

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 and appropriately cool running temperatures. 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.

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.

Red Sea Max 250 LED Upgrade

List of Included Products

- 1X Drop in Fixture
- 1X Parts bag containing mounting screws and 1X Allen wrench to be used with mounting screws

Required Tools

Flat head screwdriver (1/4" - 3/16" width head is ideal)

Hammer

Wire cutters, or wire snippers or diagonal wire cutters

Philips head screwdriver (#1 and #2 size)

Approximate Installation Time: 15-45minutes

- Remove your Red Sea Max hood and unplug ALL electrical connections that plug into wall outlets!
- This LED system may utilize a small amount of the existing wiring, so please take care to remove only what this guide recommends. 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, please read through the 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. 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. Alternatively, you can download the complete set here: http://www.stevesleds.info/RSM250V5/RSM250_GIFs.zip

Once opened in your browser, the video will load frame by frame, then begin to play 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.

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 screw cover plugs.
http://www.stevesleds.info/rsm250v5/step1_remove_screw_covers.gif
2. Proceed to remove the screws. There are different screw sizes within the different screw holes. Keep track of where each of the screws go, such as drawing a diagram on a piece of paper.
http://www.stevesleds.info/rsm250v5/step2_remove_screws.gif

3. Take the hood apart, separating it into a top and bottom half. Most of the work will be done in the “bottom” half. The “top” half will be set aside, and used again later.
http://www.stevesleds.info/rsm250v5/step3_take_apart_hood.gif
4. Flip bottom half of the hood over to expose the wiring.
http://www.stevesleds.info/rsm250v5/step4_flip_hood_over.gif
5. This step is broken up into 7 videos. It shows the most efficient way to remove the stock wiring that will not be used with your LED system. All of the wiring that is removed can be discarded.
http://www.stevesleds.info/rsm250v5/step5_remove_stock_wiring_part_1.gif
http://www.stevesleds.info/rsm250v5/step5_remove-stock_wiring_part_2.gif
http://www.stevesleds.info/rsm250v5/step5_remove_stock_wiring_part_3.gif
http://www.stevesleds.info/rsm250v5/step5_remove_stock_wiring_part_4.gif
http://www.stevesleds.info/rsm250v5/step5_remove_stock_wiring_part_5.gif
http://www.stevesleds.info/rsm250v5/step5_remove_stock_wiring_part_6.gif
http://www.stevesleds.info/rsm250v5/step5_remove_stock_wiring_part_7.gif
6. Remove the reflector, this will not be used. We will only be using the 3 support braces.
http://www.stevesleds.info/rsm250v5/step6_remove_reflector.gif
7. Put the fixture in the hood. Please take care to not touch the LEDs, or allow anything else to touch the LEDs during the installation, they are extremely fragile. Damaged LEDs are not covered by the manufacturer’s limited warranty.
http://www.stevesleds.info/rsm250v5/step7_drop_in_fixture.gif
8. Secure the new LED upgrade using 4 of the included screws and washers. (we have provided 1 extra screw and washer, just in case). You will also be using one of the original short screws that were holding in the reflector. Once secured with the screws, replace the clear splash shield to provide some protection for the LEDs.
http://www.stevesleds.info/rsm250v5/step8_mounting_with_screws.gif
9. Route the cable out of the timer box. Once it is routed, you may wish to seal this hole with hobby hot glue, silicone sealant, or nothing at all. Just remember it is important that water does not find its way up into the hood through this opening. Damage caused by water or salt creep is not covered under the manufacturer’s limited warranty.
http://www.stevesleds.info/rsm250v5/step9_routing_the_cable.gif
10. Re-assemble the top and bottom half of the hood sections, again, taking care to protect the LEDs.
http://www.stevesleds.info/rsm250v5/step10_reassemble_the_hood.gif

11. Re-assemble both of the side vents. The video shows the exact order of steps to get these to fit in easily. This procedure is identical for both sides.
http://www.stevesleds.info/rsm250v5/step_11_reassemble_side_vents.gif
12. Replace the screws back into the hood, in the same order and location that you removed them in Step 2. Replace the plastic screw cover plugs that you removed in step 1. No video shown due to the simplicity of this step. Just push them in with your thumb.
http://www.stevesleds.info/rsm250v5/step12_replace_hood_screws.gif
13. Plug the cable into the power supply and Typhoon controller. Power supply and Typhon will be located in your aquarium stand. Be certain to place these off the floor of the stand, and create an appropriate drip loop.
http://www.stevesleds.info/rsm250v5/step_13_plugging_in.gif

UPDATE:

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](#)

14. Select the correct power supply voltage for your country.
http://www.stevesleds.info/rsm250v5/step_14_voltage_selector_switch.gif
15. 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.
16. Pat yourself on your back, and brag to your friends.

Acclimation!

Acclimating your corals to the new, brighter LEDs. 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. Start off at 30%, 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. If

the corals are pure white, they likely have been bleached (blasted with too much light), and will take about 3 months to recover using a 20-25% light 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 approx. 2-3% once every 3-4 days (or 1% every day) over the course of the next 2 months. If you rush this process, it is highly probably that you will bleach and could even kill your corals. Corals will take a minimum of 6 weeks to fully acclimatize and adjust to the new brighter LED light after you have completed the initial acclimation procedure. 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. When introducing new corals, you must restart this acclimation process, by bringing the light intensity down to less than half. If you rush this process, you will notice that the growth of your corals will be stunted for up to 6 months.

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

$$2040 \div 4095 = .50 \text{ (50\%)}$$

$$1023 \div 4095 = .25 \text{ (25\%)}$$

$$3071 \div 4095 = .75 \text{ (75\%)}$$

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).