

Geoflow’s controllers are the brain in the system, utilizing a programmable logic controller (PLC) to activate the pump(s) cycles, zone valves and flush valves when needed.





In 2007 Geoflow introduced a new controller called the GeoTS.

Geared towards commercial sites with multiple zones or inputs, the key features of the Geo TS are:

- 6” Touchscreen. Inputting parameters such as pump times and flush times is in plain English with help menus.
- Each zone can be set independently. Run times can vary from zone to zone, which is particularly beneficial when all zones can’t be the same.
- Measures flow data per zone. The amount of total water and average gallons per minute are logged by zone when using the flow meter option
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Comparison Chart between Geo standard Logo and Geo Touchscreen

Features	Geo Standard (Geo)	Geo Touchscreen (GeoTS)
Interface	1” Logo with arrows 	6” Touchscreen 
Programmable Logic Controller PLC	Yes	Yes
Programmed for 4-floats	Yes	Yes
Touch-safe panel	No	Yes
Each zone can have different run times	No	Yes
Measure flow rate for each zone	No	Yes
Manual or automatic flushing	Auto or manual	Auto only
Enclosure	Nema 4X fiberglass	Nema 4X fiberglass
HOA switch - pump	Toggle 3-way	Rotary 3-way

HOA switch - solenoids	Toggle	Touchscreen
Lightening arrestor	Yes	Yes
Onscreen help menus	No	Yes
<p>Log Functions</p> <ul style="list-style-type: none"> - Elapsed time meter (ETM) - Pump events - Filter Flush Counter - Field Flush Counter - Peak timer events - High level alarm events - Power failure events - Push to silence - Add-on parts such as pressure sensor - Flow data (avg GPM & Total Flow by zone) 	<p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>No</p> <p>No</p> <p>No</p>	<p>Yes</p> <p>Yes- time & date stamped</p> <p>Yes- time & date stamped</p> <p>Yes- time & date stamped</p> <p>Yes- time & date stamped</p> <p>Yes- time & date stamped</p> <p>Yes</p> <p>Yes- time & date stamped</p> <p>Yes – if installed</p> <p>Yes- if Geoflow FM Pulse meter is installed</p>
<p>Programmable Parameters</p> <ul style="list-style-type: none"> Independent zone run times Primary run and rest time Secondary run and rest time Filter Flush time & frequency Field Flush time & frequency Solenoid Drain Back Time 	<p>No</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p>	<p>Yes – new feature</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p>
<p>Pre-built to accept the following parts following optional parts:</p> <ul style="list-style-type: none"> Flow meter Remote alarm Blower input Ultraviolet non audible alarm Rain Gauge 	<p>No</p> <p>Yes</p> <p>No</p> <p>No</p> <p>No</p>	<p>Geoflow FM-pulse meter</p> <p>Yes</p> <p>Yes</p> <p>Yes with N/O contact</p> <p>Yes with Geoflow gauge</p>
<p>Self diagnostics</p> <p>It has diagnosis capabilities for the floats, pumps, contactors and the PLC itself and any auxiliary components or standard features that has a sensor feedback wired to the panel.</p>	No	Yes
<p>Displays current status of equipment</p> <p>Gives the countdown on the screen to next event and what equip. is active.</p>	No	Yes
<p>Panel voltage</p> <ul style="list-style-type: none"> Incoming power Contactors and sensors Solenoid valves Pumps 	<p>110V</p> <p>24V DC</p> <p>24V AC</p> <p>110V- 1Hp 1 phase or 220V- 3Hp 1 phase</p>	<p>110V</p> <p>24V DC</p> <p>24V DC</p> <p>110V- 1Hp / 1 phase or 220V- 3Hp / 1 phase</p>

Choose a GEO controller from the table below:

Step 1. Controller Type

- Choose between Geoflow's standard controller (Geo) and the Geo Touchscreen (Geo TS).

Step 2. No. of Zones

- If the zones are activated by the controller with solenoid valves, find the row that covers the number of zones in the project.
- If the zones are activated with index or Hydrotek valves, then choose a single zone controller. The single zone controllers do allow for index or Hydrotek valves.
- Zones activated with index & solenoid valve combinations can be special ordered.
- If the zones exceed the choices below, larger controllers can be special ordered.

Step 3: Number of pumps.

Step 4: Flushing operation.





- Choose manual or electronic field and filter flushing. Geoflow requires all direct septic systems use electronic flushing.
- Manual flushing only available on the Geo 1 controllers. Geoflow recommends using Auto flush panels where maintenance is not mandatory.

Step 5: Treatment option (GeoTS only)

- If the GeoTS panel is capable of monitoring your pretreatment system, and if greater than NSF requirements, can also control your treatment system. If this option is desired choose the row that says "yes".

Step 1 Type	Step 2 Zones	Step 3 Pumps	Step 4 Flushing	Step 5 Treatment?	Part Number
Geo	1	Simplex	Manual	-	GEO1-SIM-MAN
			Automatic	-	GEO1-SIM-AUT
		Duplex	Manual	-	GEO1-DUP-MAN
			Automatic	-	GEO1-DUP-AUT
	2 - 4	Simplex	Automatic	-	GEO4-SIM-AUT
		Duplex	Automatic	-	GEO4--DUP-AUT
	5 - 8	Simplex	Automatic	-	GEO8-SIM-AUT
		Duplex	Automatic	-	GEO8-DUP-AUT
Geo TS	1	Simplex	Automatic	-	GEOTS-01-SIM
				Yes	GEOTS-01-SIM-T
		Duplex	Automatic	-	GEOTS-01-DUP
				Yes	GEOTS-01-DUP-T
	2 - 8	Simplex	Automatic	-	GEOTS-08-SIM
				Yes	GEOTS-08-SIM-T
		Duplex	Automatic	-	GEOTS-08-DUP
				Yes	GEOTS-08-DUP-T
	9 - 16	Simplex	Automatic	-	GEOTS-16-SIM
				Yes	GEOTS-16-SIM-T
		Duplex	Automatic	-	GEOTS-16-DUP
				Yes	GEOTS-16-DUP-T
	17 - 24	Simplex	Automatic	-	GEOTS-24-SIM
				Yes	GEOTS-24-SIM-T
		Duplex	Automatic	-	GEOTS-24-DUP
				Yes	GEOTS-24-DUP-T

Float Functions Geo and GeoTS Controllers

Floats	Functions
High Level Alarm Float 	Float raised – Alarm enable. Activates the audible and visual alarm when raised. Audible alarm may be silenced by pressing the illuminated PUSH TO SILENCE button.
Secondary timer On/Off Float 	Float raised – Peak Timer enable. The secondary timer will cycle the pump(s) more frequently. The secondary timer function will remain active until the Primary Timer enable float lowers. When the Peak Timer function has been completed and the Primary Timer enable float is reactivated, normal timer operation will resume.
Primary Timer On/Off Float 	Float raised – Timer enable. The Primary Timer will control pump cycles, beginning with the off cycle. Note: On duplex panels the pumps will alternate with each timer cycle. The Primary float resets the secondary on/off float when in the down position
Redundant Off & Low Level alarm float 	Float raised – Pump enable. Float lowered – Pump disable. Flashing visual & audible alarm enable. This is a secondary off float that will prevent the operation of the pump if the water level in the tank gets too low. Geo pump will be disabled in both the automatic and manual modes. GeoTS will allow you to run the pump for a short burst regardless of float position.. This bottom float also activates the visual and audible alarms. Audible alarm may be silenced by pressing the illuminated “push to silence” button.

Note: ETM and pump events are recorded whenever contactor is energized.

GEO-1 MANUAL CONTROLLERS

The Primary Timer (float 2-activated) controls the pump dose cycle during normal operating conditions. During high flow conditions the pump dosing cycles will be controlled by the Peak Timer (float 3 - activated). The Peak Timer off is typically set to trigger more frequent flow than the Primary Timer off setting.

If *duplex pump* option is chosen, the pumps are alternated every pump cycle and never operate simultaneously. There is a selection switch for pump 1, pump 2 or alternation. This allows one pump to be taken out of service for maintenance without affecting the operation of the system.

Pump dosing cycles are controlled by the timers when the H-O-A switch is in the auto position. Under normal conditions the Primary Timer (float 2) will control the pump(s). During high flow conditions, the Peak Timer (float 3) will control the pump(s). The Peak Timer will cycle the pump more frequently than the Primary Timer (field adjustable). The pump will dose for the same amount of time as it does when operated by the Primary Timer but the time in between doses, or the Peak timer “off time”, will be 75 % of that of the Primary Timer “off time”. Factory settings (operator adjustable) are 1 hr 55 minutes off and 5 minutes on for Primary Timer and Peak Timer is set to 1 hr 25 minutes off (1 hr 55 mins x 75%) and 5 minutes on. Consequently peak doses are more frequent than primary(doses).

Hydraulically activated zone valve(s) will index each time the PLC calls for a dose. Each time the pump is called for another zone is dosed. The controller does not dose all zones sequentially as “one” dose. For example if the Primary Timer is programmed to be off for 1hour on for 5minutes and there are

four zones, each zone will get 6 doses - five minutes in length –in a 24-hour period. The controller will dose a single zone every hour and will not dose all zones every hour.

In the event of a *power outage* the Geo-TS controller continues the program where it left off, even if it was in the middle of an event. The Geo-1 resets itself and begins with a flush cycle in field 1.

Geo and GeoTS AUTOMATIC Controllers

The Primary Timer (float 2 activated) controls the pump dose cycle during normal operating conditions. During high flow conditions the pump dosing cycles will be controlled by the Peak Timer (float 3 activated).

If *duplex pump* option is chosen, the pumps are alternated every pump cycle and never operate simultaneously. There is a selection switch for pump 1, pump 2 or alternation. This allows one pump to be taken out of service for maintenance without affecting the operation of the system. *The Vortex Filter flush valve* will open for 15 seconds (operator adjustable) at the end of the pump cycle to allow the filter to self-flush.

Pump dosing cycles are controlled by the timers when the H-O-A switch is in the auto position. Under normal conditions the Primary Timer (float 2) will control the pump. During high flow conditions, the Peak Timer (float 3) will control the pump. The Peak Timer will cycle the pump more frequently than the Primary Timer. The pump will dose for the same amount of time as it does when operated by the Primary Timer but the time in between doses, or the Peak Timer “off time”, will be 75% that of the Primary Timer “off time”. Factory settings (field adjustable) are 1 hr 55 minutes off and 5 minutes on for Primary Timer and Peak Timer is set to 1 hr 25 minutes off (1 hr 55 mins x 75%) and 5 minutes on.

Zone valve(s) will open when the PLC calls for a dose or flush. These can be electrically operated solenoid valves (requires any controller other than the Geo-1 or GeoTS-1) or hydraulically activated index valves (used with Geo-1 or GeoTS-1). If hydraulically activated index valves are used in combination with a solenoid field flush valve, a field setting for number of zones and number of zone valves is available. With Geo controllers the total doses of all zones in a 24-hour period must be considered when setting the “off” timer(s). After the pump is deactivated the solenoid valve will remain open to allow for drainage of the supply line. If hydraulically activated index valve is used, be sure to drain the supply line in freezing climates.

Field flush valve will open at the end of the dosing cycle. The pump will continue to run for 5 seconds (field adjustable) to accommodate the opening of this valve. After the pump is deactivated the field flush valve will remain open for five minutes (field adjustable) to allow for drainage of the return line in freezing conditions. It is best to clock the length of time it takes the return flush line to drain and use this to set your drain time.

The activated zone valve remains open at the end of the dose for same “#” minutes as return flush and filter flush valves to accommodate drainage of supply line.

To periodically *flush the dripfield*, after 10 dosing cycles (operator adjustable) the pump will operate for # minutes (field adjustable) with the field flush valve open. The field flush cycle will repeat until all zones have been flushed.

In the event of a *power outage* the Geo-TS controller continues the program where it left off, even if it was in the middle of an event. The Geo-1 resets itself and begins with a flush cycle in field 1.

Telemetry and SCADA control systems available. Please contact Geoflow for custom panel information.