



PACIFIC WATER TECHNOLOGY

Runxin 53520 Filter Valve

Instruction Manual





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Installation Summary

Installation Location: _____ Installation Date: _____

Installed by: _____ Phone: _____

Application Type: _____

Water Source: _____

Water Test Results

Hardness: _____ Iron: _____ pH: _____

Other: _____

Misc:

Tank Size:

Diameter _____ Height: _____

Resin or Media Type: _____

Resin or Media Volume: _____ Brine tank Size: _____

Capacity: _____

Service Flow Rate:

Min: _____ Max: _____ Backwash: _____

Inlet Pressure: _____ KPa

Control Valve Configuration

Valve Type: _____ Valve Part No. _____

Serial Number: _____

Regenerant Refill Control: _____ Gpm/lpm Injector Type: _____ Gpm/lpm

Drain line flow control: _____ Gpm/lpm

| Parameter | Unit | Factory Default | Actual Value |
|------------------------------------------|------|-----------------|--------------|
| Service Days(Time clock type, by days) | D. | 03 | |
| Service Hours(Time clock type, by hours) | H. | 20 | |
| Rinsing Time | / | 02:00 | |
| Rinsing Frequency | / | F-00 | |
| Backwash Time | Min. | 10 | |
| Fast Rinse Time | Min. | 10 | |
| Output Mode b-01(02) | / | b-01 | |



General Specifications

Operating

Minimum/Maximum operating pressures: 20psi (138kPa) – 87psi (600kPa)

Minimum/Maximum Operating Temperature: 5°C -50°C

Power Supply: 240V/50Hz DC24V 1.5A

Connections

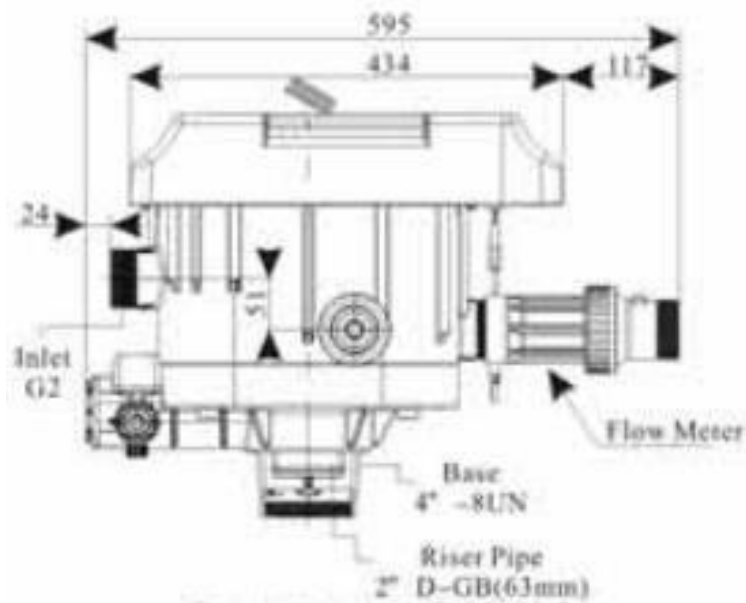
Inlet: 2" Male BSP

Outlet: 2" Male BSP

Waste: 2" Male BSP

Riser Pipe: 2" D-GB (63mm OD)

Tank Thread: 4"-8UN





Installation

Before Installation, read instructions thoroughly. The installation of the system should be completed by a professional.

36x72" GS1000 High Absorption micro pollutants, Carbon Media Loading:

160kg 3-6mm #5 Underbed Gravel (Load in tank first)

80kg 8/16 #6 Underbed Gravel (Load in tank second)

210kg GS1000 (8x30) Carbon (Load in tank last)

342LPM Backwash Flow control supplied with valve

Use filling funnel provided:



Do not use Vaseline, oils, or Spray silicone on valve O-rings. 100% Silicone Lubricant must be used for the O-rings

Locate the system as close as possible to the nearest drain.

The cylinder should be situated on a firm, level surface.

The system should be kept away from boilers, heater and installed inside.

Allow adequate space for pipework and removal of the valve when it is due for servicing equipment.

All pipework should be done in accordance with local plumbing regulation and codes.

Do not use the valve as a support mechanism for pipework use correct supports.

It is recommended to install bypass for the system, to allow for works to be performed on the valve or cylinder without interruption to production. **(Figure 1)**

If the installer is soldering pipework, it is important no pipework is connected to the valve as the heat will damage the system.

When using Teflon tape be careful not to cross thread the fittings.

Allow an air gap when plumbing the waste line to drain.

Riser pipe should be cut off flush with the top of the cylinder and deburred.

Centre the riser in the cylinder and plug to not allow any media to enter riser when filling the cylinder, fill the media as per suppliers' recommendations.

Remove plug and fill system slowly with water

Once cylinder is 90% full of water install the valve, making sure not to cross thread the valve.

Connect inlet, outlet and drain line to the valve.

Turn on power to the valve and check system settings are correct

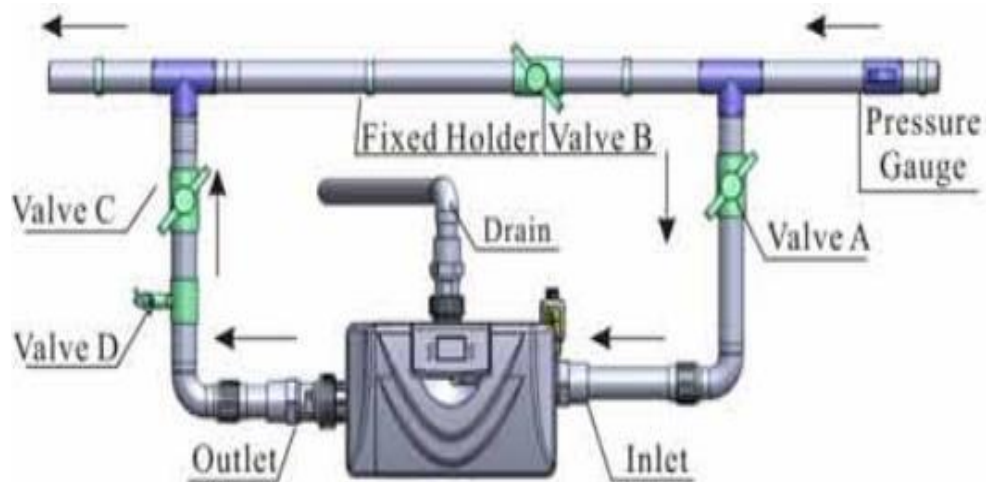
Put system into back wash and then slowly open the inlet valve to allow for air to be removed from the system.

Once air has been removed and a constant flow of water is running down the backwash line, open the inlet fully until all fines from the media has flushed out of the system. (This may require 2-3 backwashes)

After backwash make sure to put the valve into flush to settle the media bed.

After backwash is complete check for any leaks within the system and pipework.

Fig.1





System Status



Service Status: Unfiltered water is directed through the media bed and up through the distributor and riser pipe.

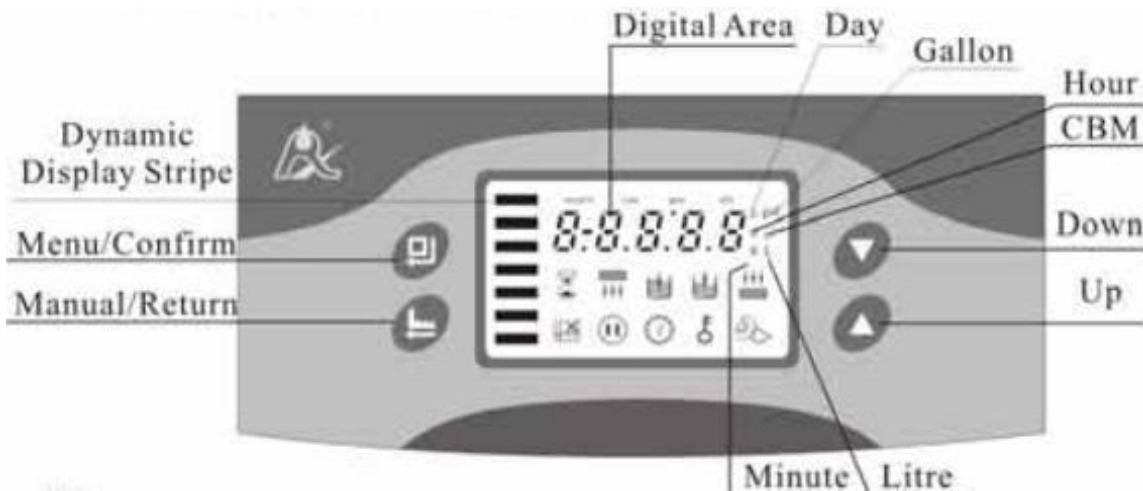
Backwash Status: The flow of water is redirected down the riser and up through the media bed, lifting the media and removing the sediment down the waste line.

Fast Rinse Status: The Flow of water is directed through the media bed and up through the distributor and riser pipe and sent to drain. This is to allow the media bed to resettle and remove any sediment that may be left in the pipework from the backwash.

Display Icons Runxin Controller



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Parameter Specifications

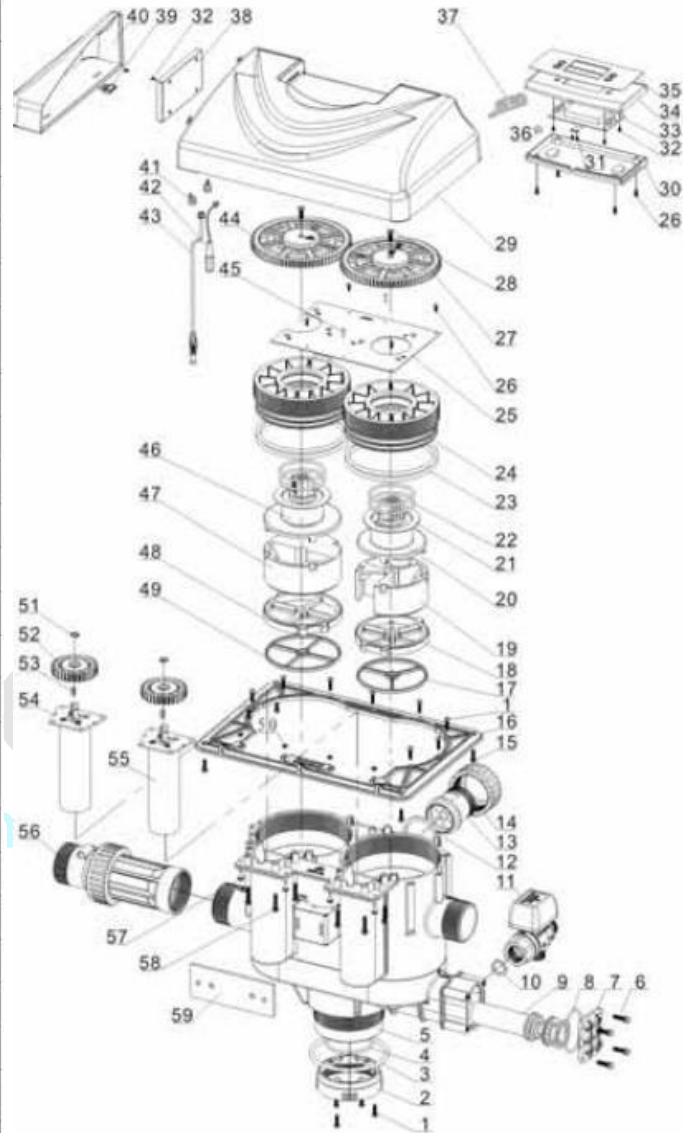
| Function | Indicator | Factory Default | Parameter Set Range | Instruction |
|---------------------|-----------|-----------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Time of Day | | Random | 00: 00~23:59 | Set the time of day when use. “: ” flash |
| Service Days | | 1-03D. | 0~99Days | Only for Time Clock Type, by days |
| Service Hours | | 1-20H. | 0~99 Hours | Only for Time Clock Type, by hours |
| Rinsing Time | 02:00 | 02:00 | 00: 00 ~ 23:59 | Rinsing time; “: ” light on |
| Rising Frequency | F-00 | 00 | 0 ~ 20 | Rising frequency. For example,F-01: indicate service 1 time, backwash and fast rinse 2 time; |
| Backwash Time | | 10Min. | 0 ~ 99:59 | Backwash time(Minute), correct to second; |
| Fast Rinse Time | | 10Min. | 0 ~ 99:59 | Fast Rinse Time(Minute), correct to second; |
| Output Control Mode | b-01 | 01 | 01 or 02 | Mode 01: Signal turn on start of rinsing and shut off end of rinsing. (Refer to the figure on P5) Mode 02: Signal available only intervals of rinsing cycles and in service. (Refer to the figure on P5) |

Valve Breakdown



PACIFIC WATER TECHNOLOGY

| Item No. | Description | Part No. | Quantity | Item No. | Description | Part No. | Quantity |
|----------|--------------------------|----------|----------|----------|-------------------------|----------|----------|
| 1 | Screw, Cross St3.9X19 | 8909003 | 13 | 31 | Cable Clip | 8126001 | 1 |
| 2 | Connector | 8458018 | 1 | 32 | Screw, Cross ST2.2X6.5 | 8909004 | 8 |
| 3 | O-ring 104.6X5.7 | 8378146 | 1 | 33 | Display Board | 6381007 | 1 |
| 4 | O-ring 63X3.55 | 8378163 | 1 | 34 | Board Front Cover | 8300013 | 1 |
| 5 | Valve Body | 5022085 | 1 | 35 | Sticker | 8865011 | 1 |
| 6 | Hexagonal Bolt Set M5x20 | 5851006 | 4 | 36 | Bushings | 8126006 | 1 |
| 7 | Injector Cover | 8315007 | 1 | 37 | Three-core Spring | 5517001 | 1 |
| 8 | O-ring 52X3 | 8378096 | 1 | 38 | Control Board | 6382049 | 1 |
| 9 | Injector | 5468020 | 1 | 39 | Wire for Locating Board | 5511016 | 1 |
| 10 | Seal Ring | 8371019 | 1 | 40 | Front Cover | 8300032 | 1 |
| 11 | Electronic Ball Valve | 2976064 | 1 | 41 | Toggle | 8126004 | 2 |
| 12 | Seal Ring | 8371008 | 1 | 42 | Wire for Power | 5513001 | 1 |
| 13 | Flow Control | 8468049 | 1 | 43 | Probe Wire | 6386010 | 1 |
| 14 | Animated Connector | 8947005 | 1 | 44 | Gear | 5241018 | 1 |
| 15 | Hexagonal Bolt ST3.9X16 | 8909016 | 4 | 45 | Pin 2.5X12 | 8993004 | 2 |
| 16 | Junction Plate | 8152019 | 1 | 46 | Shaft | 8258027 | 1 |
| 17 | Seal Ring | 8370078 | 1 | 47 | Moving Disk | 8459072 | 1 |
| 18 | Fixed Disk | 8469072 | 1 | 48 | Fixed Disk | 8469074 | 1 |
| 19 | Moving Disk | 8459071 | 1 | 49 | Seal Ring | 8370079 | 1 |
| 20 | Shaft | 8258005 | 1 | 50 | Hexagonal Nut | 8940002 | 4 |
| 21 | Anti-friction Washer | 8216006 | 2 | 51 | Locking Ring | 8994009 | 2 |
| 22 | O-ring 59.92X3.53 | 8378110 | 4 | 52 | Small Gear | 8241008 | 2 |
| 23 | O-ring 123.19X5.33 | 8378161 | 4 | 53 | Pin 2.5X12 | 8971001 | 2 |
| 24 | Pressure Nut | 8092035 | 2 | 54 | Motor | 6158039 | 1 |
| 25 | Locating Board | 6380027 | 1 | 55 | Motor | 6158038 | 1 |
| 26 | Screw, Cross ST2.9X9.5 | 8909008 | 12 | 56 | Flow Meter | 5447003 | 1 |
| 27 | Gear | 5241017 | 1 | 57 | Screw, Cross Set M4x12 | 8902005 | 4 |
| 28 | Screw, Cross ST4.8X19 | 8909018 | 2 | 58 | Screw, Cross M4X25 | 8902008 | 8 |
| 29 | Dust Cover | 8005037 | 1 | 59 | Display Shelf | 8040003 | 1 |
| 30 | Board Back Cover | 8315008 | 1 | | | | |





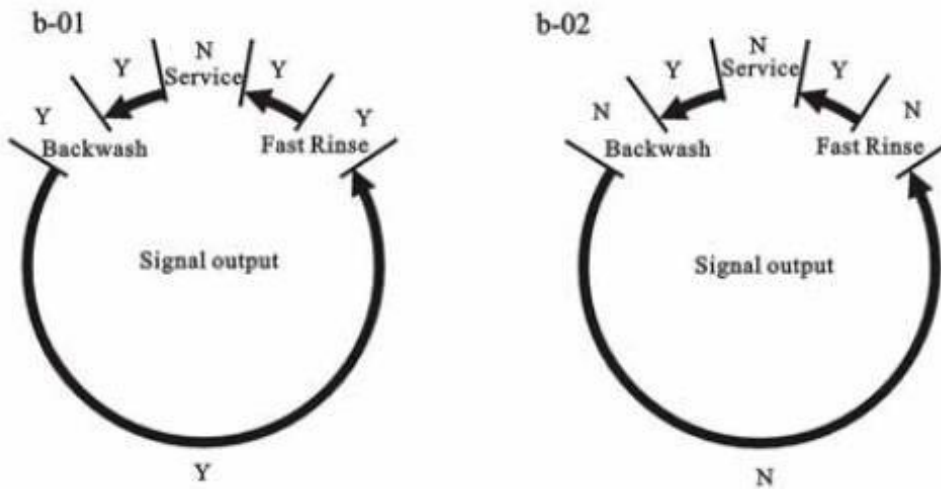
Signal Output

There is a signal output connector on the circuit board. It is for controlling external wiring (Refer to Figure 2 and Figure 3).

There are two kinds of output modes.

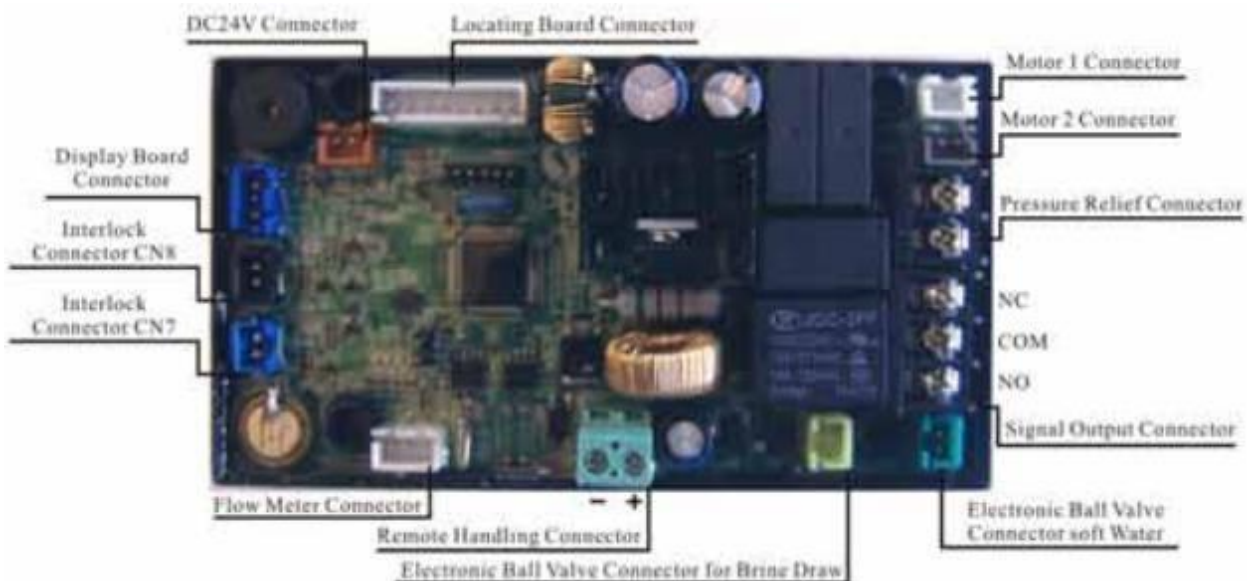
b-01: Sends signal start of backwash and stops sending signal at end of rinse cycle

b-02: Sends signal in between cycles



Interlock Function

The circuit board has an interlock function to send a signal between Runxin valves in a parallel set up. When one of the units has started a backwash, the signal will be sent to the other valve and lock it out from performing a backwash until the first valve has completed its cycles.





Initial Power Up

The valve may need to return to the service position.

The ceramic disc will return to service position and -00- will be displayed when in motion.

This should be completed within 1 minute (if this takes longer than 2minutes please contact Dealer)

To initiate a Manual Regeneration

- Unlock Valve – Press Up & Down arrow together for 5 secs until you hear a beep.
- Press the Manual/Return button
- F-00 will be displayed and Backwash will start
- To skip a cycle, press the Manual/Return button again

To Set Clock

- Unlock Valve – Press Up & Down arrow together for 5 secs until you hear a beep.
- Press the Menu Button.
- The time will be displayed with the enquiry/setting symbol and clock symbol illuminated
- Press Menu button again.
- The hour time will flash.
- Change the Hour time to correct time by pressing the up or Down button & press Menu to save.
- The minutes will then flash.
- Change the minutes time with the up or down arrow and press menu to confirm changes.

Set Regeneration Time

- From the Set Clock setting press the down arrow.
- Press Menu – The hour will then flash change the Hour time to desired time by pressing the up or Down button & press Menu to save.
- The minutes will then flash.
- Change the minutes time with the up or down arrow and press menu to confirm changes.

Leave the next setting at F-00



How to change Regeneration Days Override

- From the F-00 setting press the down arrow
- The hourglass symbol and enquiry/setting symbol will be illuminated,
- Press the Menu Button
- The Digits will then flash change the number to desired number of days by pressing the up or Down button & press Menu to save.

To Change Regeneration Cycle Minutes

Backwash 2-##

- From the days override setting press the down arrow.
- The backwash symbol and enquiry/setting symbol will be illuminated, press menu, the time will flash, press the up and down arrows to change to desired minutes
- Press menu to confirm

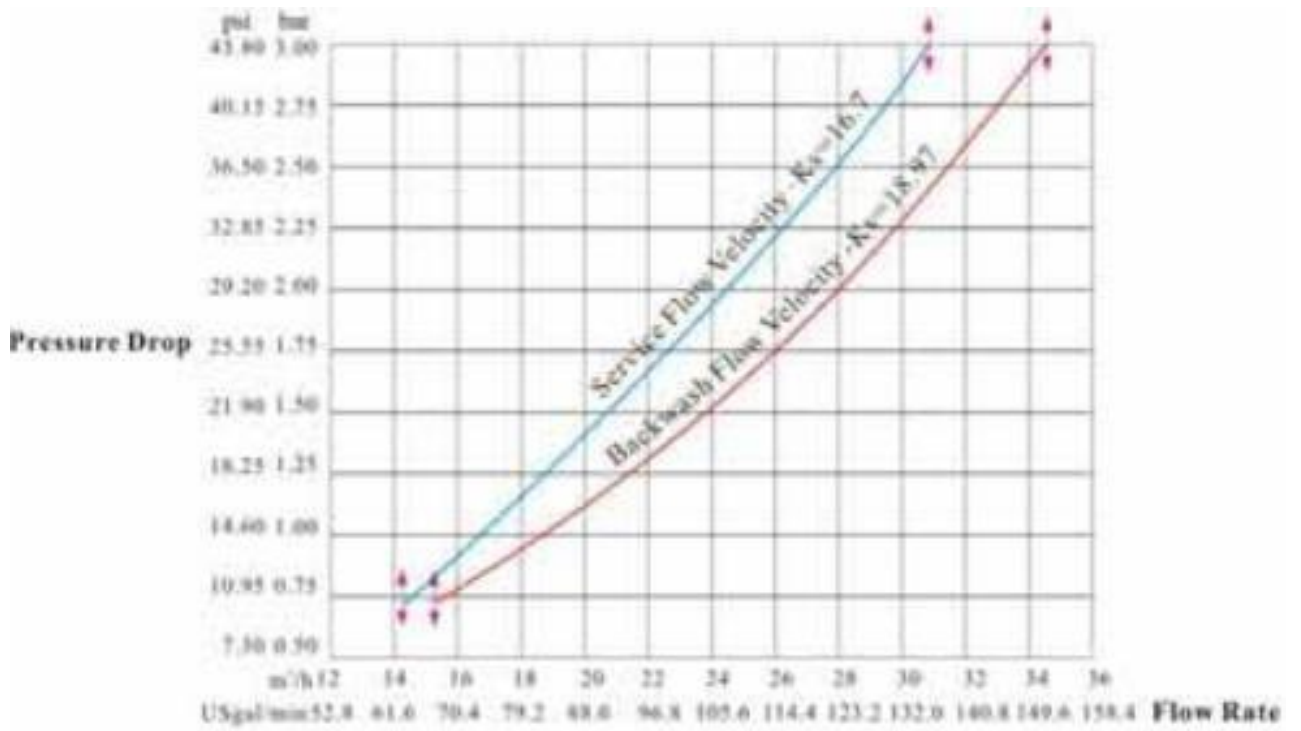
Fast Rinse 3-##

- Once backwash is set, Press down
- The Fast Rinse symbol and enquiry/setting symbol will be illuminated, press menu, the time will flash, press the up and down arrows to change to desired minutes
- Press menu to confirm

| Function | Indicator | Factory Default | Parameter Set Range | Instruction |
|---------------------|-----------|-----------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Time of Day | | Random | 00: 00~23:59 | Set the time of day when use. " : " flash |
| Service Days | | 1-03D. | 0~99Days | Only for Time Clock Type, by days |
| Service Hours | | 1-20H. | 0~99 Hours | Only for Time Clock Type, by hours |
| Rinsing Time | 02:00 | 02:00 | 00: 00 ~ 23:59 | Rinsing time; " : " light on |
| Rising Frequency | F-00 | 00 | 0 ~ 20 | Rising frequency. For example,F-01: indicate service 1 time, backwash and fast rinse 2 time; |
| Backwash Time | | 10Min. | 0 ~ 99:59 | Backwash time(Minute), correct to second; |
| Fast Rinse Time | | 10Min. | 0 ~ 99:59 | Fast Rinse Time(Minute), correct to second; |
| Output Control Mode | b-01 | 01 | 01 or 02 | Mode 01: Signal turn on start of rinsing and shut off end of rinsing. (Refer to the figure on P5) Mode 02: Signal available only intervals of rinsing cycles and in service. (Refer to the figure on P5) |



Flow rate Curve



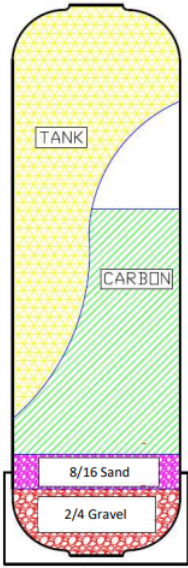


Troubleshooting

| Problem | Possible Cause | Solution |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Filter Fails to Backwash | <ul style="list-style-type: none"> a. Power to controller has been interrupted b. Backwash cycle times set incorrectly c. Controller Damaged | <ul style="list-style-type: none"> a. Check power connection is ok b. Reset the backwash cycle times c. Check or replace controller |
| Filter passing raw water | <ul style="list-style-type: none"> a. Bypass valve is open b. Damaged riser pipe c. Internal Valve Leak | <ul style="list-style-type: none"> a. Close Bypass Valve b. Check the riser pipe is not cracked and O-ring is ok c. Check or change valve body |
| Water pressure loss | <ul style="list-style-type: none"> a. Filter requires a backwash b. Check no blockage in Pipework | <ul style="list-style-type: none"> a. Backwash filter b. Unblock pipework |
| Loss of media material through drain line | <ul style="list-style-type: none"> a. Air in the system b. Backwash flow control to high c. Top screen broken | <ul style="list-style-type: none"> a. Bleed air from the system. Check for leaks b. Reduce Backwash flow to suitable size c. Check and replace top screen |
| Control valve cycle continuously | <ul style="list-style-type: none"> a. Wrong size transformer b. Foreign material stuck in drive gear c. Faulty valve | <ul style="list-style-type: none"> a. Use correct Transformer b. Remove Foreign material from drive gear c. Replace valve |
| Water flowing through drain line continually | <ul style="list-style-type: none"> a. Power outage during backwash or fast rinse b. Internal Valve leak | <ul style="list-style-type: none"> a. Turn on Power, cycle through to service b. Check or replace valve body |
| All indicators display on the controller | <ul style="list-style-type: none"> a. Wiring between the display board and control board failure b. Control board is faulty | <ul style="list-style-type: none"> a. Check a replace cable b. Replace control board c. Check or replace transformer |



| | | |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | <ul style="list-style-type: none"> c. Transformer damaged d. Incorrect voltage | <ul style="list-style-type: none"> d. Replace transformer with correct size |
| No display on controller | <ul style="list-style-type: none"> a. Wiring between the display board and control board failure b. Control board is faulty c. Display board is faulty d. Transformer damaged e. Power outage | <ul style="list-style-type: none"> a. Check a replace cable b. Replace control board c. Replace display board d. Check or replace transformer e. Check power supply |
| E1 Flash | <ul style="list-style-type: none"> a. Wiring between the locating board and display board failure b. Locating board damaged c. Mechanical driver fails d. Faulty control board e. Wiring between the control board and motor fault f. Motor damaged | <ul style="list-style-type: none"> a. Replace the wiring between display board and locating board b. Replace locating board c. Check and repair mechanical part d. Replace control board e. Replace wiring between control board and motor f. Replace motor |
| E2 Flash | <ul style="list-style-type: none"> a. Component on locating board damage b. Wiring of locating board fails to work c. Control board is faulty | <ul style="list-style-type: none"> a. Replace locating board b. Replace locating board wiring c. Replace Control board |
| E3 or E4 Flash | <ul style="list-style-type: none"> a. Control board is faulty | <ul style="list-style-type: none"> a. Replace Control Board |



| COAL CARBON FILTER MEDIA LOADING | | | | | | | | | | | | | | | |
|----------------------------------|------------|---------|-----------|-----------|---------|-----------|-------------|---------|---------|-----------|----------------------------|--------------------------|---------------------------|-------------------------|-----------------------|
| Filter Tank Size | 2/4 Gravel | | | 8/16 Sand | | | Coal Carbon | | | | Recommended Flow Rates LPM | | | | |
| | Kgs | Bag Qty | Order Qty | Kgs | Bag Qty | Order Qty | Kgs | Vol. L | Bag Qty | Order Qty | Service MIN 7 m/hr | Service MAX 12.5 m/hr | Service PEAK 25.5 m/hr | B/Wash MIN 25.5 m/hr | B/Wash MAX 30 m/hr |
| 9x48 | - | - | - | 7.50 | 0.40 | 1.00 | 14.25 | 28.50 | 1.10 | 2.00 | 4.80 | 8.50 | 17.40 | 17.40 | 20.50 |
| 10x54 | - | - | - | 10.00 | 0.50 | 1.00 | 17.75 | 35.50 | 1.40 | 2.00 | 6.00 | 10.60 | 21.70 | 21.70 | 25.50 |
| 12x52 | - | - | - | 15.00 | 0.80 | 1.00 | 28.25 | 56.50 | 2.30 | 3.00 | 8.50 | 15.20 | 31.00 | 31.00 | 36.50 |
| 13x54 | - | - | - | 20.00 | 1.00 | 1.00 | 31.75 | 63.50 | 2.50 | 3.00 | 10.00 | 17.90 | 36.60 | 36.60 | 43.00 |
| 14x65 | - | - | - | 25.00 | 1.30 | 2.00 | 42.50 | 85.00 | 3.40 | 4.00 | 11.60 | 20.60 | 42.10 | 42.10 | 49.50 |
| 16x65 | 20.00 | 1.00 | 1.00 | 10.00 | 0.50 | 1.00 | 49.50 | 99.00 | 4.00 | 4.00 | 15.20 | 27.10 | 55.30 | 55.30 | 65.00 |
| 18x65 | 25.00 | 1.30 | 2.00 | 18.00 | 0.90 | 1.00 | 63.75 | 127.50 | 5.10 | 6.00 | 18.70 | 33.30 | 68.00 | 68.00 | 80.00 |
| 21x62 | 40.00 | 2.00 | 2.00 | 25.00 | 1.30 | 2.00 | 85.00 | 170.00 | 6.80 | 7.00 | 25.70 | 45.80 | 93.50 | 93.50 | 110.00 |
| 24x72 | 60.00 | 3.00 | 3.00 | 30.00 | 1.50 | 2.00 | 113.25 | 226.50 | 9.10 | 10.00 | 33.80 | 60.40 | 123.30 | 123.30 | 145.00 |
| 30x72 | 120.00 | 6.00 | 6.00 | 60.00 | 3.00 | 3.00 | 184.00 | 368.00 | 14.70 | 15.00 | 53.70 | 95.80 | 195.50 | 195.50 | 230.00 |
| 36x72 | 160.00 | 8.00 | 8.00 | 80.00 | 4.00 | 4.00 | 261.75 | 523.50 | 20.90 | 21.00 | 77.00 | 137.50 | 280.50 | 280.50 | 330.00 |
| 42x72 | 300.00 | 15.00 | 15.00 | 100.00 | 5.00 | 5.00 | 382.00 | 764.00 | 30.60 | 31.00 | 103.80 | 185.40 | 378.30 | 378.30 | 445.00 |
| 48x72 | 475.00 | 23.80 | 24.00 | 120.00 | 6.00 | 6.00 | 523.50 | 1047.00 | 41.90 | 42.00 | 136.50 | 243.80 | 497.30 | 497.30 | 585.00 |
| 63x86 | 975.00 | 48.80 | 49.00 | 250.00 | 12.50 | 13.00 | 775.00 | 1550.00 | 62.00 | 62.00 | 234.60 | 419.00 | 854.70 | 854.70 | 1005.50 |

Service & Backwash Flow Rates shown are based on general recommended rates for normal conditions as per Carbon Activated's brochure.

Coal Carbon Bag QTY: Based on 12.5KG Bags

Underbed 2/4 Gravel & 8/16 Sand Bag QTY: Based on 20KG Bags

Important Note: A number of calculations have been rounded off.