

US Water Matrixx inFusion Iron and Sulfur Removal System Dual Injection Panel




IRON & SULFUR ERADICATION

Owners Manual

Models:
081-IF-DP-XXX

REVISION # 1.1
REVISION DATE December 4, 2018

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Unpacking / Inspection

Be sure to check the entire system for any shipping damage or parts loss. Also note damage to the shipping cartons. Contact US Water Systems at 1-800-608-8792 to report any shipping damage within 24 hours of delivery. Claims made after 24 hours may not be honored.

Small parts needed to install the system are in a parts bag. To avoid loss of the small parts, keep them in the parts bag until they are used.

Safety Guide

- Check and comply with provincial / state and local codes and follow these guidelines.
- Use care when handling the iron removal system. Do not turn upside down, drop, drag or set on sharp protrusions.
- The backwashing carbon filter uses 12 volt-60 Hz electrical power only. Be sure to use only the included transformer.
- Transformer must be plugged into an indoor 120 volt, grounded outlet only.
- **WARNING:** This system is not intended for treating water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system. Contact US Water Systems for disinfection treatment equipment.

Proper Installation

This water filtering system must be properly installed and located in accordance with the Installation Instructions before it is used or the warranty will be void.

- **Do not** install or store where it will be exposed to temperatures below freezing or exposed to any type of weather. Water freezing in the system will break it. Do not attempt to treat water over 100°F.
- **Do not** install in direct sunlight. Excessive sun or heat may cause distortion or other damage to non-metallic parts.
- Properly ground to conform with all governing codes and ordinances.
- Use only *lead-free solder and flux* for all sweat-solder connections, as required by state and federal codes.
- Maximum allowable inlet water pressure is 125 psi. If daytime pressure is over 80 psi, night time pressure may exceed the maximum. Use a pressure reducing valve to reduce the pressure.
- **WARNING:** Discard all unused parts and packaging material after installation. Small parts remaining after the installation could be a choke hazard.

Introduction

The Matrixx InFusion system provides pH adjustment and iron and sulfur removal throughout the home. The Matrixx InFusion system should be installed at the point of entry to treat the entire home, both hot and cold water.

The Matrixx InFusion system's backwashing tank removes iron and sulfur using oxidation. When water is used in the home, soda ash is injected first to adjust the pH of the water then hydrogen peroxide is injected in the Matrixx InFusion feed to create super oxidation during operation. The Catalytic Carbon media in the Matrixx InFusion system tank provides filtration when the system is in service to collect contaminants oxidized by the hydrogen peroxide. These contaminants are backwashed from the media surface when the system regenerates.

Matrixx Benefits

- Iron & Sulfur Removal
- pH Adjustment
- Virtually maintenance free.
- Improves the efficiency of water-using appliances
- Simple installation
- Safe for landscaping and lawn watering.
- Compatible with all on-site and community wastewater treatment systems

System Overview and Specifications

US Water has pioneered the use of hydrogen peroxide in water treatment for the eradication of iron (rust) and sulfur (hydrogen sulfide odor) for nearly 20 years. It can truly be called an "Eradication System" because it TOTALLY removes iron and sulfur. Properly sized, a Matrixx InFusion Hydrogen Peroxide System from US WATER is THE MOST EFFECTIVE METHOD for removing iron, rust, sulfur and hydrogen sulfide (the rotten-egg odor) from the water supply. The Matrixx InFusion system uses Catalytic Carbon media in the backwashing filter to collect the contaminants removed by the hydrogen peroxide. Hydrogen Peroxide is not a hazardous chemical - to the contrary, hydrogen peroxide (H₂O₂) is composed of the elements of water: Hydrogen and Oxygen. There is nothing foreign or chemically added to the water supply. Unlike chlorine, hydrogen peroxide requires no contact time and the reaction (oxidation of iron, rust, sulfur and hydrogen sulfide) is immediate. The Matrixx InFusion Hydrogen Peroxide System is the answer to practically any iron, rust, sulfur or hydrogen sulfide problem, and is backed with our 90-Day 100% Satisfaction Guarantee. US Water Systems guarantees 100% iron and sulfur removal with its Matrixx InFusion System which utilizes Hydrogen Peroxide or H₂O₂. Hydrogen peroxide or H₂O₂ is a powerful, yet versatile oxidant that is both safe and effective. Considering the H₂O₂ advantages, it's easy to see why this is the ONLY sure way to eradicate iron and sulfur.

Powerful - H₂O₂ is one of the most powerful oxidizers known and is much stronger than chlorine, chlorine dioxide, and potassium permanganate.

Safe - H₂O₂ is formed by the action of sunlight on water and is a natural purification system for our environment. Consequently, H₂O₂ has none of the problems of gaseous release or chemical byproducts that are associated with other chemical oxidants. And since H₂O₂ is totally miscible with water, it reverts back to hydrogen and oxygen after the reaction is complete.

Versatile - Hydrogen Peroxide is lethal to iron and sulfur. PERIOD!

Selective - In itself, H₂O₂ is a fantastic oxidizer, much better than chlorine and potassium permanganate. It poses no health hazard and ERADICATES 100% OF THE IRON AND SULFUR – ALL THE TIME – GUARANTEED!

Consult one of water specialists for higher flow rates. US Water offers Fusion InFusion systems up to 100 GPM and can custom design them at no extra charge. Call us at 800-608-8792 or e-mail us at info@uswatersystems.com .

Oxidation Scale (the higher the better)

Oxidant	Oxidation Potential, V
Fluorine	3.0
Hydroxyl radical	2.8
Ozone	2.1
Hydrogen peroxide	1.8
Potassium permanganate	1.7
Chlorine dioxide	1.5
Chlorine	1.4

How The Matrixx InFusion Water Treatment System Works

The Matrixx InFusion iron and sulfur eradication system uses Hydrogen Peroxide (H₂O₂) to oxidize contaminants in the water source. The chemical name for hydrogen peroxide is H₂O₂. It is very similar to water (H₂O) but with one additional oxygen molecule. Hydrogen peroxide is injected into the water stream proportionally. The water meter will engage the chemical injection pump based on the flow rate of the feed source water and the settings on the pump control.

When water is being used the water meter sends a pulse to engage the pump. So when large amounts of water are being used the pump will run more frequently during the usage period than in times when a small amount of water is being used. The standard programming is set to a 5 second control. At 100% the pump will stay engaged for 5 seconds. At 50% the pump will stay engaged for 2.5 seconds. In some applications with high flow rates or high contaminant levels, this setting may need to be changed if a residual H₂O₂ cannot be achieved. There are internal settings that can be changed to adjust the output rate. The pump settings can be changed to 10 seconds at 0-100% or 20 seconds at 0-100% if need be. 80% of the applications will use the standard setting (5 seconds).

When hydrogen peroxide is injected into the water stream, it oxidizes the iron and sulfur precipitating it from solution. This reaction is immediate. When these contaminants are oxidized with hydrogen peroxide (H₂O₂) the extra oxygen molecule oxidizes the contaminants and the by product is H₂O (water). This is much safer than using chlorine in that chlorine can cause other problems in the water stream such as chloramines and trihalomethanes (THM's).

Once the hydrogen peroxide has been injected in the water it passes through the backwashing Catalytic Carbon filter. The backwashing Catalytic Carbon filter uses Catalytic Carbon media to act as a "catalysis" to remove the oxidized contaminants. As the water passes through Catalytic Carbon filter, the oxidized contaminants are removed from the water and collected on the Catalytic Carbon media. Once the water has passed through the Catalytic Carbon filter, the water is iron and sulfur free! Some manganese can be removed with the Matrixx InFusion system but extreme levels of manganese may require a water softener in addition to the Matrixx InFusion system to polish the remaining manganese.

The Catalytic Carbon filter will need to be backwashed at a specified/determined frequency. In some applications this can be extended to 4-5 days. The typical frequency is 1-3 days. Contact US Water Systems and a Certified Water Specialist will be able to determine the frequency that can be used when considering the feed water contaminant levels. The factory default will be 3 days.

Matrixx Installation Instructions and Specifications

WATER PRESSURE: A minimum of 20 pounds of water pressure is required for regeneration valve to operate effectively.

ELECTRICAL FACILITIES: An uninterrupted alternating current (A/C) supply is required. Note: Other voltages are available. Please make sure the voltage supply is compatible with the unit before installation.

EXISTING PLUMBING: Condition of existing plumbing should be free from lime and iron buildup. Piping that is built up heavily with lime and/or iron should be replaced.

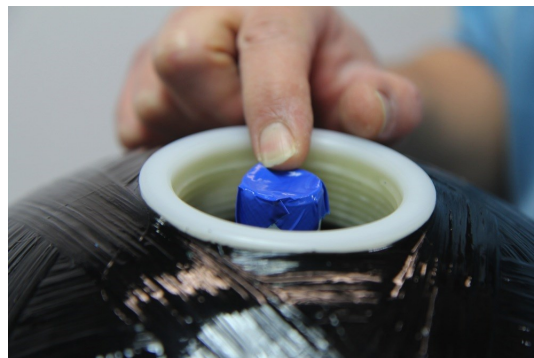
LOCATION OF MATRIXX TANK AND DRAIN: The Matrixx tank should be located close to a drain to prevent air breaks and back flow.

BY-PASS VALVES: Always provide for the installation of a by-pass valve if unit is not equipped with one. The Catalytic Carbon is equipped with a bypass valve.

CAUTION: Water pressure is not to exceed 80 psi, water temperature is not to exceed 110° F (43°C), and the unit cannot be subjected to freezing conditions or direct sunlight.

Tank and Control Valve Preparation

1. Use a piece of duct tape to cover the top of the distributor tube in the tank. Be sure the distributor tube is secured in the tank. It should not pull out of the tank. Install the supplied funnel and pour the **gravel** in the tank **first**. Each system will ship with gravel and Catalytic Carbon media. Pour the gravel in the tank first then pour in **all** the Catalytic Carbon media that was shipped in the tank **last**. US Water does not ship "extra" media.



Tank and Control Valve Installation

1. Lubricate the distributor O-ring and the outer tank O-ring.



2. Install the upper basket on the bottom of the valve by lining up the tabs then turning the basket clockwise to lock it in place. Place the upper basket over the distributor tube and push the valve on the tank. Thread the valve on the tank by turning it clockwise. Be sure not to cross-thread the valve on the tank.

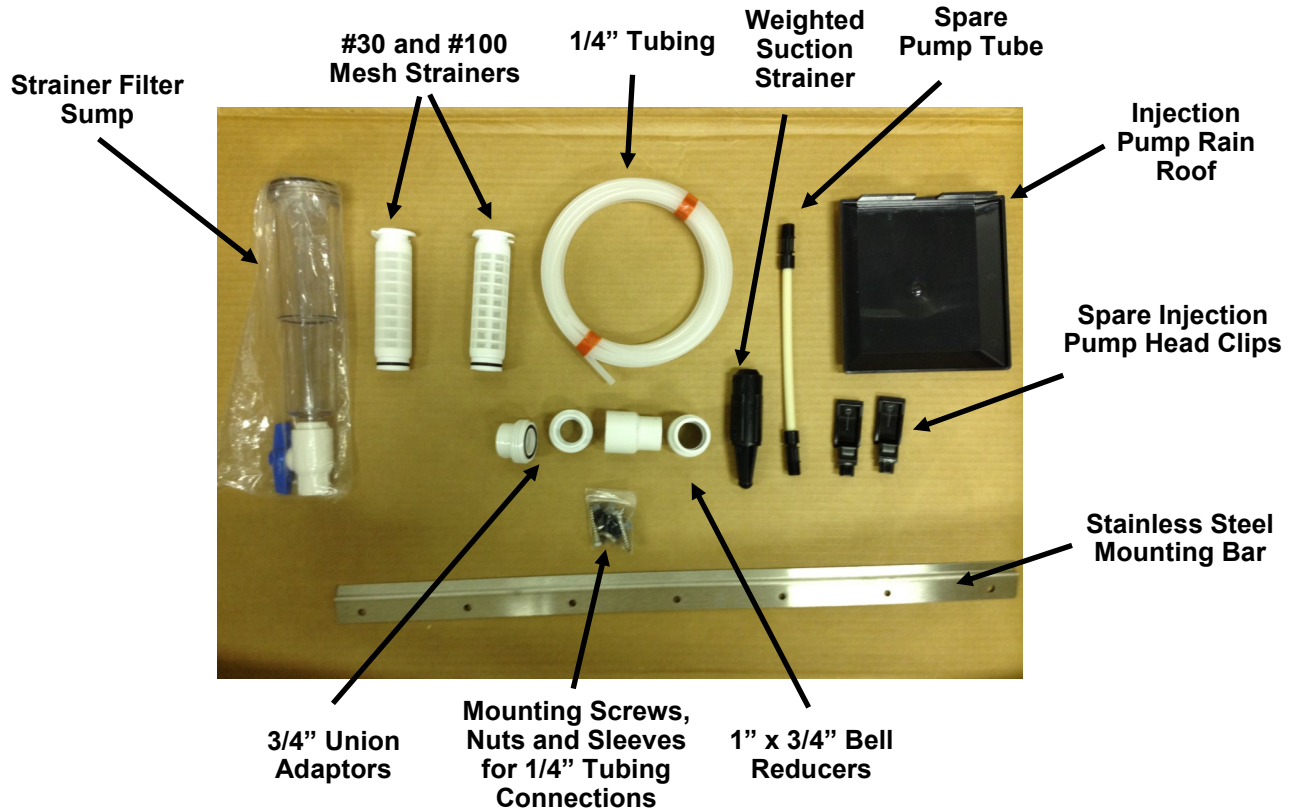


3. Tighten the valve hand tight, then snug it further by tapping it with the palm of the hand. **DO NOT** use tools to tighten the valve or damage could occur.



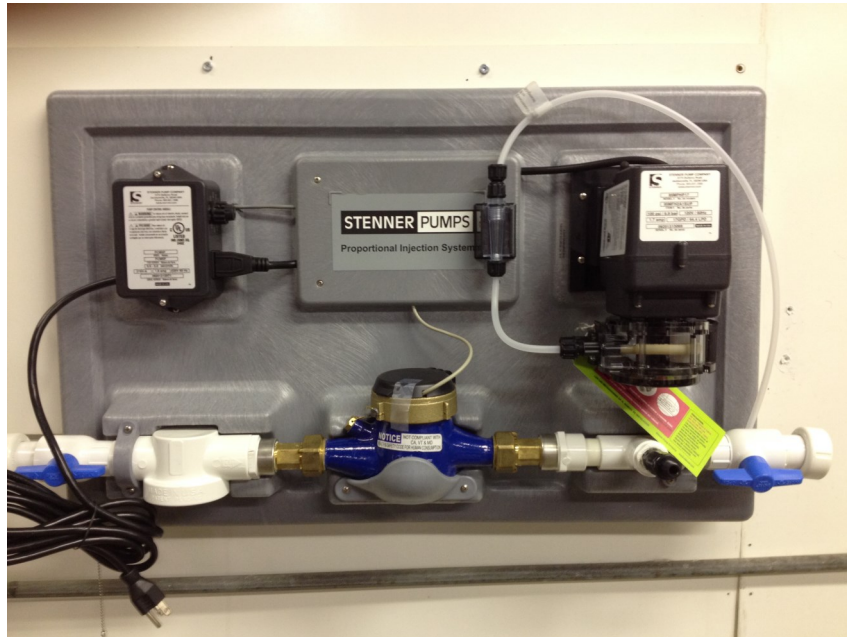
Injection Panel Installation Instructions

1. Layout the parts for the injection panel, then find the location where the panel will be installed. Install the stainless steel mounting bar. A level can be used to make sure the bar is installed properly. This bar should be secured to the wall studs or wood backing plate that is secured to the wall studs.

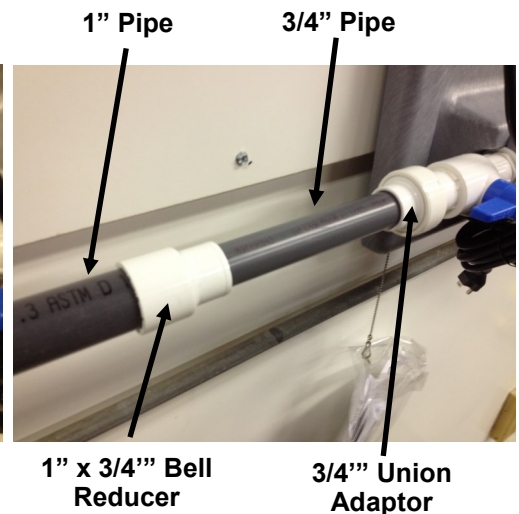


Injection Panel Installation Instructions

2. Hang the injection panel on the mounting bar. (Single Panel Shown)



3. Now install the inlet plumbing from the sediment filter to the left side of the injection panel. Use the 3/4" Union Adaptors to connect to the panel. These adaptors are designed for 3/4" PVC. If 1" plumbing is used the 1" x 3/4" Bell Reducers can be used to adapt the 3/4" Union Adaptors to 1" connections. A small piece of 3/4" pipe is needed to connect the 1" x 3/4" Bell Reducers to the 3/4" Union Adaptors.



Injection Panel Installation Instructions

- Now install the outlet plumbing using the Union Adaptor and tighten the union collars with channel locks. Do not over tighten these unions.

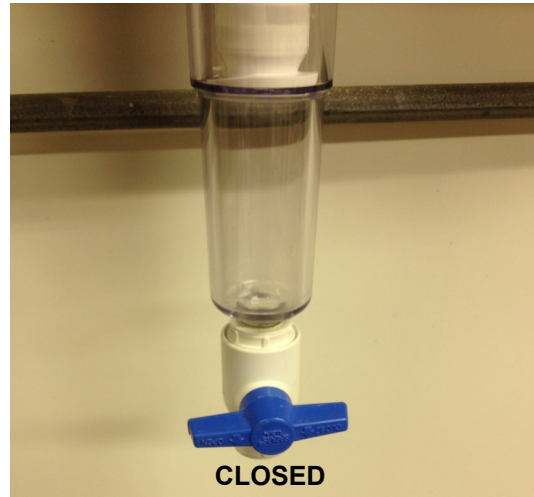
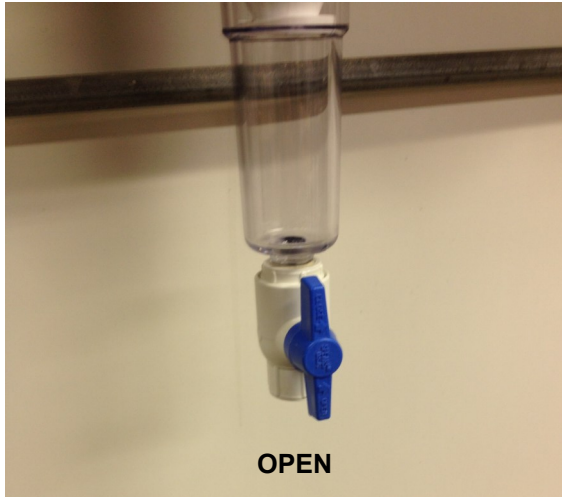


- Now install the strainer filter and the strainer sump. If the feed water is high in turbidity, use the #100 mesh strainer filter. All other applications should use the #30 mesh strainer filter. Insert the strainer filter in the strainer head on the panel, then install the strainer sump and turn it clockwise until hand tight. Use both hands to tighten the strainer sump. Do not use tools to tighten the strainer sump.



Injection Panel Installation Instructions

1. There is a ball valve on the bottom of the strainer filter sump. This ball valve should be closed during operation. This ball valve can be used to flush the strainer filter sump periodically. This can be done by placing a bucket under the ball valve and opening the valve until the sump strainer is clear.



Tank and Control Valve Connections

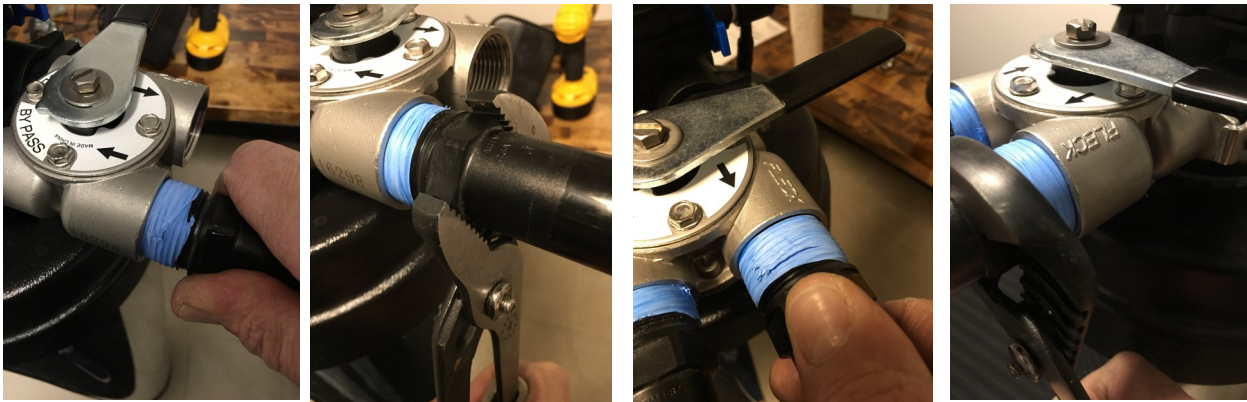
1. If the hot water tank is electric, turn off the power to it to avoid damage to the element in the tank.
2. If the supply is a private well, turn the power off to the pump and then shut off the main water shut off valve. If you have municipal water, simply shut off the main valve. Go to a faucet or spigot, (preferably on the lowest floor of the house) turn on the cold water until all pressure is relieved and the flow of water stops.
3. Locate the backwashing tank close to a drain where the system will be installed. The surface should be clean and level.

NOTE: Any **solder joints** being soldered near the valve must be done before connecting any piping to the valve. Always leave at least 6" (152 mm) between the control valve and joints being soldered when soldering pipes that are connected to the valve. Failure to do this could cause damage to the valve.

The Bodyguard Plus is equipped with 1" female pipe threaded ports on the control valve bypass. The bypass is marked with arrows to show proper flow direction. The arrow pointing toward the valve indicates the inlet. The arrow pointing away from the valve is the outlet.



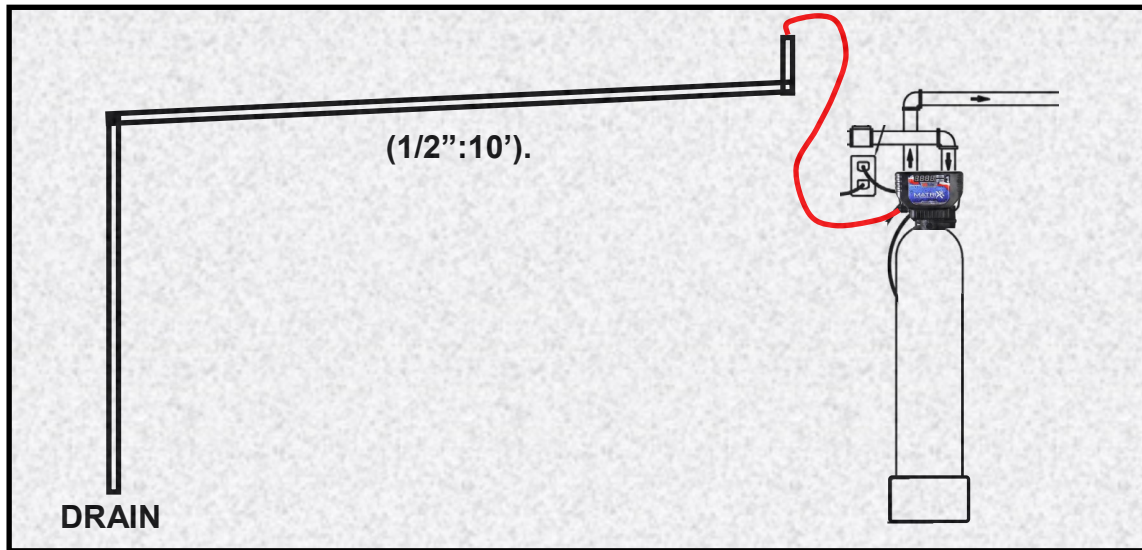
4. Be sure to use Teflon tape or other pipe sealant on the plumbing fitting threads and install them in the bypass accordingly. Use channel locks to ensure they are tight.



NOTE: All piping should be secured to prevent stress on the bypass valve and connectors.

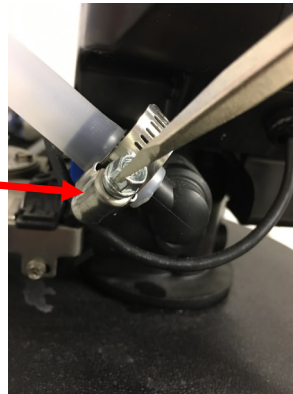
Tank and Control Valve Connections

5. Connect the drain hose to the valve and secure it with a hose clamp. Run the drain hose to the nearest laundry tub, floor drain or approved air gap fitting. The drain can be run overhead or down along the floor. Drain tubing should be a minimum of 1/2" ID. When running the drain overhead it is important that the tubing has no dips or kinks. If the drain is run overhead and must run linearly to the available drain it is recommended that a hard pipe is used of larger diameter than the drain line. This linear pipe should have a physical "drop" toward the drain (1/2":10'). The goal is to have a gravity drain without much back pressure when traveling long distances.



NOTE: A DIRECT CONNECTION INTO A WASTE DRAIN IS NOT RECOMMENDED. A PHYSICAL AIR GAP OF AT LEAST 1.5" SHOULD BE USED TO AVOID BACTERIA AND WASTEWATER TRAVELLING BACK THROUGH THE DRAIN LINE INTO THE SYSTEM.

Hose barb fitting
for drain line.
Be sure to use a
hose clamp to se-
cure the line.



NOTE: Be sure to secure the drain line. The system will drain with force and it should be secured to prevent a leak. Hose clamps should be used to secure the drain line at the connection points.

New Sounds

There may be new sounds when the system operates. The Backwash cycle lasts up to 25 minutes. During this time, water can be heard running intermittently to the drain.

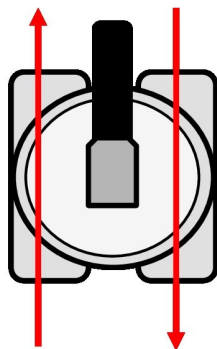
Automatic Hard Water Bypass During Regeneration

The regeneration cycle can last 25 to 30 minutes, after which treated water service will be restored. During regeneration, untreated water is automatically bypassed for use in the household. Hot water should be used as little as possible during this time to prevent untreated water from filling the water heater. This is why automatic backwash is set for sometime during the night and manual backwashes should be performed when little or no water will be used in the household. Normal regeneration time is 2:00 AM.

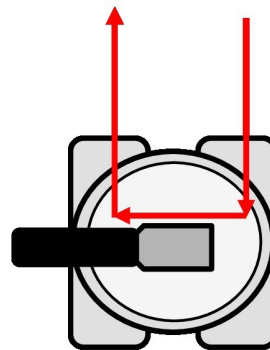
Manual Bypass

In the case of emergency, the system can be isolated from the water supply using the bypass valve located at the back of the control. In normal operation the bypass is open with the handle in line with the inlet and outlet pipes.

To isolate the system, simply rotate the handle counter-clockwise (as indicated by the word BY-PASS and arrow pointer on the handle) until it stops. Water can be used at related fixtures and appliances as the water supply is bypassing the system. However, the water used will be untreated. To resume treated water service, open the bypass valve by rotating the handle clockwise.



SERVICE



BYPASS

Injection Panel Chemical Solution Tank Installation Instructions

1. Place the chemical solution tanks close to the injection panel. Drill a 1/4" hole in the top of the each chemical tank. Push the 1/4" tubing in the hole in each tank.



2. Pull the 1/4" tubing from inside the tank up through the fill hole. Then push on the weighted strainer on the 1/4" tubing on each tank.

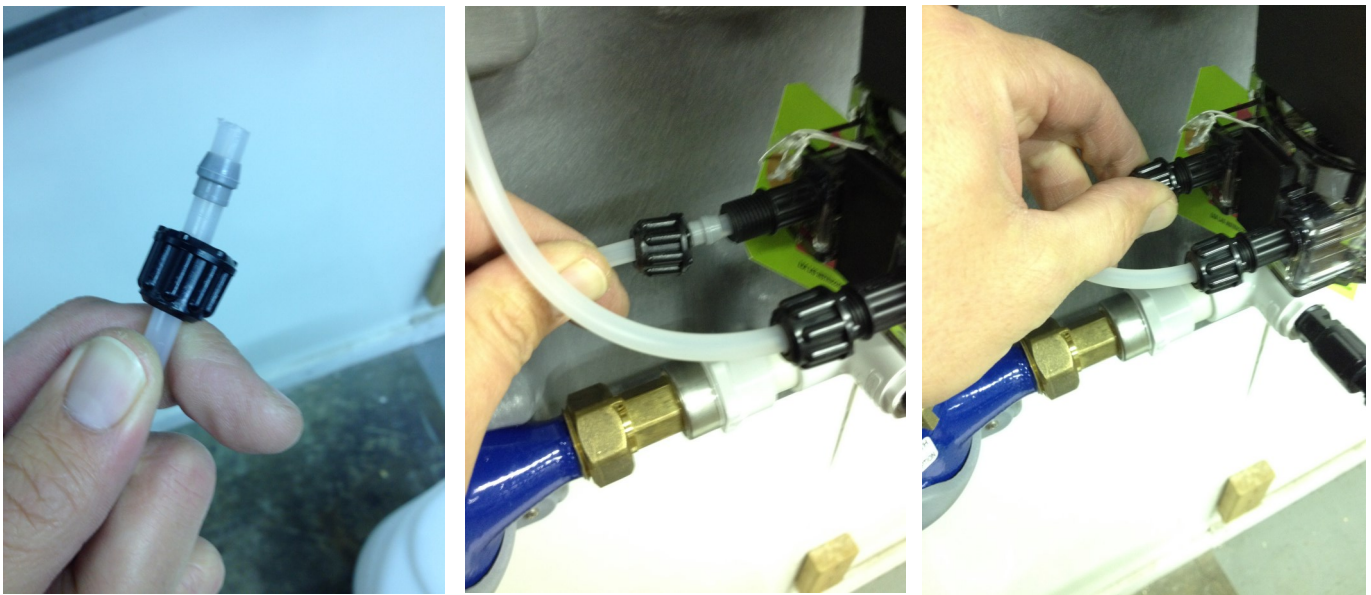


Injection Panel Chemical Solution Tank Installation Instructions

3. Be sure the weighted strainer on the 1/4" tubing until it can be seen in the slots in the weighted strainer. Then drop the strainer in the tank and push the 1/4" tubing through the hole in the tank until the weighted strainer is about 1" off the bottom of the tank.



4. Now attach the other end of the 1/4" tubing to the pump on the injection panel. Put the nut over the tubing and then the sleeve. Push the tubing in the pump fitting and tighten the nut hand tight. The connection on the pump should be held with one hand while the nut is tightened with the other hand. Hand tight should be sufficient. The left hand pump will be for the soda ash tank and the right hand pump is for the hydrogen peroxide tank.



Chemical Injection Panel Start-up Instructions

1. Plug the chemical injection panel in the wall. Pour the supplied Hydrogen Peroxide into the peroxide chemical solution tank. Fill the soda ash tank with the soda ash mixture. Mix a 6 lb container of soda ash to 5 gallons of warm water and pour it into the tank repeat the process until full. Unplug the pump power cord from the soda ash PCM on the injection panel and attach it to an extension cord that is energized. Turn the switch on the injection pump to the on position and allow the chemical pump to prime with soda ash. Once primed plug the soda ash pump back into the PCM. Repeat this process for the hydrogen peroxide pump. Typically the soda ash or peroxide can be seen traveling through the tubing. Once the peroxide pump is primed, unplug the pump from the extension cord and plug it back into the PCM on the injection panel. **TURN THE PEROXIDE PUMP SWITCH TO THE OFF POSITION FOR NOW. LEAVE THE SODA ASH PUMP SWITCH ON.**



1. Set the knob on the PCM to 50%

System Regeneration Using Onboard Buttons

Normal Operation

1. Home Display

The home display will alternate between the Time of Day and Gallons left until the next regeneration. The meter will count down to zero (0000) and then regenerate at the scheduled time set.

Starting a Regeneration Cycle

1. To Start **Delayed Extra Cycle**

- If Days Remaining Until Next Regeneration does not read '000', press and hold the Set/Change button for 3 seconds until the display reads '0000'
- Regeneration cycle will initiate at the next designated regeneration time.

2. To start **Immediate Extra Cycle** First complete above step.

- With Gallons Remaining Until Next Regeneration at '0000',
- Press and hold the **Set/Change** button.
- After 3 seconds, the regeneration cycle will begin.

3. To **Fast Cycle** thru regeneration First complete above 2 steps.

Note: Press and hold the Set/Change button for 3 seconds to advance to the next cycle step. Fast Cycle is not necessary unless desired to manually step through each cycle step. (Repeat until valve returns to the home display)

Matrixx Cycles		Default (Min)
Step 1	Backwash	10
Step 3	Rest	2
Step 4	Rinse	10

Programming Using Onboard Buttons

1. To enter Main Menu, press the **Menu/Enter** button. (Time of Day will flash)

2. To set the **Time of Day**, press the **Set/Change** button. (First digit will flash)

- To change digit value, press the Set/Change button.
- To accept the digit value, press the Menu/Enter button.
- Next digit will flash to begin setting.
- Once the last digit display is accepted, all digits will flash.



3. To set **A.M.** or **P.M.**, press the **Menu/Enter** button.

- To change digit value, press the **Set/Change** button.
- To accept the digit value, press the **Menu/Enter** button.
- Once A.M. or P.M. is accepted, the next menu item will flash.

4. To set the Number of Days between Backwash Cycles(A), press the Set/Change button. - Repeat instructions from step (2).

Notes: 1) Maximum value is 29.

2) If value set to 0, Automatic Backwash will never occur.

3) Default setting is 7 days for filters

5. To Exit Main Menu, press the **Menu/Enter** button.

Note: If no buttons are pressed for 60 seconds, the Main Menu will be exited automatically.

Home Display

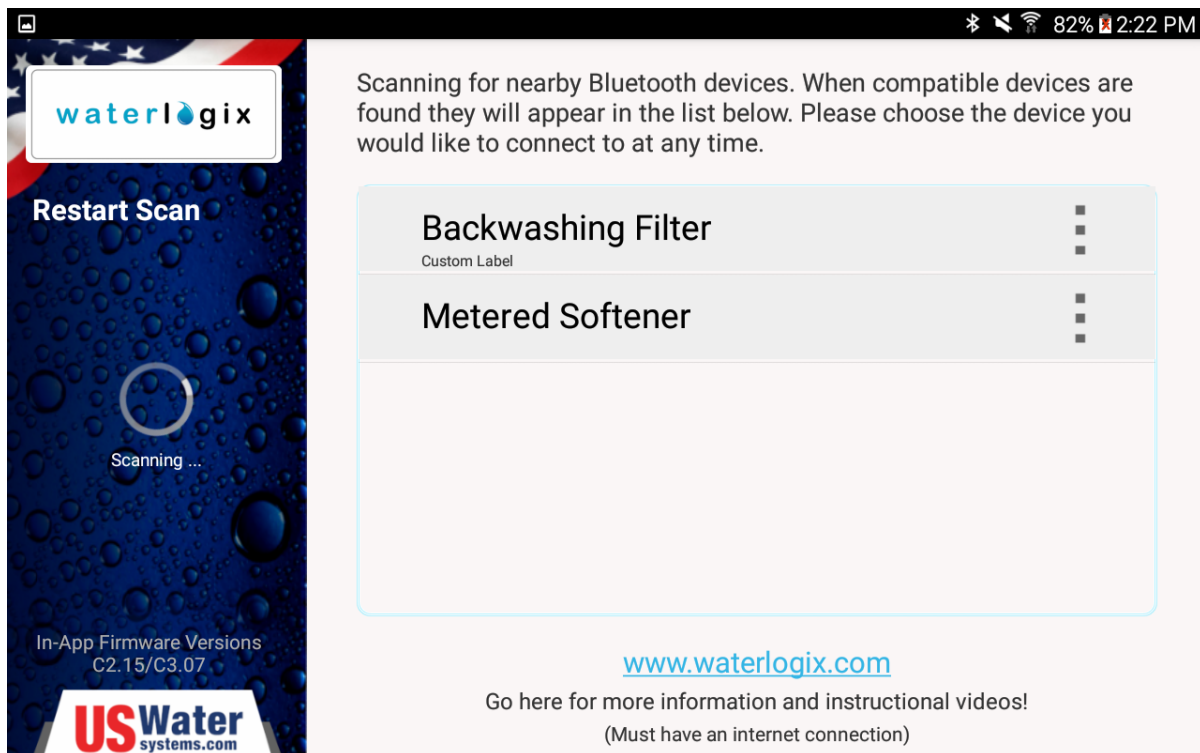
Alternates between the display of Time of Day and Number of Days until the Next Backwash. - Days Remaining until the Next Backwash will count down from the entered value until it reaches 1 day remaining. - A Backwash Cycle will then be initiated at the next designated regeneration time.

Programming Using Water Logix App

US Water Systems has moved into the 21st century with our latest line of equipment that utilizes the Water Logix Bluetooth System Control Application for iPhone and Android. This app allows the user to control every aspect of the water systems from convenience of a smart phone. The Water Logix system control app will allow the user to monitor usage history, change cycle times, start a regeneration and advance through a regeneration. Although the Matrixx system has buttons on the control,

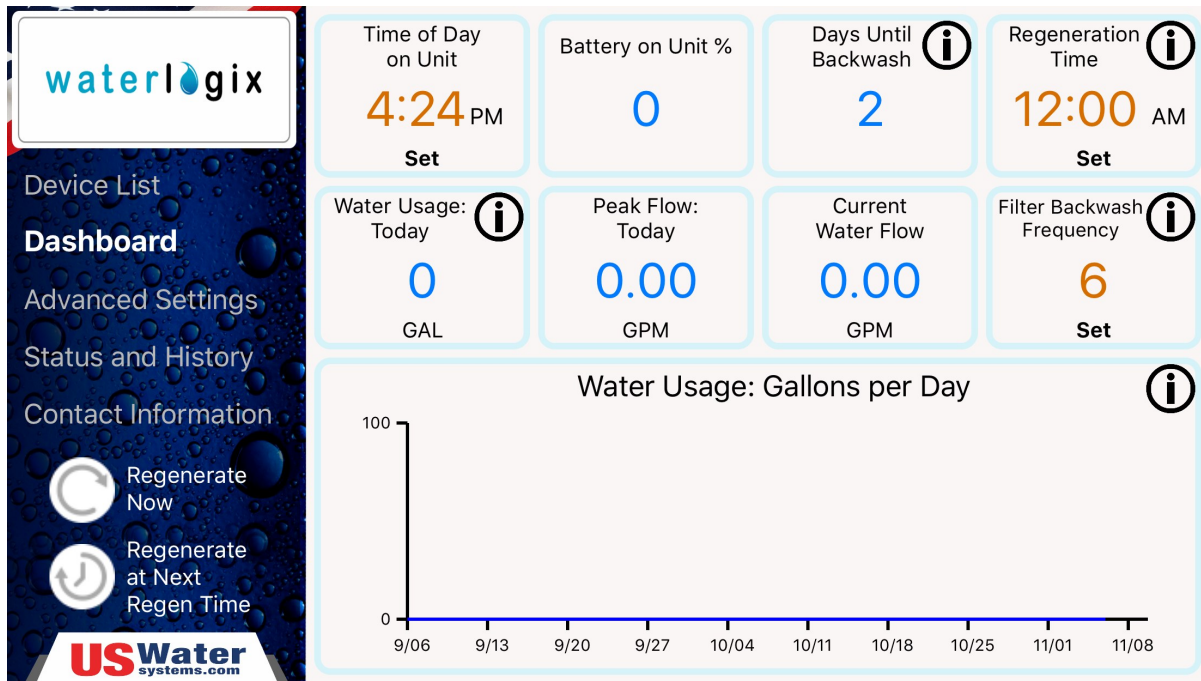
To use the Water Logix Bluetooth app;

1. Go to the App store on the phone to be used and search for “Water Logix”.
2. Download the free Water Logix app.
3. Open the app to begin programing.
4. Once the app is open it will begin scanning for control valves in the Bluetooth vicinity.



5. Once the app connects to the control valve or valves they will appear on the screen. Each valve can be renamed by tapping on the three vertical dots on the valve listed on the screen. Choose “Label Device” and a lettered keyboard will appear. The user can name the valve using the key board then save it by pushing “OK”.
6. Choose the valve to be programmed by tapping on the name. A “Dashboard” will show up for the control valve.

Programming Using Water Logix App

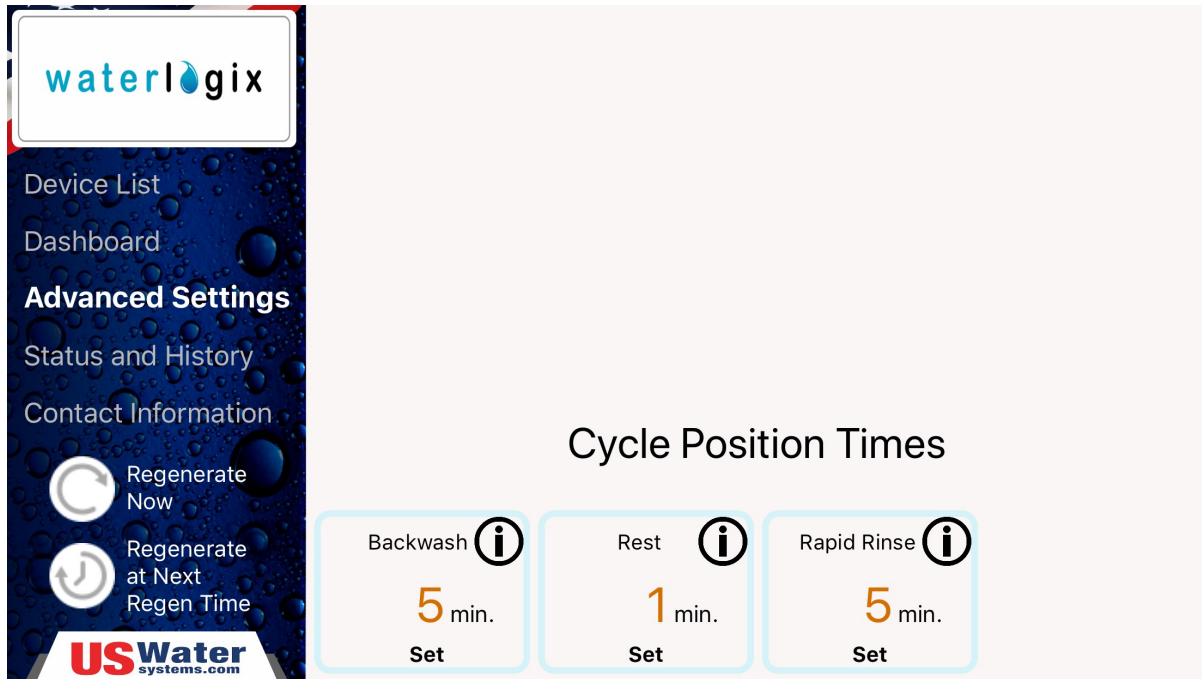


Dashboard

Parameters that can be changed are indicated with orange font. To change a parameter tap on the orange font then use the keyboard that appears to change the value.

1. **Time of Day:** Tap on the “Time of Day” box. A box will appear that allows you to set the unit to the time that matches the device being used to program the unit. Press “OK” and the time will change to the current time of the device.
2. **Backwash Frequency:** Tap on the “Filter Backwash Frequency” box and input the desired days between backwashing. Most applications will set this to 3 days. If iron or sulfur is extreme it may need to be set to 1 or two. Please call US Water at 1-800-608-8792 for help with setting the frequency if necessary.
3. **Regeneration Time:** Tap on the “Regeneration Time” box. Input the desired regeneration time for normal operation. This is typically two hours after everyone in the house is asleep or the business is closed for the day.

Programming Using Water Logix App

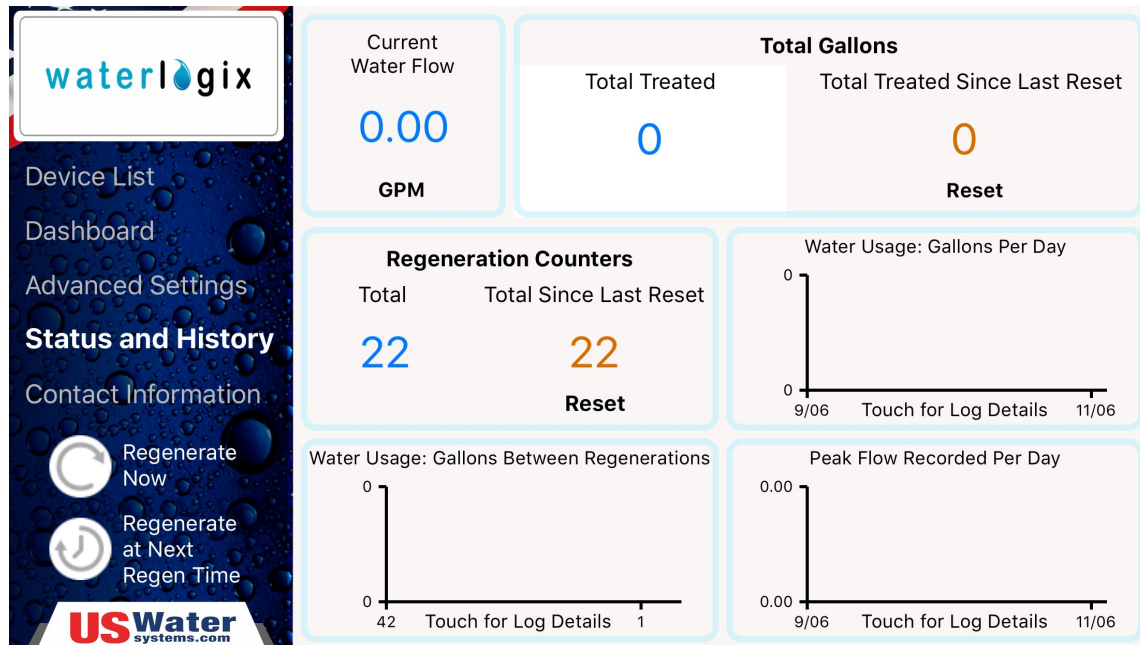


Advanced Settings

Parameters that can be changed are indicated with orange font. To change a parameter tap on the orange font then use the keyboard that appears to change the value.

4. **Backwash:** This should be set to “10” mins and should not be changed.
5. **Rest:** This should be set to “2” mins and should not be changed.
6. **Rapid Rinse:** This should be set to “10” mins and should not be changed.

Programming Using Water Logix App

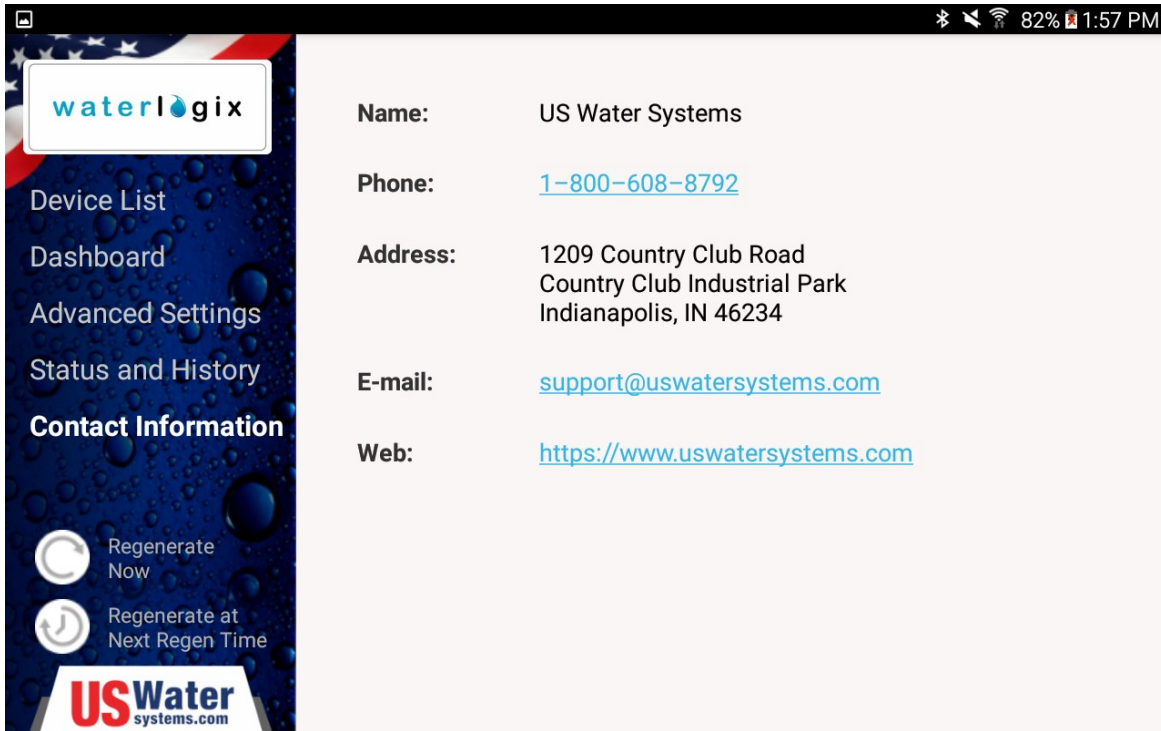


Status and History

The Status and History screen shows current conditions of the system as well as flow rate and usage history. There are two parameters that can be reset;

1. **Total Regenerations:** This parameter shows how many times the system has regenerated since it was put in service or since the last time the value was reset.
2. **Total Water Treated:** This parameter shows the total amount of water that has been treated since the system was put in service or since the last time the value was reset.

Programming Using Water Logix App



Contact Information

The Contact Information screen is used to provide the customer with contact info for US Water Systems. There is a link to the website and to our support team.

Regeneration Initiation

There are two options for regenerating the system. Tap on the desired option and press "OK".

Regenerate Now: Regenerate Now will queue an immediate regeneration and will start instantly.

Regenerate at Next Regen Time: Regenerate at Next Regen Time will queue the system to regenerate at the specified regeneration time chosen in the programming.

System Start-up Instructions

1. Once all the plumbing has been connected, open the main water shutoff valve. Open both ball valves on the injection panel.
2. Plug the Carbon Filter Control valve into an approved power source that is constantly energized.
3. When power is supplied to the control valve, wait a second while it finds the service position.
4. Once the valve has settled on the time of day, start an Immediate Manual Regeneration (See page 19 or 25). The valve will immediately start moving to the BACKWASH position.
5. Open the inlet on the bypass valve slowly and allow water to enter the unit. Allow all air to escape from the unit before turning the water on fully then allow water to run to drain for the entire backwash cycle or until all media fines are washed out of the filter indicated by clear water coming from the drain hose. The peroxide should be injecting during this procedure.
6. Press any button to advance to the RINSE position. Check the drain line flow. Allow the water to run for the entire RINSE cycle until the water is clear.
7. The valve will automatically advance to the SERVICE position after the RINSE cycle is complete. Open the nearest treated water faucet and allow the water to run until clear, close the tap and replace the faucet screen.

Soda Ash Injection Panel Rate Adjustment Instructions

US Water Systems uses the a pH test to determine the proper soda ash adjustment.

1. Set the proportional control for the soda ash on the Stenner injection panel to 50% using the knob on the PCM.
2. Run water for 10-15 minutes.
3. Take a sample after the Catalytic Carbon tank (or at a sink). Check the pH. It should be between 7-8.
4. Continue adjusting the knob “up” in increments of 5% and allow the water to run for 10-15 minutes between samples until the sample reads in the pH range.
5. Once the pH is in range. Turn the peroxide pump switch on and continue to the next page for peroxide rate adjustment.

NOTE: There is a tamper proof screw that can be tightened when the injection rates are set. This screw will prevent the pump rate control knob from being moved. If this screw is used be sure to loosen the screw before trying to adjust the pump rate control knob.



Hydrogen Peroxide Injection Panel Rate Adjustment Instructions

US Water Systems uses the “bubble method”. This is a visual method that works best for quick and reliable H₂O₂ injection rates.

1. Set the proportional control for the Peroxide pump on the Stenner injection panel to 50% using the knob on the PCM.
2. Run water for 10-15 minutes.
3. Take a sample after the Catalytic Carbon tank (or at a sink). The water in the sample container (preferably glass) should be full of bubbles immediately after the sample is taken (looks similar to an Alka-Seltzer dissolving in a glass). If not the installer will adjust the pump to 60%, run the water for 10-15 minutes and check again.
4. Continue adjusting the knob “up” in increments of 10% and allow the water to run for 10-15 minutes between samples until the sample container is full of bubbles. Once the container is full of bubbles, it is an indicator that there is plenty of H₂O₂ in the water. BE SURE to allow 10-15 minutes between adjustments.
5. Now continue the same sampling process but decrease the knob setting in 5% increments allowing the water to run for 10-15 minutes between adjustments until there are just a few bubbles in the sample container (20-30 defined air bubbles in the center of the solution in the glass) that come to the top of the water level and dissipate immediately. This should be the optimal H₂O₂ injection setting. The bubbles should be in the center of the glass and rise to the top immediately. Bubbles on the outside of the glass are not considered in the visual inspection. Bubbles in the solution is what to look for. This is an indicator that there is a small amount of residual H₂O₂ in the treated water and the contaminant is being oxidized. Once this setting is determined the system will operate automatically.

Over the first 1-3 months it is important to monitor the H₂O₂ level in the storage/solution tank and start to gain usage data that will help determine the H₂O₂ usage and when to order replenishment H₂O₂ accordingly. This setting should be periodically checked and adjusted due to changes in the aquifer (well) and loss of H₂O₂ concentration by degradation. After 6-8 months the H₂O₂ can lose concentration, so only replenish the tank to a level that can be used in 6-8 months to ensure the H₂O₂ concentration strength is consistent.

NOTE: There is a tamper proof screw that can be tightened when the H₂O₂ injection rate is set. This screw will prevent the pump rate control knob from being moved. If this screw is used be sure to loosen the screw before trying to adjust the pump rate control knob.



inFusion Carbon Filter Valve Battery Backup

Battery Back-Up (Uses a standard 9-volt alkaline battery.)

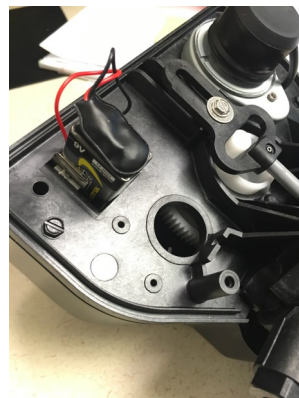
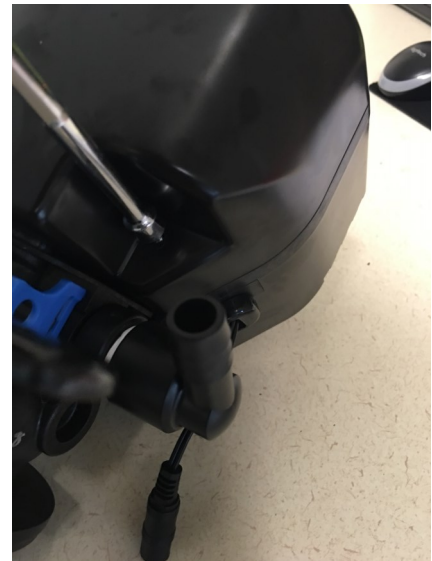
- During power failures, the battery will maintain the time of day as long as the battery has power. The display is turned off to conserve battery power during this time. To confirm that the battery is working, press either button and the display will turn on for five (5) seconds.

- If power failure occurs while system is regenerating, the Signature 2 will motor to a shut off position to prevent constant flow to drain. Depending upon system pressure and other factors, it is possible to observe a reduced flow to drain during this step. After power is restored, the Signature 2 will return and finish the cycle where it left off prior to the power interruption.

- When used without battery back-up, during a power failure, the unit stops at its current point in the regeneration position and then restarts at that point when the power is restored. The time will be offset by the increment of time the unit was without power, so it is necessary to reset the time of day on the unit. No other system will be affected.

WARNING! DO NOT INSTALL THE BATTERY BACKUP UNTIL THE SYSTEM HAS BEEN PROGRAMMED AND START UP IS COMPLETE!

1. Remove the two screws on the back of the valve.
2. Pull out the 9V battery connector, remove battery cover and attach the battery to the connector.
3. Push the battery back in the holder on the valve and replace the cover and screws.



What to Expect

1. The Matrixx InFusion system will produce iron, sulfur, manganese free water immediately after installation. Depending on the raw water quality there may be contaminants built up in the water heater, plumbing system and other devices. Over the first few weeks as water is used there could be traces of this build up that are being removed by the newly installed system. This typically clears up after a couple weeks.
2. Depending on the contaminants being removed there may be iron bacteria or sulfur reducing bacteria in the plumbing system prior to the Matrixx InFusion install. This bacteria can potentially survive after the Matrixx InFusion installation. This is usually indicated by a sulfur smell that will appear after a few weeks of initial usage. If this is the case, the well and entire plumbing system will need to be chlorinated to remove any existing bacteria. If the bacteria is not removed, it will begin to “grow” backwards toward the treatment system and the sulfur smell will not go away. If this does occur, it is easily eradicated with a chlorination well “shock” procedure. Ask a US Water Systems representative about our well sanitizing kits.
3. There may be “bubbles” in the water for a few weeks after installation. A few bubbles are fine, but if there is “fizz” that remains for several seconds, it is an indication that the system is being overfed with H₂O₂. This occurs because after installation the water will become cleaner after the plumbing system has been flushed and the initial dosage of H₂O₂ may need to be adjusted to compensate for the lower contaminant level.

Routine Maintenance

Pressure Tank

If the plumbing system uses a bladder pressure tank it will be in the system prior to the Matrixx InFusion system. This tank should be drained periodically to remove any build up of contaminants. Typically once a quarter is sufficient but that frequency may need to be increased on systems with high contaminant levels.

Injection Pump

The internal pump tube and injection duck bill check valve may need to be replaced periodically. They typically last 1-5 years depending on the usage. There is a spare tube shipped with the system and instructional videos explaining how to change the tube at www.USWaterSystems.com. Replacement duck bill check valves can be purchased at www.USWaterSystems.com as well.

Catalytic Carbon

The Catalytic Carbon is virtually maintenance free. However, if there is a power outage the clock and other settings need to be checked to ensure the filter will backwash properly at the proper time of day. It is crucial that the Catalytic Carbon backwashes at a time when there is no water being used in the house or contamination of the plumbing system can occur. This media typically lasts 3-5 years in most applications before it is exhausted.

Maintenance Schedule

Component	Action	Frequency
Existing Well Pressure Tank	Drain tank until the water runs clear.	1-6 Months
Panel Sediment Filter	Drain the filter at the dump valve periodically to flush any solids that may accumulate.	Monthly
Injection Pump Tubes	Inspect pump tube and replace as needed.	1-5 Years
Injection Pump Duck Bill Check Valves	Replace injection check valve as needed.	1-5 Years
Solution Tanks	Periodically check the solution level and refill as needed. Mix the soda ash tank weekly.	Varies by water usage.
Matrixx Tank	Check the clock and settings periodically or after a power outage.	Monthly
Matrixx Tank	Replace the Catalytic Carbon media.	1-10 Years (dependent on the water usage and contaminant level being treated)



inFUSION

IRON & SULFUR ERADICATION

Warranty

For the lifetime of the original purchaser, at the original residential place of installation of this *Matrixx InFusion* Water Conditioning System, *US WATER SYSTEMS, INC.* warrants the following:

LIFETIME COVERAGE

Media Tanks

Free of all costs to you except transportation and labor charges, we warrant that we will replace or repair the fiberglass media tank, if for any reason it is found to be defective, because of faulty materials or workmanship.

TEN YEAR COVERAGE

Carbon Filter Valve Assembly & Electronics

We warrant that for ten (10) years from the date of purchase, we will replace the valve assemblies or electronic components at no charge to you except for transportation and standard labor charges. Electronics or valves damaged due to environmental issues or improper installation are not covered.

FIVE YEAR COVERAGE

Stenner Injection System (meter and pump and injection panels)

We warrant that for five (5) years from the date of purchase, we will replace the Stenner Injection System (meter and pump) components at no charge to you except for transportation and standard labor charges. Stenner Injection Systems damaged due to environmental issues or improper installation are not covered.

Chemical Solution Tank

We warrant that for two (2) years from the date of purchase, we will replace the Chemical Solution Tank at no charge to you except for transportation and standard labor charges. Sediment Filter Housings or Chemical Solution Tanks damaged due to environmental issues or improper installation are not covered.

GENERAL PROVISIONS

This warranty does not apply to any commercial or industrial installations or to any part of the water conditioner which has been subjected to misuse, neglect, alteration or accident; or to any damage caused by fire, flood, freezing, Acts of God, or any other casualty, or if the original serial numbers have been removed.

These warranties are in lieu of all other warranties expressed, or implied, and we do not authorize any person to assume for us any other obligation on the sale of this water conditioner. No responsibility is assumed for delays or failure to meet these warranties caused by strike, government regulations or other circumstances beyond the control of *US WATER SYSTEMS, INC.*

TO OBTAIN WARRANTY SERVICE, CALL OR WRITE: *US WATER SYSTEMS, INC. 1209 COUNTRY CLUB ROAD INDIANAPOLIS, IN 46234 (800) 608-USWA.*

ANY IMPLIED WARRANTIES OF FITNESS OR MERCHANTABILITY ARE LIMITED TO THE TERMS OF THIS EXPRESSED WARRANTY AND THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THOSE HEREIN. *US WATER* SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATIONS OF INCIDENTAL OR CONSEQUENTIAL DAMAGES SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

THIS WARRANTY MAY BE TRANSFERRED TO A SUBSEQUENT OWNER WITH WRITTEN APPROVAL OF *US WATER* AND PAYMENT OF STANDARD TRANSFER FEE.

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