

Alex-Tronix Service Bulletin No. 10, Rev 3, as of 04-13-2004

Controllers: SS-1, SS-2

Issue: General Tips, Testing & Extra Help.

Extra information to customers who use the SS series controllers, testing and extra information not provided on the cover label.

Well Folks, today we discuss issues regarding our small single solenoid activated controllers. If you are a little vague on the operation of these controllers, this bulletin should help out quite a bit. Don't forget, you can always call about anything I didn't address here as well.

Let's review operation procedures....

SS-1 Irrigation Controller

There are two banks of "DIP" switches.... DIP standing for "Dual Inline Pin" switches. Snapping or sliding a switch towards the right turns them on, and the left side turns them off, (*or selects left sided functions*). To program the SS-1, follow *exactly* these steps in order:

- 1) On the top bank of DIP switches, turn **POWER** on, and leave on-- If you turn it off and the controller tries to latch the solenoid, the controller will get out of sync, and the solenoid will miss the event, Soooo.... The solenoid may not turn on or turn off the valve. Don't worry.... leaving the **POWER** switch "ON" does not use any extra energy.
- 2) Set **MIN** or **HOUR**. Decide if the watering time that you will be setting, will be in hours or minutes. Left or right position dictates this setting.
- 3) Set **WATER TIME**. All these settings will be in either minutes or hours according to the MIN/HOUR switch setting. The watering time switches can be used *individually or additive* providing you the irrigation time you need.
- 4) Set Day(s). On the bottom bank, set only the day that you are actually in: **MONDAY**, **TUESDAY**, etc. by setting the day switch towards "ON". Don't worry about setting the rest of the days right now.
- 5) At the exact time of day you want to begin irrigation, you need to be at the site of the controller, then set **START 1** to on. After about 5 seconds, the L.E.D. pulse light will flash, and you should hear the solenoid on the valve "snap". This indicates that the solenoid "latched" and the valve should be flowing water. If you would like to start a second time during the same day, then again you need to be at the site of the controller, then set **START 2** to on.



6) Here's the tricky part: If you want to water on additional days, and only are using **START 1** (one start per day), turn on any combination of other days right *after* **START 1** (or **START 2** if using) has begun and/or finished irrigating.

Since there is no "Real Time" clock on the controller, the SS-1 will memorize the times you were at the site and irrigate on the selected days accordingly!

Okay Aram...so what's the deal with the **SEMI-AUTO** switch? Well.... the **SEMI-AUTO** switch is used to run one irrigation cycle immediately at any time. Leave all settings set as you like, then turn on SEMI-AUTO switch. You can either leave it on and walk away, or come back and turn it off some other time. You'll have to turn it off then on again to reuse.

SS-2 Interval Time Controller

There are two banks of "DIP" switches.... DIP standing for "Dual Inline Pin" switches. Snapping or sliding a switch towards the right turns them on, and the left side turns them off, (*or selects left sided functions*). To program the SS-2, follow *exactly* these steps in order:

1) On the top bank of DIP switches, turn **POWER** on, and leave on-- If you turn it off and the controller tries to latch the solenoid, the controller will get out of sync, and the solenoid will miss the event, Soooo.... The solenoid may not turn on or turn off the valve. Don't worry.... leaving the **POWER** switch "ON" does not use any extra energy.

2) Set **SEC** or **MIN**. Decide if the watering time that you will be setting, will be in seconds or minutes. Left or right position dictates this setting.

3) Set **WATER TIME**. All these settings will be in either seconds or minutes according to the **SEC/MIN** switch setting. The watering time switches can be used *individually or additive* providing you the irrigation time you need.

4) Set **INTERVAL TIME**. All these settings will be in either minutes or hours according to the **MIN/HR** switch setting. These switches can also be used *individually or additive* setting the "non-operation" time length you need. This can be very short for nursery misting applications or longer times for several irrigation times during the day.

5) The last thing you must do is to switch **START** to on. After about 5 seconds, the L.E.D. pulse light will flash, and you should hear the solenoid on the valve "snap". This indicates that the solenoid latched, and the valve should be flowing water.

The SS-2 will now cycle over and over continuously 24 hours a day.

Optionally, if you want it to start and stop at certain times of the day, that's where the **STOP** switch comes in. Here's out it works: Suppose you want to start cycling or misting at 9:00 am and stop at 6:00pm on a daily basis. You must be at the site of the controller and set the **START** switch to on at 9:00am. Once again at the site, at 6:00pm switch on the **STOP** switch. This will



immediately turn off the controller whether it was irrigating or not. What now happens is the SS-2 will memorize the **START** and **STOP** times and will begin cycling the next morning...Isn't that neat?

SEMI-AUTO. When sliding the SEMI-AUTO switch to "ON" the SS-2 starts a cycle. If you leave it on, it will continuously loop every 5 seconds. The SEMI-AUTO switch is electrically tied across the SWITCH input pin header. You must return it to the off position.

HARDWARE ISSUES:

1) If you remove the panel from the box, make sure you plug the solenoid connector back in the correct pin header-- Marked: "SOLENOID" (Red & Black wires). The connector can only go one way--Wires headed towards the middle of the panel. CAUTION: If you plug the solenoid connector into the POWER pins, you'll kill the batteries fast.

2) The SS-2 can work with an optional pressure differential gauge manufactured by Murphy switch. Alex-Tronix supplies PD's, and can be used to make an automatic filter back washing controller. Wire the PD gauge to the pin header marked "SWITCH". Set the PD gauge to the startup differential pressure (usually 8 psi) recommended by the filter manufacturers. When the filter gets dirty enough, the PD gauge will short the set pin with the orange colored differential pressure needle and activate the SS-2 controller.

3) Do not "Gorilla down" on the solenoid fastened to the valve. If you do, it may not work properly. The solenoid should be tightened to the point where it just feels snug.

4) If you are using a valve other than the one provided by Alex-Tronix, check our valve compatibility chart; you may need a special solenoid adapter. Our valve chart is revised often so contact our factory for additional information.

5) When replacing batteries, use metal jacketed lithium type, available from our factory or local electronic stores. Alkalines can also be used with reduced cycles.

6) Do not use effluent water through the HIT Products 1" valve or other bonnet type valves. These type of valves are not made to handle grit and sand, and can jam up the solenoid plunger.

9) Measuring 9 volt lithium batteries with a meter *does not necessarily mean they are good!* This type of battery needs to be tested under a load. If you are questioning the batteries, it is best to replace them.

10) Power supply-- If you decide you want to use a power supply instead of the two 9 volt lithium batteries, you will need an 18 volt DC power supply. You can find the "wall adapter type" in electronic supply stores. You will also have to order a special power connector from us which will have red a black wires. Your power supply wires can run into the SS box, wired to the power connector, and plugged in to the POWER pins. NOTE POLARITY. You are now ready to go.



FAQ's

Here are some frequently asked questions that we often get:

Q1) *“The controller keeps looping over and over.”*

A1) The most common problem is that the SEMI-AUTO is left on

You can also check for shorted wires. Verify this by removing the panel and pull the connector marked “SWITCH” from the WPC; test wire continuity. It should not be making continuity unless the push-button is pressed.

Q2) *“The controller doesn't come on immediately after pushing the button.”*

A2) This is true, the controller requires charging time to “fire” the solenoid. It is gearing up to do this within the 5 second delay, then “latches”. This characteristic is normal, and allows you to have incredibly long battery life.

Q3) *“How long do the 9 volt batteries last?”*

A3) This depends on usage, temperature, and other technical factors; however 30 to 60 thousand actuations which equate to several years is average. There also is an internal lithium battery that cannot be replaced. The lifespan of the internal battery is approximately 10 years. After 10 years, the controller or panel within the controller must be replaced.

Q4) *“What are some applications of the WPC?”*

A4) Filling water dumping containers, squirt nozzles, spray heads, alarming, lights, etc.

Trouble Shooting:

1) Controller appears to function but water does not flow.

- A) Is main line coming in to valve pressurized? Verify no master valve is shut off.
- B) Try removing solenoid and plunger within. Clean sand and grit out if any.
- C) Wiring look okay to solenoid? Faded? cracked? If so, replace solenoid.
- D) Has sand and grit entered into the valve bonnet? If so clean or replace valve.
- E) Do you hear solenoid “Latch”? If not, remove from valve, hold in hand, push thumb slightly over plunger and activate controller. If plunger latches and releases, Valve should be questioned.



2) Controller does not seem to function.

A) Replace batteries. If controller still does not work, remove panel and disconnect solenoid from header. Test again. If controller does not work again, panel is defective and must be replaced.

B) Perform following field test:

1) Unscrew solenoid/w plunger and hold in hand.

2) You will notice that the plunger has “springiness” to it. Push it in enough so that the coil can pull in the solenoid, *but not too much other wise the plunger will latch to the coils internal magnet.*

3) With your thumb, slightly pushing on the solenoid, then activate the controller using minimum time settings and observe the plunger latching and staying into the coil. If it moves but does “catch” into the coil, replace batteries and test again. If it still does not work-- Replace panel.

4) Once latched, *make sure the solenoid releases as too.* If the controller pulsed and it does not release or fails to pulse when expected replace the panel.

Questions??? Tech Support: Aram Tokatian 888-224-7630 or 559-276-2888.

