CLEAN WATER STORE

Clean Water Made Easy

www.cleanwaterstore.com

5900-BT Softener

Installation & Start-Up Guide

5900-BT Softener Installation & Startup Guide

Thank you for purchasing a Clean Water System!

With proper installation and a little routine maintenance your system will be providing softened water for many years.

Please review this start-up guide entirely before beginning to install your system and follow the steps outlined for best results.

NOTE: do not install within 6 feet of water heater. If you do have to install on a pipe within 6 feet, install a check valve on that pipe. This will prevent the hot water from backing up into the softener and ruining the softener resin.

Watch Helpful Short Videos!

How To Program Your New Softener Valve

Questions?

- **Call us toll-free:** 1-888-600-5426 or 1-831-462-8500
- **Email us:** support@cleanwaterstore.com
- **See more information on our website:** www.cleanwaterstore.com/resources

Table of Contents

Packing List for Different Size Softeners

Each order includes: 5900-BT control valve, top screen, bypass assembly, 1" connector elbows, power supply (dual voltage 110-230V 50/60hz), Hose Barb Adaptor (1/2" OD), Drain Line Flow Control (DLFC) button, and funnel for adding resin to tank.

Softener 16K Grain 0.5 cubic foot size
6" x 35" filter tank with distributor tube
0.5 cubic foot of Softener resin media
No filter gravel needed with this size

Softener 24K Grain 0.75 cubic foot size
8" x 44" filter tank with distributor tube
0.75 cubic foot of Softener resin media
No filter gravel needed with this size

Softener 32K Grain 1.0 cubic foot size
9" x 48" filter tank with distributor tube
1.0 cubic foot of Softener resin media
No filter gravel needed with this size

Softener 48K Grain 1.5 cubic foot size
10" x 54" filter tank with distributor tube
16 lbs. Filter gravel
1.5 cubic foot of Softener resin media

Softener 62K Grain 2.0 cubic foot size
12" x 52" filter tank with distributor tube
20 lbs. Filter gravel
2.0 cubic foot of Softener resin media

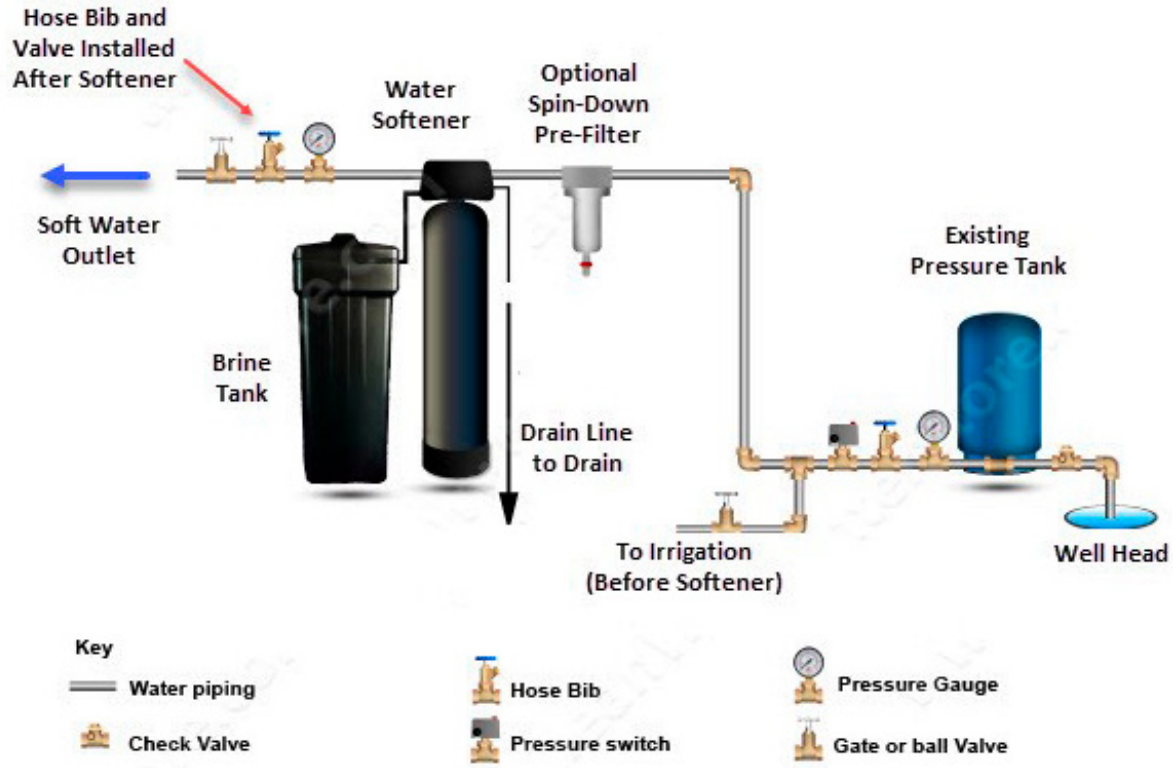
Softener 80K Grain 2.5 cubic foot size
13" x 54" filter tank with distributor tube
35 lbs. Filter gravel
2.5 cubic foot of Softener resin media

Softener 90K Grain 3.0 cubic foot size
14" x 65" filter tank with distributor tube
50 lbs. Filter gravel
3.0 cubic foot of Softener resin media

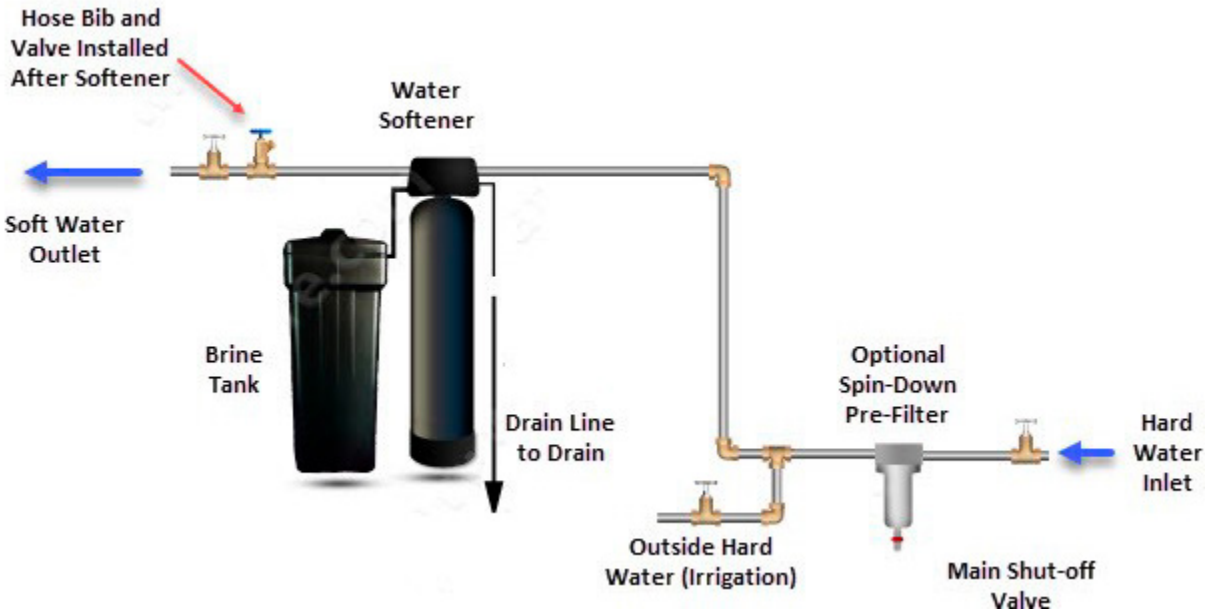
How Your Nitrate System Works

1. Your black filter tank base is not glued to the bottom of your tank. Occasionally tank bases will become crooked during shipment. If you find that that your tank does not sit level on the floor, you can easily adjust it by holding the empty tank and rapping it on a concrete or solid floor once or twice to level it.
2. Review your packing list and make sure you have received all the parts before beginning installation. Please ensure that all parts are included before scheduling a plumber or installer to come to the site.
3. **NOTE: do not install within 6 feet of water heater. If you do have to install on a pipe within 6 feet, install a check valve on that pipe. This will prevent thermo-siphoning, where hot water backs up into the softener and ruins the softener resin.**
4. If you are going to be turning off the water to the house and you have an electric water heater, shut off the power to the water heater before beginning installation in case water heater is accidentally drained.
5. Pick a suitable location for your filter system on a dry level spot where it won't be exposed to sun, rain, wind, dust and freezing temperatures. A minimum of 30 PSI is required. Maximum pressure recommended is 90 PSI.
6. Get all of your plumbing parts together before beginning installation. Installation typically takes 3 to 5 hours. However, after installation the Softener must be allowed to run through a complete backwash and rinse cycle (also called 'regeneration'). You don't have to be present for this first backwash necessarily, but it does take 90 minutes.
7. After the system is installed and running, your water may be discolored, or full of sediment/rust, particularly if this is older piping that has been exposed to iron or manganese for some time. Typically, this clears up over a day or two, but can persist for weeks if the pipe is old galvanized iron pipe that is corroded.

Typical Well Water Installation
Install After Pressure Tank



Typical City Water Installation



Best Practices for Piping & Drain Installation

1. See typical installation diagrams on Page 6.
2. Make sure to connect the IN pipe to the 5900-BT inlet and the OUT to the outlet. You can see the arrows for In and Out on the 5900-BT control valve. As you face the 5900-BT control from the front, the water enters on the right and exits on the left. From the back the water enters on the left and exits on the right. The inlet and outlet are attached to the bypass valve which is marked with arrows as well.
3. Make sure there is a hose bib and working gate or ball valve before the 5900-BT Softener and also one after as shown in the diagram.
4. **The pressure gauges are optional but a hose bib (a faucet that you can attach a garden hose to) is strongly recommended after the softener and before the second ball valve.** This makes it easy to rinse your new softener on start-up and gives you a place to test the water before it enters your household plumbing.
5. If you will be using copper piping, do not sweat the copper pipe directly on to the 5900-BT control valve. Avoid heating up the 5900-BT control valve plastic with the torch.
6. You do not need unions to install your 5900-BT control. If you need to remove it, the 5900- BT has quick-release couplings that make it easy to put the softener on by-pass and remove the filter system from the piping.
7. Note that the drain can run up above the 5900-BT control and into a drain, it does not have to drain down, as the filter backwashes under line pressure from your well pump. Most plumbing codes require an air-gap connection, so that if your sewer or septic tank backs up, it cannot cross connect with the drain tubing.

How Your Softener Works

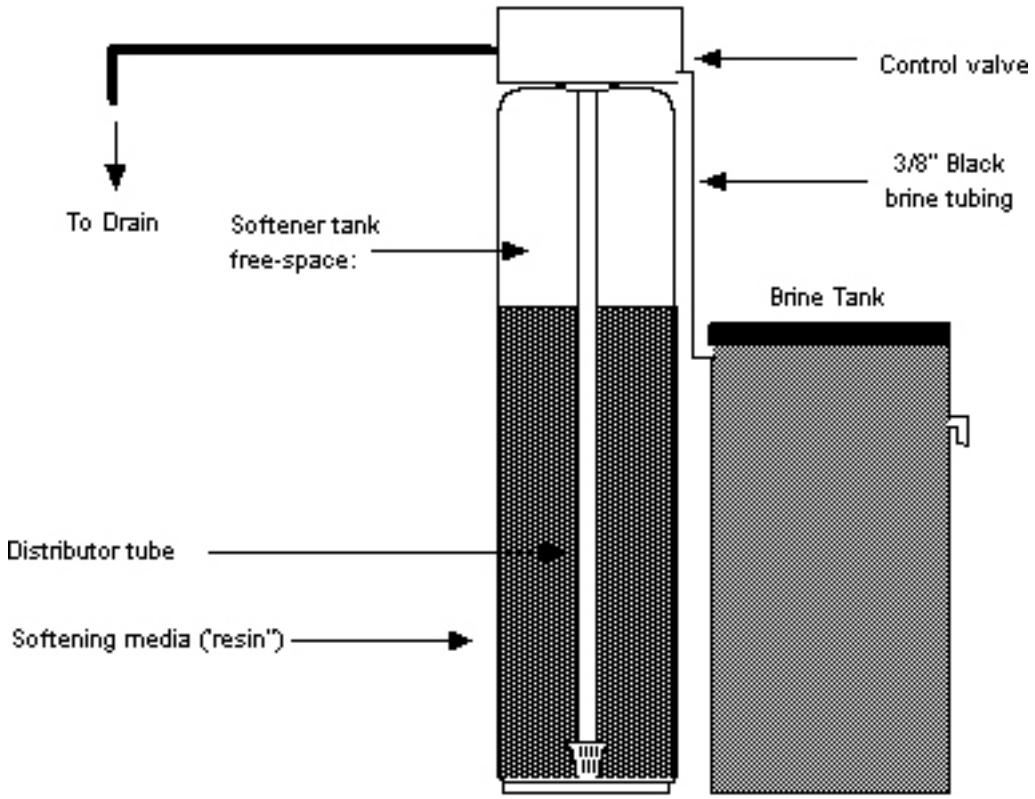
Fig. 1: In the softener, water enters the top of the tank and flows down through the media and up the distributor tube.

Hardness minerals are drawn to the resin beads in the softener where they are removed.

During regeneration the first cycle in the process backwashes and cleans the softener resin. Water flow is reversed and water flows down the distributor tube and up through the media, lifting and expanding the softening media, and removing any trapped particles.

After the backwash stage, salt brine is automatically drawn in from the brine tank which then slowly rinses through the softening resin for 1 hour, allowing the hardness minerals to be swapped out with harmless sodium or potassium ions.

This entire automatic process, called 'regeneration' takes about 90 minutes. Typically, the softener filter is set to regenerate based on gallons used and time to occur during the middle of the night when no water is being used.

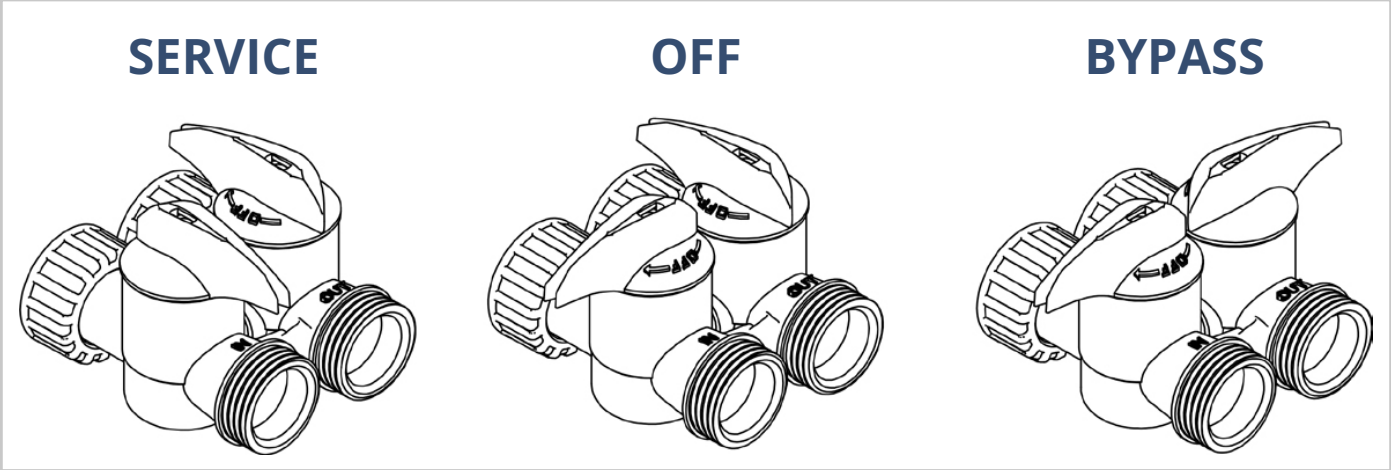


Installation Instructions

1. Wrap the top of distributor tube with black electrical tape or blue painter's masking tape so that no gravel or Softener media will go down the distributor tube when adding the media. Leave a folded tab of tape that you will be able to grab onto to gently pull off the tape after filling the tank.
2. Next add gravel if your softener requires gravel (48K grain size and up) and then add the softening resin using the media funnel provided.
3. The tank will be approximately 2/3 full, however do not fill it past 3/4 full.
4. When you are ready to screw the valve head on, apply silicone lubricant to the outside of the distribution tube, and the O-ring on the control valve where the tube goes in.
5. Remove tape from top of distributor tube. Be careful not to pull up distributor tube when removing tape.
6. Attach plastic top screen to the under-side of the 5900-BT control valve. It may twist on clockwise or counter-clockwise.
7. Add a small amount of silicone grease to the large O-ring on the bottom of the control valve and screw on 5900-BT control valve carefully. Do not use pipe-joint compound, vegetable oil, Teflon tape, or Vaseline or other petroleum greases to lubricate tank threads.

Insert Top Screen Underside of 5900 Control Valve

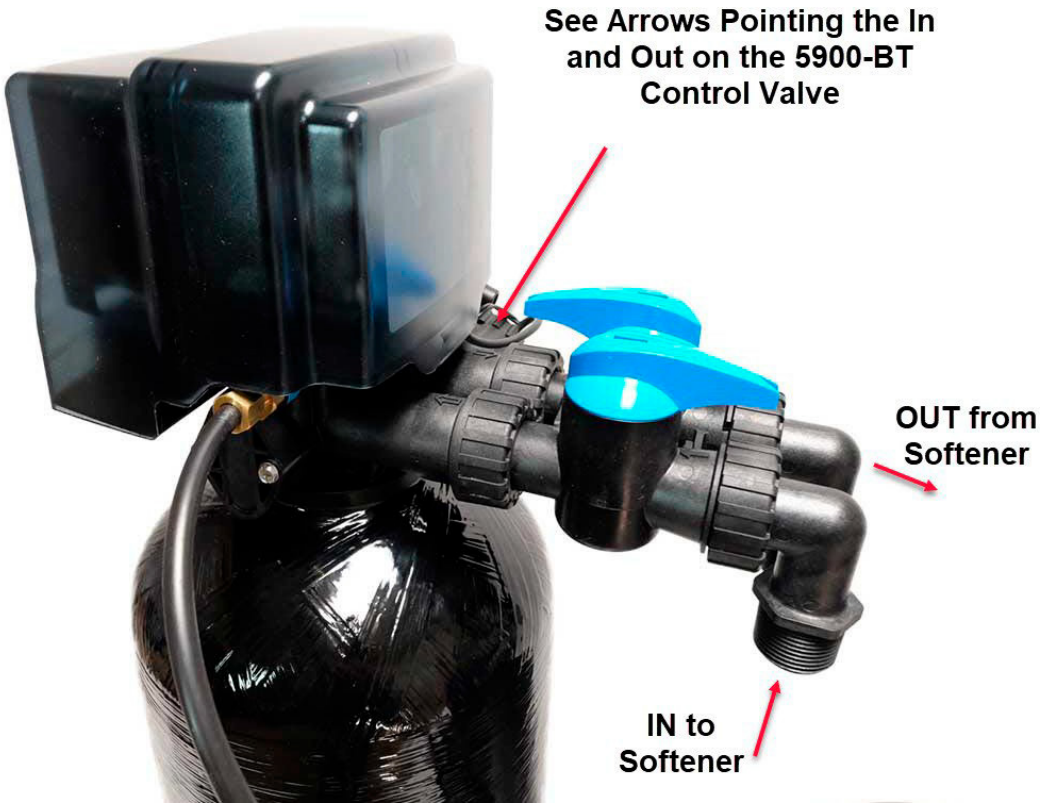
Attach the Bypass



Make sure there is lubricant on all three sets of O-rings and insert and screw the bypass onto the end connectors (they are already on the valve, with the Inlet Air Check Valve on the left, Inlet side).

Screw the Elbow fittings onto the end of the bypass and attach to service pipe.

Note: There is supposed to be some “play” in the whole assembly, do not attempt to screw them too tight.



Electrical Connections

P = Power – Use this connection
B = Optional (not used, powered in backwash step only)
S = Optional (not used, powered in regeneration step only)

Connect the power supply to the control valve connection P. This is the connection on the outside of the valve, nearest the side or outer section of the valve. Plug into a wall outlet.

B and S connections are used to power optional external relays, pumps, or solenoid valves (not used for most residential applications).

Install 9V Battery (not included)

DO NOT INSTALL BATTERY UNTIL AFTER INITIAL BACKWASH!

Connect 9V battery to battery cable under control panel. Battery cable and battery will sit under control panel.

Control panel can be easily removed to access battery cable if needed, no tools are required.

During power failures the battery will maintain the time of day if the battery has power. The display is turned off to conserve battery power during this time. If a power failure occurs while the system is regenerating, the motor will advance to a shut-off position to prevent constant flow to drain.

Assemble the Drain Line Flow Control Hose Barb

Refer to the loose instruction sheet for installing your Drain Line Flow Control button. Do not apply too much tape or paste to the barb fitting when screwing it in to the drain line fitting, or that fitting will crack.

Connect some flexible tubing from the drain connection on the 5900-BT control valve to a suitable drain such as a septic tank or drain to a sewer using an appropriate air-gap. That is, do not connect drain tubing directly to drain, use at least 1 -2” of air, so if sewer backs up it cannot cross-connect to the drain tubing from the softener.

It is OK to run the drain line up and over the Softener, up to 4 feet above the top of the tank. If the drain line will be more than 20 feet, and especially if your system is a 2.0 or 2.5 cubic foot size, use larger diameter tubing such as ¾” or 1”.

Make sure the drain tubing is firmly clamped to the barbed fitting with a hose clamp to prevent leaks.

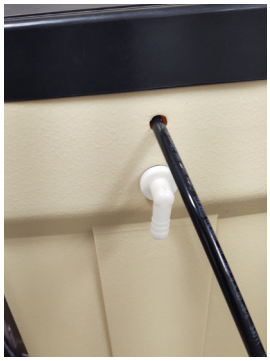
Attach the Brine Line Tubing to Brine Tank

Insert the 3/8" diameter tubing into the brine tank connection (included with your order). Screw the nut with the sleeve and Ferrell attached to prevent leaking.

On the control valve side: to connect the brine tank, begin by sliding the plastic brine injector nut on to the brine tubing by putting the tubing through the non-threaded side of the nut first. Next, slide the white (or clear) compression ring on to the tubing with the wider diameter going on first. Insert the tubing into the brine nut and screw tight- do not over-tighten.

On the brine tank: push the brine injector nut, which now has the compression rings inside of it, on to the threading of the brine tank float assembly (below) and rotate the nut clockwise, screwing it on to the brine valve. Tighten it down to finger tight. The tubing should be firmly attached and not slide out if pulled on.

Almond Color Brine Tank



On the control valve side: to connect the brine tank, begin by sliding the plastic brine injector nut on to the brine tubing by putting the tubing through the non-threaded side of the nut first. Next, slide the white (or clear) compression ring on to the tubing with the wider diameter going on first. Insert the tubing into the brine nut and screw tight- do not over-tighten.

On the brine tank:

Remove the top cover from the brine tank.
Remove the white round plastic cap on the brine tank float tube.

Push Connect Black Fitting Type: Run your 3/8" brine line through the top hole in the brine tank and connect it to the float connection by simply pushing the tubing into the fitting approximately 3/8". White Compression Fitting Type: For the compression type fitting loosen the nut and slid the tubing into the fitting. Hand tighten the compression nut to secure the tubing. Do not over tighten as you may break the fitting.

Install overflow tubing to the bottom white barb fitting and run to a drain or outside if desired.

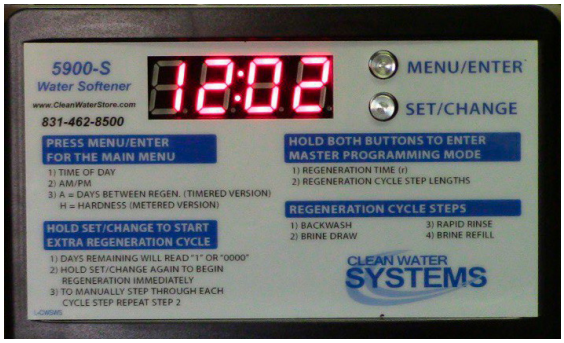
Brine Tank Set Up

1. Add approximately 5 gallons of water to the brine tank, and then fill the brine tank with salt, add just one bag until after you have done the initial regeneration, then you can fill the brine tank about 2/3 full of salt, which will generally be enough for several months.
2. It is OK to use any kind of water softening salt; however, we find that extra coarse salt works better than pellets. You do not have to add water to the brine tank again after this first time during the start-up.
3. See the over-flow barbed fitting on the side of the brine tank. You do not have to connect this to a drain. If the safety float were to malfunction, there is a small chance that the brine solution will drip out of this fitting. If this would cause a big mess where you have installed the softener, hook some tubing to this and run to a bucket, floor pan or floor drain. Normally no brine will leak out of this fitting.

Turn on Water to Softener

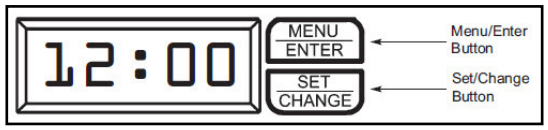
1. Now you are ready to turn on the water to the system. Turn on the water and leave on bypass and check for leaks.
2. Leave the ball valve after the softener closed, so water is still off to the house, but connect a garden hose and open the hose bib after the softener and allow the water to run. This will help to clear out any foreign material that may be in the pipes from the piping installation.
3. If you do not have a valve installed after the softener and you do not have a hose bib, you will need to turn the water on inside the house to let the water run. Use a bathtub or laundry sink or fixture that does not have an aerator screen.
4. Leave the water running out of the garden hose and then open the Inlet Side of the bypass valve. Now, slowly open the Outlet Side of the bypass until it is fully open.
5. Now turn on the garden hose to full force and let the water until it turns relatively clear. The water may have some color at first.

How to Program Your Softener Control



Enter main menu by pressing the Menu/Enter button (Time of day will flash)

How to Set current time of day



Set current time of day by pressing the Set / Change button (the first digit will begin to flash)

To change digit value, press the Set/Change button to accept the digit press the Menu/Enter button (Next digit will flash)

Once the hour is entered, all digits will flash.

With all digits flashing press the Menu

Button to set A.M. or P.M. Once A.M./P.M. is accepted the next menu item will flash

To Set the Hardness Press the Set/Change Button

To change digit value press the Set/Change button Example [H - 10]

To accept the digit value press the Menu/Enter button (Next digit will flash) Once the last digit is accepted all digits will flash

Note: you need to know what the hardness level of your water is in Grains Per Gallon. If you don't know, we do include a hardness test kit with each order.

To exit menu press the Menu/Enter button. Note: If no buttons are pressed for 60 seconds or longer the menu will automatically be exited.

Pressing and holding Menu/Enter button will access options to show you history & flow rate:

Flo — This is the flow rate, if water is running, it will display the volume, in gallons per minute.
Gt r — This the total # of gallons that has gone through the Nitrate Filter.
g tot — This is the same as the previous.
rC r — This is the number of regenerations done.
rC — This is the total number of regenerations done as rCr.
gPdL — This shows how many gallons used each day.
Gbrl — This shows the gallons used between regenerations.
PfDL — This shows peak, or highest flow rate that has passed through the filter in the last 24 hours.

How to Enter Master Programming Mode

To enter Master Programming Mode press and hold both buttons for 5 seconds.

1. Regeneration Time (r)

Press the Menu/Enter Button. The next display viewed is the option setting for Regeneration Time. It is identified by the letter 'r' in the left digit.

Set the desired time of day that a regeneration may occur, if required. **We recommend setting the system to backwash at 2 AM,** or at any time that it is unlikely that any water will be used. The first digit(s) indicates the Hour and the other digit indicates A.M. or P.M.

2. Regeneration Day Override (A)

Press Menu/Enter Button. This display is used to set the maximum amount of time (in days) the unit can be in service without a regeneration. This option setting is identified by the letter 'A' in the left digit. This option will be in the Master Programming Menu only in the Meter Mode. Regeneration will begin at the set Regeneration Time. A 0 setting will cancel this feature. The Max Value for this item is 29.

We recommend setting the system to regenerate every 14 days so the softener has a regeneration every 14 days at a minimum, even if no water has been used.

Example: Override every 14 days - [A - 14] (Factory Setting)
To Adjust this Value, press the Set/Change Button.
To Accept the Digit Value, press the Menu/Enter Button.

3. Regeneration Cycle Step Programming (1)(2)(3)(4)

The next 4 displays viewed are part of a series of option settings used to program the Regeneration Cycle.

Up to 4 steps can be programmed. Each display is used to set the duration time in minutes for that specific step in a regeneration cycle.

A step # will turn on for the regeneration cycle step being programmed.

4. Set each step according to the values below, appropriate for a softener

1. 8 minutes. This is the Backwash cycle. **[1 - 8]**
2. 60 minutes. This is the Brine Draw cycle. **[2 - 60]**
3. 6 minutes. This is the Rapid Rinse cycle. **[3 - 6]**
4. For the Brine Refill Cycle, set time to the size of your system:

24K grain softeners set to 5 min
32K grain softeners set to 6 min
48K grain softeners set to 9 min
64K grain softeners set to 12 min
80K grain softeners set to 15 min
96K grain softeners set to 18min

Set the Capacity

The display screen will have a lower-case c, and three numbers: [c027]. Set this according to the size of softener you have, for example

[c 024] for a 24,000 capacity, [c 032] for a 32,000 capacity, [c 048] for 48,000 Capacity, etc.

Set the Safety Factor (P)

The control unit takes the input value for the capacity and divides it by the value input for the hardness (the H setting). For example if you have a capacity of 048 (48,000 grains) and you have 10 grains of Hardness, you will have a "gallon run" between regenerations of 4,800 gallons.

The flow meter starts at that value, and when that many gallons have passed through the softener, it will do an automatic regeneration, at the pre- programmed time.

Since that may happen up to 23 hours before the next regeneration can happen, a safety factor can be input, as a percentage. In the above example, if you set P at 10, it will subtract 480 gallons, and will have a gallon run of 4320- this safeguards that you will have softened water throughout the day, when the valve has already counted down to zero gallons.

Bluetooth Settings

After the Capacity setting, you will see **bE 1, btPP and 1234** each time you hit the Menu/Enter button. These are factory/dealer settings and not used currently on your valve.

After 1234 the display will return to the service screen, flashing between the clock time and the number of gallons remaining until regeneration.

Brine Pre-Fill Enable

With Prefill Enabled, step 4 will occur 1-4 hours before the regen time (depending on how you set it). If you have it set at the default regen time of 2 am, and you have prefill enabled with a 2 hour delay (we recommend at least 2 hours to make sure it has enough time to make brine), then it will do step 4 at midnight, and then at 2 am, it will do steps 1,2,&3.

Exiting the Master Programming Mode

Press the Menu/Enter Button until all steps have been viewed. The Program Mode will be exited, and normal operation resumed. If no buttons are pressed for 60 seconds or longer in Master Programming Mode it will be exited automatically.

Start the First Regeneration

1. Close both the Inlet and Outlet valves, if not already closed. Press and hold the Set/Change (bottom) button, and the Gallons Remaining will go to 0000. Press and hold the bottom button a second time, and the regen will start.
2. Start to put the valve into the service position by turning inlet the bypass knob counter-clockwise about a quarter inch, until you can hear water passing through the bypass into the filter. Stop and wait until you see water coming out of the drain line. It will often be mixed with air bubbles. When you do not see bubbles anymore, keep opening the valve, a little bit at a time, stopping for a minute or two each time. You want to see a corresponding increase in flow out of the drain line as you increase the flow of water into the filter. After several minutes, you should have the valve fully open.
3. Cycle Step 2, the Brine Draw, is for 60 minutes. Confirm that the water in the side tank is being sucked down; if you start with 5 gallons, it should be empty after 15 minutes. If it is not, test your tubing connections, and make sure the float assembly is working. Once it has sucked the salt water into the tank, it will do a slow rinse for the rest of the cycle- a small amount of water will be coming out of the drain line during the time.
4. Allow the valve to finish running through the last two cycles (rapid Rinse, 6 minutes and Brine Fill, minutes determined by softener size. Open the outlet on the bypass valve and then open the nearest treated water faucet to the unit and allow the water to run until it is clear. We advise using a bathtub, laundry sink, or other fixture that does not have an aerator screen as any remaining residue may get caught in the screen.

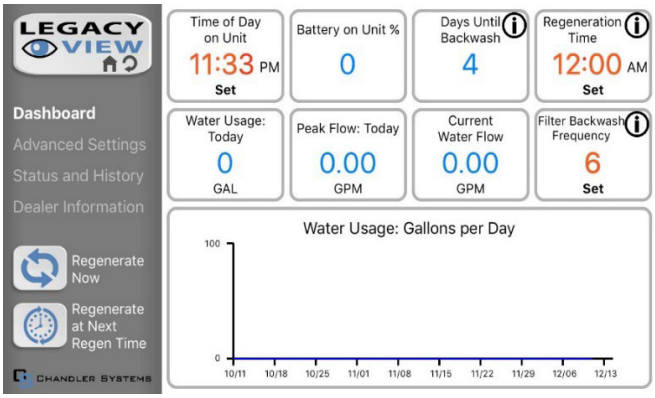
CONGRATULATIONS,
YOU ARE DONE SETTING UP YOUR VALVE!

Installing and Using the Optional Legacy View App

For simplified set up and control, please install the Legacy View on a compatible Bluetooth 4.0+ enabled smart phone or tablet.

1. Download and install the Legacy View app from the Google Play Store, Apple App Store.
2. Open the Legacy View app
3. Choose a valve device at any time from the list of available devices to connect to by clicking on it.
4. If the valve you want to connect to doesn't show up, or there is a problem connecting press the "Scan for Devices" button or the Legacy View logo at any time to refresh the list and start the process over.
5. If the valve device is a BTLE valve and it has a password other than the default password, the first time you connect to it the app will ask you to enter the password. After entering it the first time you should not need to enter it again unless it changes.
6. The control valve firmware can be updated by the App. When the app is updated from the Google Play Store or the Apple App Store, it may contain an updated firmware program for the valve devices. These updates could contain new features or operational improvements. It is up to the user to allow these updates to be sent to the valve device. Uploading a new program takes approximately 1 minute.

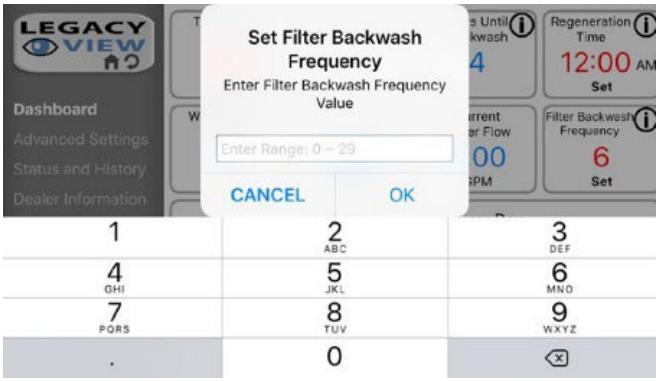
Legacy Phone App Dashboard



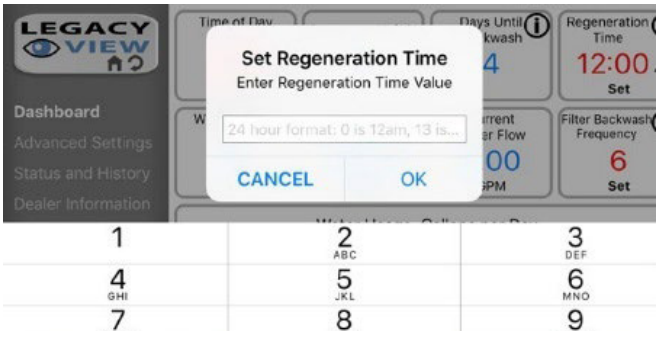
From the Dashboard, all items in **ORANGE** can be changed, while blue fields are informational only.

If you are unsure about the function of the field, click the Info icon for more information

1. Change Time of day (Press “set” to set time automatically based on device time)

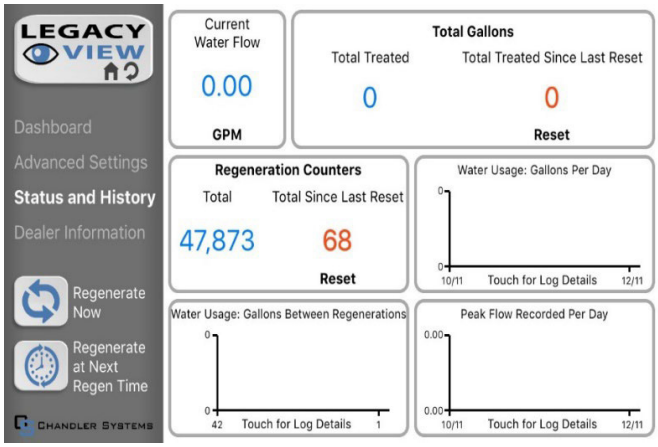


2. Set Backwash Frequency. This sets the amount of days between backwash cycles.



3. Set Regeneration Time. Example: For 2am, just type 2 and press OK.

Legacy App Advanced Settings



From the Status and History, all items in **ORANGE** can be reset.

Status and History

From the Status and History, all items in **ORANGE** can be reset.

Touch any table to explode a detailed list of the last 60 days.

Start a regeneration or backwash cycle

Option 1: Click on “Regenerate Unit Now.”

If you would like to force the unit into the next cycle step, Click “Go to next Regeneration Step.”

Option 2: “Regenerate Unit at next Regen Time” button. This will take the system into a backwash at the next regeneration time.

Normal Operation & Maintenance

Normal display alternates between time of day and days until regeneration.

Days remaining until the next regeneration will count down from the regeneration day override value to 1 day remaining. Once the count reaches 1, a regeneration cycle will be initiated at the next designated regeneration time.

How the Battery Back-up Works

Optional. Uses a 9-volt battery, not included. 9-volt battery lead wires are found by removing the cover. Hook the battery up, it lays loose in the tray below the circuit board.

The battery back-up maintains the time of day during power failures.

The battery back-up continues to count down gallons remaining during power failure (Metered Version). Menus cannot be accessed during power failure

When the battery is installed, and the unit loses power, it will use the battery to advance the piston to the next cycle where no water is being used.

During power failure to conserve battery power the display is turned off. However, to confirm that the battery is working you can press either button and the display will turn on for five seconds.

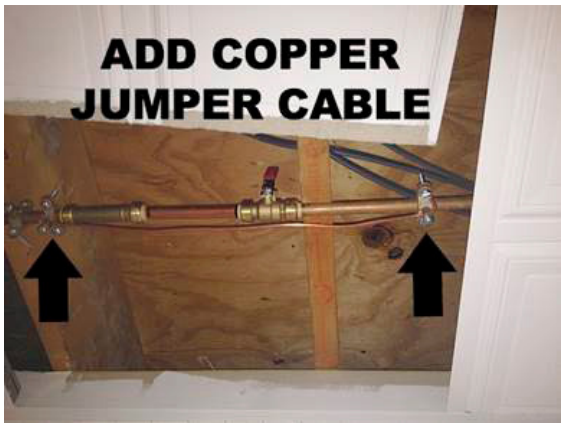
How to Start an Extra Regeneration Cycle

If days remaining is not already at 1 press and hold the Set/Change button.
After 3 seconds the days remaining display will read 1 Example [1]
Regeneration cycle will be initiated at the next designated regeneration time

Starting Immediate Extra Cycle: First, complete above delayed cycle steps
With days remaining at 1 press and hold the Set/Change button
After 3 seconds the regeneration cycle will begin.

Fast Cycling Through Regeneration
First complete above immediate cycle steps Press and hold the Set/Change button
After 3 seconds the valve will start to advance to the next step

Installing on Systems with Copper Piping



If your new filter system is to be installed in a metal (conductive) plumbing system, i.e. copper or galvanized steel pipe, the plastic components of the system will interrupt the electrical continuity of the plumbing system.

Thus, any stray currents from improperly grounded appliances downstream or potential galvanic activity in the plumbing system can no longer ground through the contiguous metal plumbing.

Some homes may have been built in accordance with building codes, which encouraged the grounding of electrical appliances through the plumbing system.

Consequently, the installation of a bypass consisting of the same material as the existing plumbing, or a grounded “jumper wire” bridging the equipment and reestablishing the contiguous conductive nature of the plumbing system must be installed prior to your systems use.

This is simple and easy step to take if you are installing your water treatment system into copper piping. A simple ground jumper wire with a pipe clamp can be purchased at any Home Center, or hardware store etc. for a few dollars.

Troubleshooting Guide

SYMPTOM	PROBABLE CAUSE	CORRECTION
1. Softener fails to regenerate automatically.	A. Power supply plugged into intermittent or dead power source.	A. Connect to constant power source.
	B. Disconnected meter cable.	B. Reconnect cable.
	C. Improper control valve programming.	C. Reset program settings.
	D. Defective power supply.	D. Replace power supply.
	E. Defective circuit board or meter.	E. Replace or Repair
	F. Defective drive motor.	F. Check motor operation by activating the service button on back of motor.
2. Regeneration at wrong time.	A. Time of day improperly set, due to power failure.	A. Reset time of day programming and install 9 volt battery.
	B. Regeneration time set improperly.	B. Reset Regeneration time programming.
3. Loss of capacity.	A. Increased raw water hardness.	A. Reset unit to the new capacity.
	B. Brine concentration and/or quantity.	B. Keep brine tank full of salt at all times. Clean it yearly. Salt may be bridged. If using a salt grid plate ensure refill water is over it.
	C. Resin fouling.	C. Call dealer, find out how to confirm it, clean the resin and prevent future fouling.
	D. Poor distribution, Channeling (uneven bed surface).	D. Call dealer. Check distibutors and backwash flow.
	E. Internal valve leak.	E. Call dealer. Replace spacers, seals and/or piston.
	F. Resin age.	F. Call dealer. Check for resin oxidation caused by Chlorine. Mushy resin.
	G. Resin Loss.	G. Call dealer. Check for correct bed depth. Broken distibutors. Air or gas in bed: Well gas eliminator. Loose brine line.
4. Poor water quality.	A. Check items listed in #1, #2, & #3.	
	B. Bypass valve open.	B. Close by-pass valve.
	C. Channeling.	C. Check for too slow or high service flow. Check for media fouling.
5. High salt usage.	A. High salt setting.	A. Adjust brine tank refill time.
	B. Excessive water in brine tank.	B. See symptom No. 7.
	C. Constant flow through the unit.	C. Indicates plumbing leak (ie. toilet tank).
	D. Improperly set hardness, Regeneration frequency or regeneration day override programming.	D. Reset programming

Troubleshooting Guide (Cont'd.)

SYMPTOM	PROBABLE CAUSE	CORRECTION
6. Loss of water pressure.	A. Scaling/Fouling of inlet pipe.	A. Clean or replace pipeline. Pretreat to prevent.
	B. Fouled resin.	B. Clean resin. Pretreat to prevent.
	C. Improper backwash.	C. Too many resin fines and/or sediment. Call dealer, reset backwash flow rate, and/or adjust time
7. Excessive water in brine tank and/or salty water to service.	A. Plugged Drain Line.	A. Check flow to drain. Clean flow control.
	B. Dirty or damaged brine valve.	B. Clean or replace brine valve.
	C. Plugged Injector.	C. Clean injector and replace screen.
	D. Low inlet pressure.	D. Increase pressure to allow injector to perform properly (20psig minimum).
	E. Excessive brine refill cycle time.	E. Reset brine refill cycle time.
8. Softener fails to use salt.	A. Check items listed in #1.	
	B. Improper control valve programming.	B. Check and reset programming.
	C. Plugged/restricted drain line.	C. Clean drain line and/or flow control.
	D. Injector is plugged.	D. Clean or replace injector and screen.
	E. No water in brine tank.	E. Check for restriction in BLFC. Ensure safety float is not stuck. Check brine tank for leaks.
	F. Water pressure is too low.	F. Line pressure must be at least 20 psi.
	G. Brine line injects air during brine draw.	G. Check brine line for air leaks.
	H. Internal control leak.	H. Call dealer, Check piston, seals and spacers for scratches and dents.
9. Control cycles continuously.	A. Faulty circuit board.	A. Replace circuit board.
10. Continuous flow to drain.	A. Foreign material in control.	A. Call dealer. Clean valve, rebuild unit.
	B. Internal control leak.	B. Same as above.
	C. Valve jammed in backwash, brine, or rapid rinse position.	C. Same as above
	D. Motor stopped or jammed.	D. Replace motor.

Brine Solution Not Being Sucked in During Regeneration

Make sure the injector is drawing in the brine
Remove the brine tank tubing where it enters the 5900-BT control valve.
Initiate a backwash and skip to the Brine Cycle by following the steps below:

Start delayed extra cycle
If days remaining is not already at 1 press and hold the Set/Change button.
After 3 seconds the days remaining display will read 1 Example [1]
Regeneration cycle will be initiated at the next designated regeneration time

Start Immediate Extra Cycle - First, complete above delayed cycle steps with days remaining at 1 press and hold the Set/Change button

After 3 seconds the regeneration cycle will begin.

Fast Cycle Through Regeneration
First complete above immediate cycle steps
Press and hold the Set/Change button

After 3 seconds the valve will start to advance to the next step, which is the Brine Cycle, where it is supposed to suck in the brine solution.

1. If it is sucking strongly, check the brine tank float inside the brine well and make sure there are no rubber bands around it, and that is free of obstructions. In some cases, it may need to be replaced or cleaned, if there is suction at the control valve, but no brine is being drawn in.
2. If there is NO suction at the control valve port where you removed the brine line tubing, then the injector should be cleaned.
3. If the injector has been cleaned and there is still no suction check to make sure there is obstruction in the backwash line; that the backwash line does not go up and over the softener more than several feet (which causes pressure loss and the injector not to work correctly); finally check to make sure there is enough pressure. If possible, increase your water pressure to softener from your well pump and see if a slightly increased pressure makes the injector work. We recommend a minimum 30 PSI, but it does work better if there is 40 to 50 minimum PSI.

System Not Backwashing Adequately

The other main problem that may occur is if you do not have enough backwash flow rate to properly clean the water softener. You can verify the backwash flow rate by running the drain line into a bucket and timing it when the 5900-BT is in Cycle 1 or backwash. A 1.0 or 1.5 cubic foot system should have 2.0 gallons per minute and a 2.5 cubic foot system should have 4.0 gallons per minute of backwash.

System Not Programmed Correctly

In some cases, the 5900-BT may not be programmed correctly. Review the programming instructions earlier in this guide.

Brine Tank Not Filling with Enough Water

Sometimes if the brine tank is not filling adequately, it is possible that the float assembly in the tank is set too low. You would want the float to be several inches above the air check valve inside the tank.

This will allow for enough water to be added to the tank before shutting the brine fill cycle. If necessary, pull the float assembly rod up to the appropriate height, and cut the rod at that height, leaving while keeping the rubber washers the adequate space to hold the float in place.

Error Codes

There are five (5) error codes that could indicate a possible problem with the control valve:

Error 2 - Homing slot expected. Valve will start looking for home. (Normal operation continues)

Error 3 - Encoder is not sending a signal (Valve requires service to continue)

Error 4 - Unable to find homing slot (Valve requires service to continue)

Error 5 - Motor overload (stalled position or shorted motor) (Valve requires service to continue)

Error 6 - No Power to Motor (usually this means the cable has come loose)

Limited Warranty

We warrant this water filter/ softener/ conditioner, when installed according to factory recommendations, to be free from defects in materials and workmanship as follows:

Limited Warranty

This water conditioner unit is comprised of the finest industry components available. Each individual component used in the assembly of our equipment is covered by the original equipment manufacturer's warranty. All components, except those specifically listed below, are warranted for a period of one (1) year from date of installation to the original purchaser to be free of defects in materials and workmanship subject to the manufacturer's conditions and/or the conditions shown below.

Mineral Tanks

The fiberglass, polyglass or composite mineral tanks used in the assembly of this unit are warranted to be free of defects in materials and workmanship for a period of ten (10) years on 6" – 13" size tanks, and five (5) years on 14" and larger size tanks used for softener/filtration applications, subject to the manufacture's conditions and/or the conditions shown below. Warranty does not cover exposure to weather, freezing, fractures caused by external impact, or exposure to vacuum.

Control Valves

The CWS control valve is warranted to be free of defects in materials and workmanship for a period or seven (7) years, subject to the manufacturer's conditions and/or the conditions shown below. Fleck & other brand control valves have 5-year warranty.

Conditions

1. This warranty only covers water conditioners installed for residential use. Water conditioners installed for commercial or industrial applications are guaranteed for one (1) year from the date of installation.
2. Installation must be made in accordance with legal or local codes and manufacturer's recommendations.
3. Failure must not result from exposure to weather, rodents, misuse, alteration, fire, lightning, power surges or neglect.
4. 4. Water pressure must not exceed 100 PSI and water temperature must not exceed 100 degrees.
5. 5. Subject to the above terms and conditions we will replace and/or repair, at our option, any parts of the water conditioner found defective in materials and workmanship. Defective parts must be returned, freight pre-paid for repair or replacement.
6. This warranty does not cover labor, shipping charges, damages caused by delays of consequential damages or other causes beyond our control. Warranty does not cover pipes, fixtures or appliances. Warranty extends to the actual water conditioner components only.
7. This warranty is to the original purchaser and is not transferable after the third year to any subsequent owner(s).
8. No other guarantees or warranty, expressed or implied, is applicable to our product. No repair or replacement made under the terms of the warranty shall extend this warranty.