



WATER SOFTENER OWNER'S MANUAL

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INSPECTION & PREPARATION



IMPORTANT!

Before installing - Please read the entire manual and become familiar with instructions and parts needed before proceeding with the installation.

System Inspection

Please take the system and all the components out of the box. Inspect the system and all the connection fittings carefully, make sure nothing is damaged during shipping. If any part is cracked or broken, please do not proceed with the installation and contact Pro+Aqua or your distributor for an exchange or diagnosis.

System Components Breakdown (See Dia. A)

- Aquatrol Valve Electronic Meter
- 5' of 3/8" Brine Line
- Brine Tank
- Bypass Valve
- Drain Line Fitting
- 14' of 1/2" Drain Line
- Top Distributor
- Resin Media
- Resin Tank
- Riser Tube & Bottom Distributor
- Control Valve
- Upper Distributor Basket
- Power Transformer

Required Tool List for System Installation

- Channel Locks
- Screwdriver
- Teflon Tape
- Razor Knife
- Two Adjustable Wrenches
- Plastic inlet and outlet fittings are included with the softener. To maintain full valve flow, 1" pipe to and from the softener fittings are recommended.
- Use copper, brass, or PEX pipe and fittings. Some codes may also allow PVC plastic pipe.
- Additional tools may be required if modification to home plumbing is required.

Required Components not Included with the System

Extra Course Grade or Crystal water softener salt is needed to fill the brine tank

INSPECTION & PREPARATION CONT.

II. System Operation Parameter and Installation checklist



IMPORTANT!

The following condition for feed water supply must be met or warranty will be void and manufacturer assumes no responsibility for damage to system or property.

1. Water Temperature Parameters

System must not be installed at an area where it is exposed to direct sunlight and must be protected against freezing and extreme heat.

- Maximum: 100° F (37.8° C)
- Minimum: 32° F (0° C)

2. Water Pressure Parameters

The maximum allowable inlet water pressure is 125 psi. If daytime pressure is over 80 psi, night time pressure may exceed the maximum allowed water pressure. Use a pressure reducing valve (PRV) to reduce the pressure if needed.

- Maximum: 125 PSI (8.78 kg/cm2)
- Minimum: 25 PSI (1.75 kg/cm2)

3. Chlorine, Chloramine, & Iron Tolerance

Softener resin may degrade in the presence of chlorine or chloramines. If the feed water contains chlorine, chloramines, or iron, reduced life of the resin could occur. In these conditions, a whole house carbon or iron filtration system with chlorine, chloramine or iron reducing media is recommended.

• Maximum: 2 ppm

4. Pre-installation & environment checklist

- Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.
- Properly ground to conform with all governing code and ordinances. Use only lead-free solder and flux for all sweat-solder connections as required by state and federal codes.
- Place the softener as close as possible to the pressure tank (well system) or water meter (city water).
- Place the softener as close as possible to a floor drain, or other acceptable drain point (laundry tub, sump, standpipe, etc.).
- Connect the softener to the main water supply pipe before the water heater. Do not run hot water through the softener. Temperature of water passing through the softener must be less than 100° F.
- It is recommended to not supply softened water to outside faucets and irrigation system as soft water exposure can be detrimental to plant life. Be sure to bypass the softener when watering grass or plants. It is recommended to install a "Y" pipe for outside use and home use.
- Place softener in a place where water damage is least likely to occur if a leak develops.
- An electric outlet with 120 volt is needed within 6 feet of the softener. The transformer has an attached 8 foot power cable. Be sure the electric outlet and transformer are protect from moisture and water.
- If installing in an outside location, necessary steps must be taken to assure the softener, installation plumbing, wiring, etc., are protected from the elements and contamination sources.
- The resin tank should be located close to a drain to prevent air breaks and back flow.
- The brine tank should be located no more than 15' from the resin tank.
- Softener should be installed with a vacuum breaker to avoid damage to tank.

INSPECTION & PREPARATION CONT.

III. Installation Safety Guide

- Handle with care when moving the water softening system. Do not turn upside down, drop, drag, or set on areas with sharp protrusions.
- The system works on standard 110v power plug only. Do not use any other transformer except the ones that is included with the system
- Transformer must be plugged into an indoor 120 volt, grounded outlet only.
- Use clean water softening salt only with at least 99.5% pure. Extra course grade or crystal salt are recommended. Do not use rock, block, granulated or ice cream making salts. They contain contaminants that could cause problems during maintenance
- Always keep salt lid in place on the softener unless servicing or refilling the unit.
- All of our resin tanks have level adjusting tank bases. These tanks are designed to work with a "floating" base. This allows the tank to be leveled on any surface. Some applications may not have level surface to place the tank. The floating base allows the tank to be leveled within the base and ensure proper operation. Sometimes the based can shift during shipping. It can be adjusted back by lifting the tank up no higher than 5" 10", and letting it drop to help level the base.





INSTALLATION DIAGRAM

VALVE SETUP



IMPORTANT!

Locate and test the main water supply valve to the home before installing the system. If the main water supply valve fails to shut off the water completely during the test, we recommend contacting a licensed plumber to fix the valve before begin installing the system.

WARNING!

If the system is installed on a metal (Conductive) plumbing system, i.e.. copper or galvanized metal, the plastic components of the system will interrupt the continuity of the plumbing system. As a result, any arrant electricity from improperly grounded appliances downstream or potential galvanic activity in the plumbing system can no longer ground through contiguous metal plumbing. Some homes may have been built in accordance with building codes, which actually encouraged the grounding of electrical appliances through plumbing. A grounded "jumper wire" bridging the equipment and reestablishing the contiguous conductive nature of the plumbing system must be installed prior to your system use.

WARNING!

Electric Hot Water Tanks: Turn off the power to the unit first to avoid damage. Well Water: Power off the well water pump and then shut off the main water supply valve.



Shut Off Main Water Supply

- 1. Locate the main water supply valve to the house and completely turn off by turning the handle clockwise.
- 2. Test to see if the water is completely shut off by turning on the cold water on the closest faucet. If the cold water cannot be shut off, please contact your local plumber to fix the valve before installing the system.



Bypass Valve Assembly & Installation

- Lubricate the o-rings on the Bypass Valve then attached the Yoke to the Bypass valve by pressing the yoke onto the Bypass (both sides of the ports at the same time).
- 2. Ensure to lubricate the o-rings to avoid any leaks.
- Attach the metal clips to both sides of the Bypass Valve to hold the Yoke to the Bypass. (Skip this step if the Yoke is already preinstalled.)



VALVE SETUP CONT.

4. Attached the other end of the bypass valve onto the control head and secure it with the metal plate. Make sure the o-rings are lubricated before installing.





Softener Preparation

- 1. Remove the resin tank from carton
- 2. Lubricate both O-rings on the bottom of the control valve (center and outer).



SYSTEM INSTALLATION

3. Lubricate the riser tube located on the opening of the tank.

4. Install the upper basket on the bottom of the valve by lining up the tabs, pressing in, then turning the basket counterclockwise 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. The valve should thread easily in the tank. If not, it may be cross-threaded.

6. 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.









SYSTEM INSTALLATION CONT.



IMPORTANT!

On copper plumbing systems be sure to install a grounding wire between the inlet and outlet piping to maintain grounding.

WARNING!

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.



Connecting the System

The Aquatrol valve is equipped with 1" male NPT connections. It is recommended that these connections are made using Teflon tape. The inlet and outlet can be identified on the bypass valve. There are arrows stamped in the bypass valve showing the flow direction. The arrow pointing toward the valve is the inlet and the arrow pointing away from the valve is the outlet.

- 1. Apply the Teflon tape onto the bypass inlet and outlet fittings.
- 2. Connect the inlet and outlet of the softener using appropriate fittings.
- 3. All piping should be secured to prevent stress on the bypass valve and connectors.
- 4. Connect the drain hose to the valve by pressing it into the Elbow Hose Barb. Run the drain hose to the nearest laundry tub or floor drain. This can be ran up overhead or down along the floor. Drain hose should be a minimum of 1/2". If running the drain line more than 20 ft linear, it is recommended to increase the hose size to 3/4" and be sure there are no sags or "drop" in the hose all the way to the drain destination.

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 traveling back through the drain line into the softener.

5. Connect the brine line to the control valve by removing the blue locking clips on the brine line connectors.







SYSTEM INSTALLATION CONT.

 Push the brine line into the brine line connector 1/2" and secure it by pushing in the locking clips. Pull on the brine line to ensure it is secure.



8. Remove the nut from the brine safety valve and place the brine line and insert through the nut.



7. Connect the brine line to the brine tank by pushing the brine line through the hole in the side of the tank.



9. Hand tighten the nut then turn it another 1/2 to 1 full turn with channel locks. DO NOT OVERTIGHTEN.



- 10. Pour in at least two bags (or 80 lbs) of salt and 5 gallons of clean water into the brine tank.
- 11. Place the unit in the Bypass Position.
- 12. Slowly turn on the main water supply to the softener system.
- 13. Locate and the nearest faucet to the system and remove the faucet screen or any fittings on the faucet spout.
- 14. Turin on the cold water for 5 minutes to flush air and foreign material resulting from the plumbing work.
- 15. Make sure there are no leaks in the plumbing system before proceeding. Close the water tap when water runs clear.





IMPORTANT!

The system is not ready for service until you complete the system startup section of this owner's manual

VALVE PROGRAMING

System Startup 5 1. Flow Meter Indicator : 30 Æ 5 2 3 2. Time of Day 58I 4 3. Status 4. Volume Remaining 5. Regeneration Mode Timer Meter Immediate Meter Delay



Setting Button

- 1. Enter into setting menu
- 2. Confirm the current setting, and enter into the next step
- 3. When used simultaneously with up button, it will enter into master programming



Up / Down Buttons

- 1. Adjust current settings
- 2. Go one step forward or backward



Cycle Button

- 1. Save the setting and return to service
- 2. Enter into queued regeneration mode
- 3. A long press for 5 6 seconds will initiate a immediate regenerate
- 4. Terminate the current regeneration step and goes to the next step
- 1. Plug the power transformer into an approved power source. Connect the power cord to the valve.
- 2. When power is supplied to the control, the screen will display the time of day, gallons remaining and the mode. Press and hold the "Cycle" button. The valve will display "GOTO BW" and will continue to move until it reaches the backwash cycle.
- 3. Once the valve is in the backwash (BW) cycle the display will show a time value (10), open the inlet on the bypass valve slowly to allow water to enter the unit. Air from the tank will begin to push out of the control valve drain. Allow all air to escape from the unit before turning the bypass fully open. If there is a large "knocking" sound, the water is being fed too quickly and should be slowed. Once there is a steady stream of water coming from the system drain with no air coming out, allow water to run to drain for 3-4 minutes or until all media/ resin fines are washed out of the softener which is indicated by clear water in the drain hose.

- 4. When the backwash cycle is complete, the valve will advance to the brine draw (BD) position. Once the valve reaches the BD cycle, push and release the "Cycle" button. The display will show "GOTO RR" (Rapid Rinse). Once the valve reaches the rinse cycle, allow the water to run for the entire rinse cycle
- 5. When the rinse cycle is complete, the valve will advance to the "BF" position. Once in the brine fill position, check that the control valve is pushing water into the brine tank (remove brine well cap to confirm that the water level is rising in the brine tank). Allow the valve to refill for the full amount of time as displayed on the screen to insure a proper brine solution for the next regeneration.
- 6. When the refill cycle is complete, the valve will automatically advance to the SERVICE position. Open the outlet valve on the bypass, then open the nearest treated water spigot or faucet (remove faucet screen to prevent clogging) and allow the water to run until clear, close the tap and replace the faucet screen.



2. Setting the Regeneration Mode



Default setting is "Timer"

NOTE:

See page 22 for feature and display in regards to each of the three regeneration mode. Choose the mode that best fit your need.



Flashing



Set To Meter Delayed / Timer Meter (TM)



3. Setting the Unit Capacity (Not shown if Timer Mode was selected in 2nd Step)







CONGRATULATION!

Your system is ready to use. Please document the system installation time and maintain the system at its recommended interval.

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2	

ADVANCE SETTINGS:

Settings 4 to 8 have been pre-set from the factory and are only meant for special application that requires customized settings.

Continue only if you require customization of the following settings.

ADVANCE SETTINGS

4. Regeneration Time and Hours Override (Change only if needed)



Timer Mode

Default: 2:00 a.m. – 072 hours Hours Override range: 3, 4, 6, 8, 12 hours, then every 24 hours (24, 48, 76,...) Meter Imm & Meter Delay Modes (Recommended)

Default: 2:00 a.m. – OFF Hours Override range: Every 24 hours (24, 48, 76... 960)



Use UP and DOWN buttons to adjust the Regeneration Time

Press SET to go to

Hours Override



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H-07

1:30 🖉

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Flashing



Use UP and DOWN buttons to adjust the Regeneration Time





Press SET to go to Hours Override





Use UP and DOWN buttons to adjust Hours Override







Use UP and DOWN buttons to adjust Hours Override



5. Setting the Back Wash Time



Set the Time



6. Setting the Brine Time



Set the Time



Flashing

7. Setting the Rapid Rinse Time



Set the Time



Flashing

8. Setting the Water Filling Time



Set the Time



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NOTE:

Use the table below to determine the proper BF setting for your unit.

Parameter	PRO-S-80E
Grain Capacity	80,000
Brine Fill Settings in Minutes	12

TOTAL GALLONS CALCULATION WORKSHEET

The valve uses a meter to count the gallons of water being treated through the system. Once the gallons programmed in the unit have been exhausted, the system will regenerate.

The total gallons of treatable water the system can produce is based on the system size, family size, and the hardness level of the feed water.

A simple calculation is done to determine the amount of gallons to input during the programming portion of the installation.

Total Gallons = System Capacity in Grains (see chart below) / Hardness in (GPG) Grains Per Gallon (determined by water test) - Number of People X 75 Gallons

Parameter	PRO-S-80E
Grain Capacity Setting	80,000
Brine Fill Settings in Minutes	12

NOTE: This calculation must be completed to program the unit:

Example:

System Capacity: 80,000 Grains Feed Water Hardness: 25 GPG (must be tested on-site by the end user or installer) Number of People: 4

(80,000 Grains / 25 GPG) - (4 People X 75 Gallons) = Total Gallons 3,200 Gallons - 300 Gallons = 2,900 Total Gallons

2,900 Gallons would be inputted for Total Gallons during programming.

If the hardness level is given in ppm or mg/L, it can be converted to Grains Per Gallon by dividing the value by 17.1.

Input the site values in the equation below to figure out your total gallons value:

(Grains /	GPG) - (People X 75 Gallons)
Gallons	Gallons =	Total Gallons

FEATURE & DISPLAYS

1. Display in Service

Timed Regeneration Mode

The display will show the current time, remaining time to the next set regeneration, and the days override.

Meter Immediate Regeneration Mode

The display will show the current time and the remaining treated water to the next regeneration.

Meter Delay Regeneration Mode

The display will show the current time and the remaining treated water alternatively. When the remaining treated water counts down to zero the display changes to the regeneration time set by the user.

2. Back-light Screen

The back-light on the screen will go off automatically after one minute if no buttons are pressed. To light it up again press any button on the touch pad.







FEATURE & DISPLAYS CONT.

3. Memory During Power Failure

All program settings are stored in permanent memory. Current valve position, cycle step elapsed, time of day are stored during the power failure. Reset the current time is necessity when power up.

If the valve stopped at a regeneration stage when power failure, the valve will return to prior position when power up. It takes 4 to 5 minutes to reset to the position.

1:30

The display shows as:

The system will show the status when power failure after find the position.

4. Restore Factory Settings

- 1) Pull out the power
- 2) Press the 🙆 button and plug in the power simultaneously
- 3) Release the 🚯 button

The system is now restored

5. Manual Queued Regeneration

Queued Regeneration

When the valve is in service position press the 🙆 button to activate the queued regeneration.

Queued Regeneration means the system will initiate a regeneration at the time set. If missed, it will initiate on the next day.

The display shows the Queued
Regeneration in TIMER Mode
The display shows the Queued
Regeneration in Meter Delay Mode

Flashing

Image: Ima

The display shows the Queued Regeneration in Meter Delay Mode. The system will initiate a regeneration - either the treated water remaining counts down to zero or the remaining time counts down to zero, whichever is first.

Flashing









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FEATURE & DISPLAYS CONT.

5. Manual Immediate Regeneration

Immediate Regeneration

When the valve is in service position, press and hold the 🚱 button for 5 seconds, an immediate regeneration will be initiated.

Examples:

"BW" Flashing (ready to "Backwash")





The display shows as:



Stop Regenerating



PRODUCT DIMENSION

Pro+Aqua Water Softeners				
Model	Tank Size	А	В	С
PRO-S-80E	13"x54"	64"	54"	13"



SYSTEM TROUBLESHOOT

Problem	Cause	Correction
1) The control fails	A) Disconnected meter cable	A) Reconnect the meter cable
to Regenerate	B) Transformer damaged	B) Replace the transformer
automatically	C) Electronic controller or sensor damaged	C) Replace or repair
2) Regeneration at wrong time	A) Timer improperly set, due to power failure	A) Reset timer
3) loss of capacity	A) Increase draw water hardness	A) reset unit to the new capacity
	B) Brine concentration or quantity	B) Keep brine tank full of salt at all times. Clean it yearly. Salt may be bridged. If using a salt grid Plate insure refill water is over it
	C) Rinse fouling	C) Consolidate the rinse tank, clean the rinse and prevent future fouling
D) Poor distribution, channeling D) Check distributors and backwash flow (Uneven bed service)		D) Check distributors and backwash flow
	E) Internal control leak	E) Replace the spacer, seal or piston
	F) Aging of rinse	F) Check for resin oxidation caused by Chlorine. Mushy resin
	G) Loss of rinse	G) Check for correct bed depth. Broken distributors. Air or gas in bed: Well gas Eliminator loose brine line
4) Poor water	A) Check items listed in Problem # 3	A) Check items listed in Correction # 3
quality	B) Bypass is open	B) Close the bypass
	C) Channeling	C) Check for too slow or high service flow
5) Excessive salt use	A) High salt setting	A) adjust salt setting
	B) Excessive water in brine tank	B) refer to problem # 7 tank
6) Loss of water A) Fouling of inlet pipe A) Clean or replace the pipeline		A) Clean or replace the pipeline
pressure	B) Fouled resin	B) Clean the resin. Pretreat to prevent
	C) Improper backwash	C) Too many resin fines. Reset the flow rate and time of backwash
7) Excessive water	vater A) Plugged drain line A) Check drain line and clean flow control	
in brine tank	B) Brine valve plugged or damaged	B) Clean or replace the brine valve
	C) Injector plugged	C) Clean injector, replace injector screen
	D) Low inlet water pressure	D) Increase water pressure to allow Injector to perform properly
8) Softener fails to A) Plugged drain line A) Clean drain line and flow contr		A) Clean drain line and flow control
brine draw	B) Plugged injector	B) Clean or replace the injector and screen
	C) No water in the brine tank	C) Check for restriction in B.L.FC. Ensure Safety float is not stuck
	D) Low water pressure	D) Increase water pressure
	E) Brine line injects air during brine draw	E) Check brine line for air leaks
	F) Internal control leak	F) Check seal, spacer and piston for scratches and dents
9) Control cycles continuously	A) Faulty timer	A) Replace timer
10) Continuous flow	A) Foreign material in the control	A) Call dealer. Clean valve, rebuild unit
to drain	B) Internal control leak	B) Same as above
	C) Piston jammed in brine or back wash position	C) Same as above

SEE THE AQUATROL MANUAL FOR ADVANCE INSTALLATION PROCEDURES

NOTES

LIMITED PRODUCT WARRANTY

PRO+AQUA warrants that your new water conditioner is built of quality material and workmanship. When properly installed and maintained, it will give years of trouble free service.

Five Year Valve, Electronics and Resin Guarantee

PRO+AQUA will replace any part on the valve or electronics which fails or the softening resin within (5) five years from date of manufacture, as indicated by the serial number, provided the failure is due to a defect in material or workmanship. The only exception shall be when proof of purchase or installation is provided and then the warranty period shall be from the date thereof. Resin and internal control valve parts will not be covered for systems used to remove iron, manganese or with very high chlorine concentrated feed waters. We highly recommend having a pre-treatment system placed before the water softener if you are on well or city water.

Ten Year Warranty on Resin Tank and Brine Tank

PRO+AQUA will provide a replacement resin tank or brine tank to any original equipment purchaser in possession of the PRO+AQUA water softener that fails within (10) ten years after the date of purchase, provided that it is at all times operated in accordance with specifications and not subject to freezing or sunlight.

General Provisions

PRO+AQUA assumes no responsibility for consequential damage, labor or expense incurred as a result of a defect or for failure to meet the terms of these guarantees because of circumstances beyond our control. Installation workmanship failure is not covered under warranty. Damage caused by environmental conditions such as, lightening strikes, humidity or heat will not be covered under warranty. External uncovered installations are not covered by this warranty. System must be installed in a covered insulated area.

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 Pro+Aqua.

Obtaining Warranty Coverage or General Inquiries

If coverage is available, you may obtain coverage under this Limited Product Warranty by providing PRO+AQUA with proof of original purchase, and that you are the original purchaser. In making the claim, please provide the order number, your name, address, phone number, a description of the product involved, and an explanation of the defect.

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 FROM PRO+AQUA AND PAYMENT OF STANDARD TRANSFER FEE.

