ANTUMBRA

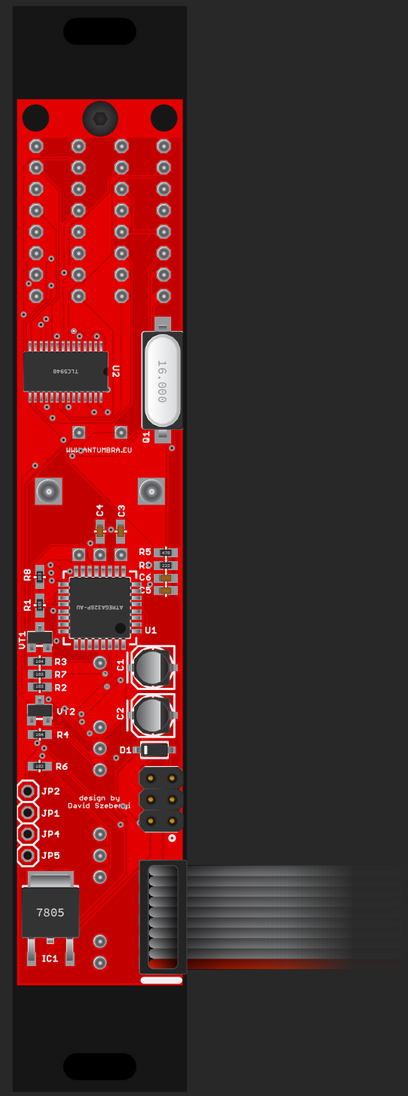
KLIK

MANUAL

TABLE OF CONTENTS

00. THANK YOU!

Thank you for purchasing the Antumbra KLIK module!
In this documentation you can find information about the installation and use of the module, also an assembly instruction if you bought the DIY version.



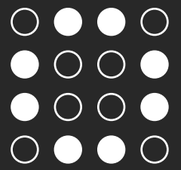
01. INSTALLATION

When you turn the KLIK around, you should see the module as it is on the left illustration. Plug in the power cable to the power cable header pins, but BE CAREFUL with the orientation of the cable! The RED STRIPE should be on the BOTTOM of the module, indicated by the white line below the header pins. By doing otherwise you can potentially harm the module or even your whole system! Power off your eurorack system and connect the other end of the cable to the power source, here also pay attention to the PSU manufacturer's instructions!

POWER CABLE HEADER: Red stripe should be on the bottom, next to the white marker!

02. FRONT

INTERFACE



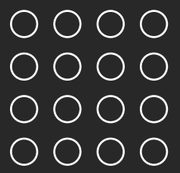
ENCODER WITH PUSH BUTTON

CLOCK INPUT JACK

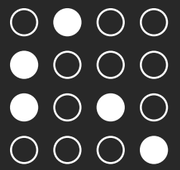
RESET INPUT JACK

OUTPUT JACK

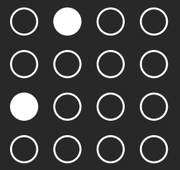
03. STEPS PAGE



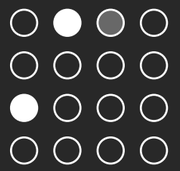
When you first launch the module, you should see the first LED blinking, this is your cursor. Rotate the encoder to move it around.



You can enter steps by pushing the encoder button, if a step is entered, the current step will be blinking brighter, the other steps will be indicated by being on constantly.

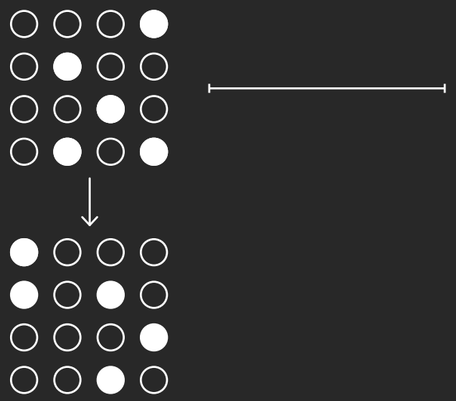


To remove a step, simply navigate to it with the cursor, and press the button, now the cursor should blink darker.



If you connect a trigger source to the clock input jack, you can see the playhead going. This is the dimmest of the LEDs and it always dims the current step a bit to indicate it’s whereabouts. On active steps it outputs a trigger on the output jack.

03. STEPS PAGE

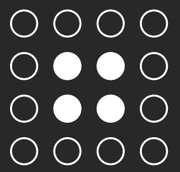


You can offset the pattern by pushing and turning the encoder. The pattern will wrap around, meaning that if there is a trigger on the last step and you offset it to the right by one, it will go on the first step.

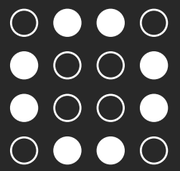
04. MENU

To enter or exit the menu, press and hold the encoder button for 1 second. You can select pages by turning the encoder. Upon entering the menu you see the first page:

EUCLIDEAN MODE: Enter euclidean mode, the current pattern is overriden.

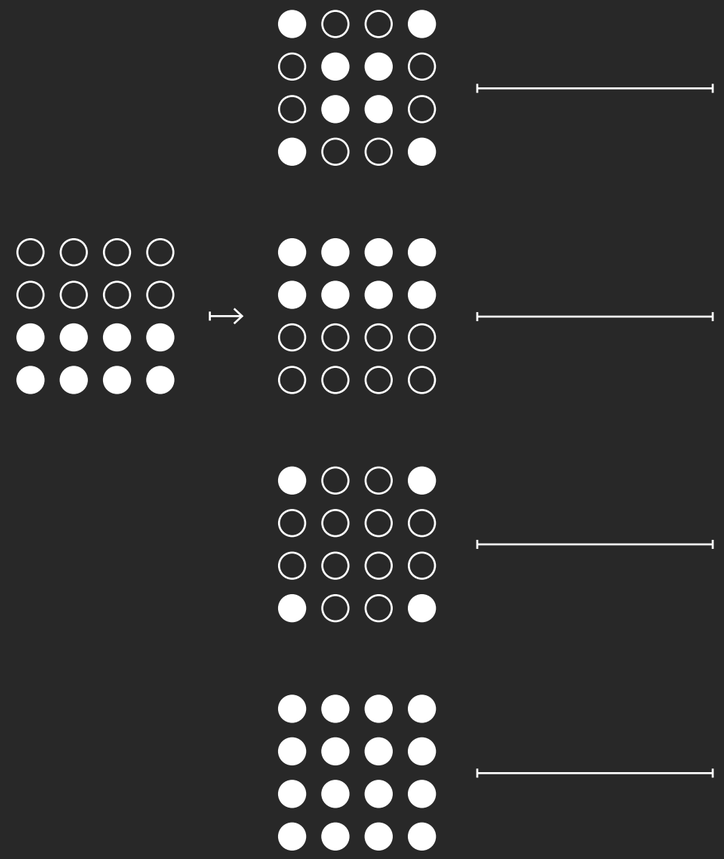


PLAY MODE: Click on this page where you can enter the play mode menu, here you can set the way how the playhead should act. More on this later.



LAST STEP SELECT: Click here to modify which should be the last step of your sequence, allowing you to create shorter than 16 step sequences. More on this later.

04. MENU



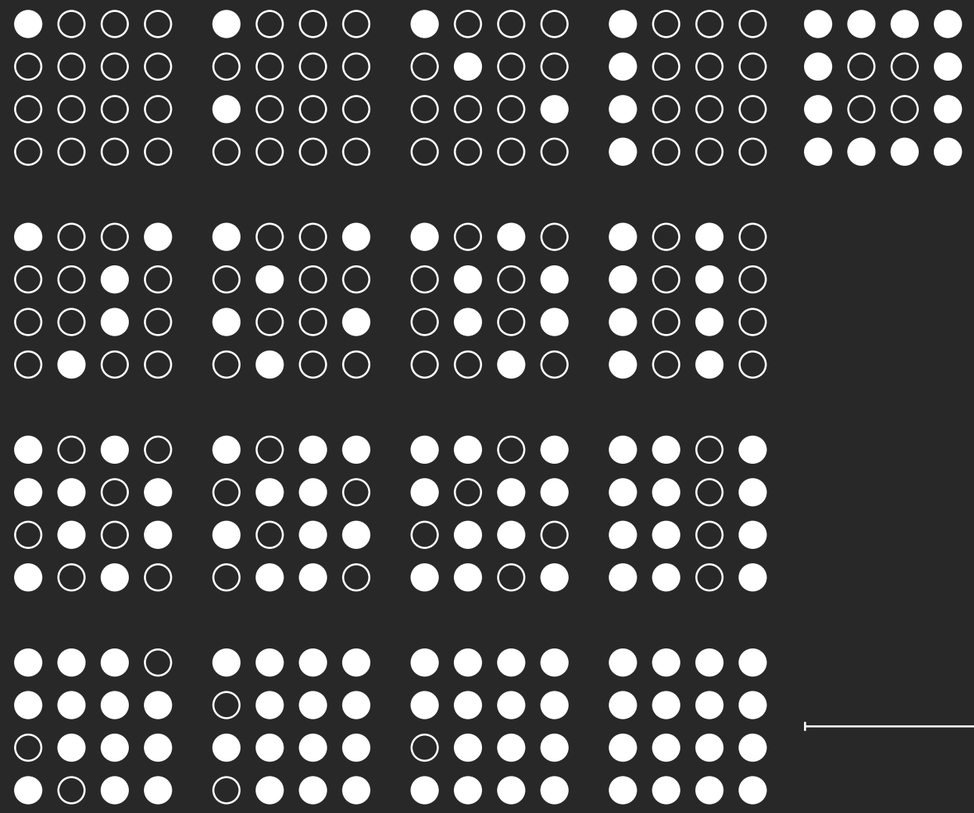
RANDOM PATTERN: Click here to generate random patterns, each click of the button instantly creates a new pattern, you can edit the pattern by exiting the menu.

RANDOM RESET: If this setting is ON, it generates a random pattern every time the reset input receives a trigger. By default this setting is OFF.

RANDOM AMOUNT: Enters random amount select, here you can set how many random steps are generated by the random reset and random pattern functions.

RESET: Resets all the settings and the pattern to it's default value. (All steps off, playmode: FWD, last step: 16, random reset: OFF)

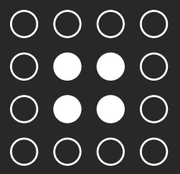
05. EUCLIDEAN MODE



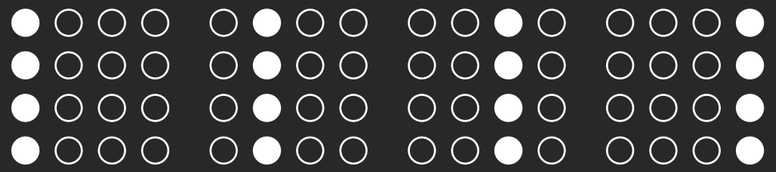
Euclidean patterns are generated by dividing a given amount of steps with a number of fills equally. As there are odd numbers left, it generates interesting patterns.
In this mode you can select the number of fills by turning the encoder, and select the pattern length in the pattern length menu, and the fills adjust to this accordingly.
You can edit this pattern by exiting the menu.

16 step euclidean patterns, with fill from 1-16.

06. PLAYMODE MENU



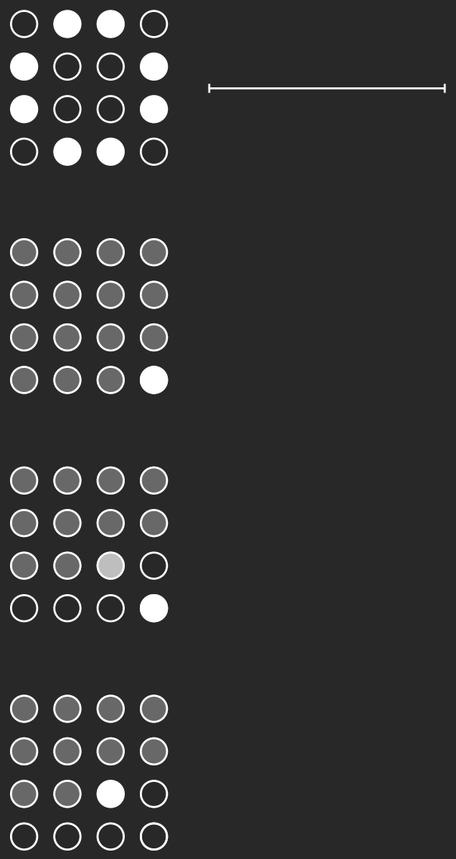
Upon entering this menu, you can change the behavior of the playhead. By turning the encoder, you can see a vertical line moving. Each line represents a playmode, if the cursor is on the current playmode, there is one vertical line shining bright, if it's not, there are two lines, one brighter (current playmode), and one dimmer (cursor). Click the button to select playmode, click again on the same position to exit to the menu, or hold the button for one second anywhere to exit the menu entirely.



PLAYMODES:

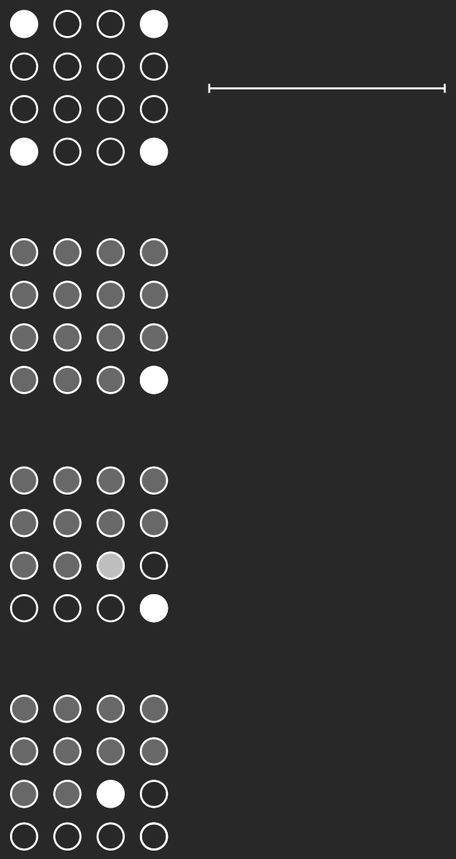
Forward ◦ Backward ◦ Pendulum ◦ Random

07. LAST STEP MENU

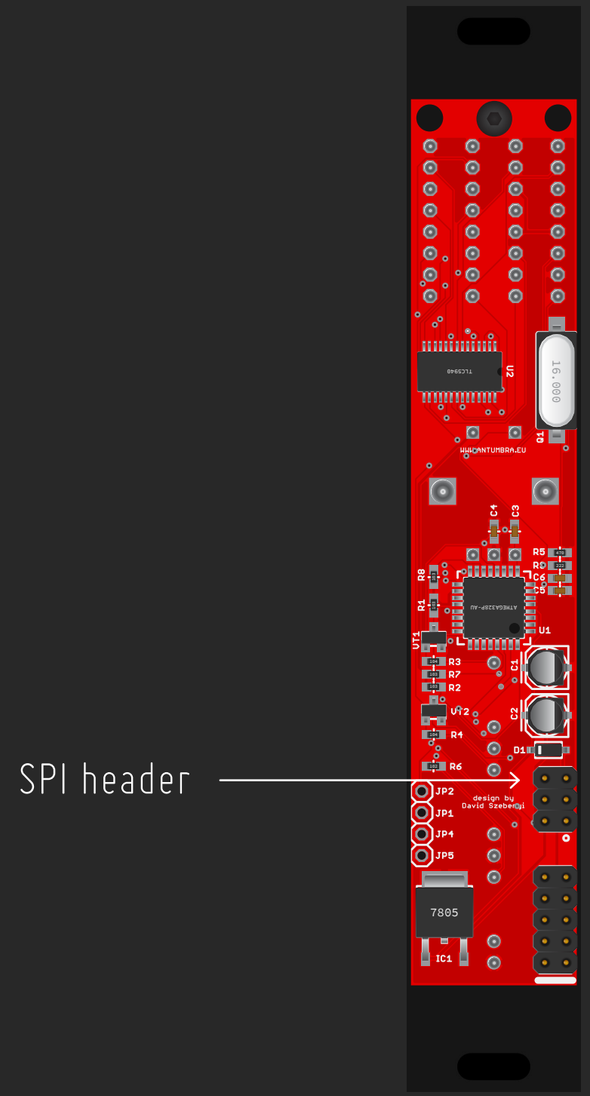


When you first enter this menu, all LEDs should be ON dim, and the last one bright. The dim LEDs represent the active steps, the bright LED represents the last step of the sequence. When you turn the encoder, the LEDs turn off one by one, to make the sequence the selected length, press the button. To exit to the menu press the button again on the last step, or press the button for one second to exit the menu entirely.

08. RANDOM AMOUNT



Here you can set the maximum number of random steps generated by “generate pattern” and “random resets”.
On 0 steps lit, the generation is completely random so it can happen that all the steps will be OFF and that all will be ON.



09. SOFTWARE MODIFICATIONS

Feel free to modify the software of your module, but at your own risk! Antumbra doesn't take responsibility for damaged microcontrollers, if you proceed from here I assume you know what you are doing.

If you are unsure of what you are doing, please contact Antumbra in email at antumbramodular@gmail.com!

Use the 6 pin SPI header on the back to upload code to the module. You will need an AVR programmer or an Arduino for this.

10. BILL OF MATERIALS

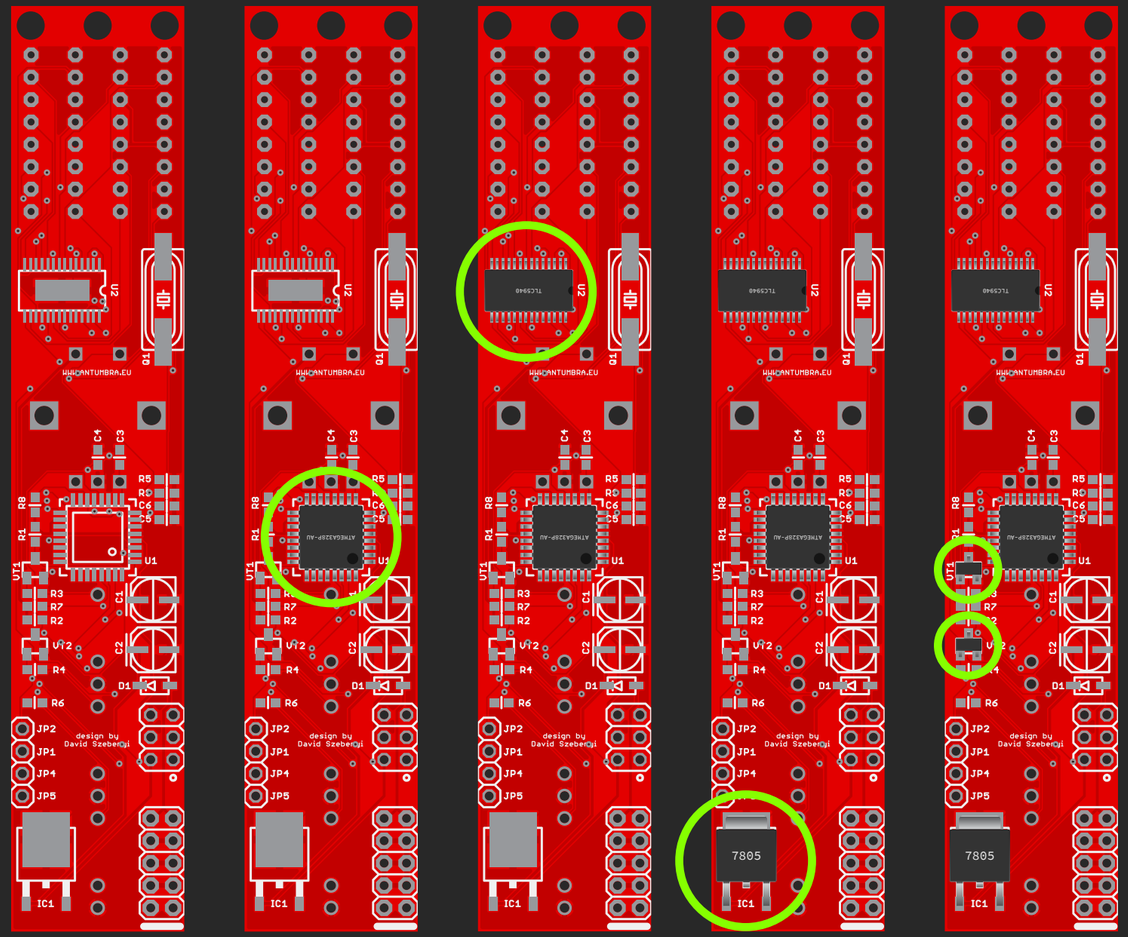
QTY	PART
2	470 RESISTOR 1/4W 1%*
1	1K RESISTOR 1/4W 1%*
1	2.2K RESISTOR 1/4W 1%*
4	10K RESISTOR 1/4W 1%*
2	100K RESISTOR 1/4W 1%*
2	100NF CAPACITOR*
2	22PF CAPACITOR*
2	10UF CAPACITOR
1	16MHZ CRYSTAL OSCILLATOR
1	ATMEGA 328P-AU
1	TLC5940 LED DRIVER
2	MMBT3904 NPN TRANSISTOR
1	7805 5V VOLTAGE REGULATOR
1	1N5819HW DIODE
1	2X3 PIN HEADER
1	2X5 PIN HEADER
3	THONKICONN JACK
16	3MM LED
1	ENCODER WITH PUSHBUTTON
1	KNOB FOR ENCODER
1	10MM M3 FEMALE-FEMALE SPACER
2	M3 SCREW

*0603 SMD

You can find a Mouser cart and Excel BOM on the website.

11. BUILD NOTES

Before you start building look through the build manual so that you'll be familiar with the building process and you won't run into any surprises! :)



12. BUILD

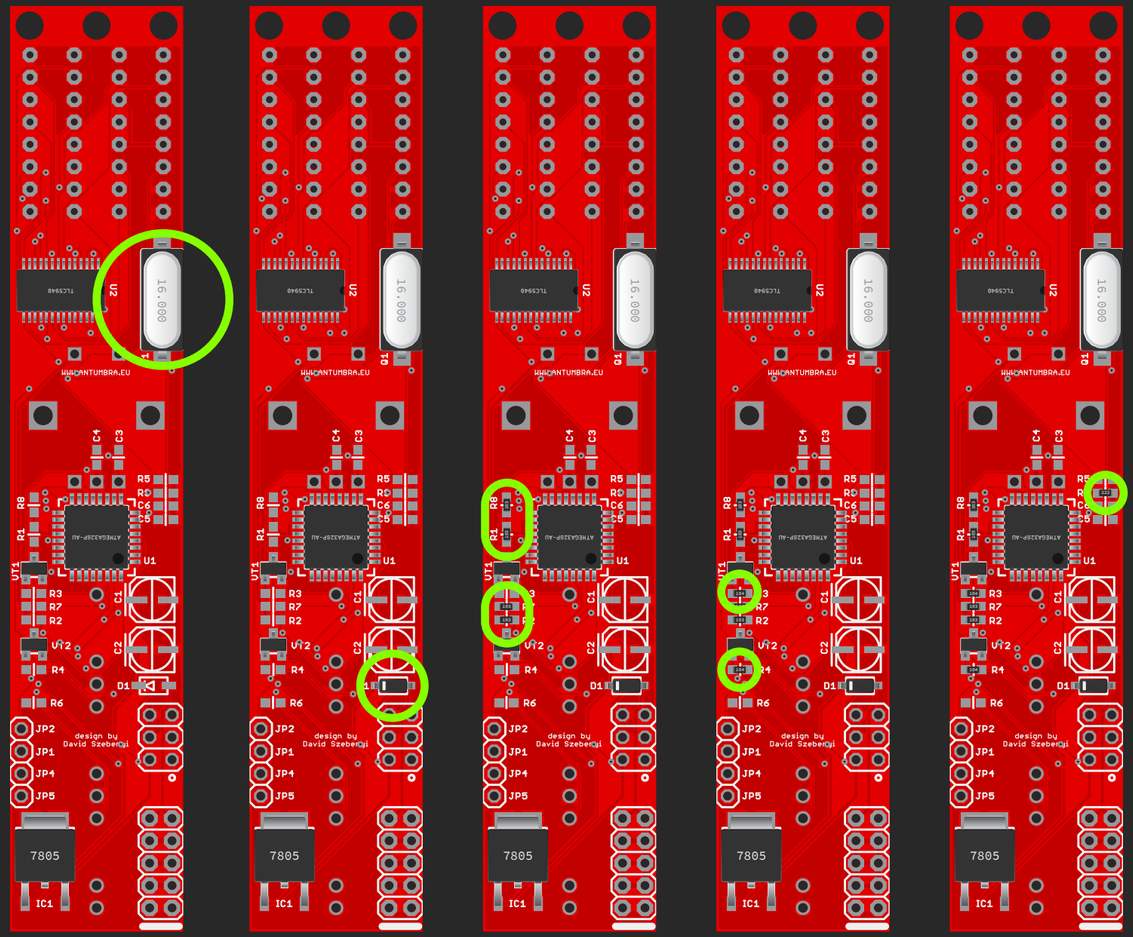
00. Orient the PCB as seen on the left

01. Solder the ATMEGA328P-AU in place
(the dot should be on the bottom right)

02. Solder the TLC5940 in place
(the notch should be on the right)

03. Solder the 7805

04. Solder the two MMBT3904



12. BUILD

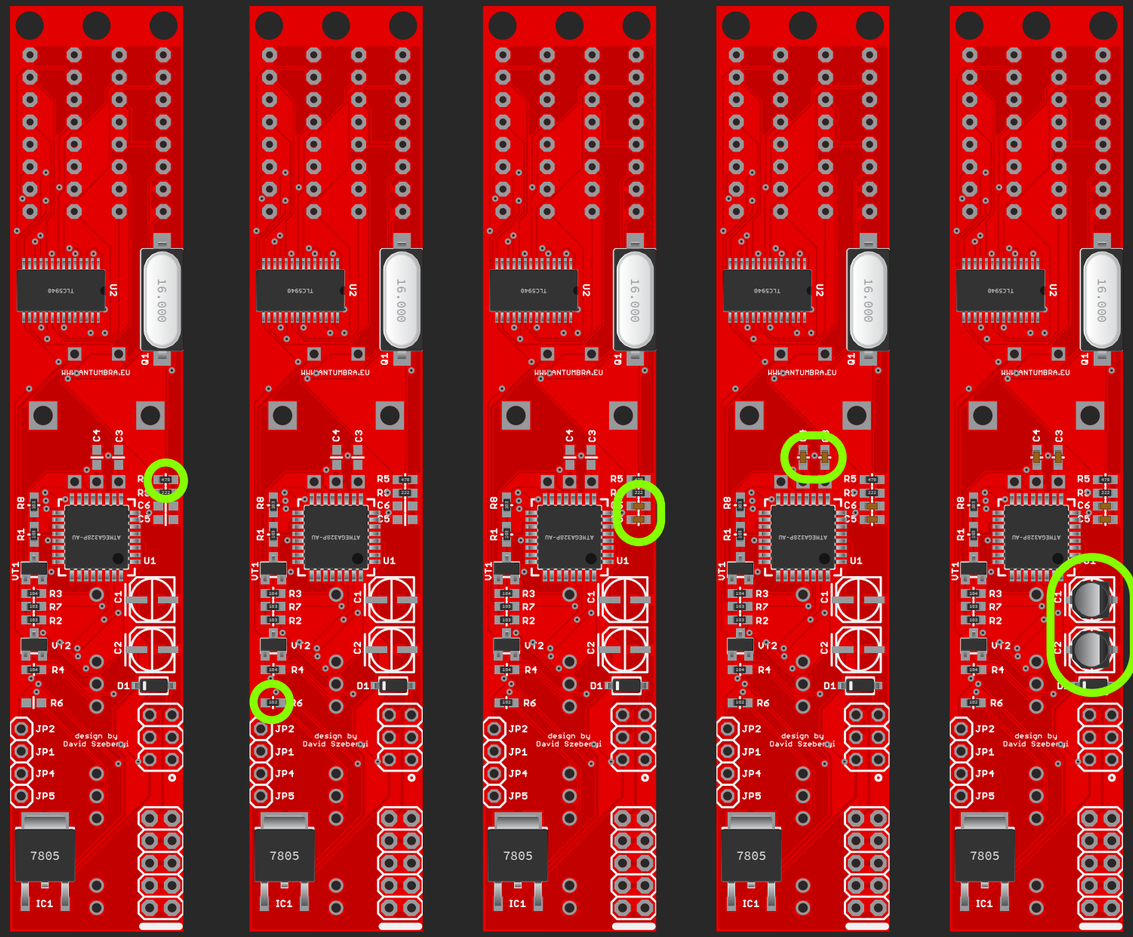
05. Solder the crystal

06. Solder the diode
    Orientation matters, marker should be on the left!

07. Solder the four 10k resistors

08. Solder the two 100k resistors

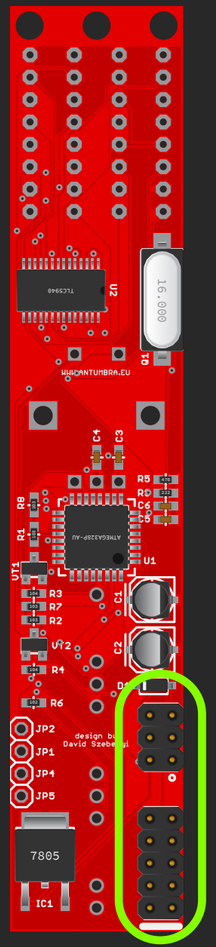
09. Solder the single 2.2k resistor



12. BUILD

10. Solder the single 470 ohm resistor
11. Solder the single 1k resistor
12. Solder the two 22pF capacitor
13. Solder the two 100nF capacitor
14. Solder the two 10uF capacitor

    Orientation matters, align them with the drawing on the board.



13

14

15

16

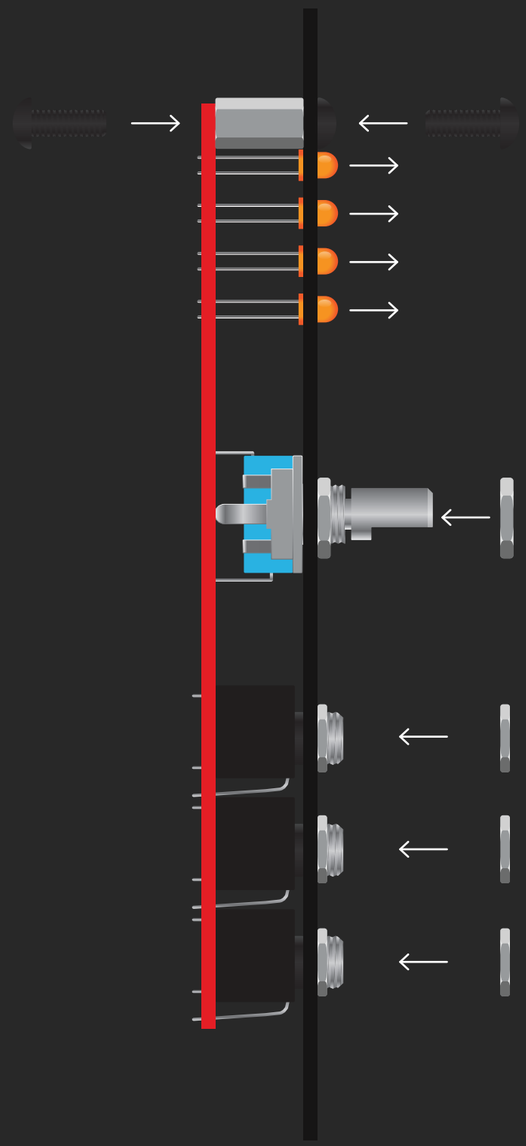
17

12. BUILD

13. Solder the pin headers
14. Turn around the board

    DO NOT SOLDER YET!
15. Place the 3 jacks
16. Place the encoder
17. Place the 16 LEDs, longer leg goes in the hole marked with a + symbol.

18



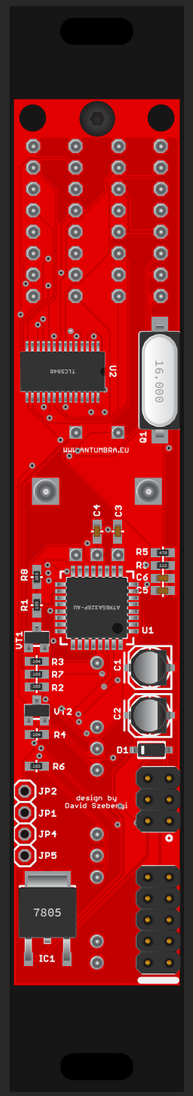
19

12. BUILD

18. Place the 10mm spacer in the middle hole on top. Depending on the type of your spacer, screw in a screw, or add a nut to hold it in place.

19. Now place the front panel on top, screw in the screw in the top hole as illustrated and tighten all the nuts. You might have to adjust the encoder so that it's barely in the holes of the PCB but don't worry about it, the most important thing is that it is screwed tight to the panel! (you can add washers under it to increase the distance.)

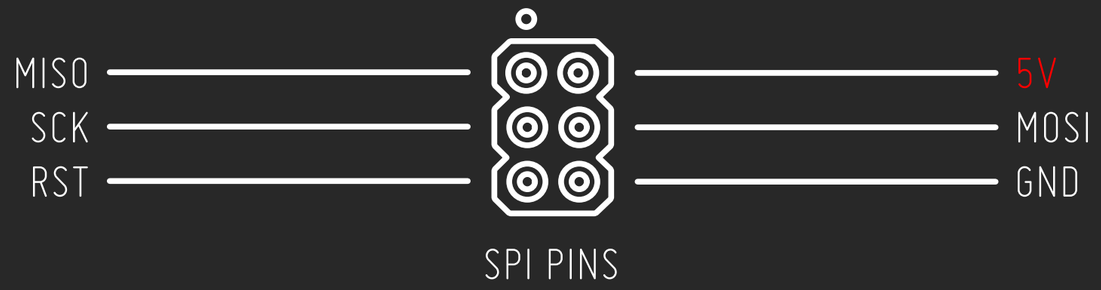
    You can adjust how much the leds peek out, I usually just put a tape over the panel so that the LEDs are in level with the holes.



12. BUILD

20. Now solder everything on the back side, and trim all the leads of the LEDs.

Congratulations, you are done with building! ☺



13. UPLOADING SOFTWARE

1. Download the zip file from here.

2. Connect your AVR ISP device to the 6 pin ISP header on the module. Pin 1 is marked with a dot.

3. Use an AVR programmer, like AVR ISP MKII with for example AVRDUDESS to upload the code.
   Fuse settings should be set to:
   L-fuse: 0xff ◦ H-fuse: 0xde ◦ E-fuse: 0x05

3. After you've uploaded the firmware with bootloader, connect the module to your power supply. If you were successful, you should see the welcome animation.
   On the first run, you have to enter the menu and press enter on the reset page.
   If your encoder is reversed, hold the encoder button while powering up your system.

KLIK is designed by David Szebenyi under Antumbra.

www.antumbra.eu

Manual by David Szebenyi (www.aman.hu)