


Helpful Startup Hints

- Basic keyboard movements:
 - Hit SELECT after adjusting a value to have the controller save your new setting. This will also advance to next open field.
 - Use the < arrow to move back a level in the menu after having completed a screen.
 - Use the HOME button as you might the ESC button on a computer – it will take you back to the main screen from anywhere in the menu.

How do I...?

- **Set a looping schedule**
 - Select Shortcut Button: SCHEDULES
 - Move the cursor right from TYPE, and scroll to select LOOPING
 - Scroll past WATER DAYS (Looping will activate every day) to SCHEDULE STARTS
 - Here you select the ‘time window’ in which the looping program will operate. For example, if you want the looping program to run from 9am to 5pm, this is where you enter it, as START TIME, and END TIME.
 - Scroll back to the SCHEDULE menu, and select VALVE RUNTIMES
 - Here you will select which valves you want to run in this looping program, and also what the runtime and delay will be. All valves in this program will have the same runtime and delay.
 - Select VALVES, and scroll through the valves, turning them ON or OFF to indicate whether you want them to be active in this looping schedule.
 - Scroll back to the last menu, and select RUNTIME. This is the runtime each valve will have for the looping schedule. The time format is: Hours : Minutes : Seconds.
 - Select DELAY. This is the delay time after the last valve in the sequence has closed, before the first valve in the sequence opens again.
 - For example:
 - Valves 1, 2, and 3 are included in the looping schedule
 - Runtime is set for 1 Minute
 - Delay is set for 10 Minutes
 - The system will operate as follows:

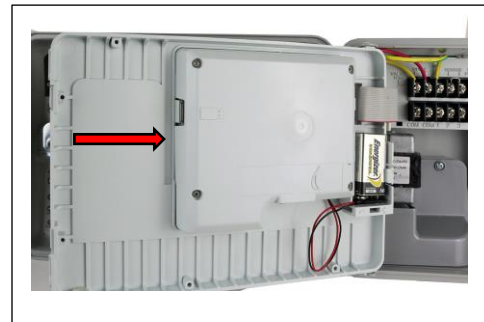
Valve 1	Valve 2	Valve 3	Delay (Pause)	Valve 1	Etc.
1 minute	1 minute	1 minute	10 minutes	1 minute	
Time 					

Note – multiple looping schedules can be used, overlapping or not, in the same or different time windows, by programming Schedules A, B, and/or C to a Looping Schedule as shown in the preceding steps. For example, you could have a morning and afternoon looping schedule.

- **Set a fertilizer schedule**
 - Enter the ADVANCED menu
 - Scroll down and select FERT DETAILS
 - There are two steps to setting up an injection program
 - Selecting the valve terminal to function as a fertilizer pump
 - Setting up the program itself.
 - Step 1 – selecting the valve terminal to function as a fertilizer pump
 - Your controller has screws, or terminals that are typically used to connect to the valve wires. What you are doing in this step is deciding which of these screws will be dedicated to a fertilizer pump (or fertilizer valve) instead of a watering valve. (If you are using a fertilizer pump, it is typical to use a Pump Start Relay, such as the Toro SR-1, to connect to the pump. A pump start relay enables the Evolution AG, which outputs 24v, to start a pump, which operates on 110v.)
 - Select DEDICATE FERT PUM, then DEDICATE FP1. Scroll up and down to select the valve terminal you want to be dedicated to FP1.
 - You will only be able to see and select valves which have not already been programmed to be a watering valve. If you don't see any valves, it probably means all your valves have been programmed to be a watering valve. In this case, go to the ADVANCED / VALVE DETAILS menu to check. For more details on this situation, see the Troubleshooting section of this FAQ.
 - Repeat the step above for FP2 if you also want to have a second fertilizer pump.

- **Change language to Spanish**
 - Select the HELP/SETUP shortcut
 - Use the SELECT again to toggle back and forth between English and Spanish

- **Save/Load a program using a USB**
 - Program the controller to the settings you want to save, and insert a USB into the controller.
 - Select the HELP/SETUP shortcut
 - Scroll down to SAVE TO USB, and select.
 - To load a program saved on a USB, select the menu item LOAD FROM USB.



- **Use Multiple Schedules**
 - The default condition for the controller is to have only one Schedule enabled. When in this condition, it is simply referred to as SCHEDULE, rather than SCHEDULE A. When additional Schedules are enabled, this default Schedule is thereafter referred to in menus as SCHEDULE A.
 - To enable additional Schedules, Enter the ADVANCED menu section, and select SCHEDULE DETAILS.
 - Schedule A is enabled by default. To enable additional schedules, select the schedule (SCHEDULE B, OR SCHEDULE C), and select ENABLE.

- After enabling a schedule, it will now appear to be selected for additional programming when you use the SCHEDULES shortcut button. Select the SCHEDULES shortcut button, select the Schedule to be programmed, and proceed to program it.
- Schedules are set by default to run concurrently, and this is the most common operating mode. If you wish to operate only one schedule at a time (for instance, in order not to actuate more than 4 valves at once, which is the limit of the transformer), this setting can be adjusted in the SCHEDULE DETAILS menu of the ADVANCED menu section under MAX CONCUR SCHDL. The default setting is 3 (all three schedules allowed to run concurrently); you can limit this by adjusting this setting to 1, or 2.
- **Set up a pulsing program for a valve**
 - This is a step taken after the VALVE RUNTIME has been programmed. What it does is break that runtime down into intervals of runtime, and delay time; this allows the water applied to soak into the ground without running off the surface, or being lost to deep percolation. You can think of it as a setting customized to the soil type for that valve.
 - Select the ADVANCED menu, and VALVE DETAILS
 - Select the valve you want to pulse irrigate
 - Set the PULSE RUNTIME, AND PULSE DELAY
 - Examples
 - SCHEDULE A has Valve 1 programmed to run 2 hours.
 - Valve 1 is set using the steps above to have a PULSE RUNTIME of 45 min., and PULSE DELAY of 1 hour.

	run	delay	run	delay	run
what the valve will do:	45 min	1 hr	45 min	1 hr	30 min
total runtime:	45 min		1 hr 30 min		2 hrs

- Another way of thinking about it is that the valve will run using the PULSE RUNTIME and PULSE DELAY time sequence until the amount of VALVE RUNTIME set in the schedule for that valve is exhausted. You can change the VALVE RUNTIME without affecting the Pulse runtime & delay settings. So, for example, you can increase the VALVE RUNTIME in the example above to 3 hours, and the runtime & delay sequence will simply continue until 3 hours of runtime is exhausted:

	run	delay	run	delay	run	delay	run
what the valve will do:	45 min	1 hr	45 min	1 hr	45 min	1 hr	45 min
total runtime:	45 min		1 hr 30 min		2 hrs 15 min		3 hrs

- This sequence of runtime and delay will apply to the valve any time a schedule calls for that valve to actuate. It will not run more than the schedule calls for, even if the PULSE RUNTIME exceeds the VALVE RUNTIME set in the schedule.
- **Skip to the next valve (when operating)**
 - Select the > arrow button, and the controller will skip to the next valve in the schedule.
- **Replace a faceplate**
 - YouTube link:

- **Update Firmware**
 - The most current version of the firmware will be posted to www.toro/evolution-ag
 - Create on a thumb drive a folder: Evolution
 - Within that folder on the thumb drive create a subfolder: Firmware.
 - Download the firmware file from the website into the Firmware subfolder
 - Insert this thumb drive into the controller
 - Enter the ADVANCED menu of the controller
 - Scroll down until you find: Firmware
 - Select: Update firmware, and follow the steps it will lead you through

Terminology

- **What does FP1 and FP1 Mean?**
 - *FP1 and FP2 are abbreviations for Fertilizer Pump 1, and Fertilizer Pump 2. You may see reference to FP1 and FP2 on the SCHEDULES/WATER DAYS menu even if you are not using the fertilizer injection program. If you do want to inject fertilizer, the programming is done in the ADVANCED Menu, under FERT DETAILS*
- **What is Pulsing? When would I use it?**
 - Pulsing is the technique of releasing water to the plants in pulses, rather than all at once. Pulses can be very short for plants in a greenhouse, sometimes less than a minute. For agricultural fields, they can be considerably longer. You, the grower, can determine how long is the watering pulse, and how long to wait until the next watering pulse. For instance: Assume you have a very heavy clay soil, and you observe that runoff starts to occur after 45 minutes. It takes about an hour for the water to fully absorb into the soil.
 - If you know that the plants actually need about 3 hours of water each day, you can very simply set the controller to water in 45 minute pulses, with each pulse followed by a 1 hour pause. The watering would proceed something like this:

	run	delay	run	delay	run	delay	run
what the valve will do:	45 min	1 hr	45 min	1 hr	45 min	1 hr	45 min
total runtime:	45 min		1 hr 30 min		2 hrs 15 min		3 hrs

- To setup a Pulsing program, see the **How Do I?** section above.
- **What is a Looping Schedule?**
 - What a Looping Schedule does:
 - Runs every day
 - Runs only within a time window (set the start time and the end time)
 - During the time window, will alternate between run-time, and delay time
 - Can assign as many zones as available to this Looping Schedule
 - During the time window, the controller will activate each assigned zone for the defined run-time, then pause for the defined DELAY time, then start again with the first zone. It will cycle repeatedly through this sequence until the end of the

time window is reached. It will start again the next day at the start of the time window.

- Changing Looping Schedule through the day
 - Why would this be needed?
 - If a grower wanted to have a run-time / delay for the morning hours, and a different run-time / delay for the hot hours of the afternoon.
 - How to do multiple Looping Schedules
 - The Evolution AG has three Schedules available (A, B, & C). Any or all can be assigned to operate as a looping schedule. They can overlap, or be sequential.

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Troubleshooting

Trouble shooting Fertilizer Programming

- **Unable to select a valve on DEDICATE FERT PUMP**
 - *Only a valve which is not already programmed as a watering valve can be selected as a Fert Pump. Check to see if all your valves are already committed to be watering valves. If yes, you may need an expansion module to add more valve terminals. The Evolution AG can be expanded from its base model of 4 valves, to 8, 12, and 16 valve terminals by using expansion modules. If you have accidentally programmed a valve as a watering valve, but now wish it to become a Fert Pump, simply remove the runtime for this valve in all programs, and the valve will become available again for Fert Pump dedication. To view and adjust the runtimes for valves in a single screen, use the ADVANCED shortcut, and the VALVE DETAILS menu.*

Spare Parts:

Faceplate	SKU
Operations Manual	URL
Firmware Updates	URL