

TROUBLESHOOTING

THE POWER CYCLE

POWER CYCLING THE LIGHTS:

This should be the first thing you do whenever you come across an issue with the lights.

TO POWER CYCLE:

- Turn your lights on
- Unplug ALL the Power Boosters
- If you cannot get to them and if they are not plugged into an outlet that is controlled by a switch, please flip the breaker(s) that provide power to each of their individual outlets.
- If any lights are still on after you unplug the power boosters, one was missed and still needs to be unplugged.
- The Wireless Receiver needs to be reset and all power disconnected for a successful reboot. Power runs both directions; any additional system power left connected will prevent the receiver from shutting down completely.
- Plug the power booster that is connected to the wireless receiver back in. (The first few lights on the house should flash white and every 4th on the rest of the house should flash blue when this is done.)
- Plug the remaining Power Boosters back into their respective outlets.
- After running the power cycle, please use the RGB sliders in the app to turn the lights to pure white, then pure red, pure green, and then pure blue.
- The 4th, backup data wire and the protections built into the lights can sometimes clash, causing “latching.” Latching can be visible in one light or across the entire strand. Power cycling the lights clears out the jumbled data signal, allowing the data to flow freely.

POWER CYCLING THE NETWORK BRIDGE:

TO POWER CYCLE:

- Unplug both the power and Ethernet cables from the Network Bridge.
- After a few seconds, plug the Ethernet cord in first, then the power cord.
- Once reconnected to power, the Network Bridge should flash teal, then go red or remain unlit for a few minutes before turning blue.
- The Network Bridge is separate from the lights and requires its own power cycle.

DEAD PIXELS

- Each LED has three pixels: one red, one green, and one blue. If any one of these stops working, you end up with a light that will not display the correct color most of the time.
- The dead pixel will correctly display the two colors that are working but remain dark for the color that is out.
- On pure white:
 - If the red pixel is out, you will see a teal light.
 - If the green pixel is out, you will see a violet light.
 - If the blue pixel is out, you will see a yellow light.
- To repair a dead pixel simply disconnect all power from the lights, cut out the problem LED, and splice in a new one, making sure its connections are secure and waterproof.

DATA

- Problems with the data signal often occur after long jumps of unlit wire, following Y-splits, or around corners.
- There should be a data buffer at the beginning of each jump of unlit wire that is 7' or longer and immediately following a Y-split for each leg that goes into any length of unlit wire.
- It is important to make sure the wires are not pulled too tightly around corners.

EVIDENCE OF A DATA ISSUE:

Any variation of the programmed sequence that occurs at any given point and continues to the end of the run. (ie: solid lights that move to every other light, movement sequences changing color or speed, etc.)

HOW TO REPAIR ISSUES WITH THE DATA SIGNAL:

If the issue begins at a Y-split or across a large jump of unlit wire:

- Verify that there are data buffers and that they are in the correct location.
- Check the connections to make sure they are secure.
- Check for exposed wire.
- Replace the data buffer or add a data buffer if one is not present.

If the issue follows a corner:

- Check for exposed wire. If the wire is too tight, it can rub against the corner/gutter and wear through.

PHYSICAL CONNECTIONS

- Heat-shrink connectors are used to link wires and to make sure those connections are waterproof.
- Many data or power issues can be attributed to wires that have not been properly crimped or waterproofed.
- It is important to look at the connections and to make sure none of the wires were crossed.
- When terminating lines, cut two of the wires shorter than the others and cover with liquid electrical tape, as that will prove more water resistant than regular electrical tape.

SHORTS

Resulting from a poor connection point or a pinched or exposed wire, a short can manifest itself in multiple ways:

- A short will often result in the lights flashing on and off at a steady pace.
- When this happens, dim the lights until they stop flashing and you can see the power drop, then drop down to the next open bullet-point in this section.
- If dimming the lights does not reveal the location of the short, go to the starting point of the issue and cut the wires about 5-10' in from that location.
- Test the lights.
- If that section works, reconnect the wires and move down the line another 5-10'.
- Repeat until the short is located, then cut it out and replace the material.

A drastic drop in power can also be indicative of a short. The lights will fade from pure white to yellow, red, then go dark in a relatively short span of a few lights.

- In this scenario, the short will be located near the point where the lights are darkest or have dimmed.
- Examine the wires to find any exposed wire.
- Once the short has been found, cut it out and replace it with new material.

Some shorts do not involve the power wires, but have to do with the data wires instead.

- This scenario looks similar to issues with the data signal. If this is the case, refer to the Data section.

If wires are pulled too tightly around corners, their insulation can wear through, exposing the wires. This is called a "pinched wire." For this reason, corners and peaks are common locations for shorts to occur.

POWER

- The power in this system is non-directional. Each 5V power booster is good for roughly 60-75' of lights and unlit wire. Y-splits drop that distance on each leg by more than half.
- The most common issue with power is voltage drop. Voltage drop means a section of lights is not getting enough power, resulting in color decay.
- To test for voltage drop, turn the lights to pure white at full brightness. It will manifest itself in the pure white fading slowly to yellow, and depending on the extent of the drop in power, it will continue to fade to red and eventually go out as you move down the line.

HOW TO REPAIR A VOLTAGE DROP:

- Inject power into the system near the location in which the power decay is located.
- Remember, the power is not directional and that unlit wire counts towards the 60-75' it will power.
- Before splicing in a new booster, check all the outlets currently being used for power by plugging a separate device into that outlet. It is possible that a breaker or a GFCI switch tripped, that the outlet does not work, or even that the outlet is controlled by a switch that got turned off.

BROWN OUT

A brown-out happens when the wireless receiver has enough power to turn the lights on, but once they are on, the lights draw enough power from the receiver that it loses its connection with the Network Bridge and is no longer able to control them.

WHEN EXPERIENCING A BROWN-OUT:

- Make sure the Power Booster and the Wireless Receiver are right next to each other and that no unlit wire has been added to the connection between them.
- Check for a short in the wires before and after the Wireless Receiver.
- Check the Power Booster connected to the receiver as well as its outlet.
- The Power Booster could be unplugged or a switch to the outlet could be turned off. In any case, we want to make sure they are actively providing power to the receiver.

RADIO SIGNAL STRENGTH

- The Network Bridge and wireless receiver communicate via radio signal. The signal strength is affected by the distance between the two devices as well as the obstacles between them.
- Poor signal strength is manifest when the Bridge lights up to the set sequence, but the actual lights do not follow suit within a few seconds. It can take several hours for the wireless receiver to respond to the Network Bridge if the signal is weak enough.
- The lights turning on by themselves can also indicate poor signal strength. When the lights are off, the receiver actively sends that command to them. If they do not get that signal while still connected to power, they can turn on randomly and remain on until the lights have been power cycled.
- This symptom can also indicate a bad connection, an issue with a Data Buffer, or a short.
- The best way to resolve this is to move the Bridge and the wireless receiver closer to each other.
- It is generally easier to move the Network Bridge, but if there is not an Ethernet port closer to the receiver, a range extender may be necessary.

BRIDGE ISSUES

The Bridge is programmed to display certain colors depending on the status of the Bridge. These colors have the following meanings:

- Twinkling **Blue** – this is displayed when the Network Bridge is in normal idle and all is well.
 - **Yellow** – this is displayed when the Network Bridge is connected to the local network, but can't reach the internet.
 - Chasing **Green** – this is displayed when the Network Bridge is in pairing mode.
 - Twinkling **Red** – this is displayed when the Network Bridge is booting up.
 - Fading **Red** – this is displayed when the Network Bridge is unable to connect to the local network.
 - **Red** - This is displayed when the Network Bridge is updating.
- When the Network Bridge displays **yellow**, it is most commonly the result of the customer's network security/firewall. In this case, the customer will need to adjust their security settings or speak with their Network Service Provider to allow the Bridge to connect.

IF THE NETWORK BRIDGE IS FADING RED:

- Power cycle the Bridge.
 - Check the Ethernet port on the Bridge. There are two small lights in it that should be lit.
 - Restart the router.
 - If available, try a different Ethernet cord.
- This should be resolved – and no longer necessary, but in some cases you may need to replace the SD card in the Network Bridge.
- It is important that the Network Bridge remains connected to power while updating/solid red.
- Occasionally, the Network Bridge will not connect to the remote server. If this is the case and you are unable to connect remotely, power cycle the Network Bridge.

CALENDAR/APP

Customers regularly call in with questions about the app, and most commonly, its calendar. If a customer says the lights do not turn on as scheduled in the Calendar:

- Check the Calendar to make sure there are not two events scheduled at the same time.
- Find out if the Bridge lit up to the correct sequence when the event was scheduled to start.

IF NOT:

- Power cycle the Network Bridge.

IF SO:

- Power cycle the lights.
- Make sure the Wireless Receiver is checking in with the Network Bridge.
- Check the signal strength between the Wireless Receiver and the Network Bridge.
- Make sure the Wireless Receiver is not browning out.
- Check the power.
- Check for issues with the data.