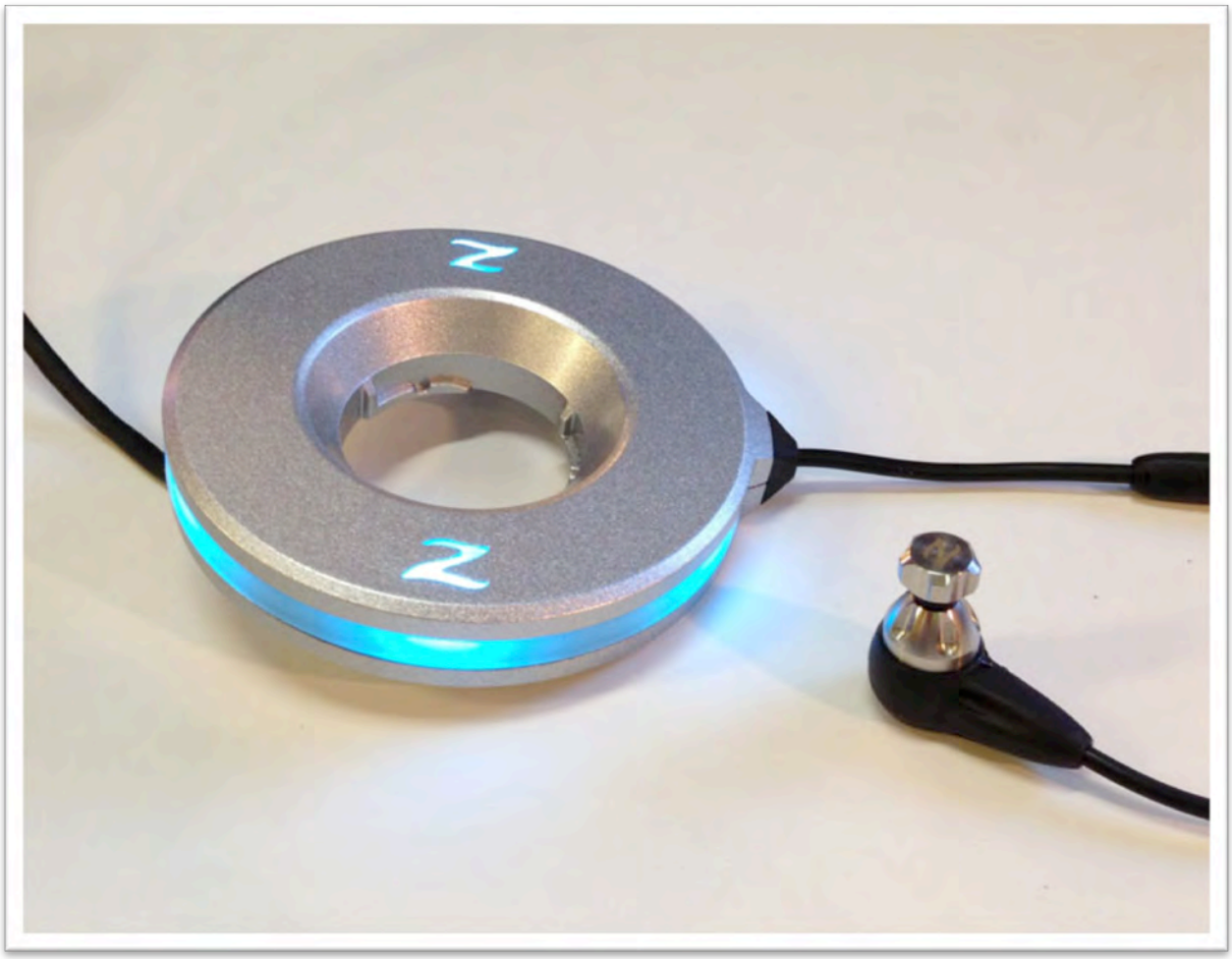
Direct Source™ Pickup

User Instructions



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Introduction

Thank you for your purchase of the Gen-16 Direct Source™ Cymbal Pickup. The Direct Source pickup represents a major leap forward in cymbal transducers, offering advantages and improvements over both traditional mic'ing and the original Gen-16 acoustic pickup.

The DirectSource™ Sensor is a vibrational transducer that converts cymbal vibrations at its point of contact into an electrical signal. It is not a microphone and therefore it does not exhibit acoustic feedback or amplification of unwanted sounds and instruments (crosstalk). Because it is attached to and swings with the cymbal, it does not exhibit variations in level or tone as the cymbal swings ("wash").

The direct, physical connection between the Direct Source sensor and the cymbal results in a very immediate and full sound.

Hardware Compatibility

The Direct Source™ pickup system is fully compatible with all existing Gen-16 Digital Cymbal Processor (DCP) hardware and cabling.

Software Requirements

Because the sound of the Direct Source pickup is significantly different from that of the original Gen-16 acoustic pickups, we strongly recommend users upgrading their existing kits to ensure that they also upgrade their DCP's firmware. With the introduction of the Direct Source pickup, the Gen-16 team have upgraded the DSP and the stored patches to get the most of the new pickup. You should use DCP firmware 2.0.0 or higher and DSP firmware 1.58 or higher. In order to upgrade to and control this firmware, you must also upgrade the desktop Access Tool to version 3.1.18 or higher.

Pickup Kit Contents

The Direct Source Pickup package includes one sensor, one preamp, and a kit of mounting accessories:

Mounting the Preamp: Crash/Ride

Insert the crash adapter into the preamp from the bottom side and twist to lock. It will snap securely into place when fully seated. Make sure it is fully snapped in; it might take a good amount of force.

Slide the adapter and preamp onto the stand. If the bottom of the preamp rests on the tilter, you may want to slide one or two spacer discs onto the stand before the adapter & preamp to make it sit higher. Most stands/tilters will generally not require any spacers.

The recommended orientation of the preamp is with the sensor cable facing the player (6 o'clock) and the output cable facing the audience (12:00). This will provide the best light display to the audience. The inside of the crash stand adaptor has a rubber coating to inhibit rotation while playing.

Slide the foam Anti-Spin Washer onto the stand, to rest on top of the Crash Adapter. This washer will further inhibit cymbal rotation.

Choose a shoulder sleeve length appropriate for your tilter or stand. Place the sleeve on top of the Anti-Spin Washer and a standard felt/foam washer over the sleeve.

IMPORTANT NOTE: The supplied Gen-16 shoulder sleeves have a special smaller-than-standard skirt diameter in order to provide clearance for the Direct Source™ sensor as the cymbal swings. Be sure to use <u>only</u> these sleeves – use of a standard sleeve with a larger diameter skirt can result in the sensor hitting the sleeve skirt, audible noise, or breakage.

The Gen-16 sleeves also include a special soft-molded coating to minimize any audible vibration between the cymbal and stand for even the most demanding wide dynamic range and orchestral applications.

Place the cymbal, top felt/foam washer, metal washer, and wingnut on the stand.

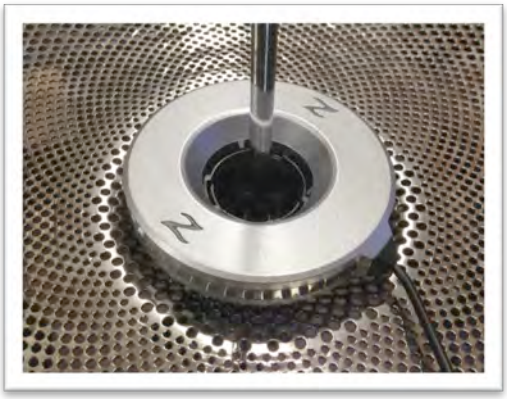
Mounting the Preamp: Hi-Hat

In order to mount the Direct Source preamp in a hi-hat you must use a bottom hi-hat cymbal with a special 15/16” center hole (standard bottom hi-hats have a ½” center hole).

Engage the hi-hat adapter with the bottom of the preamp and twist clockwise to lock. Make sure it is fully snapped in; it might take a good amount of force.

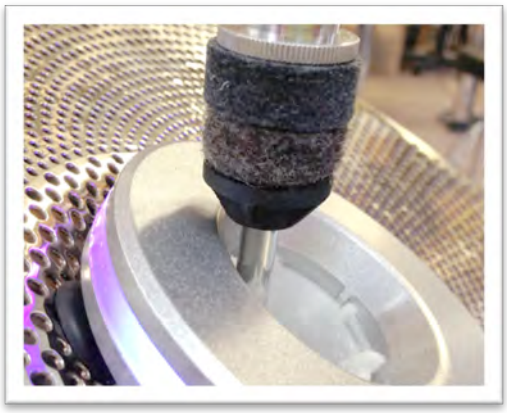
Note that the attenuator pad switch located on the preamp’s underside will become difficult to access once it is mounted on the bottom hi-hat, so you’ll want to set it prior to assembly. The lighting effect and colors can be changed remotely from other Direct Source pickups attached to the same DCP.

After setting the controls as desired, insert the pigtail lead through the cable exit hole and insert the threaded end of the hi-hat adapter through the bottom hi-hat’s center hole. Thread the nut onto the adapter from the bottom of the cymbal and tighten.

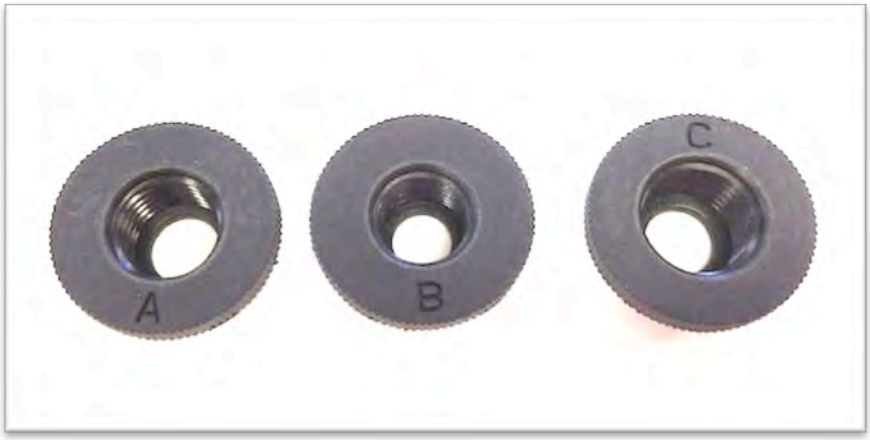


Clutch Nut

IMPORTANT NOTE: Many clutch nuts, especially those with locking lugs, may be too large to clear the pickup when the hi-hat closes and/or the hi-hat tilts. **If your clutch nut hits the pickup, damage to the preamp and/or the hi-hat mounting adapter can result!** Use one of the supplied clutch nuts, which have been designed for adequate clearance.



The Direct Source pickup kit includes three different clutch nuts, each with one of the commonly-used thread sizes. Each nut is identified "A", "B", or "C":



"A": DW, Gibraltar, Ludwig, PDP, Tama
"B": Yamaha
"C": Gen-16, Pearl, Mapex

Use of extra-thick top hi-hat felts of more than ½" thickness may also contribute to interference problems. Use of ½" or smaller felts is highly recommended.

Bottom Hi-Hat Washer

A foam, felt, or rubber washer should always be used under the hi-hat so that the pickup mounting nut is cushioned from the stand. The washer should be no more than 8mm (0.3”) thick in order to ensure that the Hi-Hat adapter remains seated within the stand bushing during performance.

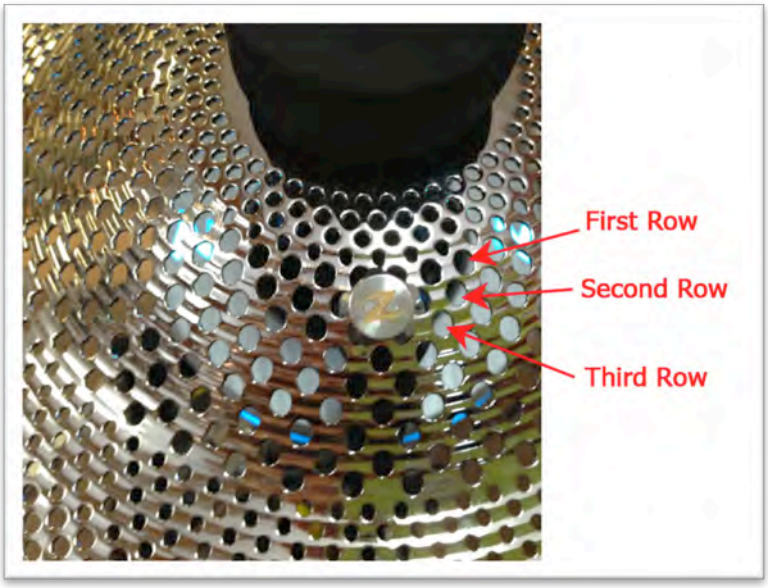
Attaching the Sensor

The Importance of Sensor Location

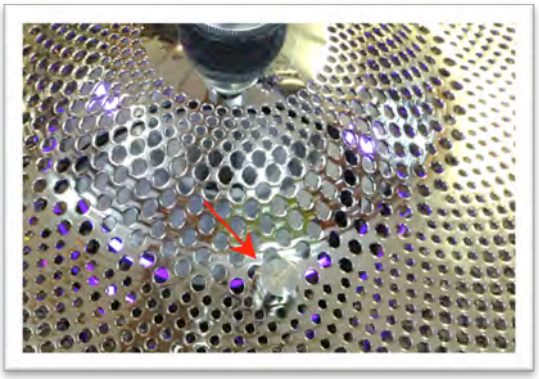
Because of the sensor's "focused" nature and the "nodal" vibration characteristics of cymbals, the sound you get from The Direct Source™ pickup is highly dependent on the location of the sensor on the cymbal. The most important factor is the distance of the sensor from the center hole (i.e., which "row" of perforations you use). However, just as each cymbal, even those of the same model, will have its own individual tone, so each location on a particular cymbal, even locations that are the same distance from the center hole, may exhibit variations in tone. This affords an extraordinary degree of "fine tuning" that we encourage users to experiment with to find the best sound for their own application.

Recommended Sensor Locations

The best overall cymbal sound on cymbals other than Hi-Hat for most users has been found to be in one of the top three rows of those perforations that are large enough to accommodate the thumbscrew. In the photo below, a sensor has been attached to the "second row" of those perforations:



This mounting position may also be used for hi-hat, however some users prefer a location just outside the bell as shown below, which yields a "trashier" sound:



If you use this location, be sure to ensure that it does not hit the preamp.

Sensor Thumbscrew and O-Ring

The sensor is supplied with a thumbscrew and o-ring for attachment to cymbals. The o-ring serves several purposes: it isolates the sensor from a certain amount of cymbal vibration, it provides force on the threads to help prevent loosening, and it holds the thumbscrew on the cymbal when the sensor is removed for transport. To attach the sensor initially, put the o-ring on your fingertip, hold it underneath the cymbal at the thumbscrew location, and turn the thumbscrew to thread it on. Put the sensor to the thumbscrew and thread it on by turning the thumbscrew clockwise; tighten moderately.

Sensor Mounted on a Cymbal (Note O-ring)

When removing the sensor, turn the thumbscrew counterclockwise while pulling the sensor gently downward, away from the cymbal and off the thumbscrew. This will ensure that the thumbscrew and o-ring stay on the cymbal. If you pull the thumbscrew upward instead of pulling the sensor downward, the o-ring will tend to come off the thumbscrew and may get lost.

The threads of the thumbscrew have been pre-coated with Vibra-TITE® VC-3 Threadmate, a re-usable non-hardening compound designed to prevent thread loosening due to vibration. The Vibra-TITE® coating will last at least 6-12 attachment/removal cycles. Vibra-TITE® is available from many internet retailers, or visit vibratite.com for more information.

“Breakaway” Sensor Connector

The sensor is connected to the preamp with an inline “breakaway” connector that has been designed to maintain connection during performance but to release without damage to any components should the cymbal be pulled off of its stand inadvertently without disconnecting the cable.

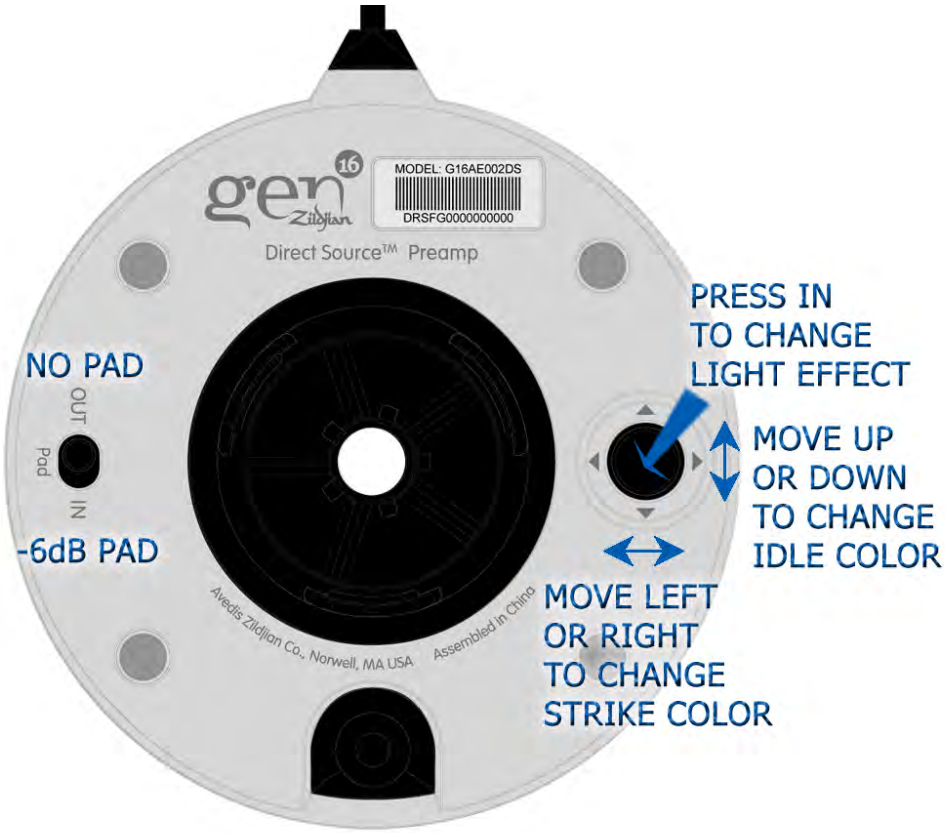
Prior to connecting or disconnecting any cables it is recommended that your audio system’s level be set to zero at some point before your speakers and/or headphones. Although the DCP includes anti-pop circuitry and software when switched on and off, there is no way to prevent pops when cables are connected or disconnected.

Connect the sensor cable to the preamp’s sensor input cable by simply inserting the male (sensor) connector into the female (preamp) connector.

Connect the preamp’s pigtail output cable to the DCP using (only!) a Gen-16 4-conductor pickup cable. The lights in the electronics module should turn on if your DCP’s power switch is set to the Lights On position.

Preamp Controls

The preamp has two controls: a two-position attenuator pad slide switch and a 5–way lighting control "joystick":



Note that once mounted on a bottom hi-hat, the attenuator pad switch will become difficult to access, so you'll want to set it prior to assembly. The lighting effect and colors, however, can be changed remotely from other Direct Source pickups attached to the same DCP (see "Multi-Pickup Remote Lighting Control", below).

The Attenuator Pad

When switched in, the attenuator cuts the output signal by 6dB to reduce overdriving of the DCP's "soft-clipper" circuit. For most drummers the "Out" position is best. If you are an exceptionally "hard hitter" and notice distortion you might want to try the "In" position. Note that the attenuator setting will affect the LED "strike" effect triggering: LED triggering is more sensitive with the attenuator in the "Out" position.

Joystick and Lighting Effects

The Direct Source pickup system features a multicolor, selectable-animation visual display. You can select from among six different animations and eleven different colors.

The pickup has two display states: “Idle” and “Strike”. The “idle” display is what’s shown when the cymbal is not being played; the “strike” display is shown whenever the cymbal is struck and continues until the cymbal’s output level decays below a fixed threshold. You can assign any one of the eleven colors to Idle mode, and any one of the eleven colors to Strike mode, a total of over 700 different combinations. If you do not want a visual strike effect, simply set the Idle and Strike colors to the same color.

Once you’ve set your animation and colors the electronics module will remember the settings, so you don’t have to set it up every time you turn on your kit.

The lights can be turned completely on or off using the existing DCP’s 3-way off-lightsoff-lightson power switch.

Multi-Pickup Remote Lighting Control

When multiple Direct Source™ pickups are connected to the same DCP, changing the LED animation, idle color, or strike color on any pickup will change all connected pickups to the same setting(s), making it unnecessary for you to go around the kit changing them all individually. The strike color selection will only be shown immediately on the pickup that’s being physically set via its joystick, but the color change will be received and remembered by the other connected pickups.

Changing the Animation

To change the animation, press the joystick button. The animation will cycle through the following effects:

Steady: constant color while idle, flash on strike.

Fader: slowly pulsating single color during idle, flash on strike.

Pscylon: back-and-forth sweep during idle, flash on strike.

Klaw: the LEDs “grow” progressively from the back (sensor cable side) to the front of the pickup on both sides, then “retract” and repeat. One LED spins around on strike.

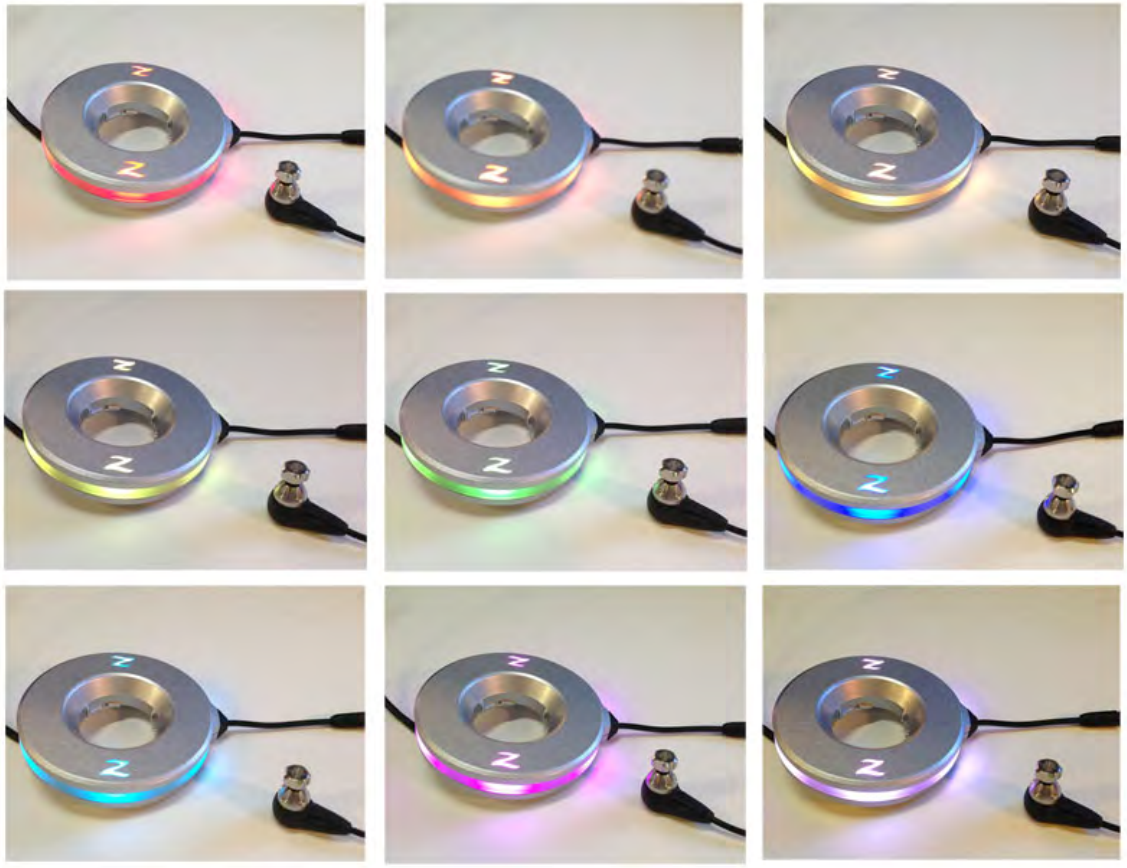
Reaktor: three LEDs wiggle back and forth; on strike they wiggle in the same pattern but faster.

Sparkle: LEDs flash randomly around the pickup. On strike they flash faster.

Changing the Colors

To change the color of the idle effect: move the joystick up or down (toward 12 o'clock or 6 o'clock).

To change the color of the strike effect: move the joystick left or right (toward 9 o'clock or 3 o'clock). The strike color will be displayed as long as you hold the joystick left or right and will revert to the idle color when released.

The color selection cycle obtained by moving the joystick is:

>>Red>>Orange>>Yellow>>Lime Green>>Nuclear Green>>Teal>>White>>Gen-16 Blue>>Deep Blue>>Purple>>Pink>>