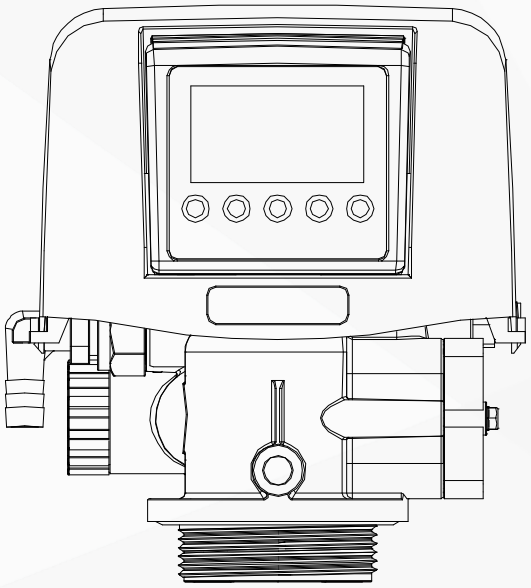
WS-30D Advanced Softener & Filter Valve

Service Manual



CLASSIFIED UL WATER QUALITY VALVE ANSI/NSF 61-G & 372

Softener & Filter Assembled in Canada

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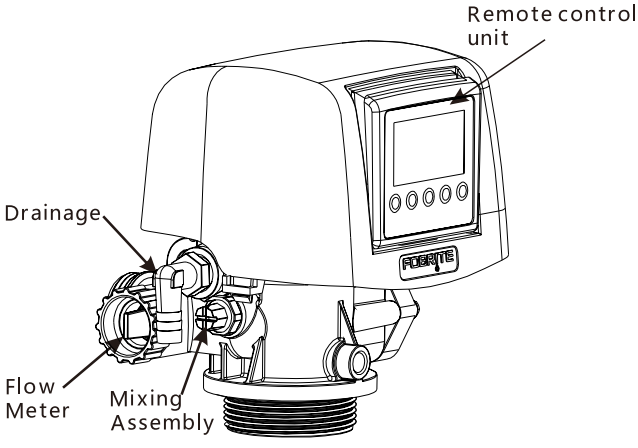
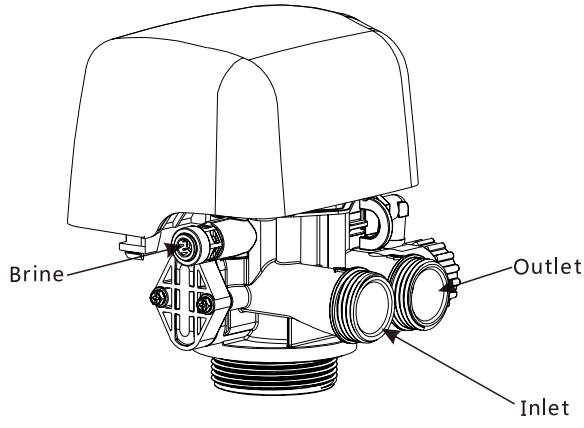
BRIEF INTRODUCTION





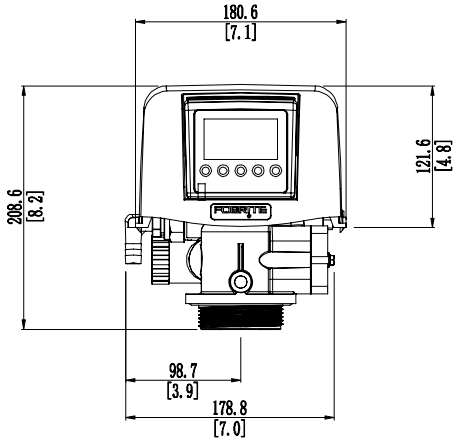
WS-30D Specification

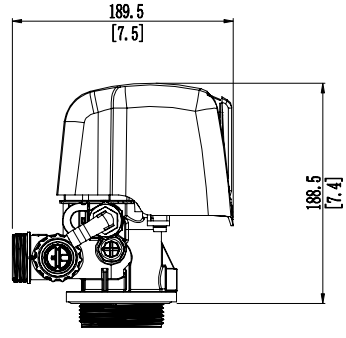
Flow Rate			
	Continuous(15psi drop)		17.6 gpm
	Peak(25psi drop)		21 gpm
	Max Backwash(25psi drop)		17 gpm
	Service CV		5.0
	Backwash CV		3.2
Regeneration			
	Downflow		Downflow
	Cycles	Downflow	5
Meter			
	Accuracy		±5.0%
	Capacity		0.25－26gpm
Mounting & Shipping			
	Inlet/Outlet		1" or 3/4" NPT or BSPT
	Base		2 1/2"-8NPSM
	Distributor Pilot		3/4" Pipe,26.7mm OD
	Drain Line		1/2" ID or 1/2" OD QC
	Brine Line		3/8" OD QC
	Weight		2.4kg
Working			
	Electrical rating		Input:100~240VAC 50/60HZ
			Output:DC12V/0.5A
	Max. VA		6W
	Pressure		Hydrostatic: 20Bar/300psi
			Pressure: 1.4-8.0Bar/20-120psi
	Temperature		1℃~43℃/33℉~109℉

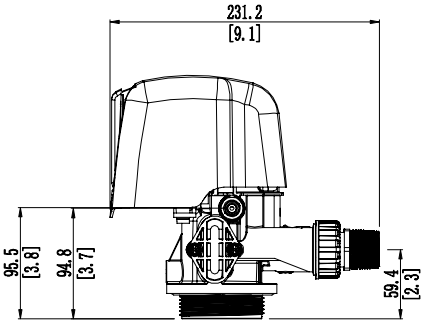
BRIEF INTRODUCTION

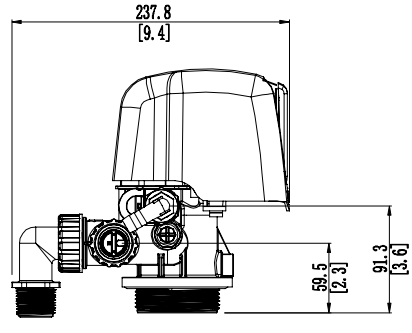
Dimensional drawing

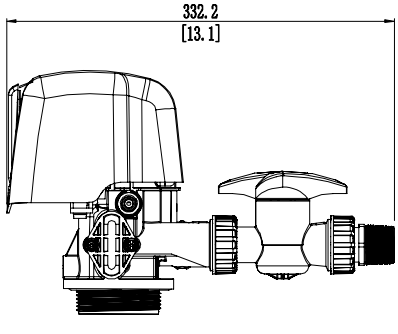
The unit of the number in brackets is "inch",rest is "millimeter".

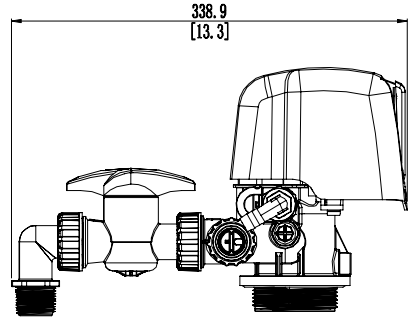












CONTROL VALVE FEATURES

1. Full range of softener control modes

There are 4 different modes as follows

1) SOF1-Time softener mode

- Regeneration initiates at the preset time in every set override days.
- The regeneration mode could be set in Pre-refill.

2) SOF2-Week-Day softener mode

- Regeneration initiates at the preset time in the preset date of the week. At least one day of a week need to be chosen.
- The regeneration mode could be set in Pre-refill.

3) SOF3-Meter-immediate softener mode

- Regeneration initiates immediately when the volume capacity reaches zero.If the preset override days zero out firstly, the regeneration will initiate at the preset time of the day.
- The volume capacity could be automatically calculated by the controller or manually input.
- No approaching for Pre-Refill in this mode.

4) SOF4-Meter-delayed softener mode

- Regeneration initiates at the preset time of the day when the volume capacity reaches zero.If the preset override days zero out firstly, the regeneration will initiate at the preset time of the day.
- The volume capacity could be automatically calculated by the controller or manually input.
- The regeneraton mode can set Pre-refill and Proportional regeneration.

2. Filter valve could be set a backwash control only.The valve will initiate the backwash and rinse at the preset time in every set override days.

3. Auto cycle sequence

The cycle sequence will be decided by the control automatically according to the valve mode and its regeneration condition.The detailed information is as follows.

Cycle sequence for different valve type

Type / Cycle	Softener				Backwash Filter
	Down flow		Up flow		
	Post Refill	Pre fill	Post Refill	Pre fill	——
1	Backwash	Refill/Dissolve	Backwash	Refill/Dissolve	Backwash
2	Brine draw	Backwash	Brine draw	Backwash	Rinse
3	Rinse	Brine draw	Rinse	Brine draw	——
4	Refill	Rinse	Refill	Rinse	——

CONTROL VALVE FEATURES

4. Optional “down flow” or “up flow” regeneration,the control valve will be factory set either in“down flow” or “up flow” according to the order request.

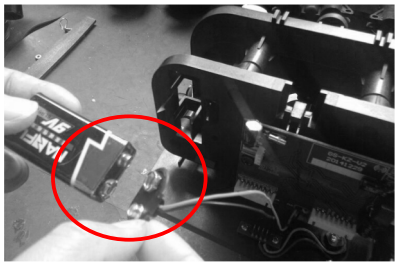
5. Treated water refill

There will always be treated soft water refill to the brine tank for salt dissolving.

6. Backup battery

Type: Alkaline (1604A 9V,6LR61)

1) Battery installation

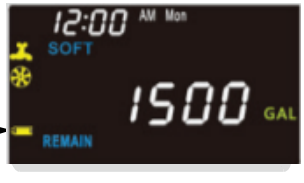


According to picture.Remove the front cover,the battery is staying in the battery holding house,just snap the connector onto the battery.

For extending the battery lifetime,we kindly suggest that you should connect the battery after the control valve is all well set.

2) Battery function

- Once the electric power turns off in the service position even if the regeneration has reached,the control valve will remain in the same position. The battery will remain the CPU and flow meter work as normal.The missed regeneration will take place immediately once the electric power rebuilds.
- Once the electric power turns off in any regeneration step,the battery will remain the control valve complete the current step and drives it to go back to the service position, waiting there until the electric power comes back,then it goes back to continue and complete the left regeneration steps.
- Once the electric power turns off when the control valve is going from one regeneration step to the next,the battery will keep driving it to the next step and will complete the step, then it drives the control valve back to the service position,waiting there until the electric power comes back,then the control valve goes back to continue and complete the left regeneration steps.
- When the electric power turns off,all the auxiliary function like DP switch interface, Aux relay interface,chlorine producer interface turn off at the same time.The remote control and display module also turn off.The buzzle will not beep once a minute until the power restores.
- The buzzle will beep twice once the battery is in Low-battery state when the electric power turns off,the user need to replace the battery in time for keeping the valve well working.The buzzle will beep once when the battery is in Low-battery state but the power turns on.The user also need to replate the battery in time.



Flashing

Press ▲ to cancel the buzzle beeping when the electric power turns on.

*Picture data is for reference only

CONTROL VALVE FEATURES

- As factory tested,the new battery can keep working about 36 hours continuously, and keep driving the control valve come back to the service position about 60 times until the Low-battery alarming.

7. Power-off (without battery)

1) When the power is off at the service position, the control valve will keep in the same position when the power restored.

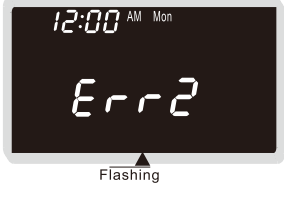
2) If the power-off happens in any regeneration cycles, once the power restored, the control valve will automatically look for and stop at the position of the last power off occuring,and will continue to complete the required works.

3) If the power-off occurs when the control valve is moving from one position to the other, once the power restored it will look for and stop at the target position which the last power off occuring,and will continue to complete the required work.

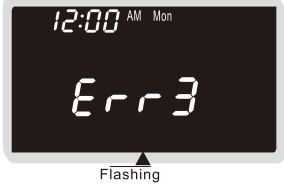
8. System errors automatically detecting and remind

The control valve will automatically display and alarm any detected system errors.
The detailed information is as follows.

a. Can not locate the home position



b. Optical sensor does not have the signal



c. Electric motor stalled or locked

d. Wrong home position

e.The control panel not well connected with the main valve(For remote version)

CONTROL VALVE FEATURES

1) Please try to reset the control valve if any of the above Error occurs,if the error still exsits,try to restore the factory setting.Check page **11 & 12** in details for how to operate **the Reset & Restore the factory setting**.Otherwise call your local service office for more help.

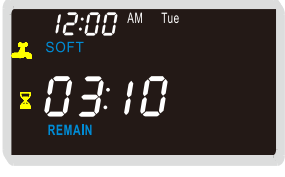
2) When Err5 occurs,please check whether the main control valve is well connected with electric power

- Cable remote model check further whether the signal cable is well connected in 2 ends.
- Wireless remote model,please try to move the remote control unit closer to the main control valve until the"((•))"appears on the screen,otherwise a re-pair operation may need.

Open the control valve and disassemble or re-assemble the valve parts in any time by the user is not allowed. It may cause the control valve further damage and be no longer in force of warranty.

9. Queued regeneration

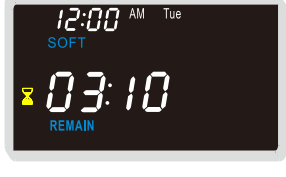
In the home screen, press initiate a queued regeneration, then the icon "⧗" will flash. The control valve will regenerate at the preset regeneration time of today. Press again to cancel the queued regeneration.



Screen for SOF1,SOF2&SOF4.

*Picture data is for reference only

Alternating



for SOF3, remain capacity and remain time alternating display until whichever zeros first.

10. Manual Initiate a Regeneration

In the home screen, press and hold for 5 seconds, the control valve will initiate an immediate regeneration. Press again will switch to the next cycle step.

CONTROL VALVE FEATURES

11. Reset

If any Error alarming occurs on the screen,try to reset the control valve,if success the error alarm will disappear and it will return to the position where the error occurs.If not, try to restore the factory setting as well.Otherswise call the service office for more help.

Press ▲ + ♻ simultaneously and hold for 3 seconds, one beep alarm with the screen show as the left.

Open the control valve and disassemble or re-assemble the valve parts in any time by the user is not allowed. It may cause the control valve further damage and be no longer in force of warranty.

12. Restore factory settings

1) If the remote display unit sits on the position of the main control valve.

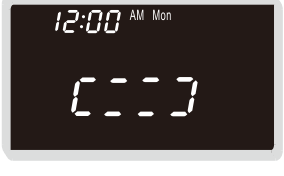
Power off the main control valve,press and hold the button ◷,then rebuild the power to the control valve,the control valve will restore to the factory defaulted settings and return to the service position.

Beep twice and the screen shows as left.

2) If the remote display unit does not sit in the main control valve.

- Cable remote control version.

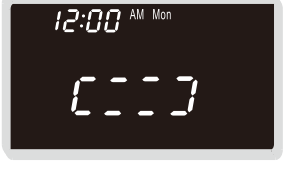
Connect the cable to the remote unit,cut off the power to the main control valve, press and hold the button ◷ ,then rebuild the power to the control valve,the control valve will restore to the factory defaulted settings and return to the service position .



Beep twice and the screen shows as left.

- Wireless remote control version.

Keep the power supplying on the main control valve,but cut off the power on the wireless remote unit,press and hold the ◷ button,then power again on the remote unit,the control valve will restore to the factory defaulted setting and return to the service position.



Beep twice and the screen shows as left.

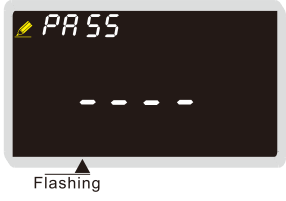
CONTROL VALVE FEATURES

13. Multi - Layer of program setting

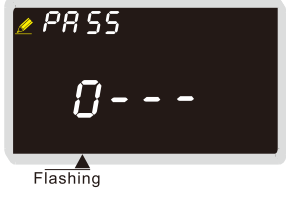
There are different operation to enter different program setting as OEM,master,diagnosis and holiday mode. It's very convenient for the end user to set the current time and week day information.

14. Password protection

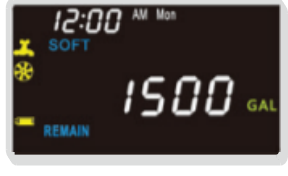
A password is needed for entering the OEM or Master program.The defaulted password is "0000". OEM can change and set its own password,the password is set as follows.



In the home screen,press ▲ and hold simultaneously for 3 seconds to enter.



Press ▲ or ▼ to edit,press ↻ to save,one digit by another, there are 4 digits need to be set.
Press ↻ after setting the 4th digit, the new password will be saved and then return to home screen.

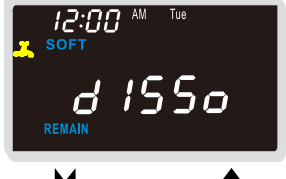


In any above operation,press ♻ to return backwards and return to home screen without saving the password.

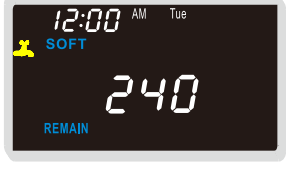
*Picture data is for reference only

15. Pre - refill

Pre - refill could be an option in this control valve.
When pre-refill is chosen,the control valve will go back and stay in the service position after completing the refill.Then the display will show the dissolving time and"disso" alternatively until the compleness te of dissolving,and then it goes to the next regeneration step .



Alternating

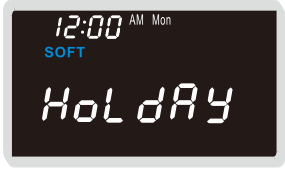


CONTROL VALVE FEATURES

16. Proportional regeneration

For SOF4 control valve once the control valve is in pre-refill,the refill amount could be automatically calculated by the control valve,this will be used to only regenerate the exhausted resin bed.

17. Holiday Mode



In the home screen press and hold ▼ for 3 seconds to turn on holiday mode,the screen will show as the left,press and hold ▼ again to cancel it.

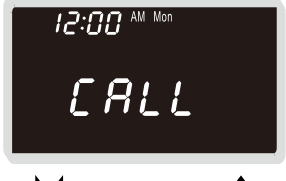
Holiday mode is only available in SOF3 & SOF4

How it works:

- Treat the day that turns the Holiday function as the 1st day.
- If the control valve does not detect the water usage more than 1.6gpm or 22gpm in the next 4 days ,the controller will initiate a 100% regeneration at the preset time of the 4th day, and then stay standby in the service position. If the controller set as up-flow & pre-fill, the refill will occur in advance by the preset time.
- If the control valve does not detect the water usage more than 1.6gpm or 22gpm again in the next 4 days,the controller will only initiate a 5 minutes backwash and fast rinse, at the preset time of the 2nd 4th day.
- If the control valve detects the water usage either more than 1.6gpm or 22gpm,the Holiday mode will be cancelled, and the valve goes to normal operation based on the previous conditions. The water usage amount will be added to the record by the control valve.

18. Auto maintanence reminding

Once the control valve set the maintanence function,it will automatically remind the user to call for maintanence.



When the maintanence time reaches,the screen will alternated show the information,and the buzzer will also alarm.

Alternating

Press ▲ cancel the alarming and return to the home screen.

*Picture data is for reference only

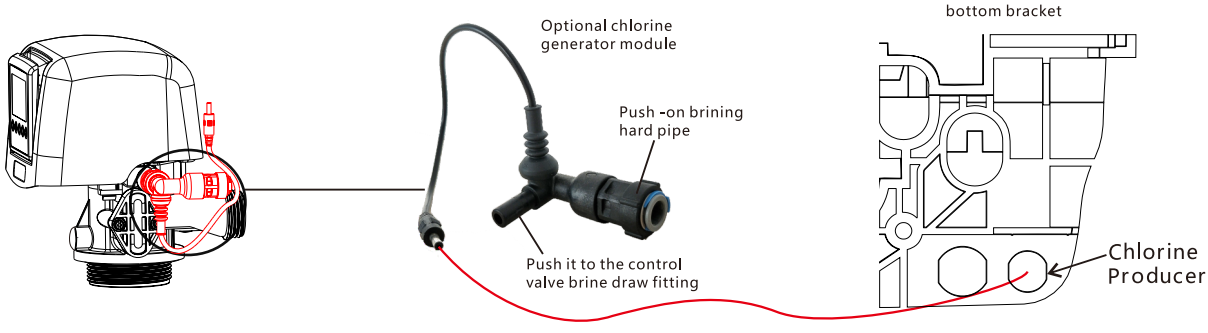
CONTROL VALVE FEATURES

19. Optional chlorine producer

The chlorine producer will produce the chlorine when the control valve in brine drawing, which will be used to kill the bacteria possibly in the resin.
Please refer to the following pictures to install it.

1) The power supply to the chlorine producer is 5V.

2) The control valve may control the chlorine producer working time upon set,minimum 1 minute to the maximum the brine draw time.



20. Optional DP Switch signal input

PCB build a 2-pin connector labeled "DP Switch"for receiving a remote signal in order to control the valve for different regeneration demands. The details are as follows.

dPon0 - If the DP switch is closed for an accumulative time of 30 seconds, a regeneration will occur immediately

dPdEL - If the DP switch is closed for an accumulative time of 30 seconds, a regeneration will occur at the scheduled regeneration time.

HoLd - If the DP switch is closed a regeneration will be prevented from occuring.

21. Optional AUX relay output

PCB build a 2-pin connector labeled "AUX relay" output, to control the necessary equipment such a solenoid valve etc, but maximum resistive load is 30V DC /1A or 24V AC /1A, when the control valve is in service、salt-making and refill satates, the AUX relay keeps NO (normal open),when it's in regeneration state, the AUX relay keeps NC (normal closed).

CONTROL VALVE FEATURES

22. Optional wireless display and control unit(Only available at wireless version).

The unit is powered by an adaptor,once the control valve is powered on, then electrify this wireless remote unit, the"📶" will show on the screen which indicates that the wireless unit will be OK to control the valve. Otherwise move the unit in a proper position until the"📶"show up.

The Wireless unit could be hanged on the wall for convenient operation and display the valve states within a sight-diatance of 30 meters .

23. Optional mix valve and bypass valve

PROGRAM

Panel & Buttons

*Picture data is for reference only

The unique designed control and display unit can either sit on the main control valve or remove from the main control valve for remotely control the main valve with cable or wireless.

Current time setting

Set the time and week information

Enter

1. Confirm and save the current setting
2. Check the Display in service

Up

increase

Down

Decrease

Cycle

1. Return to the previous setting
2. Press and hold for 5 seconds,initiate regeneration immediately
3. In service position,press to initiate an queued regeneration

Press and hold for 3 seconds simultaneously

Enter the OEM setting

Press and hold for 3 seconds simultaneously

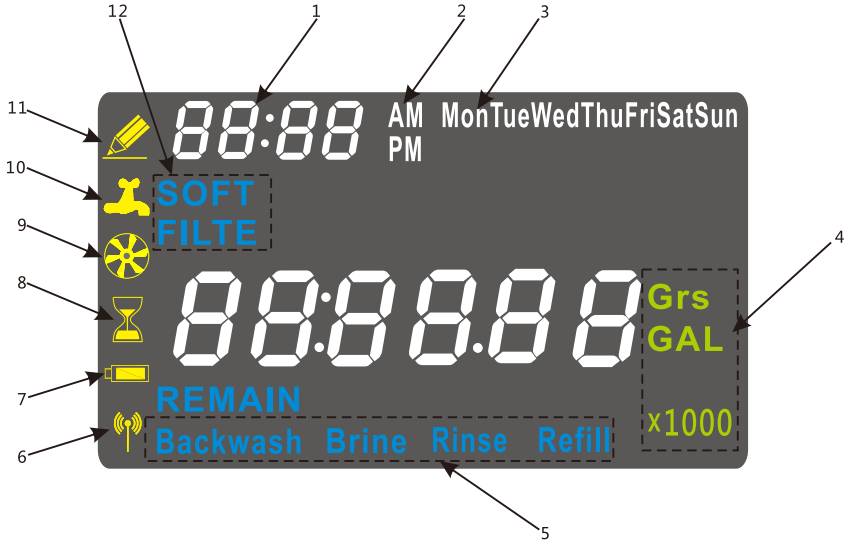
Enter the Master program

Press and hold for 3 seconds simultaneously

Enter the Diagnosis Mode

PROGRAM

Screen Display



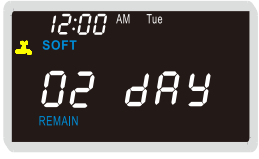
1. Current time.
   Diagnosis information in the diagnosis mode.
2. AM/PM information.
3. Week information.
4. Unit.
   Grs - total resin exchange capacity; GAL - flowrate; Grs&GAL - Hardness unit.
5. Cycle step.
   When it's flashing,it means the control is moving to the current cycle step.
6. Wireless.
   When it displays indicates that the wireless unit will be ok to control the valve.
7. Battery.
   The backup battery has been installed. When it's falshing,it means the battery power is low-power.
8. Queue regeneration.
   When a queued regeneration is initiated.When it's falshing,means the control is just waiting for regeneration.
9. Flow meter.
   When flow meter installed,When it's flashing,means the flow is passing the meter.
10. In service.
    When it's flashing,means the control is moving to the service position.
11. Edit.
    When controls in data setting.
12. Valve type.
    SOFT - Softener valve, FILTE - Filter valve.

PROGRAM

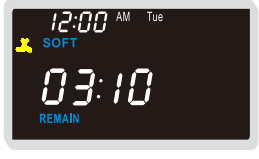
Check the Display in service

1. Display in service

- SOF1 Time mode (override days) and SOF2 week-day



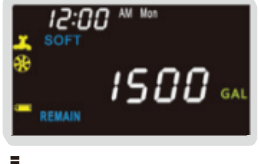
Once the remained override days returns to 0



- SOF3 meter immediately

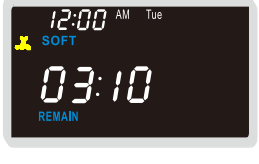
*Picture data is for reference only

- SOF4 meter delayed



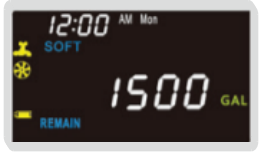
*Picture data is for reference only

Once the remained treated water capacity reaches 0



PROGRAM

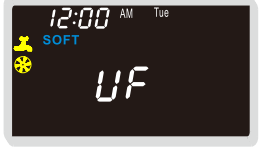
2. Check the display information in service



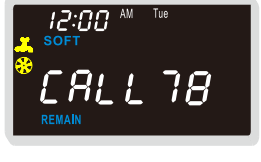
Press and hold for 3 seconds

*Picture data is for reference only

Press



Press

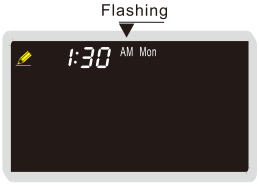
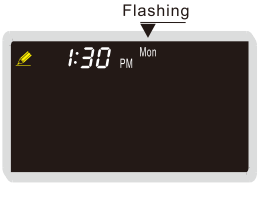


Press

Return to the home screen

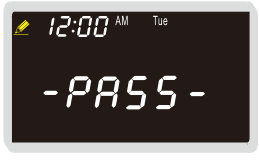
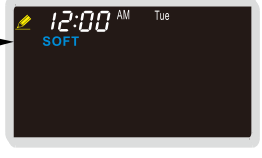
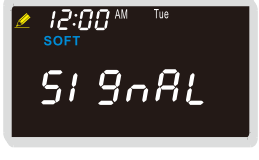
PROGRAM

1.Current time set

Display	Default	Range	Description
	N/A *Picture data is for reference only	N/A	1.Enter Press in home screen.
Flashing 	12	01-12	2.Set hour Press or to edit, then press to save.
Flashing 	00	00-59	3.Set minute Press or to edit, then press to save.
Flashing 	AM	AM PM	4.Set AM/PM Press or to edit, then press to save.
Flashing 	Mon	Mon-Sun	5.Set week day Press or to edit, then press to save and return to the home screen.

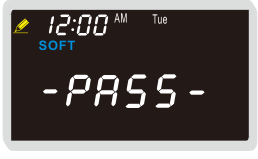
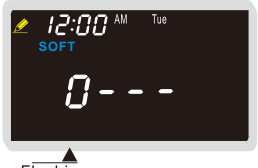
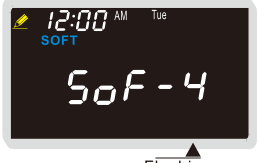
PROGRAM

2. OEM Program set

Display	Default	Range	Description
	N/A	N/A	1.Enter Simultaneously press + and hold for 3 seconds to enter. Press to display next step.
	0000	0000-9999	2.Input password Press or to edit, then press to confirm one by one. The initiate password is decided and set by the OEM. Only when the password is input correctly the program can go to the next step. It's not necessary to input the password again if in 5 minutes the operation does not stop. For how to set the password, please review **page 08**
	N/A	N/A	3.Password Wrong Error alarm for 1 second, then return to the home screen
	SOFT	SOFT FILTE	4.Set valve type Press or to edit, then press to save.
	OFF	OFF dPon0 dPdEL HoLd	5.Set DP Switch option Press or to edit, then press to save. ※Please check detailed information on **Page 10 Feature 20.**
	78	0,26,52,78	6.Set maintenance time(week) Press or to edit. Press to save and return to the home screen. Maintenace time after the control valve installed for several weeks, a maintenance may be needed, just call the supplier . "0" indicates to turn off this function. ※Please check detailed information on **page 09 Feature 18.**

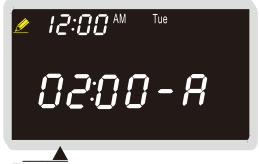
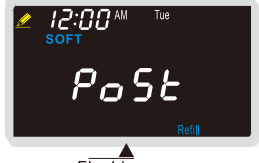
PROGRAM

3. OEM Softener valve set

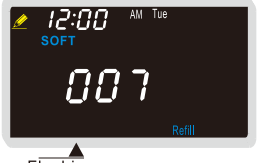
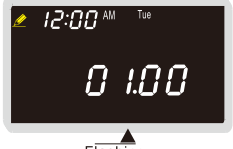
Display	Default	Range	Description
	N/A	N/A	1.Enter Simultaneously press + and hold for 3 seconds to enter. display next step.
 Flashing	0000	0000-9999	2.Input password Press or to edit, then press to confirm one by one. The initiate password is decided and set by the OEM. Only when the password is input correctly the program can go to the next step. It's not necessary to input the password again if in 5 minutes the operation does not stop. For how to set the password, please review **page 08**
 Flashing	SOF4	SOF1 SOF2 SOF3 SOF4	3.Set soft valve type Press or to edit, then press to save. ※Please check detailed information for SOF1、SOF2、SOF3、SOF4 on **page 03, Feature 1.**

PROGRAM

3.1 SOF-1

Display	Default	Range	Description
 Flashing	N/A	N/A	1.Enter SOF-1
 Flashing	04	1-99	2.Set Override day Press ▲ or ▼ to edit, then press ↻ to save.
 Flashing	02:00	01:00-12:59	3.Set regeneration time(12 hours) Press ▲ or ▼ to edit, then press ↻ to save.
 Flashing	A	A P	4.Set AM/PM Press ▲ or ▼ to edit, then press ↻ to save . A-AM P-PM
 Flashing	PoSt	PoSt PrE	5.Set Pre-refill or Post-refill Press ▲ or ▼ to edit, then press ↻ to save.
 Flashing	3	2-9	5.1.Set salt-dissolving time (when Pre-refill) Press ▲ or ▼ to edit, then press ↻ to save.
 Flashing	15	0-999min	6.Set Backwash time Press ▲ or ▼ to edit, then press ↻ to save. ※For cycle step sequence,please check details on **page 03 Feature 3.**

PROGRAM

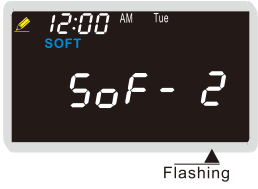
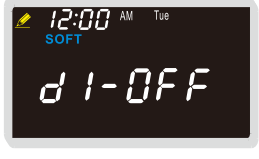
Display	Default	Range	Description
 Flashing	60	0-999min	7.Set Brine time Press ▲ or ▼ to edit, then press ↻ to save.
 Flashing	10	0-999min	8.Set Rinse time Press ▲ or ▼ to edit, then press ↻ to save.
 Flashing	N	N Y	9.Set Auto-refill Press ▲ or ▼ to edit, then press ↻ to save. If choose "N",it means the brine water refill time is decided by the input minutes,"Y"indicate the refill time automatically calculated by the controller.
 Flashing	7	0-999min	10.Set refill time (If choose "N") Press ▲ or ▼ to edit, then press ↻ to save.
 Flashing	10	0.1-99.9	9.1.Set salt consuming per cu.ft resin If choose "Y"(Lbs). Press ▲ or ▼ to edit, then press ↻ to save.
 Flashing	1.0	0.01-99.99	9.2.Set total resin amount (ft^3) Press ▲ or ▼ to edit, then press ↻ to save.
 Flashing	0.25	0.125 0.25 0.5 1.0	9.3.Set BLFC (gpm) Press ▲ or ▼ to edit, then press ↻ to save.

PROGRAM

Display	Default	Range	Description
	N/A	0-999	9.4.Display the Auto refill time This data is calculated by the control valve and it is not editable.
 Flashing	OFF	OFF ON	11.Set chlorine producer Press ▲ or ▼ to edit, then press ↻ to save. OFF - the chlorine producer turn off . ON - the chlorine producer turn on . ※Please check detailed information on **Page 10 Feature 19.**
 Flashing	1min	1- max brine draw time	11.1.Set chlorine producing time If the user choose "ON" in the previous step, press ▲ or ▼ to edit,press ↻ to save and **return to the home screen.**

PROGRAM

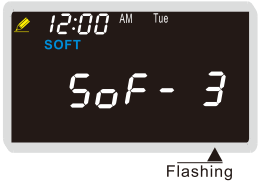
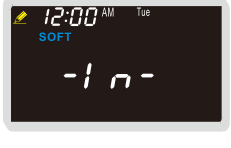
3.2 SOF-2

Display	Default	Range	Description
	N/A	N/A	1.Entre SOF-2
	02:00	1:00-12:59	2.Set regeneration time(12 hours) Press ▲ or ▼ to edit, then press ↻ to save.
	A	A P	3.Set AM/PM Press ▲ or ▼ to edit, then press ↻ to save. A-AM P-PM
	d1--OFF d2--OFF d3--OFF d4--OFF d5--OFF d6--ON d7--OFF	d1-d7 ON-OFF	4.Set week day Press ▲ or ▼ to edit, then press ↻ to save. d1~d7 indicates from Monday - Sunday accordingly. "On"indicates the regeneration occur, "OFF" indicates no regeneration in that day. **d1 - d7 at least one daymust be chosen with ON. Otherwise the program will not go to the next.**
	PoSt	PoSt PrE	5.Set Pre-refill or Post-refill Press ▲ or ▼ to edit, then press ↻ to save.

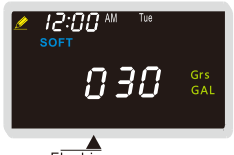
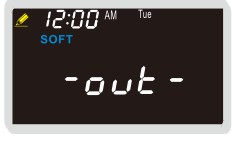
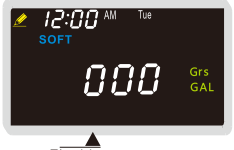
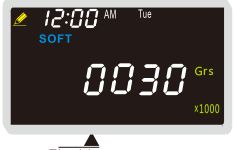
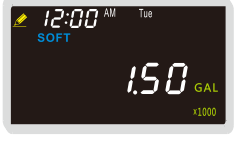
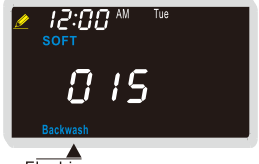
The next step same as SOF-1

PROGRAM

3.3 SOF-3

Display	Default	Range	Description
	N/A	N/A	1.Enter SOF-3
	04	0-99	2.Set Override day Press ▲ or ▼ to edit, then press ↻ to save.
	02:00	1:00-12:59	3.Set regeneration time(12 hours) Press ▲ or ▼ to edit, then press ↻ to save.
	A	A P	4.Set AM/PM Press ▲ or ▼ to edit, then press ↻ to save. A-AM P-PM
	N	N Y	5.Set treated water capacity N-manual input the treated water capacity. Y-controller auto calculate the treated water capacity. Press ▲ or ▼ to edit, then press ↻ to save.
	1.50x1000	0.01-999.99 x1000	6.Manual input the treated water capacity If choose"N". Press ▲ or ▼ to edit, then press ↻ to save.
	N/A	N/A	5.1.If choose "Y",press ↻ to enter inlet hardness.

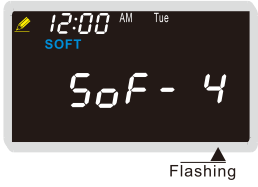
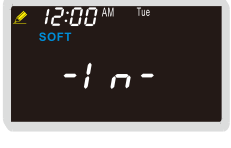
PROGRAM

Display	Default	Range	Description
 Flashing	30 Grains/gallon	1-999 Grains/gallon	5.2.Set the hardness number of the inlet. Press ▲ or ▼ to edit, then press ↻ to save.
	N/A	N/A	5.3.Press ↻ to enter outlet hardness.
 Flashing	0	0-the hardness number of inlet	5.4.Set the hardness number of the outlet. Press ▲ or ▼ to edit, then press ↻ to save. "0" indicates to turn off the mixing.
 Flashing	30x1000 Grains	1-9999 x1000 Grains	5.5.Set total resin exchange capacity Press ▲ or ▼ to edit, then press ↻ to save.
	N/A	N/A	5.6.Display the auto-calculated value This screen not editable.
 Flashing	15	0-999min	7.Set Backwash time Press ▲ or ▼ to edit, then press ↻ to save.

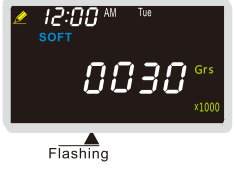
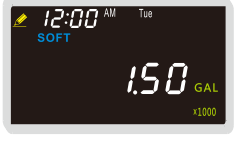
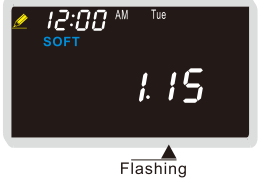
The next step same as SOF-1

PROGRAM

3.4 SOF-4

Display	Default	Range	Description
	N/A	N/A	1.Enter SOF-4
	04	0-99	2.Set Override day Press ▲ or ▼ to edit, then press ↻ to save.
	02:00	1:00-12:59	3.Set regeneration time(12 hours) Press ▲ or ▼ to edit, then press ↻ to save.
	A	A P	4.Set AM/PM Press ▲ or ▼ to edit, then press ↻ to save. A-AM P-PM
	N	N Y	5.Set treated water capacity N-manual input the treated water capacity. Y-controller auto calculate the treated water capacity. Press ▲ or ▼ to edit, then press ↻ to save.
	1.50x1000	0.01-999.99 x1000	6.Manual input the treated water capacity If choose"N". press ▲ or ▼ to edit, then press ↻ to save.
	N/A	N/A	5.1.If choose "Y",press ↻ to enter inlet hardness.

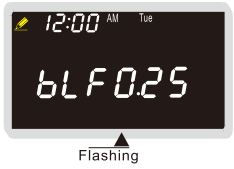
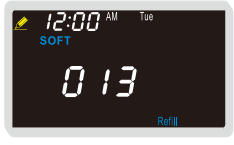
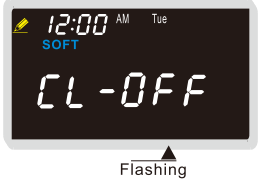
PROGRAM

Display	Default	Range	Description
	30 Grains/gallon	1-999 Grains/gallon	5.2.Set the hardness number of the inlet. Press ▲ or ▼ to edit, then press ↻ to save.
	N/A	N/A	5.3.Press ↻ to enter outlet hardness.
	0	0-the hardness number of inlet	5.4.Set the hardness number of the outlet. Press ▲ or ▼ to edit, then press ↻ to save. "0" indicates to turn off the mixing.
	30x1000 Grains	1-9999 x1000 Grains	5.5.Set total resin exchange capacity Press ▲ or ▼ to edit, then press ↻ to save.
	N/A	N/A	5.6.Display the auto-calculated value This screen not editable.
	1.15	1.00-1.50	7.Set Reserve Safety Factor Press ▲ or ▼ to edit, then press ↻ to save. Water reserve capacity = Daily average water consuming x Safety factor.
	PoSt	PoSt PrE	8.Set Pre-refill or Post-refill Press ▲ or ▼ to edit, then press ↻ to save. If to use Proportional brine function,need to choose PrE.

PROGRAM

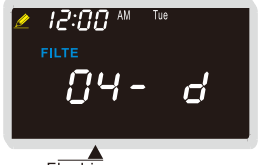
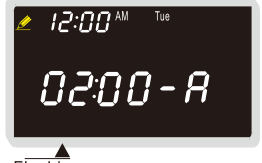
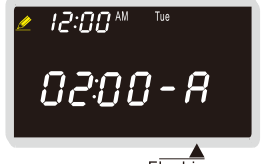
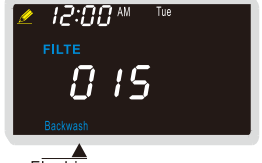
Display	Default	Range	Description
	3	2-9	8.1.Set salt-dissolving time (when Pre-refill) Press ▲ or ▼ to edit, then press ↻ to save.
	N	N Y	8.2.Set Proportional regeneration. Press ▲ or ▼ to edit, then press ↻ to save. Y - Proportional brine turn on. N - Proportional brine turn off. **If choose"Y",after completion of the step 9 settings, the program will jump to 10.1 setting.** ⓘ In Proportional brine,the controller will automatically calculate the pro-refill amount according to the real amount of the resin exhausted. ※Please check detailed information on **Page 09 Feature 16.**
	N/A	0-999min	9.Set cycle step time Press ▲ or ▼ to edit, then press ↻ to confirm one by one. **The cycle step :Backwash,Brine,and Rinse same as SOF-1.**
	N	N Y	10.Set Auto-refill Press ▲ or ▼ to edit, then press ↻ to save. If choose "N",then brine water refill time is decided by the input minutes,"Y"indicates the refill time automatically calculated by control valve.
	12	0-999min	11.Set refill time (When choose"N") Press ▲ or ▼ to edit, then press ↻ to save.
	10	0.1-99.9	10.1.Set salt consuming per cu.ft resin If choose "Y"(Lbs). Press ▲ or ▼ to edit, then press ↻ to save.
	1.0	0.01-99.99	10.2.Set total resin amount (ft^3) Press ▲ or ▼ to edit, then press ↻ to save.

PROGRAM

Display	Default	Range	Description
	0.25	0.125 0.25 0.5 1.0	10.3.Set BLFC (gpm) Press ▲ or ▼ to edit, then press ↻ to save.
	N/A	N/A	10.4.Display the Auto refill time This data is calculated by the control valve, and it is not editable.
	OFF	OFF ON	12.Set chlorine producer Press ▲ or ▼ to edit,or press ↻ to directly return to home screen. OFF - the chlorine producer turn off. ON - the chlorine producer turn on.
	1min	1- max brine draw time	12.1.Set chlorine producing time If choose "ON". press ▲ or ▼ to edit,press ↻ to save and return to the home screen.

PROGRAM

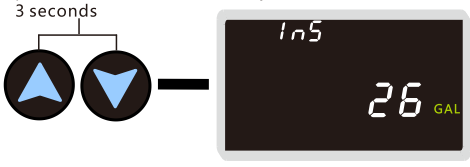
4. OEM Filter valve set

Display	Default	Range	Description
	N/A	N/A	1.Enter Simultaneously press + and hold for 3 seconds to enter.Press to display next step.
 Flashing	0000	0000-9999	2.Input password Press or to edit, then press to save.
 Flashing	04	1-99	3.Set Override day Press or to edit, then press to save.
 Flashing	02:00	1:00-12:59	4.Set regeneration time(12 hours) Press or to edit, then press to save.
 Flashing	A	A P	5.Set AM/PM Press or to edit, then press to save. A-AM P-PM
 Flashing	15min	0-999min	6.Set Backwash time Press or to edit, then press to save.
 Flashing	10	0-999min	7.Set Rinse time Press or to edit, then press to save.

PROGRAM

5. Diagnosis mode

When the control in service position, press and hold simultaneously for 3 seconds



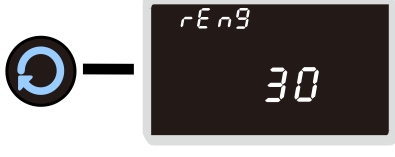
1.Current flow.

2.Peak flow.

3.Total flow after installation.

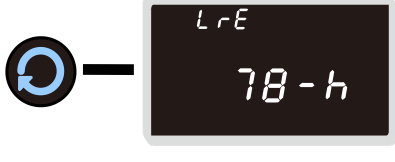
*Picture data is for reference only

4.Total using time after installation.



5.Total regeneration times after installation.

6.Total time interval between the last 2 regeneration.



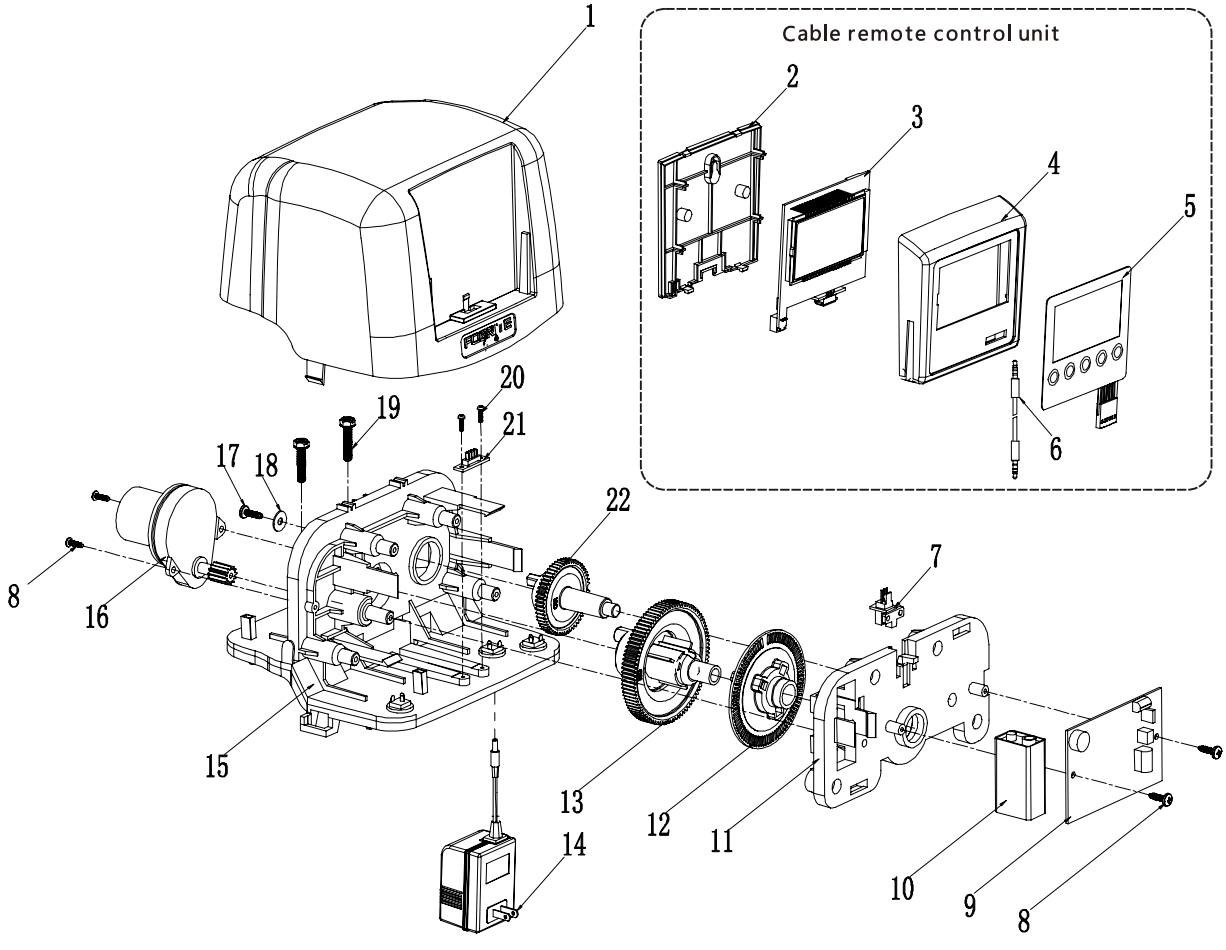
7.Time from the last regeneration.

8.Time to the next maintanence.

save & exit

CONTROL DRIVE ASSEMBLY

- Cable remote control version.



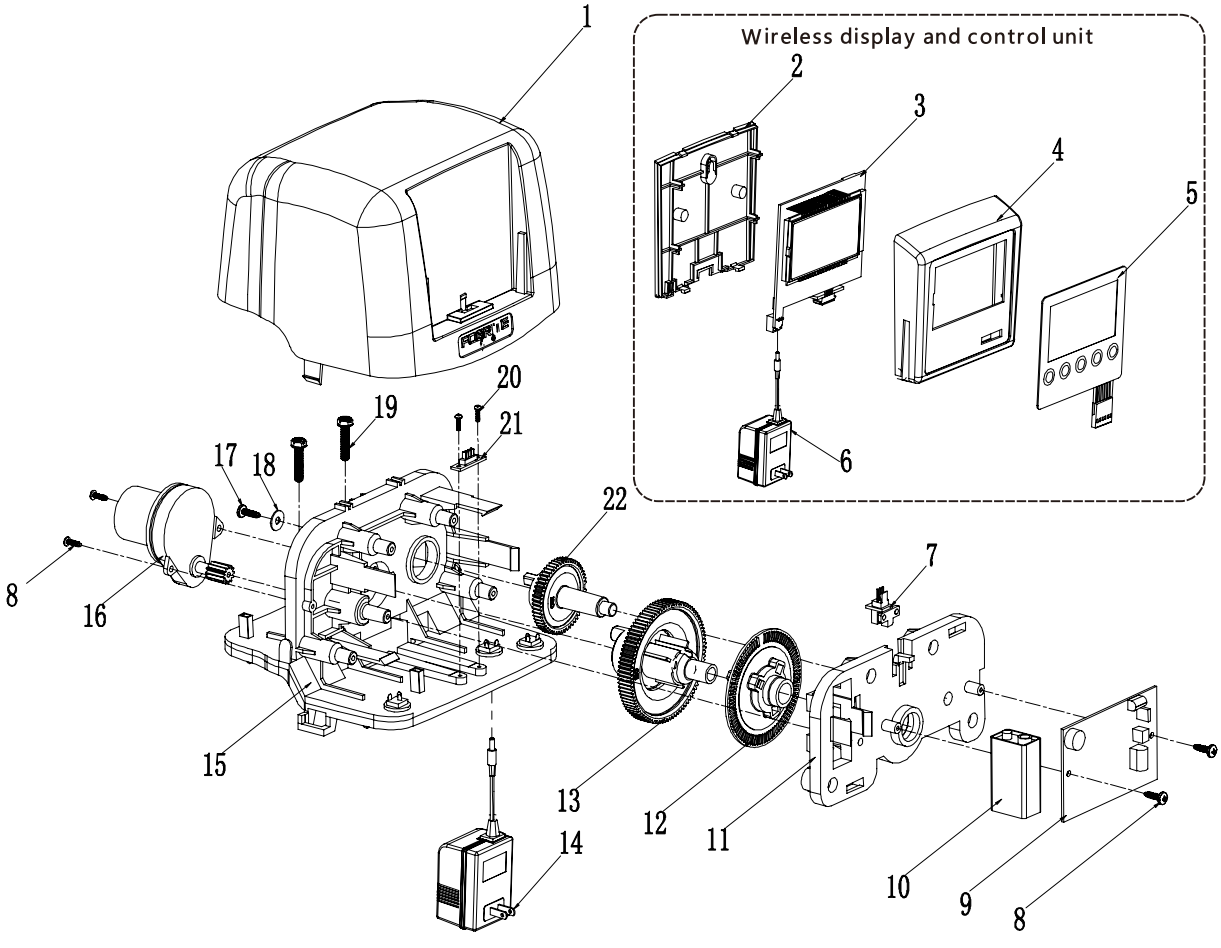
Item	Part No	Description	Quantity
1	1260227	Front Cover	1
2	1260229	Remote unit backcover	1
3	1607222-2	Display PCB Assembly	1
4	1260228-1	Remote unit housing	1
5	1315656	Front Label	1
6	1007134	Communication cable	1
7	1607207	Optical sensor board assembly	1
8	1002110	Screw	4
9	1607221-2	PCB Assembly	1
10	1007113	9V Battery	1
11	1260226	Gear Bracket	1
12	1250210-1	Infrared-ray Induction Gear	1
13	1250201-1	Drive Gear	1
14	※	Power Adaptor	1

Item	Part No	Description	Quantity
15	1260225-1	Motor Bracket	1
16	1213268	Electric Motor	1
17	1002106	Screw	1
18	1004002	Washer	1
19	1002029	Screw	2
20	1002112	Screw	2
21	1607212	Remote unit connector	1
22	1250202	Brine Valve Gear(DF)	1
	1250217	Brine Valve Gear(UF)	1

※For more options

CONTROL DRIVE ASSEMBLY

- Wireless remote control version.

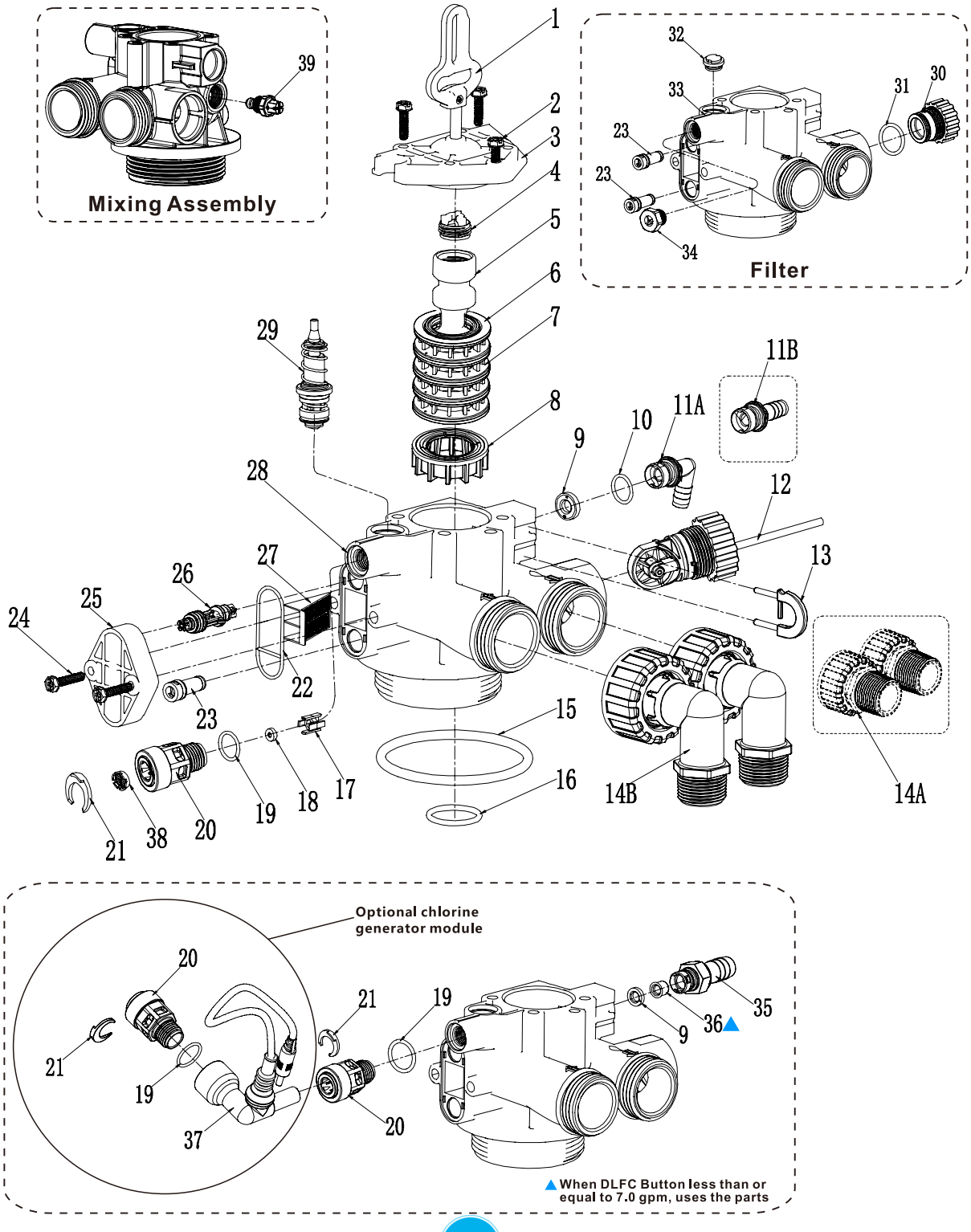


Item	Part No	Description	Quantity
1	1260227	Front Cover	1
2	1260229	Remote unit backcover	1
3	1607222-1	Display PCB Assembly	1
4	1260228	Remote unit housing	1
5	1315656	Front Label	1
6	※	Power Adaptor	1
7	1607207	Optical sensor board assembly	1
8	1002110	Screw	4
9	1607221-1	PCB Assembly	1
10	1007113	9V Battery	1
11	1260226	Bracket	1
12	1250210-1	Infrared-ray Induction Gear	1
13	1250201-1	Drive Gear	1
14	※	Power Adaptor	1

Item	Part No	Description	Quantity
15	1260225	Bracket	1
16	1213268	Electric Motor	1
17	1002106	Screw	1
18	1004002	Washer	1
19	1002029	Screw	2
20	1002112	Screw	2
21	1607212	Remote unit connector	1
22	1250202	Brine Valve Gear(DF)	1
	1250217	Brine Valve Gear(UF)	1

※For more options

VALVE BODY ASSEMBLY



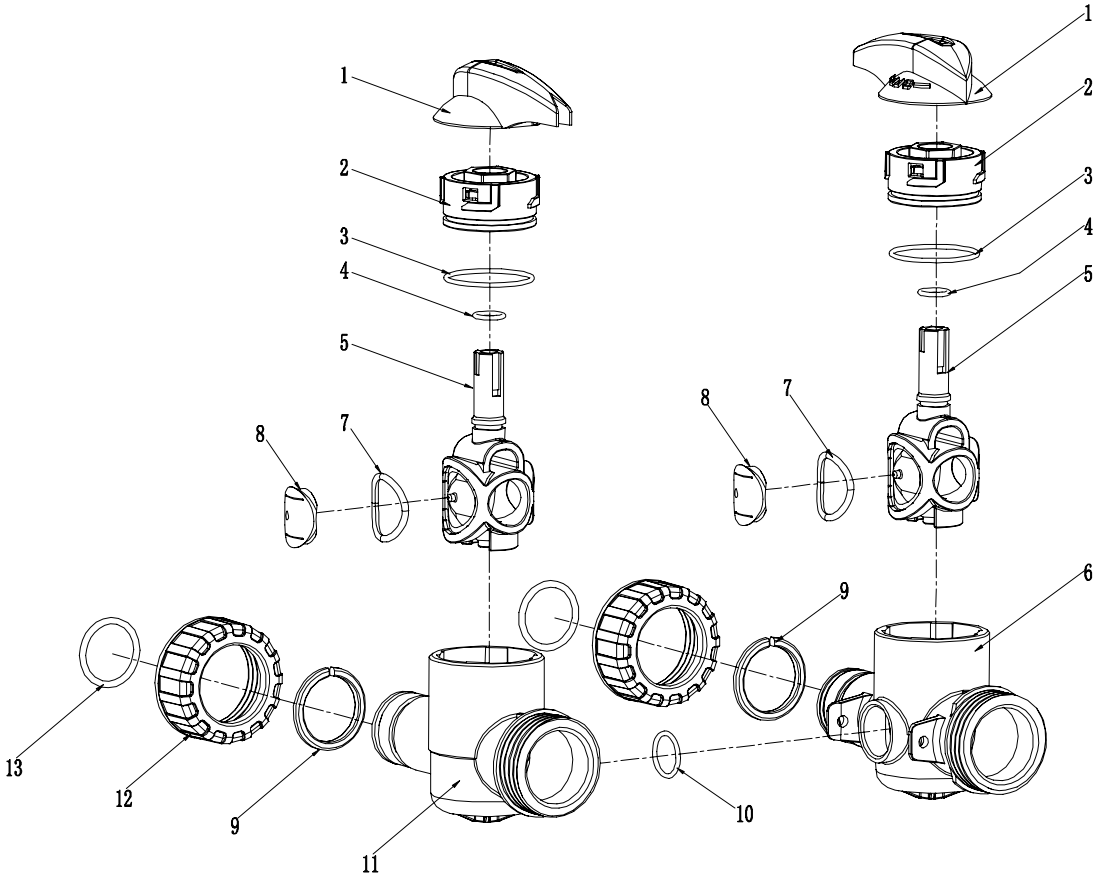
VALVE BODY ASSEMBLY

Item	Part No	Description	Quantity
1	M1003	Piston Rod Assembly	1
2	1002011	Screw	3
3	66172	End Plug Assembly	1
4	1256115	Piston Retainer	1
5	1250250-1	Piston Softener(DF)	1
	1250255-1	Piston Softener(UF)	1
6	1256117	Seal	5
7	1256004	Spacer	4
8	1250039	Vice Spacer	1
9	※	D.L.F.C. Button	1
10	1001019	O-ring	1
11	1256247	Elbow Connection	1
	1256246	Straight Connection	1
12	D1004	Flow Meter Assembly	1
13	1250011	Drain Hose Bolt	1
14	※	Elbow or straight QC Assy	2
15	1001007	O-ring	1
16	1001102	O-ring	1
17	1256015	B.L.F.C. Button Retainer	1
18	※	B.L.F.C. Button	1
19	1001004	O-ring	1/2
20	D1018	Brine Valve QC Assy	1/2
21	1256196	QC Lock Plate	1/2
22	1001074	Middle Ring	1
23	C1012	Injector Plug Assembly	1/2
24	1002012	Screw	2
25	1250001	Brine Cover	1
26	※	Injector Assembly	1
27	1250005	Filter	1
28	1250069-3	Valve Body Assembly	1
29	A1007	Brine Valve Cap Assembly	1
30	1250079	Plug	1
31	1001013	O-ring	1
32	A1088	B.L.F.C. Plug Assembly	1

Item	Part No	Description	Quantity
33	1250069-1	Valve Body Assembly	1
34	A1089	B.L.F.C. Plug Assembly	1
35	1250010	Drain Hose Barb	1
36	1250025	D.L.F.C. Butron Retainer	1
37	G6063	External residual chlorine wire Assy	1
	Z9017	Chlorine generator module	1
38	1256224	Screen	1
39	66500	Mix Water Valve Assembly	1

※For more options

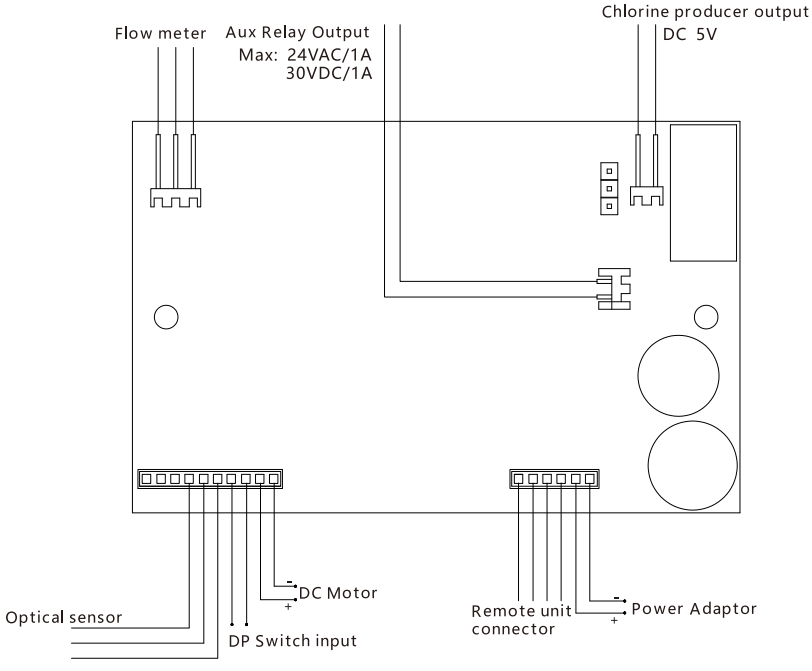
BYPASS VALVE ASSEMBLY



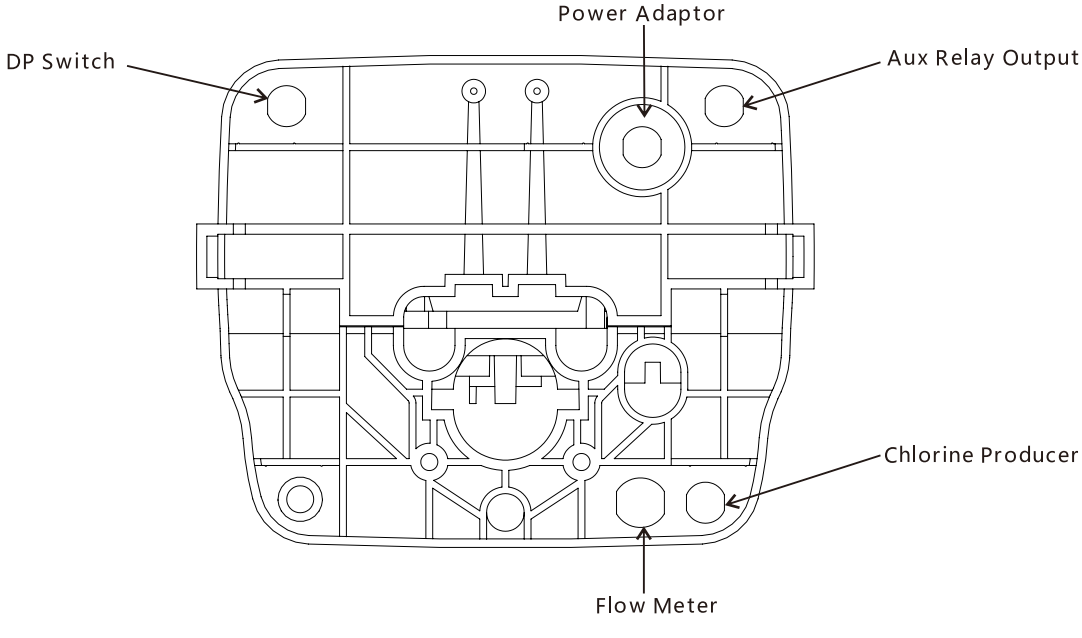
Item	Part No	Description	Quantity
1	1259013-1	Handle	2
2	1259011	Rotor Retainer	2
3	1001111	O-ring	2
4	1001110	O-ring	2
5	1259008	Bypass Valve Rotor	2
6	1259007-1	Bypass Valve Body-right	1
7	1001112	O-ring	2
8	1259012	Rotor Cover	2
9	1250067	Baffle Ring	2
10	1001013	O-ring	2
11	1259009-1	Bypass Valve Body-left	1
12	1250066	Nut	2
13	1001113	O-ring	1

WIRING DIAGRAM

- PCB Wiring

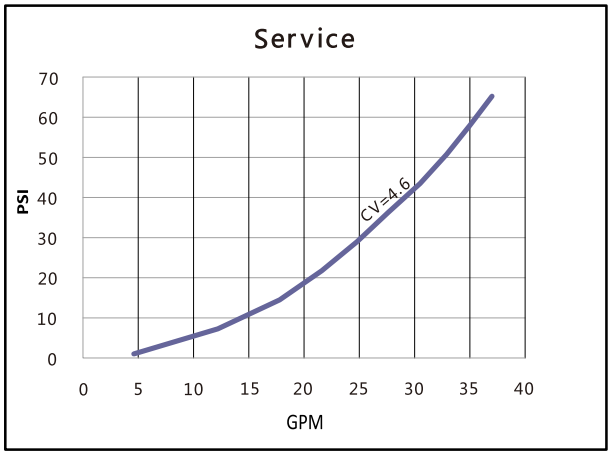


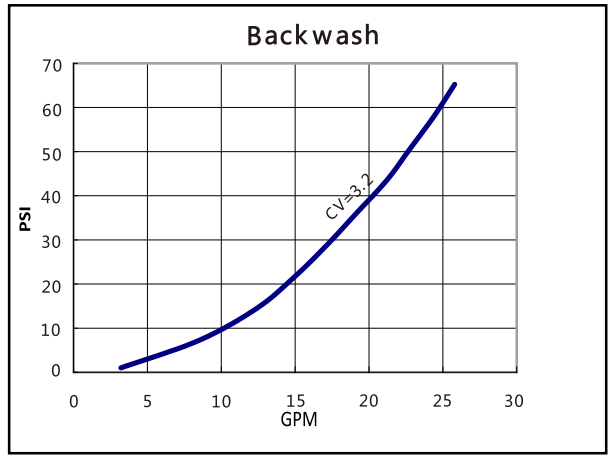
- Quick access to different connectors on bottom bracket

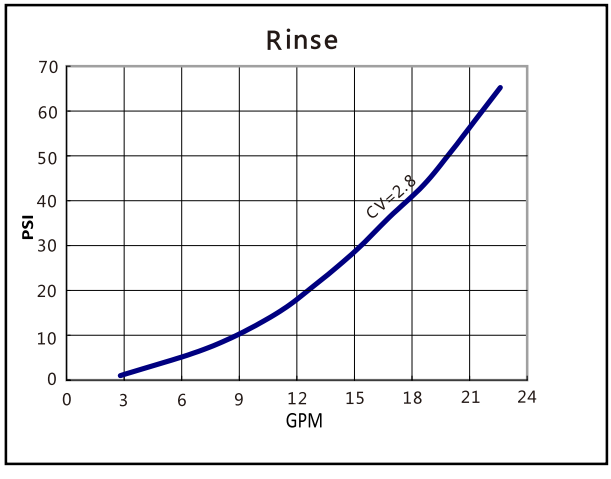


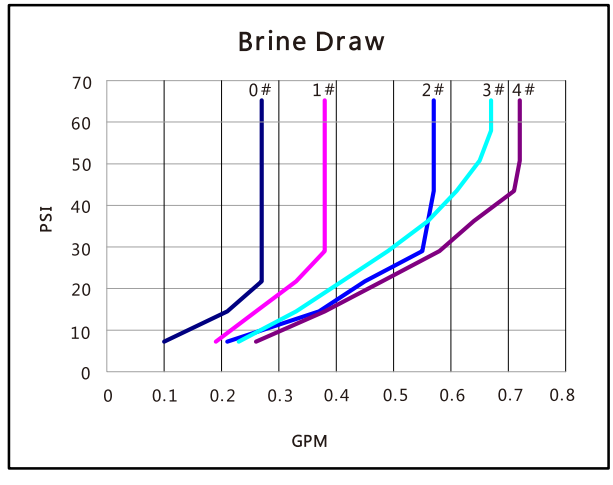
PERFORMANCE CURVE

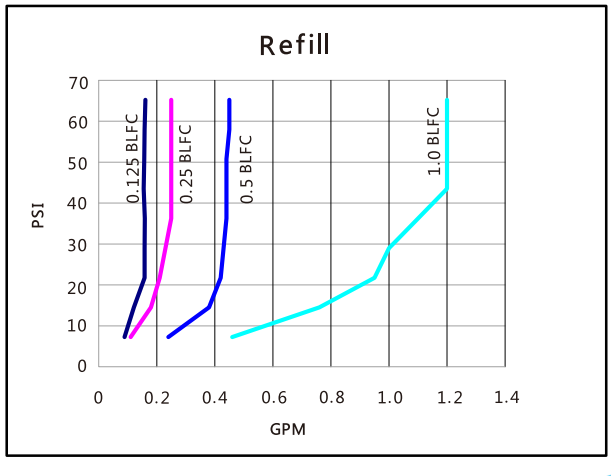
1. G30 DF Curve





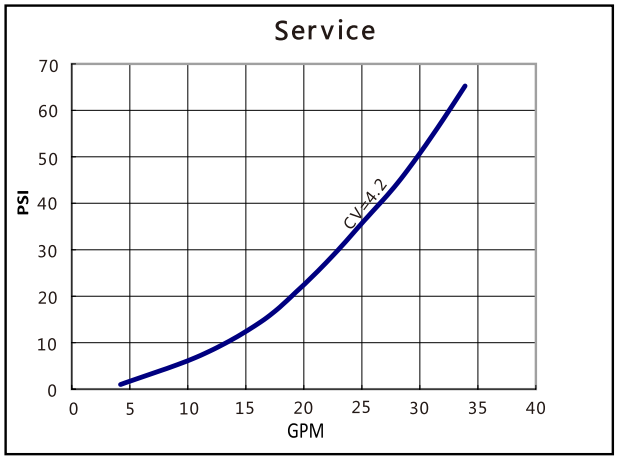


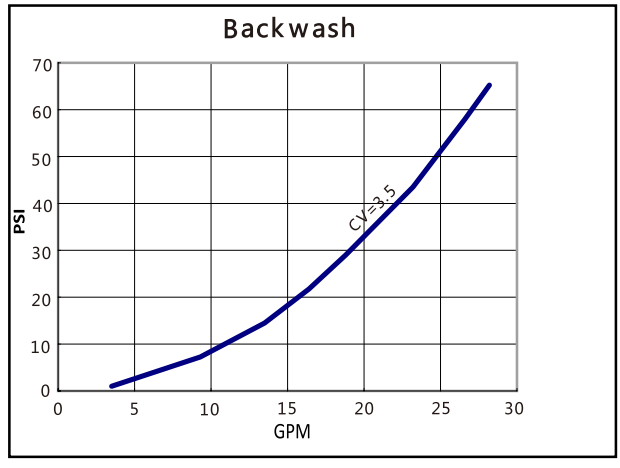


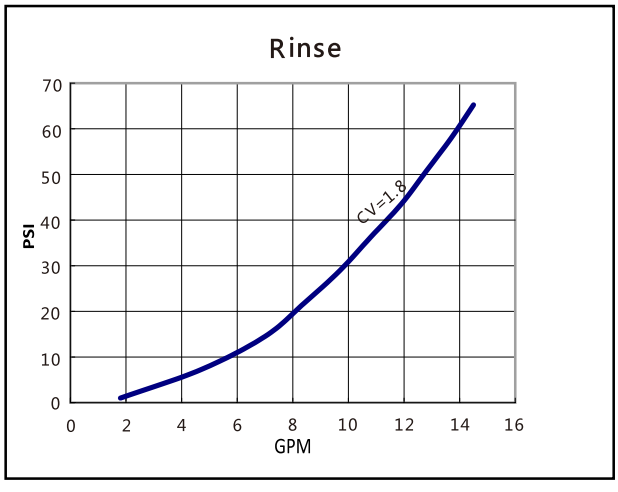


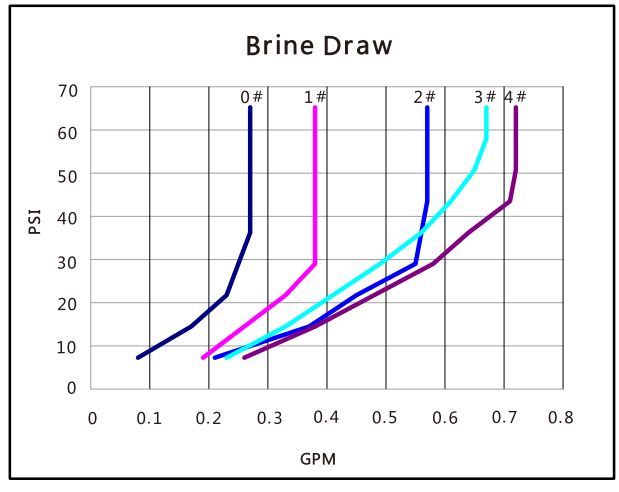
PERFORMANCE CURVE

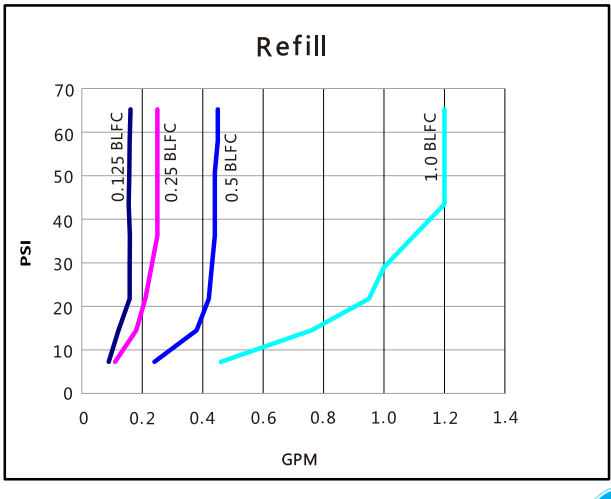
2. G30 UF Curve











TROUBLE SHOOTING

Common Failures	Reason analysis	Solutions
The control fails to regenerate automatically	1 Disconnected meter cable.	Reconnect the meter cable.
	2 Transformer damaged.	Replace the transformer.
	3 Electronic controller or sensor damaged.	Replace or repair.
The treated water hardness is higher than setting	1 Bypass valve is not in service position	Adjust the bypass valve to service position.
	2 The inlet and outlet water pipe are installed in reverse	Install the water inlet and water outlet pipe correctly.
	3 The raw water hardness is higher than setting.	Reset the inlet hardness.
	4 Resin is polluted and invalid.	Contact with the agency and change the resin.
	5 Brine concentration or quantity.	Keep brine tank full of salt at all times. Clean it yearly. Salt may be bridged. If using a salt grid plate, insure refill water is over it .
Softener fails to brine draw	1 Plugged drain line or BLFC.	Clean drain line and flow control.
	2 Injector plugged.	Clean injector, replace injector screen
	3 No water in the brine tank.	Check for restriction in BLFC. Ensure Safety float is not stuck
Salty taste for treated water	1 Low pressure for inlet water.	Install booster pump to increase pressure of inlet water
	2 Drainage pipeline is blocked.	Clean up the jams.
Continuous flow to drain	1 Internal control leak.	Call dealer. Clean valve, rebuild unit.
	2 Piston jammed in brine.	

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