this Limited Warranty regarding the restriction on the duration of implied warranties. Some jurisdictions do not allow exclusion or limitation of special, incidental or consequential damages, or limitations on how long a warranty lasts, so the above exclusion and limitations may not apply to you.



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