

“BE” SERIES FILTER CONTROLLER INSTRUCTION MANUAL.

3-BE-AG900



amiad

Suitable for use with;
1 x 900 series, 1 x APF series, 1 x TAF electric, up to 4 x HydroTAF or HydroSAF,
up to 4 x Autoflush & up to 4 x Media vessel filter arrangement
(This controller does not include a VFA output)

May 2002

REVISION HISTORY

Filter Flush Controller forms part of the Amiad range of filtration controllers all designed to make filtration more reliable and economical..

Contact any of the Amiad Staff:

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Internet contact

Website www.amiad.co.il

This manual covers the use of the Filter Flush Controller for use with the following model filters:

- 900 series
- AFP series
- 4 bank media filter
- general filtration
-

There are other control systems available in the Filter Flush Range which allow extended features to be utilized. Contact your local Amiad representative for further information

REVISION HISTORY

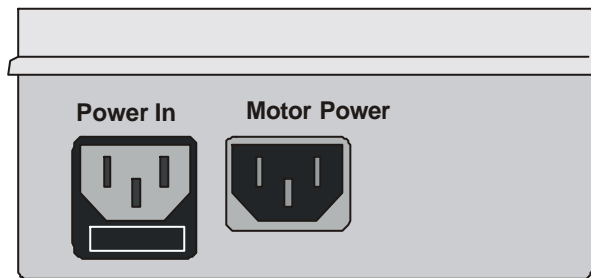
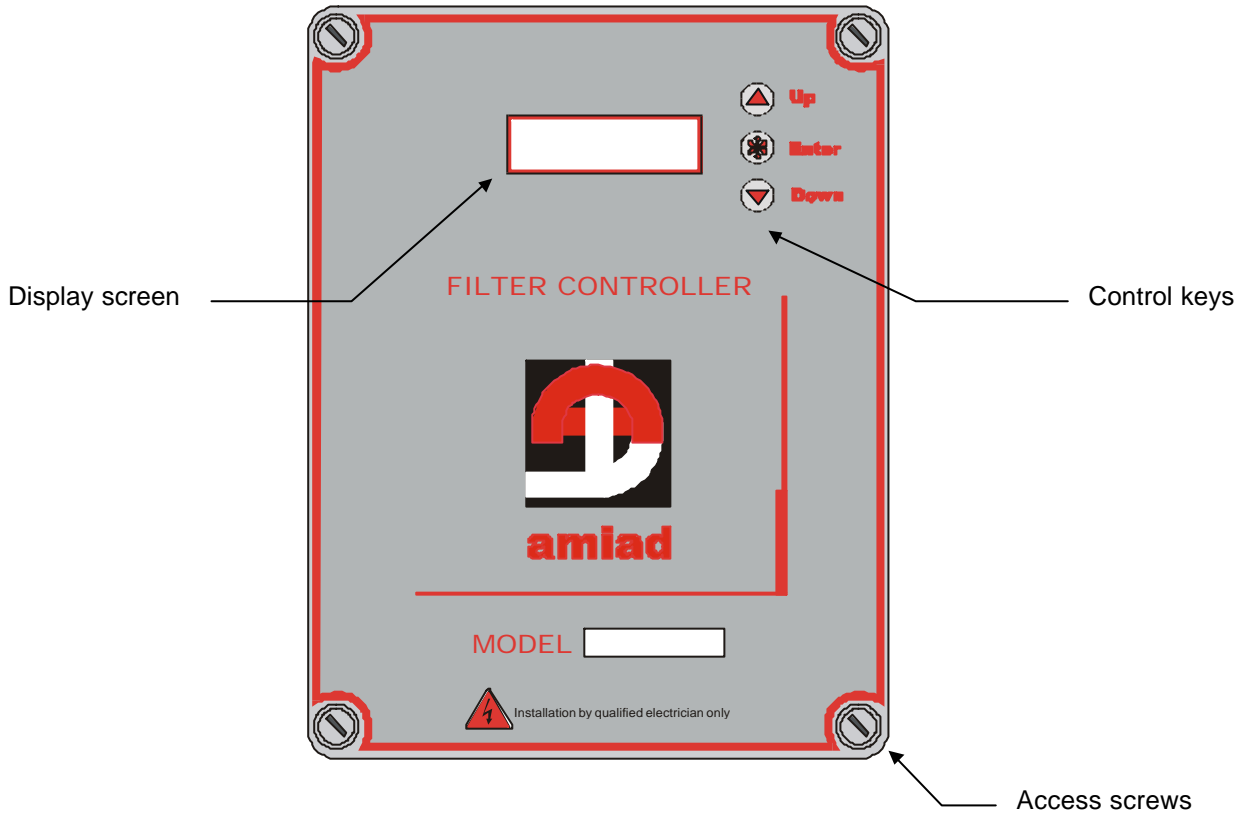
First Edition	2/2/99	EPROM 0699
Curent	12/1/02	EPROM 0302

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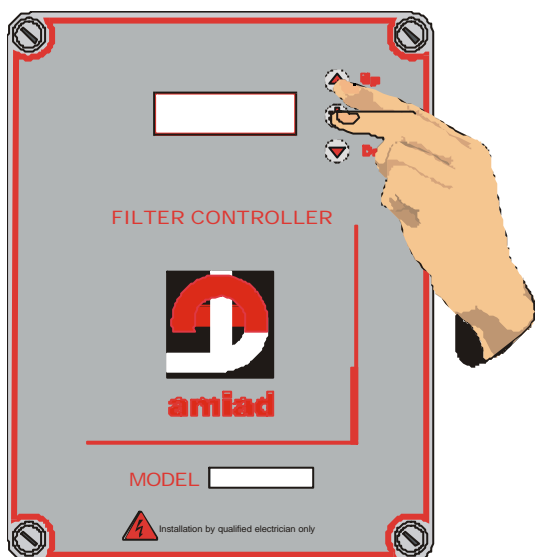
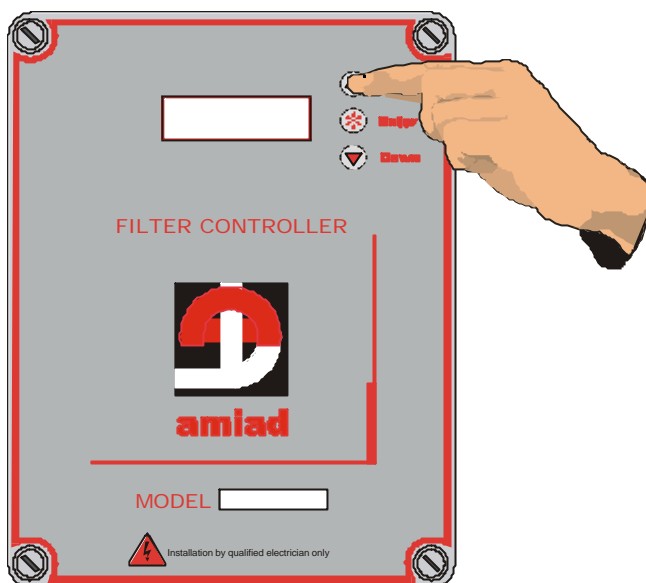
1. INTRODUCTION

The Amiad “Filter Flush Controller” is designed to automatically backflush filters on either a time or as required basis. The controller is based on a microprocessor, which scrolls through Menu’s that can be changed to suit each site.



Power is connected into the female “IEC” connector on the bottom of the controller. This connection is fused for safety.

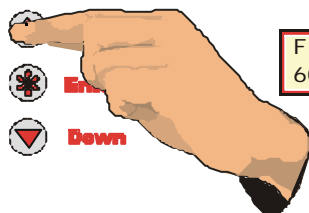
The controller has a list of menu items that allow adjustment of the filter flushing which are accessed by pressing the “UP” or “DOWN” keys.



To edit the value of the menu item press the “ENTER” key and either the “DOWN” or “UP” key depending on the value required.

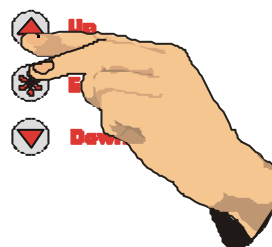
Flush cycle time
100 sec

Flush time
60 min



Flush time
73 min

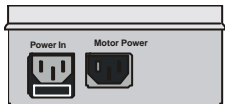
Flush time
60 min



2. QUICK START

1

Plug in power cable into IEC Connector



2

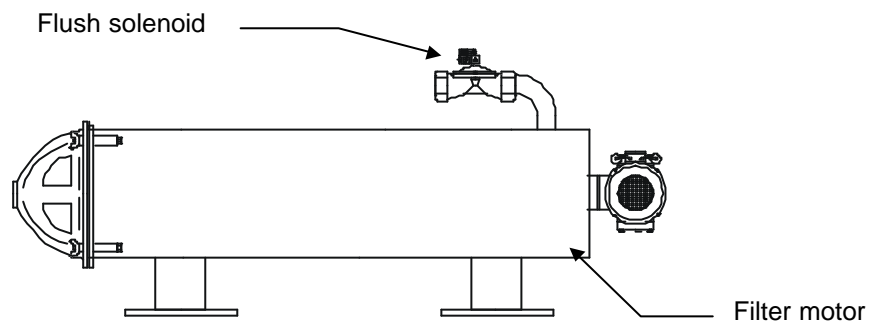
Plug in power cable into IEC Connector for the filter motor



3

Connect the flush solenoid to the terminal strip inside the controller as detailed on the page below.

Always turn off the power to the unit when opening and use a qualified electrician to make the electrical connections.



900 series shown - the procedure is identical for other models

4

Set the :

- Flush time
- Flush cycle time

To the required times

5

The system is ready to operate.

3. MENU ITEMS

MENU	DEFAULT	RANGE
1 Next flush		xxxx Mins
2 Total flushes		xxxxxxxx
3 TEST Mode OFF.		
4 Commission mode	OFF	==== Off ===== ----- On -----
5 Flush duration	30	xxxx Secs
6 Flush cycle time	60	Off,xxxx Mins
7 Flush dwell time	0	xxxx Mins
8 No. of filters	1	1 to 4
9 Solenoid coil	24 VAC	24VAC or 12VDC
10 Solenoid type	Standard	Standard,2 wire latched, 3 wire Latched
11 Max Flushes / Hr	100	xxxx
12 Output Relay	Flushing	Selection
13 Flow sensing	None	Select

The most common functions are marked in bold as these items are required to operate the system. The other menu items are set up for fine tuning the system and are not required for the average operator.

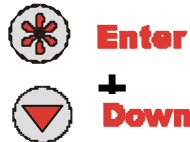
4. MENU DESCRIPTIONS

Next Flush
XXXXXX min

This is a descriptive item to inform the time until the next flush. It is defaulted in minutes and these units cannot be changed. The field will update every minute.

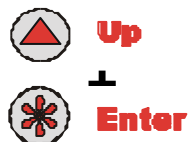
Total flushes
XXXXXXXXXX

The total number of flushes are recorded on this screen. To reset to zero press ENTER and DOWN simultaneously.

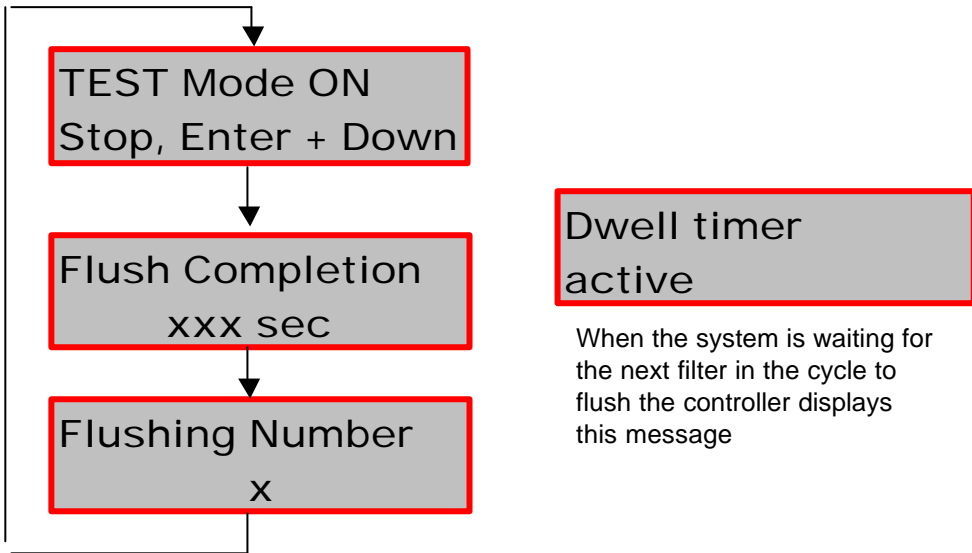


TEST Mode OFF
Start, Enter + Up

To test the flush cycle press the "ENTER" and "UP" button to run a flush cycle when this screen is visible.



Once the test mode is operational the screen flashes between the following:



The main status screen will show that the system is in Test Flush Mode by displaying this message

Test mode now
In progress



Commission Mode
=====OFF=====

To access additional menus press the “ENTER” button and the “UP” button to change the Commissioning Mode to “ON”. If there are no key presses for 5 minutes the commission mode will automatically revert to “OFF”



Flush Time
XXXXXX sec

The “FLUSH TIME” is the flushing time duration for each filter.



Flush cycle time
XXXXXX min

This is the time between flushes. It is defined as the time from when the last flush starts to the time when the next flush begins. For continuous flushing select the cycle time to “0”. This will continuously flush the filters.



Up

Flush dwell time
XXXXXX min

The time between sequential flushing of the filters. This is only relevant when more than one filter is being flushed.



Up

No. of filters
XX

Defines the number of filters to be flushed. The maximum number of filters that can be controlled with the standard system is 4 ;with individual flushing motors or 8 without flushing motors. See "FILTER TYPE" to select the motor or solenoid filter options.

Up to 32 filters only can be flushed with the additional options available on the FILTER CONTROLLER. Contact Amiad for further information.



Up

Solenoid coil
24 Volts AC

This menu defines the voltage of the solenoid coil being used. The options are 24Volts AC or 12 Volts DC.



Up

Solenoid type
Standard

The FILTER CONTROLLER can activate numerous types of solenoids:

- Standard solenoids with fixed continuous voltage coils
- 2 wire Latched solenoids
- 3 wire Latched solenoids

These are options for the solenoid activation types Contact Amiad or your local dealer for detailed information of the type of solenoid coils that you are using.

The options for:

- 2 wire Latched solenoids
- 3 wire Latched solenoids

will not display unless the 12Volt DC Solenoid type is selected in the previous menu.



Up

Max Flushes / Hr
XXXXXX

Input the maximum number of flushes per hour that you wish to allow. If this is exceeded then the controller will place a message "XFlsh" on the status screen to inform that the maximum number of flushes has been exceeded.

Last Flush XFlsh
XXXX min

This is for information only and does not stop the flushing process. This message will update every hour. To clear the message press the "ENTER" key



Output Relay
Flushing

The FILTER CONTROLLER has one programmable output that can be selected to any one of a number of functions.

Note: This output cannot be utilized with the standard "3-BE-AG900" controller. An expansion circuit board, c/w the relay for this purpose, needs to be added to the primary circuit board to allow the output relay to be utilized. (Please discuss with your local Amiad office if required.)

Function	Description	Delay time
Flushing	Any filter flushing	5 sec
Fault output	Any fault output. <ul style="list-style-type: none"> • Filter stalled • Flush motor fault • Limit switch fault • Motor rotation fault 	5 sec
Alarm output	Any alarm <ul style="list-style-type: none"> • Flush alarm • Excess flow alarm 	5 sec
Filter stalled	Filter stalled fault	5 sec
Flush motor fault	Flush motor trip	5 sec
Excess flow	Excess flow alarm trip	5 sec
Any fault or alarm	Any alarm or fault as detailed above	5 sec

The Programmable output is a relay, which can handle up to 5 amp current draw. The power supply to this relay should be fused to no more than 5 amps to avoid the risk of track failure due to excess current.



Flow sensing
None

The FILTER CONTROLLER can detect flow within the reticulation. This will allow the filter to go into rest mode if there is no flow going through the filter thereby saving backflush water when there is no flow. The options are:

- None
- Switch

Switch presumes that you have installed a flow switch in the system to prevent flushing when this flow switch detects no flow. This is particularly useful for pressurized systems that do not require flushing in a no flow condition.

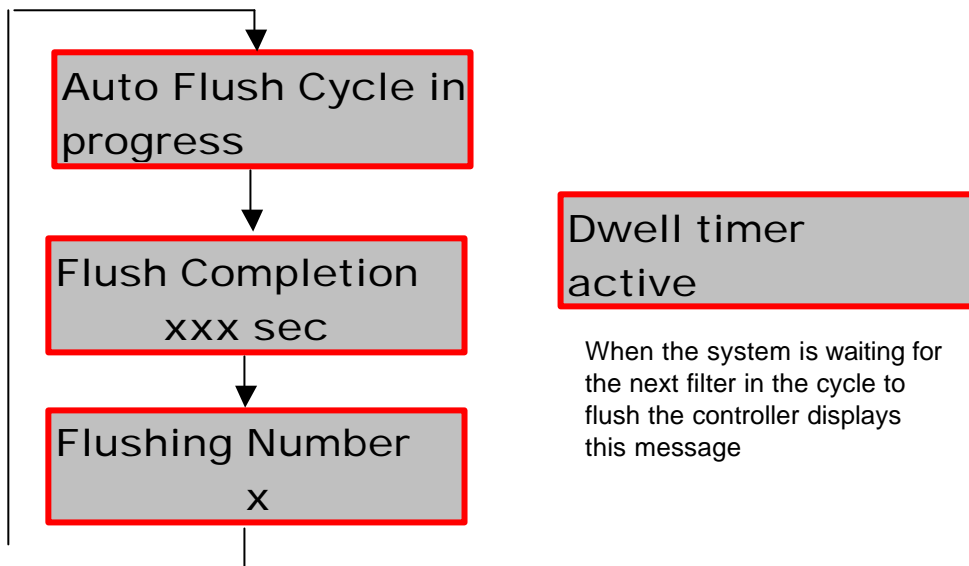
If "SWITCH" is selected then the flow switch must have closed contacts for the system to flush.

5. INFORMATION MESSAGES

The Filter Controller has numerous information messages to inform the user as to specific tasks that are being done.

FLUSHING

Once a flush is initiated by either time, differential pressure or volume the Controller displays these screens in a rotating sequence as the main display.



Diff Press cycle
In progress

If the backflush was initiated by the differential pressure switch the first flush screen indicates this with the following screen. The default differential delay timer is set for 3 seconds. If the flush was initiated by the remote flush signal then the indication will be the same as for the Auto flush.

Pause Activated

When the PAUSE terminals are closed then the FILTER CONTROLLER ceases ALL operation until the PAUSE contacts are re-opened.

No flow detected

The FILTER CONTROLLER can be used to switch off if a no flow condition is present.

This is common for use with pressurized systems where flushing is required to be ceased when there is no flow going through the filter. This saves on backwash waste.

INITIALIZATION MESSAGES

When the Filter Controller powers up there are some messages that are for information purposes only.

Loading Data
From Memory

All data stored in the Filter controller is the last stored data. This means that the stored data is recalled after each power down.

AMIAD AUSTRALIA
Version No. 0302

The software version number is displayed for 1 second on initial power up. The code for the version number is date sensitive with the first 2 numbers being the week of the year and the last 2 numbers being the year.

POWER FAILURE
About to restart

If the unit loses power a stored charge within the system will save all data to the memory so that all changes made are saved. When this occurs there is a message:

6. ALARM MESSAGES

The FILTER CONTROLLER has numerous display messages that serve to inform the operator of out of specification situations. These messages can be cleared by pressing the "ENTER" key after the fault has been cleared.



Enter

If you have utilized the expansion circuit board c/w the output relay, in addition to the basic controller, any of the following alarm modes, (if programmed accordingly), will energize the output relay to alert the operator/control room of the alarm.

FILTER STALLED ALARM

If the differential pressure switch remains closed for more than 15 minutes it is assumed that the filter has

Filter Stalled

STALLED and requires attention. This message will remain active until the "ENTER" button is pressed. The filter operation will continue after this fault is registered until the fault is manually remedied on the filter. The fault alarm can be programmed to trip on this fault.

FLUSH ALARM

Last Flush **XFish**
XXXX min

If the Total number of flushes in any one-hour period exceeds the "MAX. FLUSHES / Hr" setting then the FILTER CONTROLLER will display this message. It is for informational purposes only to inform the operator that the system is being strained with either excess flow or excess dirt loading.

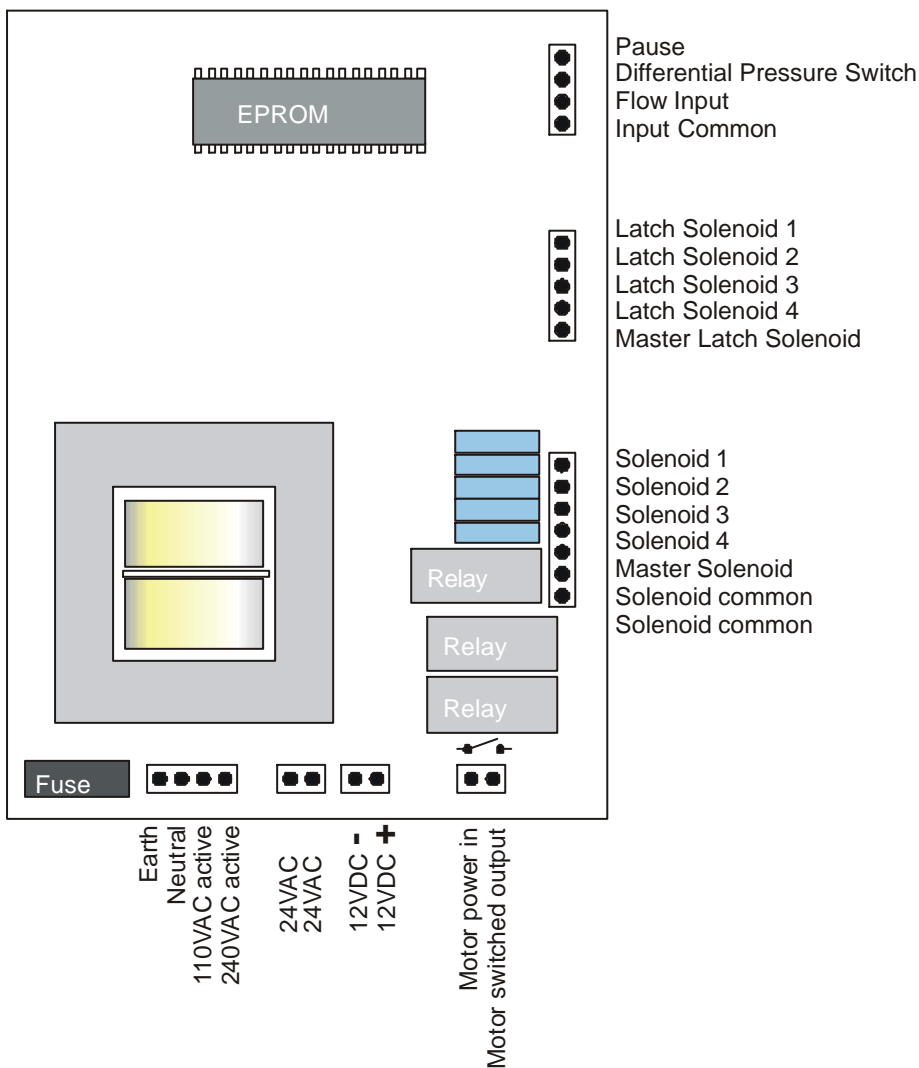
TEST MODE

TEST Mode ON
Stop, Enter + Down

When the TEST Mode menu is selected for test flushing the screen will inform the operator that the filter is being flushed in this mode.

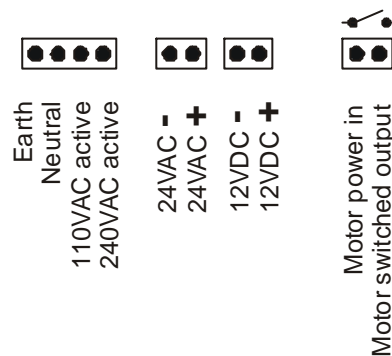
7. TERMINAL CONNECTIONS

The FILTER CONTROLLER requires that some terminals be connected to allow for optional features to be used. The drawing listed shows how to connect some of the more common applications.



7.1. POWER INPUTS

All of the power terminals are located on the bottom edge of the circuit board and are labeled with specific details of the power inputs.



For 240 or 110VAC connection, insert the active wire into the relevant voltage terminal and the EARTH and Neutral similarly.

12VDC POWER SUPPLY

FIT EXTERNAL FUSE

If the power supply is 12VDC (battery or solar power) connect to the 12VDC terminals. These are polarity sensitive and need to be checked prior connection.

If the polarity is incorrect then there will be damage done to the board and as such will void warranty claims.

All power supplies connected with 12 VDC require an in line fuse to be fitted and should be no greater than 2.5 amps.

See motor connections for DC motor connections

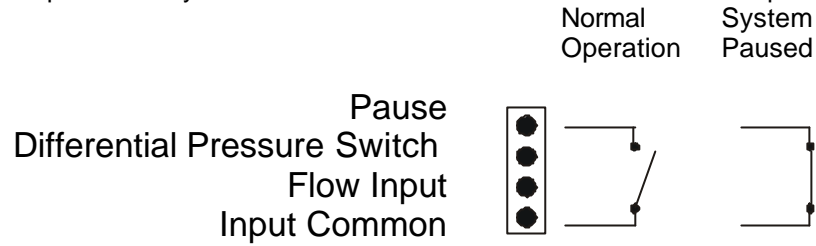
24VAC POWER SUPPLY

Connection to the 24VAC-power supply is not polarity sensitive. Any of the 24 VAC wires can be input into the 24VAC terminals. If a motor is used with this option it will need to be wired to the motor switch terminal. See Motor Connections. Be sure to provide a FUSED POWER SUPPLY for this option.

7.2. INPUTS

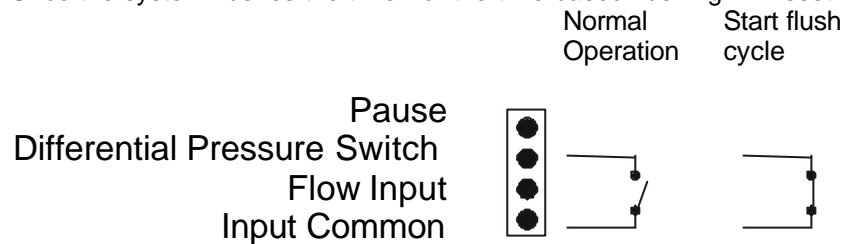
PAUSE

To pause the system close the contact between the Pause and Inputcommon terminals



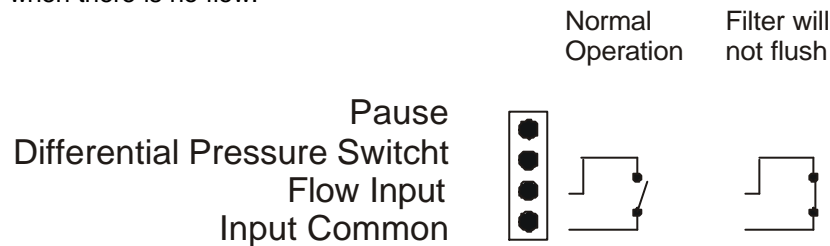
DIFFERENTIAL PRESSURE

A closed contact will activate a flush cycle. Closure of these contacts will override the time based flush command. Once the system flushes the timer for the time based flushing will reset.



FLOW SWITCH

When a flow switch contact is closed the filter will not flush. This stops unwanted flushing in pressurized systems when there is no flow.



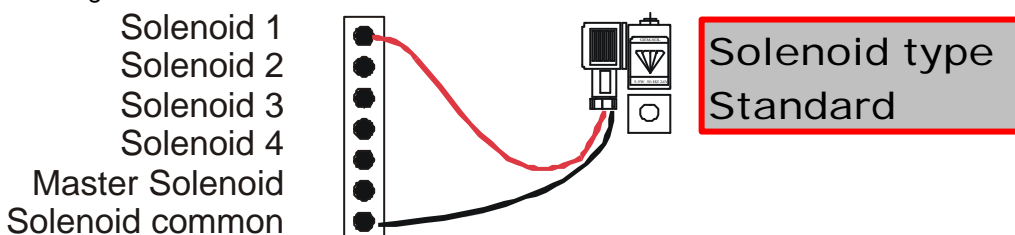
7.3. SOLENOID CONNECTION

Filter type
Solenoid

STANDARD SOLENOID

The standard solenoid should be connected to the terminal strip as shown. As more filters are required connect the flushing valve solenoids to the terminals sequentially.

e.g. Filter 2 connects to terminal "Solenoid 2 and the Solenoid common"



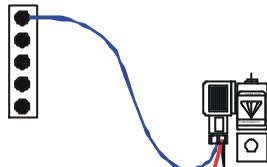
The voltage is set in the menu item "SOLENOID COIL" The options are 12VDC or 24VAC.

LATCHED SOLENOID

3 Wire Latched.

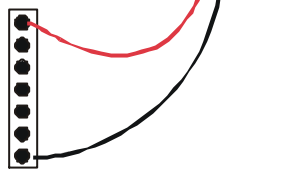
Connect as per the standard solenoid with the third wire connected to the Latched Solenoid terminal.

- Latch Solenoid 1
- Latch Solenoid 2
- Latch Solenoid 3
- Latch Solenoid 4
- Master Latch Solenoid



Solenoid type
3 wire latched

- Solenoid 1
- Solenoid 2
- Solenoid 3
- Solenoid 4
- Master Solenoid
- Solenoid common

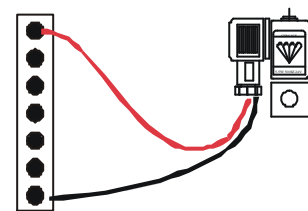


Solenoid type
2 wire latched

2 Wire Latched

This is wired identically to the Standard option. The 2 wire latched option must be selected in the "SOLENOID TYPE" menu

- Solenoid 1
- Solenoid 2
- Solenoid 3
- Solenoid 4
- Master Solenoid
- Solenoid common



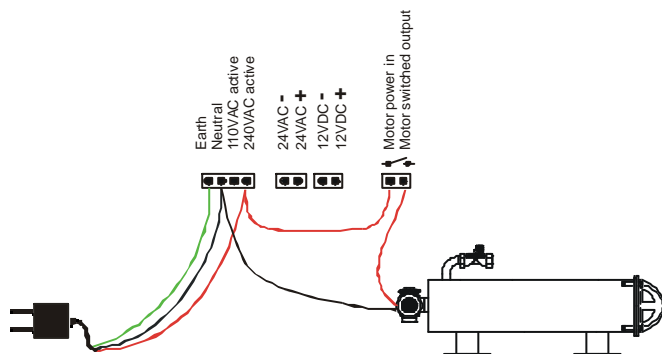
The terminal strip has 2 Solenoid common terminals to allow additional wires to be fitted with ease.

7.4. MOTOR CONNECTIONS

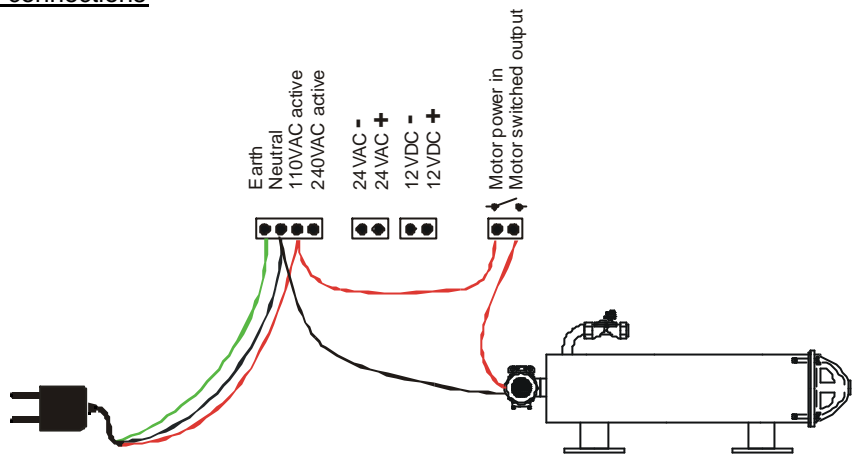
The motor relay on the FILTER CONTROLLER is a VOLTAGE FREE contact. This allows various voltages to be switched with the FILTER CONTROLLER. The maximum motor size is determined by the current draw of that motor. The maximum current should never exceed 8 amps. The larger the motor current the shorter the life expectancy of the motor switching relay so it is suggested that any switching over 5 amps be done with an external contactor.

In order to switch a motor on, connections between the power supply and the motor relay are required. Connections for all of the voltage types allowable are shown below.

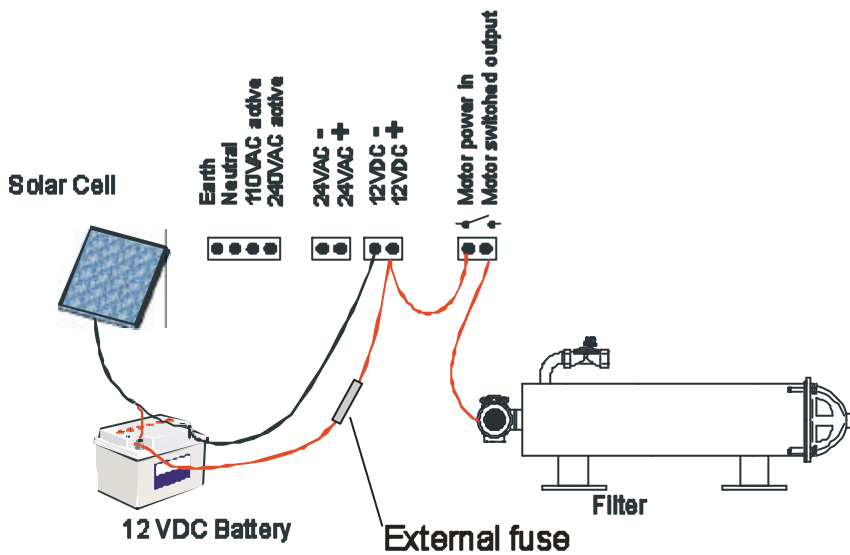
240VAC Motors Connections



110VAC Motors connections



12VDC Motors connections



CONTACTOR OPERATION

For applications with 3 phase power supplies or when the motor current exceed 5 amps it is required to us a contactor to switch the mains power to the motor.

Simply supply the control voltage to the motor switch relay and then connect the switched output to the contactor control coil.

This should be done by a qualified electrician to eliminate the possibility of injury.

8. MULTIPLE SAND FILTER

