

If you are reading this, most probably, you are about to build Erica Synths DIY BASSLINE module. The module is 45mm deep, skiff friendly, has solid mechanical construction and doesn't require wiring.

Erica Synths Bassline is full analogue synth voice module for ultimate acid basslines. It features highly stable AS3340-based VCO with three waveforms, a filter inspired by Erica Synths Acidbox and unique feature – transistor-based suboscillator. Accent provides more expression to the bassline, by adding volume and opening the VCF slightly.

The Bassline kit comes in three versions:

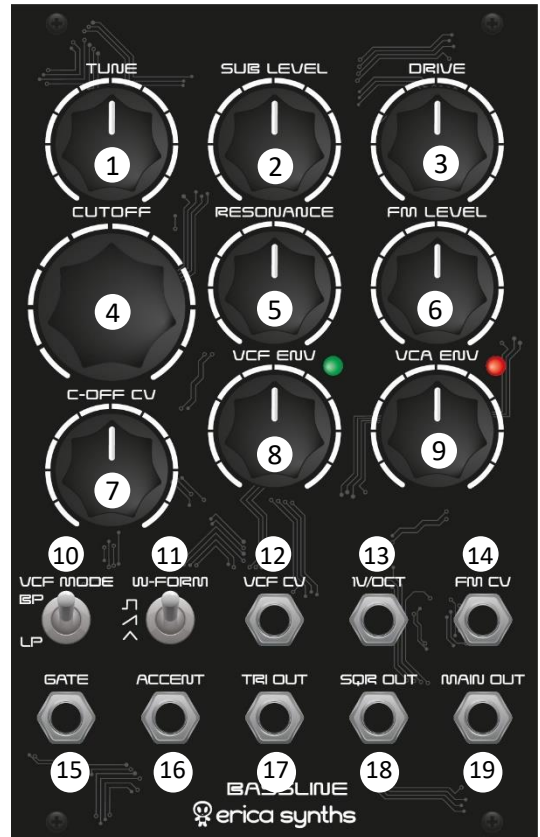
- 1) Set of 2 PCBs + rare ICs + mechanical parts (PCB connectors and spacer),
- 2) Set of 2 PCBs + rare ICs + mechanical parts (PCB connectors and spacer)+ panel,
- 3) Full kit.

## FEATURES:

- Full analogue circuit
- Great 1V/oct tracking
- Simultaneous Triangle, Square and Master outputs
- Accent
- Transistor-based suboscillator
- VCF and VCA decay envelopes
- LP/BP VCF
- External VCO FM and VCF cutoff CV inputs

## SPECIFICATIONS:

• Pitch range	C0-C8
• Audio output amplitude	10Vptp
• CV amplitude (full span)	-5V - +5V
• Panel width	16HP
• Module depth	45mm
• Power consumption	80mA @+12V, 40mA@-12V



- 1 Set the initial tune of the VCO
- 2 Add some power to the sound! This is octave down transistor-based suboscillator level control and effects Main output only
- 3 Set desired overdrive level! It effects Main output only
- 4 Big knobs are for VCF cutoff manual control!
- 5 Adjust the VCF resonance! The filter is the same as on DIY Polivoks VCF, and it's capable of extreme resonance sweeps.
- 6 This is an external FM level attenuator. You can also do some self-modulation by patching TRI OUT in to FM IN and increasing FM level.
- 7 Adjust VCF cutoff CV level! If nothing is patched in C OFF CV input, it adjusts VCF envelope impact on the cutoff
- 8 Adjust the VCF cutoff envelope decay time
- 9 Adjust the VCA envelope decay time. Full CW setting will open the VCA even the gate is not present
- 10 Select the VCF mode
- 11 Select the VCO waveform that is sent to the master output
- 12 This is an external CV input to control the VCF cutoff
- 13 This is the VCO 1V/oct input. It tracks well over 9 octaves
- 14 This is the VCO FM input
- 15 This is the Gate input. It accepts gate from any sequencer and sends it to the VCF and VCA envelopes simultaneously
- 16 This is the Accent input. +10V CV will increase the volume and open the VCF slightly to an expression to the bassline
- 17 These are additional VCO outputs, and they are not affected by VCF and VCA. You can use them as additional sound sources that are in tune with your bassline
- 18 and 19 This is the main output of the module

## 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, diodes and ferrite beads on both PCBs (Controls board and Main board)! Pay attention on orientation of diodes! Also, solder IC sockets on the main board!

Controls board



When nothing is patched into 1V/oct input, it's normalled to +12V thru the R12, which defines the initial tune of the VCO. You may want to adjust it to your taste, when calibrating the VCO, therefore we **recommend to solder R12 on the other side of the PCB!** Increasing the R12, the initial tune of the VCO will decrease.

Main board



2

Solder IC sockets and capacitors of both boards! Solder resettable fuses on the Controls board!





3

Solder potentiometers, switches, jacks and transistors (pay close attention on transistor denominations and orientation) on the Controls board and vertically placed resistors on the Main board!



4

Solder transistors and K140UD12 opamps on the Main board! Pay close attention on orientation of transistors and opamps! Solder electrolytic capacitors. Mind their polarity! Some capacitors are non-polarized – their polarity doesn't matter.



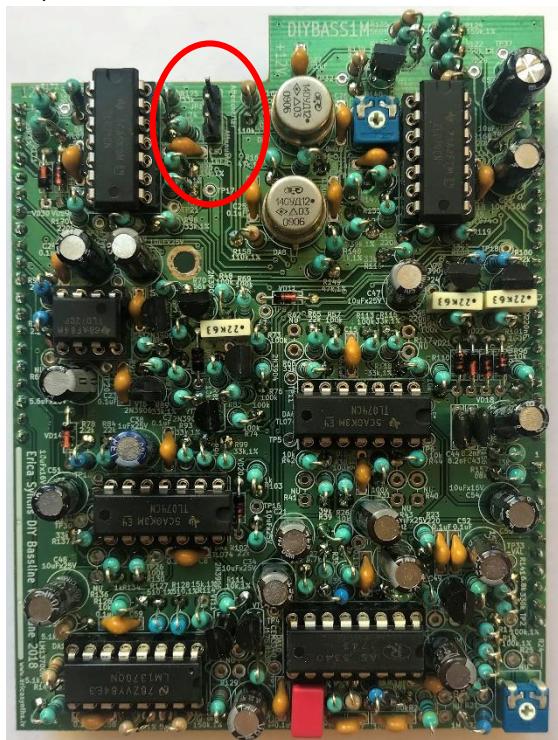
Negative lug of electrolytic capacitor is marked with a stripe!





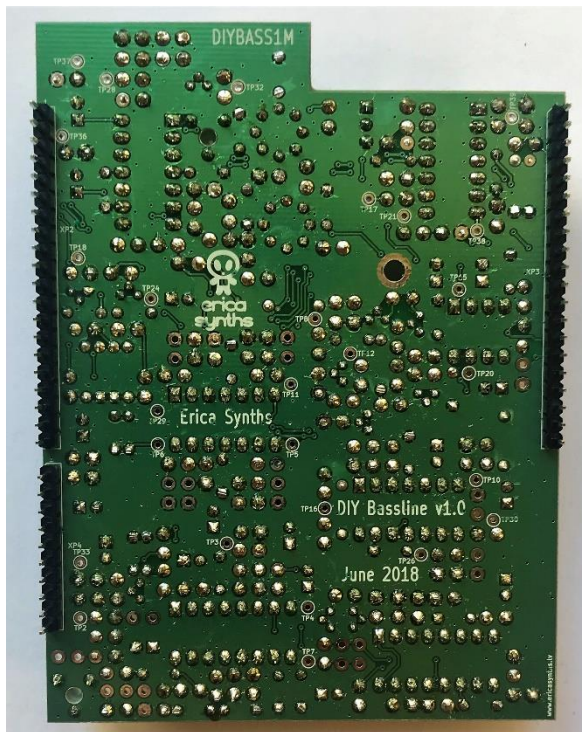
5

Solder trimpots and pinheader for a jumper. The jumper configures cutoff CV potentiometer. If placed on top pins, the CV potentiometer works as attenuverter allowing inverted envelopes, if on bottom pins – it's simple attenuator. Insert ICs! Mind the orientation!



6

Turn the Main board around and solder male connectors! Make sure, they are 90° against the PCB! Place female connectors on the male connectors!



7

Turn the Controls board around and solder the PSU cable socket. Solder two electrolytic capacitors – they should be placed horizontally.



8

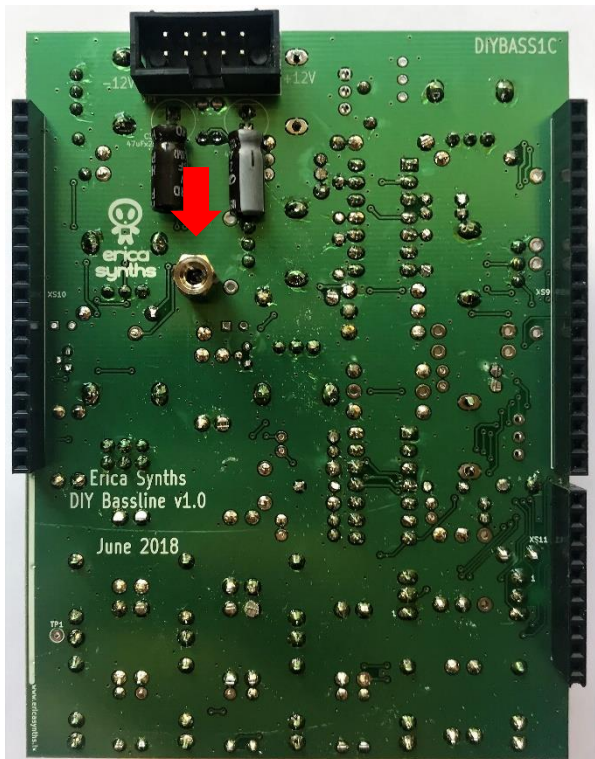
Now connect both boards together and solder female socket to the Controls board!





9

Use M3x6 screw to fix the 11mm spacer on the Controls board



8

Insert LEDs, but do not solder them, yet!



9

Now place the front panel and make sure LEDs fit in relevant holes! Fix the front panel with jack and potentiometer nuts and solder LEDs!



10

Connect the Controls PCB and the Main PCB and use another M3x6 screw to fix them. Install potentiometer knobs! Congratulations – you have completed the Erica Synths DIY Bassline!



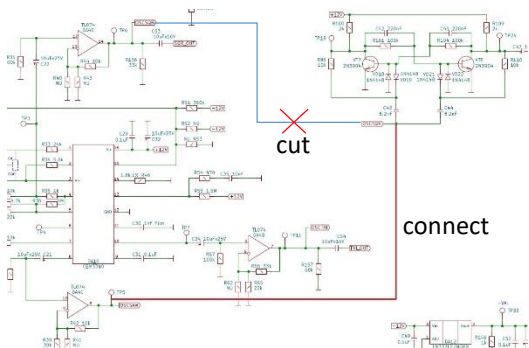
## CALIBRATION

- 1) Connect the VCO to the PSU. Let it "heat up" for ~10mins.
- 2) Turn the VCA Envelope potentiometer all way CW, TUNE potentiometer to 12:00 and all other potentiometers all way CCW! Set waveform select switch to the SAW, VCF mode switch - to LP! Install the VCF configuration jumper to Attenuator position (lowest).
- 3) Connect the main output to a chromatic tuner, and then to the mixer with headphones or monitor speakers.
- 4) Rotate the Cutoff knob and you should hear VCF opening and closing. Adjust the trimpot R140 so that the VCF closes completely at full CCW setting of the Cutoff knob.
- 5) Now it's time to tune the VCO! The VCO SCALE trimpot is accessible thru a small hole on the front panel. Connect a keyboard/midi-CV interface that generates 1V/oct CV to the 1V/oct input!
- 6) Play C4 on the keyboard and use TUNE potentiometer on the front panel to adjust tuning so that tuner shows C4!
- 7) Play C5 on the keyboard and see the tuner reading!
- 8) If the tuner shows something higher than C5 use SCALE trimpot to INCREASE the frequency of the VCO slightly. If the tuner shows something lower than C5, use SCALE trimpot to DECREASE frequency slightly!
- 9) Play C4 again and use TUNE potentiometer to adjust tuning so tuner shows C4 again.
- 10) Play C5 and see, what you get. The tuning should be more precise. If it's not exactly C5, go back to the step 6!
- 11) Once you are happy with C5, check what you get on C6, C7 and C3. You may need to adjust it little bit more as described on step 6.
- 12) The trimpot R24 is for high frequency scale adjustment, but in most of the cases you just leave it in the mid setting.

**NB! In some cases you may experience malfunctioning of the suboscillator at low frequency settings of the principal oscillator. The reason is that the pulse wave has distinct peak on the rising edge and the suboscillator is triggered twice, so it generates the same frequency as the principal oscillator.**

**There are two ways, to solve this:**

- 1) Replace C42 and C45 by 47nF; R96 and R110 by 20k, or
- 2) Cut a trace that leads from C43 and C44 to the OSCSQR (TP6) and use a wire to connect the C43 and C44 to the OSCSAW (TP5) as shown in the picture below. You may also desolder bottom pins of C43 and C44, connect them above the PCB and use a wire to connect to the TP5.



If you succeeded with calibration – congratulations – you have completed the most advanced module of Erica Synths DIY line! Enjoy!

If you have any questions about the construction and troubleshooting, please refer to [Muffwiggler forum](#) or send the email to [info@ericasynths.lv](mailto:info@ericasynths.lv).

All our DIY kits are numbered and photos of kits are registered on closed Facebook group, so in case some parts are missing from kits, please, send an email to [info@ericasynths.lv](mailto:info@ericasynths.lv) and we'll take care of every issue.

We do not provide warranty on DIY kits, as we can't take responsibility on built quality, but we provide repair services, and cost is 25EUR/hour.