

OWNER'S MANUAL



For the installation, operation and service of

PCFE40P12
PCFE54P12

Should you the installer or owner be unfamiliar with the correct installation or operation of this type of equipment you should contact the distributor/manufacture for the correct advice before proceeding with the installation or operation of this product.

Contents

1. Precautions and General Notes.....	3
2. Parts Included.....	4
3. Product Information.....	5
3.1. Product Features	5
3.2. Specifications.....	5
3.3. Schematic Diagrams	6
3.4. Introduction to Main Parts.....	8
4. Installation Instructions.....	9
4.1 Precautions.....	9
4.2 Installation Preparation.....	11
4.3 Installation Steps.....	11
5. Operating Instructions.....	14
5.1. Commissioning and Setting	14
5.2. Accessing History Values.....	19
5.3. Error Diagnosis and Troubleshooting	20
6. Terms and Conditions of Warranty	22
7. Maintenance Records	23

1. PRECAUTIONS AND GENERAL NOTES

General Warnings and Safety Information Electrical

There are no user-serviceable parts in the AC adapter, motor, or controller. In the event of a failure, these should be replaced.

- All electrical connections must be completed according to local codes.
- Use only the power AC adapter that is supplied.
- The power outlet must be grounded.
- To disconnect power, unplug the AC adapter from its power source.

Mechanical

- Do not use petroleum based lubricants such as Vaseline, oils, or hydrocarbon based lubricants. Use only 100% silicone lubricants.
- All plastic connections should be hand tightened. Teflon* tape may be used on connections that do not use an O-ring seal. Do not use pliers or pipe wrenches.
- All plumbing must be completed according to local codes.
- Soldering near any plastic fittings should be done before connecting fittings to the valve. Excessive heat will cause interior damage to the valve.
- Observe drain line requirements.
- Do not use lead-based solder for sweat solder connections.
- Do not support the weight of the system on the control valve fittings, plumbing, or the bypass.
- It is not recommended to use sealants on the threads. Use Teflon* tape on all threaded connections.

*Teflon is a trademark of E.I. duPont de Nemours.

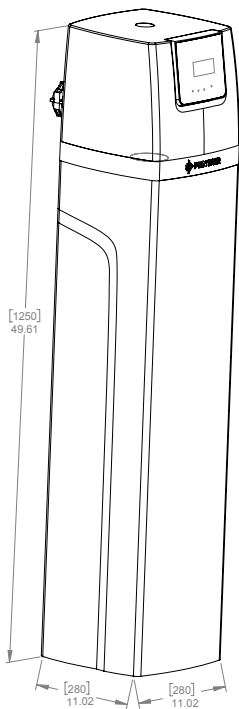
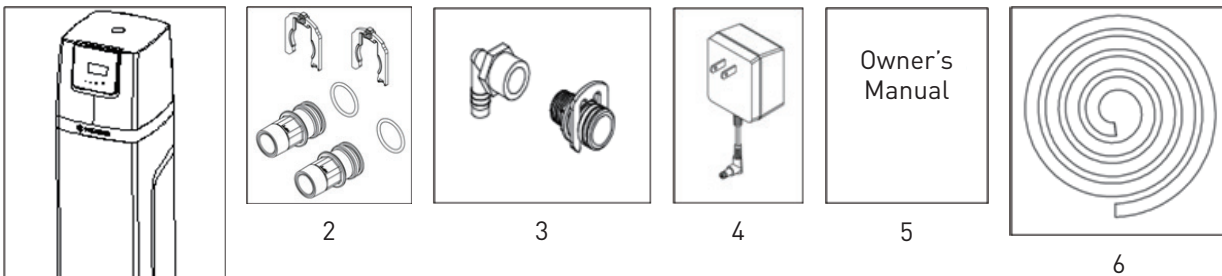
General

- Observe all warnings that appear in this manual.
- Keep the unit in the upright position. Do not turn on side, upside down, or drop. Turning the tank upside down or laying the tank on its side will cause media to enter the valve.
- Operating ambient temperature is between 35.6°F (2°C) and 120°F (49°C).
- Operating water temperature is between 39.2°F (4°C) and 100°F (38°C).
- Working water pressure range is 0.14 to 0.35 MPa (20 – 50 PSI).
- Use only salts designed for water softening. Do not use ice melting, block, or rock salts.
- This system is not intended to be used for treating water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.
- Do not allow this water conditioning system to freeze. Damage from freezing will void this water conditioning system's warranty.
- The materials used will fade or discolor over time in direct sunlight. The integrity of the materials will degrade to cause system failures.
- The carbon filter removes organic pollutants (such as oxygen demand and trichloromethane), odor (chlorine smell, etc.) and particulate matters. It does not remove salt or viruses. Hence the treated water is not recommended for direct drinking.
- Do not leave the filter system unused for an extended period. Please turn off the water supply valve if the filter system is not used for an extended period. After an extended period of non-usage, please rinse the filter system thoroughly before use.

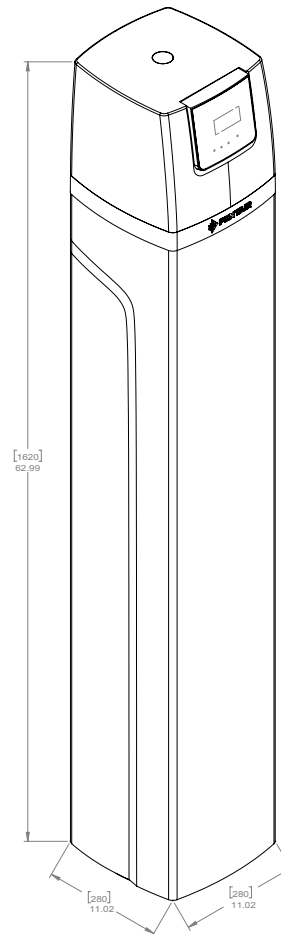
2. PARTS INCLUDED

Open the package and ensure that all parts are provided. All models of carbon filter contain the following parts:

1. Carbon filter with automatic control valves
2. Inlet and outlet connector kit
3. Drain connector kit
4. Power adapter
5. Owner's Manual
6. Drain tubes



PCFE40P12 Installation Schematic (Unit: mm)



PCFE54P12 Installation Schematic (Unit: mm)

3. PRODUCT INFORMATION

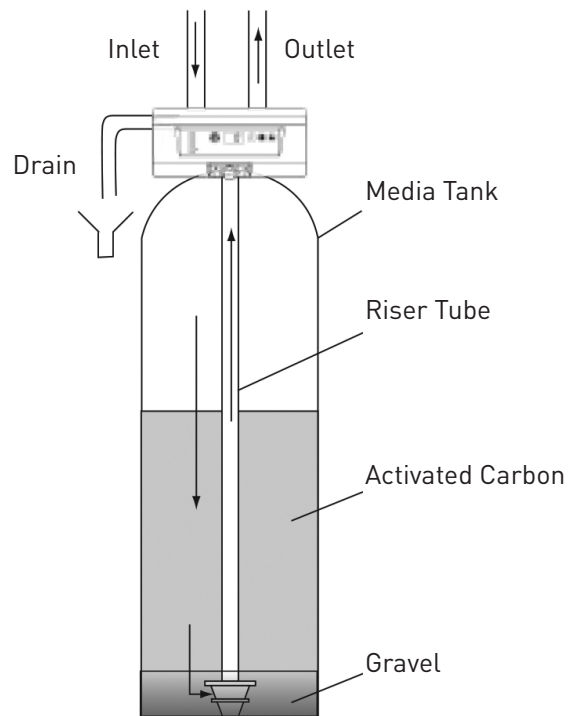
3.1. Product Features

The Pentair PCFE40P12 and PCFE54P12 carbon filters use chlorinated city water as the inlet water and effectively remove organic pollutants and residual chlorine content. Since these carbon filters use Chlorinated city water as the inlet water, they are suitable for filtration treatment of potable water in places with high daily water demand such as homes, hotels, guesthouses and restaurants.

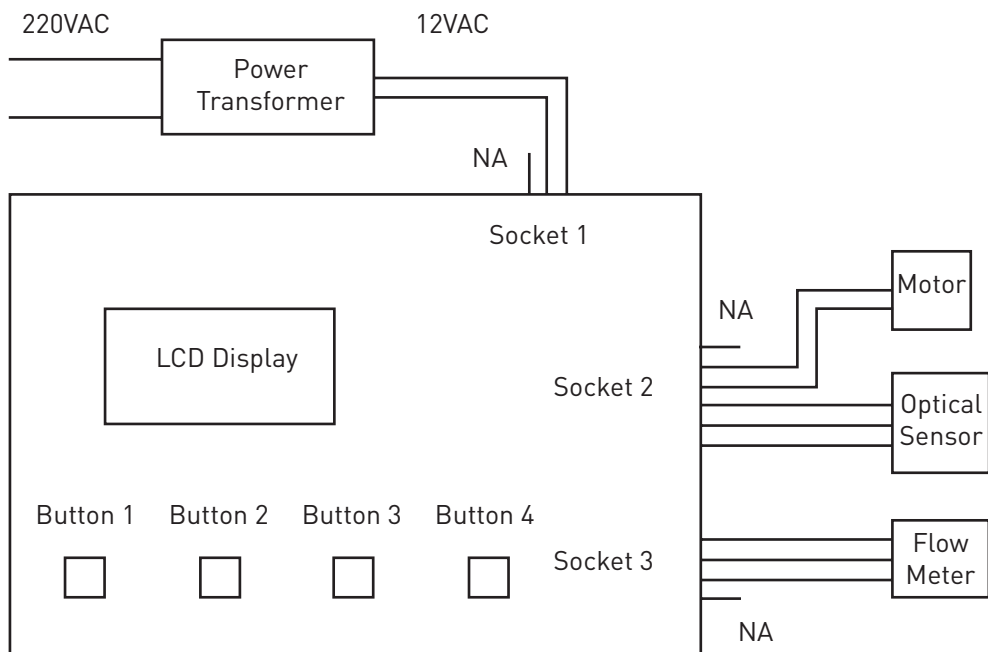
3.2 Specifications

Model	PCFE40P12	PCFE54P12
Inlet Water Condition	Chlorinated City Water	
Inlet Water Max. Turbidity	< 5 NTU	
Inlet/Outlet Pipe Size	1" BSP (25.4mm)	1" BSP (25.4mm)
Operating Pressure	20~50 PSI	20~50 PSI
Power Supply	220V/50Hz	220V/50Hz
Power	6W	6W
Flowrate	2 m ³ /h	2.7 m ³ /h
Backwash Cycle	5 m ³	9.5 m ³
System Capacity	35 m ³	60 m ³
Inlet Water Temp	5-38°C	5-38°C
Ambient Temp	2-49°C	2-49°C
Dimensions (L X W X H)	280*280*1250mm	280*280*1620mm
Height from bottom to Filtered Water Outlet (Approx.)	1080mm	1450mm
Drain Line Diameter	1/2"	1/2"

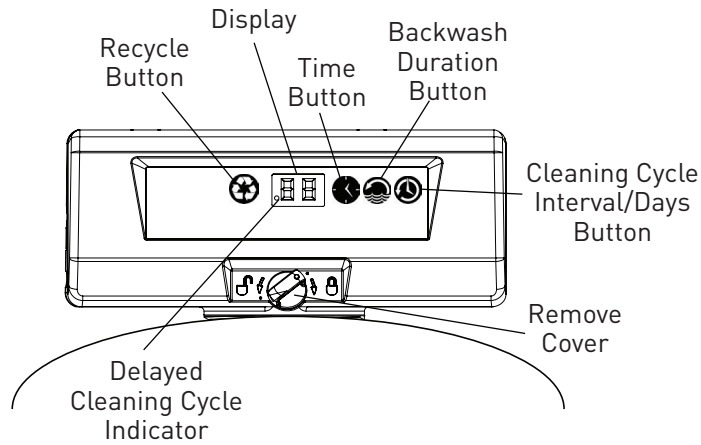
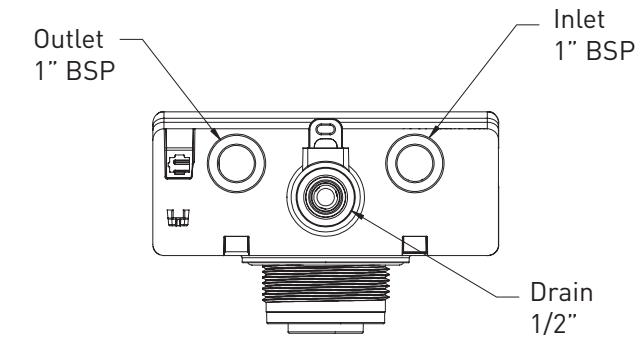
3.3. Schematic Diagrams



Electrical Control Diagram



VALVE LAYOUT - 363TC



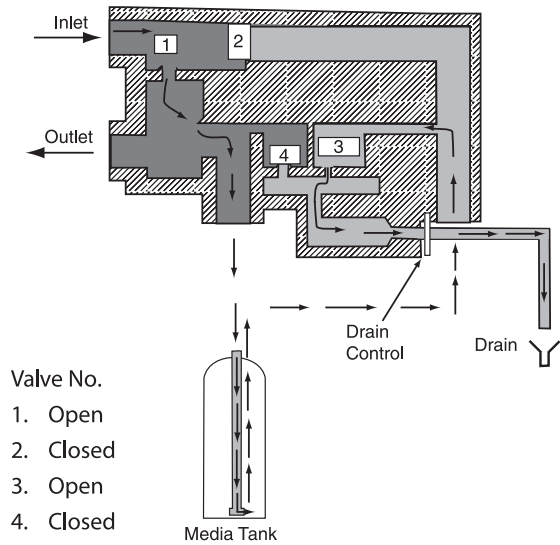
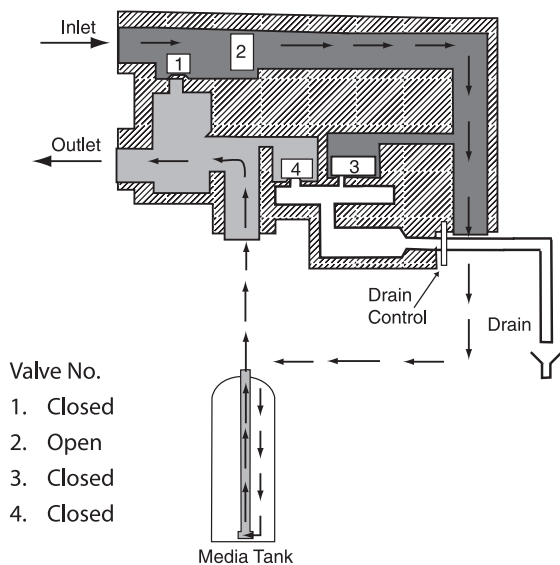
Flow Diagrams

SERVICE

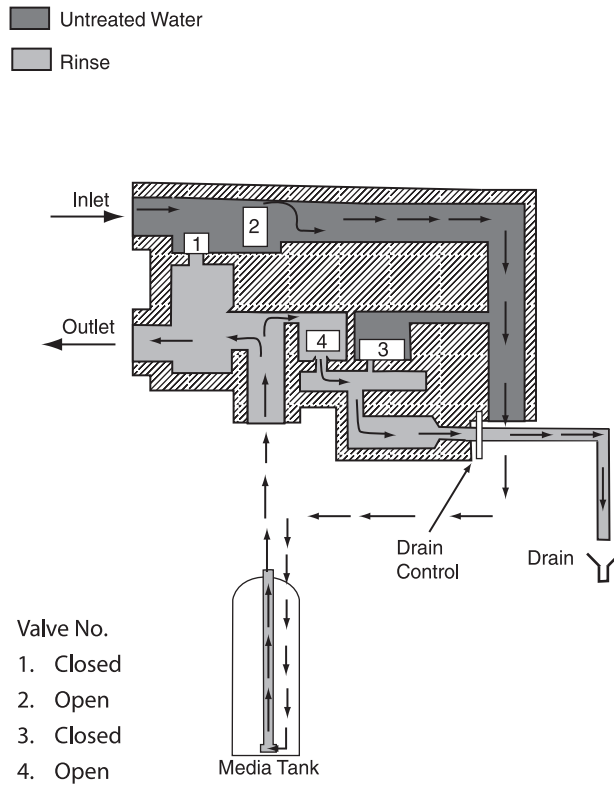
BACKWASH

Untreated Water
 Treated Water

Untreated Water
 Backwash



FAST RINSE



3.4. Introduction to Main Parts

Part Name	Material	Specification	Quantity
Granular Activated Carbon	Black granular activated carbon	3 ~ 400 mesh	PCFE40P12 Model: 10kg PCFE54P12 Model: 16kg
Gravel	Gravel	3 ~ 5 mm	8kg
KDF	Copper-zinc alloy	Diameter: 0.149-2mm	PCFE40P12: 500g PCFE54P12: 600g
Polyethylene (PE) Media Tank	Lining: Polyethylene	Diameter: 250mm	1 piece
	Housing: Fiberglass	Height: PCFE40P12 Model: 1020mm PCFE54P12 Model: 1372mm	
Polyphenylene Oxide (PPO) Water Inlet and Outlet Control Valves	30% fiberglass + polyphenyl ether	222mm x 222mm x 119mm	1 piece
KDF Container	ABS	Diameter: 62mm PCFE40P12 Model: 350mm PCFE54P12 Model: 480mm	1 piece
Water Distributor	ABS	Φ 25mm	1 set
Riser Tube	PVC	PCFE40P12 Model: Φ 25 x 880mm PCFE54P12 Model: Φ 25 x 1265mm	1 tube

4. INSTALLATION INSTRUCTIONS

4.1 Precautions

The following conditions are required for the installation of the carbon filter system:

- Installation and working space : Not less than 350x 350 mm, 170 cm high
- Distance between centers of inlet and outlet: 10.2cm
- Distance between power source and carbon filter: No greater than 2m.
- Level platform or floor.
- Constant electrical supply to operate the controller.
- Total minimum pipe run to water heater of ten feet (three meters) to prevent backup of hot water into system.
- Local drain or tub for discharge as close as possible.
- Water line connections with shutoff or bypass valves.
- Must meet any local and state codes for site of installation.
- Valve is designed for minor plumbing misalignments. Do not support weight of system on the plumbing.
- Be sure all soldered pipes are fully cooled before attaching plastic valve to the plumbing.
- Room to access equipment for maintenance and adding media to tank.
- After some maintenance work on pipe network, the initial effluent from the faucet often contains a lot of rust and pollutants. Therefore, after each occasion of water supply stoppage, please open the bypass valve or bypass pipe to drain out dirty water; or install a filter before this filter system to ensure that only clean water will enter the water filtration system. Generally, influent turbidity should be controlled at less than 5NTU.
- Generally, the carbon filter is installed after the water meter at the entrance of indoor tap water; the water meter can then be used as a gauge for determining the amount of water treated.
- Hot water can cause damage to the internal processing system of the carbon filter. Users who connect hot water boiler or instant water heater after the carbon filter must install a check valve between the carbon filter and their water heating system, and ensure that their water heating system is equipped with temperature and pressure control safety devices.
- When installing carbon filter in newly renovated premises where water has not been used before, first open the water faucet to discharge the water for at least 10 minutes to completely flush away any construction debris, corrosion rust and dirt. This will prevent dirt from entering the connected carbon filter during installation and cause damages to internal filter materials.
- A manual valve should be installed just before the inlet and outlet respectively. A bypass valve or bypass pipe should be installed between the inlet and outlet to facilitate normal water usage during maintenance of the carbon filter, or to enable direct usage of non-treated water when needed.
- It is recommended that a pre-filter be installed before the inlet to prevent contaminated water from entering the carbon filter system, thus affecting its operation.
- As much as possible, reduce the length and curvature of the drain line. Always allow an air gap between the drain line and the wastewater to prevent the possibility of wastewater being back-siphoned into the carbon filter. No valve of any type should be installed along the drain line.

- All pipes must have their own support brackets, the weight or stress exerted by such pipes must not be carried by the controllers of the carbon filter.
- Inlet or outlet pipes can be hard piping or flexible hose depending of the user's specific need and situation.
- The system comes with a power transformer; the user needs to provide a stable 220V/50Hz AC power supply. The automatic control feature of this product requires a continuous and stable power supply. In the event of power outage when the system is in use, the system's original setting will be maintained by data protection feature of the built-in electronic controller, and the system can continue to operate for 8 hours. Information related to volume processed will also be maintained for 8 hours. If power outage exceeds 8 hours, you will need to reset the system time to enable it to operate in accordance with its original setting.
- It is recommended that the user operate the system below its rated system flowrate. Exceeding the rated system flowrate will result in overloading. In no circumstances should the system be operating beyond 1.5 times the rated system flowrate.
- If the carbon filter will not be used and is not connected to the power source for an extended period of time (for more than one month), one should try to reconnect the power and water supply every week (the shorter the better) to perform a backwash for several hours. This is to ensure optimal performance of the filtration system when restarted.
- In the event of occasional water stoppage or power outage, one should turn off both the inlet and outlet valves and disconnect the power supply.
- Under normal circumstances, it is recommended that KDF, granular activated carbon and gravel be replaced when the rated system capacity for treatment of chlorinated city water is reached. Please contact your local Pentair authorized distributor for replacement of KDF, granular activated carbon and gravel.

Part Name	Replacement Period (Recommended)
Granular Activated Carbon	6 months
Gravel	5 years
KDF	2 years

- After prolonged periods of non-use, it is recommended that the carbon filter system be flushed for 5 minutes before it is used.
- It is recommended that the equipment be installed indoors. When the water conditioning system must be installed outdoors, below conditions must be considered:
 - Moisture —The system is not designed to withstand extreme humidity or water spray from below. Examples are: constant heavy mist, near corrosive environment, upwards spray from sprinkler.
 - Direct Sunlight — The materials used will fade or discolor over time in direct sunlight. The integrity of the materials will not degrade to cause system failures.
 - Temperature — Extreme hot or cold temperatures may cause damage to the valve or controller. Freezing temperatures will freeze the water in the valve. This will cause physical damage to the internal parts as well as the plumbing.
- Keep the media tank in the upright position. Do not turn upside down or drop. Turning the tank upside down or laying the tank on its side can cause media to enter the valve.

4.2 Installation Preparation

Typical Tools and Materials Required

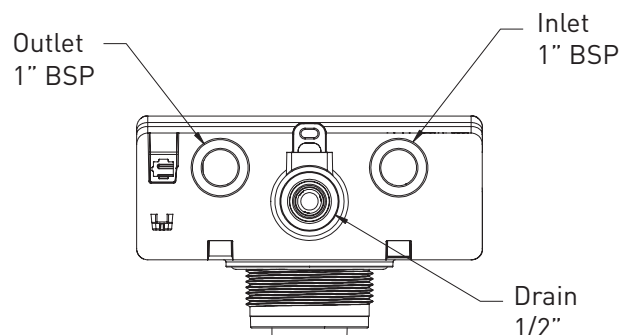
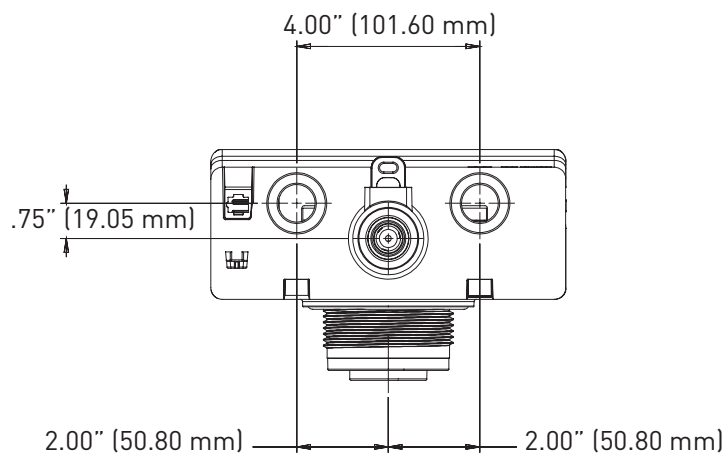
- Pipe Cutter
- Tubing Cutter
- File
- Pliers
- Tape Measure
- Soldering Tools
- Lead Free Solder
- Bucket
- Towel
- Plumbers Tape
- Adjustable Wrench
- Tube 100% Silicone Grease

4.3 Installation Steps

The Carbon filter has three openings: the inlet, the outlet and drain.

Open the water supply tap and flush the water pipe network to ensure water pipes are clean and free of debris. then, turn off the main water supply incoming valve.

Determine the installation position of the carbon filter and lay the connecting pipes to match the various diameters of the three openings of the carbon filter.



Equipment Installation

If you are also installing a water softener, the softener should be installed downstream of this system.

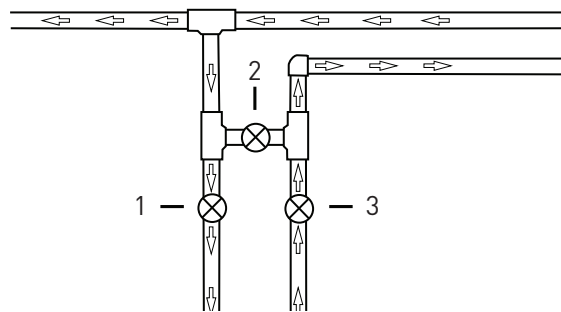
Grounding the Plumbing

It is important that the plumbing system be electrically grounded. When a water treatment system is installed a nonmetallic bypass valve may interrupt the grounding. To maintain continuity, a grounding strap can be purchased at a hardware store. When it is installed the strap will connect the plumbing into the system to the plumbing leaving the system.

Water Line and Bypass Connection

Once you have selected your location check the direction of the water flow in the main pipe.

A bypass valve system should be installed on all water conditioning systems. The bypass valve system isolates the filter from the water supply and provides untreated water to service during routine maintenance and servicing procedures.



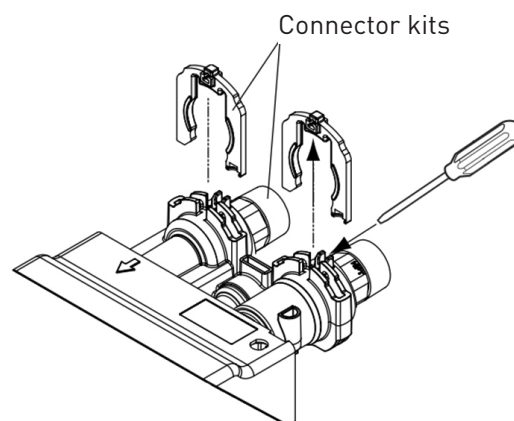
Normal Operation

- Valves 1 and 3 open
- Valve 2 closed

Bypassed Position

- Valve 2 open
- Valves 1 and 3 closed

Connect the connector kit to the water supply system: Wrap the ends of the connector kit with Teflon tape; attached the connector kit to the incoming pipe; the carbon filter system is then connected to the other end of connector kit; the connection is secured with the supplied U-clip.



Precaution before connecting the carbon filter system to the connector kit:

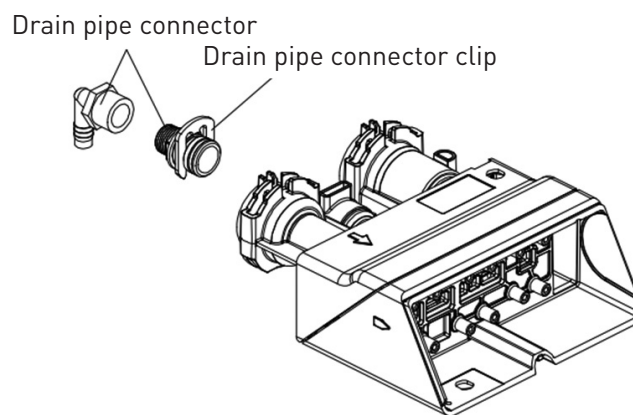
- Check to ensure that all O-rings are in perfect condition.
- Lubricate the O-rings and contact surfaces with 100% silicone grease.

When removing the securing clip:

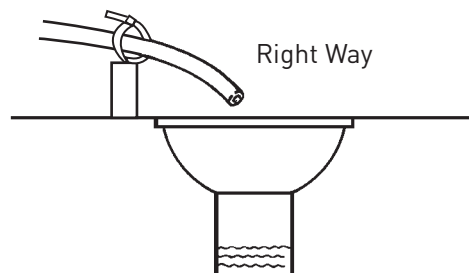
- Turn off the water supply and relieve the internal pressure on the valve.
- Push the connector kit towards the control valve to help loosen the sealing ring which may be seated tightly.
- Place a screwdriver under the top end of the U-clip to help lift and remove the clip.

Installation of drain pipe

Drain pipe connection and installation instruction are as shown in the figure below:



- Wrap the threaded end of the flow controller with Teflon tape.
- Tighten the two components of drain connector kit by hand.
- Insert the drain connector kit onto the drain opening of the carbon filter.
- Insert the drain connector clip to secure the connection.
- Cut a suitable length of 1/2" flexible hose and connect it to the drain secure it with a cable tie.
- Secure the discharge end of the drain line to prevent it from moving.



Drain Line Connection

NOTE: Waste connections or drain outlet shall be designed and constructed to provide for connection to the sanitary waste system through an air gap of two pipe diameters or one inch (22 mm), whichever is larger.

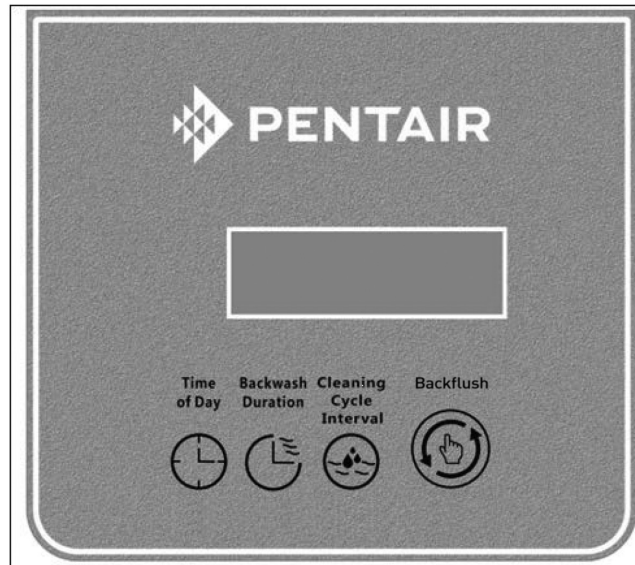
WARNING: Never insert drain line directly into a drain, sewer line, or trap (Figure above Drain Line Connection). Always allow an air gap between the drain line and the wastewater to prevent the possibility of sewage being back-siphoned into the filter.

5. OPERATING INSTRUCTIONS

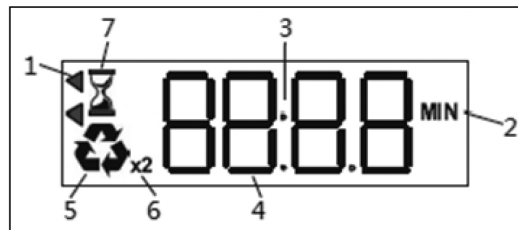
5.1. Commissioning and Setting

DIRECTIONS

Commissioning and setting
Control Valve panel



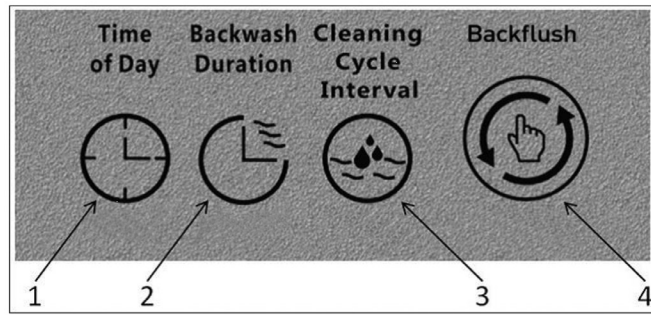
Description of Control Valve panel display



Display Icons

1. Indicates water flow when displayed. Arrows alternate faster as flow increases.
2. When "MIN" is displayed, the value in minute increments. "MIN" is displayed during Backflush; the value displayed is the minutes of Backflush remaining.
3. Colon (double dots) flashes as part of the time display. It Indicates normal operation.
4. Four digits used to display the time or program value. It also used for error codes.
5. The Backflush sign is displayed (flashing) when a next Backflush has been called for. Also displays (continuously) when in Backflush.
6. When "x2" is displayed, a second Backflush has been called for.
7. The hourglass is displayed when the motor is running.

NOTE: During normal operation (Service mode) the display will show the current time of the day with the colon (double dots) blinking. This will alternate with a display of the – filtered water volume.



Display Icons

1 Time of Day: Press “Time of day” to display the current time value in hours. The time value is displayed as a number from 0 to 23, with 0 representing midnight and 23 representing 11:00 PM. While the value is being displayed, press the button to increase the value. Press and hold the button to rapidly advance the value. Release the button when the desired value is displayed. The value will be stored in the memory after five seconds.

Range: 0 - 23 hours

NOTE: The lapsed minutes will reset to zero when the hours are changed.

2 Backwash Duration: Press “Backwash Duration” to display and set the current backwash cycle steps. The value in minutes will be displayed for five seconds. While the value is being displayed, press the button to increase the value. Press and hold the button to rapidly advance the value. Release the button when the desired value is displayed. The value will be stored in the memory after five seconds.

Range: 2 - 50 minutes

NOTE: The Rapid Rinse cycle step adjusts automatically based on the Backwash Duration value. See table below.

Backwash Time	Rinse Time
2 - 5 minutes	1 minute
6 - 9 minutes	2 minutes
10 -13 minutes	3 minutes
14 -17 minutes	4 minutes
18 - 21 minutes	5 minutes
22 - 25 minutes	6 minutes
26 - 29 minutes	7 minutes
30 - 35 minutes	8 minutes
36 - 40 minutes	9 minutes
41 - 50 minutes	10 minutes

3 Cleaning Cycle Interval: Press “Cleaning Cycle Interval” to display the current cleaning cycle interval setting. The value in cubic meters (metric units) to treat between cleaning cycles will be displayed for five seconds. While the value is being displayed, press the button to increase the value. Press and hold the button to rapidly advance the value. Press and hold the button to rapidly advance the value. Release the button when the desired value is displayed. The value will be stored in memory after five seconds.

Range: 0.4 - 9.5 cubic meters
Default: 1.0 cubic meters

4 Backflush:

- Press and release “Backflush” to program a delayed cleaning cycle. The system will backwash at the next scheduled cleaning cycle. Repeat procedure to disable the scheduled cleaning cycle. The display indicator dot blinks when a delayed cleaning cycle is scheduled.
- Press and hold for three seconds to initiate an immediate cleaning cycle. The control cycles to the backwash cycle step. The control will proceed through a complete cleaning cycle. A cascading symbol (- -) will be displayed until the cycle is complete.

NOTE: If a button is not pushed for five seconds, the controller returns to normal operation mode.

Pushing the Backflush button immediately returns the controller to normal operation.

Quick Cycling

Press and hold for three seconds “Backflush” to initiate an immediate cleaning cycle. The control will cycle to the backwash cycle step.

1. Press and release “Backflush” to display “C1” (backwash).
2. Simultaneously press then release “Backflush” and “Time of day” to move the control to the next cycle step, “C2” (rinse).

NOTE: The time may be displayed for 5 seconds.

3. Repeat steps 2 and 3 to cycle through each position.

Quick Cycle to Service Position

Simultaneously press “Backflush” and “Time of day” and hold for three seconds during any cleaning cycle step. The control will skip the remaining cycle steps and return to the service position. The time of day will be displayed when the control reaches the service position.

Calendar Override: To set time duration between cleaning cycles to ensure proper functioning of the filter in the event of a flow sensor malfunction, press and hold “Backflush” and “Cleaning Cycle Interval” for three seconds. The value in days between cleaning cycles will be displayed for five seconds. While the value is being displayed, press the button to increase the value. Press and hold the button to rapidly advance the value. Release the button when the desired value is displayed. The value will be stored in memory after five seconds.

Range: 8 hours (0.3 days) - 30 days; 0 to disable
Default: 0 (disabled)

Controller Initial Power-Up

- The water supply valve should be off or be in by-pass
- At initial power-up, the camshaft may need to rotate to the HOME (in service) position.
- Camshaft may take 1 to 2 minutes to return to HOME position.
- Err 3 will be displayed until the camshaft returns to HOME position (Initial Power-Up Display).
- If more than 2 minutes lapse, verify that the motor is turning the camshaft. If not, check the “Troubleshooting” section.



Initial Power-Up Display

When the camshaft has reached the HOME (service) position the display will show “- :- -”. If the time of day alternating with filtered water volume is displayed, then the controller has used its short term memory to load settings. Short term memory will hold settings for approximately eight hours.

Initial Startup settings

The description above guides the system parameters.

- Time of day: current time
- ‘Backwash Duration’ and ‘Cleaning Cycle Interval’ be set according below table.

PCFE40P12		
TSS(NTU)	Cleaning Cycle Interval(t)	Backwash Duration(min)
<1	5	8
1.0-2.0	5	12
>2	5	20

PCFE54P12		
TSS(NTU)	Cleaning Cycle Interval(t)	Backwash Duration(min)
<1	9	8
1.0-2.0	9	12
>2	9	20

Notes: if - TSS value, suggest setting 20 min for backwash duration.

Programming is completed.

If no button is pressed within 5 seconds, the controller will commence normal operation.

In normal operation (operating mode), the display will show the current time and a flashing colon sign; the display will change alternately to show the amount of water filtered.

Start up & Commissioning

Upon completion of the above initial power up steps, the carbon filter needs to be put into operation. Please follow the following procedures strictly to perform commissioning. (This process is to be performed by the Pentair authorized distributor):

- Set the “Time of Day”, “Backwash Duration” and “Cleaning Cycle Interval” in accordance with actual requirements. The control panel will return to operating mode with alternating display of current time and amount of water filtered. Confirm that the bypass valve is turned off and other external devices (connectors, valves, faucets) are connected securely and are in proper operating condition. This should avoid any inconvenience during use.

SYSTEM STARTUP

The system will now need to be placed into operation. Please review MANUALLY INITIATING A CLEANING CYCLE before attempting startup.

1. With the supply water for the system still turned off, position the bypass valve to the “not in bypass” (normal operation) position.
2. Press and hold the “Backflush” button on the controller for three seconds. This will initiate a manual cleaning cycle, and cycle the valve to the backwash position.
3. Filling the media tank with water:
 - A. With the system in backwash, open the water supply valve very slowly to approximately the 1/4 open position. Water will begin to enter the media tank. Air will begin to be purged to drain as the media tank fills with water.

WARNING: If opened too rapidly or too far, media may be lost out of the tank into the valve or the plumbing. In the 1/4 open position, you should hear air slowly escaping from the valve drain line.
 - B. When all of the air has been purged from the media tank (water begins to flow steadily from the drain line), open the main supply valve all of the way. This will purge any remaining air from the tank.
 - C. Allow water to run to drain until the water runs clear from the drain line. This purges any debris from the media bed.
 - D. Turn off the water supply and let the system stand for about five minutes to allow any trapped air to escape from the media tank. Turn on the water supply after five minutes. Check for leaks.

The system is now fully operational.

Quick Cycling the Control

Refer to the table below, press the “Time of Day” and “Backflush” buttons simultaneously to move to the next step of the cleaning cycle.

Cycle Step	Description	Cleaning Cycle standard
1	Backwash Cycle	Until the effluent water is clear or until preset backwash duration is reached, then proceed to the next cycle step.
2	Fast Rinse Cycle	Until the effluent water is clear or until preset fast rinse duration is reached, then proceed to the next cycle step.
3	Back to normal operation	Another cycle is performed if effluent water is not clear, until the effluent is clear.

INSTALLATION CHECKLIST

- Read the owner’s/installation manual?
- Follow all safety guidelines in the manual?
- If metal pipe was used, did you restore the electrical ground?
- Securely install drain hose to an approved drain?
- Perform a leak test?
- Move the bypass valve to service?
- Start a cleaning cycle?

5.2. Accessing History Values

The control features a review level that displays the operation history of the system. This is a great troubleshooting tool for the control valve.

To access history values, press “Backflush” and “Backwash Duration” simultaneously and hold for three seconds to view the diagnostic codes.

NOTE: If a button is not pushed for 30 seconds the controller will exit the history values table.

Press “Time of Day” to advance through the table. When the desired diagnostic code is reached,

Press “Backwash Duration” to display the value.

Some history values may have up to four digits. Press “Backwash Duration” to display the first two digits of the value. Press “Cleaning Cycle Interval” to display the last two digits.

Code	Description
H1	Days since last regeneration
H2	Current day of week (Displayed as 0 – 6)
H3	Amount of water filtered since 2.00am today
H4	Amount of water filtered since last regeneration
A0	Average amount of water filtered in Day 0
A1	Average amount of water filtered in Day 1
A2	Average amount of water filtered in Day 2
A3	Average amount of water filtered in Day 3
A4	Average amount of water filtered in Day 4
A5	Average amount of water filtered in Day 5
A6	Average amount of water filtered in Day 6

5.3. Error Diagnosis and Troubleshooting

System Error Codes

Problem	Possible Cause	Solution
Flowing or dripping water at drain after cleaning cycle.	Debris is preventing #3 or #4 valve disc from closing.	Remove debris.
	Worn #3 or #4 valve disc.	Replace valve discs.
Control will not complete a cleaning cycle automatically.	AC adapter or motor not connected.	Connect power.
	Debris is preventing camshaft from rotating.	Remove debris.
	Defective motor.	Replace motor.
Backwashes or purges at excessively low or high rate.	No drain line flow control.	Install drain line flow control.
	Restricted drain line.	Remove restriction.
The flow meter on the flow controller fails to show the operating flowrate	The system is in bypass state.	Cancel the bypass state.
	The meter cable is detached from the valve.	Reconnect the meter cable to the valve.
	The meter is blocked by debris.	Disassemble and clean the meter.

Control Error Codes

Problem	Possible Cause	Solution
E1 is displayed.	Program settings have been corrupted.	Press any key. If E1 does not clear, replace controller.
E3 is displayed.	Control does not detect the camshaft position and is returning to the service position.	Wait until the control returns to the service position.
	Camshaft is not turning during E3 display.	<p>Check that motor is connected. Verify that the motor wire harness is connected to motor and controller module. Verify that optical sensor is connected and in place. Verify that motor gear has engaged the camshaft.</p> <p>If everything is connected, replace components in this order:</p> <ol style="list-style-type: none"> 1. Motor Assembly. Optical Sensor 2. Control
	Camshaft is turning more than five minutes to find Home position:	<p>Verify that optical sensor is in place and connected to wire. Inspect for debris in the camshaft slots.</p> <p>If motor continues to rotate indefinitely, replace the following components in this order:</p> <ol style="list-style-type: none"> 1. Motor Assembly. Optical Sensor 2. Control

6. TERMS AND CONDITIONS OF WARRANTY

1. The warranty period is 1 year from the date of purchase. During the warranty period, Pentair (Company) is responsible for providing free warranty for faults arising from normal operation and use according to the installation manual and user's manual. Pentair will charge repair and maintenance fees after the warranty expires.
2. The user should keep valid purchase invoice, which serve as the basis for after-sales service.
3. Installation, maintenance and repair services will be provided by Pentair's authorized distributors. In the event that the user is unable to present the warranty card or valid purchase invoice, Pentair will deem the warranty to have expired and charge the relevant fees.
4. Warranty will be void in the following conditions:
 - Installation by personnel who are not authorized by the Pentair;
 - Product malfunction or damage resulted from the user's failure to follow the instructions described in the user's manual to operate the system;
 - Error or damage caused by the user's self-repair or modification of the equipment;
 - Error or damage caused by major force (including but not limited to natural disasters such as fires, floods, earthquakes, lightning strikes, etc.);
 - Error or damage caused by human factors (including but not limited to drop, knock, etc.);
 - Where the user is unable to present the warranty card or purchase invoice, or the content of the invoice has been altered;
 - Any problems caused by using parts that are not approved by Pentair.
5. The repair parts replaced during the warranty period are owned by Pentair.
6. Warranty does not cover for all consumables, such as filter element and materials, in water treatment equipment.
7. Pentair reserves the right to charge a certain service fee for maintenance or repair service provided on-site in remote areas.

7. MAINTENANCE RECORDS

DATE	CAUSE OF ERROR	REPLACEMENT PART	MAINTENANCE PERSONNEL

IMPORTANT

Please attach your sales invoice/docket here as proof of purchase should warranty service be required.
Please do not return warranty form to Pentair - Retain for your records.

Purchased from :.....

Purchase date :..... Serial No :..... Model No :.....



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