

Operation Manual

Pro Elite Analyzer



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Safety Information

The Pro Elite water conditioner's control valve conforms to NSF/ANSI 44 and 61 for materials and structural integrity only. Generic systems were tested and certified by WQA as verified by the performance data sheet.



- Please review the entire Installation and Operation Manual before installing the water conditioning system.
- As with all plumbing projects, it is recommended that a trained professional water treatment dealer install the water conditioning system. Please follow all local plumbing codes for installing this water conditioning system.
- This system will not make microbiologically unsafe water safe. Water that is unsafe must be treated separately from this conditioner.
- This water conditioning system is to be used only for potable water.
- Inspect the water conditioning system for carrier shortage or shipping damage before beginning installation.
- Use only lead-free solder and flux, as required by federal and state codes, when installing soldered copper plumbing.
- Use caution when installing soldered metal piping near the water conditioning system. Heat can adversely affect the plastic control valve and bypass valve.
- All plastic connections should be hand tightened. Teflon^a tape may be used on connections that do not use an O-ring seal. Do not use pipe dope type sealants on the valve body. **Do not use pliers or pipe wrenches.**
- Do not use petroleum-based lubricants such as Vaseline, oils or hydrocarbon-based lubricants. Use only 100% silicone lubricants.
- Use only the power transformer supplied with this water conditioning system.
- All electrical connections must be completed according to local codes.
- The power outlet must be grounded
- Install an appropriate grounding strap across the inlet and outlet piping of the water conditioning system to ensure that a proper ground is maintained.

CAUTION: Dry location use only, unless used with a Listed Class 2 Power Supply suitable for outdoor use.

- To disconnect power, unplug the AC adapter from its power source.

a. Teflon is a trademark of E. I. duPont de Nemours.

How To Use This Manual

This installation manual is designed to guide the installer through the process of installing and starting water conditioning systems featuring Pro Elite equipment.

This manual is a reference and will not include every system installation situation. The person installing this equipment should have:

- Training in the Pro Elite Analyzer systems.
- Knowledge of water conditioning and how to determine proper control settings.
- Adequate plumbing skills.

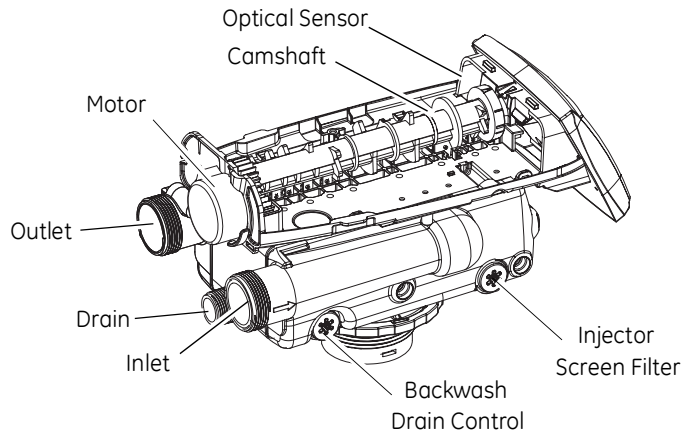
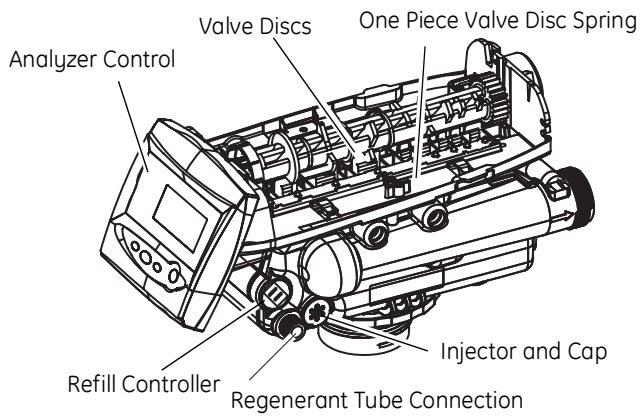
Icons That Appear In This Manual



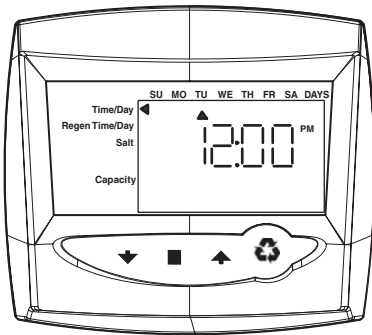
WARNING: Failure to follow this instruction can result in personal injury or damage to the equipment.

Note: Helpful hint to simplify procedure.

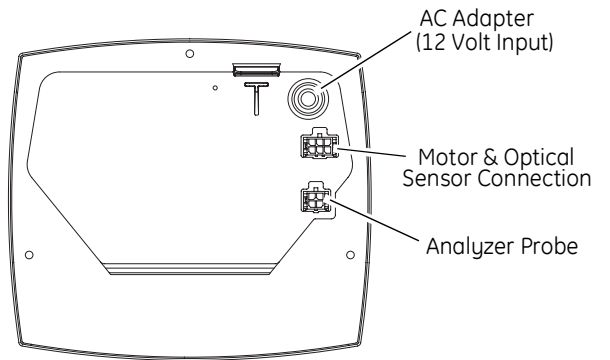
Valve Layout



Analyzer Control Layout



Front



Back

Location Selection

Location of a water conditioning system is important. The following conditions are required:

- Level platform or floor.
- Room to access equipment for maintenance and adding regenerant (salt) to tank.
- Ambient temperatures over 34°F (1°C) and below 120°F (49°C).
- Water pressure below 120 psi (8.27 bar) and above 20 psi (1.38 bar).
- In Canada the water pressure must be below 100 psi (6.89 bar).
- Constant electrical supply to operate the control.
- Total minimum pipe run to water heater of ten feet (three meters) to prevent backup of hot water into system.
- Local drain for discharge as close as possible.
- Water line connections with shutoff or bypass valves.
- Must meet any local and state codes for site of installation.
- Valve is designed for minor plumbing misalignments. Do not support weight of system on the plumbing.
- Be sure all soldered pipes are fully cooled before attaching plastic valve to the plumbing.

CAUTION: Dry location use only, unless used with a Listed Class 2 Power Supply suitable for outdoor use.

Outdoor Locations

When the water conditioning system is installed outdoors, several items must be considered.

- **Moisture** – The valve and control are rated for NEMA 3 locations. Falling water should not affect performance. The system is not designed to withstand extreme humidity or water spray from below. Examples are: constant heavy mist, near corrosive environment, or upwards spray from sprinkler. Ensure that the Analyzer probe cover is installed on the tank
- **Direct Sunlight** – The materials used will fade or discolor over time in direct sunlight. The integrity of the materials will not degrade to cause system failures. If it is necessary to locate the conditioner in direct sunlight, an outdoor cover (PN 3022113) over the valve and control is necessary. Valve skirts are available if further protection is required.
- **Temperature** – Extreme hot or cold temperatures will cause damage to the valve or control. Freezing temperatures will freeze the water in the valve. This will cause physical damage to the internal parts as well as the plumbing and conditioning resin. High temperatures will affect the control. The display may become unreadable but the control should continue to function. When the temperature returns to normal operating limits the display will re-appear. A protective cover should assist with high temperature applications.
- **Insects** – The control and valve have been designed to keep all but the smallest insects out of the critical areas. Any holes in the top plate can be covered with duct tape. The top cover should be installed securely in place.
- **Wind** – The cover, when properly installed on the valve, is designed to withstand a 30 mph (48 Kph).

Equipment Installation

Tank and Probe Assembly

Use only 100% Silicone lubricant on the probe O-rings (Figure 1). Do not allow the lubricant to come into contact with the probe pins. Install the probe assemblies into the tank and secure with the locking clasp (Figure 2)

Important: The pins on the probes will only fit into the bulkhead fittings one way. The pins must go into the matching holes at the bottom of the fitting. The probe with the shortest length of wire must be on top.

Install the protective shield (Figure 2). Note: Do not attempt to tighten or loosen the Bulkhead fittings as they are secured with a locking adhesive.

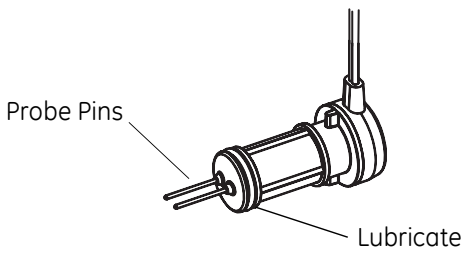


Figure 1

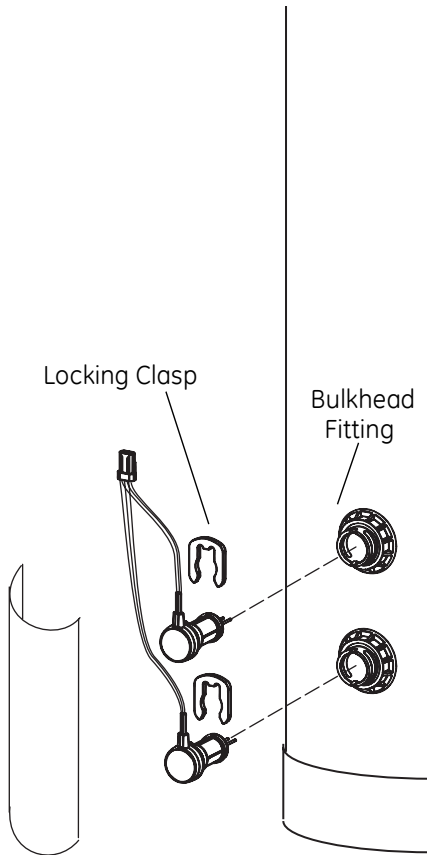


Figure 2

Water Line & Bypass Connections

A bypass valve system should be installed on all water conditioning systems. The Bypass valve isolates the conditioner from the water system and provides unconditioned water to service during routine maintenance and servicing procedures. See Figures 3 and 4.

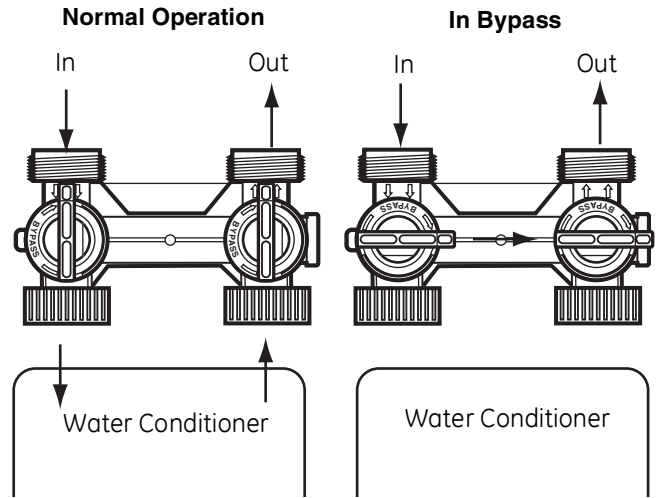


Figure 3 Model 1265 Bypass

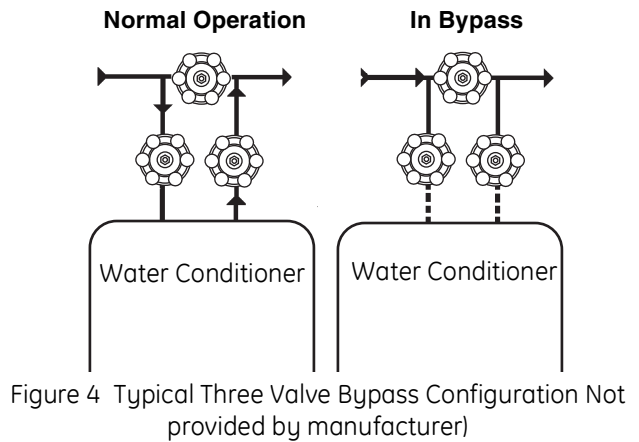


Figure 4 Typical Three Valve Bypass Configuration Not provided by manufacturer)



WARNING: Do not use tools to tighten plastic fittings. Over time, stress may break the connections. Hand tighten the nuts.



WARNING: Do not use petroleum grease on gaskets when connecting bypass plumbing. Use only 100% silicone grease products when installing any Autotrol brand valve. Non-silicone grease may cause plastic components to fail over time.



WARNING: The inlet water must be connected to the inlet port of the valve. When replacing non-Autotrol valves, the inlet and outlet may be reversed. Ensure that the plumbing is not installed in the opposite order. Tank media may be pushed into the valve.

Drain Line Connection

Note: Standard commercial practices are expressed here. Local codes may require changes to the following suggestions. Check with local authorities before installing a water conditioning system

1. The unit should be above and not more than 20 feet (6.1 m) from the drain. Use an appropriate adapter fitting to connect ½-inch (1.3 cm) plastic tubing to the drain line connection of the control valve.
2. If the backwash flow rate exceeds 5 gpm (22.7 Lpm) or if the unit is located 20-40 feet (6.1 – 12.2 m) from drain, use ¾-inch (1.9 cm) tubing. Use appropriate fittings to connect the ¾-inch tubing to the ¾-inch NPT drain connection on valve.
3. The drain line may be elevated up to 6 feet (1.8 m) providing the run does not exceed 15 feet (4.6 m) and water pressure at the conditioner is not less than 40 psi (2.76 bar). Elevation can increase by 2 feet (61 cm) for each additional 10-psi (.69 bar) of water pressure at the drain connector.
4. Where the drain line is elevated but empties into a drain below the level of the control valve, form a 7-inch (18 cm) loop at the far end of the line so that the

bottom of the loop is level with the drain line connection. This will provide an adequate siphon trap.

5. Where the drain empties into an overhead sewer line, a sink-type trap must be used.
6. Secure the end of the drain line to prevent it from moving.

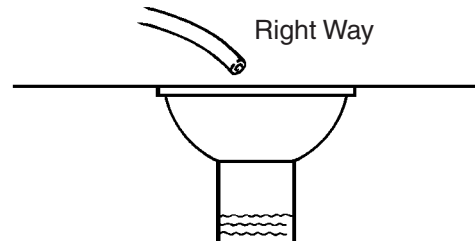


Figure 5 Drain Line Connection

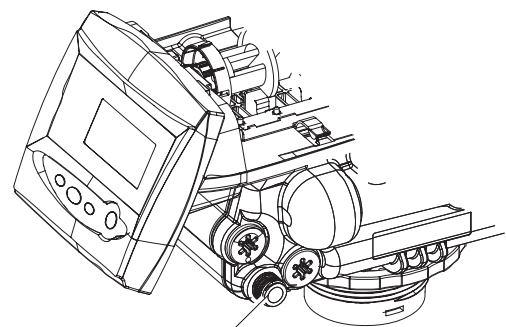


WARNING: Never insert drain line directly into a drain, sewer line or trap (Figure 5). Always allow an air gap between the drain line and the wastewater to prevent the possibility of sewage being back-siphoned into the conditioner.

Regenerant Line Connections

The regenerant line from the tank connects to the valve. Make the connections and hand tighten. Be sure that the regenerant line is secure and free from air leaks. Even a small leak may cause the regenerant line to drain out, and the conditioner will not draw regenerant from the tank. This may also introduce air into the valve causing problems with valve operation.

Ensure that Teflon^a tape pipe sealant is applied to the 3/8-inch NPT regenerant line connection (Figure 6).



Regenerant Line Connection

Figure 6

a. Teflon is a Trademark of E.I. duPont de Nemours.

Overflow Line Connection

In the event of a malfunction, the regenerant TANK OVERFLOW will direct “overflow” to the drain instead of spilling on the floor. This fitting should be on the side of the cabinet or regenerant tank, Figure 7.

To connect the overflow line, locate hole on side of tank. Insert overflow fitting into tank and tighten with plastic thumbnut and gasket. Attach length of ½-inch (1.3 cm) I. D. tubing (not supplied) to fitting and run to drain. Do not elevate overflow line higher than overflow fitting.

Do not tie into drain line of control unit. Overflow line must be a direct, separate line from overflow fitting to drain, sewer or tub with an air gap at the drain.

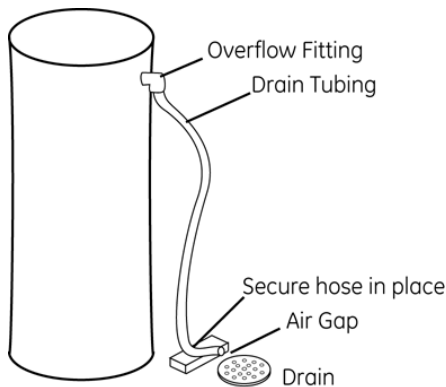


Figure 7

Electrical Connection

Note: There are no user serviceable parts in the AC adaptor, motor or the control board.

The Analyzer control operates on a 12-volt alternating current power supply. This requires use of the GE Water Technologies supplied AC adapter. A variety of AC adapters are available from your supplier for different applications. They include:

AC Adapter	Input Voltage	Application	Part Number
Standard wall-mount	120V 60 Hz	UL listed for dry locations	1000811
Outdoor rated	120V 60 Hz	UL listed for outdoor installations	1235448

120 VAC AC Adapters:

Make sure power source matches the rating printed on the AC adapter.

Note: The power source should be constant. Be certain the AC adapter is not on a switched outlet. Power interruptions longer than 8 hours may cause the control to lose the time and day settings. When power is restored, the control will display four dashes (- - :- -) indicating that the day and time settings must be re-entered

System Operation

Treated Water (Downflow)

Untreated water is conditioned as it flows through the resin bed and up the riser.

Backwash (Upflow) – Cycle C1

Flow is reversed by the control valve, directed down the riser, up through the resin bed and sent to drain. The bed is expanded and debris is flushed to the drain.

Regenerant Draw (Downflow) – Cycle C2^a

Water passes through the injector and regenerant is drawn from the regenerant tank. The regenerant is directed to the resin bed. The hardness ions are displaced by sodium ions. Regenerant draw is completed when the air check closes.

Slow Rinse (Downflow) – Cycle C3^a

Water flow moves the regenerant through the resin at a specific rate and rinses to the drain. The resin is regenerated.

Repressurization – Cycle C4

Pressure is balanced in the valve before continuing the regeneration.

Fast Rinse (Downflow) - Cycle C5

Water passes through the resin bed and up through the riser to drain. All remaining regenerant residual is rinsed from the resin bed.

2nd Backwash (Upflow) – Cycle C6

Flow is identical to C1 Backwash. The resin is reclassified.

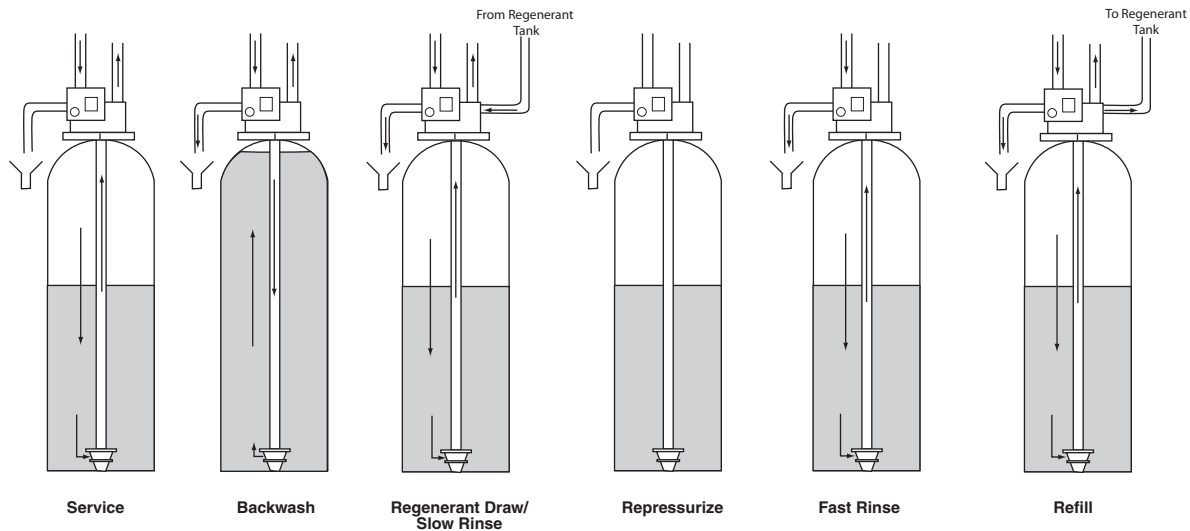
2nd Rinse (Downflow) - Cycle C7

Flow is identical to C5 Fast Rinse. The resin bed is rinsed to quality.

Regenerant Refill – Cycle C8

Water is directed to the regenerant tank to create regenerant for the next regeneration.

Cycle Water Flows



a. The camshaft does not change position between the C2 and C3 cycles. C2 is only momentarily displayed.

Camshaft Cycle Positions

The front end of the camshaft has an indicator cup. The cup has slots in the outer edge and cycle numbers on the inside face (Figure 8).

Remove the cover and look over the top of the Analyzer control to view the cycle numbers. The number at the top indicates the current cycle position of the control valve. The corresponding slot for the number is positioned at the optical sensor, which is rotated approximately 90 degrees out of phase.

Note: If electrical power is not available, the camshaft can be rotated counterclockwise by hand if the motor is removed.

Cycle Indicators:

- 0 = Treated Water
- 1 = Backwash Cycle
- 2 = Regenerant Draw Cycle

- 3 = Slow Rinse Cycle
- 4 = System Pause
- 5 = Fast Rinse Cycle 1
- 6 = 2nd Backwash
- 7 = 2nd Fast Rinse
- 8 = Regenerant Refill

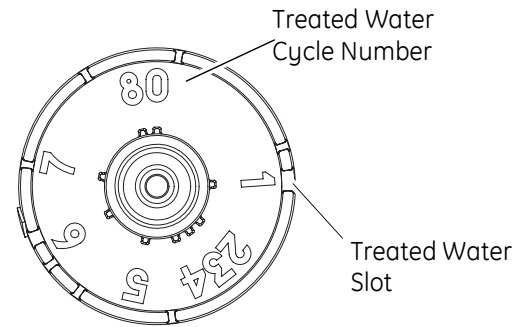


Figure 8

Valve Disc Location/Function

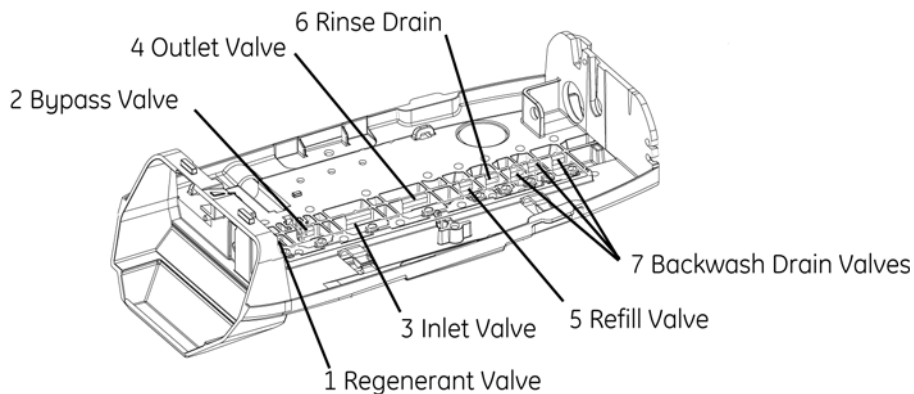


Figure 9 Valve

Disinfection of Water Conditioning Systems

The materials of construction in the modern water conditioning system will not support bacterial growth, nor will these materials contaminate a water supply. During normal use, a conditioner may become fouled with organic matter, or in some cases with bacteria from the water supply. This may result in an off-taste or odor in the water.

Some conditioners may need to be disinfected after installation and some conditioners will require periodic disinfection during their normal life.

Depending upon the conditions of use, the style of conditioner, the type of ion exchanger, and the disinfectant available, a choice can be made among the following methods.

Sodium or Calcium Hypochlorite

These materials are satisfactory for use with polystyrene resins, synthetic gel zeolite, and bentonites.

5.25% Sodium Hypochlorite

These solutions are available under trade names such as Clorox^a. If stronger solutions are used, such as those sold for commercial laundries, adjust the dosage accordingly.

1. Dosage

- Polystyrene resin; 1.2 fluid ounce (35.5 mL) per cubic foot.
- Non-resinous exchangers; 0.8 fluid ounce (23.7 mL) per cubic foot.

2. Regenerant tank conditioners

- A. Backwash the conditioner and add the required amount of hypochlorite solution to the well of the regenerant tank. The regenerant tank should have water in it to permit the solution to be carried into the conditioner.
- B. Proceed with the normal regeneration.

Calcium Hypochlorite

Calcium hypochlorite, 70% available chlorine, is available in several forms including tablets and granules. These solid materials may be used directly without dissolving before use.

1. Dosage

- A. Two grains (approximately 0.1 ounce (3 mL) per cubic foot.

2. Regenerant tank conditioners

- A. Backwash the conditioner and add the required amount of hypochlorite to the well of the regenerant tank. The regenerant tank should have water in it to permit the chlorine solution to be carried into the conditioner.
- B. Proceed with the normal regeneration.

Analyzer Control Operation

Power Loss Memory Retention

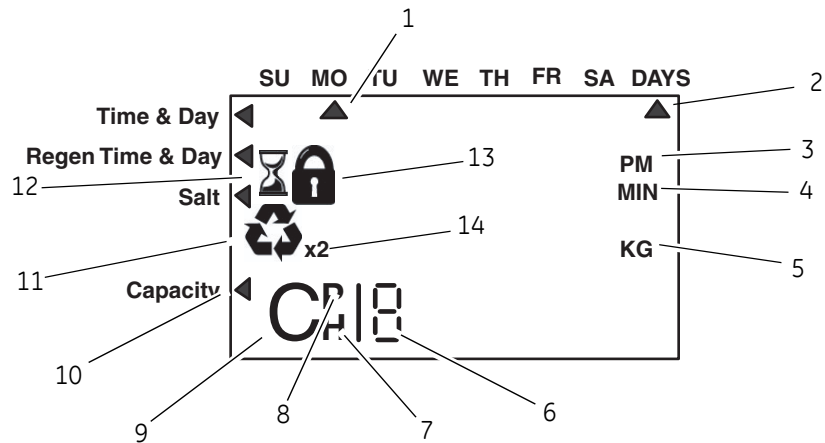
The Analyzer control features battery-free Time of Day and Day of Week retention during loss of power. A super capacitor is designed to hold the information in memory for 8 to 24 hours depending on the installation. If the super capacitor is exhausted the Analyzer control will display four dashes

(- - - -) immediately upon power up. The Time of Day and Day of Week must be reset.

All other programmed parameters are stored in the static memory and are retained during power outages.

a. Clorox is a trademark of the Clorox Company.

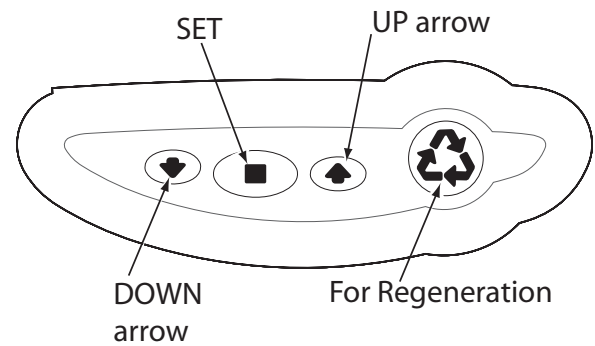
Display Icons & Cursors



Note: In normal operation and during programming, only a few of the icons will actually be displayed.

1. Used to select and indicate the actual Day of the Week setting
2. This cursor is displayed when programming the Days Override
3. PM indicator displayed when setting Time of Day and Time of Regeneration. Note: There is no AM indicator.
4. Indicates displayed value in minute increments
5. Indicated kilograins or kilograms when estimated capacity is displayed
6. Used to display "P", "H", and "C" parameter.
7. Indicates access into "H" Level IV History viewing.
8. Indicates access into "P" Level II programming.
9. Used to display cycle position during regeneration access into "C" Level III cycle programming.
10. This cursor is displayed during Level I programming: Time of Day, Regen Time, Day, Salt etc
11. When flashing this indicates regeneration is to occur at next Time of Regen. Appears as a solid icon during regeneration.
12. When hourglass is flashing this indicates that the control is moving to a regeneration cycle. Appears as a solid icon during a cancelled regeneration and the control is cycling directly back to the home position.
13. Indicates the selected program setting has been locked out. Lock settings are changed in Level II programming.
14. Indicates double regeneration.

Button Functions



DOWN & UP Arrows: Used to scroll through settings or change setting value

SET: Used to enter a setting into memory or activate a setting to be changed

REGEN: Used to command the control to regenerate and enable or disable lockout setting

Programming Overview

The Analyzer control includes multiple program levels that allow the Water Treatment Professional to customize the system for many water conditions. Additionally, historical data can be viewed allowing quick and easy troubleshooting. In most cases Level I programming is all that is required to set up the water conditioning system for proper operation. A brief description of each program level is listed below.

Level I Used to program control for normal applications..

Level II (P-Values) Allows the installer to customize programming for non-standard applications.

Level III (C-Values) Allows the installer to adjust the length of select cycles for non-standard applications.

Level IV History (H-Values) Allows access to historical information for troubleshooting the system.

Note: If a button is not pushed for thirty seconds, the control returns to normal operation mode.

Level I Programming

The Analyzer control can be quickly programmed by following the sequential procedure on following page. Level I program parameters are those that can be accessed by pressing the UP or DOWN buttons.

- Resin Volume Setting: Set to match the volume (cubic feet) of resin in the mineral tank.
- Time of Day: Includes PM indicator. Can be set to display as a 24-hour clock. See Level II programming
- Day of Week: Set to actual day of the week.
- Time of Regeneration: Fully adjustable. Default is 2:00 AM.
- Days Override: Range 0.5 to 99 days. Leave at 0 to disable.
- Salt Dosage: Set at pounds of salt per cubic foot of resin in the conditioner tank.

Note: When the control is set up for a twelve-hour clock a PM indicator will illuminate when the displayed time is in the PM hours. There is no AM indicator.

Level I Programming - Analyzer Conditioner

Screen	Buttons to Press	Description	Range
<p>Time/Day Regeneration Time Salt Amount Capacity</p>	<p>press <input type="checkbox"/></p> <p>then ↓ or ↑</p> <p>press <input type="checkbox"/></p>	<p>1. Valve Type Select Model</p>	<p>Model: 268r 255r 268 255</p>
<p>Time/Day Regeneration Time Salt Amount Capacity</p>	<p>then ↓ or ↑</p> <p>press <input type="checkbox"/></p>	<p>2. Resin Volume Select correct resin volume</p>	<p>Cubic feet: 0.25 to 3.00</p>
<p>Time/Day Regeneration Time Salt Amount Capacity</p>	<p>press <input type="checkbox"/></p> <p>then ↓ or ↑</p> <p>press <input type="checkbox"/></p>	<p>3. Time of Day (12 hr.) Set to time of day Note: Setting includes PM indicator.</p>	
<p>Time/Day Regeneration Time Salt Amount Capacity</p>	<p>press <input type="checkbox"/></p> <p>then ↓ or ↑</p> <p>press <input type="checkbox"/></p>	<p>4. Day of Week Set to actual day of the week</p>	
<p>Time/Day Regeneration Time Salt Amount Capacity</p>	<p>press <input type="checkbox"/></p> <p>then ↓ or ↑</p> <p>press <input type="checkbox"/></p>	<p>5. Time of Regeneration Set to desired time of regeneration</p>	
<p>Time/Day Regeneration Time Salt Amount Capacity</p>	<p>press <input type="checkbox"/></p> <p>then ↓ or ↑</p> <p>press <input type="checkbox"/></p>	<p>6. Days Override Leave at 0 to disable or Set to desired days between regeneration</p>	<p>Days: 1 to 30</p>
<p>Time/Day Regeneration Time Salt Amount Capacity</p>	<p>press <input type="checkbox"/></p> <p>then ↓ or ↑</p> <p>press <input type="checkbox"/></p>	<p>7. Salt Dosage Set to desired dosage lbs per cubic feet of resin</p>	<p>Lbs/ft³: 3 to 18</p>
<p>Time/Day Regeneration Time Salt Amount Capacity</p>	<p>press ↓</p>	<p>Programming is complete Estimated exchange capacity (view only) based on resin volume and salt setting</p>	
<p>Time/Day Regeneration Time Salt Amount Capacity</p>		<p>Service Display Displays actual day of the week and time of day In Service LED is On.</p>	

Note: Upon completing the Level I Programming the Regen Icon will begin flashing indicating that a delayed regeneration will occur at the next programmed time of regeneration. If a delayed regeneration is not desired, press the REGEN Button to disable the delayed regeneration and the system will regenerate by water usage.

Level II Programming – P Values

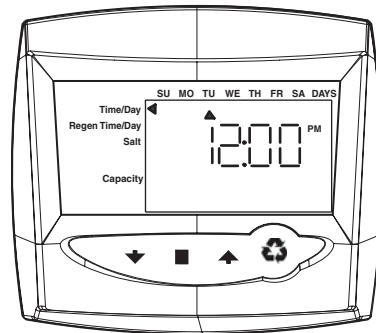
Level II program parameters can be adjusted used to fine-tune the conditioner’s operation. The parameters are accessible by pressing and holding the UP and DOWN buttons until the control displays a “P” value. Note: The control must be in the home position to change settings. See Table below for Level II parameters. Typically the Level

II parameters will not need to be adjusted as the default settings accommodate most applications. Contact your Water Treatment Professional before attempting any programming.

P#	Description	Range	Minimum Increments	Default	Units	Notes
P1	Time of Day	12 Hr 24 Hr	1 Min	12:00PM	Hr./Min.	Range dependant on P10 setting
P2	Day of Week	Sun-Sat	1 Day	Sun	Days	Set to actual day of the week
P3	Time of Regen	12 Hr 24 Hr	1 Min	12:00PM	Hr./Min.	Range dependant on P10 setting
P4	Day Override	0-30	1 Day	0	Days	0 = Disabled
P5	Not Used					
P6	Salt Setting	3-18 50-290	1 10	9 110	Lbs/Cu Ft g/L	Set in Level I Programming
P7	Capacity (View Only)	1-140 0.1-14.0	1 0.1	Calculated	Kilograins Kilograms	Values dependant on P9 setting
P8	Not Used					
P9	Units of Measure	0-1	1	0		0 = US 1 = Metric
P10	Clock Mode	0-1	1	0		0 = 12 Hr 1 = 24 Hr
P11	Service Interval	0-99	1	0	Months	0 = Disabled 30 Day Month

Programming the Lockout Feature

All parameters can be locked out when the control is in Level II programming. Simply press the REGEN button during Level II programming and a Lock Icon will appear indicating that the specific setting has been locked out. When locked out, the setting cannot be adjusted. To disable the Lock Out Feature, press the REGEN button when in Level II. The lock icon will not be displayed.



Level III Cycle Programming – C Values

Several Level III program parameters can be adjusted to fine-tune a conditioners operation for non-standard applications. Typically these parameters will not need to be adjusted as the default settings accommodate most applications. Contact your Water Treatment Professional before attempting any programming. The parameters are

accessible by pressing and holding the UP and SET buttons until the display shows a “C” value.

Note: The control must be in the treated water position to change settings.

C#	Description	Range	Minimum Increments	Default Setting	Notes
C1	Backwash	0 – 200	1 Min	14	Flow rate dictated by size of drain line flow controller
C2	Regenerant Draw	Not Adjustable	1 Min	See Notes	Automatically calculated from resin volume and salt dosage settings
C3	Slow Rinse	0 – 200	1 Min	See Notes	Automatically calculated from resin volume and salt dosage settings
C4	Repressurization	0 – 200	1 Min	3	Allows system to equalize water pressure across valve discs
C5	Fast Rinse	0 – 200	1 Min	6	Rinses residual regenerant from tank
C6	2 nd Backwash	0 – 200	1 Min	1	Disperses non regenerated areas of the resin bed
C7	2 nd Fast Rinse)	0 – 200	1 Min	1	Rinses to Quality
C8	Regenerant Refill	Not Adjustable	1 Min	See Notes	Automatically calculated from resin volume and salt dosage settings
C0		0 - 200	1 Min	120	Used in fill first models only. Brine prep allows brine to come up to concentration after refill.

Level IV Viewing History - H Values

Historical information can be viewed by pressing the SET and DOWN buttons simultaneously, with the Analyzer control in the home position. Release both buttons when the control displays an "H" value. Press the UP or DOWN buttons to navigate to each setting.

H#	Description	Range	Notes
H0	Resin Volume: Cubic Feet Liters	0.25 - 3.00 5 - 100	Resin Volume
H1	Days since last regeneration	0 - 255	
H2	Average Number of Days Between Regenerations	0 - 99 days	Last 4 regenerations
H3	Calendar Adaptive Override Days	0 - 30 days	
H4	Number of regenerations since last reset	0 - 65536	
H5	Total amount of salt used since last reset	0 - 999900 Lbs or Kg	
H6	Number of regenerations due to Calendar Override	0 - 65536	
H7	Number of Low Salt Alarms since last reset	0 - 65536	
H8	Number of Reduced Capacity Alarms since last reset	0 - 65536	
H9	Months since unit last serviced	0 - 255	
Holding the set key down for 3 seconds while H4 (number of regenerations since last reset) is being displayed will reset the numbers stored in H4, H5, H6, H7 and H8. Holding the set key down for 3 seconds while H9 (months since last serviced) is being displayed will reset the numbers stored in H4, H5, H6, H7, H8 and H9			

Program Reset

The Analyzer control can be reset to original factory parameters when viewing the H0 parameter. Press and hold the SET button for three seconds while H0 is displayed. Release the button. All settings except for Time of Day and Day of Week will be reset. The Analyzer control will now display three dashes indicating that the resin volume must be set.

System Capacities

The Analyzer control software contains the following preloaded system capacities for each salt setting:

Salt: Lbs/Ft ³	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Cap KG: 8x44 0.75	10	13	15	17	19	20	21	22	23	24	25	25	26	27	27	28
Cap KG: 9x48 1.00	14	18	21	23	25	27	28	30	31	32	33	34	35	36	36	37
Cap KG: 10x54 1.50	21	27	31	35	38	40	43	45	46	48	50	51	52	54	55	56

Placing Water Conditioning System Into Operation (Fill Brine Tank Last)

Quick Cycling the Analyzer Control

It is required that the control be quick cycled to specific regeneration cycles when placing the conditioner into operation. Please review following instructions for quick cycling the control, before proceeding to start-up.

1. With the control in the treated water position, Press and hold the REGEN button on the control for 5 seconds. This will initiate a manual regeneration. The control will display a flashing hourglass indicating that the motor and camshaft are turning. When the control reaches the backwash cycle, the total regeneration time remaining will be displayed. Pressing the SET button will display the specific cycle time remaining.
2. Press and release the UP and SET buttons to move the control to the next cycle.
3. Repeat Step 2 to advance to each cycle.

Note: The control can be sent directly back to the treated water position from any regeneration cycle. Press the UP and SET buttons (about 5 seconds) until the hourglass icon appears solid. The control will now skip all remaining regeneration cycles.

Start-Up

After you have programmed the control, the conditioner will need to be placed into operation. Follow these steps carefully, as they differ from previous Autotrol valve instructions.

1. Remove the cover from the valve. Removing the cover will allow you to see that the camshaft is turning, and in which cycle the camshaft is currently positioned.
2. With the supply water for the system still turned off, position the bypass valve to the "not in bypass" (normal operation) position.
3. Press and hold the REGEN button on the Analyzer control for 5 seconds. This will initiate a manual regeneration.

The control will display a flashing hourglass indicating that the motor and camshaft is turning to the backwash cycle (C1). When the control reaches the backwash cycle, the total regeneration time remaining will be displayed. Pressing the SET button will display the specific cycle time remaining.

4. Filling the media tank with water.
 - A. While the Analyzer control is in cycle (Backwash), open the water supply valve very slowly to approximately the $\frac{1}{4}$ open position. Water will begin to enter the media tank. Air will begin to be purged to drain as the media

tank fills with water.



WARNING: If opened too rapidly or too far, media may be lost out of the tank into the valve or the plumbing. In the $\frac{1}{4}$ open position, you should hear air slowly escaping from the valve drain line.

- B. When all of the air has been purged from the media tank (water begins to flow steadily from the drain line), open the main supply valve all of the way. This will purge the final air from the tank.
 - C. Allow water to run to drain until the water runs clear from the drain line. This purges any debris from the media bed.
 - D. Turn off the water supply and let the system stand for about five minutes to allow any trapped air to escape from the media tank.
5. Adding water to the regenerant tank.
 - A. With a bucket or hose add approximately 4 gallons (15 liters) of water to the regenerant tank.

If the tank has a salt platform in the bottom of the tank, add water until the water level is approximately 1 inch (25 mm) above the platform.

Note: It's recommended that you do not put regenerant into the tank until after the control valve has been put into operation. With no regenerant in the tank, it is much easier to view water flow and motion in the tank.

6. Priming the regenerant line.
 - A. Slowly open the main water supply valve again, to the fully open position. Be sure not open too rapidly as that would push the media out of the media tank.
 - B. Quick cycle the control to the regenerant tank Refill position (C8).

Note: As you advance through each cycle there will be a slight delay before you can advance to the next cycle. There will be a pause after the regenerant draw and slow rinse cycles. This cycle (C4) is a repressurization cycle and is designed to allow the water pressure to equalize on each side of the valve discs. Allow the control to repressurize (3 minutes) before cycling the control to the regenerant tank refill position.

- C. The control will cycle to the regenerant tank refill cycle, and water will be directed water down through the regenerant line to the regenerant tank. Let the water flow through the line until all air bubbles have been purged

from the line. Note: Do not let the water flow down the line to the tank for more than one to two minutes, or the tank may overflow.

- D. Once the air is purged from the line, press the SET button and the UP button simultaneously to advance to Treated Water position.

7. Checking Regenerant Draw.

- A. From the treated water position initiate a manual regeneration.
- B. The control will begin a manual regen, and advance the control valve to the backwash cycle. Press the SET and UP button to advance to regenerant draw/slow rinse cycle.
- C. C2 will be displayed. With the control in this position, check to see that the water is being drawn out of the regenerant tank. The water level in the regenerant tank should recede very slowly.
- D. Observe that water is being drawn from the regenerant tank for at least three minutes. If the water level does not recede, check all regenerant line connections for air leaks.

8. If the water level is receding from the regenerant tank you can quick cycle the control back to the treated water position by pressing SET and the UP buttons simultaneously.

9. Finally, turn on a faucet plumbed after the water conditioner. Run the faucet until the water runs clear.

10. Add the appropriate amount of regenerant to regenerant tank.

The Water Conditioning System is Now Fully Operational

Placing Water Conditioning System Into Operation (Fill Brine Tank First)

Quick Cycling the Analyzer Control

It is required that the control be quick cycled to specific regeneration cycles when placing the conditioner into operation. Please review following instructions for quick cycling the control, before proceeding to start-up.

1. With the control in the treated water position, Press and hold the REGEN button on the control for 5 seconds. This will initiate a manual regeneration. The control will display a flashing hourglass indicating that the motor and camshaft are turning. When the control reaches the backwash cycle, the total regeneration time remaining will be displayed. Pressing the SET button will display the specific cycle time remaining.
2. Press and release the UP and SET buttons to move the control to the next cycle.
3. Repeat Step 2 to advance to each cycle.

Note: The control can be sent directly back to the treated water position from any regeneration cycle. Press the UP and SET buttons (about 5 seconds) until the hourglass icon appears solid. The control will now skip all remaining regeneration cycles.

Start-Up

After you have performed the previous initial power-up steps, you will need to place the conditioner into operation. Follow these steps carefully, as they differ from previous Autotrol valve instructions.

1. Remove the cover from the valve. Removing the cover will allow you to see that the camshaft is turning, and in which cycle the camshaft is currently positioned.
2. With the supply water for the system still turned off, position the bypass valve to the "not in bypass" (normal operation) position.
3. Press and hold the REGEN button on the Analyzer control for 5 seconds. This will initiate a manual regeneration. The control will display a flashing hourglass indicating that the motor and camshaft are turning. When the control reaches the repressurize cycle (C4), the total regeneration time remaining will be displayed. Pressing the SET button will display the specific cycle time remaining.
4. Press and release SET and UP simultaneously to advance to each cycle.
5. Advance the control to the Backwash cycle (C1). See Cycle Sequence Table

Cycle Sequence Table

Fill First (255r & 268r Models)		
C#	Cycle Description	Time in Minutes
C0	Service	
C4*	Re-pressurize	3
C8	Brine Refill	Calculated
C0	Brine Saturation	120
C1	Backwash	14
C2	Brine Draw	Calculated
C3	Slow Rinse	Calculated
C4*	2 nd Re-pressurize	3
C5	Fast Rinse	6
C6	2 nd Backwash	1
C7	2 nd Fast Rinse	1

*Note: C4 re-pressurization does not have flow to drain.

6. Fill the media tank with water.
 - A. While the controller is in the backwash (C1) cycle, open the water supply valve very slowly to approximately the 1/4 open position.



WARNING: If opened too rapidly or too far, media may be lost out of the tank into the valve or the plumbing. In the ¼ open position, you should hear air slowly escaping from the valve drain line.

- B. When all of the air has been purged from the media tank (water begins to flow steadily from the drain line), open the main supply valve all of the way. This will purge the final air from the tank.
 - C. Allow water to run to drain until the water runs clear from the drain line. This purges any refuse from the media bed.
 - D. Turn off the water supply and let the system stand for about five minutes. This will allow any air trapped to escape from the tank.
7. Add water to the regenerant tank (initial fill) (conditioner only).
 - A. With a bucket or hose, add enough water to the regenerant tank to cover the screen located at the end of the air check assembly at the bottom of the regenerant tank. If the tank has a salt platform in the bottom of the tank, add water until the water level is approximately 1 inch 25 mm above the platform.

Note: We recommend that you do not put regenerant into the tank until after the control valve has been put into operation. With no regenerant in the tank, it is much easier to view water flow and motion in the tank.

8. Press the SET and UP button for 5 seconds to cancel regeneration, and cycle the control back to the service position.
9. Advance the controller to the refill position to prime the line between the regenerant tank and the valve (conditioner only). You must start another regeneration to do this.
 - A. Slowly open the main water supply valve again, to the fully open position. Be sure not to open too rapidly as that would push the media out of the media tank.

Note: As you advance through each cycle there will be a slight delay before you can advance to the next cycle. There will be a pause after the brine draw and slow rinse cycles (system pause). This cycle allows the water/air pressure to equalize on each side of the valve discs.

- B. With the water supply completely open, when you arrive at the brine tank refill cycle, the controller will direct water down through the line until all air bubbles have been purged from the line.
 - C. Do not let the water flow down the line to the tank for more than one to two minutes, or the tank may overflow.
 - D. Simultaneously press and release the SET and UP buttons to advance to the Brine Prep cycle. After the Brine Prep cycle is reached, press the SET and UP buttons to advance to the Brine Draw/Slow Rinse cycle.
10. Draw water from the regeneratn tank.
 - A. With the controller in this position, check to see that the water in the regenerant tank is being drawn out of the tank. The water level in the tank sould recede very slowly.
 - B. Observe the water being drawn from the regenerant tank for at least three minutes. If the water level does not recede, or goes up, refer to the Troubleshooting section.
11. If the water level is receding from the regenerant tank press the SET and UP buttons to advance the controller back to the treated water position.
12. Finally, turn on a faucet plumbed after the water conditioner. Run the faucet until the water runs clear.

The Water Conditioning System is Now Fully Operational.

Manual Regeneration Options

The Analyzer control features several options that offer additional flexibility for manually regenerating the conditioner.

Delayed Manual Regeneration

Press and release the REGEN button starts a delayed manual regeneration. The Regeneration icon on the display will flash indicating a regeneration will start when the time of day reaches the programmed time of regeneration. Pressing the REGEN button again will turn off the regeneration icon and cancel the delayed regeneration.

Immediate Manual Regeneration

Pressing and holding the REGEN button for three seconds starts an immediate manual regeneration. A solid regeneration icon will be displayed. The control will immediately begin a regeneration.

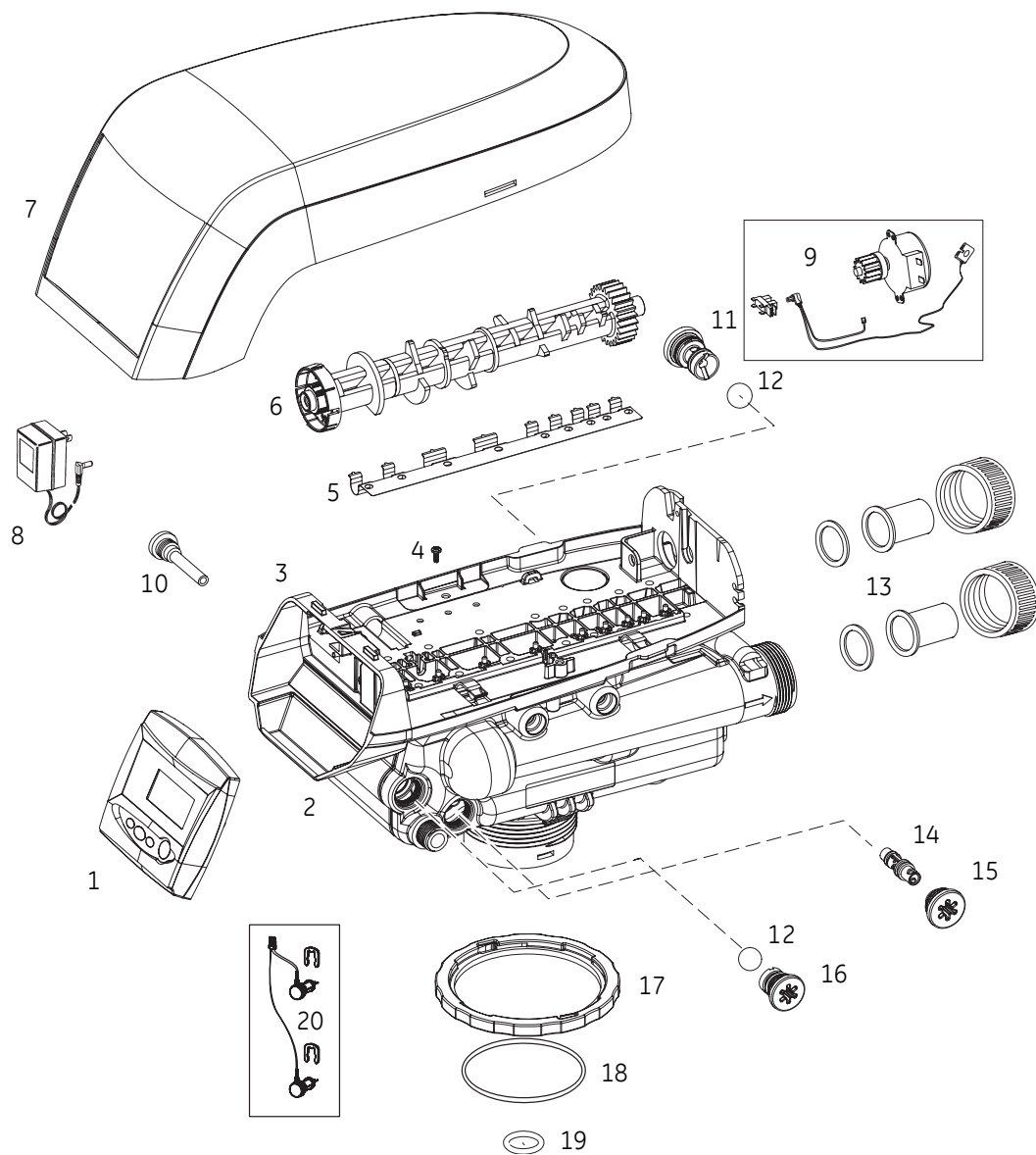
Delayed Second Regeneration

Pressing and releasing the REGEN button while the control is in regeneration will program the control for a delayed second regeneration. A flashing x2 icon next to the regeneration icon will appear indicating a second regeneration will start when the time of day reaches the programmed time of regeneration.

Double Immediate Manual Regeneration

Back-to-Back manual regenerations are initiated by pressing and holding the REGEN button for three seconds while the control is in the regenerating mode. A solid x2 icon next to the regeneration icon will appear indicating a second manual regeneration will start immediately after current regeneration is complete.

Pro Elite Exploded View & Parts List



Item	Part Number	Description	Qty.	Item	Part Number	Description	Qty.
1	3018557	Analyzer Control	1	13		Adapter Kit, Multiple Options	1
2	1244651	Valve Assembly w/o Flow Controls	1	14		Injector Options:	1
3	1235338	Top Plate, Valve	1		1035732	"G" Injector, Tan, 8-inch tank	
4	1234170	Screw, Top Plate	18		1035733	"H" Injector, Lt Purple 9-inch tank	
5	1235339	Valve Disc Spring, Valve	1		1035734	"J" Injector, Lt Blue 10-inch tank	
6	1235352	Cam Valve, Black	1		1035735	"K" Injector, Pink 12-inch tank	
7	3022113	Cover, White	1	15	1000269	Injector Cap with O-Ring	1
*	3022110	Skirt	1	16	1243511	Refill Ball & Cone Type Flow Controller	1
8	1000811	AC Adapter, North American	1				
9	3019221	Motor/Optical Cable	1	17	1035622	Tank Ring	1
10	1000226	Screen/Cap Assembly w/O-Ring	1	18	1010154	O-Ring, Tank	1
11		Drain Control Assembly:		19	1010428	O-Ring, Riser Tube	1
	1000210	No. 8 (1.6 gpm; 6 Lpm)		20	3012618	Probe/Cable/Clips Kit	1
	1000211	No. 9 (2 gpm; 7.6 Lpm)		*	1041174	Valve Disc Kit	1
	1000212	No. 10 (2.5 gpm; 9.5 Lpm)		*	1040930	1265 Bypass, Valve (Optional)	1
12	1030502	Ball, Flow Restrictor	2				

* Not Shown on Drawing

Troubleshooting

Analyzer Control – Error Codes & Check Salt Light

Problem	Possible Cause	Solution
ERR 1 is displayed.	Program settings have been corrupted.	Press any key and reprogram Level I settings.
ERR 2 is displayed	The control is not a "North American" 60 Hz model.	Install 60 Hz Analyzer control
ERR 3 is displayed.	Control does not know the position of the camshaft. Camshaft should be rotating to find Home position.	Wait for two minutes for the control to return to Home position. The hourglass should be flashing on the display indicating the motor is running.
	Camshaft is not turning during ERR 3 display.	<p>Check that motor is connected. Verify that motor wire harness is connected to motor and control module.</p> <p>Verify that optical sensor is connected and in place.</p> <p>Verify that motor gear has engaged cam gear.</p> <p>If everything is connected, try replacing in this order:</p> <ol style="list-style-type: none"> 1. Wire harness, motor, optical sensor assembly 2. Control
	Camshaft is turning more than five minutes to find Home position:	<p>Verify that optical sensor is in place and connected to wire.</p> <p>Verify that camshaft is connected appropriately.</p> <p>Verify that no dirt or rubbish is clogging any of the cam slots.</p> <p>If motor continues to rotate indefinitely, replace the following components in this order:</p> <ol style="list-style-type: none"> 1. Wire harness, motor, optical sensor assembly 2. Control
Err 6 is displayed	Defective or disconnected probe.	Replace or reconnect probe
Check Salt Light is displayed - Press the regen button to turn off the check salt light.	No regenerant draw or insufficient regenerant detected during regeneration.	Ensure salt/ regenerant is available. Check for regenerant draw. Inspect regenerant line for leaks

System Troubleshooting

Problem	Possible Cause	Solution
Regenerant tank overflow.	<ul style="list-style-type: none"> a. Uncontrolled refill flow rate. b. Air Leak in regenerant line to air check. c. Drain control clogged with resin or other debris. 	<ul style="list-style-type: none"> a. Remove refill flow control to clean ball and seat. b. Check all connections in regenerant line for leaks. c. Clean drain control.
Flowing or dripping water at drain or regenerant line after regeneration.	<ul style="list-style-type: none"> a. Valve stem return spring weak. b. Debris is preventing valve disc from closing. 	<ul style="list-style-type: none"> a. Replace spring. (Contact dealer). b. Remove debris.
Hard water leakage after regeneration.	<ul style="list-style-type: none"> a. Improper regeneration. b. Leaking of external bypass valve. c. O-Ring around riser pipe damaged. d. System capacity too low due to incorrect resin volume setting 	<ul style="list-style-type: none"> a. Repeat regeneration after making certain correct regenerant dosage was set. b. Replace bypass valve. (Contact dealer). c. Replace O-ring d. Reset control and program resin volume to correct setting
Control will not draw regenerant.	<ul style="list-style-type: none"> a. Low water pressure. b. Restricted drain line. c. Injector plugged. d. Injector defective. e. Valve disc 2 and/or 3 not closed. f. Air check valve prematurely closed. 	<ul style="list-style-type: none"> a. Make correct setting according to instructions. b. Remove restriction. c. Clean injector and screen. d. Replace injector and cap. (Contact dealer). e. Remove foreign matter from disc and check disc for closing by pushing in on stem. Replace if needed. (Contact dealer). f. Put control momentarily into brine refill. Replace or repair air check if needed. (Contact dealer).
Control will not regenerate automatically.	<ul style="list-style-type: none"> a. AC adapter or motor not connected. b. Defective motor. 	<ul style="list-style-type: none"> a. Connect power. b. Replace motor. (Contact dealer).
Control regenerates at wrong time of day.	Control set incorrectly.	Correct the time setting according to instructions.
Intermittent or irregular regenerant draw.	<ul style="list-style-type: none"> a. Low water pressure. b. Defective injector. 	<ul style="list-style-type: none"> a. Set pump to maintain 20 psi at conditioner. b. Replace injector (Contact dealer).
No conditioned water after regeneration.	<ul style="list-style-type: none"> a. No regenerant in regenerant tank. b. Injector plugged. 	<ul style="list-style-type: none"> a. Add regenerant to regenerant tank. b. Clean injector and screen. (Contact dealer).
Backwashes or purges at excessively low or high rate.	<ul style="list-style-type: none"> a. Incorrect drain controller used. b. Foreign matter affecting valve operation. 	<ul style="list-style-type: none"> a. Replace with correct size control (Contact dealer). b. Remove drain controller and clean ball and seat.
Run out of conditioned water between regenerations.	<ul style="list-style-type: none"> a. Improper regeneration. b. Incorrect resin volume setting 	<ul style="list-style-type: none"> a. Repeat regeneration, b. Reset control and program resin volume to correct setting

