

Hey, this is the DIY guide for MŽOURACK – DIKTAAT. It assumes you know how to solder, and shows you the way I build the modules to make them as neat as possible. It probably shouldn't be the first module you've ever built, but if you **follow this guide carefully (solder only when you're told to, etc.)**, it is actually quite a trivial task.

Understand that this is a DIY build - it is your responsibility that the module works! I can help you troubleshoot, but ultimately, you accept the risk of ruining you unit!

You need a screwdriver basic soldering tools – a soldering station, solder and micro cutters.

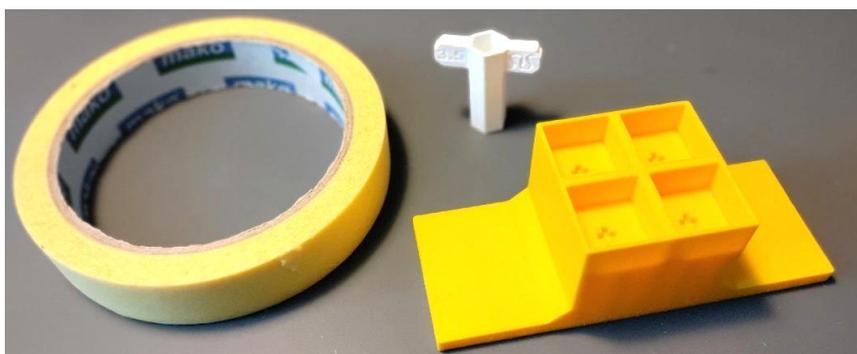


I also **highly recommend to have some sticky tape on hand**. You will be putting it on the front panel, so something that doesn't leave a mark works best. I like paper masking tape.

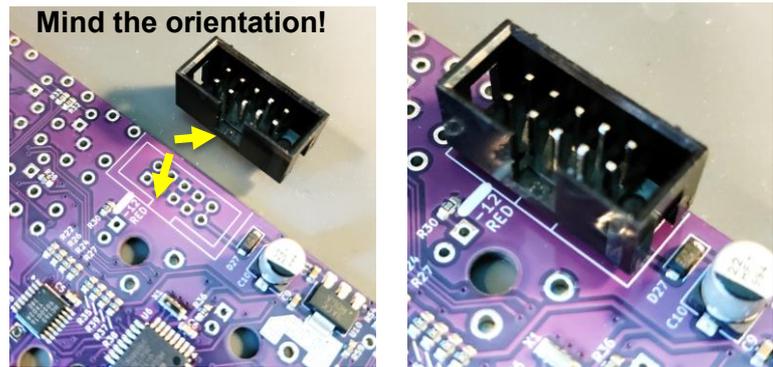
Further, there's two 3D-printables that might be worth it (they are completely **optional**).

The first one is a [spanner](#) for the jack hex nuts – you can use this on DIKTAAT but also on any other eurorack module you'll be building.

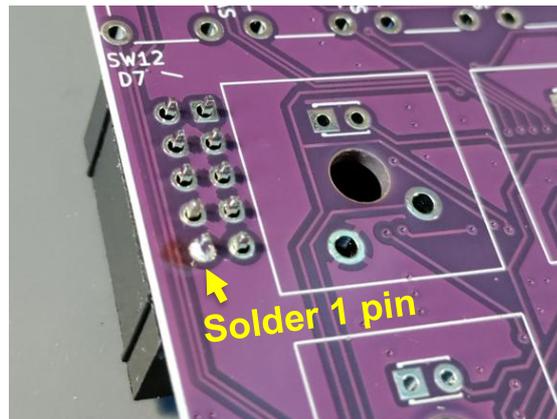
The second is a little [helping jig](#) for aligning the switches on DIKTAAT. Might be overkill when you're probably just building a single unit but the option is there.



Start with the power connector. When placing it on the board, **mind the orientation** – make sure the hole in the plastic box matches the symbol on the PCB.



Flip the board over and make sure it is resting on the power connector so that it is fully in contact with the PCB. Proceed to solder **one pin**.



Look at the board from the side. Is the power connector perfectly flat against the board? If not, reheat that single solder joint, adjust the power connector, and check again.



Once the power connector is sitting nicely, solder all the remaining pins.



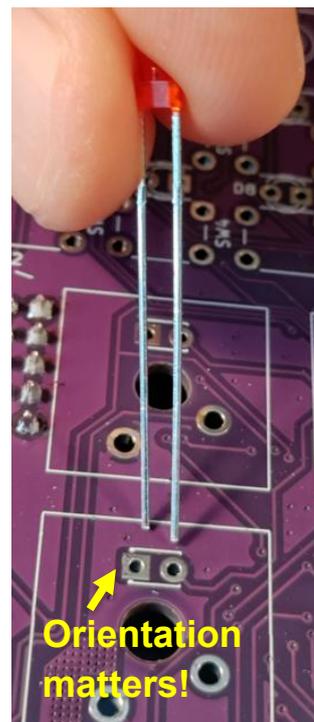
There's two types of LEDs. Grab the smaller ones with the rectangular top now. There's 4 of them in your kit.



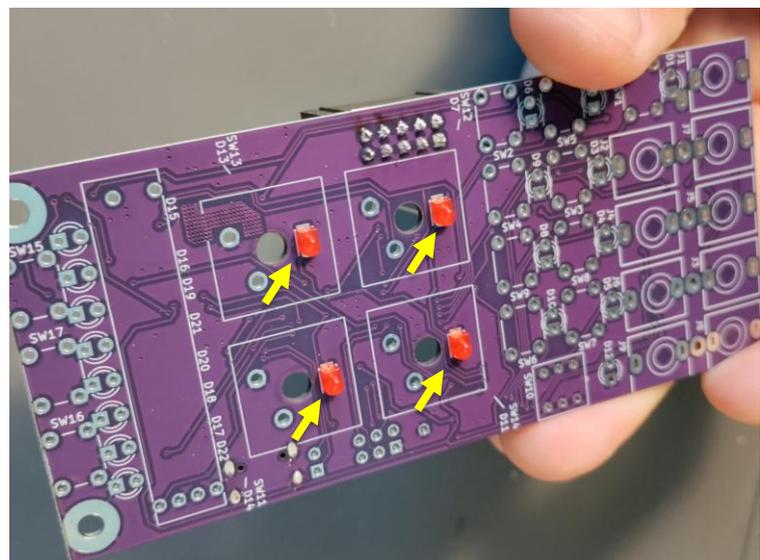
When placing the LEDs, mind the orientation!

Short leg → Square hole 

Long leg → Circular hole 

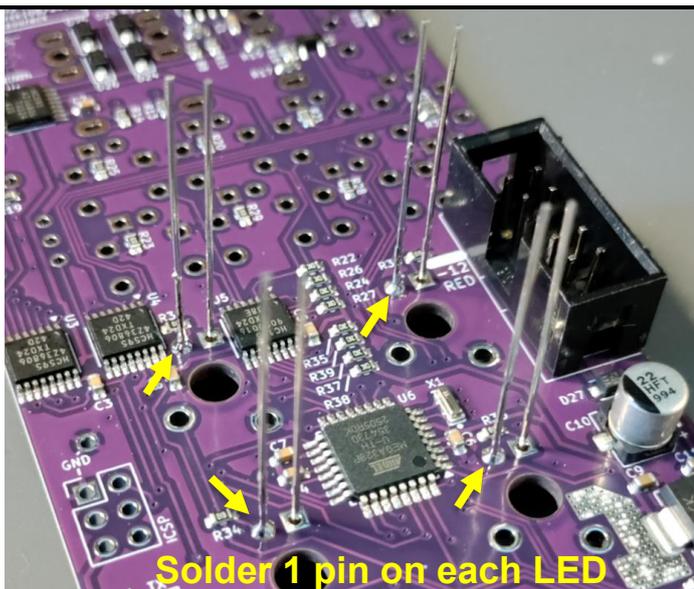


Place all four of these LEDs.



Flip the board and make sure it rests on the LEDs so that they are sitting flat on the PCB.

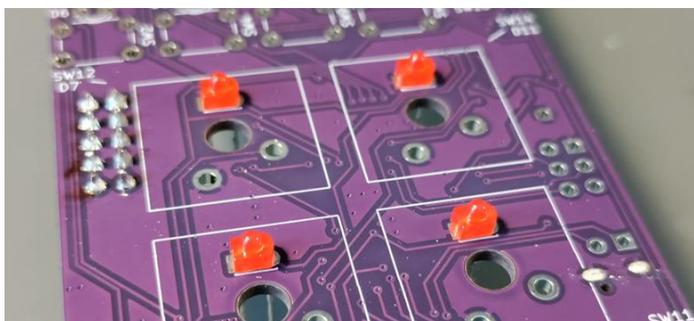
Solder 1 pin on each of the LEDs.



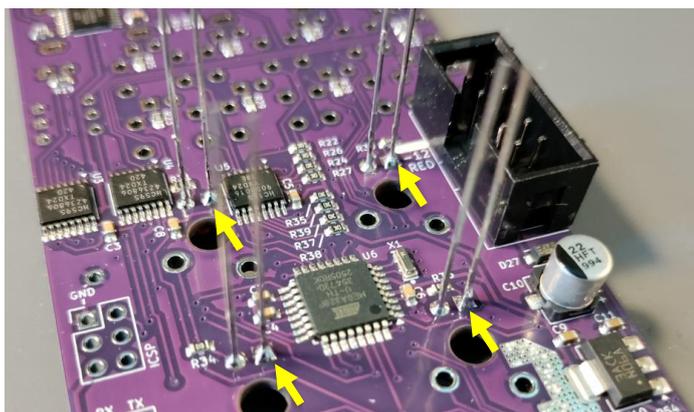
Before soldering the remaining pin, **check the LEDs are sitting nicely.**

You may place one of the large mechanical switches on top of it to make sure it fits (but don't solder it).

If needed, reheat the solder joint and adjust.



Solder the remaining LED pins.



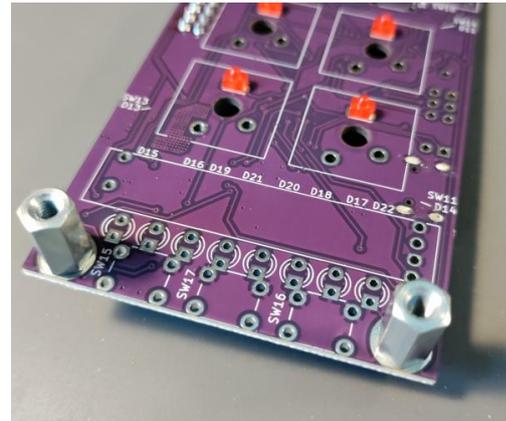
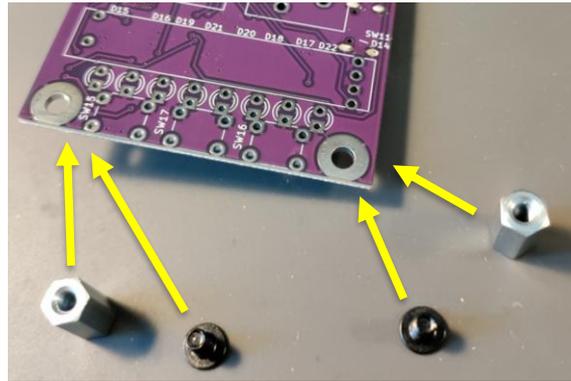
Snip off the leads.



You will not be soldering for a while now.

We will be placing most of the remaining components and securing them with the front panel before soldering them.

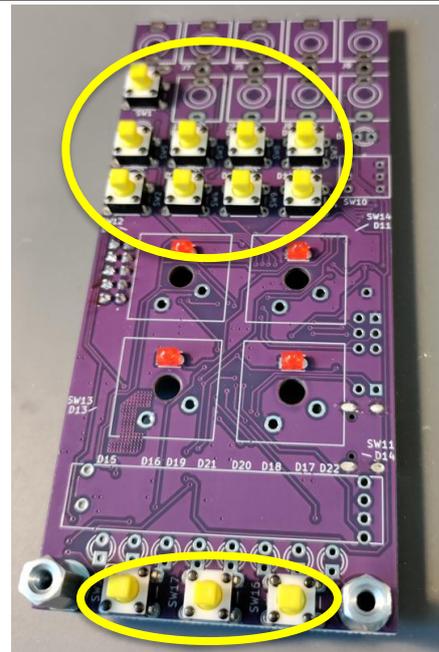
Start with the two spacers and screws – attach them as shown.



Place all 12 of the microswitches.

Don't worry about the orientation – both of the two possible placement directions are fine.

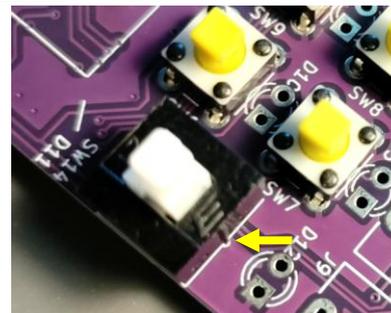
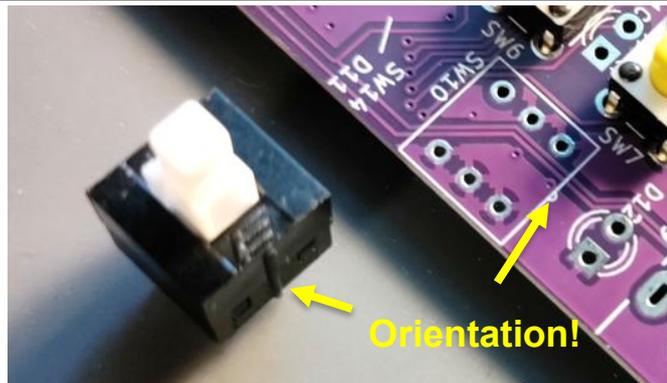
Again, no soldering yet!



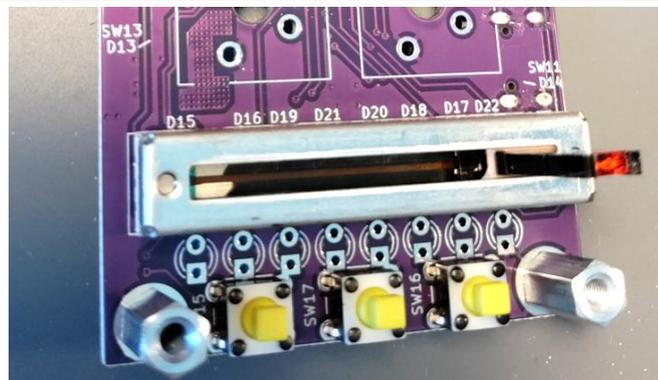
Place the large black toggle switch.

Mind the orientation!

Match the ridge on the switch with the marking on the board.

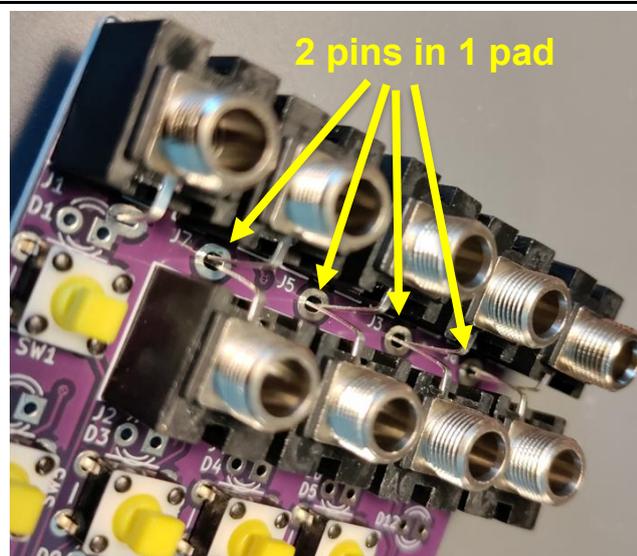


Place the fader.



Place the jacks.

Note that some of the pins share a pad.



Move on to the second type of LED.

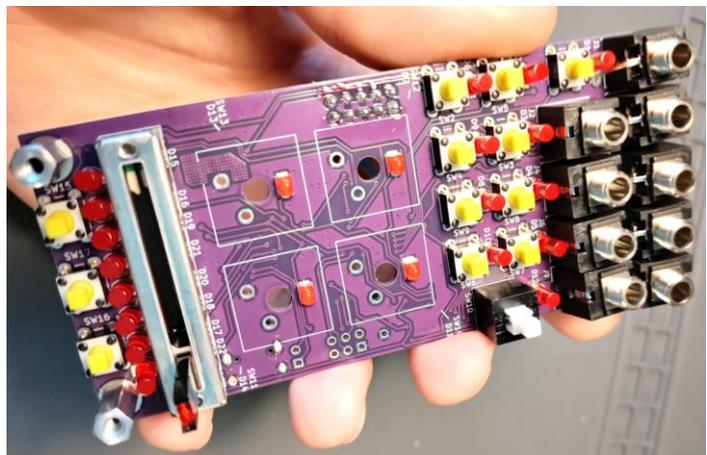
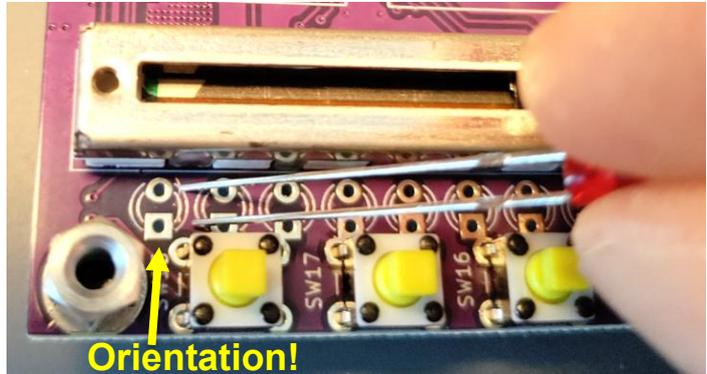
Mind the orientation!

The same rule like before applies:

Short leg → Square hole 

Long leg → Circular hole 

Place all the LEDs.



Place the front panel.



Attach it via two screws.



Attach the nuts to the two outer-most jack sockets.



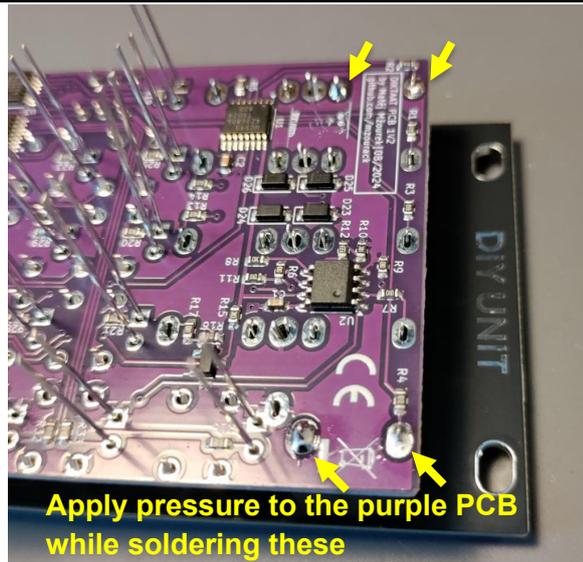
Now you get to use that 3D-printed tool, but you can do it by hand too.

Tighten both nuts well.

Don't use metal pliers or similar tools, you will scratch the front panel!



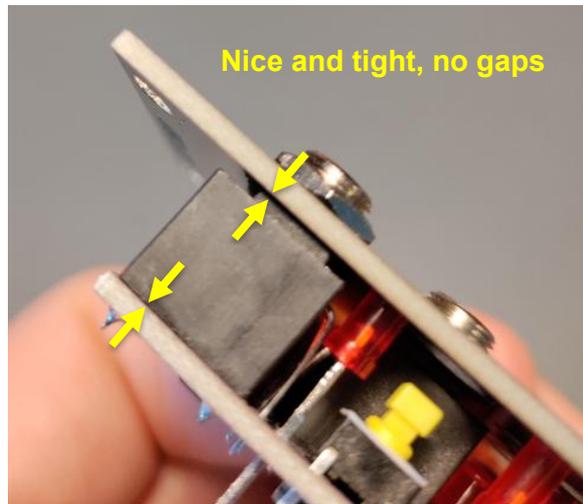
Solder two pins on each of the two jacks you just attached, but see the note below first...



Apply gentle pressure to the PCB sandwich while soldering.

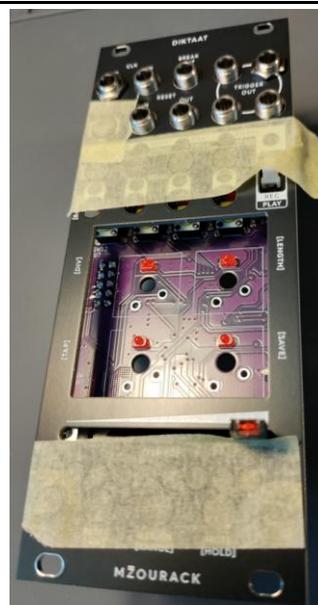
We want the *PCB – Jacks – Front Panel* sandwich to be as tight as possible.

I highly recommend you solder one pin at a time and check the sandwich from the side each time. If needed, reheat the solder joint and adjust.



Cover the holes for LEDs on the front panel with sticky tape.

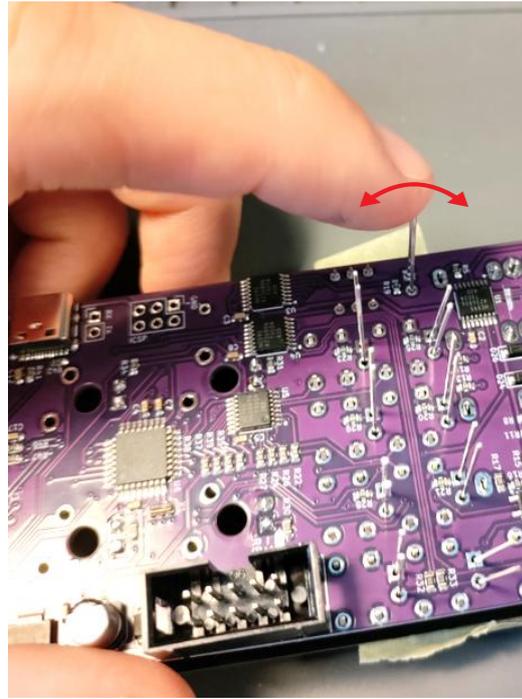
We will use the tape to align the surface of the LEDs with the surface of the front panel, so run your finger across it so that the tape is not loose.



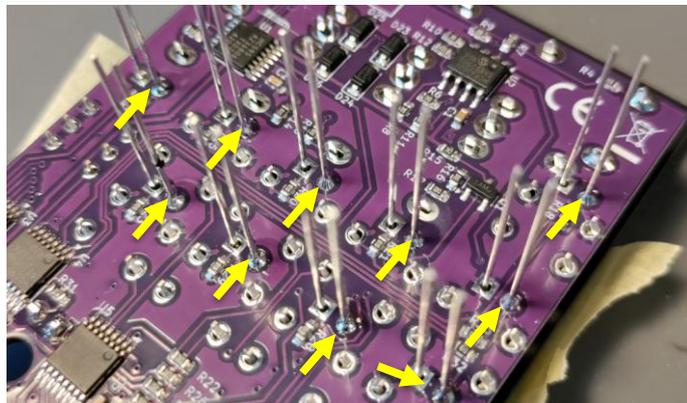
Flip the module over.

Wiggle each of the LEDs around so that it slides into its slot.

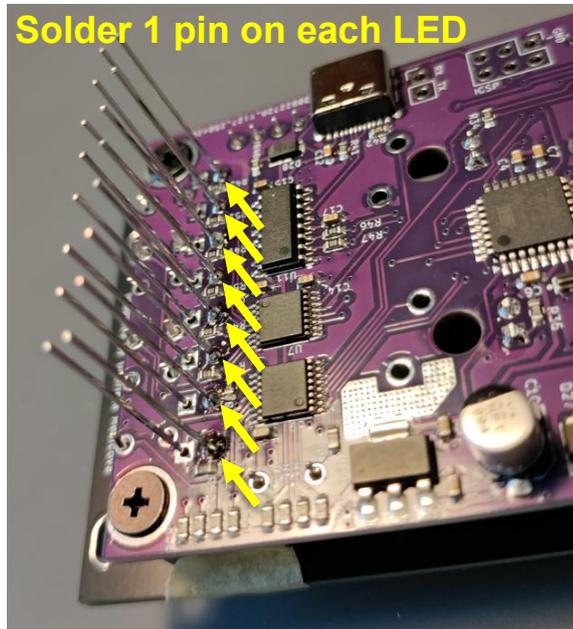
After setting each LED this way, without flipping the module again, you can run your finger across the surface of the sticky tape again, just to make sure it did not become loose.



Solder **1 pin** on each of the LEDs.



Solder **1 pin** on each LED

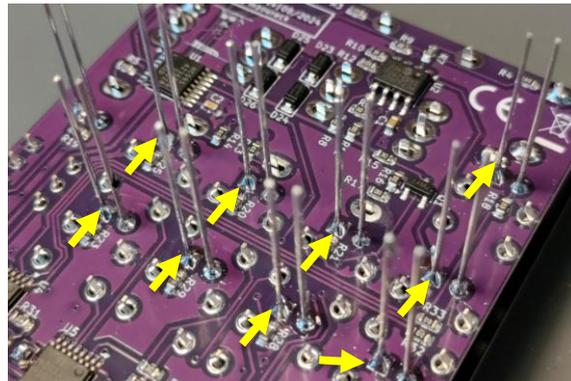


Peel off the tape. Check that the LEDs are sitting neatly with their surface in level with the front panel.

If needed, you can reheat the solder joint and adjust the LED.



Solder the remaining pin on each LED now.



One jack pin and one LED pin share a pad near the “CE” sign, don’t worry about it, they’re supposed to connect!

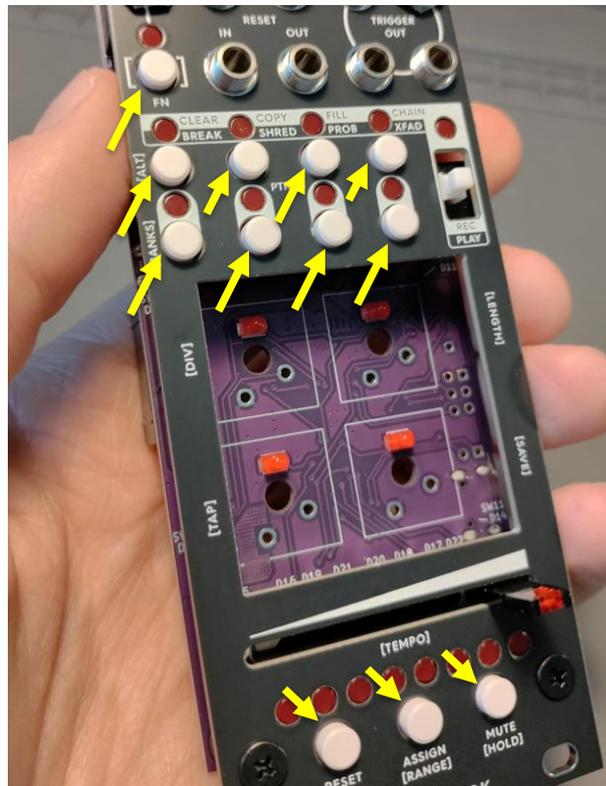
Similarly, on the other end of the module (between the screws), some of the microswitch pins and LED pins touch. Again, that’s OK, see the pictures on page 13 of this guide.



Once all your LEDs are soldered, snip off the leads.



Push in all the microswitch caps.
They should respond with a little click.

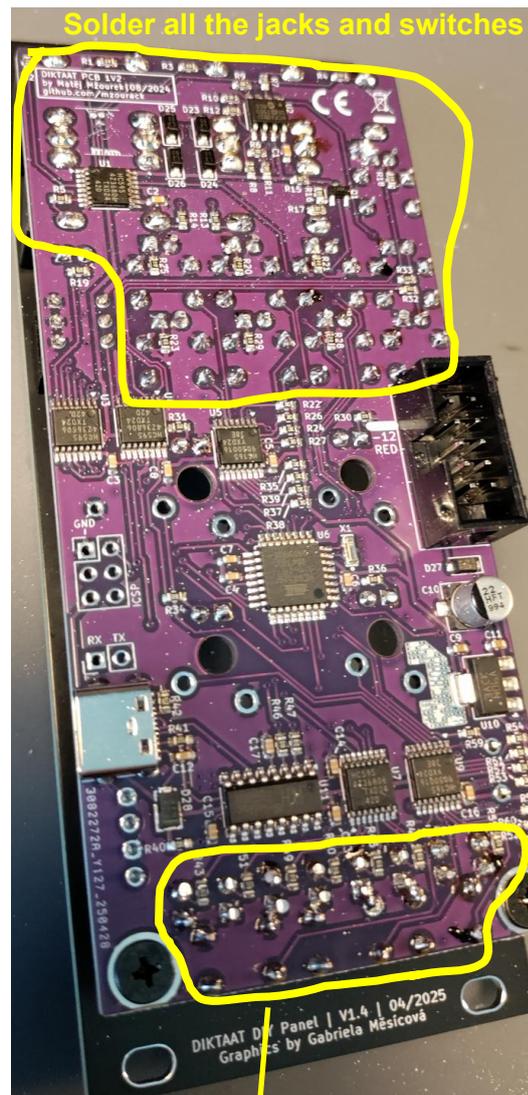


Attach the remaining jack nuts.



We will be soldering all of the jacks and switches now.

Press all the microswitches (the buttons from the previous page) again before soldering to make sure they are sitting flat against the PCB.



Some of the pins of the LEDs and microswitches at the bottom of the module can be bridged with solder.

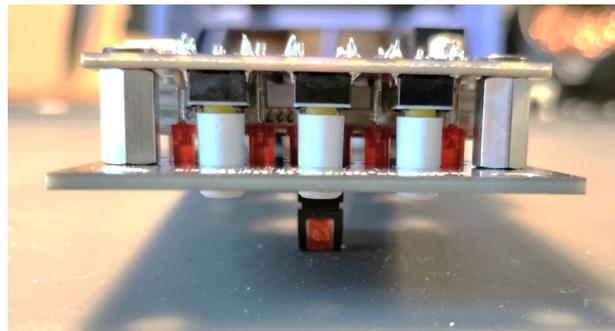
Don't worry about it, they're connected inside the PCB anyway.



Let's move on to the fader. Place the moving bit in the central position.



Now flip the module over and rest it on the fader.



Solder one pin on each side of the fader.



Check if the fader is resting nicely on the purple PCB.

If not, you know the drill by now - reheat the pins and adjust as needed.

Solder the remaining fader pins.



Put the toggle switch cap on. It will click on nicely.

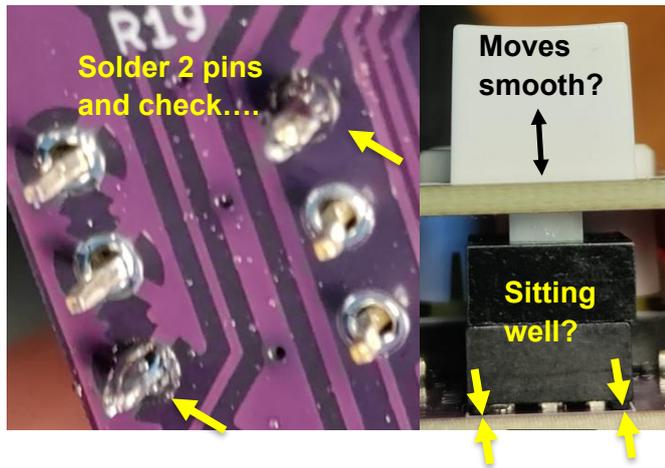


Flip the module over and make sure it rests on the cap of the toggle switch.

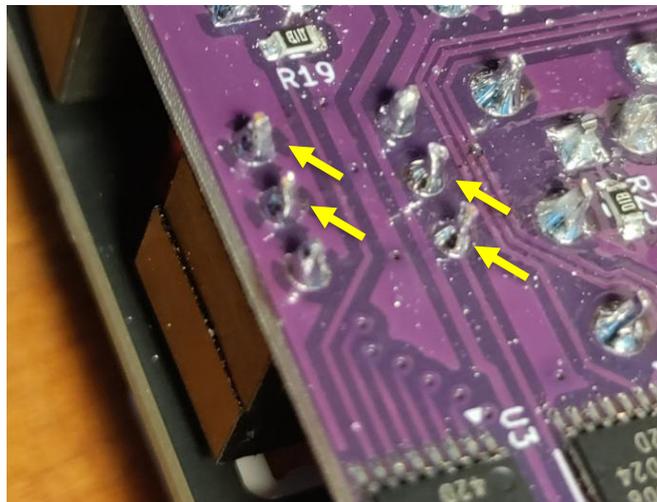
Solder 1 pin on each end of the toggle switch.

Check if the body of the switch is resting nicely against the PCB and that the button travels neatly through the front panel hole, without friction.

If not, reheat the solder joints and adjust appropriately.



If the switch is sitting alright, solder the remaining four pins.



Finally, move on to the mechanical switches.

I am using the [3D-printed jig](#) in the picture.

If you're building the module without it (no problem there!), it might be easier to do one switch at a time.

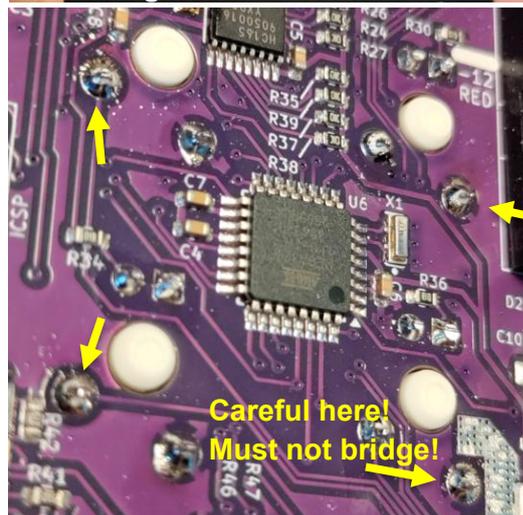
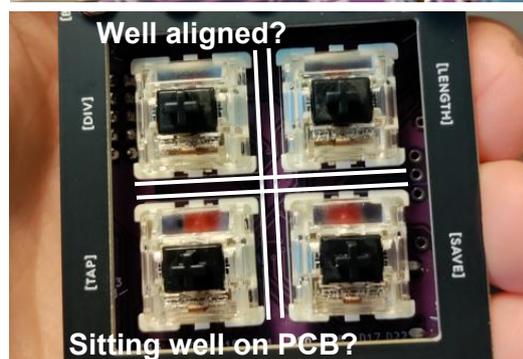
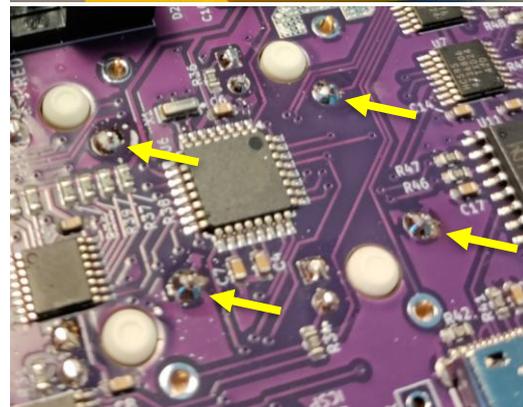
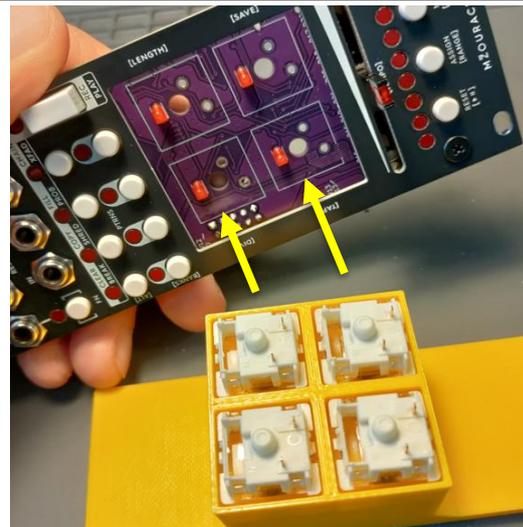
Place each switch, flip the module over and **solder one pin on each**.

Check if the switches are **resting against the PCB** and also that they are **nicely aligned**.

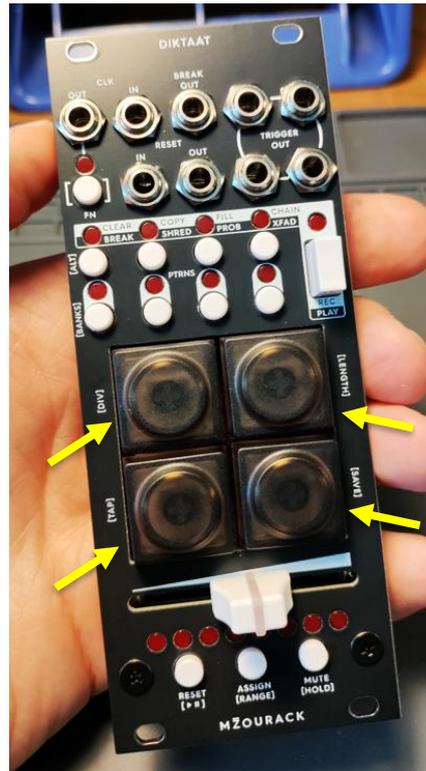
If not, reheat the solder joint, and adjust.

Be careful when soldering the pin marked in the photo!

The pin must not connect to the exposed metal near it!

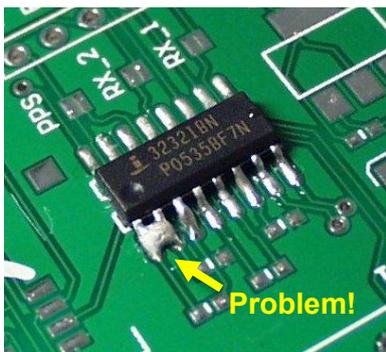


Place the fader and switch caps on.
Nice! You're nearly done.



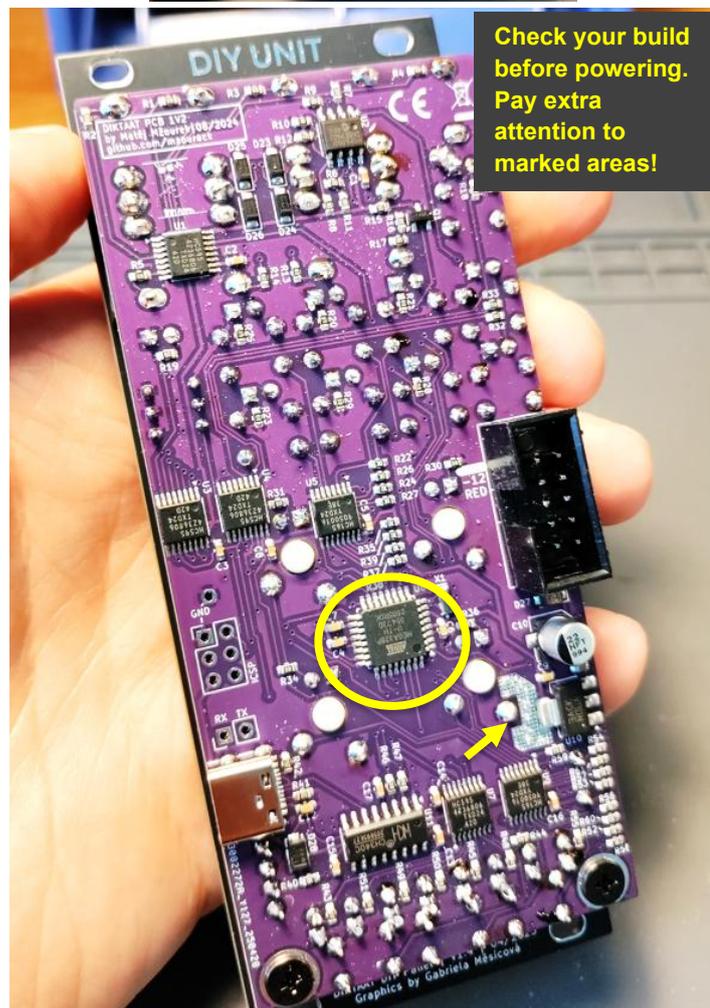
Check your soldering, do you see any shorts?

If you've dripped some solder on any of the pre-soldered chips, do not power the unit on until you have fixed the issue.



The way I like to do it:

Take a flat soldering tip. Clean it well so there's no excess solder on it. Now add flux, ideally directly to the problematic area on the board. Gently and slowly, swipe your soldering iron over the pins (don't go over more pins than necessary to avoid spreading the problem). It should pick up some of the solder along the way. Clean your soldering tip and repeat until all pins are nice and neat.



Plug the power cable in – the red stripe on the power cable should match the *-12V RED* line on the PCB (and assuming you soldered the power connector correctly, **you cannot plug it in any other way**).

The module needs to be reset into factory state at least once.

To perform a factory reset, **hold the reset button while the module is being turned on**.



Now you're all done! Time to test all functions.

Watch my [video walkthrough](#) to see how everything should behave.

Read the [manual](#) for all the details.

[Firmware updates](#) are done via an online app.

The firmware is fully [hackable](#).

I hope your build went well and you have fun with DIKTAAT. If you have any questions or feedback, please let me know: mzourack@gmail.com

- Matěj Mžourek

