

STEVE'S LEDS

Congratulations on your purchase of a Steve's LEDs Upgrade! Please read through this entire installation guide BEFORE unpacking your LED retrofit system.

This kit assumes you have a basic knowledge of electronics, such as never touching a live electrical circuit under any circumstances whatsoever, understanding polarity, wiring in series and parallel, electrical safety and handling, and the use of basic handheld tools. Consider researching the internet or asking a friend if you are unfamiliar with these terms. We are not responsible for mistakes published in this guide, or installation errors as a result of mistakes published in this installation guide, you are ultimately responsible for proper and safe installation. By proceeding with the installation, you are accepting full responsibility of the safe and proper installation of your LED upgrade system. Remember that your biggest resources are your friends that are familiar with electronic device installation. Steve's LEDs is available for [support](#) during normal business hours.

WARNING: Most of the components contain leaded solder, which has been known to cause a numerous health issues. Here it is: WARNING: This product contains lead, a chemical known to the State of California to cause neurological damage, cancer and birth defects or other reproductive harm. Please wash your hands after handling this product.

LEAD IS GOOD!!! We use leaded solder because it requires a relatively low temperature to melt. The lower the temperature we can keep our electronics and LEDs, the longer they last. I have heard of many people getting very poor lifespan out of LEDs that have been soldered with lead-free solder (almost double the melting temperature of lead solder). Once installed, you will not be handling your retrofit kit regularly, so it is not a health risk for you, or your aquarium inhabitants during day-to-day usage. Frankly, if we see an LED related product that is soldered with lead free solder, we just don't buy it because there is a high probability that it will have a reduced lifespan.

This guide is just that....a guide. There are many ways to install an LED retrofit system correctly. This guide serves as an outline, based on our years of experience, of the most efficient, safest, and most economical way to install your kit.

Before unpacking your retrofit kit from the box, please be aware that mishandling the LEDs is the #1 cause of permanent damage to the system. Putting a mere 2 ounces of pressure in the wrong spot can tear apart a fragile high power LED or rip apart essential wiring. Be prepared to treat all of the components as if they are as fragile as eggs while unpacking. The unpacking process should not be rushed; take your time and ensure all items are treated with great care. Once unpacked, you can cut and remove every YELLOW plastic wire tie (zip-tie) that you see holding the bundles of wire together on the LED system, please do not cut any BLACK zip ties.

We have listed the steps in detail so that even a person unfamiliar with electronic component handling will have a safe and proper installation. Please read though all of the steps before beginning installation.

It is a good idea to test the LED system immediately upon unpackaging, to ensure there is no shipping damage.

Biocube 16 LED Upgrade

List of Included Products

- 1X Drop in LED Fixture
- 1X Driver and Fan Assembly
- 1X tube of sealant
- 1X Tool Set including snippers and wire plastic saw

Required Tools

- Philips head screwdriver (#1 and #2 size)
- Wire cutters

Approximate Installation Time: 15-30minutes

- Remove your Biocube 16 hood and unplug ALL electrical connections that plug into wall outlets!
- We have painstakingly determined the easiest way to install this upgrade, it is highly recommended that you strictly adhere to this guide; however, you are ultimately responsible for safely installing your LED light retrofit kit. Although the steps are in chronological order, study entire step before beginning the step, as the contents within each step may or may not be in order.

Installing Your New LED Upgrade:

For your convenience, we have made a short video (animated GIF) for each and every step of the process. This is provided by giving you a web link. The installation of this LED system cannot be accomplished without watching these videos. This link **must be opened using any web browser** of your choice (such as Google Chrome, Firefox, and Microsoft Internet Explorer). These are large files, and may need several minutes to load and to begin playing properly. It may be best to open them in your browser in different tabs, then take a coffee break and come back in a half hour to an hour.

Please be aware that this file is regularly scanned with antivirus software, so you can ignore any warnings on your computer regarding safety of this file. If it is deemed unsafe, it is set to be immediately deleted off our web server (if the links work, then the files are safe!).

Once opened in your browser, the video will load frame by frame, then begin to play at a normal speed in a continuous loop, automatically starting over again and again, indefinitely. This allows you to study the step and become completely familiar with it prior to actually doing it yourself.

PLEASE HANDLE THE LED FIXTURE CAREFULLY. THE LEDS WITHIN YOUR FIXTURE ARE EXPOSED AND EXTREMELY FRAGILE. SIMPLY TOUCHING THEM WITH YOUR FINGER IS ENOUGH TO CAUSE PERMANENT PHYSICAL DAMAGE TO THEM. DAMAGED LEDS ARE NOT COVERED UNDER THE MANUFACTURERS LIMITED WARRANTY. NEVER ALLOW ANYTHING TO TOUCH THE LEDS SUCH AS CABLES, TOOLS OR FINGERS. NEVER SET THE FIXTURE IN THE LED-SIDE-DOWN ORIENTATION. All screws should be finger tight, tightening too much WILL crack your hood or the mounting brackets.

1. Unplug all electrical connections from your hood. Ensure you have a suitable work surface. Place a large bathroom towel over your work surface so your hood will not be scratched. Remove the plastic splash guard.
<http://stevesleds.info/biocube16/1-taking-apart-the-hood.gif>

2. Next we will remove all factory electronics, including all fans, wires and LEDs. Remember to save these screws, and mark where they came from – they may be used in later steps
<http://stevesleds.info/biocube16/2-removing-factory-electronics.gif>
3. The Biocube 16 was designed for weak LEDs and poor airflow. To accommodate substantially brighter LEDs, we need better cooling. To do this, we must open the fan vents slightly. This maintains mostly stock appearances of the hood, and allows you to properly turbocharge your lights!
<http://stevesleds.info/biocube16/3-opening-the-fan-vents.gif>
4. It is time to allow the slightly larger cable to pass through the hood, and do this in a manner that will keep water out of the hood.
<http://stevesleds.info/biocube16/4-allow-the-cable-to-pass.gif>
5. Install the new LED system. The screws previously kept may be reused. Otherwise, you'll find the correct screws installed into the assembly or packaged with your LED system in clear bags.
<http://stevesleds.info/biocube16/5-install-new-LED-system.gif>
6. Reinstall the splash shield to keep your new LEDs safe from the water.
<http://stevesleds.info/biocube16/6-reinstall-splash-shield.gif>
7. Now we will ensure there is a proper seal around where the cable passes out of the hood. This is very important because water entering the hood will damage the LEDs. It is best to apply the sealant liberally, then after about 1-2 weeks, come back and use the remainder of the sealant to ensure the seal is perfectly water-tight.
<http://stevesleds.info/biocube16/7-seal-the-cable-hole.gif>
8. It's time to make all the wired connections. Match up numbers, and never force the connectors, they should all plug together easily. If you are having to force a connector, then it is either the wrong connection or upside down.
<http://stevesleds.info/biocube16/8-power-connections.gif>
9. To install the controller, just plug it in! We have provided videos for both the HurricaneX and Bluefish Mini Controllers.
HurricaneX – <http://stevesleds.info/biocube16/10-hurricaneX.gif>
Bluefish Mini – <http://stevesleds.info/biocube16/9-bluefish-mini.gif>

[HurricaneX Manual](#)

[Bluefish Mini Manual](#)
10. Select the correct power supply voltage for your country.
http://stevesleds.info/biocube16/step_10_voltage_selector_switch.gif

1. All finished! Let's test the system out before we put it on our aquarium. With HurricaneX short click the knob until you see (Manual), and turn the knob up to approx 500 and verify you see all LEDs on, and turn back down to 0. On Bluefish, you can use the DEMO feature which will turn on the lights and cycle through the colors. Carefully place your hood back onto your aquarium. Make certain ALL wires and cables coming from your aquarium have [drip loops](#). Plug the two plugs into a surge protector. Ensure the surge protector is plugged into a GFCI outlet.
- 2.
3. Pat yourself on your back, and brag to your friends.

ACCLIMATION PROCEDURE

Your new LED system will provide significantly more usable lights to your corals. Your corals need a relatively long acclimation to be able to physically adjust to this light. They will undergo some internal physical changes, and this is best done over the course of about 8 weeks. During this time their colors will enhance and sometimes change as they adapt. Sometimes browns will turn to blues, sometimes blues will turn to greens, etc. Every individual coral is somewhat unique and as it adapts its colors may change, improving in almost every case! To determine how much light to provide your corals with, it is very important to watch your corals and their response to the LED light. Initially, start off at around 30% (which is about 1200 on the HurricaneX), and see how the polyps respond after 5 days. If the polyps are balloon like and relatively clear, they need more light. If they are small and dark, they are getting too much light, compromising their health. Think of the corals as little solar collectors. They will grow big if they require more light, and they will shrink if they want to receive less light. If they are pure white, they likely have been bleached (blasted with too much light), and will take about 3 months to recover using a 30% light intensity level. If they appear to be relatively normal, just let them adjust to the LED spectrum for another 3-5 days. After that, increase the intensity of the LEDs approximately 1% every day) over the course of the next 2 months. As you ramp up, day after day, always take notice of their size to ensure they are adjusting – you may need to hold that value for a few days, or reduce the intensity if the polyps are small. If you rush this process, it is highly probably that you will bleach and could even kill your corals. Corals will take an absolute minimum of 6 weeks to acclimate and adjust to the new brighter LED light AFTER you have

completed the acclimation, and this is usually when they undergo a slight color change, and enhance iridescence. When introducing new corals, you must restart this entire acclimation process, by bringing the light intensity down to less than half.

The final intensity settings (once the acclimation is fully complete after 3-4 months) will depend on your specific corals. If you have mostly soft corals, the intensity settings will be around 50%. If you have mostly LPS, then it will be around 60-70%. If you have mostly SPS, then it will be around 65%-85%. Rarely would you need more light than both channels on 85%. If the color is too blue for your liking, simple decrease the blues channel MAX setting by 5%, and increase the white channel MAX setting by 5%. If the color is too white for your liking, simple decrease the white channel MAX setting by 5%, and increase the blue channel MAX setting by 5%. You can continue to refine until you are satisfied. Just remember to adjust both colors the same amount, otherwise you may have to re-acclimate.

To determine percentage on the HurricaneX, just divide the value you are at by 4095. For example, if you want to know what value 2040 is, then

$$2040 \div 4095 = .50 (50\%)$$

$$1023 \div 4095 = .25 (25\%)$$

$$3071 \div 4095 = .75 (75\%)$$

If you have any difficulties, suggestions, comments or ideas, please feel free to contact us during normal business hours at Techsupport@StevesLEDs.com or 985-789-6604 (USA, CST).