



RevV⁴ **Rotary Valve & System Manual**



Contents

Product Features and Application	2
Product Dimensions and Specifications	3
Pre-Installation Check-list	4
Valve Installation	5-6
Valve Installation Tables	7
Programming	8-15
Display and Instructions	8
Programming Modes A-01 to A-07	9-15
PCB Functions and Connections	16-20
Overview	16
Signal Output Connector	16-19
Interlock	19
Alternating Interlock	19
Remote Handling Connector	20
Interlock Options	20
Using One Flow Meter with Interlock	20
System Installation	22-36
System Configuration and Settings	23
Plumbing Connections	24
Drain Line Installation	24
Brine Line and Brine Tank Installation	24-25
System Installation Chart	26
System Start Up	27
Sanitization Procedure	28
Water Flow Diagram	29-30
Assembly Drawings and Parts List	31-33
Valve	31-32
Bypass	33
Troubleshooting	34-36
Control Valve	34-35
Electronics	36
Replacement Parts	37
Accessories	38
Packing List	39-40
Valve	39
System	40
Warranty	41
Contact Information	42

Product Features and Application

Primary Applications

Recommended for commercial and residential softening or demineralization water treatment systems.

- Softening System
- Iron Removal System
- Ion Exchange Equipment
- Boiler Softening Water Treatment
- RO Pre-treatment

Product Characteristics

● Mechanical Components

The RevV4 uses hermetically sealed ceramic discs which are corrosion and abrasion resistant. Rotation of the upper disc aligns to the corresponding lower disc ports for Service, Backwash, Brine & Slow Rinse, Brine Refill and Fast Rinse modes.


● Hard Water/No Hard Water Bypass


Up-flow regeneration with no hard water and hard water bypass options. This valve operates as a hard water bypass with exception during the backwash cycle, no hard water is allowed to bypass.

● Excellent Flow Rate: 21 gpm @ 15 psi drop.


● 7 Day Usage Memory

● Manual / Delayed Regeneration

Pressing  at any time results in an immediate manual regeneration.



Pressing and holding  for 3 seconds, when system is locked, results in a delayed regeneration at 2 am.

● Extended Power Outage Indicator

If outage exceeds 3 days, the time of day indicator “” will flash 12:12. The current time of day needs to be re-set. All other set parameters remain stored in memory. The valve will continue to process from the point of the power outage.

● Three Regeneration Sequences

● Lockout Function

Keypad will lock after 5 minutes without use. To access the parameter changes press and hold  and  simultaneously for 3 seconds to unlock.

● LCD Display Screen

● Advanced Valve and External Device Connections

Interlock and Alternate Interlock

Remote Handling

Solenoid Valve

● 7 Regeneration Mode Options with Adjustable Phase Times

● Maximum Day Regeneration Interval

When the valve reaches the maximum set days and metered volume has not been reached, the valve forces a regeneration at the pre-programmed time of day. This function resets after each regeneration.

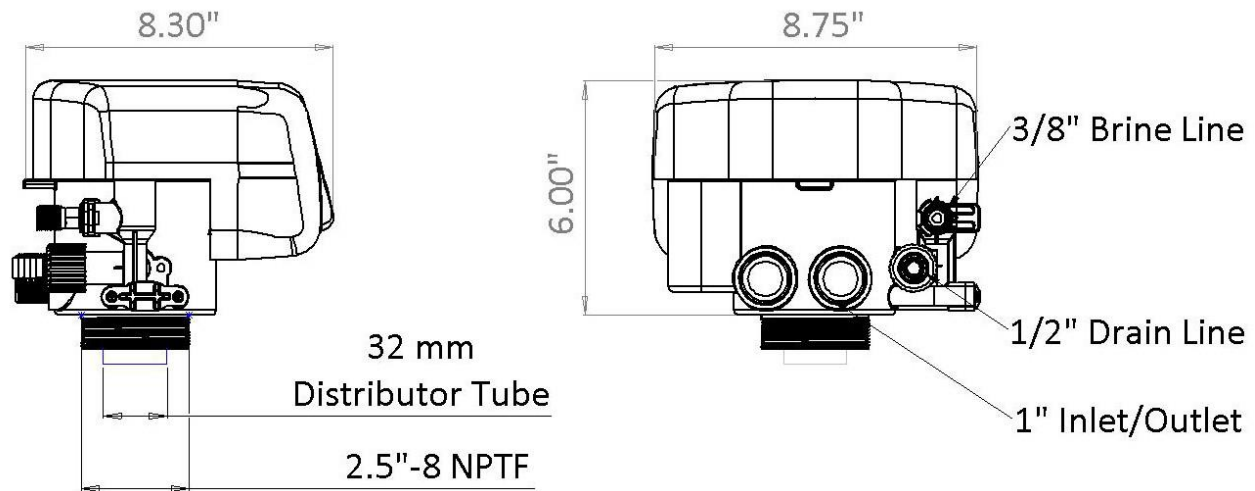
● One Button to Change the Current Time

Pressing and holding the  button for 3 seconds, when system is locked, allows the current time of day to be adjusted.

● Service Alarm

When service alarm reaches the preset number of days the alarm activates at 8pm. The alarm sounds for 2 minutes and then shuts off automatically. To silence alarm, press any button. A signal for homeowner to contact installer for routine service. The system will go back to work status and service days will re-start new count down.

Product Dimensions and Specifications



Model	Length(max)	Width(max)	Height (max)	Regeneration Mode
RevV4	8.3"	8.75"	7.5"	Up-flow
The valve dimensions are for reference only.				

Connect Port Dimensions							
Product Model	Inlet Port	Outlet Port	Drain Port	Brine Port	Base	Riser Pipe	Hard Water Bypass
RevV4-NHW	1" NPT	1" NPT	3/4" NPT	3/8"	2.5"-8NPSM	32 mm	No
RevV4-HW	1" NPT	1" NPT	3/4" NPT	3/8"	2.5"-8NPSM	32 mm	Yes
Main Technical Parameters							
Water Capacity	20.7 gpm(14.5psi Pressure Drop)						
Power Input	AC100~240V/50~60Hz						
Power Output	12VDC/2A						
Regeneration Cycles	Sequence 1: Service → Backwash → Brine & Slow Rinse → Fast Rinse → Brine Refill Sequence 2: Service → Backwash → Brine & Slow Rinse → Back Wash → Fast Rinse → Brine Refill Sequence 3: Service → Brine Refill → Service (180 min-time fixed) → Back Wash → Brine & Slow Rinse → Fast Rinse						
Regeneration Mode	<p><u>A-01 Meter Delay:</u> Regeneration happens when the capacity reaches zero and the preset time of regeneration is reached.</p> <p><u>A-02 Meter Immediate:</u> Regeneration happens when the capacity reaches zero.</p> <p><u>A-03 Intelligent Meter Delay:</u> The same delay function as A-01 but the capacity is determined by setting the Resin Volume and Feed Water Hardness. The control valve calculates the gallons before regeneration.</p> <p><u>A-04 Intelligent Meter Immediate:</u> The same function as A-02 but the capacity is determined by setting the Resin Volume and Feed Water Hardness. The control valve calculates the gallons before regeneration.</p> <p><u>A-05 Remaining Compare:</u> Compares current usage with previous 7 day daily usage to intelligently determine when regeneration will occur. Regeneration starts at the set regeneration time.</p> <p><u>A-06 By Day (timer):</u> Service days count down to zero (0) and regeneration starts at the set regeneration time.</p> <p><u>A-07 Filter Meter:</u> Filter mode, regeneration occurs when the capacity reaches zero and the preset time for regeneration is reached.</p>						

Pre-Installation Checklist

Before installation, read through this manual thoroughly. Then obtain all materials and tools needed for installation.

This softening system will operate at maximum efficiency when the following conditions are considered.

Required Revv4 Operation Conditions:		
Working Conditions	Working pressure	20psi~120psi
	Water temperature	40 °F~125 °F
Working Environment	Environment temperature	40 °F~125 °F
	Relative humidity	≤95%
	Power source	AC100~240V/50~60Hz
Inlet Water Quality	Turbidity	Up-flow regeneration <2FTU
	Hardness	1 grain per gallon (gpg) = 17.1 parts per million (ppm)
	Chlorine	<0.1ppm
	Iron ²⁺	<0.3ppm

- All plumbing and electrical work should be performed by an accredited professional to ensure all local, state, and municipal guidelines are met.
- Do not use the control valve with water that is unsafe or of unknown quality.
- Do not use the brine tube, injector body, or other connectors on the RevV4 valve as a handle to carry the system.
- Ensure there is salt in the brine tank at all times when this valve is used for softening. The brine tank should contain clean water softening salt only, at least 99.5% pure. Do not use small grain salt.
- When there is moderate to high turbidity, a filter should be installed before the water softening system on the inlet side.
- If the water pressure exceeds 120psi, a pressure reducing valve must be installed before the water inlet. If the water pressure exceeds 80 psi, installing a pressure reducing valve before the water inlet is highly recommended. If the water pressure is under 21psi, a booster pump must be installed before the water inlet.
- Replacement parts for the RevV4 valve should only be purchased through Hankscraft H2O Products resellers. Electrical components such as transformers are specific to the RevV4 valve from Hankscraft.
- Regular interval monitoring of the water quality and work environment is recommended to insure proper operation of the valve and system.
- Any modification to Hankscraft equipment that is outside the standard scope of supply voids the product warranty.
- Hankscraft equipment, like all modern electronic devices, can be damaged by electrical surges or brown outs. Every effort has been taken to harden by design the circuits against such events but this precaution or even additional surge protection is not 100% effective. Therefore, equipment damage caused by abnormal electrical events is not covered by warranty.

*****Failure to use this product within the described conditions may void the warranty*****

Valve Installation

● Installation Notice

- Before installation, read through this manual thoroughly and obtain all materials and tools needed for installation.
- All plumbing and electrical work should be performed by an accredited professional to ensure all local, state, and municipal guidelines are met.

● Unit Location

- The filter or softener should be located close to a floor drain away from direct sunlight and any heat sources.
- Protect equipment from direct sunlight and precipitation exposure.
- Install the equipment in a location safe from authorized access or vandalism.
- Ensure the unit is installed with enough space for operation and maintenance.
- The installation surface should be clean and level.
- Install the unit in an environment which minimizes consumer impact in the event of malfunction.
- Hankscraft offers many different products for many different applications and for indoor and outdoor environments. If you are not 100% sure the equipment purchased is suitable for the installation application or environment, please check with Hankscraft or your local equipment provider to ensure the proper equipment is selected. Equipment installed in inappropriate applications or environments are not covered by warranty.
- Brine tank should be installed close to the RevV4 control valve.

● Plumbing and Mechanical Setup

Note:

1) If the water outlet or water tank is installed higher than control valve or parallel interlock system with multi-outlets, a liquid level controller must be installed in the brine tank. If not, the water outlet or source tank will flow backwards into brine tank during backwashes.

2) If making a soldered copper installation, all sweat soldering should be done before connecting pipes to the valve. Torch heat will damage plastic parts.

3) When turning threaded pipe fittings onto plastic fitting, take precaution not to cross thread or over tighten.

➤ Control Valve Installation

- * As Figure 1-1 shows; insert a 32mm riser pipe with bottom basket into the center of the mineral tank. If pipe is higher than the top of tank mark it, remove from tank, and cut. Take care to keep foreign material out of mineral tank.

Note: The length of riser pipe should be below tank flange. The distance from the top of the tank to the top of the pipe should be between .1875 inch and 1 inch. The edges of the pipe should not be sharp to avoid damage to the seal inside the RevV4 valve.

- * If mineral tank was not purchased as part of a complete system from Hankscraft H2O Products be sure to plug the riser pipe prior to filling with media. Media quantity is relative to desired capacity and tank size. (Refer to Product Sizing table on page 7)
- * Install Valve Base O-ring around the neck of the valve.
- * Lubricate the center hub O-ring of the RevV4 valve.
- * Install the top basket with a twist and lock action to center hub of the RevV4 valve.
- * Place RevV4 valve onto tank with the distributor pipe inserted down the middle of The top basket. Rotate clockwise to secure onto the tank.

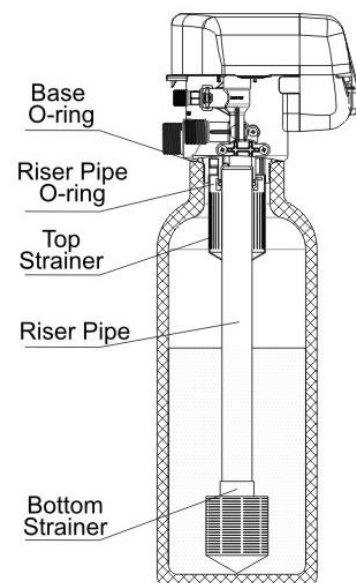


Figure 1-1

Valve Installation Continued

- Control Valve Configuration (Refer to Charts on Page 7 for Sizing Recommendations)
 - * Drain Line Flow Control (DLFC) Button Installation (2.02 GPM Installed)
 - If you wish to change the DLFC button, unscrew drain barb collar and remove drain barb.
 - Remove current DLFC button and replace with desired DLFC button.
 - Replace drain barb and tighten down drain barb collar.
 - * Brine Line Flow Control (BLFC) Button Installation (.3 GPM Installed)
 - If you wish to change the BLFC button, remove clip and then brine connector from valve.
 - Remove current BLFC button and replace with desired BLFC button.
 - Replace brine connector to valve and insert brine connector clip.
 - * Injector Throat and Nozzle Installation (Pink Throat and Nozzle Installed)
 - If you wish to change the injector, unscrew the two screws from the injector body and remove the cover.
 - Unscrew, in a counter-clockwise direction, remove the nozzle and throat.
 - Replace with desired nozzle and throat. Tighten in a clockwise direction until seated.
Take care not to over tighten or strip the parts.
- Bypass Installation
 - * Push Pull Bypass - 41204
 - Note:** Before attaching the bypass to the valve, verify meter is installed in outlet side of the bypass with the impeller facing in.
 - As Figure 1-2 shows; install the seals into the animated connector.
 - Attach animated connectors to the inlet/ outlet and grease the O-rings.
 - Attach the bypass valve and insert the clips.
 - Meter cable is installed into cable port on the outlet side during system start-up, see page 27.

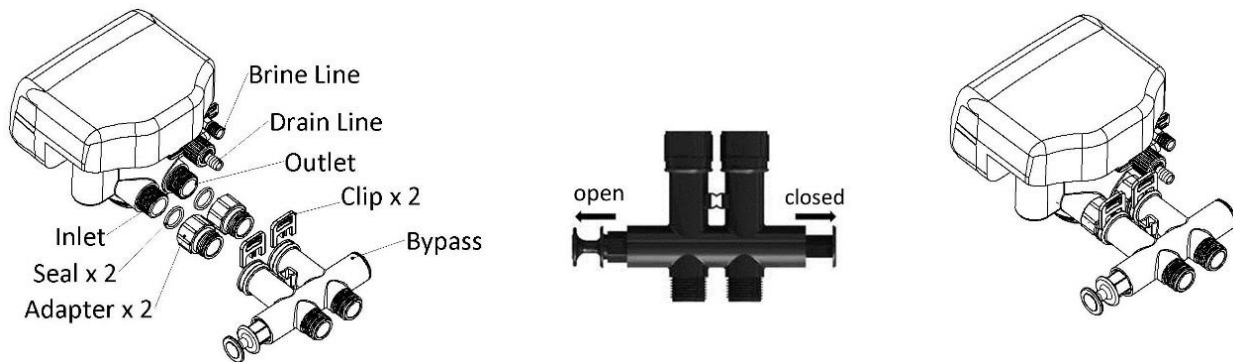


Figure 1-2

- * Metal Bypass
 - Detach animated connectors from the female adaptor and install washer before attaching them to the inlet and outlet of the valve.
 - Attach female adaptors to the 1" yoke; be certain meter impeller is installed on the outlet side, impeller facing in.
 - Attach metal bypass to the yoke with two flanged spools. Secure with metal clips.
 - Grease O-ring of the animated connectors and attach bypass assembly to valve, secure with clips.
 - Meter cable installed into cable port on the outlet side during system start-up.



● System Installation continued on page 23

Valve Installation Tables

Product Sizing – RevV4

Tank Size (inches)	Resin Volume (cu/ft)	Flow Rate (gpm)	Brine Tank Size (L)	Salt Consumption (lbs.)	Injector Model
9×48	1	5.8	85	9	6302
10×44	1.25	6.3	85	10.5	6302
10×54	1.5	6.6	85	12	6302
12×52	2	8.5	100	15	6303
13×54	2.5	10.2	100	18	6304
14×65	3.5	11	200	33.0	6305
16×65	4.5	15.4	200	39.6	6307
18×65	5.5	19.8	300	41.1	6308
20×69	7	26.4	300	66.0	6309

Injectors, BLFC, DLFC – RevV4

Tank Diameter	Injector	Color (Nozzle & Throat)	Draw Rate @ 45.5 PSI (gpm)	Slow Rinse (gpm)	BLFC	Brine Refill (gpm)	DLFC	Backwash / Fast Rinse (gpm)
7	6301	Coffee	0.45	0.27	8468057	0.22	8468043	1.14
8	6301	Coffee	0.45	0.27	8468056	0.3	8468042	1.89
9	6302	Pink	0.56	0.34	8468056	0.3	8468060	2.02
10	6302	Pink	0.56	0.34	8468052	0.39	8468061	2.86
12	6303	Yellow	0.84	0.44	8468053	0.83	8468045	4.22
13	6304	Blue	1.05	0.65	8468053	0.83	8468045	4.22
14	6305	White	1.21	0.73	8468054	1.32	8468044	4.89
14	6306	Black	1.37	0.81	8468054	1.32	8468044	4.89
15	6307	Purple	1.52	0.94	8468055	1.48	8468062	6.6
18	6308	Red	1.78	1.1	8468055	1.48	8468063	8.1
20	6309	Green	2.03	1.33	8468055	1.48	No DLFC	13.7
22	6310	Orange/Green	2.27	1.66	8468055	1.48	No DLFC	13.7

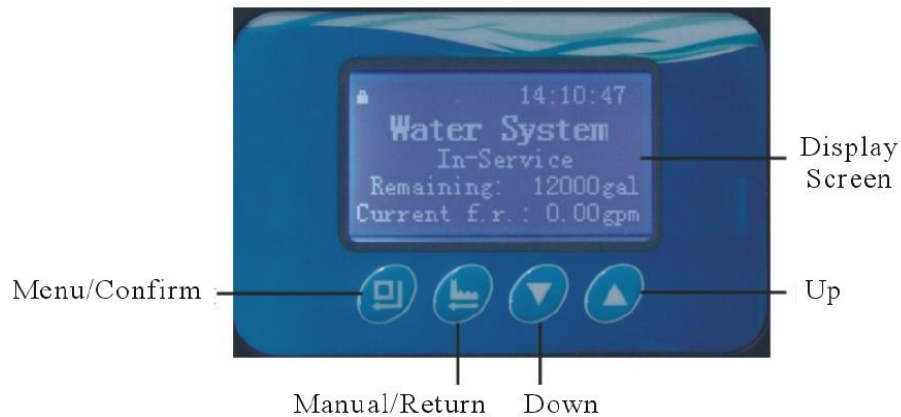
Injector Table – RevV4

Inlet Pressure PSI	Draw Rate GPM									
	6301 Brown	6302 Pink	6303 Yellow	6304 Blue	6305 White	6306 Black	6307 Purple	6308 Red	6309 Green	6310 Orange
21.75	.31	.4	.59	.76	.85	1.03	1.08	1.16	1.47	1.5
29	.36	.46	.69	.87	1	1.18	1.23	1.37	1.75	1.8
36.25	.42	.51	.76	.96	1.11	1.31	1.39	1.64	1.93	2.02
45.5	.45	.56	.84	1.05	1.21	1.37	1.52	1.78	2.03	2.27
50.76	.49	.6	.89	1.13	1.33	1.48	1.62	1.91	2.23	2.53
58	.65	.63	.95	1.22	1.41	1.51	1.88	1.99	2.35	2.62

Note: Injector 6310 consists of orange nozzle and green throat.





Note: Above data for the product configuration and relevant characteristics are for reference only. Practical application should be taken into account with raw water properties and total system configuration.

Programming




● Programming Instructions


Unlocking the Keypad

 icon indicates the buttons are locked within 5 minutes of idle use. To unlock press and hold  and  for 3 seconds until the  icon is off.



Enter Key

Press  button to enter the basic programming mode, modify highlighted options, and return to the main menu.

Manual Regen/Esc. Key












Press  at any phase during manual regeneration to advance to the next phase or press during programming to exit to the home screen without modifying the current highlighted option.

Up and Down Arrows







 or  buttons are used to scroll through the various basic programming options as well as adjust values.

● Programming Modes









➤ Basic Programming – Allows you to adjust the time values for each phase. To enter basic programming, follow the directions below.

- * When the  icon is on, press and hold both  and  for 3 seconds to unlock the keypad; then press  to enter the main menu; press  or  to highlight each option. Press  to enter that option. Press  or  to adjust the value. Press  to accept changes. (Press  to exit back to service status)

➤ Advanced Programming – Allows you to set the Regen Cycle and Regen Mode that will work best for your customer; as well as adjust or set each phase time. To enter advanced programming, follow the directions below.

- * Plug the RevV4 in and immediately press    in sequence to enter into the advanced setting. Press  or  to select the menu item to be changed (Press  to return to the previous menu).

Note: If valve locks while programming, unplug power supply and repeat step above.

- * Press  to enter the main menu; press  or  to highlight each option. Press  to enter highlighted option. Press  or  to adjust the value. Press  to accept changes. (Press  to advance to service status)

The following pages will outline programming for each regeneration mode.

A-01 Meter Delayed Programming

Parameter	Unit	Default	Description
Language		English	
Time of Day			Set current time of day. 24 hour clock format.
Program Type Interlock / Alternate Interlock		Interlock	Used as a stand-alone installation and twin demand in conjunction with No Hardwater version of the RevV4.
Regeneration Cycle Sequence	1, 2, 3	2	Recommend setting to Sequence 2. See page 3. Service → Backwash → Brine & Slow Rinse → Back Wash → Fast Rinse → Brine Refill.
Set Clear Data	Close/Open	Close	Skip during initial set-up. Clears all stored memory and restores default settings. Close = Data saved Open = Reset data
Regeneration Mode: A-01-A-07		A-01	A-01 Meter Delayed.
Capacity	Gal	2500	To figure capacity, take the total resin volume multiplied by .75. Divide by grains hardness of water supply. Ex: 1 Cu/Ft =32,000 x .75 at 15 grains hardness. $(32,000 \times .75) \div 15=1,600$ gal. Enter that value here.
Regeneration Time	AM/PM	2:00AM	
Backwash Time	Min.	0	Set to 0 (zero) when using Sequence 2 as a softener install.
Secondary Backwash	Min.	10	Not available when using Sequence 1 or 3.
Brine & Slow Rinse Time	Min.	60	
Brine Refill	Min:Sec	10:00	Refill time is calculated based on total resin volume. Note: 1 gal water dissolves 3lbs of salt. See note below for refill time.
Fast Rinse Time	Min:Sec	10:00	
Max Days for Regeneration	Days	30	A regeneration is forced every 30 days if no water has been used.
Signal Output Mode b-01 (02)		b-01	Used for external device. b-01. Disregard for standard installation.
Service Alarm	Days	730	Alarm rings to prompt a service call. Occurs at the number of days set @ 8pm for 2 minutes. Display changes to prompt the homeowner to call their dealer.
7 Day Usage Log	Gal		Shows the gallons used each day for the last 7 days.
Review Regen Times			Displays the number of times the valve has regenerated.
7 Day Peak Usage	GPM		Shows peak usage in GPM within a 7 day period.

The brine refill time is calculated based on total resin volume. For optimal efficiency... 3.0 gallons of water are used for 9x48 (32,000 grain); 3.5 gal for 10x44 (40,000 grain); 4.0 gal for 10x54 (48,000 grain); 5.0 gal for 12x52 (64,000 grain).

9x48- BLFC button: 8468056 and DLFC button: 8468060 Brine Refill Time: 10 minutes (3.0 gallons/ .3 refill rate = 10)
Brine float should be centered to the 9# salt setting. (white tape)

10x44- BLFC button: 8468052 and DLFC button: 8468061 Brine Refill Time: 9 minutes (3.5 gallons/ .39 refill rate = 8.97)
Brine float should be centered to the 10.5# salt setting. (1/2 way between white and blue tape)

10x54- BLFC button: 8468052 and DLFC button: 8468061 Brine Refill Time: 10.26 minutes (4.0 gallons/ .39 refill rate = 10.26)
Brine float should be centered to the 12# salt setting. (blue tape)

12x52- BLFC button: 8468053 and DLFC button: 8468045 Brine Refill Time: 6 minutes (5.0 gallons/ .83 refill rate = 6.02)
Brine float should be centered to the 15# salt setting. (green tape)

13x54- BLFC button: 8468053 and DLFC button: 8468045 Brine Refill Time: 6 minutes (5.0 gallons/ .83 refill rate = 6.02)
Brine float should be centered to the 15# salt setting. (green tape)

A-02 Meter Immediate Programming

Parameter	Unit	Default	Description
Language		English	
Time of Day			Set current time of day. 24 hour clock format.
Program Type Interlock / Alternate Interlock		Interlock	Used as a stand-alone installation and twin demand in conjunction with No Hardwater version of the RevV4.
Regeneration Cycle Sequence	1, 2, 3	2	Recommend setting to Sequence 2. See page 3. Service → Backwash → Brine & Slow Rinse → Back Wash → Fast Rinse → Brine Refill.
Set Clear Data	Close/Open	Close	Skip during initial set-up. Clears all stored memory and restores default settings. Close = Data saved Open = Reset data
Regeneration Mode: A-01-A-07		A-01	A-02 Meter Immediate.
Capacity	Gal	2500	To figure capacity, take the total resin volume multiplied by .75. Divide by grains hardness of water supply. Ex: 1 Cu/Ft =32,000 x .75 at 15 grains hardness. (32,000 x .75) ÷ 15=1,600 gal. Enter that value here.
Backwash Time	Min.	0	Set to 0 (zero) when using Sequence 2 as a softener install.
Secondary Backwash	Min.	10	Not available when using Sequence 1 or 3.
Brine & Slow Rinse Time	Min.	60	
Brine Refill	Min:Sec	10:00	Refill time is calculated based on total resin volume. Note: 1 gal water dissolves 3lbs of salt. See note below for refill time.
Fast Rinse Time	Min:Sec	10:00	
Max Days for Regeneration	D	30	A regeneration is forced every 30 days if no water has been used.
Signal Output Mode b-01 (02)		b-01	Used for external device. b-01. Disregard for standard installation.
Service Alarm	D	730	Alarm rings to prompt a service call. Occurs at the number of days set @ 8pm for 2 minutes. Display changes to prompt the homeowner to call their dealer.
7 Day Usage Log	Gal		Shows the gallons used each day for the last 7 days.
Review Regen Times			Displays the number of times the valve has regenerated.
7 Day Peak Usage	GPM		Shows peak usage in GPM within a 7 day period.

The brine refill time is calculated based on total resin volume. For optimal efficiency... 3.0 gallons of water are used for 9x48 (32,000 grain); 3.5 gal for 10x44 (40,000 grain); 4.0 gal for 10x54 (48,000 grain); 5.0 gal for 12x52 (64,000 grain).

9x48- BLFC button: 8468056 and DLFC button: 8468060 Brine Refill Time: 10 minutes (3.0 gallons/ .3 refill rate = 10)
Brine float should be centered to the 9# salt setting. (white tape)

10x44- BLFC button: 8468052 and DLFC button: 8468061 Brine Refill Time: 9 minutes (3.5 gallons/ .39 refill rate = 8.97)
Brine float should be centered to the 10.5# salt setting. (1/2 way between white and blue tape)

10x54- BLFC button: 8468052 and DLFC button: 8468061 Brine Refill Time: 10.26 minutes (4.0 gallons/ .39 refill rate = 10.26)
Brine float should be centered to the 12# salt setting. (blue tape)

12x52- BLFC button: 8468053 and DLFC button: 8468045 Brine Refill Time: 6 minutes (5.0 gallons/ .83 refill rate = 6.02)
Brine float should be centered to the 15# salt setting. (green tape)

13x54- BLFC button: 8468053 and DLFC button: 8468045 Brine Refill Time: 6 minutes (5.0 gallons/ .83 refill rate = 6.02)
Brine float should be centered to the 15# salt setting. (green tape)

A-03 Intelligent Meter Delayed Programming

Parameter	Unit	Default	Description
Language		English	
Time of Day			Set current time of day. 24 hour clock format.
Program Type Interlock / Alternate Interlock		Interlock	Used as a stand-alone installation and twin demand in conjunction with No Hardwater version of the RevV4.
Regeneration Cycle Sequence	1, 2, 3	2	Recommend setting to Sequence 2. See page 3. Service → Backwash → Brine & Slow Rinse → Back Wash → Fast Rinse → Brine Refill.
Set Clear Data	Close/Open	Close	Skip during initial set-up. Clears all stored memory and restores default settings. Close = Data saved Open = Reset data
Regeneration Mode: A-01-A-07		A-01	A-03 Intelligent Meter Delayed.
Regeneration Time	AM/PM	2:00AM	
Backwash Time	Min.	0	Set to 0 (zero) when using Sequence 2 as a softener install.
Secondary Backwash	Min.	10	Not available when using Sequence 1 or 3.
Brine & Slow Rinse Time	Min.	60	
Brine Refill	Min:Sec	10:00	Refill time is calculated based on total resin volume. Note: 1 gal water dissolves 3lbs of salt. See note below for refill time.
Fast Rinse Time	Min:Sec	10:00	
Total Hardness	Gr	28K	This is the capacity of the resin tank.
PPM-Feed Water Hardness	PPM	171	This equals the Grains per gallon of the raw water times 17.1
Max Days for Regeneration	D	30	A regeneration is forced every 30 days if no water has been used.
Signal Output Mode b-01 (02)		b-01	Used for external device. b-01. Disregard for standard installation.
Service Alarm	D	730	Alarm rings to prompt a service call. Occurs at the number of days set @ 8pm for 2 minutes. Display changes to prompt the homeowner to call their dealer.
7 Day Usage Log	Gal		Shows the gallons used each day for the last 7 days.
Review Regen Times			Displays the number of times the valve has regenerated.
7 Day Peak Usage	GPM		Shows peak usage in GPM within a 7 day period.

The brine refill time is calculated based on total resin volume. For optimal efficiency... 3.0 gallons of water are used for 9x48 (32,000 grain); 3.5 gal for 10x44 (40,000 grain); 4.0 gal for 10x54 (48,000 grain); 5.0 gal for 12x52 (64,000 grain).

9x48- BLFC button: 8468056 and DLFC button: 8468060 Brine Refill Time: 10 minutes (3.0 gallons/ .3 refill rate = 10)
Brine float should be centered to the 9# salt setting. (white tape)

10x44- BLFC button: 8468052 and DLFC button: 8468061 Brine Refill Time: 9 minutes (3.5 gallons/ .39 refill rate = 8.97)
Brine float should be centered to the 10.5# salt setting. (1/2 way between white and blue tape)

10x54- BLFC button: 8468052 and DLFC button: 8468061 Brine Refill Time: 10.26 minutes (4.0 gallons/ .39 refill rate = 10.26)
Brine float should be centered to the 12# salt setting. (blue tape)

12x52- BLFC button: 8468053 and DLFC button: 8468045 Brine Refill Time: 6 minutes (5.0 gallons/ .83 refill rate = 6.02)
Brine float should be centered to the 15# salt setting. (green tape)

13x54- BLFC button: 8468053 and DLFC button: 8468045 Brine Refill Time: 6 minutes (5.0 gallons/ .83 refill rate = 6.02)
Brine float should be centered to the 15# salt setting. (green tape)

A-04 Intelligent Meter Immediate Programming

Parameter	Unit	Default	Description
Language		English	
Time of Day			Set current time of day. 24 hour clock format.
Program Type Interlock / Alternate Interlock		Interlock	Used as a stand-alone installation and twin demand in conjunction with No Hardwater version of the RevV4.
Regeneration Cycle Sequence	1, 2, 3	2	Recommend setting to Sequence 2. See page 3. Service → Backwash → Brine & Slow Rinse → Back Wash → Fast Rinse → Brine Refill.
Set Clear Data	Close/Open	Close	Skip during initial set-up. Clears all stored memory and restores default settings. Close = Data saved Open = Reset data
Regeneration Mode: A-01-A-07		A-01	A-04 Intelligent Meter Immediate.
Backwash Time	Min.	0	Set to 0 (zero) when using Sequence 2 as a softener install.
Secondary Backwash	Min.	10	Not available when using Sequence 1 or 3.
Brine & Slow Rinse Time	Min.	60	
Brine Refill	Min:Sec	10:00	Refill time is calculated based on total resin volume. Note: 1 gal water dissolves 3lbs of salt. See note below for refill time.
Fast Rinse Time	Min:Sec	10:00	
Total Hardness	Gr	28K	This is the capacity of the resin tank.
PPM-Feed Water Hardness	PPM	171	This equals the Grains per gallon of the raw water times 17.1
Max Days for Regeneration	D	30	A regeneration is forced every 30 days if no water has been used.
Signal Output Mode b-01 (02)		b-01	Used for external device. b-01. Disregard for standard installation.
Service Alarm	D	730	Alarm rings to prompt a service call. Occurs at the number of days set @ 8pm for 2 minutes. Display changes to prompt the homeowner to call their dealer.
7 Day Usage Log	Gal		Shows the gallons used each day for the last 7 days.
Review Regen Times			Displays the number of times the valve has regenerated.
7 Day Peak Usage	GPM		Shows peak usage in GPM within a 7 day period.

The brine refill time is calculated based on total resin volume. For optimal efficiency... 3.0 gallons of water are used for 9x48 (32,000 grain); 3.5 gal for 10x44 (40,000 grain); 4.0 gal for 10x54 (48,000 grain); 5.0 gal for 12x52 (64,000 grain).

9x48- BLFC button: 8468056 and DLFC button: 8468060 Brine Refill Time: 10 minutes (3.0 gallons/ .3 refill rate = 10)
Brine float should be centered to the 9# salt setting. (white tape)

10x44- BLFC button: 8468052 and DLFC button: 8468061 Brine Refill Time: 9 minutes (3.5 gallons/ .39 refill rate = 8.97)
Brine float should be centered to the 10.5# salt setting. (1/2 way between white and blue tape)

10x54- BLFC button: 8468052 and DLFC button: 8468061 Brine Refill Time: 10.26 minutes (4.0 gallons/ .39 refill rate = 10.26)
Brine float should be centered to the 12# salt setting. (blue tape)

12x52- BLFC button: 8468053 and DLFC button: 8468045 Brine Refill Time: 6 minutes (5.0 gallons/ .83 refill rate = 6.02)
Brine float should be centered to the 15# salt setting. (green tape)

13x54- BLFC button: 8468053 and DLFC button: 8468045 Brine Refill Time: 6 minutes (5.0 gallons/ .83 refill rate = 6.02)
Brine float should be centered to the 15# salt setting. (green tape)

A-05 Remaining Compare Programming

Parameter	Unit	Default	Description
Language		English	
Time of Day			Set current time of day. 24 hour clock format.
Program Type Interlock / Alternate Interlock		Interlock	Used as a stand-alone installation and twin demand in conjunction with No Hardwater version of the RevV4.
Regeneration Cycle Sequence	1, 2, 3	2	Recommend setting to Sequence 2. See page 3. Service → Backwash → Brine & Slow Rinse → Back Wash → Fast Rinse → Brine Refill.
Set Clear Data	Close/Open	Close	Skip during initial set-up. Clears all stored memory and restores default settings. Close = Data saved Open = Reset data
Regeneration Mode: A-01-A-07		A-01	A-05 Remaining Compare.
Capacity	Gal	2500	To figure capacity, take the total resin volume multiplied by .75. Divide by grains hardness of water supply. Ex: 1 Cu/Ft =32,000 x .75 at 15 grains hardness. (32,000 x .75) ÷ 15=1,600 gal. Enter that value here.
Regeneration Time	AM/PM	2:00AM	
Backwash Time	Min.	0	Set to 0 (zero) when using Sequence 2 as a softener install.
Secondary Backwash	Min.	10	Not available when using Sequence 1 or 3.
Brine & Slow Rinse Time	Min.	60	
Brine Refill	Min:Sec	10:00	Refill time is calculated based on total resin volume. Note: 1 gal water dissolves 3lbs of salt. See note below for refill time.
Fast Rinse Time	Min:Sec	10:00	
Max Days for Regeneration	D	30	A regeneration is forced every 30 days if no water has been used.
Signal Output Mode b-01 (02)		b-01	Used for external device. b-01. Disregard for standard installation.
Service Alarm	D	730	Alarm rings to prompt a service call. Occurs at the number of days set @ 8pm for 2 minutes. Display changes to prompt the homeowner to call their dealer.
7 Day Usage Log	Gal		Shows the gallons used each day for the last 7 days.
Review Regen Times			Displays the number of times the valve has regenerated.
7 Day Peak Usage	GPM		Shows peak usage in GPM within a 7 day period.

The brine refill time is calculated based on total resin volume. For optimal efficiency... 3.0 gallons of water are used for 9x48 (32,000 grain); 3.5 gal for 10x44 (40,000 grain); 4.0 gal for 10x54 (48,000 grain); 5.0 gal for 12x52 (64,000 grain).

9x48- BLFC button: 8468056 and DLFC button: 8468060 Brine Refill Time: 10 minutes (3.0 gallons/ .3 refill rate = 10)
Brine float should be centered to the 9# salt setting. (white tape)

10x44- BLFC button: 8468052 and DLFC button: 8468061 Brine Refill Time: 9 minutes (3.5 gallons/ .39 refill rate = 8.97)
Brine float should be centered to the 10.5# salt setting. (1/2 way between white and blue tape)

10x54- BLFC button: 8468052 and DLFC button: 8468061 Brine Refill Time: 10.26 minutes (4.0 gallons/ .39 refill rate = 10.26)
Brine float should be centered to the 12# salt setting. (blue tape)

12x52- BLFC button: 8468053 and DLFC button: 8468045 Brine Refill Time: 6 minutes (5.0 gallons/ .83 refill rate = 6.02)
Brine float should be centered to the 15# salt setting. (green tape)

13x54- BLFC button: 8468053 and DLFC button: 8468045 Brine Refill Time: 6 minutes (5.0 gallons/ .83 refill rate = 6.02)
Brine float should be centered to the 15# salt setting. (green tape)

A-06 Timer Programming

Parameter	Unit	Default	Description
Language		English	
Time of Day			Set current time of day. 24 hour clock format.
Program Type Interlock / Alternate Interlock		Interlock	Used as a stand-alone installation and twin demand in conjunction with No Hardwater version of the RevV4.
Regeneration Cycle Sequence	1, 2, 3	2	Recommend setting to Sequence 2. See page 3. Service → Backwash → Brine & Slow Rinse → Back Wash → Fast Rinse → Brine Refill.
Set Clear Data	Close/Open	Close	Skip during initial set-up. Clears all stored memory and restores default settings. Close = Data saved Open = Reset data
Regeneration Mode: A-01-A-07		A-01	A-06 By Days as a softener install.
Regeneration Time	AM/PM	2:00AM	
Backwash Time	Min.	0	Set to 0 (zero) when using Sequence 2.
Secondary Backwash	Min.	10	Not available when using Sequence 1 or 3.
Brine & Slow Rinse Time	Min.	60	
Brine Refill	Min:Sec	10:00	Refill time is calculated based on total resin volume. Note: 1 gal water dissolves 3lbs of salt. See note below for refill time.
Fast Rinse Time	Min:Sec	10:00	
Service Days	D	3days	
Signal Output Mode b-01 (02)		b-01	Used for external device. b-01. Disregard for standard installation.
Service Alarm	D	730	Alarm rings to prompt a service call. Occurs at the number of days set @ 8pm for 2 minutes. Display changes to prompt the homeowner to call their dealer.
Review Regen Times			Displays the number of times the valve has regenerated.

The brine refill time is calculated based on total resin volume. For optimal efficiency... 3.0 gallons of water are used for 9x48 (32,000 grain); 3.5 gal for 10x44 (40,000 grain); 4.0 gal for 10x54 (48,000 grain); 5.0 gal for 12x52 (64,000 grain).

9x48- BLFC button: 8468056 and DLFC button: 8468060 Brine Refill Time: 10 minutes (3.0 gallons/ .3 refill rate = 10)
Brine float should be centered to the 9# salt setting. (white tape)

10x44- BLFC button: 8468052 and DLFC button: 8468061 Brine Refill Time: 9 minutes (3.5 gallons/ .39 refill rate = 8.97)
Brine float should be centered to the 10.5# salt setting. (1/2 way between white and blue tape)

10x54- BLFC button: 8468052 and DLFC button: 8468061 Brine Refill Time: 10.26 minutes (4.0 gallons/ .39 refill rate = 10.26)
Brine float should be centered to the 12# salt setting. (blue tape)

12x52- BLFC button: 8468053 and DLFC button: 8468045 Brine Refill Time: 6 minutes (5.0 gallons/ .83 refill rate = 6.02)
Brine float should be centered to the 15# salt setting. (green tape)

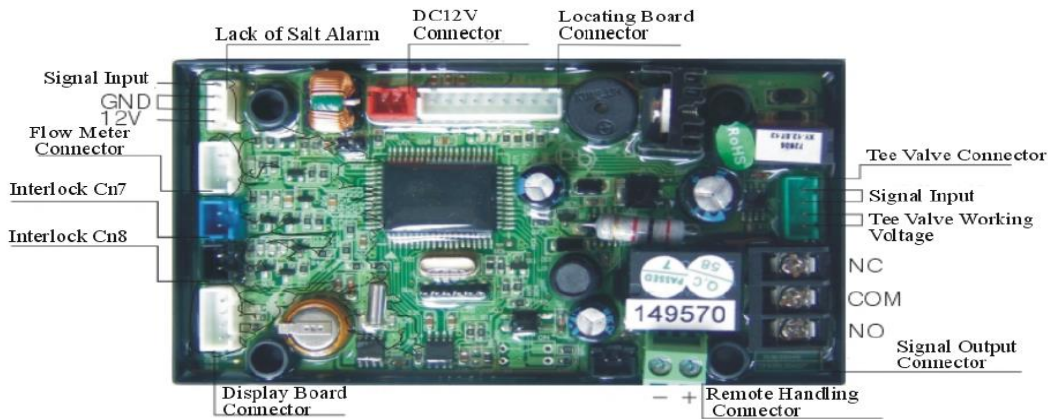
13x54- BLFC button: 8468053 and DLFC button: 8468045 Brine Refill Time: 6 minutes (5.0 gallons/ .83 refill rate = 6.02)
Brine float should be centered to the 15# salt setting. (green tape)

A-07 Filter Meter Programming

Parameter	Unit	Default	Description
Language		English	
Time of Day			Set current time of day. 24 hour clock format.
Program Type Interlock / Alternate Interlock		Interlock	Used as a stand-alone installation and twin demand in conjunction with No Hardwater version of the RevV4.
Set Clear Data	Close/Open	Close	Skip during initial set-up. Clears all stored memory and restores default settings. Close = Data saved Open = Reset data
Regeneration Mode: A-01-A-07		A-01	A-07 Filter Meter Type.
Rinse Frequency	F	F-00	Set the number of additional rinses (backwashes) preferred.
Capacity	Gal	2500	To figure capacity, take the total resin volume multiplied by .75. Divide by grains hardness of water supply. Ex: 1 Cu/Ft =32,000 x .75 at 15 grains hardness. (32,000 x .75) ÷ 15=1,600 gal. Enter that value here.
Regeneration Time	AM/PM	2:00AM	
Backwash Time	Min.	0	Recommend 10 minute backwash cycle.
Fast Rinse Time	Min:Sec	10:00	
Max Days for Regeneration	D	30	A regeneration is forced every 30 days if no water has been used.
Signal Output Mode b-01 (02)		b-01	Used for external device. b-01. Disregard for standard installation.
Service Alarm	D	730	Alarm rings to prompt a service call. Occurs at the number of days set @ 8pm for 2 minutes. Display changes to prompt the homeowner to call their dealer.
7 Day Usage Log	Gal		Shows the gallons used each day for the last 7 days.
Review Regen Times			Displays the number of times the valve has regenerated.
7 Day Peak Usage	GPM		Shows peak usage in GPM within a 7 day period.

Note: Backwash time and rinse frequency is dependent on media and application.

PCB Functions and Connections



Overview

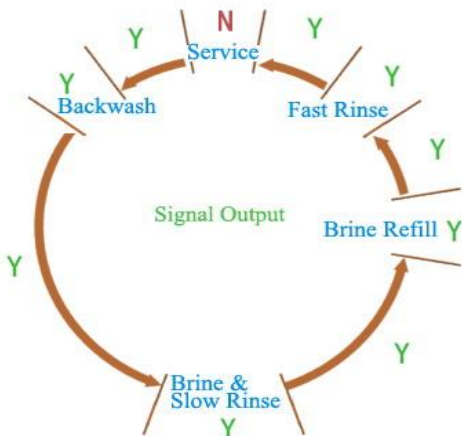
Function	Application	Explanation
Signal Output Connector b-01	Outlet solenoid valve	Optional to prevent water flow from outlet or controlling a liquid level holding tank.
	Inlet pump	Increase pressure for regeneration or backwash. Use a liquid level controller to control inlet pump.
Signal Output Connector b-02	Inlet solenoid valve or inlet pump	When inlet pressure is high, a solenoid shut off can be used to protect the valve during regeneration.
3-Way Ball Valve Drive	Motorized 3 way ball valve	With alternating interlock the ball valve actuates to supply water to one valve while another is on standby.
Interlock Connector	Used for a series of valves	Only one valve in a series can regenerate at a time.
Remote Handling Connector	Accepts input for regeneration from external source	A PLC or computer is allowed to dictate regeneration functions for the valve.

Signal Output

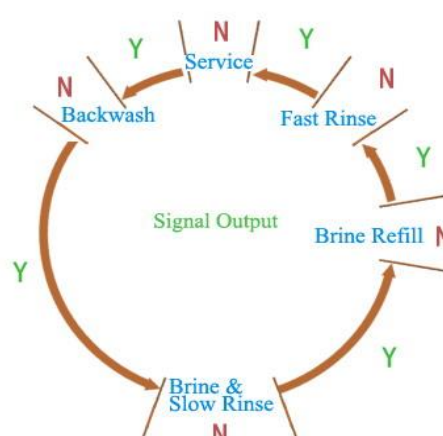
The two types of output modes are b-01 and b-02. The output signal connector is designed to drive several different types of electrical devices. (Refer to Figures 3-1 to 3-7)

b-01 switches the signal at the start of a regeneration and shuts off at the end of a regeneration.

b-02 switches the signal at the intervals shown below and in service. (Regeneration sequence 1 is used in this example)



b-01



b-02

PCB Functions and Connections Continued

● Signal Output Connector

➤ Solenoid Valve on Outlet (set b-01)

* **Function:** Valve is normally open. When the RevV4 is in backwash there is no signal output. The solenoid valve is closed and no water flows through the RevV4 to the holding tank.

Refer to Figure 3-1 to connect a solenoid valve for the purpose of shutoff during regeneration.

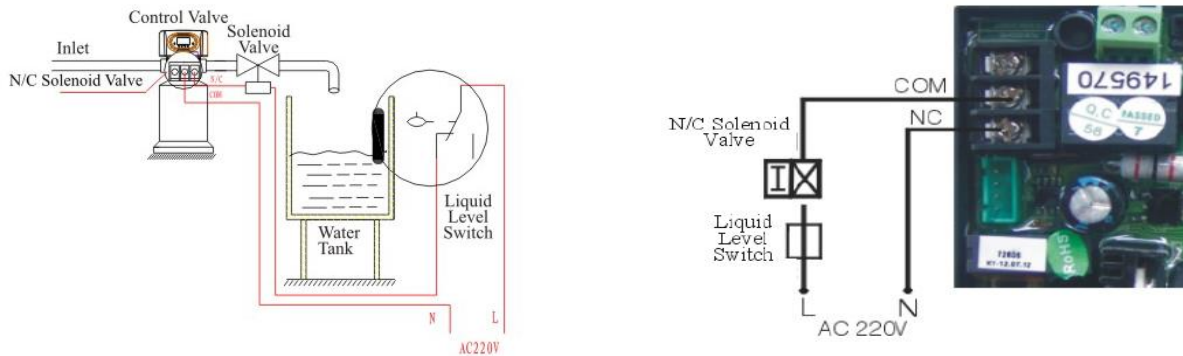


Figure 3-1 Solenoid Valve on Outlet

➤ Solenoid Valve on Inlet (set b-02)

* **Function:** When inlet pressure exceeds 125 psi, install a solenoid valve on the inlet to switch off the flow to the valve during regeneration.

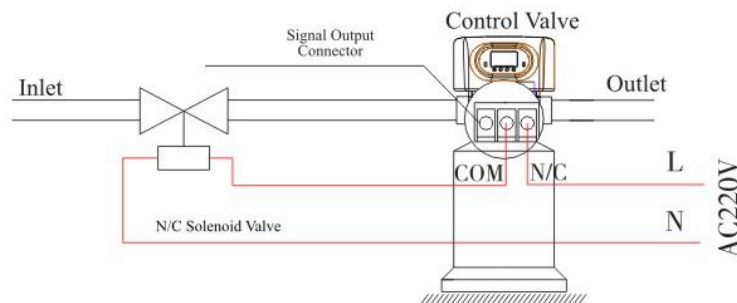


Figure 3-2 Wiring of Solenoid Valve on Inlet

* **Function:** When the RevV4 is in Service, Backwash, Brine & Slow Rinse, Brine Refill and Fast Rinse the solenoid valve is open. When the RevV4 is switching the solenoid valve is closed and no water flows through the RevV4. Also prevents water hammering in high psi applications.

▪ *Note if employing a series of RevV4 valves with a solenoid Figure 3-3 depicts the wiring connections.*

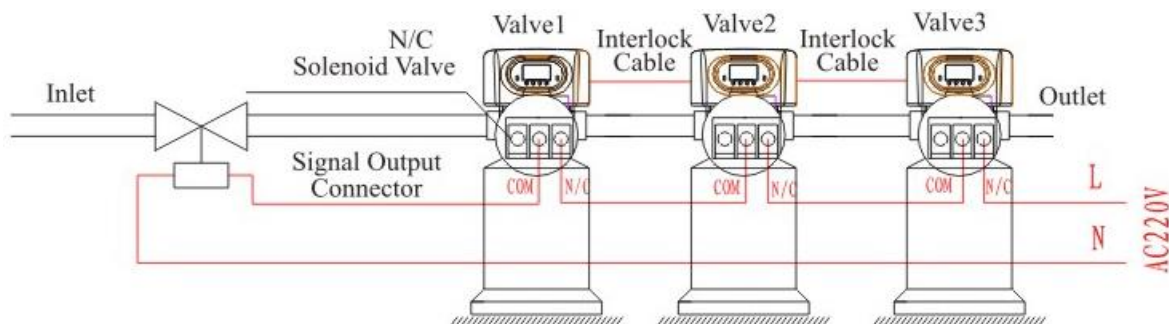


Figure 3-3 Wiring of Solenoid Valve on Inlet

PCB Functions and Connections Continued

➤ Liquid Level Controller with Inlet Pump (two-phase motor)(set b-01)

- * **Function:** For a well system and holding tank, the RevV4 can act as a relay for the booster pump. Refer to Figure 3-4 for wiring.

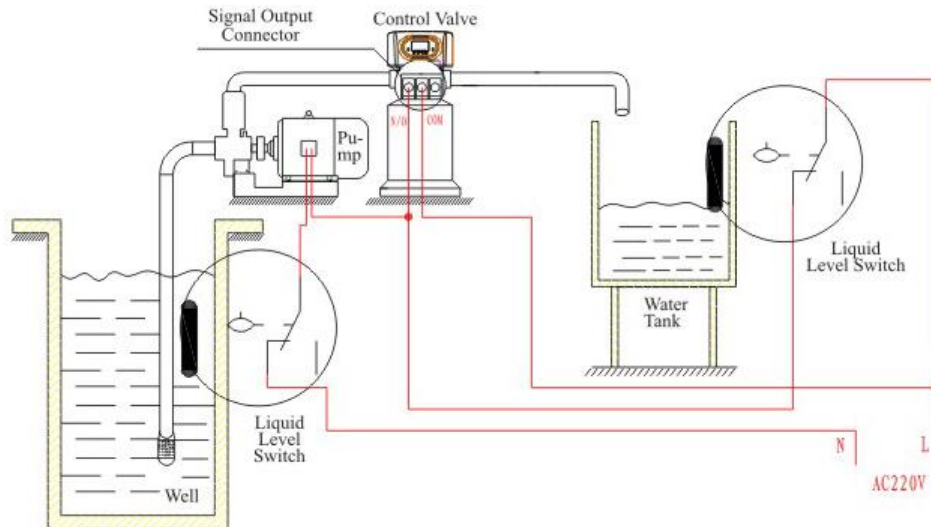


Figure 3-4 Wiring of Liquid Level Controller on the Inlet

- * **Function:** When the RevV4 is in service and the water level in the tank is low the pump starts up. If the water tank has enough water the switch for the liquid level controller is closed and the pump turns off. When the RevV4 is in regeneration the inlet always requires water. A safety switch should be installed in the holding tank so the pump does not go dry.

➤ Liquid Level Switch in Water Tank Controls Inlet Pump (three-phase) (set b-01)

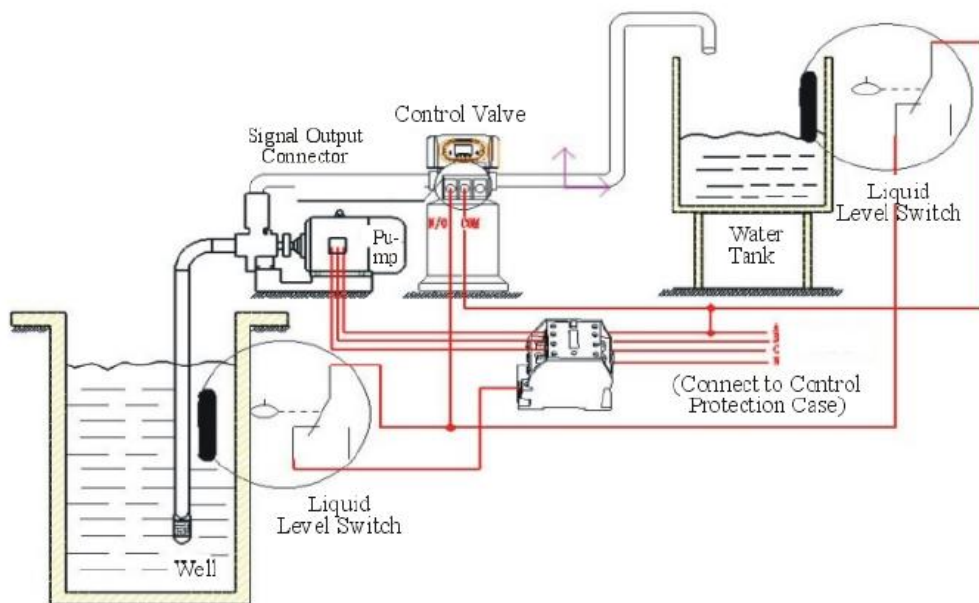


Figure 3-5 Wiring of Liquid Level Switch in the Holding Tank with the Pump on the Inlet.

PCB Functions and Connections Continued

➤ Inlet Booster Pump (set b-01 or b-02)

- * **Function:** If inlet water pressure is less than 20 psi, install a pump on the inlet side of the RevV4; usually set for control mode b-01. When the RevV4 valve is in regeneration, the booster pump is open and active. If the booster pump current is greater than 5A, an external contact is required. Refer to Figure 3-7.

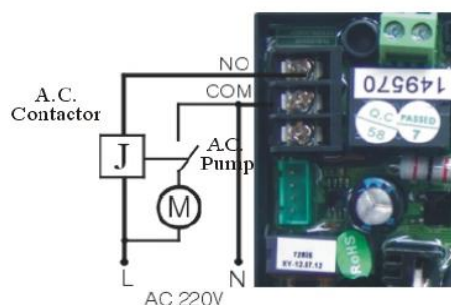
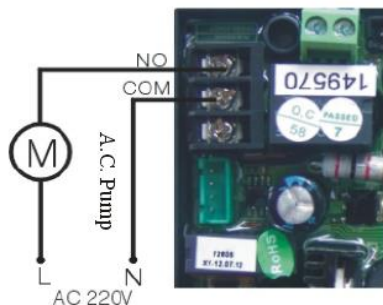


Figure 3-6 Schematic of output to a pump < 5A. Figure 3-7 Schematic of output to a pump > 5A. Incorporates relay.

● Interlock

When two valves are connected with the interlock cable and both valves have reached maximum capacity the valve displays “system supply water temporary”. When both valves are set to alternate interlock, then one valve is in service and the other is in standby, the waiting valve screen displays “system wait supplying water”.

- * **Function:** With parallel installation only one valve regenerates at a time. Refer to Figure 3-8.

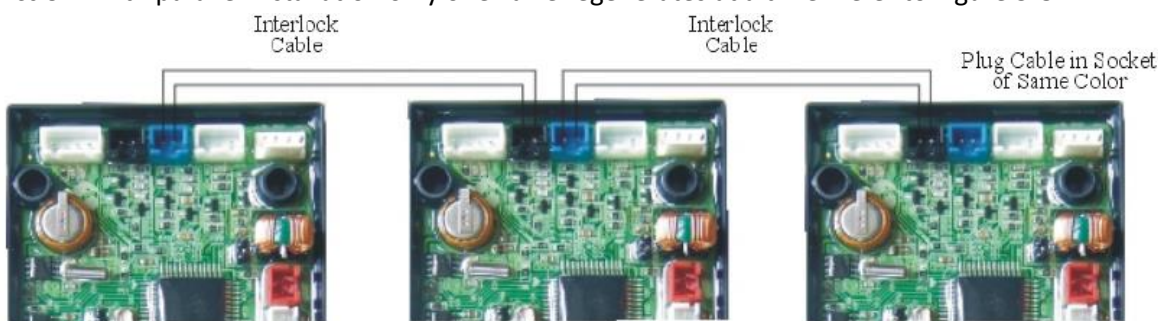


Figure 3-8 Interlocking a Network of Valves.

- **Note:** Use Interlock cable to connect CN8 to CN7 to the next RevV4 in the series. If one interlock cable is disconnected, the system is divided into two individual systems.

● Alternating Interlock

- * **Function:** One valve will always be in service. Refer to Figure 3-9.

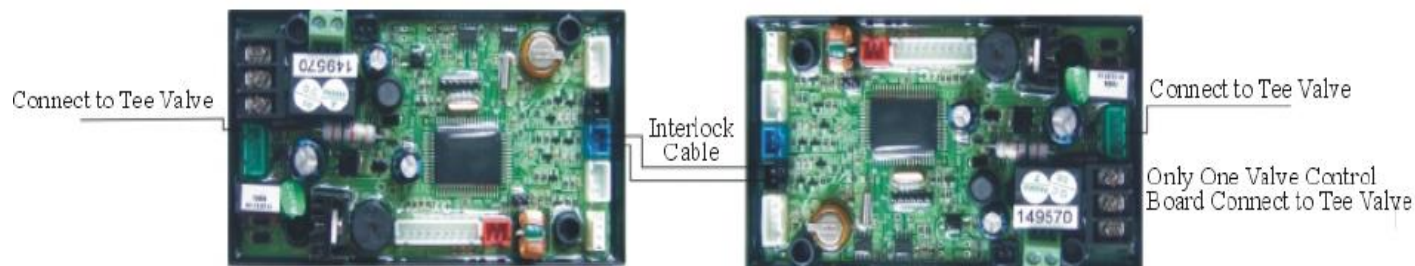


Figure 3-9 Wiring for Alternating Interlock

PCB Functions and Connections Continued

Remote Handling Connector

* **Function:** Online TDS meter monitor, PLC or computer to control the regeneration schedule. When the controller receives a contact closure from one of the above instruments, regeneration begins. Refer to Figure 3-10.

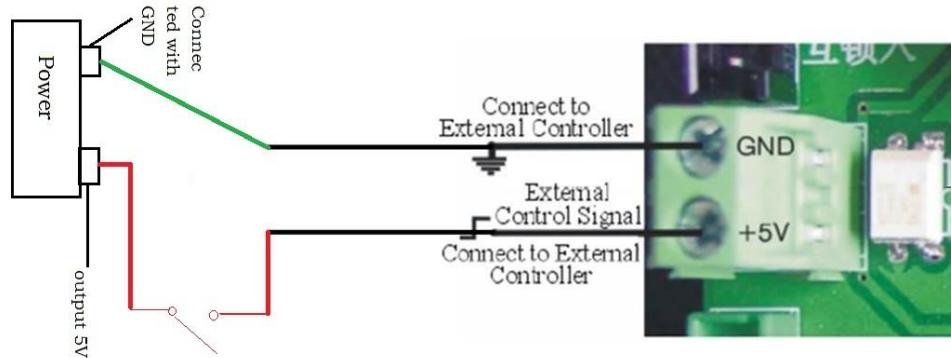


Figure 3-10 Remote Handling Schematic.

Interlock Options

* **Function:** 2 or more valves interlocked connecting in one system. Refer to Figure 3-11 and 3-12.

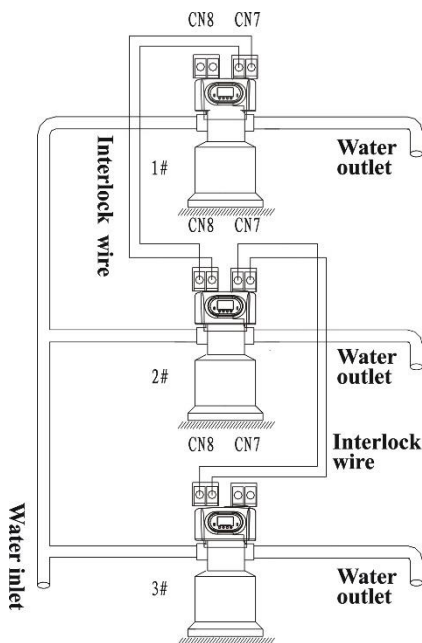


Figure 3-11 All in Service Singular Regeneration.

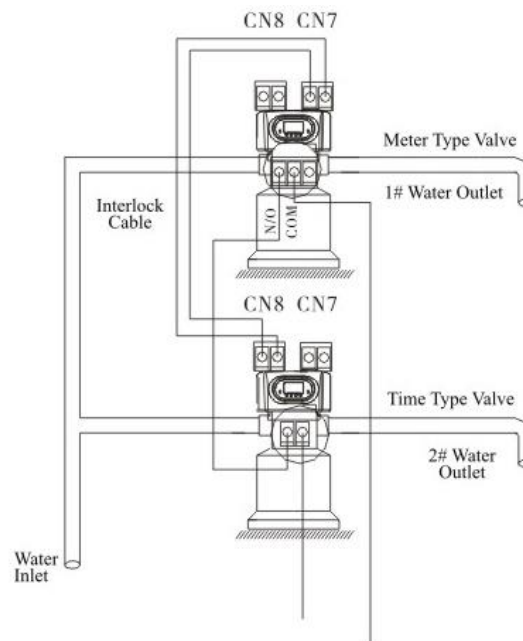


Figure 3-12 Remote Handling Sequentially Set.

Using One Flow Meter with Interlock

* **Function:** Allows for continuous service and simultaneous non overlapping regeneration. This application is for 2 or more RevV4's in a system, all in service, with one flow meter for the entire system. Adjust the Time Clock valve to the maximum days. This avoids a regeneration prior to the metered valve reaching capacity. Connect the signal output connector of the metered valve to the remote handling connector of the Time Clock valve. Refer to Figure 3-12.



RevV⁴ System Installation



System Installation

Installer

Fill in the content below for future reference.

Name: _____

Address: _____ City/State: _____

Phone: _____ Install Date: _____

Softener System Configuration

Tank Size: Dia. ____ In Height ____ in Resin Volume: ____ cu/ft. Brine Tank Capacity: 85L 100L 130L

Media: _____

Control Valve Model: _____ Serial Number: _____

DLFC Size: _____ BLFC Size: _____ Injector: _____

Valve Programming

Regen Cycles: Cycle 1 Cycle 2 Cycle 3

Mode: A-01 Meter Delay A-02 Meter Immediate A-03 Intelligent Meter Delay A-04 Intelligent Meter Immediate
 A-05 Remaining Compare A-06 Timer A-07 Filter

Water Conditions and Quality

Total Hardness: _____ grains Iron (Fe): _____ ppm Acid (pH): _____ TDS: _____ ppm

Pressure of Inlet Water: _____ PSI Other: _____

Water Source: Well Water City Water Other: _____

Factory Default Settings

Parameter	Unit	Factory Default	Programmed Settings
Language		English	
Program Type		Interlock	
Regeneration Sequence		2	
Regeneration Mode A-01 (02, 03, 04, 05, 06,07)		A-01	
Water Treatment Capacity	gal	2500	
Regeneration Time	AM/PM	2:00AM	
Backwash Time	Min.	0	
Secondary Backwash	Min.	10	
Brine & Slow Rinse Time	Min.	60	
Brine Refill	Min.	10	
Fast Rinse Time	Min:Sec	10:00	
Feed Water Hardness (A-03/04)	Ppm	171	
Total Hardness (A-03/04)	Gr	28K	
Service Alarm	D	730	
Max Regeneration Days	D	30	
Signal Output Mode b-01 (02)		b-01	

System Installation Continued

● Valve Set-up and Installation - Refer to page 5-6.

➤ Plumbing Connections

- * As Figure 1-3 shows; connect inlet pipe, via a 1" NPT female connector, to the inlet connector of bypass. Repeat steps for the outlet pipe.

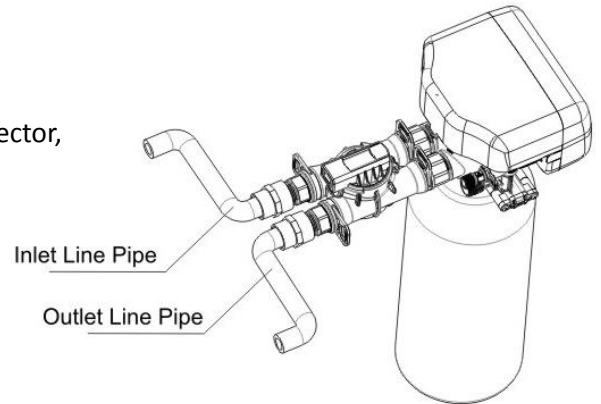


Figure 1-3

➤ Drain Line Installation

- * As Figure 1-4 shows; insert drain line with an air gap to the floor drain. Valve drain hose not supplied.

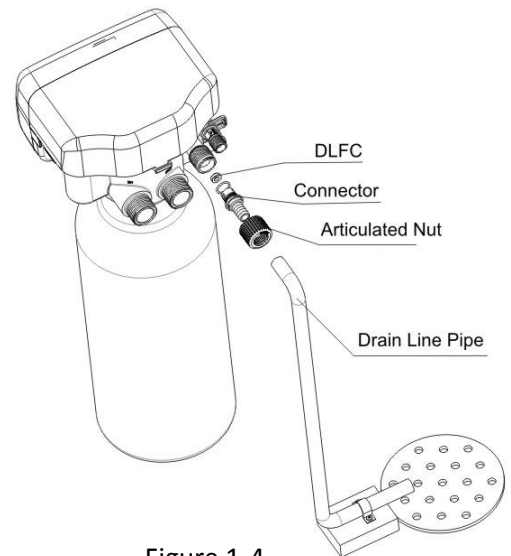
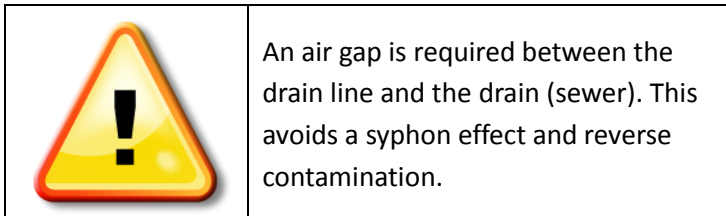


Figure 1-4

➤ Brine Line Connection

- * As Figure 1-5 shows; slide brine nut onto the 3/8" brine tubing.
- * Install the filter screen into the ferrule and insert the ferrule into the end of brine tube.
- * Insert tube into brine connector and tighten brine nut to the brine connector.

Note: Take care to not crimp or plug the brine line or drain line.

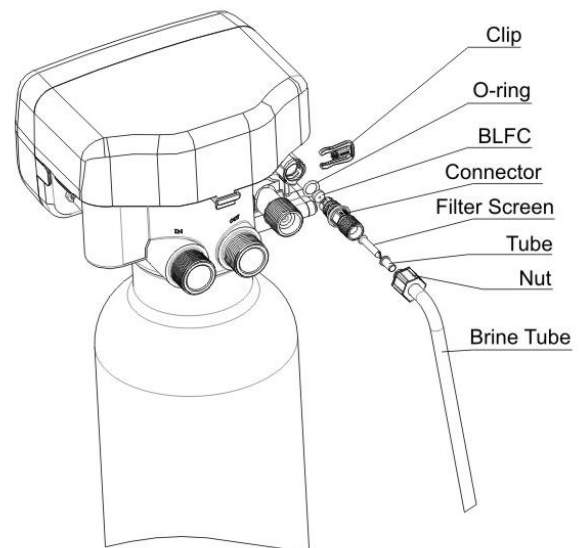


Figure 1-5

System Installation Continued

➤ Brine Tank Installation

- * Remove cap from brine well. Remove overflow nut and float.
- * Adjust float to the proper salt line. Use a twist and pull action to slide upper rubber stopper to desired position.

Note: Hold float rod securely to not pull from air check assembly. Repeat with lower rubber stopper to secure float in position.

Refer to Figure 1-8.

- 9x48 to white tape or above
 - 10x44 half way between white tape and blue tape or above
 - 10x54 to blue tape or above
 - 12x52 to green tape or above
 - 13x54 to green tape or above
- * Secure brine well to brine tank with the overflow elbow and nut using the lower hole. Refer to Figure 1-7.
 - * Replace brine float into brine well.
 - * Insert brine line tubing through the upper hole of tank and well. Refer to Figure 1-6.
 - * Slide brine line nut onto brine line, insert line into well, and secure nut to well.
 - * Replace brine well cap.
 - * Attach a drain tube to the overflow elbow. Maintain an air gap between the tube and floor drain.



Figure 1-6

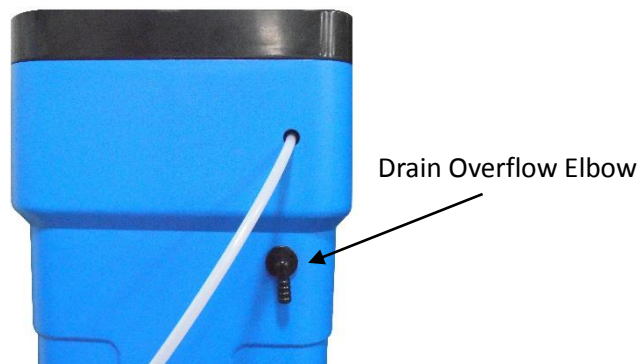


Figure 1-7

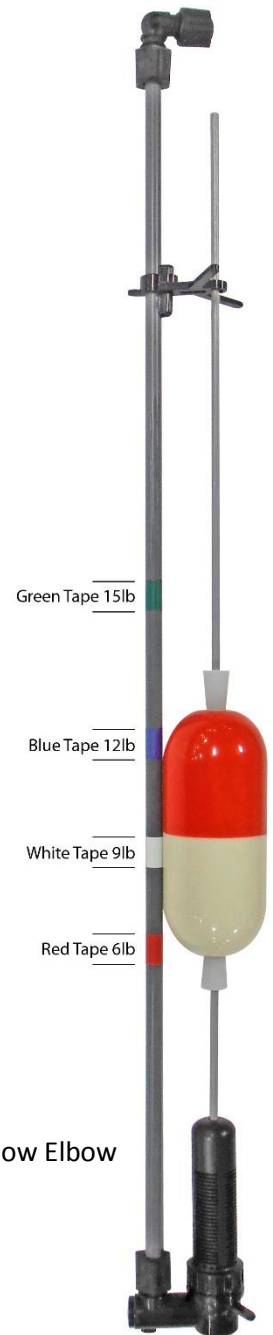
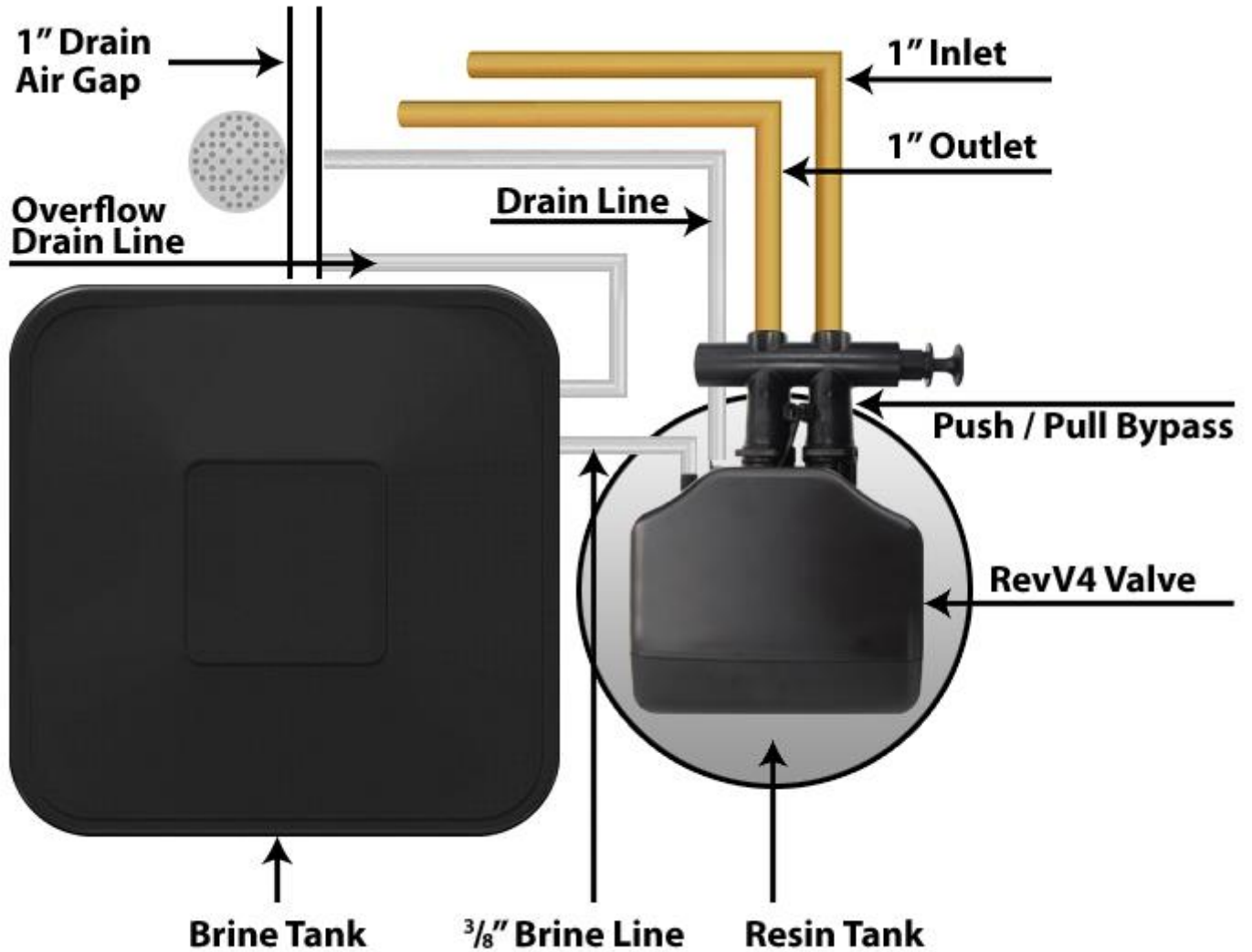


Figure 1-8







System Installation Continued

● System Installation Chart



System Installation Continued

● System Start-up

- Before running the RevV4 for the first time, flush out the water line and bypass. Be sure the bypass is closed.
- Turn the water source on at the inlet to the house.
- Disconnect the bypass from the RevV4, if attached to the valve.
- Remove the meter impeller from the bypass before opening the bypass.
- Put a container under the bypass and open the bypass to allow water to flow through and remove any foreign material out of the water lines.
- Close the bypass.
- Reinstall the meter impeller in the outlet side with the impeller facing in and re-connect the bypass to the valve.
- Open the bypass.
- Check for any leaks.
- Insert meter cable in the outlet side of the bypass or connector; the side the impeller is installed in.
- Plug in the power cord for the valve.
- Open a water line and let water flow until water runs clear.
- Press and hold both  and  buttons simultaneously for 3 seconds to unlock the key pad.
- Press  to advance through each phase... backwash, B. S. R. (brine & slow rinse) - *verify the air check valve is closed by listening to be sure no air is being drawn into the system*, secondary backwash, and fast rinse until you reach secondary backwash; this lets air out of the drain line and will take 8-10 minutes to purge the system.
Note: when you press  the screen will display “motor running” as it positions the ceramic disc. Once “motor running” disappears and the next phase is displayed, press  to advance to the next phase.
- Next to fill the brine tank with water press  to manually advance through the next phase, fast rinse, until you reach B.R. (brine refill).
- Once you reach B.R. (brine refill) allow this phase to run, do not advance past this phase. This will automatically fill the brine tank with the correct amount of water. This phase will take 10 minutes for a 1 cu/ft. system. After this phase has completed, it will advance to the in-service position.
- Next add salt into brine tank. (40lb minimum, 120lb maximum)
Note: We recommend using pellet salt, NOT solar salt.
- Install brine tank cover.
- Turn a faucet on, away from the installation location, until the water from the plumbing lines has been purged.
- Softening system is now fully operational.
- Take a water sample to verify and test for hardness reduction.

System Installation Continued

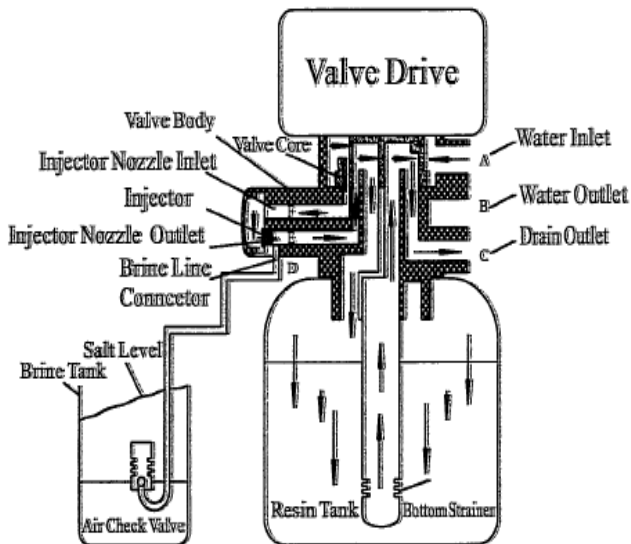
● Sanitizing Procedure

At the start up or after a period of one week the following procedure is recommended to remove the possibility of bacterial growth or contamination within the system. This procedure relates only to the original description of equipment and options described for this system. Any alterations to the configuration would require evaluation by a trained water professional.

- Remove the brine tank cover and locate the brine well.
- Remove the brine well cap.
- Pour 1/3 cup of unscented bleach into the brine well.
- Place cap back on brine well and cover back on brine tank.
- The system must be regenerated. Select an immediate regeneration or a delayed regeneration.
 - a) Immediate Regeneration: at the control valve, press ▲ and ▼ and hold for 3 seconds to unlock the valve. Press ⏪ to start an immediate regeneration. Allow approximately 2 hours for the valve to complete its regeneration cycle and return to service mode.
 - b) Delayed Regeneration: at the control valve, press ⏪ and hold for 3 seconds to set a delayed regeneration that very next morning at the programmed time. (Default setting is 2:00am)

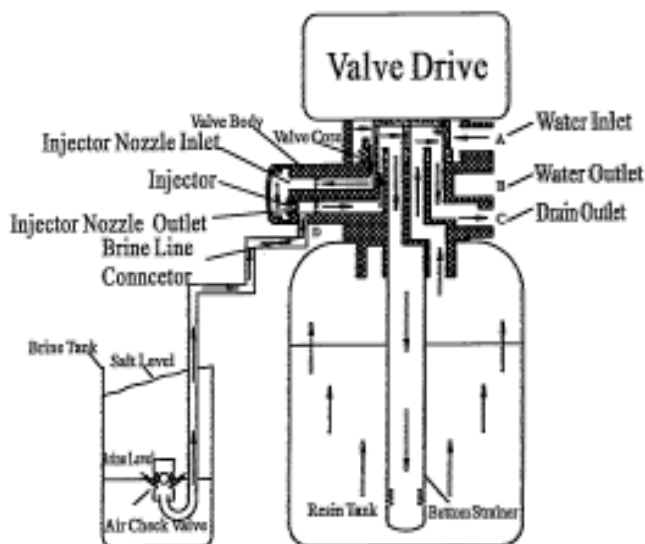
System Installation Continued

Water Flow Diagram



Service Position

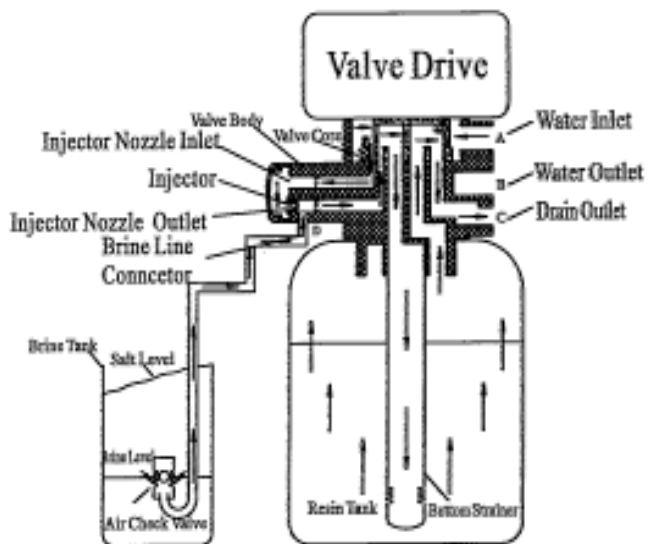
Raw water enters into the control valve from water inlet A, from the top of valve core and into the tank from top distributor. Then the water moves down through the resin layers, through bottom strainer and up through the riser tube, through the valve core, and flows out of water outlet B.



Backwash Position

Set to 0 for standard softeners and skipped.

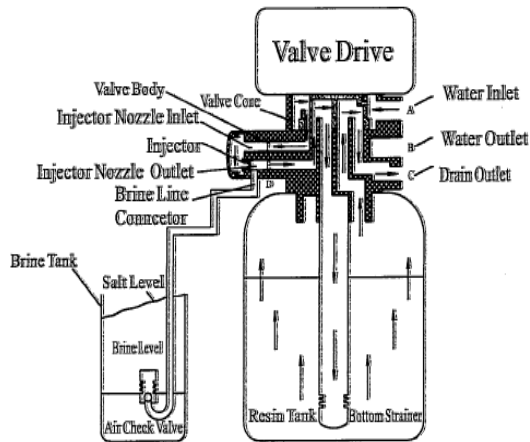
Raw water enters into the control valve from water inlet A, through valve body from the top of valve core, then travels down through the riser tube and up through the resin, into the valve core, and finally flows out from drain outlet C.



Brine Draw Position

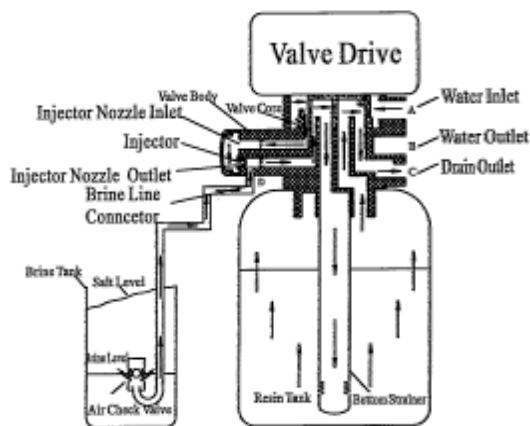
Raw water enters into control valve from water inlet A, through valve core into injector inlet F, into the injector outlet E. This produces negative pressure so the brine is drawn into the valve. Water flow then goes into the riser pipe, through the bottom strainer into the tank, up through resin layer, valve core, and then flows out drain outlet C.

System Installation Continued



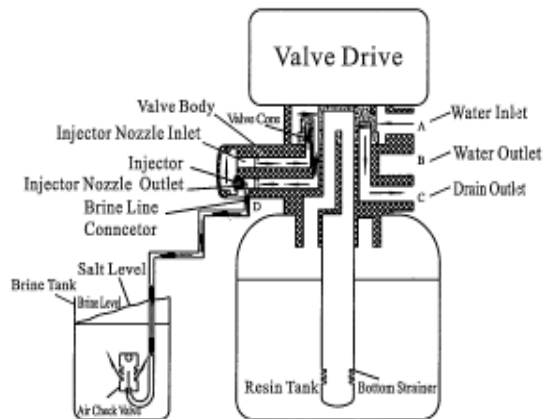
Slow Rinse Position

After absorbing all salt, raw water enters into control valve through water inlet A, through valve core into the injector nozzle, passes through the injector nozzle down to riser pipe, through bottom strainer, into the valve body, up through resin layer, into valve body, valve core, and flows out of drain outlet C.



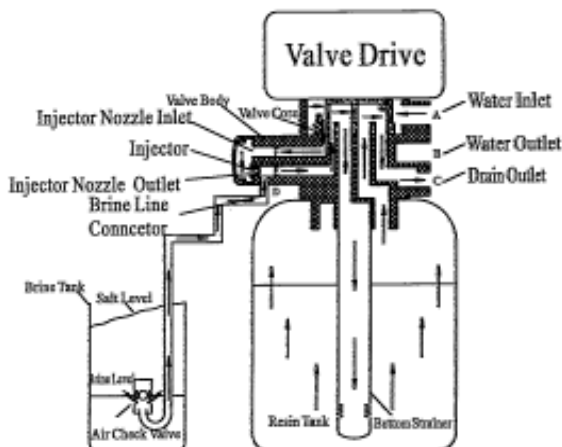
Secondary Backwash Position

Raw water enters into the control valve from water inlet A, through valve body from the top of valve core, then travels down through the riser tube and up through the resin, into the valve core, and finally flows out from drain outlet C.



Brine Refill Position

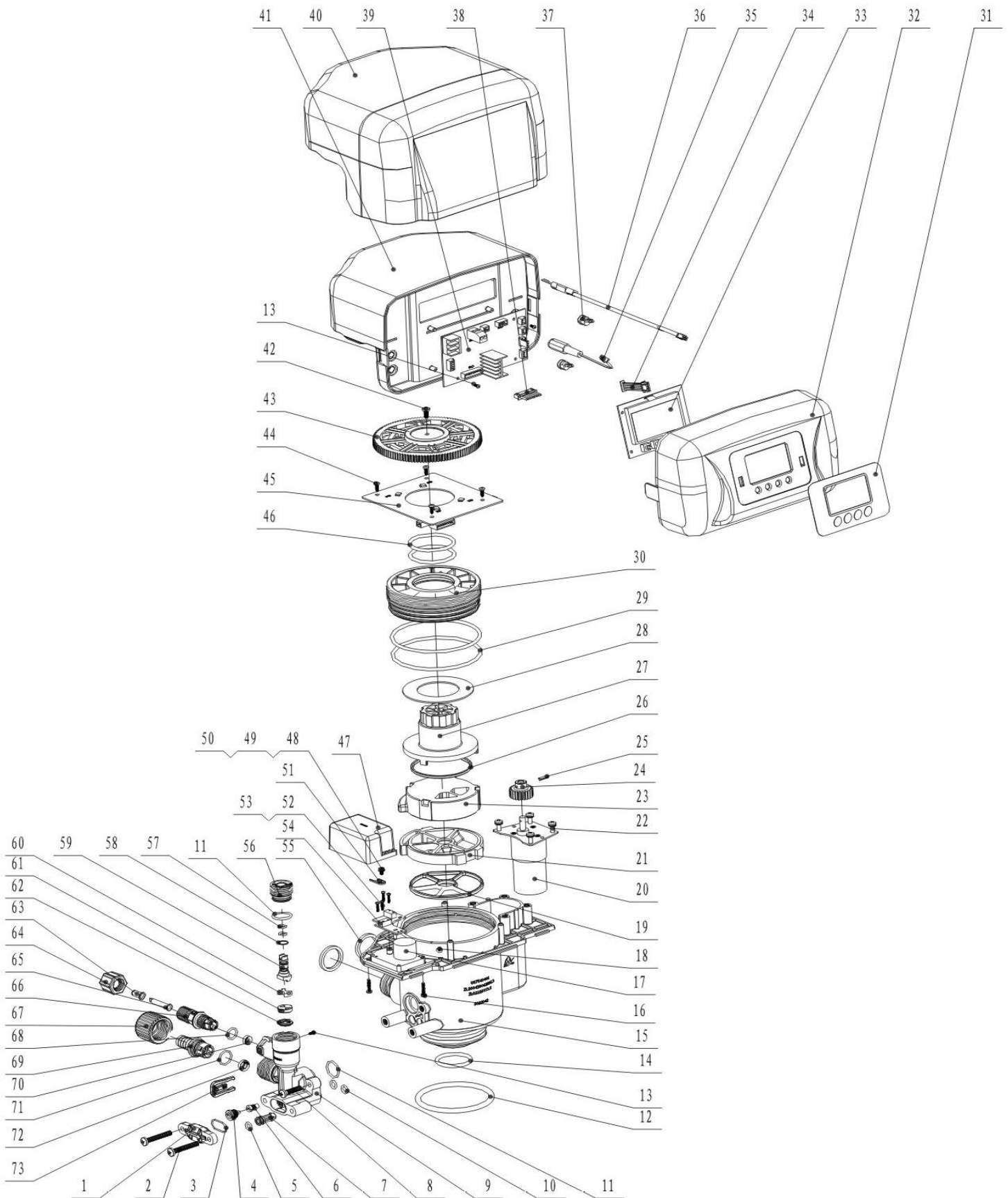
Raw water enters into the valve from water inlet A, through the valve core to injector outlet E, into the brine line connector D and fills the brine tank; a small amount of water passes through injector outlet E to injector inlet F from the valve core, and flows out of drain outlet C.



Fast Rinse Position

Raw water enters into the control valve from water inlet A, through the top of the valve core, into the tank from the top, down the riser pipe through bottom strainer and up through the resin layers, through valve core and flows out to drain outlet C.

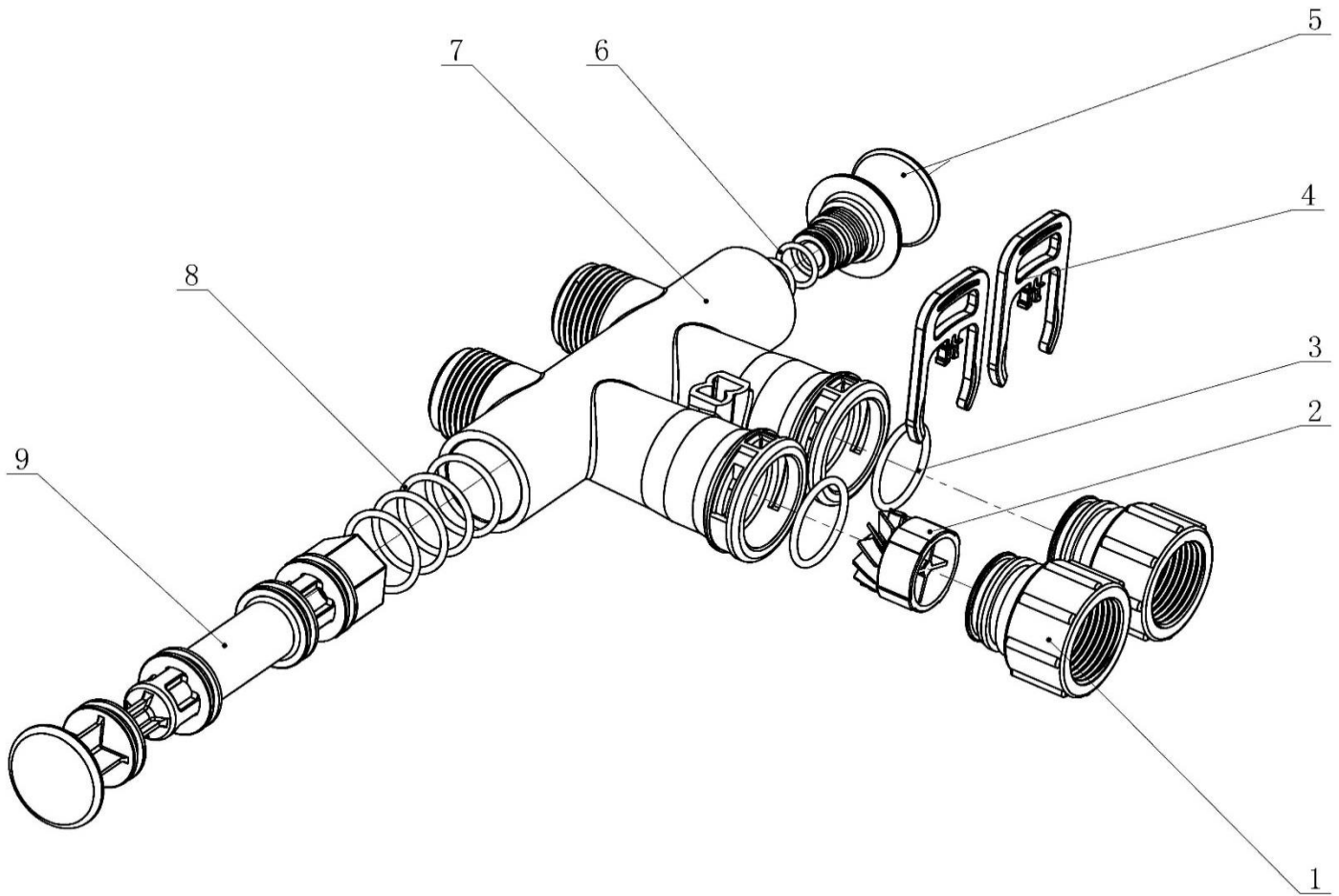
Assembly and Parts



Assembly and Parts Continued

Item No.	Description	Quantity	Item No.	Description	Quantity
1	Injector Cover	1	38	Wire for Locating Board	1
2	Screw, Cross	2	39	Control Board	1
3	O-ring	1	40	Weather Cover	1
4	Nozzle	1	41	Dust Cover	1
5	O-ring	1	42	Screw, Cross	1
6	Throat	1	43	Gear	1
7	Filter Screen	1	44	Screw, Cross	4
8	Screw, Cross	1	45	Locating Board	1
9	Injector Body	1	46	O-ring	2
10	O-ring	2	47	Dust Cover	1
11	O-ring	2	48	Screw, Cross	1
12	O-ring	1	49	Washer	1
13	Screw, Cross	3	50	Spring Washer	1
14	O-ring	1	51	Pick	1
15	Valve Body	1	52	Screw, Cross	4
16	Screw, Cross	2	53	Spring Washer	4
17	Motor	1	54	Control Board	1
18	Screw, Cross	4	55	Seal Ring	2
19	Seal Ring	1	56	Fitting Nut	1
20	Motor	1	57	O-ring	2
21	Fixed Disc	1	58	Anti-friction Washer	1
22	Screw, Cross	4	59	Shaft	1
23	Moving Disc	1	60	Moving Disc	1
24	Small Gear	1	61	Fixed Disc	1
25	Pin	1	62	Seal Ring	1
26	Moving Seal Ring	1	63	Tube	1
27	Shaft	1	64	Hexagonal Nut	1
28	Anti-friction Washer	1	65	Net	1
29	O-ring	2	66	Connector	1
30	Fitting Nut	1	67	Articulated Nut	1
31	Label	1	68	O-ring	1
32	Control Box	1	69	Connector	1
33	Display Board	1	70	Brine Line Flow Control	1
34	Wire for Display Board	1	71	O-ring	1
35	Wire for Power	1	72	Drain Line Flow Control	1
36	Probe Wire	1	73	Clip	1
37	Cable Clip	2			

Assembly and Parts Continued



41204 Plastic Bypass			
Item No.	Description	Part #	Quantity
1	Connector	8945001	2
2	Impeller	5447007	1
3	O-ring 28X2.65	8378178	2
4	Clip	8270004	2
5	Handle	8253013	1
6	O-ring 13X2	8378231	2
7	Valve	2974052	1
8	O-ring 25.07X2.62	8378220	4
9	Piston	8450001	1

Troubleshooting

● Control Valve

Problem	Cause	Correction
1. Softener fails to regenerate	A. Electrical service to unit has been interrupted. B. Regeneration cycles set incorrectly. C. Controller is defective. D. Motor failure.	A. Check for consistent electrical service. B. Reset regeneration cycles. C. Replace controller. D. Replace motor.
2. Regeneration time is not correct	A. Time of Day not set correctly. B. Power failure over 3 days.	Check program and reset time of day.
3. Hard water	A. Bypass valve is open or leaking. B. No salt in brine tank. C. Injector plugged. D. Insufficient water level in brine tank. E. Leak at O-ring on riser pipe. F. Internal valve leak. G. Regeneration cycles not correct. H. Shortage of resin. I. Bad quality of feed water or meter blocked.	A. Close or repair bypass valve. B. Add salt to brine tank and maintain salt level above water level. C. Change or clean injector. D. Check brine tank refill time. E. Make sure riser pipe is not cracked. Check O-ring and tube pilot. F. Change valve body. G. Set correct regeneration cycles in the program. H. Add resin to mineral tank and check for leaks. I. Reduce the inlet turbidity, clean or replace meter.
4. Softener fails to draw brine	A. Line pressure is too low. B. Brine line is plugged. C. Brine line is leaking. D. Injector is plugged. E. Internal leakage. F. Drain line is plugged. G. Wrong size BLFC, DLFC and injector.	A. Increase line pressure. B. Clean brine line. C. Replace brine line. D. Clean or replace injector. E. Replace valve body. F. Clean drain line flow control. G. Install properly sized BLFC, DLFC and injector. See page 7.
5. Unit uses too much salt	A. Improper salt setting. (Brine refill time) B. Excessive water in brine tank.	A. Check salt usage and salt setting. (Brine refill time) B. See problem no.6.
6. Excessive water in brine tank	A. Brine refill time is too long. B. Foreign material in brine line. C. Foreign material in brine valve or plugged drain line flow control. D. Power outage during brine fill. E. Safety valve in brine tank malfunction.	A. Reset correct refilling time. B. Clean brine line. C. Clean brine valve, and DLFC. D. Put the valve in bypass. Install a safety float in brine tank. E. Repair or replace brine safety valve.
7. Pressure lost or iron in conditioned water	A. Iron in the water supply pipes. B. Iron mass in the softener. C. Fouled resin bed. D. Too much iron in the raw water.	A. Clean the water supply pipe. B. Clean valve and add resin cleaning chemical, increase frequency of regeneration. C. Check backwash, brine draw and brine refill. Increase frequency of regeneration and backwash time. D. Install Iron removal equipment before softening.
8. Loss of mineral through drain line	A. Air in water system. B. Bottom strainer broken. C. Improperly sized drain line control (DLFC).	A. Assure that well system has proper air eliminator control. B. Replace bottom strainer. C. Check for proper drain rate.

Troubleshooting Continued

● Control Valve Continued

Problem	Cause	Correction
9. Control cycles continuously	<ul style="list-style-type: none"> A. Signal to the locating PCB is interrupted. B. Controller is faulty. C. Foreign material in the drive gear. D. Time of regeneration steps were set to zero. 	<ul style="list-style-type: none"> A. Check the connection between the main PCB to the locating PCB. B. Replace controller. C. Remove blockage in drive gear. D. Check program setting and reset.
10. Drain flows continuously	<ul style="list-style-type: none"> A. Internal valve leak. B. Interrupted power supply during backwash. 	<ul style="list-style-type: none"> A. Check and repair valve body or replace it. B. Adjust valve to service position or turn off bypass valve and restart when power is restored.
11. Interrupted or irregular brine	<ul style="list-style-type: none"> A. Water pressure too low or not stable. B. Injector is plugged or faulty. C. Air in resin tank. 	<ul style="list-style-type: none"> A. Increase water pressure. B. Clean or replace injector. C. Check and find the reason.
12. Water flows from drain or brine line after regeneration	<ul style="list-style-type: none"> A. Foreign material in the valve body. B. Hard water mixed in valve body. C. Water pressure is too high. 	<ul style="list-style-type: none"> A. Clean foreign material in valve body. B. Change valve core or sealing ring. C. Reduce water pressure or use pressure release function.
13. High concentration of brine	<ul style="list-style-type: none"> A. Foreign material in injector. B. Brine valve cannot be shut-off. C. Rapid rinse time is too short. 	<ul style="list-style-type: none"> A. Clean and repair injector. B. Replace brine valve or clean it. C. Extend rapid rinse time.
14. Decreased Capacity	<ul style="list-style-type: none"> A. Regeneration is not occurring. B. Fouled resin bed. C. Safety float is not at the proper height or brine time is low. D. Softener setting not proper. E. Raw water quality has altered. F. Flow meter is slow or stationary. 	<ul style="list-style-type: none"> A. Reset regeneration parameters. B. Increase backwash flow rate and time, clean or change resin. C. Adjust brine draw time and float height. D. Re-test the water and change the valve parameters. E. Regenerate unit manually then reset regeneration cycle. F. Disassemble and clean flow meter or replace.
15. Power Outage Occurs During Regeneration	<ul style="list-style-type: none"> A. System locked in current phase/cycle. 	<ul style="list-style-type: none"> A. Close the bypass until power resumes. If power outage lasts over 72 hours, the time of day will need to be reset.

Troubleshooting Continued

● Electronics

Problem	Cause	Correction
1. Abnormal display	A. Wiring to the front panel is loose. B. Control board is faulty. C. Transformer malfunction. D. Electrical service unstable.	A. Check and replace the wiring. B. Replace control board. C. Check and replace transformer. D. Verify power source.
2. Blank display	A. Wiring to the front panel is loose. B. Front panel damaged. C. Control board damaged. D. Electricity is interrupted.	A. Check and replace wiring. B. Replace front panel. C. Replace control board. D. Check power source.
3. E1 code	A. Wiring of locating board with controller fails to work. B. Locating board damaged. C. Mechanical drive failure. D. Faulty control board. E. Wiring to the motor has a short. F. Motor damaged.	A. Replace wiring. B. Replace locating board. C. Replace Discs or drive gear. D. Replace control board. E. Replace wiring. F. Replace motor.
4. E2 code	A. Hall effect on locating board damaged. B. Possible short in the wiring to the locating board. C. Control board malfunction.	A. Replace locating board. B. Replace wiring. C. Replace control board.
5. E3 or E4 code	A. Control board malfunction.	A. Replace control board.

Replacement Parts

● Replacement Parts

Description	Part Number	Quantity
Brine Assembly Kit, 3/8" - #63, #64, #65, #66, #68, #73	REVV-217	1 KIT
Brine Screen and Tube - #63, #65	REVV-218	1 EA
Bypass Clip	8270004	1 EA
Control Board Kit - #35, #37, #39	REVV-221	1 KIT
Display Board Kit - #33, #34, #37	REVV-222	1 KIT
DLFC Buttons, BLFC Buttons & Injector Kit	REVV-215	1 KIT
Drain Assembly Kit - #67, #69, #71	REVV-216	1 KIT
Injector Body Assembly Kit - #1-3, #5, #7-11, #13, #56-69, #71, #73	REVV-220	1 KIT
Injector Cover O-ring - #3	8378148	1 EA
Injector Filter Screen Kit - #5, #7	REVV-219	1 KIT
Locating Board Kit - #44, #45, #38	REVV-223	1 KIT
Meter Cable Assembly Kit - #36 & #37	REVV-232	1 KIT
Motor - #20	6158012	1 EA
Motor, Brine - #17	6159052	1 EA
O-ring, Valve Body - #12	8378143	1 EA
O-ring, Valve Center Hub - #14	8378116	1 EA
Transformer, 12VDC	6379021	1 EA
Upper Distributor Basket, 32mm	REVV-213	1 EA

Accessories

Additional Accessories

Description	Part Number	Figure	Quantity
Dust Cover	72605-CV		1 EA
Animated Connector with Flow Meter	AC/FM-F82		1 PAIR
1" Inlet/Outlet Female to Female Adaptor	REVV-208		1 EA
3/4" 90 ° Inlet/Outlet Elbow	REVV-209		1 EA
1" 90 ° Inlet/Outlet Elbow	REVV-210		1 EA
3/4" Male Adaptor	REVV-211		1 EA
3/4" Electronic 2-Way Ball Valve	F93-B		1 EA
1" Electronic 2-Way Ball Valve	F93-C		1 EA
1.5" Electronic 2-Way Ball Valve	F93-D		1 EA
2" Electronic 2-Way Ball Valve	F93-E		1 EA
1" Ceramic Tee 3-Way Ball Valve	F94-C		1 EA

Packing List

● Valve Packing List

Description	Part Number	Figure	Quantity
Control Valve	72605-HK 72605B-HK		1
12V DC Transformer	6379021		1
User Manual			1
Parts			
Valve Base O-ring	8378143		1
Interlock Cable	5515002		1
Washers	8371001		2
Filter Screen & Bushing	REVV-218		1 Set
3/8" Brine Nut	8940001		1
Injector and Button Kit – REVV-215			
Injector Nozzle & Throat	6301, 6302, 6303, 6304, 6305, 6306, 6307, 6308, 6309, 6310		1 Set
Drain Line Flow Controls	8468042 8468043 8468044 8468045 8468060 8468061 8468062 8468063		1 Set
Brine Line Flow Controls	8468052 8468053 8468054 8468055 8468056 8468057		1 Set

Packing List Continued

● System Packing List

Description	Part Number	Quantity
RevV4 Control Valve	72605-HK or 72605B-HK	1
1" Push Pull Bypass	41204	1
Pressure Tank and Media (media may be installed in tank or bulk separate)	Varies	1
Distributor Tube and Lower Basket (installed in pressure tank)	REVV-PTT10-66	1
Upper Basket	REVV-213	1
Brine Tank and Float Assembly	Varies	1
3/8" Brine Line	BL3/8	4'
Grease Packet	SG-3005	1
Customer Manual	---	1
Tank Label (elements systems only)	PTL-01	1
Warranty Card	---	1

Warranty

● Limited Warranty

As described herein, Hankscraft Inc., d/b/a H2O Products (“Hankscraft”), warrants its products are free from defects in material and workmanship only, when properly installed, operated, and maintained. This warranty is subject to the exceptions herein.

Hankscraft warrants to the original owner that the items listed below, excluding but not limited to wear parts like O-rings, gaskets and seals, will be free from defects in materials and workmanship for the period of time specified below from the original purchase date.

- Control valves and all internal valve parts and the salt storage tank – FIVE YEARS
- Mineral tank – TEN YEARS
- Any other component – ONE YEAR
- Ceramic disc for rotary valve (applicable to RevV series valves only) – LIFETIME
- RO and UF Filter Systems- ONE YEAR

Media/resin is not warrantied due to water supply quality differences

Any parts used for replacement are warrantied for the remainder of the original warranty period applicable to the part from the date of manufacture so long as the parts are installed by a Hankscraft factory trained and authorized installer.

Hankscraft’s obligation by this Limited Warranty, at its option, is to repair or replace any warrantied product only. Labor for repair or replacement is not included as part of this warranty. Prior to returning the product to Hankscraft, a valid return materials authorization number must be obtained from Hankscraft. Any product returned to Hankscraft without a valid return authorization number will be rejected. Any product found to be defective will, at the sole discretion of Hankscraft, be repaired or replaced. Hankscraft is not responsible for shipping cost to the repair facility. This section lists the sole remedies for any valid warranty claim.

This warranty does not apply to defects reported to Hankscraft outside of the warranty period.

This warranty does not apply to defects caused by installing, operating, servicing, modifying, repairing or maintaining (or lack of maintaining) the product outside of Hankscraft’s recommendations. Filters, membrane elements and flow restrictors that become fouled or plugged due to excessive turbidity, dissolved solids, or microorganisms are not covered by this warranty. This warranty does not apply to defects caused by damage during shipment, neglect, misuse, modification, accident, noncompliance with local codes and ordinances, hot water, frozen water, sediment, corrosive liquids, gases, chemicals, bacteria, animals, sand, salt, flood, wind, fire, outdoor installations where the product is not reasonably covered, pneumatic use, natural disasters, war, terrorism or acts of God. No other person is authorized to make any other warranty on behalf of Hankscraft either during or after the applicable warranty period.

Hankscraft assumes no liability for determining the proper products and equipment or installation necessary to meet the requirements of the user of the product, and Hankscraft does not authorize others to assume such liability on its behalf.

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Contact Information

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Please contact us with questions.

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