

# **TETRA**PONICS

## FLORATek 3 Pro User Manual

Version 2.1

**For Serial Numbers  
xxxxxx-1101 and above**

# Table of Contents

FLORATek 3 Pro Features .....	3
FLORATek 3 Pro Setup.....	4
Probe Care .....	5
Reservoir Setup .....	5
Bracket Setup .....	6
Before you continue .....	7
FLORATek 3 Pro Configuration .....	8
Button Functions.....	8
Probe Calibration .....	9
EC Probe Calibration .....	10
pH Probe Calibration .....	10
Temperature Calibration .....	10
Setup Menus .....	11
pH Setup .....	12
Electrical Conductivity .....	13
EC Setup.....	13
System Setup & Blend Time .....	14
Solution Concentrations .....	14
Priming the Pumps .....	15
Dose Setup.....	16
Using the FLORATek 3 Pro .....	17
Smart Proportional Control Algorithm .....	18
Alarms and Faults.....	19
Water Changes.....	20
Contact Us .....	21

# Thank you for your purchase of a FLORATek system!

This user manual covers the features, setup, and use of your system. Please take the time to read this manual before using your system, and keep this manual for reference in the future.

While your FLORATek system is designed to make it easier to successfully grow plants with hydroponics, there are still many important factors that contribute to the health and growth of your plants. FLORATek helps you to monitor and control your hydroponic water; it does not grow your plants for you. This manual assumes that you, the user, has a basic understanding of hydroponics, including:

- Hydroponic growing systems (especially the system you are utilizing)
- Grow lighting
- Hydroponic water chemistry
- Macro and micro nutrients
- Seed germination
- Plant life cycles
- Plant pruning
- Cultivation

When combined with a basic understanding of these topics and the skills needed to grow with hydroponics, your FLORATek system will help your plants grow bigger and faster than ever before.

# FLORATek 3 Pro Features

- Continuous pH and nutrient level monitoring
  - Proportional Smart Feed control
  - 3 dual-speed peristaltic pump for pH control and nutrient dosing
  - Compatible with hydroponic systems ranging from 75 to 500 gallons
- 

## What's included:

- FLORATek 3 Pro system
- pH probe
- EC probe
- 4.0 and 7.0 pH calibration solution
- EC calibration solution
- 10 feet of silicone tubing
- 12-volt Power Adapter
- 3 dispensing caps for nutrient bottles
- 2 probe cable straps

# FLORATek 3 Pro Setup

This section will guide you through the setup process for your FLORATek system.

What you will need:

- FLORATek 3 Pro system with all included accessories
- Your hydroponic system, assembled and ready for water
- Water reservoir with lid
- pH up and pH down solution (see [page 12](#))
- Nutrient solutions with feedchart
- Permanent Marker
- Scissors
- Utility Knife
- Safety glasses and cut-resistant gloves

Some important notes before starting:

- Your FLORATek system must be properly setup, configured, and calibrated before use.
- The ends of the nutrient feed tubes should always be kept above the surface of the water. If the feed tubes become submerged, nutrients will be siphoned out of the tubes, causing unbalanced water and possibly damaging plants.
- When using the FLORATek system, the water level in your reservoir should be closely monitored. If the water level drops below the probes, FLORATek will not be able to monitor or treat your water, your probes may be damaged, and your plants may be damaged or die. If the water level rises too high, solution may be siphoned from the feed tubes.

## WARNING

WARNING! pH correction solutions (pH up and down) should never be directly mixed together! Dangerous chemicals and gases can be created. When switching between pH solutions, ensure the pH pump(s) and tubing are thoroughly flushed with water. See Pump Priming section on [page 15](#) for more information.

## Probe Care

The FLORATek system uses laboratory-grade pH and EC probes to monitor the condition of your water. These probes are extremely accurate and reliable, but must be properly cared for to prevent them from being damaged. Probe calibration and maintenance is covered on [page 9](#).

- Protect your probes from impact. Take care not to drop them.
  - Never use your probes to stir a solution.
  - The pH probe hydration cap should be kept on the pH probe whenever the probe is not in use. If the tip of the pH probe dries out, the probe may be permanently damaged. Keep your hydration cap stored somewhere safe. For short-term storage, such as during long water changes, use a small amount of pH 4.01 Calibration Solution in the cap. For long-term storage, pH probe storage solution should be used.
  - Pure distilled water (DW) and reverse osmosis (RO) water can damage the pH probe over time. If using distilled water or RO water, you may want to stabilize your water with regular tap water. The use of distilled water and RO water is covered in the Electrical Conductivity section on [page 13](#).
- 

## Reservoir Setup

Before setting up the FLORATek system, you should first prepare your hydroponic reservoir and system.

- When configuring your reservoir, do not place air stones directly under the probes. Bubbles and aerated water can interfere with accurate probe readings.
- Heaters and pumps should be installed at least 6 inches from the probes.
- Completely fill your reservoir and hydroponic system with water before installing your FLORATek system. You will need the water at the correct stable level in your reservoir before installing your FLORATek bracket. As you add water to your system for the first time, try to track the amount added as closely as possible- you'll need to know the approximate water capacity of your entire hydroponic system.
- Water should continuously circulate throughout the reservoir to ensure accurate monitoring and effective nutrient mixing. In some cases, a recirculation tee or a second small water pump may need to be used for effective mixing of nutrients in the reservoir.

## Bracket Setup

Bracket Setup is covered in a tutorial video at [www.tetraponics.com/support](http://www.tetraponics.com/support)

1. Remove your reservoir lid.
2. Ensure your water is circulating and the water level in your reservoir is stable. If the water level in your reservoir is within 4 inches of the lip of the reservoir, you will need to remove the probe holder and install it upside-down.
3. Place the FLORATek system on the lip of the reservoir.  
**NOTE: If using your controller for the first time, it is most convenient to calibrate your probes now before continuing with the next setup steps. See [page 9](#) for probe calibration instructions.**
4. Keeping the plug out of the reservoir, attach the EC probe to the probe holder. Push the probe as far down as possible in the probe holder.
5. Remove the hydration cap from the pH probe. Keeping the plug out of the reservoir, attach the pH probe to the probe holder. Push the probe as far down as possible in the probe holder. Store the hydration cap for future storage of the pH probe.
6. Loosen the probe height adjustment knobs and slide the probe holder down until the bottom of the holder is about 1" from the surface of the water. Re-tighten the adjustment knobs.
7. Plug the pH and EC probe connectors into the FLORATek control box, ensuring they are correctly oriented before inserting. NOTE: The small arrow on the EC probe connector faces **away** from you as you plug it in.
8. Route the 3 feed tubes from the outlets of the pumps to the tube holders. Ensure that the tubing has some slack and is not pulled tight against the pump output nipple. Cut the feed tubes about ¼" below the bottom of the probe holder. **The open ends of the tubing should never be submerged in the water!**
9. Place your pH and nutrient solutions under your pump box according to this table:

pH Control Mode	Pump 1	Pump 2	Pump 3
Dual	pH Down	pH Up	Nutrient
Down	pH Down	Nutrient A	Nutrient B
Up	pH Up	Nutrient A	Nutrient B
Off	Not Used	Nutrient A	Nutrient B

10. Using the supplied tubing, measure and cut 3 suction tubes to bring the solutions from their containers to the pumps. Ensure the tubes are long enough to reach the bottom of the solution containers.
11. Install the 3 suction tubes from your pH and nutrient solutions to the feed pumps. Be sure to install the tubing correctly in accordance with the above table.
12. Use the supplied cable ties to neatly contain any excess probe wires.
13. Using a utility knife, carefully trim your reservoir lid so it can be used with the FLORATek bracket. An opaque, tightly-fitting reservoir lid is important for limiting algae growth.

### WARNING

WARNING! Use extreme care when cutting the reservoir lid. Some plastics are more difficult to cut than others. Always use the most appropriate cutting tool for the material. Safety glasses and cut-resistant gloves should be used to reduce the risk of injury.

## Before you continue

Now that your hydroponic system is set up with your FloraTEK system, it is time to configure your control.

Before beginning the control configuration process, double check your setup. Ensure that your pH probe, EC probe, and pump box are plugged in to the control box. Also ensure all three feed lines run correctly from their containers, to the pumps, then to the probe holder. There should be no kinks or sharp turns in the tubing. Finally, make sure that your hydroponic system is filled to the correct level and your circulation pump is running.

Take note of the water level in your reservoir. The water level of your system is “full” when there is about 1 inch of space between the surface of the water and the bottom of the probe holder. You should add water when the level drops to within 1 inch of the EC probe tip. All hydroponic systems lose water due to evaporation, and the rate at which you will need to add water varies depending on the size of your system, the plants you are growing, and the geometry of your reservoir.

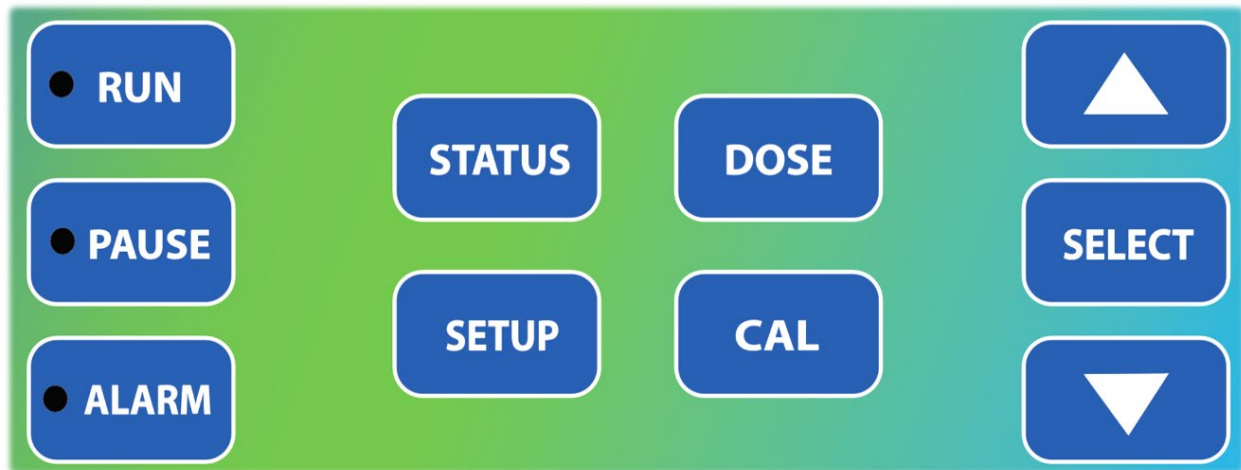
Using the supplied 12-volt power adapter, plug your control box into a power outlet. Your FLORATek control always starts up in the paused mode, so it will not begin pumping nutrients or pH solution. **Do not press RUN until you have fully completed the configuration process.** Note that your pH and EC measurements will be incorrect due to the probes not yet being calibrated.

Take some time to familiarize yourself with the control's display and interface.



# FLORATek 3 Pro Configuration

## Button Functions



The FLORATek User Interface is covered in a tutorial video at [www.tetraponics.com/support](http://www.tetraponics.com/support)

**Run:** Enables the run mode. The control will take pH and EC measurements, calculate doses, and begin pumping nutrients and pH solution into the reservoir. A green light will indicate that the control is in the run mode.

**Pause:** Enables the pause mode. The control will stop pumping nutrients and pH solution. The FloraTEK control always starts up in the pause mode. A green light will indicate that the control is in the pause mode.

**Alarm:** Displays the alarm menu, where active alarms are listed. A red light will indicate when an alarm is activated.

**Status:** Displays the main screen on the FloraTEK control. Your water's EC level, pH level, and temperature are displayed here.

**Setup:** Cycles through the various setup menus.

**Dose:** Displays the dose screen, where you can easily input your desired nutrient dose from your nutrient's feedchart.

**Cal:** Cycles through the EC, pH, and temperature calibration screens.

**Select:** When in the Setup, Dose, or Calibrate menus, select cycles the cursor between the adjustable variables.

**Up/Down Arrows:** Adjusts the selected variable.

# Probe Calibration

Probe Calibration is covered in a tutorial video at [www.tetraponics.com/support](http://www.tetraponics.com/support)

Proper probe calibration is necessary before using your control for the first time. You should also recalibrate your probes every month they are in use, before starting a new grow, after a probe has been stored for longer than a month, or when you replace a probe. **Failure to calibrate your probes before use will cause imbalanced water and damage to plants.**

Calibration tips:

- The EC probe also features a temperature sensor. Both probes and the calibration solutions should be at room temperature before calibration.
- Do not calibrate your probe directly in the container of calibration solution, as this will change the chemistry and reliability of the solution. Instead, pour just enough solution into a small container, such as a shot glass or small water glass.
- Always dispose of used calibration solutions.

What you'll need:

- A glass of room-temperature tap water for rinsing probes
- 1000ppm EC probe calibration solution
- 4.01 and 7.00 pH calibration solution
- Small containers for the calibration solutions (a 1oz container such as a shot glass or medicine cup is ideal)

## EC Probe Calibration

The EC probe tip has 2 metal electrodes protruding from the tip.

1. Ensure the EC probe and the pH probe are connected to the FLORATek control box. Both probes should be removed from the reservoir and at room temperature.
2. Make sure your EC calibration solution is at room temperature and not expired.
3. Ensure your EC Base is set to 0 in the EC Setup menu
4. Open the calibration menu by simultaneously pressing the CAL and SELECT buttons.
5. Press CAL to navigate to the EC calibration screen.
6. Gently rinse the tip of the probe with room-temperature tap water, then shake off excess water.
7. Place the probe in a glass containing EC calibration solution. Solution should cover the entire tip of the probe.
8. Wait 1 minute for the reading to stabilize.
9. Press the UP ARROW to calibrate the probe.
10. Press STATUS to return to the main screen.

## pH Probe Calibration

The pH probe has a glass bulb protruding from the tip.

1. Ensure the pH probe and the EC probe are connected to the FLORATek control box. Both probes should be removed from the reservoir and at room temperature.
2. Make sure your pH solution is at room temperature and not expired.
3. Open the calibration menu by simultaneously pressing the CAL and SELECT buttons.
4. Press CAL to navigate to the pH calibration screen.
5. Gently rinse the tip of the probe with room-temperature tap water, then shake off excess water.
6. Place the probe in a glass containing 4.0pH calibration solution. The solution should cover the entire tip of the probe.
7. With the cursor next to the 4.0 selection press the UP ARROW to calibrate the probe at 4.0pH.
8. Gently rinse the tip of the probe with room-temperature tap water, then shake off excess water.
9. Place the probe in a glass containing 7.0pH calibration solution. The solution should cover the entire tip of the probe.
10. Press the SELECT key to move the cursor next to the 7.0 selection, then press the UP ARROW to calibrate the probe.
11. Move the probe to the corresponding probe holder.
12. Press STATUS to return to the main screen.

## Temperature Calibration

The temperature sensor on the EC probe is factory calibrated and rarely requires recalibration. If you confirm that your probe is inaccurately reading the temperature of a solution, the temperature sensor can be calibrated in the calibration menu. Press the up or down arrow to calibrate the sensor to the temperature of the known solution.

# Setup Menus

The FLORATek Setup Menus are covered in a tutorial video at [www.tetraponics.com/support](http://www.tetraponics.com/support)

It is important to configure the FloraTEK control properly and completely prior to use. Some variables will be saved and rarely updated, such as the system capacity and blend time. Other variables, such as the pH setpoint and dose levels, will be changed more frequently.

Pressing the SETUP key will cycle through the various setup menus. Within each menu, pressing the SELECT key will cycle the cursor between the setup options. The UP and DOWN keys will adjust the selected option.

## pH Setup

**pH Setpoint:** Sets the desired pH level for your water.

**pH Alarm Band:** Sets the alarm band. If the pH level varies from the setpoint by more than this amount, the pH alarm will activate. If the pH alarm activates unexpectedly, a pH fault will be triggered.

**pH Control Type:** Sets the pH control to dual, up, down, or off. See the pH control section on [page 12](#) for more details.

## EC Setup

**EC Base:** Sets the EC Base. See the “Electrical Conductivity” section on [page 10](#) for more details.

**EC Units:** Switches EC units between PPM (parts per million) and mS (millisiemens)

*Note: FLORATek uses the PPM 500 scale and millisiemens per cm as EC units*

**EC Alarm Band:** Sets the alarm band. If the EC level varies from the setpoint by more than this amount, the EC alarm will activate.

## Temp Setup

**Temp Units:** Switches the displayed temperature units from F (Fahrenheit) to C (Celsius)

**Temp Low Alarm:** Sets the low temperature alarm limit. If the water temperature goes below this level, the temp low alarm will activate.

**Temp High Alarm:** Sets the high temperature alarm limit. If the water temperature goes above this level, the temp high alarm will activate.

## System Setup

**System Capacity:** The total capacity of your hydroponic system, including the reservoir and all growing containers.

**Blend Time:** The amount of time (in minutes) that the controller will wait between dosing cycles. See the System Setup section on [page 14](#) for more details.

**LED Backlight:** Toggles the displays LED backlight on and off.

## Pump Prime

This menu is used to prime the 3 dosing pumps.

## Gains

This menu can be used to compensate for varying pH control and nutrient concentrations. See the Solution Concentrations section on [page 14](#) for more details.

## pH Setup

Using your FLORATek, measuring and adjusting your pH will be a straightforward and nearly completely automated process. However, there are some important things to know about pH control before you use your FLORATek.

pH is a measure of how acidic or basic your water is, expressed on a scale of 0 to 14. A pH of 7 is neutral water that is neither acidic nor basic. Acids have a pH of less than 7, while bases have a pH of more than 7. Most hydroponics systems use slightly acidic water with a pH between 5.5 and 6.5. Depending on the exact chemical makeup of your untreated water, your starting pH will likely be about 7.0-7.5.

The alkalinity of your water is a measure of your water's resistance to a change in pH. The alkalinity of your water may be higher if using mainly tap water, or it may be very low if using distilled or reverse osmosis water. It is not necessary to know your water's alkalinity to use your FLORATek system.

When the FLORATek system adds nutrients to your water, the pH will usually drop. For many hydroponics systems, the pH will be lowered somewhat, but additional pH DOWN solution will be needed to reach the desired setpoint. However, if you are using water with very low alkalinity such as distilled or reverse osmosis water, the added nutrients may push the pH down far below the setpoint. In this case, you will need to use pH UP solution with your FLORATek to reach the setpoint.

While we understand the desire to use pure distilled or reverse osmosis water in your hydroponics system, the resulting low alkalinity may cause your pH to be difficult to control. When using DW or RO water, we recommend adding 10-20% tap water to help stabilize your pH.

Finally, it is important to remember that the chemistry and alkalinity of the water in your hydroponics system changes over time. As an example, you may need to use pH down for the first few days following a water change, but then the pH may drift down past the setpoint on its own. If your pH is slowly drifting beyond the setpoint, simply flush the pH pump tubing, install the required pH correction solution, and change the pH control type setting in the pH setup menu.

### **Still not sure which pH control to use? Don't worry!**

The first time you use your FLORATek, complete the normal setup and configuration process but do not install a pH control solution and select the OFF option for pH control in the pH setup menu. Leave your control in RUN mode until your EC reaches its setpoint. Following this, if your pH is above the pH setpoint, install pH down. If the pH is below setpoint, install pH up. Just remember to prime the tubing and select the correct pH control in the pH setup menu.

### **Dual pH Control**

Do you want to have full control over your pH? Dual pH control enables you to automate dosing of both pH up and pH down. However, this limits you to using one nutrient for nutrient dosing.

## Electrical Conductivity

The FLORATek monitors the electrical conductivity (EC) of your water to determine the level of nutrients in the water. Measuring nutrient levels with EC is accurate and reliable, but does have some complications that are important to understand.

The water that you use in your hydroponic system contains some amount of minerals and impurities which contribute to the EC reading. Your EC probe will detect these minerals, which may be 100ppm or less for systems using mostly reverse osmosis (RO) water or could be 400ppm or higher if using hard tap water. EC probes cannot differentiate between these minerals and the hydroponic nutrients you intend to add, so before adding nutrients we measure these minerals and subtract them from the displayed EC. We call this your **EC Base**.

When you input this reading as the EC base on the EC Setup page, the FLORATek will subtract it from the measured EC reading before displaying your EC:

$$\text{Displayed EC} = \text{Measured EC} - \text{EC Base}$$

For this reason, your displayed EC may be negative if your EC base is larger than your measured EC. In this case, you should lower your EC base. With fresh water and no added nutrients, you should input an EC base that is as close as possible to your measured EC without being over.

It is important to understand that the FLORATek control also uses the Displayed EC when calculating doses.

Let's say you wish to have 1000ppm of nutrients in your water, but your untreated water has a measured EC of 250ppm due to the impurities in your tap water. By inputting 250ppm as your EC base, the FLORATek control knows it needs to add 1000ppm of nutrients instead of just 750ppm.

Your EC Base may change between water changes. Following a water change, you should adjust your EC base if the displayed EC is negative or is more than 20ppm.

## EC Setup

1. With your probes calibrated and submerged in your reservoir, note your EC Level on the Status screen
2. Navigate to the EC Setup menu using the SETUP button
3. Using the up and down arrows set your EC base to the closest setting to your EC level (without being more than your EC level)
4. If desired, you may change the EC units by pressing select, then up or down
5. Set your alarm band to the desired level.

## System Setup & Blend Time

The FLORATek control uses the system capacity setting to calculate doses. It is important to input the full water capacity of your entire hydroponics system, not just the capacity of your reservoir.

After the FloraTEK control calculates and adds a dose, the added nutrients and pH solutions need time to thoroughly blend with the water in your system. If the blend time is set too low, the control will quickly overshoot the setpoints. If this number is too high, the control will take an excessively long amount of time to reach the setpoints. **Always start with a blend time higher than you believe is appropriate!** It is much safer for your plants if the control slowly reaches the setpoints compared to if the control overshoots the setpoints. The blend time can be reduced as you learn how “fast” or “slow” your hydroponic system is.

A good starting point for Blend Time is 3 times the turnover time:  
 $(\text{System Capacity} / \text{GPM}) \times 3 = \text{Blend Time}$

Note that your actual pump rate may be much slower than the rate listed by the pump manufacturer, especially if smaller tubing and large pumping heights are used.

## Solution Concentrations

The FLORATek control is designed to work with a wide variety of pH control and nutrient solutions. However, some commercially available solutions can be more or less concentrated than the FLORATek's control algorithm is expecting. After using your control for a few cycles, if you notice that the pH or EC is consistently overshooting the setpoint, you probably are using more concentrated solutions. In the Gains setup menu, decrease the affected solutions gain to reduce the amount of solution the control will add. Conversely, if you notice the control takes an exceedingly long time to reach the setpoint, you can try increasing the gain of the affected solution to increase the amount of solution the control will add.

The default gain is 100. By lowering the nutrient gain to 40 for example, the control will only add 40% of the calculated dose. By increasing the nutrient gain to 200, the control will add 200% (or double) of the calculated dose.

We strongly recommend keeping your gains set to 100 unless you are repeatedly experiencing dosing overshoots or undershoots.

## Priming the Pumps

Pump Priming is covered in a tutorial video at [www.tetraponics.com/support](http://www.tetraponics.com/support)

Before using your FLORATek to add nutrients and pH solution to your water, you must first prime the 3 pumps. This ensures that as soon as the pumps are turned on, the nutrients and solution drip into the reservoir.

To prime the pumps:

1. Make sure your pH solution and nutrients are properly installed, with tubing going from the container to the input (left) side of the pump, then from the output (right) side of the pump to the probe mount above the surface of the water
2. Press the SETUP button until you are on the Pump Prime menu
3. Position yourself so that you can easily see the open end of the tubing while you are pressing the UP ARROW
4. Press and hold the UP ARROW to prime Pump 1. Release the key just before the pH solution drips into the reservoir
5. Use the SELECT and UP ARROW buttons to prime Pump 2 and 3 in the same way

**Important:** When switching between pH up and pH down solutions, it is important to flush the tubing with water to prevent the pH solutions from coming into contact with each other:

1. Remove the suction end of the pH solution tube from the solution container
2. Remove the end of the pH solution tube from the probe bracket and place into the pH solution container. This will pump the solution out of the tubing back into the container
3. Use the pump prime function to drain the pH tube
4. Once the tubing is drained, place both ends of the tubing into a glass of water
5. Use the pump prime function again to flush the tubing for about 1 minute
6. Remove the suction end from the water and continue priming to pump all water from the tube
7. Once the tube is empty, install the new pH solution and prime the pump



## Dose Setup

Once your FLORATek setup menus are configured, it is time to input information on your desired nutrient dosing. Your control will use this information to calculate how much of each nutrient to add. You can find this information on the desired stage/week of your nutrient's feedchart.

1. Press the DOSE button to display the dose menu
2. Using the up and down keys, adjust the EC Setpoint to the desired level
3. Press select, then the up and down keys to adjust the amount of each nutrient to be used to reach your EC setpoint.

Remember to update the desired EC setpoint and nutrient levels with every new stage/week of your nutrient's feedchart.

Example Nutrient Feedchart										
Week #:	1	2	3	4	5	6	7	8	9	10
PPM Range:	400-500	900-1100	1100-1200	1100-1500	1100-1600	1100-1600	1100-1600	900-1300	900-1200	600-800
Nutrient A	5ml	10	15	10	7.5	7.5	7.5	5	5	2.5
Nutrient B	2.5ml	5	5	10	15	15	15	15	15	7.5

# Using the FLORATek 3 Pro

FLORATek Use is covered in a tutorial video at [www.tetraponics.com/support](http://www.tetraponics.com/support)

Once setup and configuration are complete, you are ready to start using your FLORATek system! First, it is important to understand how the control algorithm works to treat and balance your water, then keep it balanced.

The FloraTEK control has two modes: Pause and Run

When the control is plugged in, it will always startup in the pause mode. While in pause mode, you have the ability to change settings, dosage, and calibration. The control will also display the pH, EC, and temperature of your water.

Pressing the RUN button will enable FLORATek's Smart Proportional Control, which continuously monitors your water, analyzes the need for additional nutrients or pH corrections, calculates the most effective doses, and runs the pumps.

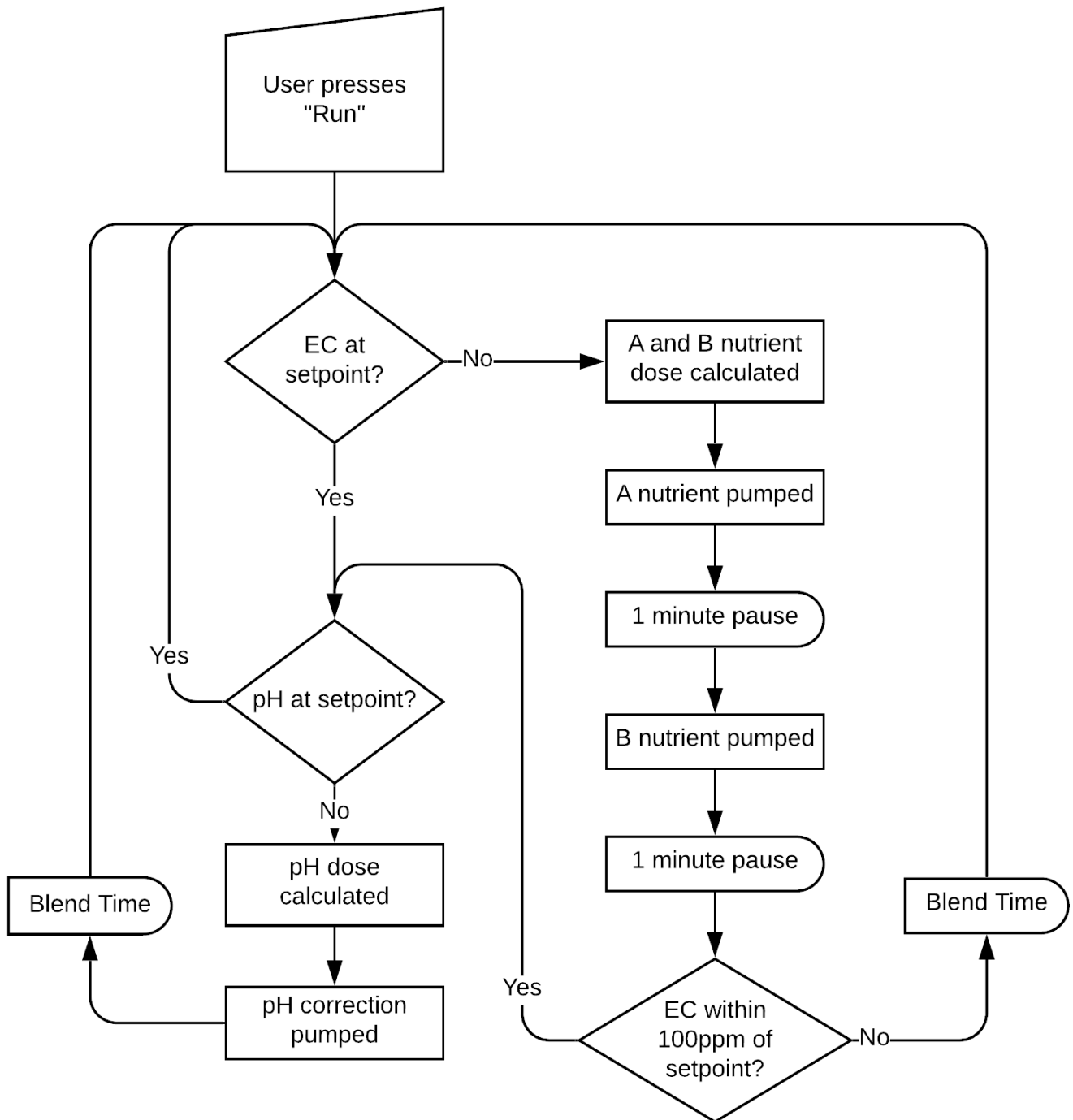
Details:

- The A and B nutrients will always be added at the correct ratio based off of the information imputed on the Dose screen.
- The Smart Proportional Control will always correct EC error before correcting pH error. Many hydroponic nutrients will also affect the pH of your water. If pH is corrected first, adding large amounts of nutrients can push your pH out of balance.
- The control will automatically switch the pumps between high-speed for large doses and low-speed for small doses.

While the FLORATek will accurately and efficiently treat and balance your water, remember that it can only adjust the pH of your water in the direction of the pH control solution you have installed. It can also only raise the EC of the water, as the only way to lower the EC level of your water is to dilute it.

If you are using supplemental nutrients other than what is automatically added with the A and B nutrient pumps, we recommend that you add these nutrients first, then wait for your system's blend time before pressing the RUN button. If you add these nutrients after your system has reached it's EC setpoint, your EC level will be pushed beyond the setpoint as the additional nutrients mix into your water.

# Smart Proportional Control Algorithm



## Alarms and Faults

When the pH, EC, or temperature of your water is outside of the alarm bands you set in the setup menus, an alarm will activate and the red ALARM light will be illuminated. This can be expected sometimes, as usually the pH and/or EC of your untreated water will be outside of the alarm bands when you are just starting out or right after a water change. Give the control some time to bring the pH and EC to their setpoints and the alarms will deactivate.

However, if a pH or EC alarm activates after your water has been stable within the alarm bands for a significant period of time, a pH or EC fault will be triggered. A pH or EC Fault screen will be displayed, and the control will automatically switch to the PAUSE mode. This will ensure that you can investigate the cause of the fault and correct it before placing the control back in the RUN mode.

Potential causes of a pH or EC fault:

- The water level in your reservoir drops below the tip of the EC probe. This is the most common cause for a pH or EC fault, and can be easily corrected by adding water to the system to bring it back up to the “full” level. All hydroponic systems lose water due to evaporation, but check for leaks if your water level drops unusually quickly.
- Your pH correction solution or A/B nutrients are empty. Make sure the suction tubes leading to the pumps are fully submerged in solution/nutrients.
- There is a kink or leak in your solution/nutrient tubing. Ensure your tubing is connected properly and is not kinked.
- The pH control type in the pH setup menu does not match the pH control solution being used. If you change the type of pH control solution being used, be sure to also change the pH control type setting in the setup menu.
- The pH or EC of your water changes more quickly than the controller can correct. Typically this is the result of you adding water, or manually adding nutrients.

## Water Changes

Regularly changing the water in your hydroponics system is beneficial to remove contaminants from the water, manually clean any algae growth, and ensure ideal growing conditions for your plants. However, changing your water too frequently is also inefficient and wasteful.

When deciding how frequently to change your water, consider the following:

- Upcoming changes to your nutrient dosing. When moving to a new week or stage on your nutrient feedchart, you should complete a water change.
- How quickly algae growth appears in your reservoir, grow containers, or plumbing. You should always check for algae growth and clean it when necessary.
- If your water is filtered at any point in the circulation. Filters can keep your water cleaner for longer.
- The type of plants you are growing. Some plants are “pickier” about water changes than others.

Notes about water changes with the FLORATek system:

- The system is designed to be easily removed and set on its “back” during the water change process. The probes and tubing can be left attached to the probe holder.
- If you expect the pH probe to be out of the water for more than 15 minutes, the tip should be placed in probe storage solution.

### **Typical water change procedure with a FLORATek system:**

1. Unplug your FLORATek control
2. If needed for draining and cleaning of your reservoir, carefully remove the FLORATek system and place it on its back in a safe spot
3. Drain the water from your hydroponic system
4. Clean your hydroponic system as needed
5. Refill your hydroponic system with clean water to the proper level. Remember to circulate the water before installing and running your FLORATek control.
6. Place your FLORATek system back onto your reservoir, and ensure all tubing is reinstalled correctly
7. Plug in your FLORATek system
8. If your EC is negative or higher than 20, adjust your EC base in the EC setup menu
9. Update your dose to the new stage/week of your feedchart, as required
10. Press RUN to start treating your water

## **Contact Us**

If you have any questions or concerns while setting up or using your FLORATek system, please contact us for support:

**[www.tetraponics.com/contact](http://www.tetraponics.com/contact)**

**[info@tetraponics.com](mailto:info@tetraponics.com)**