

# *Unit Installation Guide*

## *2401 Series*



*The Intelligent Alternative*

# PROGRAMMING INSTRUCTIONS



**SCROLL**

**UP ARROW**

**DOWN ARROW**

Display

*Numbers and letters on display in quotation marks are flashing characters.*

## Owners Instructions:

The Display should look as follows before you proceed.

8:00 AM 1000GL

*The numbers displayed may vary depending on the model and previous programming and time of day.*

Press the;

**SCROLL BUTTON**

to locate this display if necessary.

## Time Of Day:

Press

**SCROLL BUTTON**

to enter the time of day setting. The display should read:

Set "8:00" AM

Use the

**UP BUTTON**

**DOWN BUTTON**

to program the current time setting.

## Holiday Mode:

The holiday mode is used to suspend the regeneration of the unit during extended periods on non water usage. The Holiday mode is deactivated when a flow rate through the unit of greater than 1.5 gallons per minute is reached or when it is deactivated by pressing the:

**SCROLL BUTTON**

In either case, once a holiday mode has been activated, the unit will regenerate immediately upon deactivation. You may advance the valve through the regeneration manually if desired (see manual regeneration below).

## Manual Regeneration:

To manually regenerate the system the unit must be in service mode. The display should read:

8:00 AM 1000GL

*The numbers displayed may vary depending on the model and previous programming and the time of day.*

Press

**SCROLL BUTTON**

**SCROLL BUTTON**

**SCROLL BUTTON**

and the display should now read:

Regen in 9 sec

Regen in 8 sec

...

Regen in 0 sec

Seconds will count down from 10 to 0 as illustrated initiating regeneration. To cancel the regeneration, scroll past the cycle before the control counts down to zero. If the control reaches zero, the system will initiate regeneration.

To advance the system through regeneration, press:

**SCROLL BUTTON**

Each time the valve completes indexing to the next cycle you may continue past each and all steps in the regeneration cycle until the control display:

8:00 AM 1000GL

The numbers displayed may vary depending on the model and pervious programming and the time of day.

Delayed Regeneration: The display should read:

8:00 AM 1000GL

The numbers displayed may vary depending on the model and pervious

SCROLL BUTTON  
SCROLL BUTTON  
SCROLL BUTTON

The control will display:

Regen at 2 00 AM

The numbers displayed may vary depending on the model and pervious programming and the time of day

Leaving the unit in this mode will initiate a

programming and the time of day.

Press:

SCROLL BUTTON

regeneration at the time indicated on the display. You must program the time of day for this time to be accurate.

### Installation Programming:

#### Entering Installers Level:

Press the down arrow and hold in for 5 seconds. The words "System Check" will be displayed.

System Check

Now enter the code to proceed to the programming options menu below. The code must be entered within 10 seconds, or the control will return to the time of day display.

The code is as follows,

DOWN BUTTON  
DOWN BUTTON  
SCROLL BUTTON  
DOWN BUTTON

{Press the DOWN ARROW twice. Then press the SCROLL button. Finally press the DOWN ARROW once more}

Use the

SCROLL BUTTON

to advance through the different settings.

Use the

UP BUTTON  
DOWN BUTTON

to program the desired setting.

#### The following is the programming options menu.

1. Capacity: The control will typically display:

Capacity: 1000GL

The number displayed may vary depending on the model and pervious programming. This mode may not be available under certain conditions

Program the volume of gallons before regeneration, The value to be entered can usually be calculated by dividing actual capacity of the system by the compensated hardness to be removed. It can be programmed in a range from 100 to 999,990 gallons.

Use the;

UP BUTTON  
DOWN BUTTON

to enter the value of capacity required.

Press the;

SCROLL BUTTON

to move to the nest setting.

Reset Flow? "NO"

#### 2. Reset flow:

Displays No. If yes is selected the peak flow rate is set to zero and average volume per day is set to 25% of capacity. This setting is entered immediately when the scroll button is pressed. Its usually not necessary to use this setting on initial start-up.

Use the;

- ▲ | **UP BUTTON**
- ▼ | **DOWN BUTTON**

to change the value of this setting.

Press the:

- ⊞ | **SCROLL BUTTON**

to move to the next setting.

### 3. Reserve:

The unit should now display:

Rsrv "Variable"

**OR**

Rsrv 200GL "Fxd"

*The number displayed may vary depending on the model and pervious programming.*

*This mode may not be available under certain conditions*

Use the;

- ▲ | **UP BUTTON**
- ▼ | **DOWN BUTTON**

to change the value of this setting between variable and fixed reserves.

### 3a. Fixed Reserve:

The control must display:

Rsrv 200GL "Fxd"

Before proceeding. The default reserve level is 200 gallons. The reserve value is the number of gallons of capacity required to operate during one days usage. In a residential application it is typically calculated by multiplying the number of occupants using the system by an arbitrary daily water usage {65} To change the amount of reserve, press

- ⊞ | **SCROLL BUTTON**

The unit should display:

Rsrv "200"GL

*The number displayed may vary depending on the model and pervious programming. This mode may not be available under certain conditions.*

- ▲ | **UP BUTTON**
- ▼ | **DOWN BUTTON**

to change the value of this setting.

Pressing the:

- ⊞ | **SCROLL BUTTON**

again moves you to **4. Time Of Regeneration** below .

### 3b. Variable Reserve:

The variable reserve is automatically set at 25% of capacity + 75 gallons. This feature automatically monitors the water used and fine tunes the reserve on an ongoing basis. selected or immediate regeneration is selected in the manufacture mode.

Pressing the:

- ⊞ | **SCROLL BUTTON**

again moves you the next setting.

### 4. Time Of Regeneration:

This is the time of the day that the unit will regenerate. The display should look as follows:

Regen @ "2:00 AM"

*The number displayed may vary depending on the model and pervious programming.*

*This mode may not be available under certain conditions*

.Use the;

- ▲ | **UP BUTTON**
- ▼ | **DOWN BUTTON**

to change the time that the unit will normally regenerate.

Pressing the:

- ⊞ | **SCROLL BUTTON**

again moves you the next setting

### 5. Override:

This feature helps keep the unit clean during extended periods of low water usage.

Override: "OFF"

**OR**

Override: "12" days

*The number displayed may vary depending on the model and pervious programming.*

*This mode may not be available under certain conditions*

The unit can be programmed to regenerate from one to thirty days in the absents of a volume initiated regeneration. To change or disable this feature use the:

- ▲ | **UP BUTTON**

▼ | **DOWN BUTTON**

to change the maximum number of days between regenerations. Setting to off disables this feature.

Pressing the:

⊕ | **SCROLL BUTTON**

again moves you the next setting

The next series of steps are critical to the valve operation. Only experienced operators familiar with this units operation should adjust these settings. Improper settings of these features may cause damage to this unit not covered under warranty. To bypass these setting press. ⊕ | **SCROLL BUTTON**

until the display reads

Exit

Then press ▼ | **DOWN BUTTON**. The display should look as follows:

8:00 AM 1000GL

## Valve Regeneration Set-up

### 6. Backwash.

The display should be:

BACKWASH: "10" min

*The number displayed may vary depending on the model and pervious programming. This mode may not be available under certain conditions*

The backwash time can be programmed from 1 to 99 minutes. The Backwash cycle is used to remove particulate matter that is mechanically trapped and restratify in the bed. Use the:

▲ | **UP BUTTON**

▼ | **DOWN BUTTON**

to change the time that the unit will normally backwash during regeneration. Pressing the

⊕ | **SCROLL BUTTON**

again moves you the next setting

### 7. Brine and Rinse:

The display should read:

BRN/RNS: "60" min

*The number displayed may vary depending on the model and pervious programming. This mode may not be available under certain conditions*

The Brine and Rinse cycle is the time when the brine is drawn into the unit and rinsed to drain. The Brine and Rinse time can be programmed form 1 to 99 minutes. Decreasing the length of this cycle may cause brine to remain in the bed after regeneration. Care should be taken when adjusting this cycle.

Use the:

▲ | **UP BUTTON**

▼ | **DOWN BUTTON**

to change the time that the unit will normally Brine and Rinse during regeneration. Pressing the:

⊕ | **SCROLL BUTTON**

again moves you the next setting.

### 8. Fill and Rinse:

The display should read:

FILL/RNS: "5" min

*The number displayed may vary depending on the model and pervious programming. This mode may not be available under certain conditions*

This Cycle performs two important functions.

1. Controls the amount of water used to make the brine solution for the next regeneration.
2. Rinsing and repacking the bed before it is returned to service.

Adjusting this cycle may result in changing the amount of brine used during regeneration and so care should be taken with this adjustment..

The Fill and Rinse time can be programmed from 1 to 99 minutes. Use the:

▲ | **UP BUTTON**

▼ | **DOWN BUTTON**

to change the time that the unit will normally Brine and Rinse during regeneration. Pressing the

⊕ | **SCROLL BUTTON**

again moves you the next setting.

### 9. Exit:

The display should read:



The Exit cycle is the confirmation that tells the unit the changes you have made are to be accepted by the valve. If you are confident about the changes you have made then press the:



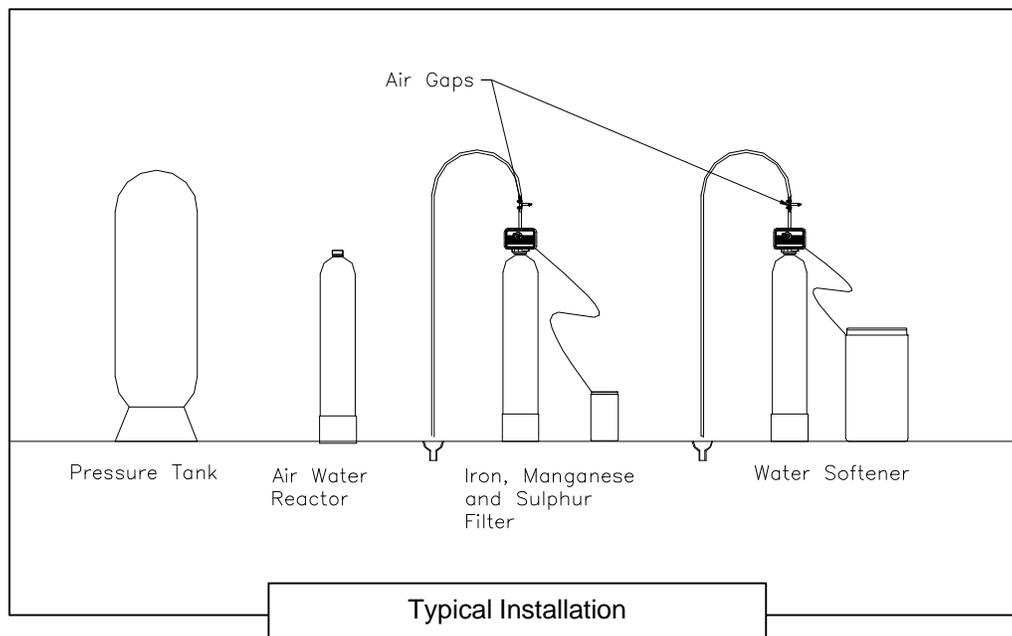
OR



to return to the service mode and burn in the new settings.

If you want to return to the previous settings wait for one minute without touching the control panel and the valve will revert automatically.

*In order for these new settings to become active, it is necessary to execute a regeneration. Stepping through regeneration manually or allowing it to complete automatically will accomplish this.*



## Checking the Diagnostics

### Diagnostic Mode (Viewing Only)

Press



and hold for 5 seconds.

The diagnostics menu will display beginning with Regen days ago. Press



to advance to each diagnostic. If no button is pressed within 60 seconds, the display will return back to the time of the day.

### Regeneration Days Ago:

Displays how many days ago the unit last regenerated.

### In Service:

Displays how many days the control has been in service.

### Number of Regenerations:

Displays the number of regenerations that have taken place since the control was installed.

### Total Volume:

Displays the total volume of water used since installation.

**Last Regeneration:**

Displays the amount of water used before the last regeneration.

**Peak Flow:**

Displays the peak flow rate since the last regeneration..

*Note: This function resets back to zero after every regeneration.*

**Average Daily Volume:**

Displays the average daily water consumption.

**Capacity/System:**

If the control is programmed for Volume, the display will read CAPACITY along with the maximum volume of water to be used. When the control is programmed for hardness, the display will read SYSTEM along with the maximum grain capacity of the system.

**Hardness:**

Displays the amount of hardness programmed into the control (will not display when control is programmed for volume).

**Reserve:**

Displays whether the control is programmed for fixed or variable reserve.

*Note: Will not display when programmed for immediate regeneration.*

**Regeneration Time:**

Displays the time of day the unit will regenerate.

**Override:**

Displays the override mode by reading OFF, or the number of days programmed into the control.

**Backwash:**

Displays the minutes of backwash programmed into the control

*Note: Not applicable on all models.*

**Brine and Rinse:**

Displays the minutes of brine and rinse programmed into the control.

**Fill and Rinse:**

Displays the minutes of fill and rinse programmed into the control.

*Note: Not applicable on all models.*

**Units:**

Displays the mode of measurement, ENGLISH or METRIC.

**Meter:**

Displays whether the control is programmed as STANDARD METER, NO METER or VOLUME/PULSE setting.

**Capacity Volume/Hardness:**

Displays whether the control is programmed for a CAPACITY VOLUME or CAPACITY HARDNESS setting.

**Regeneration:**

Displays the programmed regeneration type. DELAYED, IMMEDIATE or DELAYED/IMMEDIATE.

**Valve Type:**

Displays the type of valve the factory programmed into the control.

**M P Resets:**

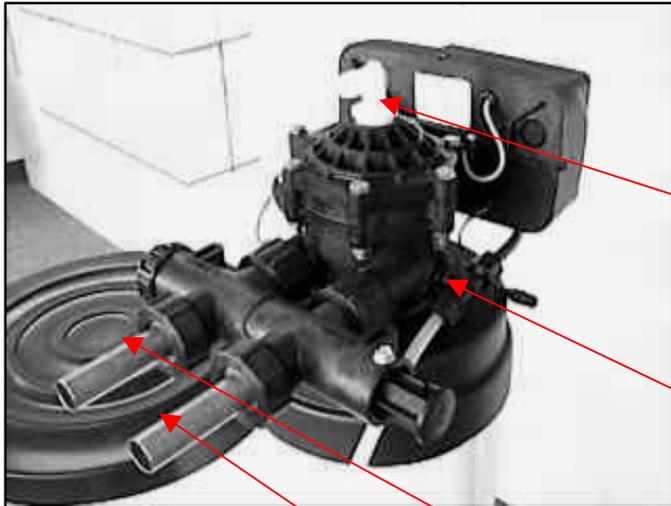
Displays how many times the programs have been reset.

**Corrupt Memory:**

Manufacturers troubleshooting data.

**4000 VTL REV:**

Manufacturers troubleshooting data.



**Typical Drain Fitting (not included)**

**Drain Connection:**

Drainpipe should be 1/2" Hose or larger and terminated in a manner that is acceptable to local codes.

**Brine Connection:**

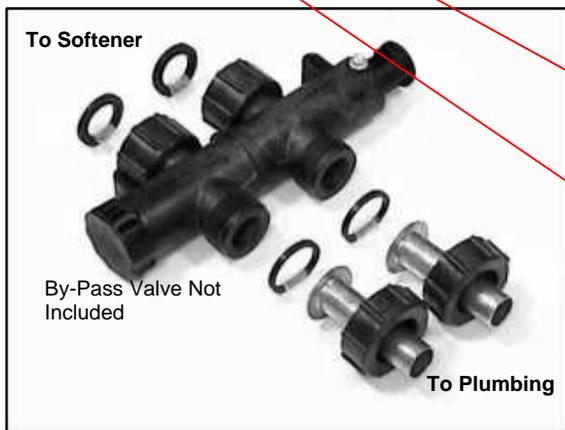
Plastic hose from the brine tank connects here. Insert hose into connector to the depth of the nut and hand tighten. Tug-test to 15 pounds.

**Outlet Connection:**

Standard fittings are 3/4" Male Copper Tubing

**Inlet Connection:**

Standard fittings are 3/4" Male Copper Tubing



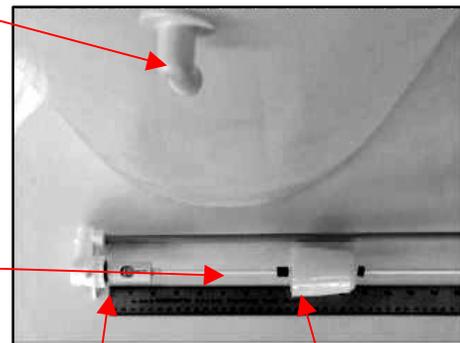
**Gasket and Fitting position**

**Safety Overflow:**

If the brine tank is located in an area that could be damaged by a salt water overflow this fitting should be connected without reduction to a gravity flow drain capable of 1 U.S.G.P.M. minimum continuous flow.

**Brine Valve Setting:**

( This is a factory setting. Only adjust when required. )  
 Measure from the top of the crown nut (1) to the bottom of the bell float (2). Consult factory for settings.



(1). Crown Nut

(2). Bottom of Bell



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