

AMIAD Flushing Controllers

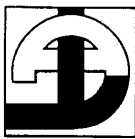
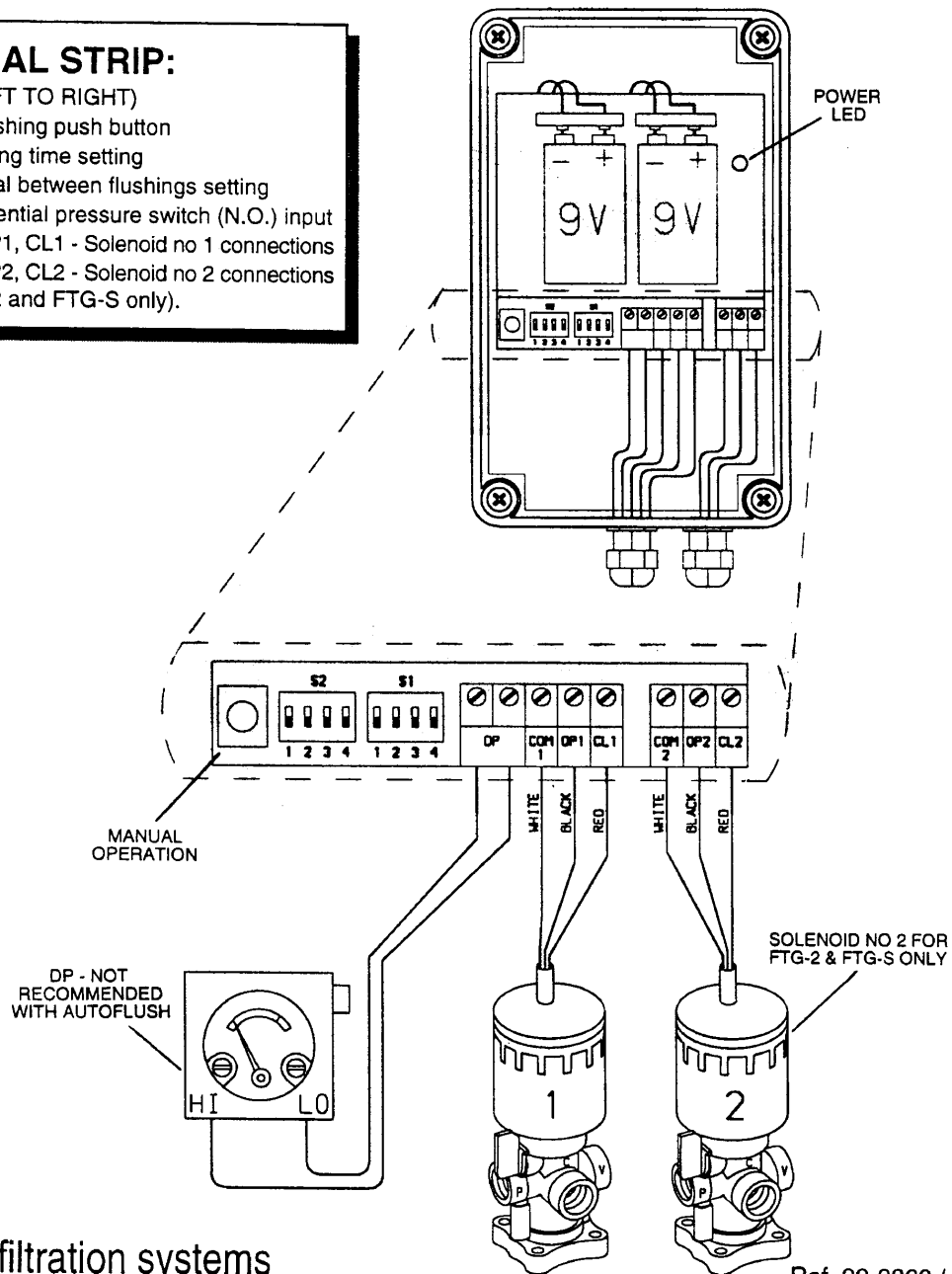
FTG-SERIES FTG-1, FTG-2, FTG-S

Installation, Programming and Setup Instructions

TERMINAL STRIP:

(FROM LEFT TO RIGHT)

- Manual flushing push button
- S2 - Flushing time setting
- S1 - Interval between flushings setting
- DP - Differential pressure switch (N.O.) input
- COM 1, OP1, CL1 - Solenoid no 1 connections
- COM 2, OP2, CL2 - Solenoid no 2 connections (For FTG-2 and FTG-S only).



amiad filtration systems

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INTRODUCTION

Amiad **FTG** series flushing controllers are simple devices which completely automate filter flushing, by means of hydraulic valves and solenoids. Amiad flushing controllers can be used in various configurations to make your filtration system self maintaining under normal operating conditions.

FTG series controllers are available in 3 configurations:

Name	Description	Cat. No.
FTG-1	Basic controller with one solenoid	4-50-00-0001
FTG-2	Basic controller with two solenoids operating in sequence	4-50-00-0002
FTG-S	Basic controller with two solenoids to operate one Automatic Hydraulic filter	4-50-00-0003

APPLICATIONS

Amiad **FTG** series flushing controllers are ideal for use in areas where no electrical supply is available since they are battery powered and consume very little current. Where electricity is available the controllers may be powered by means of inexpensive external power supplies which are readily available.

The **FTG-1** flushing controller is designed to control the flushing of a single Amiad Turboclean Autoflush™ filter (with the exception of the 3" plastic model). The **FTG-1** when appropriately connected may also be used to automate backflushing of sand or gravel media filters.

The **FTG-2** flushing controllers are used to sequentially control the flushing of two Amiad Turboclean Autoflush™ filters or a single 3" Turboclean Autoflush™ Plastic Filter (this model is equipped with two flushing ports).

The **FTG-S** controller is similar to the **FTG-2** but with different internal programming. This controller is intended specifically to control the cleaning and flushing of a single automatic filter, hydraulically operated.

Specific information regarding installation and setup of **FTG** series controllers is included in the Installation, Setup and Programming sections of this manual as well as the literature provided with your Amiad filter.

Amiad **FTG** series flushing controllers can also be used in other configurations and in conjunction with some non-Amiad filters. Your Amiad technical representative will be happy to help you find the correct solution for your particular needs.

PRINCIPLE OF OPERATION

The flushing controller initiates filter flushing by means of latching solenoid valves which control the cleaning and flushing action of Amiad filters. Flushing can be triggered by any of the following: Time, pressure differential, remote or manual operation.

Hydraulic, electrical connections and programming are described in detail in the Installation, Setup and Programming sections of this manual.

INSTALLATION

GENERAL

In most cases, controllers are supplied already installed on a filtration system or with appropriate mounting hardware. Please contact your Amiad technical representative if you require additional or specialized mounting hardware.

If you are installing the controller yourself, mount it in a location which will allow free access to the controls. It is best to install the controller with the wiring ports pointing downward to reduce the chances of water getting inside.

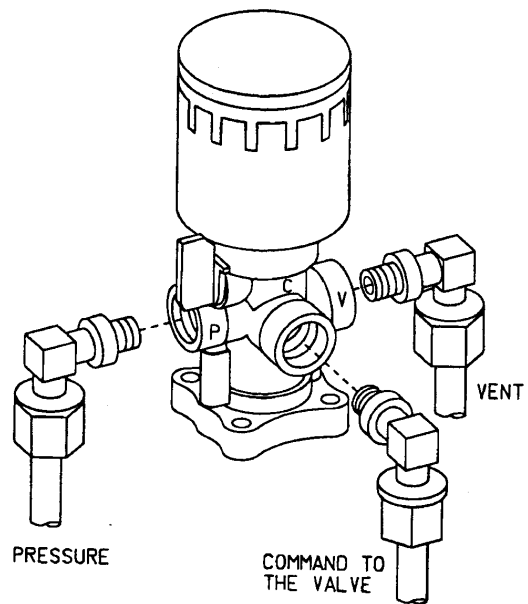
When making electrical connections, route all wires through the wiring ports located on the bottom of the controller. Try to keep all wires as short as possible.

Unused wiring ports should be plugged or sealed and the hinged cover should be kept tightly closed to keep dirt and water out.

HYDRAULIC CONNECTIONS

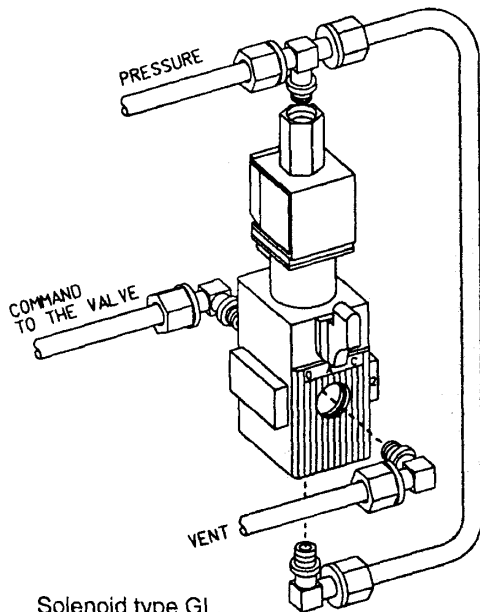
Amiad **FT** series controllers are usually supplied with 3/2 latching solenoid valve(s). For proper tubing connections, please refer to the relevant solenoid type (below).

In order to change the solenoid valve from Normally Open to Normally Closed - swap between its Red and Black wires.



Solenoid type BD.
Cat. No. 4-10-85-00

DISCLAIMER - Notwithstanding the suitability of Amiad flushing controllers for operation with non-Amiad filters and solenoid valves others than those supplied and/or recommended by Amiad Filtration Systems, Amiad makes no guarantees regarding performance or reliability of controllers and other components in such configurations. Please contact your Amiad technical representative with questions regarding compatibility and possible impact on controller warranty.



Solenoid type GL.
Cat. No. 4-59-01-03

ELECTRICAL WIRING

If the flushing controller has been supplied with solenoid valves assembled, there is usually no need to alter these connections. Insert two standard 9V batteries or connect to any other 9V -dc power source.

*The FTG series may only be operated with 9 Volt DC.

BASIC OPERATION OF FTG CONTROLLER

The duration of flushing must be set (S2). Please refer to the programming section to determine the correct settings.

The duration between flushing cycles must be set (S1). Please refer to the programming section to determine the correct setting.

OPERATION BY PD SWITCH

Operation by pressure differential is recommended with sand filters and the automatic ACE filters. It is not recommended with Autoflush Turboclean filters.

The controller will start a flushing cycle when the signal received from the PD lasts more than 40 seconds in FTG-1, FTG-2 or 10 seconds in FTG-S.

MANUAL OPERATION

Manual operation of a flushing cycle can be initiated by depressing the MANUAL FLUSHING push button for one second.

FAULT MODE

After 7 consecutive flushings operated by DP switch the controller will get into Fault mode.

In this mode the controller will stop flushing according to DP switch and will continue to operate according to time only. In this mode the power led will blink every 1 second and not every 4 seconds as normal.

In order to exit fault mode, press the MANUAL FLUSHING push button.

PROGRAMMING

All user programmable functions are set using the two banks of switches described below. Switch settings are registered whenever the MANUAL FLUSH/RESET button is pressed, or power is connected to the controller. Thus, it is necessary to press the MANUAL FLUSH/RESET button in order for changes to the switch settings to take effect.

S1 - Flushing Interval

These switches are used to set the flushing interval for timer operation. The flushing interval is set by the switches position from 5 minutes to 168 hours. See TIME SELECTION TABLE.

S2 - Duration of Flushing

These switches are used to set the amount of time during which flushing occurs. The duration of flushing may be set between 5 seconds and 6 minutes. See TIME SELECTION TABLE.

TIME SELECTION TABLE

	Flushing time				Interval between flushings					
	S2				Time	S1				Time
ON >	□ □ □ □				ON >	□ □ □ □				
OFF >	■ ■ ■ ■				OFF >	■ ■ ■ ■				
	1	2	3	4		1	2	3	4	
1	0	0	0	0	5 sec	0	0	0	0	5 min
2	1	0	0	0	8 sec	1	0	0	0	10 min
3	0	1	0	0	10 sec	0	1	0	0	15 min
4	1	1	0	0	12 sec	1	1	0	0	20 min
5	0	0	1	0	16 sec	0	0	1	0	30 min
6	1	0	1	0	20 sec	1	0	1	0	45 min
7	0	1	1	0	25 sec	0	1	1	0	1 hour
8	1	1	1	0	30 sec	1	1	1	0	2 hour
9	0	0	0	1	45 sec	0	0	0	1	4 hour
10	1	0	0	1	1 min	1	0	0	1	8 hour
11	0	1	0	1	1.5 min	0	1	0	1	12 hour
12	1	1	0	1	2 min	1	1	0	1	18 hour
13	0	0	1	1	3 min	0	0	1	1	24 hour
14	1	0	1	1	4 min	1	0	1	1	72 hour
15	0	1	1	1	5 min	0	1	1	1	120 hour
16	1	1	1	1	6 min	1	1	1	1	168 hour

TROUBLE SHOOTING

For operation test: Depress the MANUAL FLUSHING push button - the controller should operate the solenoid for a period of time that was set at the S2.

POSSIBLE MALFUNCTIONS	THE CAUSE	ACTION TO BE TAKEN
Controller does not operate the solenoid.	<ul style="list-style-type: none"> a. Batteries are empty. b. A break in the battery's cable. c. A break in the solenoid wires. 	<ul style="list-style-type: none"> a. Replace batteries. b. Connect or replace the cable. c. Connect the wires or replace the solenoid.
The solenoid is activated, but the flushing valve does not respond.	<ul style="list-style-type: none"> a. Manual operating lever of the solenoid is OFF. b. Blocked pilot tubes as a result of bent tubes or dirt. c. The solenoid's electric wires are connected the wrong way round. 	<ul style="list-style-type: none"> a. Move handle to automatic position. b. Check, clean and repair accordingly. c. Swap between the black and the red wires at the terminal strip.
Flushing valve does not close.	<ul style="list-style-type: none"> a. Control filter is blocked. b. Blocked pilot tubes as a result of bent tubes or dirt. c. The solenoid's electric wires are connected the wrong way round. d. Poor batteries. e. Ambient temperature is too high. 	<ul style="list-style-type: none"> a. Clean the control-water filter. b. Check, clean and repair accordingly. c. Swap between the black and the red wires at the terminal strip. d. Replace batteries. e. Cover the controller in order to prevent direct radiation of the sun.
Batteries are emptying very quickly.	<ul style="list-style-type: none"> a. Moisture inside the control box. b. Ambient temperature is too high. 	<ul style="list-style-type: none"> a. Dry out the box and prevent the entering of moist. b. Cover the controller in order to prevent direct radiation of the sun.
Signal from DP does not activate flushing, but is activated by pressing Manual Flushing push button.	<ul style="list-style-type: none"> a. A blocked filter causes a constant signal at the PDS input. b. PDS is malfunctioning. 	<ul style="list-style-type: none"> a. Clean the filter and re-operate. b. Check the PDS and replace accordingly.

SPECIFICATIONS

Power supply: Two standard 9-volt alkaline batteries or a DC supply of 9 volts, 500 milliamps.

Battery life: Approximately 5,000 actuations (single solenoid).

Solenoid control outputs: 12V pulse for 45 msec.

Operating temperature: -5 to +50°C (23 to 122°F)

Case: IP 56 waterproof plastic enclosure.

User programmable settings:

- a. Flushing interval (elapsed time): 5 minutes to 168 hours.
- b. Flushing duration: 5 seconds to 6 minutes.
- c. Number of solenoid valves controlled: 1 or 2

Fixed settings:

- a. Dwell time -5 seconds between operation of the two solenoid valves.
- b. Differential pressure signal requirement:
 - FTG-1, FTG-2 : 40 seconds
 - FTG-S: 10 seconds
- c. Delay, to recheck for differential pressure signal after flushing:
 - FTG-1, FTG-2 : 40 seconds
 - FTG-S: 10 seconds