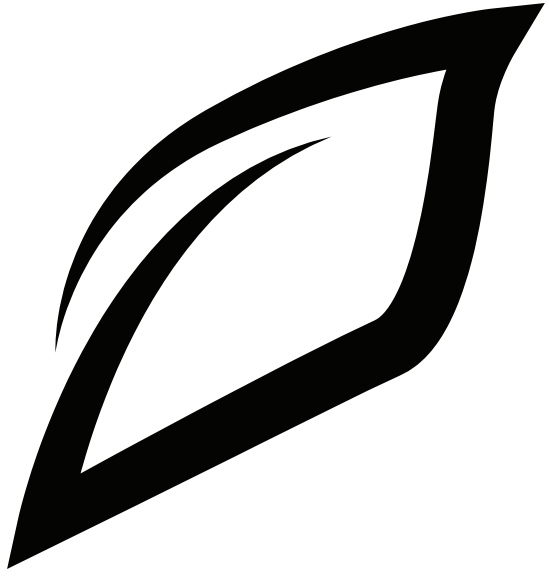

Precision Irrigation Controller: Quick Start Guide

Precision Irrigation Controller Technical Specifications

Power Input:	24 VAC
Environmental Sensor Input(s):	Growlink TDR Soil Moisture Sensor(s)
	12 VDC Power
	3.3v Signal
Output:	24 VAC
	1 Amp Fuse Per Output
Wi-Fi & Local RF:	2.4 GHz

Features

Remote Access - Manage and monitor your climate and substrate remotely and quickly adjust strategies from a smartphone, tablet, or laptop - anytime, anywhere.

TDR Soil Moisture Sensors - Cutting-edge, digital, true time-domain reflectometer (TDR) soil moisture sensors accurately measure soil moisture, EC, and temperature.

OTA Updates - Our controllers regularly receive over-the-air software updates that add new features and enhance existing ones over Wi-Fi.

Alerts - Stay informed on all active and historical alerts from your Growlink systems.

Fanatical Support - Free support from a Growlink specialist (during office hours).

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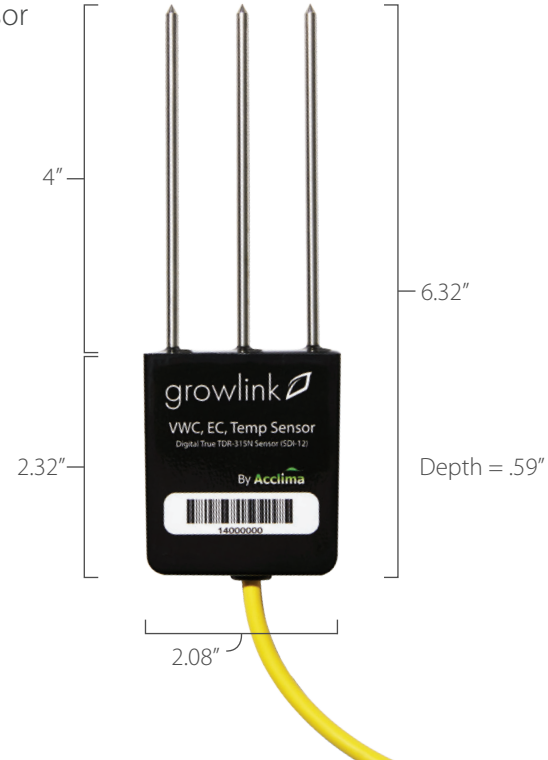
What's In The Box

Precision Irrigation Controller
TDR (VWC, EC, Temperature) Sensor(s)
24 VAC Power Supply
Mounting Hardware
Quick Start Guide

Controller and Sensor Dimensions

Controller

Sensor



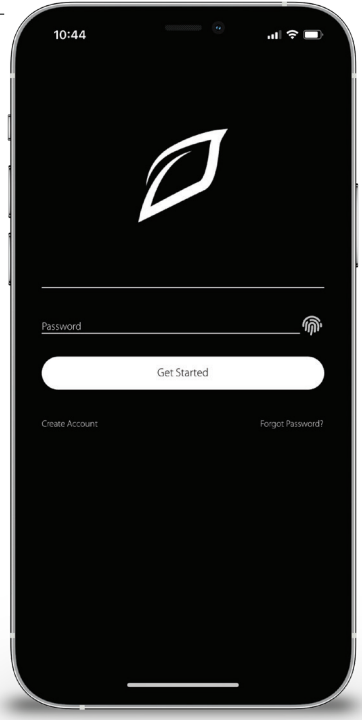
Quick Set Up Guide

1. Download the Growlink app from the Apple App Store, or Google Play Store.

Download on the App Store

ANDROID APP ON Google play

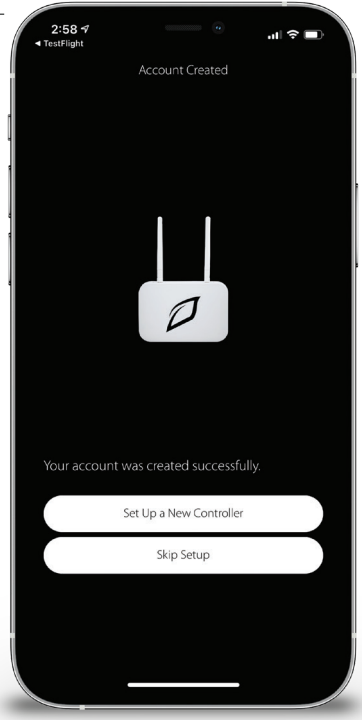
2. Open the Growlink app and tap **Create Account**.
3. After creating an account, log into the app.



Quick Set Up Guide

4. Tap on the ⚙ icon in the top right corner and tap **Connect to Controller.**

   If it is your first time creating an account, it will automatically prompt you to **Set Up A New Controller**.



Quick Set Up Guide

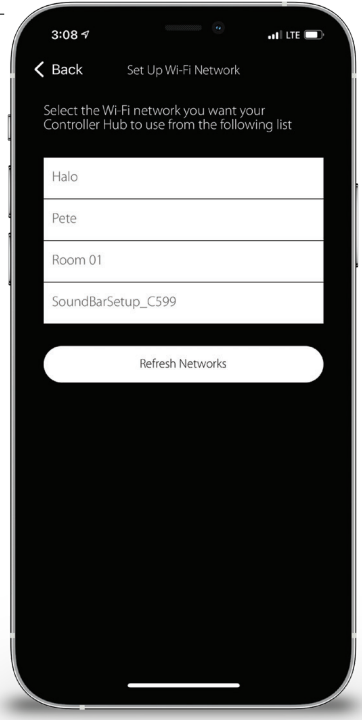
5. **For iPHONE users:** When the **Connect to Controller Hub** window appears, open the **Wi-Fi** settings on your phone and select the SSID of the controller you are connecting (i.e., Growlink-4YJM7T). Wait for the ✔ to appear, then go back to the Growlink app.

   For Android Users: Wait for a list of available controllers to populate in the Growlink app, then select the controller matching the SSID printed on the controller.

Quick Set Up Guide

6. From the **Set Up Controller Hub** window, tap **Next**.

7. Select your local **Wi-Fi** network and enter your network password. Then tap **Set Access Point**.



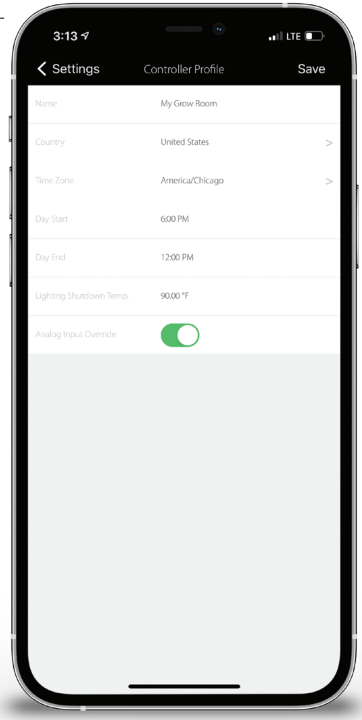
Quick Set Up Guide

8. Name your controller (i.e., Flower Room Irrigation).

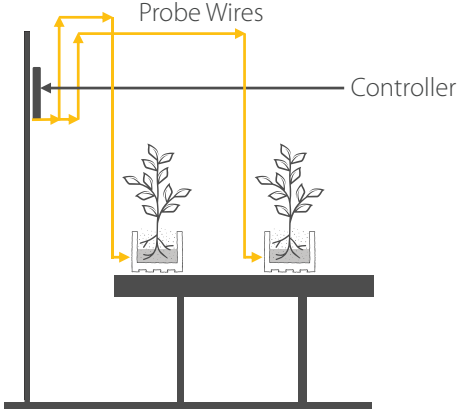
Quick Set Up Guide

9. After controller registration, tap on **Go To Settings**.

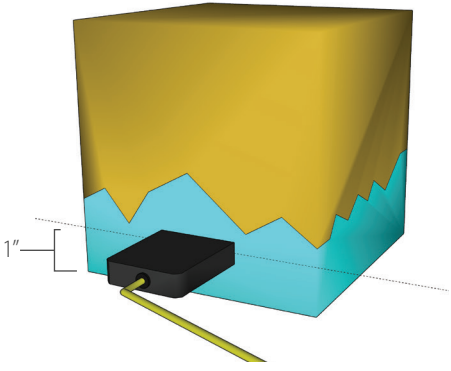
   From the **Controller Profile** page, you can set the country you are in, time zone, **Day Start & Day End** (Lights On & Lights Off). Tap **Save,** and you will be returned to the **Main Dashboard**.



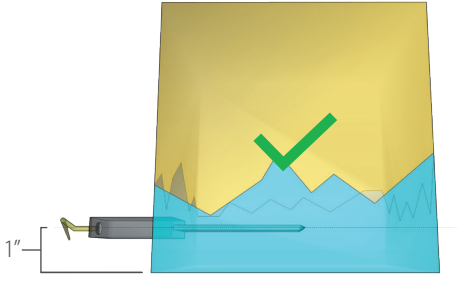
Controller and Sensor Placement



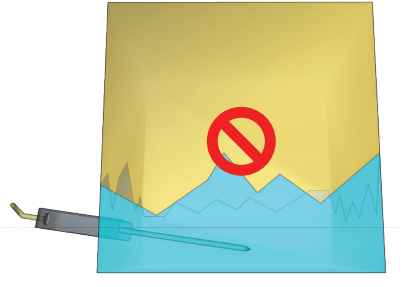
Install Precision Irrigation Controller in a central location according to where sensors will be placed.



Recommended placement for substrate sensors in 6" x 6" Rockwool cubes is approximately 1" from bottom of cube, centered in the media in a horizontal orientation.

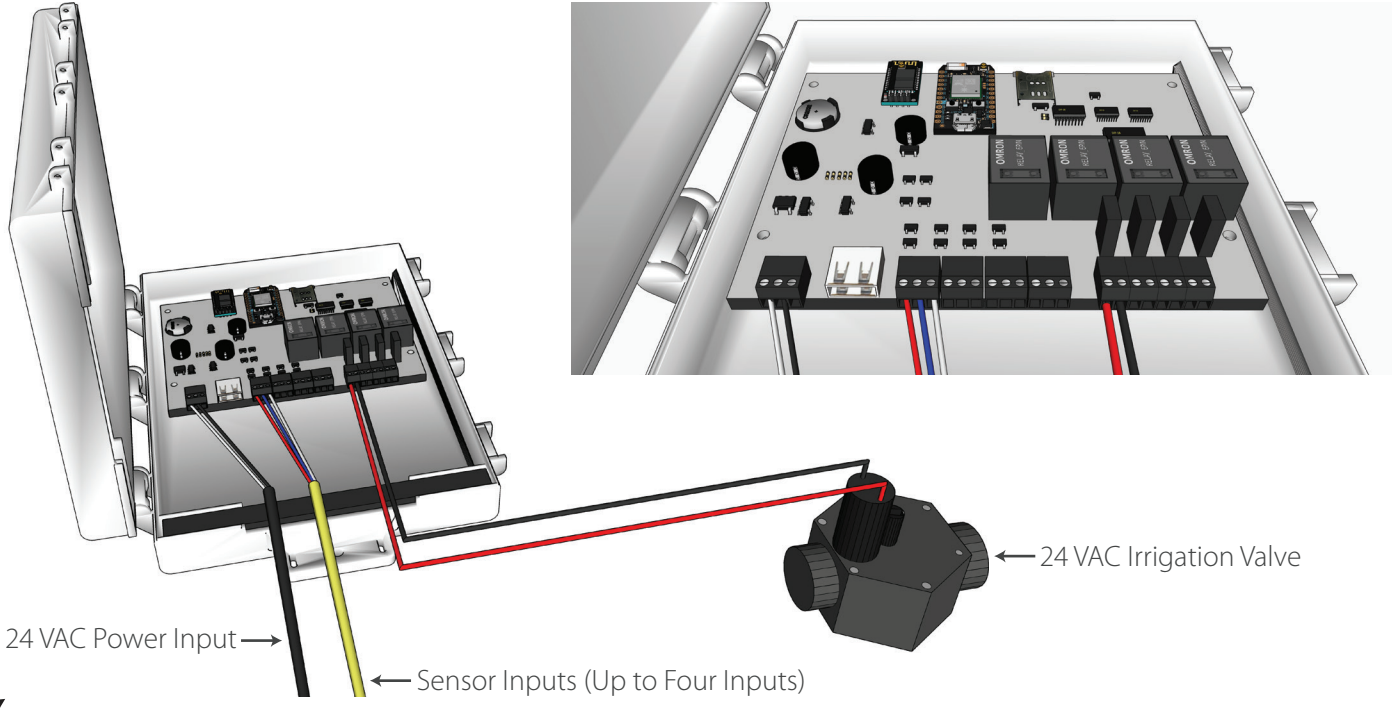


Probes should be fully emerged in cube and level on a horizontal orientation.



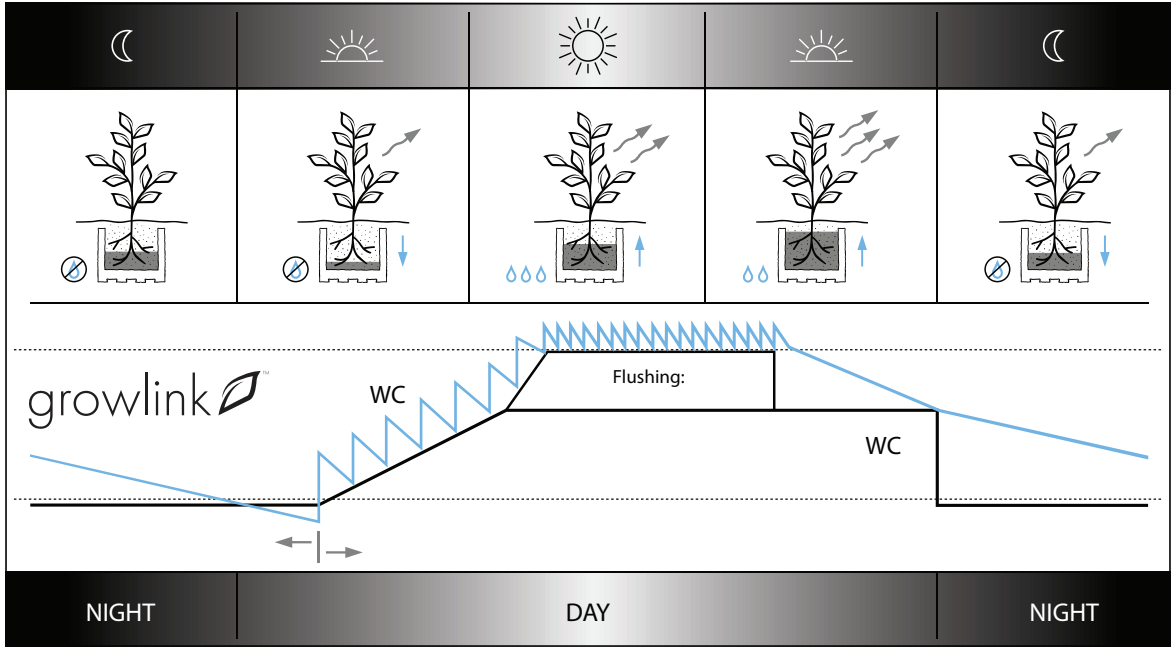
* The example shown is for placement of sensor for a 6" x 6" x 6" Rockwool cube. Please visit our resource guide for proper placement in other commonly used substrates.

Module Wiring



Crop Steering With Irrigation

Manage plant growth by adjusting environmental factors and/or irrigation to encourage a crop's desired outcome. Changing environmental conditions allows the influence of growth toward the desired growth stage, typically vegetative or generative.



Crop Steering Basics

* Vegetative Irrigation Strategy

Shot Size	1 - 3 % of Substrate Volume
Dry Back	10 - 15%
Substrate Temperature	72 - 78 ˚F
Electrical Connectivity	2 - 4 dS / m
Water Content (VWC)	55 - 70%
Irrigation Frequency	6 - 9 (Lights On)

The following ranges are examples of conditions that could induce vegetative growth.

* Generative Irrigation Strategy

Shot Size	4 - 8% of Substrate Volume
Dry Back	15 - 30%
Substrate Temperature	68 - 76 ˚F
Electrical Connectivity	5 - 12 dS / m
Water Content (VWC)	25 - 70%
Irrigation Frequency	3 - 9 (Lights On)

The following ranges are examples of conditions that could induce generative growth.

Actual conditions will vary by grow environment and cultivar. It's critical that you adapt your climate and irrigation strategy to your specific environment and genetics by combining experimentation of steering actions with frequent crop registration.

* *Source: T R Y M™ - Growers Guide to Crop Steering*

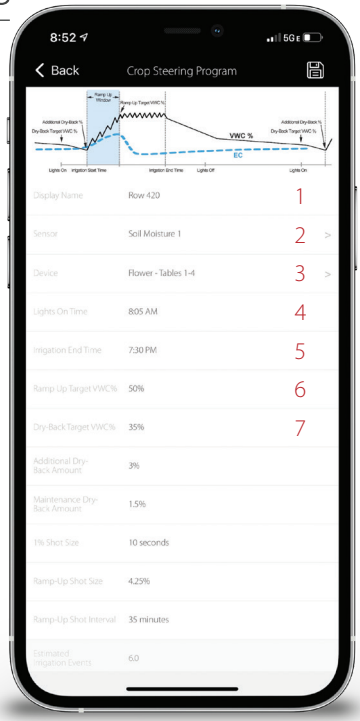
Programming Sensor Triggers, Timers and Schedules

To Set Parameters For Crop Steering

Select controller from the:

Dashboard > Rules > Crop Steering > Add Crop Steering Program

1. From this menu, name your program (1)
2. Choose which Sensor(s) your program will be based on (2)
3. Select which Devices will be activated (3)
4. Input Lights On Time (additional Dry-Back % time begins) (4)
5. Set Irrigation End Time (Dry-Back period begins) (5)
6. Designate Ramp Up Target VWC% (6)
7. Designate Dry-Back Target VWC% (7)



Programming Sensor Triggers, Timers and Schedules

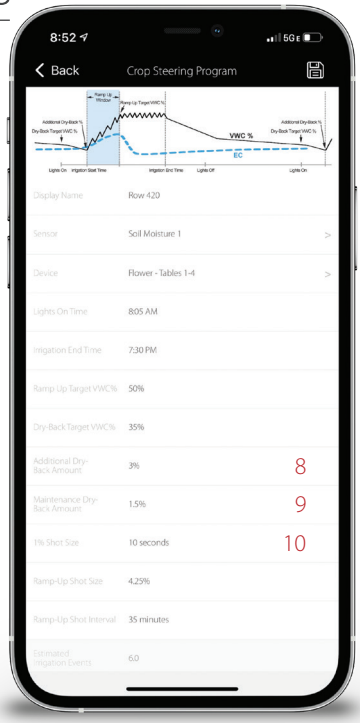
8. Designate Additional Dry-Back % Amount (8)

9. Set Maintenance Dry-Back Amount (9)

10. Set 1% Shot Size time (10)

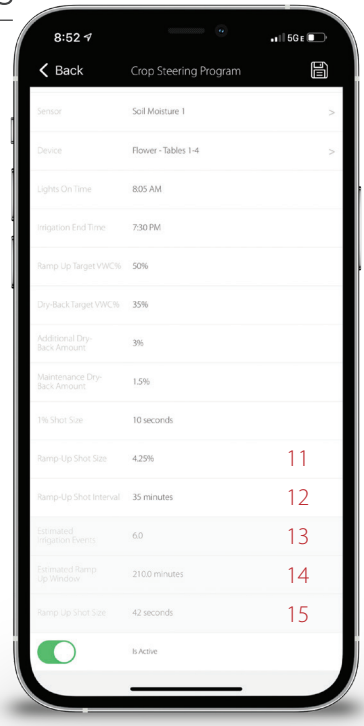
    This number represents how many seconds of irrigation it takes to gain 1% VWC.
    To figure out this value:

    1. Start with your medium at roughly 40% to 50% VWC. Write down your starting VWC.
    2. Activate your irrigation and start a stopwatch. Wait 2-5 minutes, then turn your irrigation off and stop the stopwatch. Wait a few more minutes for the reading to stabilize. Now write down your ending VWC.
    3. 1% Shot Size = (Stopwatch Time In Seconds) / (Ending VWC - Starting VWC). For example, if you went from 40% to 55% VWC in 180 seconds, then your "1% shot size" = 180 / (55-40) = 12 seconds.



Programming Sensor Triggers, Timers and Schedules

11. Set Ramp-Up Shot Size % (11)
12. Set Ramp-Up Shot Interval (12)
13. Estimated Irrigation Events (13)
14. Estimated Ramp Up Window (14)
15. Ramp Up Shot Size time (15)



Troubleshooting

Input/Probe readings not showing up on all inputs OR input ports were moved from original placement:

If you are not seeing all 4 input readings showing up on the Dashboard or are seeing incorrect readings after moving input terminals, press the reset button located on the Photon, and restart the Growlink app/Refresh the Growlink Portal (PC).

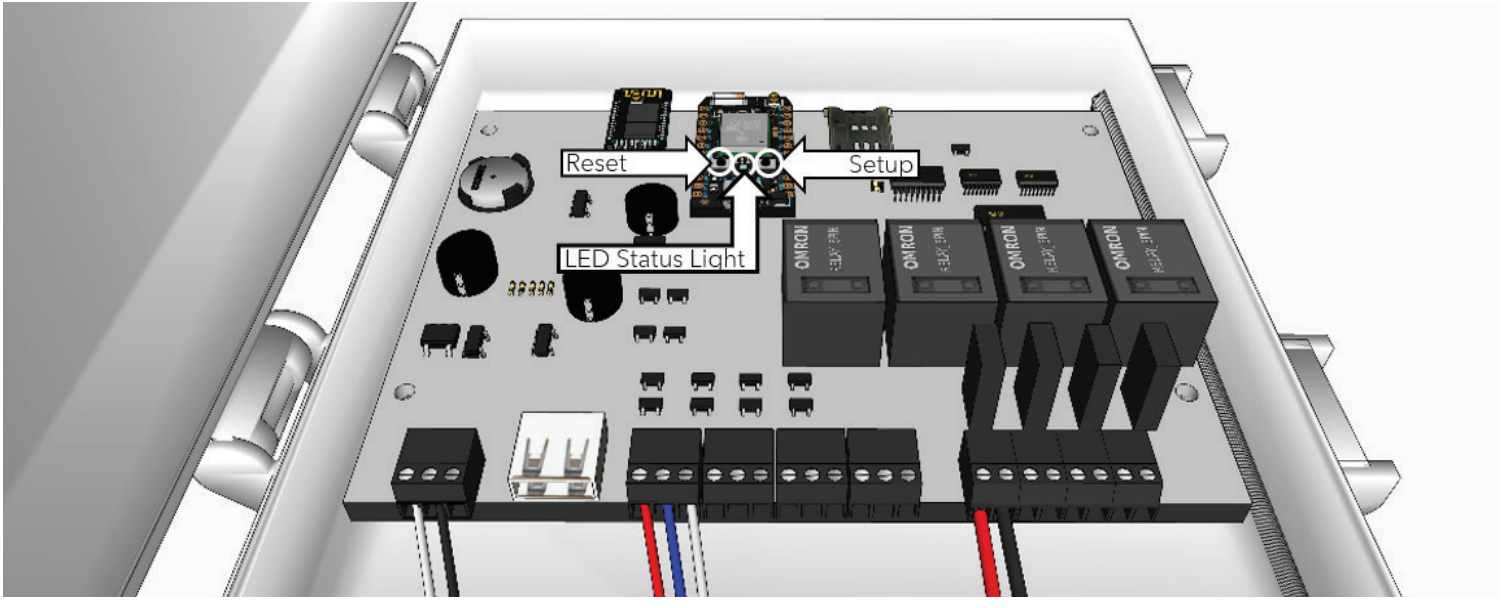
Controller didn't connect to Wi-Fi:

If you are unsuccessful in the first attempt to connect your controller to your Wi-Fi network, hold down the Setup button located on the controller (see page 20) for approximately 12-15 seconds until you see a rapid flashing blue light. Once you see the rapid flash, immediately release the Setup button. This will put the controller into **Listening Mode** (Blinking Blue), and you will then restart the connection process outlined on page 7.

The Wi-Fi network being used has changed:

In the event you need to re-connect the controller to an existing or new Wi-Fi network, put the controller back into **Listening Mode** (see above) and follow the Controller Connection process outlined on page 7.

Troubleshooting



Troubleshooting

Controller LED Status Light Color Codes

During initial setup of a device and operation, these are the usual LED specifications:

- **White Pulse:** Start-up (happens when the Growlink is first powered on or when it's reset).
- **Flashing Blue:** Listening Mode, waiting for Wi-Fi credentials.
- **Flashing Green:** Connecting to Wi-Fi network (If flashing green occurs after the controller has been connected previously, this means you have lost connection, or your network may have gone offline).
- **Breathing Green:** Connected to Wi-Fi network.
- **Blinking Green/Rapid Flashing Cyan:** If controller is not reachable from the Growlink app or Portal, this could mean there is a weak/lost connection to local network. Check connection and/or move Wi-Fi access point closer to controller.
- **Flashing Cyan:** Connecting to Growlink Device Cloud (Connecting to the network, but not necessarily connected to the internet yet).
- **High-speed Flashing Cyan:** Growlink Device Cloud handshake.
- **Breathing Cyan:** Connected to Growlink Device Cloud.
- **Flashing Magenta:** Receiving new firmware update over-the-air (OTA).
- **Breathing Magenta:** Safe Mode, connected to Particle Device Cloud, but user firmware not running.

Warranty and EULA

Growlink Standard Warranty

End User License Agreement

growlink™

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