

Filter Backwash Controller

L8-12V-AC/DC/DCL/PD

THIS MANUAL TO BE LEFT WITH THE END-USER



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Specification & Power Requirements

Model	L8-12V-AC/DC/DCL/PD	Part# 129755
Input	Voltage Range DC	10.8 - 12.6VDCV (Latching Soliniod)
	Voltage Range DC	11.5 - 14.5VDC (Non-Latching)
	DC Battery Requirements	12VDC / 7.2 Ah Min
	Voltage Range AC	100 - 240VAC 50/60Hz
Output	DC Voltage	12VDC
	Rated Current	1.5A
	Current Range	0 - 1.5A
	Rated Power	18W @ 55°C
	No. of Outputs	8
Protection	Overload	Hiccup Mode, recovers automatically after fault condition is removed. (Power Supply 110 - 150% rated power / Circuit Board 2.7 Amps @ Voltage range stated)
Environment	Working Temperature	-15°C - 55°C
	Working Humidity	20 - 90% RH non-condensing
	Storage Temp., Humidity	-25°C - 55°C, 10 - 95% RH
Other	DC Voltage	12VDC
	Rated Current	1.5A
	Current Range	0 - 1.5A
	Rated Power	18W @ 55°C
	No. of Outputs	8
Life	Mechanical	100,000 Cycles
	Electrical @ 25°C	249,000 Hours

1. Life was factored by controller components testing. Environmental, operational & electrical supply was not factored.
2. Controller board is bench tested for functionality prior to assembly.
3. Battery supplied power for non-latching requires 3amp fuse protection on supplied power.
4. Controller specification is based on a characterization of components and has not been verified by testing.

NOTE: For filter systems with more than eight stations, LAKOS provides additional controllers, wired in a "slave configuration" to handle virtually any number of filter tanks in a system (See Schematic 4).

LAKOS Sand Filter Controller Instructions

DWELL: Fixed 60 seconds between backwashing each tank.

PRESSURE DIFFERENTIAL DWELL: Fixed 30 seconds of sustained pressure differential to initiate backwash cycle.

USER SETTINGS

1. **OFF/ON SWITCH:** All functions inactive in off position, backwash counter resets to zero.

2. **BACKWASH FREQUENCY:** Sets interval time for backwashing. Recommend 6 hrs to start.

NOTE: When adjusting after initial set up, run a manual backwash to reset timer.

3. **BACKWASH DURATION:** 2 min. recommended start.

4. **MANUAL START:** Initiates backwash cycle. Unit must be on. Button must be held for 30 seconds.

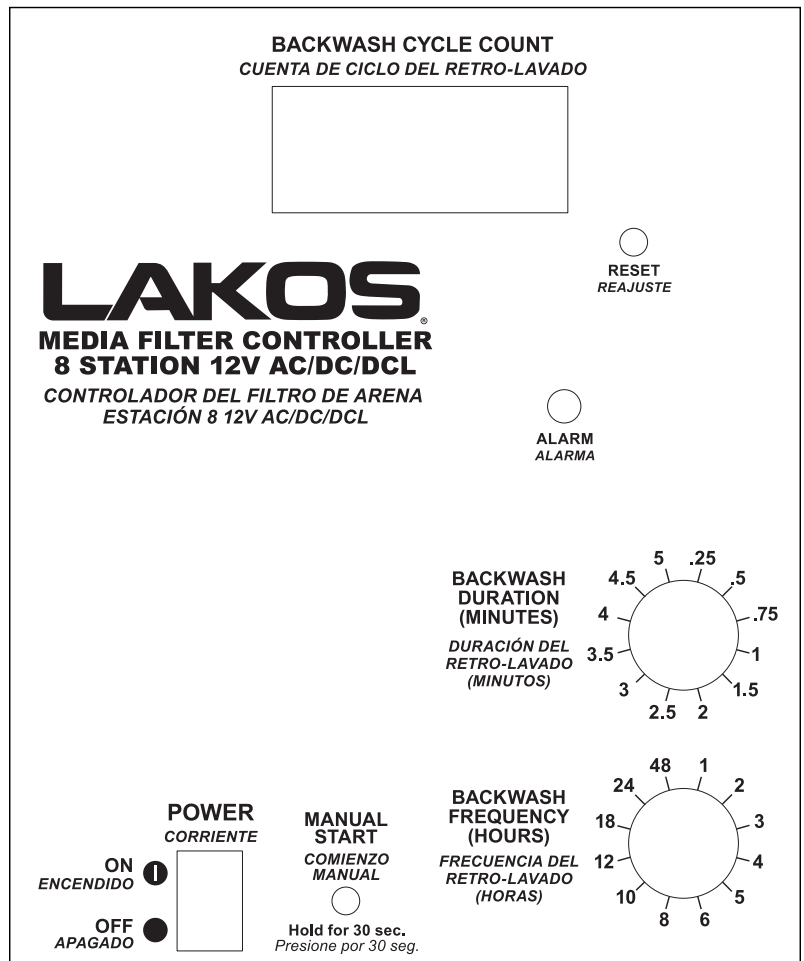
5. **RESET BUTTON:** Resets backwash cycle counter to zero; restarts the backwash frequency based on above settings.

6. **PRESSURE DIFFERENTIAL SWITCH:** Set to initiate backwash cycle when desired inlet-to-outlet differential occurs. Recommend 7 psi to start.

7. **ALARM:** If lit, system has undergone backwash cycle based on pressure differential 3 consecutive times without pressure differential recovery. Sets backwash frequency to 1 hour until system is checked and alarm is reset.

CAUTION

1. Do not exceed the electrical ratings of 1.5 amps AC or DC.
2. Do not set the pressure differential pointer below 2 psi (may damage unit).
3. Always latch door to minimize exposure to elements.



Fixed Settings Description

Power input

Proper connection of power supply wires to the controller's terminal block signals the controller of the power supply voltage type.

Number of tanks in operation

Attaching solenoid wiring to the terminal block signifies the number of tanks operating in the system.

DC vs. DCL

If power supply is DC/solar, controller assumes that DCL solenoids are in use. *NOTE: Do not mix solenoid types in a system.* See above for instructions when utilizing continuous DC input and desiring non-latching solenoids.

Pre-dwell

A set time of 30 seconds for sustained pressure differential (from inlet to outlet) before controller initiates a backwash cycle.

Dwell time

Set time of 60 seconds between backwashing of tanks in a system.

Display read-out

The digital display read-out records the number of backwash cycles initiated during a power-on sequence. To re-set, shutdown power for at least one minute to re-set counter to zero.

Alarm

The alarm light illuminates after three consecutive backwash cycles with little or no time in between the cycles. At that point, the controller will only initiate a backwash cycle once every hour until the controller and system are inspected for conditions that might trigger such excessive backwashing. To reset this function and turn off the alarm light, press the reset button.

Variable Settings Description

Backwash Frequency

Select the desired number of hours for a periodic backwash cycle *if pressure differential does not initiate a cycle*. Frequency time will reset whenever a backwash cycle is initiated.

Backwash Duration

Select the desired time for backwashing each tank. Recommend 2 minutes as starting point.

Manual Start Switch

Press this button to initiate a backwash cycle for all tanks in a system. Upon completion, the Backwash Frequency setting will begin a new countdown to another backwash cycle (unless the pressure differential setting triggers a backwash cycle prior to the elapsed time).

System Greater Than 8 Stations

LAKOS controllers can do an as many stations as demined necessary for the application. System requiring more than 8 stations will require the use of 2 or more controllers for this function. The primary controller or first controller is known as the Master Controller. All other controllers after the Master are known as Slave controllers. The Slave controllers are the same as the Master other than they follow the Master Controller. To connect the two controllers see Schematic 4. Subsequent controllers are connected in the same manor in series. Color coded cable is provide when controllers are purchased as a slave.

Installation

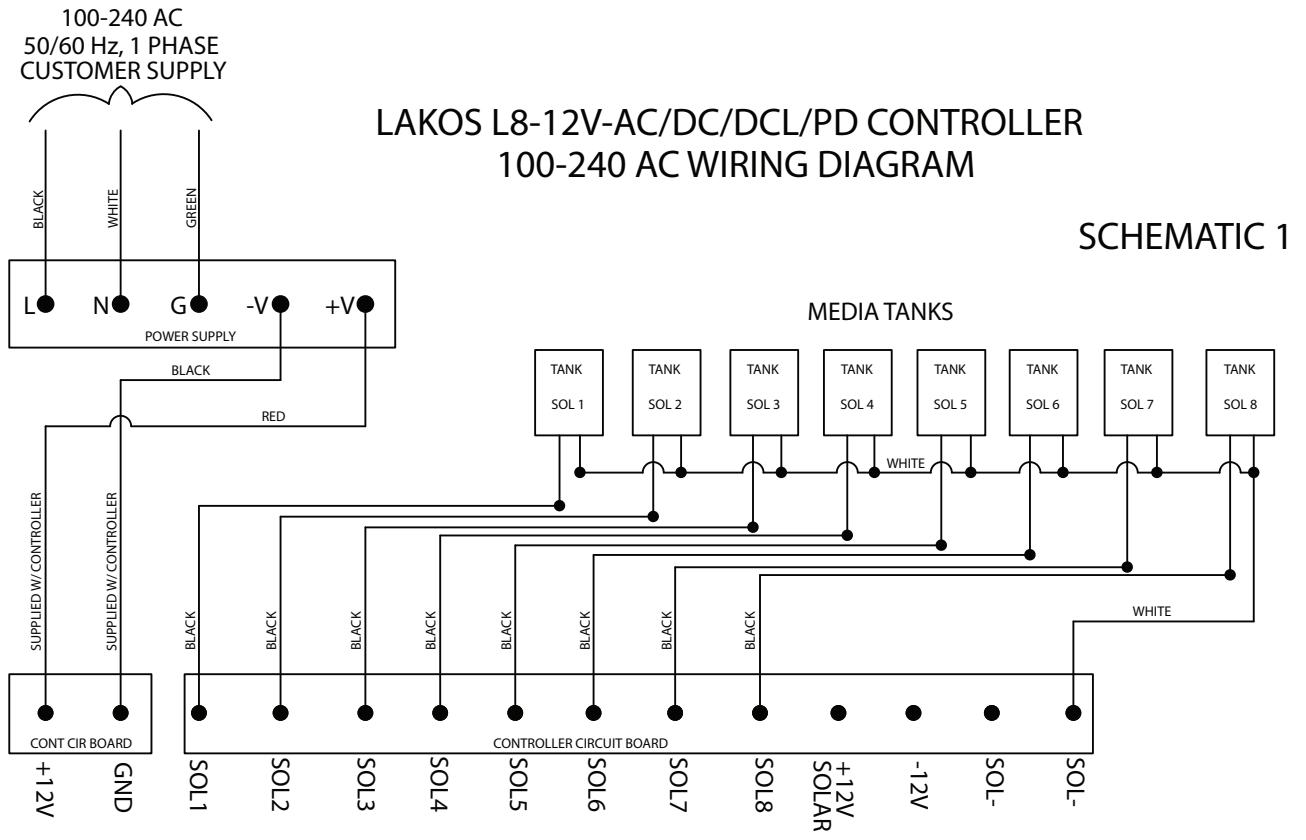
Electrical schematics are located in wiring diagrams for power and solenoid connections. For mounting the controller or controllers on a LAKOS Sand Media System please see installation instructions for that system. When controller is mounted for installation on other filters mount controller securely using mounting holes on back of enclosure. Controller should also be mounted so that it is not in direct spry of water. Please also note the following:

- Wire for connections to be 12 - 14 AWG.
- All openings not utilized to be covered.
- Conduit is recommended for external wiring.
- All local, state and country codes are to be followed.
- Line and neutral power connections must be as indicated on schematics.
- +/- power connections must be as indicated on schematic.

Troubleshooting & Operating Tips

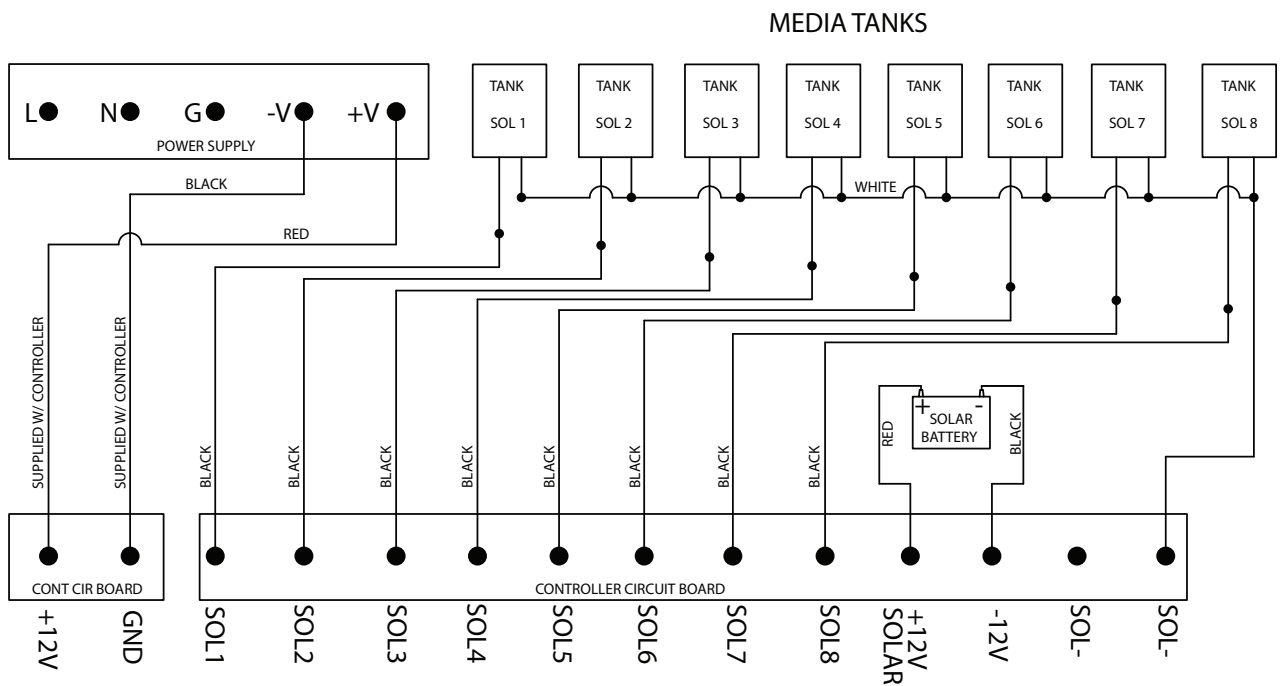
PROBLEM	POSSIBLE CAUSES	SOLUTIONS
No Power	<ul style="list-style-type: none"> ● Poor connection to supply power. ● Power supply failure. ● Board failure. 	<ol style="list-style-type: none"> 1. Re-establish power connection. 2. Check output of power supply for 12VDC. Replace if necessary. 3. Replace board if power supply has not failed.
Backwash Counter reads zero after extended use.	<ul style="list-style-type: none"> ● The counter was rest. ● The controller has a reoccurring power issue tripping the Hiccup circuit Breaker. 	<ol style="list-style-type: none"> 1. Set system to cycle backwash, if count occurs system was reset. 2. If system backwashes a tanks, then does not finish the cycle and counter power is out check connections of solenoid of the tank the failure occured. It the connections are good check the relay for short circuit. 3. Call LAKOS for assistance.
Excessive Backwashing	<ul style="list-style-type: none"> ● Improper setting of differential pressure switch. 	<ol style="list-style-type: none"> 1. Set differential pressure switch to recommended pressure in filter system IOM. Switch must be higher than 2 psi or greater than filter differential in clean operation.

Wiring Diagrams



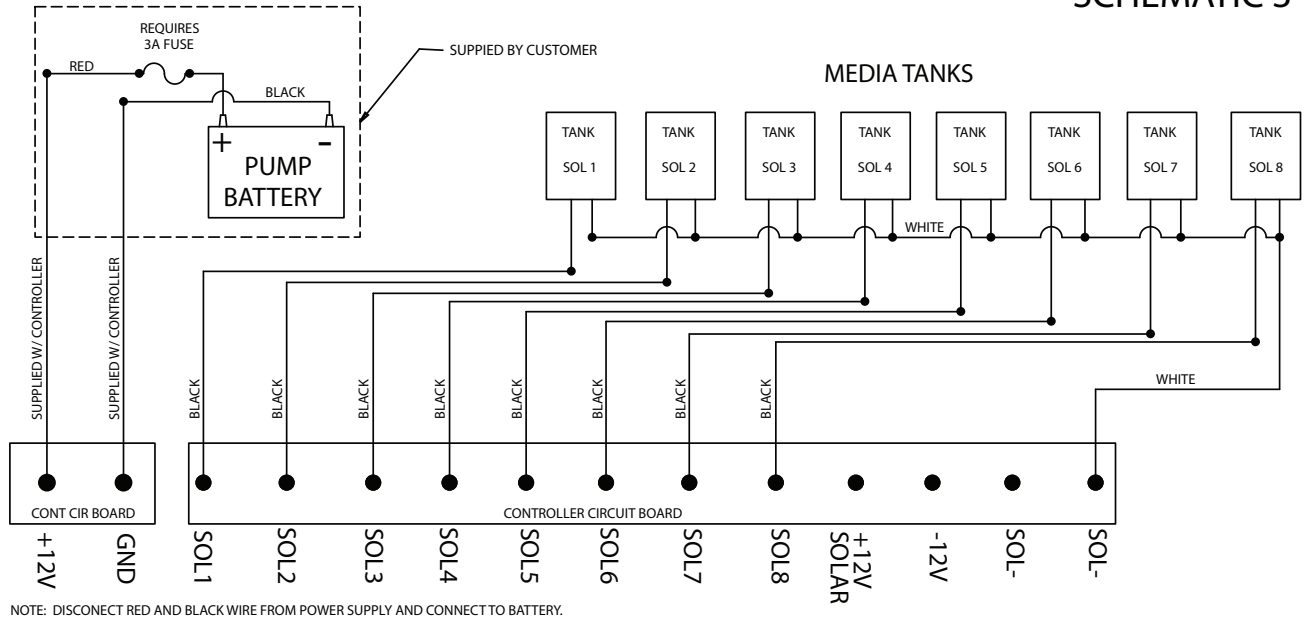
LAKOS L8-12V-AC/DC/DCL/PD CONTROLLER
12 V DCL SOLAR WIRING DIAGRAM

SCHMATIC 2

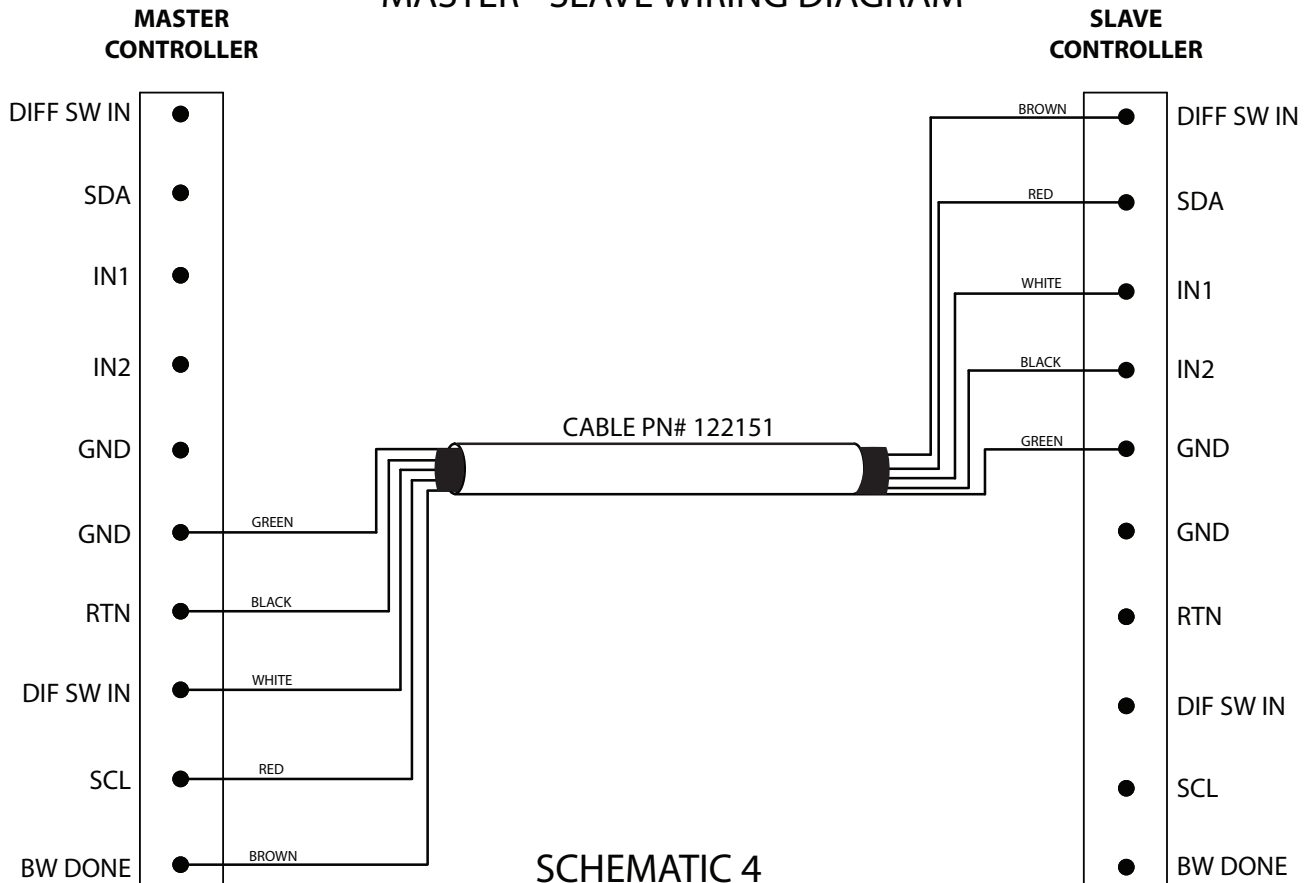


LAKOS L8-12V-AC/DC/DCL/PD CONTROLLER 12V PUMP BATTERY WIRING DIAGRAM

SCHEMATIC 3



LAKOS L8-12V-AC/DC/DCL/PD CONTROLLER MASTER - SLAVE WIRING DIAGRAM



SCHEMATIC 4

APPENDIX

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