

# GE Blade Controller

## User Guide

For Galaxy's Edge Lightsaber Owners

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*Blade Controller v4.1*

## What Is the GE Blade Controller?

Your Galaxy's Edge lightsaber blade has been upgraded with the GE Blade Controller — a custom-built replacement for the factory electronics inside the blade. From the outside, everything looks the same. But once your saber ignites, a whole new world of colors and effects is at your fingertips.

You don't need to know anything about electronics or programming to use it. Everything is controlled by simply turning the blade off and back on again — and timing how long it stays off.

❑ **TIP:** Nothing about your hilt changes. Your kyber crystal, sounds, and all other hilt features work exactly as before. Only the blade's light effects are different.

## How to Control the Blade

All control happens through a single, simple action: use the power switch on the hilt to turn the blade off, wait a specific amount of time, then switch it back on. Once the blade is inserted, you never need to remove it — all commands are given through the hilt switch. The length of time the blade is off determines what happens next.

Time blade is OFF	What changes	What it means
Less than 1 second	Changes the Display Mode	Cycle through colors, wheel effects, etc.
1 to 3 seconds	Changes the Animation Mode	Changes how the blade moves / flickers
More than 3 seconds	No change	Blade comes back exactly as you left it
More than 10 seconds	Saves your settings	Your color & animation are remembered for next time

❑ **TIP:** Think of it like this: a quick tap changes the look. A medium pause changes the animation. A long pause saves your settings for next time.

## Display Modes

The display mode controls the overall color and appearance of the blade. Every time you turn the blade off for less than 1 second and back on again, it advances to the next display mode. There are six modes in total.

Display Mode	What it does
Stock	The blade behaves exactly as it did from the factory. Color is controlled by the kyber crystal in the hilt.

Display Mode	What it does
<b>Color Picker</b>	The blade slowly cycles through a range of colors so you can pick the one you want. Turn it off and back on quickly (under 1 sec) while it is showing your chosen color to lock it in. While in this mode, give the hilt a sharp clash motion to cycle through 5 brightness levels (very dark → dark → normal → light/pastel → white). Cycling past white returns to your chosen color.
<b>Color Picker Picked</b>	The blade acts like Stock mode but uses the custom color you picked instead of the crystal's color. This is your 'custom color' mode.
<b>Blade Wheel</b>	The entire blade smoothly cycles through every color of the rainbow — a continuous rainbow scroll. Turn it off for 1–3 seconds to change the speed.
<b>Segmented Wheel</b>	Each section of the blade cycles through the rainbow, but slightly offset from the others — creating a flowing color gradient from base to tip. Change speed the same way as Blade Wheel.
<b>Multi-Segment</b>	Each section of the blade shows a different fixed color, creating a multi-color blade. Turn it off for 1–3 seconds to cycle to the next color pattern.

## How to Pick a Color with Color Picker

Color Picker mode is the most powerful feature of the blade. Here is how to use it:

- Turn the blade on — it will begin slowly cycling through colors.
- Watch and wait until you see the exact color you want.
- Quickly power the blade off and back on using the hilt switch (off for less than 1 second). This locks in that color and takes you to Color Picker Picked mode.
- Your blade will now always ignite in that color until you change it.

□ **TIP:** Want to adjust the brightness of your picked color? While in Color Picker mode, give the hilt a quick sharp movement (a clash motion) to step through 5 brightness levels: very dark → dark → normal → light/pastel → white. One more clash past white cycles back to your chosen color at normal brightness.

## How to Increase Color Options in Color Picker

By default, Color Picker shows a basic set of colors. You can expand the palette to include more shades:

- While the blade is in Color Picker mode, turn it off for between 1 and 3 seconds.
- Turn it back on — Color Picker will now have more colors to choose from.
- Repeat to add even more options.

## Animation Modes

The animation mode controls how your blade moves and behaves while ignited. Animations add life and personality to your blade — a gentle breathing pulse, wild flickering, or flowing color waves.

**⚠ NOTE:** Animation modes only apply when you are using Stock or Color Picker Picked display modes. The wheel and multi-segment modes have their own built-in motion.

To change the animation mode, turn the blade off for between 1 and 3 seconds, then turn it back on. Each time you do this, it advances to the next animation.

Animation Mode	What it does
Full Blade Flicker	The whole blade flickers randomly, like a real energy blade struggling to maintain power.
Segmented Flicker	Each section of the blade flickers on its own, independently — more chaotic and wild than full flicker.
Bright Pulse	Bright pulses travel from the base down to the tip of the blade at random intervals.
Dark Pulse	Dark pulses travel down the blade — like shadows moving through the energy.
Gradient Pulse	The base of the blade pulses with energy that fades as it travels toward the tip.
Breathing	The blade gently fades in and out, as if it is alive and breathing.

## Saving Your Settings

The blade can remember your preferred display mode and animation so you don't have to set it up every time. It does this automatically.

### How Saving Works

If you leave the blade powered off (while still connected to the hilt) for more than 10 seconds, it will save whatever display mode and animation mode were active when it powered off. The next time you insert the blade into any hilt, it will start with those saved settings.

**□ TIP:** To save your favorite setup: get the blade looking exactly how you like it, then leave it sitting in the hilt without activating it for about 10 seconds. Your settings are now locked in for next time.

## Preventing Accidental Saves

If you have an optional write-protect switch installed on your blade (see the Optional Switches section), you can flip it on to prevent your saved settings from being overwritten.

## Resetting the Blade

If anything ever seems off, or you just want to start fresh, you can reset the blade controller back to its factory-stock behavior.

### How to Reset

- With the blade inserted in the hilt, power the blade off and on again rapidly several times in a row.
- Keep going — the hilt will eventually play a sound as if the blade has been removed. This tells you the reset has begun.
- When the hilt plays the blade insertion sound, the reset is complete.
- The blade is now back to fully stock behavior.

**⚠ NOTE:** A reset clears any saved settings. After resetting, the blade will behave as if it just came out of the box.

## Optional Switches

Some blades built with this controller include a small 2-position switch hidden near the base of the blade connector. If your blade has this switch, here is what each position does.

Switch(es)	Mode	What it does
B0 only	Write Protect	Your saved settings will NOT be overwritten when the blade powers down. Good for locking in a look without worrying about accidentally saving over it.
B1 only	Force Stock	The blade always behaves like the original factory blade — except it will now also respond to orange and cyan kyber crystals in a Savi's Workshop hilt.
B0 + B1	Lock Blade Settings	The blade is completely locked to whatever display and animation modes are saved in memory. Nothing will change until you flip one of the switches off.

**📌 TIP:** If your blade does not have these switches, don't worry — everything still works perfectly

without them. They are entirely optional extras for people who want more precise control.

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## Resources

Video walkthroughs for configuring, troubleshooting, and installing your Enhanced Blade. Click a playlist title to open the full series, or click any video below to jump straight to that topic.

### Configure Your Galaxy's Edge Lightsaber Blade

- [Intro and the Stock Display Mode](#)
- [Select Animations \(Effects\)](#)
- [Color Picker: Pick a Color and Add an Animation](#)
- [Blade Wheel and Segmented Wheel Display Modes](#)
- [Multi-Segment Display Mode](#)
- [Color Picker: Expand the Color Palette](#)
- [Getting a White or Pale Blade \(Brightness Control\)](#)

### Savi's Workshop Lightsaber Hilt – Troubleshooting and Repair Guide

- [Part 1 – Initial Disassembly of the Savi's Workshop Hilt](#)
- [Part 2 – Hilt Base: Internal Components, Power, and Pogo Pins](#)
- [Part 3 – Upper Hilt Disassembly](#)
- [Part 4 – Upper Hilt Components, Alignment, and Failure Points](#)
- [Part 5 – Troubleshooting Blade Connection Problems](#)
- [Part 6 – Upper Hilt Reassembly and Testing](#)
- [Part 7 – Final Assembly, Testing, and Notes](#)

### Install an Enhanced Blade Controller in a Savi's Workshop Lightsaber

- [Step 1 – Disassemble and Reassemble the Stock Blade](#)
- [Step 2 – Test the Control Boards](#)
- [Step 3 – Remove the Stock Control Board](#)
- [Step 4 – Clean Contacts and Prep the LED Strip for Soldering](#)
- [Step 5 – Solder the Enhanced Control Board to the LED Strip](#)
- [Step 6 – Solder the Battery, Ground, and Data Connections](#)
- [Step 7 – Reassemble and Test the Lightsaber](#)
- [Step 3 Reshoot – Remove the Stock Control Board \(Detailed Walkthrough\)](#)
- [Stock vs Enhanced Control Board – Design Differences](#)
- [Beginner-Friendly Walkthrough of Steps 5 & 6](#)

## Blade Reset

- [Reset Your Galaxy's Edge Lightsaber Blade – 3 Methods to Try When the Blade Stops Responding](#)

## Replacement Parts & More Lightsabers

Enhanced Blades, controller boards, and pre-built custom lightsabers: [www.blackspiresabers.com](http://www.blackspiresabers.com)

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## Quick Reference Card

Cut out or photograph this page and keep it with your saber.

Action	Result
Off < 1 second, back on	Next Display Mode
Off 1–3 seconds, back on	Next Animation Mode
Off > 10 seconds	Saves your settings
Off > 3 seconds	Nothing changes
Clash while in Color Picker	Cycles through 5 brightness levels (very dark → white)
Rapid off/on several times	Resets blade to stock

## Credits & Acknowledgements

The Enhanced Blade Controller didn't start with us. It started with the Forgettable Mister Ruthsarian.

Ruthsarian reverse-engineered the electronics inside both the stock Savi's Workshop and Legacy lightsaber hilts and developed an open replacement controller — schematics, firmware, and documentation — then released it ready for anyone to duplicate, modify, or build on, with no obligation to credit or repay him. The board in your saber is a small refinement of his design. The difficult, patient work — figuring out what those hilts were actually doing under the hood, then doing it better, and then making every piece of it accessible to others — is his. His full body of work lives at [github.com/ruthsarian](https://github.com/ruthsarian).

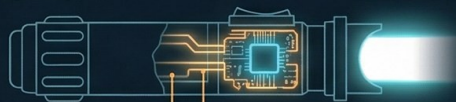
Work like that doesn't happen by accident. It takes real skill, real time, and a genuine desire to leave something useful behind. My thanks to Ruthsarian — for the design, for the generosity, and for the standard you set for how to contribute.

# GE BLADE CONTROLLER FIELD GUIDE v4.1 - FOR GALAXY'S EDGE LIGHTSABER OWNERS

[Source: 4, 3]

## 1 THE BASICS.

**WHAT IS THE GE BLADE CONTROLLER?**  
- CUSTOM-BUILT REPLACEMENT FOR FACTORY ELECTRONICS  
[Source: 6, 7]



GE BLADE BASE — **UPGRADED CIRCUITS** REPLACES ELECTRONICS

**SAME OUTSIDE LOOK**  
[Source: 8]

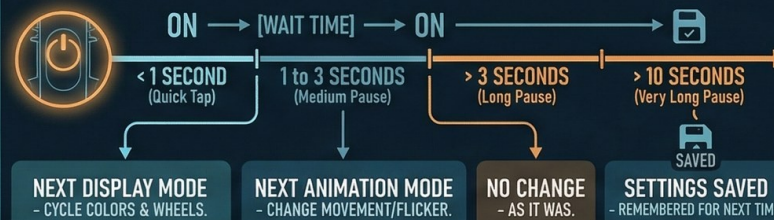
**NO PROGRAMMING NEEDED**  
[Source: 9]

**SIMPLE SWITCH CONTROL**  
[Source: 10]

**KYBER CRYSTAL & HILT SOUNDS WORK NORMALLY**  
[Source: 12]

## 2 OPERATIONAL TIMELINE.

[Source: 14, 15, 18, 20]



## 3. DISPLAY MODE REFERENCE (COLORS & LOOKS)

[Source: 25, 26, 28]

**STOCK:**



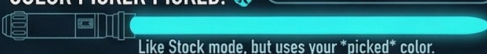
**COLOR PICKER:**

Slow color cycle.  
Quickly cycle (under 1 sec) to select.



**CLASH (Quick Movement)**  
WHILE IN MODE to cycle through  
**5 BRIGHTNESS LEVELS**  
(Very Dark → White).

**COLOR PICKER PICKED:**



**BLADE WHEEL:**



**SEGMENTED WHEEL:**



**MULTI-SEGMENT:**



[Source: 28]

## 4. ANIMATION MODE REFERENCE (EFFECTS)

Only applies to 'Stock' and 'Color Picker Picked' modes. [Source: 48, 52]

**FULL BLADE FLICKER:**



**SEGMENTED FLICKER:**



**BRIGHT PULSE:**



**DARK PULSE:**



**GRADIENT PULSE:**

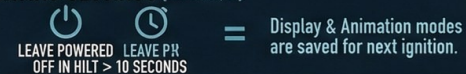


**BREATHING:**



## 5. ADVANCED FUNCTIONS & SETTINGS.

**SAVING SETTINGS** [Source: 57, 59]:



**RESETTING THE BLADE** [Source: 65, 67, 70]:



**OPTIONAL SWITCHES (HILT BASE)** [Source: 73, 76]:



- B0 Only (WRITE PROTECT):** Saved settings won't be overwritten when powered down.
- B1 Only (FORCE STOCK):** Blade always behaves stock. Now responds to Orange & Cyan crystals.
- B0 + B1 (LOCK SETTINGS):** Blade completely locked to current saved settings.