



DCS7 Water Softener - Product Manual

Set Up Instructions for DCS7 Tannin Removal System

Inspect the packaging of the equipment to confirm that nothing was damaged during shipping. (Figure 1)

Remove the resin tank(s) and valve(s) from the packaging. Make sure everything is included and without damage. Notice that the valve and brine line hose will be found in the brine tank. Below is a checklist with everything you should have received.

_____ 1) Control Valve
(Figure 2)



Figure 2: Control Valve

_____ 2) Brine Tank (Figure 4)
_____ 3) Brine Line Hose (Figure 6)
_____ 4) Softener Tank (Figure 5)



Figure 1: Original Packaging of DCS7 Twin Tank System
This is how the packages will generally arrive



Figure 4:
Brine Tank

Figure 5:
Softener Tank

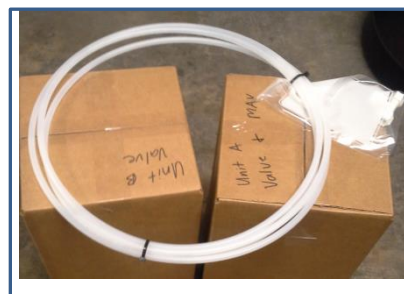


Figure 6: Brine Line Hose

_____ 5) Correct Amount of Gravel (from Model and Media Requirements Table on page 2)
_____ 6) Correct Amount of Resin (from Model and Media Requirements Table on page 2)

Call Diamond H2O right away if anything is missing. Contact the freight company **immediately** if anything is damaged. Diamond H2O will not be liable for any damage received after shipping.

Packaged By: _____

Date: _____

Received By: _____

Date: _____

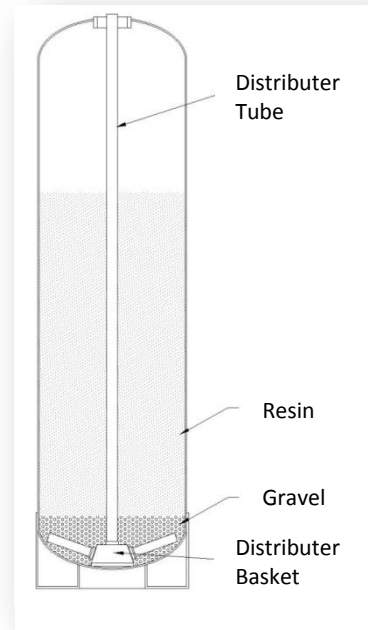


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Table 1: Media Requirements.

Example: A DCS7-210-100 would require 7 cubic feet of resin and 100 pounds of gravel per tank.

Model Number	Amount of Resin per Tank (cu. ft.)	Amount of Gravel per Tank (pounds)
DCS7-24-xxx	0.8	0
DCS7-30-xxx	1	0
DCS7-45-xxx	1.5	0
DCS7-60-xxx	2	0
DCS7-75-xxx	2.5	0
DCS6-90-xxx	3	30
DCS7-120-xxx	4	60
DCS7-150-xxx	5	90
DCS7-180-xxx	6	105
DCS7-210-xxx	7	135



NOTE: Bags of resin and gravel should be marked with a tag showing whether they belong to the brine tank or the softener tank.

Table 2: Valve Sizes

Model Number	Control Valve Inlet and Outlet Size (in)
DCS7-xxx-100	1

Table 3: Spare Parts List

Item	Part Number
Battery, 3 volt lithium coin cell	Type 2032
Motor Assembly	82-0022-XX
PC Board 4-Digit	V3818TC
AC Adaptor 110V-12V	66-0005-XX
O-ring 228	V3135
O-ring 337	V3180
O-ring 215 (for 1" distributor tube)	V3105
O-ring 219 (for 1.32" distributor tube)	V3358
Blue Funnel (For 2.5" diameter tanks)	97-0014-PL
Black Funnel (For 4.0" diameter tanks)	97-0015-PL



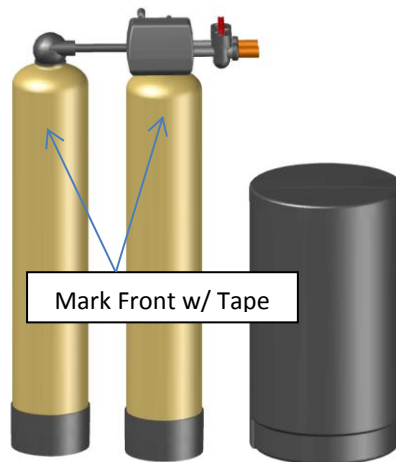
1. Obtain the required tools listed below:

- A. Utility Knife
- B. Pliers
- C. Phillips Screwdriver
- D. Hammer

2. Place the tanks near a water source.

- A. Select a position near a floor drain that has adequate carrying capacity to handle the backwash flow rate. Refer to the specification Table in Section 8 for the appropriate flow rate.
- B. Place the softener(s) and brine tank on a level, firm foundation, like concrete.
- C. **Determine the “front” of each tank** received. For each tank:

- a. Make sure that the distributor riser is flush with the top of the resin tank.
- b. Before placing any water, gravel, or resin in the resin tank, screw in a control valve to the point where it is secure. The valve does not need to be forced on, but should be snug.
- c. The two tanks should be placed next to each other, with the brine tank off to the side. The correct distance between the two tanks can be determined by connecting the control valve to both tanks.



- d. Mark the “front” of each resin tank (shown in Figure 7) with either a marker or tape. The front of the resin tank is determined by the location of the face of the control valve once it has been secured to the face of the control valve. Make sure that the system is positioned in a way that the plumbing can be installed correctly.

D. Before Filling the Tanks:

- a. Remove the valve from both tanks
- b. Ensure that the fronts of the tanks are positioned correctly. Once filled, the resin tanks will be very difficult to move.
- c. Cover the exposed end of the distributor risers to make sure no resin gets inside the tube. Covering up the risers with duct tape is one option, shown in Figure 8.
- d. Obtain a funnel to assist placing the resin in the resin tanks. (A funnel designed specifically for our resin tanks can be ordered from Diamond H2O Conditioning. The part numbers for the two types of funnels are table 3.)

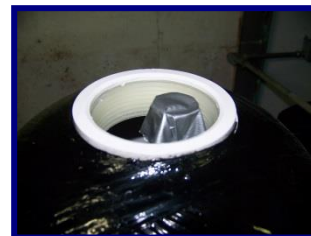


Figure 8: How to Block Distributer Tube



3. Setting up the tank:

- A. Fill the tank up to 30% full of water.
- B. Check the system specifications on page 2 to determine the correct amount of gravel and resin needed for your system.
- C. Position the distributor tube so it is in the center of the tank, shown in Figure 9.



Figure 9: Centered Distributer Tube

- D. (For systems with support gravel)
SLOWLY, pour the correct amount of support gravel into the tank without getting any gravel into the distributor tube.

a. **CAUTION: The distributor system is made of PVC and will break if the gravel is poured in too quickly.**

Visually confirm that the gravel is level and covering the distributor basket and radials, if it is not, contact Diamond H2O Conditioning.

- E. **SLOWLY**, pour the correct amount of resin into the tank. Try to keep the media level by carefully rocking the tank back and forth.
- F. Fill the rest of the tank with water to prevent air from getting in the tanks and potentially losing media.
- G. Verify that there is a large O-ring on the control valve(s) adapter base.
- H. Place the control valve on the tank, making sure that the distributor tube fits into the bottom of the control valve.

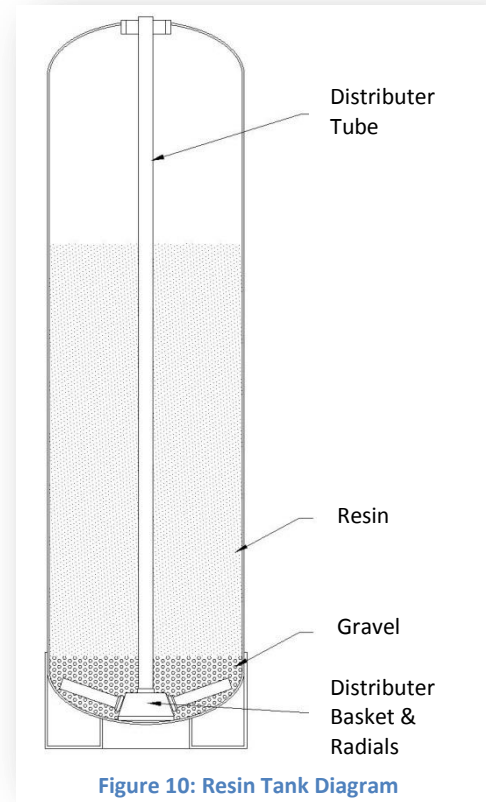


Figure 10: Resin Tank Diagram

- I. Tighten the control valve onto the tank to the point that it is snug. Double check that the valve is in a correct position to be able to install the plumbing.

4. Connect the brine tank.

- A. Remove the ties on the brine line hose (included in the brine tank).
- B. Remove the well cap and connect one end of the brine line hose to the brine line connection (Shown in Figure 12) of the brine tank. Tighten the brine line hose to the brine line connection by turning the cap of the brine line connection clockwise by hand. Make sure that no air can get into the line, or the softener will not regenerate properly.

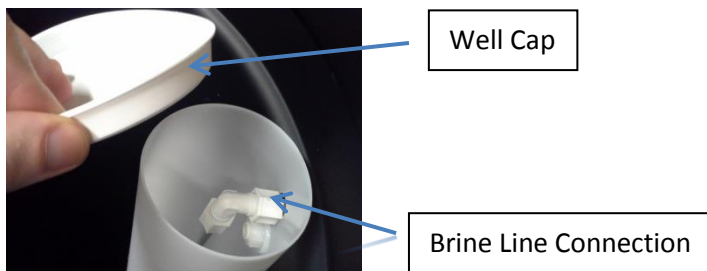


Figure 11: Brine Well Picture

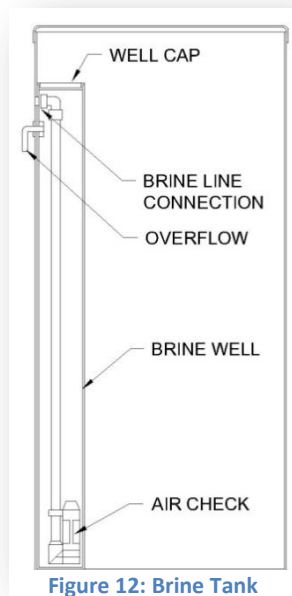


Figure 12: Brine Tank

- C. A red latch with a Polytube insert attached is placed under the brine inlet of each valve. Place this insert in the brine line before connecting it to the brine inlet. (Figure 14)

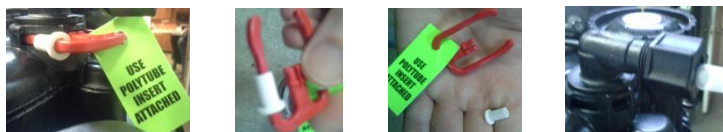


Figure 13: Installing Brine Line Polytube

Tighten all connections using a wrench and tightening the caps clockwise.

- D. Safely dispose of any leftover tubing.
- E. Fill the brine tank with salt.

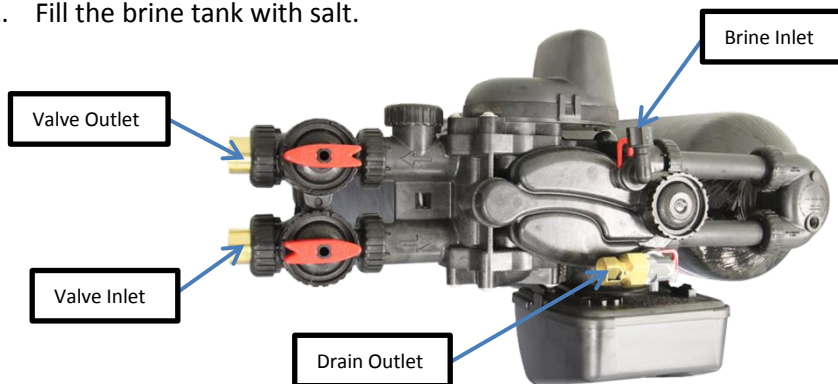


Figure 14: Control Valve Diagram



5. Connect the Valves to the Water Source

- A. Pipe or tube a line from the Control Valve Drain (Figure 14) to the drain.

DO NOT

- install a valve in this line
 - use a pipe smaller than the valve size
 - make a direct connection to the drain
 - Provide an air gap at least four times the diameter of the drain pipe to conform to sanitation codes and be able to observe the drain flow.
 - use an excessive amount of elbows in the plumbing
- B. Connect the facility plumbing to the control valve inlet following all local codes.
 - C. Temporarily run the control valve outlet to the drain.

Note: Make sure all piping is free of thread chips and other foreign matter.

6. Start up the system for the first time.

- A. Add about ten gallons of water to the brine tank.
- B. Make sure the tanks are filled with water.
 - a. Manually put the control valve into regeneration (Hold the regen button)
 - b. A mixture of air and water will flow from the drain line.
 - c. Slowly open the bypass valve's inlet to allow water to slowly enter the tank. (shown in figure 15).
 - d. Once the tank is filled, only water will be coming out of the drain line. Put the system back into bypass operation. Run each step of the regen cycle (Figure 21) for a few minutes.
- C. Program the Valve. Most of the settings were pre-programmed by Diamond H2O. The installer must enter the installer settings shown in part 8 section C of this manual.

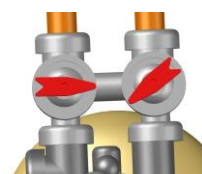


Figure 15: Opening bypass valve's inlet

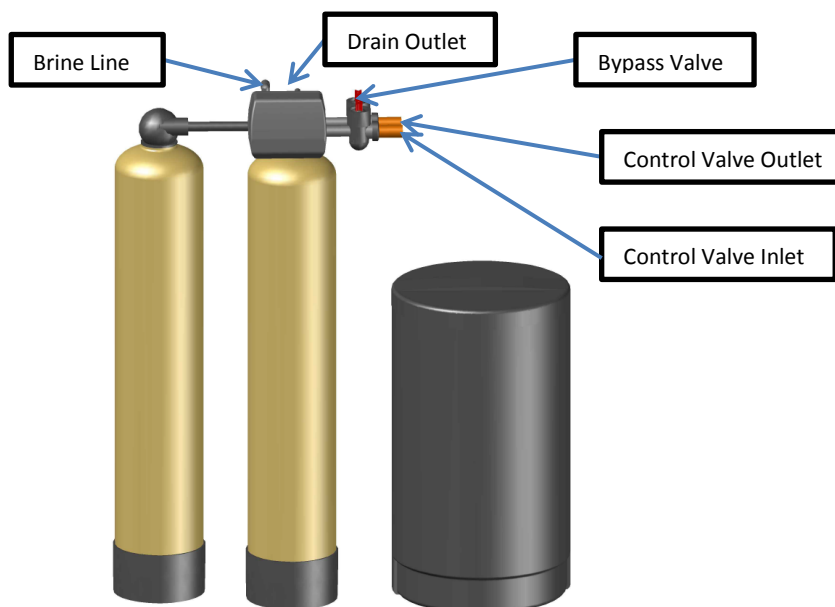
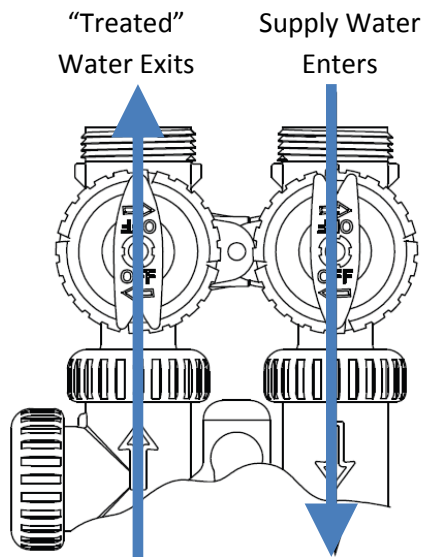


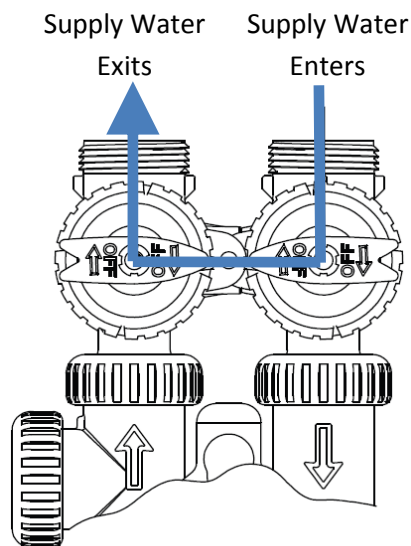
Figure 16: Finished System

7. Bypass Valve Operations

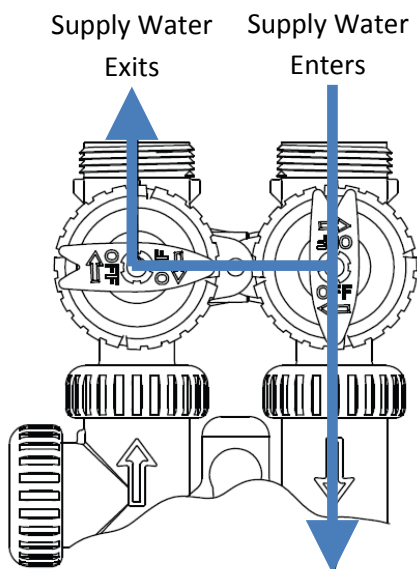
A. The red controls of the bypass valve can be turned 90° resulting in four modes of operation.



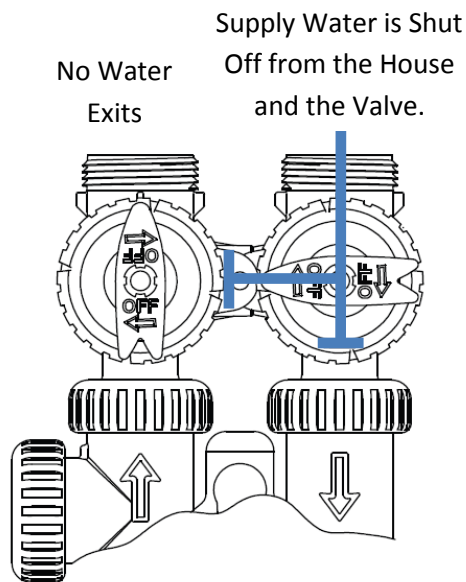
**Figure 17:
Normal Operation**



**Figure 18:
Bypass Operation**



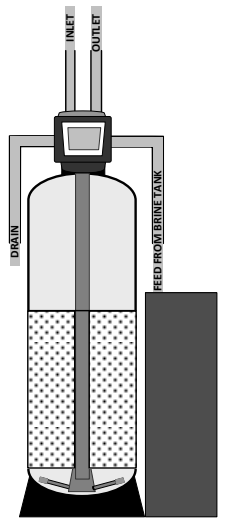
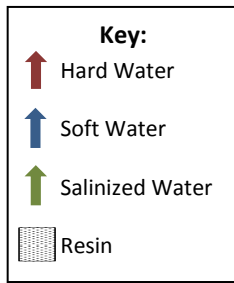
**Figure 19:
Diagnostic Mode**



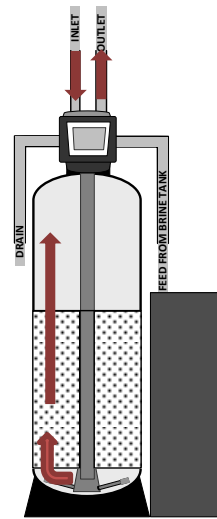
**Figure 20:
Shut Off Mode**



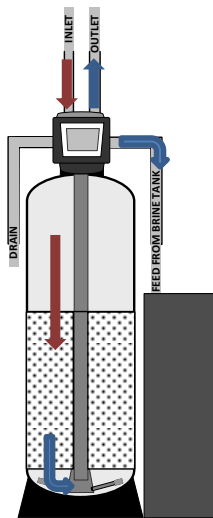
Figure 21: General Softener Operations



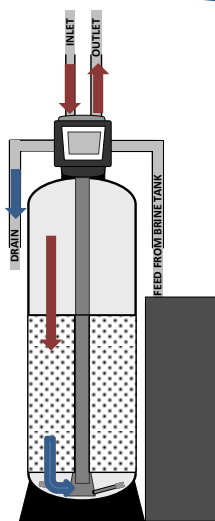
Service/Operation



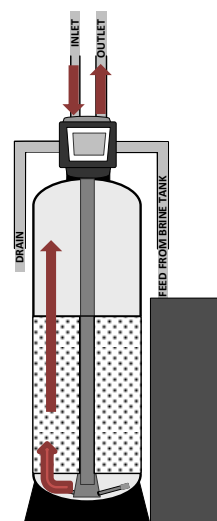
Backwash:
Flow reversed to flush debris from resin bed to drain.



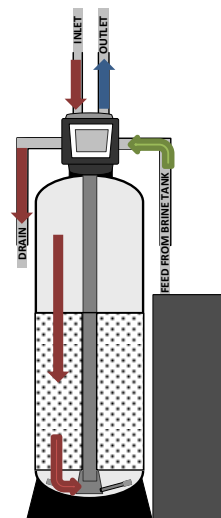
Regenerate Fill:
Water is sent to the Brine Tank to create regenerant for next regeneration cycle.



Fast Rinse:
Removes any residual regenerant from resin bed. (Water travels through the resin bed and up the riser tube drain).



Second Backwash:
Flow reversed to flush debris from resin bed to drain.



Regenerant Draw/ Slow Rinse:
After one Tank's Resin Bed is exhausted, Regenerate is drawn from Brine Tank through Brine Line Valve to Resin Bed. Hardness ions are then replaced by sodium ions, preparing Resin for another treatment cycle. The Regenerate flows through resin (at a specific rate) to exchange ions. Resin is now 'Regenerated' and ready for another cycle.





8. Program the Valve

To enter into the programming mode, press and hold the indicated buttons on the control valve for 5 seconds. For each set of settings (A-H), the display will start by showing the parameter listed as a. To go to the next parameter, press the next button on the control valve. To go back to the last parameter, press the regen button on the control valve. After you hit next on the last parameter, you will be returned to the home screen, where the clock should be displayed.

Note: Please defer to the programming guide included in the packaging for the correct settings for your system.

Important: All configuration settings and Regen cycle time settings will be entered by Diamond H2O prior to shipping. No value in these settings needs to be changed in the field. If you can't get into a certain setting, make sure the display is unlocked (Part H).

A. Configuration Settings (Entered by Diamond H2O)

Press and Hold:  

a. Set Valve Type (**1.0T**, 1.0, 1.25", 1.5", 2.0", 2.0L")



b. Set Regen Initiation Style (**Volume**, 28, 28 & Volume, 7, 7 & Volume)

Sets when the softener will initiate regeneration. The system will regenerate:

- Volume:** after a certain volume of water is used.
- 28:** on a day of the month (1 through 28) selected in Installer Display Settings.
- 7:** on a day of the week (1 through 7) selected in Installer Display Settings.
- 28 & Volume:** Whichever comes first, the day of the month or after an amount of volume is used.
- 28 & Volume:** Whichever comes first, the day of the week or after an amount of volume is used.



c. Set Regen (dELy, **on 0**)

Once regeneration has been initiated, sets when it will start.

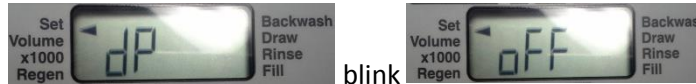
- on 0:** Regeneration will start immediately.
- dELy:** Regeneration will be delayed for a specified time.



d. Set dp (**dP_off**)

Selects the use of an outside signal to initiate regeneration.

- dP_off:** Does not use an outside signal.
- dP_on:** Does use an outside signal.



Important: All configuration settings and Regen cycle time settings will be entered by Diamond H2O prior to shipping. No value in these settings needs to be changed in the field. If you can't get into a certain setting, make sure the display is unlocked (Part H).



B. Regen Cycle Time Settings (Entered by Diamond H2O)

Press and Hold: **NEXT** & 

a. Set (Softening, Filtering)

Sets whether the valve is softening or filtering



b. Set Backwash (14 minutes)

Sets the amount of time the system will backwash (Backwash Figure 30)



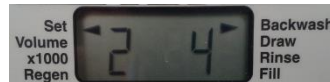
c. Set Draw (60 minutes)

Sets the amount of time the valve will draw from the brine tank. (Regenerant draw/Slow Rinse Figure 30)



d. Set Second Backwash (4 minutes)

Sets the amount of time the system will backwash a second time (Second Backwash Figure 30)



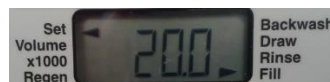
e. Set Rinse (6 minutes)

Sets the amount of time the valve will draw from the brine tank. (Fast Rinse Figure 30)



f. Set Fill (6.7 minutes per cubic foot of resin)

Sets the amount of time the valve will fill the brine tank with water (Regenerant Fill Figure 30)





D. Installer Display Settings ***Entered on Site By Customer***

Press and Hold: **NEXT** & 

a. Set Volume Capacity (Gallons)

- The setting for volume capacity can be determined using your model number and hardness in grains per gallon using the volume capacity chart. By default, the valve will be programmed for water with 15gpg hardness.

*** The chart based on 10lbs/ft³ per regeneration is on page 14 ***

*** The chart based on 15lbs/ft³ per regeneration is on page 15 ***



b. Set Day Override (on, off)

Pre-set by Diamond H2O



c. Set Regen Time (On 0)

Pre-set by Diamond H2O



E. Diagnostics

Press and Hold:  &  then  & 

- a. Days Since Last Regeneration
- b. Gallons Since Last Regen
- c. Total Days in Service since Start-Up
- d. Total Regenerations Since Start-Up

F. Set Time of Day

Press and Hold: **NEXT**

Note: The only time you need to set the time is if the internal battery is dead and a power outage occurs.

- a. Hours
- b. Minutes

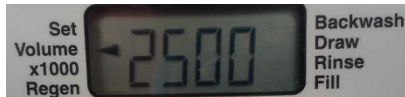
NOTE: If the customer sent in water sample to Diamond H2O, Diamond H2O will pre-set capacity based upon the water hardness and softener resin capacity.



G. User Displays

a. User Display One

If volume is selected in the Configuration Settings (default for Diamond H2O), the display shows the volume remaining until the next regeneration. This screen will not be shown if either volume is not selected or a meter is not used.



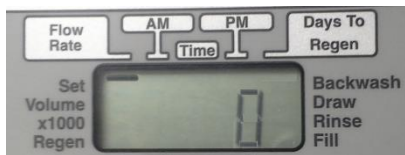
b. User Display Two

This displays the number of days until regeneration.



c. User Display Three

This displays the flow rate in gallons per minute (gpm). If a meter is not used, this display will be shown and will display 0. This display will not be shown if either 7 or 28 are selected in the configuration settings (8Ab).



d. User Display Four

Displays total flow in gallons since last rest. If a meter is not used, this display will be shown and will display 0. This display will not be shown if either 7 or 28 are selected in the configuration settings (8Ab).

NOTE: Hold the down arrow for 3 seconds to reset to 0.

e. User Display Five

This displays the current time.



H. Reset Display

Press and Hold: **NEXT & REGEN**

I. Lock/Unlock Settings

The valve has a lock feature which doesn't allow the settings other than time to be changed. The User displays are still visible, however diagnostics will be hidden. Enter the keys in the sequence shown below to lock/unlock the screen.





9. Troubleshooting

Problem	Possible Cause	Solution
No Display on PC Board	No power at electric outlet	Repair outlet or use working outlet
	Control valve power adapter not plugged into outlet or power cord end not connected to PC board connection	Verify that cord is plugged in and that proper voltage is being delivered to PC board connection
	Improper power supply	Verify proper voltage is being delivered to PC board
	Defective power adapter	Replace Power Adapter
	Defective PC Board	Replace PC Board
PC Board does not display correct time of day	Power Adapter Plugged into electric outlet controlled by light switch	Use uninterrupted outlet
	Tripped breaker switch and/ or GFI switch	Reset breaker switch and/ or GFI switch
	Power outage	Reset time of day. If PC board has battery back-up present, the battery may be depleted. See page 12 for instructions on how to change the time. Replace the battery.
	Defective PC board	Replace PC Board, reprogram PC Board
Display does not indicate that water is flowing. Refer to instructions for how the display indicates water is flowing (pg 13)	Bypass valve in bypass position (Figure 23)	Turn bypass handles to place bypass in service position
	Meter is not connected to meter connection on PC board	Connect meter to three pin connection labeled METER on PC board
	Restricted/stalled meter turbine	Remove meter and check for rotation or foreign material
	Meter cable wires are not installed securely into three pin connector	Verify meter cable wires are installed securely into three pin connector labeled METER
	Defective meter	Replace meter
	Defective PC Board	Replace PC Board, reprogram PC Board
Control valve regenerates at wrong time of day	Power outage	Reset time of day. If PC board has battery back-up present, the battery may be depleted. See front cover and drive assembly drawing for instructions.
	Time of day not set correctly	Reset to correct time of day
	Time of regeneration set incorrectly	Reset regeneration time
	Control valve set at "on 0" (immediate regeneration)	Check programming setting and reset to dELy (for a delayed regen time)
	Control valve set at "dELy" (delayed and/or immediate)	Check programming setting and reset to NORMAL (for a delayed regen time)



10. Troubleshooting (2)

Problem	Possible Cause	Solution
Time of day flashes on and off	Power outage	Reset time of day. If PC board has battery back-up present, the battery may be depleted. See page 12 for instructions on how to change the time. Replace the battery.
Control valve does not regenerate automatically when the REGEN button is depressed and held.	Broken drive gear or drive cap assembly	Replace drive gear or drive cap assembly
	Broken Piston Rod	Replace piston rod
	Defective PC Board	Replace PC Board
Control valve does not regenerate automatically but does when the REGEN button is depressed and held.	Bypass valve in bypass position	Turn bypass handles to place bypass in service position
	Meter is not connected to meter connection on PC board	Connect meter to three pin connection labeled METER on PC board
	Restricted/stalled meter turbine	Remove meter and check for rotation or foreign material
	Incorrect programming	Check for programming error
	Meter cable wires are not installed securely into three pin connector	Verify meter cable wires are installed securely into three pin connector labeled METER
	Defective meter	Replace meter
	Defective PC Board	Replace PC Board
Hard or untreated water is being delivered	Bypass valve is open or faulty	Fully close bypass valve or replace
	Media is exhausted due high water usage.	Check program settings or diagnostics for abnormal water usage
	Meter not registering	Remove meter and check for rotation or foreign materials
	Water quality fluctuation	Test water and adjust program values accordingly
	No or low level of salt in brine tank	Add proper amount of salt to tank
	Control valve fails to draw in brine	Refer to pg. 23.
	Insufficient water level in brine tank	Check refill setting in programming. Check refill flow control for restrictions or debris and clean or replace
	Damage seal/stack assembly	Replace seal/stack assembly
	Control valve body type and piston type mix matched	Verify proper control valve body type and piston type match
	Fouled resin	Replace resin



10. Troubleshooting (3)

Problem	Possible Cause	Solution
Control valve uses too much brine	Improper refill settings	Check refill settings (7.A)
	Improper program settings	Check program setting to make sure they are specific to the water quality and application needs
	Control valve regenerates frequently	Check for leaking fixtures that may be exhausting capacity or system is undersized
Residual salt is being delivered to service	Low waste pressure	Check incoming water pressure. Water pressure must remain at minimum of 25 psi
	Incorrect injector size	Replace injector with correct size for the application
	Restricted drain line	Check drain line for restriction or debris and clean
Excessive water in brine tank	Improper program settings	Check refill setting
	Plugged injector	Remove injector and clean or replace
	Drive cap assembly not tightened in properly	Re-tighten the drive cap assembly
	Damaged seal/stack assembly	Replace seal/stack
	Restricted or kinked drain line	Check drain line for restrictions or debris and or un-kink drain line
	Plugged backwash flow controller	Remove backwash flow controller and clean or replace
	Missing refill flow controller	Replace refill flow controller
Control valve fails to draw in brine	Injector is plugged	Remove injector and clean or replace
	Faulty regenerant piston	Replace regenerant piston
	Brine line connection leak	Inspect brine line for air leak
	Drain line restriction or debris cause excess back pressure	Inspect drain line and clean to correct restriction
	Drain line too long or too high	Shorten length or height
	Low water pressure	Check incoming water pressure. Water pressure must remain at minimum of 25 psi
Water running to drain	Power outage during regeneration	Upon power being restored control will finish the remaining regeneration time. Reset time of day. If PC board has battery back-up present the battery may be depleted. See Front Cover and Drive Assembly drawing for instructions
	Damage seal/stack assembly	Replace seal/stack assembly
	Piston assembly failure	Replace piston assembly
	Drive cap assembly not tightened properly	Re-tighten the drive cap assembly



11. Control Error Codes

Problem	Possible Cause	Solution
E1, Err-1001, Err-101 = Control unable to sense motor movement	Motor not inserted full to engage pinion, motor wires broken or disconnected	Disconnect power, make sure motor is fully engaged, check for broken wires, and make sure two-pin connector on motor is connected to the two pin connection on the PC board labeled MOTOR. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC board for 5 seconds and then reconnect.
	PC board not properly snapped into drive bracket	Properly snap PC board into drive bracket and then press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC board for 5 seconds and then reconnect.
	Missing reduction gears	Replace missing gears
E2, Err-1002, Err-102 = Control valve motor ran too short and was unable to find the next cycle position and stalled	Foreign material is lodged in control valve	Open up control valve and pull out piston assembly and seal/stack assembly for inspection. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC board for 5 seconds and then reconnect.
	Mechanical binding	Check piston assembly and seal/stack assembly, check reduction gears, check drive bracket and main drive gear interface. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC board for 5 seconds and then reconnect.
	Main drive gear too tight	Loosen main drive gear. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC board for 5 seconds and then reconnect.
	Improper voltage being delivered to PC board	Verify that proper voltage is being supplied. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC board for 5 seconds and then reconnect.



11. Control Error Codes (2)

Problem	Possible Cause	Solution
E3, Err-1003, Err-103 = Control valve motor ran too long and was unable to find the next cycle position and stalled	Motor failure during a regeneration	Check motor connections. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC board for 5 seconds and then reconnect.
	Foreign material built up on piston and stack assemblies creating friction and drag enough to time out motor	Replace piston and seal/stack assemblies. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC board for 5 seconds and then reconnect.
	Drive bracket not snapped in properly that reduction gears and drive gear do not interface	Snap drive bracket in properly. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC board for 5 seconds and then reconnect.
E4, Err-1004, Err-104 = Control valve motor ran too long and timed out trying to reach home position	Drive bracket not snapped in properly that reduction gears and drive gear do not interface	Snap drive bracket in properly. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC board for 5 seconds and then reconnect.
Err-1006, Err-106, Err-116 = MAV/SEPS/NHBP/AUX MAV valve motor ran too long and unable to find the proper park position. MAV = Motorized Alternating Valve SEPS = Separate Source NHBP = No Hard Water Bypass AUX MAV = Auxiliary MAV	Control valve programmed for ALT A or B, NHBP, SEPS, or AUX MAV without having a MAV or NHBP valve attached to operate that function	Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC board for 5 seconds and then reconnect.
	MAV/NHBP motor wire not connected to PC board	Connect MAV/NHBP motor to PC board two-pin connection labeled DRIVE. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC board for 5 seconds and then reconnect.
	MAV/NHBP motor not fully engaged with reduction gears	Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC board for 5 seconds and then reconnect.
	Foreign material built up on piston and stack assemblies creating friction and drag enough to time out motor	Replace piston and seal/stack assemblies. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC board for 5 seconds and then reconnect.



11. Control Error Codes (3)

Problem	Possible Cause	Solution
<p>Err-1007, Err-107, Err-117 = MAV/SEPS/NHBP/AUX MAV valve motor ran too short (stalled) while looking the proper park position.</p>	<p>Foreign material is lodged in MAV/NHBP valve</p>	<p>Check motor connections. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC board for 5 seconds and then reconnect.</p>
<p>MAV = Motorized Alternating Valve</p> <p>SEPS = Separate Source</p> <p>NHBP = No Hard Water Bypass</p> <p>AUX MAV = Auxiliary MAV</p>	<p>Mechanical binding</p>	<p>Check piston and seal/stack assemblies, check reduction gears, drive gear interface and check MAV/NHBP black drive pinion on motor for jammed into motor body. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC board for 5 seconds and then reconnect.</p>