

LIGHT STORM

USER MANUAL

INTRODUCTION

The Lightstorm Module brings creative lighting into a synthesizer like workflow. The module goes beyond audio-reactive effects. Now any control voltage - LFOs, envelopes, sequencers - can control full-spectrum LED lighting. The module is 10hp 3U and approximately 40mm deep, measuring from the back of the face plate. The power draw is 20mA on +12v, 0mA on -12v and 60mA on +5v.

This user manual does not describe how to setup the Lightstorm, for information on that refer to the [Lightstorm Module Setup Guide](#).

PARAMETERS

The Lightstorm has six parameters: pattern (**PAT**), speed (**SPD**), color (**COL**), saturation (**SAT**), brightness (**BRT**) and trigger (**TRIG**).

PAT

The pattern parameter will fluidly transition between five patterns, which are each a different set of stylized shapes and movements.

SPD / TRIG

The speed and trigger parameters are modifiers of the pattern that have unique effects depending on the pattern. Generally speaking the speed parameter controls the speed of the modification and the trigger parameter initiates it.

COL

The color parameter selects two colors from a color palette and applies them to whatever pattern is selected. Each pattern utilizes the two colors differently and can even blend them.

SAT

The saturation parameter has a dual purpose. When the saturation parameter is at 100% there are two colors being used at full saturation. As the parameter is adjusted from 100% to 50%, one color blends into the other until there is only one color at full saturation. As the parameter is adjusted from 50% to 0%, the one color is desaturated until it is white.

BRT

The brightness parameter simply affects the brightness of all the LEDs. This parameter can be modulated faster than the other parameters, so it can be used to make a strobe effect.

MODULATION

All of the parameters except for trigger have a modulation input jack and modulation attenuator. This input jack accepts -5v to 5v and sums it with the parameters potentiometer which ranges from 0v to 5v. The resulting sum of the two voltages is then limited to the range of 0v to 5v. The modulation attenuator is used to scale down the range of the input modulation.

BANKS

Each bank contains a different set of five patterns and a different color palette. At the top of the module near the pattern knob there is a button for changing the bank. The blinking light to the right of the button indicates the currently active bank by the speed of the blinking. The fastest blinking speed is the first bank and each successive bank makes the blinking slower.

STYLES

The Lightstorm module comes with four banks, each designed to be a specific style. The four banks are **ambient**, **trigger**, **glitch** and **utility**.

AMBIENT BANK

The ambient bank has a soft aesthetic. All the patterns have a constant but subtle motion without the use of the trigger. With the use of the trigger and a high speed setting the motion can be quick while not becoming frantic. The color palette for this bank ranges from a warm orange and red, through pastel green and pink, into a cool blue and aquamarine.



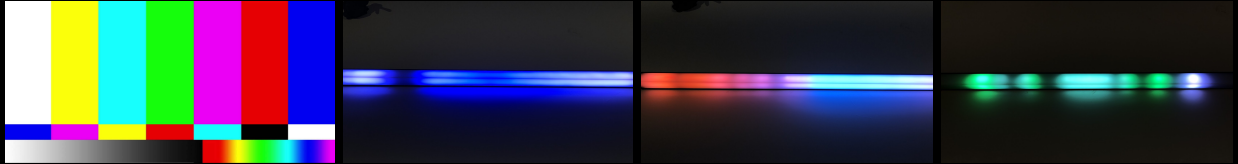
TRIGGER BANK

The trigger bank focus on the use of the trigger parameter. The patterns in this bank are all designed to be completely dark unless a trigger is received. Because of this it is easy to mistake this bank for a broken state. The purpose of this bank is to be flashy and pair well with rhythmic sequences. The speed parameter in this bank controls the speed of motion in some patterns but also the speed of brightness decay in others. The color palette for this bank starts with pale green and gold, then goes to darker green and cyan, and lastly is light blue and violet.



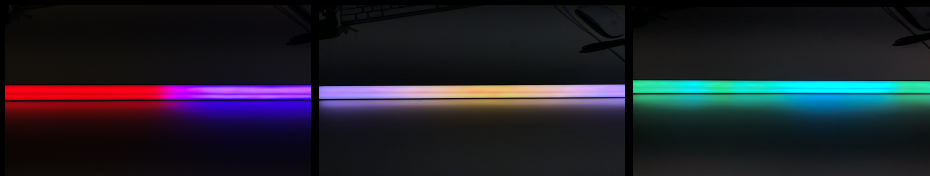
GLITCH BANK

The glitch bank utilizes a lot of randomness in its patterns. All of the patterns in this bank have a rough texture and frantic motion when receiving triggers. The color palette in this bank was inspired by the SMPTE color bars.



UTILITY BANK

The utility bank was created with the idea of having the Lightstorm simply illuminate something. So all the patterns in this bank have no dark spots. The most unique part of this bank is how the speed parameter is used. Instead of setting the speed at which motion is triggered, The speed parameter is in constant control of the motion. For some patterns this means that the position of the speed knob determines the position of a shape, for other patterns the speed at which the speed knob turns determines the speed of a shape along a path.



SPECS

The Lightstorm Module uses a Teensy 3.2 micro controller that runs a program that was written in arduino. By default, the module is programed to use 72 WS2812 LEDs. Both the number of LEDs and the type of LEDs can be changed by modifying the source code. the [Lightstorm Module Customization](#) document tells how to do these modifications and more.