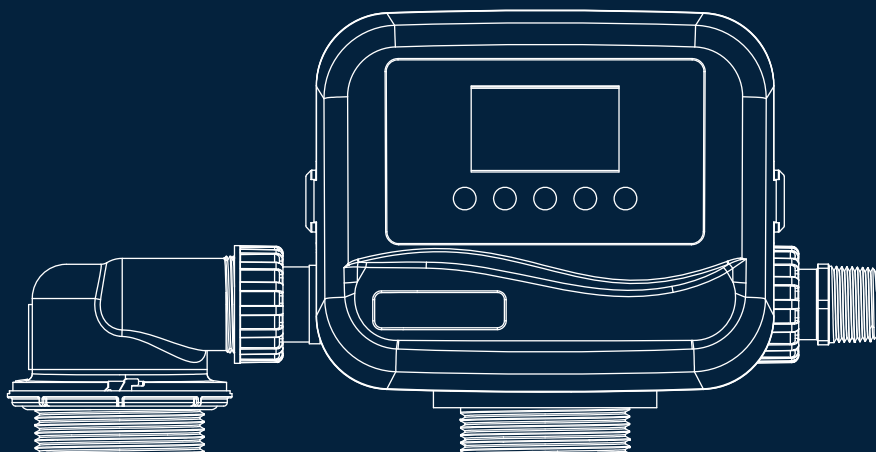


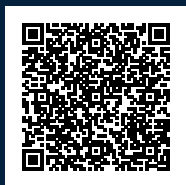
PALLAS FX

TWIN

FXT075 - FXT100 - FX150

USER MANUAL





SCAN HERE FOR
OUR SPARE PARTS

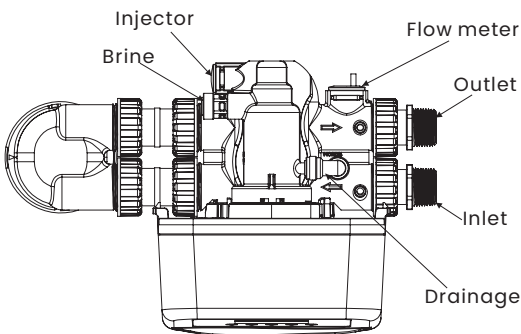
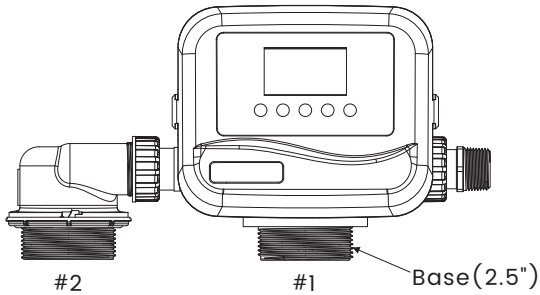
TABLE OF CONTENTS

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PRODUCT FEATURES

FX SERIES SPECIFICATIONS

FX T075

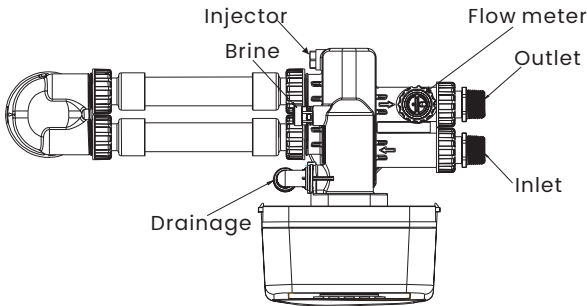
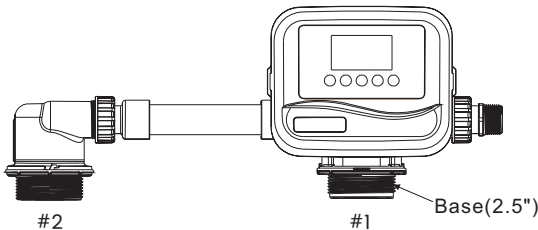


FX SERIES SPECIFICATIONS

Flow rate	Continuous(15psi Drop)	1.8 M ³ /H (8.2 gpm)
	Peak (25psi Drop)	2.4 M ³ /H (10.6 gpm)
	Peak Backwash(25psi Drop)	0.3 M ³ /H (1.4 gpm)
	Working CV	2.1
	Backwash CV	0.27
Regeneration	Downflow / Upflow	Upflow
	Cycles	6
Flow Meter	Accuracy	±5.0%
	Range	0.07–6.0M ³ /H (0.3–26.5 gpm)
Adaptor & Base Specifications	In/outlet	1" or 3/4",NPT or BSPT, Straight or Elbow QC
	Base	2-1/2"-NPSM
	Distributor Pilot	3/4" Pipe, 26.7 mm OD
	Drain	3/8" OD Elbow QC
	Brine	3/8" OD QC
Working Conditions	Power Supply	Input: 100~240V AC 50/60HZ
		Output: DC 12V/1A
	Max VA	12W
	Water Pressure	Service: 1.4-8.0Bar/20-120psi
	Temperature	1°C~ 43°C

FX SERIES SPECIFICATIONS

FX T100

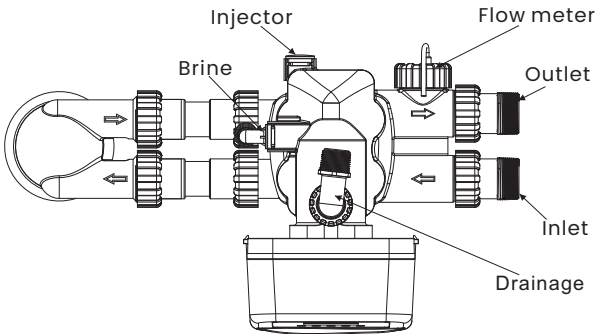
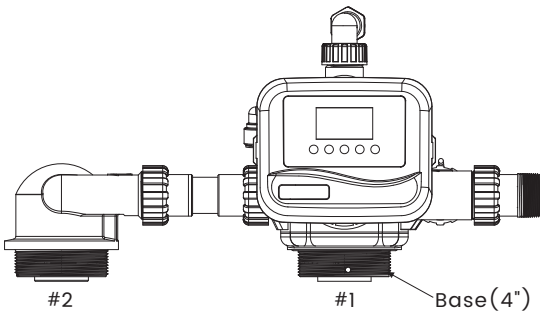


FX SERIES SPECIFICATIONS

Flow rate	Continuous(15psi Drop)	4.1 M ³ /H (18 gpm)
	Peak (25psi Drop)	5.4 M ³ /H (24 gpm)
	Peak Backwash(25psi Drop)	2 M ³ /H (9 gpm)
	Working CV	4.8
	Backwash CV	1.8
Regeneration	Downflow / Upflow	Downflow
	Cycles	6
Flow Meter	Accuracy	±5.0%
	Range	0.07–6.0M ³ /H (0.3–26.5 gpm)
Adaptor & Base Specifications	In/outlet	1" or 3/4",NPT or BSPT, Straight or Elbow QC
	Base	2-1/2"-NPSM
	Distributor Pilot	3/4" Pipe, 26.7 mm OD
	Drain	3/8" or 1/2" OD QC
	Brine	3/8" OD QC
Working Conditions	Power Supply	Input: 100~240V AC 50/60HZ
		Output: DC 12V/1A
	Max VA	12W
	Water Pressure	Service: 1.4-8.0Bar/20-120psi
	Temperature	1°C~ 43°C

FX SERIES SPECIFICATIONS

FX T150



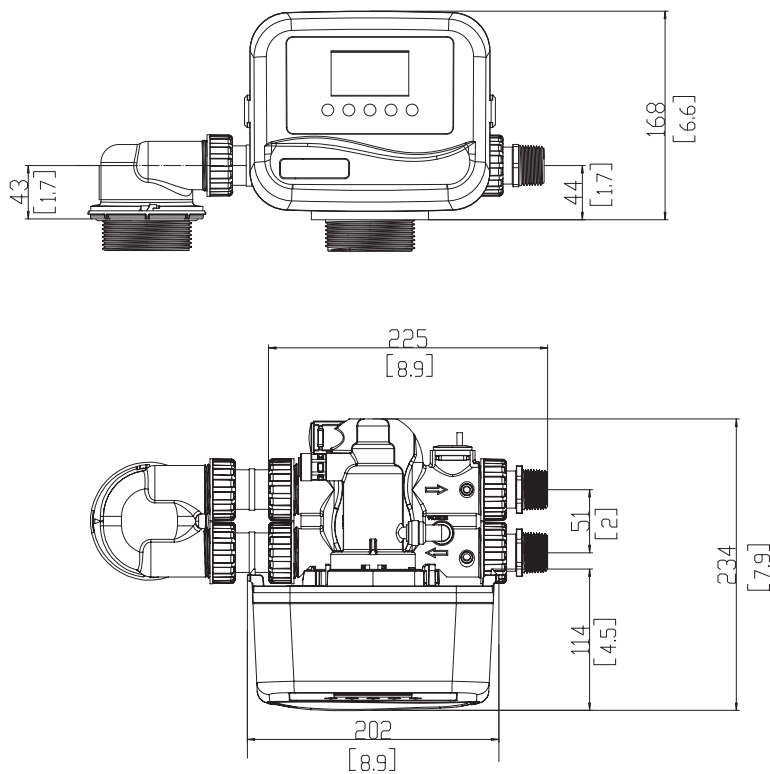
FX SERIES SPECIFICATIONS

Flow rate	Continuous(15psi Drop)		9.0 M ³ /H (40 gpm)
	Peak (25psi Drop)		12.0 M ³ /H (52 gpm)
	Peak Backwash(25psi Drop)		5.0 M ³ /H (22 gpm)
	Working CV		10.2
	Backwash CV		4.1
Regeneration	Downflow / Upflow		Downflow
	Cycles		6
Flow Meter	Accuracy		±5.0%
	Range		0.07–15M ³ /H (3–66 gpm)
Adaptor & Base Specifications	In/outlet		1" or 1/2" or 1 1/4" NPT or BSPT
	Base		4" - 8UN
	Distributor Pilot	GB	DN40 (50 mm OD)
		NPS	1-1/2" Pipe, 48.3 mm OD
	Drain		1" NPT or BSPT QC
	Brine		3/8" or 1/2" OD Elbow QC
Working Conditions	Power Supply		Input: 100~240V AC 50/60HZ Output: DC 12V/1A
	Max VA		12W
	Water Pressure		Service: 1.4-8.0Bar/20-120psi
	Temperature		1°C~ 43°C

FX SERIES DIMENSIONS

FX T075

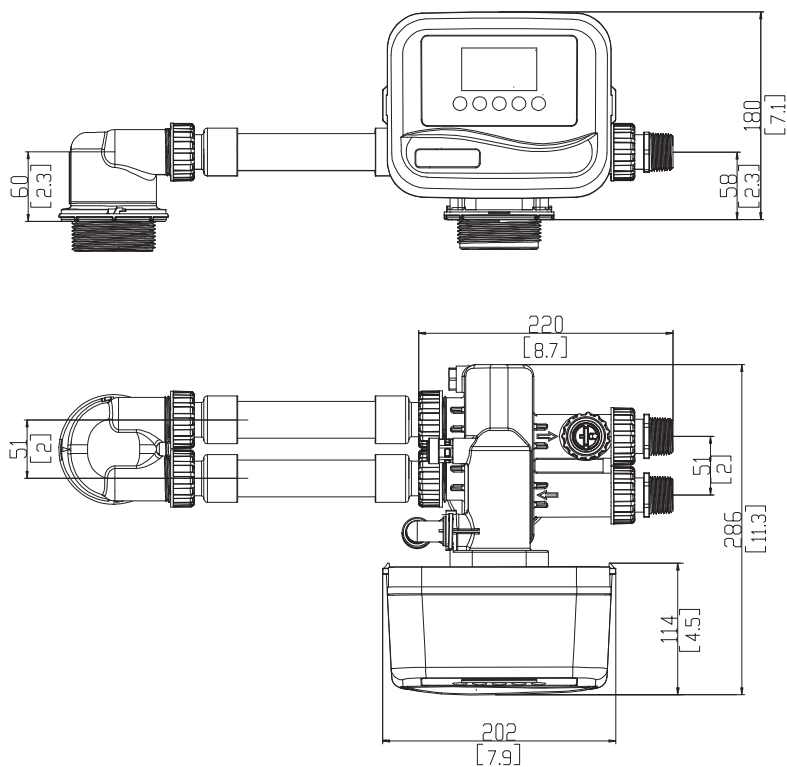
Unit for numbers in brackets are inch, other numbers' units are millimeter.



FX SERIES DIMENSIONS

FX T100

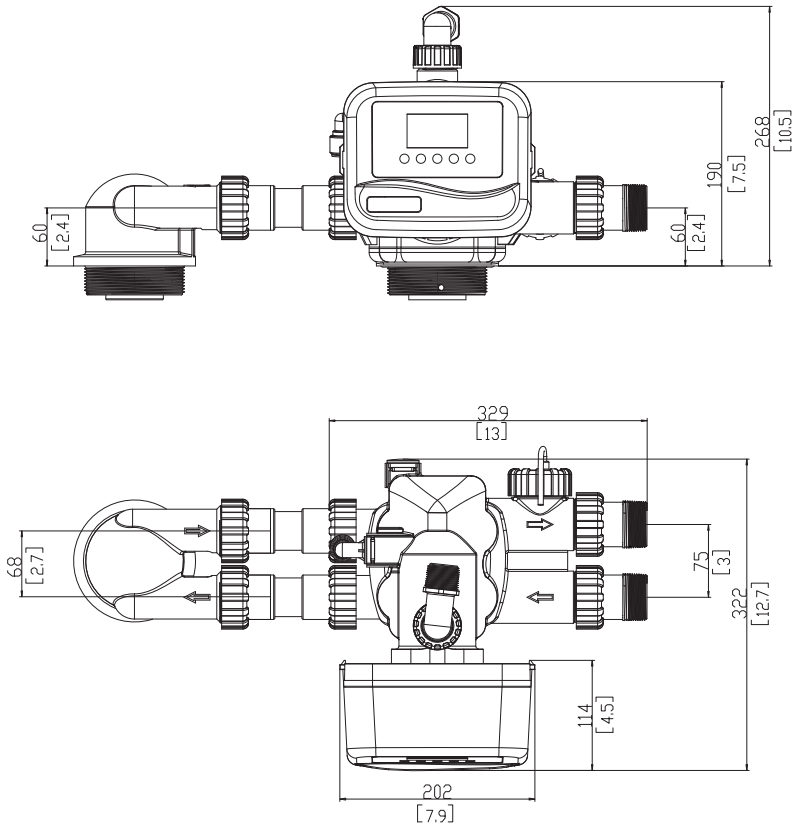
Unit for numbers in brackets are inch, other numbers' units are millimeter.



FX SERIES DIMENSIONS

FX T150

Unit for numbers in brackets are inch, other numbers' units are millimeter.



EXTERNAL DEVICE CONNECTIONS

DP SWITCH SIGNAL INPUT

The PCB has a 2-pin connector labeled “DP Switch” for receiving a remote signal. If the DP switch is closed for an accumulative time of 30 seconds, a regeneration will occur immediately.

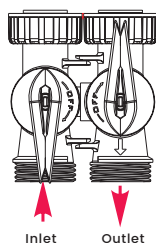
AUX RELAY OUTPUT

The PCB has a 2-pin connector labeled “AUX relay” output, to control the necessary equipment such as a solenoid valve etc. but maximum resistive load is 30V DC/1A or 24V AC/1A, when the control valve is in service, the AUX relay is NO (normal open), when it's in regeneration state, the AUX relay is NC (normal closed).

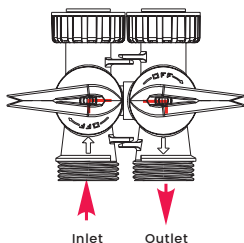
OPTIONAL BYPASS VALVE (FOR FX-T075 & FX-T100)

Rotate the handles to adjust the bypass position.

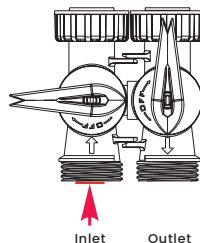
Service position



Bypass position



Shut-off position



CONTROLS AND SETTINGS

BUTTONS



Settings



Confirm

1. Confirm and save the current setting
2. Check the remaining time for the current regeneration step



Up



Down



Cycle

1. Return to previous setting
2. Press and hold for 5 seconds for immediate regeneration
3. Quit the current regeneration step immediately and switch to the next step

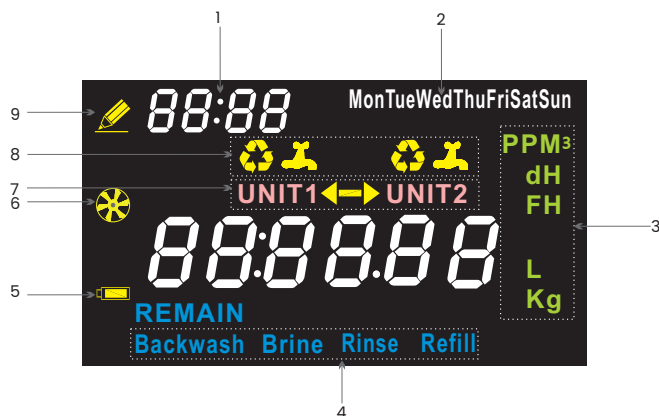


Press and hold for 3 seconds. Enter the OEM settings.



Press and hold for 3 seconds to access the historical data

DISPLAY



1 Current Time

Diagnosis information in the diagnostic mode

2 Week information

6 Flow Meter

When it is flashing, the water flow is passing the flow meter

7 UNIT1 where the valve head is installed UNIT2 where the in/out head is installed

- shift from tank #1 to tank #2
- ← shift from tank #2 to tank #1

3 Unit

m³/l - flowrate
PPM, dH, FH - Hardness unit
Kg m³ - total resin exchange capacity

8 Service / Regeneration display

- ✚ It indicates in service position. If no sign for it, the valve is under the status of stand-by.
- ✚ It indicates in regeneration, flash indicate go to stand-by position

4 Cycle Step

When it is flashing, it means the control valve is moving to the current cycle step

9 Edit Mode

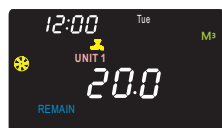
A light indicates that the control valve settings are being edited

5 Battery

The backup battery has been installed.
When it's flashing, it means the battery power is low.

BASIC SETTINGS

The system date only can be set when one valve is in the service position and the other in stand-by position.



1. Set time

Press to enter in the current time settings

Default: N/A
Range: N/A



2. Set hour

Press or to edit, then press to save

Default: 12
Range: 00-23



3. Set minute

Press or to edit, then press to save

Default: 00
Range: 00-59

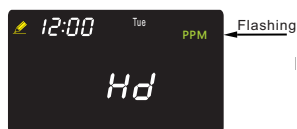


4. Set weekday

Press or to edit, then press to save

Default: Mon
Range: Mon-Sun

5. Set hardness unit



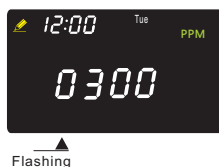
Press ▲ or ▼ to edit,
then press ⏻ to save

Default: PPM
Range: PPM
dH
FH

Reminder

The display is only shown when the volume capacity is calculated automatically

6. Set Inlet Hardness



Press ▲ or ▼ to edit,
then press ⏻ to save and
return to service position.

Default: 300 (PPM)
20 (dH)
30 (FH)
Range: 1 - 2500
1 - 150
1 - 250

Reminder

The display is only shown when the volume capacity is calculated automatically

SETTING COMPLETE

PASSWORD SETTINGS



1. Default password

Press and hold for 3 seconds to go into the password settings. Original password: 0000

Default: N/A
Range: N/A



Flashing

2. Change password

Press or to revise the password, then press to save.

Default: 0000
Range: 0000 - 9999

SETTING COMPLETE

ADVANCED SETTINGS



1. Enter Advanced Settings

Simultaneously press and hold for 3 seconds to enter. Press to enter the password.

Default: N/A
Range: N/A



Flashing

2. Enter password

Press or to edit, then press to confirm one by one. Original password: 0000.

Default: 0000
Range: 0000-9999

Only when password is entered correctly, the program can go to step 4. If not, it will go to step 3.



3. Password wrong

Error alarm for one second, before returning to service display

Default: N/A
Range: N/A

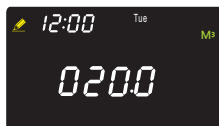


Flashing

4. Set treated water capacity

N - Manually enter the treated water capacity
Y - Automatically calculate the treated water capacity
Press or to edit, then press to save.

Default: N
Range: N
Y



Flashing

5. Manual enter the treated water capacity

Press or to edit, then press to save.

Default:
FX T075 / FX T100 : 20.0
FX T150 : 45.0
Range: 0.1 - 999.9

5.1 Set hardness unit



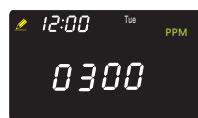
Flashing

If "Y" was chosen in step 4.
Press or to edit, then press to save.

Default: PPM
Range: PPM
dH
FH

Reminder

This setting corresponds to the user program configured on page 17 and does not need to be entered again. If any of the setting values are modified here, the same changes will automatically be applied to the user program settings.



Flashing

5.2 Set Inlet Hardness

Press or to edit, then press to save.

Default: 300 (PPM)
20 (dH)
30 (FH)
Range: 1 - 2500
1 - 150
1 - 250

Reminder

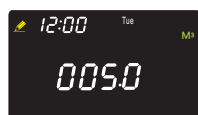
This setting corresponds to the user program configured on page 17 and does not need to be entered again. If any of the setting values are modified here, the same changes will automatically be applied to the user program settings.



5.3 Set total exchange capacity

Press ▲ or ▼ to edit, then press Ⓢ to save.

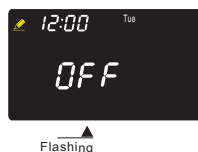
Default: 1.5 (Kgm³)
80 (dHm³)
160 (FHm³)
Range: 0.1 - 100
1 - 6000
1 - 6000



5.4 Display of the auto-calculated value

This screen is not editable

Default: N/A
Range: N/A



6. Set Day Override

Press ▲ or ▼ to edit, then press Ⓢ to save.
When day override reaches zero, regeneration will initiate at default time 02:00

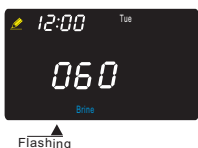
Default: OFF
Range: OFF
1 - 99



7. Set backwash duration

Press ▲ or ▼ to edit, then press Ⓢ to save.

Default: 15
Range: 0 - 999 min



8. Brine draw duration

Press ▲ or ▼ to edit, then press Ⓢ to save.

Default: 60
Range: 0 - 999 min



9. Set 2nd backwash duration

The step is closed if it is 0 minute.
Press ▲ or ▼ to edit, then press ⌂ to save.

Default: 0
Range: 0 - 999 min



10. Set rinse duration

Press ▲ or ▼ to edit, then press ⌂ to save.

Default: 10
Range: 0 - 999 min



11. Set auto-refill

Press ▲ or ▼ to edit, then press ⌂ to save.
If "N" is chosen, refill time is to be manually entered in STEP 12. If "Y" is chosen the refill time is automatically calculated

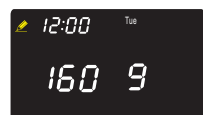
Default: N
Range: N
Y



12. Set refill time (If choose "N" in step 11)

Press ▲ or ▼ to edit, then press ⌂ to save.
Then return to service position.

Default: 12
Range: 0 - 999 min

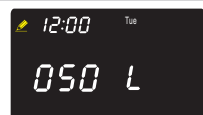


Flashing

12.1 Set salt consuming per liter resin

If "Y" was chosen
Press ▲ or ▼ to edit, then
press Ⓢ to save.

Default: 160
Range: 0 - 999



Flashing

12.2 Set total resin amount (L)

Press ▲ or ▼ to edit, then
press Ⓢ to save.

Default: 160
Range: 0 - 999



Flashing

12.3 Set BLFC (gpm)

Press ▲ or ▼ to edit, then
press Ⓢ to save.

Default: FX T075 /
FX T100 (0.5)
FX T150 (3.0)
Range: 0.25 - 0.50 - 1.0
1.0 - 2.0 - 3.0 -
4.0 - 5.0



12.4 Display Calculated Refill Duration

This data is calculated by
the control valve and it is not
editable. Press Ⓢ to return to
service position.

Default: N/A
Range: 0 - 999



Flashing

13. Set Maintenance Interval (Weeks)

Press ▲ or ▼ to edit, then
press Ⓢ to save and return
to service position.
This set value is to remind the
user to have the control valve
maintained by professionals
when the maintenance inter-
val has been reached.
0 means this reminder is off.

Default: 78
Range: 0, 26, 52, 78

SETTING COMPLETE

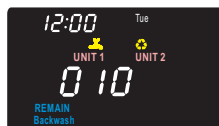
DIAGNOSTICS

When one valve is in service and the other is in regeneration, press  this key to display the current regeneration cycle step and the remaining time.

Note: This information cannot be viewed while the system is in standby mode or during the transition to the next regeneration step.



Valve #1 is in service, valve 2# is in backwash. Press  to check the remaining time for backwash step.



The remaining time for backwash will be shown.



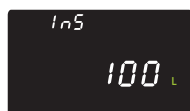
It will automatically return to backwash screen after 5 seconds.



Same operation for the next cycle step.

HISTORICAL DATA

In the Service mode, press and hold this key   for 3 seconds to enter the information menu. Press the key  again to view the next item.



Current flow (L/min).



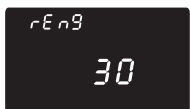
Peak flow (L/min)



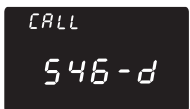
Total accumulated flow



Total hours since installation



Total regeneration times since installation.



Days Left Until Next Maintenance.
The maintenance days can be reset by pressing  for 10 seconds.

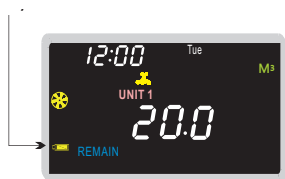


Return to service position

BACK-UP BATTERY

Please open the battery cover (only for FX-T075) / remove the front cover (only for FX-T100/150), and connect the battery with connectors. Battery type 6LR619V is applied as backup battery.

battery icon



In order to protect the battery it is recommended that battery is connected after start-up of the valve.

BACK-UP BATTERY FUNCTION IN CASE OF THE ELECTRIC POWER FAILURE

ELECTRIC POWER OFF IN SERVICE POSITION

1. During a power failure, the backup battery maintains the flow rate and time records and keeps the valve in the Service position. It does not drive the system to any other position.
2. The control valve remains in the Service position, even if the conditions for regeneration are met during the power outage.
3. When power is restored, any regeneration cycle missed during the power outage will start automatically.

ELECTRIC POWER OFF AT ANY REGENERATION STEP/REGENERATION STEPS CHANGING

1. During a power failure, the backup battery maintains the flow rate and time records only. It cannot operate or drive the system.
2. The system remains in its current position until power is restored. Once power is restored, the regeneration cycle resumes from the point at which the power failure occurred.

OUTER INTERFACE

All external interface functions will be disabled during a power outage. Any devices connected to these interfaces, such as a differential pressure (DP) switch, will also stop operating

IN CASE OF LOW BACKUP BATTERY

When the backup battery is low and the main power supply is available, the battery icon on the display will flash and the buzzer will sound. To silence the alarm, press the designated button

▲. Replace the backup battery as soon as possible.

When the backup battery is low and the main power supply is unavailable, the buzzer will continue to sound until the battery is replaced. Replace the backup battery promptly to ensure the system can move to a safe position when required.

If an error alarm occurs after power is restored, reset the controller to the factory settings as follows:

- Switch off power to the control valve.
- Press and hold the designated button ●.
- Restore power while continuing to hold the button.

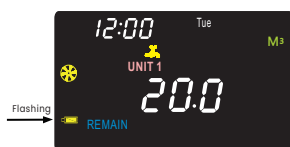
The system will restart and return to normal operation. Afterward, replace the backup battery with a new one.

Note: Restoring the factory settings will reset all valve parameters to their default values. Reconfigure the settings as required after the reset.

REMINDERS

BACKUP BATTERY

Backup battery will keep the CPU and flow meter working as normal. When the battery symbol is flashing, the battery has low power and should be replaced.



MAINTENANCE REMINDING

When it is time for maintenance, the display will automatically remind the user to call for maintenance.



Press  to cancel the alarm and return to service position.

MANUAL INITIATE A REGENERATION

In service position (one UNIT is in service position, the other UNIT is in stand-by position), press and hold  for 5 seconds, the control valve will initiate an immediate regeneration. Press  again to switch to the next regeneration step.

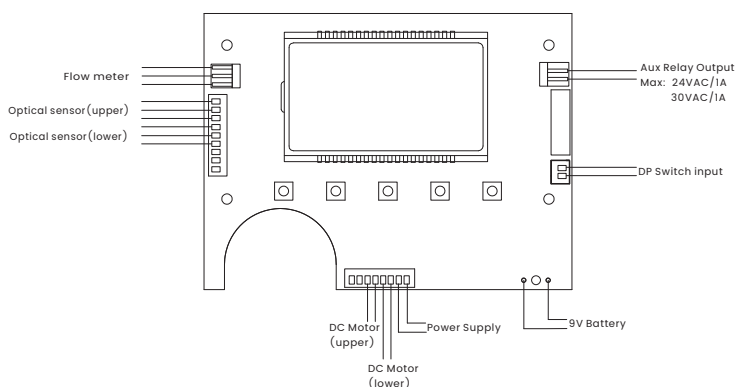
CAUTION



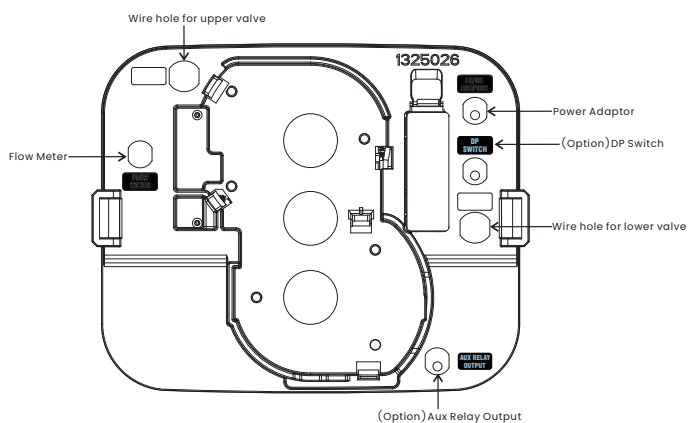
When assembling the valve onto the tank, please use the appropriate torque which may not exceed 35NM. This needs to be done by a water treatment professional.

PCB WIRING

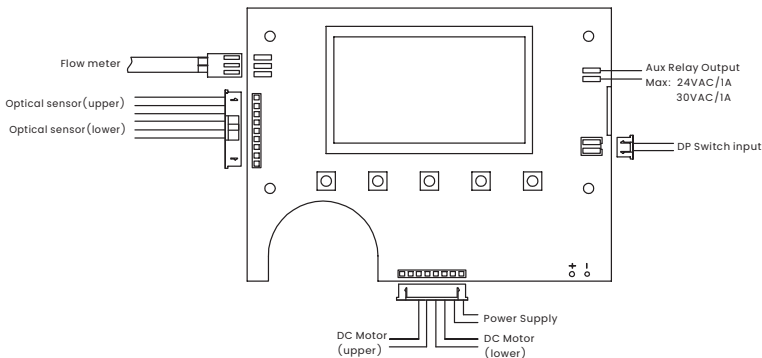
FX T075



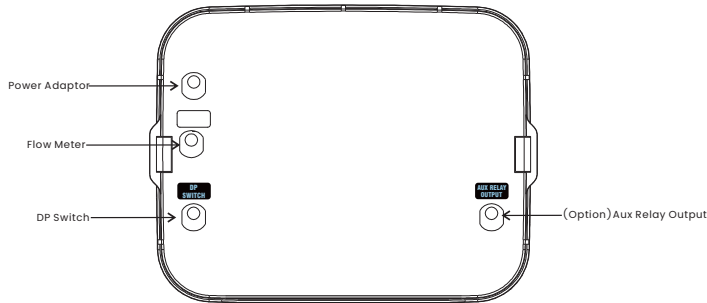
QUICK ACCESS TO DIFFERENT CONNECTORS ON BACK BRACKET FX T075



FX T100 - FX T150

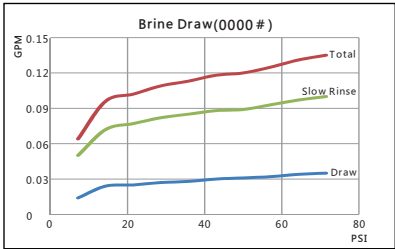
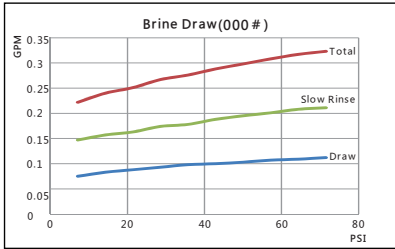
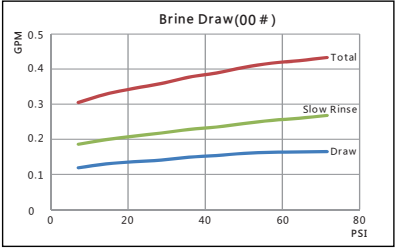
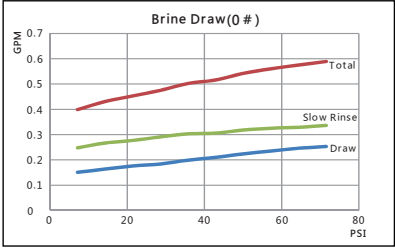
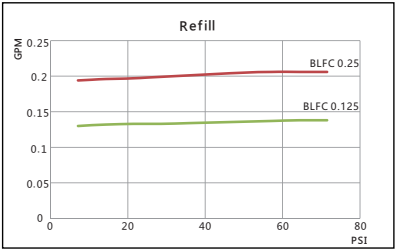
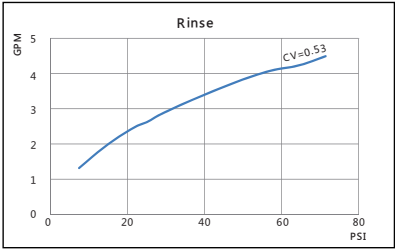
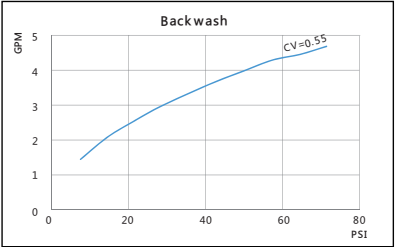
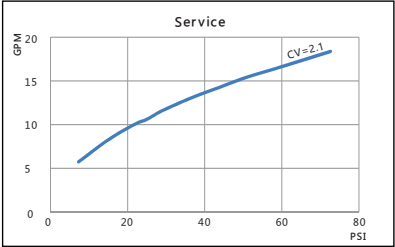


QUICK ACCESS TO DIFFERENT CONNECTORS ON BACK BRACKET
FX T100 - FX T150

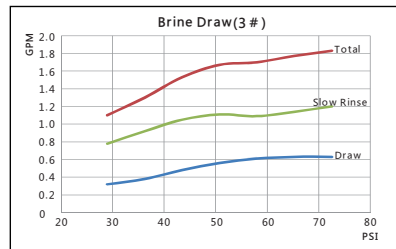
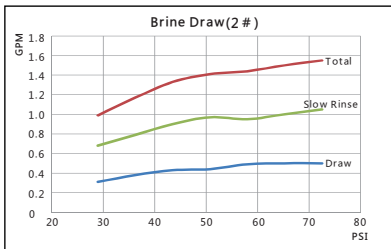
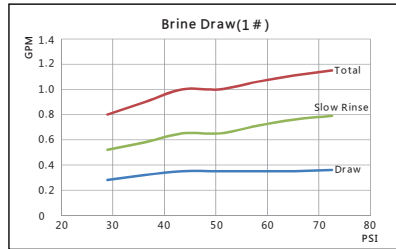
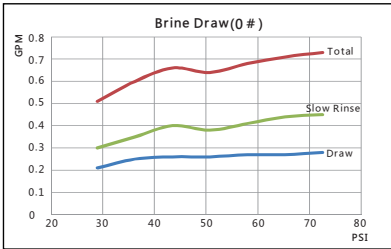
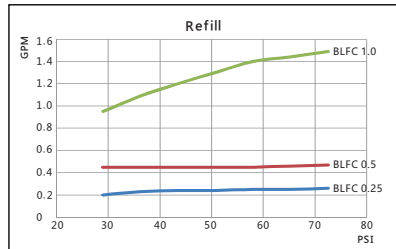
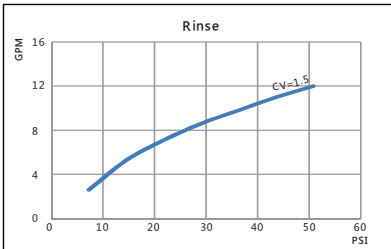
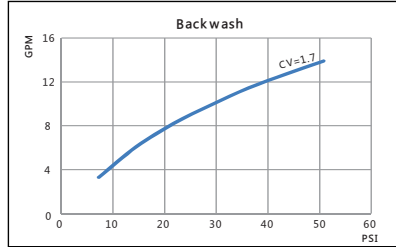
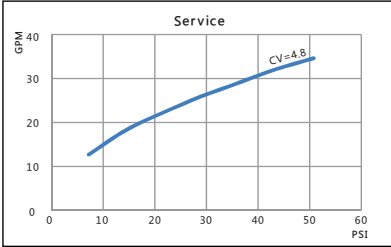


PERFORMANCE CURVES

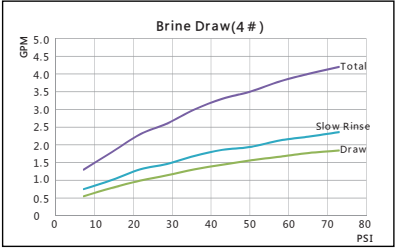
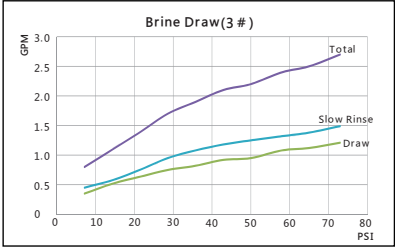
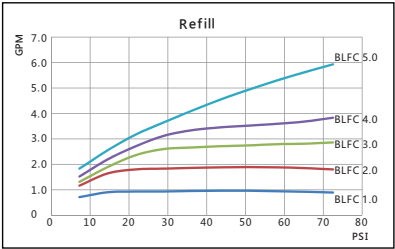
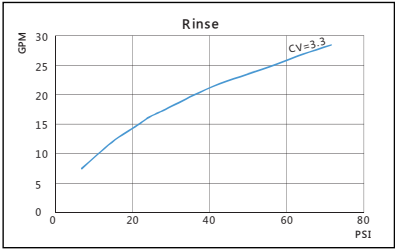
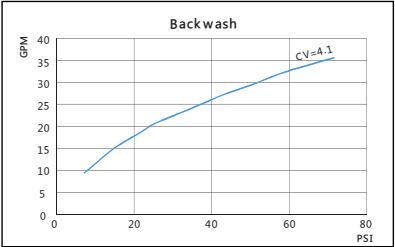
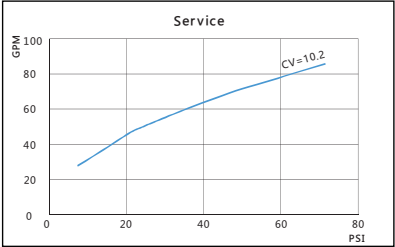
FX T075



FX T100



FX T150



TROUBLESHOOTING

Common Issues	Causes	Solutions
Failed to regen automatically	Disconnected meter cable	Reconnect the meter cable
	Transformer damaged	Replace the transformer
	Controller or Sensor Damaged	Replace or repair broken parts
Treated water hardness higher than expectation	Bypass valve not in service mode	Change bypass valve to service mode
	Inlet/outlet are installed in reverse	Install the water inlet and water outlet pipe correctly
	Raw water hardness increased	Reset inlet water hardness
	Resin polluted or damaged	Contact professionals to replace the resin
	No salt or insufficient water	Keep brine tank full of salt, clean it yearly, make sure refill water is over the salt grid plate
Failed to draw brine	Clogged drain line or flow control	Clean the drain line and flow control
	Clogged injector	Clean or replace injector
	Brine tank is dry	Check and clean BLFC, make sure brine tank SBV isn't stuck
Salty treated water	Inlet water low pressure	Install booster pump to increase inlet water pressure
	Drain pipe blocked	Clean the blockage
Continuous drain flow	Internal control components leakage	Contact professionals for maintenance and repair
	Piston jammed	

TROUBLESHOOTING

Common Issues	Causes	Solutions
Power cut	During service mode	The control valve will remain in the service position once power is restored
	During regeneration cycle mode	The control valve will return to the position it was in at the time of the interruption. After power is restored, it will remain in that position and continue the regeneration process.
	While control valve is moving to the next regeneration cycle	The valve will relocate to the correct position once power is restored and complete the regeneration sequence.
System error  Flashing  Flashing	ERR 1-U	Upper valve can not locate the service position
	ERR 2-U	Upper valve optical sensor no signal
	ERR 3-U	Upper valve electric moter stalled or locked
	ERR 4-U	Upper valve electric motor stalled or locked
	ERR 1-d	Lower valve optical sensor no signal
	ERR 2-d	Lower valve electric moter stalled or locked
	ERR 3-d	Lower valve electric motor stalled or locked
	ERR 4-d	Lower valve wrong service position

TROUBLESHOOTING

Common Issues	Causes	Solutions
Resetting the valve 	Error alarm occurs on screen	Simultaneously press   and hold for 3 seconds to reset. If the reset is succesful all the error alarms will disappear and it will return to the position where the error occurred. If not, please call your water treatment professional for more help.
Restore factory setting		When the valve is off power, press  and power on the valve. The display will show as the pictures.
		Upper valve resetting
		Lower valve resetting
		Return to service position

