



Diamond LINQ DLAF-F2
Iron Filter Product Manual





Diamond LINQ DLAF-F2 Iron Filter Product Manual

Set Up Instructions for DLAF-F2 Series Single Tank

Inspect the packaging of the equipment to confirm that nothing was damaged during shipping. (Figure 1)

Remove the media tank(s) and valve(s) from the packaging. Make sure everything is included and without damage. Notice that the valve(s), Brine Line 'T', brine line hose, and MAV valve will be found in the brine tank. Below is a checklist with everything you should have received.

- _____ 1) Control Valve
(Figure 2)



Figure 2: Control Valve

- _____ 3) Filter Tank (Figure 3)



Figure 3:
Filter Tank

- _____ 5) Correct Amount of Gravel (from Model and Media Requirements Table on page 2)
- _____ 6) Correct Amount of Media (from Model and Media Requirements Table on page 2)

Call Diamond H2O right away if anything is missing. Contact the freight company **immediately** if anything is damaged. Diamond H2O will not be liable for any damage received after shipping.

Packaged By: _____

Date: _____

Received By: _____

Date: _____



Figure 1: Original Packaging of DLAF Single Tank System
This is how the packages will generally arrive



Diamond LINQ DLAF-F2 Iron Filter Product Manual

Table 1: Media Requirements.

Example: A DLAF-150-100-F2 would require 1.5 cubic feet of media and 20 pounds of gravel per tank.

Model Number	Amount of Media per Tank (cu. ft.)	Amount of Gravel per Tank (pounds)
DLAF-150-100-F2	1.5	20
DLAF-200-100-F2	2.0	25
DLAF-250-100-F2	2.5	30

NOTE: Bags of gravel should be marked with a tag showing whether they belong to the brine tank or the filter tank.

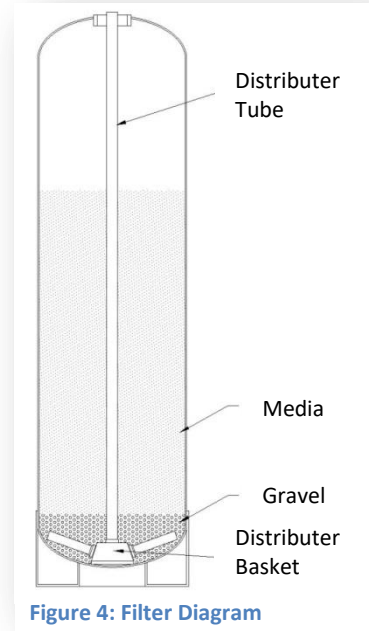


Table 2: Filter Specifications

Model	Iron Removal Capacity (g)	Tank Dia x Ht (in)	Media (Cu. Ft.)	Service Flow (gpm)	Backwash Flow (gpm)	Plumbing (in)	
						Service	Drain
DLAF-150-100-F2	91.2	10 x 54	1.5	4	5	1	3/4
DLAF-200-100-F2	121.6	12 x 52	2	5.5	7	1	3/4
DLAF-250-100-F2	152.0	13 x 54	2.5	6.5	8	1	3/4

Intermittent flow rates and/or favorable local conditions may allow higher flow rates.

Capacity is based on water supply containing 4.0ppm of iron

Water pH Range: 5.8-10.5

Please read the entire Owner's Manual and Instruction before installation.

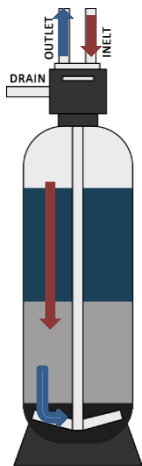
This Owner's Manual must stay with the unit.



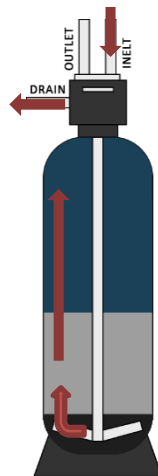
Figure 5: General Filter Operations

Key:

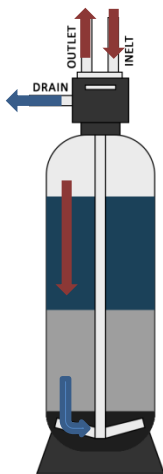
- ↑ Hard Water
- ↑ Filtered Water
- ↑ Salinized Water
- Media



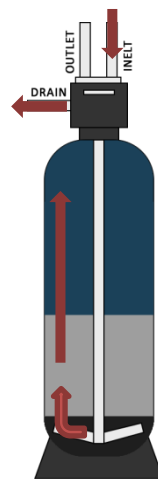
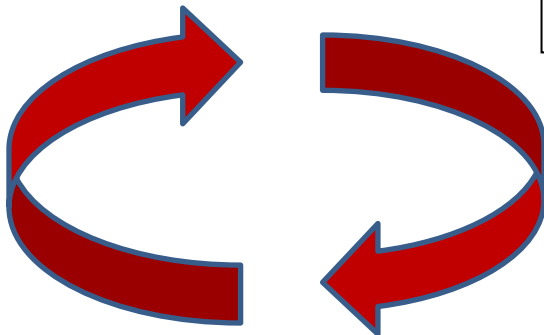
Service/Operation



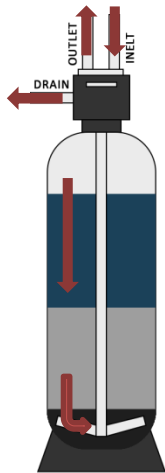
Air Release:
Slowly and quietly releases pressurized air



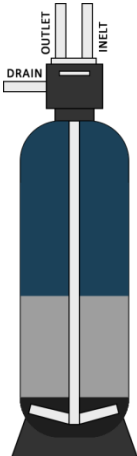
Fast Rinse:
Water travels through the media bed and up the riser tube to drain



Backwash:
Flow reversed to flush debris from media bed to drain.



Air Fill:
Air is injected into the media tank



Rest:
System is given time to rest and let media settle to the bottom.



Installation Requirements

- A level floor position ahead of piping into water heater.
- Unit must be installed at least 10' ahead of the inlet to a water heater to prevent damage due to back-up of hot water.
- DO NOT install the unit in an area of direct sunlight or where freezing temperatures may occur!
- (See Installation Diagrams for proper placement and plumbing connections.)

-Major System Components-

1. Media Tank - This tank contains the filtering media. Water flows through the filter under pressure to come into contact with the media for water filtering.
2. Control Valve - The valve directs water through the filter for water filtering and controls the flow of water / air during the regeneration process.

-Filter Location / Other Requirements-

- If household plumbing is galvanized and you intend to make the installation with copper (or vice versa), obtain di-electric unions to prevent dissimilar metal corrosion.
- Where the drain line is elevated above the control valve or exceeds 20 feet in length to reach the drain, use 3/4" I.D. drain line tubing instead of 1/2" I.D. Drain line tubing is not included.
- All plumbing lines not requiring "treated" water should be connected "upstream" of the filter.

Caution

- If sweat soldering copper pipe (remember to always use lead free solder and flux), cover bypass valve with wet rags to prevent heat damage to connections and control valve
- If using PVC or plastic pipe primers and solvent cements specifically recommended for use with potable water are required.
- Do not "TEE" to the main drain line from control valve.

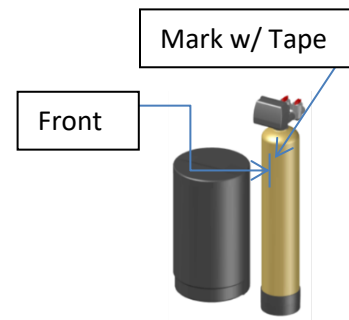


1. Obtain the required tools listed below:

- A. Utility Knife
- B. Pliers
- C. Phillips Screwdriver
- D. Hammer
- E. Level
- F. Media filling funnel

2. Place the tanks near a water source.

- A. Select a position near a floor drain that has adequate carrying capacity to handle the backwash flow rate.
- B. Place the filter(s) and brine tank on a level, firm foundation, like concrete.
- C. **Determine the “front” of each tank** received. For each tank:
 - a. Make sure that the distributor riser is flush with the top of the media tank (Figure 10 on page 6).



- b. Before placing any water, gravel, or media in the media tank, screw in the control valve to the point where it is secure. The valve does not need to be forced on, but should be snug.

- c. Mark the “front” of each media tank (shown in Figure 8) with either a marker or tape. The front of the media tank is determined by the location of the face of the control valve once it has been secured to the face of the control valve. Make sure that the system is positioned in a way that the plumbing can be installed.

Figure 8: Filter Front

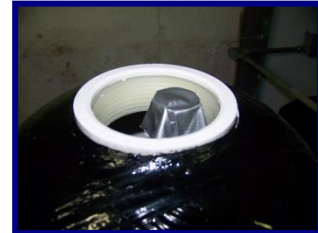


Figure 9: How to Block Distributer Tube

D. Before Filling the Tanks:

- a. Remove the valve(s)
 - b. Ensure that the front(s) of the tank(s) is/are positioned correctly. Once filled, the media tanks will be very difficult to move.
 - c. Cover the exposed end of the distributor riser(s) to make sure no media gets inside. Covering up the riser(s) with duct tape is one option, shown in Figure 8.
 - d. Obtain a funnel to assist placing the media in the media tanks. (A funnel designed specifically for our media tanks can be ordered from Diamond H2O Conditioning.)



3. Setting up the tank:

- A. Fill the tank up to 30% full of water.
- B. Check the system specifications on page 2 to determine the correct amount of gravel and media needed for your system.
- C. Position the distributor tube so it is in the center of the tank, shown in Figure 10.



Figure 10: Centered Distributer Tube

- D. **SLOWLY**, pour the correct amount of support gravel into the tank without getting any gravel into the distributor tube.
- E. Visually confirm that the gravel is level and covering the distributor basket and radials, if it is not, contact Diamond H2O Conditioning.
- F. **SLOWLY**, pour the correct amount of media into the tank. Try to keep the media level by carefully rocking the tank back and forth.

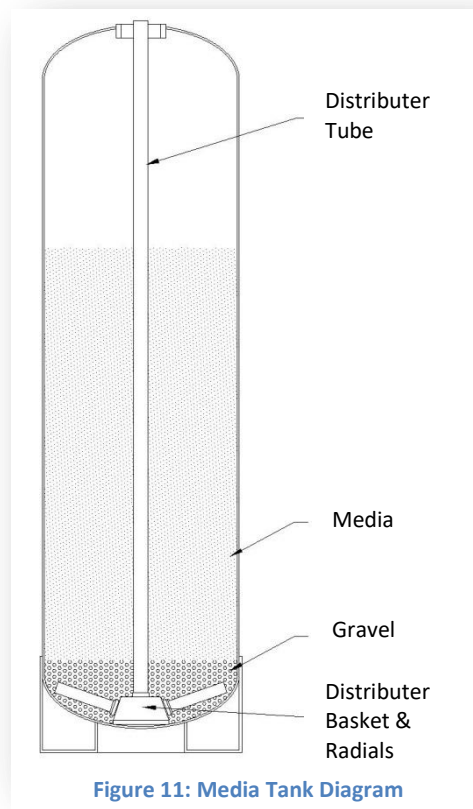


Figure 11: Media Tank Diagram

- G. Fill the rest of the tank with water to prevent air from getting in the tanks and potentially losing media.
- H. Verify that there is a large O-ring on the control valve(s) adapter base. (Figure 12)
- I. Place the control valve on the tank, making sure that the distributor tube fits into the bottom of the control valve.
- J. Tighten the control valve onto the tank to the point that it is snug. Double check that the valve is in a correct position to be able to install the plumbing.

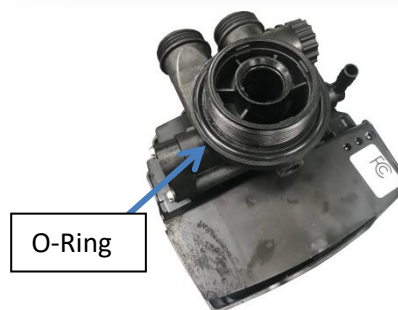


Figure 12: Valve Underside

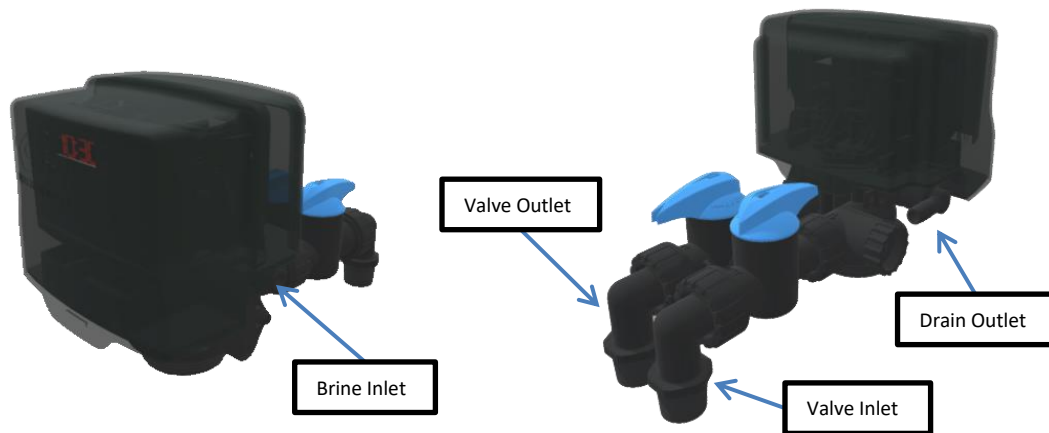


Figure 15: Control Valve Diagram

4. Connect the Valves to the Water Source

- A. Pipe or tube a line from the Control Valve Drain (Figure 15) to the drain.
- B. If this valve is being installed on metallic water supply systems being used as an electrical ground, install a properly sized electrical bonding jumper across the inlet/outlet pipes serving these devices to ensure the valve does not interrupt the electrical continuity of the path to ground.

DO NOT

- install a valve in this line
 - use a pipe smaller than the unit’s inlet or outlet
 - make a direct connection to the drain
 - Provide an air gap at least four times the diameter of the drain pipe to conform to sanitation codes and be able to observe the drain flow.
 - use an excessive amount of elbows in the plumbing
- C. Turn off the main water supply and open nearest faucet to relieve pressure. Connect the facility plumbing to the control valve inlet and outlet following all local codes.

Note: Make sure all piping is free of thread chips and other foreign matter.

- D. Turn the bypass valve to the “bypass” position (shown below).



Figure 16: Bypass Valve Positions

- E. Turn the main supply on to restore water service to the home.
- F. Open the nearest faucet to evacuate air and re-pressurize plumbing lines.
- G. Check for leaks.



Connect the power supply

- H. 1. Connect the power cord and plug power supply into a 115 volt / 60 Hz receptacle.

Electronic Connections

P = Power Supply

B = Powered in Backwash Step Only
(Cycle #1)

S = Powered for Entire Regen. Cycle



Figure 17: Power Supply

5. Start up the system for the first time.

- A. Add about three gallons of water to the brine tank.
- B. Double check that the tanks are filled with water.
 - a. Manually put the control valve into regeneration (Hold the SET/CHANGE button or press the “regen now” button in the Diamond LINQ app)

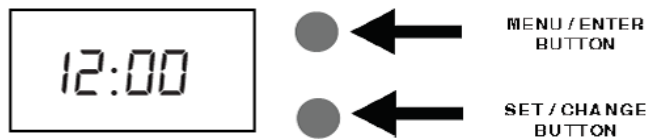


Figure 18: Valve Buttons

- b. While the system is in backwash (cycle 1), slowly change the adjust the bypass valve to the “service” position.
 - c. A mixture of air and water will flow from the drain line.
 - d. Once the tank is filled, only water will be coming out of the drain line. Put the system back into bypass operation. Run each step of the regen cycle (Figure 7) for a few minutes each. You can advance to the next step by holding the SET/CHANGE button.
- C. Program the Valve. Most of the settings were programed to Diamond H2O’s default values. The rest of the site-specific settings should be set by an installer after the water quality (pH, TDS, total hardness, and iron) have been determined. These settings can be changed with the valve’s two buttons (page 11) or by using the Diamond LINQ app (page 14).



6. Programming

Normal Operation

1. Home Display

- a. Alternates between the display of Time of Day and Number of Days until the Next Backwash. (Metered Softeners will alternate between time of days and gallons remaining until next regeneration)
 - Days Remaining until the Next Backwash will count down from the entered value until it reaches 1 day remaining.
 - A Backwash Cycle will then be initiated at the next designated regeneration time.

2. Battery Back-Up (Uses a standard 9-volt alkaline battery.)

Features of Battery Back-Up:

- During power failures, the battery will maintain the time of day as long as the battery has power. The display is turned off to conserve battery power during this time. To confirm that the battery is working, press either button and the display will turn on for five (5) seconds.
- If power failure occurs while system is regenerating, the Signature 2 will motor to a shut off position to prevent constant flow to drain. After power is restored, the Signature 2 will return and finish the cycle where it left off prior to the power interruption.
- When used without battery back-up, during a power failure, the unit stops at its current point in the regeneration position and then restarts at that point when the power is restored. The time will be offset by the increment of time the unit was without power, so it is necessary to reset the time of day on the unit. No other system settings will be affected.

Starting Extra Regeneration Cycle

1. To Start Delayed Extra Cycle

Example [1]

- If Days Remaining Until Next Regeneration does not read '1', press and hold the **Set/Change** button for 3 seconds until the display reads '1'
- Regeneration cycle will initiate at the next designated regeneration time.

2. To start Immediate Extra Cycle



First complete above step.

- Press and hold the **Set/Change** button.
- After 3 seconds, the regeneration cycle will begin.

3. To Fast Cycle thru regeneration



First complete above 2 steps.

Press and hold the **Set/Change** button for 3 seconds to advance to the next cycle step.

Note: Fast Cycle is not necessary unless desired to manually step through each cycle step. (Repeat until valve returns to the home display)

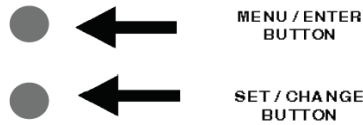
Regeneration Cycle

DLAF	Default Cycle Step Times	Minutes
Step 1	Air Release (non-adjustable)	6
Step 2	Backwash	10
Step 3	Rest	5
Step 4	Air Replenish	20
Step 5	Rapid Rinse	5



Diamond LINQ DLAF-F2 Iron Filter Product Manual

Main Menu



1. To enter Main Menu, press the **Menu/Enter** button.
(Time of Day will flash)

2. To set the **Time of Day**, press the **Set/Change** button.
(First digit will flash)

Example [12:00]

- To change digit value, press the **Set/Change** button.
- To accept the digit value, press the **Menu/Enter** button.
- Next digit will flash to begin setting.
- Once the last digit display is accepted, all digits will flash.

3. To set **A.M.** or **P.M.**, press the **Menu/Enter** button.

- To change digit value, press the **Set/Change** button.
- To accept the digit value, press the **Menu/Enter** button.
- Once A.M. or P.M. is accepted, the next menu item will flash.

Example [A]

4. Days Between Backwash

- Press Menu / Enter Button. This display is used to set the maximum amount of time (in days) the unit can be in service without a backwash. This option setting is identified by the letter 'A' in the left digit. Backwash will begin at the set Backwash Time.

A "0" setting will cancel this feature. The Max Value for this item is 29.

Example: Backwash every 7 days [A - 07] (Factory Setting)

Cancel setting [A - 00]

To Adjust this Value Press the Set / Change Button.

To Accept the Digit Value Press the Menu / Enter Button.

5. To set the **Number of Days between Air Draw Cycles** (d), press the **Set/Change Button**

- Repeat instructions from step

Example [d - 01]

Notes: 1) Maximum value is 9.

- 2) If value set to 0, air draw is turned off, but an air cycle will still be completed when backwash cycle occurs. If the Number of Days between Air Draw Cycles is set to a higher number of days than the Number of Days between Backwash Cycles, it will have no effect. In order to turn off all cycles, both the Days between Backwash and Days between Air Draw Cycles must be set to 0.

3) Default setting is 1 day.

6. To Exit Main Menu, press the **Menu/Enter** button.

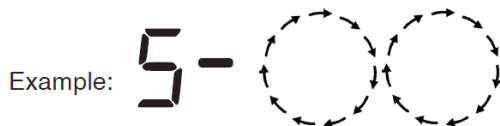
Note: If no buttons are pressed for 60 seconds, the Main Menu will be exited automatically.



Note: Depending upon system pressure and other factors, it is possible to observe flow to drain in the rest cycle.

- When the valve is between positions, the display will flash the number of the step it is moving towards.
- The default time at which regeneration will occur is 12:00 a.m.

The motor's run direction during a particular regeneration cycle step is indicated by the rotation direction of the last 2 digit displays.



Master Programming Mode

To enter Master Programming Mode, press and hold both buttons for 5 seconds.

Note: All Master Programming functions have been preset at the factory. Unless a change is desired, it is **NOT** necessary to enter Master Programming Mode.

1. Regeneration Time (r) Example [r 12R]

- The time of day at which regeneration may take place is designated by the letter "r".
- Default regeneration time setting is 12R
- The first display digit indicates A.M. or P. M. To change the value, press the **Set/Change** button.
- Press **Menu/Enter** button to accept the value and move to the next digit.
- The second and third display digits indicate the hour at which the regeneration will occur.
- Change the digits with the **Set/Change** button and accept with the **Menu/Enter** button.
- After the entire display flashes, press the **Menu/Enter** button to move to the next menu item.

2. Backwash Cycle Step Times* DLAF (Steps 2, 3, 4, 5)

Example [3 - 20]

- The next 4 displays set the duration of time in minutes for each backwash cycle step.
- The step number which is currently modifiable is indicated on the far left of the display screen.
- The number of minutes allotted for the selected backwash step is displayed on the far right.
- Change the digit values using the **Set/Change** and **Menu/Enter** buttons as described above.

Note on Air Draw Cycle (4): DLAF Filter

The longer the unit is set to remain in the Air Draw cycle (4), the more air is drawn into the system. A default setting of 20 minutes draws air down to the level of a normal media bed height. If the system needs more air, increase the time setting for step (4) or decrease the number of days between air draw cycles.

3. Bluetooth Enabled bE 1 (ON) bE 0 (OFF)

4. Bluetooth Password bLPP is displayed for one second, then password is displayed.

- To change digit value, press the **Set / Change** button. Example [R]
- To accept the digit value, press the **Menu / Enter** button.
- Next digit will flash to begin setting
- Once the last digit display is accepted, all digits will flash.

5. To Exit the Master Programming Mode, press the **Menu / Enter** button until time of day returns.

Note: If no buttons are pressed for 60 seconds, the Master Programming Mode will be exited automatically.



7. Diamond LINQ Application

For simplified set up and control, please install the Diamond LINQ on a compatible Bluetooth 4.0+ enabled smart phone or tablet.

A. Depending on your device, download and install the Diamond LINQ app from:

- Google Play Store
- Apple App Store



Figure 19: LINQ App Icon

B. Open the Diamond LINQ app

- Ensure your Bluetooth connectivity is turned on.
- Choose a valve device at any time from the list of available devices to connect to by clicking on it.
- If the valve you want to connect to doesn't show up, or there is a problem connecting to a device you can press the "Scan for Devices" button or the Diamond LINQ logo at any time to refresh the list and start the process over.

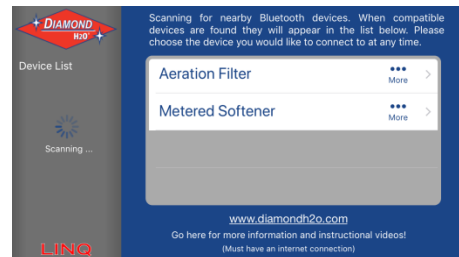



Figure 20: Device List

- If the valve device is a BTLE valve and it has a password other than the default password, the first time you connect to it the app will ask you to enter the password. After entering it the first time you should not need to enter it again unless it changes.

C. BTLE Valve devices can be updated by the App. When the app is updated from the Google Play Store or the Apple App Store, it may contain an updated firmware program for the valve devices. These updates could contain new features or operational improvements. It is up to the user to allow these updates to be sent to the valve device.

D. Navigation and Regeneration

The navigation menu can be accessed by pressing the menu key  or swiping from the left in portrait mode. The menu is shown at all times in landscape mode.

You can manually start regeneration by pressing:



During regeneration, you can skip to the next cycle by pressing:



You can manually regenerate at the next programmed regeneration time by pressing:

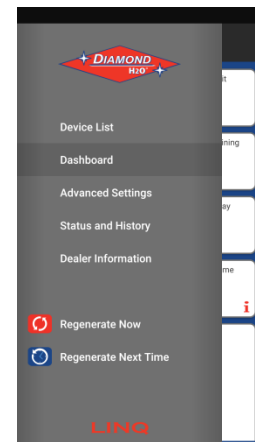
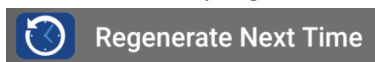


Figure 21: Navigation

Diamond H2O contact information and app version information can be found by pressing the Diamond H2O Logo:





E. Dashboard

The dashboard will contain general information for monitoring your filter which is contained in blocks.

Blocks with a red "Set" can be changed or updated. Other blocks are read only.

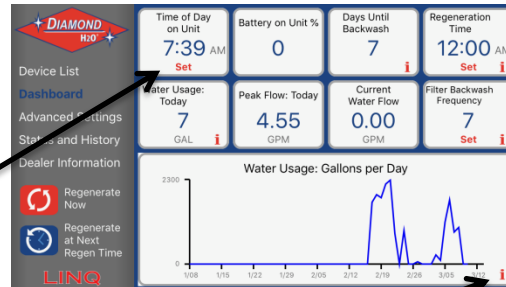

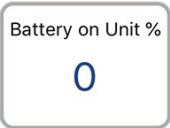



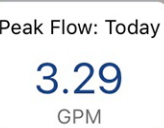
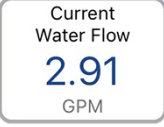

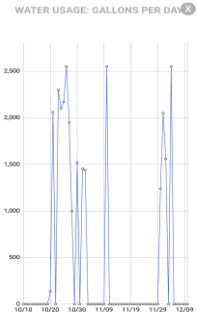


Figure 22: Dashboard

NOTE: Consult your dealer before making any changes from the Dashboard. Dealer contact information can be found in the navigation menu.

Press the **i** button in the bottom right corner of a block for more information.

Table 4: Dashboard Block Information Table

<p>Time of Day</p>  <p>Displays Unit Time. Press "set" to set time based on device time</p>	<p>Battery on Unit</p>  <p>Displays the battery backup charge if available</p>	<p>Days Until Backwash</p>  <p>Displays the days remaining until the next backwash.</p>
<p>Regeneration Time</p>  <p>Displays the time that the system will regenerate/backwash</p>	<p>Water Usage Today</p>  <p>Displays the gallons used today in GAL (gallons)</p>	<p>Peak Flow Today</p>  <p>Displays the peak flow rate used today in GPM (gallons per minute)</p>
<p>Current Water Flow</p>  <p>Displays the current flow rate passing through the unit in GPM (gallons per minute)</p>	<p>Filter Backwash Frequency</p>  <p>Displays the number of days between backwashes.</p>	<p>Water Usage Graph</p> <p>Click the graph to for detailed info. Pinch in/out to change graph and view history</p> 



F. Advanced Settings

The advanced settings section of the app should only be programmed by a dealer. These settings contain values that will affect the performance of the water filter and the quality of the treated water. These settings will vary from system to system.

Most advanced settings will be set by the manufacturer.

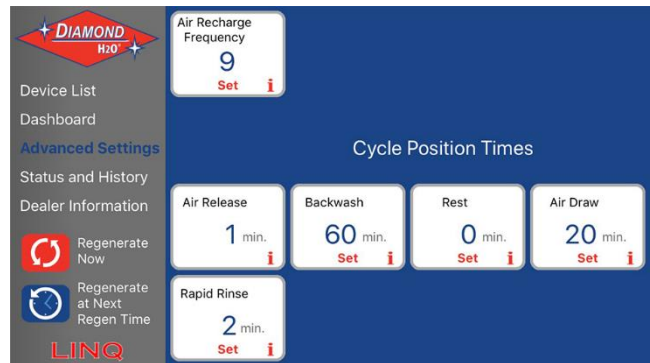


Figure 23: Advanced Settings

Table 5: Advanced Settings Block Information Table

<p style="text-align: center;">Air Recharge Frequency</p> <div style="text-align: center;"> </div> <p>Displays the days between air recharges. During an air recharge, the system will replace the air in the media tank.</p>	<p style="text-align: center;">Air Release</p> <div style="text-align: center;"> </div> <p>Displays the number of minutes the system will quietly release air to the drain.</p>	<p style="text-align: center;">Backwash</p> <div style="text-align: center;"> </div> <p>Displays the amount of time (in minutes) for the back wash cycle</p>
<p style="text-align: center;">Rest</p> <div style="text-align: center;"> </div> <p>Displays the number of minutes the system will rest.</p>	<p style="text-align: center;">Air Draw</p> <div style="text-align: center;"> </div> <p>Displays the number of minutes that the system will draw air.</p>	<p style="text-align: center;">Back Wash Cycle</p> <div style="text-align: center;"> </div> <p>Displays the amount of time (minutes) for a rapid rinse. This runs a rinse at a high rate in the same direction as normal water flow</p>



G. Status and History

The status and history screen displays statistics which can be used to increase system efficiency and diagnose certain issues. The system includes a totalizer which keeps track of total water usage and regeneration data. Water usage between regenerations and peak flow per day graphs are available by scrolling down on this screen.

Graphs can be expanded and viewed in full screen by pressing the desired graph.

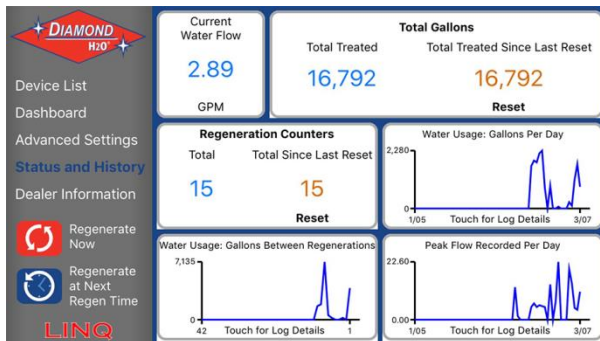


Figure 24: Status and History

Table 6: Status and History Block Information Table

<p>Current Water Flow</p> <div style="border: 1px solid gray; padding: 5px; text-align: center;"> <p>Current Water Flow</p> <p style="font-size: 24pt;">2.89</p> <p>GPM</p> </div> <p>Displays the current flow rate passing through the unit in GPM (gallons per minute)</p>	<p>Total Gallons Treated</p> <div style="border: 1px solid gray; padding: 5px; text-align: center;"> <p>Total Gallons</p> <p>Total Treated Total Treated Since Last Reset</p> <p style="font-size: 24pt;">16,792 16,792</p> <p style="text-align: center;">Reset</p> </div> <p>Displays the number of gallons the unit has treated since start up. The Total Treated Since Last Reset displays the number of gallons treated since the last time the reset button was pressed.</p>
<p>Total Regenerations</p> <div style="border: 1px solid gray; padding: 5px; text-align: center;"> <p>Regeneration Counters</p> <p>Total Total Since Last Reset</p> <p style="font-size: 24pt;">15 15</p> <p style="text-align: center;">Reset</p> </div> <p>Displays the number of regenerations since start up. The Total Since Last Reset displays the number of regenerations since the last time the reset button was pressed.</p>	<p style="text-align: center;">Water Usage: Gallons per Day</p> <p>This chart displays the total number of gallons used per day</p>
<p style="text-align: center;">Water Usage: Gallons Between Regenerations</p> <p>This chart displays gallons used between regenerations</p>	<p style="text-align: center;">Peak Flow Recorded Per Day</p> <p>The chart displays the peak flow rates in gpm per day</p>



8. Troubleshooting

SYMPTOM	PROBABLE CAUSE	CORRECTION
1. Fails to Regenerate Automatically	Power supply plugged into intermittent or dead power source	Connect to constant power source
	Improper control valve programming	Reset program settings
	Defective power supply	Replace power supply
	Defective Drive motor	Replace motor
2. Regeneration at Wrong Time	Time of day improperly set, due to power failure	Reset time of day programming and install 9-volt battery.
	Regeneration time set improperly	Reset regeneration time programming
3. Poor Water Quality	Check items listed in #1 and #2	
	Bypass valve open	Close bypass valve.
	Channeling	Check for too slow or high service flow. Check for media fouling.
	Lack of aeration in water	Program valve to draw air more frequently. Increase number of minutes in air draw cycle. Clean injection assembly and screen (instructions on page 13).
4. Loss of Water Pressure	Scaling / fouling of inlet pipe	Clean or replace pipeline. Pretreat to prevent.
	Fouled media	Clean media. Pretreat to prevent.
	Improper backwash setting	Backwash more frequently
5. Continuous Flow To Drain	Foreign material in control	Call dealer. Clean valve and replace pistons and seals.
	Internal control leak	Same as above.
	Valve jammed in backwash or rapid rinse position	Same as above.
	Motor stopped or jammed	Check for jammed piston. Replace piston and seals. Replace motor if motor is unresponsive.
6. Media in Service Line	Plumbed in backward	Re-plumb the system properly
	Internal leak in unit	Call dealer.
7. Media Flows to Drain	Media did not soak long enough	Re-soak the media for a longer length.
	Incorrect or missing drain flow control	Check for proper flow control (reference no. 5 on page 9). Call dealer, if problems persist.



Control Valve Error Code Diagnosis

Under normal operating conditions, when your control valve is in the “in service” position, the display should alternate between the current time of day and the number of days remaining (for filters and time clock softeners) or gallons remaining (for metered softeners) until the next regeneration. This is the “home display.” If the valve is currently going through a regeneration cycle, the display will show the cycle step on the left side of the display and the number of minutes remaining in that step on the right side of the display. If any other information is being displayed, then the valve is informing you of an issue. There are five error codes which could indicate an issue with the control valve. When an error is being displayed, the valve will be in a stopped position, and the buttons will not respond to being pressed. Even if the cause of the error code is corrected, the error code will not clear until the power supply has been disconnected and reconnected (this will be referred to as “cycling” the power). All error codes are displayed as the letters “Err” followed by a flashing number 2-6:

Error 2 - Valve is searching for homing slot.

Allow valve to continue running. If the homing slot is found, the valve will return to the home display, otherwise, another error code will appear.

Error 3 - No encoder slots are being seen.

This occurs when the motor is running, but the encoder is not seeing any of the slots in the encoder wheel. This can happen if the encoder has been disconnected, but most commonly occurs when debris in the valve body has stopped the piston, causing the encoder wheel to be unable to turn.

1. Check encoder connection. If the encoder is plugged in and snapped into place, skip to step #2 below. If encoder is disconnected, reconnect it and cycle power to clear the error.
2. Disconnect powerhead from valve body, cycle power to clear the error code. Manually cycle the powerhead through the regeneration cycle steps to verify that the motor can cycle properly while the powerhead is disconnected from the valve body. If the error 3 does not reappear, skip to step #3 below. If the error 3 does reappear, order a board & motor kit to replace the circuit board & motor.
3. Remove piston and seals from the valve body and inspect valve body for debris. Replace the seal & spacer kit. Inspect piston and replace piston if Teflon coating is worn

Error 4 - Unable to find homing slot.

1. Check encoder wheel for debris.
2. Cycle power. Valve should either find home or go to a different error code. If error 4 returns, replace powerhead assembly.

Error 5 - Motor overload.

This occurs when the motor current is too high. This could be caused by an issue with the motor itself, but is typically caused by friction in the valve body

1. Disconnect powerhead from valve body and cycle power to clear the error code.
2. If the error 5 returns, replace the motor. Otherwise, manually cycle the powerhead through the regeneration cycle steps to verify that the motor can cycle properly while the powerhead is disconnected from the valve body. Either way, proceed to the next step.
3. Remove piston and seals from the valve body and inspect valve body for debris. Replace the seal & spacer kit. Inspect piston and replace piston if Teflon coating is worn.

Error 6 - No motor current.

This typically occurs if the motor cable has come unplugged from the circuit board. Check that the motor cable is plugged into the circuit board and attached to the motor. If this is not the issue, the motor or circuit board may need to be replaced.

No Display

If your display is blank, there is no power going to the circuit board due to one of the following factors:

- The electrical outlet is not powered or is switched off
- The power cable has come unplugged from the circuit board
- The power supply has come unplugged from your electrical outlet
- The power supply has come unplugged from the control valve
- The power supply is not working