

# MACRO PAD

## Build Guide



**BASILISK**  
By: Apex Invent

# Whats in the box?



9x M3 cap screws



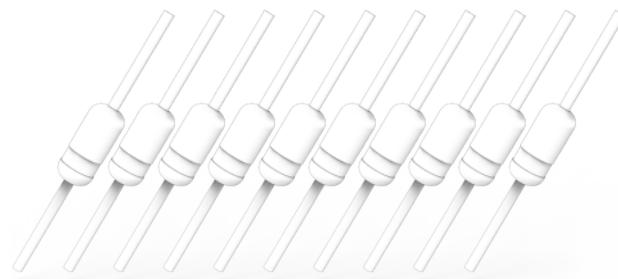
9x M3 heat inserts



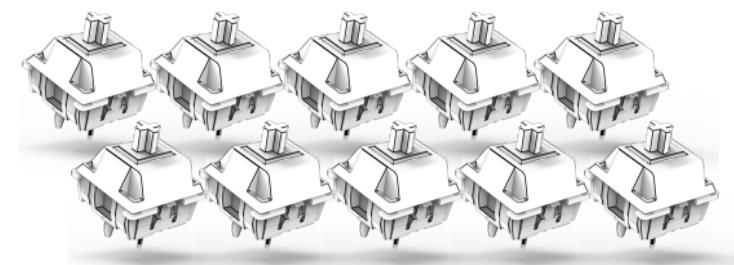
3x RGB LED strips



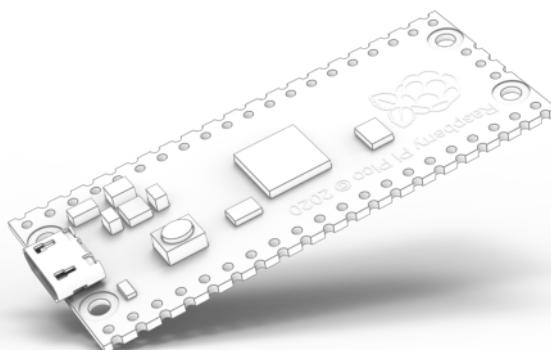
10x clear key caps



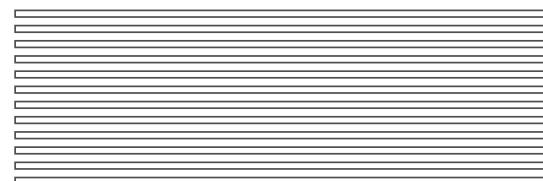
10x Diodes



10x MX style switches (Blue or Brown)



1x Pi Pico with Type C connector



26AWG wires for connections  
30AWG wires for LEDs

## What you will need:

Soldering Iron  
Solder  
Solder flux (Optional)  
Ceramic Tweezers (Optional)

USB Type C cable  
3D Printer (For the enclosure)  
Time



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# Print your enclosure and get your parts ready!

## Recommended print settings:

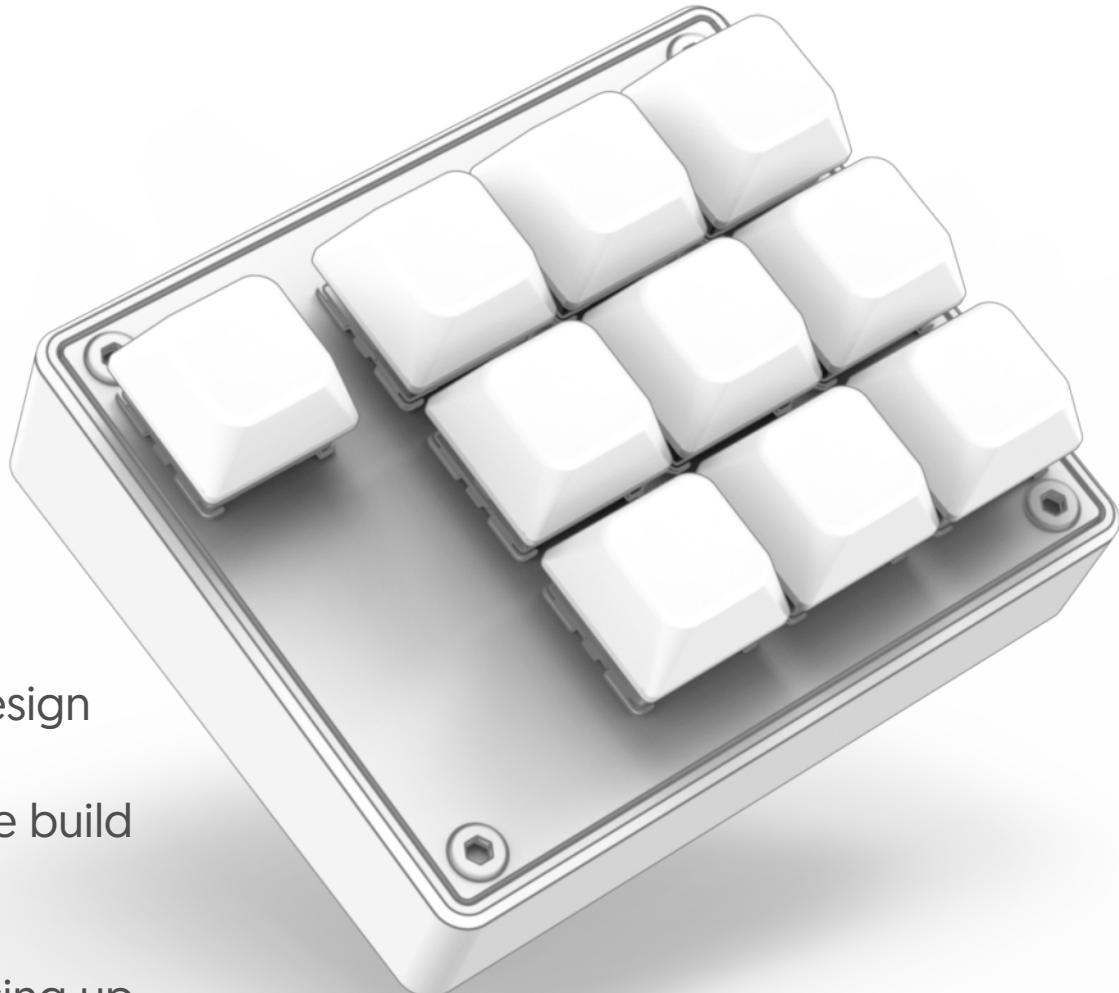
0.4mm Nozzle  
0.24mm Layer Height  
4 walls (you can do more)  
4 top and bottom layers (you can do more)  
25% Gyroid or honeycomb infill

There are 3 print files, and none of them need any supports, print the Face Plate face down, There are provisions for the screw holes in the design

The Main body prints with the basilisk logo on the build Plate.

The Pico Clamp prints face down with the pin facing up.

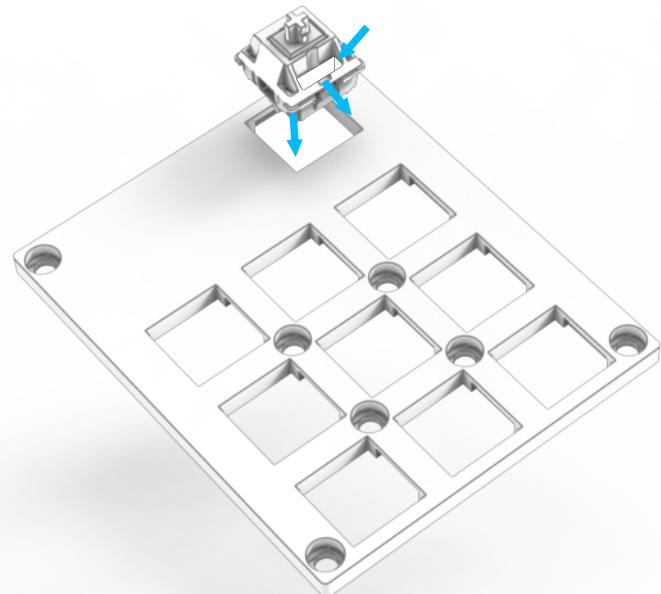
Feel free to use whatever material you like at whatever print speed works best for your machine.



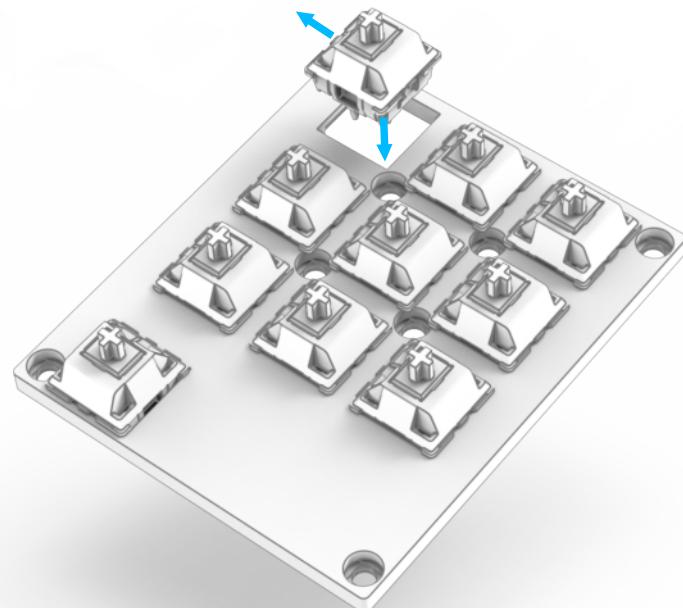
# Inserting Keys.

Its time to start inserting the switches in the face plate.

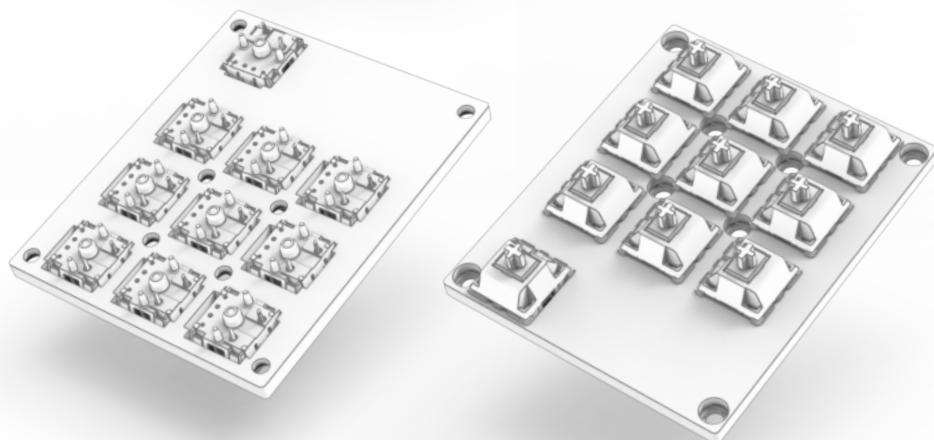
Your function button will be aligned with the switch LED hole facing the right hand side.  
Align your switch and snap it into place, it should be a tight fit.



For the remaining 9 switches, all the LED holes should be facing the top of the face plate



Your switches should now resemble the below images with the 1 button facing the right and the rest all facing up.

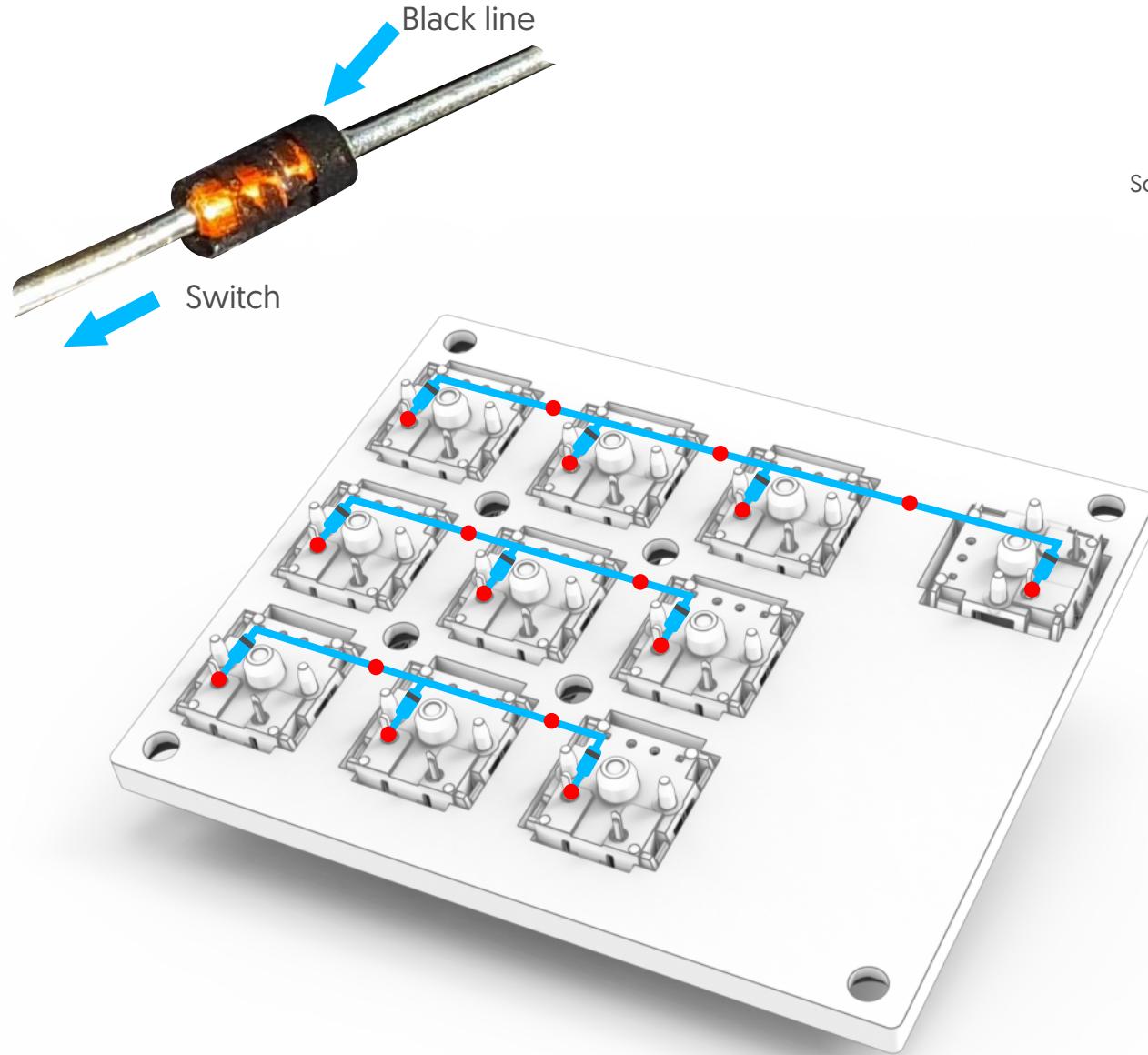


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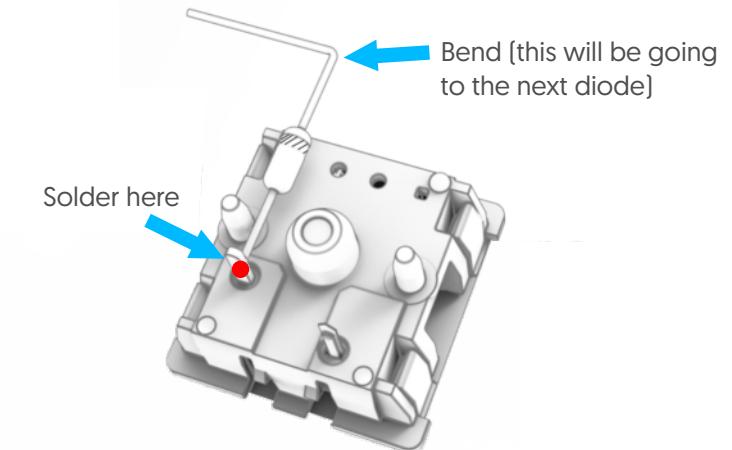
# Soldering the Diodes.

Its time to start soldering the diodes on the switches.

Correct Diode direction, you will notice that each diode has a black line printed on it, this line should be facing away from the switch.



You want to solder the diode to the left leg on the switch and give it a 90 degree bend at the top.



Now solder up all of the diodes like the image to the left illustrates, be sure to pay attention to the direction of the diode and ensure the black line is pointing away from the switch

- DIODE
- DIODE LEAD/LEG
- SOLDER POINT

**TIP:**

**Do not cut your leads until you are done soldering to ensure you can rectify any mistakes.**



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# Soldering the wires.

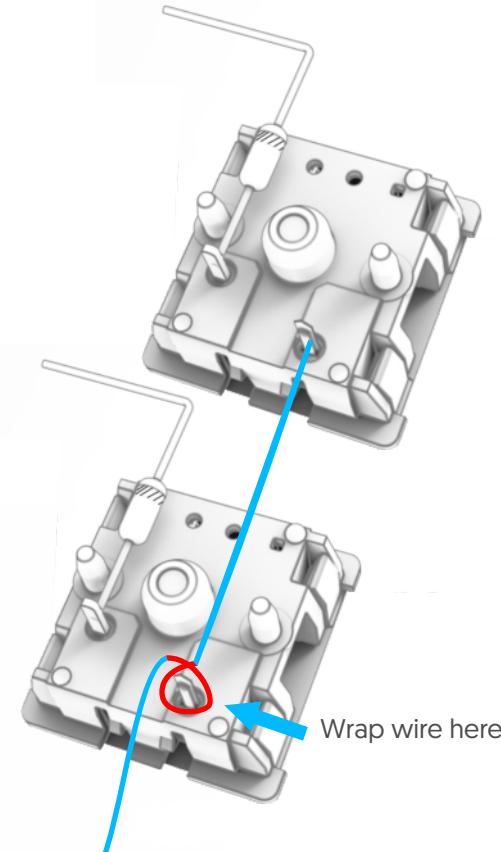
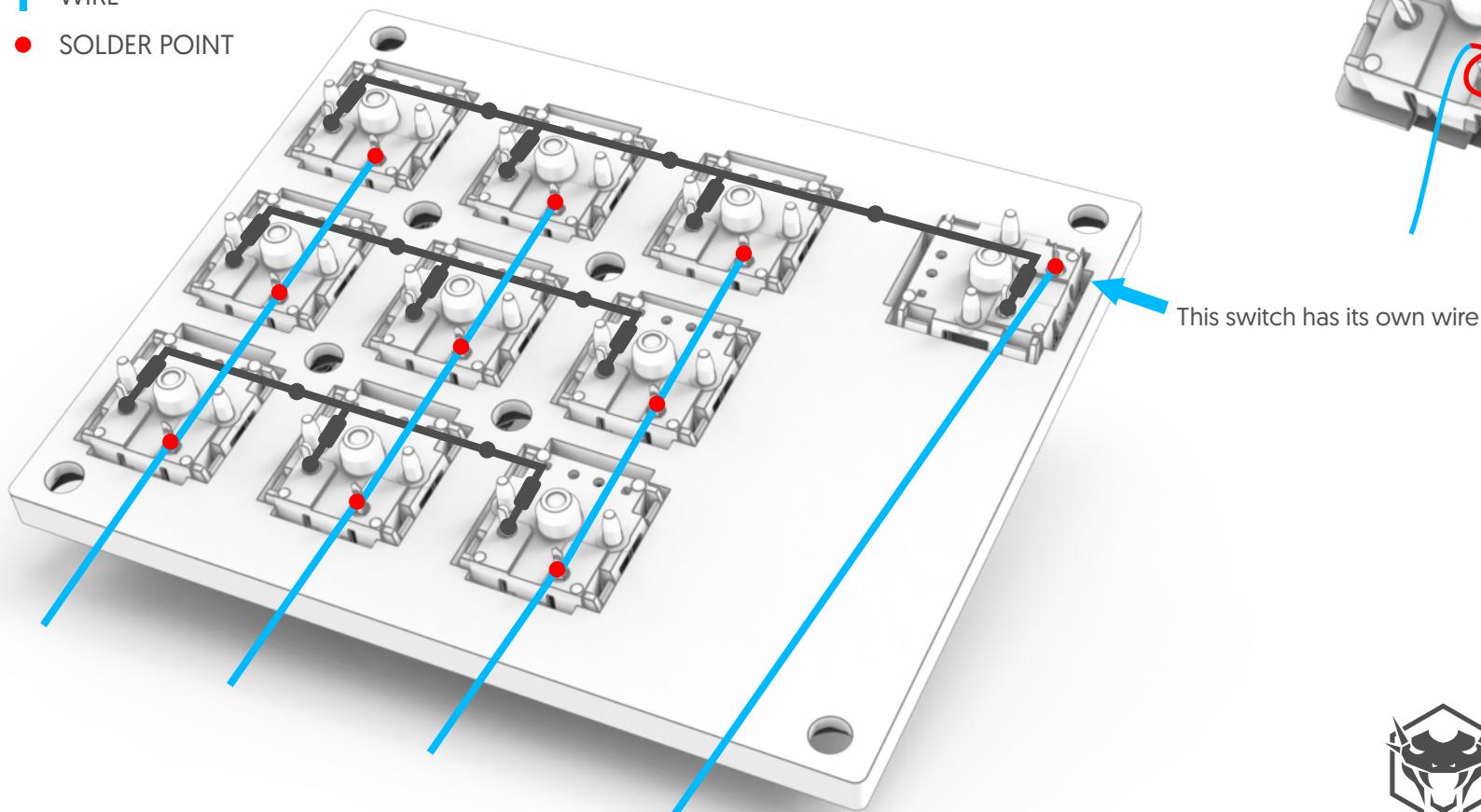
Connecting the columns.

Solder the wire to the first switch, then pull it tight toward the second switch, use your finger nail to peel back approx 5mm of the silicone around the wire at the second switch, now make one turn around the leg of the switch and move on to the third while following the same technique.

After your column is wrapped solder the wrapped wires, leave about 120mm of wire after each last switch, these will be connected to the Pico.

Make sure to leave the last wire on the Function switch the same length as the others.

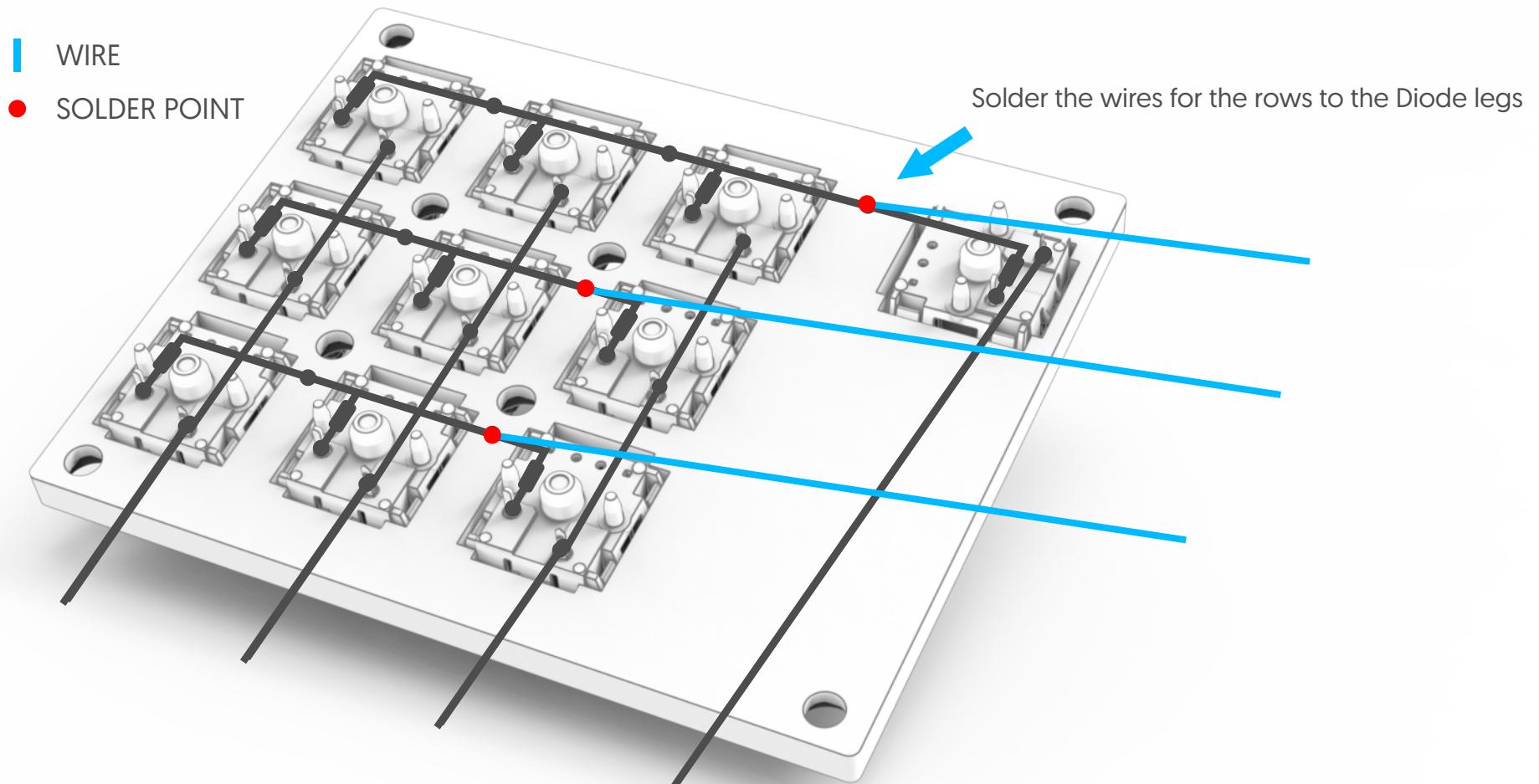
- WIRE
- SOLDER POINT



# Soldering the wires AGAIN.

Connecting the wires for the rows.

Now you need to solder the wire to each row that will be connected to the Pico, try to keep it around 100mm long.



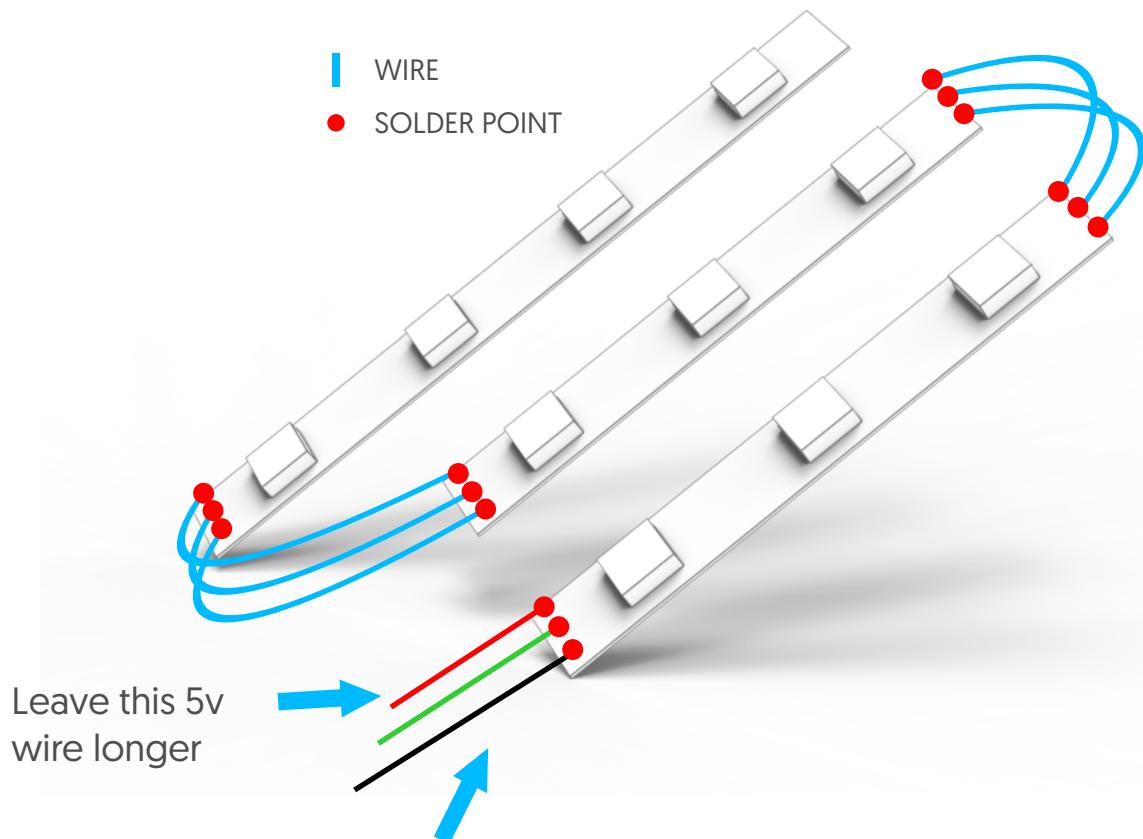
You should now be left with 7 wires that will be soldered to the Pico



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# Prepping the RGB LEDs.

Getting ready to light it up!



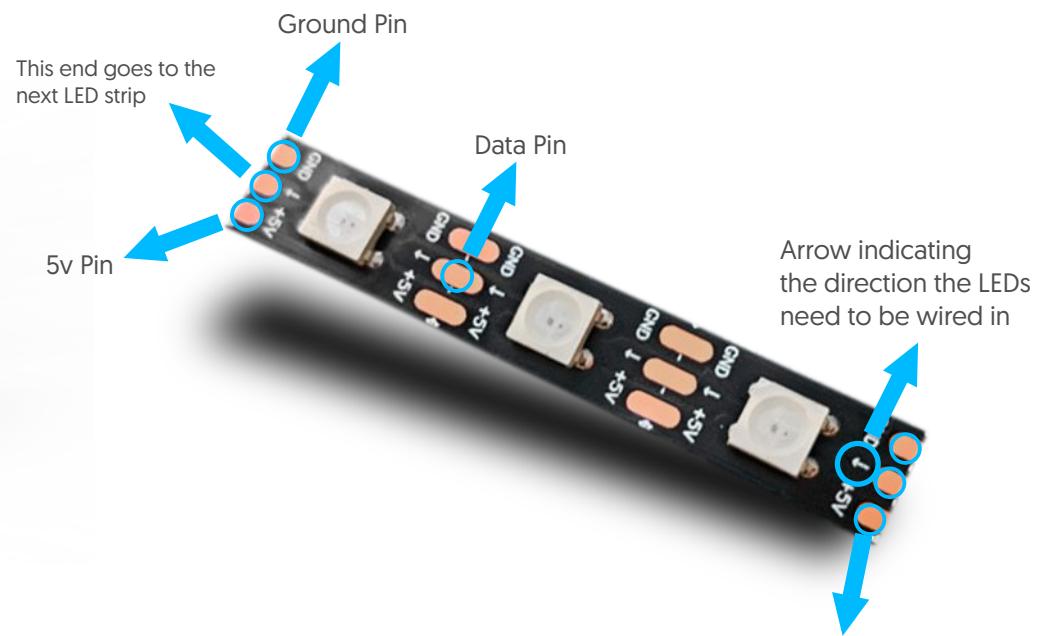
These wires are going to be soldered to the Pico (Please note, the wires supplied in the kit could be any colour or combination of colours so always double check connections!)

**NOTE:**

GND goes to GND on the next strip, Data to Data and 5v to 5v

You now need to solder together the 3 LED Strips. To do so connect them with 40mm pieces of wire soldered between the corresponding pins making sure to follow the direction of the arrow on the strip.

Leave the 5v line that goes to the pico at 60mm



This side, where the arrow is pointing away from will be the side that gets connected to the Pico. Think of it as the direction the signal goes to power the LEDs, from the Pico through the strips.

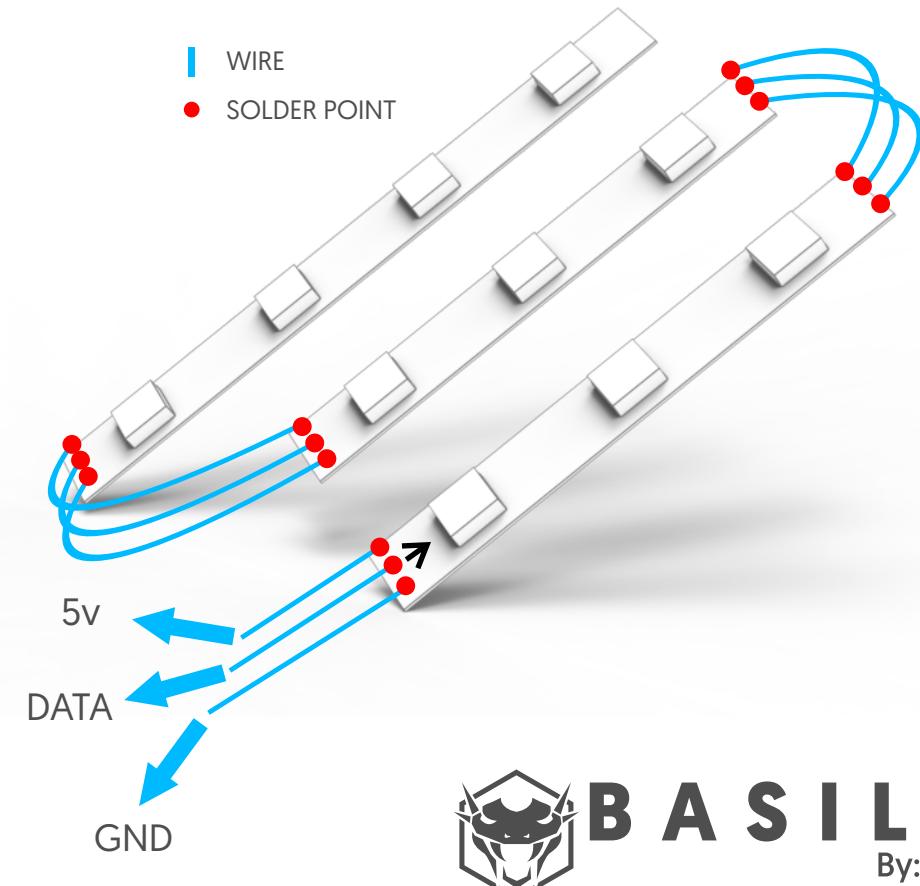
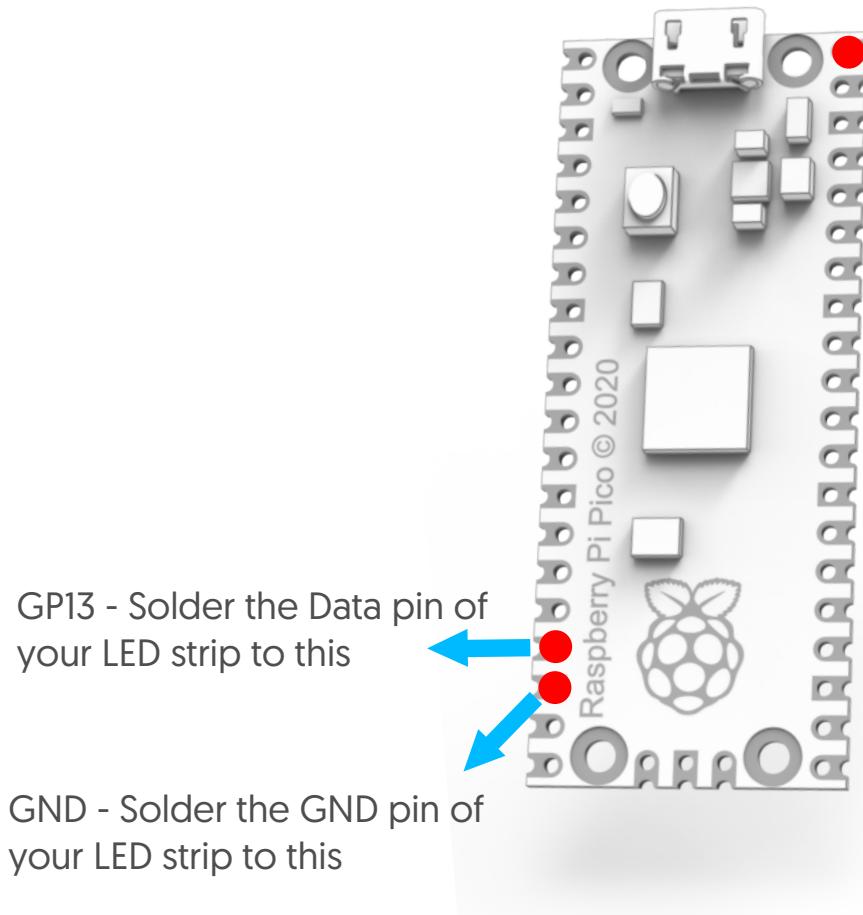


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# Soldering the LEDs to the Pico.

You are almost there! Just a few more solder points!

Here are the important pins we will be using



**NOTE:** Use your included reference card to make this step easier!



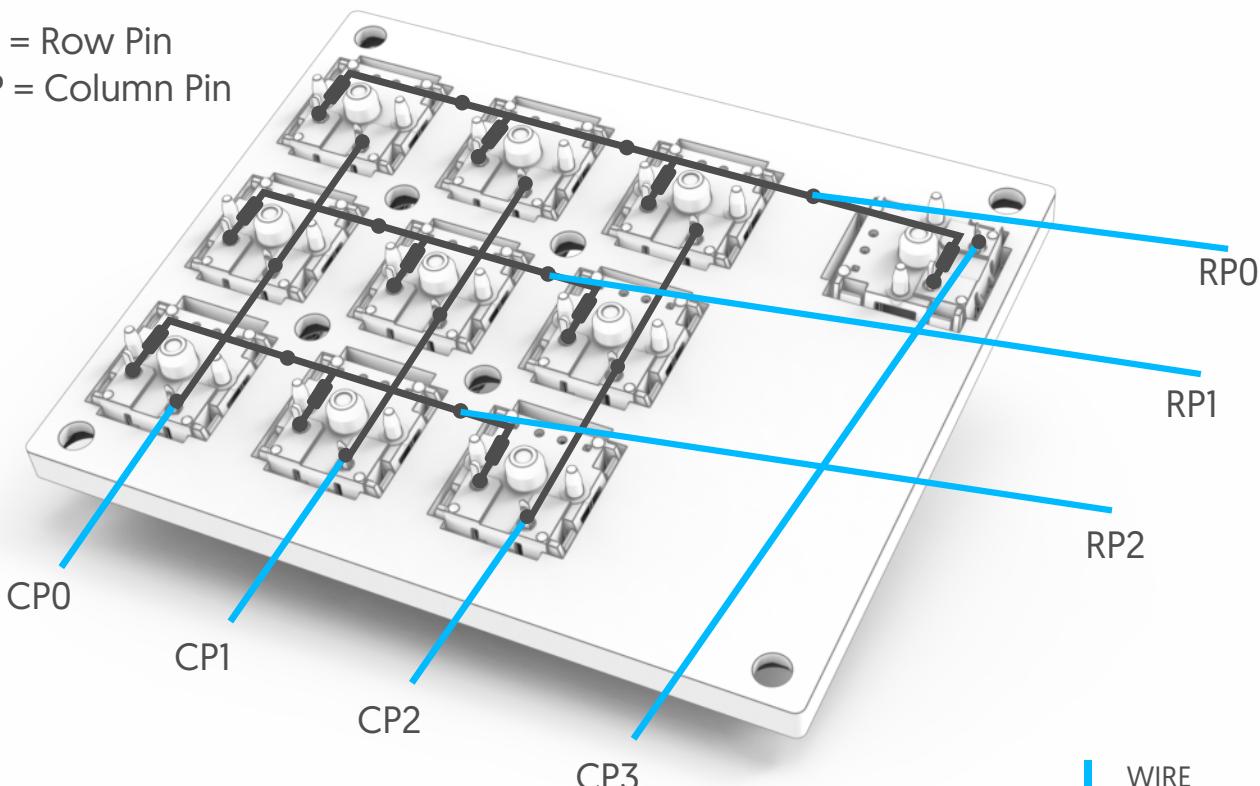
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# Soldering the switch matrix to the Pico.

This is the last soldering step!

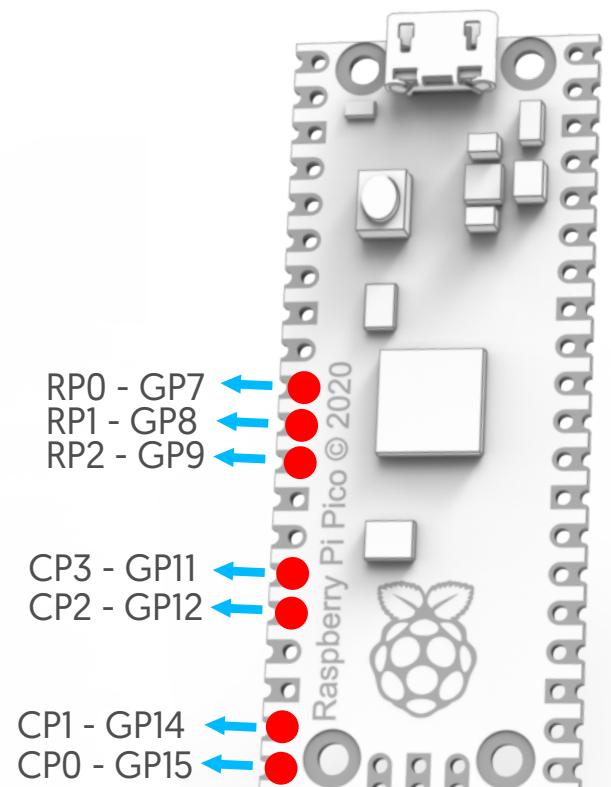
You now need to solder the switches to the Pico, below we have an illustration showing what wire goes to what pin RP meaning row pin and CP meaning column pin, refer to the Pico illustration to see what pins go where, RP and CP representing the corresponding switch pin and GP representing the GPIO pin on the Pico, this can also be seen printed on the back of the Pico.

RP = Row Pin  
CP = Column Pin



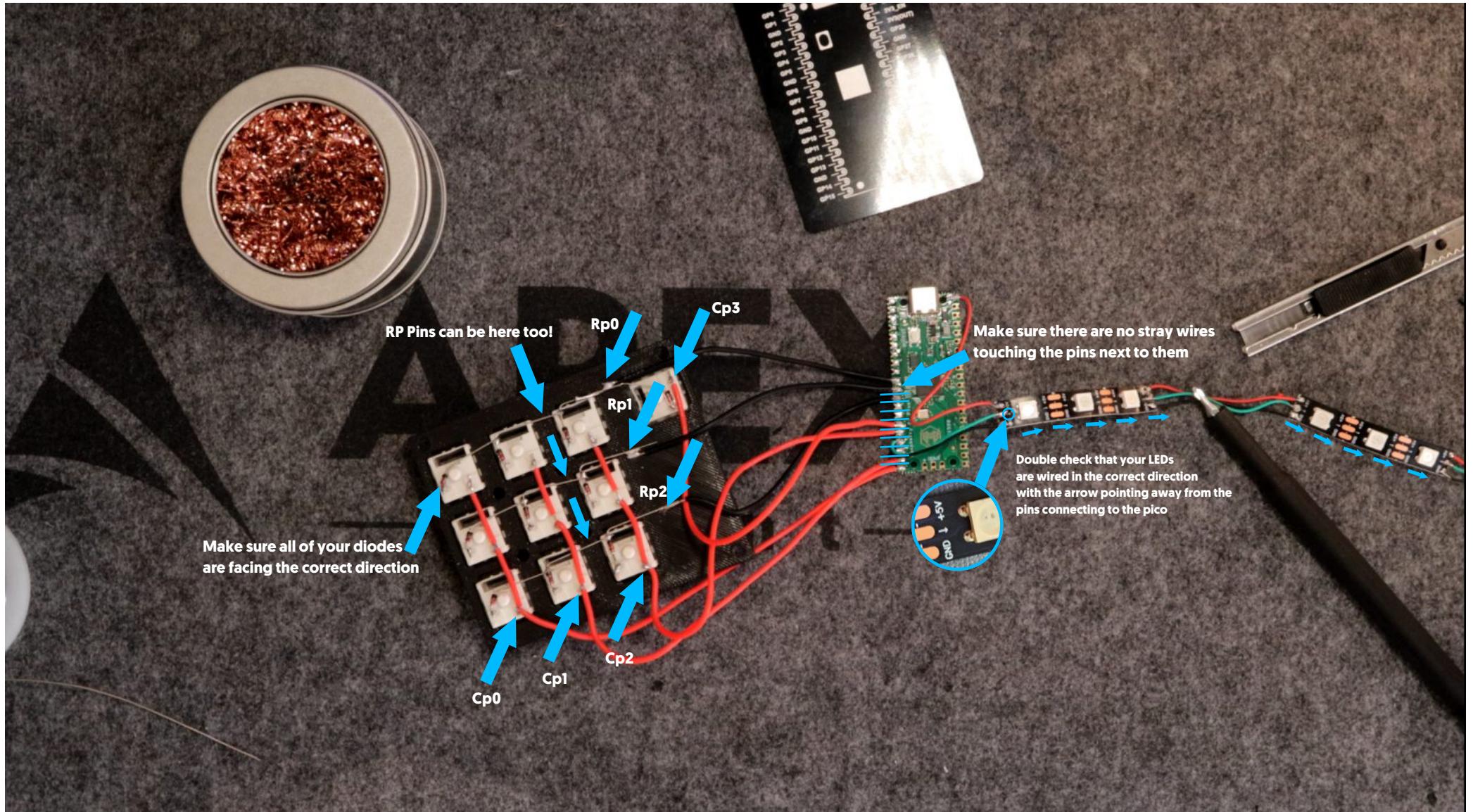
NOTE: Use your included reference card to make this step easier!

Here are the important pins we will be using



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# This is what you should be left with.



NOTE:

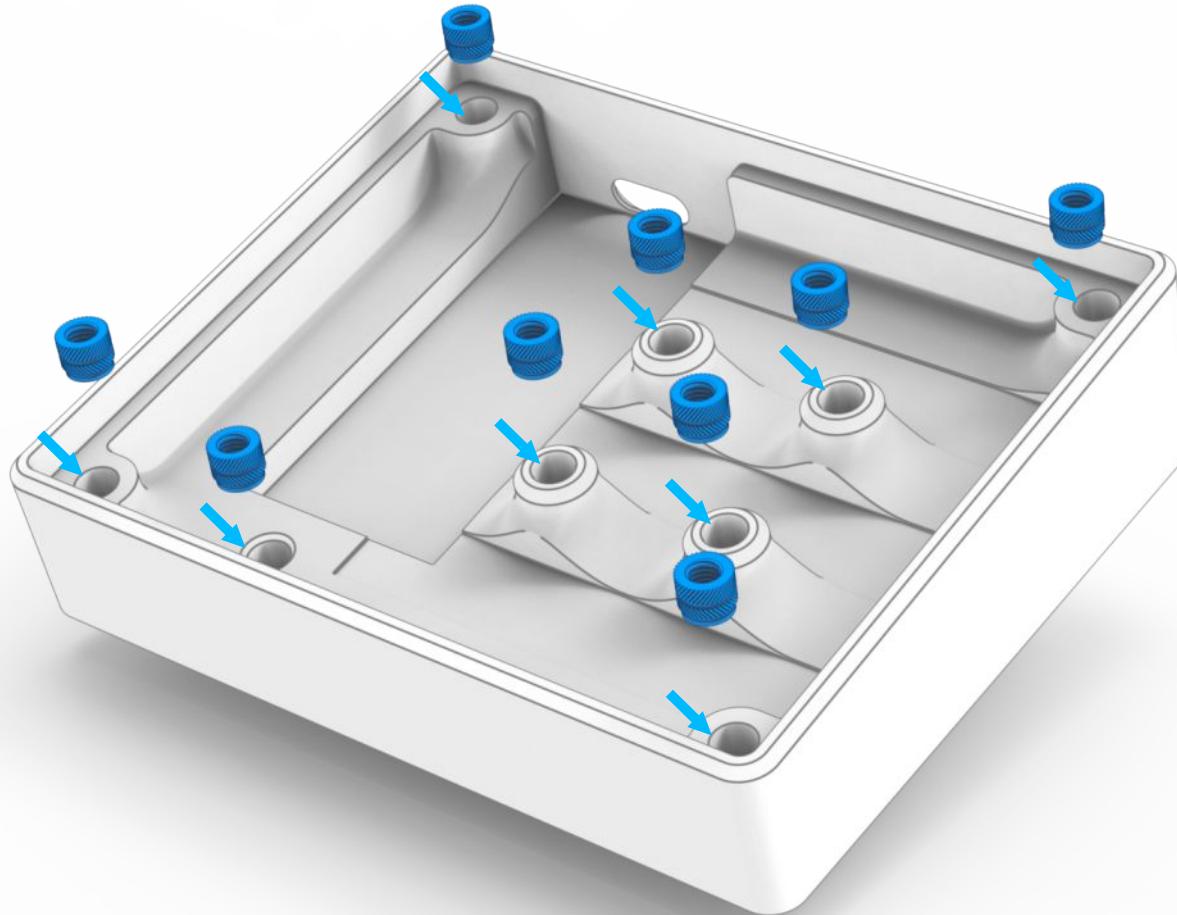
GND goes to GND on the next strip, Data to Data and 5v to 5v



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# Setting the heatset inserts.

Heatset time!



Nice and simple! Each one of the eight heatset inserts need to be heated into the holes in the main body of the macro pad as shown in the illustration.



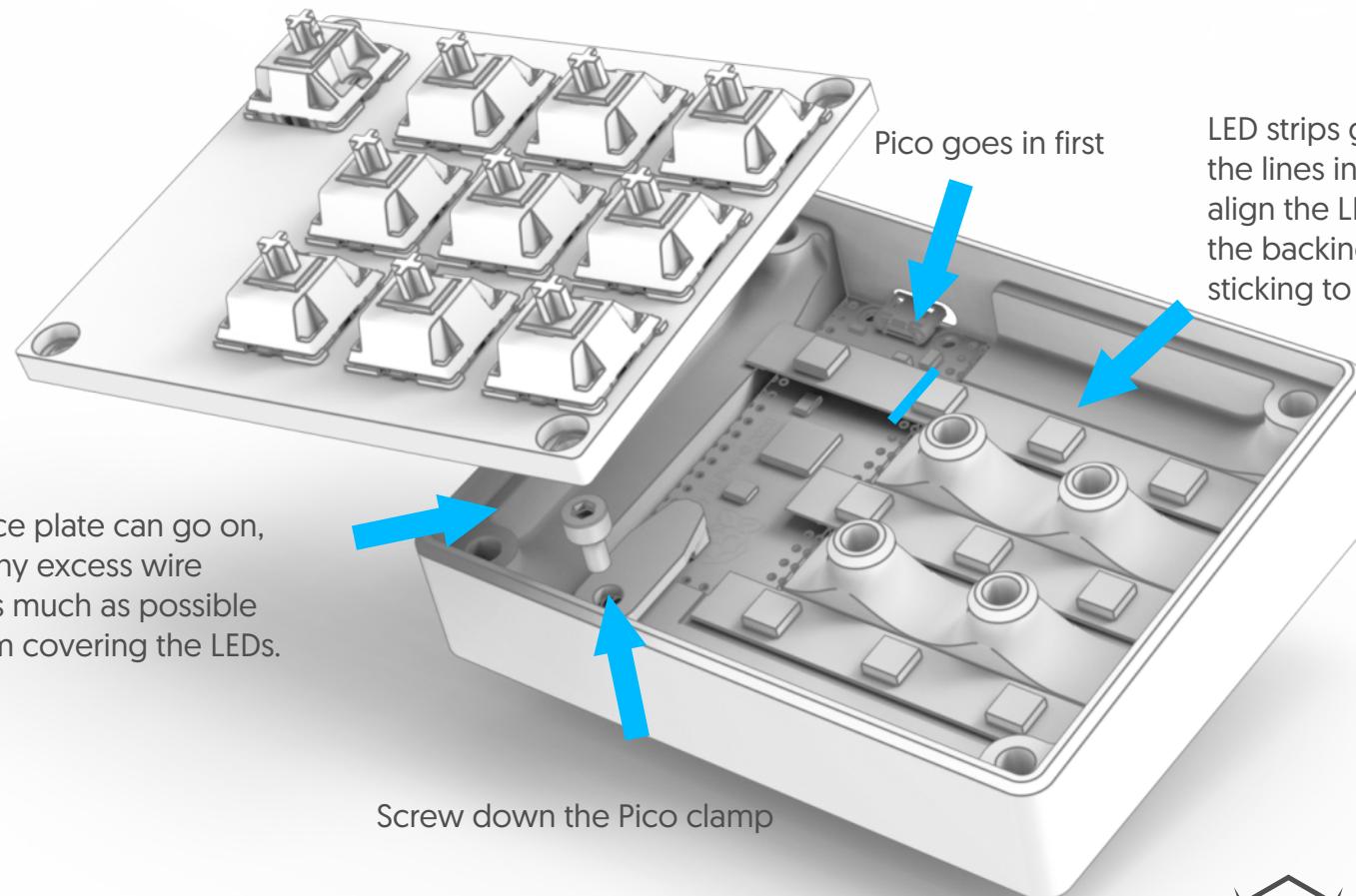
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# Final Assembly.

The hard part is done!

All that is left to do now is to stick down the Pico with the supplied double sided tape, stick down the RGB strips, screw down the Pico clamp with the 6mm M3 screw and finally close up your Macro Pad with the longer M3 Screws!

Stick the Pico down first, followed by the RGB strips, this can be tricky so take your time.



**NOTE: DO NOT install the key caps yet!**

# Software Setup.

The hard part is done!

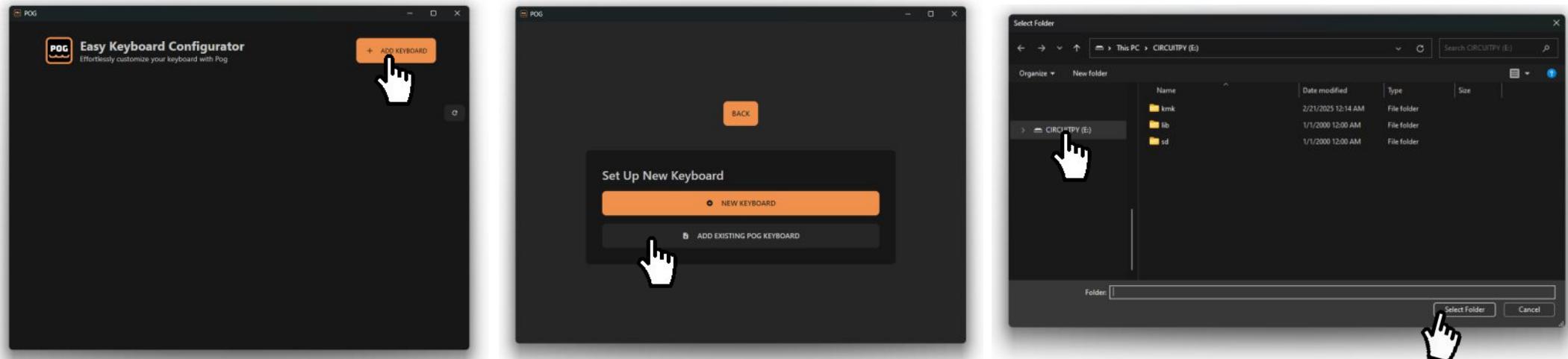
Great you are almost there! Now plug in your Macro pad with a Type C cable, give it a few seconds and you should see the LED's light up, open up a note pad to test it, by default it is set up as Num 0 - 9 you should get those numbers in sequence.

Now lets get POG installed so you can customize your own keys!

Download POG here: <https://pog.janlunge.de/>

Install the software and open it up with your Macro pad connected.

Open up POG, Click “ADD KEYBOARD” followed by “ADD EXISTING KEYBOARD”, select the CIRCUITPY drive [your macro pad] and click select folder.



Congratulations!

your Macro pad is now set up, feel free to check out the POG documentation and videos for more info  
See the next page for some simple examples!

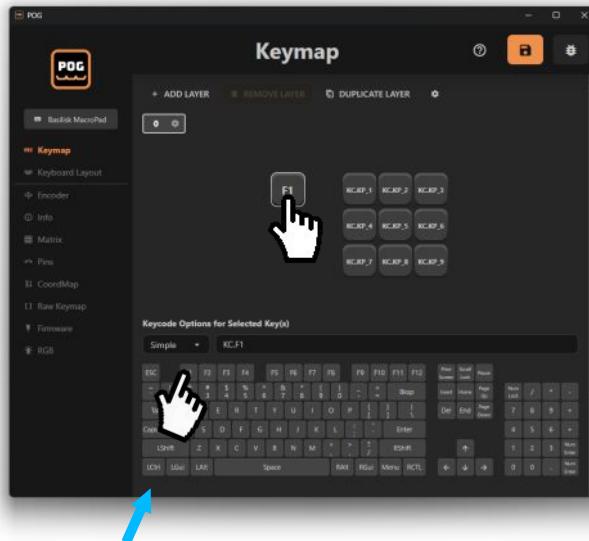


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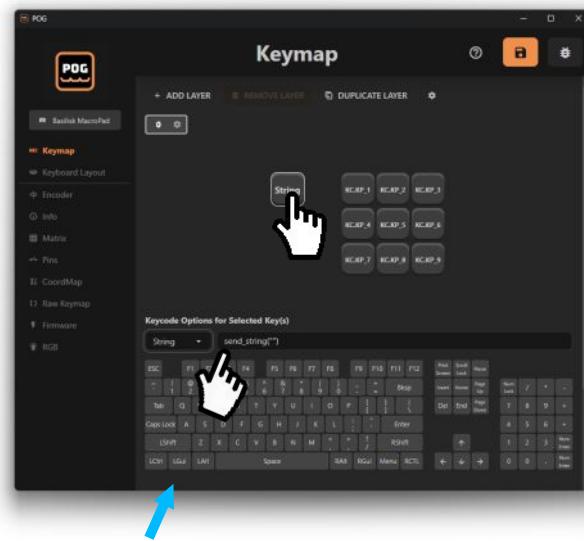
# Simple Macros.

The fun part!

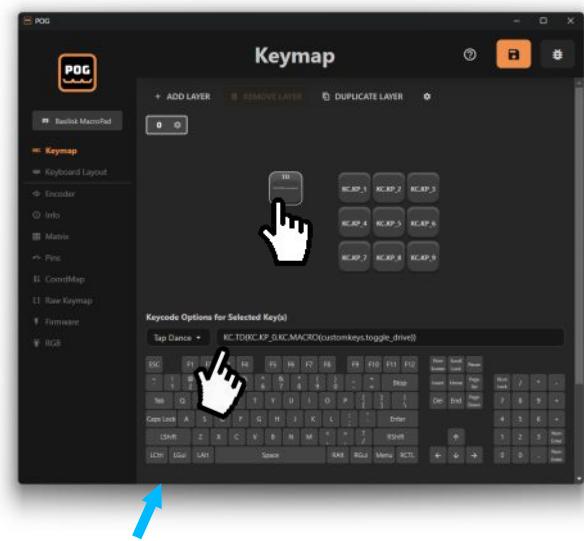
With your Macro pad plugged in and POG open, you can go to the keymap tab and change your macro pad keys to whatever you want by clicking on the key on the Macro pad represented on the top followed by clicking on the key on the bottom keyboard you want that key to represent.



This example sets up the first key as F1

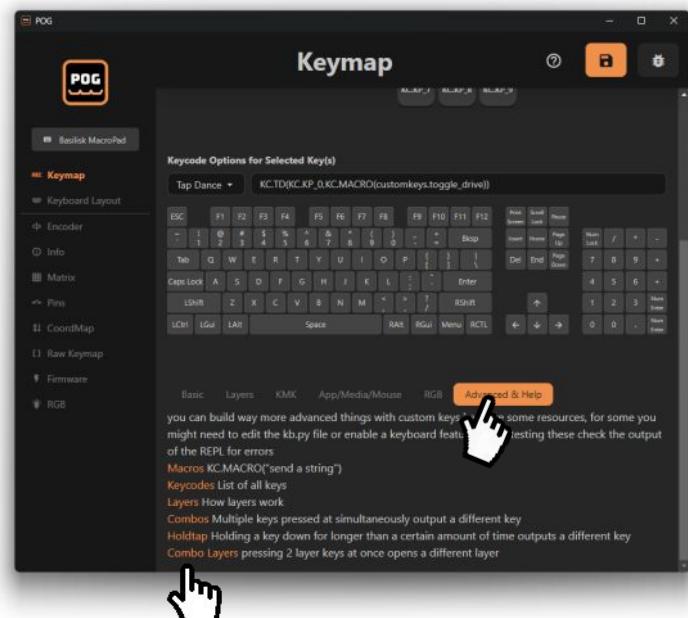


Selecting string on the dropdown will allow you to have the button represent a string of keys. Try it out with "Hello World" and press it on a spot you can type!



In this example with Tap Dance selected, the key is now set up to be NUM 0, But when double tapped it will toggle the drive visibility on next reboot.

This is nice if you want to have the "CIRCUITPY" Drive not show up, you will need to toggle it on again if you want to edit the keys again.



For more advanced setups have a look at the Advanced & Help links in POG

# You are done!

Congratulations on building your very own Basilisk Kit Macro Pad!

## Useful Links:

POG: <https://pog.janlunge.de/>

POG DISCORD: <https://discord.gg/ctYr5BVF7b>

KMK: [https://github.com/KMKfw/kmk\\_firmware](https://github.com/KMKfw/kmk_firmware)

Apex Invent: <https://apexinvent.co.za/>

