



INTELLIWATER™ CONNECTED WATER SOFTENER SERVICE MANUAL, INSTALLATION AND OPERATION GUIDE

PNR-POE1-XTR3-01 | PNR-POE1-XTR3-02 | PNR-POE1-XTR3-03



TABLE OF CONTENTS

IMPORTANT INFORMATION	2
WATER CONDITIONS FOR OPERATION	3
CUSTOMER SERVICE CONTACT INFORMATION	3
PRODUCT OPERATION AND SPECIFICATIONS	3
COMPLETE PARTS LIST	4
START-UP INSTRUCTIONS/FLUSHING AND CONDITIONING	11
TOUCHSCREEN CONTROL FEATURES.....	12
TOUCHSCREEN SETUP	14
TROUBLESHOOTING	19
DIMENSIONAL DRAWINGS.....	21
SYSTEM ASSEMBLY PART NUMBERS	22
CONTROL VALVE PART NUMBERS.....	23
TURBINE METER ASSEMBLY PART NUMBERS	25
BYPASS VALVE ASSEMBLY PART NUMBERS	26
BRINE WELL ASSEMBLY PART NUMBERS	27
WIRING DIAGRAM	28
INJECTOR FLOW DATA	29
PERFORMANCE DATA SHEET	30
WATER CONDITIONER FLOW DIAGRAMS	31
SYSTEM DISINFECTION	32
PENTAIR PRO: APP SETUP	33
MASTER SETTINGS	43
MASTER SETTINGS PROGRAMMING.....	44
ADDITIONAL FEATURES	50
REGENERATION	52
CONTROL OPERATION.....	52
MASTER RESET	54
DIAGNOSTICS	54
ALARMS AND ERRORS	56
USB CONNECTION FOR FIELD PROGRAMMING	56
MASTER SETTINGS REFERENCE CHART	57
PRODUCT WARRANTY AND REGISTRATION FORM	58

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 Teflon® Tape and/or Pipe Thread Seal Paste will be needed on all threaded connections.
- To soften all water in the home, install Pentair IntelliWater Connected Water Softener™ 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 softened water.

WARNING

The contaminants or other substances removed or reduced by this system are not necessarily in your water.

WARNING

This device must be maintained and operated as specified in the owner's manual.

IMPORTANT INFORMATION CONTINUED

WARNING

Installing this system in a metal (conductive) plumbing system, i.e., copper or galvanized metal, will interrupt the continuity of the plumbing system and grounding source in some homes. If your home's electrical appliances are grounded through the plumbing system, you will need to install a bypass that consists of the same material as the existing plumbing or a grounded "jumper wire" to bridge the equipment and re-establish the contiguous conductive nature of the plumbing before using this Pentair system. Failure to do so can result in errant electricity from improperly grounded appliances or potential galvanic activity in the plumbing system, which could increase the risk of fire or injury while using your home appliances. Please consult a licensed electrician before attempting to install.

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.

Customer Service Contact Information Section

Homeowners Phone: 877.842.1635

Technical Support Phone: 800.861.8758

PRODUCT OPERATION AND SPECIFICATIONS

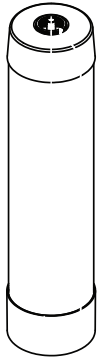
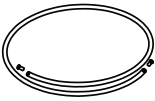
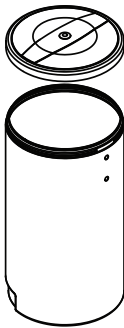
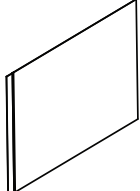
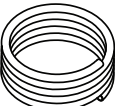
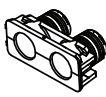
Specification Description	Pentair IntelliWater Connected Water Softener
Minimum Working Pressure	20psi / 1.4 bar / 138 kpa
Maximum Working Pressure	125 psi/ 8.61 bar/ 861 kpa
Operating Temperature	35°F - 110°F/1°C-43°C
Operating Ambient Temperature	35°F - 120°F/1°C-52°C
Maximum Humidity	75%
Input Voltage	120 VAC
Input Frequency	50/60 Hz
Output Voltage	12 VDC
Output Current	2.0 amps
Maximum Altitude	2,000 meters

COMPLETE PARTS LIST



Notice

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/homewater to view our full line of installation kits. Drawings are not to scale.

Part	Description	Qty.	Part	Description	Qty.
	Softener Tank with Distributor Assembly, Cation Resin and Fine Gravel	1		Brine Line Tubing with End Inserts (shipped inside the Brine Well)	1
	Salt Tank with Cover	1		Wall Transformer	1
	Brine Well Assembly	1		Service Manual, Installation and Operation Guide	1
	Drain Line	1		Softener Valve with Turbine, Bypass, Drain Line fitting and Drain Line Flow Control	1
				Upper Basket	1
				Yoke, 1" NPT	1

ADDITIONAL TOOLS AND FITTINGS REQUIRED (NOT INCLUDED)

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

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 items should be completely replaced.
- All electrical connections must be completed according to local codes.
- Use only the power transformer supplied with this water softener system.
- The power outlet must be grounded and always on.
- To disconnect power, unplug the AC adapter from its power source.
- Install an appropriate grounding strap across the inlet and outlet piping of the water system to ensure proper grounding is maintained.

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. PTFE 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.
- Use only lead-free solder and flux, as required by federal and state codes, when installing soldered copper plumbing.
- The drain line must be a minimum of 1/2-inch diameter. Use 3/4-inch pipe if the pipe length is greater than 20 feet (6 m).
- Do not support the weight of the system on the control valve fittings, plumbing, or the bypass.

Model	PNR-POE1-XTR3-01	PNR-POE1-XTR3-02	PNR-POE1-XTR3-03
System Number	4005857	4005858	4005859
Installation Requiements WxDxH inches	28x33x54	28x33x64	30x33x62

General:

- Observe all warnings that appear in this manual.
- 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.
- Keep the unit in the upright position. Do not turn on side, upside down, or drop. Turning the tank upside down will cause media to enter the valve.
- Operating ambient temperature range : 35°F (1°C) to 120°F (49°C).
- Operating water temperature range : 35°F (1°F) to 100°F (38°C).
- Operating water pressure range : 20 to 125 psi (1.38 to 8.27 bar).
- Use only salts designed for water softening. Acceptable salt type is sodium chloride pellet salt.
- Follow state and local codes for water testing.
- When filling media tank, do not open water valve completely. Fill tank slowly to prevent media from exiting the tank.
- Always make modifications to house plumbing first. Connect to valve last.
- Plastic parts and o-rings may be damaged by heat and solvents. When constructing plumbing connections allow heated parts to cool and protect parts from solvents.

LOCATION SELECTION

Location of a water treatment system is important. The following conditions are required:

- Level platform or floor.
- Ambient temperatures over 35°F (1°C) and below 120°F (49°C).
- Constant electrical supply to operate the controller.
- Total minimum pipe run to water heater of 10 feet (3 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.
- Room to access equipment for maintenance and adding salt.

Outdoor Locations:

It is recommended that the system be installed indoors. When the water softener system must be installed outdoors, several items must be considered.

- Moisture — The valve and controller are rated for NEMA 3 locations. Falling water should not affect performance. 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.
- Insects — The controller and valve have been designed to keep all but the smallest insects out of the critical areas.



Notice

If installing outdoors, an environmental weather cover (part number 61882) and/or outdoor power supply (part number 44163-01) must be installed with the system.

Inspection:

The system is shipped with several parts unassembled. When parts are removed from the packing, they should be inspected for damage. If any parts are damaged or missing, contact our support team. When the carton is first opened, the softener will be standing upright.

To assemble the system, remove the salt tank components (cover, tank and brine tube assembly) from the shipping container.

1. Remove the brine tank cover.
2. Remove the parts box.
3. Lift the brine tank off unit. Tilt the brine tank forward and slowly lift free.
4. Remove the brine well and drain line.
5. Remove the cardboard spacers.

The media tank can now be removed.



Caution

When handling the media tank do not turn it upside down or drop on its side.

To Assemble the Salt Tank:

1. Stand the salt tank up and in position. Level as needed. The tank has two ports that will be connected. One to a drain and one to the valve.
2. Remove the overflow fitting from the brine tube. Place the brine tube in position. Align the large hole in the brine well with the hole in the brine tank. Install the overflow fitting in this hole to secure well to tank. Lay cover aside for now.

EQUIPMENT INSTALLATION

To Assemble the Media Tank:

1. Stand the tank up and in position.
2. If the floor under the media tank is uneven, level as needed.

Install the Valve Head:

1. Remove the cap plug from the tank.
2. Lubricate the riser pipe o-ring and tank o-ring with the Dow® 111 silicone-based lubricant or equivalent.
3. Attach the supplied upper basket to the bottom of the control valve; twist to lock in place. Do not use if water contains any amount of iron.
4. Align the upper basket with the riser pipe and slowly lower the control valve onto the riser pipe using a twisting motion.
5. Align the control valve with the tank. Push down on the control valve and continue to turn clockwise until the valve o-ring seals against the tank.



Warning

Do not over tighten the valve to the tank. The media tank contains loose particles that will shift. If the tank is turned upside down or laid back quickly, the particles may enter the valve. If this happens, the valve may need to be disassembled and cleaned.

BYPASS VALVE

A bypass valve system is installed on all water softening systems. Bypass valves isolate the softener from the water system and allow unsoftened water to be used. Service or routine maintenance procedures may also require that the system is bypassed. Install the 1" NPT yoke as shown.

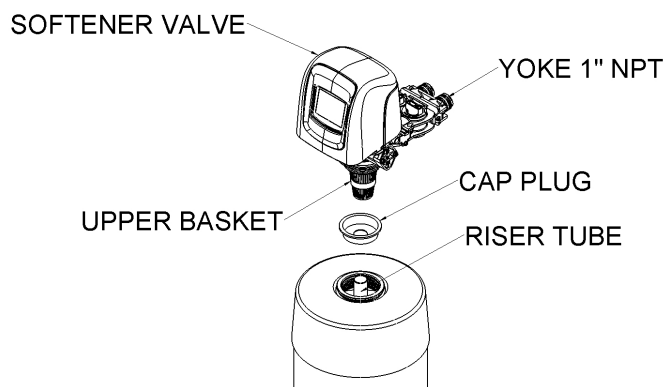


Figure 1

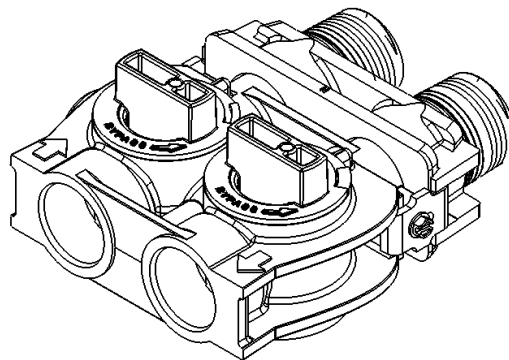


Figure 2

GROUNDING THE PLUMBING

It is important that the plumbing system be electrically grounded. When a water softener is installed, a non-metallic bypass valve may interrupt the grounding. To maintain continuity, a grounding strap can be purchased at a hardware store (Figure 3). When installed, the strap connects the plumbing going into the softener to the plumbing going out of the softener. If you have other water treating equipment such as a chlorinator, sediment filter, neutralizer, iron filter, or taste and odor filter they should be installed upstream of the water softener.

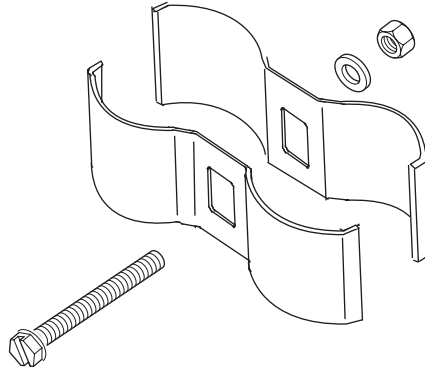


Figure 3

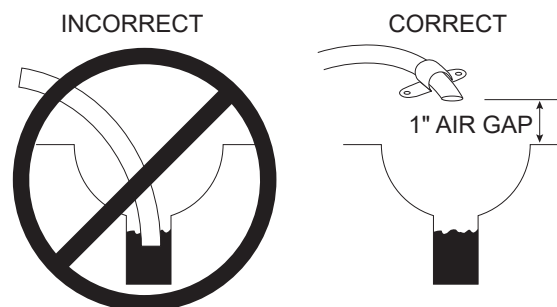
DRAIN LINE CONNECTION



Notice

Standard commercial practices are expressed here. Local codes may require changes to the following suggestions. Check with local authorities before installing a system.

1. The unit should be above and not more than 20 feet (6.1 m) from the drain. Use an appropriate adapter fitting to connect plastic tubing to the drain line connection of the control valve.
2. The drain line may be elevated up to 6 feet (1.8 m) providing the run does not exceed 15 feet (4.6 m) and water pressure at the softener is not less than 40 psi (2.76 bar). Elevation can increase by 2 feet (61 cm) for each additional 10 psi (.69 bar) of water pressure at the drain connector.
3. Where the drain line is elevated but empties into a drain below the level of the control valve, form a 7-inch (18-cm) loop at the far end of the line so that the bottom of the loop is level with the drain line connection. This will provide an adequate siphon trap. Where the drain empties into an overhead sewer line, a sink-type trap must be used. Secure the end of the drain line to prevent it from moving.



Construct air gap as shown or purchase air gap device as used with clothes washers.

Figure 4



Notice

Waste connections or drain outlet shall be designed and constructed to provide for connection to the sanitary waste system through an air gap of 2 pipe diameters or 1 inch (22 mm), whichever is larger.



Caution

Never insert drain line directly into a drain, sewer line, or trap (Figure 4). Always allow an air gap between the drain line and the wastewater to prevent the possibility of sewage being back-siphoned into the softener.

GENERAL INSTALLATION NOTES

1. Place the softener and salt tanks where you want to install the unit.



Notice

Be sure the tanks are level and on a firm base.

2. During cold weather it is recommended that the installer warm the valve to room temperature before operating.
3. Perform all plumbing according to local plumbing codes. Use a 1/2" minimum pipe size for the drain.



Notice

If required, solder copper tubing for tank interconnection before assembling on the main control valve and tank adapter. Maintain a minimum of 1" distance between tanks on final assembly.

4. Solder joints near the drain must be done before connecting the Drain Line Flow Control fitting (DLFC). Leave at least 6" (152 mm) between the DLFC and solder joints when soldering pipes that are connected on the DLFC. Failure to do this could cause interior damage to DLFC.
5. Use only plumber tape on the drain fitting.
6. Be sure the floor under the salt storage tank is clean and level.
7. Make all electrical connections according to codes. Plug the valve into an approved power source.

BRINE LINE CONNECTION

The brine line from the brine tube connects to the valve. Make certain the connections are hand tightened. Be sure that the salt line is secure and free from air leaks. Even a small leak may cause the salt line to drain out, and then the softener will not draw salt from the tank. This may also introduce air into the valve causing problems with valve operation.

To install the brine line:

1. Inside the salt tank, remove the cap from the large cylinder to gain access to the connection.
2. Be sure the brass insert is in the end of the brine tubing. Insert the tubing through the opening in the tank.
3. Push the tubing into the plastic nut. Slowly unscrew the nut until the tubing moves into the connection. The tubing will hit bottom.

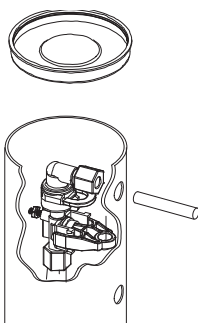


Figure 5



Notice

Once the tubing has been pushed into the nut it cannot be pulled out. The nut will need to be removed. See Figure 6 for correct assembly.

4. Hand tighten the nut until the connection is tight.
5. Make compression fitting connection between brine line and valve (Figure 6).

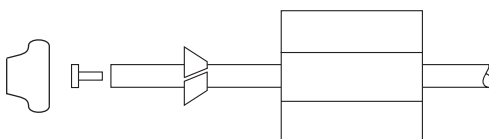


Figure 6

ELECTRICAL CONNECTION

Caution

This valve and control are for dry location use only. For outdoor use the customer should contact customer service for the proper transformer (part number 44163-01).

The controller and motor operate on a 12-volt DC power supply. This requires use of the supplied power adapter included with your system.

Notice

The power source should be constant. Be certain that the adapter is not on a switched outlet. Power interruptions longer than 8 hours may cause the controller to lose the time setting. When power is restored, the time setting must then be re-entered

Transformer port location (plugging in transformer)
When looking at valve from front, reach around back under cover on right hand side.
Transformer port is located just past the cover's snap feature.

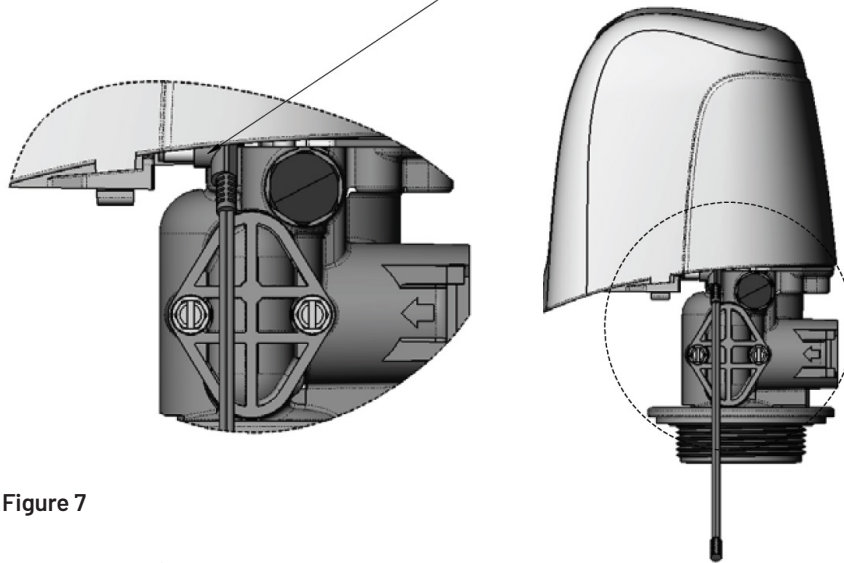


Figure 7

Typical Residential System Plumbing:

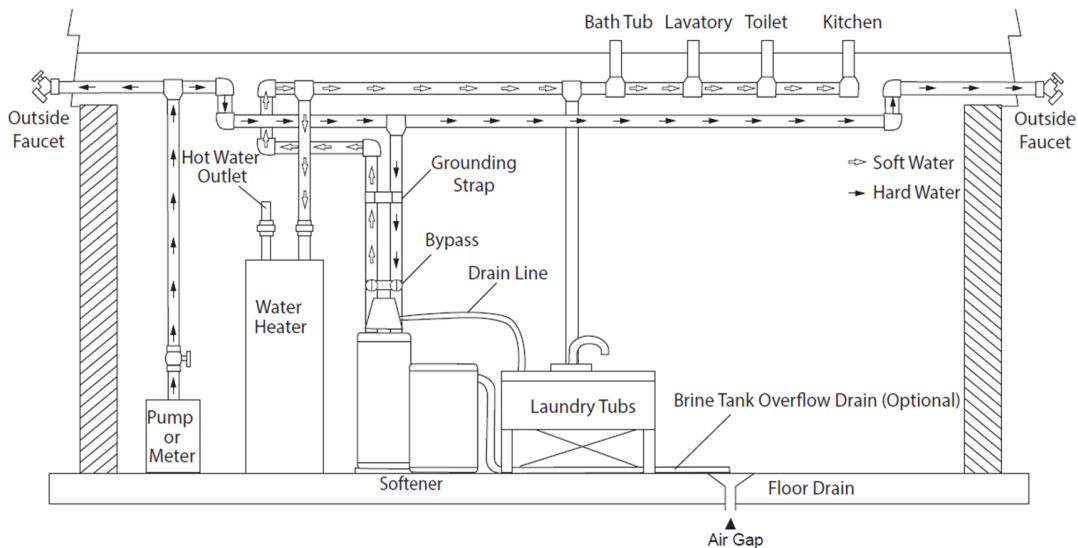


Figure 8

START-UP INSTRUCTIONS/FLUSHING AND CONDITIONING

The water softener should be installed with the inlet, outlet, and drain connections made in accordance with the manufacturer's recommendations, and to meet applicable plumbing codes.

1. Program the valve control according to instructions shown in this manual. See page 14 for Programming Quick Start.
2. Start an immediate regeneration by holding the Extra Cycle button for five (5) seconds. Position the valve to backwash. Ensure the drain line flow remains steady for 10 minutes or until the water runs clear.
3. Position the valve to the brine / slow rinse position. Ensure the unit is drawing water from the brine tank (this step may need to be repeated).
4. Position the valve to the rapid rinse position. Check the drain line flow, and run for five (5) minutes or until the water runs clear.
5. Position the valve to the start of the brine tank fill cycle. Ensure water goes into the brine tank at the desired rate. The brine valve drive cam will hold the valve in this position to fill the brine tank for the first regeneration.
6. Replace control cover.
7. Put salt in the brine tank.



Notice

Do not use granulated or rock salt.

TOUCHSCREEN CONTROL FEATURES

BUTTON AND SYMBOLS

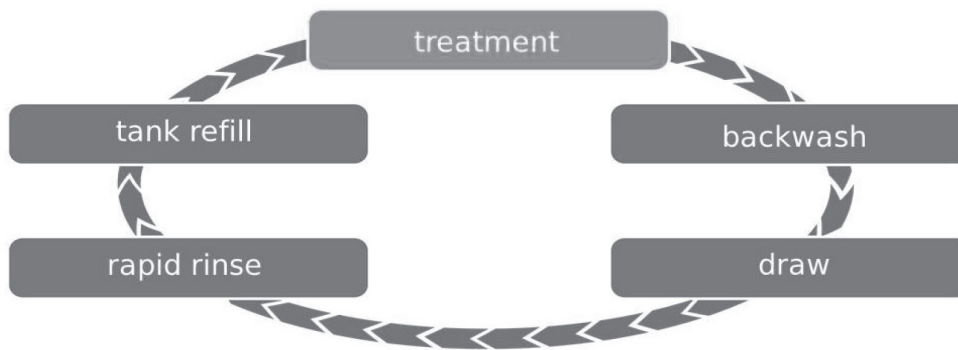


Notice

Not all buttons appear on all screens.

REGENERATION CYCLE WHEEL

Displays the regeneration cycle step the system is currently in. The wheel rotates with each step so that the current step is shown in green.



Notice

On metered units, the "Treatment" step on the Regeneration Cycle Wheel will flash when water is flowing through the unit.



Home: Displays the Home screen.



Regeneration: Displays the Regeneration screen, which allows you to start a regeneration and manually cycle through the regeneration steps.



Settings: Displays the Settings screen, which allows you to adjust commonly used settings. Pressing this button while in the Settings screen provides access to the Master Settings screen, which allows you to fully program the valve.



Notice

Due to the complexity of these settings and the potential for errors, Master Settings should only be accessed by your local water professional.



Diagnostics: Displays the Diagnostic screen, which can assist in performing maintenance and troubleshooting performance issues with the valve.



Brightness/Sound: Displays the Brightness/Sound screen, which allows you to adjust the backlight of the control screen and allows you to mute the alarms of the control.

TOUCHSCREEN CONTROL FEATURES CONTINUED



Vacation Mode: Halts all scheduled regenerations when pressed; press again to resume normal operation. When Vacation Mode is on, the 100 day regeneration error will be suspended



Assistance: Displays a name and phone number to call for unit service.



USB Connect: Allows you to connect the control to a device via a USB cable for field programming or download of diagnostic parameters via device (Field Programmer application required).



Screen Navigation Arrows: Displayed in the upper-left and upper-right corners of the screen, these arrows allow you to navigate from one screen to another.



Notice

Settings on previous screen are not saved unless  is pressed.



Settings Arrows: These arrows allow you to change the values of certain settings when programming the control.



Alarm: Displayed when an alarm has been triggered; accompanied by an audible alarm. Press to silence the audible alarm.



Error: Displayed when an error has occurred. Press to display the Error screen for more detailed error information.



Advance: This arrow allows you to advance through cycle steps during a regeneration.



Reset: Displayed in the Diagnostics screen to reset Totalizer and Peak Flow data and in Master Settings to reset parameters to factory or non-factory settings.



Accept: Press to save or accept changes in control configuration.



Cancel: Press to cancel configuration and exit to previous screen without saving.



Alert: Will display when there is no internet connection.



WiFi: Represents signal strength to WiFi router.



Bluetooth: When displayed in black, Bluetooth® signal is open. When displayed in white, bluetooth connection is engaged.

TOUCHSCREEN SETUP

The XTR3 control was designed to be easy to set up and begin using right out of the box. The following simple procedure can be used to set up the system and begin treating water in most typical applications.



Notice

Steps 2 and 3 are optional and are not required to start the system. All control settings may be changed after the unit is in service.



Notice

Press  on any Quick Start screen to reset the screen back to its default settings.

1. After plugging in the unit, the Format screen (Figure 9) is displayed.
Press the **language** button to adjust the system's displayed language (international version only): English, French, German, Italian, Spanish, or Dutch. Press  when finished.
Press the **units** button to adjust the system's units of measure (either U.S. or metric). Press  when finished.
Press the **hardness units** button to adjust the system's hardness units of measure (grains per gallon, mg/L or ppm, German degrees, French degrees, or English degrees). Press  when finished. Hardness units are adjustable only if metric units are selected.

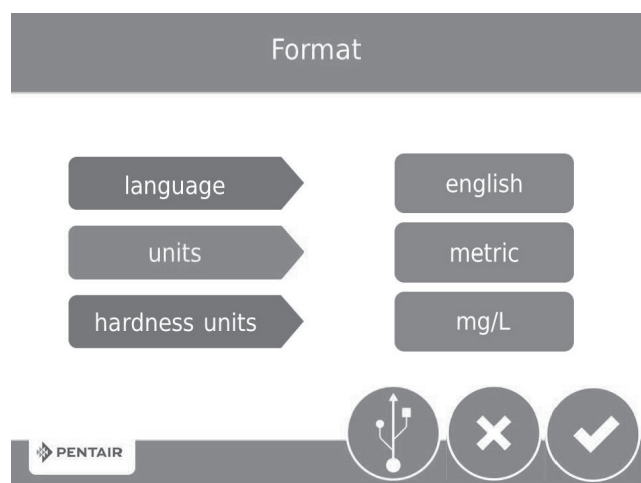


Figure 9



Notice

If the screen is blank after plugging in the unit, touch the screen to turn the screen on.

TOUCHSCREEN SETUP CONTINUED

- After pressing , the Assistance/Mainten. Name screen (Figure 10) is displayed.



Figure 10

Using the keypad, type the name of the water treatment professional or company that the homeowner may call for system service (optional).

To enter a letter using the keypad, quickly press the keypad button the number of times that correspond with the position of the correct letter on the button. For example, to enter the letter "C", quickly press the ABC button three times. Press  when finished.

- After pressing , the Assistance/Mainten. Phone screen (Figure 11) is displayed.



Figure 11

Enter the phone number of the water treatment professional or company that the homeowner may call for system service (optional). Press  when finished.

TOUCHSCREEN SETUP CONTINUED

4. After pressing , the Assistance/Mainten. Interval screen (Figure 12) is displayed.

Use the Assistance/Mainten. Interval screen to set the interval in which the homeowner will need to call a water treatment professional for system service (optional). The assistance interval can be based on a set number of months (month-based) or a number of regenerations (regen-based).

Press the **interval** button to select a month-based or regen-based assistance interval, then press . Press either the **month** or **regen** button (depending on your previous selection), and select the number of months (up to 60) or regenerations (up to 2,000) until the homeowner will need to call for service. Press  when finished.

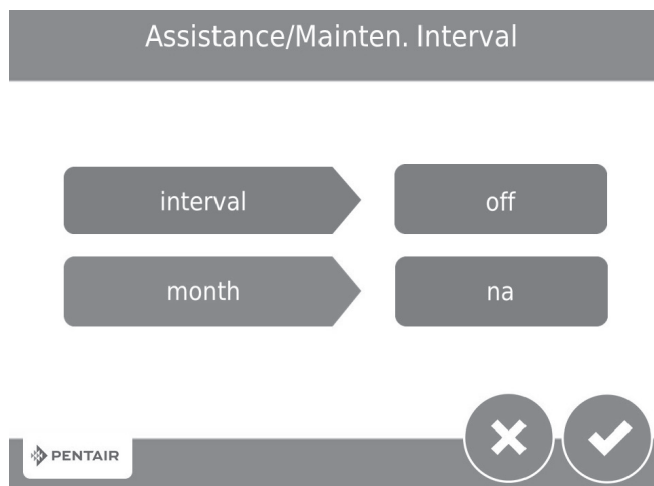


Figure 12

5. After pressing , the Home screen (Figure 13) appears.

The **Day and Time** button will be flashing, indicating that the day of the week and time need to be set. If the date and time are incorrect, press the **Day and Time** button to update to the correct day and time. The Day and Time screen (Figure 13) appears.

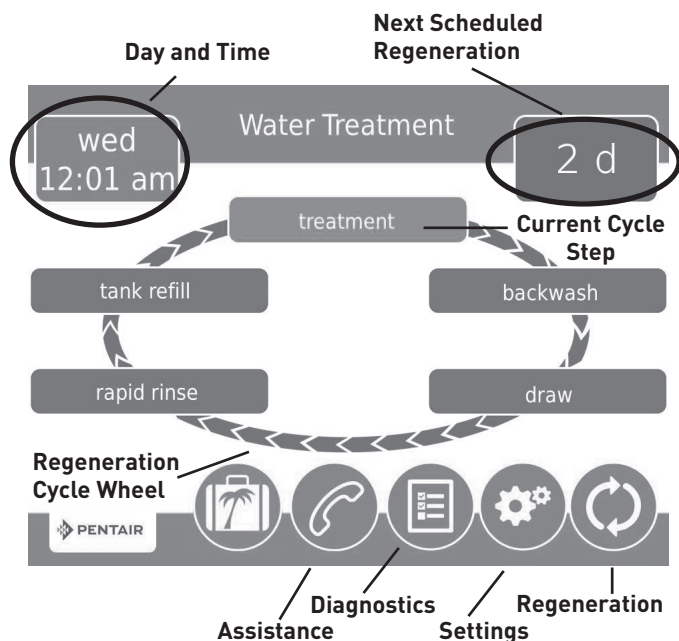


Figure 13

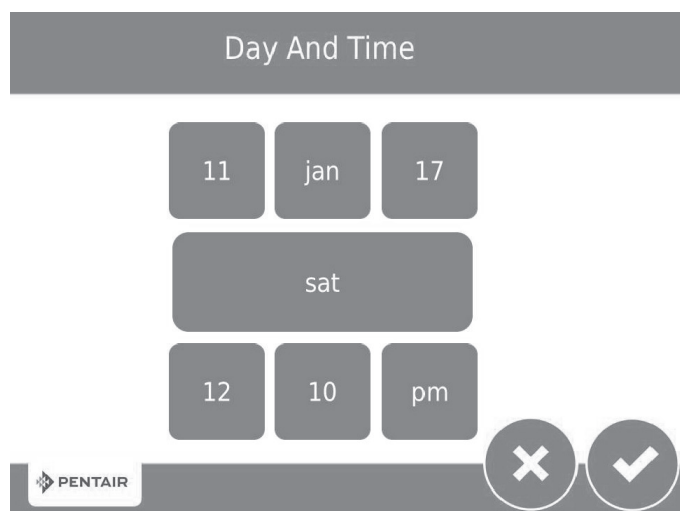


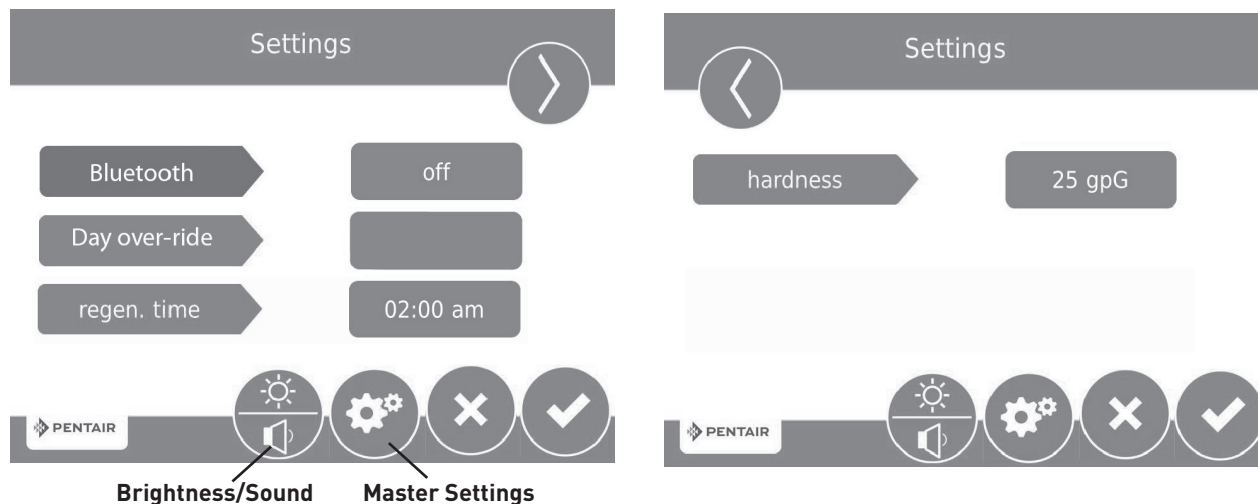
Figure 14

Press the **Day of Week**, **Hour**, **Minute**, and **AM/PM/HR** buttons to adjust the values to the correct day of week and time. Setting the value of the **AM/PM/HR** button to HR changes the display to a 24 hour clock. Press the **Day**, **Month**, and **Year** buttons to adjust the values to the correct date. Press the button when finished to return to the Home screen. Press to return to the Home screen without saving.

Settings

The Settings screen allows you to change basic control settings including time of regeneration and water hardness. These settings improve the operational efficiency of the system and can be adjusted independently from other control settings without needing to enter Master Settings.

From the Home screen, press the **Settings** button . The Settings screen is displayed.



TOUCHSCREEN SETUP CONTINUED

- **Bluetooth®** button should be turned on to open bluetooth signal during programming will automatically turn to off when WiFi connected.
- Press **day override** to adjust the number of days since last regeneration in which a new regeneration will automatically be run whether one is scheduled or not.
- Press **regen time** to adjust the time of day that an automatic regeneration cycle will begin.
- Press **hardness** to adjust the hardness setting. This value should match the hardness of the incoming untreated water supply.



Notice

Changing the hardness setting recalculates treatment volume and regeneration interval. This setting should only be changed on the advice of a professional.

- Press  to save your changes or press  to return to the Home screen.
Additional features may be accessed from the Settings screen by pressing the buttons at the bottom of the screen.
- **Master Settings:** Displays the Master Settings screen, which allows you to fully program the valve.
- **Brightness/Sound:** Displays the Brightness/Sound screen, which allows you to adjust the backlight of the control screen and allows you to mute the alarms of the control.



Notice

Due to the complexity of these settings and the potential for errors, Master Settings should only be accessed by your local water professional.



Notice

Settings can not be accessed during a regeneration. If a regeneration starts while in the settings menu, the screen will return to the main screen and all parameters will be voided.

ERROR ALERTS



Notice

An Error Alert appears on the Home screen if an error condition is detected. Press the Error Alert button  to view the error message.



Notice

Most error alerts are cleared at regeneration. If the error persists following a regeneration, attempt the appropriate reset and recovery procedure below or contact technical support.

ERROR SCREEN DISPLAY

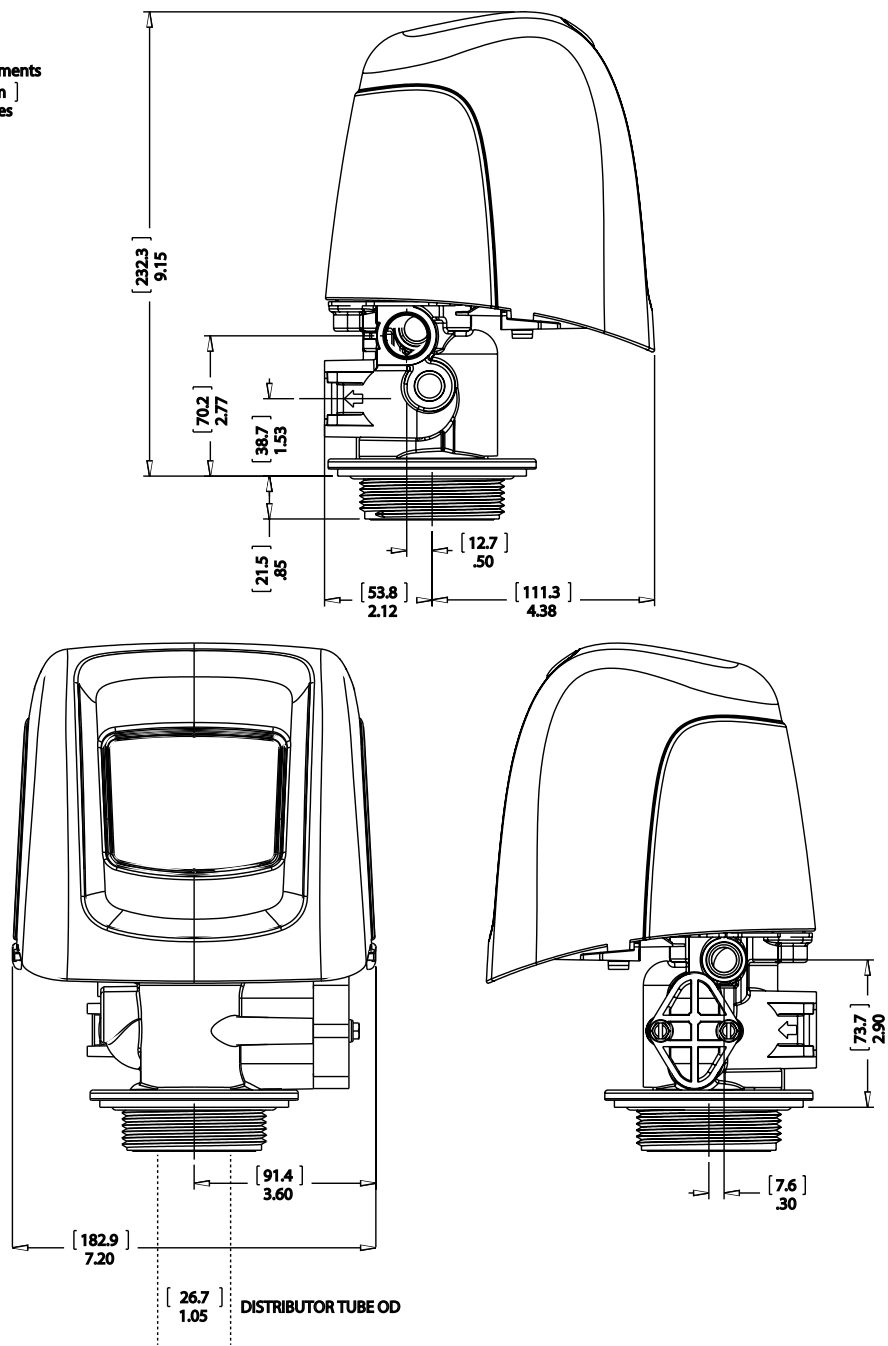
System Display	App Display	Cause	Reset and Recovery
Motor Stall Motor Run-On No changes detected in the optical sensor for 6 seconds	Motor stall	No state changes in the optical sensor are detected for 6 seconds.	Unplug the unit and plug back in. Allow the control to attempt to find position again. Verify the optical sensor is in place with the wires connected to the circuit board. Verify the motor and drive train components are in good condition and assembled properly. Check the valve and verify that the piston travels freely. Replace/reassemble the various components as necessary. Plug the unit back in and observe its behavior. If the error reoccurs, unplug the unit, put it into bypass and contact technical support.
Optical Sensor Undesired change detected in the optical sensor	Optical sensor	An undesired optical sensor state change occurred.	Non-critical error. Extra optical sensor pulse detected. Press the Regeneration button to advance motor to clear error.
Flow meter error Continuous Flow	Flow meter	The flow meter has reported continuous flow for more than 24 hours.	Error will clear when flow to meter drops below 0.5 GPM or 1 LPM. If continuous flow is expected, turn plumbing leak detection off in Master Settings.
Overcurrent Motor overcurrent detected	Overcurrent	Motor drew too much current.	Attempt to perform a manual regeneration. If error continues, call technical support.
Flow meter error No flow detected	Flow meter	No flow has been detected for 7 days.	Error will clear when a flow pulse is detected. Check to ensure meter cable is properly installed and meter spins freely. Clear meter of debris if necessary. If error continues, call technical support.
No regeneration for 100 days	No regen 100 day	The valve has not regenerated in more than 100 days.	Initiate a regeneration.
Service Interval	Service Interval	Service interval timer has expired.	From within Master Settings, navigate to the Assistance/Mainten. Interval screen and set a new Service Interval time.
No Salt Detect (international version only)	No Salt Detect	When chlorine generator is on but does not read salt from the chlorine generator.	Error will clear if salt is added to the brine tank and a manual regeneration is performed.
Emergency Regen Occurred	Emer Reg Occur	Over 105% of the total capacity (e.g., volume plus reserve) has been depleted.	Error will clear when regeneration occurs. When the Emergency Regen is enabled, the Emergency Regen Occurred error alert will display to let the user know an Emergency Regen Occurred. Repeated Emergency Regen may indicate an undersized system.
	IOT Conn Failure	XTR3 and IOT board communication not working.	Remove data cable. Reset IOT Board by reset button on top, then plug data cable back in.
	Offline	WiFi connection has been disrupted for more than 60 minutes.	Verify WiFi is not experiencing any issues.

TROUBLESHOOTING CONTINUED

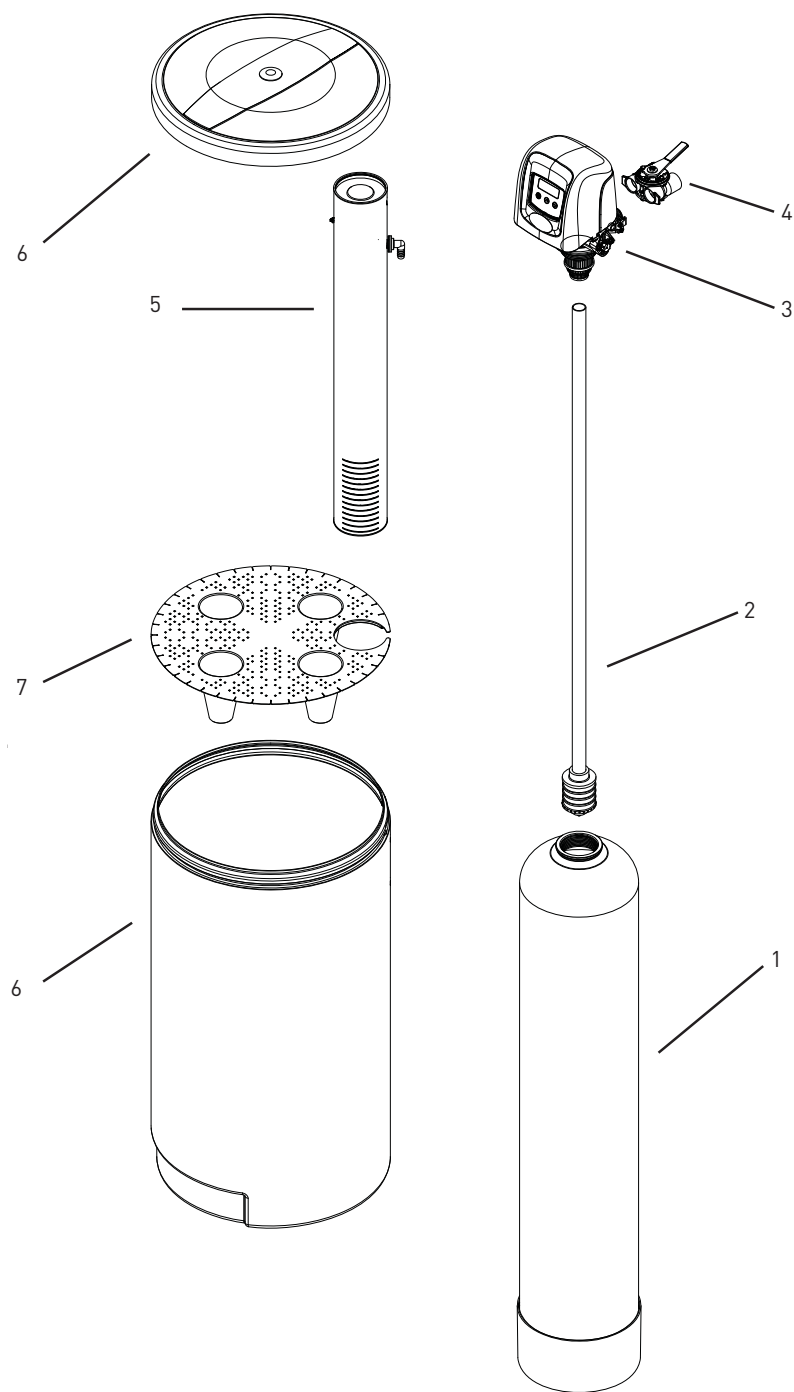
Problem	Cause	Correction
Water conditioner fails to regenerate.	Electrical service to unit has been interrupted.	Assure permanent electrical service (check fuse, plug, pull chain, or switch).
	Controller is defective.	Replace controller.
	Power failure.	Reset time of day.
Hard water.	Bypass valve is open.	Close bypass valve.
	No salt is in the brine tank.	Add salt to brine tank and maintain salt level above water level.
	Injector screen plugged.	Clean injector screen.
	Insufficient water flowing into brine tank.	Check brine tank fill time and clean brine line flow control if plugged.
	Hot water tank hardness.	Repeated flushing of the hot water tank with treated water is required.
	Leak at distributor tube.	Make sure distributor tube is not cracked. Check o-ring and tube plot.
	Internal valve leak.	Replace seals and spacers and/or piston.
Unit used too much salt.	Improper salt setting.	Check salt usage and salt setting.
	Excessive water in brine tank.	See "Excessive water in brine tank".
Loss of water pressure.	Iron buildup in line to water conditioner.	Clean line to water conditioner.
	Iron buildup in water conditioner.	Clean control and add mineral cleaner to mineral bed. Increase frequency of regeneration.
	Inlet of control plugged due to foreign material broken loose from pipes by recent work done on plumbing system.	Remove piston and clean control.
Loss of mineral through drain line.	Air in water system.	Assure that well system has proper air eliminator control. Check for dry well condition.
	Improperly sized drain line flow control.	Check for proper drain rate.
Iron in conditioned water.	Fouled mineral bed.	Check backwash, brine draw, and brine tank fill. Increase frequency of regeneration, increase backwash time.
Excessive water in brine tank.	Plugged drain line flow control.	Clean flow control.
	Plugged injector system.	Clean injector and screen.
	Control not cycling.	Replace control.
	Foreign material in brine valve.	Replace brine valve seat and clean valve.
	Foreign material in brine line flow control.	Clean brine line flow control.
Softener fails to draw brine.	Drain line flow control is plugged.	Clean drain line flow control.
	Injector is plugged.	Clean injector.
	Injector screen plugged.	Clean screen.
	Line pressure is too low.	Increase line pressure to 20 psi.
	Internal control leak.	Change seals, spacers and piston assembly.
	Service adaptor did not cycle.	Check drive motor and switches.
Control cycles continuously.	Misadjusted, broken, or shorted switch.	Determine if switch or control is faulty and replace it, or replace complete powerhead.
Drain flows continuously.	Powerhead is not completing the regen cycle.	Check control positioning of valve. Replace powerhead assembly if not positioning properly.
	Foreign material in control.	Remove powerhead assembly and inspect bore. Remove foreign material and check control in various regeneration positions.
	Internal control leak.	Replace seals and piston assembly.

DIMENSIONAL DRAWINGS

Measurements
[mm]
Inches



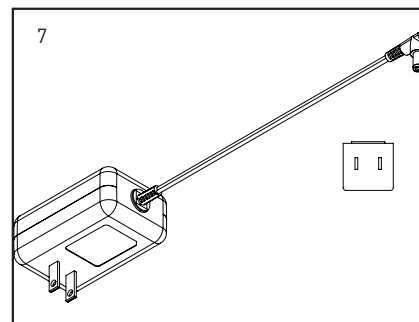
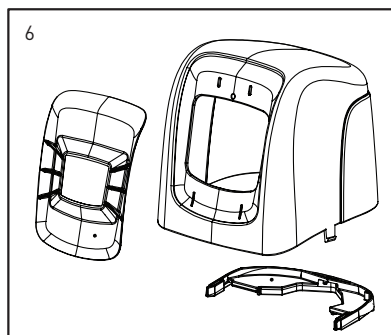
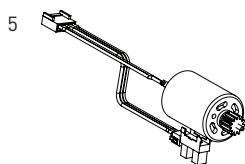
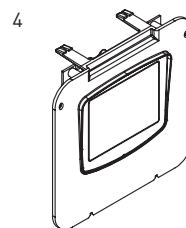
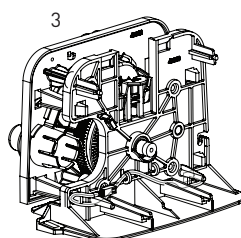
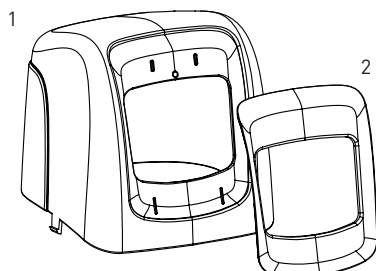
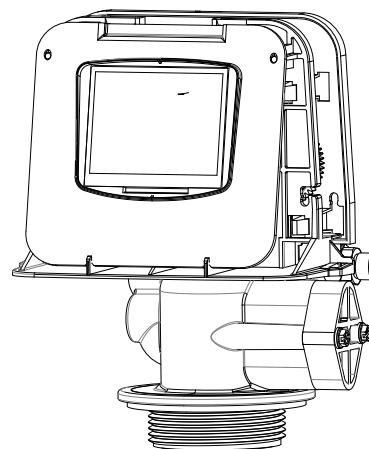
SYSTEM ASSEMBLY



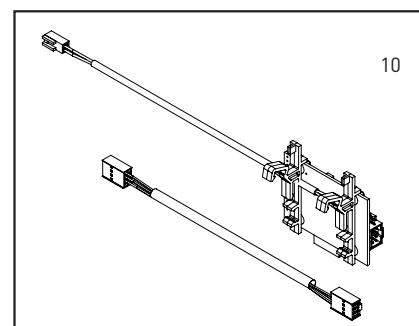
tem No.	QTY	Part No.	Description
1.....	1.....	CH30383-03010103-30.....	Resin Tank, 9" x 48", Black
2.....	1.....	61581-01.....	Distributor Assy, High Flow, 1.05", 48" Tank
3.....	1.....	61889	Valve/Powerhead Assembly
4.....	1.....	60040SS.....	Bypass Valve, 3/4" NPT, SS
5.....	2.....	CH15675	Brine Well with Brine Line
6.....	1.....	CH34425-1.....	Brine Tank, 18" x 33", Drilled w/ Cover, Black
7.....	1.....	CH16347	Salt Grid, 18" Dia. w/ 4" Hole
*	1.....	CH20676	Resin, Cation Std. Mesh, 8% CL, 1.0 Cu Ft.

CONTROL VALVE PART NUMBERS

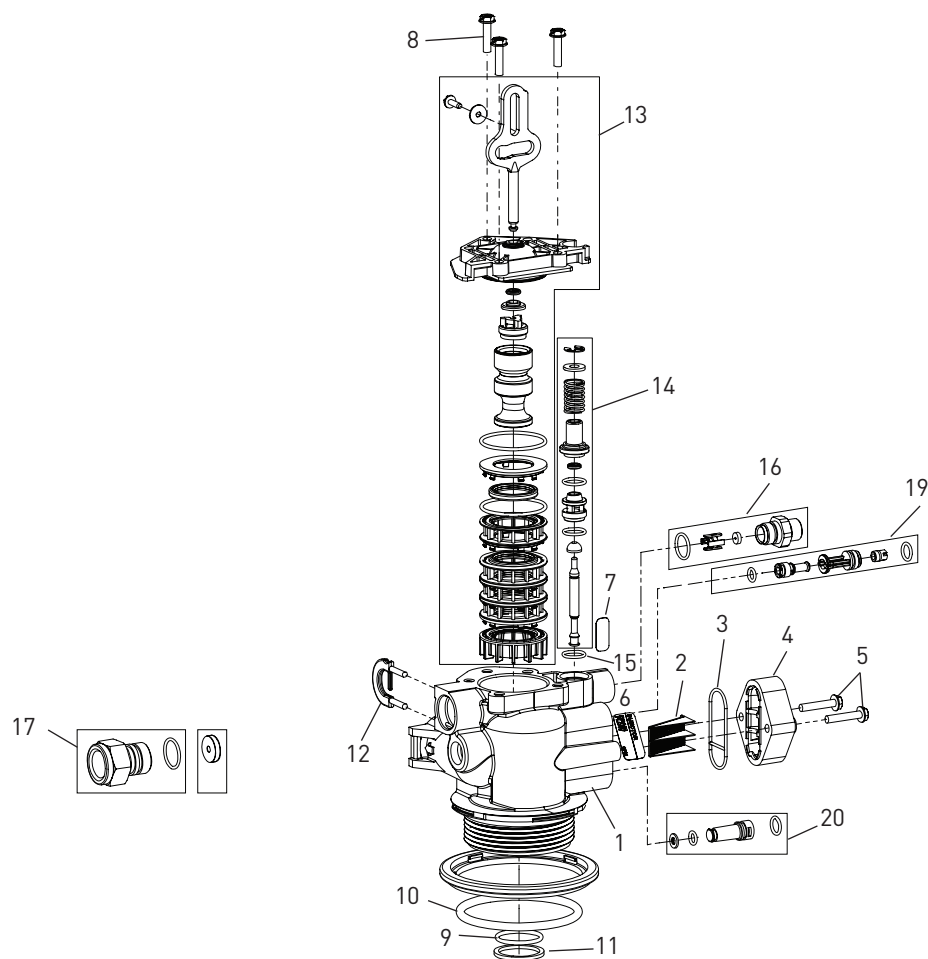
Item No.	QTY	Part No.	Description
1.....	1.....	580008-007.....	Turbine Meter, Downflow Softener, U.S. Power Supply, #00 (10" tank) or #0 (12" tank) Injector, 0.125 GPM BLFC



Item No.	QTY	Part No.	Description
1.....	1.....	43261.....	Cover, Black
2.....	1.....	43262-00.....	Bezel, Blue
3.....	1.....	61957.....	Panel Gear Assy,
4.....	1.....	62126.....	Timer Assy, w/Logo, International Lang
5.....	1.....	61835.....	Motor Assembly
6.....	1.....	61882.....	Cover Assy, Environmental, Gray
7.....	1.....	44161.....	Transformer, 12V UL
9.....	1.....	43715.....	Cover, Lower, Black,
10.....	1.....	62138.....	Kit, IOT Module, 5800 XTR3



CONTROL VALVE ASSEMBLY



Item No.	QTY	Part No.	Description
1.....	1.....	61857-01.....	Valve Body Assy, Downflow/Upflow (Includes Items 9, 10, 11, 12)
2.....	1.....	18271.....	Screen Injector, 5800
3.....	1.....	40064.....	Seal Injector
4.....	1.....	18277.....	Cap Injector
5.....	2.....	18262.....	Screw, Hex Washer Head, #10-24 x 1.00
6.....	1.....	19654.....	Label, 0.125 gpm Brine Flow
7.....	1.....	13333.....	Label, Injector, Blank
8.....	3.....	18261.....	Screw, Hex Washer Head, #10-24 0.81
9.....	1.....	13304.....	o-ring, -121
10.....	1.....	18303-01.....	o-ring, -336, 560CD
11.....	1.....	13030.....	Retainer, Distributor Tube o-ring
12.....	1.....	18312.....	DLFC Housing Retainer Clip
13.....	1.....	61837.....	Piston and Seal Kit Assy, Downflow,
14.....	1.....	60032.....	Brine Valve, 4600/5600
15.....	1.....	13302.....	o-ring, -014
16.....	1.....	60022-12.....	BLFC, 0.125 gpm
17.....	1.....	60705-00.....	DLFC, Plastic, Blank

18.....	1.....	12088.....	Washer, Flow, 2.4 GPM
		12090.....	Washer, Flow, 3.5 GPM
19.....	1.....	18272-00.....	Injector Assy, 1610, #00, Violet
		18272-0.....	Injector Assy, 1610, #0, Red
20.....	1.....	18276-01.....	Injector Assy, Plug, w/o-rings

Not Shown:

.....	40947-01.....	Plug, Brine Valve, w/o-ring, 560CD
.....	13918-01.....	BLFC Module Plug Assy, w/o-ring

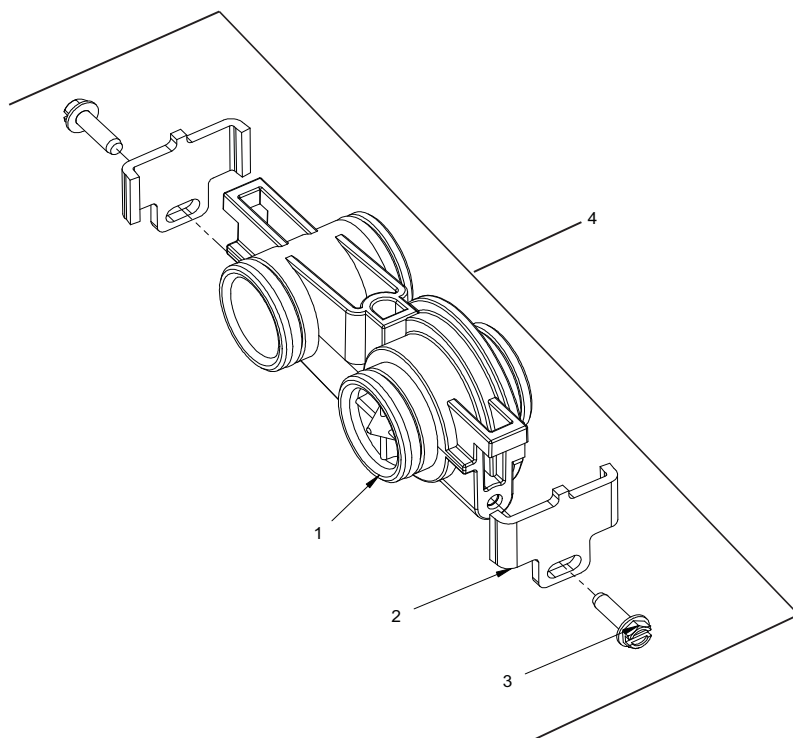
Notice

Excessive side load on piston rod may cause premature failure.

Notice

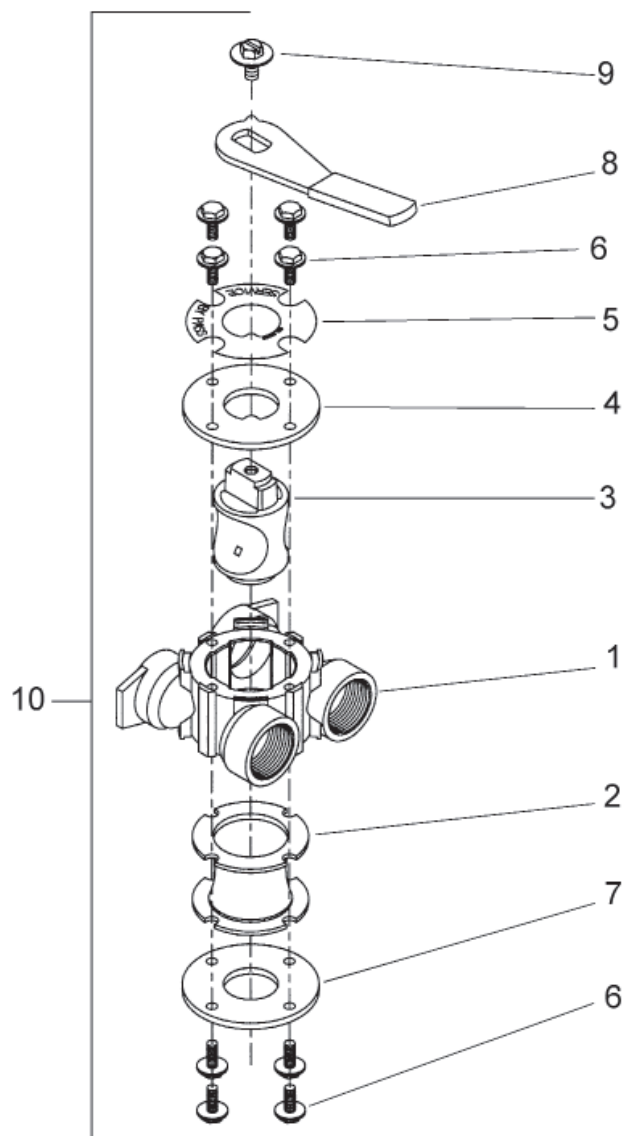
If seal/spacer stack is stuck in valve bore during disassembly, rotate stack prior to removal.

TURBINE METER ASSEMBLY



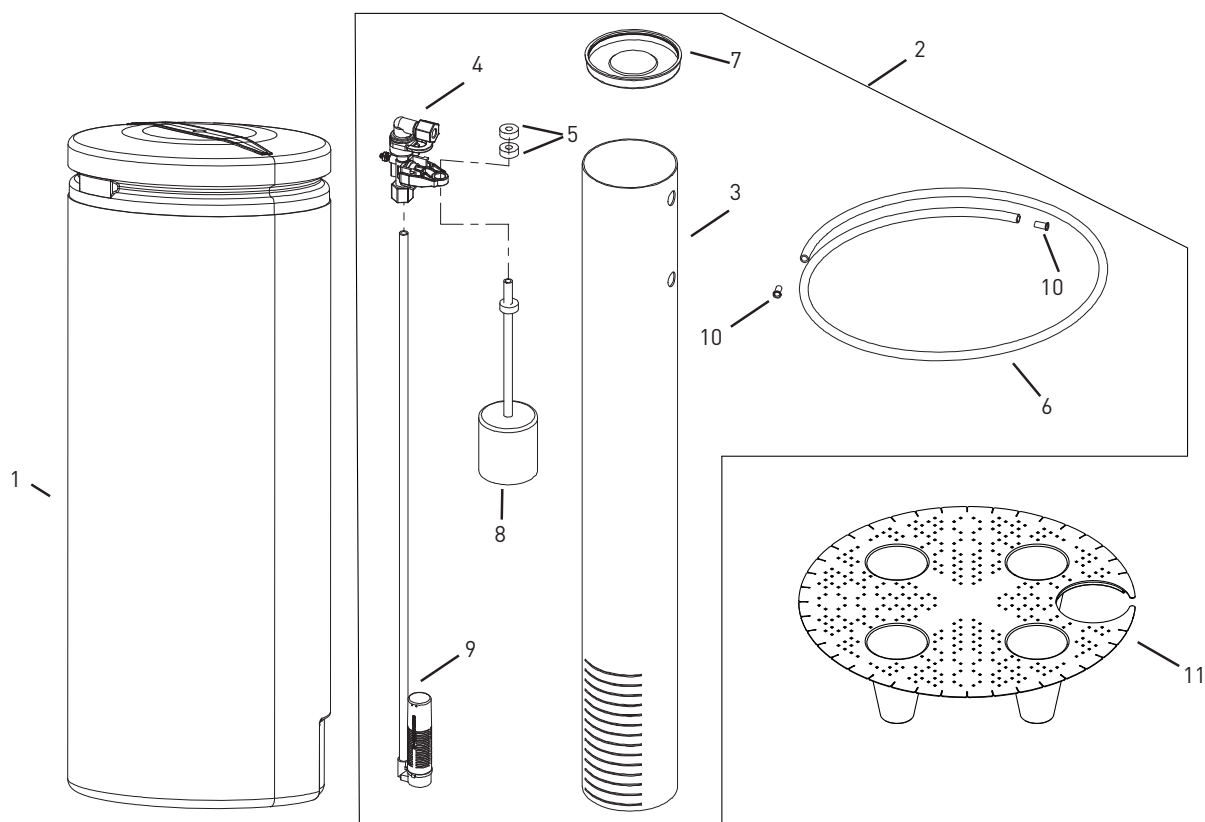
Item No.	QTY	Part No.	Description
1.....	1.....	19797	Meter Assy, 3/4" Dual Port
2.....	2.....	19569	Clip, Flow Meter
3.....	2.....	13314	Screw, Slot Ind Hex, 8-18 x .60
4.....	1.....	60626	Meter Assy, Turbine, Electronic 3/4" with Clips and Screws

BYPASS VALVE ASSEMBLY



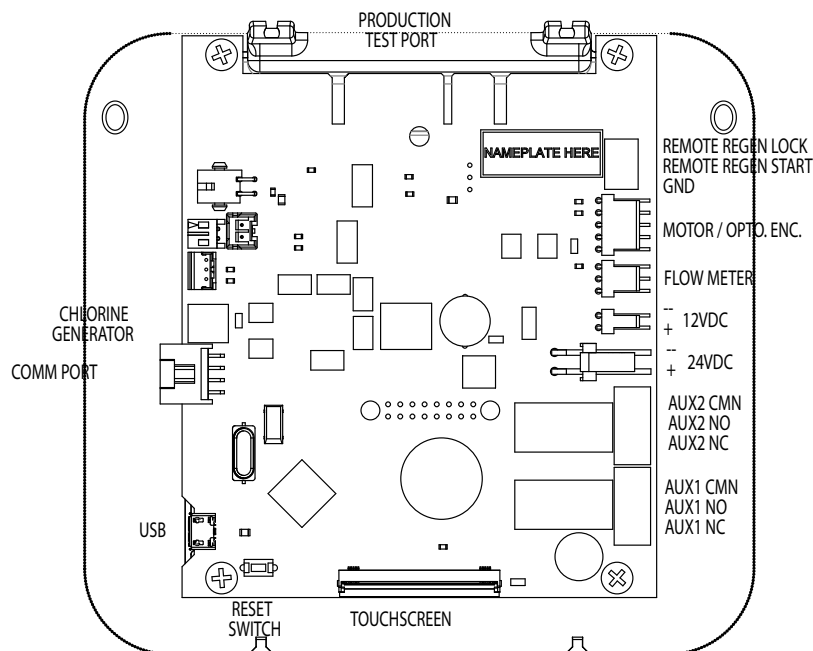
Item No.	QTY	Part No.	Description
1.....	1.....	40614	Bypass Body, 3/4"
		40634	Bypass Body, 1", SS
2.....	1.....	14105	Seal, Bypass, 560CD
3.....	1.....	11972	Plug, Bypass
4.....	1.....	11978	Side Cover
5.....	1.....	13604-01.....	Label
6.....	8.....	15727	Screw, 10-24 x 0.5"
7.....	1.....	11986	Side Cover
8.....	1.....	11979	Lever, Bypass
9.....	1.....	11989	Screw, Hex Head, 1/4-14 x 1.5"
10.....	1.....	60040SS.....	Bypass Valve, 5600, 3/4" NPT Black Grip Lever, SS

BRINE WELL ASSEMBLY



Item No.	QTY	Part No.	Description
1.....1.....	CH34425	Brine Tank w/Lid, 18 x 33 Round, Black	
2.....1.....	CH15675	Brine Well w/Brine Tube & Fittings, 18 x 33 Round	
3.....1.....	CH15013-1	Brine Well w/Slots	
4.....1.....	60014	Safety Brine Valve	
5.....2.....	CH15070	Grommet	
6.....1.....	CH16371-60	Tubing, 3/8" x 60" Long	
7.....1.....	CH15024	Cap, Brine Well 4" Dia. (Caplug STP -4)	
8.....1.....	60068-10.5	Float Assy, 2310, w/10.5" Rod	
9.....1.....	60002-27	Air Check Assembly	
10.....2.....	10332	Tubing Insert, Brass	
11.....1.....	CH16347	Salt Grid, 18 x 33 Round	
*.....1.....	C20774	Overflow Fitting Assembly	
*.....1.....	CH15031-1	Overflow Elbow	
*.....1.....	CH15031-2	Overflow Nut	
*.....1.....	CH16331	Gasket	
*.....1.....	CH20731-1	Polypro Washer	

WIRING DIAGRAM



44459 Rev B

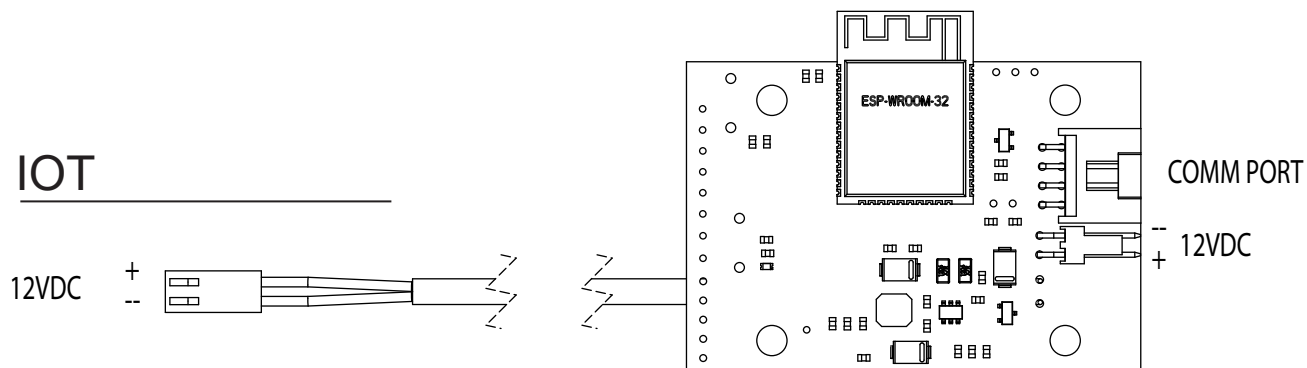
XTR3

NOTE: The reset switch discharges the super capacitor when power is removed from the control. The super capacitor retains the current time of day in the event of a power failure. Pressing the reset switch on the circuit board while power is applied to the control will have no effect on the control or stored settings.

Chlorine Generator can only be used with +12VDC power supply (international version only).

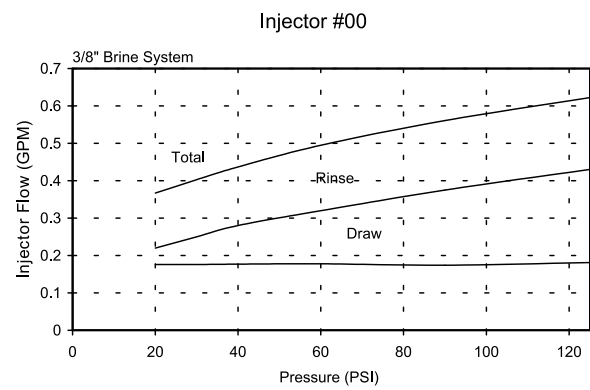
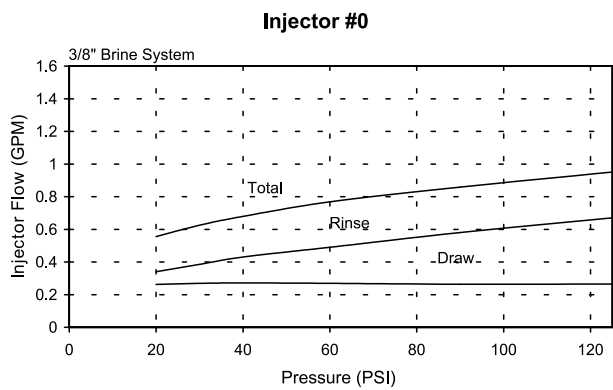
+12VDC power supply with 5800, 5810, 5812 valves only.

IOT



44452U Rev C

INJECTOR FLOW DATA



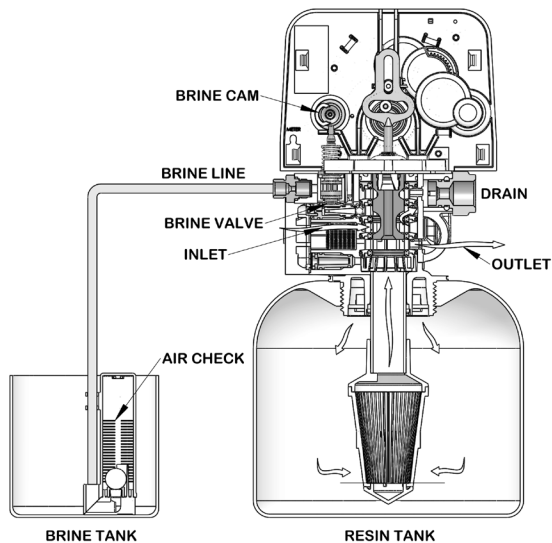
PERFORMANCE DATA

Model Name: PENTAIR IntelliWater Softener		PNR-POE1-XTR3-01	PNR-POE1-XTR3-02	PNR-POE1-XTR3-03
Rated Service Flow - gpm with an upper collector		10	10	12
Pressure Drop at Rated Service Flow		10.2	13	14
Rated Capacity (grains @ lbs. of salt)		18,000 @ 3.75 29,500 @ 9.0 34,000 @ 15.0	27,000 @ 5.6 44,250 @ 13.5 51,000 @ 22.5	36,000 @ 7.5 59,000 @ 18.0 68,000 @ 30.0
Rated Efficiency (grains/lb. salt @ lbs. of salt)		4,870 @ 3.75	4,870 @ 5.6	4,870 @ 7.5
Maximum Flow Rate During Regeneration (gpm)		2.4	2.4	3.5
Resin Volume - ft ³ Resin Type - 8% strong acid cation		1	1.5	2
Tank size		10" x 44"	10" x 54"	12" x 52"
Valve Cycle Time Settings (minutes)	Backwash	8	8	8
	Brine Draw and Slow Rinse @ lb of Salt	35 @ 3.75 45 @ 9.0 56 @ 15.0	54 @ 5.6 70 @ 13.5 87 @ 22.5	70 @ 7.5 91 @ 18.0 115 @ 30.0
	Rapid Rinse	6	6	5
	Fill @ lb of Salt	5 @ 3.75 12 @ 9.0 20 @ 15.0	8 @ 5.6 18 @ 13.5 30 @ 22.5	10 @ 7.5 24 @ 18.0 40 @ 30.0
Operating Pressure: 20 - 125 psi or 1.4 - 8.8 kg/Centimeter ² , Operating Temperature: 34 - 110° F or 1.1 - 43.3° C Acceptable Salt Type: Sodium Chloride All Systems above tested at 35psi +/- 5 psi, pH of 7.5 +/- 0.5, Capacity Testing Flow Rate = 50% of the rated service flow rate for the various size systems				
These water softener systems have been tested by WQA and conform to NSF/ANSI 44 for specific performance claims as verified and substantiated by test data. The rated salt efficiencies above were also determined in accordance with NSF/ANSI 44 and are only valid at the salt dosage referenced above. An efficiency rated water softener is a demand initiated regeneration (DIR) softener which also complies with specific performance specifications intended to minimize the amount of regenerant brine and water used in its operation. Efficiency rated water softeners shall have a rated salt efficiency of not less than 3350 grains of total hardness exchanged per pound of salt (based on NaCl equivalency) (477 grams of total hardness exchanged per kilogram of salt), and shall not deliver more salt than its listed rating. The rated efficiency of the water softener, the salt dosage at that efficiency, the capacity at that salt dosage and that of the efficiency is only valid at the stated salt dosage. Efficiency is measured by a laboratory test described in NSF/ANSI 44. The test represents the maximum possible efficiency the system can achieve. Operational efficiency is the actual efficiency achieved after the system has been installed. It is typically less than the efficiency due to individual application factors including water hardness, water usage, and other contaminants that reduce the water softener's capacity. These systems are not intended to be used for treating water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system. Refer to the system Installation and Service Manuals for set-up and programming instructions. Contact your local dealer for parts and service. See your owner's manual for warranty information.				 Tested and Certified by the WQA to NSF/ANSI Standard 44 and 372 for softener performance and lead free compliance and CSA B483.1
Pentair Residential Filtration, LLC 13845 Bishops Drive Suite 200 Brookfield, Wisconsin 53005 PHONE: (262)-238-4400				

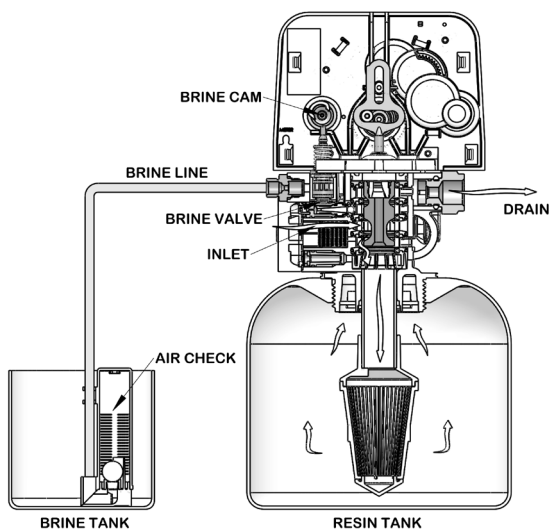
WATER CONDITIONER FLOW DIAGRAMS

Downflow

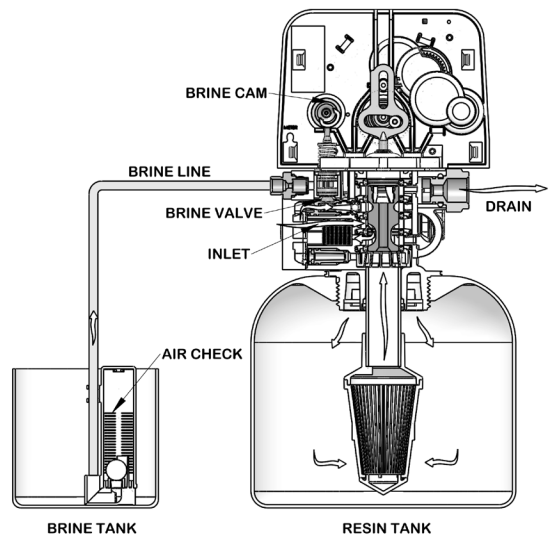
1. Service Position (Treatment)



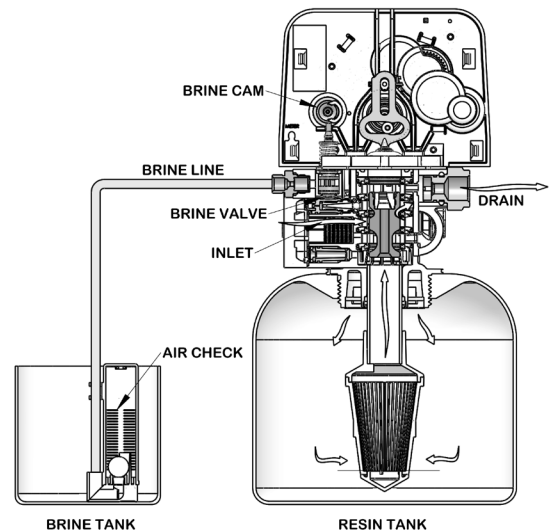
2. Backwash Position



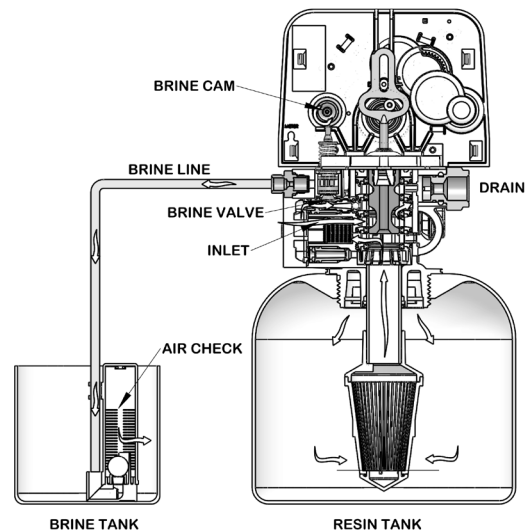
3. Brine/Slow Rinse Position (Draw)



4. Rapid Rinse Position (Rinse)



5. Brine Tank Refill Position (Refill)



SYSTEM DISINFECTION

Disinfection of Water Softeners

The materials of construction of the modern water softener will not support bacterial growth, nor will these materials contaminate a water supply. During normal use, a softener may become fouled with organic matter, or in some cases with bacteria from the water supply. This may result in an off-taste or odor in the water.

Some softeners may need to be disinfected after installation and some softeners will require periodic disinfection during their normal life.

Depending upon the conditions of use, the style of softener, the type of ion exchanger, and the disinfectant available, a choice can be made among the following methods.

Sodium or Calcium Hypochlorite

Application

These materials are satisfactory for use with polystyrene resins, synthetic gel zeolite, greensand and bentonites.

5.25% Sodium Hypochlorite

These solutions are available under brand names of household bleach. If stronger solutions are used, such as those sold for commercial laundries, adjust the dosage accordingly.

1. Dosage
 - A. Polystyrene resin; 1.2 fluid ounce (35.5 ml) per cubic foot.
 - B. Non-resinous exchangers; 0.8 fluid ounce (23.7 ml) per cubic foot.
2. Salt tank softeners
 - A. Backwash the softener and add the required amount of hypochlorite solution to the well of the salt tank. The salt tank should have water in it to permit the solution to be carried into the softener.
 - B. Proceed with the normal recharge.

Calcium Hypochlorite

Calcium hypochlorite, 70% available chlorine, is available in several forms including tablets and granules. These solid materials may be used directly without dissolving before use.

1. Dosage
 - A. Two grains (approximately 0.1 ounce [3 ml]) per cubic foot.
2. Salt tank softeners
 - A. Backwash the softener and add the required amount of hypochlorite to the well of the salt tank. The salt tank should have water in it to permit the chlorine solution to be carried into the softener.
 - B. Proceed with the normal recharge.

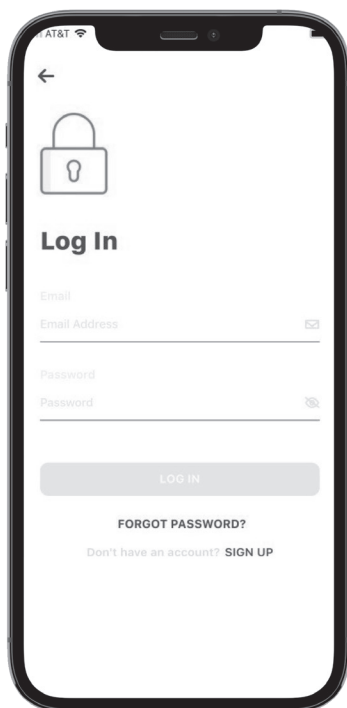
PENTAIR PRO: APP SETUP

Pairing the Pentair IntelliWater Connected Water Softener with WiFi Devices

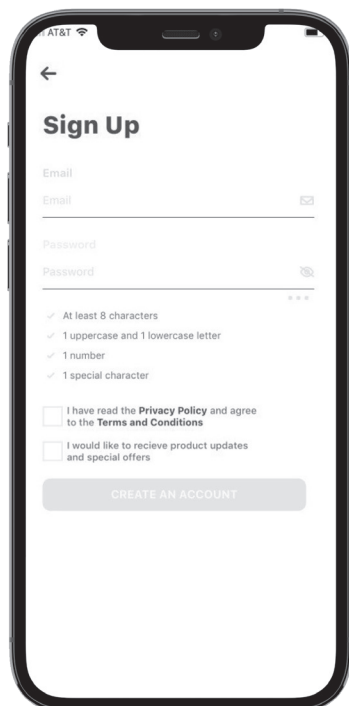
The Pentair IntelliWater Connected Water Softener can be paired with a smartphone or tablet. New users can download and install the Pentair Home App from the App Store or Google Play. WiFi connection must be 2.4 GHz.

Sign Up and Log In

New users will need to create an account to monitor their water softeners. From the Log In page, press **SIGN UP** to create a new account. If you already have an account, skip to Login.

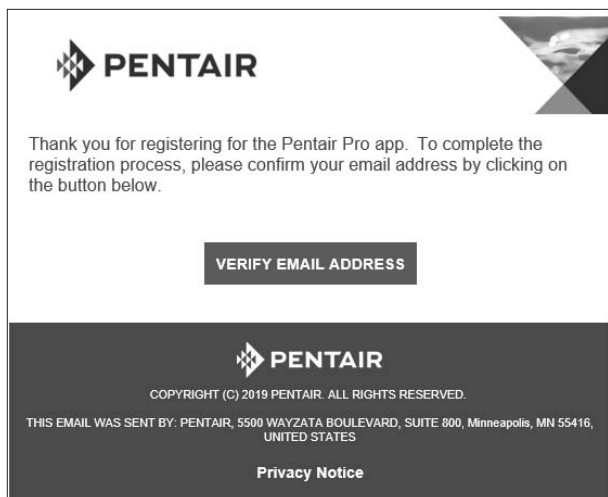


Add your email address and set your password.



PENTAIR PRO: APP SETUP CONTINUED

Once you press Create Account, an email will be sent to the email for verification.

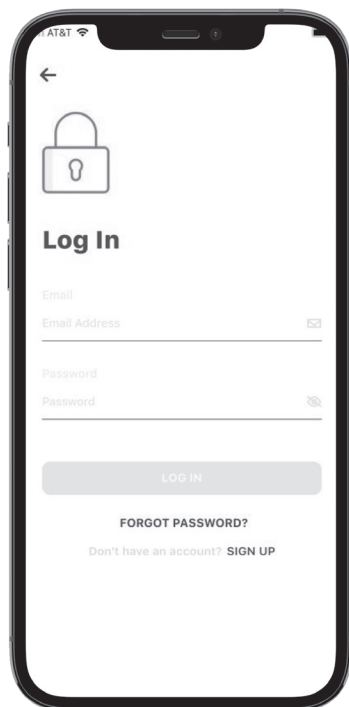


Click the "Verify Email" link to complete the process.

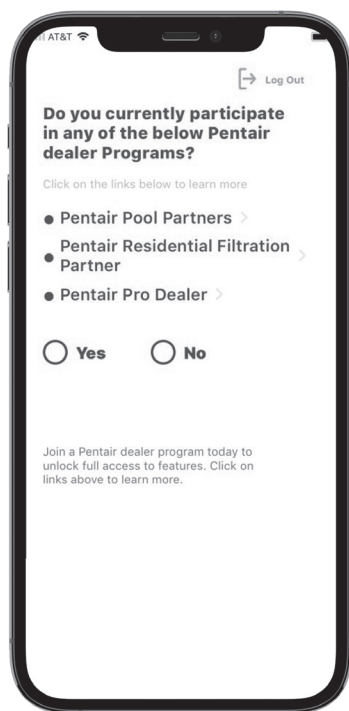


PENTAIR PRO: APP SETUP CONTINUED

Sign into the app with your verified email and password.



Once you sign in, the app will take you through the following series of screens.



PENTAIR PRO: APP SETUP CONTINUED

If you have a Pentair Partner Center Account, you should select yes you are a participant. If you will be the main administrator for the Pro account, then select Admin. (Employees will be able to be invited to be part of your Pro app team through the Pentair Dealer Web App.) The Pentair ID and password is your Partner Center email and password.

Log Out

Do you currently participate in any of the below Pentair dealer Programs?

Click on the links below to learn more

Pentair Pool Partners

Pentair Residential Filtration Partner

Pentair Pro Dealer

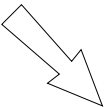
Yes

No

Log in as Admin or Employee at your company.

Admin

Employee



Log Out

Yes

No

Log in as Admin or Employee at your company.

Admin

Employee

Verify your Pentair dealer program credentials to get full access to app features.

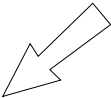
Pentair ID

Pentair ID

Password

Password

Verify



Log Out

Log in as Admin or Employee at your company.

Admin

Employee

Verify your Pentair dealer program credentials to get full access to app features.

Invitation Code

Invitation Code

Pentair ID

Pentair ID

Password

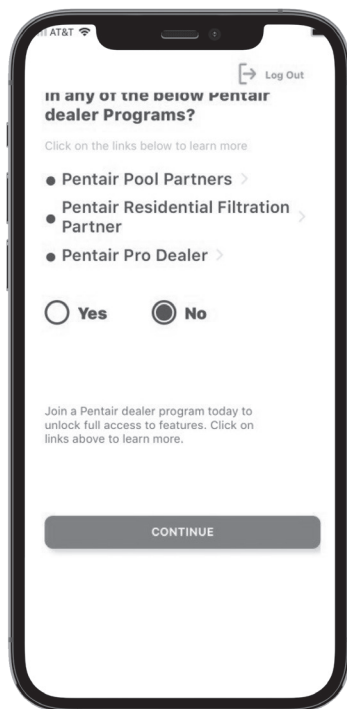
Password

Verify

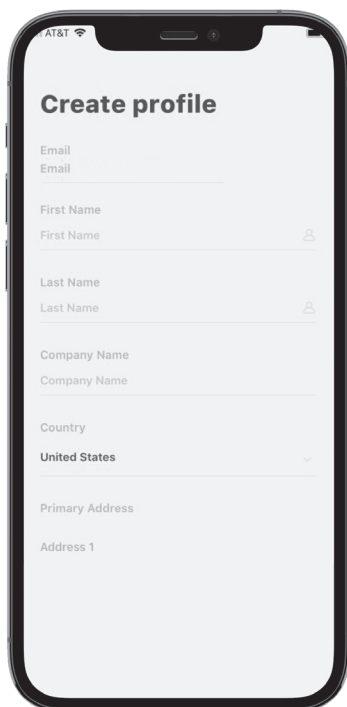
Available only by Admin by invitation.

PENTAIR PRO: APP SETUP CONTINUED

In the event you are not a Partner Center user, then please select No and proceed through the log in pages. This will provide for limited screens and options.

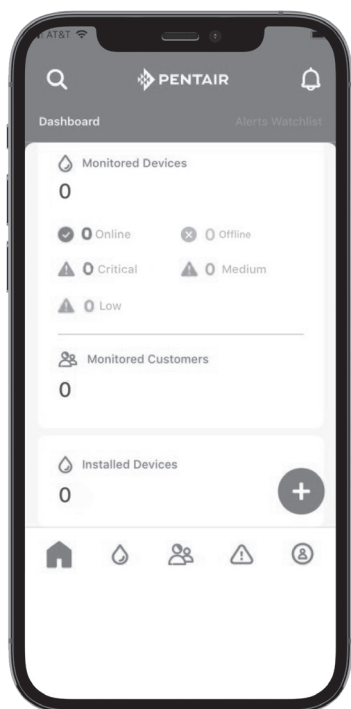


Once in the app, it will take you through a Create a Profile screen. Once you create your profile, click the save button at the bottom of the screen. This will take you to the main dashboard.

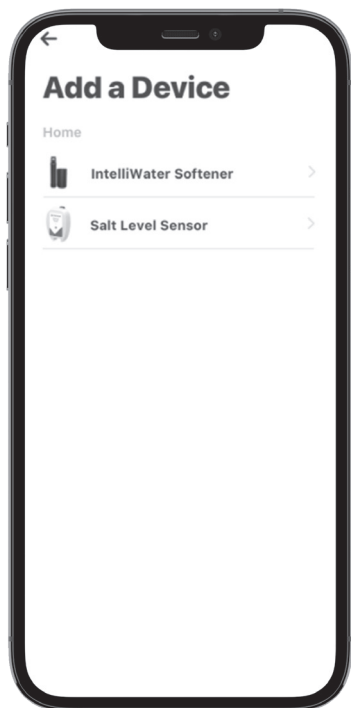


PENTAIR PRO: APP SETUP CONTINUED

After pressing **CONTINUE**, the app will then take you to the dashboard. To add a device click on the + sign.

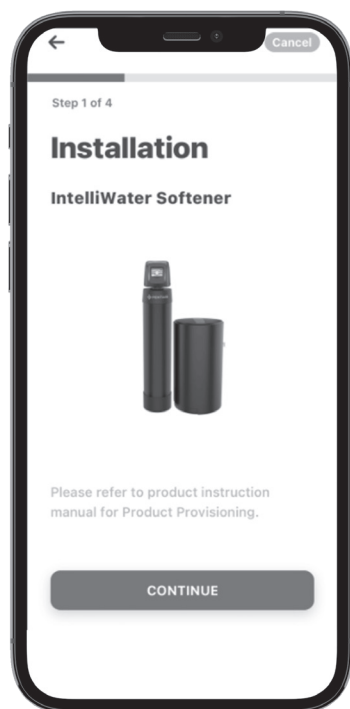


Select IntelliWater Softener.



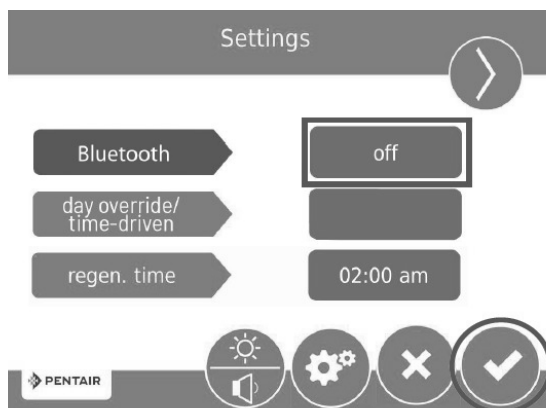
PENTAIR PRO: APP SETUP CONTINUED

The screens will now take you through the provisioning process.



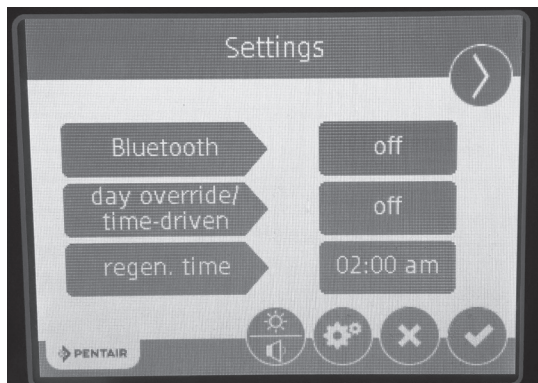
You are now ready to provision your system.

1. From the Pentair IntelliWater Softener control, press the gear button  on the main screen to proceed to settings.



PENTAIR PRO: APP SETUP CONTINUED

2. Turn Bluetooth® to “ON” and then click the check mark at the bottom right hand corner.



3. A Bluetooth icon will appear in the upper right hand corner of the main screen.

a. A black icon  reflects the Bluetooth is open, but not connected.

b. A white icon  reflects the Bluetooth signal is open and connected.

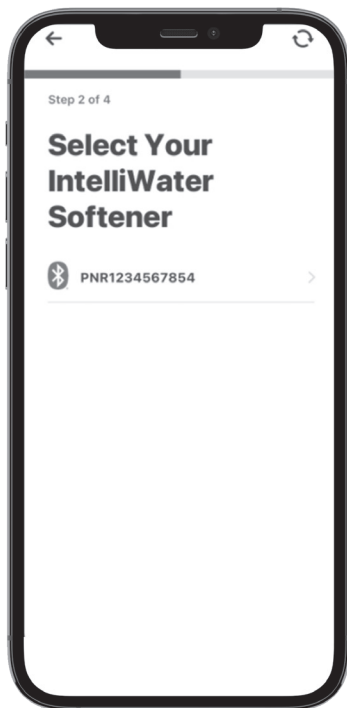
c. The alert icon  will show up on the screen until a WiFi connection has been established.

4. Once the Bluetooth signal is open  on the screen, press the continue button on the app to scan for the device.



PENTAIR PRO: APP SETUP CONTINUED

5. A list of available devices will appear. Once the device is found, select that device from the list.



6. Authorize the pairing of the device by clicking "Pair".

PENTAIR PRO:

7. Once pairing is complete, if you are using the Pentair Pro App, set up is complete.



Using the Pentair Home app, please proceed to the screens to set up the WiFi connections as referenced in the **Pentair IntelliWater Connected Water Softener Pentair Home Guide**.

8. In the app the product will now show up in your installed devices.

MASTER SETTINGS

Master Settings

The Master Settings screens include all configurable parameters available in the control.

CAUTION Improperly adjusting master settings may cause the system to operate incorrectly. Before entering master settings please contact your professional water dealer.

From the Settings screen, press the Settings button .
A warning message appears.



before entering
master programming
please contact your local
water professional



Press  to continue to the Password screen or press  to return to the Home screen.

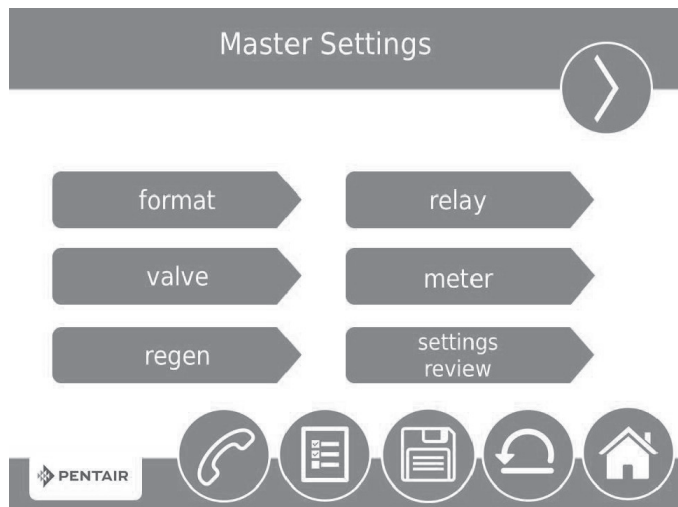
The Password screen displays a numeric keypad.



- Enter the master settings password **1201** and press  to continue to the main Master Settings screen, or press  to return to the Home screen.

MASTER SETTINGS CONTINUED

After entering the correct password and pressing , the main Master Settings screen is displayed.

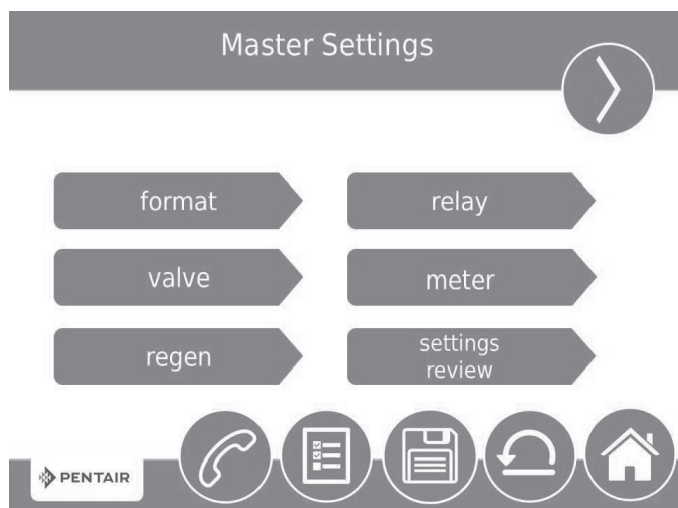


While in the Master Settings screens, press  to save all set parameters to a custom profile (see "NON-FACTORY SETTINGS" on page 13) or press the **Home** button  to return to the Home screen.

Features of the Master Settings screens are described below. See MASTER SETTINGS PROGRAMMING and MASTER SETTINGS REFERENCE CHART for more detailed information.

- **format:** Contains settings for Language, Units, Hardness Units, Assistance Name, Assistance Phone, and Assistance Interval.
- **valve:** Contains settings for System, Valve, and Regeneration Type.
- **regen:** Contains settings for Regen Flow.
- **relay:** Contains settings for Aux 1 and Aux 2 relays.
- **meter:** (except for time clock systems) Contains settings for Meter Types, emergency regeneration.
- **settings review:** Displays a summary of all programmed settings.

MASTER SETTINGS PROGRAMMING

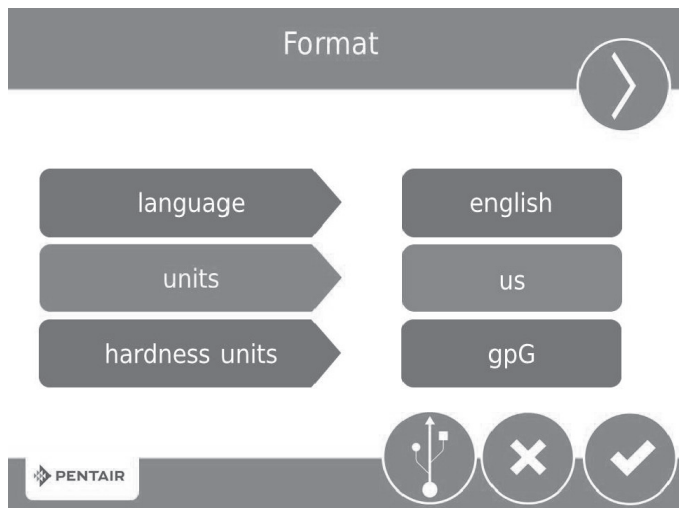


The following is a detailed overview of settings available in Master Settings. Please see the MASTER SETTINGS REFERENCE CHART for the complete set of values and ranges available to program while in Master Settings.

MASTER SETTINGS PROGRAMMING CONTINUED

Format Screen

From the main Master Settings screen press the **format** button to display the Format screen.



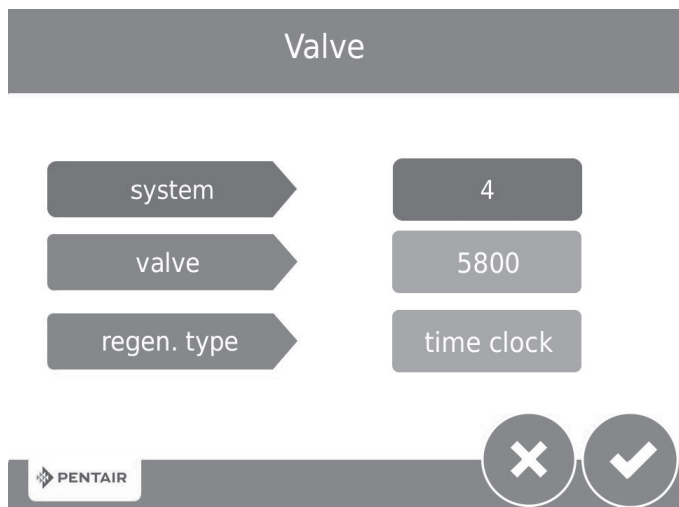
- **language:** Displays the language used on the control (international version only): English, French, German, Italian, Spanish, or Dutch.
- **units:** Contains settings for the unit type (either US or Metric) to be used in the control.
- **hardness units:** Contains settings for hardness units of measure (grains per gallon, mg/L or ppm, German degrees, French degrees, or English degrees). Hardness units are adjustable only if metric units are selected.

NOTE: Degree hardness units are converted to ppm upon input. Degree inputs may be rounded up or down to the nearest ppm equivalent.

- Press the screen navigation arrows at the upper-right and left of the screen to navigate to the Assistance Name, Assistance Phone, and Assistance Interval screens.
- Press ✓ to save changes.

Valve Screen

From the main Master Settings screen press the **valve** button to display the Valve screen.



- **system:** Displays the system type. Type 4 (single system) is currently the only available selection.
- **valve:** Contains settings to select the valve model installed with the control.
- **regen type:** Contains settings for the type of regeneration to use for the system. Regeneration types are described in detail below.

MASTER SETTINGS PROGRAMMING CONTINUED

Regeneration Types

The XTR3 control supports several different Regeneration Types. The Regeneration Type defines the method of automatic regeneration for the system. Each type is explained below.

Time Clock

Triggers a regeneration on a timed interval. The control will initiate a regeneration cycle at the selected Regeneration Time when the number of days since the last regeneration equals the Day Override value. The Day Override can be set from 1 - 99 days as well as partial day intervals of 4, 8, 12, 16 and 20 hours.

Softener Immediate

Measures water usage and regenerates the system as soon as the calculated system capacity is depleted. The control calculates the system capacity by dividing the unit capacity by the feed water hardness. Softener Immediate systems do not use a reserve volume. The control will also start a regeneration cycle at the programmed regeneration time if a number of days equal to the Day Override pass before water usage depletes the calculated system capacity. The Day Override parameter default is OFF and REGEN TIME will be grayed out unless the day override value has been modified.

CAUTION When setting the system for softener immediate regeneration, setting the capacity to a value lower than that of feed water hardness may cause the system to constantly regenerate. If this occurs, disconnect the motor from the control and correct the capacity and feed water hardness values in Master Settings.

Softener Delayed

Measures water usage and regenerates the system at the selected Regeneration Time after the calculated system capacity is depleted. The control calculates the system capacity by dividing the unit capacity by the feed water hardness and subtracting the reserve.

The reserve should be set to ensure that the system delivers treated water between the time the system capacity is depleted and the actual regeneration time. Reserves can be set at a Fixed Volume, Fixed Percentage of capacity, a Variable Reserve based on the previous calendar day's water usage, or a Weekly Reserve based on the average water usage for the current day of the week. The default for the day override parameter is OFF, and the default reserve type is Weekly Reserve.

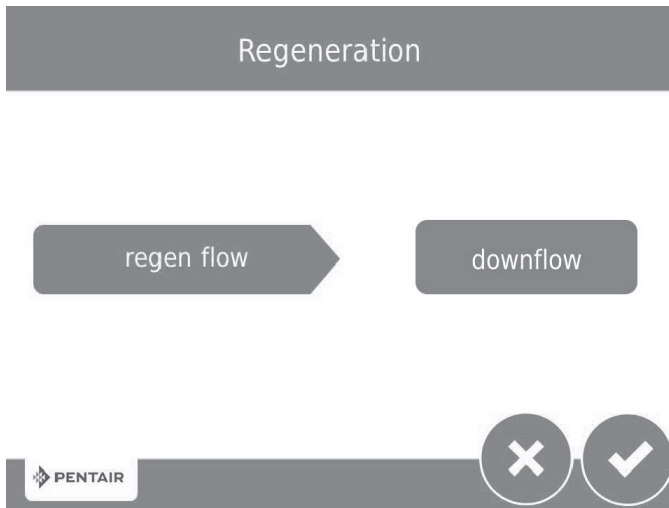
A Softener Delayed control will also start a regeneration cycle at the selected Regeneration Time if a number of days equal to the Day Override pass before water usage depletes the calculated system capacity.

If the regen type is changed from Softener Immediate to Softener Delayed (or vice-versa), all parameters within those types will be reset to factory default.

MASTER SETTINGS PROGRAMMING CONTINUED

Regeneration Screen

From the main Master Settings screen press the **regen** button to display the Regeneration screen.

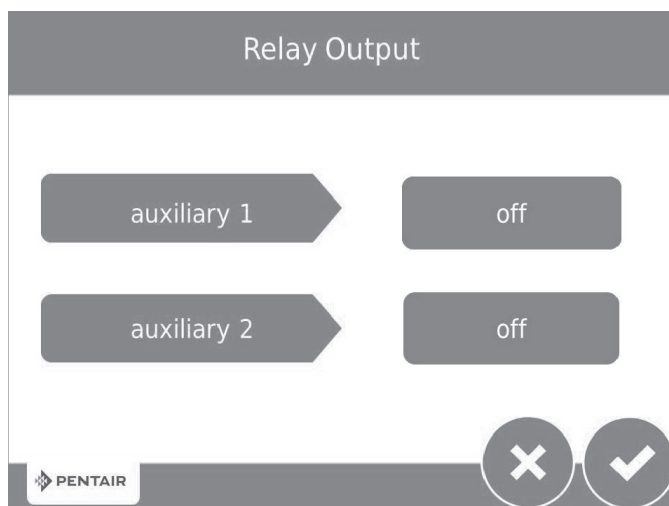


CAUTION Adjusting Regeneration settings will turn any set relays off. Any required relays will need to be reprogrammed in the Relay Output screen.

- **regen flow:** Contains settings for the type of regenerant flow to be used in the valve. Changes to this setting affects the cycle steps displayed in the Regeneration Cycle Wheel on the Home screen. Regenerant flow cycle steps are described below.
- **downflow:** Cycle steps are as follows: Backwash, Draw, Rapid Rinse, Tank Refill.
- **upflow:** Cycle steps are as follows: Draw, Backwash, Rapid Rinse, Tank Refill.
- **downflow 2X backwash:** Cycle steps are as follows: Backwash, Draw, Backwash, Rapid Rinse, Tank Refill.
- **custom upflow / downflow / filter:** Allows for up to 20 programmable cycle steps.
- **variable refill:** (softener delayed only) Cycle steps are as follows: Refill, Pause, Draw, Backwash, Rinse. Variable refill calculates refill time based on salt dosage, media volume, and BLFC size.

Relay Output Screen

From the main Master Settings screen press the **relay** button to display the Relay Outputs screen.



MASTER SETTINGS PROGRAMMING CONTINUED

- **auxiliary 1 / auxiliary 2:** Contains settings for programming up to two auxiliary relay outputs. There are three types of relays that can be programmed:
- **Cycle Based:** The relay will turn on when the valve moves to the specified regeneration cycle steps. To program, select each cycle step button for which the relay should turn on.
- **Time Based:** The relay will turn on and off at up to two specified start and end times. If water saving regeneration is on, this is not an available option.
- **Volume Based:** The relay will turn on when the valve has treated a specified volume of water. Duration can be set for up to two hours.
- **Alarm Based:** The relay will turn on when the specified alarm condition (or any alarm condition) is met. The relay will turn off when the alarm is cleared.

Meter Screen

From the main Master Settings screen press the **meter** button to display the Meter screen.

Meter

meter type	1.25" turbine
generic	na
emerg. regen	off

- **meter type:** Contains settings for the type of meter installed with the system.
- **generic:** A generic option is available if the installed meter does not match any other selection. Requires setting the number of pulses per volume to ensure proper metering.
- **emergency regen:** When on, the emergency regen feature causes a regen to occur immediately when 105% or greater of the capacity (e.g., volume plus reserve) is used.

Continuous Flow Detect Screen

From the Meter screen press  to display the Continuous Flow Detect screen.

Continuous Flow Detect

Continuous flow detect	off
flow rate	na
duration	na

MASTER SETTINGS PROGRAMMING CONTINUED

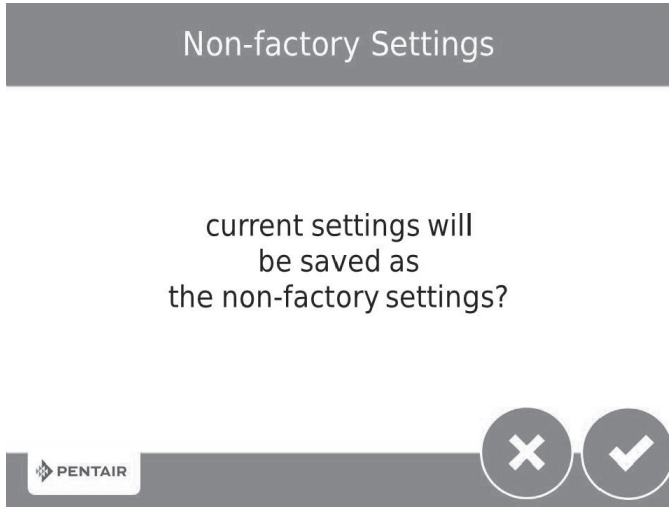
- **continuous flow detect:** When active, triggers an alarm when continuous flow of 0.5 GPM or 1 LPM is detected by the flow meter over an 8-hour period.
- Press the  button when finished to return to the Home screen.

Settings Review

From the main Master Settings screen press the settings review button to display the Settings Review screens, which display a read-only summary of all programmed settings in the control. Use the navigation arrows at the top of the screen to scroll through the parameters currently set in the control. The Settings Review screens are formatted similarly to the corresponding screen where each parameter was set. Press  to return to Master Settings.

Non-Factory Settings

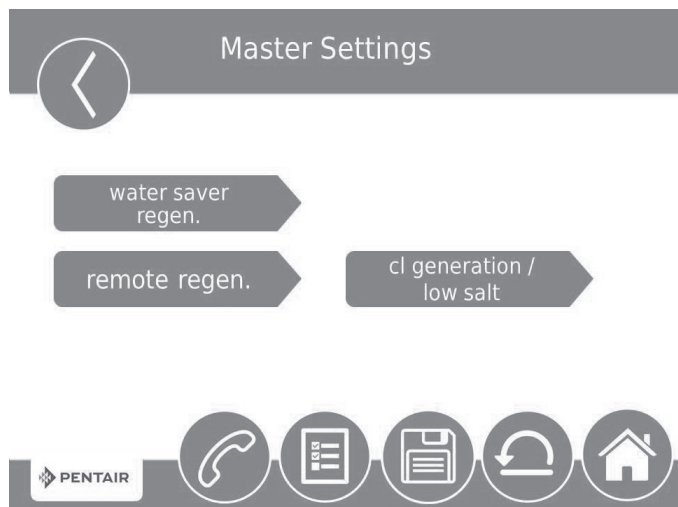
After all parameters in Master Programming have been set, these settings can be saved to a custom profile by pressing  on the main Master Settings screen. After pressing , the Non-Factory Settings screen appears.



Press  to save all programmed Master Settings parameters to Non-Factory Settings. At any point, the control can be reset to these saved custom settings. By performing a custom reset, any setting that is subsequently programmed without saving to non-factory settings will be reset to the previously saved non-factory settings in the control.

ADDITIONAL FEATURES

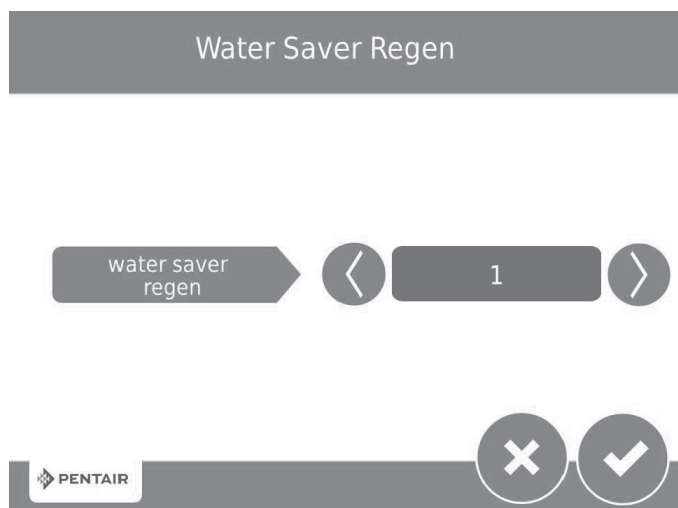
Press the screen navigation arrow at the top right of the Master Settings screen to navigate to the secondary Master Settings screen.



- **water saver regen:** Contains settings for setting regenerations to save water by reducing backwash and rinse time on a particular interval.
- **remote regen:** Contains settings for triggering a regeneration via a remote input.
- **cl generation/low salt:** (international version only) Contains settings to trigger chlorine generator for the control.

Water Saver Regeneration

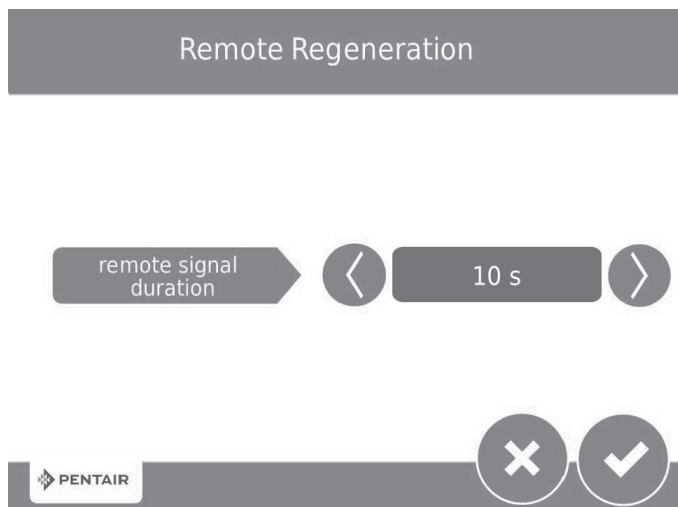
From the secondary Master Settings screen press the **water saver regen.** button to display the Water Saver Regen screen.



- **water saver regen:** reduces backwash and rapid rinse times on a particular interval. The reduced backwash time is 50% less than the backwash time (rounded down to the nearest minute; e.g., if the backwash time is set to 10 minutes, enabling the water saver regen function will reduce the backwash time to 5 minutes). The reduced rapid rinse time is 66% less than the rapid rinse time (rounded down to the nearest minute; e.g., if the rapid rinse time is set to 10 minutes, enabling the water saver regen function will reduce the backwash time to 3 minutes).
- **range:** 1-25 regenerations (for example, a setting of 3 will produce 1 normal regeneration then 3 reduced water saving regenerations).

ADDITIONAL FEATURES CONTINUED

From the secondary Master Settings screen, press the **remote regen** button to display the Remote Regen screen.

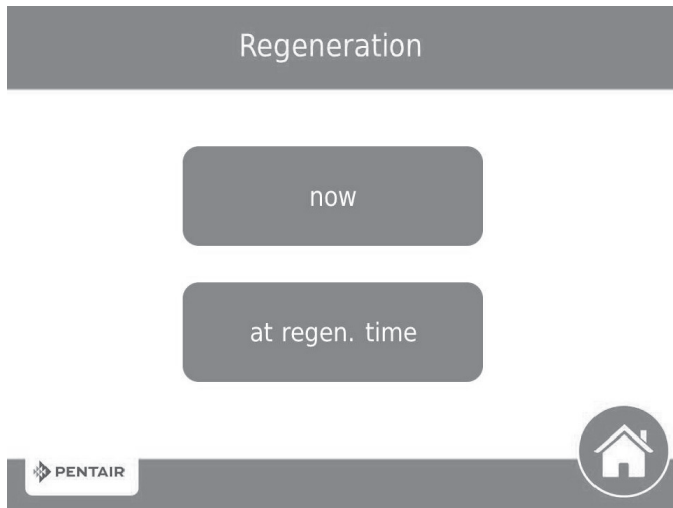


- **remote regeneration duration:** Contains settings for triggering a regeneration via a remote input. Select a value in seconds that the remote switch must be closed in order to trigger the regeneration.

Connect a remote switch (such as a differential pressure switch) to the remote start input terminals on the back of the XTR3 control board. When the remote switch remains closed for the number of seconds specified in the Remote Regen screen, a regeneration will be triggered regardless of volume, capacity, or time remaining until the next scheduled regeneration.

REGENERATION

Start a regeneration by pressing the **Regeneration** button . The Regeneration screen appears.



- Press **now** to begin a regeneration immediately, or press **at regen. time** to queue the regeneration for the programmed regeneration time (2:00 AM default for softeners, 12:00 AM default for filters). Pressing **at regen. time** again will cancel the manual regeneration.
- During Regeneration, press the  button to immediately advance to the next cycle step. Once in regeneration, the volume or time will be displayed below the  button.

For softener systems, put salt in the brine tank before starting a regeneration.



Notice

Do not use granulated or rock salt.

The unit is now fully programmed and ready to treat water. This quick setup uses the control's default settings, which are appropriate for most residential applications.

CONTROL OPERATION

Control Operation During Regeneration

During regeneration, the Regeneration Cycle Wheel shows the regeneration step the valve is advancing to, or has reached, and the time remaining in that step. Once all regeneration steps are complete the valve returns to treatment position and resumes normal operation. The time remaining in regeneration will be displayed on the home screen in hours and minutes.

Pressing the  button during a regeneration cycle immediately advances the valve to the next cycle step position and resumes normal step timing. The  button is only shown when the valve is in position and the motor has stopped. Pressing the  button will cancel the regeneration.

Control Operation During Programming

The control can only be programmed with the valve in treatment. While being programmed the control continues to operate normally, monitoring water usage and keeping all displays up to date. Control programming is stored in memory permanently until reset.

CONTROL OPERATION CONTINUED

Control Operation During a Power Failure

The XTR3 includes internal power backup. In the event of power failure, the control shifts into a power-saving mode. The control stops monitoring water usage. The display and motor shut down, but it continues to keep track of the time and day for a minimum of eight hours. The system configuration settings are stored in a non-volatile memory and are stored indefinitely with or without power. After a long power outage, the Time of Day button may flash indicating it needs to be reset. Press the button to stop the Time of Day from flashing and reset time if needed. If power fails while the unit is in regeneration, the control will save the current valve position before it shuts down. When power is restored, the control will resume the regeneration cycle from the point where power failed. If power remains off for more than eight hours, upon power restoration the regeneration is canceled and the piston returns to service.

CAUTION If power fails during a regeneration cycle, the valve will remain in its current position until power is restored. The valve system should include all required safety components to prevent overflows resulting from a power failure during regeneration.

The control will not start a new regeneration cycle without power. If the valve misses a scheduled regeneration due to a power failure, it will queue a regeneration. Once power is restored, the control will initiate a regeneration cycle the next time that the Time of Day equals the programmed regeneration time. Typically, this means that the valve will regenerate one day after it was originally scheduled. If the treated water output is important and power interruptions are expected, the system should be set up with a sufficient reserve capacity to compensate for regeneration delays.

Remote Lockout

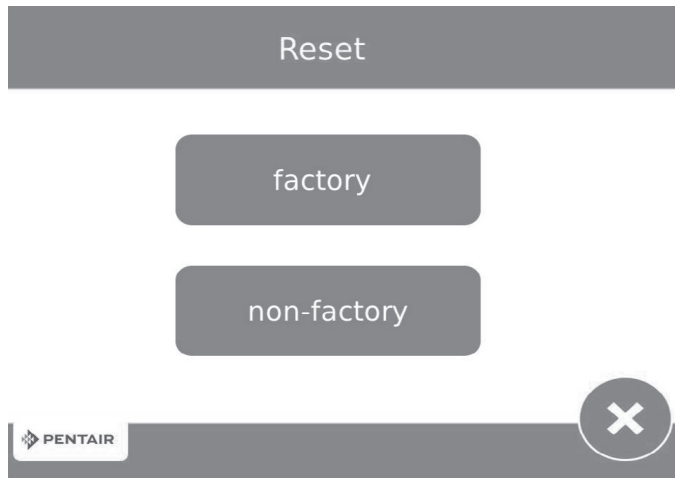
If a remote switch is installed, the control will not allow the system to go into regeneration until the regeneration lockout input signal to the control is cleared. This requires opening the contact closure to clear the lockout condition. The recommended gauge wire is 20 with a maximum length of 500 feet. See "WIRING DIAGRAM" on page 28.

Sleep Mode

The control will go into sleep mode if no button is pressed after five minutes. All other control functions will continue to operate. The display will wake from sleep mode when any part of the display is touched.

MASTER RESET

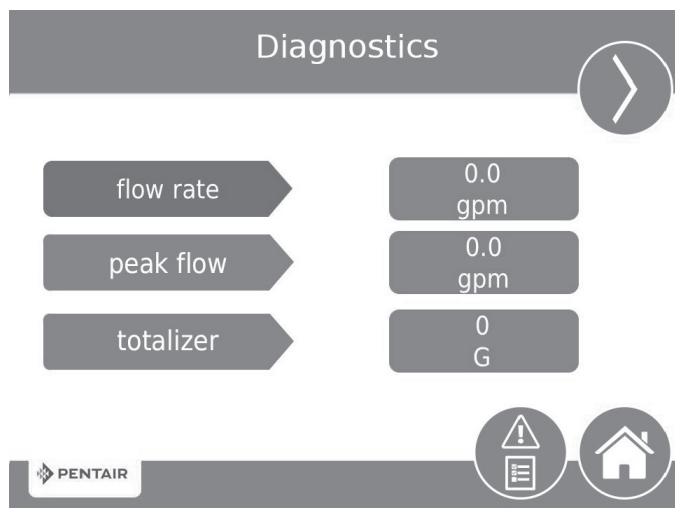
Press the  button while in the Master Settings main screen to display the Reset screen.



Press the **factory** button to reset all control parameters to their factory defaults, or press the **non-factory** button to reset control parameters to previously saved custom settings (see "NON-FACTORY SETTINGS" on page 49). A warning screen appears before parameters are reset. Press  to confirm the reset or press  to return to Master Settings.

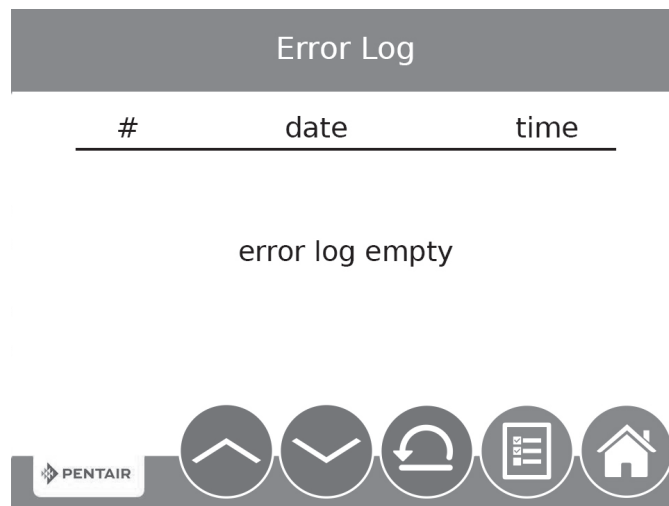
DIAGNOSTICS

The control records and displays a variety of diagnostic data to assist with troubleshooting performance issues and fine-tuning system efficiency. Press the **Diagnostics** button  from the Master Settings or Home screens to view the Diagnostic screen.



- Press the screen navigation arrows at the upper-right and left of the screen to view each diagnostic parameter.
- Press the Error Log button  to access the Error Log screen. To clear the Error Log, press the Reset button then the Reset button again on the Clear All Error Logs screen, then enter "1201" at the password prompt screen, then press the Accept button to confirm.

DIAGNOSTICS CONTINUED



Press the **Home** button  to return to the Home screen.



Notice

If a regeneration occurs while in the Diagnostic screen, the unit will return to the main screen.

Parameter	Description
Flow Rate	Displays the current flow rate.
Peak Flow*	Displays maximum flow rate of water along with date and time of occurrence, since last reset.
Totalizer***	Displays total volume of water used since last reset.
Last Regen	Displays when last regeneration occurred.
Reserve	Displays the reserve volume based on the reserve type selected under master settings. *This parameter is only available for meter delayed regeneration type.
Software Version	Displays the software version installed on the controller.
No of Regens	Displays how many manually and system initiated regenerations the system has gone through since last reset.
Regen Interval	Displays the average length of time between regenerations based on the past four regenerations.
Daily Usage	Displays average water usage for each day of the week based on the usage on that day for the past six weeks.
Usage Since Regen	Displays water usage since last regeneration.
Last Setting Change	Displays the date and time of the last update to Master Settings.



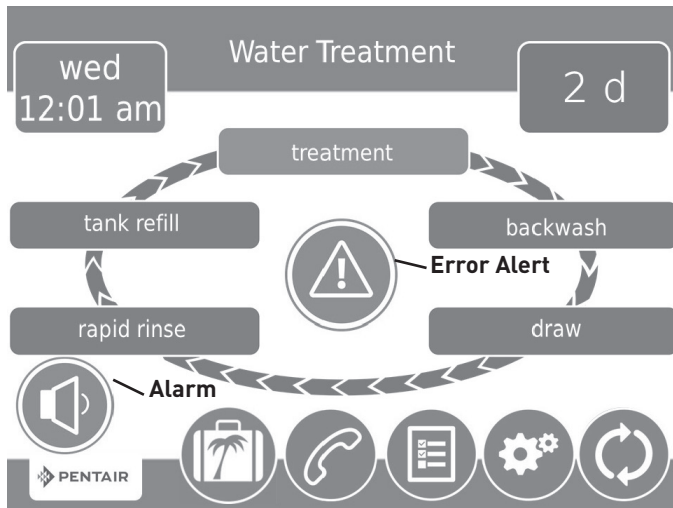
Notice

Only Peak Flow and Totalizer can be changed - they can be reset to zero.

****:** Totalizer has a maximum value of 99,999,999. If this number is reached, the Totalizer must be reset to zero to continue tracking this value.

ALARMS AND ERRORS

If an error in valve or control function occurs, an alarm will sound and the Home screen will display the Error Alert button  and the Alarm button .



- Press the **Alarm** button to mute the alarm.
- Press the **Error Alert** button to view information about the error.

If the display is in sleep mode when an error occurs, the screen will turn on for five minutes. The error will beep for one second per minute until the error is cleared. If the error is not cleared after five minutes, the screen will switch to power saving mode and display the Error Alert button as a screen saver.

See TROUBLESHOOTING for more information about error conditions.

USB Connection for Field Programming

The XTR3 features a USB port that allows you to connect a device to the control for field programming and diagnostic parameter download.



Notice

Field Programmer software is required for field programming features. See XTR3 Field Programmer Manual for more information on using the Field Programmer software.

Pressing  on the Format screen displays the USB screen.

USB

Connect the usb cable to the control and PC and start the field programming application



When the USB screen appears, connect a USB cable to the USB port on the control circuit board. Connect the other end of the USB cable to a device with the Field Programmer software installed and follow the directions in the XTR3 Field Programmer manual to complete the connection. Press  to return to Master Settings.

NOTE: Do not remove USB cable from computer or control while connected and transferring data. See the XTR3 Field Programmer

MASTER SETTINGS REFERENCE CHART

CAUTION Before entering Master Settings, please contact your local professional water dealer.

Screen Name	Parameters	Values	Notes
Format	Language	English, French, German, Italian, Spanish, Dutch	Changes the language to display screen text and button labels in the control (available with international version of control only).
	Units	U.S. Metric	Changes system units and values across all parameters in the control. All programmed units and values should be recalculated after adjusting this setting.
	Hardness Units	Grains per gallon mg/L or ppm German degrees French degrees English degrees	Changes hardness units used in displaying hardness parameters and calculating system capacity and editing exchange capacity and hardness settings.
Assistance Name	Free-form text	A - Z and space	Name of service provider to display when viewing the Assistance screen. 20 character limit.
Assistance Phone	Free-form text	0 - 9 and space	Phone number of service provider to display when viewing the Assistance screen. 20 character limit.
Assistance Interval	Month Based Regen Based	1 - 60 1 - 2000 Off	Set to automatically display the Assistance screen after a certain number of months or regenerations.
Valve	System	4	System 4 (single system) is currently the only available selection.
	Valve	5800	Select the type of valve to be installed.
	Media Volume	1.0, 1.5 or 2.0 ft ³ 28.3, 42.5 or 56.6 L	Used to calculate capacity.
	Salt Dosage	3 - 18 lbs/ft ³ 50 - 290 g/L	Used to calculate capacity and refill time.
	BLFC size	0.125 gpm	Brine Line Flow Control; Used to calculate refill time.
	Regen. Type	Time Clock Softener Immediate Softener Delayed	Regeneration Types are described in detail on page <?>. Additional Valve screen parameters are dependent upon selected Regeneration Type. Not all parameters will be displayed. Softener Delayed regeneration type has four reserve options (Fixed %, Fixed Volume, Variable Reserve, Weekly Reserve). The control will display additional configuration options depending on the selected reserve type.
	Capacity	1 - 99 999 999 grains / grams / degrees	Only required on metered systems to calculate treated water capacity and reserve. Represents total system capacity between regenerations.
	Hardness	1 - 199 grains/gallon 1 - 1 999 mg/liter x - x degrees	Only required on metered systems to calculate treated water capacity and reserve. Represents hardness of untreated water.
	Reserve	Fixed % Fixed Volume Weekly Reserve Variable Reserve	Only available when Meter Delayed regeneration type is selected. Selecting Fixed % or Fixed Volume will display additional configuration options. Weekly Reserve is calculated based on average day of week's water usage. Variable Reserve is calculated based on previous day's water usage.
	Day Override	1 - 99 days 4, 8, 12, 16, 20 hours	Available to be programmed for all Regeneration Types.
	Regen Time	12 / 24 hour clock	Required for Time Clock and delayed Regeneration Types. Set for immediate regeneration types only when a Day Override is also set.
	Volume Override	1 - 99 999 999 gallons / liters	Only displayed when Regeneration Type is Filter Immediate or Filter Delayed.
Regeneration	Regen. Flow	Upflow Downflow Downflow 2x Backwash	Cycle steps on the Home screen and during regeneration will change to reflect the cycle steps and order in the selected Regenerant Flow. Additional Regeneration screen parameters are dependent upon selected Regenerant Flow. Not all parameters will be displayed. Custom Upflow and Downflow allows for up to 20 programmable cycle steps. Variable Refill calculates refill time based on Salt Dosage, Media Volume, and BLFC Size. Time per cycle step can be programmed for all other Regenerant Flow options.
Relay Outputs	Aux 1/Aux 2	Cycle Based Time Based Volume Based Alarm Based Off	For Cycle Based relays, select the cycle steps on which the relays will turn on. For Time Based relays, two start/end times will need to be selected for each relay. Relay times are based on total regeneration cycle time. Volume Based relays can be programmed from zero gallons/liters to the full system capacity. Duration can be set from zero seconds to two hours. Volume Based option is not available when Regeneration Type is set to Time Clock. Alarm Based relays will turn on when an alarm condition is met, and will turn off when the alarm is cleared.
Meter	Meter Type	.75 inch Turbine	Select the type of meter installed with the system. A Generic option is available if the installed meter does not match any other selection. Selecting the Generic meter type requires setting the number of pulses per gallon or liter to ensure proper metering.
	Generic	1 - 999.9 / 1 - 1500 pulses per gallon / liter	Only available when Generic meter type is selected.
Remote Regen	Remote Regen	1 - 255 seconds Off	Select a value in seconds that the remote switch must be closed in order to trigger the regeneration.

NOTE: Some items may not be shown depending on control configuration. The control will discard any changes and exit Master Settings if any button is not pressed for five minutes.

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: 1.800.842.1635



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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