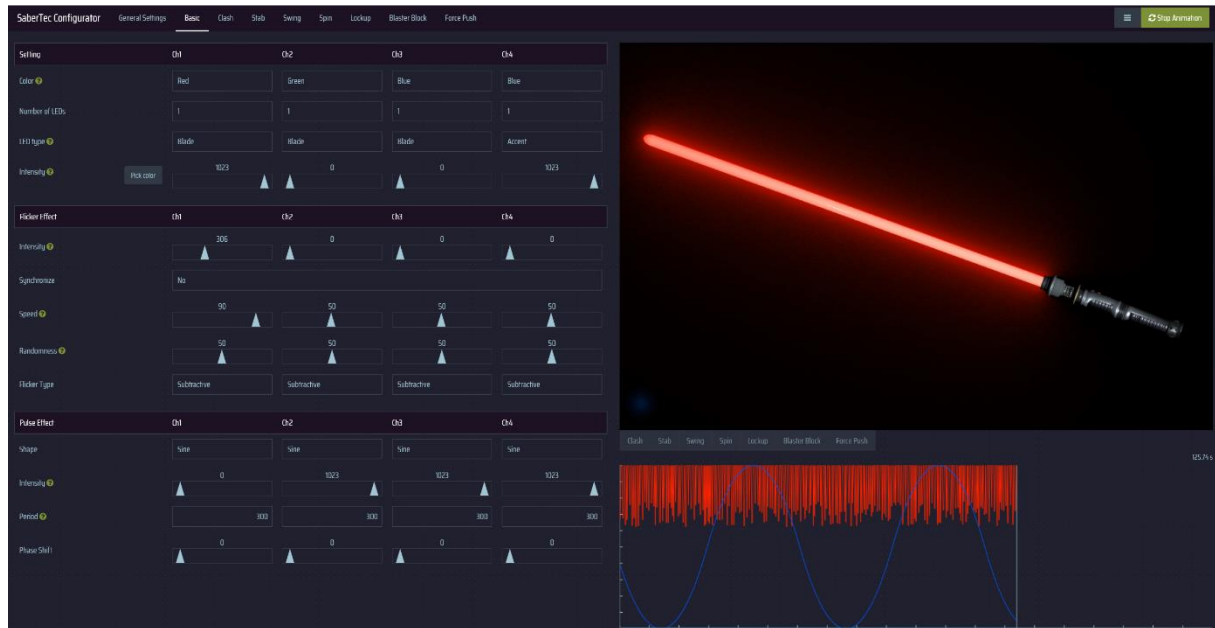




SABERTEC
GERMAN ENGINEERING POWER



Configurator Tutorial

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Content

- Introduction..... 3
- Structure of the configurator 4
 - Selection of graphics settings and usage mode 4
 - General settings..... 5
 - Effect engine..... 6
 - Easy mode and advanced mode..... 8
 - Download your effect font 8
 - Share your effect font 8
 - Browse effect font data base 8
 - Load effect font 8
- Design rules 8

Introduction

In this tutorial, you will learn how to use our online configurator to design your very own, unique effect fonts, how to share them and how to browse for effect fonts created by other saber enthusiasts as well. For all of you who aren't familiar with the concept of effect fonts yet, we'll give a short introduction in the following. An even more detailed description can be found in the respective section in the manual.

Our Golden Harvest board provides a fully blown effect engine with an amazingly high degree of customizability that even enables you to invent your own light effects which would give your saber an unique style. In the current version, you can customize more than 600 parameters. This gives rise to a huge range of possible effects that wait for you to be discovered or designed. There are even more different effects than there are atoms in the universe! You could create simple, complex or even exotic effects – due to the great variety of our settings, you can realize almost every effect you can imagine.

The parameters that define the light effects of your saber are summarized into so-called "effect fonts" which we introduced as an analogue to "sound fonts". Each effect font contains all the parameters that define the look and behavior of your saber. One effect font could create a green blade with a strong flickering for example whereas another effect font could create a red, pulsing blade that appears to be unstable due to an "*ÜberPulse*" effect. Furthermore, you could even assign a different sound volume or motion sensitivity to different effect fonts for example. And the best thing is: you're also able to change the effect font on the fly while the saber is turned on - you can put up to 99 effect fonts on your microSD card to choose!

After we developed the effect engine of our Golden Harvest board, we've set us another goal: we wanted to create an online tool for graphically customizing the effect fonts, equipped with a highly sophisticated preview animation that realistically shows the appearance of the light effects. This turned out to be a very tough mission, but after months of hard work later and a lot of short nights we succeeded! Our online configurator, a.k.a. "SaberTec Customizer", was born.

As there are both users who only want to change a few parameters and users who want to unleash the fully blown effect engine, we introduced two modes with different degrees of complexity of our configurator: "Easy Mode" and "Advanced Mode". In the "Easy Mode", the number of parameters is reduced without limiting the customization possibilities much. In the "Advanced Mode", you can rule everything! The effect engine will completely obey to you.

If you don't want to change any parameters at all: our Golden Harvest board comes with a default set of parameter values, i.e. effect fonts, that already create epic light effects. You can also use our online configurator to have a look at effect fonts created by other users and download them.

You can find our configurator here:

<https://sabertec.net/configurator/index.html>

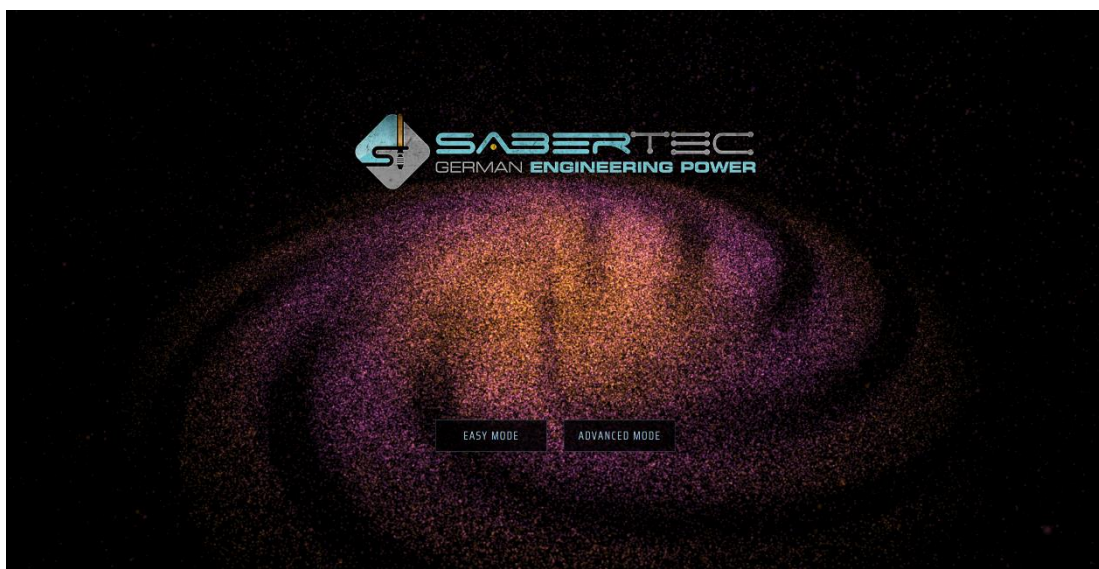
Structure of the configurator

Selection of graphics settings and usage mode

In the following, we'll first go through the structure of our configurator before we tackle the question of how to design your own effect fonts. When you open the configurator, you can first choose between "Fast Graphics" or "Fancy Graphics". These two graphics settings differ from each other with respect to the richness of details of the animation that previews your light effects. If you're using a computer with a good graphics card, we recommend to use "Fancy Graphics" whereas we recommend to use "Fast Graphics" if you're using a computer with an older graphics card.



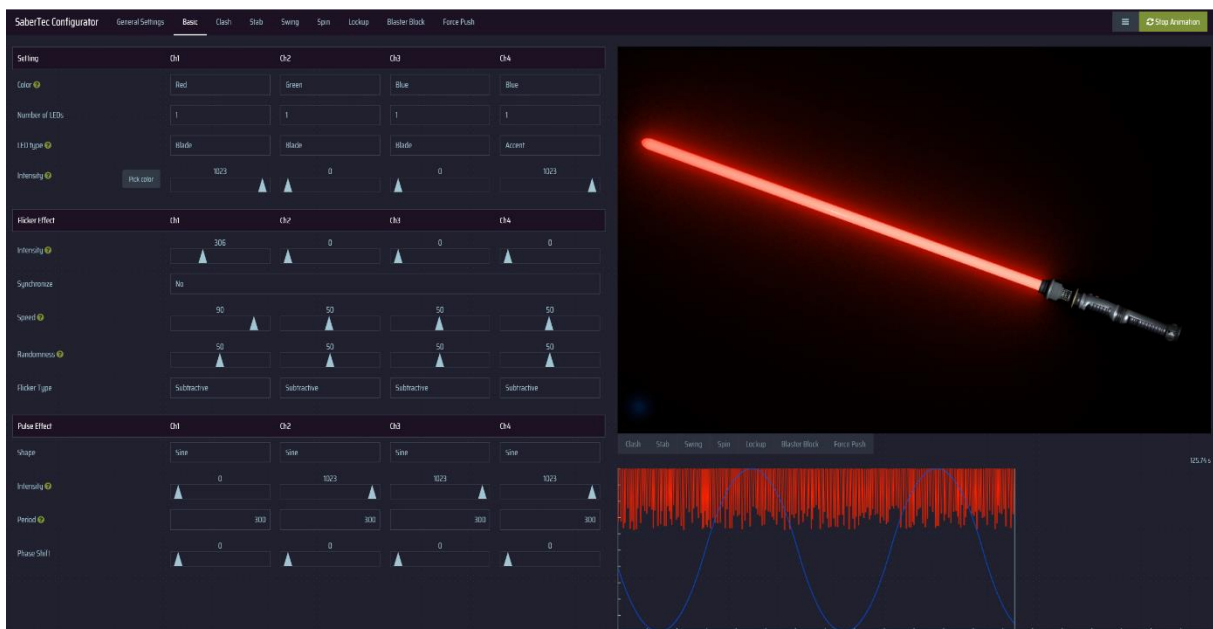
After selecting the graphics settings, you can choose whether to use the "Easy Mode" or the "Advanced Mode" of our configurator. If you're accessing it for the first time, we recommend to go for the "Easy Mode" as this mode is simpler to use due to its smaller range of parameters. For the masters and effect smiths among you, we recommend the "Advanced Mode" to unleash all the power of the effect engine. The handling of both modes will be discussed further down.



Insider 1: Just stay on the mode selection page for a while and breath our epic theme melody!

Insider 2: If you select the "Fancy Graphics" mode, interact with the particle animation in the background by using your mousekeys! By using your left mousekey, your cursor becomes an attracting gravitational center whereas it becomes a center of anti gravity by using your right mousekey.

After choosing the mode, you'll get the first glance on the user interface of our configurator which is shown on the figure below. It's a screenshot of the "Easy Mode", but the structure of the interface is the same for the "Advanced Mode". As we can see, the configurator contains nine index tabs – one for the general settings and one for each state of the saber. The different states the saber can be in are basic (when no motion is detected), clash, stab, swing, spin, lockup, blaster block and force push. For each of these eight states, you can define individual light effects (which is optional of course)!



General settings

Let's first start with the index tab for the general settings. If you click on it, you can alter all the parameters that define your switch configuration, the motion sensitivity of your saber and the sound engine. For a detailed description of the meaning of all the parameters of the general settings, have a look at the respective section in the manual.

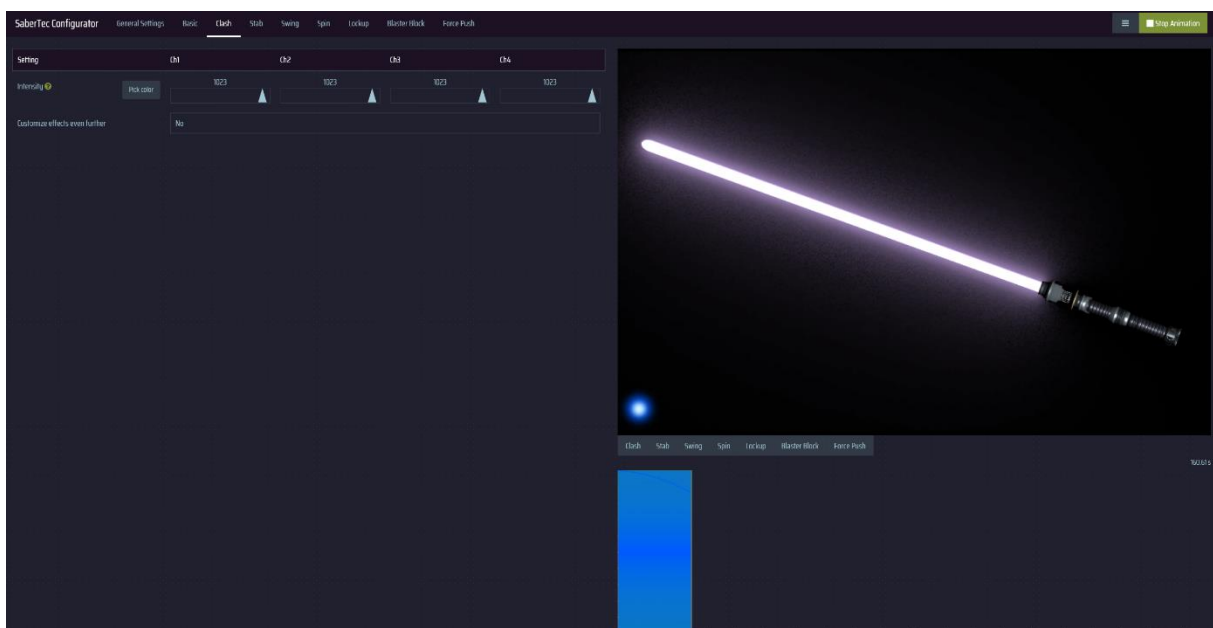
Insider 3: From all the parameters that belong to the general settings, only "Button Mode" needs to be changed in most cases. Please choose there whether you're using one single momentary, one momentary and one latching or two momentary switches. All the other parameters of the general settings come with default values that work well for most of the sabers.

Effect engine

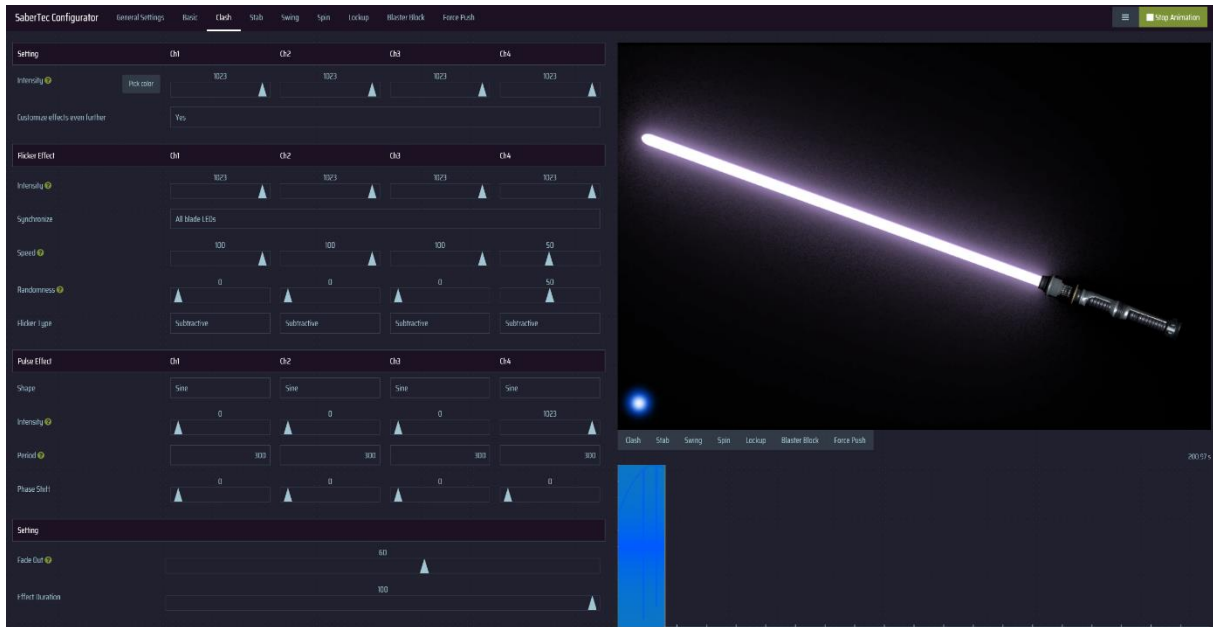
Next, let's choose the index tab for the basic light effects. Hurray, we're going to design our own effect font now! As we can see on the figure above, the parameters of the basic state contain values for all of the four independently configurable LED channels which are represented by columns called "Ch1", "Ch2", "Ch3" and "Ch4". In the following, we'll give you a recipe for how to design your effect font most easily.

1. Choose an LED color for each of the four channels.
2. Specify the number of LEDs you're using per channel.
3. Choose which LED type you're driving by the channels. The LED type can be either "Blade LED" or "Accent LED".
4. Select your blade color by mixing the intensity values of the channels that drive a blade LED. You can do that either manually or with our color picker which even supports mixing up to four colors most realistically!
5. Add a flicker or pulse effect if you want.

Congratulations, you've just designed your first basic light effects! Now, you'll want to know for sure how to adjust all the other effects like the clash effects for example. That's even more easy than you think! First, let's take a look at the clash effects. Before moving to the respective index tab, just stay in the basic index tab for a moment and click on the button "Clash" below the animation. By that, you can trigger a clash! As you can see, the default clash effects create a strongly flickering blade with all blade channels powered up to the maximum intensity. Next, let's move to the clash index tab. As you can see, the clash effects are displayed continuously now which simplifies their configuration. The figure below shows a screenshot of the clash index tab.



In the default settings, only the intensity parameter is displayed. Similar to the basic index tab, you can change the color of your blade during a clash with this parameter, either manually by mixing the intensities of the different channels or by using our color picker. If you want to customize the clash effects even further, just choose "Yes" for the parameter "Customize effects even further" (which is optional of course). Once you did that, the same parameters as in the basic index tab appear which is shown in the figure below.



In addition to the parameters of the basic index tab, the clash index tab also has two parameters called "Fade Out" and "Effect Duration". As its name suggests, the "Effect Duration" describes how long the clash light effects are displayed, measured relatively to the duration of the clash sound played. A value of 100 creates clash light effects that are shown from the beginning to the end of the clash sound played whereas a value of 10 creates clash effects that are shown only for the first 10 % of the clash sound played for example. The parameter "Fade Out" describes how smooth the clash effects fade out to the basic effects. A value of 100 creates a fade out that begins immediately after the clash effects appear whereas a value of 10 creates a fade out that takes place only for the last 10 % of the effect duration for example.

You can use the recipe below to configure the clash effects.

1. Select your clash color by mixing the intensity values of the channels that drive a blade LED. You can do that either manually or with our color picker which even supports mixing up to four colors most realistically! If you only want to customize the clash color, you've already finished at this point. If you want to configure the clash effects in more detail, progress with the following steps.
2. Choose "Yes" for the parameter "Customize effects even further".
3. Add a flicker or pulse effect if you want.
4. Choose the effect duration and add a fade out if you want.

The saber states stab, swing, spin, lockup, blaster block and force push are configurable in almost exactly the same way as the clash state. So, you can use the recipe above also for these states. Hereby, the "Fade Out" and "Effect Duration" parameters are available in the stab, swing, spin, blaster block and force push index tabs.

In the swing and spin index tab, there is an additional parameter called "Activate individual swing / spin light effects". If this parameter is chosen as "No", the light effects don't change during swing and spin as the swing and the spin effects are automatically the same as the basic effects in this case. If you want to customize the swing and spin effects, just choose "Yes" for the parameter "Activate individual swing / spin light effects". Once you did that, follow the recipe for the clash effects.

Easy mode and advanced mode

The screenshots shown so far were made using the easy mode. But for the advanced mode, the structure of the configurator is exactly the same. The only difference between the easy mode and the advanced mode is that in the latter, there are even more parameters you can configure. Thus, the recipes for how to design your effect font given above can be used also for the advanced mode.

Download your effect font

If you've finished designing your effect font, you can download it and save it on the microSD card of your saber. To get the file, click on the three horizontal bars in the upper right corner and then, click on "Save font". The name of the downloaded file will be "effect1.txt". If you want to use it together with other effect fonts, just change its name, so that all effect fonts are enumerated continuously.

Share your effect font

In case you want to share your effect font with the saber community (yes, please do it!), just click on the three horizontal bars in the upper right corner and then, click on "Share font". A small window will open where you can choose between sharing your effect font anonymously without registration or under your nickname with registration. After you've chosen one of these options and confirmed that you want to share your effect font, it will be added to our data base which other users can browse and you will get a direct link to it as well.

Browse effect font data base

If you want to have a look at effect fonts created by other users, you can browse our effect font data base. Just click on the three horizontal bars in the upper right corner and then, click on "Browse fonts". A small window will open where all the effect fonts that are contained in our data base are listed. In order to enable you to look for a certain LED setup, you can use a filter to display only all the effect fonts that fit your LED setup.

Load effect font

If you want to upload an effect font that is already present on your saber in order to alter it for example, you can do that by clicking on the three horizontal bars in the upper right corner and then, clicking on "Load font".

Design rules

In order to make most of the effect fonts compatible with most of the sabers with a similar setup, we recommend to use the following set of design rules which are intended to normalize the hardware setup of Golden Harvest boards.

1. If you're using a single color blade (2 LEDs) with an additional clash channel (1 LED), we recommend to wire the two LEDs of the same color in parallel to channel 1 and the clash LED

to channel 2. The remaining channels 3 and 4 can be used to drive accent LEDs, for a switch illumination or a crystal chamber for example.

2. If you're using an RGB LED, we recommend to wire red to channel 1, green to channel 2 and blue to channel 3. The channel 4 can be used to drive an accent LED.

These are only recommendations, every other configuration also works of course.