

NOTE:  
RISER / DISTRIBUTOR PIPE SHOULD BE CUT 1/2" BELOW THE  
TOP SURFACE OF THE TANK INSERT.

## MTS 95 System



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## Introduction

### **Standard Features**

MTS systems have been designed and engineered to offer considerable performance advantages compared to traditional products in the Commercial & Light Industrial market today.

### **High Efficiency & High Quality Product Water**

MTS systems are optimized to use the minimum salt and regeneration water necessary to regenerate the system. This reduces water and salt wasted per regeneration up to 50%.

When used in softener systems during periods of low flow rates, the controller will keep only a single tank in service eliminating the potential for "channeling". Tanks are brought on or off line according to flow rate demand so that the system is always operating at peak efficiency.

### **Options**

#### **Polishing Recycle Rinse**

For softener systems an option for Polishing Recycle Rinse is available. Prior to a tank coming on line product water is recycled through the tank to polish the water and insure no hardness is passed to the service line. If the flow rate drops below the point where channeling can occur, the system will also recycle product water to maintain high quality.

#### **Battery Back Up**

A battery back up system allows the controller to continue metering and tracking water usage for up to 9 hours so that all capacity used during the outage is accounted for.

#### **Track & Forecast Water Usage (NOT AVAILABLE AT THIS TIME)**

The controller tracks and stores historical usage and builds a forecast to predict water usage. The controller will automatically increase the system capacity to cover peak water usage periods.

#### **Remote Start**

An external remote button can easily be added so that the system can be manually started from a control room or other location.

#### **Advanced Diagnostics**

The system has advanced diagnostics to help trouble shoot any problems that may be encountered.

#### **Remote Monitoring (NOT AVAILABLE AT THIS TIME)**

The MTS system can easily connect to a PC directly or wirelessly (3G network) to the internet and to your PC. All system information and settings can be viewed and monitored.

## System Configuration

MTS95 Softener System Configuration			
Tank Size (Diameter)	Injector Set	Brine Line Flow Control (BLFC)	Drain Line Flow Control (DLFC)
14"	#4S Black	0.9 GPM	#4S (5.0 GPM)
16"	#5S Orange		#7S (7.0 GPM)
18"	#3 Red		#1 (8.0 GPM)
21"	#4 White	1.35 GPM	#2 (11.0 GPM)
24"	#5 Blue		#4 (17.0 GPM)

Suggested Filter Valve Configuration	
Tank Size (Diameter)	Drain Line Flow Con-
14"	#3 (14.0 GPM)
16"	#4 (17.0 GPM)
18"	#5 (21.0 GPM)
21"	#6 (24.0 GPM)
24"	none (35.0 GPM)

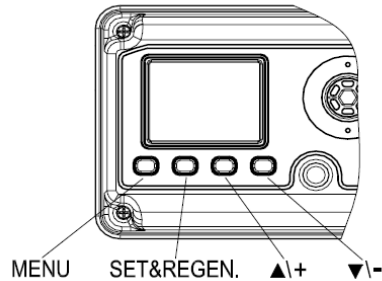
## Installation Instructions

1. Locate the system close to a drain where the system will be installed. The surface should be clean and level.
2. Connect the inlet and outlet of the softener using appropriate fittings. Perform all plumbing according to local plumbing codes.  
Any solder joints near the valve or any other plastic connections must be done before connecting any piping. Always leave at least 6" (152 mm) between the joints when soldering pipes that are connected. Failure to do this could cause damage.
3. Connect 3/4" drain hose to each valve and secure it with a hose clamp. Run the drain hose to the nearest drain pipe. This can be ran up overhead or down along the floor. If running the drain line more than 20 ft overhead, it is recommended to increase the hose size to 1". NEVER MAKE A DIRECT CONNECTION INTO A WASTE DRAIN. A PHYSICAL AIR GAP OF AT LEAST 1.5" SHOULD BE USED TO AVOID BACTERIA AND WASTEWATER TRAVELLING BACK THROUGH THE DRAIN LINE INTO THE SYSTEM.
4. Connect the brine tanks to each valve.
5. Close the isolation ball valves to each control valve. Open the main bypass ball valve to the open position. Slowly turn on the main water supply. At the nearest cold treated water tap nearby open and let water run a few minutes or until the system is free of any air or foreign material resulting from the plumbing work.
6. Make sure there are no leaks in the plumbing system before proceeding. Close the water tap when water runs clean.
7. Open the brine tank salt lid and add water until there is approximately 3" (75 mm) of water in the tank. Do not add salt to the brine tank at this time.
8. Proceed to start up instructions.

**Note: The unit is not ready for service until you complete the start-up instructions.**

## System Start-Up

### Key Pad Configuration



MENU

Enter or exit the system menu. Press and hold the button for 3 seconds to unlock the screen.

SET/REGEN

Press this button to select a program or to save the settings. Press and hold the button for 3 seconds to initiate a manual regeneration.

DOWN / UP

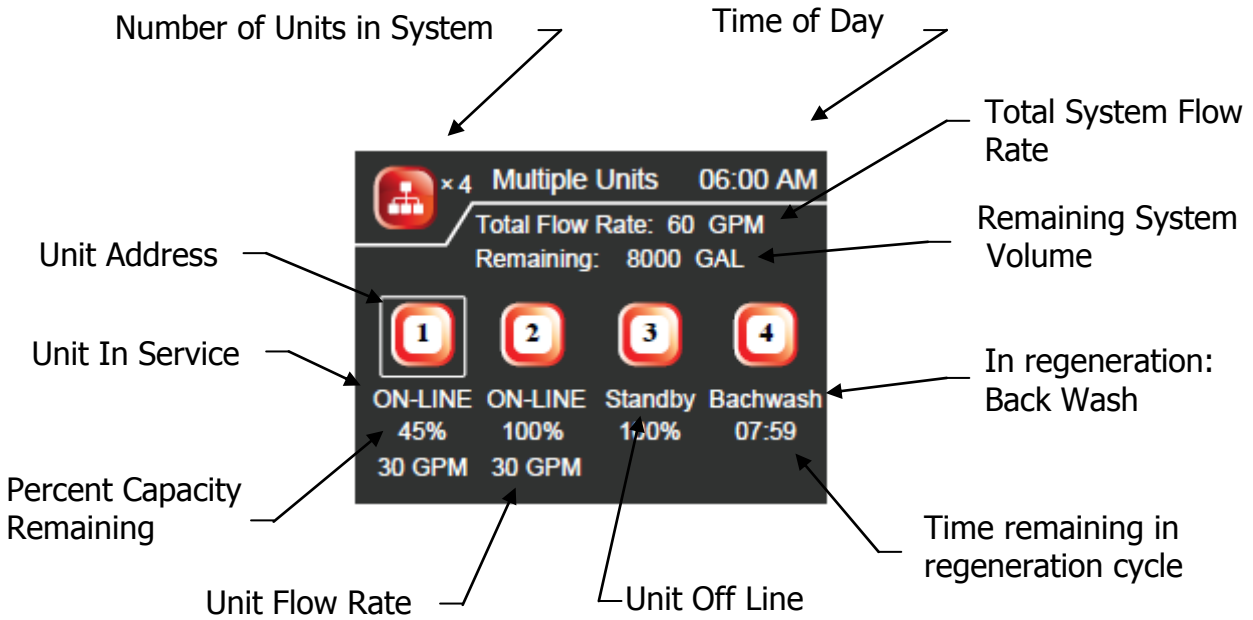
Press these buttons to increase or decrease the value of the settings. Press the buttons to enter the previous or the next menu.

### Start-up Instructions

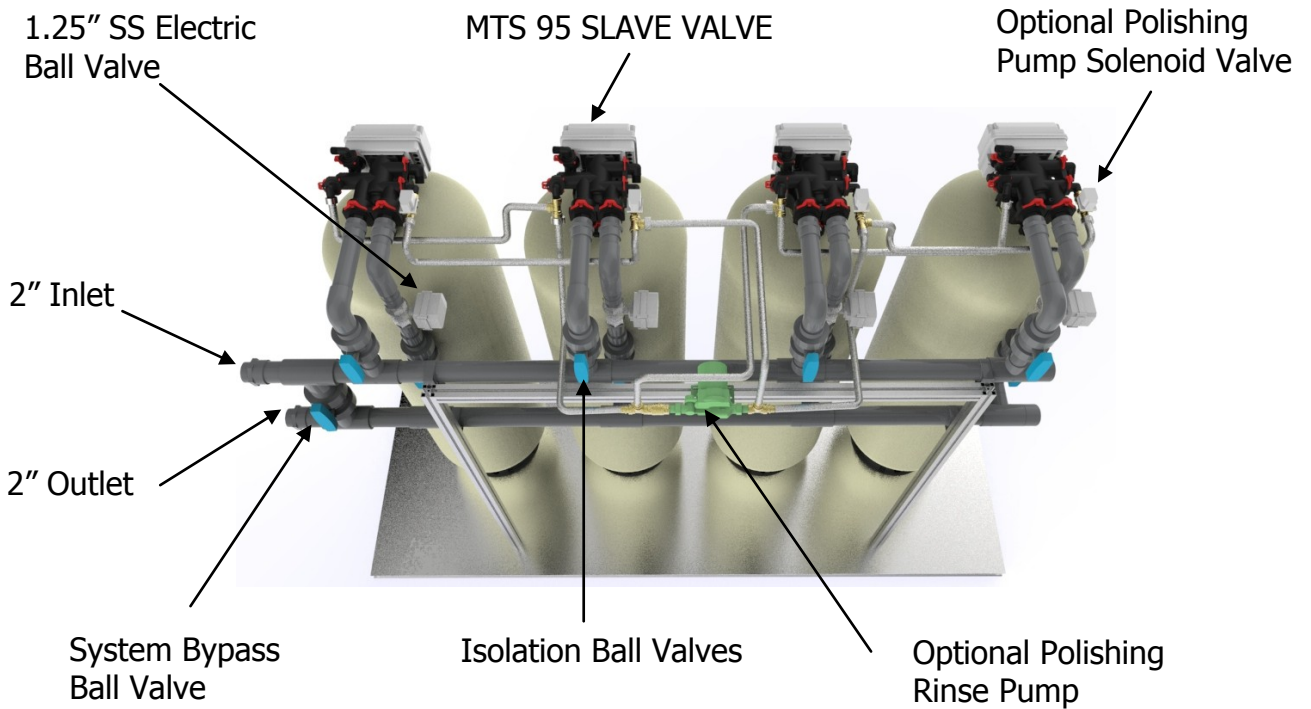
1. Plug the valves and main controller into an approved power source.
2. Step each valve into the BACKWASH position. Use the UP or Down key to highlight each tank in the system. Press and hold the SET / REGEN button for 3 seconds to start a manual regeneration for that tank.
3. Open the outlet isolation valve on each tank slowly and allow water to enter the unit. Allow all air to escape from the unit before turning the water on fully then allow water to run to drain for 3-4 minutes or until all media fines are washed out of the tank indicated by clear water in the drain hose.
4. For softener systems, press any button on each slave valve to advance to the BRINE position. Check the water level in the brine tank to insure the valve is drawing brine properly.
5. Press any button on each slave valve to advance to the RINSE position. Check the drain line flow. Allow the water to run for 3-4 minutes or until the water is clear.
6. For softener systems, press any button on each slave valve to advance to the REFILL position. Check that the valve is filling water into the brine tank. Allow the valve to refill for the full amount of time as displayed on the screen to insure a proper brine solution for the next regeneration.
7. The valve will automatically advance to the SERVICE position when the refill cycle is complete.
8. Open the inlet and outlet isolation valves. Close the main bypass valve.
9. Add salt into the brine tanks.
10. Program the system.

# System Diagram

## Main Page Display

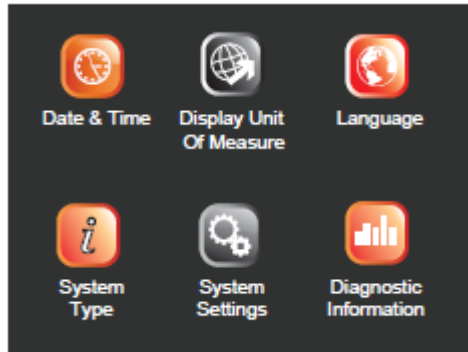


## Main System Components



## Programming

Press the MENU button to advance to the first menu page.



Press the UP / DOWN button to highlight and choose the menu. Press the SET button to enter the menu icon you want to edit. The displayed value will begin flashing. Press the UP / DOWN button to adjust the value. Press the SET button again to accept the change.

### **Date and Time, Region, Language**

The first three menus are standard for all systems. Press the UP / DOWN button to choose the Date and Time, Region, or Language menus. Some software versions may only include US Gallons and English language options. The options inside the System Settings Menu will vary depending on the System Type chosen. The Diagnostic Information will also vary depending on the System Type chosen.



## **System Type**

This menu controls the type of systems available with MTS. All MTS systems can operate with 2 to 16 valves.

### **Softener (Demand Flow)**

As flow rate demand increases and passed the preset trip points, external motorized ball valves on each control valve are opened to bring additional tanks on-line to increase flow capacity. When the demand goes down below the trip points, the tanks are taken off-line. When the capacity of a tank is depleted, it will immediately go into regeneration. The outlet valve will close to prevent any hard water from entering the service line. Only one tank may regenerate at a time.

If the system forecasts a future period of high demand and the current capacity is not enough, the system will automatically regenerate the tank with the least capacity remaining to restore enough capacity to cover the high period of demand.

### **Filter (Time Clock)**

At the preset regeneration time, a regeneration will occur. The regeneration can be scheduled on certain days of the week or by set intervals of days between. The outlet valve will close to prevent any raw water from entering the service line. Only one tank may regenerate at a time. The tanks will regenerate in sequence one by one.

### **Filter (Meter Delay)**

When the preset total system capacity reaches zero, a regeneration will be scheduled at the next preset regeneration time. The outlet valve will close to prevent any raw water from entering the service line. Only one tank may regenerate at a time. The tanks will regenerate in sequence one by one.

### **Filter (Meter Immediate)**

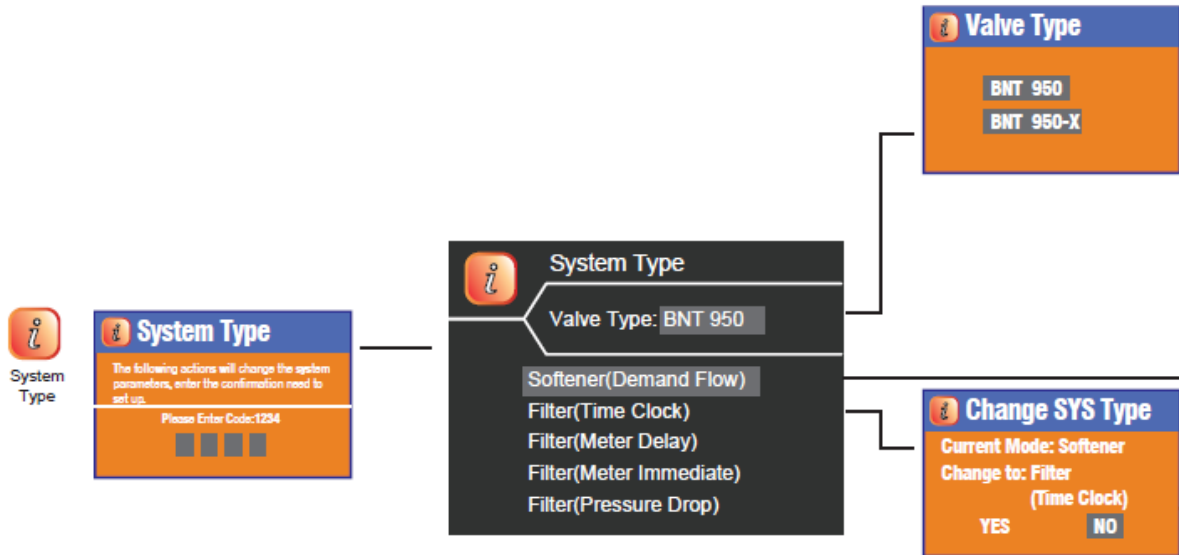
When the preset total system capacity reaches zero, a regeneration will be occur immediately. The outlet valve will close to prevent any hard water from entering the service line. Only one tank may regenerate at a time. The tanks will regenerate in sequence one by one.

### **Filter (Pressure Drop)**

When the pressure drop across an individual filter reaches the trip point, a regeneration will be occur immediately. The outlet valve will close to prevent any hard water from entering the service line. Only one tank may regenerate at a time. The tanks will regenerate only when they have reached the pressure drop trip point.



Press the SET button to enter the System Type menu icon. A password is required to unlock this screen to prevent non-qualified persons from making changes. The password is 1, 2, 3, 4

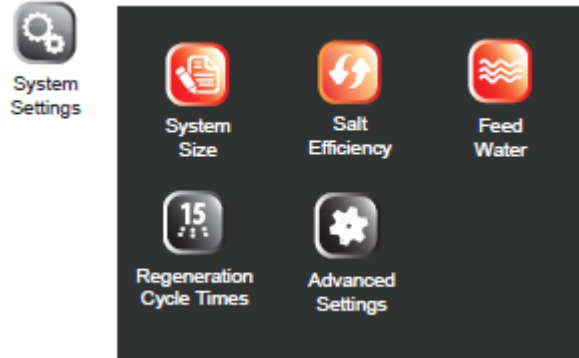


For standard MTS system the default Valve Type is BNT 950. When changing from different modes, a page will displayed that will confirm you want to change the System Type. Select Yes to change the type and No to keep the current settings. A System Setting page will be displayed. These options are covered in the Advanced Programming section and are only needed when you are replacing a valve / controller in the system at a later time. Press the MENU button to exit the System Setting page and return to the Main Menu.

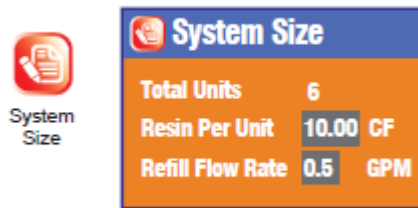
If you are changing a Main PCB or Slave PCB it may be necessary to format them. Format Slave Valve, Restore History Data, and Restore Settings are covered in the Advanced Programming Section.

## **System Type - SOFTENER**

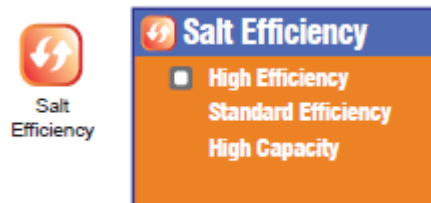
Press the UP / DOWN button to highlight the System Settings menu icon. Press the SET button to enter the menu.



Press the UP / DOWN button to highlight the desired menu icon. Press the SET button to enter the System Size menu. In the System Size menu you can edit the number of units, amount of softener resin per unit, and the refill flow rate (DLFC).



Press the UP / DOWN button to highlight the desired menu icon. Press the SET button to enter the Salt Efficiency menu. In the System Size menu you can choose High Efficiency (6lbs per CF), Standard Efficiency (10lbs per CF), or High Capacity salt settings (15lbs/CF). The system capacity is automatically calculated based on the System Size and Salt Efficiency.



Press the UP / DOWN button to highlight the desired menu icon. Press the SET button to enter the Feed Water menu. In the Feed Water menu you can enter the Hardness, Iron, and Manganese concentrations.

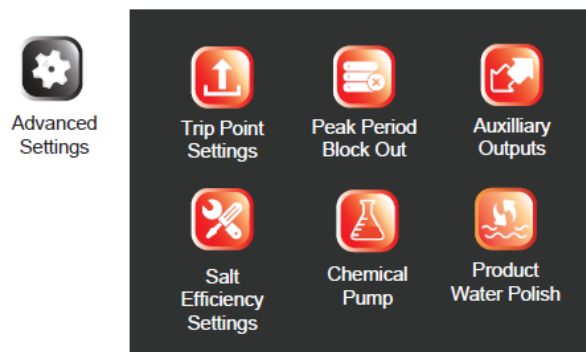


Press the UP / DOWN button to highlight the desired menu icon. Press the SET button to enter the Regen. Cycle menu. The default values are already pre-set for optimized operation based on the system settings. In the Regen. Cycle menu you can edit the Backwash, Brine, Rinse settings. Refill time is automatically calculated. The Backwash Override setting can be adjusted. This setting controls the number of Backwash cycles to be skipped.



Tank Size	Model	CF Resin	15 lb			10 lb			6lb		
			BW TIME	BRINE TIME	RINSE TIME	BW TIME	BRINE TIME	RINSE TIME	BW TIME	BRINE TIME	RINSE TIME
1452	200	2	6	38	6	6	44	6	6	57	6
1465	300	3	9	68	9	9	53	9	9	46	9
1665	400	4	9	69	9	9	54	9	9	47	9
1865	500	5	9	66	9	9	52	9	9	45	9
2162	600	6	8	65	8	8	51	8	8	44	8
2162	700	7	10	60	10	10	47	10	10	41	10
2472	800	8	7	77	7	7	60	7	7	52	7
2472	900	9	8	73	8	8	57	8	8	49	8
2472	1000	10	9	69	9	9	54	9	9	47	9

Press the UP / DOWN button to highlight the desired menu icon. Press the SET button to enter the Advanced Settings. Advanced settings are factory pre-set and should only be changed by qualified technicians.



Press the UP / DOWN button to highlight the desired menu icon. Press the SET button to enter the Trip Point Settings. These settings determine what flow rate will cause additional tanks to come on line to increase flow capacity.

**Trip Delay Time On**

This value controls the delay time in seconds that the flow rate must exceed the Trip Flow Rate before the next tank will come on line.

**Trip Flow Rate On**

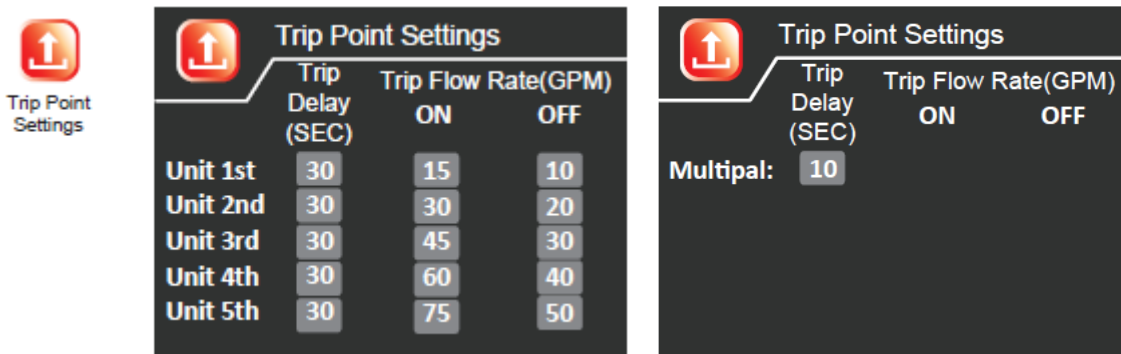
This value controls the flow rate that must be exceeded before the next tank will come on line.

**Trip Flow Rate Off**

This value controls the flow rate limit that the actual flow must be less than before the tank will come off-line. The default delay time is 5 minutes and is not adjustable.

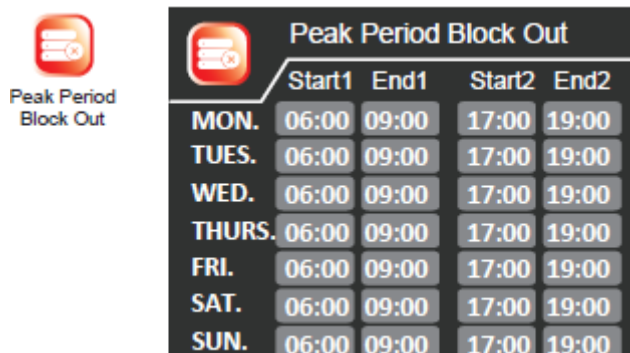
**Trip Delay Time Off Multiple**

This value controls the factor of time (Trip Delay Time Sec x Multiple) for the Trip Flow Rate Off delay. i.e. Trip Delay On Time = 30 sec, Multiple = 10, therefore Trip Delay Off Time = 600 sec

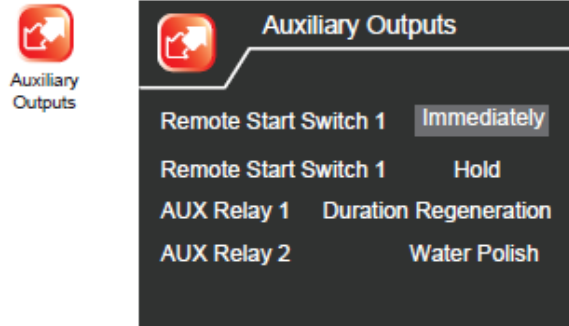


Press the UP / DOWN button to highlight the desired menu icon. Press the SET button to enter the Peak Period Block Out settings. These settings allow to block out two periods per day where a regeneration will not be allowed. At the end of a Peak Period, and units scheduled for regeneration will start.

Note: It is not recommended to use this function with softener mode.



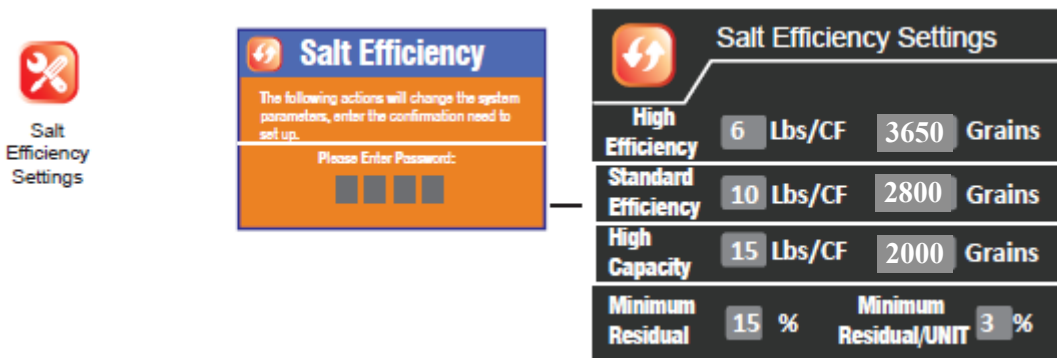
Press the UP / DOWN button to highlight the desired menu icon. Press the SET button to enter the Auxiliary Outputs menu. For detailed programming instructions please see the Advanced Programming section.



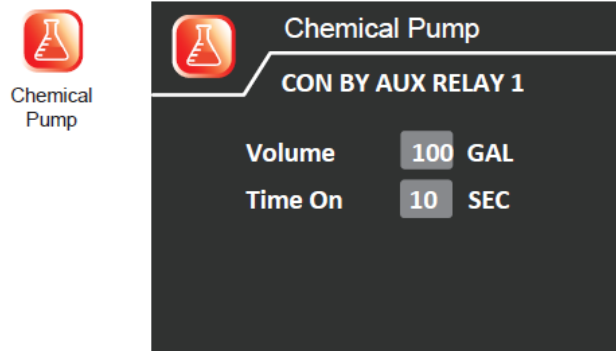
Press the UP / DOWN button to highlight the desired menu icon. Press the SET button to enter the Salt Efficiency Settings Menu. A password is required to un-lock this screen to prevent non-qualified persons from making changes. The password is 1, 2, 3, 4. These settings are Factory Set.

Minimum Residual setting controls at what minimum system reserve capacity percentage a regeneration will be scheduled to increase capacity of the entire system. This setting is factory set.

Minimum Residual / Unit setting controls at what minimum reserve capacity percentage each individual tank a regeneration will be scheduled. It is factory set at 3% to allow for variation in capacity due to flow rates and fluctuating hardness.

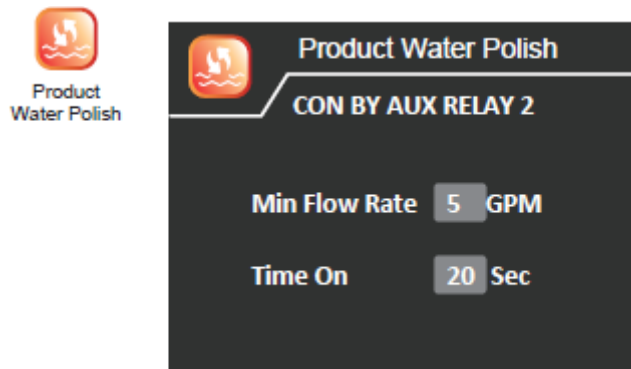


Press the UP / DOWN button to highlight the desired menu icon. Press the SET button to enter the Chemical Pump menu. This setting will control the Time On (Seconds) per Volume (Gallon) of water passed through the system.



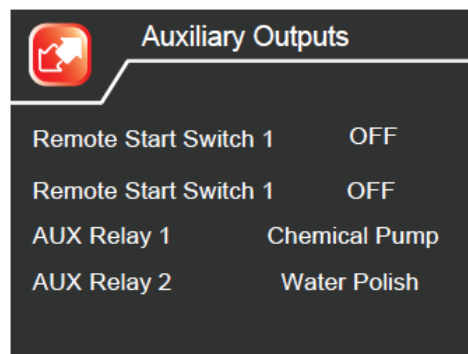
Press the UP / DOWN button to highlight the desired menu icon. Press the SET button to enter the Product Water Polish menu. The Min Flow Rate setting will control at what flow rate the Product Water Recycle Pump will turn on to recycle the water and avoid hardness channelling through the bed.

The Time On function controls how long the Product Water Recycle Pump will turn on each time the tank comes into service. This will polish the water and avoid any hardness to leak into the service line.



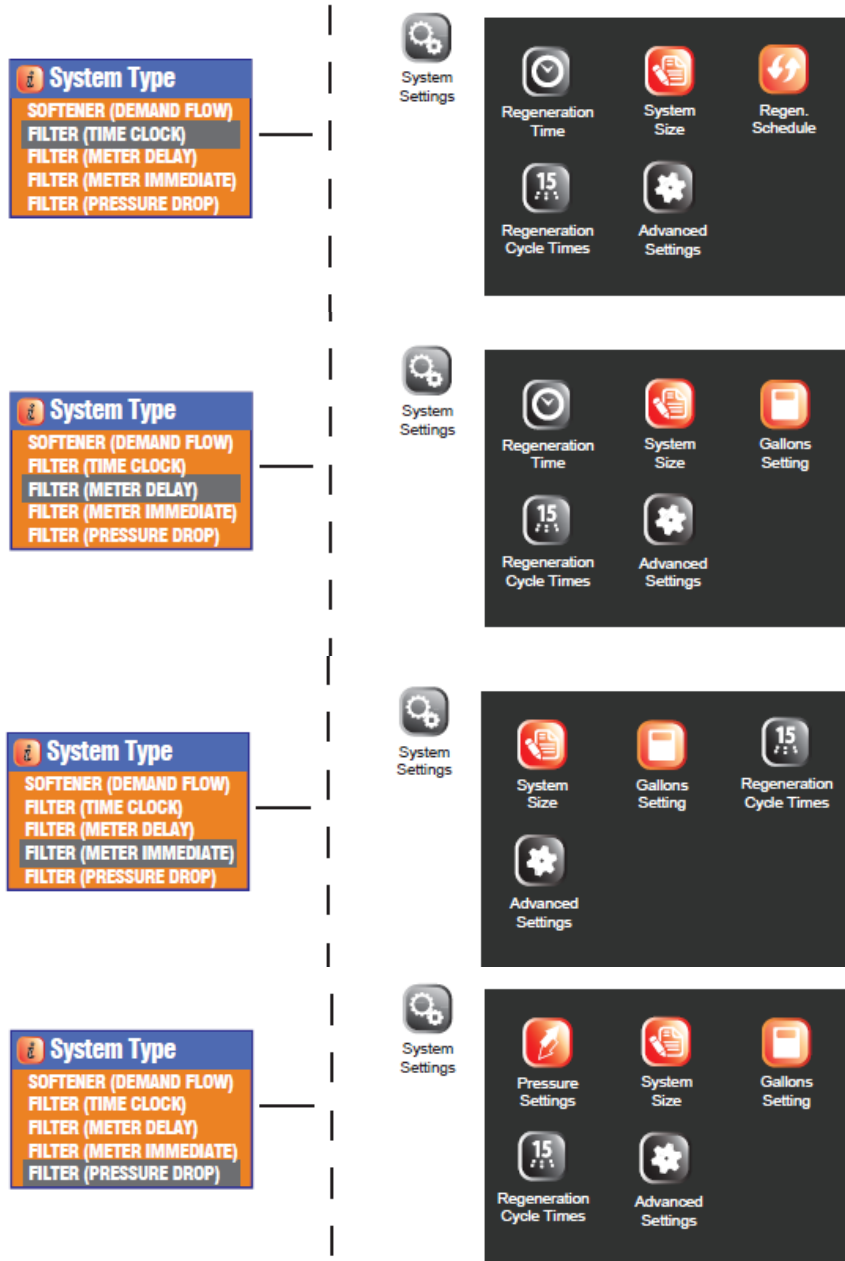
**Note:**

For the Chemical Pump function or Product Water Polish function, the options must be selected the Auxiliary Out Put Menu. Please refer to the Advance Programming section.

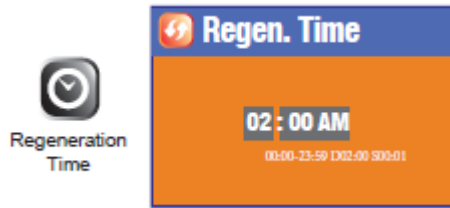


## **System Type - FILTERS**

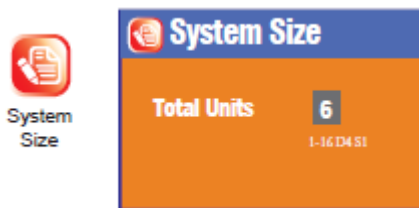
Press the SET button to enter the System Type menu icon. A password is required to unlock this screen to prevent non-qualified persons from making changes. The password is 1, 2, 3, 4



Press the UP / DOWN button to highlight the desired menu icon. Press the SET button to enter the Regen. Time menu. In the Regen. Time menu you can edit the time of day a regeneration will occur.



Press the UP / DOWN button to highlight the desired menu icon. Press the SET button to enter the System Size menu. In the System Size menu you can adjust the number of tanks / valves in the system.



Press the UP / DOWN button to highlight the desired menu icon. Press the SET button to enter the Regen. Schedule menu. In the Regen. Schedule menu you can set the system to regenerate by Number of Days or choose specific days of the week.



Press the UP / DOWN button to highlight the desired menu icon. Press the SET button to enter the Gallons Setting menu. In the Gallons Setting menu, you can adjust the gallon capacity of the system. In Filter (Pressure Drop) mode, you can adjust the trip point pressure and trip time delay to initiate a regeneration.

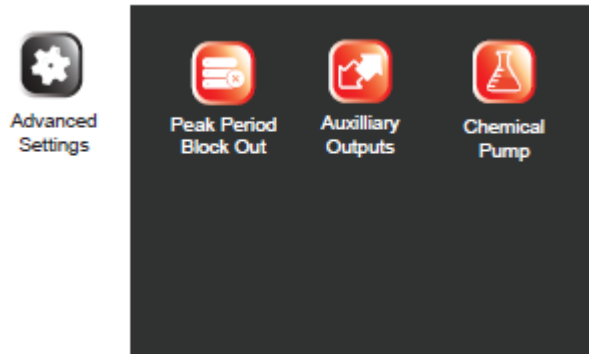




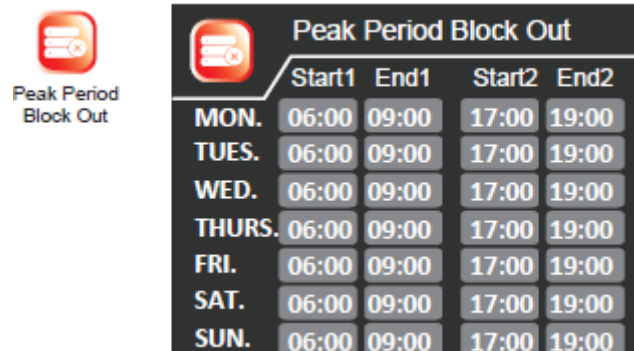
Press the UP / DOWN button to highlight the desired menu icon. Press the SET button to enter the Regen. Cycle menu. In the Regen. Cycle menu you can set the system Backwash and Rinse times. The times apply to all the tanks in the system.



Press the UP / DOWN button to highlight the desired menu icon. Press the SET button to enter the Advanced Settings menu.



Press the UP / DOWN button to highlight the desired menu icon. Press the SET button to enter the Peak Period Block Out settings. These settings allow to block out two periods per day where a regeneration will not be allowed. At the end of a Peak Period, and units scheduled for regeneration will start.



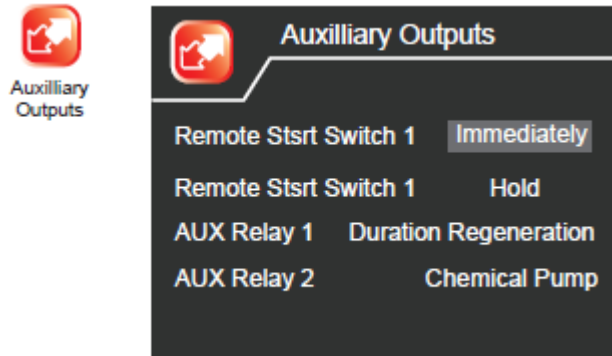
NOTE:  
SET THE TIMES SO THAT THEY ARE ALL EQUAL VALUE IF NO BLOCK OUT PERIODS ARE DESIRED.

Press the UP / DOWN button to highlight the desired menu icon. Press the SET button to enter the Auxiliary Outputs or Chemical Pump menu. For detailed programming instructions please see the Advanced Programming section.

## Advanced Programming

### Auxiliary Outputs

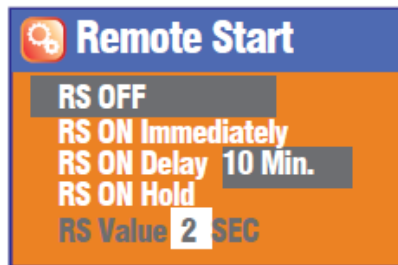
From the Advanced Settings menu, press the UP / DOWN button to highlight the Auxiliary Output menu icon. Press the SET button to enter.



### Remote Start Switch 1 and 2

There are 2 inputs for remotely starting a regeneration. One input is reserved for an external switch like a push button wired to a control panel as an example. The second input is reserved for an input signal from other devices such as a pressure switch that could signal a regeneration.

RS OFF is the default value. RS ON Immediately would signal a regeneration as soon as the remote button or switch is pushed. RS ON Delay would signal a regeneration to start at the end of the delay period. RS ON Hold would signal a regeneration when the remote button or switch is pushed and held on for the RS Value.



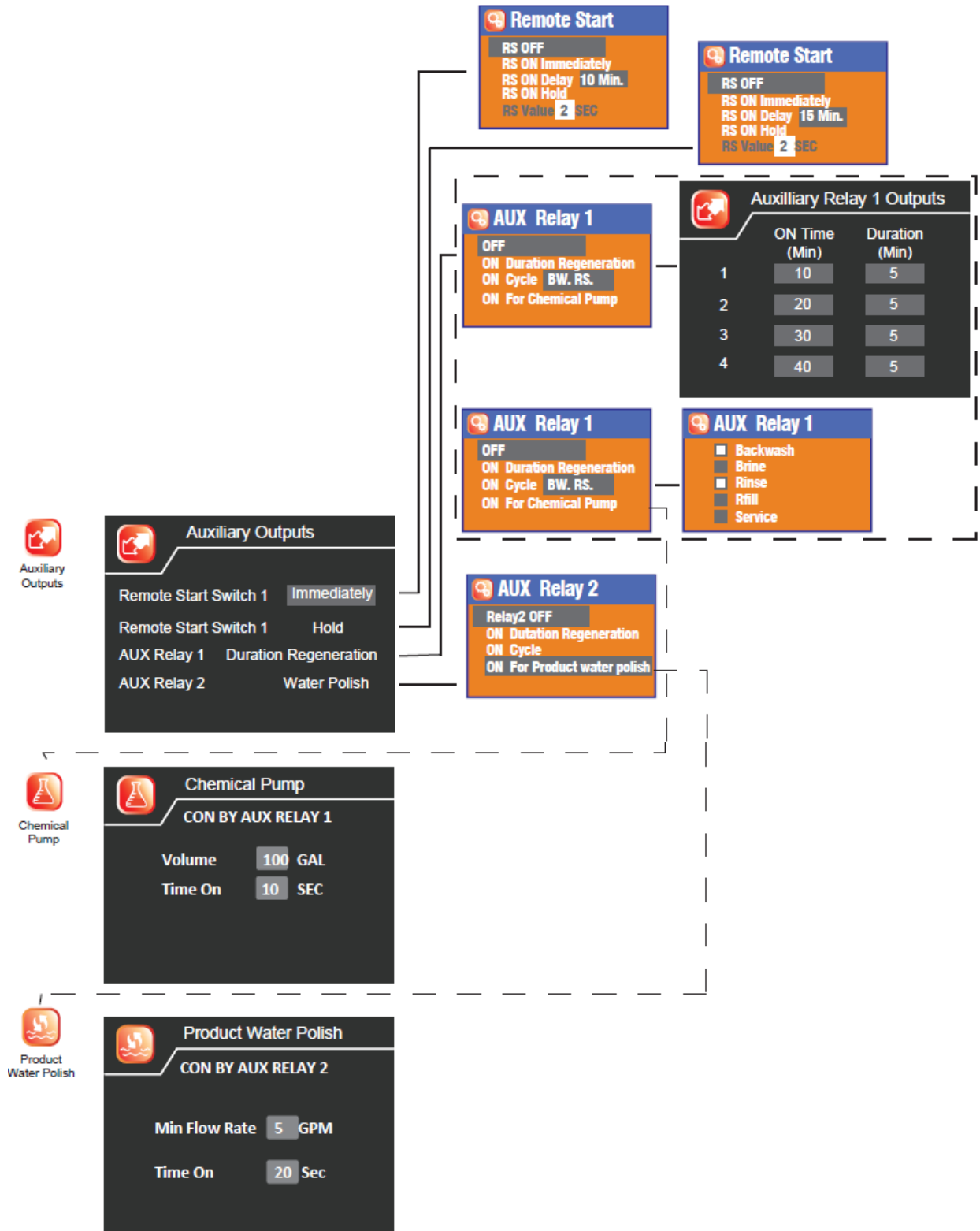
### AUX Relay 1 & 2

There are 2 programmable outputs controlled from the start of a regeneration. The default is OFF.

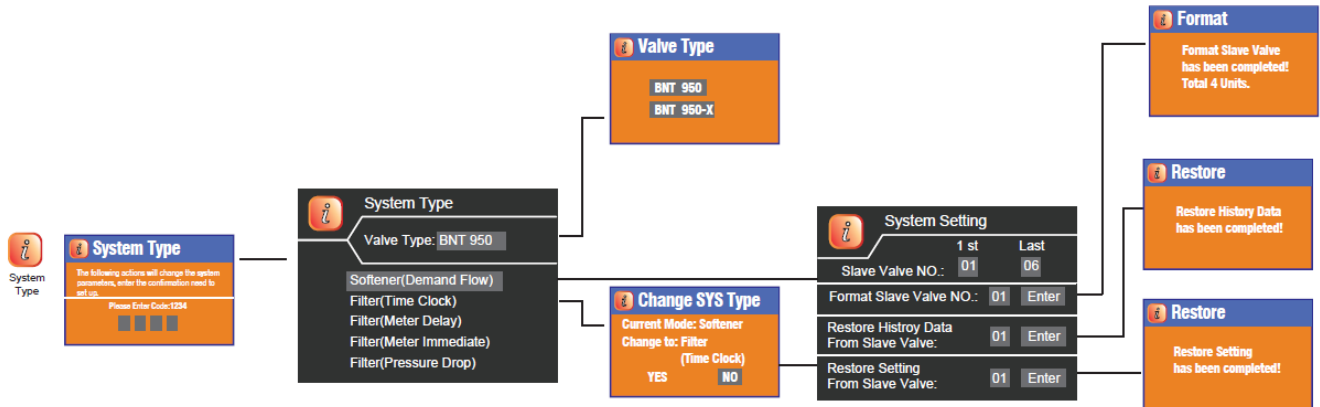
ON Duration Regeneration would open the relay output signal at the start of a regeneration. Up to 4 steps may be programmed in this mode.

In the On Cycle option you can select which cycles the relay output signal should be on for. All, some, or none of the cycles can be selected.

On for Chemical Pump or Product Water Polish may be selected to designate the relay to control these options.



## **Formatting Slave & Master PCB's**



For standard MTS system single valve the default Valve Type is BNT 950. For the 2 piston valve the type is BNT 950-X

When changing from different System Types, a page will displayed that will confirm you want to change the System Type. Select Yes to change the type and No to keep the current settings. A System Setting page will be displayed. Press the MENU button to exit the System Setting page and return to the Main Menu.

If you wish to erase the current valve history (Diagnostic Information), it will be necessary to format the slave PCB's. If you are changing a master PCB and want to restore the history and settings you need to restore history and settings.

The Format Slave Valve function wipes out all the stored settings in the slave PCB. The Restore History Data function will upload the stored settings from the slave PCB to the main PCB. The Restore Settings function will transfer the saved settings from main PCB back to the slave PCB.

### **Re-Format (Erase) Slave PCB Settings & History Data**

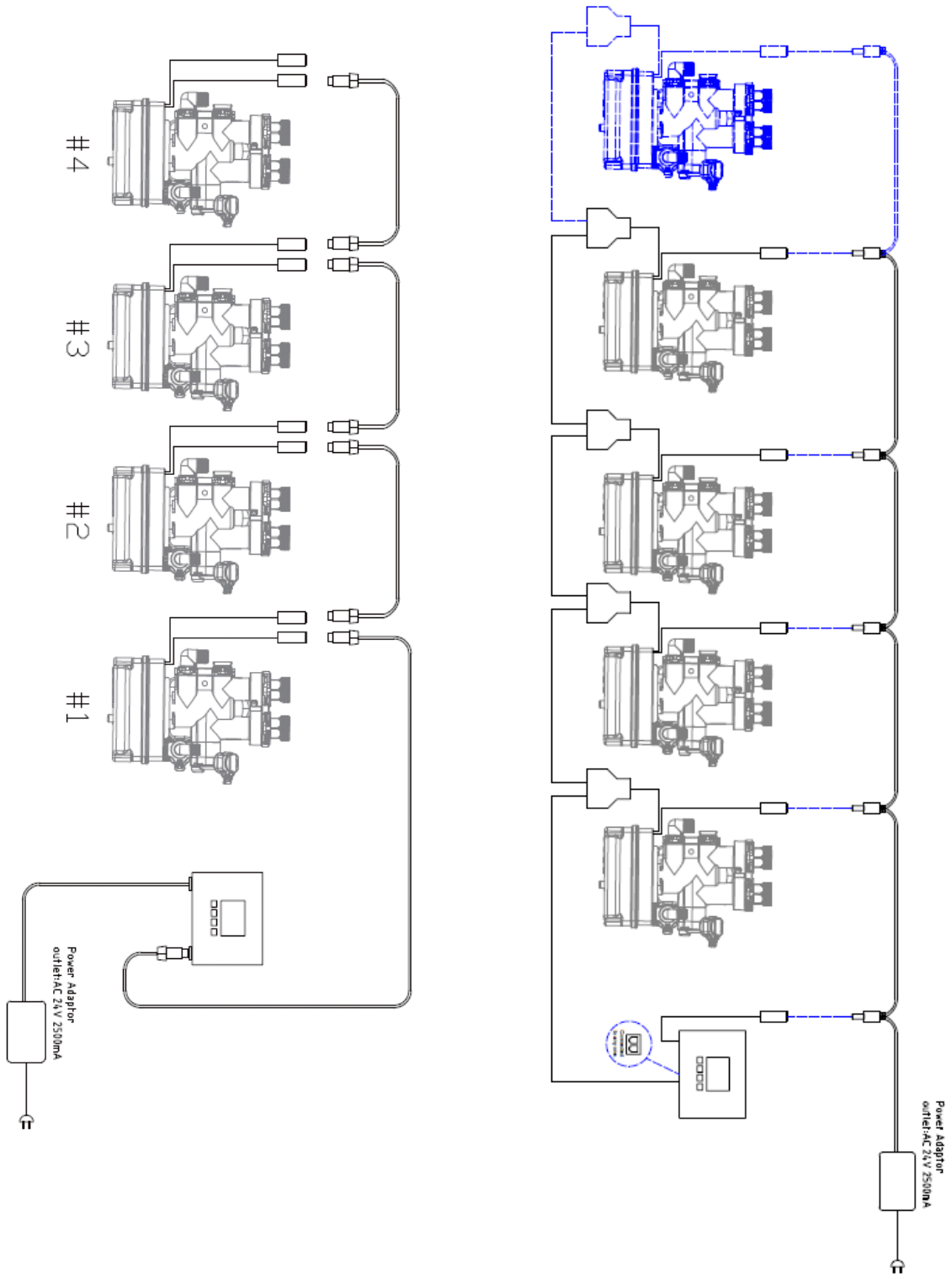
If you wish to reset the history (System Diagnostics) back to zero and start tracking new data the Slave PCB's can be re-formatted. You may choose the individual Slave Valve No. or ALL. When you press enter, the history data will be erased and set to zero values.

### **Restore Main PCB Settings**

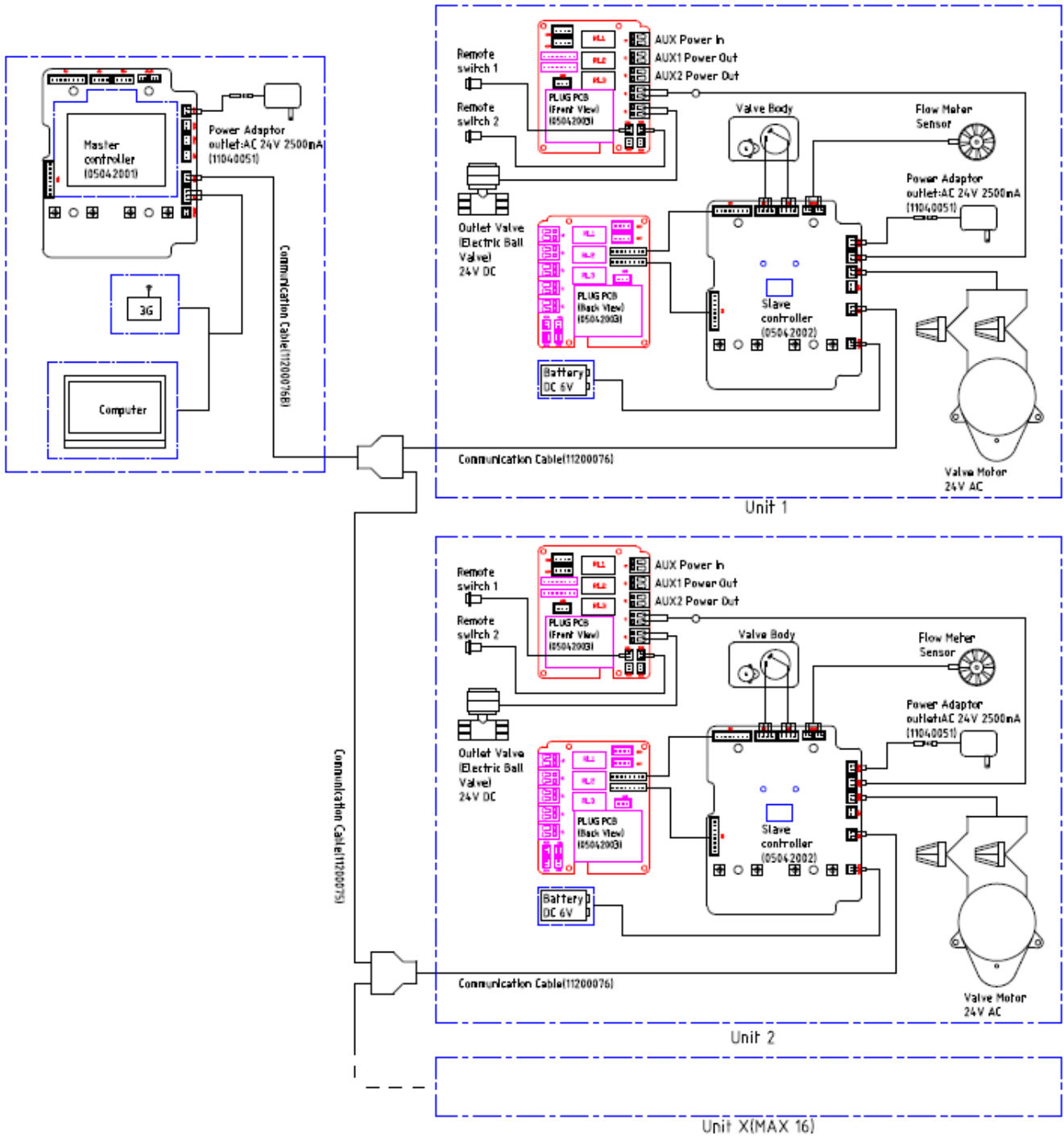
If you replace the main PCB, you can restore the current settings and history from the Slave PCB's to the Main PCB. Select Restore History Data to restore history data from Slave PCB's to new Master PCB. Select Restore Setting to restore valve settings (People, Hardness, Backwash Time, etc,) from Slave Valve PCBs to Main PCB.

# MTS Wiring Schematics

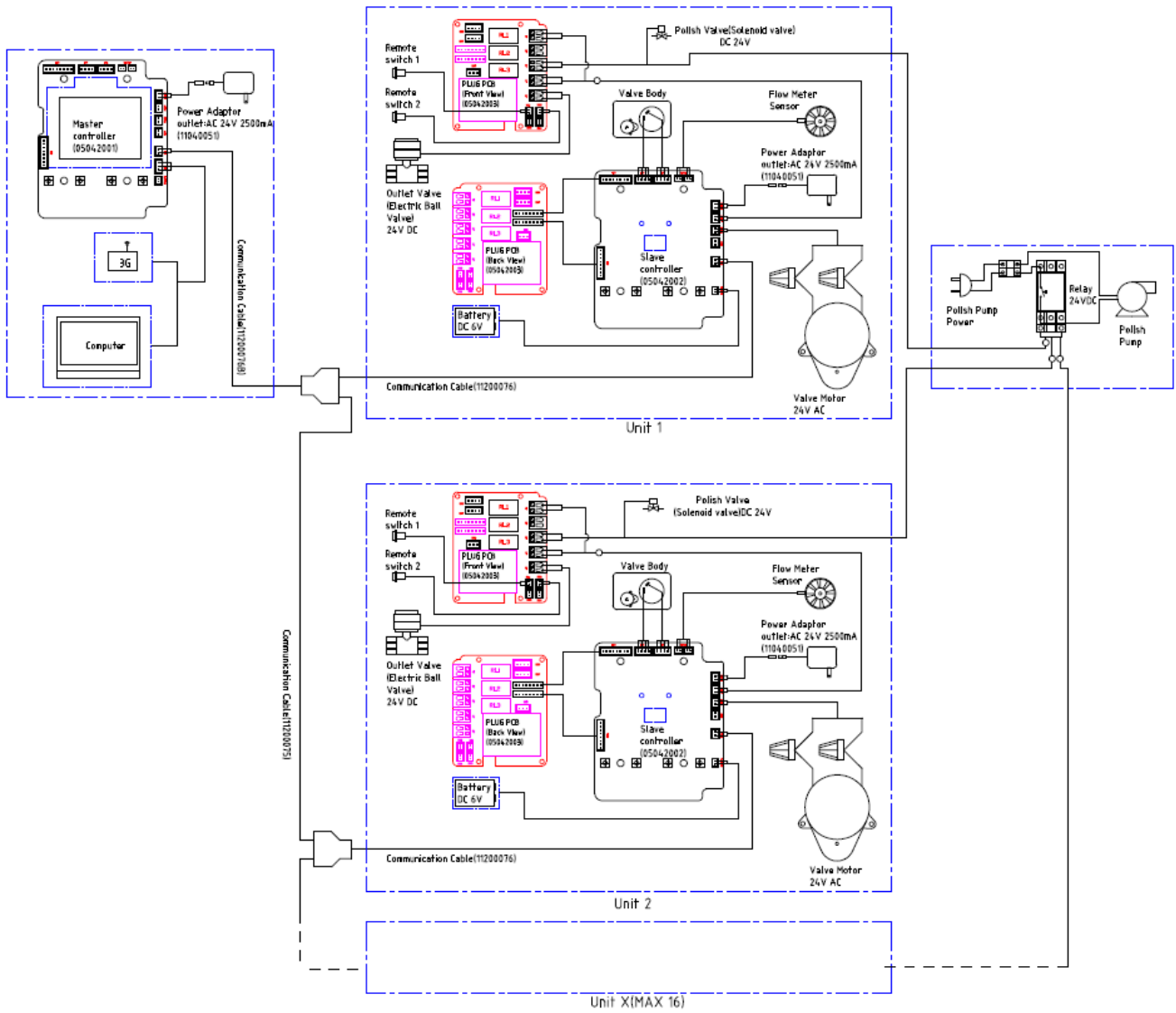
## Softener or Filter Wiring Diagram



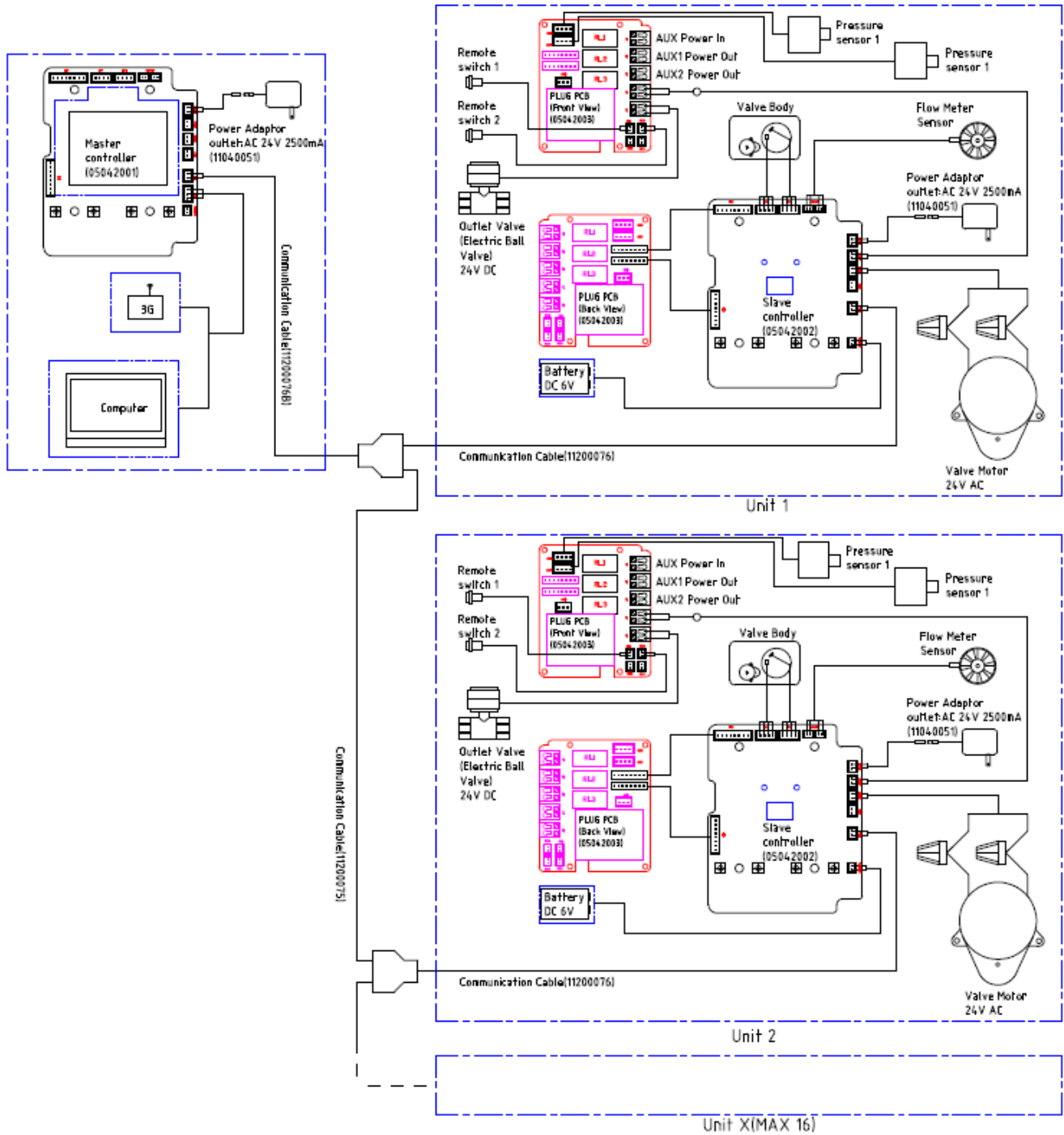
# Softener or Filter



# Softener With Polishing Recycle Option



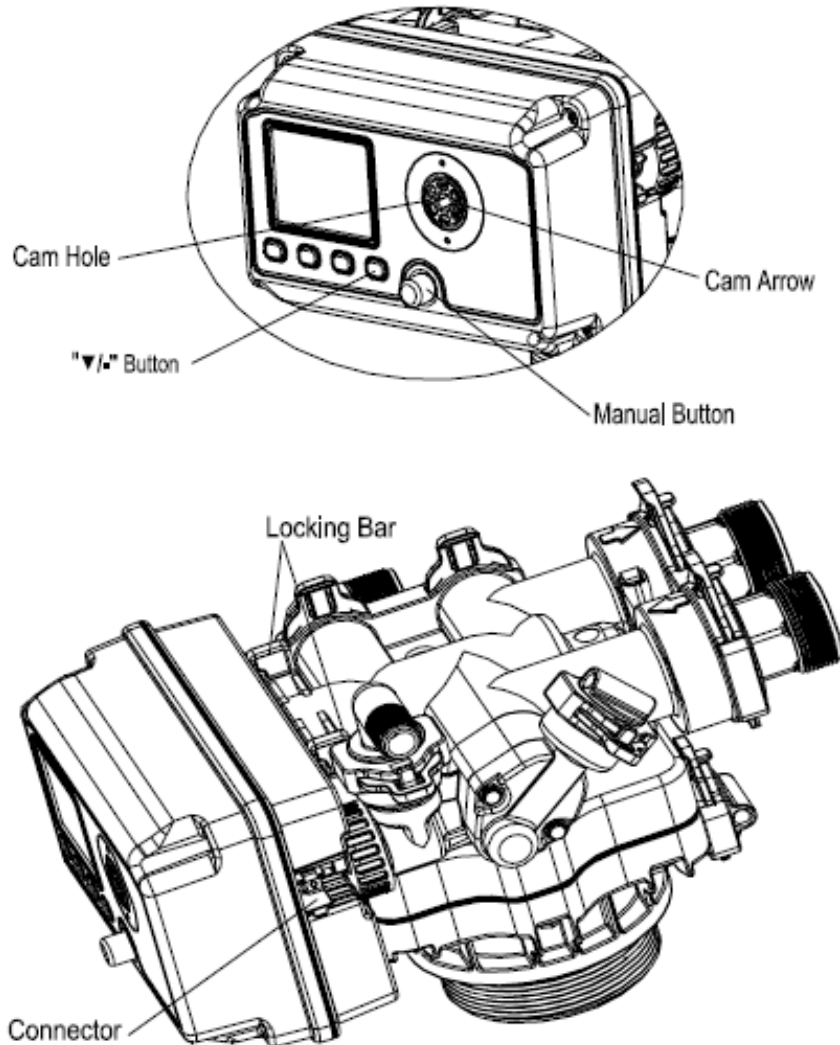
## Filter With Pressure Differential Switch Option





## Maintenance

### Removing Power Head Assembly



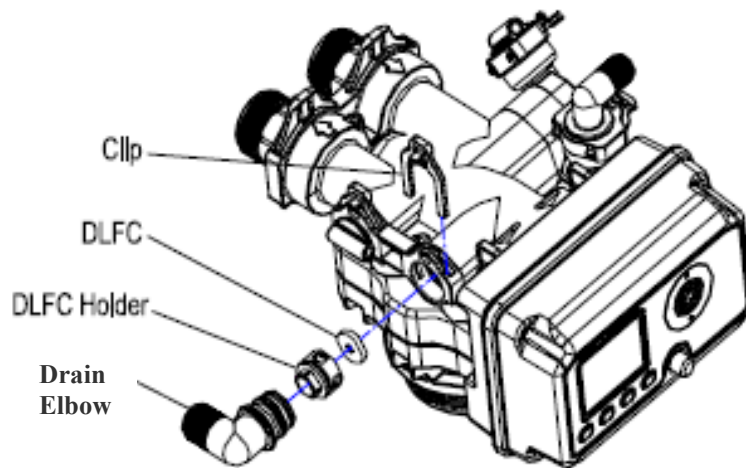
Manually remove the Power Head Assembly:

- Press and hold Manual Button
- With 8 hex key, insert Cam Hole, turn the Cam anti-clockwise to the marked position
- Remove the Connector
- Remove the Locking Bar
- Pull the Power Head Assembly outwards.

Automatic remove the Power Head Assembly:

- Unlock the screen
- Press and hold Down button, the valve will advance the Cam to the marked position
- Remove the Connector
- Remove the Locking Bar
- Pull the Power Head Assembly outwards.

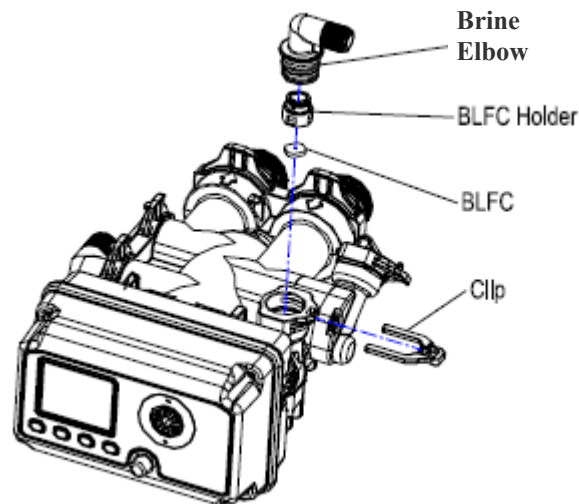
## Replace Drain Line Flow Control (DLFC)



To replace the Drain Line Flow Control (DLFC):

- Remove the Clip
- Pull the Drain Elbow outward
- Pull the DLFC Holder outward from the Drain Elbow
- Replace the DLFC

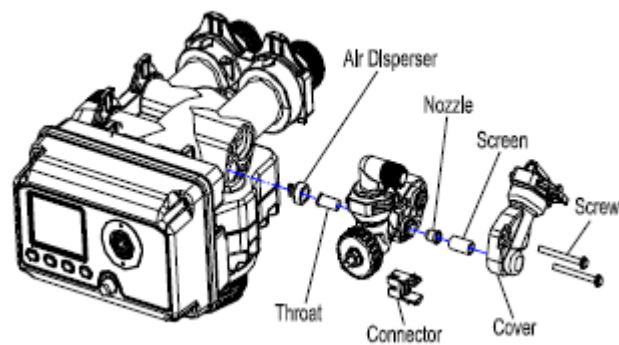
## Replace Brine Line Flow Control (BLFC)



To replace the Brine Line Flow Control (BLFC):

- Remove the Clip
- Pull the Brine Elbow outward
- Pull the BLFC Holder outward from the Brine Elbow
- Replace the BLFC

## Replace or Cleaning Injectors



Sediment, salt and silt will restrict or clog the injector. A clean water supply and pure salt will prevent this from happening.

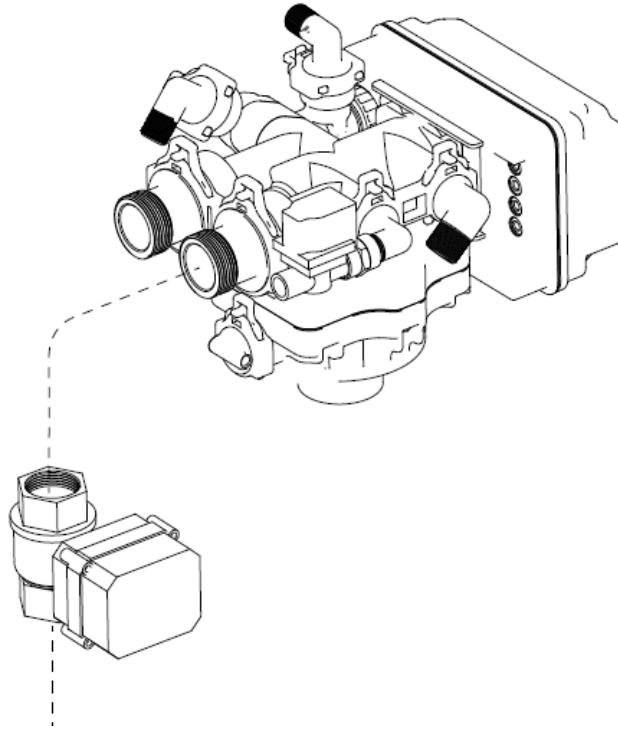
The injector assembly is located on the right side of the control valve. This assembly is easy to clean.

To replace the Injectors:

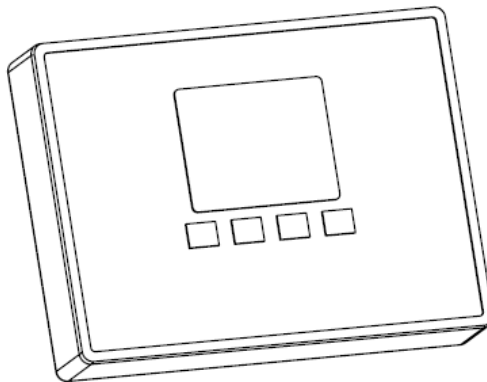
- Shut off the water supply to your softener and reduce the pressure by opening a cold soft water faucet.
- Remove the Connector
- Remove the Screw
- Slightly pull the Injector Body and Injector Cover outward
- Slightly pull out the Screen
- Replace the Nozzle
- Slightly pull out the Air Dispenser
- Replace the Throat
- Reassemble using the reverse procedure

Note: Carefully flush all parts including the screen. Use a mild acid such as vinegar or Pro-Rust Out to clean the small holes in the orifice and throat.

## MTS System Components

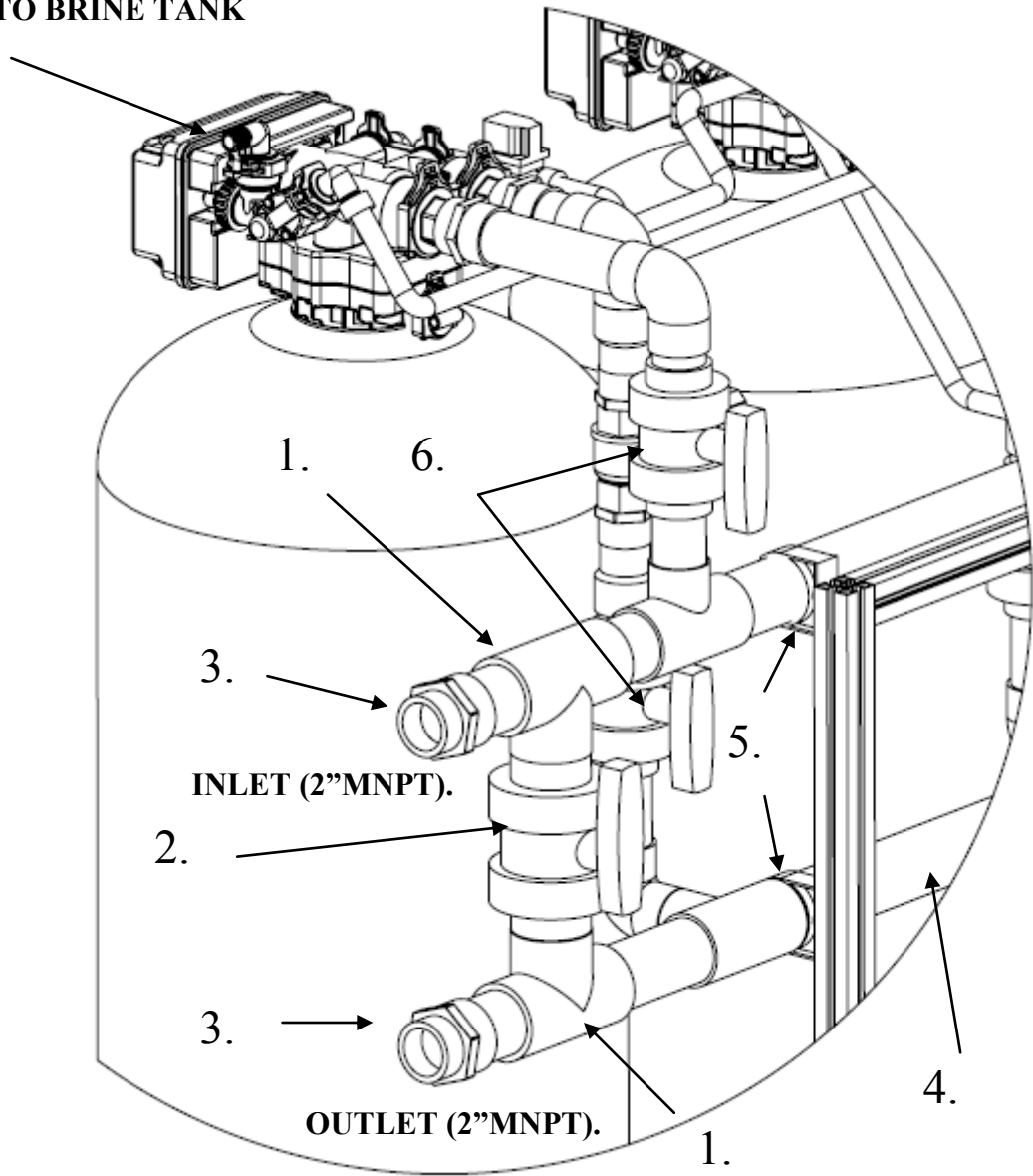


10010055 VALVE BNT950 MTS (SLAVE) 4" C/W 1.25" BALL VALVE

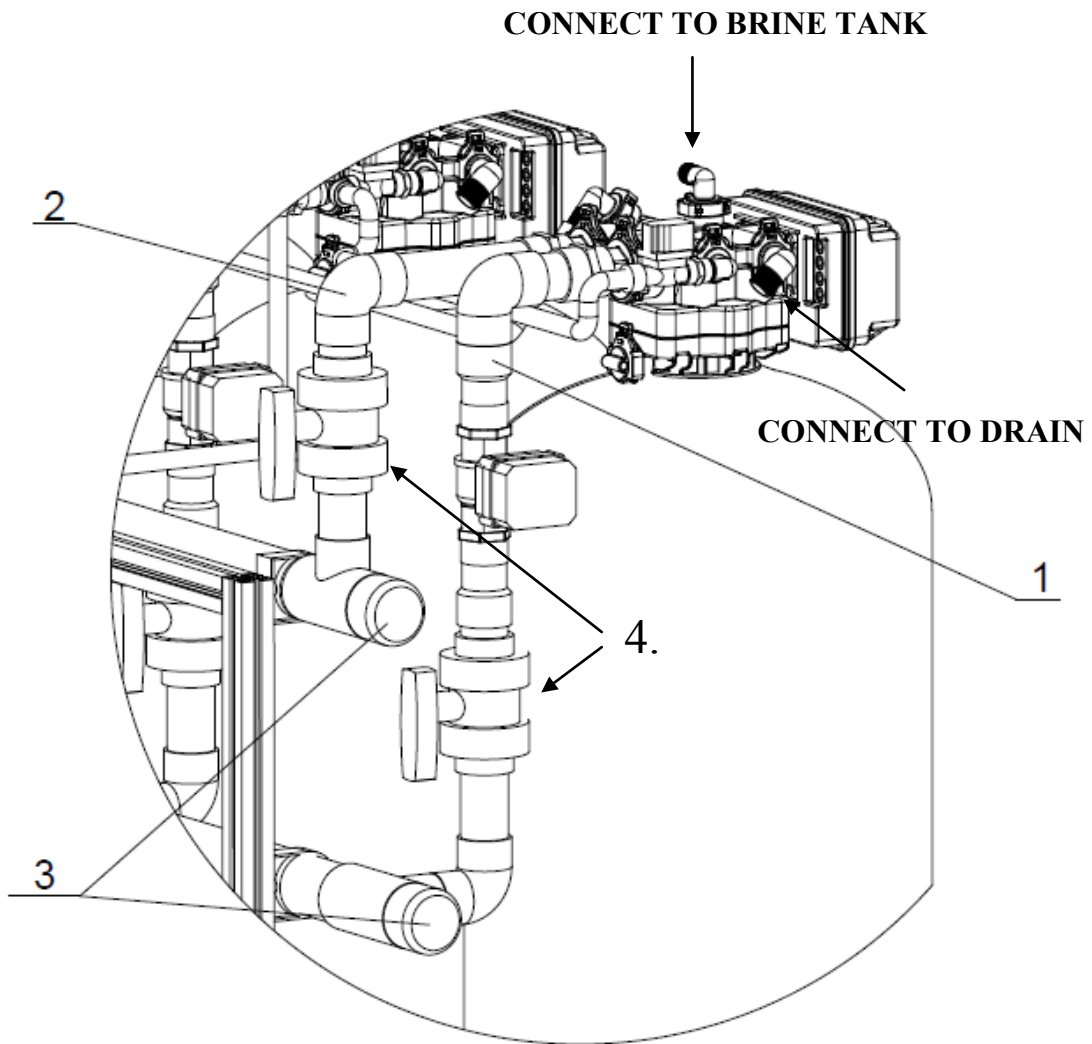


10010056 MTS MAIN CONTROLLER  
60010182 MTS COMMUNICATION CABLE 2M  
60010197 MTS COMMUNICATION CABLE 6M  
60010083 MTS POWER TRANSFORMER 120V INPUT 24V OUTPUT

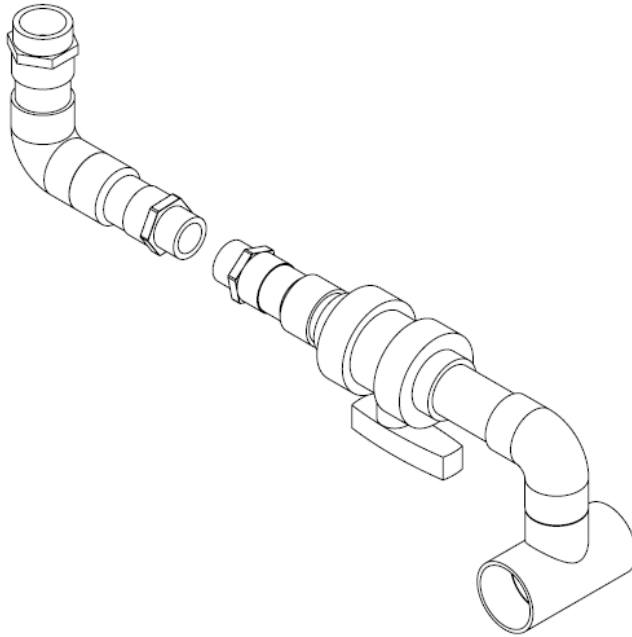
**CONNECT TO BRINE TANK**



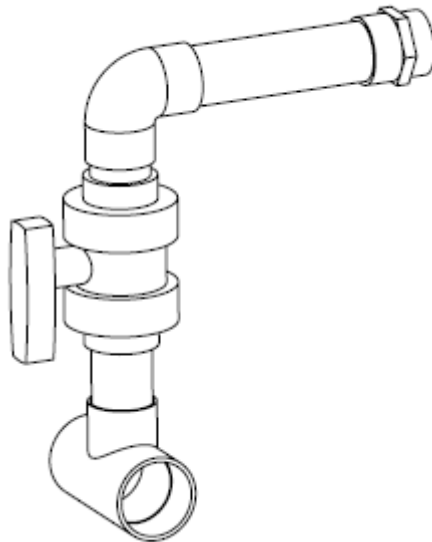
- |    |          |                                   |
|----|----------|-----------------------------------|
| 1. | 80040050 | 63MM UPVC TEE PLAIN               |
| 2. | 80040051 | 63MM UPVC DOUBLE UNION BALL VALVE |
| 3. | 80040052 | 63MM X 2" UPVC (P/T) SOCKET       |
| 4. | 80040053 | 63MM UPVC PIPE 4M                 |
| 5. | 80040057 | 63MM UPVC PIPE CLIP               |
| 6. | 80040058 | 50MM UPVC DOUBLE UNION BALL VALVE |



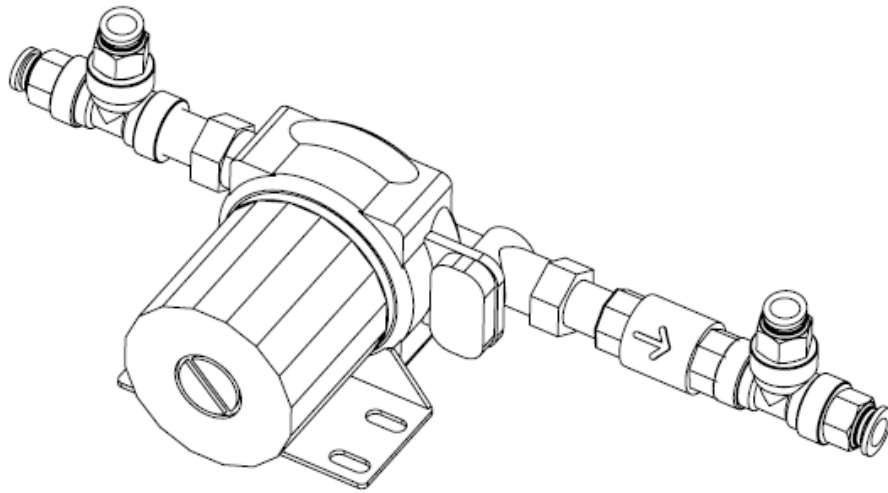
- 1. 80040054 MTS95 VALVE OUTLET PIPE ASSEMBLY
- 2. 80040055 MTS95 VALVE INLET PIPE ASSEMBLY
- 3. 80040056 63MM UPVC CAP
- 4. 80040058 50MM UPVC DOUBLE UNION BALL VALVE



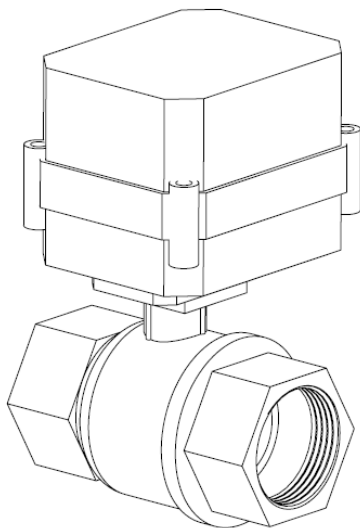
80040054 MTS95 VALVE OUTLET PIPE ASSEMBLY



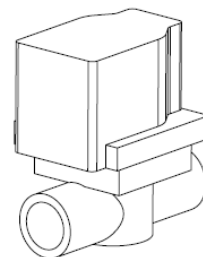
80040055 MTS95 VALVE INLET PIPE ASSEMBLY



80040061 MTS POLISHING PUMP



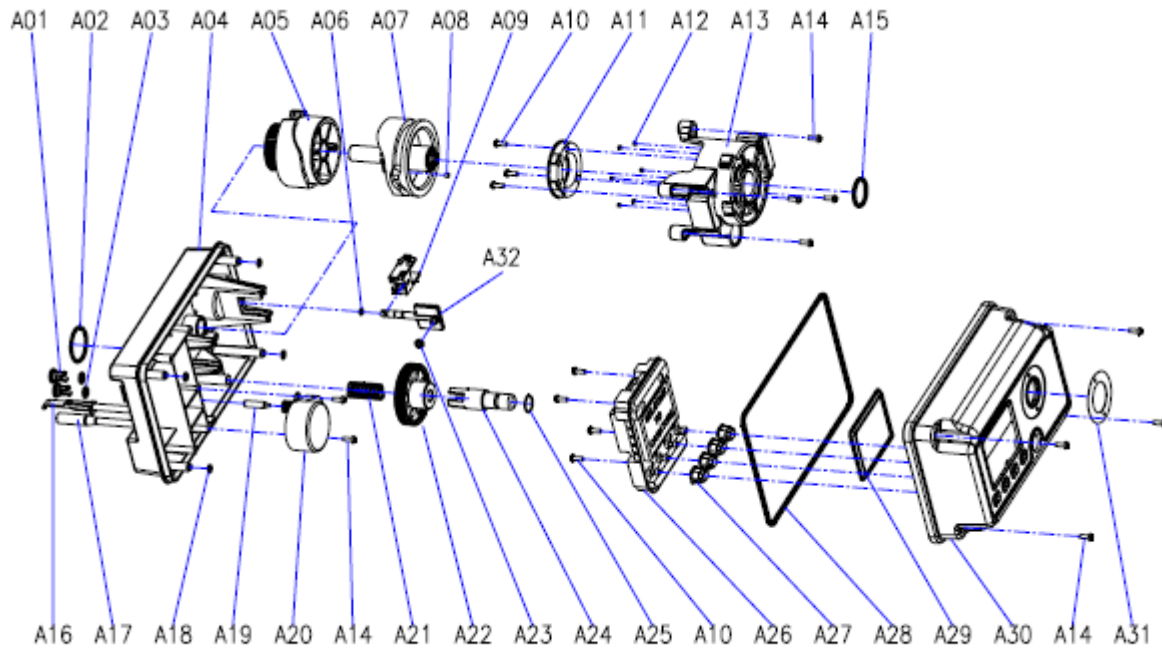
60024290 ELECTRIC BALL VALVE 1.25" NPT MTS



60024291 ELECTRIC BALL VALVE 1/2" MTS



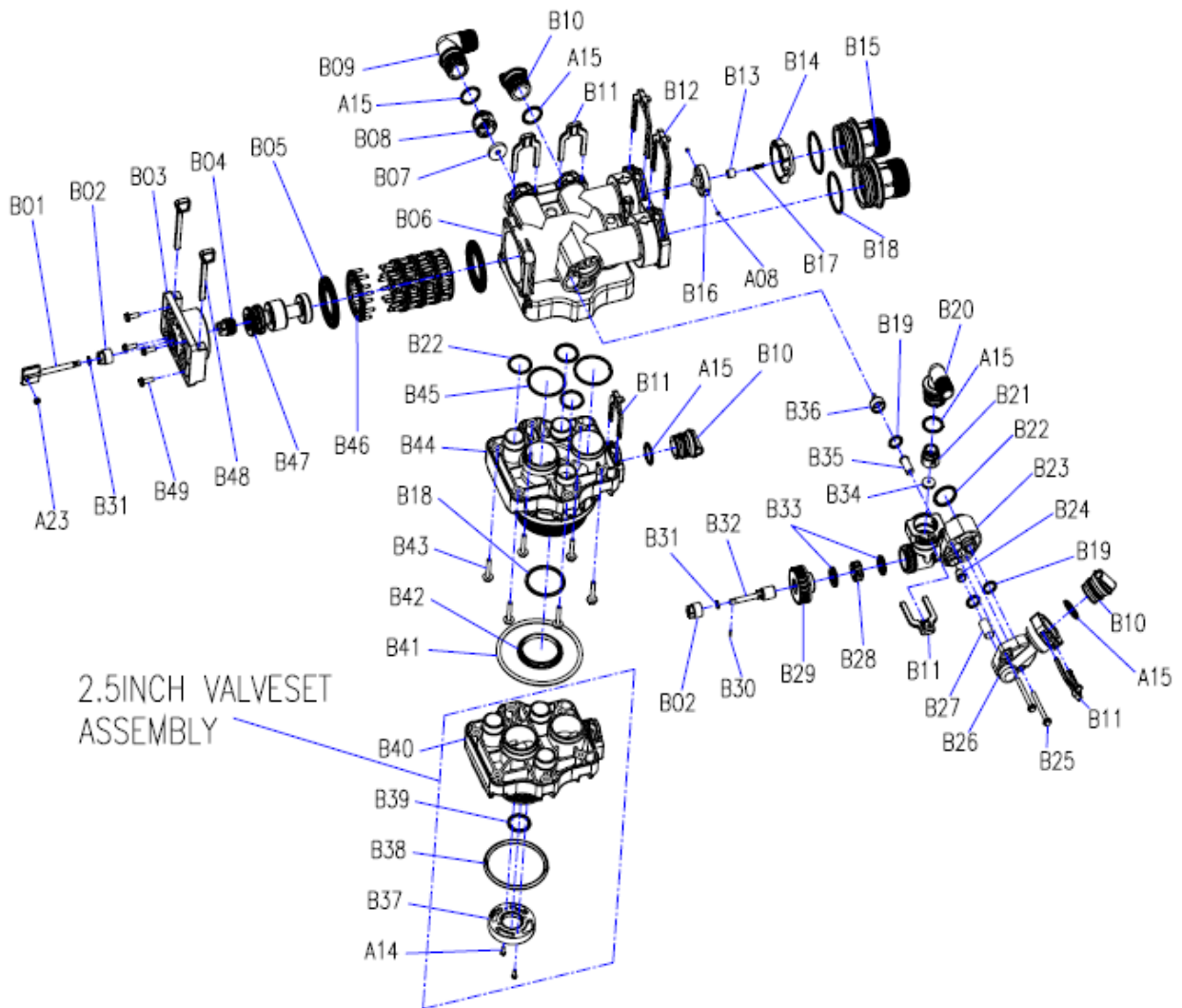
## Power Head Exploded View



Item No.	Part No.	Part Description	Quantity
A01	05040038	Bnt95 Cable Jacket(without hole)	2
A02	26010028	O-Ring- $\varnothing 28 \times 2.65$	1
A03	05040086	O-Ring- $\varnothing 8 \times 2$	2
A04	05040005	Bnt95 Housing	1
A05	05040008	Bnt95 Driving Cam	1
A06	05040032	O-Ring- $\varnothing 4 \times 1.5$	1
A07	05040009	Bnt95 Driven Cam	1
A08	05010078	Magnet- $\varnothing 4 \times 3$	1
A09	05040095	Bnt95 Brine Valve Connector	1
A10	05056085	Screw-ST $2.9 \times 9.5$ (Large Wafer)	7
A11	05040052	Bnt95 Sensor Pcb	1
A12	05010047	Friction Point	6
A13	05040007	Bnt95 Mounting Plate	1
A14	05056084	Screw-ST $3.5 \times 13$	10
A15	05056129	O-Ring- $\varnothing 23 \times 3$	1
A16	05040054	Bnt95 Meter Cable	1
	05040039	Bnt95 Meter Cover	1
	05040037	Bnt95 Cable Jacket(with hole)	1
	05040086	O-Ring- $\varnothing 8 \times 2$	1
A17	05040053	Bnt95 Power Cable	1
	05040037	Bnt95 Cable Jacket(with hole)	1
	05040086	O-Ring- $\varnothing 8 \times 2$	1
A18	05040087	O-Ring- $\varnothing 5.5 \times 1.5$	4
A19	05040044	Bnt95 Motor Pin	1

Item No.	Part No.	Part Description	Quantity
A20	05040047	Bnt95 Motor (AC12V, 2RPM)	1
A21	05040046	Bnt95 Gear Spring	1
A22	05040040	Bnt95 Gear	1
A23	05040033	Bnt95 Piston Rod Bush	1
A24	05040041	Bnt95 Manual Button	1
A25	05040085	O-Ring-Ø10×2.5	1
A26	05040051	Bnt95 Main PCB	1
A27	05056529	Bnt465 Button	4
A28	05040043	Bnt95 Housing Seal	1
A29	05040036	Bnt95 Clear Cover	1
A30	05040006	Bnt95 Cover	1
A31	05040092	Bnt95 Label (Filter)	1
	05040093	Bnt95 Label (Softener)	1
A32	05040026	Bnt95 Brine Valve Piston Rod	1

### Control Valve Exploded View



## Control Valve Parts List

Item No.	Part No.	Part Description	Quantity
B01	05040025	Bnt95 Piston Rod	1
A23	05040033	Bnt95 Piston Rod Bush	1
B02	05040029	Bnt95 Quad Ring Holder	2
B03	05040004	Bnt95 End Plug Retainer	1
B04	05040024	Bnt95 Piston Rod Holder	1
B05	05040022	Bnt95 Spacer Seal	5
B06	05040002	Bnt95 Valve Body	1
	05040049	Bnt95 Nut M6	6
	05056101	Nut M5	6
B07	05040104	DLFC #3S (4.5 GPM)	1
	05040105	DLFC #4S (5.0 GPM)	1
	05040107	DLFC #6S (6.0 GPM)	1
	05040108	DLFC #7S (7.0 GPM)	1
	05040069	DLFC #1 (8.0 GPM)	1
	05040070	DLFC #2 (11.0 GPM)	1
	05040071	DLFC #3 (14.0 GPM)	1
	05040072	DLFC #4 (17.0 GPM)	1
	05040073	DLFC #5 (21.0 GPM)	1
	05040074	DLFC #6 (24.0 GPM)	1
B08	05040030	Bnt95 Dlfc Holder	1
B09	05040012	Bnt95 Drainlet	1
A15	05056129	O-Ring-Ø23×3	5
B10	05040015	Bnt95 Plug	3
B11	05040018	Bnt95 Clip (S)	5
B12	05040017	Bnt95 Clip (L)	2
B13	05040034	Bnt95 Impeller Bush	1
B14	05040020	Bnt95 Impeller Holder	1
B15	05040014	Bnt95 Adaptor	2
B16	05040019	Bnt95 Impeller	1
A08	05010078	Magnet-Ø4x3	2
B17	05040045	Bnt95 Impeller Pin	1
B18	26010030	O-Ring-Ø48.7×3.55	3
B19	05040084	O-Ring-Ø14×3	3
B20	05040013	Bnt95 Brinelet	1
B21	05040031	Bnt95 BLFC Holder	1
B22	26010046	O-Ring-Ø27×3	4
B23	05040010	Bnt95 Injector Body	1

Item No.	Part No.	Part Description	Quantity
B24	05040112	Bnt95 Nozzle-4S	1
	05040113	Bnt95 Nozzle-5S	1
	05040059	Bnt95 Nozzle-3	1
	05040061	Bnt95 Nozzle-4	1
	05040063	Bnt95 Nozzle-5	1
	05040065	Bnt95 Nozzle-6	1
B35	05040117	Bnt95 Throat-4S	1
	05040118	Bnt95 Throat-5S	1
	05040060	Bnt95 Throat-3	1
	05040062	Bnt95 Throat-4	1
	05040064	Bnt95 Throat-5	1
	05040066	Bnt95 Throat-6	1
B25	05040099	Screw-M5×55 (Hexagon with Washer)	2
B26	05040011	Bnt95 Injector Cover	1
B27	05040048	Bnt95 Brine Valve Screen	1
B28	05040027	Bnt95 Brine Valve Spacer	1
B29	05040028	Bnt95 Brine Valve Seal Cover	1
B30	05040050	Bnt95 Brine Valve Rod Pin	1
B31	05056070	Quad Ring	2
B32	05040023	Bnt95 Brine Valve Piston	1
B33	05040042	Bnt95 Brine Valve Seal	2
B34	05040081	Bnt95 BLFC-6 (0.9 GPM)	1
	05040083	Bnt95 BLFC-7 (1.35 GPM)	1
B36	05040035	Bnt95 Air Disperser	1
B37	07060007	Valve Bottom Connector	1
B38	05056063	O-Ring-Ø78.74×5.33	1
B39	26010103	O-Ring-Ø25×3.55	1
B40	05040001	Bnt95 Valveset (2.5inch)	1
B41	05040094	O-Ring-Ø108×5.3	1
B42	05040091	Bnt95 Seal Holder	1
B43	05040088	Screw-M6×30 (Hexagon with Washer)	6
B44	05040090	Bnt95 Valveset (4inch)	1
B45	05040082	O-Ring-Ø47×3	2
B46	05040003	Bnt95 Spacer	10
B47	05040021	Bnt95 Piston	1
B48	05040016	Bnt95 Housing Locking Bar	2
B49	05056088	Screw-M5×16 (Hexagon with Washer)	4

## Trouble Shooting

Issue	Possible Cause	Possible Solution
A. Unit fails to initiate a regeneration cycle.	1. No power supply.	Check electrical service, fuse, etc.
	2. Defective circuit board.	Replace faulty parts.
	3. Power failure.	Reset time of day.
	4. Defective meter.	Replace turbine meter.
B. Water is hard.	1. By-pass valve open.	Close by-pass valve.
	2. Out of salt or salt level below water level.	Add salt to tank.
	3. Plugged injector / screen.	Clean parts.
	4. Flow of water blocked to brine tank.	Check brine tank refill rate.
	5. Hard water in hot water tank.	Repeat flushing of hot water tank required.
	6. Leak between valve and central tube.	Check if central tube is cracked or o-ring is damaged. Replace faulty parts.
	7. Internal valve leak.	Replace valve seals, spacer, and piston assembly.
	8. Reserve capacity setting too low.	Increase reserve capacity.
	9. Not enough capacity.	Increase salt dosage.
C. Salt use is high.	1. Refill time is too high.	Check refill time setting.
	2. Defective flow control.	Replace.
D. Low water pressure.	1. Iron or scale build up in line feeding unit.	Clean pipes.
	2. Iron build up inside valve or tank.	Clean control and add resin cleaner to clean bed. Increase regeneration frequency.
	3. Inlet of control plugged due to foreign material.	Remove piston and clean control valve.
	4. Deteriorated resin. (Maybe caused from high chlorine or chloramines.)	Re-bed unit. Consider adding carbon pre-treatment.
E. Resin in drain line.	1. Air in water system.	Check well system for proper air eliminator control.
	2. Incorrect drain line flow control (DLFC) button.	Check for proper flow rate.
F. Too much water in brine tank.	1. Plugged injector or screen.	Clean parts.
	2. Valve not regenerating.	Replace circuit board, motor, or control.
	3. Foreign material in brine valve.	Clean parts.
	4. Unit not drawing brine.	Check for vacuum leak in brine line connections.
G. Unit fails to draw brine.	1. Drain line flow control is plugged.	Clean parts.
	2. Injector or screen is plugged.	Clean parts.
	3. Inlet pressure too low.	Increase pressure to 25 PSI.
	4. Internal valve leak.	Replace seals, spacers, and piston assembly.
	5. Safety valve closed.	Check for leak in brine line connections. Replace safety float assembly.
	6. Vacuum leak in brine line.	Check for leak in brine line connections. Tighten all connections.
	7. Drain line has kink in it or is blocked.	Check drain line.
H. Valve continuously cycles.	1. Defective position sensor PCB.	Replace faulty parts.
I. Flow to drain continuously.	1. Valve settings incorrect.	Check valve settings.
	2. Foreign material in control valve.	Clean control.
	3. Internal leak.	Replace seals, spacers, and piston assembly.
	4. Piston is stuck in position. Motor may have failed or gears have jammed or disengaged.	Check for power to motor. Check for loose wire. Check for jammed gears or gears disengaged. Replace faulty parts.
J. Valve makes beeping sound.	1. The piston has not advanced to the next cycle position properly.	Check for power to motor. Check for loose wire. Check for jammed gears or gears disengaged.

## Warranty

### Limited Warranty

Fiberglass tanks - 5 years; Control valves and electronics - 5 years under normal use (excludes normal maintenance items such as seals/spacers, pistons & brine valves);-Brine tanks and assemblies - 1 year; All other components - 1 year;-Any other components not manufactured by Canature is limited to the warranty given by the manufacturer of the component. The warranty is limited to the replacement of the defective parts, FOB our factory and does not cover any payment for damages or labor charges. If a part proves to be defective within the warranty period, it should be returned to the factory, freight prepaid together with information on the unit and date purchased. A replacement part will be supplied free of charge.

All products supplied by Canature are subject to the warranties of their respective manufacturers.

RETURN OF GOODS: Authorization number must be obtained before returning any merchandise. NOTE: All material returned to Canature must be returned freight prepaid.

Goods returned under warranty, found defective – Will be repaired, replaced, or credited under warranty, no charge to the customer, return freight prepaid. Warranty does not obligate Canature to bear the cost of field labor or mileage.

Goods returned out of warranty for repair and returned to the customer – These will be repaired and returned at normal charges for this work.

### General Conditions

Damage to any part of this water system as a result of misuse, misapplication, neglect, alteration, accident, installation or operation contrary to our printed instructions, damage to ion exchange resin and seals caused by chlorine / chloramines in the water supply, or damage caused by any force of nature is not covered in this warranty. We will repair or replace defective parts if our warranty department determines it to be defective under the terms of this warranty. Canature assumes no responsibility for consequential damage, labour or expense incurred as a result of a defect or failure.