

## Downloading the new firmware update

If you have a saber with USB file transfer, make sure to fully charge your saber before connecting it to your computer to install the firmware update. Also, it is important that your blade is not ignited when connecting your saber to your computer. To install the new firmware update, make sure to perform the following steps:

1. Delete the EffectFonts folder, the UserInterfaceSounds folder and the "general.txt" from your microSD card. Do not delete the SoundFonts folder.
2. Download the new default files, unzip them and add them to your microSD card:  
<https://sabertec.net/wp-content/uploads/2021/06/Default-Files.zip>
3. Download the new "settings.txt" and add it to each sound font:  
<https://sabertec.net/wp-content/uploads/2021/06/settings.txt>
4. Download the new default preon and postoff sounds and add them to the "common" folder in the "SoundFonts" folder:  
<https://sabertec.net/wp-content/uploads/2021/04/common.zip>
5. Open the "general.txt" file with a text editor and customize it. Make sure to choose the button mode and effect font slot that fits your saber.
6. The firmware update will be automatically installed after rebooting the board.

Choose one of the following button modes:

- button\_mode=4: single momentary switch
- button\_mode=2: two momentary switches

Set the parameter effect\_font\_slot to the value that corresponds to your LED setup. In the image below, you see which values correspond to the different LED setups. For Neopixel, there are three default packages available that differ with respect to the number of presets that they include.

slot1 - In-Hilt Dedicated Color	10.08.2020 21:05	Dateiordner
slot2 - In-Hilt Dedicated Color plus Clash...	11.07.2020 16:25	Dateiordner
slot3 - In-Hilt RGB LED with Colored Clash	20.08.2020 12:25	Dateiordner
slot4 - In-Hilt RGB LED with White Clash	21.08.2020 11:44	Dateiordner
slot5 - In-Hilt RGBA	21.08.2020 11:34	Dateiordner
slot6 - In-Hilt RGBW	21.08.2020 11:52	Dateiordner
slot7 - Neopixel Basic	21.08.2020 11:25	Dateiordner
slot8 - Neopixel Default	23.08.2020 13:30	Dateiordner
slot9 - Neopixel Extended	23.08.2020 13:31	Dateiordner
slot10 - Custom	11.07.2020 16:29	Dateiordner

## New features introduced by firmware v3.33

In this firmware update, many new features were introduced. In addition to that, some old features were remastered taking into account feedback from the community. Therefore, the menu navigation slightly changed for all button modes. Please check the new menu navigation for the different button modes at the end of this description.

### New Neopixel color profiles

To simplify both the selection of color profiles and the modification of color profiles for Neopixel setups, a new structure was introduced. In past, the "background.txt" file in each blade folder contained the parameters that describe the background effect and the parameters that describe the color of the blade. That way, each blade folder was locked to a certain color. Now, the parameters that describe the color of the blade are located in separate "color[number].txt" files which we'll call color profiles in the following. There is no limit to the number of color profiles inside each blade folder. The color profiles can be changed on the fly. The new file structure of the blade folders is shown in the picture below.










background.txt	28.10.2020 17:58	Textdokument	11 KB
blade.wav	29.01.2020 11:11	WAV-Datei	132 KB
color1.txt	21.12.2020 12:30	Textdokument	1 KB
color2.txt	21.12.2020 12:30	Textdokument	1 KB
color3.txt	21.12.2020 12:30	Textdokument	1 KB
color4.txt	21.12.2020 12:30	Textdokument	1 KB
color5.txt	21.12.2020 12:30	Textdokument	1 KB
color6.txt	21.12.2020 12:30	Textdokument	1 KB
ontop1.txt	19.12.2020 20:05	Textdokument	1 KB
ontop2.txt	19.12.2020 20:08	Textdokument	4 KB
ontop3.txt	19.12.2020 20:09	Textdokument	2 KB
ontop4.txt	19.12.2020 20:11	Textdokument	2 KB
ontop5.txt	19.12.2020 20:12	Textdokument	2 KB

### New in-hilt color profiles










To simplify both the selection of color profiles and the modification of color profiles for in-hilt setups, a new structure was introduced. In past, the "effect[number].txt" files in each blade folder contained the parameters that describe the effects and the parameters that describe the color of the blade.







Now, the parameters that describe the color of the blade are located in separate "color[number].txt" files which we'll call color profiles in the following. There is no limit to the number of color profiles inside each blade folder. The color profiles can be changed on the fly. In each blade folder, there is a single "effect[number].txt" now. The new file structure of the blade folders is shown in the picture below.

 color1.txt	21.12.2020 12:28	Textdokument	1 KB
 color2.txt	21.12.2020 12:29	Textdokument	1 KB
 color3.txt	21.12.2020 12:29	Textdokument	1 KB
 color4.txt	21.12.2020 12:29	Textdokument	1 KB
 color5.txt	21.12.2020 12:29	Textdokument	1 KB
 color6.txt	21.12.2020 12:29	Textdokument	1 KB
 effect1.txt	18.08.2020 00:38	Textdokument	7 KB

## New accent profiles

Previously, there was an "accent.txt" file that contained the parameters that describe the behavior of your accent LEDs in each blade folder. This file is called accent profile. Now, the blade folders do not contain this file any more. Instead, there is an accent folder inside each slot folder that contains arbitrarily many accent profiles that can be changed on the fly. That way, you can customize the behavior of your accent LEDs now without needing to change anything on the SD card. Furthermore, two different types of accent profiles were introduced: standby accent profiles and ignited accent profiles. The former define the behavior of your accent LEDs while the blade is not ignited. The latter define the behavior of your accent LEDs while the blade is ignited. The standby accent profiles are labelled "standby[number].txt" and the ignited accent profiles are labelled "ignited[number].txt". The screenshots below show the new accent folder inside each slot folder and the content of the new accent folder.

 accent	07.02.2021 15:18	Dateiordner
 blade1 - Classic I	10.01.2021 16:06	Dateiordner
 blade2 - Classic II	10.01.2021 16:06	Dateiordner
 blade3 - Classic III	10.01.2021 16:06	Dateiordner
 blade4 - Classic IV	10.01.2021 16:06	Dateiordner
 blade5 - Classic V	10.01.2021 16:06	Dateiordner
 blade6 - Classic VI	10.01.2021 16:06	Dateiordner
 blade7 - Color Flow	10.01.2021 16:06	Dateiordner
 blade8 - Flame Blade	10.01.2021 16:06	Dateiordner

 ignited1.txt	07.02.2021 15:16	Textdokument	3 KB
 ignited2.txt	07.02.2021 15:16	Textdokument	3 KB
 ignited3.txt	07.02.2021 15:16	Textdokument	3 KB
 standby1.txt	07.02.2021 15:16	Textdokument	3 KB
 standby2.txt	07.02.2021 15:16	Textdokument	3 KB
 standby3.txt	07.02.2021 15:16	Textdokument	3 KB

## Blade mirror feature for Neopixel accents

It is now possible to customize Neopixel accents so that they mirror the blade. The new parameter "ac\_mirror\_blade" in the accent profiles defines this feature and is described in the following:

- ac\_mirror\_blade=1,0,0,1,0,0,0,1: The parameter takes 8 values corresponding to the different Neopixel accents. A value of 1 enables the blade mirror feature and a value of 0 disables it. In this example, the Neopixel accents 1, 4 and 8 are set to mirror the blade. The other Neopixel accents show the light effects that are defined in the accent profiles.

## New way to change the color profile on the fly

For two momentary buttons setups, a new way to change the color profile on the fly was introduced. Now, it is possible to change it by tapping the power button while holding the auxiliary button. That way, it can be avoided to accidentally change the color profile during combat.

## New way to trigger a blaster block for single momentary button setups

For single momentary button setups, there are now two different options to trigger a blaster block available. It is now possible to trigger a blaster block by tapping the power button or by swinging the saber after entering the MultiBlast mode by tapping the power button. The new parameters that define this feature are described in the following:

- blaster=0: A blaster block is triggered by tapping the power button.
- blaster=1: A blaster block is triggered by swinging the saber after entering the MultiBlast by tapping the power button. If no swing is performed for a customizable time, the MultiBlast mode is left automatically.
- blaster\_disable=2000: This parameter defines the time after which the MultiBlast mode is left automatically if no swing is performed. It is given in milliseconds.
- blaster\_threshold=5000: This parameter defines how strong you need to swing the saber to trigger a blaster block in MultiBlast mode.

## New way to trigger a blaster block for two momentary buttons setups

For two momentary buttons setups, there are now two different options to trigger a blaster block available. It is now possible to trigger a blaster block by tapping the auxiliary button or by swinging the saber after entering the MultiBlast mode by tapping the auxiliary button. The new parameters that define this feature are described in the following:

- blaster=0: A blaster block is triggered by tapping the auxiliary button.
- blaster=1: A blaster block is triggered by swinging the saber after entering the MultiBlast by tapping the auxiliary button. If no swing is performed for a customizable time, the MultiBlast mode is left automatically.
- blaster\_disable=2000: This parameter defines the time after which the MultiBlast mode is left automatically if no swing is performed. It is given in milliseconds.

- blaster\_threshold=5000: This parameter defines how strong you need to swing the saber to trigger a blaster block in MultiBlast mode.

### New way to trigger a force push for single momentary button setups

For single momentary button setups, there are now two different options to trigger a force push available. It is now possible to trigger a force push by twisting the saber while holding the button or by swinging the saber while holding the button. The parameter "force\_push" allows to choose one of these options and is described in the following:

- force\_push=0: A force push is triggered by twisting the saber while holding the button.
- force\_push=1: A force push is triggered by swinging the saber while holding the button.
- force\_push\_threshold=1: This parameter defines how strong you have to swing the saber to trigger a force push if you have chosen to trigger a force push by swinging the saber while holding the button.

### New way to trigger a force push for two momentary buttons setups

For two momentary buttons setups, there are now two different options to trigger a force push available. It is now possible to trigger a force push by tapping the power button or by swinging the saber while holding the auxiliary button. The parameter "force\_push" allows to choose one of these options and is described in the following:

- force\_push=0: A force push is triggered by tapping the power button.
- force\_push=1: A force push is triggered by swinging the saber while holding the auxiliary button.
- force\_push\_threshold=1: This parameter defines how strong you have to swing the saber to trigger a force push if you have chosen to trigger a force push by swinging the saber while holding the auxiliary button.

### New way to trigger lockup for single momentary button setups

For single momentary button setups, there are now two different options to trigger lockup available. It is now possible to trigger lockup by holding the power button, releasing it and then triggering a clash or by holding the power button, releasing it and then twisting the saber. The parameter "lockup" allows to choose one of these options and is described in the following:

- lockup=0: Lockup is triggered by holding the power button, releasing it and then twisting the saber.
- lockup=1: Lockup is triggered by holding the power button, releasing it and then triggering a clash.

### New way to trigger lockup for two momentary buttons setups

For two momentary buttons setups, there are now two different options to trigger lockup available. It is now possible to trigger lockup by holding the auxiliary button and then tapping it or by holding the auxiliary button, releasing it and then triggering a clash. The parameter "lockup" allows to choose one of these options and is described in the following:

- lockup=0: Lockup is triggered by holding the auxiliary button and then tapping it.
- lockup=1: Lockup is triggered by holding the auxiliary button, releasing it and then triggering a clash.

## Redesign of the color wheel

The color wheel was replaced by two new features: the color menu and the color profile modifier. These will be explained in the following.

### Color menu

The color menu can be triggered by holding the power button and then tapping it. In the color menu, you can cycle through all preset color profiles by slowly twisting the saber. Hereby, twisting clockwise goes to the next color profile and twisting counter clockwise goes to the previous color profile. Each time you get to the next color profile, a gear sound indicates this. There are also alternative ways to cycle through the different color profiles in the color menu. These are defined by the parameter "color\_menu". The parameter "color\_menu\_twist\_speed" describes the sensitivity of twisting the saber. Both parameters are described in the following:

- color\_menu=0: The color menu is disabled.
  - color\_menu=1: When in the color menu, you can cycle through the different color profiles by slowly twisting the saber. Hereby, twisting clockwise goes to the next color profile and twisting counter clockwise goes to the previous color profile.
  - color\_menu=2: When in the color menu, you can cycle through the different color profiles by slowly twisting the saber. If you point the saber upwards while doing this, you go to the next color profile. If you point the saber downwards while doing this, you go to the previous color profile. Hereby, it does not matter if you twist the saber clockwise or counter clockwise. Both directions lead to the next or previous color profile depending on the orientation of the saber. This makes it possible to cycle through the color profiles without having to twist the saber too far into one direction. If you want to cycle through the color profiles, you could twist the saber clockwise first and then counter clockwise for example.
  - color\_menu=3: When in the color menu, you can cycle through the different color profiles by tapping the power button. If you point the saber upwards while doing this, you go to the next color profile. If you point the saber downwards while doing this, you go to the previous color profile.
- 
- color\_menu\_twist\_speed=100: Defines the sensitivity of twisting the saber.

### Effect menu

As there are small differences between setups with two momentary buttons and setups with one momentary button, let's consider them separately in the following.

## Two momentary buttons

Let's first come to the two momentary buttons setup. The effect menu can be triggered by holding the power button and then holding it again. Point the saber upwards while doing this. In the effect menu, you can cycle through the blade profiles and the on top effects. To go to the next blade profile, tap the power button while pointing the saber upwards. To go to the previous blade profile, tap the power button while pointing the saber downwards. If you want to go to the next on top effect, tap the auxiliary button while pointing the saber upwards. If you want to go to the previous on top effect, tap the auxiliary button while pointing the saber downwards. It is also possible to cycle through the blade profiles by slowly twisting the saber. The different ways to cycle through the blade profiles are defined by the parameter "effect\_menu". The parameter "effect\_menu\_twist\_speed" describes the sensitivity of twisting the saber. Both parameters are described in the following:

- effect\_menu=0: The effect menu is disabled.
- effect\_menu=1: When in the effect menu, you can cycle through the different blade profiles by slowly twisting the saber. Hereby, twisting clockwise goes to the next blade profile and twisting counter clockwise goes to the previous blade profile.
- effect\_menu=2: When in the effect menu, you can cycle through the different blade profiles by slowly twisting the saber. If you point the saber upwards while doing this, you go to the next blade profile. If you point the saber downwards while doing this, you go to the previous blade profile. Hereby, it does not matter if you twist the saber clockwise or counter clockwise. Both directions lead to the next or previous blade profile depending on the orientation of the saber. This makes it possible to cycle through the blade profiles without having to twist the saber too far into one direction. If you want to cycle through the blade profiles, you could twist the saber clockwise first and then counter clockwise for example.
- effect\_menu=3: When in the effect menu, you can change the blade profile by tapping the power button. If you point the saber upwards while doing this, you go to the next blade profile. If you point the saber downwards while doing this, you go to the previous blade profile.
- effect\_menu\_twist\_speed=100: Defines the sensitivity of twisting the saber.

## One momentary button

Now, let's consider the one momentary button setup. The effect menu can be triggered by holding the button and then holding it again. Point the saber upwards while doing this. In the effect menu, you can cycle through the blade profiles and the on top effects. To go to the next blade profile, twist your saber quickly while pointing it upwards. To go to the previous blade profile, twist your saber quickly while pointing it downwards. If you want to go to the next on top effect, tap the button while pointing the saber upwards. If you want to go to the previous on top effect, tap the button while pointing the saber downwards. It is also possible to cycle through the blade profiles by slowly twisting the saber. The different ways to cycle through the blade profiles are defined by the parameter "effect\_menu". The parameter "effect\_menu\_twist\_speed" describes the sensitivity of twisting the saber. Both parameters are described in the following:

- effect\_menu=0: The effect menu is disabled.
- effect\_menu=1: When in the effect menu, you can cycle through the different blade profiles by slowly twisting the saber. Hereby, twisting clockwise goes to the

next blade profile and twisting counter clockwise goes to the previous blade profile.

- effect\_menu=2: When in the effect menu, you can cycle through the different blade profiles by slowly twisting the saber. If you point the saber upwards while doing this, you go to the next blade profile. If you point the saber downwards while doing this, you go to the previous blade profile. Hereby, it does not matter if you twist the saber clockwise or counter clockwise. Both directions lead to the next or previous blade profile depending on the orientation of the saber. This makes it possible to cycle through the blade profiles without having to twist the saber too far into one direction. If you want to cycle through the blade profiles, you could twist the saber clockwise first and then counter clockwise for example.
- effect\_menu=3: When in the effect menu, you can change the blade profile by quickly twisting the saber. If you point the saber upwards while doing this, you go to the next blade profile. If you point the saber downwards while doing this, you go to the previous blade profile.
- effect\_menu\_twist\_speed=100: Defines the sensitivity of twisting the saber.

In the menu navigation section at the end of this document, you can find descriptions of how to use the effect menu for different button setups.

## Accent menu

The accent menu can be triggered by holding the power button and then holding it again. Point the saber downwards while doing this. In the accent menu, you can cycle through the ignited accent profiles and the standby accent profiles. When entering the accent menu, a sound will be played notifying you that you can cycle through your ignited accent profiles. To go to the next ignited accent profile, tap the power button while pointing the saber upwards. To go to the previous ignited accent profile, tap the power button while pointing the saber downwards. If you want to select an ignited accent profile, hold the power button. This will save your selection and after that, you can cycle through the standby accent profiles. If you want to go to the next standby accent profile, tap the power button while pointing the saber upwards. If you want to go to the previous standby accent profile, tap the power button while pointing the saber downwards. If the parameter "accent\_standby=0" is set in the "general.txt" the standby accent submenu will be skipped as the accent LEDs are turned off when the board is in standby. The accent menu can be controlled by the parameter "accent\_menu". It is described in the following:

- accent\_menu=0: The accent menu is disabled. When trying to trigger the accent menu, the effect menu will be activated.
- accent\_menu=1: The accent menu is enabled.

## Sound menu

As there are small differences between setups with two momentary buttons and setups with one momentary button, let's consider them separately in the following.

### Two momentary buttons

Let's first come to the two momentary buttons setup. In past, you could change the sound font by holding the power button before the saber is ignited. Now, there is a sound menu that allows to



cycle through the sound fonts more quickly and even to jump by a predefined number of sound fonts. To enter the sound menu, hold the auxiliary button and then release it. Point the saber upwards while doing this. A sound file will play notifying you that you entered the sound menu. At the same time, the background music of the sound menu will start to play. To go to the next sound font, tap the auxiliary button while pointing the saber upwards. To go to the previous sound font, tap the auxiliary button while pointing the saber downwards. If you want to jump forward by a number of sound fonts that is given by the parameter "sound\_font\_jump", tap the power button while pointing the saber upwards. If you want to jump backwards, tap the power button while pointing the saber downwards. There are also alternative ways to go to the next or previous sound font. The possible options are described by the parameter "sound\_menu" and are described in the following:

- sound\_menu=1: When in the sound menu, you need to slowly twist the saber to go to the next or the previous sound font. You can go to the next sound font by twisting the saber clockwise and to the previous sound font by twisting the saber counter clockwise.
- sound\_menu=2: When in the sound menu, you need to slowly twist the saber to go to the next or the previous sound font. If you point the saber upwards while doing this, you go to the next sound font. If you point the saber downwards while doing this, you go to the previous sound font. Hereby, it does not matter if you twist the saber clockwise or counter clockwise. Both directions lead to the next or previous sound font depending on the orientation of the saber. This makes it possible to cycle through the sound fonts without having to twist the saber too far into one direction. If you want to cycle through the sound fonts, you could twist the saber clockwise first and then counter clockwise for example.
- sound\_menu=3: When in the sound menu, you need to tap the auxiliary button to go to the next or the previous sound font depending on the orientation of the saber.

### One momentary button

Now, let's consider the one momentary button setup. In past, you could change the sound font by holding the power button before the saber is ignited. Now, there is a sound menu that allows to cycle through the sound fonts more quickly and even to jump by a predefined number of sound fonts. To enter the sound menu, hold the button and then release it. Point the saber upwards while doing this. A sound file will play notifying you that you entered the sound menu. At the same time, the background music of the sound menu will start to play. To go to the next sound font, tap the button while pointing the saber upwards. To go to the previous sound font, tap the button while pointing the saber downwards. If you want to jump forward by a number of sound fonts that is given by the parameter "sound\_font\_jump", twist your saber quickly while pointing it upwards. If you want to jump backwards, twist your saber quickly while pointing it downwards. There are also alternative ways to go to the next or previous sound font and to jump forward or backward by a number of sound fonts. The possible options are described by the parameter "sound\_menu" and are described in the following:

- sound\_menu=1: When in the sound menu, you need to slowly twist the saber to go to the next or the previous sound font. You can go to the next sound font by twisting the saber clockwise and to the previous sound font by twisting the saber counter clockwise. To jump forward or backward by a number of sound fonts, you need to tap the button.

- sound\_menu=2: When in the sound menu, you need to slowly twist the saber to go to the next or the previous sound font. If you point the saber upwards while doing this, you go to the next sound font. If you point the saber downwards while doing this, you go to the previous sound font. Hereby, it does not matter if you twist the saber clockwise or counter clockwise. Both directions lead to the next or previous sound font depending on the orientation of the saber. This makes it possible to cycle through the sound fonts without having to twist the saber too far into one direction. If you want to cycle through the sound fonts, you could twist the saber clockwise first and then counter clockwise for example. To jump forward or backward by a number of sound fonts, you need to tap the button.
- sound\_menu=3: When in the sound menu, you need to tap the button to go the next or previous sound font depending on the orientation of the saber. To jump forward or backward by a number of sound fonts, you need to quickly twist the saber.

In the menu navigation section at the end of this document, you can find descriptions of how to use the effect menu for different button setups.

## Saber editor

One of the major new features of this firmware update is the so-called saber editor. Its introduction is based on user feedback. One of the most frequently asked questions is how to change the pixel number for example. So far, you had to change the parameter `number_of_leds` in the "general.txt". However, this requires to access the SD card of course. Now, this is not needed anymore as the saber editor allows to change it on the fly. To make the saber editor an even more powerful feature, we added even more settings to it that can be changed on the fly now. Accessing the SD card is not required anymore to change these settings. The different submenus of the saber editor to change the different settings are called edit modes. For example, we added the color profile modifier to the saber editor that allows to modify color profiles by assigning new colors to them. This feature was previously known as color wheel and was often mistaken by a feature to cycle through color profiles. By including it in the saber editor, it becomes more clear that this feature actually changes files on the SD card, but not just cycles through them. For a two momentary buttons setup, you can enter the saber editor by holding the power button before the saber is ignited and then releasing it. Point the saber downwards while doing this. For an one momentary button setup, you can enter the saber editor by twisting your saber quickly while holding the button. Point the saber downwards while doing this.

After you entered the saber editor, you can select which edit mode you want to enter. To cycle through them, tap the power button. To confirm your selection, hold the power button. When cycling through the different edit modes, you reach a "save and leave saber editor" option at some point. To save and leave saber editor, select this option by holding the power button. The following edit modes are available in the saber editor:

- Color Profile: Assign new colors to color profiles.
- Pixel Number: Adjust the number of pixels the board uses to match the number of pixels in your blade.
- Ignition Speed: Adjust the ignition speed individually for each sound font.
- Retraction Speed: Adjust the retraction speed individually for each sound font.
- Battle Configuration: Adjust how to trigger blaster block, force push or lockup.
- Gesture Controls: Turn on/off stab ignition, swing ignition, twist ignition or twist retraction.
- Effect Font Slot: Choose the effect font slot that you want to use.

The parameters that you change in the saber editor are saved in the new "override-general.txt" file or the new "override-settings.txt" file. The parameters in these files will override the parameters in the "general.txt" and the "settings.txt". Thus, you can go back to default by deleting the override files. In the following, we'll describe the different edit modes.

### Color profile edit mode

First, let's come to the color profile edit mode which allows to override color profiles and to assign a new color to them. For example, consider you are in blade profile 1 and your first color profile "color1.txt" is defined as red. If you want to assign a new color to this color profile, you can use the color profile edit mode to do that without needing to change the file on the SD card. If you do that, the parameter for the color in the file "color1.txt" is not changed, but a new file "override-color1.txt" is created that contains the new color. When there is both a color profile and an override color profile, the board uses the latter. You can restore the default color of a color profile by stabbing the saber after entering the color profile edit mode and selecting the color profile that you want to be restored or by deleting the corresponding override color profile on the SD card.

After you entered the color profile edit mode, you first need to select the color profile that you want to modify. To cycle through the color profiles, slowly twist your saber. To confirm your selection, tap the power button. After that, you can assign a new blade color to the selected color profile by slowly twisting your saber. To confirm your selection, tap the power button. Next, you can assign a new clash color to the selected color profile. To confirm it, tap the power button. You can continue with this concept to assign new colors for all different saber states, i.e. also for stab, lockup and so on. After you chose the colors that you want to use, save the color profile by holding the power button. There are also different ways to modify the colors of a color profile after you selected it. These are described below. The color profile edit mode is available for all background effects, also for Color Flow and Flame Blade for example. It is controlled by three parameters in the "general.txt". In the following, these parameters are described:

- color\_profile\_edit\_mode=0: The color profile edit mode is disabled.
- color\_profile\_edit\_mode=1: When in the color profile edit mode, you can assign a new color to the selected color profile by tilting the saber.
- color\_profile\_edit\_mode=2: When in the color profile edit mode, you can assign a new color to the selected color profile by twisting the saber.
- color\_profile\_edit\_mode=3: When in the color profile edit mode, you can assign a new color to the selected color profile both by tilting the saber and by twisting it.
- color\_profile\_tilt\_speed=100: Defines the sensitivity of tilting the saber.
- color\_profile\_twist\_speed=100: Defines the sensitivity of twisting the saber.

### Pixel number edit mode

The pixel number edit mode allows to adjust the number of pixels the board uses to match the number of pixels in your blade. After you entered the pixel number edit mode, a white spot on the blade indicates the number of pixels. To move it along the blade and thus change the pixel number accordingly, slowly twist your saber until the white spot reaches the tip of the blade. To save the

number of pixels, hold the power button. The number of pixels will be saved in the parameter "number\_of\_leds" in the "override-general.txt". The pixel number edit mode is controlled by two parameters in the "general.txt". In the following, these parameters are described:

- pixel\_number\_edit\_mode=0: A value of 1 enables the pixel number edit mode and a value of 0 disables it.
- pixel\_number\_twist\_speed=100: Defines the sensitivity of twisting the saber.

### Ignition speed edit mode

The ignition speed edit mode allows to adjust the ignition speed individually for each sound font. After you entered the ignition speed edit mode, you need to choose the sound font for which you want to adjust the ignition speed by slowly twisting your saber. If you twist it clockwise, you will go to the next sound font and if you twist it counter clockwise, you will go to the previous sound font. To confirm your selection, tap the power button. After that, you can adjust the ignition speed for this sound font by slowly twisting the saber. The ignition speed is illustrated by a looping ignition of the blade. The blade color that is used for this ignition is defined by the parameter "ignition\_led" in the "general.txt". To save the ignition speed, hold the power button. To synchronize the ignition speed with the duration of the poweron sound, perform a stab. The ignition speed will be saved in the parameter poweron in the "override-settings.txt" of the sound font that you selected. The ignition speed edit mode is controlled by two parameters in the "general.txt". In the following, these parameters are described:

- ignition\_speed\_edit\_mode=0: A value of 1 enables the ignition speed edit mode and a value of 0 disables it.
- ignition\_speed\_twist\_speed=100: Defines the sensitivity of twisting the saber.

### Retraction speed edit mode

The retraction speed edit mode allows to adjust the retraction speed individually for each sound font. After you entered the retraction speed edit mode, you need to choose the sound font for which you want to adjust the retraction speed by slowly twisting your saber. If you twist it clockwise, you will go to the next sound font and if you twist it counter clockwise, you will go to the previous sound font. To confirm your selection, tap the power button. After that, you can adjust the retraction speed for this sound font by slowly twisting the saber. The retraction speed is illustrated by a looping retraction of the blade. The blade color that is used for this retraction is defined by the parameter "retraction\_led" in the "general.txt". To save the retraction speed, hold the power button. To synchronize the retraction speed with the duration of the poweroff sound, perform a stab. The retraction speed will be saved in the parameter poweroff in the "override-settings.txt" of the sound font that you selected. The retraction speed edit mode is controlled by two parameters in the "general.txt". In the following, these parameters are described:

- retraction\_speed\_edit\_mode=0: A value of 1 enables the retraction speed edit mode and a value of 0 disables it.
- retraction\_speed\_twist\_speed=100: Defines the sensitivity of twisting the saber.

### Battle configuration edit mode

The battle configuration edit mode makes it possible to customize how to trigger blaster blocks, force push and lockup. After you selected the battle configuration edit mode, tap the power button to select the action

that you want to edit. After that, slowly twist your saber clockwise to enable the respective action or slowly twist your saber counter clockwise to disable it. This will be saved in the parameter for the respective action in the "override-general.txt". The battle configuration edit mode is controlled by two parameters in the "general.txt". In the following, these parameters are described:

- battle\_configuration\_edit\_mode=0: A value of 1 enables the battle configuration edit mode and a value of 0 disables it.
- battle\_configuration\_twist\_speed=100: Defines the sensitivity of twisting the saber.

### Gesture controls edit mode

The gesture controls edit mode makes it possible to turn on/off the stab ignition, swing ignition, twist ignition and twist retraction feature. After you selected the gesture controls edit mode, tap the power button to select the gesture ignition or retraction that you want to edit. After that, slowly twist your saber clockwise to enable the respective gesture ignition or retraction or slowly twist your saber counter clockwise to disable it. This will be saved in the parameter for the respective gesture ignition or retraction in the "override-general.txt". Make sure that you delete the parameter for the respective gesture ignition or retraction in the "settings.txt" of each sound font before you start using this edit mode. The gesture controls edit mode is controlled by two parameters in the "general.txt". In the following, these parameters are described:

- gesture\_controls\_edit\_mode=0: A value of 1 enables the gesture controls edit mode and a value of 0 disables it.
- gesture\_controls\_twist\_speed=100: Defines the sensitivity of twisting the saber.

### Effect font slot edit mode

The effect font slot edit mode allows to change the effect font slot that you are using. After you entered the effect font slot edit mode, you can select the effect font slot that you want to use by slowly twisting your saber. To confirm your selection, hold the power button. This will be saved in the parameter "effect\_font\_slot" in the "override-general.txt". The effect font slot edit mode is controlled by two parameters in the "general.txt". In the following, these parameters are described:

- effect\_font\_slot\_edit\_mode=0: A value of 1 enables the effect\_font\_slot edit mode and a value of 0 disables it.
- effect\_font\_slot\_twist\_speed=100: Defines the sensitivity of twisting the saber.

### New way to trigger volume control

The way to trigger volume control was simplified. For a two momentary buttons setup, it can be triggered by holding the auxiliary button before the saber is ignited and then releasing it. Point the saber downwards while doing this. For an one momentary button setup, it can be triggered by holding the button before the saber is ignited and then releasing it. Point the saber downwards while doing this.

### New way to start and stop background music

The way to start and stop background music for two momentary buttons setups was simplified. For a two momentary buttons setup, you can start and stop background music by holding the power button before the saber is ignited and then releasing it. For an one momentary button setup, you

can start and stop background music by twisting your saber quickly while holding the button before the saber is ignited. Point the saber upwards while doing this.

### New way to trigger preon sounds

It is now possible to trigger preon sounds in different ways. The new parameter "preon" defines how the preon sounds can be triggered. In the following, this parameter is described:

- preon=0: The preon sounds are disabled.
- preon=1: The preon sounds will be played with every ignition independent of how it was triggered.
- preon=2: The preon sounds will be played only when you ignite the saber while pointing it downwards. When igniting the saber while pointing it upwards, the preon sounds will not be played.
- preon=3: The preon sounds will be played only when you ignite the saber while pointing it upwards. When igniting the saber while pointing it downwards, the preon sounds will not be played.
- preon=4: The preon sounds will be played only when you ignite the saber with tapping the power button. If you ignite the saber with gestures, the preon sounds will not be played.
- preon=5: The preon sounds will be played only when you ignite the saber with gestures. If you ignite the saber with tapping the power button, the preon sounds will not be played.

### New way to trigger postoff sounds

It is now possible to trigger postoff sounds in different ways. The new parameter "postoff" defines how the postoff sounds can be triggered. In the following, this parameter is described:

- postoff=0: The postoff sounds are disabled.
- postoff=1: The postoff sounds will be played with every ignition independent of how it was triggered.
- postoff=2: The postoff sounds will be played only when you ignite the saber while pointing it downwards. When igniting the saber while pointing it upwards, the postoff sounds will not be played.
- postoff=3: The postoff sounds will be played only when you ignite the saber while pointing it upwards. When igniting the saber while pointing it downwards, the postoff sounds will not be played.
- postoff=4: The postoff sounds will be played only when you ignite the saber with tapping the power button. If you ignite the saber with gestures, the postoff sounds will not be played.
- postoff=5: The postoff sounds will be played only when you ignite the saber with gestures. If you ignite the saber with tapping the power button, the postoff sounds will not be played.

## Preon and postoff light effects for Neopixel

There are preon and postoff light effects available now. They are responsive to the actual audio level of the preon and postoff sounds and thus match the sounds amazingly well. There are four new parameters in the "background.txt" that define the preon and postoff light effects. In the following, these parameters are described:

- preon\_effect\_intensity=10: Defines the intensity of the preon light effects.
- preon\_use\_basic\_effects=1: If it is set to 0, the preon light effects will use the same color and the same effects as during the ignition. This matters only when using custom ignition effects. If it is set to 1, the preon light effects will use the same effects as when the saber is in the basic state, i.e. after the ignition.
- postoff\_effect\_intensity=10: Defines the intensity of the postoff light effects.

## New type of the Flame Blade effect for Neopixel

A new stylized type of the Flame Blade effect was introduced. The new parameter "flame\_blade\_type" in the background.txt controls which type of the Flame Blade effect is used. In the following, this parameter is described:

- flame\_blade\_type=0: The realistic type of the Flame Blade effect is used.
- flame\_blade\_type=1: The stylized type of the Flame Blade effect is used.

## New retraction option for Flame Blade effect for Neopixel

It is now possible to customize the Flame Blade effect so that the blade retracts upwards. The new parameter "flame\_blade\_poweroff" in the background.txt controls this feature. In the following, this parameter is described:

- flame\_blade\_poweroff=0: The blade retracts downwards.
- flame\_blade\_poweroff=1: The blade retracts upwards.

## Customizability of the speed of the Flame Blade effect for Neopixel

It is now possible to customize the speed of the Flame Blade effect. The new parameter "flame\_blade\_speed" in the background.txt controls this.

## Sauron mode for the Wave effect, Color Flow effect and Flame Blade effect

There is a Sauron mode for the Wave effect, Color Flow effect and Flame Blade effect now. Let us consider the Flame Blade effect as an example. When using the Sauron mode, a flame extends from the middle of the blade both to its bottom and to its tip or vice-versa. Furthermore, a dark spot is located in the middle of the blade simulating the eye of Sauron. There are four new parameters in the "background.txt" that control this feature. In the following, they are described:

- flame\_blade\_sauron=1: This parameter defines which type of the Sauron mode is used. A value of 0 corresponds to a disabled Sauron mode, a value of 1 corresponds to the Sauron mode in which the flames originate at the bottom of the blade and at its tip and a value of 2 corresponds to the Sauron mode in which the flames originate in the middle of the blade.
- flame\_blade\_sauron\_size=0: This parameter defines the size of the dark spot simulating the eye of Sauron.
- flame\_blade\_sauron\_spark=0: The dark spot simulating the eye of Sauron can be made unstable. This parameter defines how unstable it is.
- flame\_blade\_responsive=0: This parameter defines the responsiveness of the Sauron mode. Values of 0, 1, 2 and 3 correspond to no responsiveness. A value of 4 corresponds to moving the dark spot by tilting the saber, a value of 5 corresponds to moving the dark spot by twisting the saber and a value of 6 corresponds to moving the dark spot both by tilting and twisting the saber.

The same parameters are available for the Wave effect and the Color Flow effect.

### New fade out type for Neopixel

There is a new fade out type for Neopixel available now. It is the new default fade out type for blaster block and lockup. Let us consider blaster block as an example. When using this fade out type for blaster block, a localized impact on the blade is created. The impact effect splits into two parts which start to move both towards the bottom and towards the tip of the blade. The speed of this movement is customizable. This fade out type is controlled by four old parameters and one new parameter in the "background.txt". They are described in the following:

- bb\_fade\_out\_type=0: This parameter defines which fade out type is used. A value of 0 corresponds to the new fade out type. It is the same value as for the old fade out type creating a localized impact because the new fade out type is an extension of the old one.
- bb\_fade\_out\_size=10: This parameter defines the size of the localized impact and of the two parts of it that start to move towards the bottom and towards the tip of the blade.
- bb\_min\_position=20: The location of the impact is randomly chosen between bb\_min\_position and bb\_max\_position. The values are given in percent of the blade length.
- bb\_max\_position=80: The location of the impact is randomly chosen between bb\_min\_position and bb\_max\_position. The values are given in percent of the blade length.
- bb\_speed=200: This parameter defines at which speed the two parts of the localized impact move towards the bottom and towards the tip of the blade. A value of 0 corresponds to the old fade out type for which the localized impact does not move.

The same parameters are available for ignition, clash, stab, lockup, drag, melt and force push. The new fade out type is only accessible for lockup if the sound font has an end lockup sound.



## Massively extended default effect packages for Neopixel

The default effect packages that come with the board and act as an effect library were massively extended. For example, the extended default package in effect font slot 9 features now 36 different blade profiles with 28 different on top effects each. Furthermore, all effect combinations come with 12 preset color profiles. The new default effect package comprises also Sauron blade profiles and Dark Saber blade profiles. You can create your own selection of blade profiles and on top effects by moving your favorite ones to effect font slot 10 which is intended to be used as a custom effect library. Of course, you can even create additional effect font slots.

## Twist ignition

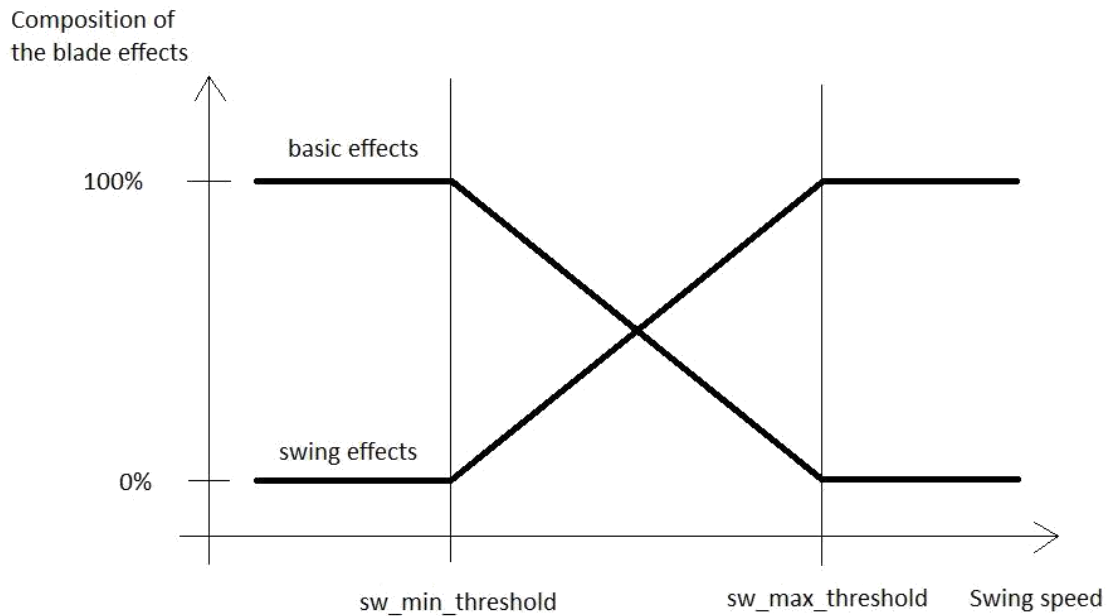
It is now possible to ignite the blade by twisting your saber. This feature is controlled by the parameter "twist\_ignition" in the "general.txt". If it is set to 0, the twist ignition is disabled and if it is set to 1, the twist ignition is enabled. You can also enable and disable the twist ignition on the fly using the saber editor.

## Responsive swing effects for Neopixel

It is now possible to customize the swing color and the swing light effects for Neopixel so that they respond to the swing speed in real-time. The faster the swinging of the blade, the more pronounced the swing color and the swing light effects are. The basic blade color and the basic blade light effects are blended with the swing color and the swing light effects, whereby the mixing ration moves towards the swing color and the swing light effects as the swing speed increases. The parameters that define the responsive swing effects are described in the following:

- sw\_motion\_sensitive=0: If this parameter is set to 0, the responsive swing color and swing light effects are disabled. If it is set to 1, they are enabled.
- sw\_min\_threshold=1000: Minimum swing speed at which the basic blade color and the basic blade light effects start to blend with the swing color and the swing light effects. Below this swing speed, the blade only displays the basic blade color and the basic blade light effects.
- sw\_max\_threshold=15000: Swing speed at which the blending of the basic blade color and the basic blade light effects with the swing color and the swing light effects ends. Above this swing speed, the blade only displays the swing color and the swing light effects.

The blending mechanism is illustrated in the sketch below. As we can see, the blade only displays the basic blade color and the basic blade light effects below the swing speed given by sw\_min\_threshold. The higher the swing speed, the higher the share of the swing color and the swing light effects in the mixing. When the swing speed increases above the swing speed given by sw\_max\_threshold, the blade only displays the swing color and the swing light effects.



These parameters are located in the "background.txt" file in each blade profile. Furthermore, there are also parameters defining the style of the blending which are the same as the parameters defining the fade out style of the clash effects, stab effects and so on. Have a look at the manual for more details on these parameters.

### Blade matching RGB switch LED for Neopixel

It is now possible to match the color of an RGB switch LED with the blade color for Neopixel. This feature is controlled by the parameter "accent\_blade\_matching" in the "general.txt". In the following, this parameter is described:

- `accent_blade_matching=0`: The blade matching feature is disabled.
- `accent_blade_matching=1`: The blade matching feature is enabled. Connect the RGB switch LED to LED7, LED8 and LED9.

### Accent LEDs standby

The parameter "accent\_standby" is located in the "general.txt" now. In the following, this parameter is described:

- `accent_standby=0`: The standby accent profiles are disabled. That means, no accent LEDs are turned on when the blade is not ignited. In the accent menu, it is not possible to cycle through the standby accent profiles.
- `accent_standby=1`: The standby accent profiles are enabled. That means, the accent LEDs may be turned on when the blade is not ignited. In the accent menu, it is possible to cycle through the standby accent profiles.

## Charging indicator

It is now possible to display a charging indicator via the accent LEDs connected to LED5 - LED9 or via the Pixel accent LEDs. When the battery charge is below 80 %, the LEDs pulse slowly while charging, when it is above 80 % they pulse fast and when it is fully charged they are turned on constantly. Furthermore, a charging indicator sound plays when charging starts and when it finishes. This feature is only available in combination with the Seedling or with a recharge port that does not disconnect the battery from the board while charging. This feature is still in beta testing. It is controlled by the parameter "accent\_battery\_indicator" in the "general.txt". In the following, this parameter is described:

- accent\_battery\_indicator=0: The charging indicator feature is disabled.
- accent\_battery\_indicator=1: The charging indicator feature is enabled.

## Pairing of sound fonts with blade profiles, color profiles, on top effects and accent profiles

You can pair each sound font with a certain blade profile, color profile, on top effect, standby accent profile and ignited accent profile now directly on the SD card. Alternatively, you can still do the pairing on the fly of course. A new file called "prefs[number].txt" was introduced. It is located in each effect font slot and contains parameters that define which blade profile, etc. is assigned to the sound font "sound[number]". The screenshot below shows the content of the file.

```
blade_profile=1
color_profile=1
on_top_effect=1
standby_accent_profile=1
ignited_accent_profile=1
```

## Custom user interface sounds volume and effect sounds volume

It is now possible to customize the user interface sounds volume and the effect sounds volume independent of the total volume. They are given relative to the total volume and are described by the following parameters located in the settings.txt of each sound font:

- user\_interface\_sounds\_volume=1.0: This parameter defines the volume of the user interface sounds.
- effect\_sounds\_volume=1.0: This parameter defines the volume of the effect sounds.

## Further enhanced audio processing

The audio processing of the user interface sounds and also the Smooth Swing sounds were further enhanced with respect to their smoothness.

### Further enhanced clash detection

The clash detection was further enhanced so that it is now possible to detect even very weak clashes if you want to. The clash sensitivity is still controlled by the parameter "clash\_threshold", but its default value corresponds to a much more sensitive clash detection now. If you want to make it even more sensitive, you can reduce its value and if you want to make it less sensitive, you can increase its value.

### Removed audio gap when changing blade profiles

There is no audio gap when changing blade profiles any more. The hum continues to play when you change the blade profile.

### Reduced number of button modes

To simplify the menu navigation, there is now only one button mode for two momentary buttons setup. It can be selected by setting "button\_mode=2". The alternative button modes for two momentary buttons setups were merged into this button mode.

### Navigation Using Two Momentary Buttons

The two buttons are referred to as auxiliary and power button according to the wiring examples above. This button mode can be selected by setting the parameter "button\_mode=2" in the "general.txt" file on your microSD card.

<b>FUNCTION</b>	<b>TRIGGERING WITH TWO BUTTONS</b>
Power On	Tap the power button
Change Color Profile*	Tap the power button while holding the auxiliary button
Enter Effect Menu	Hold the power button, then hold it again. Point the saber upwards while doing this.
└ Change Blade Profile*	└ Slowly twist the saber
└ Change On Top Effect*	└ Tap the auxiliary button
└ Save And Leave	└ Hold the power button until the confirmation sound is played
Enter Accent Menu	Hold the power button, then hold it again. Point the saber downwards while doing this.
└ Change Ignited Accent Profile*	└ Tap the power button
└ Go To Ignited Accent Profile	└ Hold the power button
└ Change Standby Accent Profile*	└ Tap the power button
└ Save And Leave	└ Hold the power button until the confirmation sound is played
Enter Color Change Menu	Hold the power button, then tap it. Point the saber upwards while doing this.
└ Cycle Through Preset Color Profiles	└ Slowly twist the saber
└ Save And Leave	└ Hold the power button
Enter Lockup Mode	Hold the auxiliary button, then tap it. Point the saber upwards while doing this.
└ Leave Lockup Mode	└ Tap the auxiliary button
Enter Drag Mode	Hold the auxiliary button, then tap it. Point the saber downwards while doing this.

└ Leave Drag Mode	└ Tap the auxiliary button
Enter Melt Mode	Hold the power button, release it and then perform a stab
└ Leave Melt Mode	└ Tap the power button
Blaster Block	Tap the auxiliary button
Force Push	Hold the auxiliary button while swinging the saber
Activate Power Saving	Hold the power button while performing a stab
Deactivate Power Saving	Hold the power button while performing a stab
Power Off	Hold the power button until the saber shuts down
Enter Sound Font Menu	Hold the auxiliary button before the blade is ignited. Point the saber upwards while doing this.
└ Go To Next Sound Font*	└ Slowly twist the saber
└ Jump 10 Sound Fonts Further*	└ Tap the power button
└ Save And Leave Sound Font Menu	└ Hold the auxiliary button
Show Battery Indicator	Hold the power button while performing a stab before the saber is ignited
└ Calibrate Battery	└ When your battery is fully charged, perform a stab while battery level is displayed
Enter Volume Control	Hold the auxiliary button before the blade is ignited. Point the saber downwards while doing this.
└ Adjust Volume	└ Slowly twist the saber
└ Save And Leave Volume Control	└ Tap the power button
Start Background Music	Hold the power button before the saber is ignited, then release it. Point the saber upwards while doing this.
└ Skip Track	└ Tap the auxiliary button
└ Stop Background Music	└ Hold the power button before the saber is ignited, then release it
Enter Saber Editor	Hold the power button before the saber is ignited, then release it. Point the saber downwards while doing this.
└ Select Editor Mode	└ Tap the power button
└ Color Profile	
└ Select Color Profile	└ Slowly twist the saber
└ Edit Color	└ Slowly twist the saber
└ Go To Next Saber State	└ Tap the power button
└ Revert Colors To Default	└ Perform a stab
└ Save Color Profile	└ Hold the power button
└ Confirm Selection	└ Tap the power button
└ Save and Leave Editor Mode	└ Hold the power button
└ Pixel Number	
└ Edit Pixel Number	└ Slowly twist the saber
└ Save and Leave Editor Mode	└ Hold the power button
└ Ignition Speed	
└ Select Sound Font	└ Slowly twist the saber
└ Edit Ignition Speed	└ Slowly twist the saber
└ Save Ignition Speed	└ Hold the power button
└ Confirm Selection	└ Tap the power button
└ Save and Leave Editor Mode	└ Hold the power button
└ Retraction Speed	
└ Select Sound Font	└ Slowly twist the saber
└ Edit Retraction Speed	└ Slowly twist the saber
└ Save Retraction Speed	└ Hold the power button
└ Confirm Selection	└ Tap the power button
└ Save and Leave Editor Mode	└ Hold the power button
└ Battle Configuration	

└ Blaster Block Mode	
└ Button and Swinging	└ Slowly twist the saber clockwise
└ Button	└ Slowly twist the saber counterclockwise
└ Force Push Mode	
└ Button and Swinging	└ Slowly twist the saber clockwise
└ Button	└ Slowly twist the saber counterclockwise
└ Lockup Mode	
└ Button and Clashing	└ Slowly twist the saber clockwise
└ Button	└ Slowly twist the saber counterclockwise
└ Save and Leave Editor Mode	└ Hold the power button
└ Gesture Controls	
└ Stab Ignition	
└ Turn stab ignition on	└ Slowly twist the saber clockwise
└ Turn stab ignition off	└ Slowly twist the saber counterclockwise
└ Twist Ignition	
└ Turn twist ignition on	└ Slowly twist the saber clockwise
└ Turn twist ignition off	└ Slowly twist the saber counterclockwise
└ Swing Ignition	
└ Turn swing ignition on	└ Slowly twist the saber clockwise
└ Turn swing ignition off	└ Slowly twist the saber counterclockwise
└ Twist Retraction	
└ Turn twist retraction on	└ Slowly twist the saber clockwise
└ Turn twist retraction off	└ Slowly twist the saber counterclockwise
└ Go To Next Gesture Control	└ Tap the power button
└ Save and Leave Editor Mode	└ Hold the power button
└ Effect Font Slot	
└ Select effect font slot	└ Slowly twist the saber
└ Save and Leave Editor Mode	└ Hold the power button
└ Save And Leave Saber Editor	
└ Confirm Selection	└ Hold the power button
Wake Up From Deep Sleep	Tap the power button
Reset	Hold the power button for 10 s

**\* When changing the On Top Effect, Background Effect or Sound Font, you can go to the next one by pointing your saber upwards during selection or to the previous one by pointing your saber downwards.**

### Navigation Using Only One Momentary Button

As mentioned above, all of the features of our board are accessible even with using only one momentary button. This button mode can be selected by setting the parameter "button\_mode=4" in the "general.txt" file on your microSD card.

FUNCTION	TRIGGERING WITH ONE MOMENTARY SWITCH
Power On	Tap the button
Enter Effect Menu	Hold the button, then hold it again. Point the saber upwards while doing this.

<ul style="list-style-type: none"> <li>└ Change Blade Profile*</li> <li>└ Change On Top Effect*</li> <li>└ Save And Leave</li> </ul>	<ul style="list-style-type: none"> <li>└ Slowly twist the saber</li> <li>└ Tap the button</li> </ul>
Enter Accent Menu	Hold the button until the confirmation sound is played Hold the button, then hold it again. Point the saber downwards while doing this.
<ul style="list-style-type: none"> <li>└ Change Standby Accent Profile*</li> <li>└ Enter Ignited Accent Submenu</li> <li>└ Change Ignited Accent Profile*</li> <li>└ Save And Leave</li> </ul>	<ul style="list-style-type: none"> <li>└ Tap the button</li> <li>└ Hold the button for 1 s</li> <li>└ Tap the button</li> </ul>
Enter Color Change Menu	Hold the button until the confirmation sound is played Hold the button, then tap it. Point the saber upwards while doing this.
<ul style="list-style-type: none"> <li>└ Cycle Through Preset Color Profiles</li> <li>└ Save And Leave</li> </ul>	<ul style="list-style-type: none"> <li>└ Slowly twist the saber</li> </ul>
Enter Lockup Mode	Hold the button Hold the button, release it and then twist the saber. Point the saber upwards while doing this.
<ul style="list-style-type: none"> <li>└ Leave Lockup Mode</li> </ul>	Tap the button
Enter Drag Mode	Hold the button, release it and then twist the saber. Point the saber downwards while doing this.
<ul style="list-style-type: none"> <li>└ Leave Drag Mode</li> </ul>	Tap the button
Enter Melt Mode	Hold the power button, release it and then perform a stab
<ul style="list-style-type: none"> <li>└ Leave Melt Mode</li> </ul>	Tap the power button
Blaster Block	Tap the button
Force Push	Hold the button while swinging the saber
Activate Power Saving	Hold the power button while performing a stab
Deactivate Power Saving	Hold the power button while performing a stab
Power Off	Hold the power button until the saber shuts down
Enter Sound Font Menu	Hold the button before the blade is ignited, then release it. Point the saber upwards while doing this.
<ul style="list-style-type: none"> <li>└ Go To Next Sound Font*</li> <li>└ Jump 10 Sound Fonts Further*</li> <li>└ Save And Leave Sound Font</li> </ul>	<ul style="list-style-type: none"> <li>└ Slowly twist the saber</li> <li>└ Tap the button</li> </ul>
Menu	
Show Battery Indicator	Hold the power button while performing a stab before the saber is ignited
<ul style="list-style-type: none"> <li>└ Calibrate Battery</li> </ul>	<ul style="list-style-type: none"> <li>└ When your battery is fully charged, perform a stab while battery level is displayed</li> </ul>
Enter Volume Control	Hold the button before the blade is ignited, then release it. Point the saber downwards while doing this.
<ul style="list-style-type: none"> <li>└ Adjust Volume</li> <li>└ Save And Leave Volume Control</li> </ul>	<ul style="list-style-type: none"> <li>└ Slowly twist the saber</li> </ul>
Start Background Music	Tap the power button Hold the button while twisting the saber before the saber is ignited. Point the saber upwards while doing this.
<ul style="list-style-type: none"> <li>└ Skip Track</li> <li>└ Stop Background Music</li> </ul>	<ul style="list-style-type: none"> <li>└ Quickly twist the saber</li> </ul>
Enter Saber Editor	Hold the button while twisting the saber before the saber is ignited. Point the saber downwards while doing this.
<ul style="list-style-type: none"> <li>└ Select Editor Mode</li> <li>└ Color Profile</li> <li>    └ Select Color Profile</li> <li>    └ Edit Color</li> <li>    └ Go To Next Saber State</li> </ul>	<ul style="list-style-type: none"> <li>└ Tap the button</li> <li>└ Slowly twist the saber</li> <li>└ Slowly twist the saber</li> <li>└ Tap the button</li> </ul>

L Revert Colors To Default	L Perform a stab
L Save Color Profile	L Hold the button
L Confirm Selection	L Tap the button
L Save and Leave Editor Mode	L Hold the button
L Pixel Number	
L Edit Pixel Number	L Slowly twist the saber
L Save and Leave Editor Mode	L Hold the button
L Ignition Speed	
L Select Sound Font	L Slowly twist the saber
L Edit Ignition Speed	L Slowly twist the saber
L Save Ignition Speed	L Hold the button
L Confirm Selection	L Tap the button
L Save and Leave Editor Mode	L Hold the button
L Retraction Speed	
L Select Sound Font	L Slowly twist the saber
L Edit Retraction Speed	L Slowly twist the saber
L Save Retraction Speed	L Hold the button
L Confirm Selection	L Tap the button
L Save and Leave Editor Mode	L Hold the button
L Battle Configuration	
L Blaster Block Mode	
L Button and Swinging	L Slowly twist the saber clockwise
L Button	L Slowly twist the saber counterclockwise
L Force Push Mode	
L Button and Swinging	L Slowly twist the saber clockwise
L Button	L Slowly twist the saber counterclockwise
L Lockup Mode	
L Button and Clashing	L Slowly twist the saber clockwise
L Button	L Slowly twist the saber counterclockwise
L Save and Leave Editor Mode	L Hold the power button
L Gesture Controls	
L Stab Ignition	
L Turn stab ignition on	L Slowly twist the saber clockwise
L Turn stab ignition off	L Slowly twist the saber counterclockwise
L Twist Ignition	
L Turn twist ignition on	L Slowly twist the saber clockwise
L Turn twist ignition off	L Slowly twist the saber counterclockwise
L Swing Ignition	
L Turn swing ignition on	L Slowly twist the saber clockwise
L Turn swing ignition off	L Slowly twist the saber counterclockwise
L Twist Retraction	
L Turn twist retraction on	L Slowly twist the saber clockwise
L Turn twist retraction off	L Slowly twist the saber counterclockwise
L Go To Next Gesture Control	L Tap the power button
L Save and Leave Editor Mode	L Hold the power button
L Effect Font Slot	
L Select effect font slot	L Slowly twist the saber
L Save and Leave Editor Mode	L Hold the button
L Save And Leave Saber Editor	
L Confirm Selection	L Hold the button
Wake Up From Deep Sleep	Tap the button
Reset	Hold the button for 10 s



**\* When changing the On Top Effect, Background Effect or Sound Font, you can go to the next one by pointing your saber upwards during selection or to the previous one by pointing your saber downwards.**