

# STEVE'S LEDs

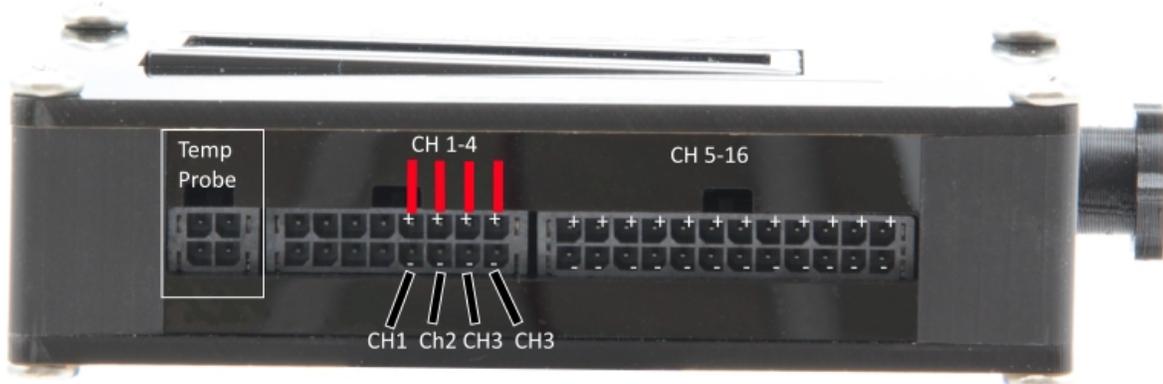
Congratulations on your purchase of a Steve's LEDs HurricaneX Controller!  
Please read through this entire installation guide BEFORE unpacking your LED retrofit system.

This guide 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, compatibility with your electronics 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 this hardware. Remember that your biggest resources are your friends that are familiar with similar electronic device installation. Steve's LEDs is available for [support](#) during normal business hours.



## Installation

The below photo shows a typical installation to a Steve's LEDs light system using the pre-soldered extension (included with many of our LED systems). Positive top row and Negative bottom row.



## Programming -

Please familiarize yourself with how the rotary knob is used to program the HurricaneX.

Rotate the knob (-R+) – rotate clockwise or counter-clockwise to select different menu items and to change the value of the selected item. Clockwise scrolls down or increases the value of the selected item. Counter-clockwise scrolls up or decreases the value of the selected item.

Short press (SP) – pressing the knob until you hear/feel it 'click' then immediately releasing in less than 1 second. This is used to go IN to a menu item or select a menu item that you wish to change.

Long press (LP) – pressing the knob for more than 1 second. This allows you to enter the setup mode or to back OUT of a menu item once you are finished adjusting the value.

## Functions-

This guide was designed to assist you in familiarizing yourself with programming the HurricaneX – which is quite simple once you learn how to navigate the menu and adjust the settings. At the end of this guide, we will provide you with an example step-by-step scenario to setup your LED system with the HurricaneX. Please feel free to reference it at any time. Once you power up your HurricaneX, you'll start off on the home screen. You can **(SP)** through the 5 home screens which allow you to temporarily put your HurricaneX in alternate modes to get the lights to temporarily remain in specific settings.

**Auto:** This is the mode that Hurricane should remain in, which allows the programming that you have set to do its job and automatically allow your daily cycle of sunrises, sunsets, etc., to automatically happen. The display will show the current daily phase that your lights are in, such as Day, Night, Sunrise or Sunset.

**Sim:** This mode allows you to quickly simulate your sunrise and sunset settings (once they are programmed), so you can see how each of your channels will eventually respond to the Auto mode sunrise and sunset, without having to wait. Just **(-R+)** the knob which simulates speeding up the sunrise and sunset by adjusting it to 0-100%. **(-R+)** 0%-100% will run through the complete sunrise sequence of all of your channels, and 100%-0% will run through the corresponding sunset sequence.

**Manual:** This settings allows you to **(-R+)** the knob and force all channels of your lights to turn on at the intensity you specify. This is the perfect mode for testing to ensure all of your electrical connections to the HurricaneX and lights are working properly. Note that you will have 4096 levels of dimming, and at the higher brightness levels it skips numbers (for example, you can't select brightness level 4094). This is simple to make it easier for you to move quickly through the total 0-4096 levels in a timely fashion to test your lights, and it will NOT skip any levels during your Auto mode sunrises and sunsets.

**Force Night:** This is to temporarily force all of your channels to your Night phase. This is helpful when programming your HurricaneX, to ensure that your Night phase has the right channels selected, and has the correct intensity settings.

**Off:** This turns all channels to 0% intensity, or completely off. This is helpful when you need to look at your lights with them turned off, such as when opening an aquarium hood.

## Enter Setup Menu -

(For setting the time, changing sunrise/sunset settings, and changing all other settings.)

To enter the Setup Menu, **(LP)** the knob until you see this screen, and select “Y” and **(SP)**:



You will then be able to scroll **(-R+)** through all of the menu items to set the HurricaneX to control your lights exactly how you want them to be controlled. Here is a list of the available menu items followed by a short description:

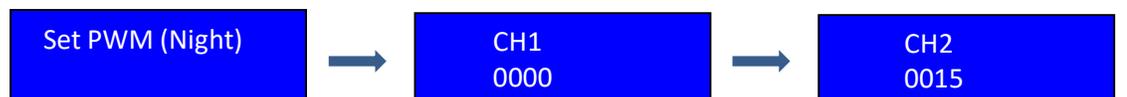
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**Set PWM (Day) – (SP)** to change this setting. Select the channel you want to adjust **(SP)** and increase **(-R+)** the PWM setting to make the lights brighter, and **(-R+)** to reduce it and make the light dimmer. Set this to the maximum intensity you want this LED channel for the peak of the Day phase (see acclimation guide for coral reef aquariums in appendix). After you are finished adjust the value of the channel **(SP)** and **(-R+)** to select the next channel. Be sure to set all channels you are using. **(LP)** to back out of this menu item. PWM refers to the type of dimming signal is being sent to your LEDs. Most LED controllers offer only 100 steps for 0-100% dimming (1% resolution). Your HurricaneX is far superior, offering 4096 steps for 0-100% dimming (0.024% resolution - 40X greater resolution!). To determine what percentage a PWM value is, divide the PWM value by 4096. For example, PWM 500 is the same as 12.2% (0.122), where  $500 \div 4096 = .122$



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**Set PWM (Night) - (SP)** to change this setting. Select **(SP)** the channel you want to adjust. Increasing **(-R+)** the PWM setting makes the lights brighter at night, and reducing it **(-R+)** makes the lights dimmer at night. This mode can serve as a moonlight for aquariums. Note: you cannot have the night mode set at a higher intensity than the Day mode. **(LP)** to back out of this menu item and save your settings.



**Sunrise Mode** – Set either [Manual] or [Auto]. Manual will allow you to specify the time of the start of the sunrise phase (not duration) to accommodate your personal preference or work schedule. Manual is recommended so that you can ensure the lights are on during your preferred viewing time (typically after natural sunrise). Auto mode will base the sunrise time on the latitude and longitude that you specify, in a different menu item. For marine aquariums, it is recommended to have the lights on approx. 12-14 hours per day for best growth.

Sunrise Mode  
[Manual]

**Sunrise** – This is where you set the sunrise phase to start when the previous Sunrise Mode is set to [Manual] with a **(SP)**.

Sunrise  
00:00 Manual

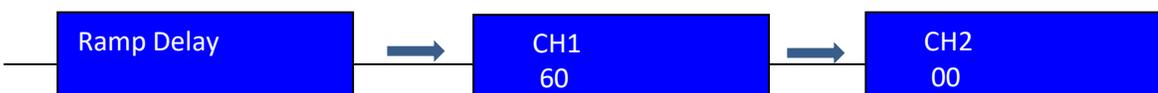
**Sunset** - This is where you set the sunset phase to end when the previous Sunset Mode is set to [Manual] with a **(SP)**.

Sunset  
00:00 Manual

**Ramp Time** - This is the duration of both the sunrise and sunset. For example, a value of “60” will cause a slow ramp up or fade up of light intensity over the course of 60 minutes for sunrise, and will slowly ramp down or fade down the light intensity over the course of 60 minutes for sunset. If you desire a 2 hour sunrise and sunset, then **(SP)** and **(-R+)** to choose 120 minutes.

Ramp Time  
00 Minutes

**Ramp Delay** – You can choose to delay the sunrise/sunset time for certain channels by a specific amount. This is helpful in a reef aquarium, if you choose to have the white light channel start sunrise 60 minutes after the blue channels, and start sunset 60 minutes prior to the blue channels to create a natural scenario that occurs in the natural coral reef. To do this, **(SP)**, then select the channel you want to delay **(-R+)**, and set the delay to 60. Then **(SP)** to save the setting and **(LP)** to back out of the menu.



**Cloud Frequency** – This simulates natural cloud weather of clouds passing. You can choose a value from 1-10 which corresponds to the frequency of clouds passing across the specified Cloud Channels (next menu item). The Cloud function only seems to work well if you have 4+ channels, with the LEDs arranged so that each channel controls LEDs in groups from left to right across your aquarium, or area to be illuminated. Value of 1 causes a single cloud to pass 0-10 min, value of 2 causes a single cloud to pass every 0-9 minutes, value of 3 causes a single cloud to pass every 0-8 minutes, etc.

Cloud Freq  
0

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**Cloud Chan** – This permits you to group different channels together to simulate a simultaneous cloud event. Grouping different channels allows different parts of the tank to experience clouds without affecting the other parts of the tank.

Cloud Chan → CH 1  
00

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**Lighting Freq** – Lighting frequency is if you wish to have random lighting effects when a simulated cloud is overhead. To turn this off, keep the setting at “0”. Increasing the value to a max of 10 creates more frequent enhanced effects.

Lightning Freq  
0

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**Moonphase** – This uses the geographic location that you will set in the next step, to simulate natural moon phases. If the moon is naturally in the sky at the location you specify, then your controller will automatically simulate this using your lights. If the moon is not naturally in the sky, then there will be no moonlights that night. This feature uses the Set Night PWM phase settings. **(SP)** to turn the Moonphase on.

Moonphase  
[Off]

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**Set Fan** – This can operate a 4 wire fan, so long as the fan has its own separate 12V power supply. If your fan has less than 4 wires, then there is no circumstance where your HurricaneX will be able to control it at this time. Some fans, such as the Steve’s LEDs Pressurizing Cooling fan, can be run from a regular Day PWM channel if wired properly to an LDD-350H driver. The Min setting is the lowest speed the fan will run (0) is off, and Max is the maximum setting during the Day phase.

Set Fan  
Min: 20 Max: 90

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**Set Lat/Long/GMT**- This is the geographic location you are located on Earth ONLY if you are using the Sunrise Auto mode (not recommended). Use this website to learn of your specific location - <http://www.latlong.net/> . To set the GMT (Greenwich Mean Time) offset using non-daylight savings time, use this website - <http://www.timeanddate.com/time/map/>

Set Lat/Long/GMT  
38/-122/-9

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**Temp Disp** – Choose your unit of temperature measurement, either °F or °C. This is only if you have an external temp probe wired up. This may or may not be available on your particular version of HurricaneX

Temp Disp [C]

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**Daylight Savings** - If you are in the USA and are in a time zone where Daylight Savings is active, set this option to [On]. Otherwise, keep this at [Off].

Daylight Savings  
[Off]

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**Set Clock** - Using **(SP)** and **(-R+)**, you can scroll through and set the date in month, day, and year and set the time in hours minutes and seconds. 24H format. **(SP)** then **(LP)** to exit this menu.

Set Clock  
09/10 12:35:15



Date: 09/10/2016  
Time: 12:35:16

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**Exit [2.9]** – This is the only way to exit the setup menu and save your settings **(SP)**. The version of the software is displayed, in this example, it is v2.9.

Exit [2.9]

## EXAMPLE SETUP -

We will run through the setup of a brand new, yet-to-be programmed HurricaneX. As you follow this example, we recommend that you select the settings based on your personal schedule, centered around your maximum viewing times. Aquariums of all type thrive with consistency. So long as your schedule is consistent, it will be successful, regardless of what time your “sunrise” and “sunset” are. We have some customers who work the night shift, and thus, so does their aquarium schedule – and the aquariums have been thriving like this for over 4 successful years (where the sunrise is at 5:00PM and sunset is at 7:00AM). So long as it is consistent your aquarium inhabitants will quickly adapt. For our example below, we wake up at 6:00am, go to work at 7:00am and come home at 5:00pm, and go to sleep at 11:00pm. CH1 is front blue, CH2 is front white, CH3 is rear blue, and CH4 is rear white.

- 1) Enter the Setup menu, (long press the button), and select “Y.”
- 2) Set PWM (Day). Most LED systems are either 2 channel or 4 channel, thus channels 1, 2, 3, and 4 will need to be programmed. We will be programming for a 4 channel LED system. The different channels are selected and changed using a short presses and knob turns. We will set CH 1 to 1200 (which is the starting point for acclimation, or about 30%), CH2 set to 1200, CH3 set to 1200 and CH4 set to 1200. Short press and then Long Press to save settings and back out of the Set PWM (Day) settings.
- 3) Set PWM (Night). If you don’t want moonlighting at night, just set CH1, 2, 3, and 4 to “00.” We will be setting the moonlight to “30” for CH1 (the blue channel in this example) and CH2, 3 and 4 to “00” (off). Short press and then Long Press to save settings and back out of the Set PWM (Day) settings.
- 4) Sunrise Mode – Short press to Manual (we recommend using Manual for all customers, because we want to choose the sunrise, sunset and durations of each color, and because we want the lights to be on during our maximum viewing time in the evenings – after natural sunset).
- 5) Sunrise – As indicated in the example we leave for work at around 7:00am, and we don’t do any viewing, so we’ll have sunrise start at 9:00am.
- 6) Sunset – Most corals do well with 8-14 hours of “sun” so we’ll set sunset 14 hours after sunrise to 23:00 (military time), which is the same as 11:00pm.
- 7) Ramp Time – We want our sunrise to be just like the natural ocean, so we’ll set it to 90 minutes.
- 8) Ramp Delay – We want our colors to mimic the ocean, and the first and last color fish and corals see every day is blue. That means we will delay the white channels, so they

will “rise” 60 minutes after the blues, and “set” 60 minutes before the blues. We will set CH1 (front blue) to 0, CH2 (front white) to 60, CH3 (rear blue) to 0, and CH4 (rear white) to 60,

- 9) We will not be using clouds since corals and fish thrive on consistency and stability in the aquarium, so set to the min setting of 005
- 10) We will not be using clouds so CH1, CH2 ,CH 3 and CH4 will be set to 0
- 11) We will not be using lightning, so set to 0
- 12) We have already set PWM of our front blue channel to 30 (see step 3) to have moonlighting every day of the month, so we will not be using automatic moon phases, so we will turn this option [Off].
- 13) We are not using a 4 wire fan, so the settings will not be modified, we will just skip to the next step.
- 14) We are not using geographic features, because we want set our sunrises, and sunsets around our work schedule, we will skip setting Lat/Long/GMT
- 15) Temp – we are not using a temp probe, so we will skip this step.
- 16) Daylight Savings is set to on, since we are in Central Standard Time zone.
- 17) Set Clock- We set the date and time to our actual local time.
- 18) Exit
- 19) Remove the round black power jack and plug it back in to cycle the power, so our settings can begin. HurricaneX always starts on “automatic” mode and uses our custom settings. No further action is required on your part for the HurricaneX to take control.

## INDICATOR LIGHTS

Your HurricaneX has indicator lights, which let you know if the HurricaneX is actually putting out a proper signal. These lights fade up and down based on intensity. You will likely need to adjust the angle you are holding your HurricaneX at to properly see these lights. We have labeled them in the photo in white text.

