Sensory Twin
Owner's Manual

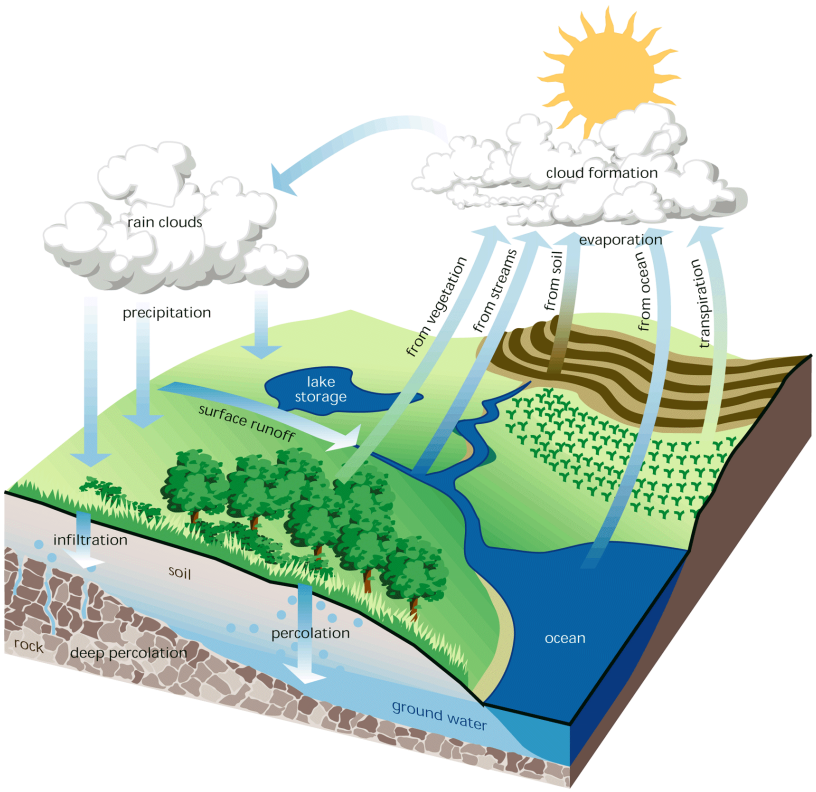
INTERMOUNTAIN SOFT WATER

Every day, thousands of billions of tons of water evaporate from the earth's surface.

As the heat of the sun evaporates the water and draws it from the earth's surface into the atmosphere, many impurities are left behind. The water vapor eventually cools to form clouds and then falls back to earth as precipitation.

On its way from the clouds to your faucet, soft rain water dissolves and absorbs a part of almost everything is touches.

Falling rain cleans the air as it falls. Unfortunately the impurities that were removed from the air have not left; they have just been relocated through the water onto the ground. These gases and other airborne contaminants can cause undesirable tastes, colors and odors in water.



Rain falls onto the ground, collecting sediments like rust, sand and even algae. The water eventually finds its way to a surface water supply or percolates downward and collects in an aquifer. As it percolates through the earth, the water can absorb hardness minerals, iron, heavy metals, radioactivity, organic contaminants, and many other complex elements and compounds.

Water can also collect numerous harmful man-made chemical impurities during this cycle. These synthetic chemicals are generally odorless, colorless, and tasteless; and can sometimes be life-threatening. The statement, "my parents drank this water for 75 years and it never hurt them", is no longer a valid excuse to not be concerned with water quality. There has been a massive global increase in harmful chemical waste over the last 50 years.

The scientific and medical community has not had the time or budget to study the long-term health effects of the more than 70,000 harmful chemicals that can be found in use today.

Approximately 1,000 new synthetic chemical compounds are entering the industrial marketplace each and every year. Precipitation falls upon commercial and municipal dumpsites, toxic waste sites, industrial refuse depots, military test sites, leach fields, mining operations, farmer’s fields etc... Where it dissolves minute amounts of the toxic chemicals present and carries them along.

The United States Government estimated in 1986 that close to two percent of the nation's ground water supplies were moderately polluted by sources such as hazardous waste dumps and leaking landfills.

Industrial wastewater is also a major source of water contamination. When certain chemicals come in contact with others, they create new compounds. Chemicals that are considered generally acceptable in controlled amounts may react with other elements and/or chemicals to form new compounds that could be highly carcinogenic.

Chlorine is one of the best-publicized examples; it reacts with organic matter in water and forms deadly trihalomethanes.

Hard water is probably the single largest threat facing the American home in the 21st century. Hard water can coat your family, your home and your appliances with thousands of pounds of inorganic mineral rock-scale each and every year; hard water slowly destroys everything it touches. Left untreated, hard water costs you money, ruins your lifestyle and can even lower the value of your home.

No one needs to tell you that you're living with Hard Water though. Soap doesn't lather easily, glasses are cloudy after washing, a ring forms around the bathtub, faucets and shower heads are crusty, laundering results are poor and there are many other easily recognized signs.

There are several degrees of water hardness. Even moderately hard water, can seriously damage the plumbing system in your home and, in time, cause inconvenient and expensive problems.

Hard water is a poor cleaner because it is loaded with a variety of impurities. These dissolved impurities react with certain chemicals found in soap to form a gummy, insoluble curd.

This soap curd clings stubbornly to everything it touches. The ring around your bathtub is curd. That same curd causes your hair to become dull and hard to manage.

Soap curd clogs skin pores and prevents your natural oils from moisturizing your skin. This dryness causes itching and also aggravates skin conditions like psoriasis, eczema and acne.

Soap curd is especially noticeable by the scummy film it forms on dishes, glassware, walls and floors. Hardness and other dissolved solids combine to form the residue you see as spots on glasses, crockery, cutlery and shower enclosures.

Hard water harms fabrics

Laundry washed in hard water takes on a gray color and wears out faster than expected. With hard water in your washing machine, it's almost impossible to wash clothes white - even when you use large amounts of detergent and bleach Minerals and insoluble particles in hard water trap dirt and soap curd in the fabric of your clothes and linens. These deposits give fabric a dull gray "washed-out" look and cause the clothing fibers to be brittle. Your clothes and linens then feel harsh and rough - they deteriorate faster.

Hard water harms foods

Some vegetables such as peas and beans become tough and unpalatable when cooked in hard water. Baking with hard water imparts an undesirable taste from the hardness minerals into your food. Tea, Coffee and other beverages prepared with hard water taste awful and often contain flakes of hardness.

Hard water affects your house plumbing

Perhaps the greatest damage done by hard water is the damage that you can't easily see. Water heaters, humidifiers, boilers and household pipes become lined with an increasingly thick layer of calcium and magnesium scale.

As this scale builds up, the water flow in your pipes diminishes to such a point that new piping is usually the only realistic option to remedy the situation.

Hard water scale inside a water heater forms an insulating layer that prevents the burners or heating elements from heating the water efficiently. Just 1/8" of scale inside the tank can require up to 30% more fuel to heat the water to the desired temperature.

How water hardness is measured

Water hardness is measured in imperial Grains per Gallon (gpg). A grain, in this case, is the weight of an average dry grain of wheat, approximately 1/7000th of a pound.

The water treatment industry generally uses the following standards to classify water hardness.

Soft Water	0 - 0.5 gpg
Slightly Hard Water	.5 - 3.5 gpg
Moderately Hard Water	3.5 - 7 gpg
Very Hard Water	7 - 10.5 gpg
Extremely Hard Water	10.5 gpg and greater

THE CRIMES OF HARD WATER, METALS & CHLORINE

Increased Water Heating Costs

Damaged Clothing

Excessive Soap Consumption

Pipe Scaling

Faucet and Fixture Damage

Skin Problems

Unpalatable Food

Undesirable Tastes and Odors

Premature Appliance Failure

Unsatisfactory Laundry Results

Unpleasant Tastes & Odors in Water

Staining on Faucets, Fixtures & Appliances

System Features & Benefits

By purchasing a Sensory Twin, you can now enjoy a continuous supply of virtually limitless soft water in your home while minimizing salt, water and electrical consumption.

Efficient
Your Sensory Twin System learns your lifestyle and adapts itself to meet your needs, delivering exceptional water quality while saving you salt, water and electricity. The dual sensor probes incorporated into each tank of the Sensory Twin system allow it to detect changes in water chemistry and respond accordingly so that you are unaffected by common water hardness fluctuations that stump traditional water softeners.

Upgradeable
Designed for the future, your Sensory Twin System is capable of being modularly upgraded, as new technologies are developed to accommodate for rapidly degrading water conditions. The Evertech control center can be updated with the latest software updates & upgrades as they become available.

Reliable
The mechanical subsystem in the Sensory Twin System is revolutionary in its own right. The Sensory Twin System is built around Open-platform ^{TM} technology, building on a 40-year legacy of reliable design and using 21st century composite materials to ensure reliable and dependable performance.

Safe
Every Sensory Twin System is handcrafted in the USA by skilled artisans in a world-class facility to provide you with a water treatment system that exceeds industry safety, manufacturing & quality control standards to give you peace of mind.

Simple
Advanced manufacturing methods and skillfully crafted computer hardware & software makes the Sensory Twin System one of the easiest water softening systems to own and operate.

Whisper-Quiet
During normal regeneration cycles, your Sensory Twin system is whisper-quiet. Every 7th cleaning cycle will be performed in the middle of the day to ensure that you are not disturbed by the sound of your water softener cleaning itself.

Your responsibilities as an equipment owner

Your Sensory Twin System is manufactured to be efficient and reliable. To ensure continued performance while keeping your system operating within manufacturer's specifications, the following operating conditions must be ensured by you, the equipment owner:

Water Pressure Regulator

The influent water pressure into this water system must be regulated by a code-compliant pressure-regulating device not to exceed 75psi.

Power Protection

Power to this system must be supplied by an unswitched 110VAC supply. Surge protection is mandatory and is to be supplied by you, the equipment owner. The use of a UPS (Uninterruptible Power Supply) is encouraged.

Salt

This water system uses either sodium or potassium salt to clean itself. The brine tank must be filled with a high quality pellet or cubed salt to ensure system operation. Rock salt is usually not suitable for this system, as it can contain higher levels of impurities that can require more frequent disinfection and can possibly even compromise system functionality. Consult with your local water professional to decide on the best salt for your application.

Pur-Gard

The Pur-Gard injection feeder should be kept full to ensure proper system operation and maximum efficiency. Pur-Gard works synergistically with the Matrix 525-3 media to ensure the very best water feel and to maximize cleaning power. Check the level of your Pur-Gard feeder each time you fill your brine tank with salt.

Annual Cleaning and Disinfection

Bacteria can colonize water softeners through safe city water, salt, or even ambient air. Weekly antibacterial rinses and supplementation with Pur-Gard help minimize bacterial growth, your system should be cleaned and disinfected on a regular schedule to ensure peak performance and protect the safety of you family. Your local dealer can perform the cleaning and disinfection service for you, or you can purchase a comprehensive cleaning and disinfection kit to perform this task yourself.

Periodic replacement of media

While built to the highest standards, certain media in your Sensory Twin System will need to be replaced periodically by your local authorized service agent. Replacement intervals vary depending on your water chemistry and water consumption habits. Consult with your water specialist during your annual inspection/tune-up service to ensure that you enjoy the very best water quality.

Pur-Gard

The Pur-Gard™ system incorporated into every Sensory Twin System ensures that you have the best water quality all year long. This simple injection system is specially engineered to work in all climates to easily introduce Pur-Gard into your brine tank while the system is waiting to clean itself.

Your Sensory Twin system will use varying amounts of Pur-Gard, depending on your water consumption habits; always maximizing efficiency and performance while providing you with the water quality that you deserve.

Pur-Gard is designed to:-

- Clean ion-exchange resin without damaging structured matrix media
- Create an inert protective coating on metallic moving parts
- Clean and lubricate all moving components
- Create an unhealthy environment for bacteria in the system
- Activate Purafeel™ technology on compatible systems
- Enhance self-sanitization process on compatible systems

Always keep your Pur-Gard reservoir full to ensure proper system performance, longevity & efficiency.

Cleaning and Disinfection

Your Sensory Twin System is the hardest working appliance in your home, processing millions of gallons of water over its service life an in turn protecting you from countless amounts of inorganic calcium, magnesium, lead, copper, zinc, iron, manganese, and other contaminants that could be in your water.

In addition to capturing inorganic contaminants, your softener also accumulates sediment bacteria, algae, mold, and fungus that can enter the system through safe city water, salt, or even from the air. These additional contaminants slowly accumulate in your softener and can even colonize it with a biofilm of Heterotrophic Plate Count bacteria (HPC). These bacteria are usually benign, but they can create a food base as safe refuge for potentially harmful pathogens and seriously compromise the longevity and performance of your system.

Your system should be periodically cleaned and disinfected according to established protocol to ensure that it is working to the best of its ability and to protect the safety of your family.

Recommended Cleaning & Disinfection Interval (months)

Water Hardness (gpg) \ Gallons Per Day	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400
1	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
3	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
5	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
7	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
10	12	12	12	12	12	12	12	12	12	12	12	11	11	10	9
14	12	12	12	12	12	12	12	12	12	11	10	9	9	8	8
18	12	12	12	12	12	12	12	11	10	9	9	8	7	7	6
23	12	12	12	12	12	12	11	10	9	8	7	7	6	6	6
27	12	12	12	12	12	11	10	9	8	7	7	6	6	5	5
32	12	12	12	12	11	10	8	7	7	6	6	5	5	4	4
35	12	12	12	12	10	8	7	6	6	5	5	4	4	4	4

Pur-Gard and DIY Cleaning and Disinfection kits are available from your local dealer or online at www.buyintermountain.com

System Installation & Start-up Guidelines

Clear the installation area and carefully sweep the floor where the system will be installed.

Test home water pressure and make sure it is 30 – 75 psi static. A code-compliant pressure regulator must be installed to protect the system on all municipal water installations.

Check to confirm that the water heater has adequate heat expansion protection to protect the system from hot water damage.

Install the system, drain and brine tank overflow according to prevailing local code

Bypass System.

Run bathtub cold to purge piping of debris and chemical residue from installation,

This will take approx. 5 minutes at 3gpm.

Leave bathtub running and slowly open the inlet valve to the system.

Slowly open the outlet valve from the system.

Observe flow of water from the bathtub. Water will become a dark brown/black color. This color is caused by the system disinfectant/preservative as well as dust from shipping & handling. Allow water to run until clear. Observe water for particles. If resin particles are found in the water, bypass the system and call tech-support. - Leave the bathtub running

Press the **SET** button to enter programming mode

Program the system according to the programming instructions in this manual

Begin a cleaning cycle by pressing the **CLEANING** button and holding for at least 3 seconds.

Advance the system through each cycle step by pressing the **SET** and **UP** buttons at the same time. Observe the system during each cycle and then progressively advance to the next until the regeneration terminates.

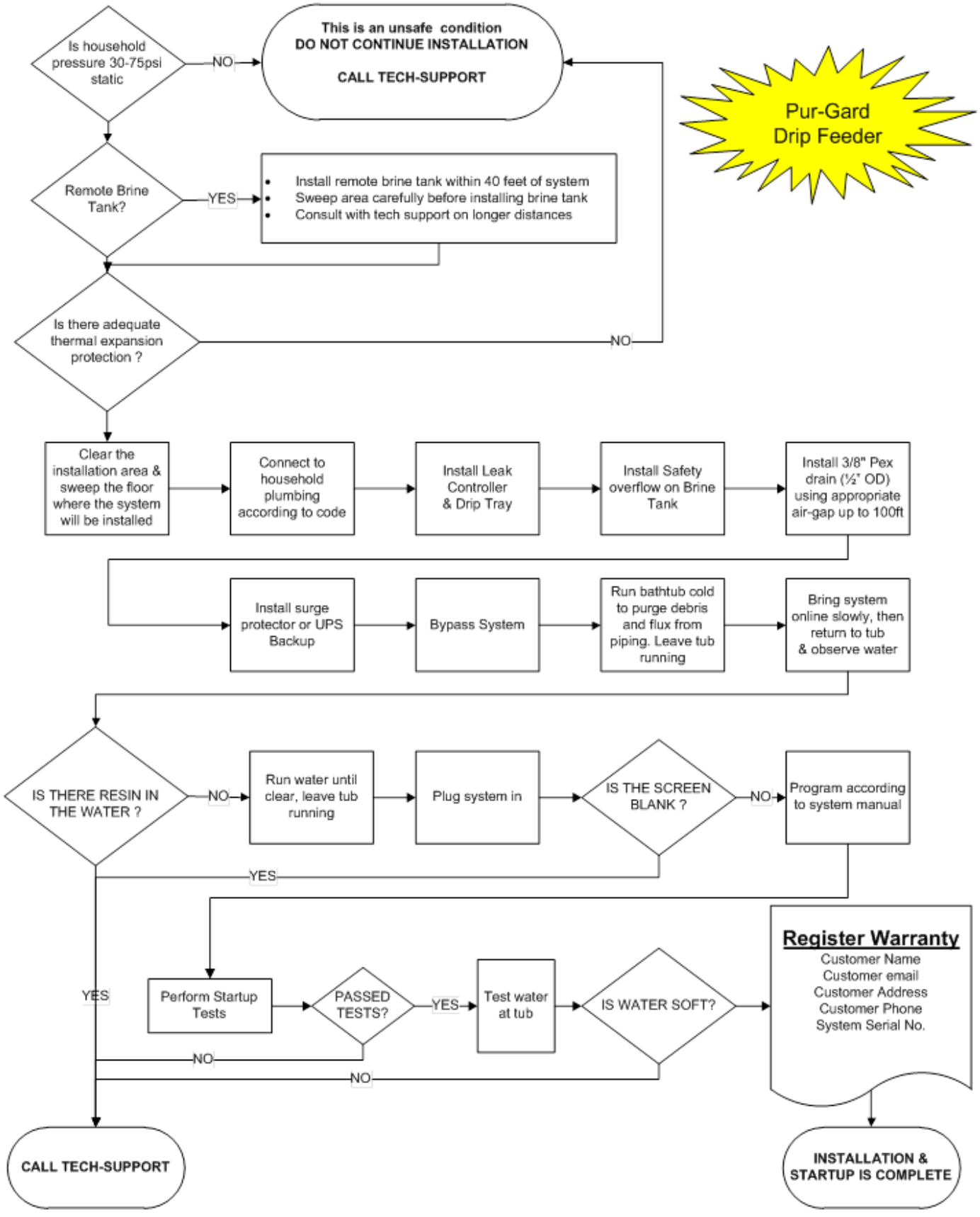
Once the system has been advanced to normal operating mode, observe the flow of water from the bathtub again for disinfectant and resin. Allow water to run clear – Turn off bathtub

Begin another cleaning cycle by pressing the **CLEANING** button and holding for at least 3 seconds.

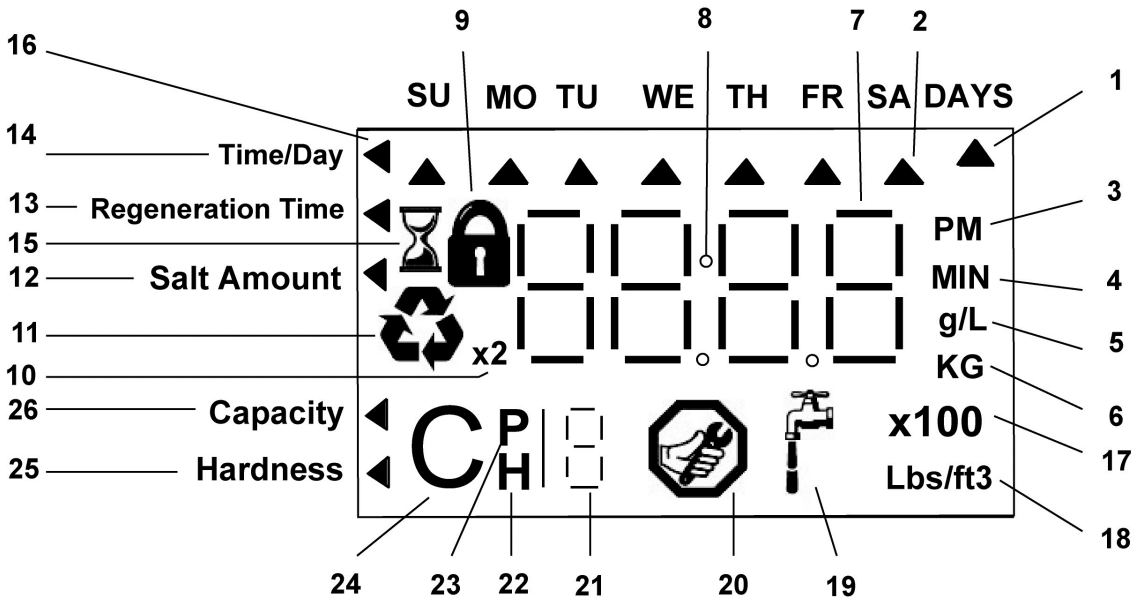
Advance the system through each cycle step by pressing the **SET** and **UP** buttons at the same time. Observe the system during each cycle and then progressively advance to the next until the regeneration reaches the Timed Brine Refill cycle. Leave it in that position.

Test water at any softened faucet to confirm acceptable soft water production from the system.

Sensory Twin System
Installation And Startup Checklist



Understanding Your Controller



1. Selected when programming the maximum interval between antibacterial cycles.
2. This icon identifies the day of the week.
3. "PM" indicates that the time displayed is between 12:00 noon and 12:00 midnight (there is no AM indicator). PM indicator is not used if clock mode is set to 24-hour format.
4. When "MIN" is displayed, the value entered is in minute increments.
5. When g/L is displayed, the value for regenerant amount entered is in grams/Liter of resin.
6. When "Kg" is displayed, the value entered is in kilograms or kilograins.
7. Four digits used to display the time or program value. Also used for error codes.
8. Colon used as part of the time display.
9. Locked/unlocked indicator. In Level I Programming this is displayed when the current parameter is locked-out. It is also used in Level II Programming to indicate if the displayed parameter is locked (icon flashes) when controller is in Level I.
10. When "x2" is displayed, a second regeneration has been scheduled.
11. Recycle icon, displayed (flashing) when a regeneration cycle has been scheduled, or (solid) when the system is cleaning itself.
12. Selected when programming the amount of regenerant.
13. Selected when programming regeneration day and time functions.
14. Selected when programming the current time and day.
15. The hourglass is displayed when the motor is running. The camshaft should be turning.
16. These cursors appear next to the item that is currently displayed.
17. x100 multiplier for large numerical values.
18. value for regenerant amount entered is in pounds/cubic foot of resin.
19. Faucet is displayed when the current flow rate is displayed on the numeric display.
20. On when preventative scheduled maintenance is needed.
21. Displays the tank in service during normal operating mode
22. History Values (H).
23. Parameter (P).
24. Cycle (C).
25. Hardness setting.
26. Capacity display—shows estimated system capacity remaining.

System Control & Operation

Your Sensory Twin System incorporates a highly sophisticated microprocessor control system, making it as efficient and reliable as possible. All system settings are pre-programmed at the factory and then carefully calibrated by your installer for your specific application. Your Sensory Twin System incorporates flash EEPROM memory and an innovative power backup system, which means that your system programming should never have to be reset, even in the event of an extended power outage.

Normal Operating Mode

In **normal operating mode,** the display shows the time of day, capacity remaining, and the day of the week. The system polls the on-board sensor to determine the saturation status of the softening resin and makes decisions on when and how to clean based on its based programming profile and observations of your water usage habits.

Cleaning mode

In **cleaning mode** the display shows the current cleaning cycle step and the remaining time for that cycle to execute.

Deep Cleaning Mode

In **deep cleaning mode** the display shows the current cleaning cycle step and the remaining time for that cycle to execute.

Flow meter

In **service mode** the display will show the time of day and remaining capacity; the remaining capacity counter counts backwards in gallons. By opening a faucet downstream of the system, the correct functioning of the flow meter can be checked by means of this counter.

Brine Sensing Mode

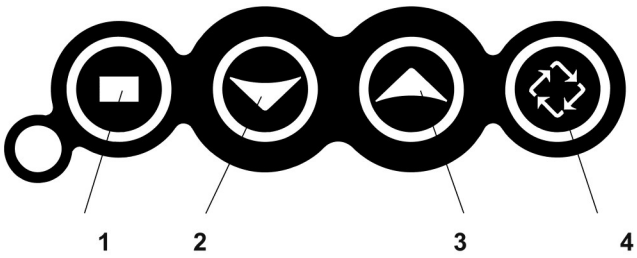
During cleaning and deep cleaning modes, the system polls its' on-board sensors to determine salinity of the brine solution during Cycle 1. If salinity is too low, the light will illuminate solid yellow.

Power-Failure Handling

In the event of a power failure, your system's integrated Snapshot memory system will retain all programmed data for an indefinite period of time. The system will maintain the correct time of day during a period of several hours; in the case of a prolonged power failure, the time of day might not be maintained; if this happens, the time of day indication will, when the power supply is re-established, be *flashing*, indicating that the time of day needs to be set. All other programming is unaffected.

Critical Software/Hardware failure

In the event of a critical software failure, the check salt light will blink: Call your local service provider for help.



1. **SET**. Used to accept a setting to be stored in memory or to allow a setting change.
2 **DOWN** arrow. Used to scroll down or decrement through a group of choices.
3. **UP** arrow. Generally used to scroll up or increment settings.
4. **REGENERATE** OR **EXTRA CYCLE**. Used to instruct the controller to regenerate.

Programming

End-user programming is generally not necessary. If you ever need to change programming, the following procedure should be used:-

Programming instructions at the End-User level

Accessing the End-User Programming level:

Make sure that the system is in the service mode.

Push the **UP** button to cycle through the available programming setting

Use the **SET** button to open a setting for programming and then to close it and save changes.

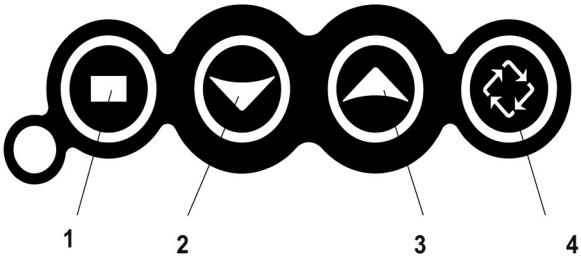
Use the **UP** and **DOWN** arrows to make changes within individual settings.

Use the **REGENERATE** button to exit and return to service mode

Available programming parameters:

Time of Day	Set the current time of day
Hardness	Set the compensated hardness level. A compensated hardness level is the amount of actual calcium hardness AND the amount of other reactive ions in the water. Adjusting this setting will temporarily affect system capacity. The system sensor state will change this setting over time to reflect operational chemistry.
Capacity	Set the system's maximum ion-exchange capacity. NOTE—Adjusting this number can cause the system to deliver hard water and/or waste salt. Do not adjust without consulting with your local water specialist.
Salt Amount	Set the amount of salt that the system will use per cleaning. NOTE—Adjusting this number will affect salt consumption. Your system has already been calibrated to operate at safe efficiency levels. Do not adjust without consulting with your local water specialist.
Days	Set the day interval for antibacterial deep cleanings to occur.
Regen Time/Day	Set the time of day for an anti-bacterial deep cleaning to occur.
Day of the Week	Set the current day of the week.

Quick Programming Guide

	1. **SET**. Used to accept a setting to be stored in memory or to allow a setting change.
	2 **DOWN** arrow. Used to scroll down or decrement through a group of choices.
	3. **UP** arrow. Generally used to scroll up or increment settings.
	4. **REGENERATE** OR **EXTRA CYCLE**. Used to instruct the controller to regenerate.
LEVEL 1 System Installation Parameters	Press **SET** key once at the home page position .
LEVEL 2 -System Identity Settings (P)	Press **UP** and **DOWN** keys together and hold for 3 seconds. Press **REGENERATE** to lock/unlock this level
LEVEL 3 -Cycle Time Settings (C)	Press **UP** and **SET** keys together and hold for 3 seconds.
LEVEL 4 -Historical Data (H)	Press **DOWN** and **SET** keys together and hold for 3 seconds. Pressing SET for 3 seconds at H0 will reset control to factory defaults .
Delayed Manual Regeneration	Press and release the **REGENERATE** button Press **REGENERATE** button again to cancel
Immediate Manual Regeneration	Press and hold the **REGENERATE** button for three seconds
Advance to next cycle step	**Press SET and UP**
Terminate Manual Regeneration	Press **SET** and **UP—**hold for 3 seconds **Flashing Hourglass**
Delayed Second Regeneration	Press and release the **REGENERATE** button once while in regeneration. **Flashing x2**
Double Immediate Manual Regeneration	Press and hold the **REGENERATE** button for three seconds while in regeneration. **Solid x2**
Error 1	Program settings have been corrupted.
Error 3	Home/Step sensor mismatch
Error 4	Hardness front detected with no water flow.
Error 6	Conductivity sensor/s reading out of range.
Check Salt Light ON (Solid)	Increased conductivity not detected during Cycle 1
Check Salt Light ON (Blinking)	Service Required

Diagnostics Mode

Diagnostics mode is accessed as follows:-

Press the **DOWN** and **SET** keys together and hold them in for at least 3 seconds.

Pressing the **UP** and **DOWN** keys will allow you to advance through stored data as follows:-

Press the **RECYCLE** button to exit Diagnostics Mode

H#	Description	Range
H1	Days since last regeneration	0-255
H2	Current Flow Rate	Depends on turbine used
H3	Water used today since Time of Regeneration	0-131,070 or 0-1,310.7 m3
H4	Water used since last regeneration	0-131,070 or 0-1,310.7 m3
H5*	Total water used since reset in 100s	0-999900 gallons or 0-9999m3
H6*	Total water used since reset in 1,000,000	4,294 x 106 gal or 4,264 x 104 m3
H7	Average usage for Sunday in gallons or m3	0-131,070 gallons or 0-1,310.70 m3
H8	Average usage for Monday in gallons or m3	0-131,070 gallons or 0-1,310.70 m3
H9	Average usage for Tuesday in gallons or m3	0-131,070 gallons or 0-1,310.70 m3
H10	Average usage for Wednesday in gallons or m3	0-131,070 gallons or 0-1,310.70 m3
H11	Average usage for Thursday in gallons or m3	0-131,070 gallons or 0-1,310.70 m3
H12	Average usage for Friday in gallons or m3	0-131,070 gallons or 0-1,310.70 m3
H13	Average usage for Saturday in gallons or m3	0-131,070 gallons or 0-1,310.70 m3
H14	Average service cycle	0-255 days
H15*	Peak Flow Rate	0-200 gpm or 1000Lpm
H16	Day and Time of Peak Flow Rate	Time and day that peak flow occurred
H17*	Months since service	0-2184 months
H18	Number of Low Salt Alarms	0-65536
H19	Number of Reduced Capacity Alarms	0-65536
H r	Number of regenerations since last serviced	0-65536

Understanding how your system operates

Water Softening Process

The smallest units that make up chemical compounds and still retain the properties of those compounds are called molecules. Molecules are made up of atoms or groups of atoms. Electrically charged atoms are called ions. The charge of a single ion can be either positive or negative - Ions of metals and of hydrogen are usually positively charged and are called cations. Ions such as chlorine, nitrate, phosphate, fluoride and sulfates are negatively charged and called anions.

Certain insoluble materials are made up of large ions forming a skeletal structure containing oppositely charged ions. These ions can be exchanged with other similar ions in an ion exchange.

The first commercial application of ion exchange was water softening in 1905. Since then, ion exchange has been the most reliable method of softening and conditioning water in homes and industry.

The Softening of water by ion exchange relies on the replacement of the calcium and magnesium ions in the water by an equivalent number of sodium ions.

The Softening process may be illustrated by the following equation:-

R2. Na +	$Ca(HCO3)2$ =	R2 . Ca +	2NaHCO3
Sodium Ion Exchange Resin	Calcium Bicarbonate in water	Calcium Ion Exchange Resin	Sodium Bicarbonate in Water

Obviously, the system can only exchange a certain amount of hardness and other contaminants before becoming exhausted. This is referred to as the capacity of the resin. The capacity of the resin is referred to as grains of calcium carbonate hardness removed per cubic foot of resin or Milliequivalents per liter. When the capacity has been exhausted, the resin needs to be regenerated with a solution of sodium chloride (brine) as follows:-

Your Sensory Twin System can be regenerated with Potassium Chloride if desired.

R2.Ca +	2NaCl =	2 R.Na +	CaCl2
Calcium Ion Exchange Resin	Sodium Chloride Brine	Sodium Ion Exchange Resin	Calcium Chloride Waste

Over the years the composition of ion exchange media has advanced, reflecting sophisticated global technological advances.

Ion exchange resins used in your Sensory Twin System are made in the USA, without harmful toxic solvents. This media is designed to be physically and chemically strong while making water that feels good, tastes great and works hard for you.

Engineered above and beyond all others, the Sensory Twin System incorporates cutting-edge technology to bring you water that feels good, and works hard to protect your home. It is not surprising that the Sensory Twin System is our flagship water softener – The Best of the Best, delivering a virtually limitless supply of clean soft water for your family.

Your system is designed to address certain impurities in your water through the processes of on exchange and physical filtration. Your system should only be installed on water that is microbiologically safe. For optimum performance, and to ensure complete warranty protection the Sensory Twin System should only be installed when the following criteria are met:-

	Minimum	**Maximum**
Water Temperature	40 F	75 F
Water Pressure	30psi	80psi
Influent Water Hardness	0gpg	100gpg
Influent pH	6.7	8.7
Influent TDS	10 ppm	1000 ppm
Pathogenic Bacteria	0 CFU	0 CFU
Chlorine	0 ppm	1 ppm
Chloramine	0 ppm	1 ppm
Ambient Temperature	40 F	90 F

Evertech controller

Your Sensory Twin System is smart as a result of the exclusive Evertech control center. This advanced microprocessor control system incorporates the latest hardware and software to ensure that your water is the very best that it can be. Your system can also be upgraded with the latest software and hardware as they become available. See your authorized dealer for more information.

During Service

The control center constantly monitors your water usage in your home, learning your lifestyle and adapting itself to ensure that you have a consistent supply of softened water.

The control center makes daily decisions about how and when it should clean itself using the latest algorithms that consider your water usage habits, water hardness, and the status of its resin exhaustion sensors.

Your system will periodically perform an antibacterial deep cleaning. This cleaning cycle will occur after a designated period of time (we recommend at least every once a week). This cleaning cycle will inject Pur-Gard into your system and possibly even use salt to clean itself, depending on your water usage. If you haven't used any water during that interval, the system will not use any salt during the antibacterial cleaning cycle.

During a Normal Cleaning Cycle

Once your system determines that it needs to be cleaned, it will initiate a cleaning cycle. The cleaning cycle is controlled by the Evertech control center and cycle times will vary depending on your water usage habits, the system operational history, and data measured from the in-tank sensors. This cycle is extremely quiet and you can use water freely while the system is cleaning with no negative effect.

The cleaning sequence is as follows:-

Brine Draw	Your system will extract brine water from the brine tank and apply it to the cleanest media at the bottom of the media tank. This "up flow" or counter current cleaning process maximizes your system efficiency, minimizes the environmental impact of your system and creates cleaner water for you.
Slow Rinse	Your system will continue injecting brine into the media tank. Once the brine supply is exhausted, you system will begin slowly rinsing contaminants through the media bed and out of tank to drain.
Tank Fill	Your system will add the prescribed amount of water to the salt tank compressing the media bed and preparing it for service.

During an Antibacterial Deep Cleaning

Once your system determines that it needs to perform a deep cleaning, it will initiate a cleaning cycle at the pre-programmed anti-bacterial cleaning time (Normally 2pm). The cleaning cycle is controlled by the Evertech control center and exact cycle times will vary depending on your water usage habits. You can use water freely while the system is cleaning with no negative effect.

Brine Draw	Your system will extract brine water from the brine tank and apply it to the cleanest media at the bottom of the media tank. This "up flow" or counter current cleaning process maximizes your system efficiency, minimizes the environmental impact of your system and creates cleaner water for you.
Slow Rinse	Your system will continue injecting brine into the media tank. Once the brine supply is exhausted, you system will begin slowly rinsing contaminants through the media bed and out of tank to drain.
Backwash	Your system will stop producing vacuum and begin a rapid (2gpm) discharge of water upwards through the resin media bed and to the drain. This backwash step ensures that trapped sediment an broken resin beads are flushed out of the system to minimize pressure loss and channelling.
Rapid Rinse	Your system now reverses the flow of rinse water and rapidly flows water downwards through the resin bed, eliminating stray hardness or regenerant ions, and filling the tank with softened water.
Tank Fill	Your system will add the prescribed amount of water to the salt tank compressing the media bed and preparing it for service.

At the completion of this sequence, the system will bring itself online & return to normal operating mode.

Troubleshooting

These troubleshooting guidelines are not intended to be all-inclusive or to substitute the expert diagnosis of your local Intermountain certified water professional.

Hard (untreated) water to service

Cause	Solution
Open or defective bypass	Close or verify bypass
Loss of resin	Refer to problem “Loss of resin”
Unit fails to regenerate	Refer to problem “System fails to clean”
Valve fails to draw brine	Refer to problem “Valve fails to draw brine”
Decreasing exchange capacity of resin	Clean or replace resin bed
No salt in brine tank	Add salt
Leak at riser tube	Verify that riser tube is seated correctly and is not damaged by heat or high water pressure
Pur-Gard supply exhausted	Refill Pur-Gard feeder

System fails to clean

Cause	Solution
Faulty electrical supply	Verify electrical service – Confirm unswitched power outlet
Obstructed flow meter	Clean and/or replace flow meter
Damaged PCB	Replace PCB
Damaged drain motor	Replace drain motor
Damaged Sensor Probe	Replace probe/s according to factory guidelines

Softener fails to draw brine

Cause	Solution
Low operating pressure	Verify operating pressure; must exceed 40 psi static
Plugged injector	Clean injector
Plugged injector filter	Clean injector filter
Piston/s stuck in incorrect position	Inspect drivetrain and perform remedial action
Restricted/Obstructed drain line	Check drain line for kinks, restrictions or obstructions
Restricted/Obstructed brine line	Check brine line for kinks, restrictions or obstructions
Leak in brine line	Verify brine line and connections for air leakage
Insufficient water in brine tank	Refer to problem "Valve fails to refill brine tank"

Excessive water in brine tank

Cause	Solution
Valve fails to draw brine	Refer to problem "Valve fails to draw brine"
Improper brine refill time setting	Verify that brine refill time corresponds to the proper salt level and
Missing brine refill flow control	Verify that flow control is installed and properly sized
Leak from valve to brine tank	Clean or replace plunger and solenoid diaphragm of refill solenoid
Brine Valve damaged	Replace Brine Valve

Valve fails to refill brine tank

Cause	Solution
Improper brine refill time setting	Verify that refill time corresponds to salt level and amount of resin
Plugged refill flow control	Clean flow control

System uses too much salt

Cause	Solution
Excessive water in brine tank	Refer to problem “Excessive water in brine tank”
Unit regenerates too frequently	Check household for excessive or unexpected water usage—leaky toilet fill valves, T&P Relief drainage, Reverse Osmosis processors, humidifiers, plumbing leaks etc...

Salty water to service

Cause	Solution
Excessive water in brine tank	Refer to problem “Excessive water in brine tank”
Injector undersized	Verify injector selection
Improper brine/slow rinse time setting	Verify that brine/slow rinse time corresponds to the proper salt level and amount of resin
Improper fast rinse time setting	Verify that fast rinse time corresponds to the proper salt level and amount of resin

Loss of resin through drain line

Cause	Solution
Excessive backwash/fast rinse flow	Adjust drain flow adjuster
Lower and/or upper distributor damaged	Replace distributor(s)
Leak between riser tube and upper distributor	Verify that riser tube is seated correctly and is not cracked
Heat and/or Pressure Damage	Inspect pressure regulating valve and hot water backup protection devices. Perform appropriate remedial action.

Loss of water pressure

Cause	Solution
Mineral or iron build-up in resin tank	Clean resin bed and control valve; increase regeneration frequency. Increase Pur-Gard dosage rate
Plugged lower and/or upper distributor	Verify that distributors are free of debris
Crushed lower and/or upper distributor	Replace distributor(s)
Resin damaged due to natural attrition or chlorine/chloramine oxidation	Replace Resin

Drain flows continuously

Cause	Solution
Piston stuck in brine/rinse or backwash position	Inspect drivetrain and perform remedial action
Damaged Seals/Spacers	Inspect Seals/Spacers and perform remedial action
Damaged Piston	Inspect drivetrain and perform remedial action