PELICAN WATER FILTER AND WATER SOFTENER ALTERNATIVE COMBO SYSTEM

PSE1800-P | PSE2000-P



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IMPORTANT INFORMATION

- Read these instructions carefully and determine the location of all system components before beginning installation.
- Check all applicable plumbing, building, and electrical codes for installation compliance.
- Install the system on the main water supply.
- The use of plumbers tape and/or pipe thread seal paste will be needed on all threaded connections.
- To condition all water in the home, install the system close to the water supply inlet, and upstream of all other plumbing connections, except outside water pipes. Outside faucets should remain on hard water to avoid wasting conditioned water.

⚠ WARNING

If this or any other system is installed in a metal (conductive) plumbing system, i.e. copper or galvanized metal, the plastic components of the system will interrupt the continuity of the plumbing system. As a result any errant electricity from improperly grounded appliances downstream or potential galvanic activity in the plumbing system can no longer ground through contiguous metal plumbing. Some homes may have been built in accordance with building codes, which actually encouraged the grounding of electrical appliances through the plumbing system. Consequently, the installation of a bypass consisting of the same material as the existing plumbing, or a grounded "jumper wire" bridging the equipment and re-establishing the contiguous conductive nature of the plumbing system, must be installed prior to your systems use.

⚠ CAUTION

When adding a filtration/softening system to homes/buildings supplied by well water, the system should be installed following the pressure tank. **DO NOT USE this system for pneumatic or hydropneumatic applications. If you are using a booster pump, then install this system following the booster pump.** If you have questions, please call customer service.

WATER CONDITIONS FOR OPERATION

- The water should be free of hydrogen sulfide, a dissolved gas with a characteristic smell of rotten eggs. If present, it can coat the catalytic surface of the media and interfere with the process. The gas should be removed through adequate pre-treatment.
- The water should be free of hydrocarbons, oils, and lubricants. If present, they can coat the catalytic surface of the media and interfere with the process. Remove through adequate pre-treatment.
- The water should contain less than 1 mg/l of phosphates. Phosphates sequester dissolved hardness molecules preventing them from forming crystals and may coat the catalytic media surface and interfere with the process.
- The copper level in the water supply should be below the MCL of 1.3mg/L. If copper is present above this level, it can attach to the surface of the catalytic media and interfere with the process.
- The water should be free of Iron and Manganese. If present, they can coat the catalytic surface of the media and interfere with the process. Remove through adequate pre-treatment.

Customer Service Contact Information Section

Homeowners Phone: 877.842.1635 **Professionals** Phone: 877.842.1635

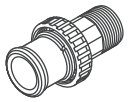
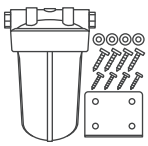
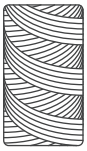
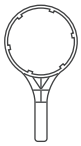
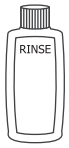
PRODUCT OPERATION AND SPECIFICATIONS

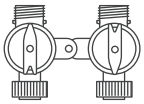
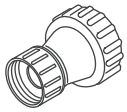
Specification Description	PSE1800-P	PSE2000-P
Rated Service Flow Rate	8 GPM	12 GPM
Peak Flow Rate	12 GPM	16 GPM
Minimum/Maximum Working Pressure	25-80 PSI	
Maximum Vacuum	5 inch/127 mm Hg	
Operating Temperatures	36°F – 120°F	
pH Range	7 - 11	

The WATER SOFTENER ALTERNATIVE WITH NATURSOFT® SALT-FREE TECHNOLOGY will be effective on water supplies with a maximum hardness of 75 Grains per Gallon (GPG) or 1,282 ppm. For best results, all iron/manganese, sulfur and Tannin should be removed prior to this system's installation.

COMPLETE PARTS LIST

Note: The parts supplied are intended to accommodate a variety of water supply lines. Additional fittings may be needed to fit to your plumbing. Visit pentair.com to view our full line of installation kits.

Part	Description	Qty.
	1" Plastic Male NPT Assembly: V3007-04 WS1 Fitting 1" Plastic Male NPT Assembly (2), O-Rings (2), Split Rings (2), and Connectors (2)	2
	Sediment Filter System: Blue Filter Housing, Mounting Bracket, Phillips Head Screws (4), Bolt Head Screws (4), and Washers (4)	1
	Sediment Filter: 5-Micron Polyspun Sediment Filter	1
	Sediment Filter Spanner Wrench	1
	Non-Abrasive Auto Wax	1
	Rinse-Aid	1

Part	Description	Qty.
	Bypass Valve: In/Out Bypass Valve with Red Arrow Handles	2
	Hose Bib Assembly	1
	Pentair Whole House Water Filter: Model - PC600 or PC1000	1
	Pentair NaturSoft® Water Softener Alternative Model - NS3 or NS6	1

Note: Drawings are not to scale.
Additional fittings will be needed to adapt to your plumbing.

INSTALLATION OVERVIEW

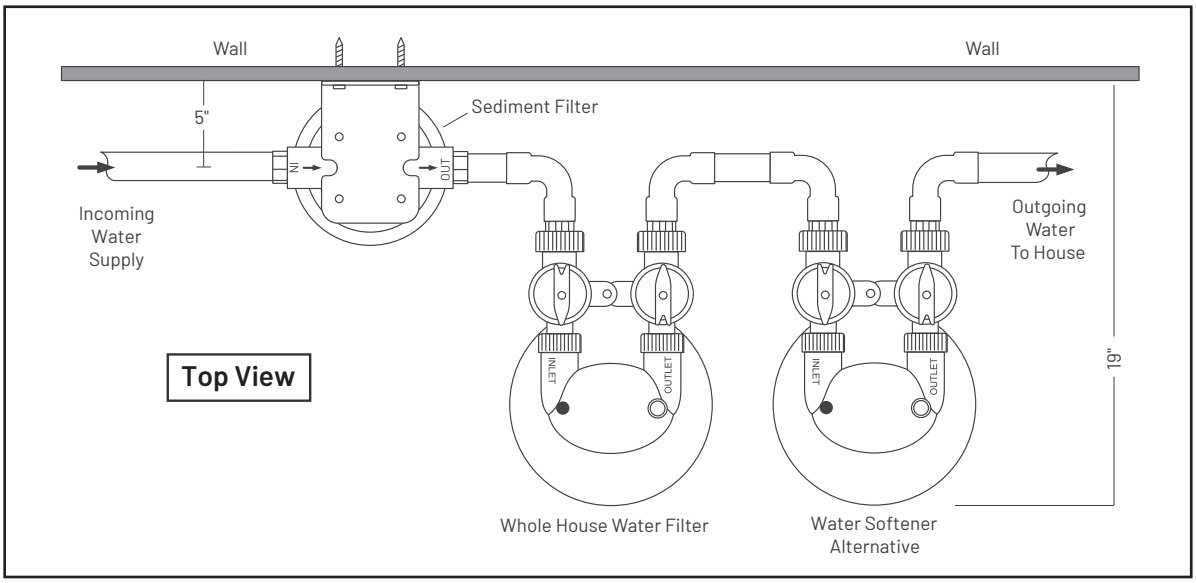


Figure 1A

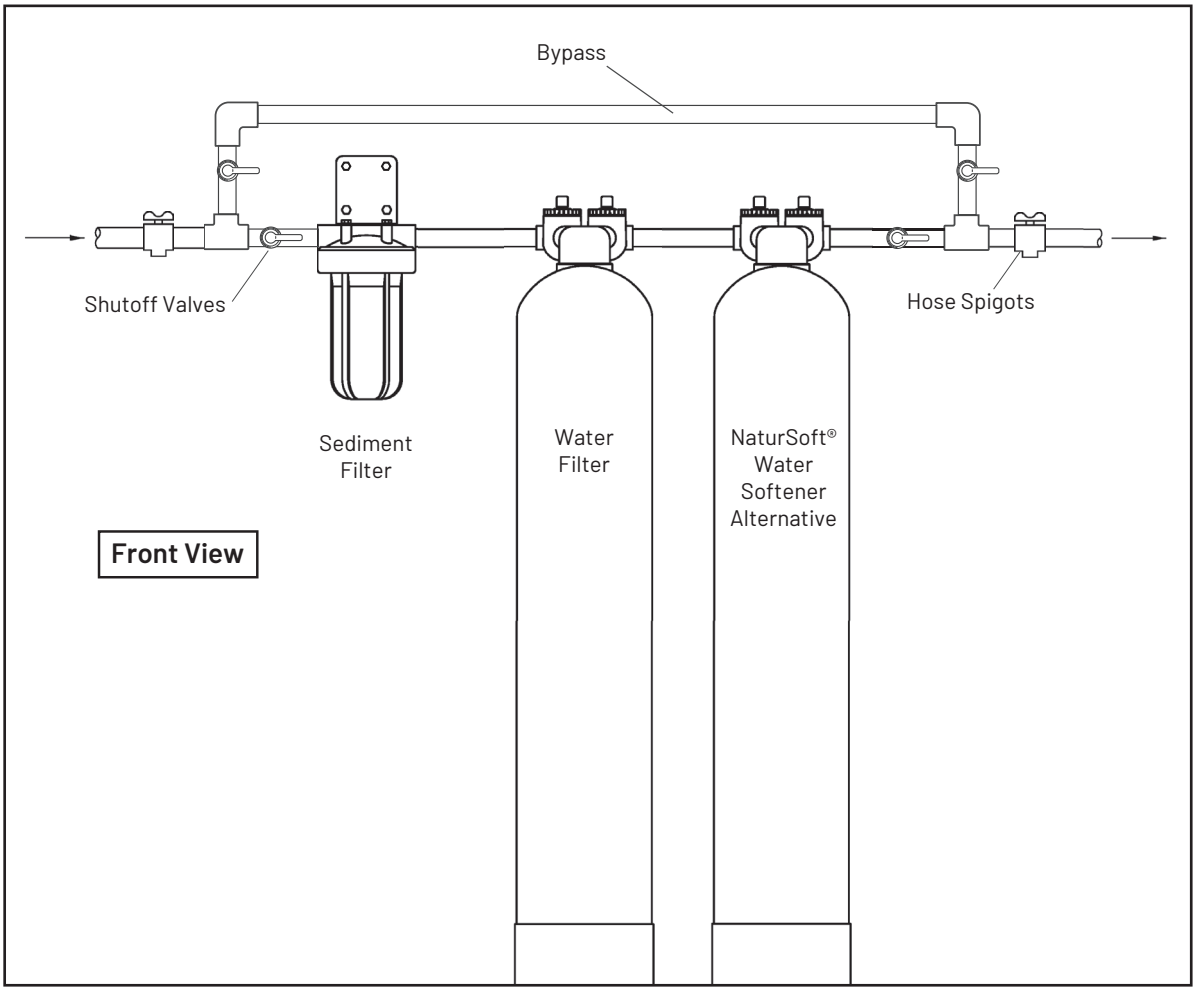


Figure 1B

Note: Sediment filter position is at the discretion of your professional installer. As a general guideline, the sediment prefilter is typically installed in the "pre" position (as shown above) for well water applications. For city water applications, the sediment filter is typically installed in the "post" position after the Water Softener Alternative tank.

PRE-INSTALLATION

Notice: Head may come loose in transit. Please check head by tightening clock wise, hand tighten only, no more than ¼ turn. Head may not move at all or less than ¼ turn.

Bypass Valve Installation

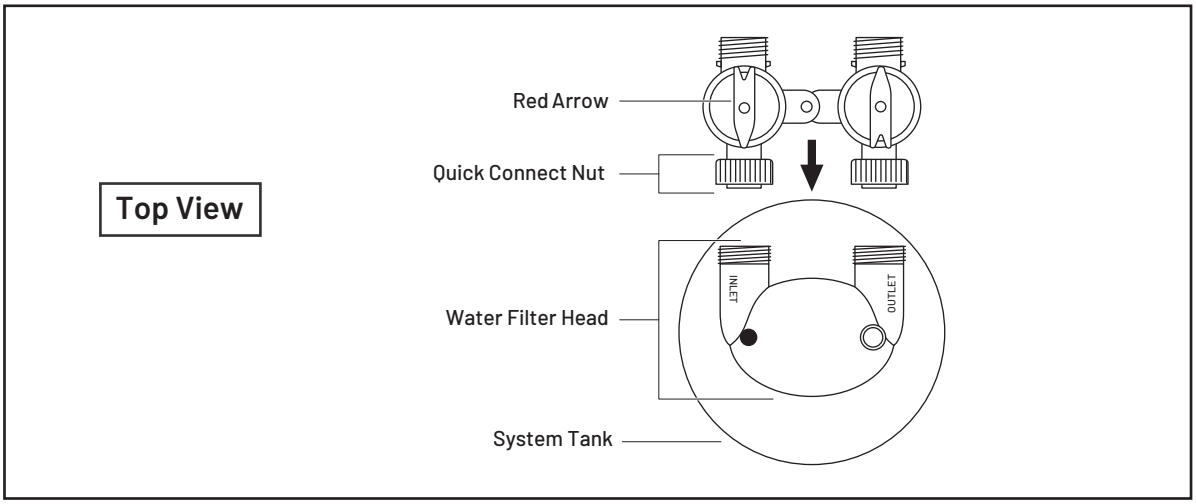


Figure 2
The bypass valve comes pre-assembled and ready to install with the o-rings, split rings, and quick connect nuts. Push the bypass valve into the head of the NaturSoft® Water Softener Alternative with the unthreaded ends oriented toward the tanks and hand-tighten the quick connect nuts.

Notice

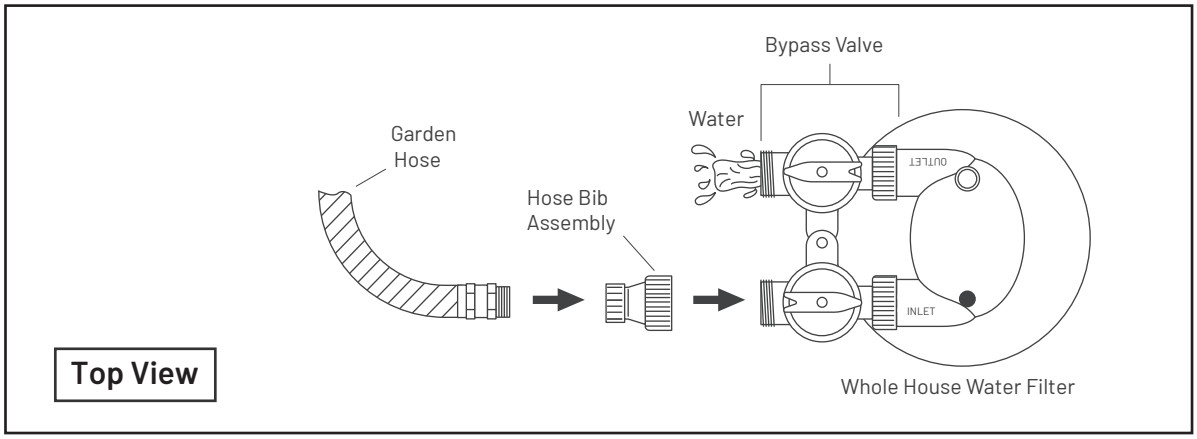
The bypass valve(s) included with this system are designed for multiple water systems. This may result in the arrows on the bypass valve(s) pointing differently than shown. If the arrows on your bypass valve(s) do not match the diagram, remove the red arrows by pulling them straight up, turn them 180° to match the drawing, and push them back down onto the stem.

MEDIA SOAK

Note: Your system will not be ready for use for a minimum of 48 hours while the Carbon Soak process takes place. Please plan your installation accordingly.

Notice

Water will flow out of the outlet side of the Bypass Valve during this process. Be sure you perform this series of steps in a location suitable for water flow.



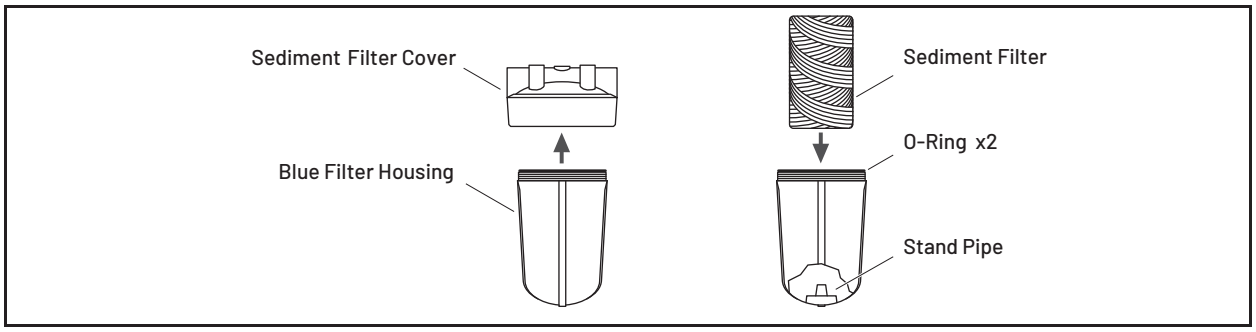
Water Filter - Carbon Soak

Note: Steps 1-6 should be done prior to installation

1. Attach a garden hose to the Hose Bib Assembly.
2. Connect the Hose Bib Assembly to the inlet side of the Bypass Valve and hand tighten.
3. Fill the Pentair Carbon Water Filter slowly until water comes out of the outlet side of the Bypass Valve.
4. Turn the water off.
5. Remove the garden hose from the Hose Bib Assembly. Do not remove the fitting.
6. Allow the carbon tank to soak for a minimum of 48 hours prior to installation.

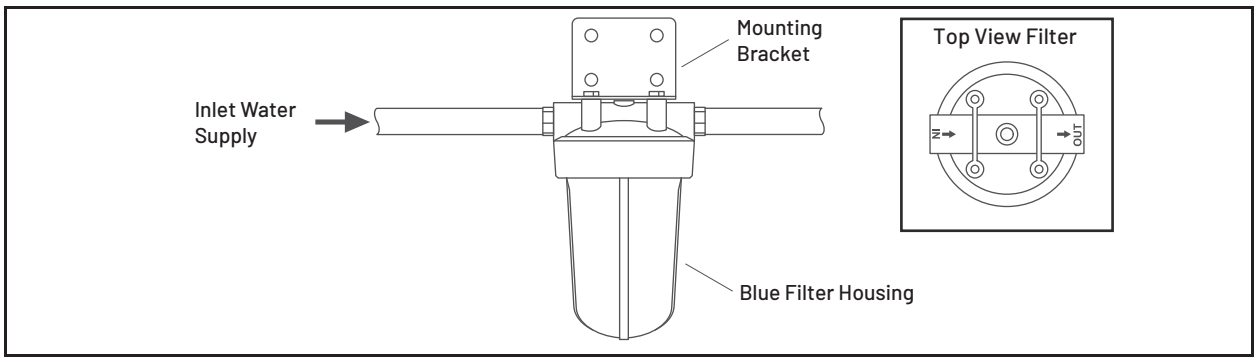
SEDIMENT FILTER INSTALLATION

Note: Sediment filter position is at the discretion of your professional installer. As a general guideline, the sediment pre filter is typically installed in the "pre" position (as shown above) for well-water applications. For city water applications, the sediment filter is typically installed in the "post" position after the Water Softener Alternative tank.



Part 1

1. Unscrew the cover from the blue filter housing.
2. Remove the plastic covering from the sediment filter.
3. Place the sediment filter onto the stand pipe in the blue filter housing and set aside.



Part 2

1. Shut off the water.
2. Attach the filter cover to the mounting bracket using the supplied bolt head screws and washers. Make sure to properly orientate the IN and OUT to match your flow pattern.
3. Attach the mounting bracket to the wall using the supplied phillips head screws.
4. Hand tighten the blue filter housing and then, using the supplied filter wrench, lightly snug the housing making sure not to over-tighten (counterclockwise).
5. Determine the size of your inlet water supply line.

Notice

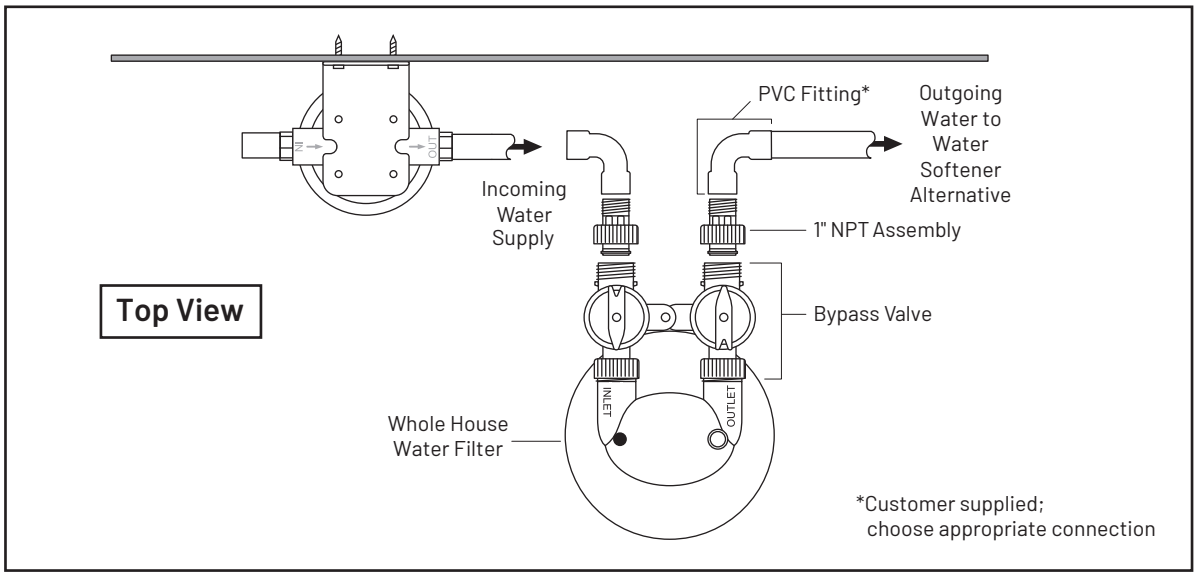
The Pre-Filter Housing comes with a 1½" threaded female inlet/outlet and will require additional fittings to adapt to your plumbing. It is recommended that a shut-off valve and a bypass be plumbed in around the system before installing the Pre-Filter system.

INSTALLATION

Notice

If the tank is not level, lift the tank straight up six (6) inches and tap it on the ground until the tank stands vertical. The bottom of the tank is round and the boot allows the tank to stand upright.

Carbon Water Filter Tank Installation



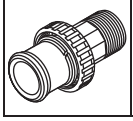
1. Level the Pentair Carbon Water Filter.
2. Determine the size and material of your incoming water supply line from the Sediment Filter System and choose the appropriate plumbing required to adapt to the 1" Male NPT Assembly.

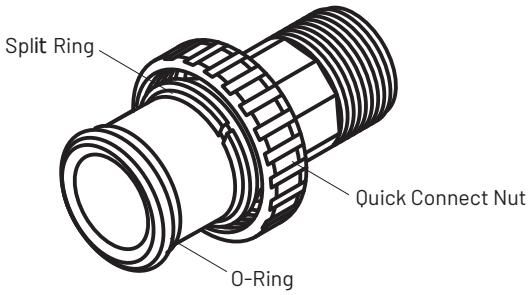
Note: Visit pentair.com/homewater to view our full line of installation kits.

Caution

Do not over-tighten any of the fittings during installation.

Note: The fitting below is designed with a ¼" give to allow for proper pipe alignment. It will not leak and is intended to have some flexibility.

Part	Description	Qty.
	**1" Plastic Male NPT Assembly:** V3007-04 WS1 Fitting 1" Plastic Male NPT Assembly (2): O-Rings (2), Split Rings (2), and Connectors (2)	1 bag



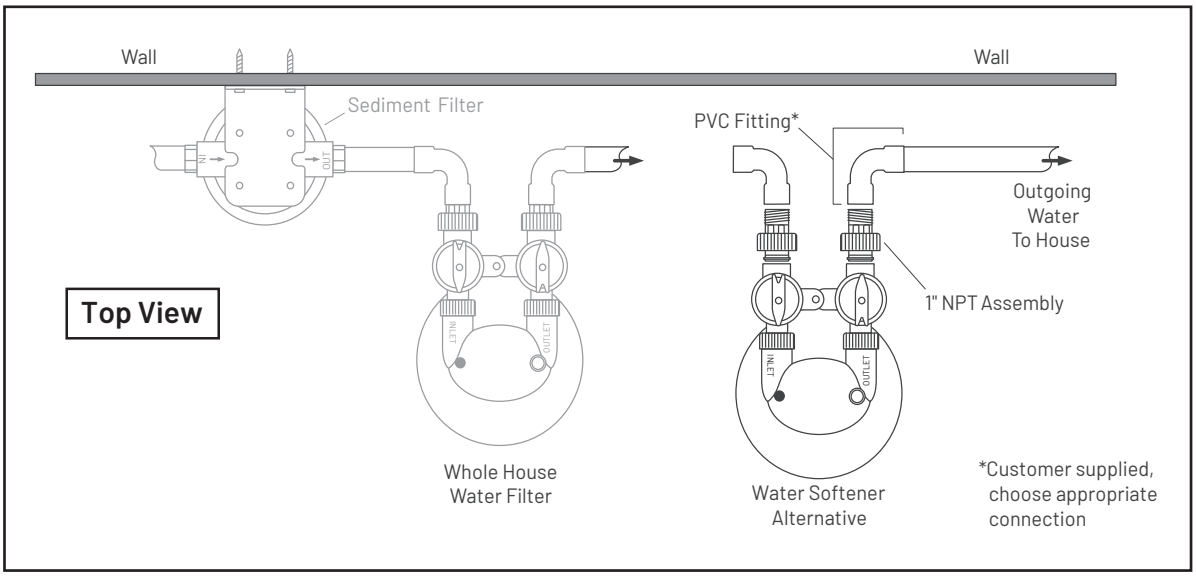
3. Install the fitting onto the inlet and outlet sides of the Bypass Valve. Follow the diagram supplied with the fitting.
4. Connect the incoming water supply from the Sediment Filter system to the fitting on the inlet side of the Bypass Valve.
5. Connect the outgoing water supply to the outlet side of the Bypass Valve.

INSTALLATION

Notice

If the tank is not level, lift the tank straight up six (6) inches and tap it on the ground until the tank stands vertically. The bottom of the tank is round and the boot allows the tank to stand upright.

Water Softener Alternative Tank Installation



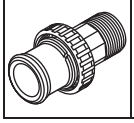
1. Level the Pentair Carbon Water Softener Alternative.
2. Determine the size and material of your incoming water supply line from the Whole House Water Filter and choose the appropriate fittings required to connect it to the Bypass Valve.

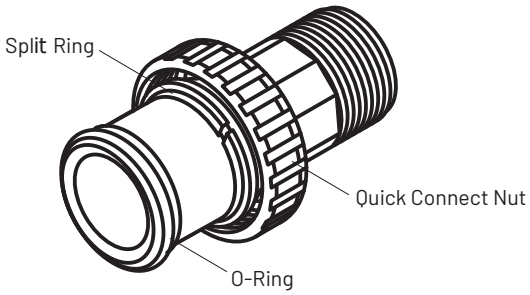
Note: Visit pentair.com/homewater to view our full line of installation kits.

Caution

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Part	Description	Qty.
	**1" Plastic Male NPT Assembly:** V3007-04 WS1 Fitting 1" Plastic Male NPT Assembly (2): O-Rings (2), Split Rings (2), and Connectors (2)	1 bag



3. Install the fitting onto the inlet and outlet sides of the Bypass Valve. Follow the diagram supplied with the fitting.
4. Connect the incoming water supply from the Carbon Water Filter system to the fitting on the inlet side of the Bypass Valve.
5. Connect the outgoing water supply to the outlet side of the Bypass Valve.

BYPASS VALVE OPERATIONS

Figure A shows the system "in service" which allows water to flow in and out of the tank. In this position the system would be considered ON.

In Service

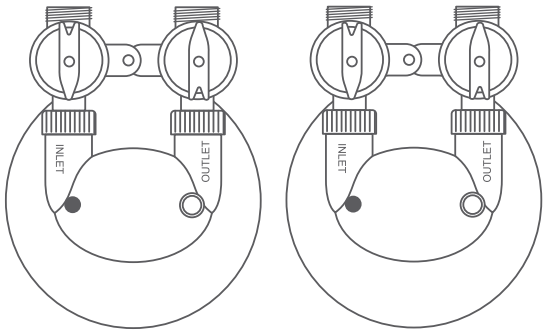


Figure A

Figure B shows the system "in bypass" which will direct water straight to the home without going in and out of the tank. In this position the system would be considered OFF.

In Bypass

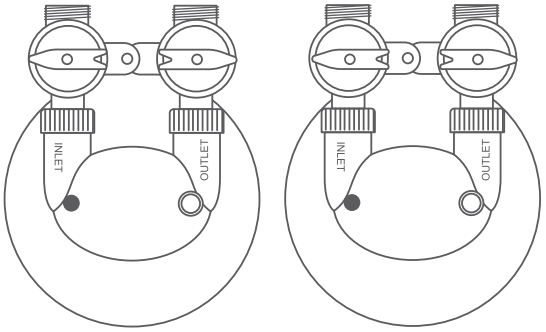
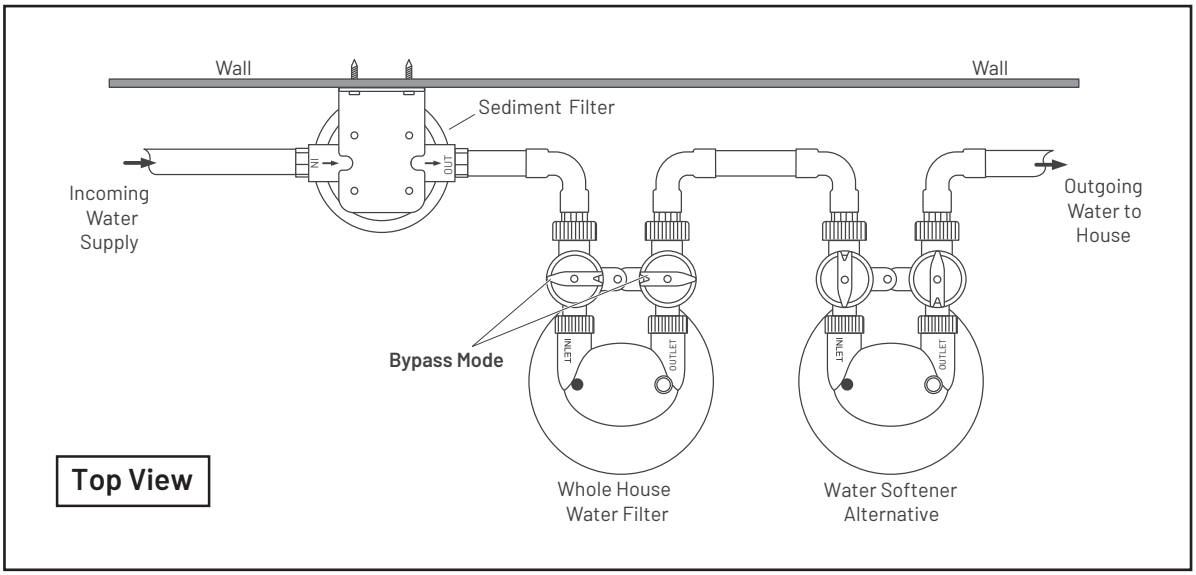


Figure B

NATURSOFT® - MEDIA SOAK



Caution

NaturSoft® - Media Soak:

The Pentair Carbon Water Filter MUST be in the bypass position during this process (see Figure 9).

1. Open a cold water faucet or test spigot close to the downstream of the Water Softener.
2. Turn the water back on at the main shut-off valve allowing the system to fill with water. The air being displaced will escape through the open fixture downstream.
3. Turn the arrows on the Bypass Valve of the NaturSoft® Tank into the Bypass Mode position to bypass the tank. This will allow you to isolate the system and restore water supply to the home/ building during the NaturSoft® media soak.
4. Allow the tank to soak for at least 60 minutes.

Caution

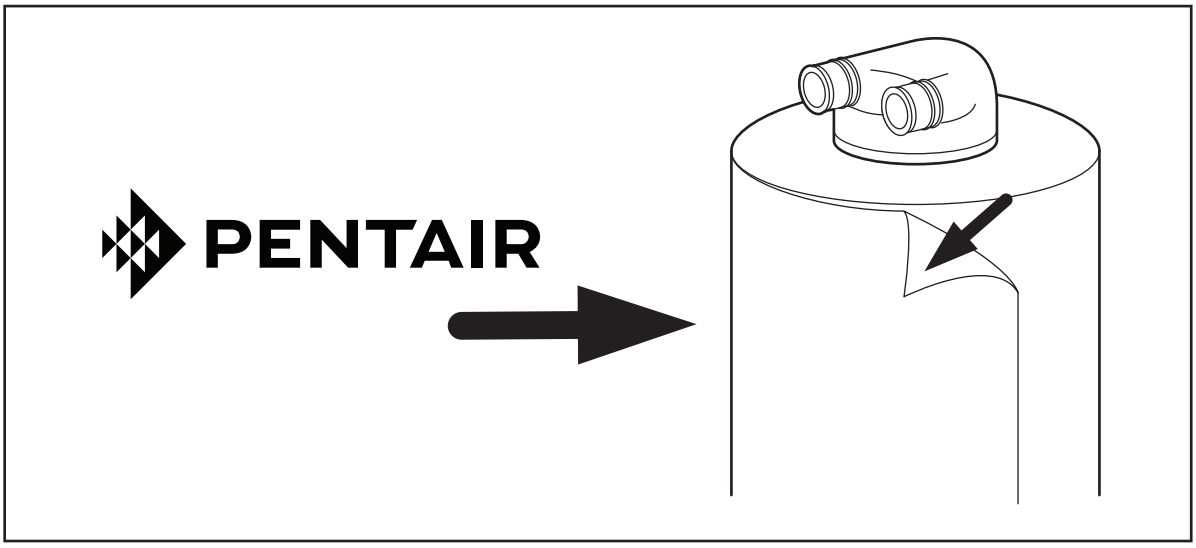
NaturSoft® - Media Flush:

The Pentair Carbon Water Filter MUST be in the bypass position during this process (see Figure 9).

1. After the tank has soaked for 60 minutes, turn the main water supply back on or turn the arrows on the Bypass Valve back into their original position.
2. Flush the system by running water for 5 minutes at a high flow rate of 5 GPM (this can be achieved by using a bath tub or more than three (3) faucets).

   Note: The flush water may have a milky look to it. This is normal as calcium carbonate fines are flushed from the system.
3. Rinse the system by reducing the flow rate to ½ GPM and run water for 60 minutes (this can be achieved by turning one faucet ¼ of the way on).
4. Turn the Whole House Water Filter Bypass Valve to the on position (out of Bypass Mode).

COMPLETE THE INSTALLATION



1. Turn on the water and check for leaks.
2. Peel off the protective plastic wrap from the stainless steel tank jacket(s).
3. Add the Pentair logo sticker(s) in the desired location on the tank.
4. Wax stainless steel tank jacket(s) with wax provided (or any other non-abrasive auto wax) a minimum of 1-2 times per year or as needed based on the installed environment.

Caution

Avoid high flow rates such as bathtub, utility sinks, hose bibs, multi-headed showers, body sprayers, or anything that is considered high flow for the first 72 hours to avoid flow restrictions caused by carbon blockage of the top basket inside the carbon tank.

Carbon dust may be released into the water lines of the house/building during the first few days of water use after carbon tank installation. The carbon dust is harmless, but may give the water a gray appearance that should diminish within a week or 10 days depending on water use.

Clean your Hot Water Heater

Cleaning and restoring the plumbing system is a major benefit of the NaturSoft® system. In order to minimize the time required to complete the descaling process, we strongly recommend cleaning your hot water heater three (3) weeks after installation of your water softener alternative system.

- Turn off the heat source, attach a hose to the drain valve at the bottom of the tank and flush the heater by opening the drain valve. After the water heater is completely filled with water, turn the heat source back on.

WHAT TO EXPECT WITH YOUR NEW WATER SOFTENER ALTERNATIVE SYSTEM

If you have never had a water softener:
You will experience naturally soft water immediately after the installation. Most detergents will work better with treated water and you will be able to reduce the amount you use. However, there are mineral deposits and hard water scale coating the inside of your pipes and fixtures. Over the first few weeks, this hard water scale will dissolve, detach itself from the pipes, and come out of your faucets. This descaling process is temporary and will steadily diminish. During these first weeks, you will notice:

- **Reduced softness of the water.** This will be particularly evident when using hot water. The water can pick up more than ten grains of mineral content per gallon between the water softener alternative system and the faucet as it travels through the water heater and the plumbing.

- **Mineral silt in the water.** Since the existing limestone scale is softened and dissolved as part of the water softener alternative effect, it will detach in small chunks ranging in size from very fine silt to pieces larger than a grain of sand. The larger pieces may be big enough to build up in the aerator screens of your fixtures. Considerable silt-like accumulations may be visible on shower heads, so clean them weekly for the first four (4) weeks. Higher flow rates will shear off more of the existing hard water scale than will lower flow rates. Descaling activity will be most obvious in bathtubs which have high flow and hot water. You may see milky water with sand-like grit, and possibly sediment or iron in the bath tub.

- **The water line supplying fixtures which experience the most use will be cleaned the quickest and will be the first to return to providing you the full benefits you experienced immediately following installation; rarely used fixtures will take longer.**

If you had a traditional water softener:
A traditional water softener turns dissolved mineral hardness (calcium bicarbonate) into dissolved sodium bicarbonate. The water softener alternative technology maintains the healthy mineral content of the water without adding the bicarbonate. You will notice:

- **In a traditional water softener,** the absence of the calcium and the presence of sodium bicarbonate makes the water feel slick and slimy. If you miss the slick feeling, add some baking soda (sodium bicarbonate) to your bath water.

- **The water spots are more visible.** A water softener replaces calcium with sodium. The water spotting that a traditional water softener leaves behind is a salt haze that wipes off very easily and is far less noticeable than spots caused by minerals. The water softener alternative treatment results in reduced spotting compared to untreated water, but more visible spots than produced by traditional, chemically-treated softened water. The water softener alternative mineral spots are much easier to clean than spots from untreated water.

- **Soap curd forms with certain products.** Oil-based soaps will react with calcium minerals to form a sticky film. Detergent-based cleaners like shampoos, shower gels, dish soaps, and laundry detergents will react very slightly or not at all. Most detergents will work better with treated water, but you will notice very little improvement when using regular bar soap or oil-based products since the minerals are largely still able to react with the fats in the soap to form the curd.

- **There is some mineral silt in the bathtub.** Depending on the water chemistry of your water supply, you may still have some hard water scale deposits in your plumbing system.

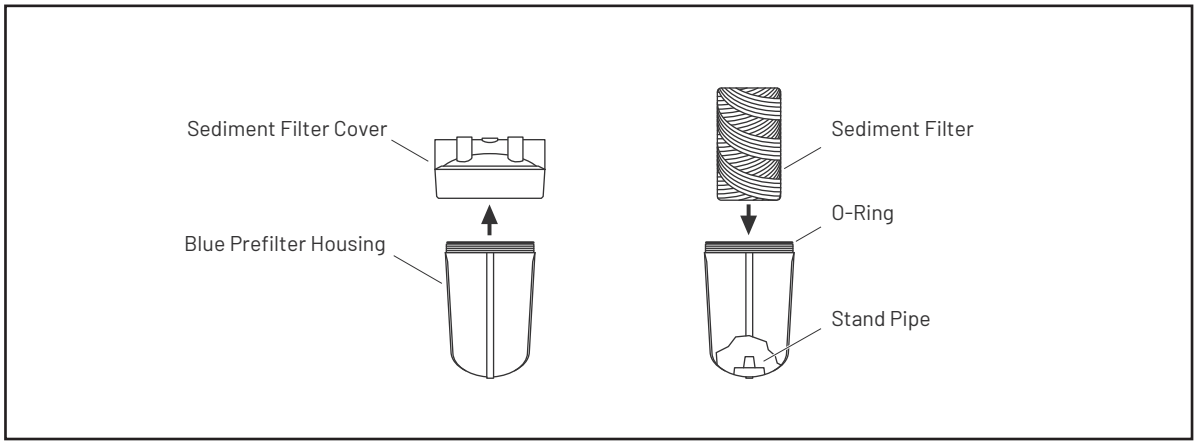
If you have a dishwasher:
Generally, the water softener alternative system removes mineral hardness from solution and forms microcrystals; it does not physically remove the natural minerals from the water. Harsh chemicals, specifically acidic (low pH) detergents or rinse agents, can redissolve these crystals. This reduces the desired effect. Also, dishwashers are supplied by the hot water side of a building's plumbing system, so for the first few weeks, the water hardness inside the dishwasher will be higher than normal. For both of these reasons, you should adjust the combination and amounts of detergents and rinse agents. Gel packs offer a great alternative since they contain detergents and rinse agents in predetermined amounts.

If you have glass shower doors:
Years of untreated hardness can etch the surface of your glass allowing for soap scum and minerals to get stuck in your glass. We recommend cleaning the glass surface thoroughly with a descaling cleaner such as CLR® Cleaning Products then applying a few coatings of Rain-X® to seal the pores on the glass surface. This process will fill the pores in the glass and allow the water to bead.

MAINTENANCE

Carbon Media Replacement
Your Pentair Carbon Water Filter requires maintenance after a period of 5 years. Replacement media and instructions can be ordered on-line at www.pentair.com/homewater or by calling 877-842-1635. Model numbers for replacement media are PC600-R or PC1000-R.

Sediment Filter
It is recommended that the sediment filter be replaced every 6-9 months depending on the amount of sediment present in the water supply. If the system has been working properly and the pressure is slowing, it may be time to change the sediment filter. Check the sediment filter and replace if necessary.



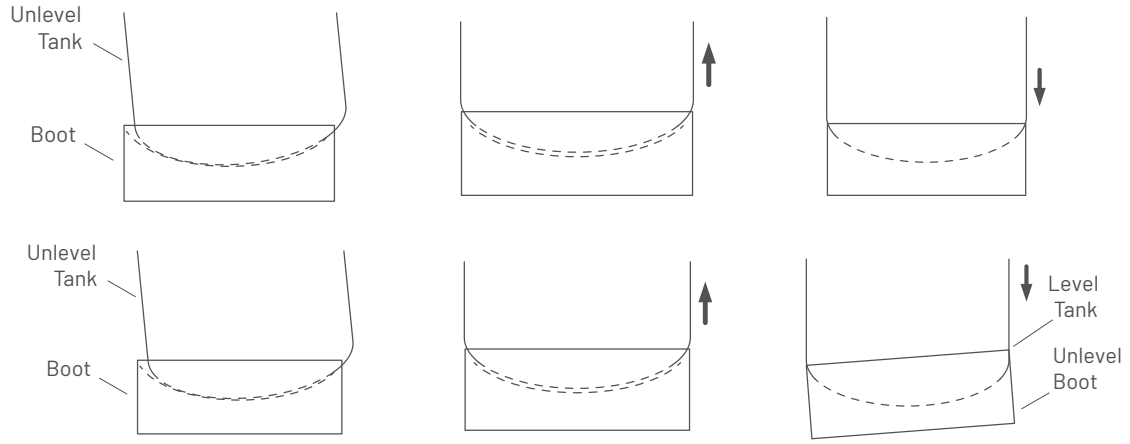
Replacing the Sediment Filter

1. Turn off the main water supply to the sediment filter system and bypass all tanks.
2. Run a faucet (cold water) inside the house to relieve the pressure (leave the faucet open).
3. Unscrew the blue filter housing clockwise using the supplied filter wrench.
4. Remove the existing sediment filter and discard.
5. Remove the o-ring and wipe the upper groove clean. Lubricate the o-ring with a coating of clean silicone grease. Replace o-ring. Be sure to press the o-ring down into the groove with two fingers.

Note: This step is important to ensure the proper filter seal. Make sure the upper o-rings is seated level in the groove. If the o-ring appears damaged, stretched, or crimped it should be replaced.

6. Place a new sediment filter onto the stand pipe in the blue filter housing.
7. Screw the blue filter housing onto the filter cover, hand tighten. Lightly snug the housing with the spanner wrench making sure not to over-tighten.
8. Turn on the main water supply slowly to allow the sediment filter system to fill with water and expel air from lines. Put tanks back in service (out of bypass).
9. Check for leaks.

TROUBLESHOOTING

Problem	Solution
Pressure is dropping off during the carbon wash.	Turn the water off and let the tank sit about 30 minutes to allow the carbon to settle down off of the basket inside the tank. If the pressure drops off again, let the system stand for 72 hours. There is air trapped in the carbon bed that needs to be released from the tank. After 72 hours have passed, continue the carbon wash by slowly turning the water supply back on.
Water leaking at the top of the tank around the head.	You may need to turn the head to tighten it. The tank head is preinstalled hand-tight, do not overtighten the head (simply turn it snug).
The tank leans to one side or is not level.	If the tank is not level, lift the tank straight up six (6) inches and tap it on the ground until the tank stands vertically. The bottom of the tank is round and the boot allows the tank to stand upright.
	
Water inside the tank is gray.	This is normal with all carbon filters and this will slowly fade away. The carbon inside the tank can still have air pockets inside that, when released, turn the water a little gray with carbon dust. The carbon dust is harmless.
Water pressure is slowing.	It is recommended that the sediment filter be replaced every 6-9 months depending on the amount of sediment present in the water supply. If the system has been working properly and the pressure is slowing, it may be time to change the sediment filter. Check the sediment filter and replace if necessary.
Water appears grey or cloudy.	Water may appear grey or cloudy for the first seven to ten days after installation due to extra carbon dust.
Water pressure is slowing immediately after installation.	High flow rates such as bathtubs, utility sinks, hose bibs, multi-headed showers, body sprayers, or anything that is considered high flow for the first 72 hours should be avoided. If you suspect a carbon blockage of the top basket due to a high-flow situation within the first 72 hours of installation, turn off any running water for at least 10 minutes. This will clear the blockage and you can resume using water at low or normal flow rates.

Notice: If you have experienced a Boil Alert or require your system to be sanitized, please go to pentair.com/assets/pwsboilalert for product sanitization instructions.

PRODUCT WARRANTY AND REGISTRATION FORM

For details on your Pentair product warranty, please visit pentair.com/assets/residential-filtration-warranty.

Warranty Registration Form
Send in this Warranty Registration Form to validate your warranty or visit pentair.com/register-warranty to complete the warranty registration form online.

Date Item(s) were Received:	Order ID#:	Model:

Dealer Purchased From:

Model/Serial Number:

Name:

Address:

City: State: Zip:

Send to:
Pentair
2361 Mason Avenue, Suite 100
Daytona Beach, FL 32117
Phone: 1.877.842.1635

PRODUCT CERTIFICATIONS

Pentair NaturSoft® - NS3/NS6 are certified By IAPMO R&T to NSF/ANSI 61 for material safety.

The NaturSoft® system is DVGW DW-9191 certified for 99.6% hard water scale prevention.

PC600/PC1000 are IAPMO tested and certified to NSF/ANSI 42 for Chlorine Taste and Odor, and Structural Integrity. IAPMO tested and certified to NSF/ANSI 61 for Material Safety.

PC600/PC1000 are certified By IAPMO R&T to NSF/ANSI 61 for material safety.

WARNING

Do not use where water is microbiologically unsafe or with water of unknown quality without proper disinfection before or after the filter/softener system.

PERFORMANCE DATA SHEET

Performance Data - Pentair Whole House Filters						
Model	**Replacement**	**Max Operating Pressure**	**Rated Capacity**	**Operating Temp Range**	**Rated Flow**	**Rated Pressure Drop (At Rated Flow)**
PC600-P	PC600-R	25-80 PSI	662,400 gallons	36°F – 120°F	8 GPM	13 PSI
PC1000-P	PC1000-R	25-80 PSI	1,324,800 gallons	36°F – 120°F	12 GPM	13 PSI
PC1354-P	PC1354-R	25-80 PSI	1,987,200 gallons	36°F – 120°Fs	17 GPM	13 PSI

This system has been tested according to NSF/ANSI 42 for the reduction of the substances listed below. The concentration of the indicated substances in the water entering the system was reduced to a concentration less than or equal to the permissible limit for water leaving the system, as specified in NSF/ANSI 42.

NSF/ANSI 42	Influent Challenge Chlorine	Minimum Required Reduction	Average Reduction %	Results
Chlorine Reduction, Free Available	2 mg/L ±10%	≥50%	95.93%	Pass

Performance Data - Pentair Whole House Filters					
Model	**Accumulated Volume (Gallons)**	**Chlorine, Free Available (mg/L)**		**Flow Rate (GPM)**	**Reduction %**
		Influent	Effluent 1		
PC600-P	650,885	2.05	0.07	8 GPM	96.6%
PC1000-P	1,301,770	2.05	0.07	12 GPM	96.6%
PC1354-P	1,952,655	2.05	0.07	17 GPM	96.6%

Statements: Testing was performed under standard laboratory conditions, actual performance may vary. Filter usage must comply with all state and local laws. Filter is only to be used with cold water. Systems certified for cyst reduction may be used on disinfected waters that may contain filterable cysts. All contaminants reduced by this filter are listed. Not all contaminants listed may be present in your water. Filter does not remove all contaminants that may be present in tap water. See owner's manual for general installation conditions and needs as well as manufacturer's limited warranty.



2361 Mason Ave | Suite 100 | Daytona Beach, FL 32117 | United States
P: 877.842.1635 | Technical Services: 877.842.1635 | pentair.com/homewater

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4006041 Rev A JN21

Owner's Manual

powered by UVMAX™

Models: PUV-7
PUV-14

The Pentair PUV-7 and PUV-14 UV systems are designed to provide you with years of trouble-free operation with minimal maintenance required.



KEY INFORMATION YOU SHOULD KNOW:

- A 5-micron (nominal) sediment filter must be installed upstream of (before) any UV system.
- For indoor use only. Keep all components clean and dry.
- Clean the sleeve regularly for optimum performance.
- Not for use in salt water applications.

Date of installation: _____

Installed by: _____

Installer phone #: _____

Serial #: _____
(Found on label on side of Power Supply)

520110_RevN

Congratulations on the purchase of your ultraviolet (UV) water disinfection system! This system is designed to provide you with years of trouble-free operation and minimal maintenance required.

To ensure ongoing disinfection of your water, replace UV lamp annually.

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

- Use of widely available, non-genuine, replacement lamps has been shown to damage the control module of Pentair UV disinfection equipment.
- An increasing number of calls to Pentair 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.
- Pentair 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 Pentair 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.
	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.

⚠ WARNING

- 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.

⚠ CAUTION

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.

NOTICE

- 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.

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	> 75% (call factory for recommendations on applications where UVT < 75%)

Section 2 General Information

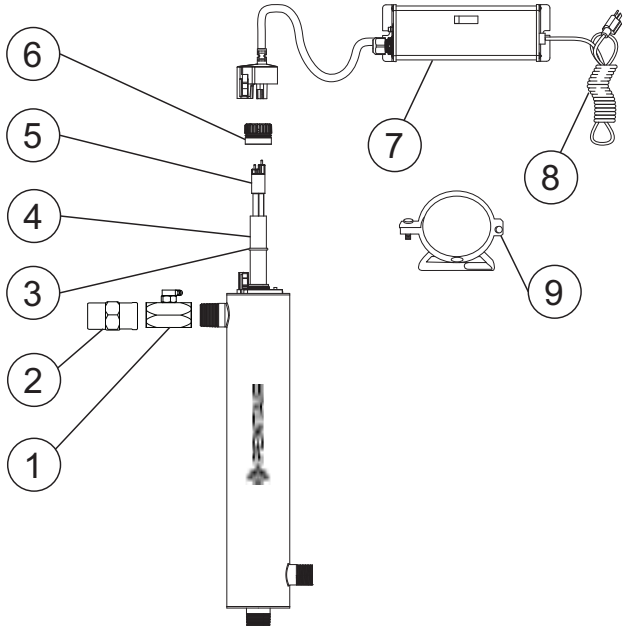


Figure 1 System Components

Item	Description	Part Number	UV Systems
1	Temperature management valve (optional)	440179	Optional
2	Flow restrictor	Optional	Used on all systems
3	O-ring	410867	Used on all systems
4	Sleeve	PUV7-Sleeve	PUV7
		PUV14-Sleeve	PUV14
5	Lamp	PUV7-Lamp	PUV7
		PUV14-Lamp	PUV14
6	Retaining Nut	RN-001	Used on all systems
7	Power Supply	PUV7/14 Power Supply	PUV7, PUV14
8	Replacement power cords for Power Supply (sold separately)	260010	PUV7, PUV14 (N. America)
9	Mounting Brackets/Clamp Assembly	410076	Used on all systems

Section 3 Installation

3.1 UV Disinfection System

⚠CAUTION

Electronic controller must be connected to a Ground Fault Protected Circuit (GFCI) receptacle and the lamp connector ground wire connected to the stainless steel chamber.

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.

Note: *Install vertically with the lamp connector on top to prevent water damage from occurring on the lamp pins and lamp connector.*

- The controller should be mounted either above or beside the chamber. Always mount controller horizontally to prevent moisture from running down cordage and causing a potential fire hazard. (Figure 5)
- The complete water system, including any pressure or hot water tanks, must be sterilized before start up by flushing with chlorine (household bleach) to destroy any residual contamination. (Section 3.2)
- For indoor use only.
- Install the disinfection system on cold water line only, before any branched lines.
- A 5 micron sediment filter must precede the disinfection system. System should be the last treatment the water receives before it reaches the faucet.

Procedure:

1. (Figure 2) shows the installation of a typical disinfection system and the related components that may be used for the installation. The use of a bypass assembly is recommended in case the system requires offline maintenance. In this case, note that the system requires a supplementary disinfection for the distribution system if any water is used during by-pass condition. In addition, during by-pass, the water will NOT be disinfected and a “DO NOT CONSUME THE WATER” tag should be physically installed on the by-pass assembly until such time as the system is sanitized and returned to service. For more information, refer to Section 3.2. If the water is to be consumed while the system is off-line, the water must be boiled for twenty minutes prior to consumption.

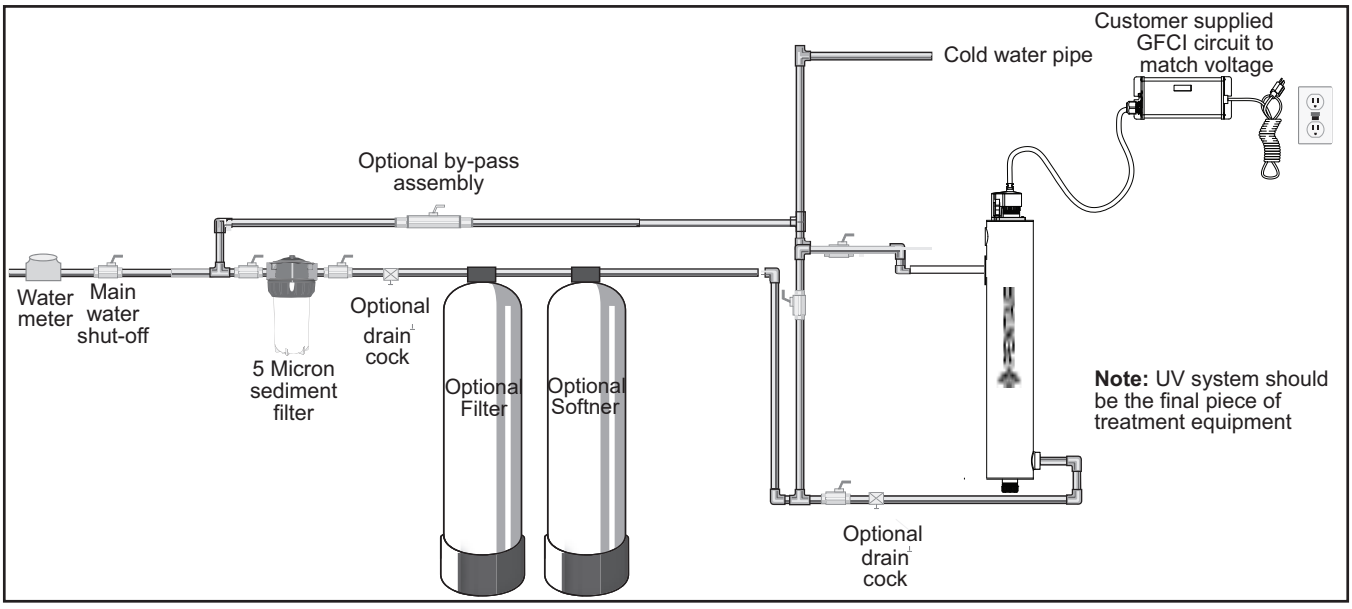


Figure 2 Disinfection System

2. Select a suitable location for the disinfection system and its related components. As it is recommended to install a GFCI, make sure that this is taken into consideration prior to any installation. The system can either be installed vertically (inlet port at the bottom) as shown in Figure 3 A, or horizontally as shown in Figure 3 B. However, the vertical installation is the most preferred method. When selecting a mounting location, leave enough space to allow the removal of the UV lamp and/or quartz sleeve (typically leave a space equal to the size of the chamber itself).

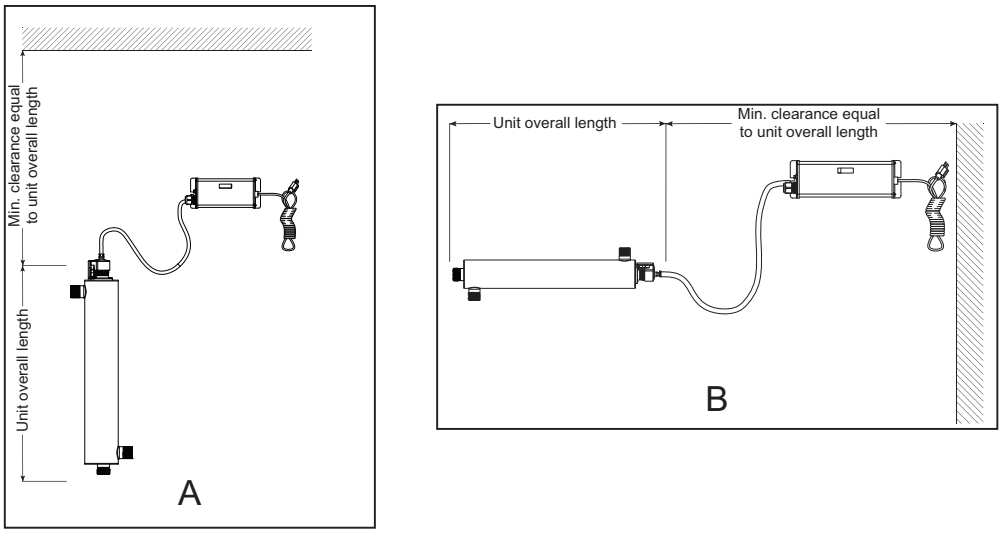


Figure 3 Disinfection Installation - Vertical and Horizontal

3. Mount the system to the wall using the supplied clamps. Various connection methods can be used to connect the water source to the system, however union type connectors are recommended. The use of a flow restrictor device will help to maintain the manufacturers rated flow. The flow restrictor should be installed on the outlet port and is designed to be installed in one direction only. Ensure that the flow of the water matches the flow direction as indicated on the flow restrictor. Refer to Figure 4.

Note: *DO NOT solder connections while attached to the system as this could damage the O-ring seals.*

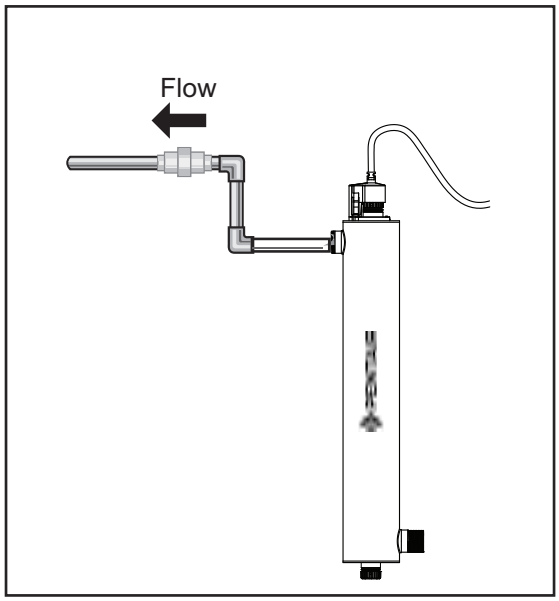


Figure 4 Flow

4. Mount the Pentair PUV Power Supply horizontally to the wall, near the chamber. Ideally place the Power Supply above the chamber and away from any water connection point.

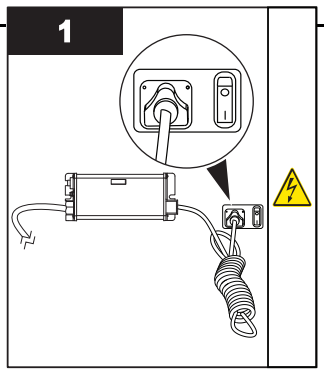
5. Install the UV lamp. Refer to Section 4.1.
6. When all plumbing connections are complete, slowly turn on the water supply and check for leaks. The most likely cause of leaks is from the O-ring seal. In case of a leak, shut water off, drain cell, remove the retaining nut, wipe the O-ring and threads. Clean and re-install.
7. Once it is determined that there are no leaks, plug the system into the ground fault interrupter and check controller to ensure the system is operating properly. The controller should illuminate without any alarms.

   Note: *DO NOT look directly at the glowing UV lamp.*
8. Allow the water to run for a few minutes to clear any air or dust that may be in the chamber.

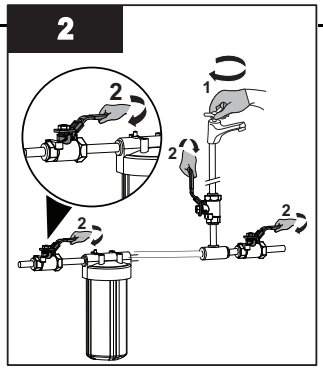
   Note: *When there is no flow, the water in the cell will become warm, as the UV lamp is always on. To remedy this, run a cold water tap anywhere in the house for a minute to flush out the warm water.*

3.2 Disinfection Procedure

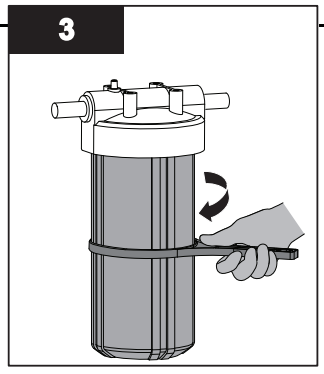
UV disinfection is a physical disinfection process and does not add any potentially harmful chemicals to the water. As UV does not provide a disinfection residual, it is imperative that the entire distribution system located after the UV be chemically disinfected to ensure that the plumbing system is 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 service, without power, or inoperative for any reason. The procedure for sanitizing the plumbing system is readily accomplished as follows:



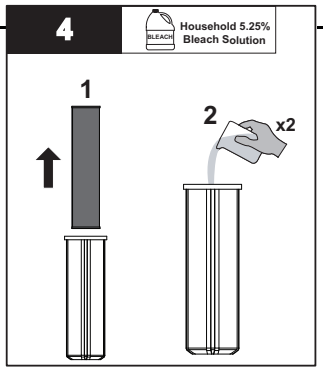
- Ensure the controller is plugged in for entire disinfection process.



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

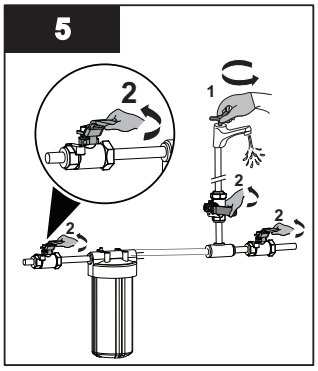


- Remove filter cartridge.

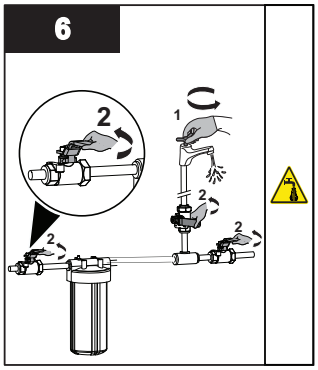


- Pour 2 cups of household bleach solution into the filter housing(s).

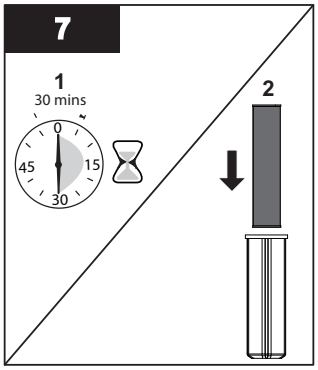
  Note: *DO NOT use Hydrogen Peroxide.*



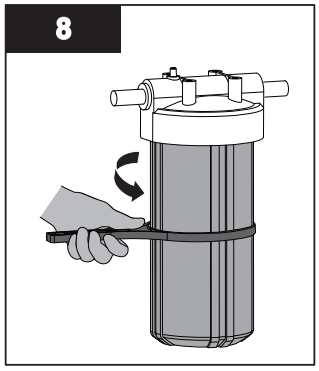
- Re-install the housing.
- Turn on the cold water supply.
- Open each faucet and all water openings until you smell the bleach and then close the faucets.



- Turn on the hot water supply.
- Open each faucet and all water openings until you smell the bleach and then close the faucets.



- DO NOT use water for 30 minutes.
- Flush the system until no chlorine smell is detectable and reinstall the filters.



- Reinstall filter cartridge.

Notes:

1) The addition of chlorine (bleach) to a hot water tank that has in the past been fed with untreated raw water with high levels of other contaminants (iron, manganese, hydrogen sulphide, organics, etc.) will result in oxidation of these contaminants and may require repeated flushing of the hot water tank. This contingency must be dealt with independently under the start-up procedure for any other conditioners that may form a part of the pre-treatment for the UV unit.

2) The above disinfection procedure will result in a massive chlorine residual far in excess of the 0.5 to 1.0 mg/L typically present in municipally chlorinated water and of a magnitude consistent with the minimum 50 mg/L chlorine solution recommended for the disinfection of distribution systems known to be contaminated. Do not consume water until complete system has been flushed.

3) As the monitored systems include a 254nm UV intensity monitor, note that the introduction of the bleach solution required for disinfection will trigger a temporary low UV condition. This is due to the fact that the bleach physically "clouds" the raw water. Once the bleach runs through the system, the alarm condition will return to normal. During this sanitization process, the audible alarm condition on the controller can be temporarily deferred by pressing the "RESET" switch for 5 seconds. By doing this, the audible alarm will be silenced. The system will display A2 *on the controller LED. This condition will remain for 12 hours unless the system is manually reset as outlined on page 10 of this manual.*

Section 4 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.

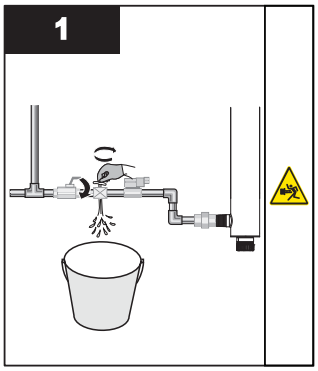
4.1 Replacing UV Lamp

NOTICE

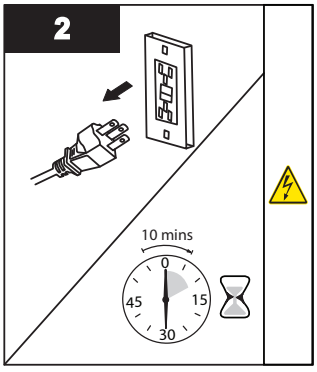
- Reset lamp life timer after lamp replacement. Refer to Section 5.1.3. Refer to www.lamprecycle.org for lamp disposal.
- Do not use water during replacement of UV lamp.

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.

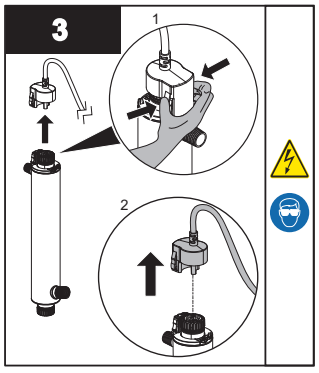
Procedure:



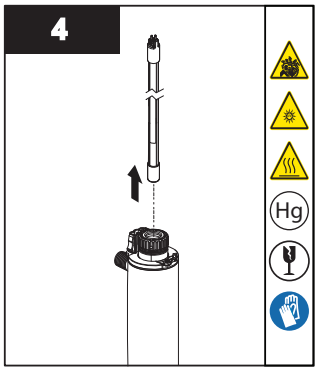
- Shut off the water line to chamber and release system pressure before servicing.



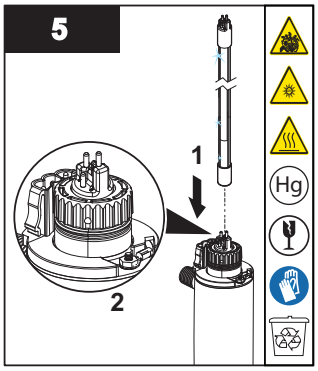
- Disconnect main power source and allow the unit to cool for 10 minutes.



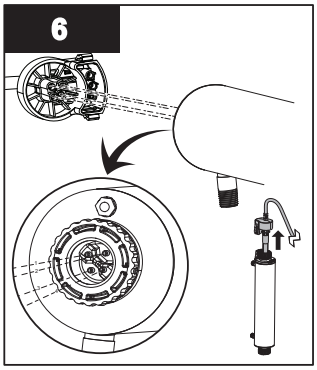
- Remove the lamp connector by squeezing the plastic locking tabs on the side of the connector.



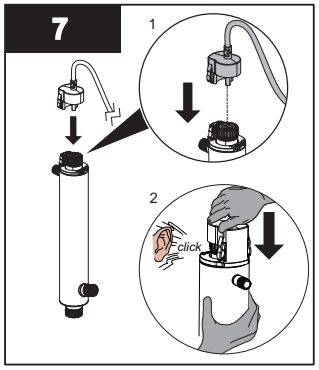
- Remove the lamp in upward direction from the chamber and lamp connector base.
- Always hold the lamp at the ceramic ends.



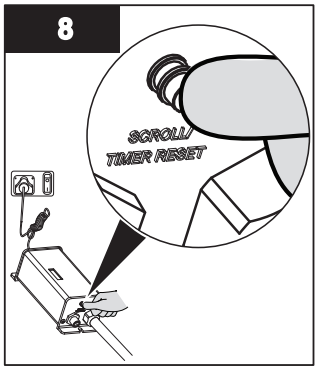
- Insert the new lamp fully into the chamber leaving about two inches of the lamp protruding from the chamber.



- Attach the connector to the lamp and note that the connector will only allow correct installation in one position.



- Push the lamp connector against lamp connector base together until an audible click is heard.
- Re-pressurize the system to check for leaks.



- Hold down the timer reset button and reapply power to the controller until you see rSEt, then release timer reset button.
- A 5 second delay will occur until you hear an audible tone and LED display will read once again 365.

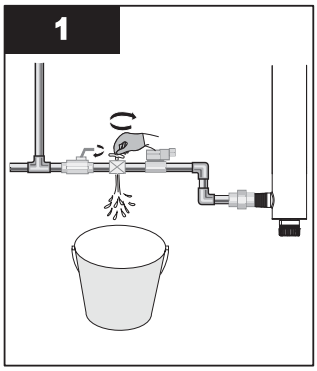
4.2 Cleaning and Replacing the Sleeve

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

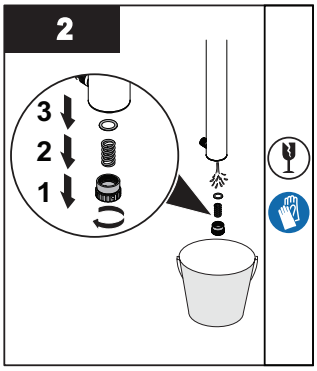
Prerequisites:

- Shut off water supply and drain all lines.
- Remove the UV lamp. Refer to Section 4.1.

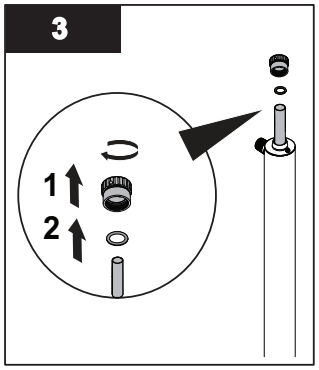
Procedure:



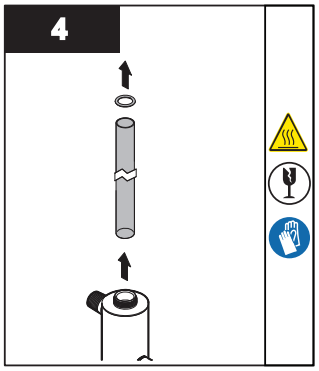
- Drain the chamber by using the drain port.



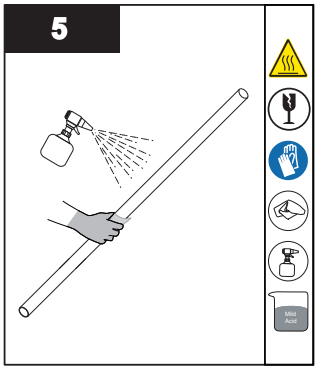
- Remove the bottom retaining nut, floating spring, and O-ring.



- Remove the top retaining nut and O-ring.

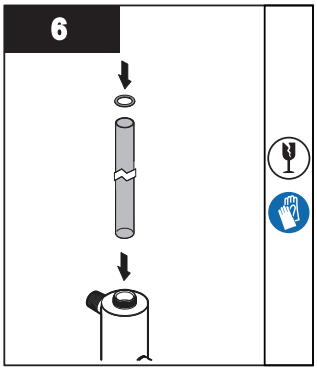


- Carefully, remove O-ring adhering to the quartz sleeve.
- Remove the sleeve.

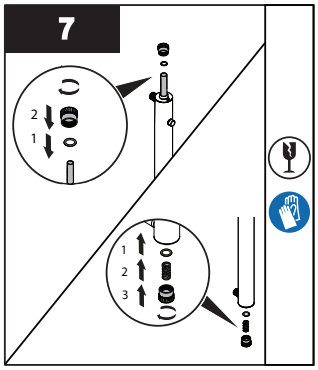


- Clean the quartz sleeve with a cloth soaked in CLR, vinegar or some other mild acid and then rinse with water.

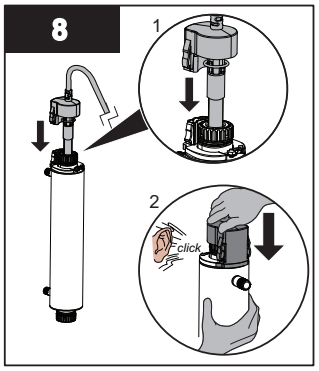
  Note: *If sleeve cannot be cleaned completely or it is scratched or cracked, then replace the sleeve.*



- Reinstall the quartz sleeve in the chamber allowing the sleeve to protrude an equal distance at both ends of the chamber.
- Slide supplied O-rings onto each end of the quartz sleeve.



- Reinstall the top and bottom retaining nuts, floating spring, and O-rings respectively.
- When service is complete, assemble the prerequisites in the reverse order of disassembly.
- Plug in controller and verify the POWER-ON LED display is illuminated and controller power-up sequence operates.



- Push the lamp connector against lamp connector base together until an audible click is heard.
- Re-pressurize the system to check for leaks.

Note: *After replacing the UV lamp or sleeve perform the disinfection procedure, refer to Section 3.2.*

4.3 Cleaning and Replacing UV Sensor (if applicable)

⚠WARNING

The UV sensor is very delicate instrument. Extreme care is required when handling and cleaning. The sensor window itself is constructed from quartz which is extremely fragile, be careful you do not chip or break this quartz window. Manufacturer's warranty does not cover damage due to neglect or misuse.

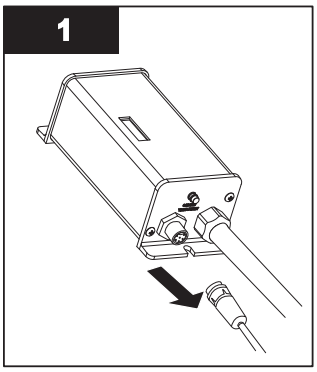
Mineral deposits and sediment may accumulate on the sensor window decreasing the UV energy detected. Good maintenance of pre-treatment equipment will reduce the accumulation of residues. If the system indicates that the UV intensity is low, one cause may be a stained quartz sleeve and/or sensor window.

Prerequisites:

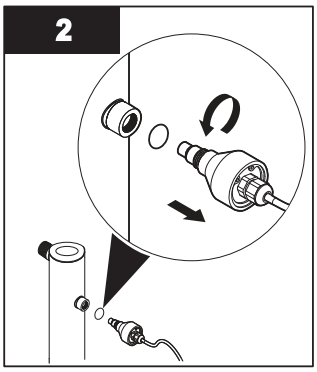
- Remove and clean the quartz sleeve.

Note: *The* quartz sleeve and UV sensor should be cleaned at the same time.

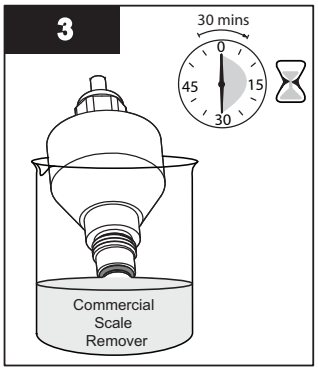
Procedure:.



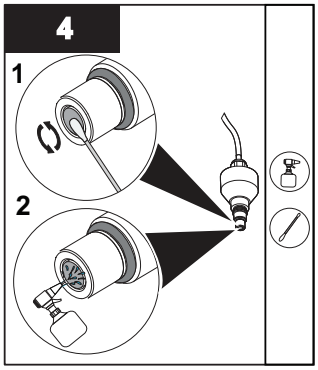
- Disconnect the UV sensor from the controller by disconnecting the sensor cable.



- Remove the UV sensor and O-ring by grasping the body of the sensor and rotating it counter-clockwise.



- Submerge only the end of the sensor in the commercial scale remover for 30 minutes.



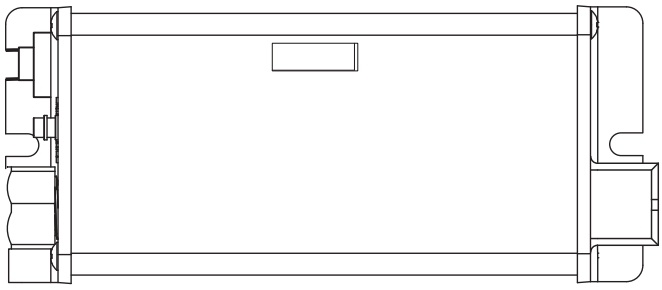
- Clean the sensor with a cotton swab and spray with water.
- Re-insert the UV sensor along with the O-ring until a water-tight seal is achieved.

Section 5 Operation

⚠WARNING

The advanced warning system has been installed to provide the optimum protection against microbiological contamination in water. **DO NOT** disregard the warning signals. The best way to ensure optimum UV performance is to have the water microbiologically tested by a recognized testing agency on a regular basis.

5.1 Basic Systems Incorporating BA-ICE-C and BA-ICE-CL Power Supply



5.1.1 Lamp Life Remaining (days)

365 The controller tracks the number of days of operation of the lamp and the controller. The default screen will display the total lamp life remaining (in days). The controller will count down the number of days remaining until the lamp requires changing (365 days to 1 day). At “0” days, the controller will display A3 and sound an intermittent audible chirp (1 second on, 5 seconds off), indicating the need to change the lamp.

5.1.2 Understanding your “A3” Code

A3 ***DEFERRAL*** - Once the “A3” or end of lamp life message is shown on the LED display, the audible alarm can be deferred up to 4 separate times. The delay is designed to allow you time to address the alarm while you obtain a new UV lamp. This can be done by simply depressing the timer reset button for 5 seconds, which is located on the left side of the controller. Each time the timer reset button is pressed the controller alarm is deferred seven days. Once the final 7 day deferral has been reached the alarm can only be silenced by changing the UV lamp and manually resetting the controller timer, refer to Section 4.1.

5.1.3 Resetting Lamp Life

Refer to Section 4.1.

Note: *Even though the alarm on the system can be deferred for a period of time, it is important to address each and every alarm condition as they are indicating that there is a potential problem with the system and should be remedied.*

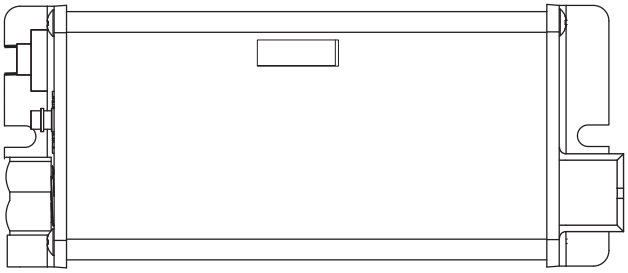
5.1.4 Total Days of Operation

1680 The controller also displays the total running time of the controller. To obtain this reading, press the push-button once. The total running time of the controller will be numerically displayed in days. This information will remain displayed for ten seconds and will then revert back to the lamp life remaining default screen. It should be noted that this value cannot be reset.

5.1.5 Lamp Failure (Blank Screen)

When the system recognizes UV LAMP FAILURE (no current running through the lamp), the display will be blank (no default UV LAMP LIFE REMAINING screen) and the system will sound an intermittent audible tone (1 second on,1 second off). The system will remain in this state, until this condition is remedied.

5.2 Plus Systems Incorporating BA-ICE-CM Power Supply



5.2.1 UV Intensity (%)

99 The VIQUA Plus series of products incorporate a UV sensor which detects the discrete 254 nm wavelength of the UV lamp. This information is relayed to the VIQUA controller and is the default display shown in “% UV output”. The system will display the UV output between 50 to 99 percent. When the system drops below 50%, a low UV warning is displayed as A2 and alternately flashes (at 2 second intervals) back to the actual UV level. Eg. 49. Additionally, the system will sound an intermittent audible tone (2 seconds on, 2 seconds off), during low UV conditions.

Note: *UV levels of*

65 to 99	Indicates the system is functioning within a normal operating range.
56 to 64	Indicates the UV level is still within a safe level, however cleaning or lamp/sleeve replacement may soon be required.
50 to 55	Indicates the UV level is nearing the point of unsafe UV intensity, UV system should be immediately serviced.
< 49	Indicates the UV level has now reached a level that is unsafe. At this level the water should not be consumed. The system/water supply should be examined to determine the reason for the low UV level of the UV intensity. At this level, the solenoid output has been activated and if a solenoid is installed, water will cease to flow.

DEFERRAL - To temporarily defer the audible alarm and re-activate solenoid valve (if fitted) during a low UV alarm, press the timer reset button and hold for five seconds. This will mute the audible alarm condition and activate solenoid output for 12 hours.

Over Temperature - When the water temperature inside the UV reactor chamber exceeds the maximum rating for the UV system (40 °C) the Controller will show “Ot” on the display. This is usually caused by extended periods of no water flow. To clear this condition simply open a faucet and allow water to flow through the system.

Possible causes for low UV alarm conditions:

a. The UV lamp has perhaps reached a level whereby it can no longer adequately provide a sufficient level of disinfection due to age (> 9000 hours). The lamp should be replaced with a new lamp from the manufacturer of the same size and type.

b. The quartz sleeve and/or the sensor window have become stained or dirty. Mineral deposits or sediment in the water that was not detected during the original water analysis may be the cause for this. Refer to Section 4.2.

c. Intermittent voltage drop in the household controller reducing the lamp output. The lamp will return to normal when the power is restored to full voltage.

Note: *The monitoring system will not operate during power failures.*

d. The quality of the influent water has changed and is no longer within the acceptable operational range of the UV system. Perform a water analysis to determine the exact constituents and concentration levels.

e. The UV sensor is not installed correctly.

5.2.2 Lamp Life Remaining (Days)

365 To obtain this reading, press the timer reset button a single time and follow the steps as outlined in Section 5.1.3, regarding the operation of this feature.

5.2.3 Total Days of Operation

1680 To obtain this reading, press the timer reset button two times in succession and follow steps as outline in Section 5.1.3, regarding the operation of this feature.

5.2.4 Lamp Failure (Blank Screen)

Refer to Section 5.1.5 for explanation of this feature.

Note: *On the Pentair systems, the audible tone provided for lamp failure is a continuous alarm, rather than the intermittent (1 second on, 1 second off) condition on the basic Pentair systems.*

5.2.5 Solenoid Output (Optional)

Working in conjunction with the UV intensity monitor, the VIQUA controller provides a powered (line voltage) IEC solenoid output connector. (Note: this is not a dry contact) This solenoid output is protected with a replaceable 2 amp isolated fuse. Connection from this output to the solenoid can be done using the IEC solenoid power cable PN 260135. When the UV intensity monitor senses that the water is not adequately being treated and drops to 49% UV intensity or below, the internal relay is opened thereby stopping AC power flowing to the normally closed solenoid valve. The valve will remain closed (no power) until the UV level rises above 49%, at which time the solenoid will open, allowing for water to pass through. (To temporarily enable the operation of this solenoid output for up to 12 hours, please refer to the instructions outlined in Section 5.2.1).

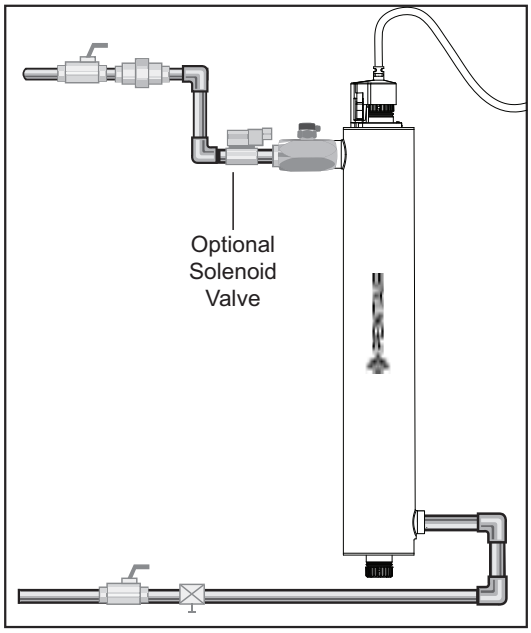


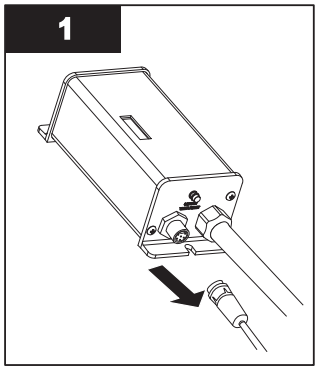
Figure 6 Solenoid Installation

Note: *During bypass, do not consume the water until the system has returned to a safe condition.*

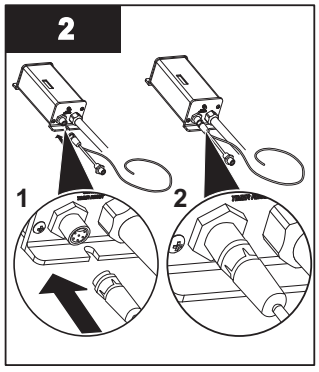
5.2.6 4-20mA Output (Optional)

To achieve the capability to transmit the UV intensity data to a remote location via a 4-20 mA signal, use an optional “Y” cable (PN 260134) is available from your dealer. The “Y” cable comes with 20 meters (65‘) of cable for the 4-20 mA signal.

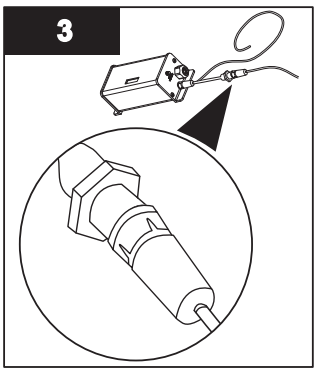
Procedure:



- Disconnect the existing sensor cable from the controller.



- Connect the ‘Y’ cable to the controller.



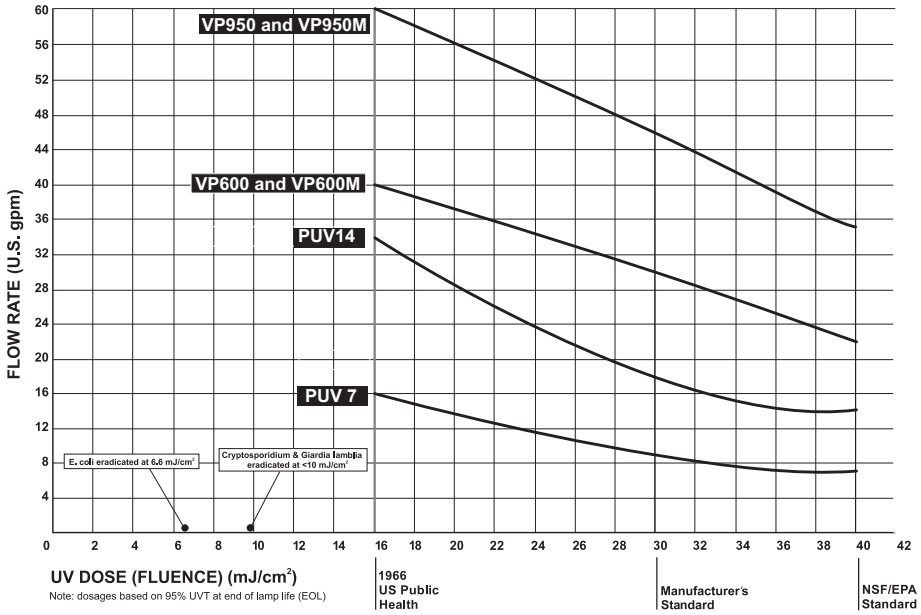
- Attach the “male” end of the removed sensor cable to the “female” end of the new “Y” cable.
- Appropriately attach the 4-20 mA cable to the applicable equipment and ensure all connections are hand-tighten.

Section 6 Troubleshooting

Symptom	Possible Causes	Solutions
Pressure Drop	Sediment pre-filter clogged	Replace filter cartridge with appropriate 5 micron cartridge. ***Note:*** *Check source water supply as fluctuations may occur in source pressure.*
	Flow regulator	Flow regulator will result in pressure drop when approaching full flow.
High Bacteria Counts	Quartz sleeve is stained or dirty	Clean sleeve with scale cleaner and eliminate source of staining problem (ie. soften hard water, refer to Section 4.2.
	Change in feed water quality	Have source water tested to ensure that water quality is still within allowable limits for this system.
	Contamination in water lines after UV system	It is imperative that effluent water stream be shocked with chlorine (bleach) before water leaves UV system - disinfection system must have a bacterial free distribution system to work effectively. Refer to Section 3.2
	Possible break-through of sediment through pre-filter	Have source water tested for turbidity - may need stepped filtration in order to catch all sediment entering water system (20 micron filter followed by a 5 micron filter followed by UV system).
Heated Product Water	Common problem caused by infrequent use of water	Run water until it returns to ambient temperature.
Water Appears Milky	Caused by air in the water lines	Run water until air is purged.
Unit Leaking Water	Problem with O-ring seal (on retaining nut and/or UV sensor)	Ensure O-ring is in place, check for cuts or abrasions, clean O-ring, moisten with water/ lubricant and re-install, replace if necessary (410867).
	Condensation on chamber caused by excessive humidity & cold water	Check location of disinfection system and control humidity.
	Inadequate inlet/outlet port connections	Check thread connections, reseal with Teflon® tape and re-tighten.
System Shutting Down Intermittently	Interrupted controller	• Ensure system has been installed on its own circuit, as other equipment may be drawing power away from UV (ie. pump or fridge). • UV system should not be installed on a circuit which is incorporated into a light switch.
Lamp Failure Alarm on - New Lamp	Loose connection between lamp and connector	Disconnect lamp from connector and reconnect, ensuring that a tight fit is accomplished
	Moisture build up in connector may keep lamp and connector from making a solid connection	Eliminate chance of any moisture getting to the connector and/or lamp pins

DISPLAY FAULT MODES	
LED display reads “A3”	• Lamp life expired - countdown is at “0” days • Press reset button for a deferred alarm, replace UV lamp
LED display is blank	• Controller is in lamp failure mode • Power system down, allowing it to reset itself; apply power in order to confirm that the controller is able to power lamp • Check to see if there is sufficient power to the UV system

Section 7 Manufacturer's Dose Flow Chart



Note: *Not performance tested or certified by NSF.*

Section 8 Specifications

8.1 Home and Professional - Standard

Model		PUV7	PUV14
Flow Rate	US Public Health 16 mJ/cm^2 @ 95% UVT	16 gpm (60 lpm) (3.6 m^3/hr)	34 gpm (130 lpm) (7.8 m^3/hr)
	VIQUA Standard 30 mJ/cm^2 @ 95% UVT	9 gpm (34 lpm) (2.0 m^3/hr)	18 gpm (70 lpm) (4.2 m^3/hr)
	NSF/EPA 40mJ/cm^2 @ 95% UVT	7 gpm (26 lpm) (1.6 m^3/hr)	14 gpm (54 lpm) (3.3 m^3/hr)
Dimensions	Chamber	45 cm x 8.9 cm (17.8" x 3.5")	59.6 cm x 8.9 cm (23.5" x 3.5")
	Controller 100-250 VAC	17.2 cm x 8.1 cm x 6.4 cm (6.8" x 3.2" x 2.5")	17.2 cm x 8.1 cm x 6.4 cm (6.8" x 3.2" x 2.5")
Inlet/Outlet Port Size[1]		Combo 3/4" FNPT/1" MNPT	Combo 3/4" FNPT/1" MNPT
Shipping Weight		5.4 kg (12 lbs)	7.7 kg (17 lbs)
Electrical	Voltage[2]	120-240 V / 50/60 Hz	120-240 V / 50/60 Hz
	Max. Current	1.5 Amp	1.5 Amp
	Power Consumption	35 W	60 W
	Lamp Watts	25 W	46 W
Total Running Time		Yes	Yes
Maximum Operating Pressure		125 psi (861 kPa)	125 psi (861 kPa)
Minimum Operating Pressure		15 psi (103 kPa)	15 psi (103 kPa)
Ambient Water Temperature		2-40 ºC (36-104 ºF)	2-40 ºC (36-104 ºF)
Lamp Type		Sterilume™-HO (high-output)	Sterilume™-HO (high-output)
Visual "Power-On"		Yes	Yes
Audible Lamp Failure		Yes	Yes
Lamp Replacement Reminder		Yes	Yes

Specifications

Model	PUV7	PUV14		
Visual Lamp Life Remaining	Yes	Yes		
Total Running Time	Yes	Yes		
Chamber Material	304 SS	304 SS		

[1] Units ending in “/2B” have BSPT connections.

[2] Units ending in “/2” are for 230V applications.

Section 9 Manufacturer’s Warranty

Our Commitment

Pentair's 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 1-877-842-1635 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 Pentair disinfection system.

How to Make a Warranty Claim

Note: *To maximize the disinfection performance and reliability of your Pentair 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 1-877-842-1635. 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 Pentair 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 Pentair range of products. Warranty coverage is subject to the conditions and limitations outlined under “General Conditions and Limitations”.

Ten-Year Limited Warranty for Pentair UV Chamber

Pentair warrants the UV chamber on the Pentair 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, Pentair will repair or replace, at its option, any defective Pentair UV chamber. Please return the defective part to your dealer who will process your claim.

Three-Year Limited Warranty for Electrical and Hardware Components

Pentair 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, Pentair 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 UV lamps, Sleeves, and UV Sensors

Pentair warrants UV 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, Pentair 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 Pentair 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 Pentair 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.

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

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