

# Culligan®

**Culligan®  
High  
Efficiency  
HE 1.25  
Water  
Softener  
Owners  
Guide**





## Attention Culligan Customer

The installation, service and maintenance of this equipment should be rendered by a qualified and trained service technician. Your local independently operated Culligan dealer employs trained service and maintenance personnel who are experienced in the installation, function and repair of Culligan equipment. This publication is written specifically for these individuals and is intended for their use.

We encourage Culligan users to learn about Culligan products, but we believe that product knowledge is best obtained by consulting with your Culligan dealer. Untrained individuals who use this manual assume the risk of any resulting property damage or personal injury.



**WARNING!**

**Electrical shock hazard! Prior to servicing equipment, disconnect power supply to prevent electrical shock.**

**NOTE**

**This system is not intended for use where water is microbiologically unsafe or with water of unknown quality.**

**NOTE**

**Check with your public works department for applicable local plumbing and sanitation codes. Follow local codes if they differ from the standards used in this manual. To ensure proper and efficient operation of the Culligan equipment to your full satisfaction, carefully follow the instructions in this manual.**



**WARNING!**

**If incorrectly installed, operated or maintained, this product can cause severe injury. Those who install, operate, or maintain this product should be trained in its proper use, warned of its dangers, and should read the entire manual before attempting to install, operate, or maintain this product.**



**WARNING!**

**This device complies with part 15 of the FCC rules subject to the two following conditions: 1) This device may not cause harmful interference, and 2) This device must accept all interference received including interference that may cause undesired operation.**

This equipment complies with Part 15 of the FCC rules. Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



**CAUTION!**

**To reduce the risk of fire, use only No. 26 AWG or larger telecommunications line cord.**



**CAUTION!**

**This product is not to be used by children or persons with reduced physical, sensory or mental capabilities, or lack of experience or knowledge, unless they have been given supervision or instruction.**



**CAUTION!**

**Children should be instructed not to play with this appliance.**



**CAUTION!**

**If the power cord from the transformer to the unit looks or becomes damaged, the cord and transformer should be replaced by a Culligan Service Agent or similarly qualified person in order to avoid a hazard.**

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## Contents

Thank You.....	1
Specifications .....	2
Introduction .....	3
How Your Water Conditioner Works.....	4
The Culligan Process .....	5
Modes of Operation.....	6
Installation.....	8
Programming.....	28
Maintenance .....	41
Sanitizing Procedure .....	44
Things to Check Before You Call for Service .....	45
Error Codes.....	46
When and How to Bypass Your Water Conditioner .....	47
Performance Data Sheets	
Culligan HE 1.25 10" Water Softener with Soft-Minder® Sensing Device.....	48
Culligan HE 1.25 10" Water Softener with Aqua-Sensor® Sensing Device .....	49
Culligan HE 1.25 12" Water Softener with Soft-Minder® Sensing Device.....	50
Culligan HE 1.25 12" Water Softener with Aqua-Sensor® Sensing Device .....	51
Culligan HE 1.25 14" Water Softener with Soft-Minder® Sensing Device.....	52
Culligan HE 1.25 14" Water Softener with Aqua-Sensor® Sensing Device .....	53
Culligan HE 1.25 16" Water Softener with Soft-Minder® Sensing Device.....	54
Culligan HE 1.25 16" Water Softener with Aqua-Sensor® Sensing Device .....	55
Important Data on Your Water Filter.....	56
Electrical Schematic.....	57
Parts List.....	58
Culligan Limited Warranty .....	65
Index.....	67



## About this Manual

This manual:

- familiarizes the operator with the equipment
- explains installation and setup procedures
- provides basic programming information
- explains the various modes of operation
- gives specifications and troubleshooting information

### Read this Manual First

Before you operate the Culligan High Efficiency 1.25 Automatic Water Softener, read this manual to become familiar with the device and its capabilities.

### Safe Practices

Throughout this manual there are paragraphs set off by special headings.

Notice (or Note) is used to emphasize installation, operation or maintenance information which is important, but does not present any hazard. For example,

**NOTICE** The nipple must extend no more than 1 inch above the cover plate.

Caution is used when failure to follow directions could result in damage to equipment or property.



**CAUTION!** Disassembly while under water pressure can result in flooding.

Warning is used to indicate a hazard which could cause injury or death if ignored.



**WARNING!** Electrical shock hazard! Unplug the unit before removing the timer mechanism or cover plates!

The CAUTION and WARNING paragraphs are not meant to cover all possible conditions and situations that may occur. Understand that common sense, caution, and careful attention are conditions which cannot be built into the equipment. These MUST be supplied by the personnel installing, operating, or maintaining the system.

Be sure to check and follow the applicable plumbing codes and ordinances when installing this equipment. Local codes may prohibit the discharge of sanitizing or descaling solutions to drain.

Use protective clothing and proper face or eye protection equipment when handling chemicals or tools.

**NOTE** The Culligan High Efficiency 1.25 Softener is not intended for use with water that is microbiologically unsafe or of unknown quality without adequate disinfection either before or after the system.

**NOTE** Check with your public works department for applicable local plumbing and sanitation codes. Follow local codes if they differ from the standards used in this manual. To ensure proper and efficient operation of the Culligan High Efficiency 1.25 Softener to your full satisfaction, carefully follow the instructions in this manual.



**Thank You**

## **Welcome To Your New World of Better Living with Culligan Water.**

The HE 1.25 water conditioners with Soft-Minder® meter and Aqua-Sensor® sensing device are tested and certified by WQA against NSF/ANSI Standard 372, CSA B483.1, and NSF/ANSI Standard 44 for the effective reduction of hardness (calcium and magnesium), barium, and radium 226/228 as verified and substantiated by test data.

The Culligan HE 1.25 Water Softener Controller Enclosure complies with the UL 50/50E and UL 746C standards for a NEMA 3R Enclosure Rating.



***For installations in Massachusetts, Massachusetts Plumbing Code 248 CMR shall be adhered to. Consult your licensed plumber for installation of this system. This system and its installation must comply with state and local regulations. The use of saddle valves is not permitted.***

If this is your first experience having soft, conditioned water in your home, you'll be amazed at the marvelous difference it makes. We promise that you'll never want to be without it again.

Congratulations, too, on selecting one of the "first family" of water conditioners in the prestigious Culligan High Efficiency Water Softeners. With Culligan's many years of knowledge and experience in water treatment, you can be confident that the model you selected has been designed and engineered to provide years of service with a minimum of care and attention.

Some localities have corrosive water. A water softener cannot correct this problem and so its printed warranty disclaims liability for corrosion of plumbing lines, fixtures or appliances. If you suspect corrosion, your Culligan Dealer has equipment to control the problem.

**NOTICE Sodium Information: Water softeners using sodium chloride for regeneration add sodium to the water. Persons who are on sodium restricted diets should consider the added sodium as part of their overall sodium intake.**

### **Serial Numbers**

The control valve serial number is located on the back of the timer case.

The media tank serial number is located on the top surface of the tank.

**NOTE DO NOT remove or destroy the serial number. It must be referenced on request for warranty repair or replacement.**



## Specifications

**Culligan  
High Efficiency  
1.25 Water  
Conditioners with  
Aqua-Sensor®  
Device or Soft-  
Minder® Me-  
ter—Downflow  
Regeneration**

Model	10"	12"	14"	16"
<b>Control Valve</b>	1 1/4" Reinforced Thermoplastic with GBE Circuit Board			
<b>Overall Conditioner Height</b>	62 in	60 in	73 in	73 in
<b>Media Tank Design</b>	Quadra-Hull™	Quadra-Hull™	Quadra-Hull™	Quadra-Hull™
<b>Media Tank Dimensions (Dia x Ht)</b>	10 x 54 in	12 x 52 in	14 x 65 in	16 x 65 in
<b>Salt Storage Tank Dimensions (Dia x Ht)</b>	18 x 43 in	18 x 43 in	24 x 40 in	24 x 40 in
<b>Exchange Media, Type and Quantity</b>	Cullex® Media, 1.5 ft³	Cullex® Media, 2.0 ft³	Cullex® Media, 3.0 ft³	Cullex® Media, 4.0 ft³
<b>Underbedding, Type and Quantity</b>	Cullsans® Underbedding, 15 lb	Cullsans® Underbedding, 20 lb	Cullsans® Underbedding, 25 lb	Cullsans® Underbedding, 30 lb
<b>Exchange Capacity @ Salt Dosage Per Recharge</b>	28,109 gr @ 6.0 lb 41,587 gr @ 12.0 lb 45,831 gr @ 18.0 lb	35,247 gr @ 8.0 lb 54,191 gr @ 16.0 lb 64,053 gr @ 24.0 lb	56,218 gr @ 12.0 lb 83,174 gr @ 24.0 lb 91,662 gr @ 36.0 lb	70,494 gr @ 16.0 lb 108,382 gr @ 32.0 lb 128,106 gr @ 48.0 lb
<b>Efficiency Rated Dosage<sup>1</sup></b>	4,685 gr/lb @ 6 lb salt dosage	4,406 gr/lb @ 8 lb salt dosage	4,685 gr/lb @ 12 lb salt dosage	4,406 gr/lb @ 16 lb salt dosage
<b>Freeboard to Media<sup>2</sup></b>	14.5 in	16 in	25 in	25 in
<b>Freeboard to Underbedding<sup>3</sup></b>	47.5 in	46 in	59 in	59 in
<b>Salt Storage Capacity</b>	375 lb	375 lb	600 lb	600 lb
<b>Rated Service Flow @ Pressure Drop</b>	14.9 gpm @ 15 psi	18.4 gpm @ 15 psi	20.4 gpm @ 15 psi	22.0 gpm @ 15 psi
<b>Total Hardness, Maximum</b>	99 gpg			
<b>Total Iron, Maximum</b>	5 ppm			
<b>Hardness to Iron Ratio, Minimum</b>	8 gpg to 1 ppm			
<b>Operating Pressure</b>	20-125 psi			
<b>Operating Pressure (Canada)</b>	20-90 psi			
<b>Operating Temp.</b>	33-120°F			
<b>Electrical Requirements</b>	24V/60 Hz			
<b>Electrical Power Consumption, Min/Max</b>	8.4 Watts/21.6 Watts			
<b>Drain Flow, Max.<sup>4</sup></b>	2.0 gpm	3.5 gpm	4.5 gpm	6.0 gpm
<b>Recharge Time, Average<sup>5</sup></b>	85 min	84 min	82 min	96 min
<b>Average Recharge Water Consumption<sup>5</sup></b>	82 gal	109 gal	164 gal	203 gal

<sup>1</sup>The efficiency rated dosage is only valid at the stated salt dosage and is efficiency rated according to NSF/ANSI 44.

<sup>2</sup>Measured from top of media to top surface of tank threads. (backwashed and drained).

<sup>3</sup>Measured from top of underbedding to top surface of tank threads.

<sup>4</sup>Backwash at 120 psi (830 kPa).

<sup>5</sup>10 minute backwash, 6 lb 10" model, 8 lb. 12" model, 12 lb. 14" model or 16 lb. 16" model salt dosage.



## Introduction

### **It's All So Easy, So Economical, So Efficient, So Enjoyable!**

#### **Kind To Skin And Complexion**

Soft water will help prevent red, itchy or dry skin because there are no hardness impurities to cause soreness, no soap curd to coat the skin. Shaving is easier, smoother—either with a blade or electric shaver.

#### **Bathing And Showering**

You'll use far less soap with conditioned water. Use your soap very sparingly—not as you did before soft water. Just a quick rinse removes all lather, leaving your skin pleasantly smooth and silky because now it's free of sticky soap curd and film.

#### **Saves Washing Costs. Helps Control Environmental Pollution**

Soft water washes whiter and cleaner with less soap or detergent. Because the hardness impurities are removed, your soap can concentrate solely on washing. People usually find that they can reduce the amount of soap they use substantially. If you normally use a cup per wash load with hard water, try using 1/3 cup depending on the size of your wash load and the degree of soil. Different amounts are required, but you can use less with softened water. An added bonus is the fact that your washable fabrics will last longer.

#### **Super Hair Conditioning**

Soft water is great for scalp and hair care. No insoluble deposits are formed. Hair is shinier, softer, more manageable. Reduce the amount of shampoo you have normally used.

#### **Dishes Are A Delight**

Washed by hand or in a dishwasher, glassware, dishes and silver wash cleaner, easier. Follow your dishwasher manufacturer's instructions. Soft water promotes sanitation because no greasy hard water film can form to collect or harbor bacteria.

#### **Easier Housekeeping, Gleaming Fixtures**

You'll be amazed at the marvelous difference. Just a swish of the cloth, and the bathtub or shower and fixtures are clean and sparkling. Imagine, no scouring! No hard water scum to cause rings, streaks, spots and stains. To keep their gleaming luster, simply wipe fixtures with a towel after use. Formica, tile, walls, floors, woodwork surfaces clean easier, stay clean longer. You'll save on cleaning aids and save on time.

#### **Saves Water-Heating Energy, Helps Water-Using Appliances**

Soft water reduces the formation of rock-like hard water scale that encrusts water heaters, hot water pipes, shower heads, and water-using appliances. This scale can cause premature maintenance and failure.

Elimination of hard water also provides substantial energy savings because scale acts as an insulator, wasting electricity or gas used to heat water.

#### **Water For Lawns And Household Plants**

If possible, lawn sprinkling faucets should be supplied with hard water primarily because it is uneconomical to soften so much water.

Household plants are much more sensitive than lawns with respect to the kind of water which is best. First, because they receive no rainfall and, second, there is little or no drainage of the soil. Preferably they should be watered with rainwater or water which is low in mineral content such as distilled or demineralized water. Softened water is not recommended for house plants because a build-up of sodium in the soil may interfere with efficient absorption of water by the plant root system. Additional information may be obtained from your independently operated Culligan dealer.



## How Your Water Conditioner Works

### Why Water Gets Hard And How It Is Softened

All of the fresh water in the world originally falls as rain, snow, or sleet. Surface water is drawn upward by the sun, forming clouds. Then, nearly pure and soft as it starts to fall, it begins to collect impurities as it passes through smog and dust-laden atmosphere. And as it seeps through soil and rocks it gathers hardness, rust, acid, unpleasant tastes and odors.

Water hardness is caused primarily by limestone dissolved from the earth by rainwater. Because of this, in earlier times people who wanted soft water collected rainwater from roofs in rain barrels and cisterns before it picked up hardness from the earth.

Some localities have corrosive water. A softener cannot correct this problem and so its printed warranty disclaims liability for corrosion of plumbing lines, fixtures or appliances. If you suspect corrosion, your Culligan Man has equipment to control the problem.

Iron is a common water problem. The chemical/physical nature of iron found in natural water supplies is exhibited in four general types:

1. **Dissolved Iron**—Also called ferrous or “clear water” iron. This type of iron can be removed from the water by the same ion exchange principle that removes the hardness elements, calcium and magnesium. Dissolved iron is soluble in water and is detected by taking a sample of the water to be treated in a clear glass. The water in the glass is initially clear, but on standing exposed to the air, it may gradually turn cloudy or colored as it oxidizes.
2. **Particulate Iron**—Also called ferric or colloidal iron. This type of iron is an undissolved particle of iron. A softener will remove larger particles, but they may not be washed out in regeneration effectively and will eventually foul the ion exchange resin. A filtering treatment will be required to remove this type of iron.
3. **Organic Bound Iron**—This type of iron is strongly attached to an organic compound in the water. The ion exchange process alone cannot break this attachment and the softener will not remove this type of iron.
4. **Bacterial Iron**—This type of iron is protected inside a bacteria cell. Like the organic bound iron, it is not removed by a water softener.

When using a softener to remove both hardness and dissolved iron it is important that it regenerates more frequently than ordinarily would be calculated for hardness removal alone. Although many factors and formulas have been used to determine this frequency, it is recommended that the softener be regenerated when it has reached 50–75% of the calculated hardness alone capacity. This will minimize the potential for bed fouling. (Iron removal claims have not been verified by the Water Quality Association.)

If you are operating a water softener on clear water iron, regular resin bed cleaning is needed to keep the bed from coating with iron. Even when operating a softener on water with less than the maximum of dissolved iron, regular cleanings should be performed. Clean every six months or more often if iron appears in your conditioned water supply. Use resin bed cleaning compounds carefully following the directions on the container.



**CAUTION! Do not use where the water is microbiologically unsafe or with water of unknown quality without adequate disinfection before or after the unit.**





## The Culligan Process

Your Culligan water conditioner consists of three basic components, (A) the Control Valve, (B) the Mineral Tank, and (C) the Brine System.

### A. Control Valve

The exclusive Culligan control valve automatically performs a variety of tasks that are necessary for the proper operation of your water conditioner. These tasks, commonly referred to as cycles or operating positions, are **Service**, **Regeneration**, and **Brine Refill**.

1. **Service:** While the control valve is in the service cycle, hard water is directed down through the column of Cullex® resin where hardness minerals are removed from the water. The softened water is then directed into your household plumbing lines. The ability of the Cullex resin to remove hardness minerals needs to be periodically replenished; this is referred to as ...
2. **Regeneration:** While the control valve is in the regeneration cycle, water is first directed up through the column of Cullex resin to flush accumulated sediment out of the resin and down the drain. Then, the regenerant brine solution is slowly drawn from the bottom of the salt storage tank of the Brine System and is directed down through the column of Cullex resin, restoring the ability of the resin to remove hardness minerals from your water supply. Once completed, the regeneration cycle is followed by ...
3. **Brine Refill:** While the control valve is in the brine refill cycle, a predetermined amount of water is directed to the salt storage tank of the Brine System so that additional salt can be dissolved to provide the brine solution that will be needed for the next regeneration cycle.



### B. The Mineral Tank

The Mineral Tank contains the Cullex resin column, Cullsant® underbedding, and an outlet manifold. The number of gallons of hard water that can be softened by the Cullex resin column before it needs regeneration is called the "capacity" of the resin column, and depends upon the amount of hardness minerals in each gallon of water (expressed as grains per gallon) and upon the amount of regenerant brine solution (expressed as pounds of salt) passed through the resin column during regeneration.

Your Culligan service person, taking into account the hardness of your water and the amount of softened water your household may reasonably expect to use each day, has carefully established how often the softener will regenerate and how much salt will be used for each regeneration. This will ensure that all of your soft water needs will be fulfilled without using an excessive amount of salt.

### C. The Brine System

The Brine System consists of a salt storage container and hydraulic Dubl-Safe™ valve. The salt storage container holds the salt that is used to make the regenerant brine solution. The hydraulic Dubl-Safe valve limits the amount of water that is returned to the salt storage tank during the brine refill cycle.

Because a predetermined amount of salt is dissolved with each brine refill cycle, the salt must be periodically replenished in order to maintain efficient operation. Your Culligan service person will be able to tell you about how often salt must be added to the salt storage container.



## Modes of Operation

### Water Meter Mode

In water meter mode, the controller keeps track of the quantity of water that has flowed through the resin bed. Based on the influent water hardness and the hardness capacity of the resin bed, a service life expectancy in the quantity of softened water is calculated and programmed into the control. When the set point is reached, regeneration is triggered. If the predict mode is not selected the regeneration will start at time of regeneration. In immediate mode the regeneration starts as soon as the regeneration signal is provided. If time clock backup is set and the capacity has not been exhausted but the days since last regen is greater than time clock backup, setting the softener will immediately regenerate.

### Aqua-Sensor® Mode

The Aqua-Sensor is a conductivity probe that senses when the hardness front passes through the resin bed. It functions independently of the influent water hardness so therefore, is useful in conditions when the influent water hardness varies throughout the year. It provides for the most efficient mode of operation. In addition to sensing when a resin bed is exhausted, it can also be used to determine when the brine solution is rinsed from the resin bed during the Brine Draw/Slow Rinse cycle triggering the control to move to fast rinse. This patented feature provides water savings by optimizing the amount of rinse water required to completely rinse out the resin bed.

### Smart Brine Tank Probe

The smart brine tank probe monitors conditions inside the brine tank. It predicts when salt needs to be added to the brine tank, detects the presence of salt-bridging, eductor line plugging and brine tank overflowing.

### Wireless Remote Control

The wireless remote control displays the current status of the water softener or filters and allows for remote control. It can be located up to 200 feet away from the softener (depending upon building construction materials). The wireless remote displays information about softener performance, problems, days of salt remaining and allows remote control for regeneration.

The wireless remote control is designed to communicate at 915 MHz and to work without interference with other 915 MHz devices such as cordless telephones and baby monitors.

### Modem

The modem allows for the system to be remotely monitored detecting problems before they occur, to schedule salt delivery when it is needed and to keep the system software up to date with the latest advances.

### Manual Regeneration

Manual regeneration can be initiated via the softener control valve or wireless remote display. Manual regeneration can be initiated to begin regeneration immediately or that night. To immediately initiate regeneration, press and hold  for at least ten (10) seconds. To cancel a delayed regeneration, press and hold  for at least five (5) seconds.

### Predict Mode

The Predict Mode is used with the flow meter to determine the optimum regeneration point. Before the regeneration starts, the control will compare the remaining capacity value with the average daily water use. If the average daily water usage is less than the reserve capacity, the controller will wait 24 more hours before regeneration. If the reserve capacity is less than the average daily water usage, the control will initiate regeneration. This works in delay mode only. At any time, if the total capacity value is reached, the control will initiate an immediate regeneration.

### Pre-Rinse Mode

The Pre-rinse mode is used to pre-rinse the softener resin bed or filter media. The pre-rinse in flow meter mode will occur after the control has sensed that no water has flowed through the control for a period of X hours (can be set through the programming menu). When the control is in this mode, once the X amount



of hours have elapsed the control will cycle to the fast rinse position for the pre-set length of minutes and then return to the home or service position.

### **Down Flow Regeneration**

Water and regenerate flow downward through the media tank.

### **Dial-A-Softness®**

Dial-A-Softness is a manual adjustment built into the control valve that allows for variable hardness bypass into the softened water. The hard water bypass can be adjusted from 0% to 30%. The Dial-A-Softness also increases the softener capacity in proportion to the percent hard water bypass (less salt used).



## Installation

**NOTE** Read this section entirely before starting the installation. Follow all applicable plumbing and electrical codes.

### Component Description

The water conditioner is shipped from the factory in a minimum of three cartons. With the exception of media containers, remove all components from their cartons and inspect them before starting installation.

### Control Valve Assembly

Includes the control valve, bypass valve, and meter. Small parts packages will contain additional installation hardware, and the conditioner Owner's Guide.

### Media Tank

Includes Quadra-Hull™ media tank complete with Cullex® ion exchange resin, underbedding and outlet manifold (12", 14" and 16" tanks are shipped without media).

### Salt Storage Tank Assembly

Includes salt storage container with support plate and Dubl-Safe™ brine refill valve and chamber.

### Tools and Materials

The following tools and supplies will be needed, depending on installation method.

**NOTE** Check and comply with your state and local codes. You must follow these guidelines.

**For installations in Massachusetts, Massachusetts Plumbing Code 248 CMR shall be adhered to. Consult your licensed plumber for installation of this system. This system and its installation must comply with state and local regulations. The use of saddle valves is not permitted.**

### All Installations

- Safety glasses
- Phillips screwdrivers, small and medium tip.
- Gauge assembly (PN 00304450 or equivalent)
- Silicone lubricant (PN 00471507 or equivalent)—Do Not Use Petroleum-Based Lubricants
- A bucket, preferably light-colored
- Towels

### Special Tools

- Torch, solder and flux for sweat copper connections
- Use only lead-free solder and flux for all sweat-solder connections as required by state and federal codes.
- Threading tools, pipe wrenches and thread sealer for threaded connections.
- Saw, solvent and cement for plastic pipe connections.



## Materials

- Brine line, 3/8" (PN 01009819 or equivalent)
- Drain line, 1/2" (PN 00303082, gray, semi-flexible; PN 00331946, black, semi-rigid; or equivalent)
- Thread sealing tape
- Pressure reducing valve (if pressure exceeds 125 psi [860 kPa])
- Pipe and fittings suited to the type of installation
- Water softener salt (rock, solar or pellet salt formulated specifically for water softeners)

## Application

### Water Quality

Verify that raw water hardness and iron are within limits. Note the hardness for setting the salt dosage and recharge frequency.

Iron is a common water problem. The chemical/physical nature of iron found in natural water supplies is exhibited in four general types: Dissolved Iron, Particulate Iron, Organic Bound Iron and Bacterial Iron. Hardness sample kits are available through your local Culligan dealer.

### Pressure

If pressure exceeds 125 psi (860 kPa), install a pressure reducing valve (see materials checklist). On private water systems, make sure the minimum pressure (the pressure at which the pump starts) is greater than 20 psi (140 kPa). Adjust the pressure switch if necessary.



**CAUTION!** Do not use where the water is microbiologically unsafe or with water of unknown quality adequate disinfection before or after the unit.



**CAUTION!** The use of a pressure reducing valve may limit the flow of water in the household.

### Temperature

Do not install the unit where it might freeze, or next to a water heater or furnace or in direct sunlight. Outdoor installation is not recommended, and voids the warranty. If installing in an outside location, you must take the steps necessary to assure the softener installation plumbing, wiring, etc. Areas well protected from the elements (sunlight, rain, wind, heat, cold), contamination, vandalism, etc. as when installed indoors.

### Location

#### Space Requirements

Allow 6–12 inches (15–30 cm) behind the unit for plumbing and drain lines and 4 feet (1.3 meters) above for service access and filling the salt container.

#### Floor Surface

Choose an area with solid, level floor free of bumps or irregularities. Bumps, cracks, stones and other irregularities can cause the salt storage tank bottom to crack when filled with salt and water.

#### Drain Facilities

Choose a nearby drain that can handle the rated drain flow (floor drain, sink or stand pipe). Refer to Table 3 on page 20 for maximum drain line length.



**NOTE** Most codes require an anti-siphon device or air gap. Observe all local plumbing codes and drain restrictions. The system and installation must comply with all state and local laws and regulations.

### Electrical Facilities

A 10-foot cord and wall mount plug-in transformer are provided. The customer should provide a receptacle, preferably one not controlled by a switch that can be turned off accidentally. Observe local electrical codes.

**NOTE** The softener works on 24V/60 Hz electrical power only. Be sure to use the included transformer. Be sure the electrical outlet and transformer are in an inside location to protect from moisture. Properly ground to conform with all governing codes and ordinances.

**NOTE** PN 01020620 and PN 01018133 plug-in transformer are rated for indoor installations only.

### Placement

**NOTE** Read this section entirely before starting the installation. Follow all applicable plumbing and electrical codes.

Refer to Figure 1 for system placement.

1. With the exception of media containers, open the remaining containers, remove all the components, and inspect them before starting installation.
2. Set the media tank on a solid, level surface near water, drain and electrical facilities.
3. Set the brine system on a flat, smooth, solid surface as near the media tank as possible.

### Tank Assembly

10" tanks are filled with media at the factory.

1. Before the unit can be connected to the plumbing, you must insert the manifold and load the media into the tank for 12", 14" and 16" units.



**CAUTION!** Do not lay the tank down unless a suitable lifting device is available. Personal injury and damage to the unit can result if dropped.

### Position the Mineral Tank(s)

Determine the location for the mineral tanks(s) prior to loading, because they will be difficult to move after the underbedding and gravel are loaded.

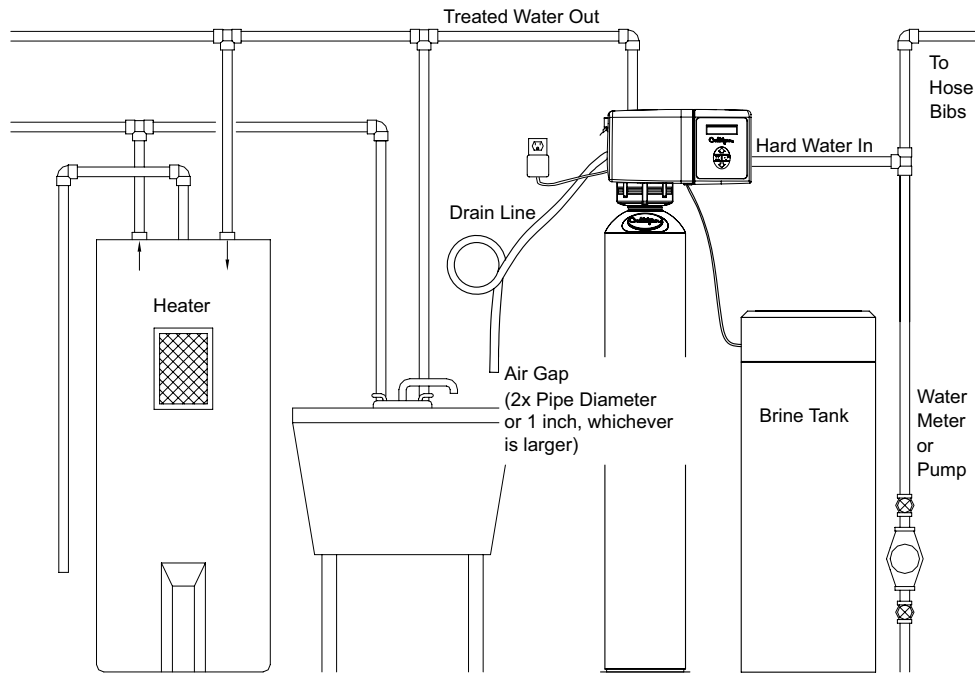



Figure 1. HE 1.25 system placement.

### Load the Tank (12", 14" and 16" Tanks)

Position the tank so that the Culligan® logo is in the front.

2. Remove the inlet strainer.
3. Install the outlet manifold into the tank (Figure 2).
4. Cover the tops of the manifolds with a clean rag.
5. Using a large-mouth funnel, load the Culligan underbedding through the top of the tank.



**CAUTION! DO NOT allow the outlet manifold to move when loading the media. The manifold must remain vertical to ensure a good seal at the gasket. Rap the tank near the bottom with a rubber mallet to level the sand.**

6. Load the tank with the Cullex® ion exchange resin. Leveling is not required.
7. Remove the funnel.
8. Install the inlet strainer making sure to thread the strainer until it bottoms out on the tank thread. Failure to install the strainer correctly can cause the control to leak.

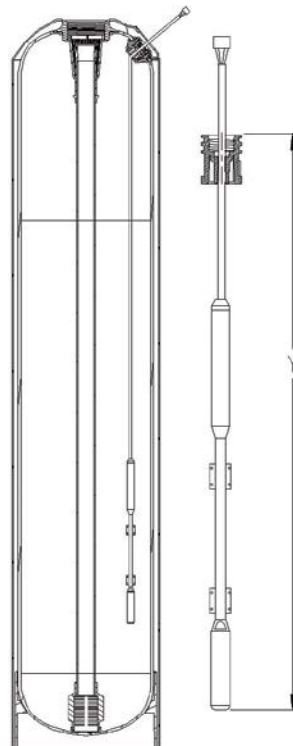


Figure 2. HE 1.25 Softener tank.



## Install Aqua-Sensor

1. Measure the sensor cable length as shown in Figure 2 and Table 1 (the Aqua-Sensor cord is set at the factory for a 9" tank).

Tank Model	Dimension Y
10" Quadra-Hull™ Tank	44"
12" Quadra-Hull Tank	42"
14" Quadra-Hull Tank	52"
16" Quadra-Hull Tank	52"

Table 1. HE 1.25 cable lengths.

2. Loosen the small Aqua-Sensor Plug; a needle-nose pliers works best. See Figure 3.
3. Moisten the cable sheath and slide the cable grip up or down to the proper cable length.
4. Tighten the small Aqua-Sensor plug so that the fitting cannot slide along the cable.

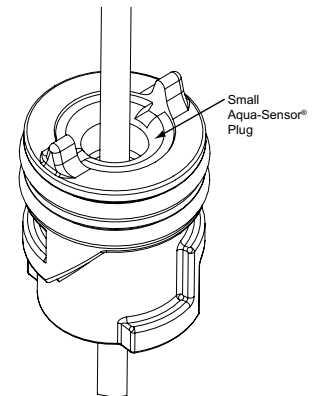


Figure 3. Aqua-Sensor plug.

**NOTE** There must be no kinks or bends in the cable.

5. Insert the probe and cable through the Aqua-Sensor port.
6. Tighten the Aqua-Sensor plug into the Aqua-Sensor port.

**NOTE** The media tank must be backwashed so that the Aqua-Sensor probe can fall into the proper position. See "Recommended Aqua-Sensor® Start-Up Procedure" on page 40.

## Mount the Control Valve

Follow the instructions below and Figure 4 to mount the control valve.

1. Assemble the O-ring, located in the parts pack, to the control valve.
2. Lightly lubricate the O-ring on the valve body and the outlet manifold O-ring with silicone lubricant.

**NOTE** Do not use petroleum-based lubricants, which might cause swelling of rubber parts.

3. Align the outlet manifold with the center opening in the control valve.

**NOTE** Make sure to push the valve straight down onto the manifold. If the valve is cocked, it might cause the O-ring to slip off the manifold.

4. Screw the valve into the tank until the valve body bottoms out on the tank neck.
5. Position the unit with the inlet and outlet connections to the rear.



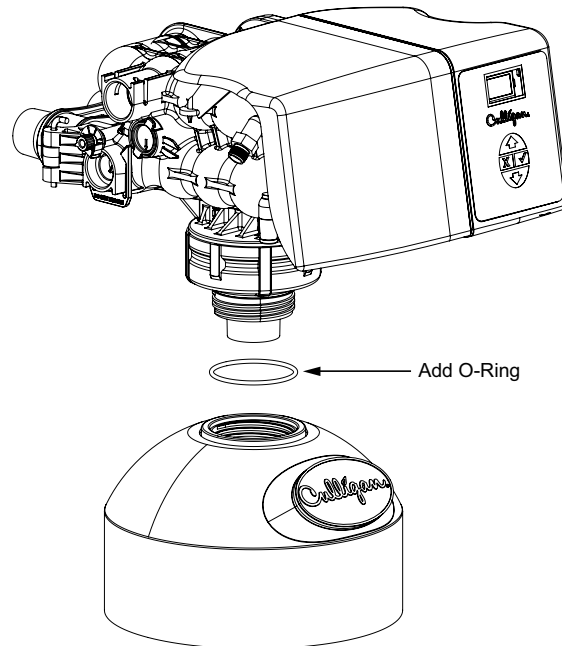


Figure 4. Mounting the control valve.

### Backwash Flow Control, Eductor Nozzle—Throat

Use the recommended backwash flow control, eductor nozzle, and eductor throat for various size tanks. See Table 2.

Refer to Figure 5 through Figure 8 and instructions below for changing the backwash flow control, eductor nozzle, and eductor throat.

Unit	Backwash Flow	Nozzle	Throat	Brine Refill Flow
10" Downflow	2.5–3.1 gpm (#2 Brown)*	Beige	Light Brown *	0.45 gpm
12" Downflow	3.0–3.2 gpm (#3 Green)	Beige*	Light Brown	0.8 gpm
14" Downflow	5.3 gpm (Black)	Green	Blue	0.8 gpm
16" Downflow	5.3 gpm (Black)	Green	Blue	0.8 gpm

\* Shipped assembled inside the control standard from factory

Table 2. Flow Restrictors.

### Eductor Nozzle and Throat Replacement

Refer to Figure 5 and the instructions below when changing the eductor nozzle and throat.

1. Remove the eductor cap clip.
2. Remove the eductor cap.
3. Remove the eductor assembly.
4. Remove the eductor screen from the assembly
5. Remove the blue nozzle and replace it with the correct nozzle. See Table 2.
6. Make sure to put the O-ring on the nozzle.



7. Replace the eductor throat if required.
8. Reverse the procedure to reassemble.

**NOTE** Observe the orientation of the arrow on the eductor cap. The arrow faces down for downflow regeneration applications; the arrow faces up for upflow/proportional brining regeneration applications.

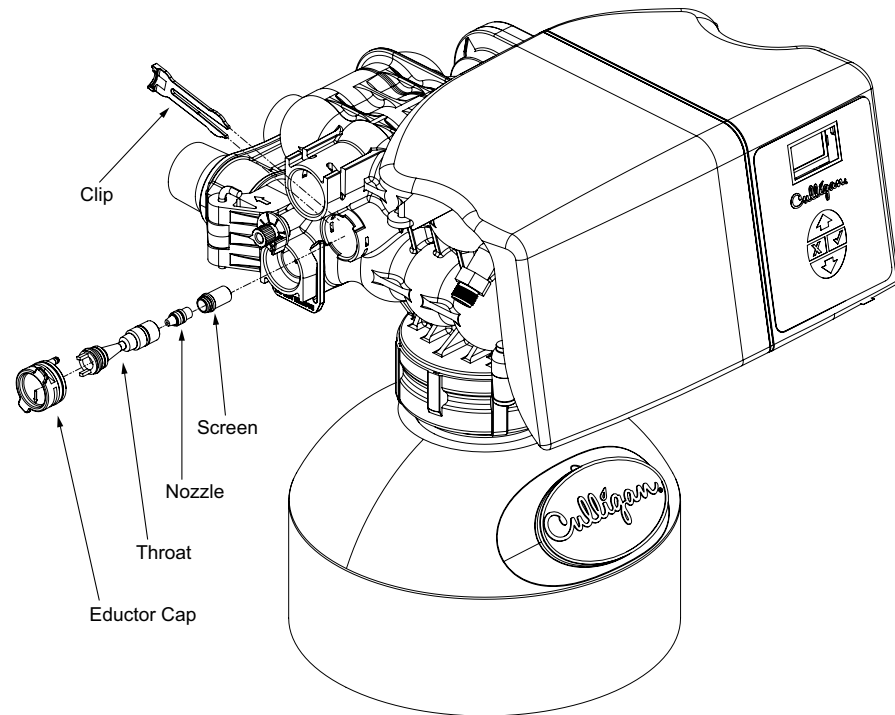


Figure 5. Removing the eductor nozzle and throat.

**Backwash Flow Control Replacement**

Refer to Figure 6 through Figure 8, Table 2, and instructions below to replace the backwash flow control.

1. Remove the cover by releasing the cover fastener from the control valve. See Figure 6 and Figure 7.
2. Remove the drain clip and pull the drain elbow straight off. See Figure 8.
3. Remove the backwash flow control located behind the elbow.
4. Install the correct backwash flow control. See Table 2.
5. Reverse the procedure to reassemble.

**NOTE** The number on the flow control should face into the valve body.

**NOTE** Do not re-install the cover until the drain line tubing is connected.

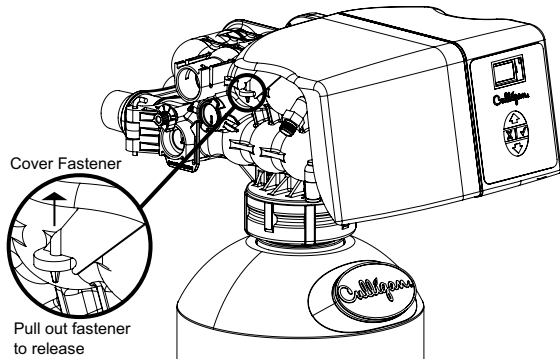


Figure 6. HE softener cover fastener clip.

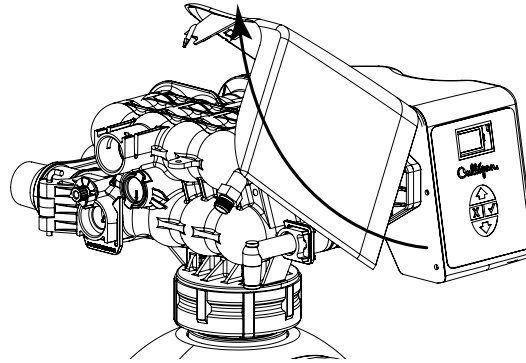


Figure 7. Removing the HE softener cover.

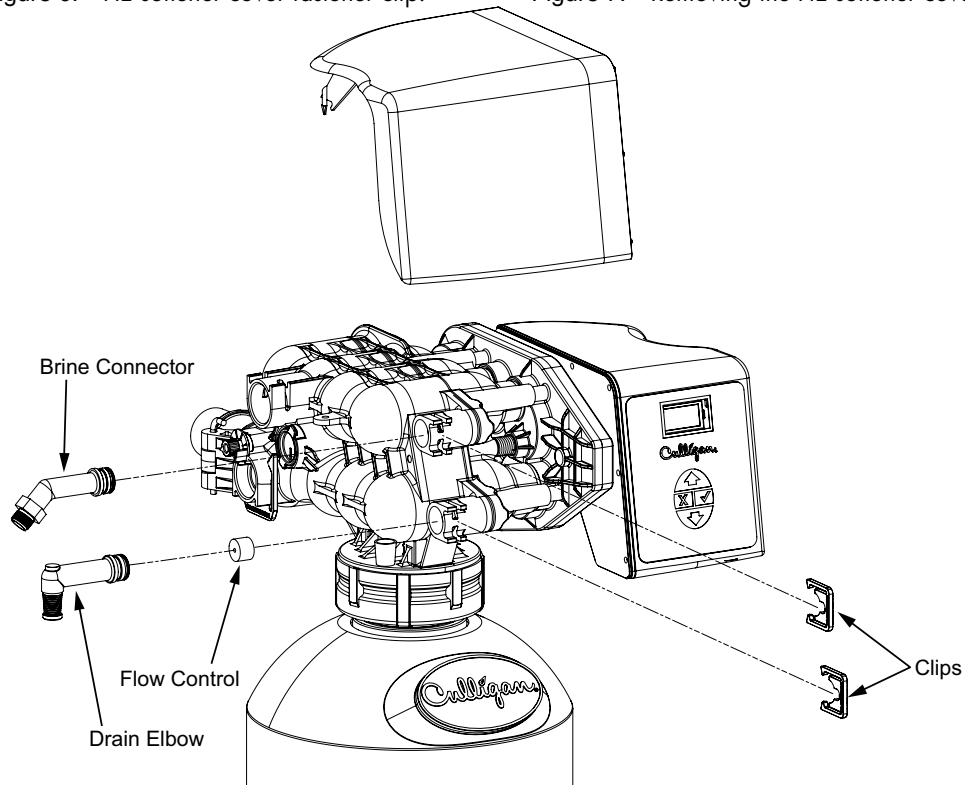


Figure 8. Removing the drain elbow and brine elbow.



### Attaching the Cover

Once the drain and brine line is connected re-attach the cover. Refer to the below instructions and Figure 9 through Figure 11.

1. Align the pins on the cover with the holes on top of the frame; the cover should be slightly angled. See Figure 9.
2. Rotate the cover downward inserting the two pins on the side of the cover into the two holes on side of the frame. See Figure 10.
3. Attach the cover fastener onto the control valve. See Figure 11.

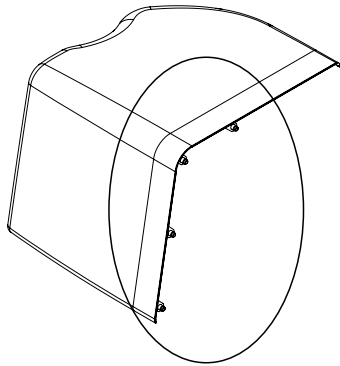


Figure 9. Cover fastener clip.

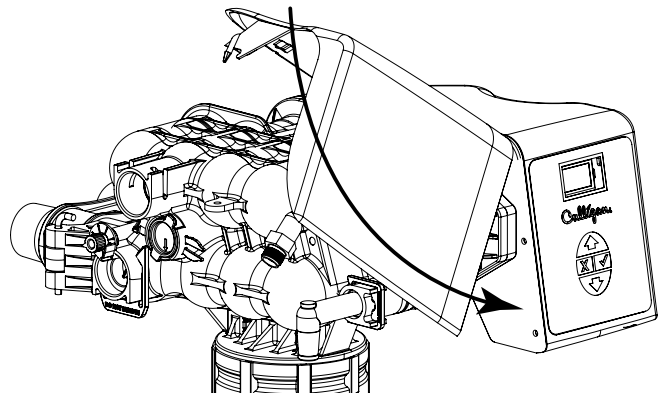


Figure 10. Reattaching the HE softener cover.

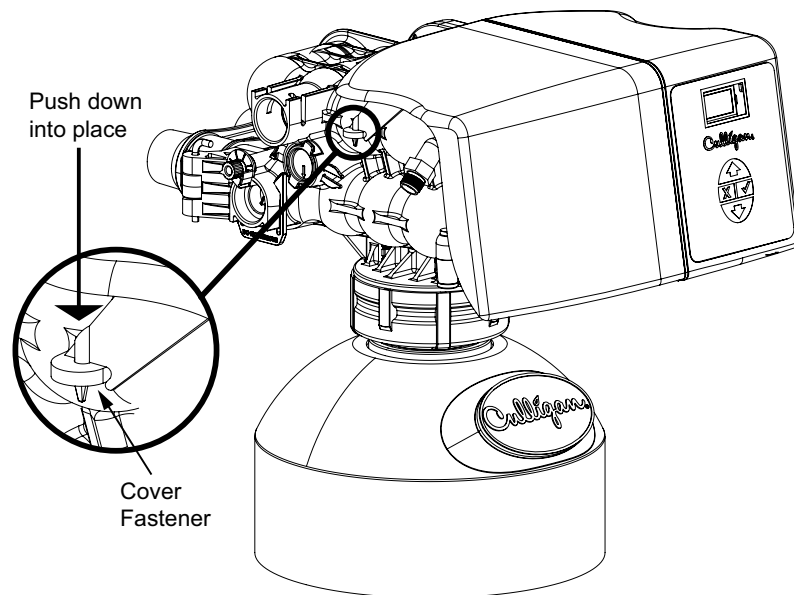


Figure 11. Reattaching the cover fastener.



## Dial-a-Softness

Dial-a-Softness is a manual adjustment built into the control valve that allows for variable hardness bypass into the softened water. The hard water bypass can be adjusted to produce 1–3 gpg hardness bleed. Shipped from the factory the Dial-a-Softness knob is set to the “SOFTEST” position (no hard water bypass). See Figure 12.

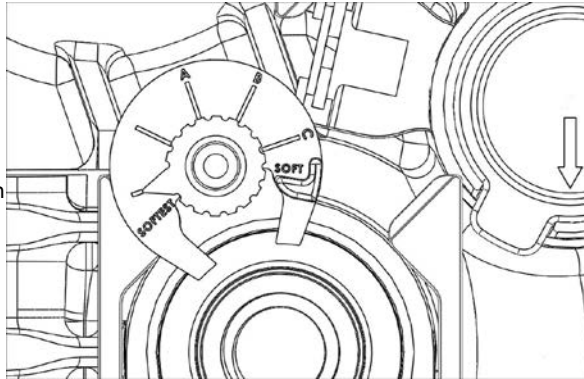


Figure 12. Dial-a-Softness knob.

To set the Dial-a-Softness:

1. Locate the Dial-a-Softness knob on the control valve.
2. Set the Dial-a-Softness knob to position A, B, or C as outlined in the table below, based on raw water hardness; this should produce a 1–3 gpg hardness bleed.

Letter on Dial-a-Softness Knob	1–3 gpg Hardness Bleed
SOFTEST	0
A	Greater than 20 gpg
B	Between 10–20 gpg
C	Less than 10 gpg

**NOTE** The HE must take into account the adjusted capacity if the Dial-a-Softness was changed. See **Advanced System Setup** to update the Dial-a-Softness setting.

## Plumbing Connections

Shipped with each softener is a Culligan® bypass valve, which is used to connect the softener to the plumbing system. The bypass allows the softener to be isolated from the water service line if service is necessary while still providing water to the home. The bypass valve can be directly plumbed into the system, or can be connected with the following optional sweat connection kits.

- P/N 01010783 1" Sweat Copper Adapter Kit
- P/N 01016564 3/4" Sweat Copper Adapter Kit
- P/N 01016565 3/4" Elbow Sweat Copper Adapter Kit
- P/N P1018757 1" NPT Plastic Elbow Adapter Kit
- P/N P1018758 1" NPT Plastic Installation Kit



**CAUTION!** Close the inlet supply line and relieve the system pressure before cutting into the plumbing! Flooding could result if not done!



**CAUTION!** When making sweat connections, use care to keep heat away from the plastic nuts used to connect the plumbing to the bypass. Damage to these components might result otherwise.



### Bypass Valve/Plumbing Connector Installation

Refer to Figure 13 and the instructions below to connect the meter, bypass valve (or plumbing connector), and interconnecting pipe.

1. All HE units are equipped with a Soft-Minder® meter. The meter is installed on the outlet side of the control valve. The meter body fits in the same space as the coupling between the control valve and the bypass. Make sure the arrow on the flow meter is pointing in the direction of the flow.
2. The bypass valve (or plumbing connector) connects directly to the control valve with the meter and coupling and two assembly pins. Lubricate all O-rings on the couplings/meter with silicone lubricant.

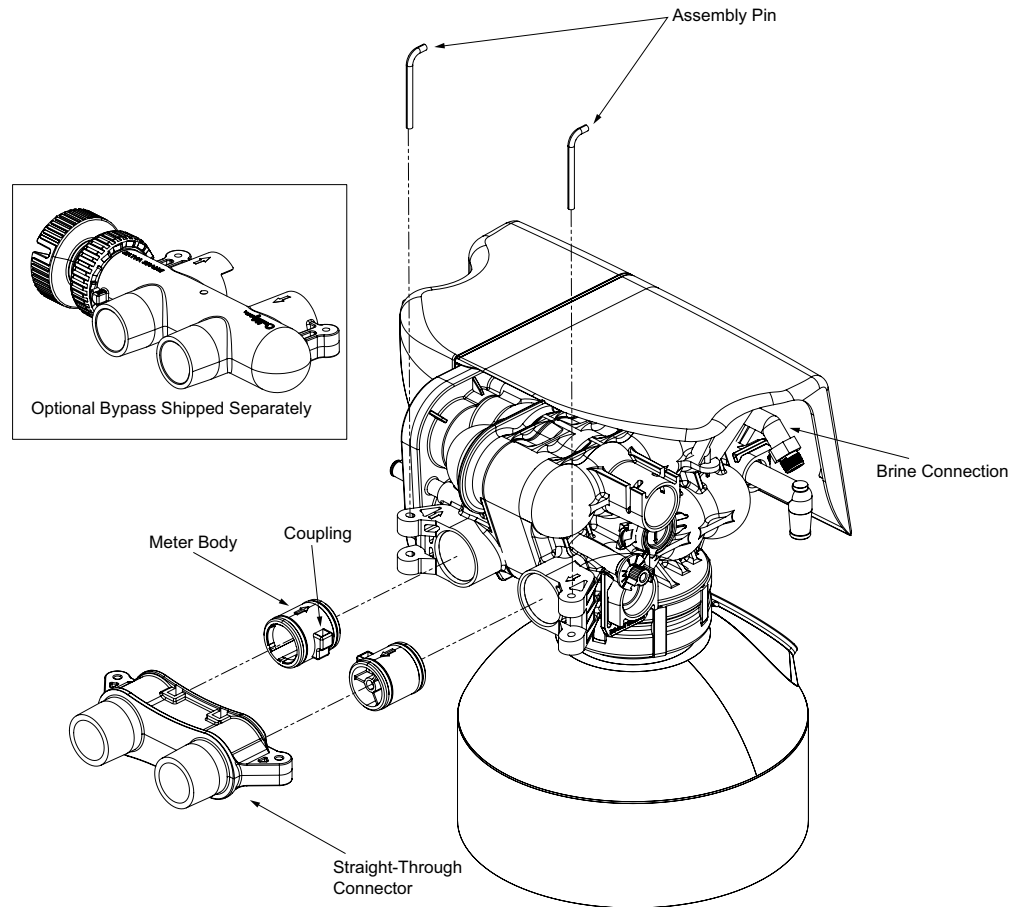


Figure 13. Plumbing connector valve assembly.

**NOTE** If the ground from the electrical panel or breaker box to the water meter or underground copper pipe is tied to the copper water lines and these lines are cut during installation of the bypass valve/plumbing connector, an approved grounding strap must be used between the two lines that have been cut in order to maintain continuity. The length of the grounding strap will depend upon the number of units being installed. In all cases where metal pipe was originally used and is later interrupted by the bypass valve to maintain proper metallic pipe bonding, an approved ground clamp c/w not less than #6 copper conductor must be used for continuity. Check your local electrical code for the correct clamp and cable size.



## Bypass Valve Operation

To bypass using the optional bypass assembly, turn the blue knob clockwise (see directional arrow on end of knob) until the knob stops as shown. **DO NOT OVERTIGHTEN!** See Figure 14. To return to service, turn the blue knob counter-clockwise (see directional arrow on the end of knob) until the knob stops as shown. **DO NOT OVERTIGHTEN!** See Figure 15.

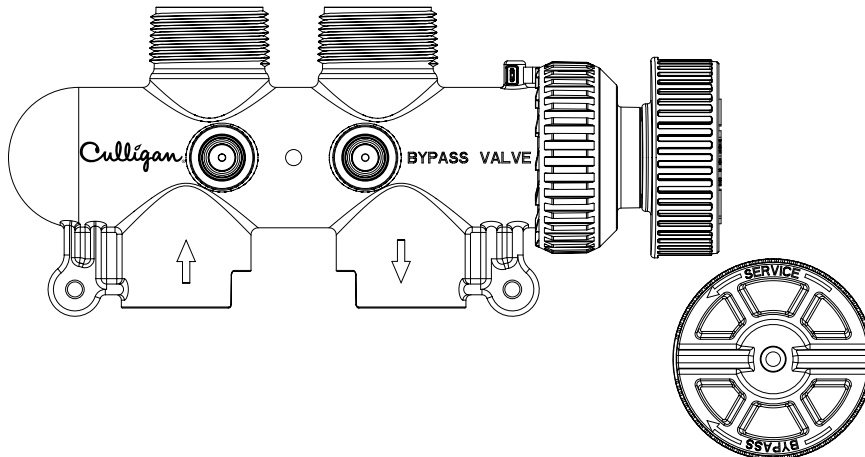


Figure 14. Turn blue bypass knob clockwise.

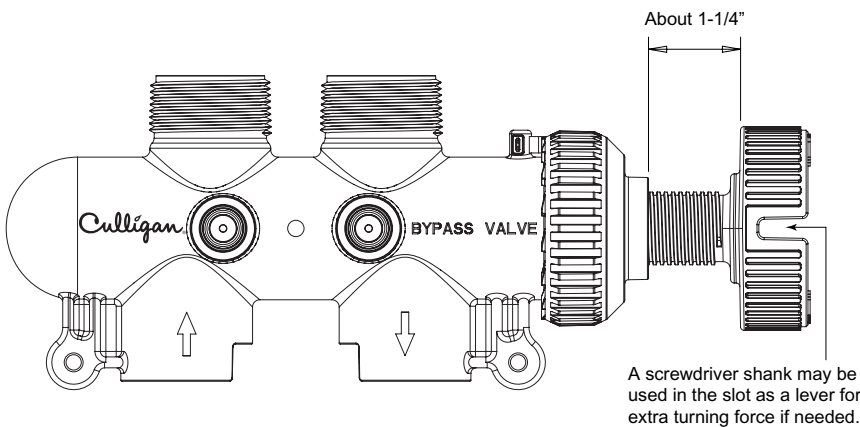


Figure 15. Turn bypass knob counter-clockwise.

## Drain Line Connection

Refer to Table 3 for drain line length and height limitations under the applicable tank size.

1. Remove 1/2" pipe clamp from the small parts pack included with the control.
2. Route a length of 1/2" drain line from the drain elbow to the drain.
3. Fasten the drain line to the elbow with the clamp.
4. Secure the drain line to prevent its movement during regeneration. When discharging into a sink, or open floor drain, a loop in the end of the tube will keep it filled with water and will reduce splashing at the beginning of each regeneration.



**NOTE** Waste connections or drain outlets shall be designed and constructed to provide for connection to the sanitary waste system through an air gap of two pipe diameters or 1 inch, whichever is larger.

**NOTE** Note: Observe all plumbing codes. Most codes require an anti-siphon device or air gap at the discharge point. The system and installation must comply with state and local laws and regulations.

Operating Pressure	0 ft (0 m)	2 ft (0.6 m)	4 ft (1.2 m)	6 ft (1.8 m)	8 ft (2.4 m)	10 ft (3 m)
30 psi (210 kPa)	60 ft (18 m)	50 ft (15 m)	30 ft (9 m)	15 ft (5 m)	Not allowable	Not allowable
40 psi (279 kPa)	100 ft (30 m)	90 ft (27 m)	70 ft (21 m)	50 ft (15 m)	30 ft (9 m)	12 ft (4 m)
50 psi (349 kPa)	145 ft (41 m)	115 ft (35 m)	80 ft (24 m)	80 ft (24 m)	60 ft (18 m)	40 ft (12 m)
60 psi (419 kPa)			100 ft (30 m)	100 ft (30 m)	85 ft (26 m)	60 ft (18 m)
80 psi (559 kPa)	Normal installation should not require				140 ft (43 m)	120 ft (37 m)
100 psi (699 kPa)	more than 100 ft (30 m) of drain line					150 ft (46 m)

Table 3. Height of Discharge Above Floor Level Operating.

**Connect the Brine Line**

1. Measure a length of brine line sufficient to reach from the brine tank to the brine fitting, with no sharp bends. For easier access to the float it is recommended to add an extra four feet (1.3 meters) of length to the brine line.
2. Cut both ends of the brine line squarely and cleanly.
3. Slip the white nut over one end of the tubing and press the plastic insert into the end of the tubing (Figure 16). Connect to the brine valve and tighten nut.
4. Remove white nut and plastic insert from the small parts pack.
5. Slip the white nut over one end of the tubing and press the plastic insert into the end of the tubing. Connect to the brine connection on the valve and tighten nut.

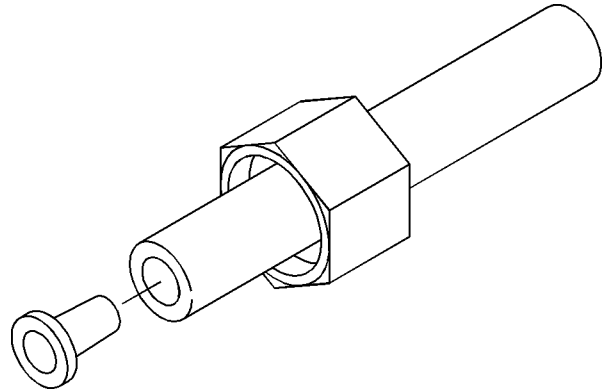


Figure 16. Brine valve tubing.

**Fill The Salt Storage Container**

Fill the salt storage container with water until the level reaches about 1 inch above the salt support plate. Pour salt into the container. Fill with salt to within a few inches of the top.





## Brine Valve "A" Dimension

The brine valve contains a brine float which can serve as a backup refill shutoff in the event of a failure, such as a power outage when in the refill position. The float level should be set based on the salt dosage setting. See Figure 17.

1. Remove nut retaining brine valve to brine chamber.
2. Lift the brine valve from the brine chamber.
3. Find the correct "A" dimension from Appendix A in the HE 1.25 Softener Installation/Operation manual (PN 01024583).
4. Set the distance from the top of the filter screen to the base of the float accordingly. The slight difference in height when the float is pulled up or down is negligible.
5. Re-install into brine chamber and replace nut.

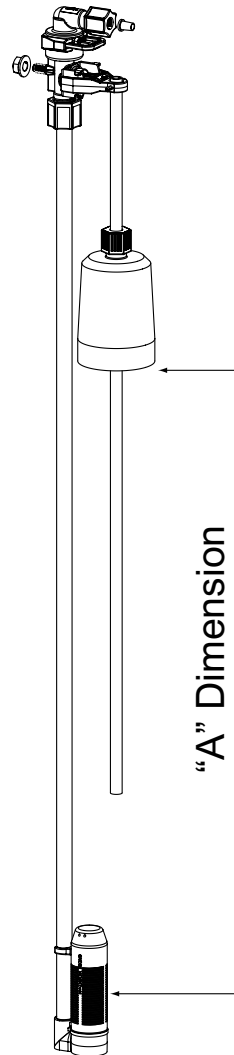


Figure 17. Brine valve "A" dimension.



### Circuit Board Connections

The 24V power supply and flow meter wire harness is already connected to the circuit board. If no other circuit board connections are required proceed to the First Time Setup. Refer to the instructions below and Figure 18 to Figure 25 for connecting the Aqua-Sensor probe wire harness to the circuit board.



**WARNING!** Disconnect all electrical power to the unit before connecting.



**CAUTION!** Grip all connections to the circuit board by the connecting terminals for assembly and disassembly. Failure to do so could result in damage to the wire leads or connecting terminals.



**CAUTION!** Do not touch any surfaces of the circuit board. Electrical static discharges might cause damage to the board. Handle the circuit board by holding only the edges of the circuit board. Mishandling of the circuit board will void the warranty.

**NOTE** Observe all state and local electrical codes.

1. Remove the electrical enclosure from the control valve. First remove the electrical enclosure screw and then gently remove the enclosure from the control. Refer to Figure 18 and below instructions.

**NOTE** The compartment plate is tightly connected to the enclosure and might be removed at the same time as the enclosure.

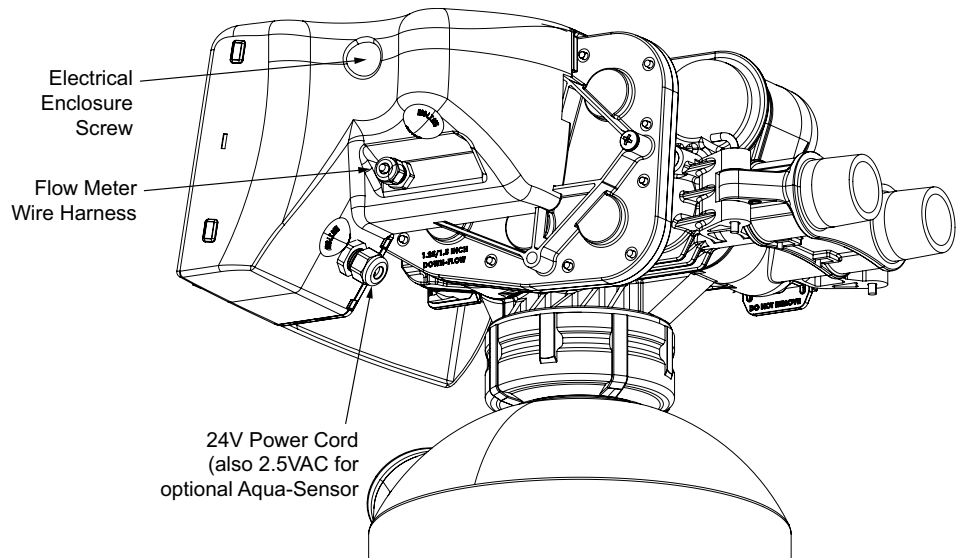


Figure 18. Circuit board connections.

2. Remove the compartment plate from the enclosure, placing the plate against the frame.
3. Disconnect the 24V power supply wire harness from the circuit board. See Figure 19.



4. Grip the circuit board from the edges and gently rotate it to the back of the enclosure (you are disengaging the circuit board from the two support pins on the bottom and top of the enclosure). See Figure 20.
5. Remove the circuit board from the enclosure.

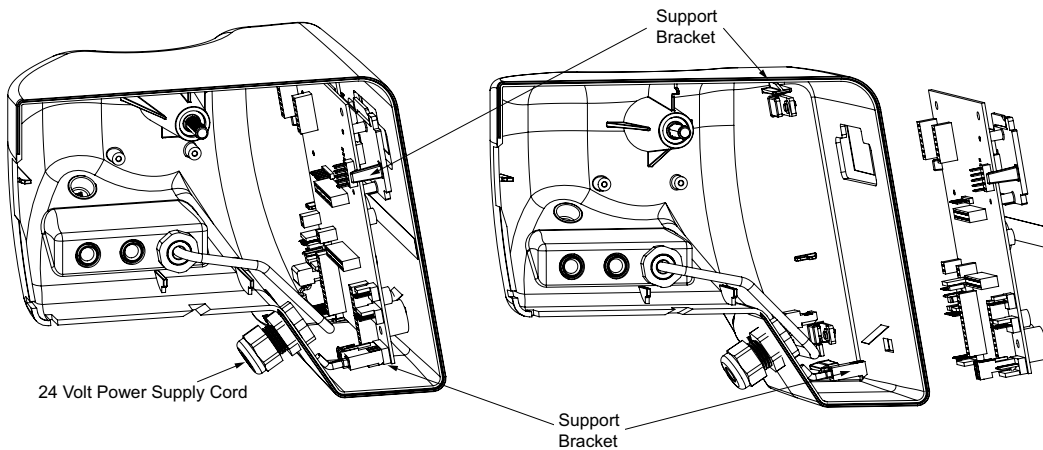


Figure 19. Circuit board power supply.

Figure 20. Circuit board removal.

### Installing Accessory Connections

The HE 1.25 Controller enclosure has several portals to allow connections to HE accessories. Each connection portal is molded into the controller enclosure. If the portal is not already opened and/or plugged, it may be opened by pushing a sharp object (screwdriver or knife) through the plastic. See Figure 21.

A connector/bushing and/or plug should be placed in the port assigned for each HE 1.25 accessory. See Figure 21 and Figure 22 and Table 4 for connector/bushing and plug types and their position on the HE 1.5 Controller enclosure.

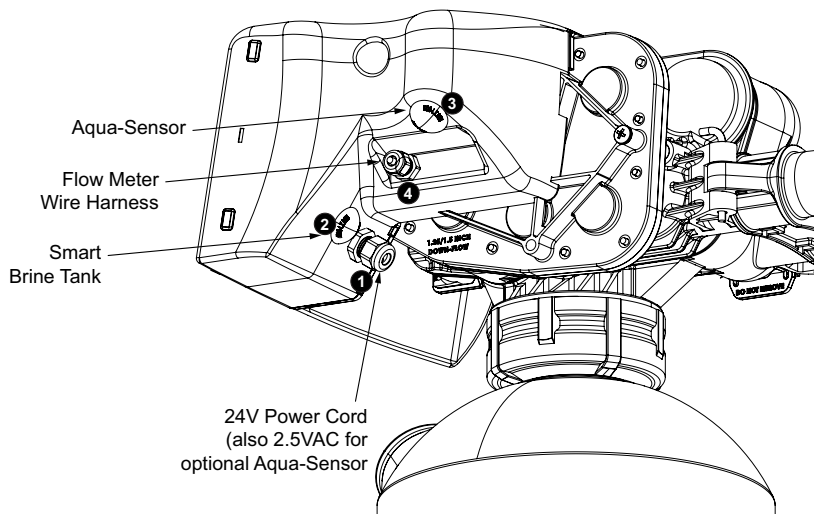


Figure 21. HE 1.25 Controller connection ports.



Figure 22. Connectors.



Part No.	Description	Location(s)	Connection
01025274	Strain Relief Fitting	1	24V Power (pre-installed)
01025264	Strain Relief Fitting	1, 2, 3	Aqua-Sensor, SBT, replaces 01025274 when used with optional 2.5VAC Power
01025277	Liquid Tight Hole Plug	1, 2, 3,	—
01025278	Bushing, Strain Relief	4, 5	—
—	Cord Grip, Liquid Tight	4	Flow Meter

Table 4. Accessory connectors and possible connections.

To install an HE 1.25 electrical or accessory connection:

1. Remove the plastic plug from the port on the enclosure, or open the port through the molded recessed area.
2. Remove the plastic nut from the bushing attached to the preinstalled connector cable.
3. Place the bushing with the cable through the port.
4. Tighten the nut on the interior side of the port opening on the controller enclosure. See Figure 23.
5. Attach the female connector to the Smart Controller circuit board at the appropriate location.

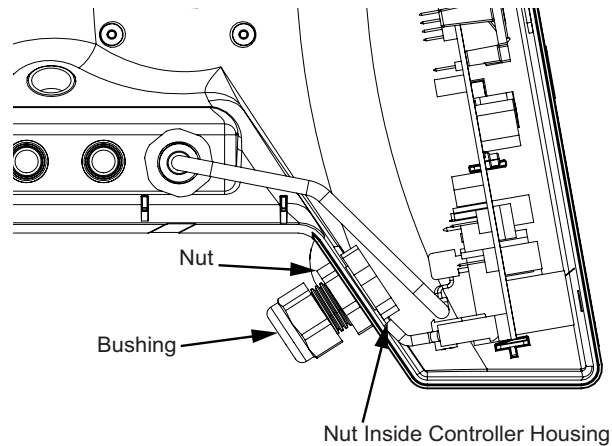


Figure 23. Connector bushing and nut position.



## Installing Aqua-Sensor

1. Locate the Aqua-Sensor 2.5VAC power cord and bushing (01025264) packed in the small parts pack. The power cord has two spade terminals on one end of the cable and a plastic female connector on the other end.
2. Disconnect power from the circuit board.
3. Remove the power cord bushing (P/N 01025274) from the outdoor enclosure (location #1 in Figure 21) by loosening the nut from the 24V power cord bushing.
4. Discard the dummy connector on the 2.5VAC circuit board pins.
5. Remove the bushing cable assembly from the enclosure.
6. Press a small screwdriver into the slots on the plastic female connector housing to remove the two metal slip-in tabs on the 24V power cord. See Figure 24.
7. Remove the 01025274 bushing from the 24V power cord.
8. Insert the 24V and 2.5VAC power cords through the shared bushing (P/N 01025264). See Figure 23.
9. Use a small screwdriver to raise the tongue on each metal tab so it is protruding at the top. Reinstall the tabs in the housing. Tug lightly on the cord to make sure the tab does not pull free from the housing. See Figure 24.
10. Place the bushing with the cable through the opening and tighten the nut that is on the interior of the enclosure.
11. Plug each power connector to the appropriate pin on the Smart Controller circuit board. See Figure 25.

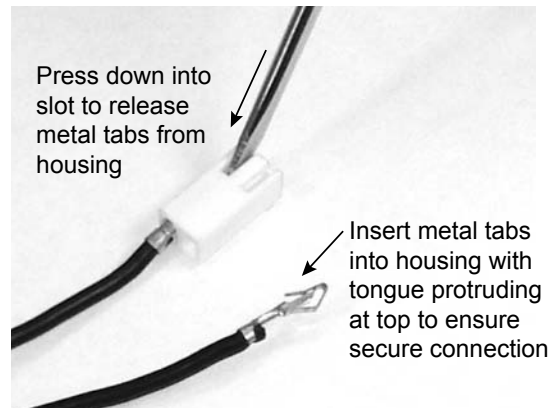


Figure 24.



**CAUTION!** Verify wiring from the terminals to circuit board are correct before applying power to the control. 24V power must not be applied to the 2.5 VAC terminals.



**CAUTION!** Connecting 24V to the 2.5 VAC connection on the circuit board will damage the circuit board.

**NOTE** The wire connectors must be connected to the circuit board properly. The wires must exit the plug-in connector opposite of the raised white base of the circuit board connector. Failure to properly connect any of the connectors will result in a malfunction of the circuit board operation.

12. Connect the other end of the power cord, with the spade terminals, to the two 2.5 VAC terminals on the transformer. See Figure 25.
13. Insert the Aqua-Sensor sensor probe wire harness through the Aqua-Sensor connector opening at location #3 on the controller enclosure. See Figure 21.



14. Tighten the nut on the interior side of the port opening on the controller enclosure. See Figure 23.
15. Connect the Aqua-Sensor probe wire harness bushing to the circuit board. The Aqua-Sensor probe terminal is labeled "Aqua-Sensor." See Figure 25.

**NOTE The 230 VAC transformer does not have 2.5 VAC connections. The Aqua-Sensor probe cannot be used.**

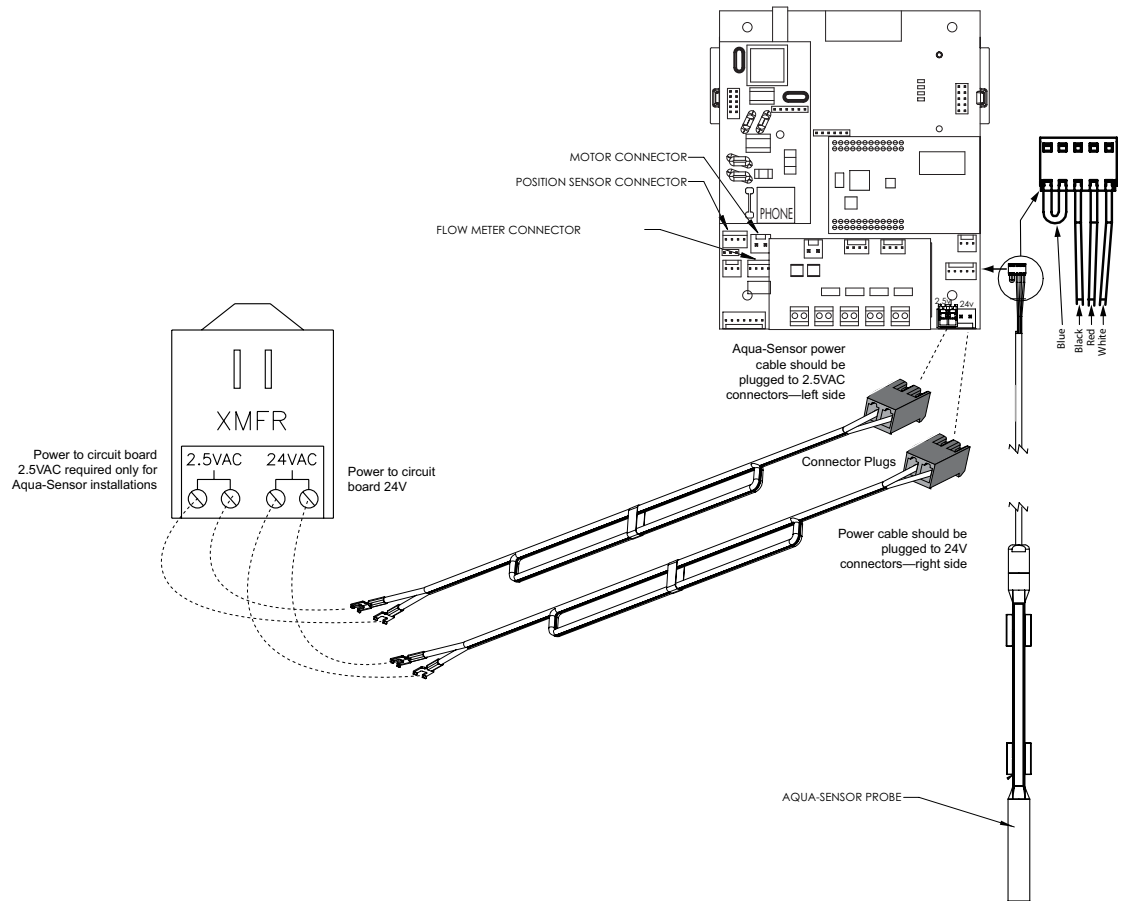


Figure 25. 2.5 VAC Aqua-Sensor® power connection.

**Returning the Circuit Board into the Enclosure**

1. Angle the circuit board opposite the front enclosure and into the support bracket on the side of the enclosure.
2. Gently push down and rotate forward until you hear a click (the pins on the bottom of the enclosure being inserted into the circuit board).
3. Check to make sure the circuit board is rigidly fastened.



### Reattaching Electrical Enclosure Cover to Control Valve

1. Align the circuit board in the enclosure with the three support brackets on the control valve frame. See Figure 26.
2. Align the compartment plate over the gear motor onto the control valve frame. Ensure that the gaskets on the compartment plate are positioned correctly to prevent leaks.
3. Pull the position sensor cable back through the gray rubber bushing.
4. Place the enclosure onto the control valve, aligning the circuit board edge with the slots on the control valve frame and the screw on the enclosure with the hole on the cover.

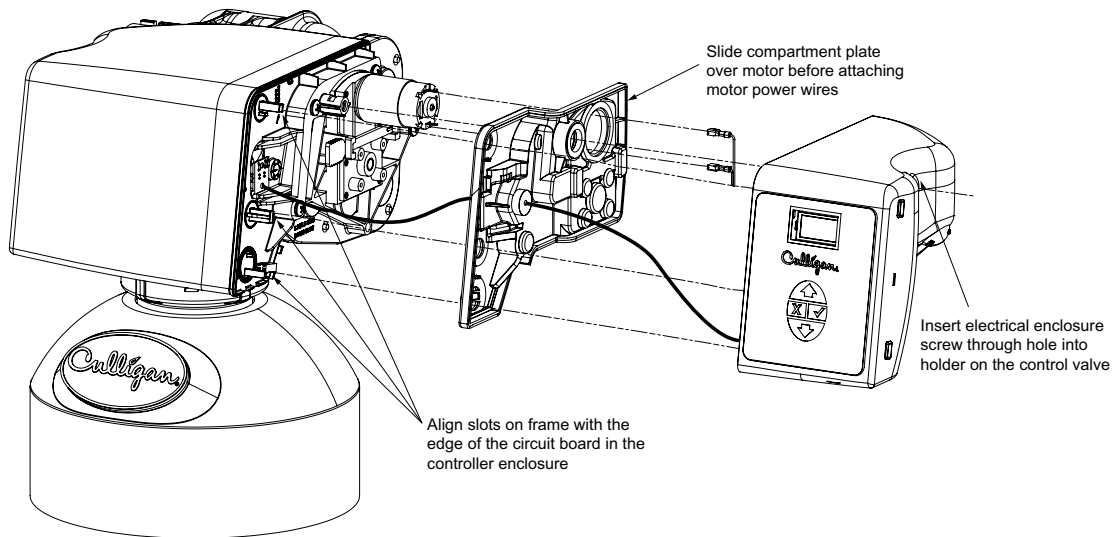
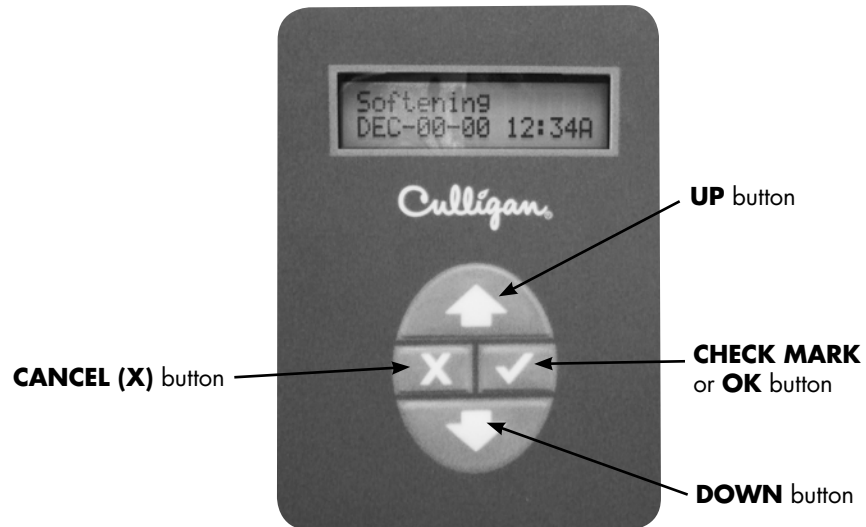


Figure 26. Attaching enclosure cover to control valve.

5. Screw the enclosure on the control.
6. Connect the 24V power cord to the two 24V terminals on the transformer.



## Navigating the Menus and Keypad



**UP ARROW** button: scrolls up the menu



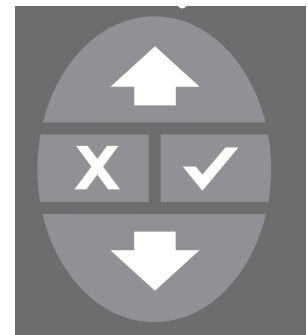
**DOWN ARROW** button: scrolls down the menu



**CHECK MARK** button: selects the highlighted option, opens a new screen, or accepts a changed setting



**CANCEL** or **X** button: returns to the previous screen or cancels a changed setting



Controller






Remote

**NOTE** Hold down  or  to quickly scroll through the setting without repeatedly pressing the button.

Softening  
JAN-01-12 12:01P

>1) INFORMATION  
2) MANUAL MODE

1. This is the **HOME SCREEN**. Press any button except  to advance to the **MAIN MENU SCREEN**.
2. This is the **MAIN MENU SCREEN**. The ">" symbol indicates the menu selection. Press  or  to scroll through the menu.







1 ) INFORMATION  
>2 ) MANUAL MODE





3. This is the **MAIN MENU SCREEN**. The ">" symbol indicates the menu selection. Press  or  to scroll through the menu.

MANUAL MODE  
REGEN NOW


4. Press  to select a setting.

MANUAL MODE  
>REGEN NOW


5. The screen displays the setting (Manual Mode) and the current value (Regen Now). Press  to change the value.

6. The screen displays the ">" symbol next to the value, indicating that the value may be changed. Press  or  to change the value. For example, press  to change the value to REGEN TONITE. Press  again to select the next available value, BYPASS.

MANUAL MODE  
REGEN NOW

7. Press  to cancel the changed setting and revert to the default setting. The screen displays the default setting.

MANUAL MODE  
>BYPASS

8. Press  to accept the changed value. If the setting values are displayed, the ">" symbol no longer appears next to the value.

1 ) INFORMATION  
>2 ) MANUAL MODE

9. The screen then returns to the **MAIN MENU**. Press  to return to the **HOME SCREEN**.

Softening  
JAN-01-12 12:01P

10. The screen displays the **HOME SCREEN**.

**NOTE** Unplugging the Culligan HE 1.25 water softener will not affect any of the control settings (the control must be plugged in for at least 10 minutes). Once programmed, the settings will be stored indefinitely.




## First Time Setup

### First Time Setup Procedure

When a new controller is first powered on, the screen will display the first time setup message. The HE Controller is designed to simplify the setup and installation process by making some default recommendations during the initial setup. These default settings are appropriate for most common installations.


After completing the plumbing connections to the water softener, turn on and program the HE Controller.

FIRST TIME SETUP  
PRESS DOWN ARROW

When a new controller is first turned on, the screen displays **FIRST TIME SETUP**. Press  to display the first setup screen.

### Serial Number


S/N: 00000123

The screen displays the serial number for this Smart Controller. Press  to display the firmware version information screen.

**NOTE** If this unit will be installed with a modem, it is required that this electronic ID number be reported to Culligan on the IQR form.



### Firmware Version

FWR217LT21  
Jul 24 2012

The screen displays the firmware version and date installed for this Smart Controller. Press  to display the month setup screen.



### Set Month (Jan-Dec)



SET MONTH  
JAN

The screen displays the month setting. Press  to accept the information displayed (and view the next setting), or press  to change the setting and advance to the next setting, **SET DAY**.

### Set Day (0-31)



SET DAY  
>3



The screen displays the day setting. Press  to accept the information displayed (and view the next setup screen), or press  to change the setting.

Press  to see the next available value. Press  to accept the selected day and advance to the next setting, **SET YEAR**.

### Set Year (2009-2030)

SET YEAR  
>2012

The screen displays the year setting. Press  to accept the information displayed (and view the next setup screen), or press  to change the setting.

Press  to see the next available value. Press  to accept the selected year and advance to the next setting, **CLOCK TYPE**.



### Set Clock Type (12 or 24)

CLOCK TYPE  
>12 HR

The screen displays the clock type setting. Press  to accept the information displayed (and view the next setup screen), or press  to change the setting.

Press  to change the clock type from 12-hour to 24-hour. Press  to accept the selected clock type and advance to the next setting, **SET HOUR**.

### Set Hour (12PM–11AM)

SET HOUR  
>12AM

The screen displays the hour setting. Press  to accept the information displayed (and view the next setup screen), or press  to change the setting.

Press  to change the hour (in this example, from 12PM to 10AM). Press  to accept the selected hour and advance to the next setting, **SET MINUTES**.

### Set Minutes (0–60)

SET MINUTES  
>01

The screen displays the minutes setting. Press  to accept the information displayed (and view the next setup screen), or press  to change the setting.

Press  to change the minutes (in this example, from 0 to 20). Press  to accept the selected hour and advance to the next setting, **UNIT TYPE**.

### Unit Type (Softener, Filter, or Resin + Carbon)

UNIT TYPE  
>SOFTENER

The screen displays the unit type setting. Press  to accept the default setting (softener) and advance to the next setting, **VALVE TYPE**.

### Valve Type (HE 1, HE 1.25, HE 1.5, HE 1 Twin, HE 1.5 Twin, 4-Cycle, 5-Cycle, or Plat Plus)

VALVE TYPE  
>HE 1.25

The screen displays the valve type setting. Press  to accept the default setting (**HE 1.25**) and advance to the next setting, **UNITS**.

### Units (US or Metric)

UNITS  
>US

The screen displays the units of measure setting. Press  to accept the default setting (US) and advance to the next setting, **INSTALL TYPE**.

### Install Type (Residential or Commercial)

INSTALL TYPE  
>Residential

The screen displays the installation type setting. Keep this at the default, **Residential**. Press  to view the next setting, **BRINING TYPE**.



### Brining Type (Downflow, Upflow, Proportional)

BRINING TYPE  
>Downflow

The screen displays the brining type setting. Press   or  and then  to change this setting to **Downflow** and view the next setting, **TANK DIAMETER**.

### Tank Diameter (10, 12, 14, 16)

TANK DIAMETER  
>10

The screen displays the tank diameter setting. Press   or  and then  to change the value and view the next setting, **WATER HARDNESS**.

### Water Hardness (1-170)

HARDNESS GPG  
25 (1109 GAL)

The screen displays the water hardness setting in grains per gallon. Press   or  and then  to change the value and begin initialization.

### Completed First Time Setup

Initializing  
JAN-11-12 12:01P

When the setup is complete, the circuit board microprocessor automatically calculates softener capacity. The screen displays the initializing status and the current date and time, and then transitions to the home screen.

SOFTENING  
JAN-01-12 12:01P

The screen displays the current state (the display alternates between Softening and any error) and the date/time set for the unit. This is the default home screen.

The controller is designed to simplify the setup and installation process by making some default recommendations during the Initial Setup. The default settings are designed to be appropriate for most common installations.



## Set Date and Time

Follow this procedure to update the date or time.

**NOTE** The control must be returned to the HOME screen if settings are changed.

Screen Display	Range	Setting Description
SOFTENING JAN-01-12 12:01P	N/A	1. From the <b>HOME</b> screen, press  to view the main menu.
>1) INFORMATION 2) MANUAL MODE	1-6	2. The screen displays the main menu. Press    to select <b>3)SET DATE/TIME</b> .
<b>Set Month</b>		
SET MONTH >JAN	Jan-Dec	3. The screen displays the month setting. Press   or  and then  to change the setting.
<b>Set Day</b>		
SET DAY >1	1-31	4. The screen displays the day setting. Press   or  and then  to change the setting.
<b>Set Year</b>		
SET YEAR >2012	2009-2030	5. The screen displays the year setting. Press   or  and then  to change the setting.
<b>Set Clock Type</b>		
CLOCK TYPE > 12 HR	12 HR, 24 HR	6. The screen displays the clock type setting. Press   or  and then  to change the setting.
<b>Set Hour</b>		
SET HOUR > 12PM	12PM-11AM, 0-23	7. The screen displays the hour setting. Press   or  and then  to change the setting.
<b>Set Minutes</b>		
SET MINUTES >01	0-59	8. The screen displays the minutes setting. Press   or  and then  to change the setting.



Screen Display	Range	Setting Description
<b>Set Daylight Savings Time</b>		
DAYLIGHT SAVING YES	Yes, No	9. The screen displays the Daylight Savings Time setting. Press   or  and then  to change the setting.
2)MANUAL MODE >3)SET DATE/TIME		10. The screen displays the main menu. Press  to save the changes and initialize the system.
SOFTENING JAN-01-12 12:01P		11. The screen displays the home screen.







## Information

The following information can be displayed at the control valve or remote display. These settings are read-only. Press or to scroll through the settings. Press to view the previous setting.

Screen Display	Range	Setting Description
SOFTENING JAN-01-12 12:01P	N/A	1. From the <b>HOME</b> screen, press  to view the main menu.
>1) INFORMATION 2) MANUAL MODE	1-6	2. The screen displays the main menu. Press  to select <b>1) INFORMATION</b> .
SALT TANK LEVEL OK	OK, Low	3. If a Salt Brine Tank is installed, this screen displays the salt level. The status is <b>OK</b> unless the SBT probe detects an overfilled brine tank or low salt level. If the screen displays <b>LOW</b> a subsequent screen displays <b>APPROX DAYS OF SALT REMAINING</b> . Press  to select the next information screen.
REMAIN CAPACITY 100%	0-100	4. The screen displays the softening capacity remaining, displayed as a percentage of the total capacity. During manually initiated regeneration, assume 0 percent remaining capacity. Press  to select the next information screen.
REMAIN CAPACITY 740 GAL	0-no limit	5. The screen displays the softening capacity remaining, measured in gallons (liters). Press  to see the next information screen.
CURRENT FLOWRATE 0.0 GPM	0-no limit	6. The screen displays the current flow rate, measured in gallons (liters) per minute. Press  to see the next information screen.
TODAY'S USAGE 0 GAL	0-no limit	7. The screen displays today's water usage, measured in gallons (liters). Press  to see the next information screen.
AVERAGE DAILY 300 GAL	0-no limit	8. The screen displays average water usage for this configuration. Press  to see the next information screen.



Screen Display	Range	Setting Description
NEXT REGEN ON JAN-03	N/A	9. The screen displays the date of the next regeneration, based on average daily water usage. Press  to see the next information screen.
TOTAL WATER USED 1000 GAL	0-no limit	10. The screen the total water used for this configuration. Whole numbers are displayed above 100 gallons. Press  to see the next information screen.
EXT FILT CAP REM 20000 GAL	0-no limit	11. If an external filter is used, the screen displays the remaining capacity of the filter. When the remaining capacity reaches zero, the system triggers the External Filter Alarm. Press  to return to the main menu.
>1) INFORMATION 2) MANUAL MODE		12. The screen displays the main menu. Press  to exit to the home screen.
SOFTENING JAN-01-12 12:01P		13. The screen displays the home screen.





## Regeneration

There are several conditions that will cause the control to trip a regeneration. The screen displays **REGEN Tonite** when the control has signaled for a regeneration. Regenerating is displayed while the control is in regeneration. The following are conditions that will call for regeneration:

1. When the Soft-Minder® meter has recorded the passage of a predetermined number of gallons.
2. When the Aqua-Sensor® Probe senses the hardness in the Cullex Media.
3. At the preset time, when the number of days without a regeneration is equal to the regeneration interval (timeclock backup) setting.
4. At the preset time, when Regen Tonite is selected. The screen displays Regen Tonite.
5. Immediately, when the Regen Now is selected. The screen displays Regenerating.
6. Immediately, if power to the unit has been off for more than three hours and the time of day has been restored.
7. At the preset time based on "Day-of-Week" Regeneration setting.

Follow either procedure to bypass the softener or to initiate a manual regeneration or automatically bypass the softener at the control valve or the remote display.

### Delayed Regeneration

Screen Display	Range	Setting Description
SOFTENING JAN-01-12 12:01P	N/A	1. From the <b>HOME</b> screen, press <input checked="" type="checkbox"/> and hold for at least three (3)seconds and then release the button.
REGEN TONITE JAN-01-12 12:01P	Regen Tonite	2. The screen displays the regeneration status on the first line of the display. The system will regenerate at a scheduled time.
REGEN OFF JAN-01-12 12:01P	Regen Off	3. To cancel a delayed regeneration, press <input checked="" type="checkbox"/> and hold for at least three (3) seconds and then release the button. The screen displays the new status.

### Immediate Regeneration

Screen Display	Range	Setting Description
SOFTENING JAN-01-12 12:01P	N/A	1. From the <b>HOME</b> screen, press <input checked="" type="checkbox"/> and hold for at least ten (10) seconds.
REGEN NOW JAN-01-12 12:01P	Regen Now	2. The screen displays the regeneration status on the first line of the display. The softener will initiate an immediate regeneration.
REGENERATING JAN-01-12 12:01P	N/A	3. The first line of the screen displays <b>REGENERATING</b> .



## Standard Manual Regeneration

Screen Display	Range	Setting Description
SOFTENING JAN-01-12 12:01P	N/A	1. From the <b>HOME</b> screen, press  to view the main menu.
1) INFORMATION >2) MANUAL MODE	1-6	2. The screen displays the main menu. Press   to select 2)MANUAL MODE.
MANUAL MODE >REGEN NOW	Regen Off Regen Now Regen Tonite Bypass	3. The screen displays the manual regeneration menu. Press   or  and then  to change the setting.  <b>REGEN NOW</b> is the default. <b>REGEN OFF</b> specifies the softener will not regenerate. <b>REGEN TONITE</b> specifies that the softener will regenerate that night at 2:00 a.m. (or at the preset regeneration time). The screen displays two status messages: <b>SOFTENING</b> and <b>REGEN TONITE</b> . <b>BYPASS</b> specifies a preset softener bypass time. Press  to select the total time the softener is in the bypass state.
MANUAL BYPASS OFF	Off, 30, 60, 90, 120, 180, Manual Bypass	4. The screen displays the manual bypass duration, in minutes. This specifies the total time the softener is to be in the bypass state. Press   or  and then  to change the setting.
SOFTENING JAN-01-12 12:01P	N/A	5. Press   to display the home screen.



## Recommended Meter Start-Up Procedure

1. Close the main water supply valve.
2. Set the Cul-Flo-Valv® to the bypass position.
3. Ensure that all faucets at the installation site are closed.
4. Direct the drain line discharge into a bucket where flow can be observed.
5. Plug the transformer into a 120 Volt, 60 Hz, single-phase receptacle. The screen displays **FIRST TIME SETUP**.
6. Complete the First Time Setup.
7. Open the main supply valve.
8. Initiate an immediate regeneration to move the control into the **BACKWASH** position.
9. Refer to the section on manual cycling for information on cycling the control through its positions.
10. When in the **BACKWASH** position, slowly rotate the bypass to the soft water position until water flows.
11. Allow the tank to fill slowly until water flows from the drain line.
12. When flow to drain is established, open the bypass fully. Watch the drain line discharge for signs of resin. If signs of resin particles appear, reduce the flow. Increase the flow again when resin no longer appears in the discharge.
13. After the **BACKWASH** runs clear, step the control to the **REFILL** position to fill the brine tank and purge air from the brine line.
14. Complete the installation and cleanup.
15. Sanitize the unit as you leave the installation site. See "Sanitizing Procedure" on page 44.
16. Initiate an immediate regeneration, or set to regenerate at the preset time.

## Final Startup



## Recommended Aqua-Sensor® Start-Up Procedure

**NOTE** You might find it useful to pre-test the sensor probe in your shop. The same test setup can be used in the field.

1. Close the main water supply valve.
2. Install the sensor probe into the tank but do not connect the sensor to the control at this time.
3. Set the Cul-Flo-Valv® to the **BYPASS** position.
4. Ensure that all faucets at the installation site are closed.
5. Direct the drain line discharge into a bucket where flow can be observed.
6. Plug the transformer into a 120 Volt, 60 Hz, single-phase receptacle (make sure to connect both 24V and 2.5V properly).
7. Complete the First Time Set-up.
8. Open the main supply valve.
9. Initiate an immediate regeneration to move the control into the **BACKWASH** position.
10. Refer to the section on manual cycling for information on cycling the control through its positions.
11. When in the **BACKWASH** position, slowly rotate the bypass to the soft water position until water flows.
12. Continue **BACKWASH** until the drain effluent is clear and the Aqua-Sensor probe is placed in the resin bed—at least 10 minutes (use a white foam coffee cup to occasionally collect a sample of backwash water; the stark white of the cup will show the presence of color throw and resin fines).
13. Continue or repeat the **BACKWASH** cycle if needed.
14. After the backwash water runs clear, step the control to the **REFILL** position to fill the brine tank and purge air from the brine line.
15. Unplug the control and connect the sensor to the circuit board.
16. Reconnect the power and **INSTALL** the Aqua-Sensor Probe (Main Menu/ Accessories/ AquaSensor)
17. Check the condition of the Aqua-Sensor (Main Menu/ Diagnostics/ Checksensors)
18. Press the Program key and program the control to the desired settings.
19. Complete installation and cleanup.
20. Sanitize the unit as you leave the installation (see “Sanitizing Procedure” on page 44).
21. Initiate an immediate regeneration.

The thorough backwashing process should have cleared the fines and color-throw from the tank. The probe should settle into the resin bed during the first couple of minutes of backwashing.



## Salt Supply, Usage and Service

Salt is the mineral used to “recharge” your water conditioner. A brine solution is automatically made up in the bottom of the salt storage container, the Cullex® resin beads in the mineral tank are flushed with the brine solution as a step in the recharging process.

Your Culligan Water Conditioner has been carefully designed to get the greatest amount of softening capacity from the salt it uses. Here is some pertinent information about salt usage, types and service.

### Salt Economizer

This control is set at the time of installation, and determines salt usage according to the water hardness, number of persons in the household, and water usage.

### What Kind of Salt is Best

All Culligan Water Conditioners are designed to use any water conditioner salt of good quality, including rock, pellet, solar, or “evaporated” types.

All rock salt, regardless of source, contains insoluble material which collects at the bottom of the salt storage tank and requires periodic clean-out.

If purified salt products are used, the salt storage compartment will require less frequent clean-out, but you must check more frequently for “bridging.”

Regardless of what type of salt is used, we recommend Culligan Brand Salt as suggested by your Culligan Dealer. He or she is the expert and can provide you with the best product for your Culligan Water Conditioner.

### Automatic Salt Delivery Service

Ask your Culligan Dealer for details about salt delivery service. You can have your salt supply replenished on a regular basis. Whether you have automatic delivery service or pick up salt from your Culligan Dealer, you will be getting quality salt packaged according to rigid Culligan specifications. Using Culligan Brand Salt will help assure continued efficiency and trouble-free operation of your water conditioner.

The modem allows for the system to be remotely monitored, detecting problems before they occur, to schedule salt delivery when it is needed and to keep the system software up to date with the latest advances.

**NOTICE Sodium Information: Water softeners using sodium chloride for regeneration add sodium to the water. Persons who are on sodium restricted diets should consider the added sodium as part of their overall sodium intake.**



## Care and Cleaning of Your Water Conditioner

Following these simple precautions will help assure continued trouble-free service and keep your Culligan Water Conditioner looking like new for years.

1. Do not place heavy objects on top of the salt storage tank or timer cover.
2. Use only mild soap and warm water when cleaning the exterior of the conditioner. Never use harsh, abrasive cleaning compounds or those which contain acid, such as vinegar, bleach and similar products.
3. Important: Protect your water conditioner and the entire drainline from freezing temperatures.



**WARNING! DANGER: If your unit should freeze, do not attempt to disassemble it. Call your Culligan Dealer.**

4. Important: Culligan water softeners are sold for use on potable water only. If at any time the water becomes contaminated, such as during a "boil water" advisory, the operation of the water softener should be discontinued until it is verified that the water is again potable. To do this, turn the blue knob in a clockwise position, then call your Culligan dealer to have your system sanitized before it is placed back into service.
5. Should service, adjustment or trouble-shooting information be needed which is not covered in the Use and Care Guide, call your Culligan Dealer.

For parts and service availability please call your local independently operated Culligan dealer. For your nearest Culligan dealer, call (800) 285-5442.

### Recommended Preventative Maintenance Inspection Schedule

The Culligan High Efficiency household water softener has been designed to provide a good, consistent service life. Routinely inspecting the system may help avoid potentially costly breakdowns related to circumstances outside of the control of the dealer and/or user.

Component	Suggested Inspection Frequency	Reason for Maintenance
Entire System	At Start-up, after infrequent use (idle for one week or more) or every 3–6 months.	On private supplies, the appearance of off-tastes and odors, particularly if musty or "rotten egg" (caused by harmless sulfate-reducing bacteria) may indicate a need for the system to be sanitized. See page 48.
Backwash Flow Controller	Every 12 months or every time service is performed on the system.	Build up of sediment, iron and/or other foreign materials (found in some water supplies but not necessarily all) could negatively affect system performance. Monitor item for normal or unexpected wear.
Brine eductor nozzle and throat	Every 12 months or every time service is performed on the system.	Build up of sediment, iron and/or other foreign materials (found in some water supplies but not necessarily all) could negatively affect system performance. Monitor item for normal or unexpected wear.
Softening Media (Cullex)	Every 2–3 years	Chlorinated water supplies can breakdown and destroy resin material. Resin material may also perform poorly if subjected to other materials (sediment, iron, alum, etc.) found in some water supplies (but not necessarily all).



## Cleaning Out the Salt Storage Tank

A periodic clean-out of the Salt Storage Tank is necessary to keep your Culligan Water Conditioner at peak operating efficiency. Do it at least every two years when the salt supply is low. Follow these step-by-step procedures:

### Tools Needed

- Scoop
- Clean, bucket-size container
- Garden hose
- Household scrub brush or sponge

### Procedure

1. Remove the salt storage tank cover and the cap from the brine valve chamber.
2. Lift the brine valve out of the brine valve chamber and set aside in an upright position.
3. If you'd like to save any clean, dry salt remaining in the tank, remove it and place it in a clean container.
4. Using the scoop, dig out and discard as much remaining salt, water and debris as possible.
5. Remove the brine valve chamber by removing the screws on either side of the salt tank.
6. Remove the salt plate at the bottom of the brine tank.
7. Lay the salt tank on its side and direct a brisk stream of water from your garden hose to its inside to rinse out all residue.
8. Using a household scrub brush and a mild soapy solution, clean the salt plate. This will complete the tank cleaning.
9. Insert the brine valve into the chamber and replace brine valve chamber cap.
10. Fill the salt storage tank with 4 to 6 inches of water.
11. Fill the tank with salt to within a few inches of the top.
12. Replace salt storage tank cover.



## Sanitizing Procedure

A water softener in daily use on a potable water supply generally requires no special attention other than keeping the salt tank filled. Occasionally, however, a unit may require sanitization under one of the following conditions:

- At start-up time.
- After standing idle for a week or more.
- On private supplies, the appearance of off-tastes and odors, particularly if musty or “rotten egg” (caused by harmless sulfate-reducing bacteria).

**NOTE** If the water supply contains iron, regenerate the softener before sanitizing to remove iron from the resin.



**CAUTION! Caution! Hazard from toxic fumes! Chlorine bleach and common iron control chemicals may generate toxic fumes when mixed.**

If the unit uses Culligan Sofner-gard® or other compounds containing sodium hydrosulfite, sodium bisulfite, or any other reducing agent, disconnect the device feeding the chemical(s) and manually regenerate the unit before sanitizing.

Do not use this procedure if the softener salt contains iron control additives.

1. Remove the brine tank cover.
2. Pour directly into the brine chamber 1/3 to 1/2 cup of common household bleach (5.25% sodium hypochlorite) for each cubic foot of resin in the tank.
3. Manually start recharge. Allow the unit to complete the recharge cycle automatically.

If tastes and odors return frequently, even after sanitization, a continuous chlorination system may be needed. Send a water sample to a qualified laboratory for bacterial analysis.





## Things to Check Before You Call for Service

If you unexpectedly experience changes in your water, make these simple checks before calling your Culligan dealer. One of the following conditions may be the reason for your interruption of service.

### **Important**

If any of the following conditions is found, the water softener should be manually regenerated according to instructions on page 37 after you have corrected the problem.

### **Power Supply**

Check your power supply cord. Is it plugged fully into the electric outlet? Be certain that the outlet is not controlled by a wall switch which has been turned off. Plug in the transformer then reset conditioner to the correct time of day.

### **Blown Fuse**

Check the house fuse or circuit breaker panel. Replace a blown-out fuse or reset an open circuit breaker.

### **Power Failure**

Any interruption in your power supply or time change—such as daylight savings—will disrupt your softener's regeneration schedule by causing the timer to run off-schedule. Reset the timer to the correct time of day.

### **Bypass Valves**

Check to see if they are in the proper position. Cul-Flo-Valv® Bypass, if used, should be in the "Service" position (see page 37). If hand valves are used, see that inlet and outlet valve are opened and that the bypass valve is closed.

### **No Water**

If you aren't getting any water flow at all, make sure your water supply is working. Open a tap ahead of the conditioner (outside tap) to see if you have any water pressure. If you have water pressure, check the bypass valve. If it is in the Service position, put it into the bypass and call your Culligan dealer for service.

### **Increased Usage**

Guests, family additions, new water-using appliances, etc., will result in more water usage and will require more capacity from your softener. You can reprogram your regeneration schedule by following the directions beginning on page 37. Call your Culligan dealer for advice and save a service call.



## Error Codes

The controller display, as well as the Remote Display (if connected), may display the following errors.

PROBLEM FOUND  
APR-01-12 10:01A

REPLACE FILTER  
MEDIA

-->CLEAR ERRORS

-->GO TO MENU

1. When the controller identifies an error, it is programmed to attempt to correct the error without user input. If the problem persists, the **HOME SCREEN** displays **PROBLEM FOUND**. Press  to display the first error present.
2. Press  to display any additional errors present.
3. Press  and  to view action: **CLEAR ERRORS, GO TO MENU**, or **EXIT**. If you select **CLEAR ERRORS**, the controller checks the error status and attempts to clear the error. If the error still exists, the home screen displays **PROBLEM FOUND**. If the error no longer exists the screen displays **SYSTEM OK**.
4. Press  to select **CLEAR ERRORS, GO TO MENU**, or **EXIT**.

Error	Reason for Error	Comment/ Clearing Error Message
Salt Bridging	Brine tank has low concentration of brine but still appears to have solid salt.	Use a tool to break up any salt bridge inside the brine tank
No Remote Signal	Main board is not receiving a signal from the remote.	Remote is off, out of range or on a different channel from the main board. If interference is suspected, try moving the remote closer or switching to a different channel on both the main and remote units
Motor Home Err	Motor did not move when it should. The control home position could not be found.	Contact your Culligan dealer.
Brine Blocked	The flow rate of brine or water to or from the brine tank is fully or partially blocked.	Check brine line for blockages or air leaks. Check eductor and eductor screen for blockages
Replace Ext Filtr	Total gallons through the secondary filter (i.e. "Big Blue" filter) has exceeded the specified capacity of the Big Blue.	Replace optional filter cartridge. Reset the external filter media life at Main Menu/ Accessories/ Ext. Filter menu
Check Brine Tank	Aqua-Sensor did not detect brine during the regeneration cycle.	Check brine tank and add salt if necessary. Check Z ratio of the Aqua-Sensor at Main Menu/ Advanced / Diagnostics/ Sensors
Call Culligan at xxx-xxx-xxxx	This message is displayed if an error has been detected that requires servicing and no modem installed in the system.	Call the number shown. If possible, place this call using a phone that will allow you to see and enter changes to the main controller if required by the service technician during the call
Pos Sensor Err	The motor is directed to run but no change in position is detected.	Check the motor using manual motor control and the position sensors using Main Menu/ Advanced/ Diagnostics Sensors
Few Days Salt	This is a prediction of the number of days until it will be necessary to add salt to the brine tank.	Salt can be added to the brine tank at any time. It is recommended that the brine tank be filled to approximately 2/3 full.
Low Salt Level	Salt level is low; less than 15 days of salt remaining.	Contact Culligan dealer for salt delivery or fill brine tank with salt.
Low Battery	Battery needs replacement.	Contact your Culligan dealer.
Brine Overflow	Contact your Culligan dealer.	Contact your Culligan dealer.
No Brine In Tank	Failed to refill brine tank. Refill restrictor plugged. Air in brine line causes float to slam shut.	Clean or replace refill restrictor. Verify all tubing connections are properly assembled.
Aqua Sens Probe	An Aqua-Sensor was "Installed" but main board detects the Aqua-Sensor is not connected.	Check connection of Aqua-Sensor to the main board.



## When and How to Bypass Your Water Conditioner

Normally, all water except outside lines passes through the water softener. There are times when the water softener should be bypassed, using the Cul-Flo-Valv® Bypass, or a three-way bypass valve. You should bypass:

1. If lines to outside faucets do not bypass the water softener, and you do not want to waste softened water on lawn sprinkling or other outside uses.
2. If you are going away on vacation and do not want the unit to recharge.

### Bypass Valve

In the back of Culligan water softener is a Cul-Flo-Valv® Bypass valve. To bypass the unit, turn the blue knob clockwise. To return to softened water service, turn the blue knob counter-clockwise.

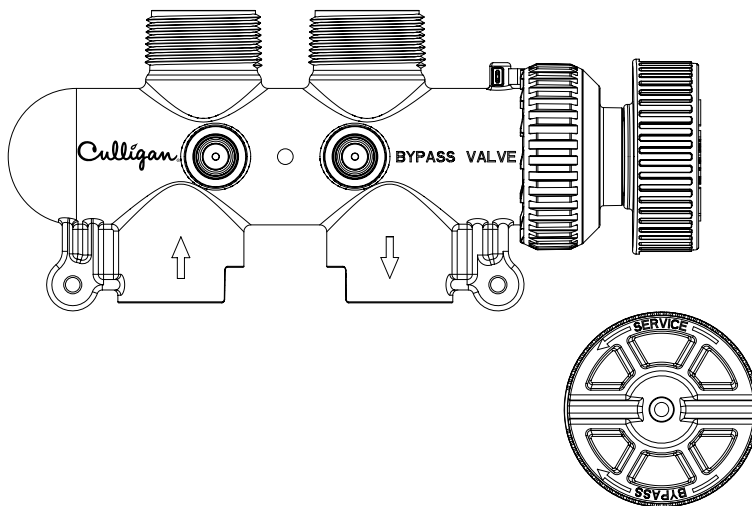


Figure 27. Bypass valve.

### Bypassed

To BYPASS, turn the blue knob clockwise (see directional arrow on end of knob) until the knob stops as shown in Figure 27. DO NOT OVERTIGHTEN!

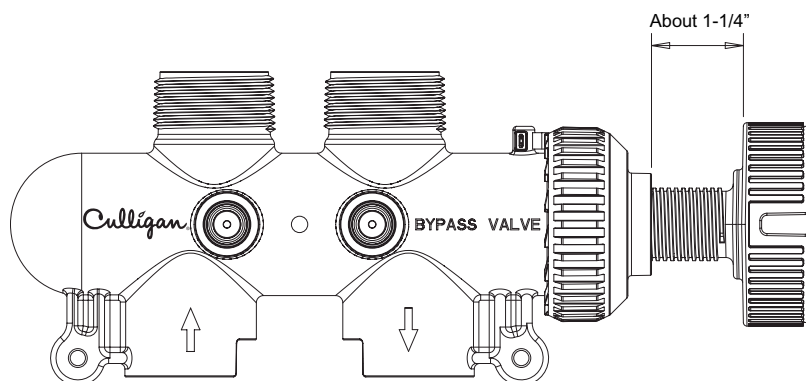


Figure 28. Service valve.

### Softened Water

To return to SERVICE, turn the blue knob counter-clockwise (see directional arrow on end of knob) until the knob stops as shown in Figure 28. DO NOT OVERTIGHTEN!



## Performance Data Sheet

### Culligan HE 1.25 10" Water Softener with Soft-Minder® Meter

Culligan knows the more informed you are about your water treatment systems, the more confident you will be about its performance. It's because of this and more than seventy years of commitment to customer satisfaction that Culligan is providing this Performance Data Sheet to its customers.

**NOTICE** Read this Performance Data Sheet and compare the capabilities of this unit with your actual water treatment needs. It is recommended that before purchasing a water treatment unit, you have your water supply tested to determine your actual water treatment needs.

Manufacturer: Culligan International Company  
9399 W. Higgins Rd., Suite 1100, Rosemont, IL 60018 USA  
(847) 430-2800



Product: Culligan High Efficiency 1.25 10" Water Softener with Soft-Minder® Meter

#### Testing Conditions & Results:

Flow Rate:	14.9 gpm @ 15 psi	Capacity:	28,109 grains @ 6.0 lb. salt
Pressure:	30–40 psi (2.1–2.8 kg/cm <sup>2</sup> )		41,587 grains @ 12.0 lb. salt
Acidity:	Non-Corrosive		45,831 grains @ 18.0 lb. salt
Temperature:	68°F (20°C)	pH:	7.6
Efficiency Rated Dosage†:	4,685 gr @ 6.0 lb		

#### Softener Specifications:

Service Flow Rate: 14.9 gpm	Pressure Drop at Max. Flow Rate: 15 psi
Operating Temp. Range: 33–120°F (0–49°C)	Max. Drain Flow Rate: 2.0 gpm
Working Press. Range: 20–125 psi (1.4–8.5 kg/cm <sup>2</sup> )	Oper. Press. Range (Canada): 20–90 psi (1.4–6.3 kg/cm <sup>2</sup> )

Name of Substance	USEPA Max. Contaminant Level	pH	Flow Rate	Pressure
Barium	2.0 mg/L	7.5 + 0.5	14.9 gpm	15 (psig)
Radium 226/228	5 pCi/L	7.5 + 0.5	14.9 gpm	15 (psig)

This system is certified for barium and radium 226/228 reduction based on hardness reduction. It is recommended you test your water every six months to ensure the system is performing properly and that hardness, and therefore barium and radium 226/228, are being reduced. Hardness test strips have been included. Additional strips are available from your local Culligan dealer.

The Culligan High Efficiency 1.25 Series 10" Water Softeners with Soft-Minder® Meter are tested and certified by WQA against NSF/ANSI Standard 372, CSA B483.1, and NSF/ANSI Standard 44 for the effective reduction of hardness (calcium and magnesium), barium, and radium 226/228 as verified and substantiated by test data.

An efficiency rated water softener is a DIR softener which also complies with specific performance specifications intended to minimize the amount of regenerant brine and water used in its operation. Efficiency rated water softeners shall have a rated salt efficiency of not less than 3350 grains of total hardness exchange per pound of salt (based on NaCl equivalency) (477 grams of total hardness exchange per kilogram of salt), and shall not deliver more salt than its listed rating. The efficiency is measured by a laboratory test described in NSF/ANSI 44. The test represents the maximum possible efficiency the system can achieve. Operational efficiency is the actual efficiency achieved after the system has been installed. It is typically less than the efficiency due to individual application factors including water hardness, water usage, and other contaminants that reduce the softener's capacity.

Refer to the Specifications, Familiarization and Warranty section of this Owner's Guide for more specific product information. To avoid contamination from improper handling and installation, your system should only be installed and serviced by your Culligan Man. Performance will vary based on local water conditions. The substances reduced by this system are not necessarily in your water.

Culligan water softeners are designed to work with any salt of good quality, although it is recommended that you ask your local Culligan Man for his suggestion on the best type and grade of salt to use in this softener.

**NOTICE** This softener is not intended to be used for treating water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

†The efficiency rated dosage is only valid at the 6 lb. salt dosage and maximum service flow rate for 10" models.



## Performance Data Sheet

### Culligan HE 1.25 10" Water Softener with Aqua-Sensor® Sensing Device

Culligan knows the more informed you are about your water treatment systems, the more confident you will be about its performance. It's because of this and more than seventy years of commitment to customer satisfaction that Culligan is providing this Performance Data Sheet to its customers.

**NOTICE** Read this Performance Data Sheet and compare the capabilities of this unit with your actual water treatment needs. It is recommended that before purchasing a water treatment unit, you have your water supply tested to determine your actual water treatment needs.

Manufacturer: Culligan International Company  
9399 W. Higgins Rd., Suite 1100, Rosemont, IL 60018 USA  
(847) 430-2800



Product: Culligan High Efficiency 1.25 10" Water Softener with Aqua-Sensor® Sensing Device

#### Testing Conditions & Results:

Flow Rate:	14.9 gpm @ 15 psi	Capacity:	28,109 grains @ 6.0 lb. salt
Pressure:	30-40 psi (2.1-2.8 kg/cm <sup>2</sup> )		41,587 grains @ 12.0 lb. salt
Acidity:	Non-Corrosive		45,831 grains @ 18.0 lb. salt
Temperature:	68°F (20°C)	pH:	7.6
Efficiency Rated Dosage†:	4,685 gr @ 6.0 lb		

#### Softener Specifications:

Service Flow Rate: 14.9 gpm	Pressure Drop at Max. Flow Rate: 15 psi
Operating Temp. Range: 33-120°F (0-49°C)	Max. Drain Flow Rate: 2.0 gpm
Working Press. Range: 20-125 psi (1.4-8.5 kg/cm <sup>2</sup> )	Oper. Press. Range (Canada): 20-90 psi (1.4-6.3 kg/cm <sup>2</sup> )

Name of Substance	USEPA Max. Contaminant Level	pH	Flow Rate	Pressure
Barium	2.0 mg/L	7.5 + 0.5	14.9 gpm	15 (psig)
Radium 226/228	5 pCi/L	7.5 + 0.5	14.9 gpm	15 (psig)

This system is certified for barium and radium 226/228 reduction based on hardness reduction. It is recommended you test your water every six months to ensure the system is performing properly and that hardness, and therefore barium and radium 226/228, are being reduced. Hardness test strips have been included. Additional strips are available from your local Culligan dealer.

The Culligan High Efficiency 1.25 Series 10" Water Softeners with Aqua-Sensor® Sensing Device are tested and certified by WQA against NSF/ANSI Standard 372, CSA B483.1, and NSF/ANSI Standard 44 for the effective reduction of hardness (calcium and magnesium), barium, and radium 226/228 as verified and substantiated by test data.

An efficiency rated water softener is a DIR softener which also complies with specific performance specifications intended to minimize the amount of regenerant brine and water used in its operation. Efficiency rated water softeners shall have a rated salt efficiency of not less than 3350 grains of total hardness exchange per pound of salt (based on NaCl equivalency) (477 grams of total hardness exchange per kilogram of salt), and shall not deliver more salt than its listed rating. The efficiency is measured by a laboratory test described in NSF/ANSI 44. The test represents the maximum possible efficiency the system can achieve. Operational efficiency is the actual efficiency achieved after the system has been installed. It is typically less than the efficiency due to individual application factors including water hardness, water usage, and other contaminants that reduce the softener's capacity.

Refer to the Specifications, Familiarization and Warranty section of this Owner's Guide for more specific product information. To avoid contamination from improper handling and installation, your system should only be installed and serviced by your Culligan Man. Performance will vary based on local water conditions. The substances reduced by this system are not necessarily in your water.

Culligan water softeners are designed to work with any salt of good quality, although it is recommended that you ask your local Culligan Man for his suggestion on the best type and grade of salt to use in this softener.

**NOTICE** This softener is not intended to be used for treating water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

†The efficiency rated dosage is only valid at the 6 lb. salt dosage and maximum service flow rate for 10" models.



## Performance Data Sheet

### Culligan HE 1.25 12" Water Softener with Soft-Minder® Meter

Culligan knows the more informed you are about your water treatment systems, the more confident you will be about its performance. It's because of this and more than seventy years of commitment to customer satisfaction that Culligan is providing this Performance Data Sheet to its customers.

**NOTICE** Read this Performance Data Sheet and compare the capabilities of this unit with your actual water treatment needs. It is recommended that before purchasing a water treatment unit, you have your water supply tested to determine your actual water treatment needs.

Manufacturer: Culligan International Company  
9399 W. Higgins Rd., Suite 1100, Rosemont, IL 60018 USA  
(847) 430-2800



Product: Culligan High Efficiency 1.25 12" Water Softener with Soft-Minder® Meter

#### Testing Conditions & Results:

Flow Rate:	18.4 gpm @ 15 psi	Capacity:	35,247 grains @ 8.0 lb. salt
Pressure:	30–40 psi (2.1–2.8 kg/cm <sup>2</sup> )		54,191 grains @ 16.0 lb. salt
Acidity:	Non-Corrosive		64,053 grains @ 24.0 lb. salt
Temperature:	68°F (20°C)	pH:	7.6
Efficiency Rated Dosage†:	4,406 gr @ 8 lb.		

#### Softener Specifications:

Service Flow Rate: 18.4 gpm	Pressure Drop at Max. Flow Rate: 15 psi
Operating Temp. Range: 33–120°F (0–49°C)	Max. Drain Flow Rate: 3.5 gpm
Working Press. Range: 20–125 psi (1.4–8.5 kg/cm <sup>2</sup> )	Oper. Press. Range (Canada): 20–90 psi (1.4–6.3 kg/cm <sup>2</sup> )

Name of Substance	USEPA Max. Contaminant Level	pH	Flow Rate	Pressure
Barium	2.0 mg/L	7.5 + 0.5	18.4 gpm	15 (psig)
Radium 226/228	5 pCi/L	7.5 + 0.5	18.4 gpm	15 (psig)

This system is certified for barium and radium 226/228 reduction based on hardness reduction. It is recommended you test your water every six months to ensure the system is performing properly and that hardness, and therefore barium and radium 226/228, are being reduced. Hardness test strips have been included. Additional strips are available from your local Culligan dealer.

The Culligan High Efficiency 1.25 Series 12" Water Softeners with Soft-Minder® Meter are tested and certified by WQA against NSF/ANSI Standard 372, CSA B483.1, and NSF/ANSI Standard 44 for the effective reduction of hardness (calcium and magnesium), barium, and radium 226/228 as verified and substantiated by test data.

An efficiency rated water softener is a DIR softener which also complies with specific performance specifications intended to minimize the amount of regenerant brine and water used in its operation. Efficiency rated water softeners shall have a rated salt efficiency of not less than 3350 grains of total hardness exchange per pound of salt (based on NaCl equivalency) (477 grams of total hardness exchange per kilogram of salt), and shall not deliver more salt than its listed rating. The efficiency is measured by a laboratory test described in NSF/ANSI 44. The test represents the maximum possible efficiency the system can achieve. Operational efficiency is the actual efficiency achieved after the system has been installed. It is typically less than the efficiency due to individual application factors including water hardness, water usage, and other contaminants that reduce the softener's capacity.

Refer to the Specifications, Familiarization and Warranty section of this Owner's Guide for more specific product information. To avoid contamination from improper handling and installation, your system should only be installed and serviced by your Culligan Man. Performance will vary based on local water conditions. The substances reduced by this system are not necessarily in your water.

Culligan water softeners are designed to work with any salt of good quality, although it is recommended that you ask your local Culligan Man for his suggestion on the best type and grade of salt to use in this softener.

**NOTICE** This softener is not intended to be used for treating water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

†The efficiency rated dosage is only valid at the 8 lb. salt dosage and maximum service flow rate for 12" models.



## Performance Data Sheet

### Culligan HE 1.25 12" Water Softener with Aqua-Sensor® Sensing Device

Culligan knows the more informed you are about your water treatment systems, the more confident you will be about its performance. It's because of this and more than seventy years of commitment to customer satisfaction that Culligan is providing this Performance Data Sheet to its customers.

**NOTICE** Read this Performance Data Sheet and compare the capabilities of this unit with your actual water treatment needs. It is recommended that before purchasing a water treatment unit, you have your water supply tested to determine your actual water treatment needs.

Manufacturer: Culligan International Company  
9399 W. Higgins Rd., Suite 1100, Rosemont, IL 60018 USA  
(847) 430-2800



Product: Culligan High Efficiency 1.25 12" Water Softener with Aqua-Sensor® Sensing Device

#### Testing Conditions & Results:

Flow Rate:	18.4 gpm @ 15 psi	Capacity:	35,247 grains @ 8.0 lb. salt
Pressure:	30–40 psi (2.1–2.8 kg/cm <sup>2</sup> )		54,191 grains @ 16.0 lb. salt
Acidity:	Non-Corrosive		64,053 grains @ 24.0 lb. salt
Temperature:	68°F (20°C)	pH:	7.6
Efficiency Rated Dosage†: 4,406 gr @ 8 lb.			

#### Softener Specifications:

Service Flow Rate: 18.4 gpm	Pressure Drop at Max. Flow Rate: 15 psi
Operating Temp. Range: 33–120°F (0–49°C)	Max. Drain Flow Rate: 3.5 gpm
Working Press. Range: 20–125 psi (1.4–8.5 kg/cm <sup>2</sup> )	Oper. Press. Range (Canada): 20–90 psi (1.4–6.3 kg/cm <sup>2</sup> )

Name of Substance	USEPA Max. Contaminant Level	pH	Flow Rate	Pressure
Barium	2.0 mg/L	7.5 + 0.5	18.4 gpm	15 (psig)
Radium 226/228	5 pCi/L	7.5 + 0.5	18.4 gpm	15 (psig)

This system is certified for barium and radium 226/228 reduction based on hardness reduction. It is recommended you test your water every six months to ensure the system is performing properly and that hardness, and therefore barium and radium 226/228, are being reduced. Hardness test strips have been included. Additional strips are available from your local Culligan dealer.

The Culligan High Efficiency 1.25 Series 12" Water Softeners with Aqua-Sensor® Sensing Device are tested and certified by WQA against NSF/ANSI Standard 372, CSA B483.1, and NSF/ANSI Standard 44 for the effective reduction of hardness (calcium and magnesium), barium, and radium 226/228 as verified and substantiated by test data.

An efficiency rated water softener is a DIR softener which also complies with specific performance specifications intended to minimize the amount of regenerant brine and water used in its operation. Efficiency rated water softeners shall have a rated salt efficiency of not less than 3350 grains of total hardness exchange per pound of salt (based on NaCl equivalency) (477 grams of total hardness exchange per kilogram of salt), and shall not deliver more salt than its listed rating. The efficiency is measured by a laboratory test described in NSF/ANSI 44. The test represents the maximum possible efficiency the system can achieve. Operational efficiency is the actual efficiency achieved after the system has been installed. It is typically less than the efficiency due to individual application factors including water hardness, water usage, and other contaminants that reduce the softener's capacity.

Refer to the Specifications, Familiarization and Warranty section of this Owner's Guide for more specific product information. To avoid contamination from improper handling and installation, your system should only be installed and serviced by your Culligan Man. Performance will vary based on local water conditions. The substances reduced by this system are not necessarily in your water.

Culligan water softeners are designed to work with any salt of good quality, although it is recommended that you ask your local Culligan Man for his suggestion on the best type and grade of salt to use in this softener.

**NOTICE** This softener is not intended to be used for treating water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

†The efficiency rated dosage is only valid at the 8 lb. salt dosage and maximum service flow rate for 12" models.



## Performance Data Sheet

### Culligan HE 1.25 14" Water Softener with Soft-Minder® Meter

Culligan knows the more informed you are about your water treatment systems, the more confident you will be about its performance. It's because of this and more than seventy years of commitment to customer satisfaction that Culligan is providing this Performance Data Sheet to its customers.

**NOTICE** Read this Performance Data Sheet and compare the capabilities of this unit with your actual water treatment needs. It is recommended that before purchasing a water treatment unit, you have your water supply tested to determine your actual water treatment needs.

Manufacturer: Culligan International Company  
9399 W. Higgins Rd., Suite 1100, Rosemont, IL 60018 USA  
(847) 430-2800



C USA

Product: Culligan High Efficiency 1.25 14" Water Softener with Soft-Minder® Meter

#### Testing Conditions & Results:

Flow Rate:	20.4 gpm @ 15 psi	Capacity:	56,218 grains @ 12.0 lb. salt
Pressure:	30–40 psi (2.1–2.8 kg/cm <sup>2</sup> )		83,174 grains @ 24.0 lb. salt
Acidity:	Non-Corrosive		91,662 grains @ 36.0 lb. salt
Temperature:	68°F (20°C)	pH:	7.6
Efficiency Rated Dosage†:	4,685 gr/lb		

#### Softener Specifications:

Service Flow Rate: 20.4 gpm	Pressure Drop at Max. Flow Rate: 15 psi (71 kPa)
Operating Temp. Range: 33–120°F (0–49°C)	Max. Drain Flow Rate: 4.5 gpm
Working Press. Range: 20–125 psi (1.4–8.5 kg/cm <sup>2</sup> )	Oper. Press. Range (Canada): 20–90 psi (1.4–6.3 kg/cm <sup>2</sup> )

Name of Substance	USEPA Max. Contaminant Level	pH	Flow Rate	Pressure
Barium	2.0 mg/L	7.5 + 0.5	20.4 gpm	15 (psig)
Radium 226/228	5 pCi/L	7.5 + 0.5	20.4 gpm	15 (psig)

This system is certified for barium and radium 226/228 reduction based on hardness reduction. It is recommended you test your water every six months to ensure the system is performing properly and that hardness, and therefore barium and radium 226/228, are being reduced. Hardness test strips have been included. Additional strips are available from your local Culligan dealer.

The Culligan High Efficiency 1.25 Series 14" Water Softeners with Soft-Minder® Meter are tested and certified by WQA against NSF/ANSI Standard 372, CSA B483.1, and NSF/ANSI Standard 44 for the effective reduction of hardness (calcium and magnesium), barium, and radium 226/228 as verified and substantiated by test data.

An efficiency rated water softener is a DIR softener which also complies with specific performance specifications intended to minimize the amount of regenerant brine and water used in its operation. Efficiency rated water softeners shall have a rated salt efficiency of not less than 3350 grains of total hardness exchange per pound of salt (based on NaCl equivalency) (477 grams of total hardness exchange per kilogram of salt), and shall not deliver more salt than its listed rating. The efficiency is measured by a laboratory test described in NSF/ANSI 44. The test represents the maximum possible efficiency the system can achieve. Operational efficiency is the actual efficiency achieved after the system has been installed. It is typically less than the efficiency due to individual application factors including water hardness, water usage, and other contaminants that reduce the softener's capacity.

Refer to the Specifications, Familiarization and Warranty section of this Owner's Guide for more specific product information. To avoid contamination from improper handling and installation, your system should only be installed and serviced by your Culligan Man. Performance will vary based on local water conditions. The substances reduced by this system are not necessarily in your water.

Culligan water softeners are designed to work with any salt of good quality, although it is recommended that you ask your local Culligan Man for his suggestion on the best type and grade of salt to use in this softener.

**NOTICE** This softener is not intended to be used for treating water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

†The efficiency rated dosage is only valid at the 12 lb. salt dosage and maximum service flow rate for 14" models.





## Performance Data Sheet

### Culligan HE 1.25 14" Water Softener with Aqua-Sensor® Sensing Device

Culligan knows the more informed you are about your water treatment systems, the more confident you will be about its performance. It's because of this and more than seventy years of commitment to customer satisfaction that Culligan is providing this Performance Data Sheet to its customers.

**NOTICE** Read this Performance Data Sheet and compare the capabilities of this unit with your actual water treatment needs. It is recommended that before purchasing a water treatment unit, you have your water supply tested to determine your actual water treatment needs.

Manufacturer: Culligan International Company  
9399 W. Higgins Rd., Suite 1100, Rosemont, IL 60018 USA  
(847) 430-2800



Product: Culligan High Efficiency 1.25 14" Water Softener with Aqua-Sensor® Sensing Device

#### Testing Conditions & Results:

Flow Rate:	20.4 gpm @ 15 psi	Capacity:	56,218 grains @ 12.0 lb. salt
Pressure:	30–40 psi (2.1–2.8 kg/cm <sup>2</sup> )		83,174 grains @ 24.0 lb. salt
Acidity:	Non-Corrosive		91,662 grains @ 36.0 lb. salt
Temperature:	68°F (20°C)	pH:	7.6
Efficiency Rated Dosage†:	4,685 gr/lb		

#### Softener Specifications:

Service Flow Rate: 20.4 gpm	Pressure Drop at Max. Flow Rate: 10 psi (71 kPa)
Operating Temp. Range: 33–120°F (0–49°C)	Max. Drain Flow Rate: 4.5 gpm
Working Press. Range: 20–125 psi (1.4–8.5 kg/cm <sup>2</sup> )	Oper. Press. Range (Canada): 20–90 psi (1.4–6.3 kg/cm <sup>2</sup> )

Name of Substance	USEPA Max. Contaminant Level	pH	Flow Rate	Pressure
Barium	2.0 mg/L	7.5 + 0.5	20.4 gpm	15 (psig)
Radium 226/228	5 pCi/L	7.5 + 0.5	20.4 gpm	15 (psig)

This system is certified for barium and radium 226/228 reduction based on hardness reduction. It is recommended you test your water every six months to ensure the system is performing properly and that hardness, and therefore barium and radium 226/228, are being reduced. Hardness test strips have been included. Additional strips are available from your local Culligan dealer.

The Culligan High Efficiency 1.25 Series 14" Water Softeners with Aqua-Sensor® Sensing Device are tested and certified by WQA against NSF/ANSI Standard 372, CSA B483.1, and NSF/ANSI Standard 44 for the effective reduction of hardness (calcium and magnesium), barium, and radium 226/228 as verified and substantiated by test data.

An efficiency rated water softener is a DIR softener which also complies with specific performance specifications intended to minimize the amount of regenerant brine and water used in its operation. Efficiency rated water softeners shall have a rated salt efficiency of not less than 3350 grains of total hardness exchange per pound of salt (based on NaCl equivalency) (477 grams of total hardness exchange per kilogram of salt), and shall not deliver more salt than its listed rating. The efficiency is measured by a laboratory test described in NSF/ANSI 44. The test represents the maximum possible efficiency the system can achieve. Operational efficiency is the actual efficiency achieved after the system has been installed. It is typically less than the efficiency due to individual application factors including water hardness, water usage, and other contaminants that reduce the softener's capacity.

Refer to the Specifications, Familiarization and Warranty section of this Owner's Guide for more specific product information. To avoid contamination from improper handling and installation, your system should only be installed and serviced by your Culligan Man. Performance will vary based on local water conditions. The substances reduced by this system are not necessarily in your water.

Culligan water softeners are designed to work with any salt of good quality, although it is recommended that you ask your local Culligan Man for his suggestion on the best type and grade of salt to use in this softener.

**NOTICE** This softener is not intended to be used for treating water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

†The efficiency rated dosage is only valid at the 12 lb. salt dosage and maximum service flow rate for 14" models.



## Performance Data Sheet

### Culligan HE 1.25 16" Water Softener with Soft-Minder® Meter

Culligan knows the more informed you are about your water treatment systems, the more confident you will be about its performance. It's because of this and more than seventy years of commitment to customer satisfaction that Culligan is providing this Performance Data Sheet to its customers.

**NOTICE** Read this Performance Data Sheet and compare the capabilities of this unit with your actual water treatment needs. It is recommended that before purchasing a water treatment unit, you have your water supply tested to determine your actual water treatment needs.

Manufacturer: Culligan International Company  
9399 W. Higgins Rd., Suite 1100, Rosemont, IL 60018 USA  
(847) 430-2800



Product: Culligan High Efficiency 1.25 16" Water Softener with Soft-Minder® Meter

#### Testing Conditions & Results:

Flow Rate:	22.0 gpm @ 15 psi	Capacity:	70,494 grains @ 16.0 lb. salt
Pressure:	30–40 psi (2.1–2.8 kg/cm <sup>2</sup> )		108,382 grains @ 32.0 lb. salt
Acidity:	Non-Corrosive		128,106 grains @ 48.0 lb. salt
Temperature:	68°F (20°C)	pH:	7.6
Efficiency Rated Dosage†:	4,406 gr @ 16.0 lb		

#### Softener Specifications:

Service Flow Rate: 22.0 gpm	Pressure Drop at Max. Flow Rate: 15 psi
Operating Temp. Range: 33–120°F (0–49°C)	Max. Drain Flow Rate: 6.0 gpm
Working Press. Range: 20–125 psi (1.4–8.5 kg/cm <sup>2</sup> )	Oper. Press. Range (Canada): 20–90 psi (1.4–6.3 kg/cm <sup>2</sup> )

Name of Substance	USEPA Max. Contaminant Level	pH	Flow Rate	Pressure
Barium	2.0 mg/L	7.5 + 0.5	22.0 gpm	15 (psig)
Radium 226/228	5 pCi/L	7.5 + 0.5	22.0 gpm	15 (psig)

This system is certified for barium and radium 226/228 reduction based on hardness reduction. It is recommended you test your water every six months to ensure the system is performing properly and that hardness, and therefore barium and radium 226/228, are being reduced. Hardness test strips have been included. Additional strips are available from your local Culligan dealer.

The Culligan High Efficiency 1.25 Series 16" Water Softeners with Soft-Minder® Meter are tested and certified by WQA against NSF/ANSI Standard 372, CSA B483.1, and NSF/ANSI Standard 44 for the effective reduction of hardness (calcium and magnesium), barium, and radium 226/228 as verified and substantiated by test data.

An efficiency rated water softener is a DIR softener which also complies with specific performance specifications intended to minimize the amount of regenerant brine and water used in its operation. Efficiency rated water softeners shall have a rated salt efficiency of not less than 3350 grains of total hardness exchange per pound of salt (based on NaCl equivalency) (477 grams of total hardness exchange per kilogram of salt), and shall not deliver more salt than its listed rating. The efficiency is measured by a laboratory test described in NSF/ANSI 44. The test represents the maximum possible efficiency the system can achieve. Operational efficiency is the actual efficiency achieved after the system has been installed. It is typically less than the efficiency due to individual application factors including water hardness, water usage, and other contaminants that reduce the softener's capacity.

Refer to the Specifications, Familiarization and Warranty section of this Owner's Guide for more specific product information. To avoid contamination from improper handling and installation, your system should only be installed and serviced by your Culligan Man. Performance will vary based on local water conditions. The substances reduced by this system are not necessarily in your water.

Culligan water softeners are designed to work with any salt of good quality, although it is recommended that you ask your local Culligan Man for his suggestion on the best type and grade of salt to use in this softener.

**NOTICE** This softener is not intended to be used for treating water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

†The efficiency rated dosage is only valid at the 16 lb. salt dosage and maximum service flow rate for 16" models.



## Performance Data Sheet

### Culligan HE 1.25 16" Water Softener with Aqua-Sensor® Sensing Device

Culligan knows the more informed you are about your water treatment systems, the more confident you will be about its performance. It's because of this and more than seventy years of commitment to customer satisfaction that Culligan is providing this Performance Data Sheet to its customers.

**NOTICE** Read this Performance Data Sheet and compare the capabilities of this unit with your actual water treatment needs. It is recommended that before purchasing a water treatment unit, you have your water supply tested to determine your actual water treatment needs.

Manufacturer: Culligan International Company  
9399 W. Higgins Rd., Suite 1100, Rosemont, IL 60018 USA  
(847) 430-2800

Product: Culligan High Efficiency 1.25 16" Water Softener with Soft-Minder® Meter



#### Testing Conditions & Results:

Flow Rate:	22.0 gpm @ 15 psi	Capacity:	70,494 grains @ 16.0 lb. salt
Pressure:	30–40 psi (2.1–2.8 kg/cm <sup>2</sup> )		108,382 grains @ 32.0 lb. salt
Acidity:	Non-Corrosive		128,106 grains @ 48.0 lb. salt
Temperature:	68°F (20°C)	pH:	7.6
Efficiency Rated Dosage†:	4,406 gr @ 16.0 lb		

#### Softener Specifications:

Service Flow Rate: 22.0 gpm	Pressure Drop at Max. Flow Rate: 15 psi
Operating Temp. Range: 33–120°F (0–49°C)	Max. Drain Flow Rate: 6.0 gpm
Working Press. Range: 20–125 psi (1.4–8.5 kg/cm <sup>2</sup> )	Oper. Press. Range (Canada): 20–90 psi (1.4–6.3 kg/cm <sup>2</sup> )

Name of Substance	USEPA Max. Contaminant Level	pH	Flow Rate	Pressure
Barium	2.0 mg/L	7.5 + 0.5	22.0 gpm	15 (psig)
Radium 226/228	5 pCi/L	7.5 + 0.5	22.0 gpm	15 (psig)

This system is certified for barium and radium 226/228 reduction based on hardness reduction. It is recommended you test your water every six months to ensure the system is performing properly and that hardness, and therefore barium and radium 226/228, are being reduced. Hardness test strips have been included. Additional strips are available from your local Culligan dealer.

The Culligan High Efficiency 1.25 Series 16" Water Softeners with Aqua-Sensor® Sensing Device are tested and certified by WQA against NSF/ANSI Standard 372, CSA B483.1, and NSF/ANSI Standard 44 for the effective reduction of hardness (calcium and magnesium), barium, and radium 226/228 as verified and substantiated by test data.

An efficiency rated water softener is a DIR softener which also complies with specific performance specifications intended to minimize the amount of regenerant brine and water used in its operation. Efficiency rated water softeners shall have a rated salt efficiency of not less than 3350 grains of total hardness exchange per pound of salt (based on NaCl equivalency) (477 grams of total hardness exchange per kilogram of salt), and shall not deliver more salt than its listed rating. The efficiency is measured by a laboratory test described in NSF/ANSI 44. The test represents the maximum possible efficiency the system can achieve. Operational efficiency is the actual efficiency achieved after the system has been installed. It is typically less than the efficiency due to individual application factors including water hardness, water usage, and other contaminants that reduce the softener's capacity.

Refer to the Specifications, Familiarization and Warranty section of this Owner's Guide for more specific product information. To avoid contamination from improper handling and installation, your system should only be installed and serviced by your Culligan Man. Performance will vary based on local water conditions. The substances reduced by this system are not necessarily in your water.

Culligan water softeners are designed to work with any salt of good quality, although it is recommended that you ask your local Culligan Man for his suggestion on the best type and grade of salt to use in this softener.

**NOTICE** This softener is not intended to be used for treating water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

†The efficiency rated dosage is only valid at the 16 lb. salt dosage and maximum service flow rate for 16" models.



## Important Data on Your Water Filter

It is advisable to have the salesperson or installer fill in the information below for your future reference. If this has not been done, please ask for it, as it is necessary if you contact your dealer.

### Identification

Model Name \_\_\_\_\_ Catalog No. \_\_\_\_\_

Control Model No. \_\_\_\_\_ Control Serial No. \_\_\_\_\_

Date of Installation \_\_\_\_\_ Tank Serial No. \_\_\_\_\_

### Settings

Time of Recharge: \_\_\_\_\_ a.m. / \_\_\_\_\_ p.m.

Regeneration Interval \_\_\_\_\_ days

Number of people in household \_\_\_\_\_

Tank Size \_\_\_\_\_ inches

### Water Analysis

Total Hardness \_\_\_\_\_ (gpg)

Total Iron \_\_\_\_\_ (ppm)

pH (acidity) \_\_\_\_\_

Other \_\_\_\_\_

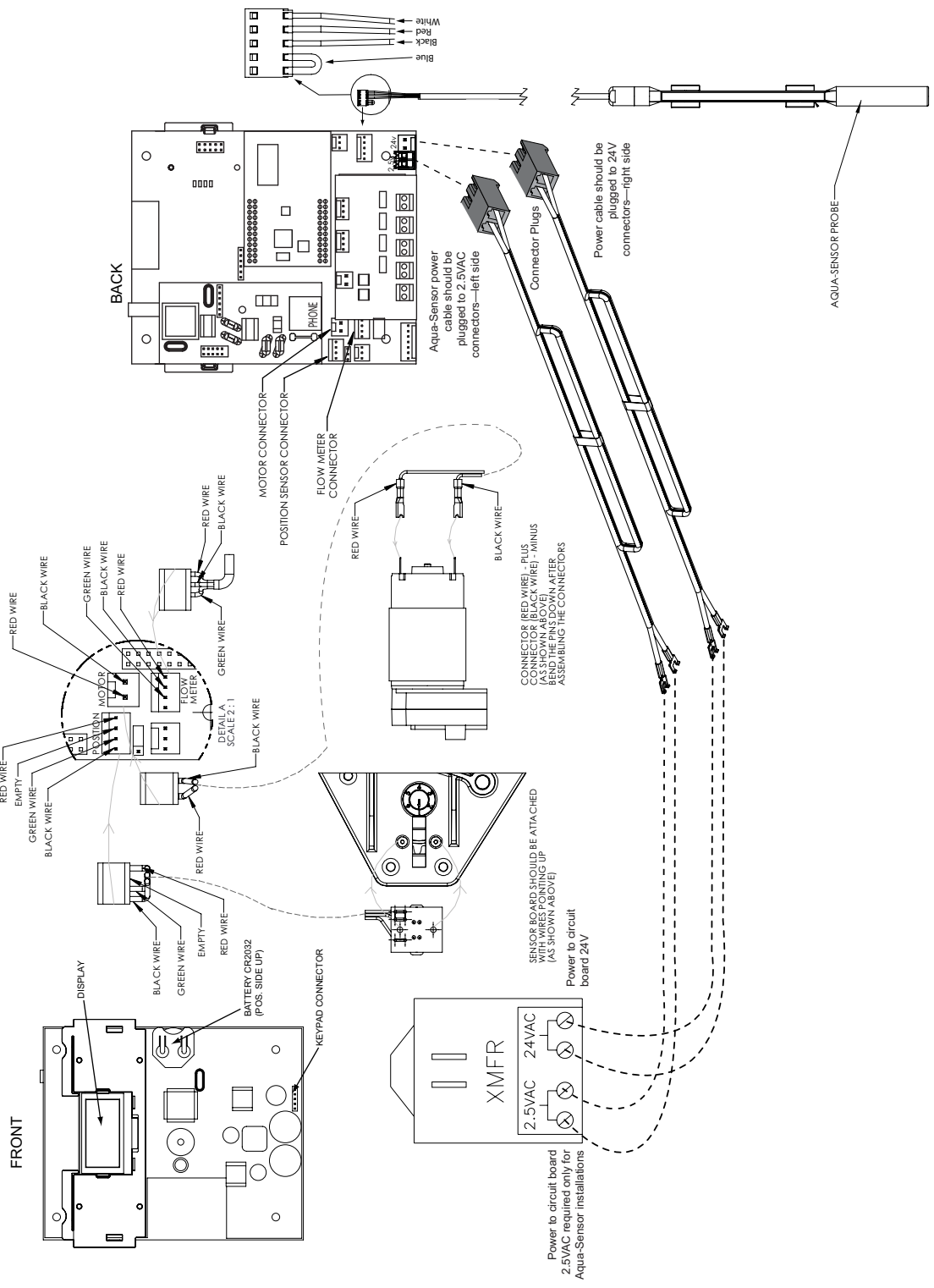
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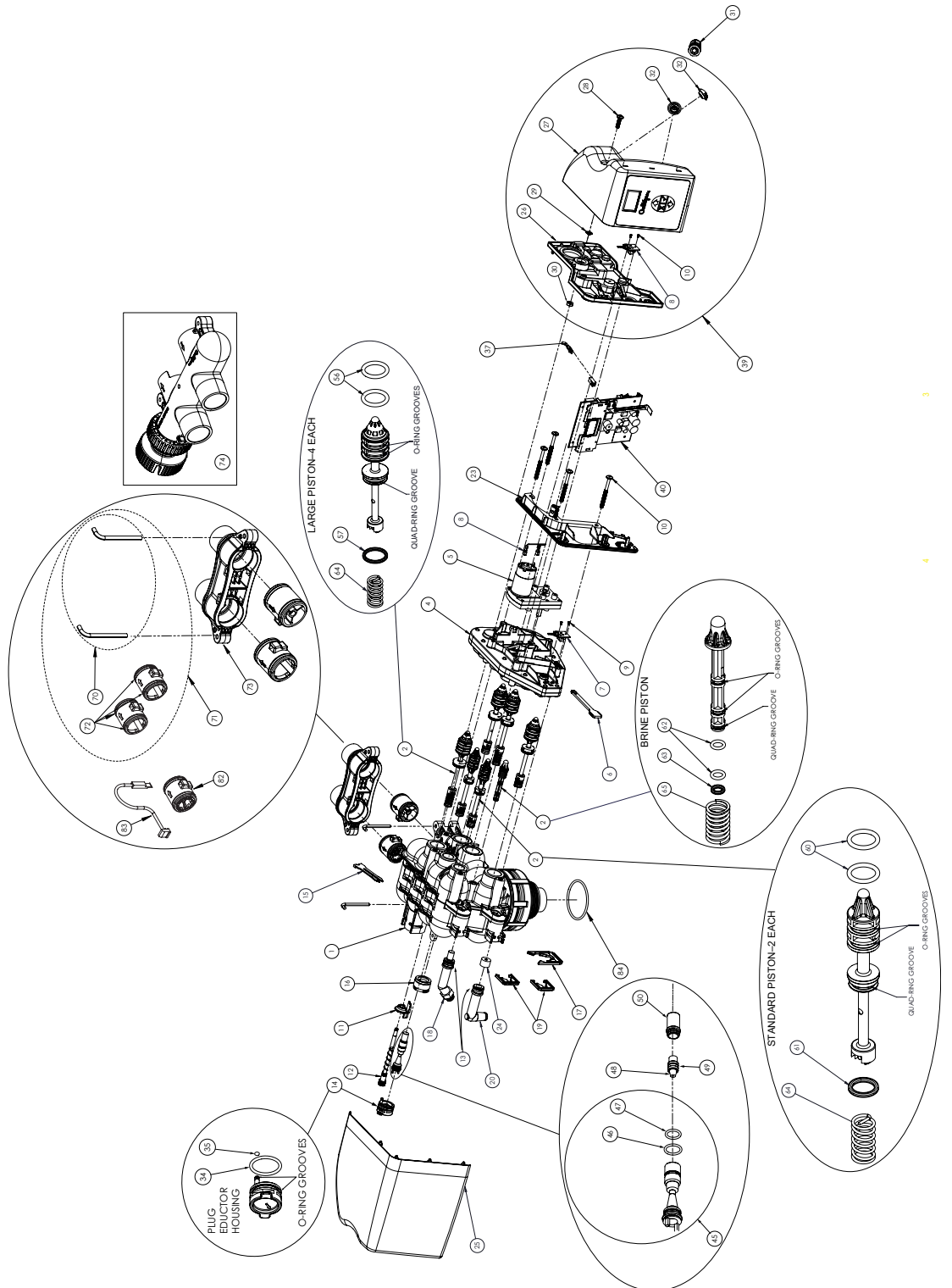
# Electrical Schematic





## Parts List

### High Efficiency 1.25 Softener Downflow Models





Item	Part No.	Description
	01024389	HE 1.25 Control Valve, Down-flow, Complete
1	01025290	Valve Body
2	01025243	Piston Rebuild Kit, includes 6ea Piston Assemblies and 1ea Brine Piston Assembly (springs not included)
4	01022193	Gear Box Assembly
5	01024332	Gearmotor
6	P1020415	Retainer, Gearmotor, 10ea/Kit
7	—	Wire Harness w/Optical Sensor (not available for sale)
8	01022735	Wire Harness, Motor
9	P1020433	Optical Sensor Screw, 10ea/Kit
10	P1020517	Gear Box Assembly Screw, 10ea/ Kit
11	P1020289	Dial-a-Softness Knob, 10ea/Kit
12	P1022185	Dial-a-Softness Assembly w/ O-Rings, 10ea/Kit
13	P0440268	O-Ring, Brine & Drain Elbow, 10ea/Kit
14	P1020487	Eductor Plug Assembly w/ O-Rings, 10ea/Kit
15	P1020290	Eductor Plug Retainer, 10ea/Kit
16	P1023051	Dial-a-Softness Locking Plug, 10ea/Kit
17	P1020291	Dial-a-Softness Locking Plug Retainer
18	P1020581	Brine Assembly, 10ea/Kit
19	P1020432	Retainer, Brine & Drain Elbow, 10ea/Kit
20	P1023021	Drain Elbow Assembly, 10ea/Kit
23	—	Enclosure Frame (not available for sale)
24	P0331635	Backwash Flow Control, #2 Brown, 10ea/Kit
24	P0331636	Backwash Flow Control, #3 Green, 10ea/Kit
24	P0401031	Backwash Flow Control, Black, 10ea/Kit
25	01024918	Control Valve Cover
26	—	Compartment Plate w/ Gaskets (not available for sale)
27	—	Enclosure w/ Decal and Keyboard (not available for sale)
28	P0318383	Enclosure Screw, 10ea/Kit
29	P1023122	Retainer for Enclosure Screw, 10ea/Kit
30	P1020617	Nut, 10ea/Kit
31	P1025274	Strain Relief Fitting, 10ea/kit
32	P1025277	Plug, 10ea/kit
34	P1021162	O-ring, Eductor Plug Assembly, Large, 10ea/Kit

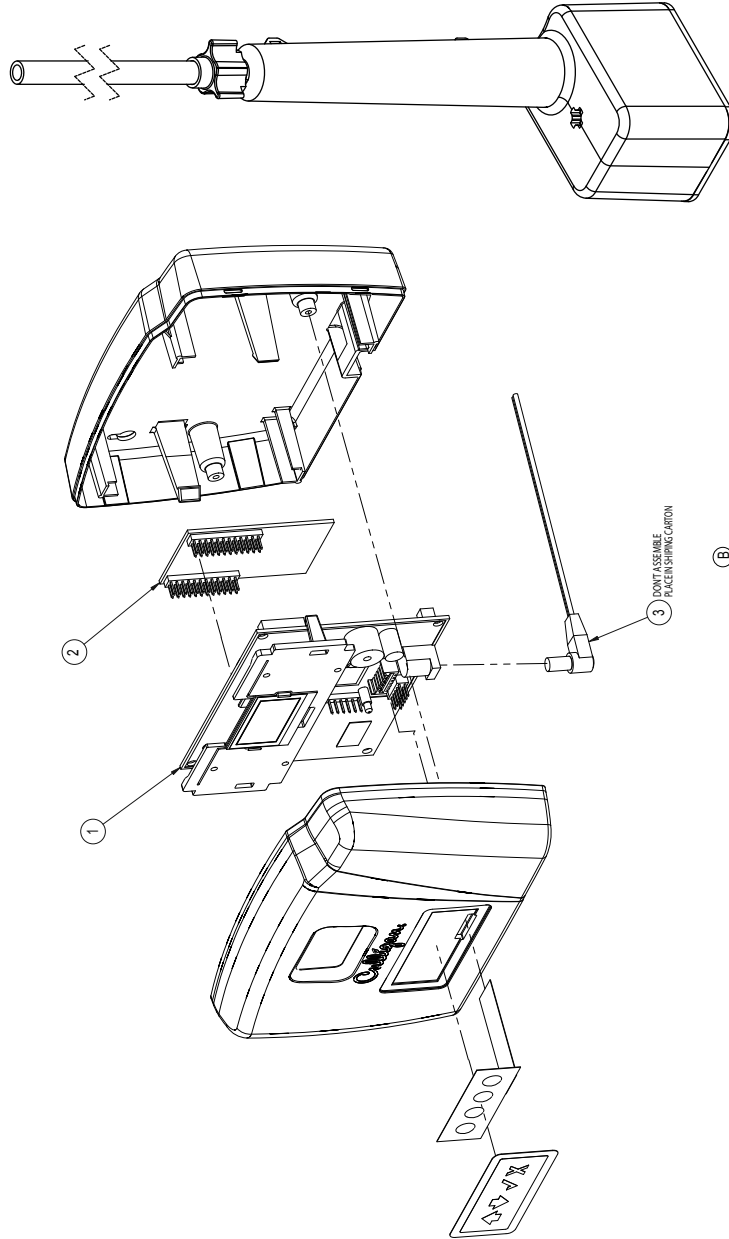
Item	Part No.	Description
35	P1020424	O-ring, Eductor Plug Assembly, Small, 10ea/Kit
37	01017134	Power Cord
39	01025650	Electronics Enclosure Kit less Circuit Board (includes items 8, 10, 26, 27, 28, 29, 30, 32)
40	01020745	Replacement Circuit Board
45	P1022796	Eductor Throat with O-rings, Down-flow, Tan, 10ea/Kit
45	P1022723	Eductor Throat with O-rings, Down-flow, Blue, 10ea/Kit
46	P1020603	Eductor Throat O-ring, Large, 10ea/Kit
47	P1020428	Eductor Throat O-ring, Small, 10ea/Kit
48	P1013895	Eductor Nozzle w/ O-ring, Beige, 10ea/Kit
48	P1024333	Eductor Nozzle w/ O-ring, Green, 10ea/Kit
49	P0308438	O-ring, Eductor Nozzle, 10ea/Kit
50	P1020256	Screen, 10ea/Kit
56	P1024364	Large Piston, O-ring, 25ea/Kit
57	P1025239	Large Piston Quad Ring, 25ea/Kit
60	P1020431	Small Piston, O-ring, 25ea/Kit
61	P1025199	Small Piston Quad Ring, 25ea/Kit
62	P1020426	Brine Piston O-ring 25ea/Kit
63	P1025964	Brine Piston Quad Ring 25ea/Kit
64	P1020252	Large & Small Main Piston Spring, 10ea/Kit
65	P1020286	Brine Piston Spring 10ea/Kit
70	P1009075	Retaining Clip
71	01014033	Coupling Kit
72	P1009099	O-ring, Couplings/Meters
73	01025175	Bypass Valve
74	01024348	1 1/4" Straight-Through Connector
82	01021877	Meter Kit w/ Wire Harness
83	01025282	Wire Harness, Meter, 28" length
84	P0440052	O-ring, Valve to Tank, 25ea/Kit
*	P0451701	Hose Clamp, Drain
*	01018133	Transformer, Dual Output
*	01020620	Transformer, Dual Output w/ 6' Power Cord (optional)
*	01025561	Outdoor Transformer, 24V, HE (optional)
*	01025281	Bypass Piston Kit for HE 1.25/1.5
*	01020748	Auxiliary Board (optional)

\*Not Displayed in Diagram



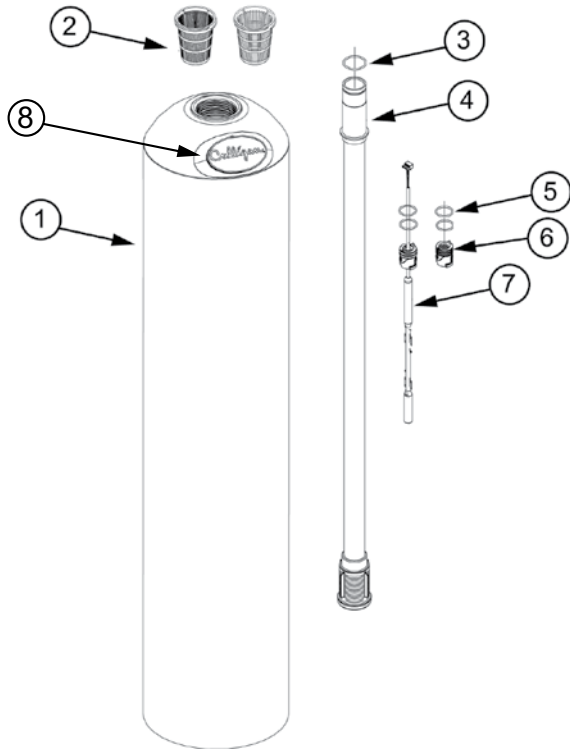
## Parts List

### Remote Display and Smart Brine Tank Sensor



Item	Part No.	Description
	01020553	Remote Display
1	01020749	Remote Display Circuit Board
2	01020750	RF Board
3	01020611	Transformer
4	01025557	Smart Brine Sensor
	01020747	Modem





Item	Part No.	Description	Qty
1	01016618	Tank Assembly, 10" w/ Fillport, Complete	
	01017192	Tank Assembly, 12" w/ Fillport, Complete, Less Media	
	01017194	Tank Assembly, 14" w/ Fillport, Complete, Less Media	
	01017196	Tank Assembly, 16" w/ Fillport, Complete, Less Media	
	01016352	Tank Assembly, 10" w/o Fillport, Complete	
	01016350	Tank Replacement, 10", w/ Fillport, Empty	
	01016520	Tank Replacement, 12", w/ Fillport, Empty	
	01016522	Tank Replacement, 14", w/ Fillport, Empty	
	01016524	Tank Replacement, 16", w/ Fillport, Empty	
2	P1009847	Top Strainer - Fine Slot	10ea/ pk
	P1011195	Top Strainer - Wide Slot	10ea/ pk
3	P1009099	O-Ring, Manifold	50ea/ pk
4	01014539	Outlet Manifold - 10"	1
	01014540	Outlet Manifold - 12"	1
	01016429	Outlet Manifold - 14" and 16"	1
5	P1017434	O-Ring, Plug and Sensor	2
6	01015122	Plug	1
7	01025283	Aqua-Sensor® Probe	1
8	01016174	Culligan Emblem	1

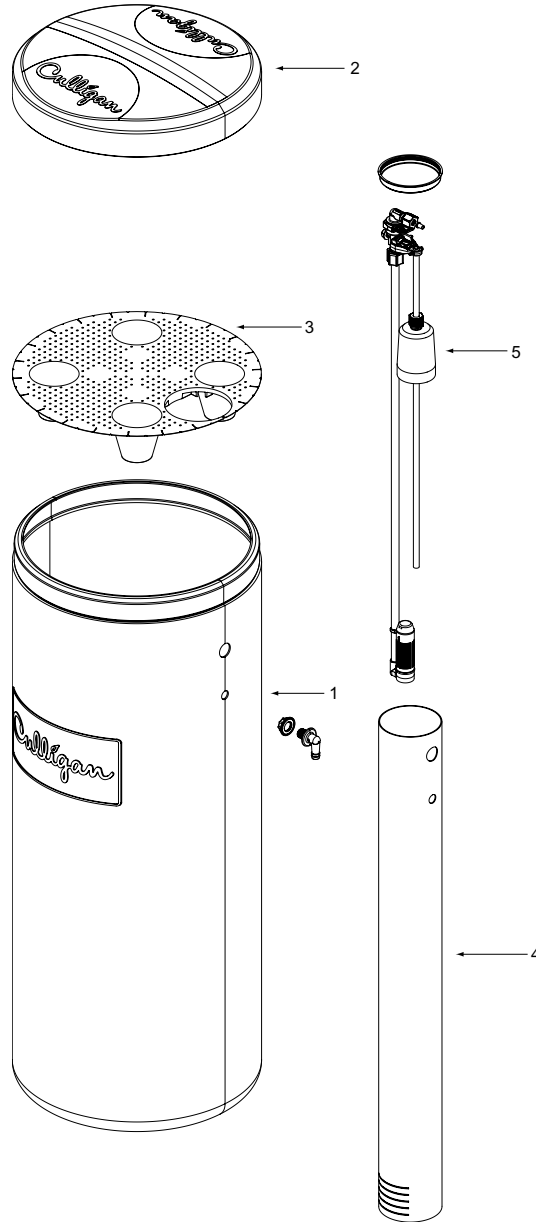
## Parts List

### Tank Assembly



## Parts List

### 16" and 18" Brine System

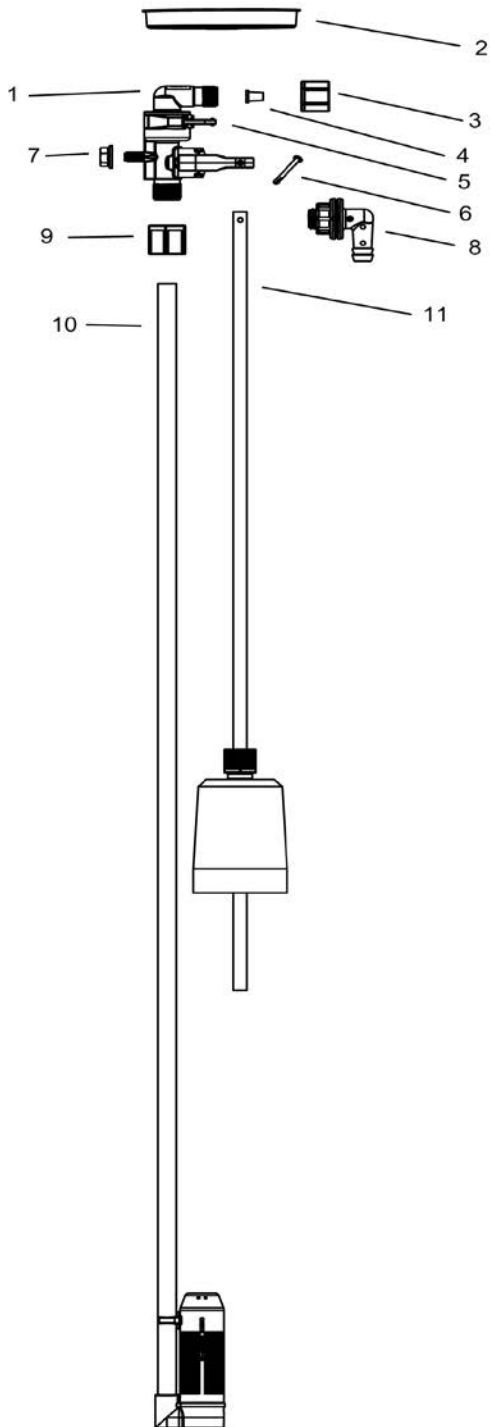


Item	Part No.	Description
-	01018705	Brine System, 250 lb
-	01018715	Brine System, 375 lb
1	01018709	Replacement Tank, 250 lb
	01018716	Replacement Tank, 375 lb
2	01018704	Cover, 250 lb
	01018717	Cover, 375 lb
3	01018707	Salt Plate, 250 lb
	01018713	Salt Plate, 375 lb
4	01018707	Brine Chamber, 250 lb & 375 lb
5	01018706	Brine Valve



## Parts List

### Brine Valve Assembly

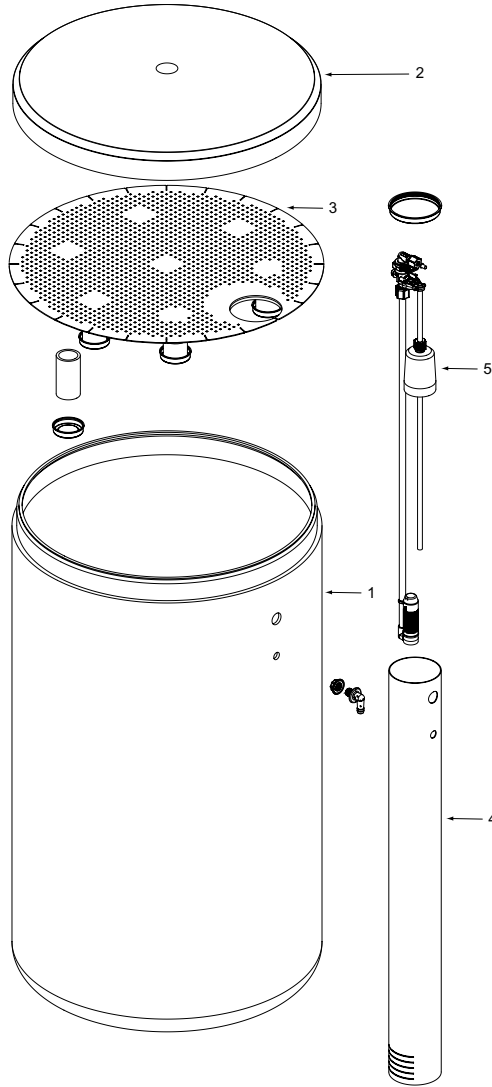


Item	Part No.	Description
-	01018706	Brine Valve
1	01018710	BLFC Elbow - 0.45 gpm
	01018711	BLFC Elbow - 0.8 gpm
2	P1020194	Brine Well Cap - 24 Pack
3	P1020196	3/8" Compression Nut - 24 Pack
4	P1018871	3/8" Insert - 25 Pack
5	P1012091	Retaining Clip - 24 Pack
6	P1020192	Pin - 24 Pack
7	P1020193	5/16" Nut - 24 Pack
8	P1020190	Overflow Fitting w/ Nut - 24 Pack
9	P1020195	3/8" Nut - 24 Pack
10	P1020198	Air check Assembly - 24 Pack
11	P1020197	Float - 24 Pack



## Parts List

### 24" Brine System



Item	Part No.	Description
-	01018720	Brine System, 650 lb
1	01018718	Replacement Tank, 650 lb
2	01018719	Cover, 650 lb
3	01018909	Salt Plate, 650 lb
4	01018708	Brine Chamber
5	01018706	Brine Valve



## Culligan Limited Warranty

### Culligan High Efficiency Automatic Water Conditioners

You have just purchased one of the finest water conditioners made. As an expression of our confidence in Culligan International Company products, your water conditioner is warranted to the original end-user, when installed in accordance with Culligan specifications, against defects in material and workmanship from the date of original installation, as follows:

<b>For a period of ONE YEAR</b>	The entire conditioner
<b>For a period of FIVE YEARS</b>	Remote display, modem, Soft-Minder® meter, Smart Brine probe, or Aqua-Sensor® probe, if so equipped.
<b>For a period of TEN YEARS</b>	High Efficiency circuit board, control valve body, excluding internal parts. The salt storage container, brine valve and all its component parts
<b>For the LIFETIME of the original consumer purchaser</b>	The Quadra-Hull™ conditioner tank and the Cullex® resin

If a part described above is found defective within the specified period, you should notify your independently operated Culligan dealer and arrange a time during normal business hours for the dealer to inspect the water conditioner on your premises. Any part found defective within the terms of this warranty will be repaired or replaced by the dealer. You pay only freight from our factory and local dealer charges.

We are not responsible for damage caused by accident, fire, flood, freezing, Act of God, misuse, misapplication, neglect, oxidizing agents (such as chlorine, ozone, chloramines and other related components), alteration, installation or operation contrary to our printed instructions, or by the use of accessories or components which do not meet Culligan specifications, is not covered by this warranty. Refer to the specifications section in the Installation and Operating manual for application parameters.

Our product performance specifications are furnished with each water conditioning unit. TO THE EXTENT PERMITTED BY LAW, CULLIGAN DISCLAIMS ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE; TO THE EXTENT REQUIRED BY LAW, ANY SUCH IMPLIED WARRANTIES ARE LIMITED IN DURATION TO THE ONE-YEAR PERIOD SPECIFIED ABOVE FOR THE ENTIRE CONDITIONER. As a manufacturer, we do not know the characteristics of your water supply or the purpose for which you are purchasing a water conditioner. The quality of water supplies may vary seasonally or over a period of time, and your water usage rate may vary as well. Water characteristics can also differ considerably if your water conditioner is moved to a new location. For these reasons, we assume no liability for the determination of the proper equipment necessary to meet your requirements, and we do not authorize others to assume such obligations for us. Further, we assume no liability and extend no warranties, express or implied, for the use of this product with a non-potable water source. OUR OBLIGATIONS UNDER THIS WARRANTY ARE LIMITED TO THE REPAIR OR REPLACEMENT OF THE FAILED PARTS OF THE WATER CONDITIONER, AND WE ASSUME NO LIABILITY WHATSOEVER FOR DIRECT, INDIRECT, INCIDENTAL, CONSEQUENTIAL, SPECIAL, GENERAL, OR OTHER DAMAGES.

Some states do not allow the exclusion of implied warranties or limitations on how long an implied warranty lasts, so the above limitation may not apply to you. Similarly, some states do not allow the exclusion of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Consult your telephone directory for your local independently operated Culligan dealer, or write Culligan International Company for warranty and service information.

#### Culligan International Company

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Rosemont, Illinois 60018  
www.culligan.com



**With Culligan  
You Get More  
Than A Quality  
Product**

**You Get Your Water Expert, The Culligan Man**

We're here to provide you with fast, dependable service, making sure any problems you have are taken care of. The Culligan Man has been around for over seventy years, delivering quality products and dependable service all along. That's why people say "Hey, Culligan Man!®" Because we're the water experts. And that's who you want taking care of your water.

**The Culligan Promise**

At Culligan, we understand that a water quality improvement system is an investment in your family's well-being. That's why our 1,350 independently operated dealers worldwide don't just sell products; they sell water quality you can count on. We stand behind our products with written limited warranties and our unequalled Culligan service. No matter where you live, you can depend on Culligan expertise to work for you—today and tomorrow.



## Symbols

10" Model 2  
12" Model 2  
14" Model 2  
16" Model 2

## A

Application 9  
AquaSensor 46  
Aqua-Sensor, Install 12  
Aqua-Sensor® Mode 6  
Aqua-Sensor plug 12  
Aqua-Sensor® Start-Up Procedure 40  
Aqua Sens Probe 46  
Attaching the Cover 15

## B

Backwash Flow Control Replacement 14, 15, 16  
Bacterial Iron 4  
Blown Fuse 45  
blue bypass knob 19  
Brine Blocked 46  
Brine Overfill 46  
Brine Refill 5  
Brine Valve "A" Dimension 21  
Brine valve tubing 20  
Bypass Valve 47  
Bypass Valve Installation 17, 18  
Bypass Valves 45  
Bypass Your Water Filter 47

## C

Call Culligan at 46  
Call for Service 45  
CANCEL or X button 28  
Care and Cleaning of Your Water Conditioner 42  
Check Brine Tank 46  
CHECK MARK button 28  
Circuit Board Connections 21, 22  
Clean 43  
Cleaning 43  
Component 8  
Connect the Brine Line 20  
Control Valve 5, 12  
Control Valve Assembly 8  
Cullex resin 5  
Cullsan® underbedding 5  
Customizing the Setup 33, 44

## D

Delayed Regeneration 37  
Dial-a-Softness 15, 16, 17  
Dial-a-Softness® 7  
Dial-a-Softness Knob 17  
Dissolved Iron 4

DOWN ARROW button 28  
Downflow Regeneration 2  
Down Flow Regeneration 7, 8, 10  
Drain Facilities 9  
Drain Line Connection 19  
Dubl-Safe™ valve 5

## E

Eductor 13  
Eductor Nozzle—Throat 13  
Electrical Facilities 10  
Electrical Installation 32  
Electrical Schematic 57  
Error Codes 46

## F

Few Days Salt 46  
Final Startup 39  
First Time Setup 30  
First Time Setup Procedure 30  
Floor Surface 9  
Flow Restrictors 13

## H

Height of Discharge Above Floor Level Operating 20  
HE Twin cable lengths 12  
High Efficiency 58  
High Efficiency Water Conditioners with 2  
How Your Water Conditioner Works 4

## I

Immediate Regeneration 37  
Important Data on Your Water Filter 56  
Increased Usage 45  
Information 35  
Inspection Schedule 42  
Install Aqua-Sensor 12  
Installation 8  
Installing Accessory Connections 23  
Installing Aqua-Sensor 25  
Iron, Bacterial 4  
Iron, Dissolved 4  
Iron, Organic Bound 4  
Iron, Particulate 4

## K

Keypad 28

## L

Line, Connect the Brine 20  
Loading the Tank 11  
Location 9  
Low Battery 46  
Low Salt Level 46

## Index



## **M**

Manual Regeneration 6  
Materials 8, 9  
Media Tank 8  
Meter Start-Up Procedure 39  
Mineral Tank 5, 10  
Mineral Tank(s) 10  
Modem 6  
Modes of Operation 6  
Motor Home Err 46  
Motor Position Error 46  
Mount the Control Valve 12

## **N**

Navigating the Menus and Keypad 28  
No Brine In Tank 46  
No Refill 46  
No Remote RF Signal 46  
No Remote Signal 46  
No Water 45

## **O**

Organic Bound Iron 4  
Out the Salt 43

## **P**

Particulate Iron 4  
Performance Data Sheet 48, 49, 50, 51, 52, 53,  
54, 55  
Placement 10  
Plumbing Connections 17  
Position Sensor Error 46  
Power Failure 45  
Power Supply 45  
Predict Mode 6  
Pre-Rinse Mode 6  
Pressure 9, 10, 11, 17  
Preventative Maintenance 42

## **R**

Recommended Aqua-Sensor® Start-Up Procedure  
40  
Recommended Meter Start-Up Procedure 39  
Recommended Preventative Maintenance Inspection  
Schedule 42  
Regeneration 5, 7, 37  
Regeneration Setup 32  
Remote Display and Smart Brine Tank Sensor 60  
Replace Aux Filter Media 46  
Replace Ext Filt 46

## **S**

Salt Bridging 46  
Salt Delivery Service 41

Salt Economizer 41  
Salt Storage Container 20  
Salt Storage Tank 8  
Salt Storage Tank Assembly 8  
Salt Supply 41  
Sanitizing Procedure 44  
Service 5  
Set Date and Time 33  
Smart Brine Tank Probe 6  
Smart Brine Tank Sensor 60  
Soft-Minder® Meter 2  
Space Requirements 9  
Special Tools 8  
Specifications 2  
Standard Manual Regeneration 38  
Storage Tank 43

## **T**

Tank Assembly 10, 61  
Temperature 9  
Test Modem 37, 42, 48, 50, 52, 54  
Tools 8  
Tools and Materials 8

## **U**

UP ARROW button 28

## **W**

Water Meter Mode 6  
Water Quality 9  
Wireless Remote Control 6

## **X**

xxx-xxx-xxxx 46





