

If you are reading this, most probably, you are about to build Erica Synths DIY Modulator. This module is 35mm deep, skiff friendly, has solid mechanical construction and doesn't require wiring. The Modulator essentially is LFO with simultaneous triangle and square wave outputs, clockable S&H with external CV input and noise source. A kit comes with two versions of noise generator – simple, transistor-based and more complex Zener diode-based one. Latest provides perfect, full spectrum white noise.

The DIY Envelope kit comes in three versions:

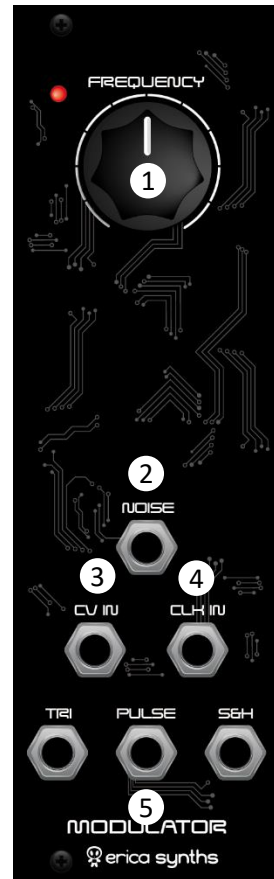
- 1) 3 PCBs + S&H chip + connectors,
- 2) 3 PCBs+ S&H chip + connectors + panel,
- 3) Full kit.

## FEATURES:

- LFO with triangle and pulse wave outputs
- Choice of transistor-based or Zener diode-based noise generator for massive, full spectrum white noise
- S&H circuit based on rare, high quality S&H chip
- S&H CV and clock inputs

## SPECIFICATIONS:

- LFO output amplitude -5V...+5V
- LFO frequency range 0,1...20Hz (configurable)
- Noise output level 10Vptp
- S&H CV input level up to 20Vptp
- Panel width 8HP
- Module depth 35mm
- Power consumption 27mA@+12V, 22mA@-12V



- 1 Set desired LFO frequency! LED gives visual feedback on LFO pulse wave output.
- 2 This is white noise output  
This is S&H circuit input. Apply here and turn them into stepped CVs on the S&H output. If no external clock is applied, S&H frequency is defined by FREQUENCY knob setting.
- 3 This is external S&H clock input. If nothing is patched here, it's normaled to the LFO.
- 5 These are LFO and S&H outputs.

## ASSEMBLY

Take precautions with regard to electrostatic discharge (ESD) safety. Handling components should be done in electrostatically safe environment. Use personal and workplace grounding. Any discharge (even a minor one) from body to a component may permanently damage it.

Our PCBs have silkscreened both component values and designators nevertheless we highly recommend you to print out files with component placement before you start assembly of the module. And, please, at least take a look on this manual!

Some components are marked as NU (not used) – leave those unpopulated! Some components are market as OPTION (those are for optional modifications) – leave those unpopulated for now.

1

Solder horizontally placed resistors and diodes! Pay attention on orientation of diodes! Also solder DIP14 socket! Few resistors are placed vertically; solder those too!



2

Solder capacitors, ferrite beads and reverse PSU protection diodes!



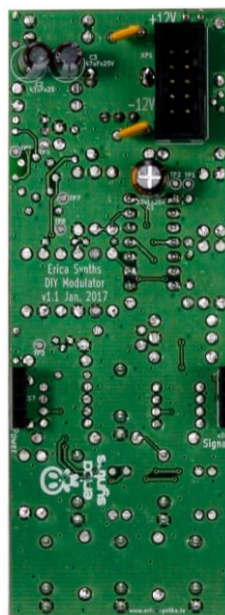
3

Solder transistors, S&H chip in metallic can (align a key with a silkscreen for correct orientation). Also solder jacks and potentiometer – they are installed on component side.



4

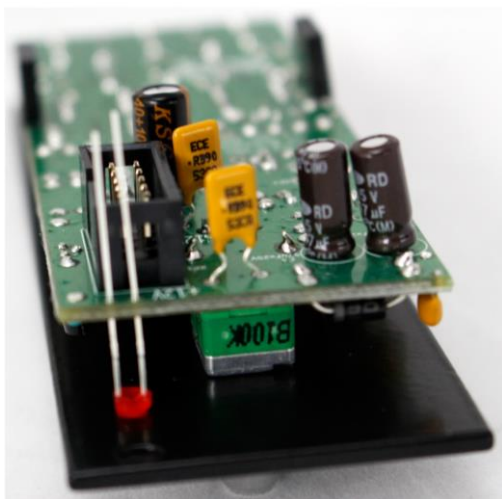
Turn the PCB around and solder PSU connector, resettable fuses (you may replace them with wire jumpers on your own risk), noise source connectors and electrolytic capacitors!



This is negative lug of the electrolytic capacitor

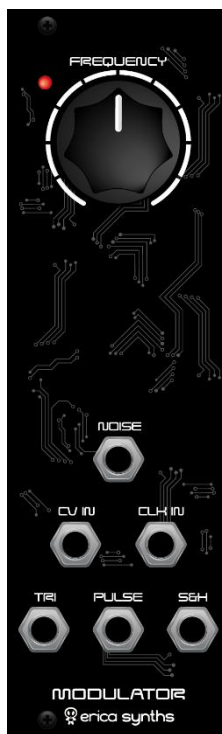
5

Insert the LED (mind the polarity and **don't solder it yet!**)! Install the front panel, fix it with jack and potentiometer nuts! Insert the LED in the relevant hole and solder it.



6

Install a potentiometer knob! Now it's time to assembly noise boards!



7

You have a choice to build transistor-based or zener diode-based noise generator module. The last generates better, full spectrum white noise, while transistor based noise generator is simpler, but it may require noise transistor selection. We'll start with the transistor one. Solder all resistors and DIP8 socket on it!



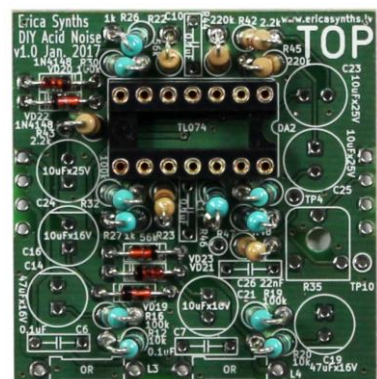
8

Solder capacitors, electrolytic capacitors and a trimpot! Also solder ferrite beads (you may replace them with 10ohm resistors or wire jumpers). Solder a transistor. You may need to hand select better noise transistor later. Also solder 1x4 male connectors on the opposite side of the PCB!



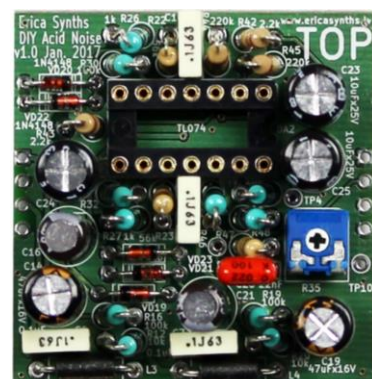
9

For Zener diode-based noise module solder all diodes, resistors (they are placed vertically; you may want to replace them with 0805 smt resistors) and DIP socket!



10

Solder capacitors, electrolytic capacitors (there are few non polarized – don't mix them up with polarized ones) and a trimpot! Also solder 1x4 male connectors on the opposite side of the PCB!



11

Install the noise generator board! We recommend to use some drop of glue to fix the connectors together.



12

Congratulations! You have completed the assembly of Erica Synths DIY Modulator. If assembly is done correctly, the module should work straight away. Calibration is easy – use oscilloscope to observe signal amplitude on the noise output. Adjust the trimpot to get +5V amplitude! If you do not have access to the oscilloscope, you can calibrate it on ear – just get desired volume of noise.

ENJOY!