

GUIDE ON ASSEMBLY OF THE ERICA SYNTHS DIY SYNTH VOICE

When developing Erica Black Series and Pico Series modules, we accumulated quite a know-how on compact and great sounding designs, and we decided to share some of those with DIY community. And therefore Erica Synths proudly presents — DIY Synth Voice module! It consists of all essential blocks for versatile monosynth, and is 100% patchable for even more control options. In order to make the module more compact and reliable in tuning, it has digital/analogue design. VCO and envelope generators/LFOs are digital, other parts are analogue. Digital parts are designed arround pre-programmed STM controller, which comes with a kit presoldered on a small contoller board. Chain up several Erica Synths DIY Synth Voice modules and you have a versatile polysynth!

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VCO with 16 waves and manual wave morphing

-1 oct suboscillator

White noise generator

External audio input

Audio Mixer

LP/BP VCF inspired by Black Polivoks VCF

Lin/log ASR envelope generator with looping function

Lin ASR EG/LFO with looping function

9 LFO waves with wave morphing

Tap tempo and LFO sync

LFO frequency multiplication (x2, x4) and division (/2, /4) in sync mode

VCA with bias control

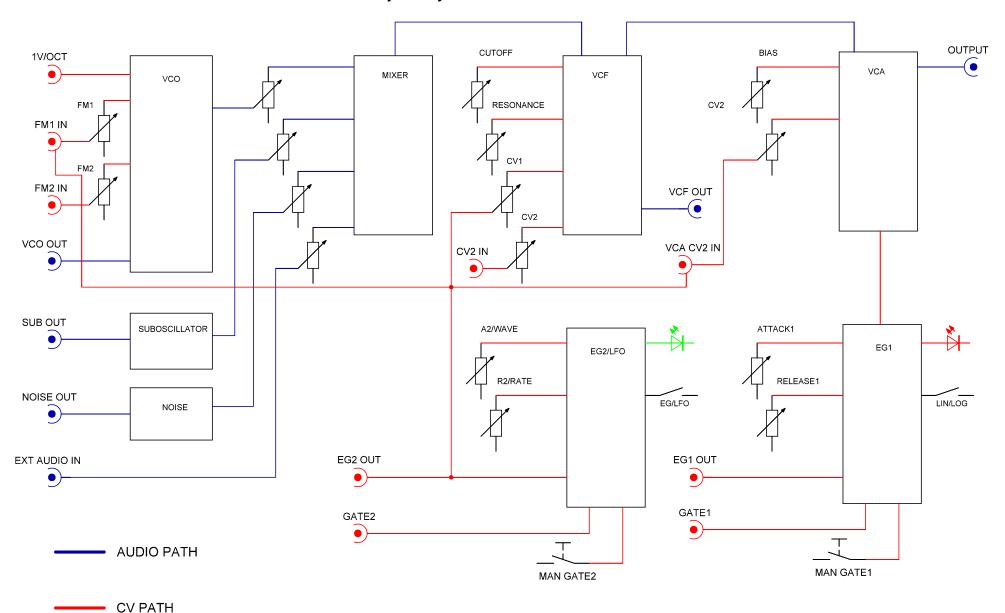
Auto callibration for better 1V/oct tuning

TECHNICAL SPECS

VLU range:	
Audio output level:	10V ptp
LFO output level:	5V - +5V
EG output level:	0-+10V
EG1 attack time	0-500ms
EG1 release time	0-2"
EG2 attack time	0-500ms
EG2 release time	0-1"
LFO frequency:	0,1Hz - 70Hz
VCA attenuation level:	80dB
Panel width:	30HP
Module depth:	35mm
Power consumption:	82mA@+12V, 50mA@-12V

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Here are basic blocks and their connections of Erica Synths Synth Voice!





Select one of 16 waveforms! Waveforms will

gradually morph from one to other, so in reality

you have even more waveforms

Adjust VCO frequency modulation depth! This

potentiometer sets internal modulation level.

and it takes modulation CV from EG2/LFO

You can apply an external FM CV, and adjust -

its' depth

This is 1V/oct input, obviously.

Patch an external CV for VCO frequency

modulation here

Patch an external audio signal here

This is VCO output, in case you need

pure VCO signal

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The Mixer is straight forward — set desired level of audio signals before they are routed to the VCF Set VCO frequency

VCF has two cutoff CV level attenuators -CV1 is internally patched to EG2/LFO, CV2 is external CV

EG2/LFO gives you linear ASR envelope generator or tap tempo LFO with 16 selectable waveforms. When lfo is in sync mode, rate knob works as divider or multipler. 12 O'clock setting gives ratio 1

EG1 is lin/log ASR envelope generator dedicated to control VCA.

Adjust VCA bias! 12 o'clock setting closes the VCA, if OV CV is applied, full CW setting makes the VCA full open. For nice tremolo effects set the knob somewhere arround 2 o'clock

its' depth

Push MAN GATE1 to activate EG1 manually! But the button has few more features. Push and hold a button for 5", and EG1 looping mode will be activated. To go back to manual gate mode, push and hold a button for 5" again. Also, you use this button for 1V/oct calibration — see Calibration below

Push MAN GATE2 to activate EG2 manually! Push and hold a button for 5", and EG2 looping mode will be activated. To go back to manual gate mode, push and hold a button for 5" again. When in LFO setting, it works as tap tempo button.

Patch an external CV for VCA control here. If nothing is patched in VCA CV2 jack, it's

You can apply an external FM CV, and adjust

automatically routed to EG2/LF0

vco ATTACK1 CUTOFF vco BIAS CV2 LEVEL RESONANCE SUBOSC RELEASE1 MAN. GATE 1 CV1 LEVEL A2/WAVE FM1 LEVEL NOISE FM2 LEVEL EXT. IN CV2 LEVEL R2/RATE MAN. GATE 2 **IV/OCT** FM2 EXT. IN CV2 **GATE1** GATE2 VCA CV2 NOISE OUT VCF OUT EG2 OUT OUTPUT SAULH AOICE

This is dedicated suboscillator output

This is white noise output

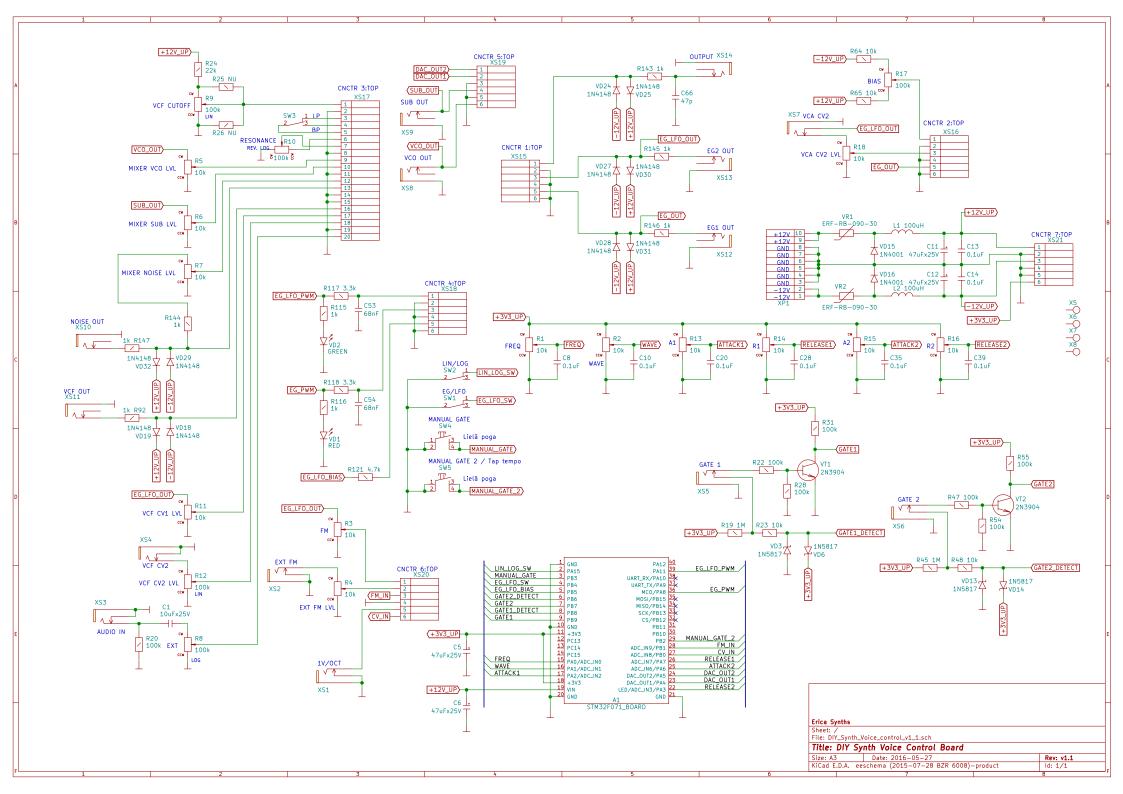
Patch an external CV for VCF cutoff control here

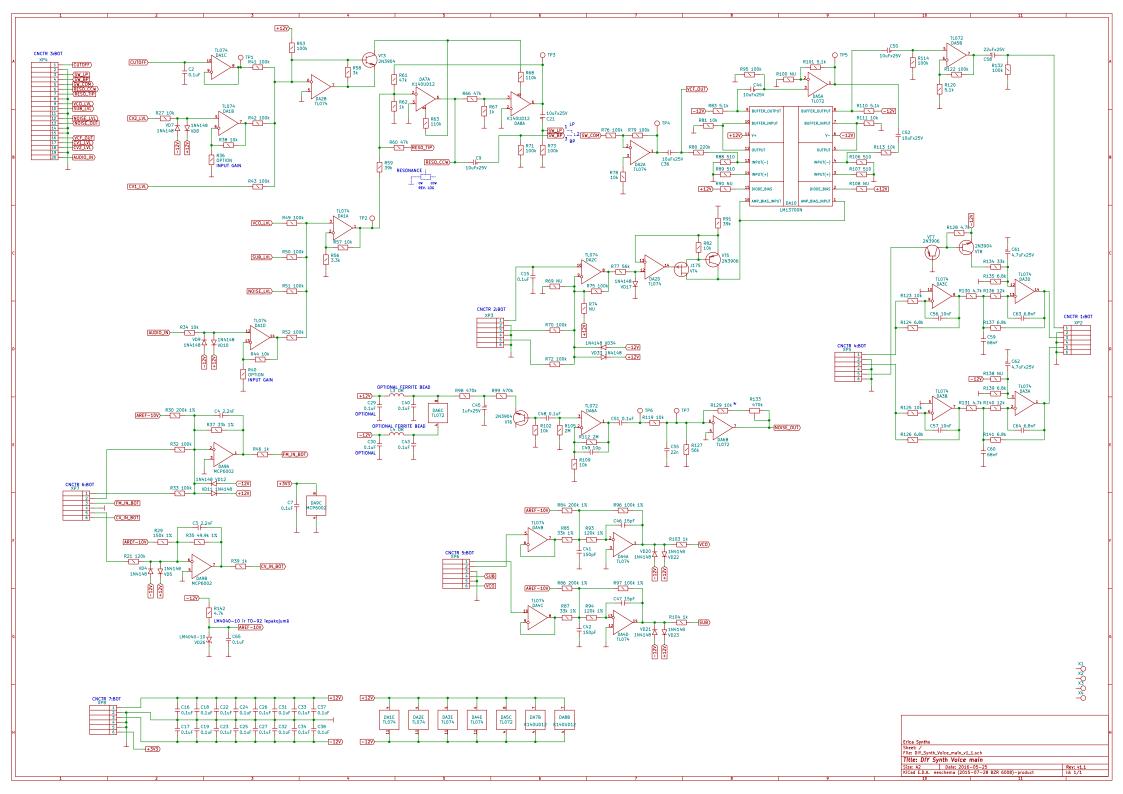
This is VCF output, you can take an audio signal here before it's routed to the VCA

Patch Gate signals here to activate EGs! When EG2 is in LFO setting, LFO frequency will sync to the gate

These are EG outputs. You can use those to control other modules in your setup

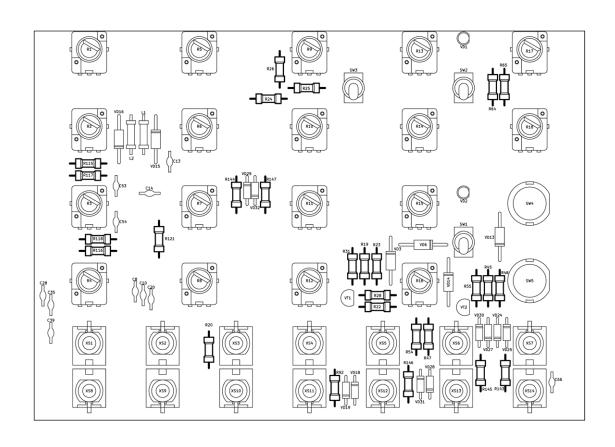
This is main output of the module



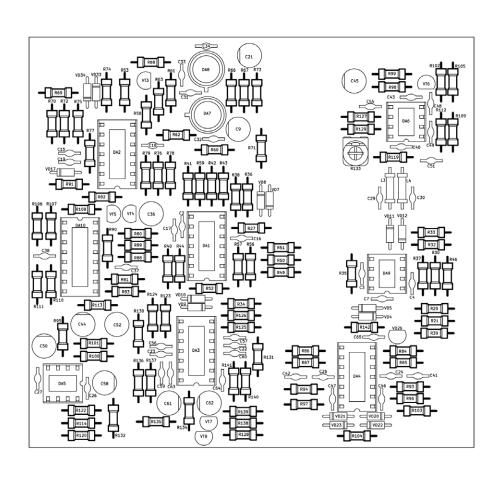




Component designators — Control board

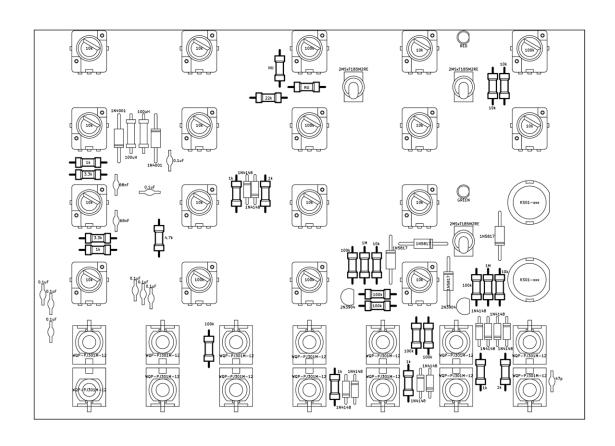


Component designators — Main board

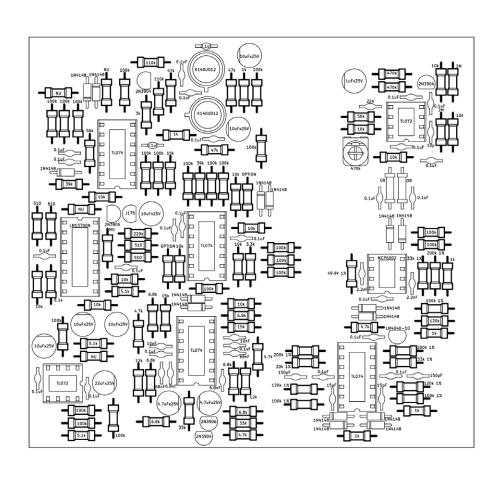




Component values — Main board



${\bf Component\ values-Main\ board}$





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	Erica Synths DIY Synths Voice				
	Controll board Bill of Materials				
	V 1 1				
	V 1_1				
ld	Designator	Package	Ottv	Designation	Supplier and ref
	CERAMIC CAPACITORS	, acrege			
40		0.5		0.4.5	
10	C8,C10,C13,C14,C20,C28,C35,C39	C-5mm C-5mm		0.1uF 68nF	
12	C53,C54 C66	C-5mm		47p	
12		C-SIIIII	1	47p	
	ELECOTROLYTIC CAPACITORS				
8	C1 non polarized	CE63x25_NP	1	10uFx25V	http://lv.farnell.com/nichicon/uvp1e100mdd1td/aluminum-electrolytic-capacitor/dp/1823717
9	C5,C6,C11,C12	CE63x25	4	47uFx25V	
	SEMICONDUCTORS				
22	VD3,VD6,VD13,VD14	DO-41	1	1N5817	1N4148 will work fine here, as well
23	VD15,VD16	DO-41	_	1N4001	use any from 1N4001 - 1N4007
	VD18,VD19,VD24,VD25,VD27,VD28,VD29,VD30,V				200 any non-1111001
24	D31,VD32	DO-35	10	1N4148	
25	VT1,VT2	TO-92-M	2	2N3904	
5	VD1	LED-3MM	1	RED	
6	VD2	LED-3MM	1	GREEN	
	RESISTORS				
14	R19,R45		2	1M	
15	R20,R22,R28,R31,R47,R54,R55		7	100k	
16	R23,R48,R64,R65		4	10k	
17	R24		1	22k	
18	R25,R26		2	NU	
19	R92,R115,R116,R143,R144,R145,R146,R147		8	1k	
20	R117,R118		_	3.3k	
21	R121		1	4.7k	
	POTENTIOMETERS				
1	R1,R2,R3,R4,R5,R6,R7,R11,R13,R14,R15,R16R18	RD901F	13	10k	https://www.thonk.co.uk/shop/alpha-9mm-pots/
2	R8,R9,R10,R12,R17	RD901F	5	100k	https://www.thonk.co.uk/shop/alpha-9mm-pots/
	MISCLANEOUS				
13	L1,L2	R0125W	2	100uH	Ferrite bead or 10ohm resistor
28	VR1,VR2	polifuse	_	ERF-RB-090-30	http://lv.farnell.com/littelfuse/30r090uu/polyfuse-ptc-
26	XP1	IDC-10MS		IDC-10MS	radial-0-9a/dp/1822232
29	XS15,XS16,XS18,XS19,XS20,XS21	PBS-6	_	PBS-6	comes with a kit
30	XS17	PBS-20	-	PBS-20	comes with a kit
7	XS1,XS2,XS3,XS4,XS5,XS6,XS7,XS8,XS9,XS10,X S11,XS12,XS13,XS14	WQP-PJ301M-12		WQP-PJ301M-12	comes with a kit
3	SW1,SW2,SW3	2MSxT1B5M2RE	3	ON-ON switch	http://lv.farnell.com/multicomp/2ms1t1b5m2re/switch- spdt-0-1a-20v-on-on/dp/9473041
4	SW4,SW5	KS01-xxx	2	Pushbutton	http://lv.farnell.com/c-k-components/d6r10lfs/switch- spno-0-1a-32vdc-tht/dp/1201381
					<u> </u>



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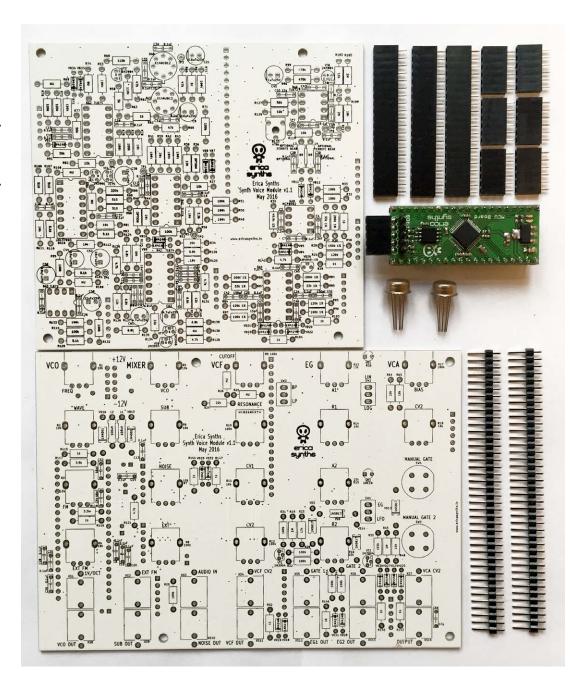
-	Erica Synths DIY Synths Voice		_		
-	Mainl board Bill of Materials				
	V 1 1				
	V 1_1				
ld	Designator	Package	Qtty	Designation	Supplier and ref
	CERAMIC CAPACITORS				
	C2,C7,C15,C16,C17,C18,C19,C22,C23,C24,C25,		\top		
1	C26,C27,C29,C30,C31,C32,C33,C34,C37,C38,C	0.5	00	0.45	
2	40,C43,C48,C51,C65 C3,C4	C-5mm C-5mm		0.1uF 2.2nF	
	C41,C42	C-5mm		150pF	
4	C46.C47	C-5mm		15pF	
5	C49	C-5mm		10p	
6	C55	C-5mm	1	22n	
7	C56,C57	C-5mm		10nF	
-	C59,C60	C-5mm		68nF	
9	<u>C63,C64</u>	C-5mm	2	6.8nF	
	ELECTROLYTIC CAPACITORS				
	C45	CE63x25		1uFx25V	
11	C9,C21,C44,C50	CE63x25		10uFx25V	http://b.forpell.com/pichicon/u.m1c100mdd1td/cluminum
12	C36,C52 (non polarized)	CE63x25_NP	2	10uFx25V	http://lv.farnell.com/nichicon/uvp1e100mdd1td/aluminum- electrolytic-capacitor/dp/1823717
13	C58	CE63x25	1	22uFx25V	
14	C61,C62	CE63x25	2	4.7uFx25V	
	SEMICONDUCTORS				
15	DA3,DA4,DA1,DA2	DIP-14	4	TL074	
16	DA5,DA6	DIP-8		TL072	
17	DA7,DA8		2	K140UD12	comes with a kit
18	DA9	DIP-8	1	MCP6002	http://lv.farnell.com/microchip/mcp6002-e-p/ic-op-amp-dual-1mhz-dip8-6002/dp/1332117
19	DA10	DIP-16	1	LM13700N	<u> dipo-0002/dp/1332117</u>
20	VD4,VD5,VD7,VD8,VD9,VD10,VD11,VD12,VD17,	DO-35			
20	VD20,VD21,VD22,VD23,VD33,VD34	DO-35	15	1N4148	
21	VD26	TO-92	1	LM4040-10 0,1%	http://lv.farnell.com/texas-instruments/lm4040aiz-10-0-nopb/voltage-ref-shunt-10v-to-226aa/dp/1673984
22	VT3,VT6,VT8	TO-92-M	3	2N3904	rer-snunt-10V-to-226aa/dp/1673984
23	VT5,VT7	TO-92-M		2N3906	
24	VT4				http://lv.farnell.com/fairchild-semiconductor/i175-d26z/transistor-
	V14	TO-92	<u>'</u>	J175	jfet-30v-60ma-to-92/dp/2322634
	RESISTORS				
25	R21		1	120k	
26	R27,R34,R38,R44,R57,R78,R81,R82,R102,R109 ,R111,R113,R119,R123,R125,R129		16	10k	
27	R29			150k 1%	
	R30,R84,R86			200k 1%	
	R32,R33,R41,R42,R43,R49,R50,R51,R52,R53,R				
29	70,R71,R72,R73,R75,R76,R79,R95,R114,R122,R 132		21	100k	
30	R35			49.9k 1%	
	R36,R40		_	OPTION	
32	R37,R85,R87			33k 1%	
33	R39,R46,R62,R67,R103,R104			1k	
-	R56			3.3k	
	R58 R59,R91			3k	
	I RAU RUT			201.	
37				39k 47k	
	R60,R61,R66		3	47k	
38	R60,R61,R66 R63,R68		3 2	47k 110k	
38 39	R60,R61,R66		3 2 6	47k	
38 39 40 41	R60,R61,R66 R63,R68 R69,R74,R90,R100,R108,R138 R77,R127		3 2 6 2	47k 110k NU 56k 220k	
38 39 40 41 42	R60,R61,R66 R63,R68 R69,R74,R90,R100,R108,R138 R77,R127 R80 R83,R101,R110,R120		3 2 6 2 1	47k 110k NU 56k 220k 5.1k	
38 39 40 41 42 43	R60,R61,R66 R63,R68 R69,R74,R90,R100,R108,R138 R77,R127 R80 R83,R101,R110,R120 R88,R89,R106,R107		3 2 6 2 1 4 4	47k 110k NU 56k 220k 5.1k 510ohm	
38 39 40 41 42 43 44	R60,R61,R66 R63,R68 R69,R74,R90,R100,R108,R138 R77,R127 R80 R83,R101,R110,R120 R88,R89,R106,R107 R93,R94		3 2 6 2 1 4 4 2	47k 110k NU 56k 220k 5.1k 510ohm 120k 1%	
38 39 40 41 42 43 44 45	R60,R61,R66 R63,R68 R69,R74,R90,R100,R108,R138 R77,R127 R80 R83,R101,R110,R120 R88,R89,R106,R107 R93,R94 R96,R97		3 2 6 2 1 4 4 2 2	47k 110k NU 56k 220k 5.1k 510ohm 120k 1%	
38 39 40 41 42 43 44 45	R60,R61,R66 R63,R68 R69,R74,R90,R100,R108,R138 R77,R127 R80 R83,R101,R110,R120 R88,R89,R106,R107 R93,R94 R96,R97 R98,R99		3 2 6 2 1 4 4 2 2 2	47k 110k NU 56k 220k 5.1k 510ohm 120k 1% 100k 1% 470k	
38 39 40 41 42 43 44 45 46 47	R60,R61,R66 R63,R68 R69,R74,R90,R100,R108,R138 R77,R127 R80 R83,R101,R110,R120 R88,R89,R106,R107 R93,R94 R96,R97		3 2 6 2 1 1 4 4 2 2 2 2	47k 110k NU 56k 220k 5.1k 510ohm 120k 1%	
38 39 40 41 42 43 44 45 46 47	R60,R61,R66 R63,R68 R69,R74,R90,R100,R108,R138 R77,R127 R80 R83,R101,R110,R120 R88,R89,R106,R107 R93,R94 R96,R97 R98,R99 R105,R112		3 2 6 2 1 4 4 2 2 2 2 2 6	47k 110k NU 56k 220k 5.1k 510ohm 120k 1% 100k 1% 470k 2M	
38 39 40 41 42 43 44 45 46 47 48 49	R60,R61,R66 R63,R68 R69,R74,R90,R100,R108,R138 R77,R127 R80 R83,R101,R110,R120 R88,R89,R106,R107 R93,R94 R96,R97 R98,R99 R105,R112 R124,R126,R135,R137,R139,R141 R128,R130,R131,R142 R134		3 2 6 2 1 4 4 4 2 2 2 2 2 6 6 6 4 4 4 4 4 1 1 1 1 1 1 1 1 1 1 1 1	47k 110k NU 56k 220k 5.1k 510ohm 120k 1% 100k 1% 470k 2M 6.8k 4.7k 33k	
38 39 40 41 42 43 44 45 46 47 48 49	R60,R61,R66 R63,R68 R69,R74,R90,R100,R108,R138 R77,R127 R80 R83,R101,R110,R120 R88,R89,R106,R107 R93,R94 R96,R97 R98,R99 R105,R112 R124,R126,R135,R137,R139,R141 R128,R130,R131,R142 R134 R136,R140		3 2 6 2 1 4 4 4 2 2 2 2 2 6 6 6 4 4 4 4 4 1 1 1 1 1 1 1 1 1 1 1 1	47k 110k NU 56k 220k 5.1k 510ohm 120k 1% 100k 1% 470k 2M 6.8k 4.7k	
38 39 40 41 42 43 44 45 46 47 48 49	R60,R61,R66 R63,R68 R69,R74,R90,R100,R108,R138 R77,R127 R80 R83,R101,R110,R120 R88,R89,R106,R107 R93,R94 R96,R97 R98,R99 R105,R112 R124,R126,R135,R137,R139,R141 R128,R130,R131,R142 R134		3 2 6 2 1 4 4 4 2 2 2 2 2 6 6 6 4 4 4 4 4 1 1 1 1 1 1 1 1 1 1 1 1	47k 110k NU 56k 220k 5.1k 510ohm 120k 1% 100k 1% 470k 2M 6.8k 4.7k 33k	
38 39 40 41 42 43 44 45 46 47 48 49 50	R60,R61,R66 R63,R68 R69,R74,R90,R100,R108,R138 R77,R127 R80 R83,R101,R110,R120 R88,R89,R106,R107 R93,R94 R96,R97 R98,R99 R105,R112 R124,R126,R135,R137,R139,R141 R128,R130,R131,R142 R134 R136,R140		3 2 6 2 1 4 4 2 2 2 2 2 2 6 6 4 4 4 4 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2	47k 110k NU 56k 220k 5.1k 510ohm 120k 1% 100k 1% 470k 2M 6.8k 4.7k 33k	
38 39 40 41 42 43 44 45 46 47 48 49 50	R60,R61,R66 R63,R68 R69,R74,R90,R100,R108,R138 R77,R127 R80 R83,R101,R110,R120 R88,R89,R106,R107 R93,R94 R96,R97 R98,R99 R105,R112 R124,R126,R135,R137,R139,R141 R128,R130,R131,R142 R134 R136,R140 TRIMPOTS		3 2 6 2 1 4 4 2 2 2 2 2 2 6 6 4 4 4 4 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2	47k 110k NU 56k 220k 5.1k 510ohm 120k 1% 470k 2M 6.8k 4.7k 33k 12k	
38 39 40 41 42 43 44 45 46 47 48 49 50 51	R60,R61,R66 R63,R68 R69,R74,R90,R100,R108,R138 R77,R127 R80 R83,R101,R110,R120 R88,R89,R106,R107 R93,R94 R96,R97 R98,R99 R105,R112 R124,R126,R135,R137,R139,R141 R128,R130,R131,R142 R134 R136,R140 TRIMPOTS R133 MISCLANEOUS	Farrita hand	3 2 6 2 1 4 4 2 2 2 2 2 6 6 4 1 1 2 1 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1	47k 110k NU 56k 220k 5.1k 510ohm 120k 1% 100k 1% 470k 2M 6.8k 4.7k 33k 12k	ontion
38 39 40 41 42 43 44 45 46 47 48 49 50 51	R60,R61,R66 R63,R68 R69,R74,R90,R100,R108,R138 R77,R127 R80 R83,R101,R110,R120 R88,R89,R106,R107 R93,R94 R96,R97 R98,R99 R105,R112 R124,R126,R135,R137,R139,R141 R128,R130,R131,R142 R134 R136,R140 TRIMPOTS R133 MISCLANEOUS L3,L4	Ferrite bead PLS-6	3 2 6 2 1 4 4 2 2 2 2 2 2 4 1 1 2 1 1 2 2 1 1 1 1	47k 110k NU 56k 220k 5.1k 510ohm 120k 1% 100k 1% 470k 2M 6.8k 4.7k 33k 12k 470k	option comes with a kit
38 39 40 41 42 43 44 45 46 47 48 49 50 51	R60,R61,R66 R63,R68 R69,R74,R90,R100,R108,R138 R77,R127 R80 R83,R101,R110,R120 R88,R89,R106,R107 R93,R94 R96,R97 R98,R99 R105,R112 R124,R126,R135,R137,R139,R141 R128,R130,R131,R142 R134 R136,R140 TRIMPOTS R133 MISCLANEOUS	Ferrite bead PLS-6 PLS-20	3 2 6 2 11 4 4 4 2 2 2 2 2 2 3 6 6 4 4 1 1 1 2 2 2 2 2 2 2 2 1 1 1 1 1 1 1	47k 110k NU 56k 220k 5.1k 510ohm 120k 1% 100k 1% 470k 2M 6.8k 4.7k 33k 12k	option comes with a kit comes with a kit
38 39 40 41 42 43 44 45 46 47 48 49 50 51	R60,R61,R66 R63,R68 R69,R74,R90,R100,R108,R138 R77,R127 R80 R83,R101,R110,R120 R88,R89,R106,R107 R93,R94 R96,R97 R98,R99 R105,R112 R124,R126,R135,R137,R139,R141 R128,R130,R131,R142 R134 R136,R140 TRIMPOTS R133 MISCLANEOUS L3,L4 XP2,XP3,XP5,XP6,XP7,XP8 XP4 IC SOCKET	PLS-6 PLS-20 DIP-8	3 2 6 2 11 4 4 4 2 2 2 2 2 2 3 6 6 4 4 1 1 1 2 2 2 2 2 2 2 2 1 1 1 1 1 1 1	47k 110k NU 56k 220k 5.1k 510ohm 120k 1% 100k 1% 470k 2M 6.8k 4.7k 33k 12k 470k 0R PLS-6 PLS-20	comes with a kit
38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57	R60,R61,R66 R63,R68 R69,R74,R90,R100,R108,R138 R77,R127 R80 R83,R101,R110,R120 R88,R89,R106,R107 R93,R94 R96,R97 R98,R99 R105,R112 R124,R126,R135,R137,R139,R141 R128,R130,R131,R142 R134 R136,R140 TRIMPOTS R133 MISCLANEOUS L3,L4 XP2,XP3,XP5,XP6,XP7,XP8 XP4	PLS-6 PLS-20	33 22 66 22 11 44 44 22 22 22 26 64 41 11 22 66 11	47k 110k NU 56k 220k 5.1k 510ohm 120k 1% 100k 1% 470k 2M 6.8k 4.7k 33k 12k 470k OR PLS-6 PLS-20	comes with a kit

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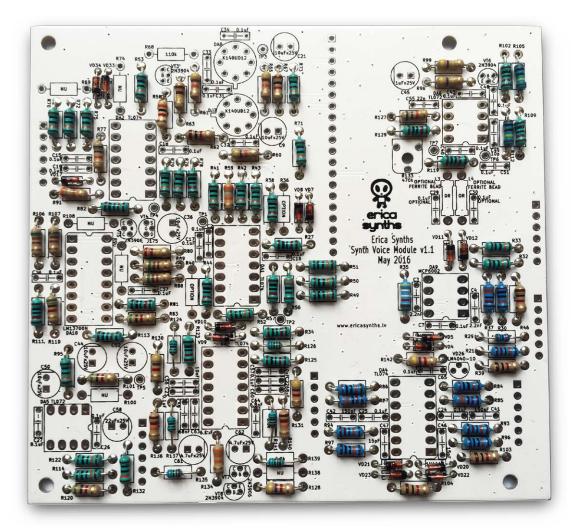
What you get?

The Synth Voice kit comes in three versions:

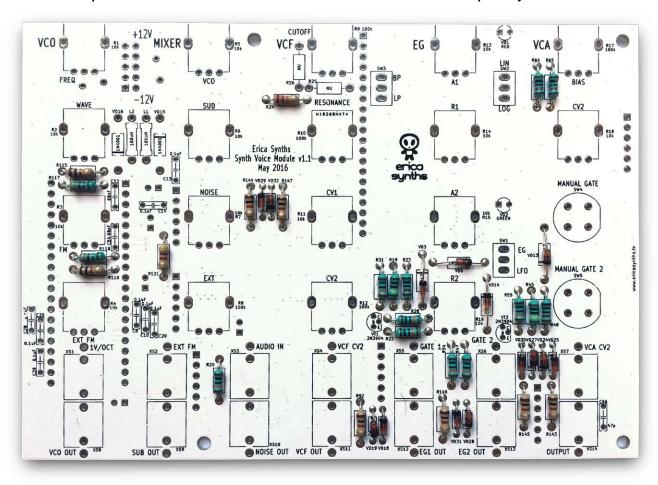
- 1) Set of 2 PCBs + MCU board + 2xK140UD12 opamps + mechanical parts (PCB connectors and spacers)
- 2) Set of 2 PCBs + MCU board + 2xK140UD12 opamps + mechanical parts (PCB connectors, spacers) + panel
- 3) Full kit, so you do not need to worry about ordering parts.

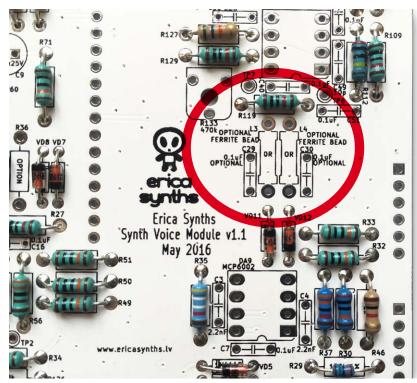


- 1. Take precautions with regard to electrostatic discharge (ESD) safety. Handling components should be done in electrostatically safe environment. Use personal and workplace grounding. Any discharge (even a minor one) from body to a component may permanently damage it.
- 2. Solder all resistors and diodes on main PCB! The silkscreen has both resistor values and designators, so, theoretically, you do will not go wrong with assembly and troubleshooting later. Please, pay attention on silkscreen some resistors in the VCO circuit have to be 1%. Also mind polarity of diodes!

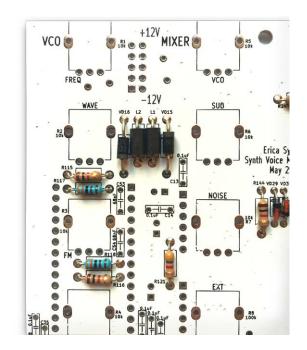


- 3. There are optional ferrite beads and capacitors for noise generator power supply filtering in order to prevent possible noise getting into PSU circuit. You may omit those and replace ferrite beads with wire jumpers (leave capacitors unpopulated). As our experiments show, the module works fine with wire jumpers.
- 4. Populate all resistors and diodes on the Control board! Mind the polarity of diodes!

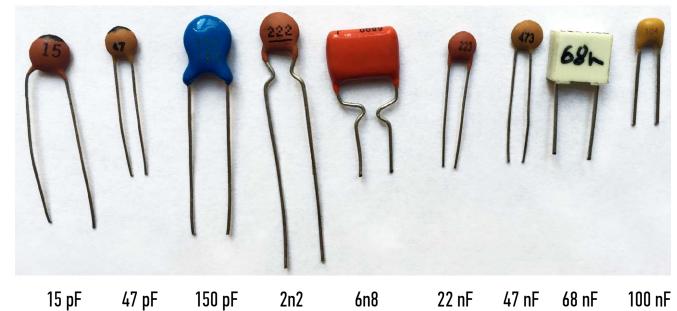




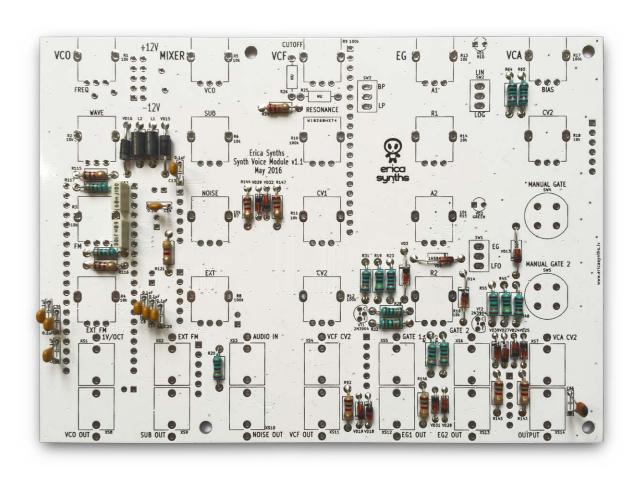
5. Install also ferrite beads and reverse polarity protection diodes.

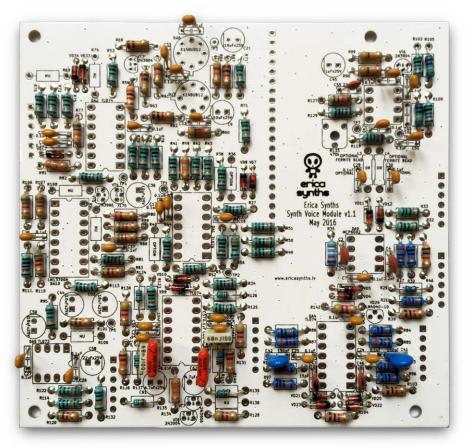


6. Now, let's sort ceramic and film capacitors! Capacitors provided with kit look like this:

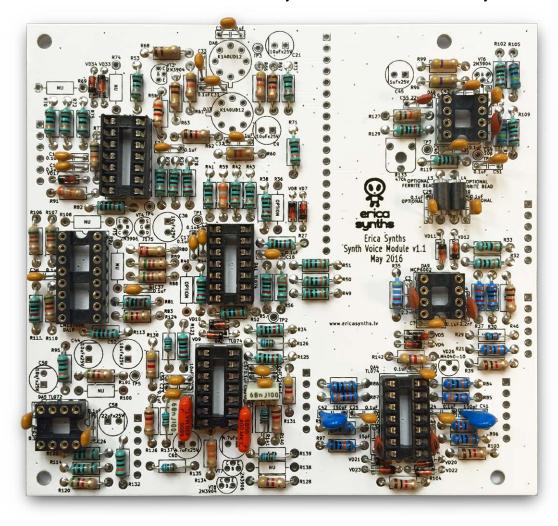


7. Populate all cearmic and film capacitors on both PCBs!

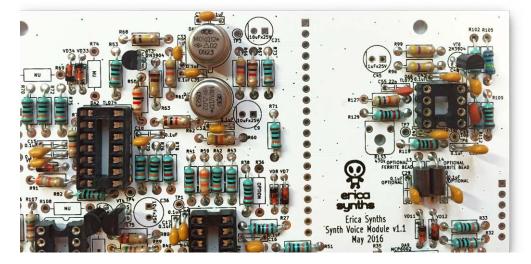




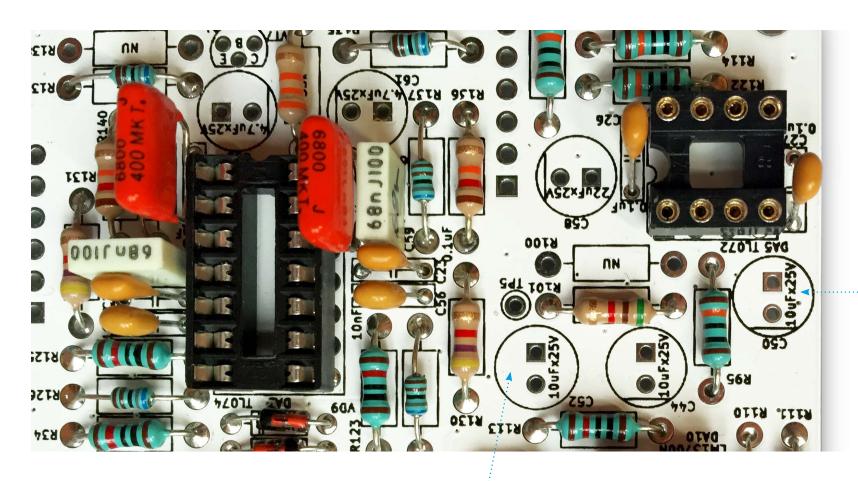
8. Insert and solder IC sockets! Pay attention on the orientation key!



9. Install K140UD12 opamps in the VCF circuit! Pay attention on orientation key — it has to fit one on the silkscreen. Use tweezers to align pins of the ICs. Also solder transistors on both PCBs and voltage reference LM4040! Transistors and voltage reference look similar, therefore follow the silkscreen and make sure, you do not mix up NPN 2N3904 and PNP 2N3906 and LM4040!



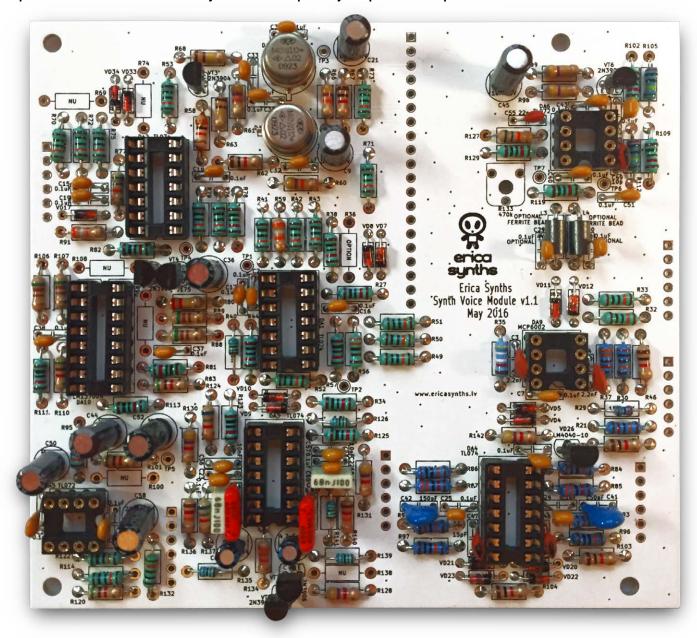
10. Now let's figure out, how to install electrolytic capacitors!



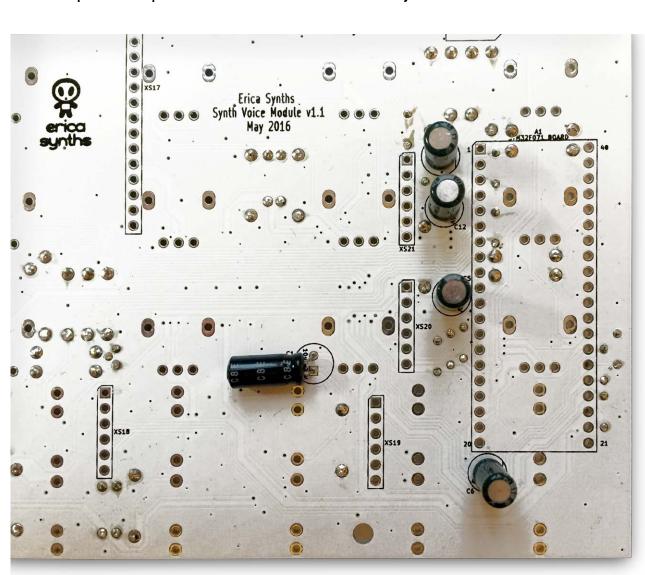
This is polarized electrolytic capacitor. Minus lug of the capacitor goes to the hole next to the stripe

This is non polarized electrolytic capacitor

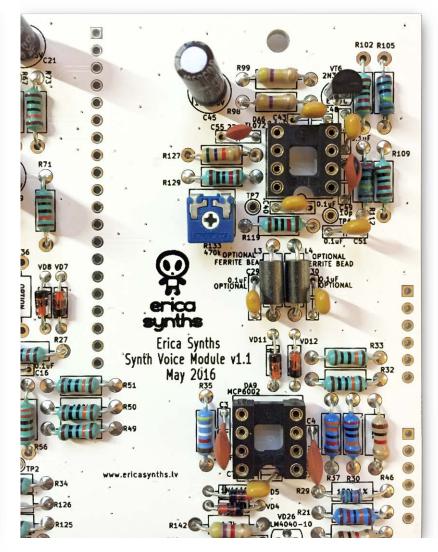
11. Solder electrolytic capacitors on the Main board. Pay attention on polarity for polarized capacitors.



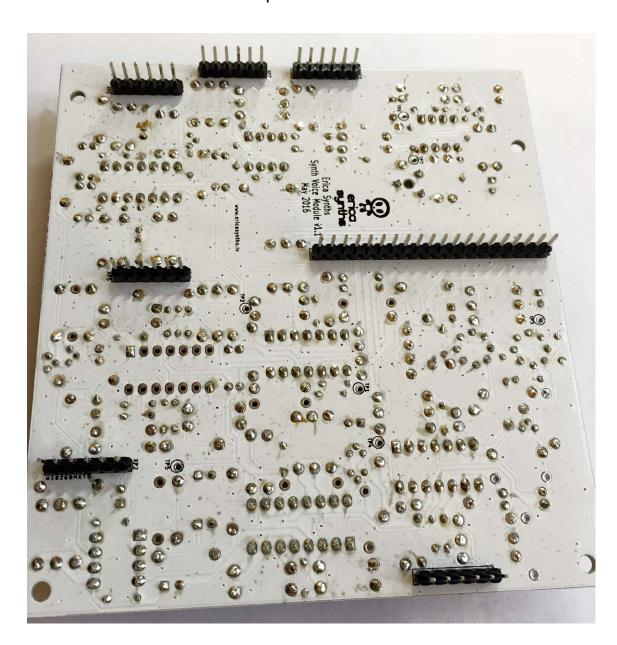
12. Solder electrolytic capacitors on the back side of the Controll PCB! Note that non polarized capacitor C1 has to be installed horizontally



13. Solder noise level adjustment trimpot!



14. Solder PCB connector male pins on the Main PCB!

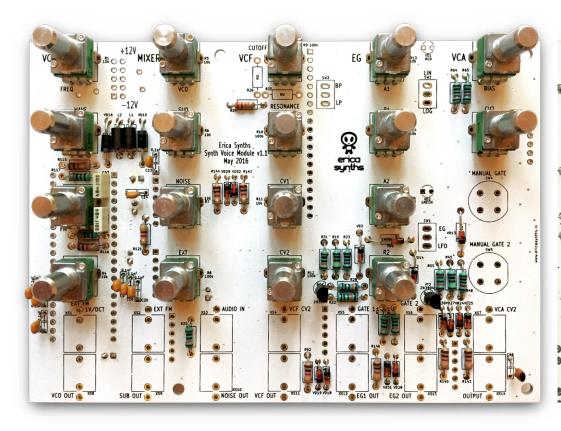


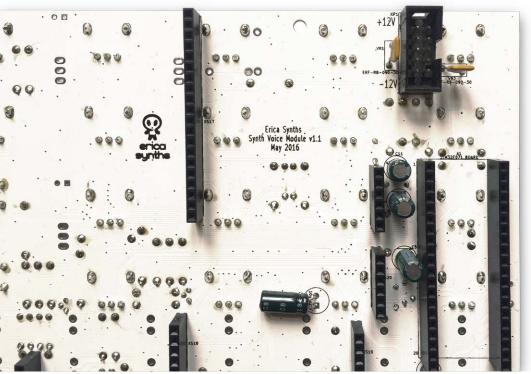
15. Cut off orientation pins of potentiometers!



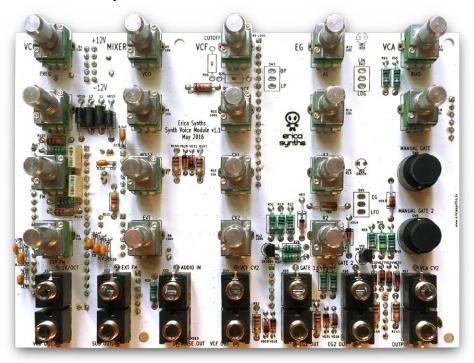
16. Solder potentiometers on the Controll PCB!

17. Turn Controll PCB arround and solder female connector sockets! Also solder PSU ribbon cable socket! Mind orientation! Solder fuses (yellow ones). You can replace those by wire jumpers on your own risk.

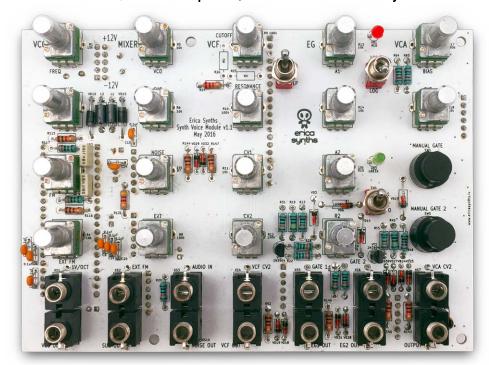




18. Insert jacks and pushbuttons on the Control PCB, but do not solder them yet!!

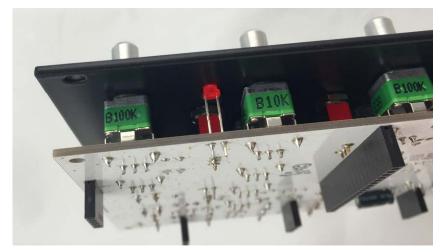


19. Insert 3 toggle switches and LEDs (pay attention on the orientation — follow the silkscfreen) in relevant places, but do not solder them yet!

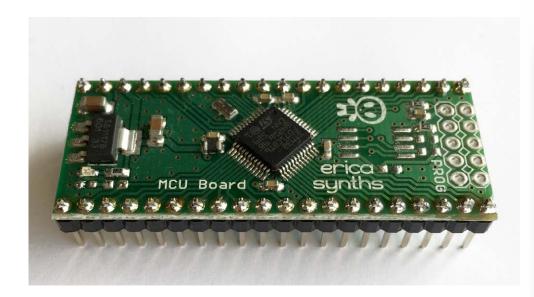


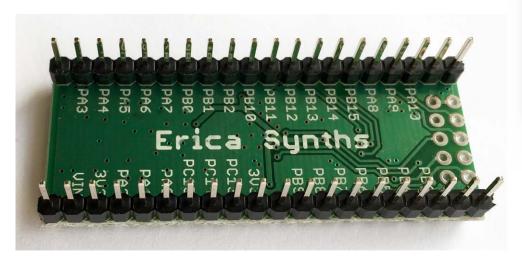
20. Install the front panel! Now jacks, pushbuttons, switches will be in correct position, switches will be in correct position, and you can solder those.

Same goes with LEDs — push them through holes on the front panel and solder! Cut off excess of pins.

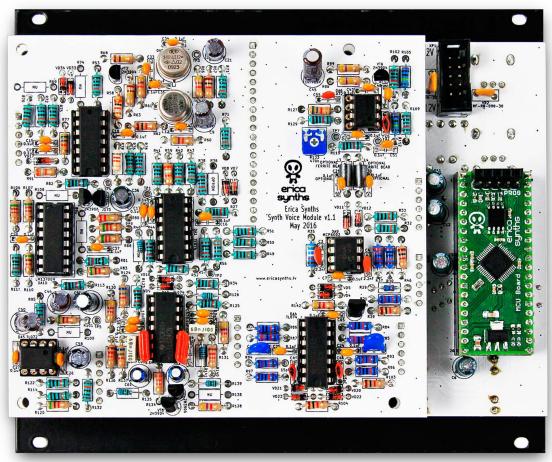


21. Solder male connectors on the small MCU board!





22. Connect all three PCBs! Pay attention on MCU board orientation!



23. install potentiometer knobs!



CONGRATULATIONS! YOU HAVE COMPLETED ERICA SYNTHS DIY SYNTH VOICE!

Now you can connect the module to PSU, and see, what happens. If you haven't make mistakes in assembly process, the module should work straight away.

Calibration is easy. Only thing, you have to do, is adjust desired noise level using trimpot.

The VCO comes 1V/oct calibrated, but PSUs on modular synths are so different, therefore, if needed, you can perform the calibration procedure specifically for your modular setup. You will need precise 5,000V CV source:

- 1. Disconnect your Synth Voice from the PSU.
- 2. Connect a patch cable to the CV source and make sure, you get 5,000V (exactly five volts) on the output.
- 3. Push and hold MAN GATE1 button on the Synth Voice and connect it to the PSU on your modular! Both LEDs will start to blink. Now you can release MAN GATE1 button.
- 4. Connect 5,000V patch cable to 1V/oct input of the module!
- 5. Push MAN GATE1 button promptly to initiate the calibration!

 Both LEDs will go off, and this means that you have successfully calibrated the VCO!

ENJOY!

If your module doesn't work, please check the Erica Synths Synth Voice build thread on Muffwiggler or contact us on the email info@ericasynths.lv!