TUTTO&SEMPRE

build guide
difficulty: ☆☆☆☆[1]

∞

Hi fellow!
Just a quick intro before starting,

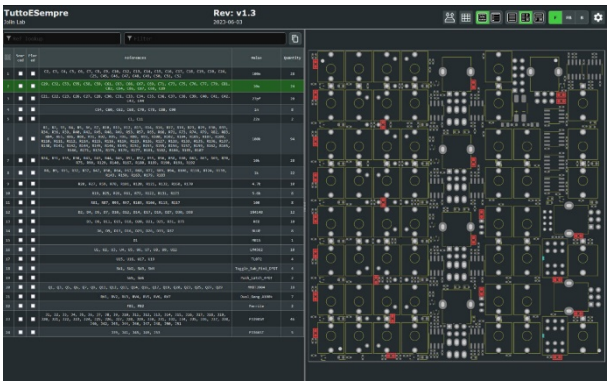
what to have on hand

1. Soldering Iron - better with temperature control
2. Solder wire
3. A pair of tweezers
4. Cutter
5. Multimeter (optional)
6. Solder sucker / wick (optional)
7. Silicone soldering mat (optional)
8. Helping hands (optional)
9. Flux (optional)

If you want to refresh yourself a bit about soldering stuff you can watch this video[2] by GreatScott!

A tool that can help you checking the components on the board is the interactive bill of materials.

Download the .html *ibom* file and open it with a browser. You can use it to check where a component is located on the board.
Once downloaded it works fine also offline.



Here are listed all the TUTTO&SEMPRE components; most of them are already pre-soldered on the surface of the board (SMD).
We just need to solder the through hole ones (THT).

BE CAREFUL NOT TO TOUCH THE SMD COMPONENTS WHILE SOLDERING THE THT ONES.
It's really easy to lose a tiny SMD resistor or capacitor. Pay attention when soldering parts that are close to others already in place.

[1] Most of the components are basic – the four stars are justified by the number of them. The trickiest part is soldering between the optocoupler legs: use a thin soldering iron tip.
[2] https://www.youtube.com/watch?v=VxMV6wGS3NY

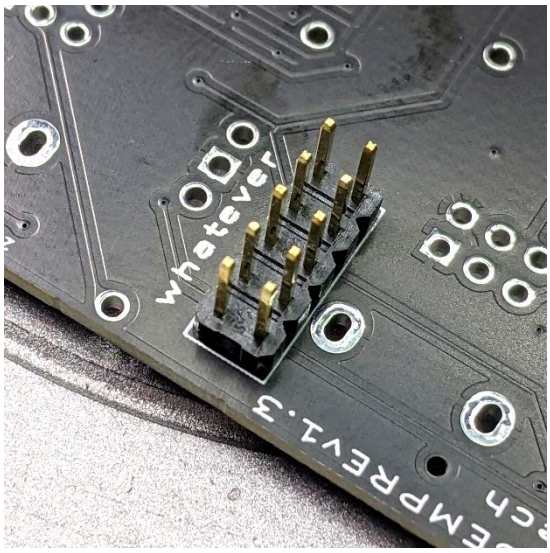
now let's begin starting from the bottom layer – the back of the module.

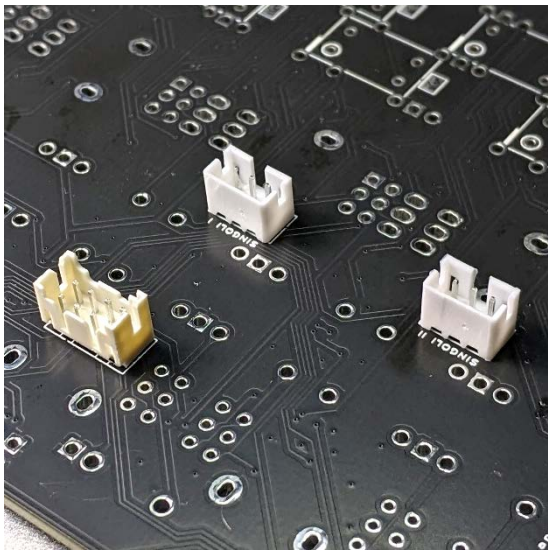
eurorack power header + JST headers

Place the socket and the headers matching the drawing on the PCB. Longer pins needs to point outside. Careful on the JST header direction, check the pictures if you have any doubts.

tip: solder one pin and check. If the socked is aligned with the PCB solder all the other pins.

1	J33	Conn_02x05_2.54mm
1	J55	JST_02x04_2.00mm
2	J52, J54	JST_01x03_2.00mm



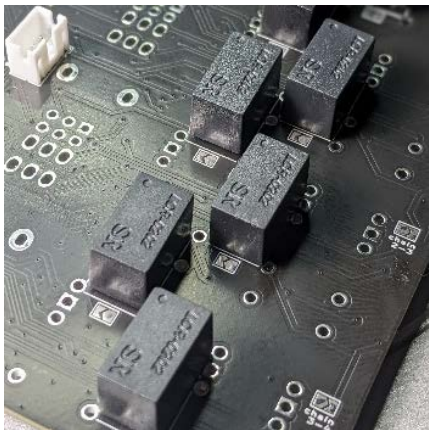


optocouplers

Proceed placing and soldering the optocouplers matching the dot on top with the thick white line on the PCB as seen in the pictures.

DON'T MESS WITH THE TINY AND HELPLESS SMD COMPONENTS ALREADY SOLDERED ON THE BOARD

8	U10, U11, U13, U14, U18, U22, U23, U24	Conn_02x05_2.54mm



Good time for a pause: always good time to learn more about otters

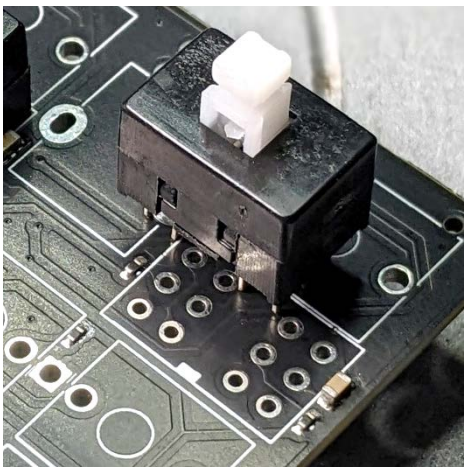
now flip the board (front layer):

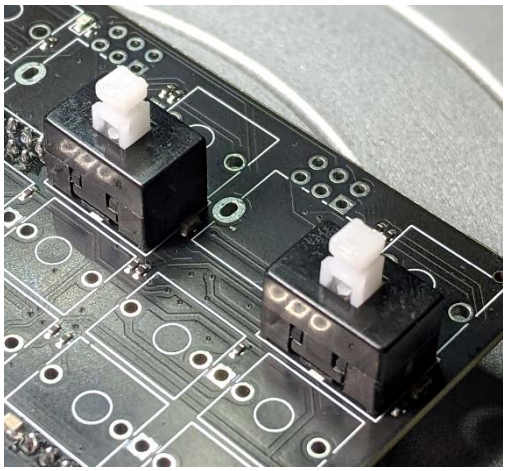
boxed switches

IMPORTANT - Follow the white marks on the silkscreen and the pictures below to get them in the right direction. *The white springy thing on the switch has an uneven shape. Position it as shown in the pictures, with the empty square on the same side as the marking on the PCB. Proceed to solder them as flush and straight as possible.*

tip: solder one pin and check. Align it with the PCB and solder all the other pins.

2	SW5, SW6	Push_Latch_4PDT





Place the black round cap on the switches.

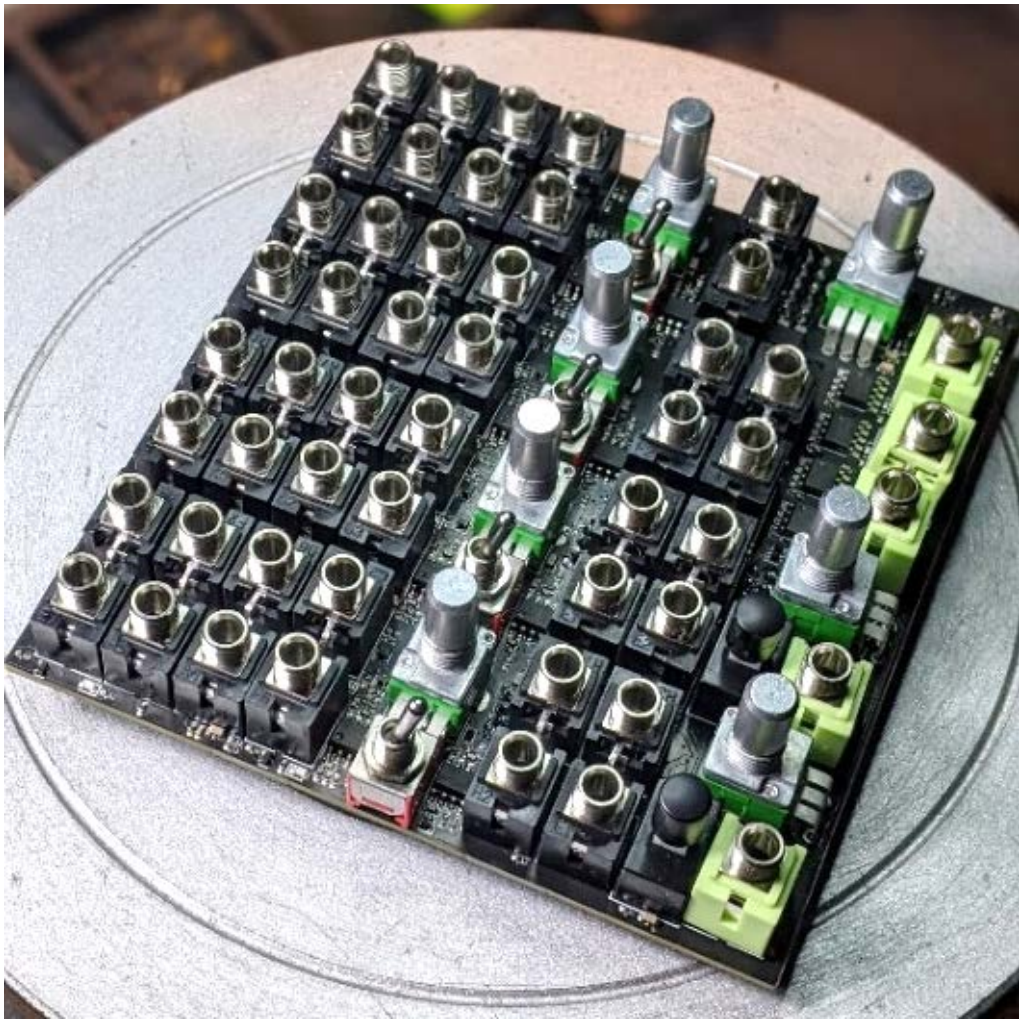
jack sockets, toggle switches, potentiometers

do not solder them: just place all of them in the right place and move to the next step.

Be careful on the position of the green sockets. Follow the picture.

Toggle switches: to reduce clearance tighten one of the two nuts to the lever. You don't need the round locating ring.

7	RV1, RV2, RV3, RV4, RV5, RV6, RV7	Dual_Gang_A100k -potentiometers
5	J39, J41, J45, J49, J53	PJ366ST – *green socket*
46	J1, J2, J3, J4, J5, J6, J7, J8, J9, J10, J11, J12, J13, J14, J15, J16, J17, J18, J19, J20, J21, J22, J23, J24, J25, J26, J27, J28, J29, J30, J31, J32, J34, J35, J36, J37, J38, J40, J42, J43, J44, J46, J47, J48, J50, J51	PJ398SM aka "*Thonkiconn"*
4	SW1, SW2, SW3, SW4	Toggle_Sub_Mini_DPDT



front panel

At last, put the panel on and tighten the nuts.

Now solder all the front panel components.

tip: we are soldering them now to ensure that all the mechanical parts are aligned with the panel. This reduces the stress to the components.

check if everything is in place and properly soldered.

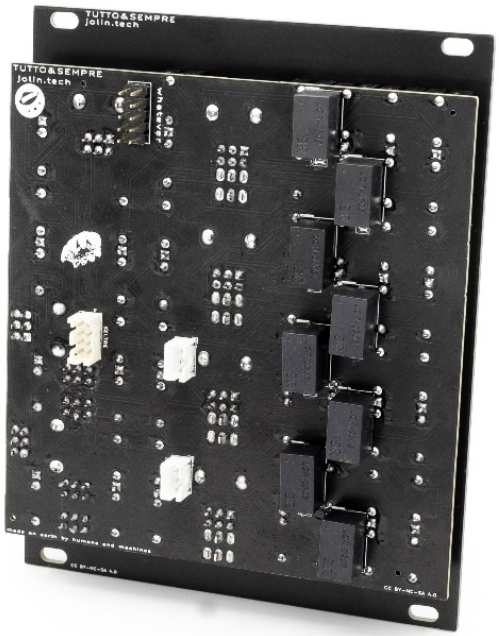
Place the knobs, tighten their screws and we are officially done!

Have a good cup of coffee, you totally deserve it.

before powering it up

- It's always a good practice to check the power header for shorts with a multimeter.
  tip: follow this tutorial[3] by Quincas Moreira - aka SynthDiyGuy if you have any doubts on how to perform the procedure.
- *Mind the polarity on the header socket of your PSU, remember that red line is -12v*

[3] https://www.youtube.com/watch?v=qS0SoIiiQCo



done! enjoy your new

TUTTO&SEMPRE

find us:

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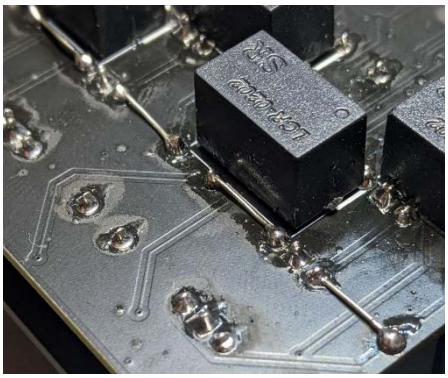
optional adaptation for PCB versions ≤ 1.4

In these versions the patchbay is *full-normalled* by default - signal is interrupted when a cable is inserted into the send jack. To obtain a *half-normalled* configuration[4] – splitted signal - just bridge the top and the bottom pin of all the 8 jacks in the send section of the module like shown in the picture. You can use the trimmed part from the optocouplers legs or anything similar.

Be aware to not solder the pin in the center – that's ground.



[4] In PCB ≥ 1.5 the default configuration is half-normalled: this mod does not apply.