● 12HP Eurorack Module ● Built & designed in E.U. ● www.shakmat.com

Shakmat Mod Medusa Building Guide

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1. Preamble

Thank you for purchasing a Shakmat DIY kit !

We spare no effort in our kit packing process to prevent any mistakes or missing parts. In this document as well, we do our best to describe the assembly process in the most practical and comprehensive way. If by any chance there is a missing/damaged part in your kit or if you have any suggestion, feel free to contact us via shakmat.com.

We strongly advise you NOT to spill all the bags open and mix their components. Some of them are virtually indistinguishable (like LEDs that all appear clear when inactive). We recommend to only take the neccesary component out of its bag, or to empty the bags in separate & marked containers. For each step, next to the component's graphic representation, there is a reference indicating where to find it (i.e. P1 for Pack 1, or LP for Loose Part).

The assembly process will be dramatically simplified if you follow the order defined by this building guide. We tested various orders of steps before finding the most convenient, and the one presented here is the best!

2. Component list & necessary tools

Pack 1

3x 22 μF electrolytic capacitors
4x Tactile switch
4x Tactile switch caps
4x Green LEDs
2x Amber LED push button

Pack 2

1x 2x5 pin power header
4x White LEDs
4x Metal potentiometers
4x Metal potentiometer nuts
1x White LED push button

Pack 3

12x Jack connectors
12x Jack connectors nuts
4x Green/amber dual color LEDs
1x Green/red LED push button
4x M3 screws

Pink anti-static wrap

1x PCB
1x Front Panel

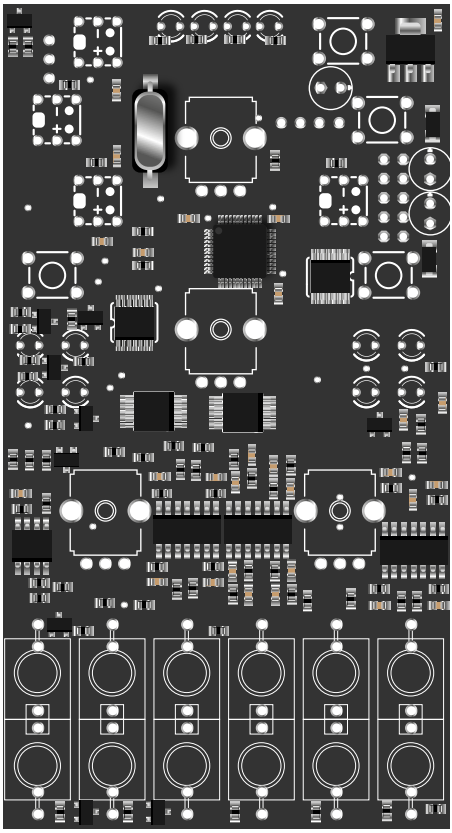
Loose parts

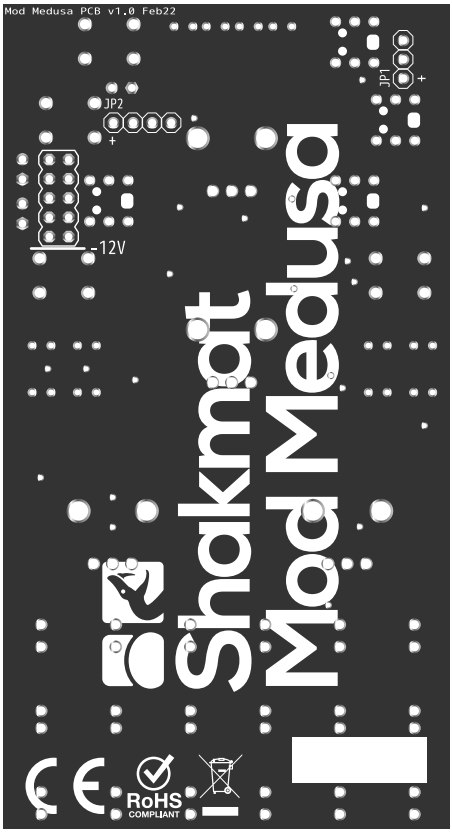
4x Black rubber knobs
1x Power cable
1x User manual

Necessay tools

Soldering iron
Solder
Cutting pliers
Masking tape

3. PCB details



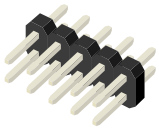


PCB
Front & back

4. Assembly

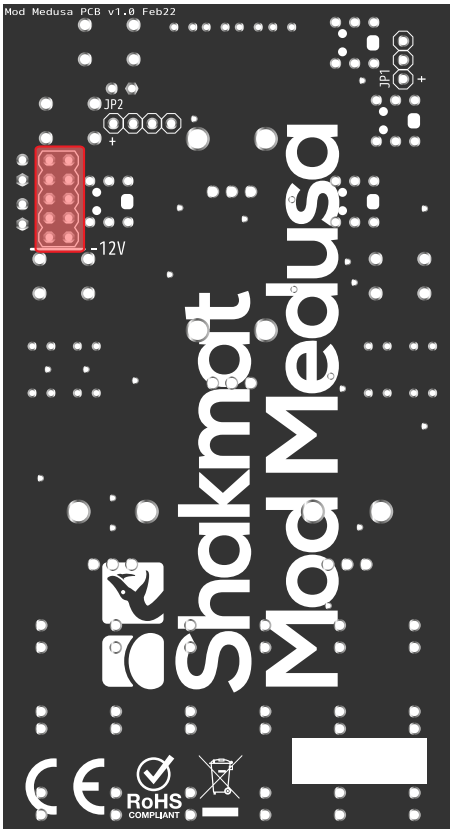
4.1 Back

4.1.1 Power Header (2x5pin)



P2

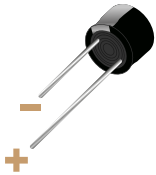
Place the power header, short pin side in the holes. We recommend you only solder one of the pins. Then reheat your soldered point and simultaneously press the plastic part of the header against the PCB until it's flat. Take off the soldering iron but keep pressing. Avoid touching the pins themselves because they will become hot very quickly and move out of alignment within their plastic bracket. Once you are satisfied with you placement, solder the remaining pins.



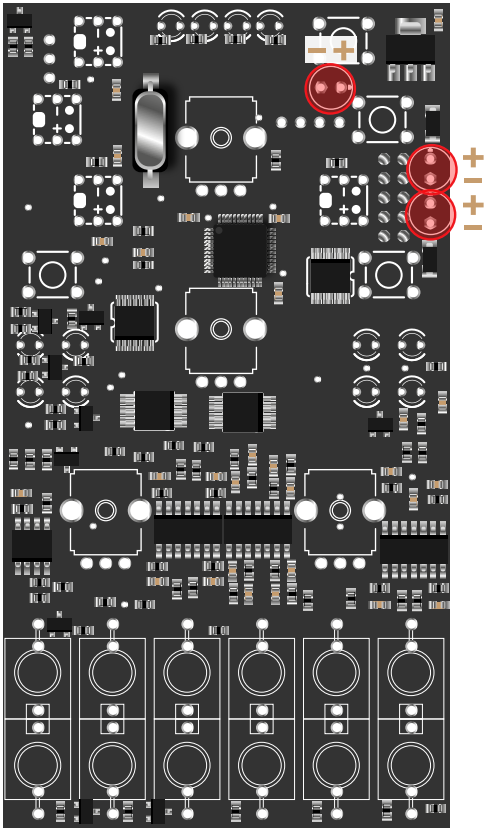
4.2 Front

4.2.1 Electrolytic capacitors (x3)

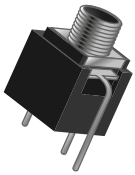
P1



Flip the PCB and solder the three 22μF capacitors. You must pay attention to the orientation of these components. The long leg indicates the positive side, therefore it has to match the little dot on the PCB silkscreen.



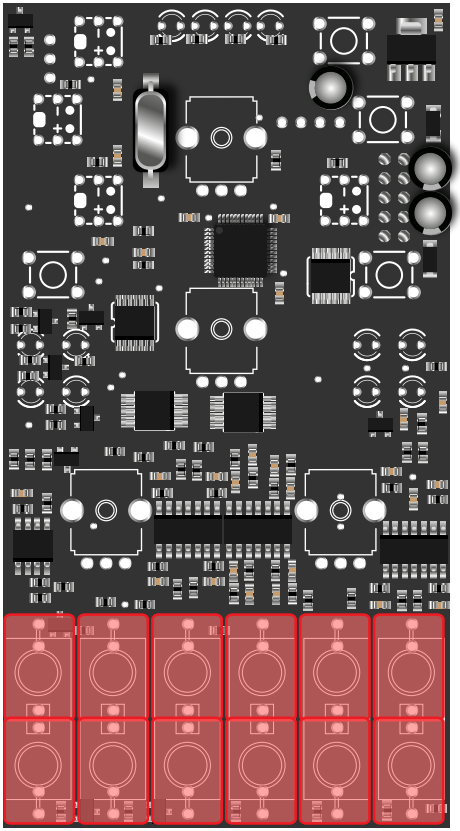
4.2.2 Jack connectors (x12)



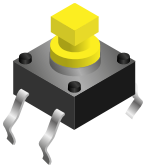
Place and solder the 12 jack connectors. Be sure to lay them completely flat on the PCB before soldering. If those jacks aren't perpendicular, the front panel will be very hard to mount.

To ensure perfect alignment, you can start by soldering the top-left and bottom-right jack, then place place the remaining jacks and mount the front panel temporarily. This technique will ensure that each jack is correctly seated and ready for soldering.

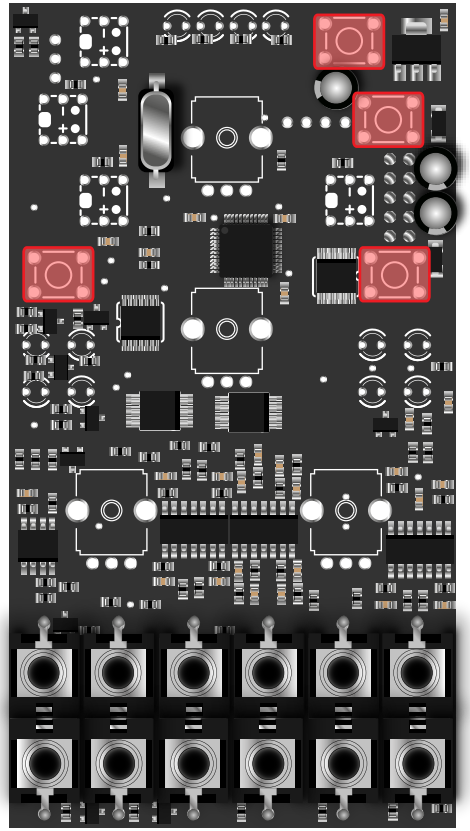
If one of the jacks is not perfectly perpendicular with the PCB, you can reheat the pads and push it down with your thumb to re-align.



4.2.3 Tactile switches (x4)



It's very important to solder the four push buttons flat with the PCB. If they are crooked or not thoroughly pushed through, the caps won't pop properly through the front panel and the buttons will be hard to press.

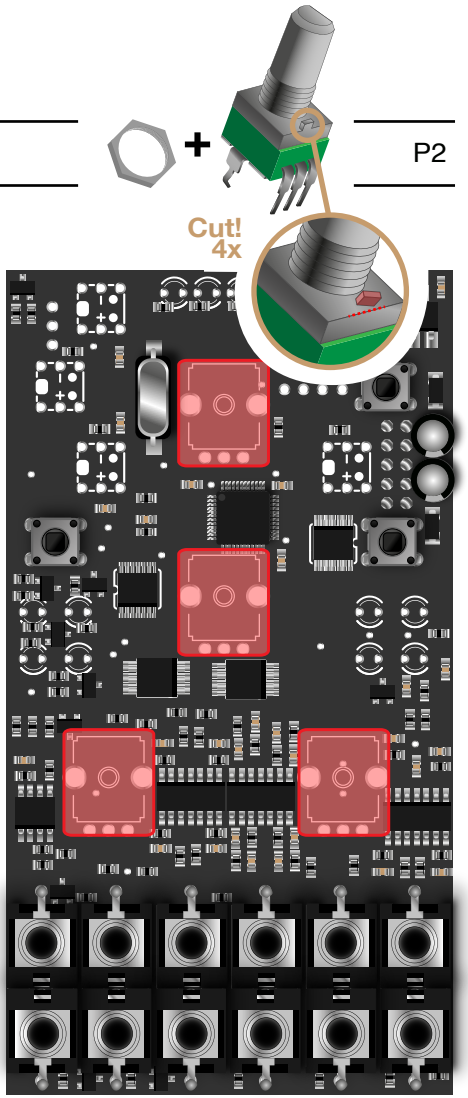


4.2.4 Potentiometers & nuts (x4)

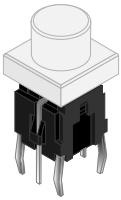
Before soldering, you will have to cut a little metal piece off the top of each potentiometer, as shown in the picture. This little stud prevents the front panel from sitting properly. Use some small & sharp cutting pliers for this task.

Then, place the 4 potentiometers on the PCB. Mount the front panel and tighten the potentiometers nuts (this will ensure a proper placement of the pots) and then solder them.

Once you have soldered everything, remove the nuts, the front panel and proceed to the next step.

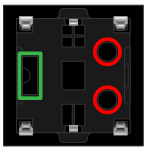


4.2.5 LED Push Buttons (x4)

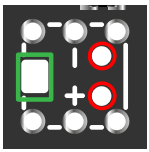


P1, 2 & 3

Place the four LED push buttons on the PCB matching the color as indicated. As the buttons embed an LED, you must pay attention to the orientation. The three holes on the PCB have to match the three mouldings on the base of the component as shown below:

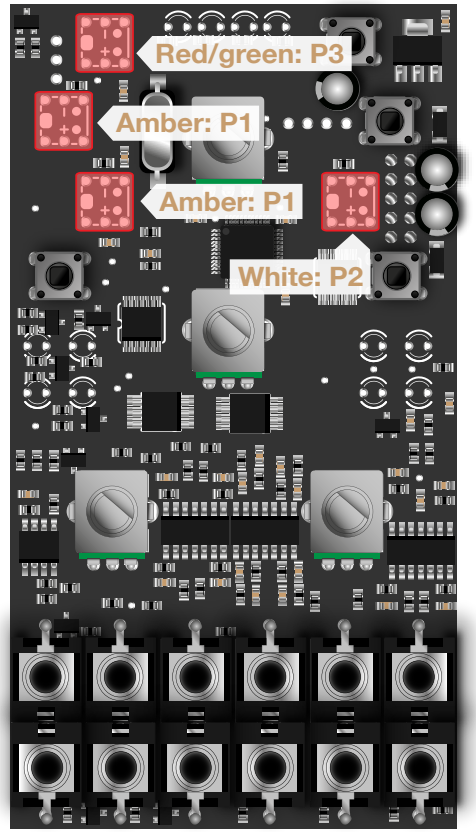


Component base



PCB holes

We recommand you the place the front panel back on and tighten the Length potentiometer nut before soldering the LED buttons. Once you have soldered everything, remove the front panel and go to the next step.

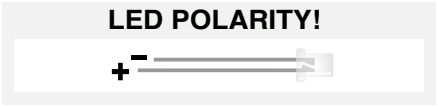


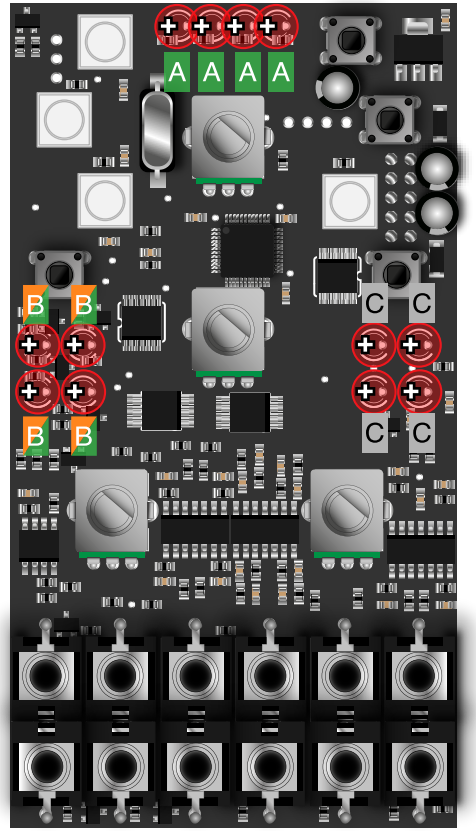
4.2.6 LEDs (x4) P1, 2 & 3

Green LEDs (A x4) **P1**

Amber/green LEDs (B x4) **P3**

White LED (C x4) **P2**





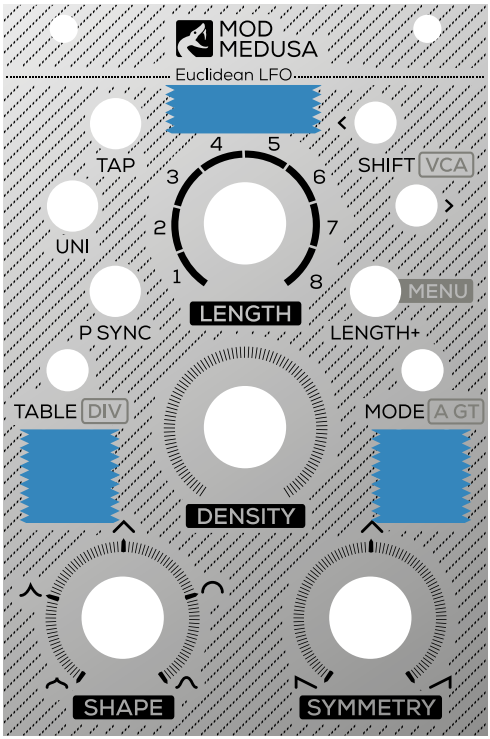
Placing the LEDs requires a specific orientation due to their polarity. The long leg is the positive side and they all go into the left holes of the PCB. Place all the LEDs through the PCB paying attention to the colors and orientations but **don't solder them now.**

Potentiometer nut (x4) P2

Jack nuts (x12) P3

Push button cap (x4) P1

Knobs (x4) LP



Place some masking tape over every LED hole on the front panel. Be aware of not blocking any other component's hole with the tape. The LEDs are special flat top models intended to be mounted flush with the front panel. The masking tape will help you to do this neatly.

Once the panel is ready, assemble it with the PCB and place the four nuts on the potentiomers. Once everything is well secured, push every LED through their hole until they sit flush with the panel and stick to the tape. Once they are all in place, you can solder then trim the legs.

You're almost done! The last thing to do is to tighten the knurled nuts on the jack sockets. Finally, push the four knobs onto their metal potentiometer and the two button caps on the Shift buttons.

5. First startup routine

Make sure all the potentiometers are fully counterclockwise when turning on your Mod Medusa for the first time. Plug in the power cable and make sure the red side of the ribbon cable matches the -12V on the PCB. Now let's plug the module into your system and test it. The module identifies the first time it turns on and automatically starts the calibration and test routines.

Turn on your rack, the Mod Medusa Tap button will lit red and the Uni button is dimmed. Without anything inserted into the jack sockets press the Uni button. The Uni button is now on and the P Sync button is dimmed. Using four patch cables, patch Out 1 to LNGHT, Out 2 to DNST, Out 3 to Shape and OUT 4 to Sym, then press the P Sync button once. Wait until all four green out LEDs light on.

Disconnect the four patch cables, and make sure the four potentiometers are fully counterclockwise. The Tap button is lit green, pressing it makes it momentarily red. Uni button is off, pressing it lights it on. P Sync button is off, pressing it lights it on, LENGTH+ button is off, pushing it lights it on.

All the table LEDs are on and the mode LEDs are off. Pressing Shift < lights the first mode LED. Pressing Shift > lights the second mode LED. Pressing Table lights the third mode LED and pressing Mode lights the fourth mode LED.

Take a gate or clock output from another module and patch it to the Mod Medusa following inputs: When connected to the Clock input, the first table LED switches from green to amber. When connected to the VCA input, the second table LED switches from green to amber. When connected to the RST input, the third table LED switches from green to amber. The fourth table LED switches from green to amber when connected to the A GT input.

Disconnect the patch cable, and turn each of the four potentiometers fully clockwise. When doing so, each of the four output LEDs will brighten accordingly to the potentiometer position. Once every potentiometer has been fully turned, the startup routine is done, and your Mod Medusa is now fully functional.

If you made a mistake during the startup routine, you can relaunch it by holding the TAP button when powering on your Mod Medusa.

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