





Asteria V2.X User Manual (v1.06>7)

NOTE:

Thank you for purchasing an Asteria powered saber. This guide is a work in progress and is compiled by users with input from the community and UW/WF/Pach Store. (Sources/references at the end.) **Please share** with any Asteria users and always **check back for updates**!

NEWS (07/28):

Firmware V1.07is released! Follow upgrade instructions below and see the <u>v1.07</u> <u>Update</u> section. This manual is currently being updated to reflect changes, please stay tuned.

WARNING:

The product is a prop for adults and not a toy. Children using it must always be in supervision of an adult. Staring directly at the LEDs will cause harm and possible visual impairment. Please exercise due caution in usage. Given the complexity of the hilt, users should not attempt to disassemble it. Fuse and shorted out boards are not covered under warranty if the damage was purposely caused by the user.

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The Basics

Before Use:

- 1. Please insert the blade until it can no longer go further into the hilt. Ensure that the retention screw is tightened, securing the blade. A loose connection can cause flickers/incorrect colors or even no light at all on the blade. Do not insert or remove the blade when the power is on.
- 2. Please **do not conduct any configurations and installations while the power is on** as it may short out the pogo pins.
- 3. Please do not remove the protective film on the chassis as it may lead to a short circuit.
- 4. Please **insert or remove the inner chassis carefully** and ensure alignment with the connection pins. Do not push down on the speaker.
- **5.** Please **exercise restraint when dueling with a neopixel blade** as the warranty does not cover any damage of a neopixel blade during dueling and covers workmanship only.

Operation:

- 1. **Standby mode**: press and hold the main button to boot the saber. From here, you can ignite the saber.
- 2. **Mute mode**: when in standby mode, press the main button (**ignition**) twice to mute. Do the same again to unmute.
- 3. **Power on**: Press the main button to ignite the saber.
- 4. **Background music mode** (**BGM**): In standby mode, press the aux switch twice to enter BGM mode. Do the same to exit BGM mode. (**BGM files are** <u>not </u>provided.)
- 5. **Bank switch**: To switch banks, in standby mode press and hold the aux switch to cycle through banks. The direction of the hilt (up or down) determines whether you go **up** or **down** the list of banks. The folder name "**BankX**" determines the order of the list.
- 6. Power off: Hold the main button to retract the blade.
- 7. **Shut down**: In standby mode, press and hold the main button to shut the saber off entirely.
- 8. **Smooth swing**: Swing the hilt when the saber is powered on. (smoothswing is always on.)
- **9.** Accent Swing: Swing the hilt at a very abrupt and sudden high speed and pull to a stop. Current firmware generates a Hybrid Accent effect using standard smoothswing files. (see <u>Effects Configuration</u> section.)
- 10. **Clash**: Clash the blade or the hilt when the saber is powered on.
- 11. **Blaster**: Press the aux switch when the saber is powered on to trigger blaster deflection.
- 12. **Drag**: With the blade facing down, tap the tip of the blade to the floor (trigger a clash) while simultaneously pressing the aux switch to trigger a dragging effect.

- 13. **Lockup**: Simultaneously clash and hold the aux switch to trigger lockup. Press the aux switch again to quit.
- 14. **Stab**: Perform a stabbing motion quickly to trigger a stab effect.
- 15. **Color switch**: To change the color of the blade, press the main button and the aux switch. The direction of the hilt (up or down) determines whether you go **up** or **down** the list of color profiles.

Power Management:

- 1. **Energy saving mode**: When the saber is in standby mode and hasn't been in use for a long time, it'll leave standby mode and shut down automatically. When the battery voltage is low or reaches the warning line, the saber will play an audio file saying "**Low Power**" or "**Recharge**" at boot. (low voltage may cause low sound quality and noise.)
 - a. Low power: The saber can still be used for a while.
 - b. **Recharge**: Battery protection mode is on. The saber cannot be powered on until the battery is recharged. (power usage is dependent on color and brightness. White consumes the **most** power.

*Please note that due to the nature of Li-On batteries, it is recommended that they be removed when not in use. Li-On batteries will need to be replaced once they are worn out or if the voltage falls below the recommended value.

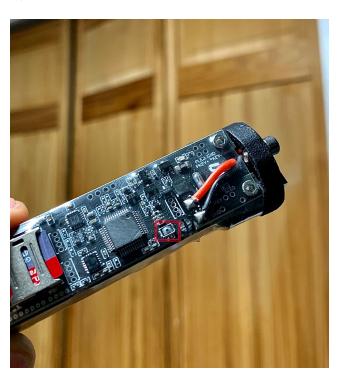
- 2. **How to charge**: use the provided USB cable or any DC charger on <u>5V/1A</u> to charge. (Please make sure the charger is a 5V 1A.). When charging, a small light on the chassis will turn on. When charging is complete, the light will turn off.
- 3. Another way you can charge the saber is by <u>charging the battery</u> with a separate (not included) battery charger. Open the hilt and take out the lithium battery and charge the battery with an **18650 lithium battery charger** directly.
- 4. Charge for a maximum of **5 hours**. It is recommended NOT to charge OVERNIGHT.
- 5. Charge every **fortnight** to prevent complete discharge of batteries.

*Please do not touch the charging board during charging or it may cause damage to the board and to yourself. Use a **NCR18650BD** recommended battery and ensure the battery is inserted correctly. The positive side is upward (towards the connector) and the negative side is downward (towards the speaker). A warning light will turn on if the battery is inserted in reverse.

Connecting the Board:

- Connect the **USB** that came with your saber (or similar) to the charging port on the chassis. The charging port also acts as a data port.
- To install the drivers for the board, look for a very tiny black button <u>near the red and black cables</u> on the chassis (IMG.1). **Hold** it down for a few seconds and it should automatically begin installing the drivers for the board.
- When it's done, unplug the board, then re-insert the cable, and press (only press for a short time) the black button again. You should see a green light and hear a **beep**, after which the computer should read the board.

IMG.1:



Updating the Board:

*remove the SD card and the battery before starting.

- If you have just received a saber from UW/Pach Store, it should already be the latest firmware. (v1.07 July 28, 2020)
- To update the board, open the "UW_Updater_En.rar" (found in the root folder or download here) and extract the files.
 - Find and run "UW_Updater_En.exe".
- Connect the board to a computer running the updater and hold the tiny black button near the red and black cables. (See IMG.1)
- <u>Keep it held down</u>, the updater will pick up the board automatically. You'll see the **chassis ID** under **Device Information**.
 - Copy the chassis ID.
- Send an email to "uwsaber@163.com" with the subject line "Update+" followed by your chassis ID. Example: Update+00000001234567890QWERTY
- You'll receive an email in about a day with an attachment. The attachment should have the file extension .uwb.
- Run the updater again, holding the tiny black button to have the updater pick up the board
- When your board is ready, select open and find the .uwb update file from the email, confirm then select "**Upgrade**".

Once successfully updated, it will disconnect itself. You can then put the battery and SD card back on the board and use it as normal.

V1.07 Update:

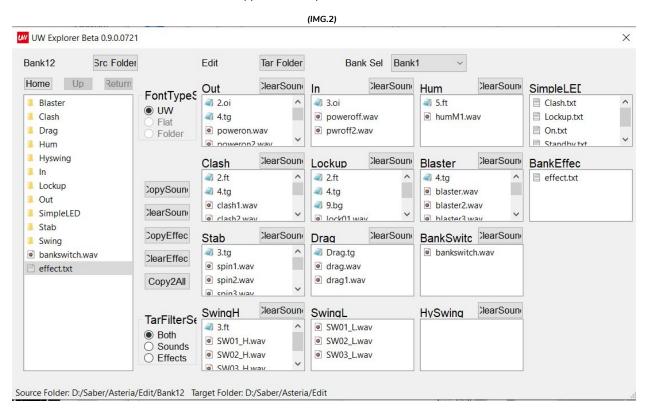
- Hybrid Accent Swings: Create a folder called Hyswing and drop files named "swng1", "swng2", "swng3", etc.
- Bank switch auto ignition, swing ignition. (See Other Settings > Effects section.)
- Surreal Swing Effects.
- Additional Sampling Rate support 8000hz, 11025hz, 16000hz, 22050hz, 24000hz, 32000hz, 44100hz, 48000hz.
- Added new Effects. (9.bg, 6.FT, 2.TG)
- Enhanced vibration filter on the board.
- <u>UW Explorer Beta</u> software released (See <u>UW Explorer</u> section below.) for easy file management.
- 1) Update board. (See section above: <u>Updating the Board.</u>)
- 2) Download and replace new <u>Effects file</u> over each bank. (IMPORTANT)
- 3) Create **Hyswing** Folder and input new Hybrid Accent swing files, rename accordingly.
- 4) Download new Blade Effect files to customize blade style.

Manually Configuring Files:

- *Use a Windows PC to edit. MacOS has issues at the moment (Resolved after V1.07, available July 2020).
- Make a backup of the stock SD card, then another where you're going to make edits.
 Do not edit on the SD card as that can cause fragmentation.
- Open editable files such as .txt, .bg, .ft, .oi, .tg, etc. in a text editor like Notepad or Text Edit.
- Soundfonts, blade effects, and corresponding effects are in bank folders. ("BankX" defines the order.)
- System sounds, background music, color profiles and more are located from the root directory.

UW Explorer:

- Ultimate Works/Pach Store has created a program that makes managing your saber files easier! Download the .exe here: Link
- BACK UP your files before making edits as always.
- Select a bank folder on the top left <u>Src Folder</u> to use built in copy functions from bank, (or select soundfonts folders to manually drag and drop files)
- Select your root folder of your saber (i.e. Asteria > Edit or SD Card) on the right hand side **Tar Folder.**
- You can select each bank on the top right dropdown.
- Manually renaming (right click) and dragging files works.
- CopySoundfonts: mass copies and pastes all soundfonts from your Src bank (left side) into Tar bank. (right side.)
- ClearSoundfonts: mass deletes all soundfonts from your selected Tar bank.
- CopyEffects: mass copies and pastes all effects files from Src bank into Tar bank. (at the moment uncertain about effects.txt, manually drag just to be sure.)
- ClearEffects: mass deletes all effects files from Tar bank.
- TarFilter: view files of both types or only Sounds or Effects.



Sound Fonts

- V1.07: Please copy and use the new <u>Effects.txt</u> to ensure your sounds work smoothly.
- You can use **CFX** optimized fonts with the Asteria V2.5 soundboard.
- All fonts have to be .wav, 8000hz, 11025hz, 16000hz, 22050hz, 24000hz, 32000hz, 44100hz, 48000hz sample rates are supported, 16bit, and in mono. (Audacity is a free audio program where you can do this: set the project sample rate at the bottom left of the window before exporting as 16bit wav.)
- You can add in your own sound fonts in the other folders in any bank. Most of the time, renaming is required except as follows
- Bank switch/boot sounds "bankswitch.wav"
- "Swing" folder sounds must be named "SW01_H" and "SW01_L" for each smooth swing pair that you have. Name them in <u>ascending</u> order.
- V1.07 Hybrid Accent Swings: Create a folder named **Hyswing** and drop files named "swng1", "swng2", "swng3" etc. (Some soundfont packages have short audio named swing, spin or slash etc, check to see if it sounds like an appropriate swing sound and use these as accents)
- You can also change the audio files in the **System** folder for boot, power off, color switch, etc. <u>Use the right file name here</u>.
- To add background music (**BGM**), simply drag your licensed music files into the "**Bgm**" folder in the root. You can trigger Bgm tracks by activating the AUX switch twice before activating the saber (standby mode). Do the same to deactivate Bgm.
- For volume settings, refer to the <u>Effects Configuration</u> section below.
- Pro tip: If you have sound fonts that have special sounds like force or voices, and you
 wish to use them, consider placing them in the stab folder or blaster folder to trigger
 these. (Make sure the audio is in the right format/specs.)

Blade Configuration

Scrolling Speed:

- Each bank has an In (retract) and Out (ignition) folder with an ".oi" file. Open it in a text editor (like NotePad) and find the field "NP_OITime=200 /Time" to change the scrolling speed of either the In or Out.
- 200 is the default time. (you may have another value, like 150.)
- The smaller the value, the faster the scrolling speed.
- Keep in mind that the value is measured in milliseconds.
- The minimum value is 0 and the maximum is 60,000.

Color Profiles:

- The board comes preinstalled with 12 color profiles, but you can add a maximum of 99 profiles.
- Colors are stored in a text file in the root folder on the SD card labeled "ColorMatrix.txt".
- Profiles are denoted with "//CFG" followed by a number. Under that are 3 sets of numbers. The first set is the Main Color (MC), the second is the Secondary Color (SC), and the third is the Flash/Clash Color (FC). (see Fig.1)

Fig.1:

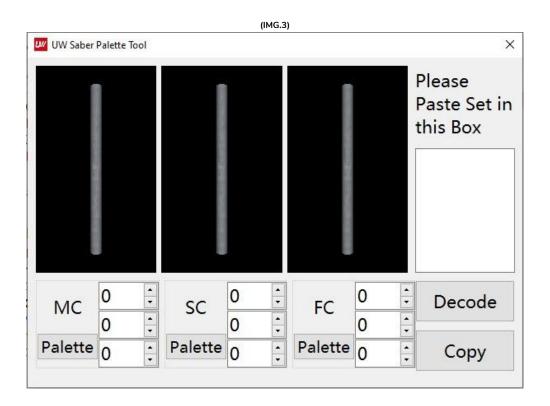
//CFG1	Color Profile
0,0,255	Main Color
0,0,255	Secondary Color
255,255,255	Flash/Clash Color

- Colors use a **RGB** value. Ex: 0.0.255 is Blue.
- Using an online RGB source (https://www.rapidtables.com/web/color/RGB_Color.html or similar), you can find the colors you want and add them to the ColorMatrix.
- You can also use <u>UW's Saber Palette Tool</u> (see IMG.3) to view colors before inputting the values.
 - (https://mega.nz/file/qslXVSxl#lwAoEOywcql_xwSqquoiTNFziiL6hBz1u-I2d8OvVQM)
- The <u>minimum value is 0</u> and the <u>maximum value is 255</u>. Be careful not to use any value that is over 255. <u>Stick with values under 255 as using values closer to 255 will look</u> washed out.
- To add a profile, use "//CFG" and add a number to "//CFG" in <u>ascending</u> order, depending on how you're setting up your profile. (see Fig.2)

Fig.2:

WOTO 4	
//CFG 1	
255,255,255	
255,255,255	
0,255,255	
//CFG 2	
255,0,255	
255,0,255	
255,255,0	

- To delete a profile, delete "//CFG" followed by the number of the profile you want to delete, and the RGB values under it.
- Feel free to borrow User submitted color matrices in our <u>User Configurations & Resources</u> section.



Blade Styles:

- The files for blade styles can be found in a zipped file in the root folder of the SD card labeled "UW2.0 Blade effects.zip".(may appear slightly different or with a version number.)
- In the zip you'll find all the default files for blade effects in separate folders labeled BG,
 FT, TG and OI. You can drag these files into the respective folders of the bank you want to edit.
 - So if you want a flickering effect while the blade is humming, you'd drag "2.ft" from the FT folder into the Hum folder.
 - A table in the following page has an explanation of the effects.
- Each style has editable parameters you can access with a text editor to further tune the style.
- You can combine as many styles as you'd like to create complex styles.

BG Modes	Background. Basic blade styles.
1 Static	Shows the MC only.
2 Gradient	The bottom of the blade shows the MC and the top the SC, with a gradient between the two colors. Adjust length, speed & direction.
3 Dual Color	Shifts, or "blinks" between MC and SC. Adjust time for MC & SC.
4 Pulse	Pulses between MC and SC. Adjust time for MC & SC and the time from MC to SC, SC to MC.
5 RGB Gradient	Shows a gradient of all colors. Adjust time/cycle. (*ignores the ColorMatrix)
6 Spark	Shows the MC, with a single "spark point" as the SC. Adjust the spark time & density.
7 Rainbow	Shows a scrolling rainbow. Adjust length, direction & speed. (*ignores the ColorMatrix)
8 Chaos	"Unstable" blade effect. Adjust rate, frequency & multiplier.
9 Flame	Scrolling flame effect where the MC and SC run up the blade. Adjust speed, cooldown, average length, range, average lightness, range and swing effect.

(continued)

FT Modes	Filter. Dynamic control over brightness.
1 Breath	The brightness of the blade will appear to "breathe". Adjust period of breath, min & max brightness.
2 Flicker	The brightness will "flicker". Adjust flicker, & density.
3 Wave	The brightness will pass up the blade in a "wave". Adjust length, speed, wave count, min & max brightness.
4 Fade	The brightness will "fade" from 0 to the maximum set value. Adjust fade direction & fade time.
5 Random Wave	The brightness will pass up the blade in random "wave" lengths. Adjust length, speed, cycle, wave count, min & max brightness.

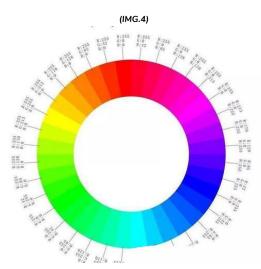
TG Modes	Trigger. Action effects on the background. (BG)
1 Flip	The MC will change to another one, depending on "NP_FlipColor"*. Adjust time, flip count & color drift**.
2 Part Flip	Part of the MC will change to another one, depending on "NP_FlipColor"*. Adjust time, flip count, length, color drift**, down & up range.
3 Comet	A "block" will run up the blade. Adjust range, speed, start point & color drift**.
4 Spread	A "segment" will spread on the blade. Adjust spread mode, length, speed, start point & color drift**.
Drag*	A modified 2.tg where the tip of the blade will appear to "drag". (*can be found in a Drag folder in any bank)

(continued)

Ol Modes	Blade Out/In Ignition & Retraction effects.
1 Fade	The quintessential scrolling effect we all recognize where the color and brightness fades in or out. Adjust time.
2 Pulse	Fragmented blocks increasing or decreasing in frequency to/from a full blade state (unstable effect). Adjust time, direction, block size/space/speed, and random factor.
3 Comet	A brighter "block" in front, like a comet that leads the scrolling of the blade. Adjust time, block size/rate and color mix (blend) amount.

NP_FlipColor	*NP_FlipColor is a parameter that can exist in some blade effect files offering five kinds of color exchanges.
1	MC to FC.
2	SC to FC.
3	Both MC and SC to FC.
4	MC to SC.
5	All colors "drift*". (usually used with BG, ignoring the ColorMatrix).

^{**}Color drift is more of a shift in color. On a color wheel ^(see IMG.4), your starting MC is the base color. Values are based on degrees. If your base color is red and you input a value of 90, your MC would shift in a clockwise manner between red and purple in a 90 degree angle. If you put 270, the MC will shift from red to light green. The minimum value is 0, the maximum value is 360.



Other Settings

Effects Configuration:

(*in progress, not finalized information.)

The "effect.txt" text file in each "BankX" folder changes parameters for each individual bank. Please download the new <u>Effects.txt</u> for v1.07 update

- Volume (Vol) (set from 0-10): it's recommended to keep the number below 10 to protect speakers from peaking due to inconsistent sound files.
- Clash time **(CD)** (0-10): sets cool down/frequency of clashes possible. The lower the value, the more often.
- Clash strength (CT) (0-10): strength necessary to trigger clashes. The lower the value, the more sensitive.
- Swing settings: Please refrain from changing values unless you know what you're doing.
- V1.07 Beginning of Level 1 Accent Swing (Accent1Active): 600 default. This is a
 threshold, presumably speed of a swing, the higher number is less sensitive (begins
 later with more effort)
- V1.07 Accent1Target: No need to change, unless you know what you're doing
- V1.07 Accent1Atte: No need to change, unless you know what you're doing
- V1.07 Peak level of Level 1 Accent Swing (Accent1Maximum): 900 default. Presumably the speed necessary to reach the max level of accent swing. The higher the number, the less sensitive (takes more speed/effort)
- V1.07 When Level 2 Accent Swing is active (Accent2Active): 1200 is default. Same idea, the higher the number, the less sensitive and more speed/effort
- V1.07 Accent2Target: No need to change, unless you know what you're doing
- V1.07 Accent2Atte: No need to change, unless you know what you're doing
- **StabThreshold**: speed of stab necessary to trigger stab effects. The lower the value, the easier it is to trigger at slower speeds. (more sensitive.)
- Lock up button (**Tlockuphold**): how long you need to hold the aux button to trigger lock up effect mode, the smaller the number the less you need to hold the button.
- Angle of drag (ADrag): Angle of blade compared to ceiling. (*? Presumably, a lower number, i.e. 90 degrees requires the blade to be straight down before triggering, needs further confirmation.)
- Ignition to hum delay (Out_Delay): Time interval between the ignition effect and hum.
- LBright: Please refrain from changing values unless you know what you're doing.
- V1.07 Hybrid Swing (ybirdSwingOn): 1 is default (enabled).
- V1.07 Hybrid Swing Threshold (MT): 500 is default. Speed before Hybrid Swing triggers.

- V1.07 Swing Ignition (SwingOutOn): 0 is off, 1 is on. This enables ignition (out) on swing
- V1.07 Swing Ignition Threshold (SwingOutThre): 500 is default value. Speed of swing to ignite saber. The lower the slower (more sensitive), the higher the more effort and speed needed.
- V1.07 Stab Ignition (**StabOutOn**): 0 (off) is default. Stab to ignite saber, presumably using the swing ignition threshold setting. (Test notes: doesn't seem to work yet, and both Swing/Stab Ignitions can't be enabled at the same time?)
- V1.07 Auto Ignite on bank switch (BankSwitchOut): 0 (off is default). After bankswitch.wav plays, the saber will automatically ignite. (no need to press power button.)

**Please refrain from changing these values unless you know what you're doing. Please always have a backup of the default files when you receive your saber.

Simple LED:

This folder contains text files for editing the <u>time</u> of clash, lockup, on, & standby while operating the saber without a blade. **Refrain from editing these files unless you know what you're doing.**

LED Configuration:

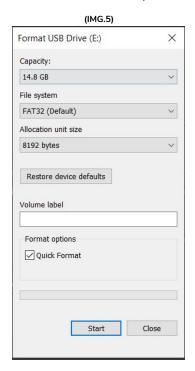
The "LEDCFG.txt" text file is for tuning the pixels in the blade based on color, the number of pixels activated and flow/pulsing effects. Refrain from changing the values unless you know what you're doing.

Settings:

The "Setting.txt" file contains settings for the holding time for entering standby mode, holding time for shutting down, holding time for blade out, holding time for blade retraction, time of color switching, holding time for bank switching, auto power off time, auto shut down time in standby mode & the time for the interval of mute and BGM mode. (Holding meaning the amount of time it takes to hold or have a button held down.)

Troubleshooting

- **V1.07 Choppy sounds**: After updating, are your sounds sounding choppy and out of sync? Have you copied the new <u>Effects.txt</u> from the update?
- <u>Clash sensitivity</u>: reducing or increasing the clash sensitivity should help if your saber isn't registering clashes or if it's clashing too frequently.
 - In each bank folder, open the "effect.txt" to access CD (cool down/frequency of clashes possible) and CT (strength necessary to trigger clashes), with a value between 0-10. The lower the value, the more sensitive.
- <u>Crashes</u>: If your saber is crashing often, it could be fragmented, in which case formatting should help the situation. Be sure to back up your files before doing so.
 - <u>PC</u>: Navigate to the SD card and right click on it. Choose format, and in the pop-up choose the default capacity (depends on your SD cards capacity), FAT32 for the file system, and leave everything else on default (see IMG.5). After the process is finished, your SD card should be ready to receive any backup you made.



- MacOS: to be added once support comes back in v1.07.
- <u>Slow/Chipmunk-like Sounds</u>: Your audio files are probably in the wrong sample rate and will need to be changed with an audio program. The steps for doing so can be found in the <u>Sound Fonts</u> section of this guide.

Sources (Where the info came from):

https://www.reddit.com/r/lightsabers/comments/q7k0x7/is_anyone_savvy_with_programming_ the_uwpach_store/

https://www.reddit.com/r/lightsabers/comments/e4q2pe/asteria_20_soundboard_help/

https://www.reddit.com/r/lightsabers/comments/ejbety/asteria_20_how_do_i_increase_the_spe ed_at_which/

https://www.reddit.com/r/lightsabers/comments/eja9nh/asteria_20_how_do_i_assign_a_blade_ color_to_each/

https://youtu.be/TIJfYER60T0

https://www.youtube.com/watch?v=CzPV528ume0

https://www.thepachstore.com/pages/custom-saber-user-manual

https://reddit.com/r/lightsabers/comments/hpi0dz/i_have_noticed_a_lot_of_new_bors_dragonsl ayer/

Shortened link: https://tinyurl.com/y768uj5l

Experience from Asteria users: u/OpusBlues, u/ultrasquish

A sheet that came with a Graflex and Bors from the Pach Store

And from Aaron himself.





User Configurations & Resources

Color Profiles

- u/ultrasquish
 - (18 Profiles) Many shades and mixes of the perfect orange, gold/yellows, greens, blues, purples to red through the spectrum for you to use for Main Colors! Please take a look and adjust Secondary Colors for yourself as necessary for your blade effects.
 - o <u>L</u>ink
- u/toptrash69
 - (18 Profiles)
 - o <u>Link</u>

Blade Effects

- u/toptrash69
 - o 16 customized blade effects, color profiles and sounds
 - o Link
- Andy Yu
 - 18 customized blade effects, color profiles and effects settings to go with, with video demos
 - o Note: Feb 2020, may need updates for newer firmware
 - o <u>Link</u>

Sound Fonts (Free & Non Commercial)

- Kyberphonic
 - o Free Kyber's Workshop (6 Soundfonts) Blue, Green, White, Yellow, Purple, Red.
 - o Link
- u/toptrash69
 - (7 Soundfonts + BGM) Mace Windu, Luke Skywalker Obi Wan, Kylo Ren, Darth Sidious, Nyan Cat, Nightfall.
 - o <u>Link</u>
- CosmicApe
 - o Free Dragonball Soundfont.
 - o Link
- u/bonytony21
 - Many character quotes, sound fonts, and audio rips such as Star Wars characters, Harry Potter, LOTR, The Witcher, etc.

- Please convert to appropriate sound format before using. (Refer to <u>Soundfonts</u> section.)
- o <u>Link</u>