

SOFTENER SERIES

INSTALLATION INSTRUCTION & OWNER'S MANUAL



APEC WATER[®]



www.FreeDrinkingWater.com

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Please keep this Owner's Manual for future reference.

It contains useful information on how to maintain and care for your
APEC Water Softener

Thank you for choosing APEC Water Softener.

Please read and become familiar with instructions and parts needed before proceeding with the installation.

1. Use a licensed plumber to install this product.
2. Check with your state and local Public Works Department for plumbing and sanitation codes. You must follow these guidelines as you install the water softener.
3. **Inspect the system:** Please take the system and all the components out of the box. Inspect the system and all the connection fittings carefully, making sure nothing is damaged during shipping. If any part is cracked or broken, please do not proceed with the installation and contact APEC or your distributor for an exchange or diagnosis.
4. Review the following installation requirements.

WARNING:

For your safety, the information in this manual must be followed to minimize the risk of electric shock, property damage or personal injury. Manufacturer warranty can be voided if the installation requirements are not met.

- 1). Water Temperature Parameter: The system **MUST NOT** be installed in an area where it is exposed to direct sunlight and must be protected against freezing and extreme heat.
 - Maximum: 100° F (37.8° C)
 - Minimum: 32° F (0° C)
- 2). Water Pressure Parameter: The maximum allowable inlet water pressure is 90 psi. If daytime pressure is over 80 psi, night time pressure may exceed the maximum allowed water pressure. Use a pressure reducing valve (PRV) to reduce the pressure if needed.
 - Maximum: 90 PSI
 - Minimum: 25 PSI

3). Chlorine & Chloramine Tolerance: Softener resin may degrade in the presence of chlorine or chloramines. Feedwater that contains these contaminants will reduce the life of the resin. In these conditions, a whole house carbon filtration system with chlorine, chloramine reducing media is recommended.

- Maximum: 2 ppm

4). Pre-install environment checklist:

- Not for use with microbiologically unsafe water. Pre-filtration to remove contaminants and heavy sediment is recommended to ensure optimum performance and product life.
- Properly ground to conform with all governing codes and ordinances. Use only lead-free solder and flux for all sweat-solder connections as required by state and federal codes.
- Place the softener as close as possible to the pressure tank (well system) / water meter (city water).
- Place the softener as close as possible to a floor drain, or other acceptable drain point (laundry tub, sump, standpipe, etc.) to prevent air breaks and back flow.
- Place softener in a place where water damage is least likely to occur if a leak develops.
- The brine tank should be located no more than 10 feet from the resin tank.
- Connect the softener to the main water supply before the water heater. Do not run hot water through the softener. The maximum temperature of softener water is 100° F.
- Outside faucets and irrigation systems should be supplied with pre-softened water. If this is not possible, be sure to bypass the softener when watering grass or plants. Chronic soft water exposure can be detrimental to plant life.
- An electric outlet must be within 6 feet of the softener. The transformer has an included 8 feet power cable. Be sure the electric outlet and transformer are protected from water and wet weather.
- If installing outside, necessary steps must be taken to ensure the softener, installation plumbing, wiring, etc. are protected from the elements and contamination sources.
- Handle with care when moving the water softening system. Do not drop, drag, or set on areas with sharp protrusions.
- The system works on a standard 120v power plug only. Do not use any other transformer except the one that is included with the system.
- The transformer must be plugged into an indoor, grounded outlet.

- n. Use only clean water softening salt with at least 99.5% purity. Extra course grade or crystal salt is recommended. Do not use rock, block or granulated salts. These contain contaminants that could cause problems during maintenance.
- o. Always keep the salt lid in place on the softener unless servicing or refilling the unit.
- p. Some applications may not have a level surface to place the tank. The floating base allows the tank to be leveled within the base and ensure proper operation.

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PARTS LIST

Parts List for APEC Water Softener Installation Kit (2 packages):

Package #1: Softener tank.



**Softener Tank
X 1**

Package #2:

Digital control valve and installation kit.



**Digital Control Valve
X 1**



**Bypass Valve (With Bypass Valve Connector X2)
X 1**



**Digital Control Valve Transformer
X 1**



**Bypass Valve Connector
X 2**



**Bypass Valve Locking Clip
X 4**



**Salt Tubing Connector and Adapter
X 2 Sets**



Drain Connector
X 1



**Bypass Valve Connector
O-ring (Black color)**
X 2



**Digital Control Valve
O-ring (Black color)**
X 1



**Brine Line Flow
Controller (Red color)**
X 1



**Drain Connector O-
ring (Black color)**
X 1

Salt tank and installation kit.



Salt Tank
X 1



**Overflow Adapter
with Lock Nut**
X 1



Tank Grille
X 1



Tank Cup
X 4



Salt Well
X 1



Salt Well Lid
X 1



Salt Well Clamp
X 1

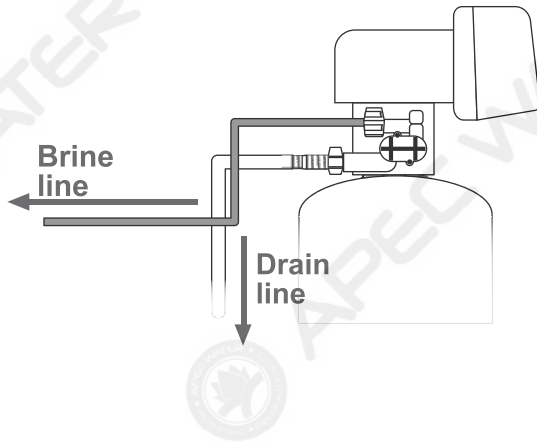


**Tank Tube Adapter
Lock Nut**
X 1

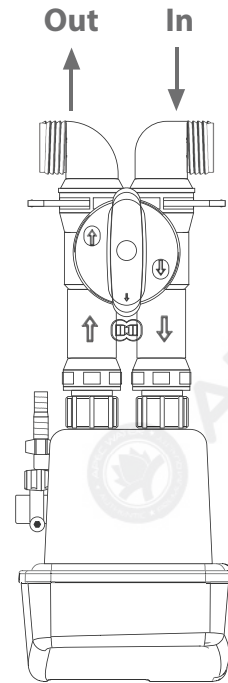


Salt Tank Tubing
X 1

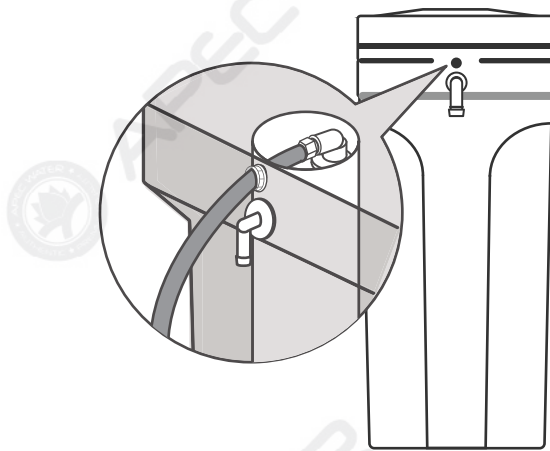
INSTALLATION OVERVIEW



Side view



Top view



Brine tank installation

SITE REQUIREMENTS:

- Water pressure: 25-90 psi.
- Water temperature: 40° F - 100° F.
- The tanks should be on a firm, level surface.
- Electrical: Use a 100-240v, 60Hz uninterrupted outlet.
- Use 1" (or 3/4" depending on system) copper, brass, or PEX pipe and fittings. Some plumbing codes may also allow PVC plastic pipe.
- Current draw is 0.25 amperes.

Required Components not Included with the System

- 80 lbs Extra Course Grade Salt Pellets are needed to fill the brine tank. The softener system will use any kind of salt formulated for water softener use, but it is advised to use the pellet-shaped salt as it tends to dissolve more evenly. (Potassium can be used for a salt-free alternative)

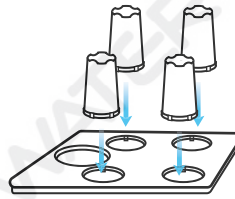
Required Tool List for System Installation

- Channel Locks
- Screwdriver
- Plumber's Tape
- Utility Knife
- Two Adjustable Wrenches
- Please note the modification to home plumbing may require the use of additional tools.

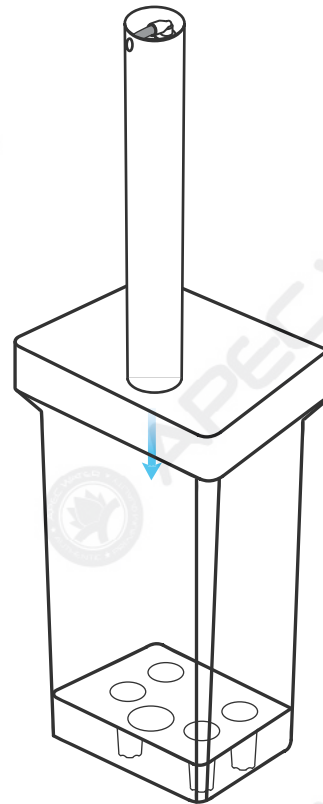
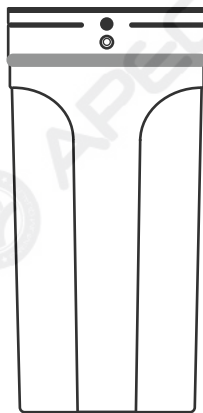
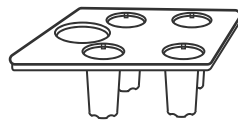
SALT TANK PREPARATION

Preparing salt tank for installation. Please follow the steps below:

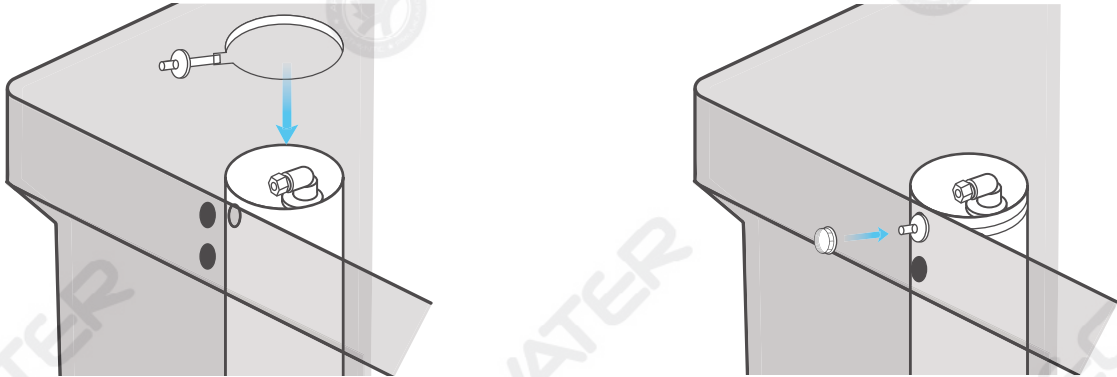
1. Install 4 tank cups to the tank grille.



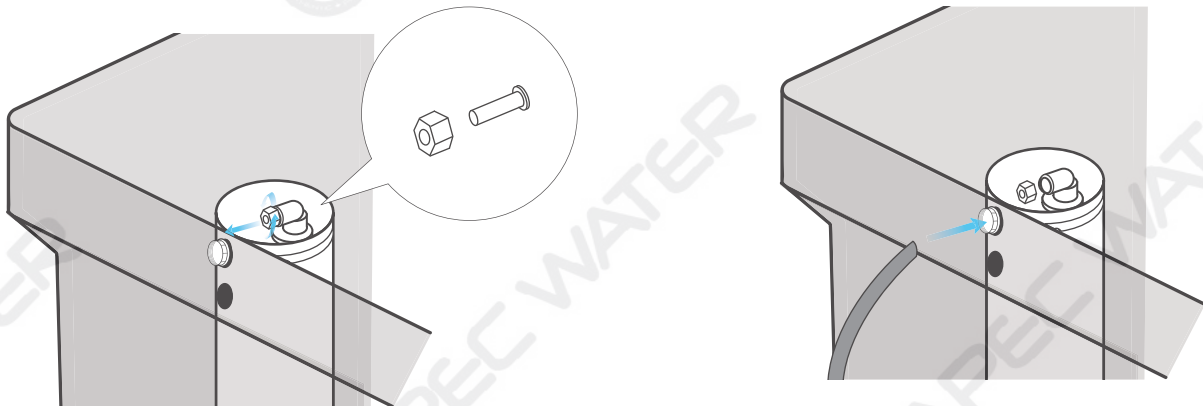
2. Install the tank grille on the bottom of the salt tank.
3. Install the salt well into the tank grille.



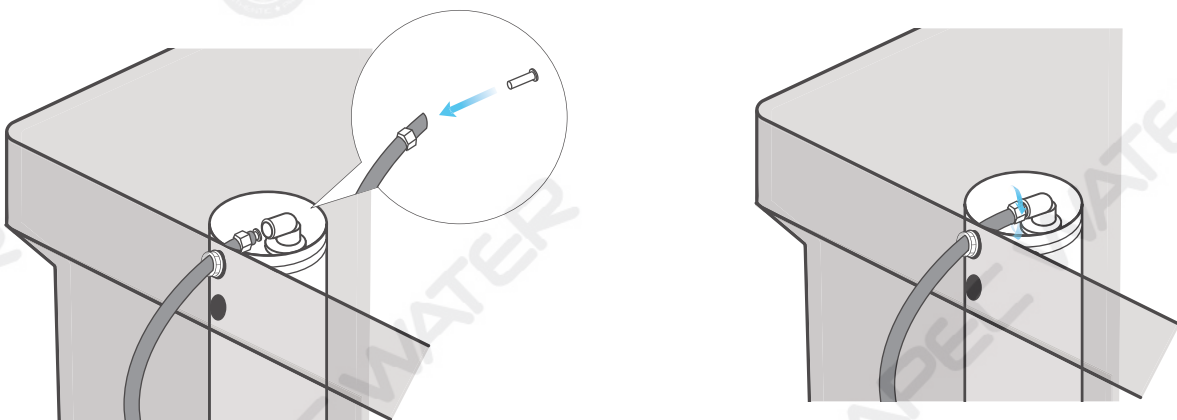
4. Install salt well clamp on the salt well. Put the tank tube adapter lock nut on the outside of the tank.



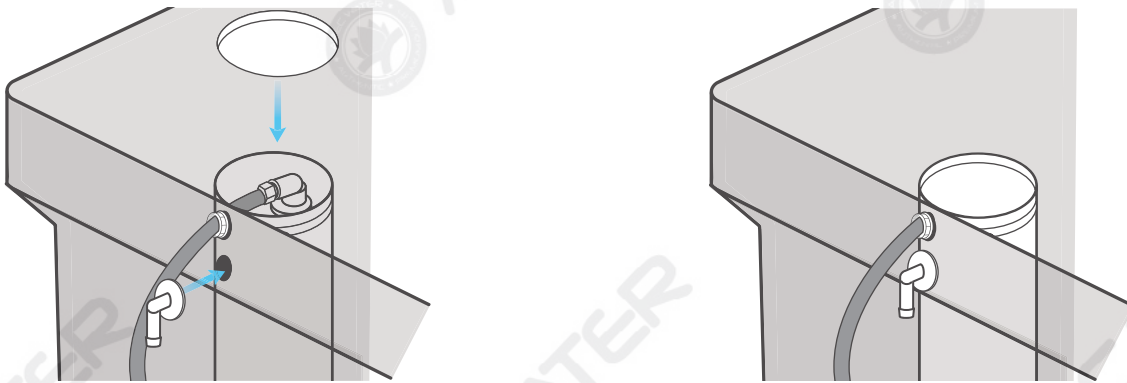
5. Unscrew to remove the salt tubing connector and adapter from the salt well, insert the salt tubing through the salt well clamp.



6. Install salt tubing connector and adapter to the salt tank tubing. Screw and connect the salt tubing connector back to the salt well with tubing.



7. Install overflow adapter to the salt tank and close with the well lid.



Note:

Make sure the brine line is secure to the connection provided on the brine tank. If the brine line is not secure and sealed, it may not be able to perform a proper system regeneration when needed, and can potentially cause overflow in the brine tank and result in leaks.

IMPORTANT! This optional brine tank overflow connection step is not required. It's for additional security against leaks and prevention of disrupted service purposes only.

Optional Brine Tank Overflow Connection:

Below the brine hose connection you will notice a 90-degree barbed connection facing downward. This connection is optional since the brine well is equipped with an automatic float valve shutoff.

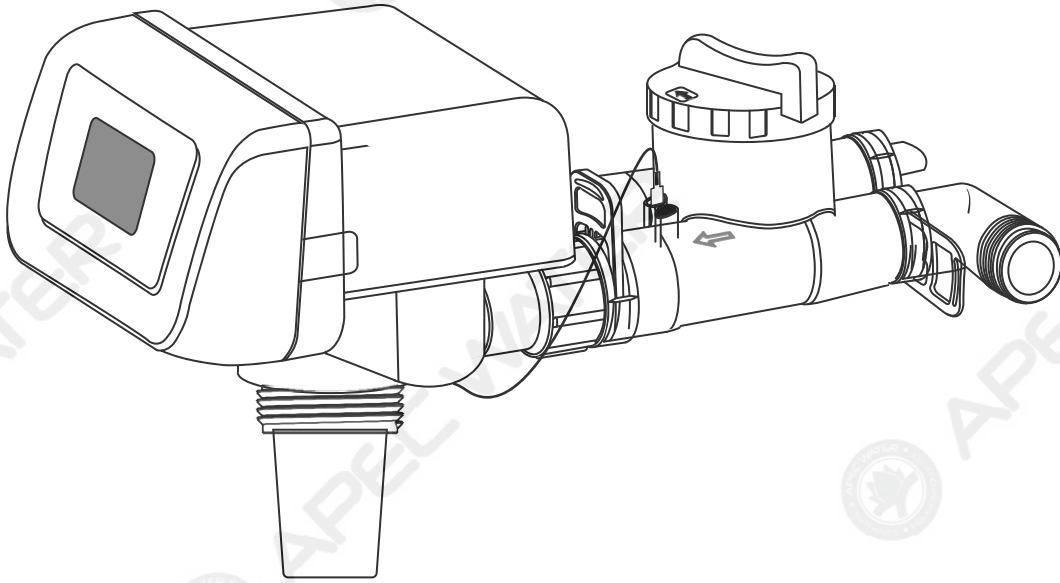
If you still want to utilize the overflow connection, lubricate the barbed connection with silicone grease or any food-grade oil. You will need to purchase an additional 1/2" plumbing hose and place the hose onto the connection for a secure seal. Typically, the other end of the hose will feed off into a floor drain, laundry style sink, or dedicated drain connection.

CONNECTING THE SOFTENER

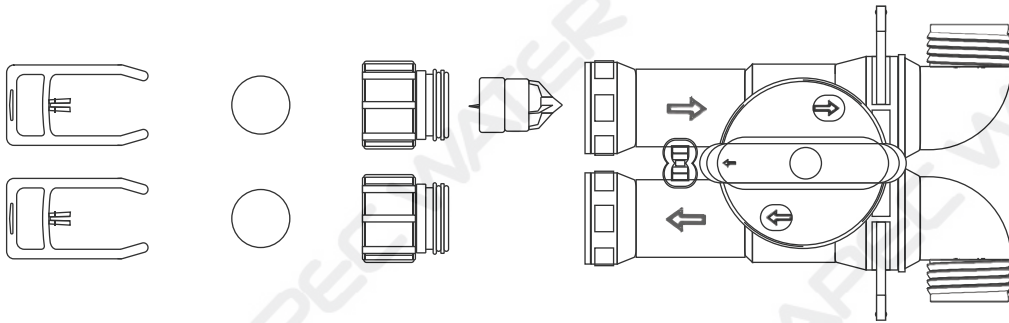
IMPORTANT: Please review before installation.

1. On copper plumbing systems, be sure to install a grounding wire between the inlet and outlet piping to maintain grounding.
2. Make sure the brine line is secure to the connection provided on the brine tank. If the brine line is not secure and sealed, it may not be able to perform a proper system regeneration when needed, and can potentially cause overflow in the brine tank and result in leaks.
3. A direct connection into a waste drain is not recommended. A physical air gap of at least 1.5" should be used to avoid bacteria and wastewater traveling back through the drain line into the softener.
4. Any solder joints being soldered near the valve must be done before connecting any piping to the valve. Always leave at least 6" (152 mm) between the control valve and joints being soldered when soldering pipes that are connected to the valve. Failure to do this could cause damage to the valve.

DIGITAL CONTROL VALVE INSTALLATION



Assembled view with bypass valve



Bypass installation parts diagram

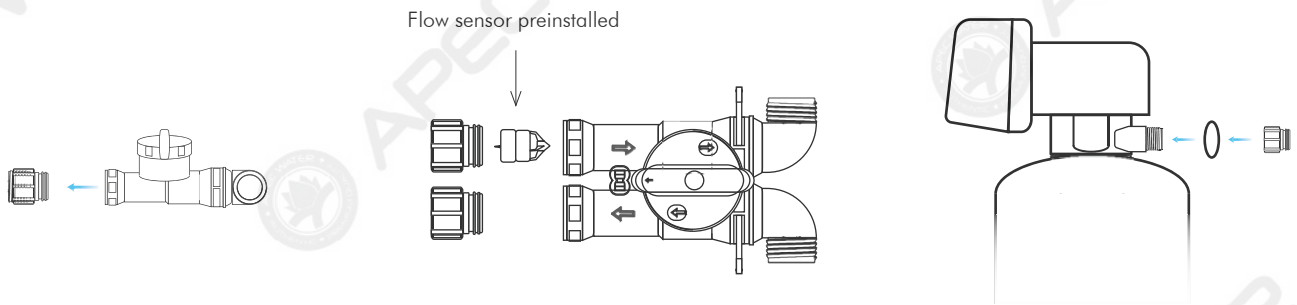
1. Unscrew tank cap from the top of the tank and remove tube cover.



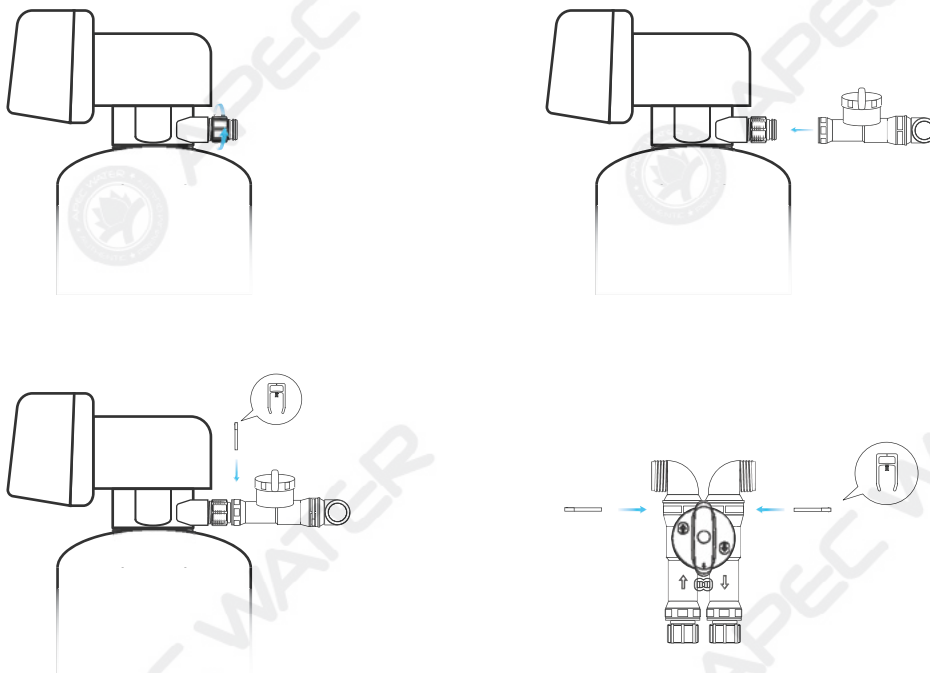
- Obtain the digital control valve and install the digital control valve o-ring on the bottom of digital control valve.
- Screw the digital control valve tightly onto the top of the tank.



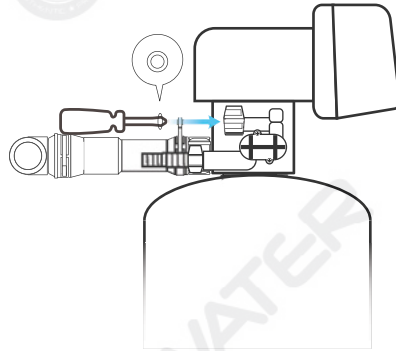
- Detach both bypass valve connectors from bypass valve and verify the flow sensor is properly in place then install both bypass valve connector o-ring.



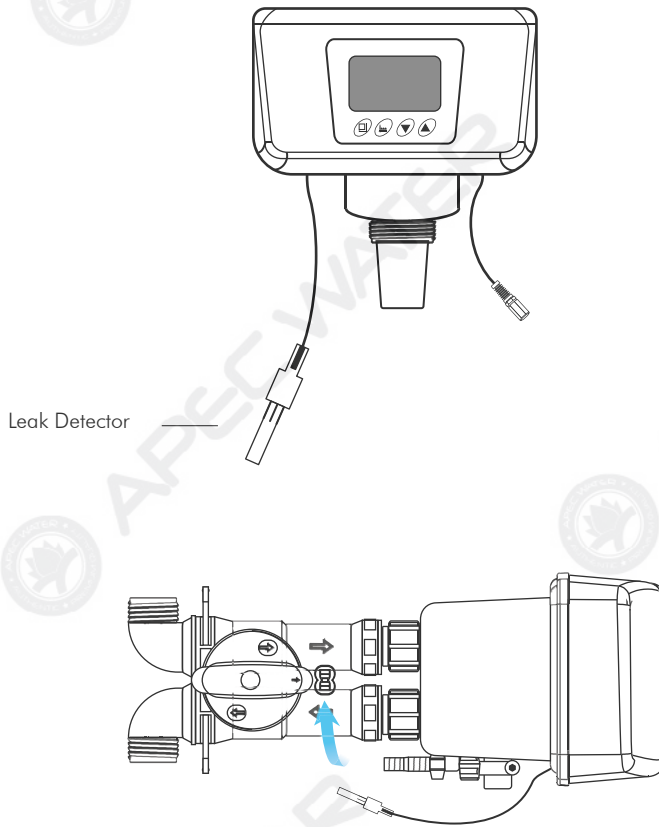
- Screw the bypass valve connectors to the digital control valve.
- Push the bypass valve into the bypass connectors securely to install the bypass locking clips.



7. For the brine tank connection, please obtain a small screw driver or pen and place the brine line flow controller (red color) on the tip with the cone side facing toward the brine line connection then properly install the salt tank tubing.



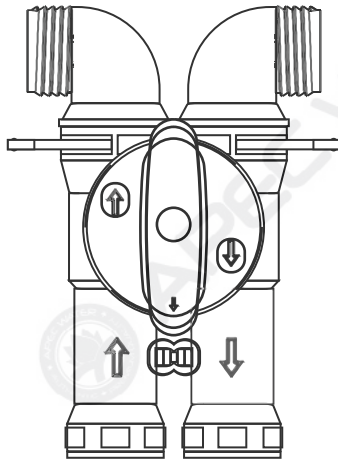
8. Plug the digital control valve into an electrical outlet and connect the leak detector to the bypass valve to complete this installation then proceed with pipe connections.



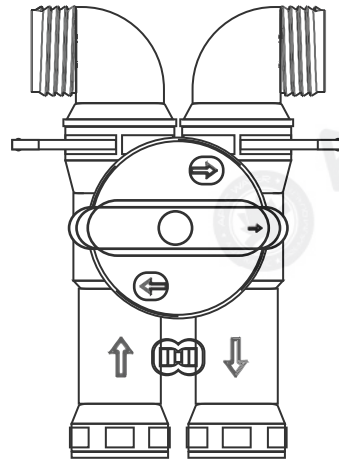
Leak detector connection

BYPASS OPERATION

To shut off water to the system, please position arrow handle as shown in the bypass operation diagram to the right. If your valve doesn't look like the diagram, contact your service technician for instructions on how to shut off water.

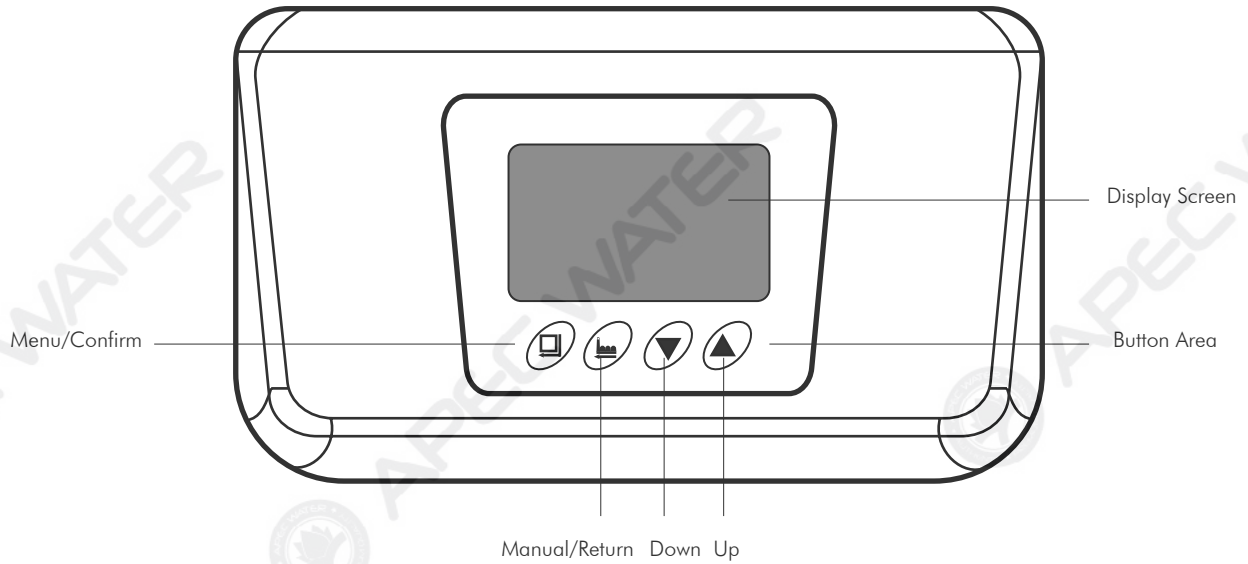


Water turned on





Water turned off
(Bypassed)

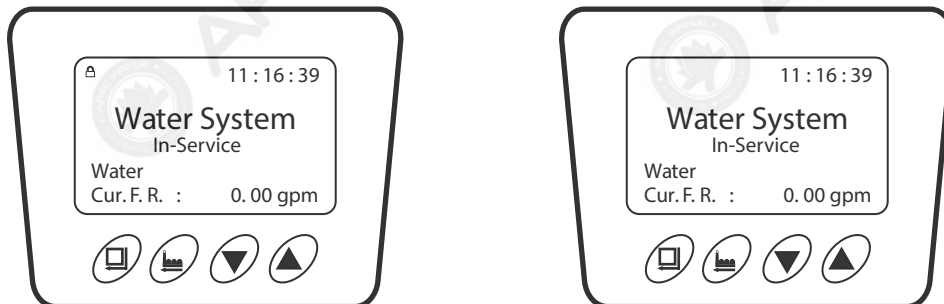
DIGITAL CONTROL VALVE DISPLAY





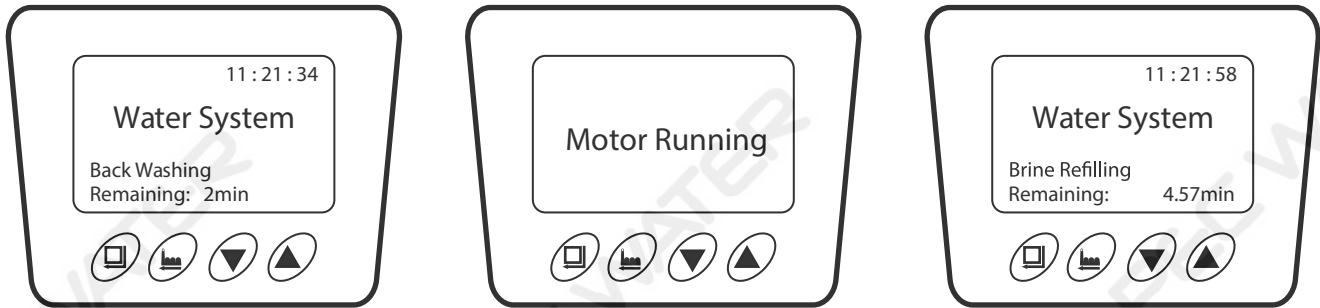
Recommended:

Remove The plastic screen protector after installation.

Lock Symbol (**top left corner**) Light is on indicates the timer buttons are locked. To unlock, press and hold both  and  button for 5 seconds until Lock symbol light is off you will hear a "DI" sound.













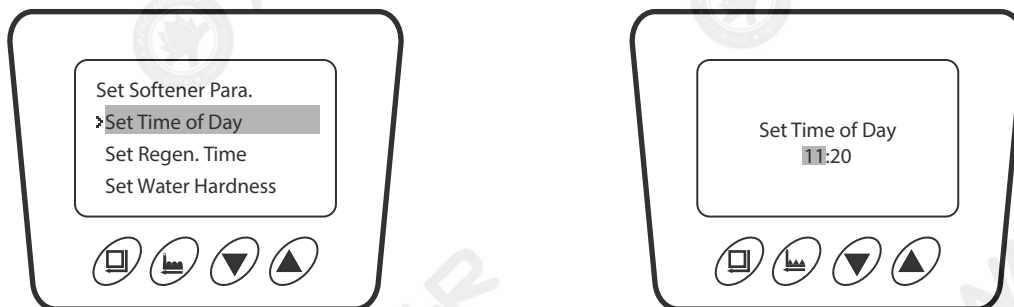
-  Menu/Confirm button: To setup time of day, regeneration time, and tap water hardness levels.
-  Manual Regeneration/Return to home button : Press the button once and it will start regeneration cycles instantly. Press the button continuously can skip and stop regeneration cycle.













CLOCK PROGRAMMING: TIMER DIAGRAM AND SETTING

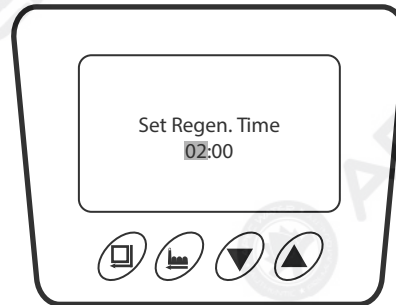
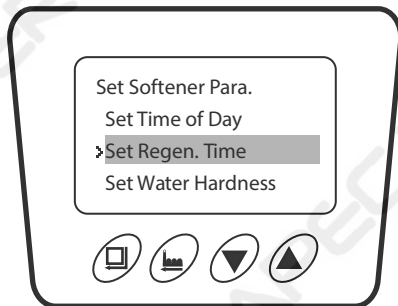
1. Setup Time of day

- Press  to go to main menu Set Softener. Select Set time of day using  and  arrows.
- Once Set time of day is highlighted, press  to enter time setting menu. The hour value "12" will flash, use  and  arrows to adjust the hour menu. Please note this is a 24 hour menu so 0 is am, 12 is pm).
- Once the hour is set, press  the minute value "30" will flash. Use  and  arrows to adjust the minute value. Once the minutes is set up, press  and you will hear a "DI" sound. This completes the time of day setup.










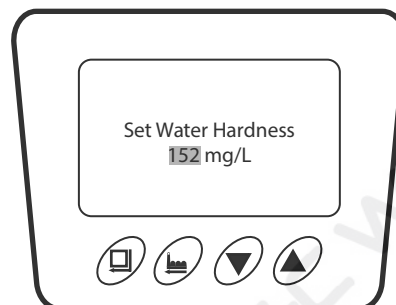
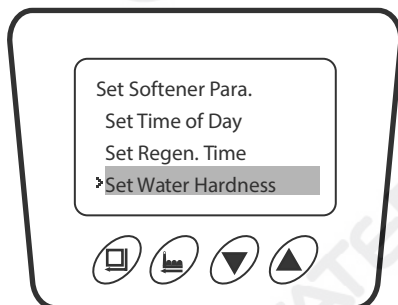
2. Setup Regeneration time (Default time 2am recommended)

- Press  to go to main menu Set Softener. Select Set time of day using  and  arrows.
- Once Set time of day is highlighted, press  to enter regen time setting menu. The hour value "2" will flash, use  and  arrows to adjust the hour menu.
- Once the hour is set, press  the minute value "00" will flash. Use  and  arrows to adjust the minute value. Once the minutes is set up, press  and you will hear a "DI" sound. This completes the time of day setup.



3. Setup Water hardness


- Press  to go to main menu Set Softener. Select Set Water Hardness using  and  arrows.
- Once Set water hardness highlighted, press  to enter hardness setting menu. **Please note the following this timer programs hardness levels using mg/l = ppm. To convert grains to mg/l please multiply grains by 17.1 (Ex. 10 grains = 171mg/l or ppm).** Default hardness value is 150, use  and  arrows to adjust your hardness value.
- Once the hardness levels is set up, press  and you will hear a "DI" sound. This completes the hardness level setup.



MANUAL REGENERATION

Normally, you don't need to perform regeneration after installation, please follow the two steps below in case manual regeneration is needed.

Manual regeneration/Return to home

Press  once and it will start regeneration cycles instantly. Press the button continuously can skip and stop regeneration cycle.

TECHNICAL SPECIFICATIONS

APEC Water Softeners								
ITEM#	Capacity (In Grains)	Tank Size	A	B	C	Salt Brine Tank Size		
SOFTENER-HE-30-FG	30,000	9" x 48"	55"	48"	9"	13.40"	13.40"	31.90"
SOFTENER-HE-45-FG	45,000	10" X 54"	61"	54"	10"	13.40"	13.40"	31.90"



LIMITED PRODUCT WARRANTY

Scope

APEC takes pride in selling a superb line of products, including this Whole House Water Filtration ("Product"). As such, APEC expressly warrants to the original purchaser that, for a period of five (5) years limited from the date of purchase, its tanks, in/out connection parts and fittings will be free from defects in material and workmanship. APEC will, at its option, repair or replace the Product without charge, or refund the cost of the Product, if the Product fails or does not perform as warranted solely due to a manufacturing defect within the warranty period, subject to the limitations and exclusions set forth in this Limited Product Warranty. This Limited Product Warranty only applies when the Product is used, stored, handled, fabricated and/or installed in the manner recommended by APEC in the Installation Instruction & Owner's Manual ("Manual").

APEC Water warrants to the customer that its solid-state electronic heads (digital control valve) will be free from defects in material and workmanship under normal use and service for a period of one (1) year.

Repair or Replacement

Repair or replacement during this five (5) year and one (1) year limited warranty shall include reasonable labor charges necessary to repair or replace the defective Product, but shall not include freight charges or any other local labor charges from third parties other than APEC, unless APEC expressly approves such charges in writing. During the entire five (5) year and one (1) year limited warranty, APEC's obligation to repair or replace shall further be limited to repair or replacement with the styles, models, products, colors, etc. of the Product that are available at the time of the repair or replacement, and shall be limited to the repair or replacement of only the specific Product that fails due to a manufacturing defect. Any repaired or replaced product shall also remain subject to the original five (5) year and one (1) year limited warranty from the date of the original purchase, and any repair or replacement shall not extend the original warranty period in any manner or start a new warranty period.

Conditions of Validity of this Limited Product Warranty

Even though the Product has extremely high endurance for operating conditions such as pH, maximum TDS, temperature, and optimum water pressure, THIS LIMITED PRODUCT WARRANTY SHALL ONLY BE VALID IF:

1. The replaceable media is changed and maintained on a regular basis as directed in the Manual. Moreover, depending on local water input water quality, regular maintenance may need to be increased.
2. The Product is operated within the confines of its suggested operating conditions:

Any information or suggestion by APEC with respect to the Product concerning applications, specifications or compliance with codes and standards is provided solely for your convenient reference and is made without any representation as to accuracy or suitability. You must verify and test the suitability of any information with respect to the Product for your specific application.

Non-Covered Defects

THIS LIMITED PRODUCT WARRANTY DOES NOT COVER DEFECTS CAUSED BY:

1. Improper storage, installation, maintenance, handling, use and/or alterations of the Product, including, but not limited to, non-compliance with the installation, maintenance and standard operation conditions stated in the Manual and this Limited Product Warranty.
2. Unreasonable use, unintended use, or misuse of the Product for something other than its intended purpose as a whole house water filtration system.
3. Use of replacement parts, media, or other accessories that are not sold or manufactured by APEC for use with this particular Product.
4. Damage not resulting from manufacturing defects that occur while the Product is in the original purchaser's possession.
5. Installation of the Product with known or visible manufacturing defects at the time of installation.
6. Damage caused by freezing, flood, fire or Act of God.

CONDITIONS THAT RENDER THIS LIMITED PRODUCT WARRANTY VOID

THIS LIMITED PRODUCT WARRANTY SHALL BE VOID IF:

1. The Product is not operated in compliance with normal municipal water conditions for which the particular model of this Product is intended.
2. The person seeking to invoke the warranty is not the original purchaser. That is, this Limited Product Warranty only extends to original purchasers.
3. The Product is purchased used. That is, this Limited Product Warranty only covers new products.
4. The Product is purchased from someone other than APEC or one of APEC's authorized dealers. This is because, unless the Product was sold by APEC or one of its authorized dealers, APEC cannot verify or guarantee the integrity or authenticity of the Product.

General Conditions

The warranties set forth herein are the only warranties made by APEC in connection with the product. APEC cannot and does not make any implied or express warranties with respect to the product, and disclaims all other warranties, including, but not limited to, any warranty of merchantability or fitness for a particular purpose. Products sold by APEC are sold only to the specifications specifically set forth by APEC in writing. Other than the limited product warranty set forth herein, APEC makes no other warranties, express or implied. APEC's sole obligation under this warranty shall be repair or replacement of a non-conforming product or parts of the product, or at the option of APEC, return of the product and a refund of the purchase price. Buyer assumes all risk whatsoever as to the result of the use of the product purchased, whether used singularly or in combination with any other products or substances.

No claim by the buyer/owner of any kind, including claims for indemnification, shall be greater in amount than the purchase price of the products in respect to which damages are claimed. In no event shall APEC be liable to buyer/owner in tort, contract or otherwise, for any special, indirect, incidental, consequential, reliance, statutory, special, punitive or exemplary damages, including, but not limited to, lost profits, loss of use, loss of time, inconvenience, damage to good will or reputation, or loss of data, even if advised of the possibility of such damages or such damages could have been reasonably foreseen, in connection with, arising out of, or as a result of, the sale, delivery, servicing, use or loss of use of the products sold hereunder, or for any liability of buyer to any third party with respect thereto.

Obtaining Warranty Coverage or General Inquiries

If coverage is available, you may obtain coverage under this Limited Product Warranty by providing APEC with proof of original purchase, and that you are the original purchaser. For service under this Limited Product Warranty, you must notify APEC by phone at 1-800-880-4808, by email at techsupport@freedrinkingwater.com, or in writing at 301 Brea Canyon Road, City of Industry, CA 91789. In making the claim, please provide your name, address, phone number, a description of the product involved, and an explanation of the defect.

California Proposition 65 Warning

 **WARNING:** This product contains chemicals known to the State of California to cause cancer or birthdefects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

APEC WATER®

www.FreeDrinkingWater.com

301 Brea Canyon Road
City of Industry, CA 91789
1-800-880-4808

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Manual print Ver. 1, 2023 Oct.

