

pico SYSTEM III



User manual & patch book

ERICA PICO SYSTEM III

Erica Synths Pico System III is affordable, compact, yet powerful sounding, full analogue modular system. It comes in two formats - eurorack and desktop.

Pico System III brings modular synthesis back to the basics - the system has multi functional (instead of single-function, like Pico Drums or Pico Trigger in the Pico System II) analogue modules and is intended to encourage creativity in modular patching. The system has 31 inputs and 20 outputs (master output is duplicated) + 7 switches; if you have enough patch cables at your disposal, you can patch the system in $121000931215044250740178662400$ or 1.21×10^{29} variations (we ignored possibility to adjust potentiometers here). Even though only 0,0001% of all patches will sound more-less enjoyable, you and all your future generations can spend a lifetime only patching the **Pico System III**.

Voicecards with preset patches set it apart from other eurorack systems - they allow user to change patches instantly and radically, which makes the system well suited for experimental live performances. The system comes with 5 great sounding "factory preset" voicecards, and **5 DIY voicecards** that are empty and user can develop his/her own patches. More voicecards are available from **Erica Synths** shop.

Pico System III features a set of modules for advanced sound design, experiments in modular patching and educational purposes. The system includes: 2-3-4 step sequencer, 2xVCOs, VCO controller/VCA module, several mixers that work both with CV and audio signals, Modulator (syncable LFO, random CV and noise source), 2X voltage controlled ASR envelope generators, 2x lowpass gate and BBD delay.

Pico System III eurorack version includes:



Erica Pico System III eurorack module



5 voicecards with factory preset patches



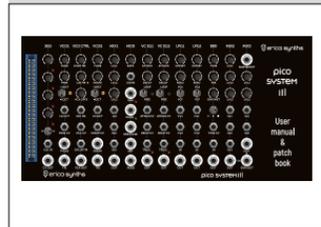
5 DIY voicecards



1 stackable Hosa patchcable



Wrench key



User manual which contains pages for your patch notes



Main specifications

Audio signal levels	10Vptp
CV signal levels (full span)	-5V - +5V
Sequencer CV output range	0 - +5V
VCO tune range	C0 - E7
LFO rate	0.21Hz - 20Hz
VC EG attack time	0...3"
VC EG release time	0...4,2"
Max BBD delay time	400ms
Panel width	42HP
Power consumption	175mA@+12V, 112mA@-12V

Specifications and appearance are subject to change without notice for improvement.



Main specifications

Audio signal levels	10Vptp
CV signal levels (full span)	-5V - +5V
Sequencer CV output range	0 - +5V
VCO tune range	C0 - E7
LFO rate	0.21Hz - 20Hz
VC EG attack time	0...3"
VC EG release time	0...4,2"
Max BBD delay time	400ms
Power supply	universal 110-240VAC - 12VDC adapter
Power consumption	400mA
Dimensions (W × D × H)	240 × 140 × 80 mm
Mass	0,95 kg (excluding PSU), 1,5 kg full packaging

Specifications and appearance are subject to change without notice for improvement.

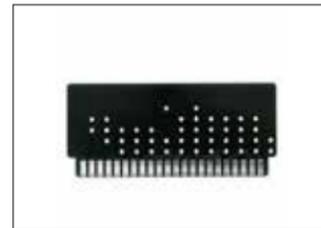
Pico System III desktop version includes:



Erica Pico System III in desktop enclosure



5 voicecards with factory preset patches



5 DIY voicecards



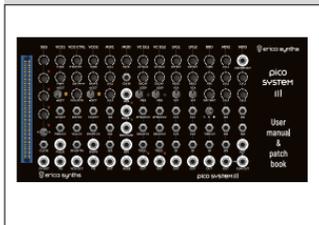
20 patch cables of different length



1 stackable Hosa patchcable



One external 12VDC wallwart PSU unit



User manual which contains pages for your patch notes

SEQ



CV OUT

The SEQUENCER

is straight-forward, full analogue 2-3-4 step sequencer/waveshaper with adjustable sequence length. Particularly interesting use of the SEQ2 is waveshaping – just apply any audio source to the CLK IN, tweak the knobs and be amazed!

Use these knobs to set the voltages per step. LEDs will give visual feedback on the currently active step. If you apply the audio signal to the input, the sequencer will act as a waveshaper, where the signal is converted into (up to) 4 step "staircase" with adjustable step height. This way you can create a suboscillators and plenty of other distinct sounds that are in tune with your audio source.

Select a number of steps (2-3-4) in the sequence!

Patch the clock or audio signal here. Due to limited panel space and functionality, Pico SEQ2 does not have a Gate output. We recommend you to use stackable patchcables to copy clock signal to envelope generators OR get gates from Pico Trigger or Logic modules

This is the CV output

VCO1

is powerful, full analogue VCO with great tracking over 8 octaves with simultaneous triangle and pulsewave outputs, pulse width modulation and exponential frequency modulation. It sounds like real analogue beast!

Adjust the tune of the VCO manually! 1V/oct CV is added to the setting of this knob

Adjust Pulse Width manually! PWM CV is added to the setting of this knob

Three position switch allow you to transpose the pitch of the VCO one octave up or down

Patch the sequencer or any FM source here

This is PWM CV input. Experiment with different modulation sources to get drones, rhythmic patterns and fat analogue sound

This is Pulse wave output

This is gentle sounding Triangle wave output

VCO1



TUNE



PWM +1OCT



-1OCT



1V/OCT



PWM CV



PULSE



TRI

VCO2



TUNE



SHAPE

+1OCT



-1OCT



1V/OCT



SHAPE CV



SHAPE



TRI

MODULES IN THE PICO SYSTEM III

VCO2

is full analogue VCO with built in waveshaper of unique functionality – it continuously morphs triangle wave into pulsewave with adjustable pulse width thus adding harmonics to the signal on the output. The waveshape is manually and CV controlled. VCO2 has manually and CV controlled linear FM for experiments in FM synthesis.

- Adjust the tune of the VCO manually! 1V/oct CV is added to the setting of this knob
- Adjust waveshape available on the SHAPE output manually! SHAPE CV is added to the setting of this knob
- Three position switch allows you to transpose the pitch of the VCO one octave up or down
- Patch the sequencer or any FM source here
- This is Waveshaper CV input. Experiment with different modulation sources to get drones, rhythmic patterns and fat analogue sound
- This is Waveshaper wave output
- This is gentle sounding Triangle wave output

VCO CONTROLER/VCA

is intended to control FM levels of the VCOs. It also features VCA that can be used for manual and CV controlled Linear FM depth control, but it also can be used as regular DC coupled VCA for other applications.

This is exponential FM attenuator for VCO1

This is linear FM attenuator for VCO2

This is VCA offset knob for manual VCA control. At 12:00 it closes the VCA completely, and you can use an envelope generator to open it. If you wish to achieve nice tremolo effects with bipolar CV from the LFO, set the offset knob to 15:00

This is the exponential FM input for VCO1

This is VCA CV input

This is VCA audio input. If you wish to apply linear FM to the VCO2, patch the FM source here, and use VCA Offset knob or VCA CV to control FM depth

This is VCA output. By default it's connected to the linear FM input of the VCO2

VCO CTRL



←EXP FM



LIN FM →



VCA OFFS



EXP FM



VCA CV



IN/LIN FM



VCA OUT

MOD



RATE



CLK IN



SINE



PULSE



RND PULSE



S&H



NOISE

MODULATOR

is combined clock/LFO/random voltage source module. It generates sine and pulse LFO waves, white noise, S&H CV and random triggers; basically, everything, you need, to bring some uncertainty in your modular setup.

This knob sets LFO and S&H clock frequency.

Patch external clock signal here to sync LFO and S&H frequency to the external clock. When external clock is applied, the Rate knob becomes clock divider (CCW from 12:00) or multiplier (CW from 12:00)

This is sine LFO output. LED1 indicates LFO (sine and pulse) and S&H clock frequency.

This is the pulse wave LFO output, use it also for clocking the sequencer. LED2 indicates random pulse output

This is the Random Trigger output. The frequency of the random triggers is set by the RATE knob

This is the S&H CV output

This is the noise output

VC EG

is versatile looping AD/ASR envelope generator with voltage control over attack and decay times. It has automatic Trigger/Gate detection, as well as "drone mode" - at full CW setting of the Decay knob, the envelope is full open. In the LOOP mode you can retrigger envelopes for even more interesting modulations.

This knob sets Attack time. The incoming CV is added to the knob setting.

This knob sets Decay time. The incoming CV is added to the knob setting.

Select between looping mode and triggered mode! In looping mode, when CV is applied to attack and/or decay controls, the module can work as a drone generator

This is the manual trigger button

This is the Attack CV input

This is the Decay CV input

This is the Trigger/Gate input. If gate is applied, the module advances to the ASR mode automatically

This is the output of the module. The LED gives visual feedback on the output voltage

VC EG2



ATTACK



DECAY LOOP



FREE



ATTACK CV



DECAY CV



TRIGG



OUT

LPG1



OFFSET



RESO
VCA



VCF



CV1



CV2



IN



OUT

MODULES IN THE PICO SYSTEM III

LOWPASS GATE

is our take on classical Don Buchla LPG designs. We use vactrols in the circuit for that signature sound, and we added resonance control of the LPG circuit. When resonance is full CW, the module goes into self-oscillation and can be used as a sound source.

Use this knob to adjust VCF cutoff and VCA bias manually. Incoming CV is added to the knob setting

Adjust the resonance of the LPG circuit. Far CW settings put the LPG in self-resonance, and it can be used as a sound source
NB! it can get very loud!

These are the VCF cutoff/VCA bias CV inputs, only CV2 is routed to the voicecard

Select between VCF and VCA modes! By default the VCF has some preset resonance.

Patch an audio signal here

This is the LPG output

BBD

is full analogue 4092 stage bucket brigade delay module. Besides nice and clean flanger and delay effects, at full CV settings of TIME and feedback knobs it can produce extreme sonic artefacts.

Tweak knobs and enjoy!

Adjust the Delay time from very short, flanger-like effects CCW to nice analogue delay effects and extreme sonic artefacts CW. The Time CV is added to the knob setting

Adjust feedback level! In full CW setting the module will go to self oscillation

This is the Dry/Wet crossfade control

This is feedback filtering switch. At right most position you will get authentic, unfiltered, bit noisy BBD sound, other settings filter off noise, and the signal in feedback is cleaner, but misses higher harmonics

This is time CV input

Patch the audio signal here

This is the output of the module

BBD



TIME



FBK



DRY/WET



Feedback filtering switch



TIME CV



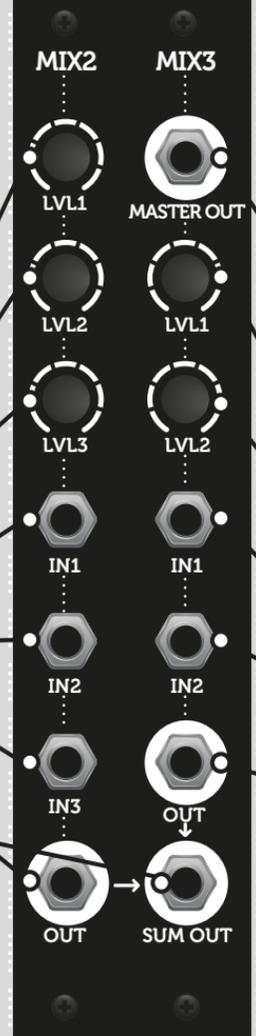
IN



OUT

MIXERS

section is straight-forward – it features two independent DC coupled mixers for mixing audio and CV signals with individual outputs and shared output, where signals from both mixers are mixed together.



These are the signal level attenuators for the first mixer

These are audio or CV inputs of the first mixer

This is the output of the first mixer. If something is patched here, it's automatically disconnected from the SUM OUT

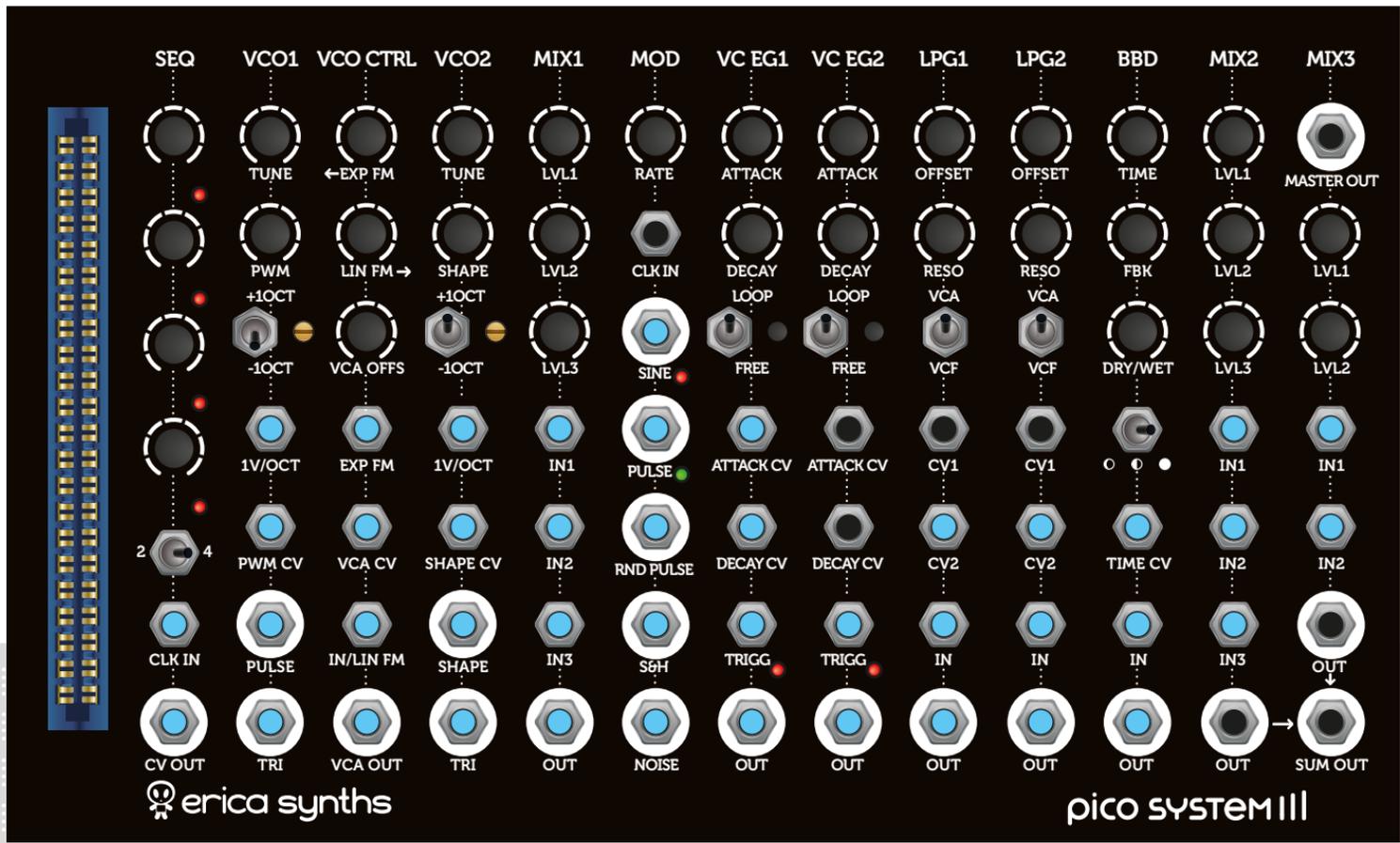
This is the master output of the mixer – it sums both MIX2 and MIX3

This is the master output of the module – it essentially duplicates the SUM OUT, but it features stereo jack socket that splits mono signal to left and right stereo channels. **NB! Use ONLY a stereo cable here! A mono cable will shorten audio to the ground and there will be no sound on the output!**

These are the signal level attenuators for the second mixer

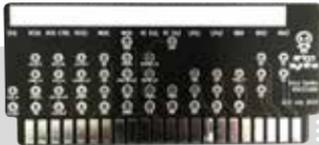
These are audio or CV inputs of the second mixer

This is the output of the second mixer. If something is patched here, it's automatically disconnected from the SUM OUT



VOICECARDS

Erica Synths Pico System III features voicecards for "saving and recalling" complex patches. Most of the inputs and outputs of the system (noted with blue dots) are normalled to the voicecard, and, instead of making a patch with the patchcables, a user can insert a voicecard that replicates patching. If a patchcable is used together with the voicecard, patchcable has a priority and it overrides the voicecard connection. Some voicecards require extra patchcables in order to complete the patch - those are indicated on the voicecard.





VOICECARDS

The Pico System III comes with 5 “factory preset” voicecards:

- 1) LPG Techno
- 2) Synthesizer, Synthesizer
- 3) Space Computer
- 4) Drone Master
- 5) Droid Breakdance

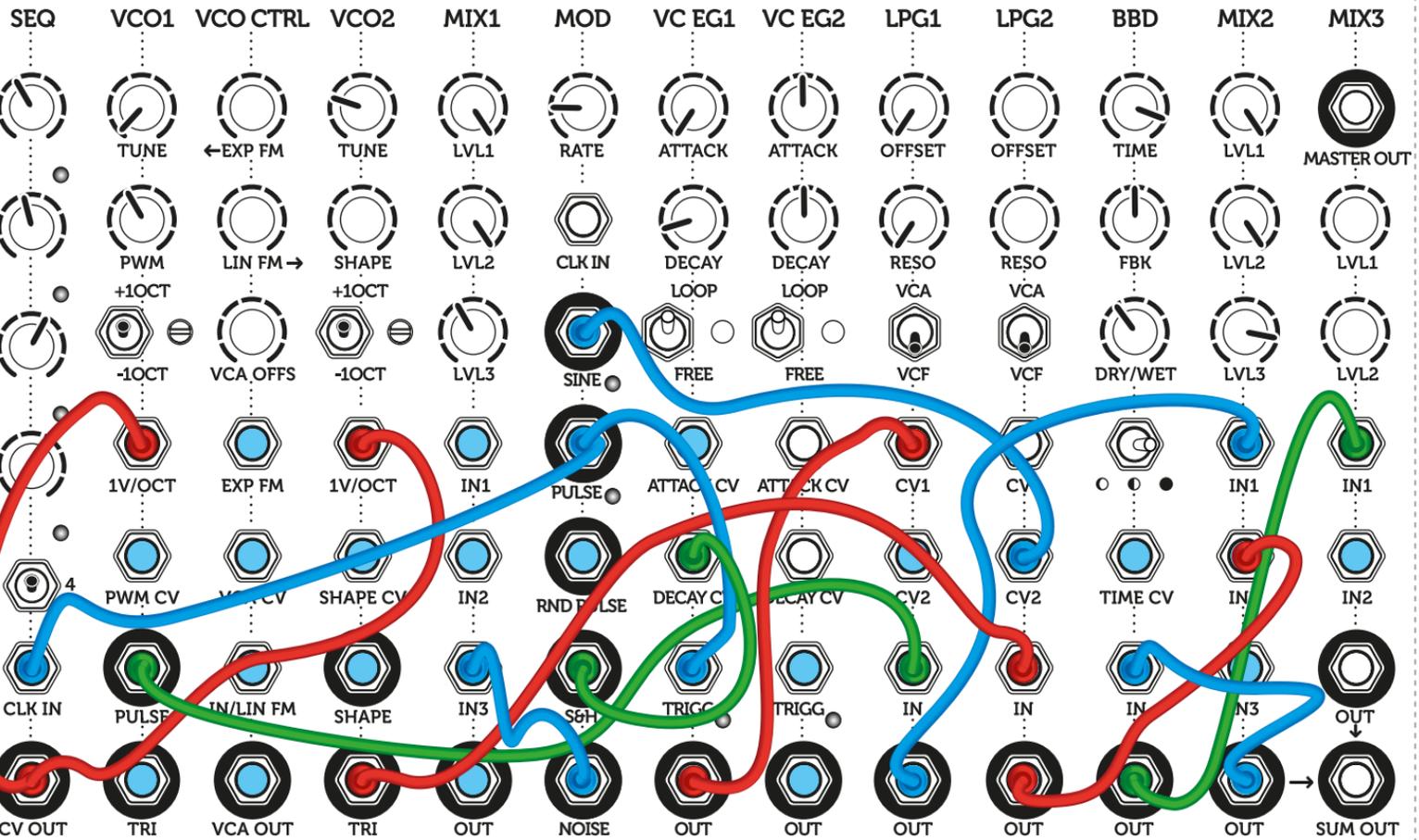
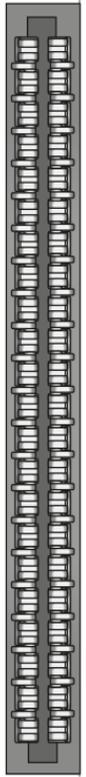
“Factory preset” voicecard internal connections and relevant positions of the potentiometers and switches are shown in the patch examples below.



DIY VOICECARD

The DIY voicecard allows user to build a custom patch by soldering small wires on the voicecard. The voicecard replicates the layout of the system, so, building a patch on the voicecard is similar to patching the system. You will need a soldering iron and small wires to build a patch on the voicecard (if you do not have soldering tools, ask a friend!). You can mimic a stackable patchcables by routing same output to several inputs on the voicecard. And don't forget to name the voicecard – invent a name of the patch and use a permanent marker to write the name on the white area of the voicecard!

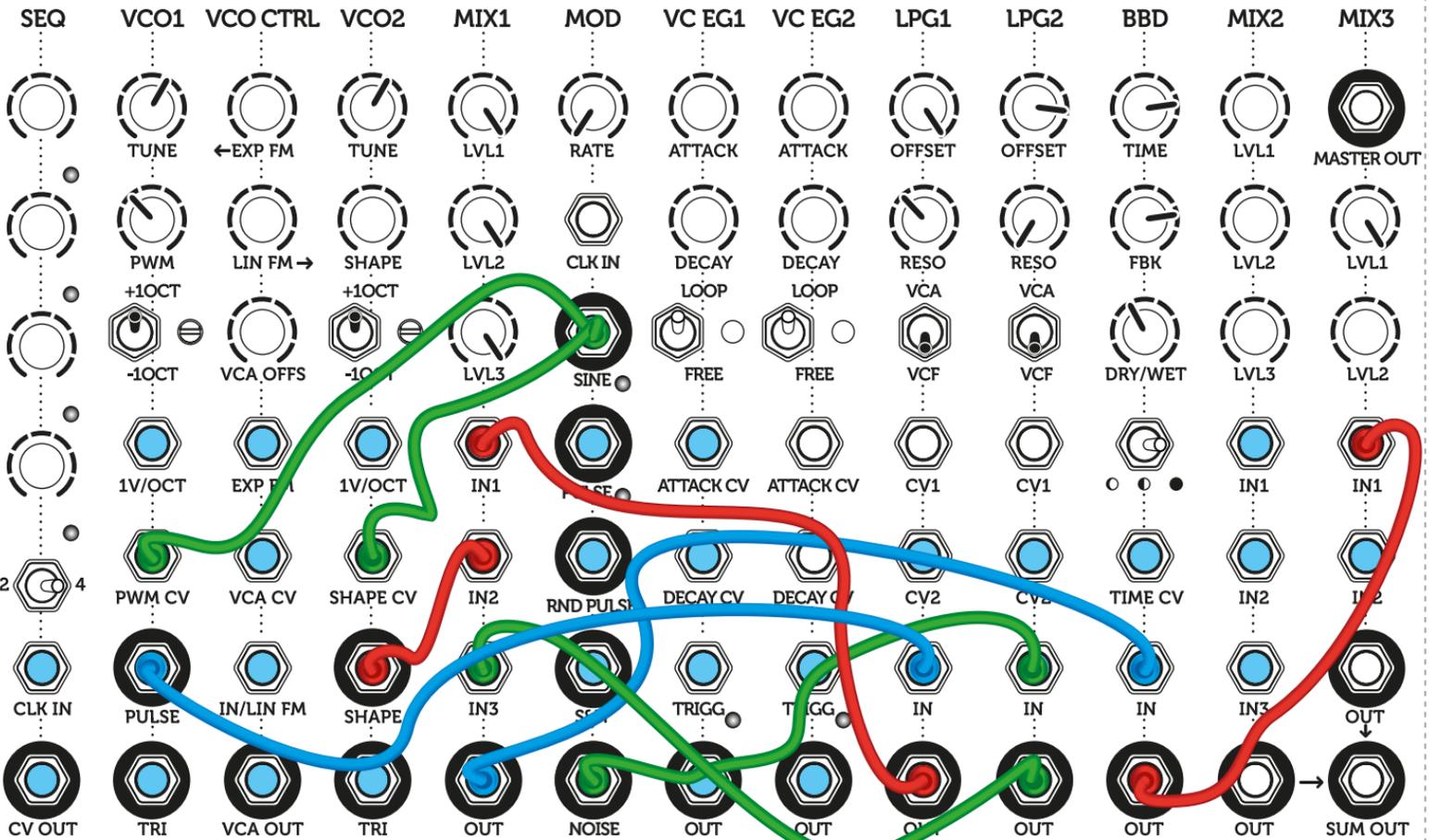
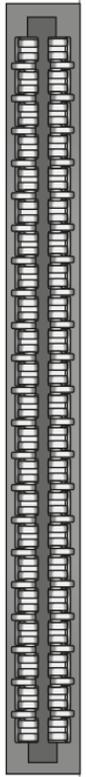




SYNTHESIZER SYNTHESISER

Both VCOs sequenced with the SEQ creates a classic synth line which is then processed with the BBD module.

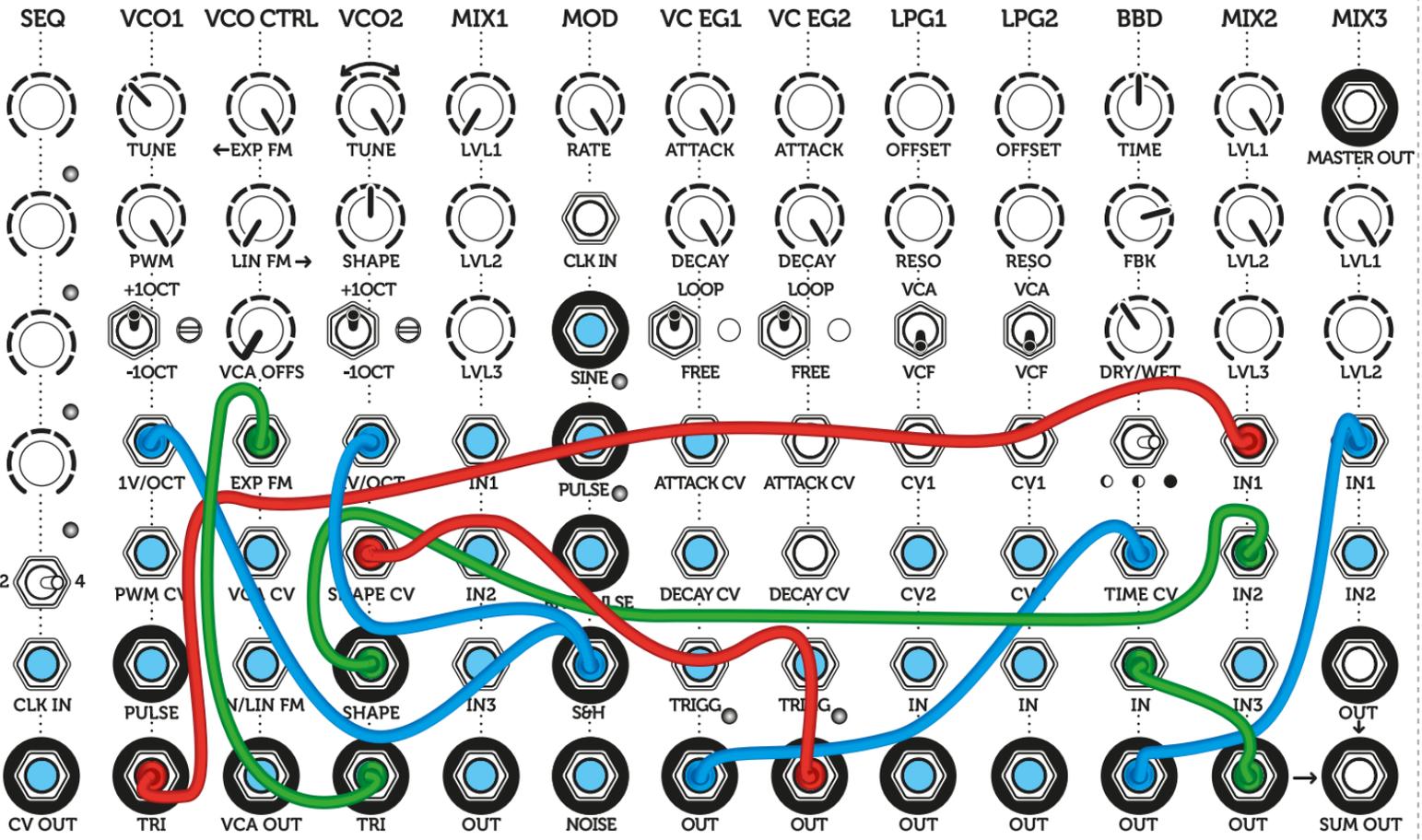
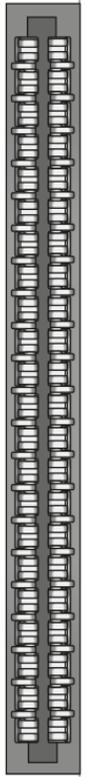




DRONE MASTER

This card turns the Pico System into a drone machine. Play around with the tuning of both VCOs and LPG offsets! Also everything is sent through the BBD unit.

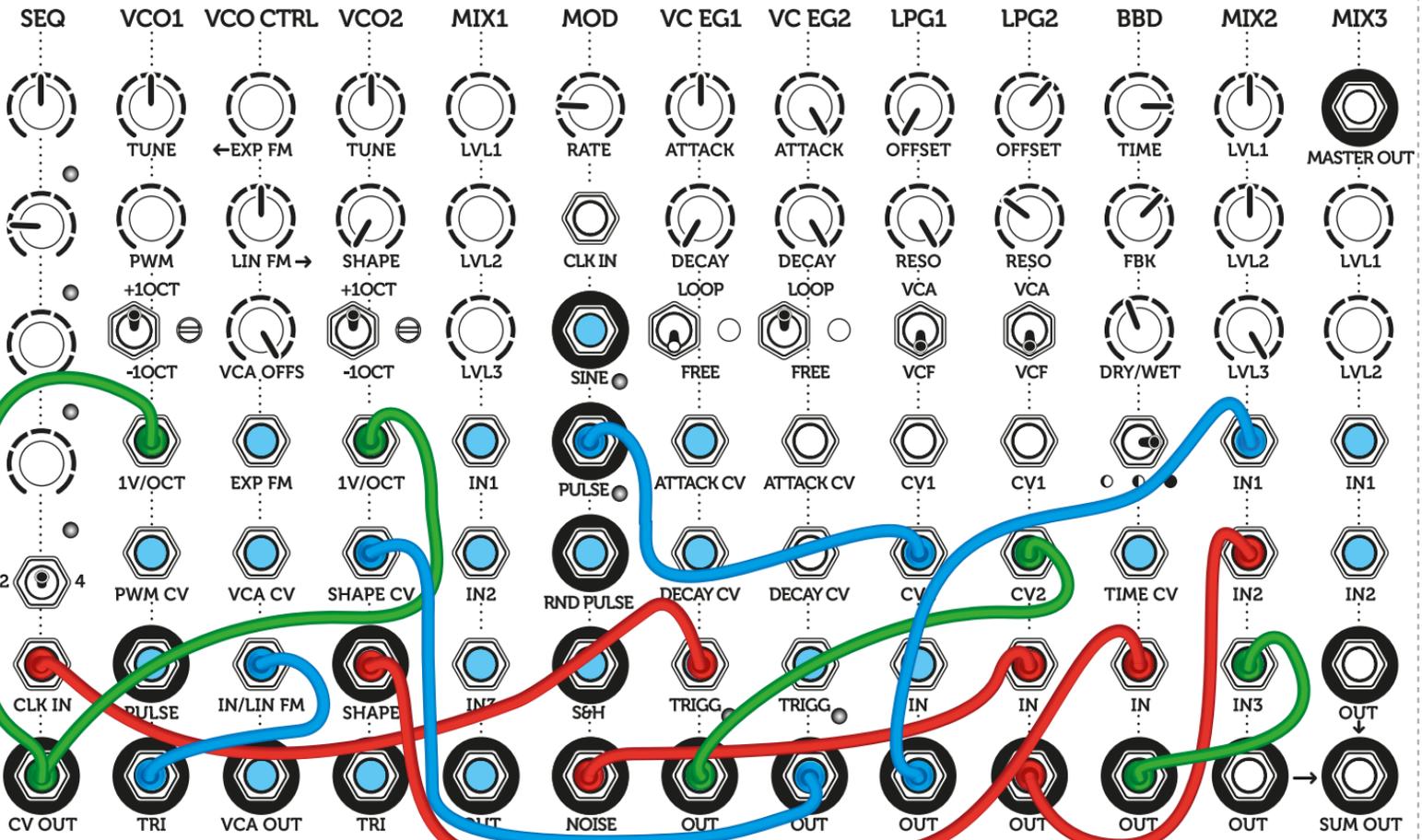
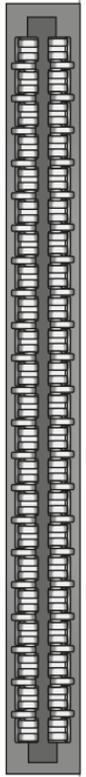




SPACE COMPUTER

Sample and hold everything! Use this card to connect to outer space and use the system as 70s Sci-Fi super computer. Play around with the RATE on the MOD and also explore the space with the BBD unit.

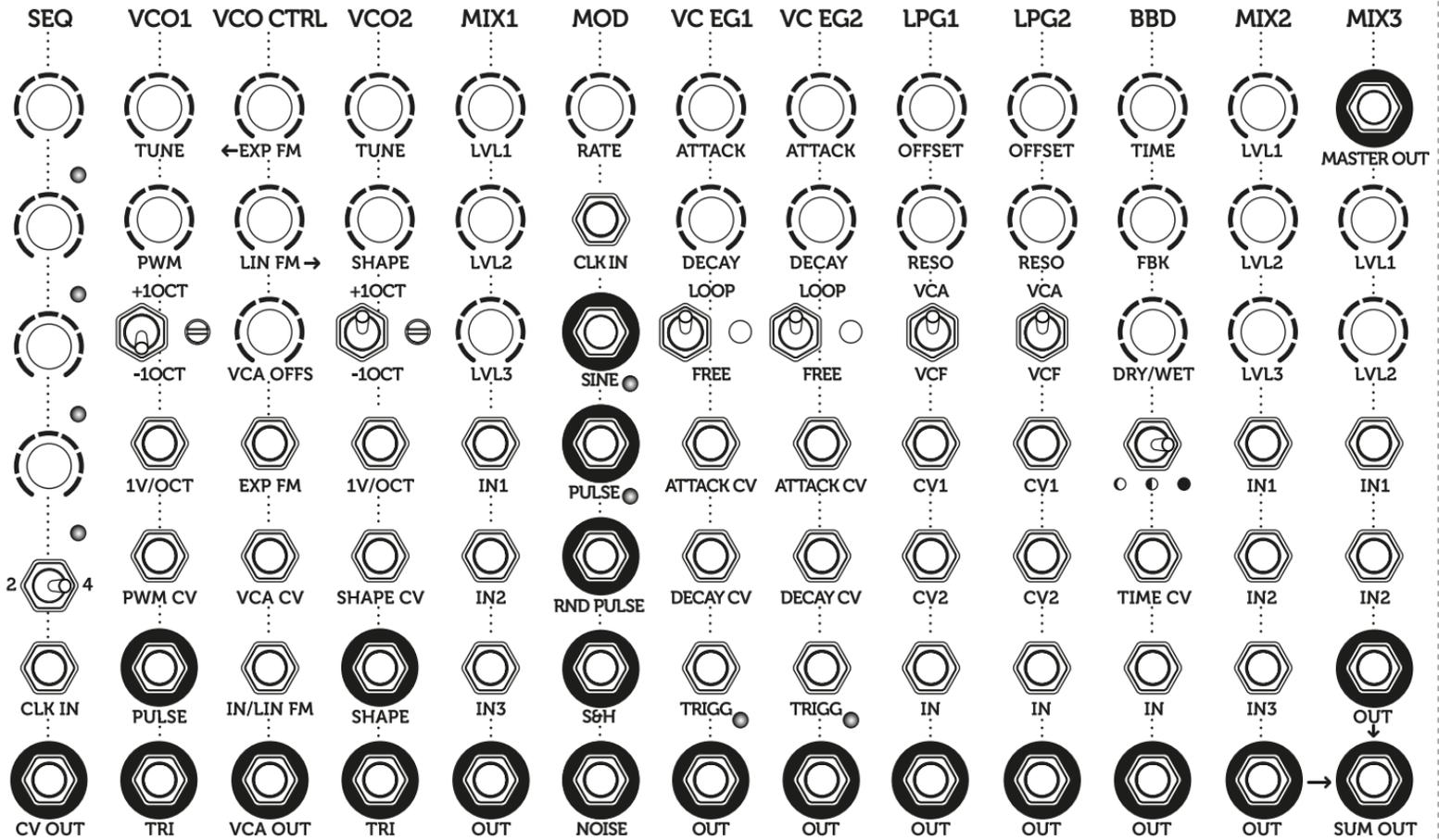
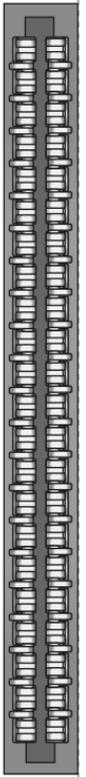




LPG TECHNO PATCH

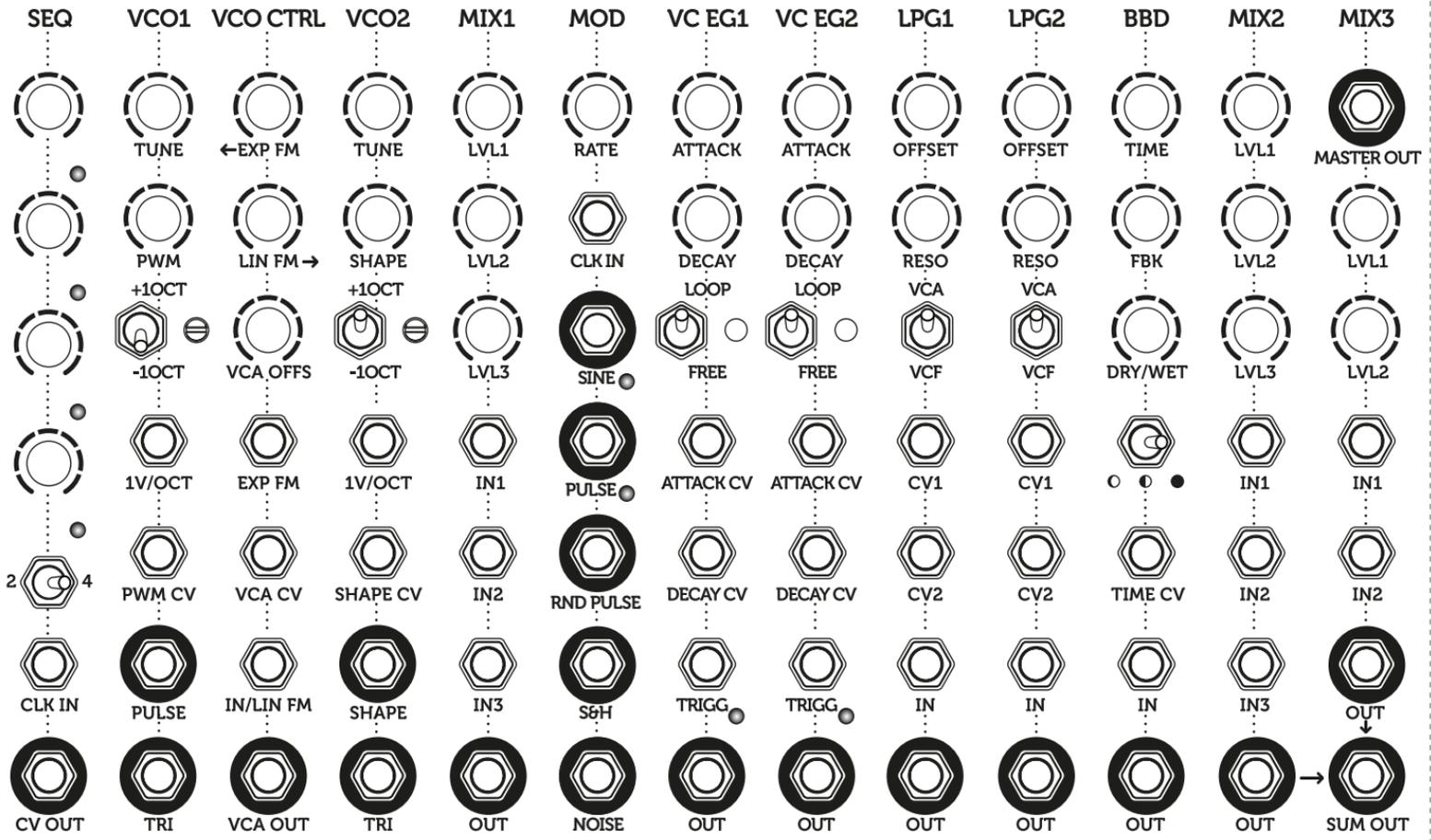
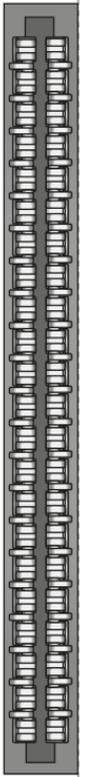
In this patch one of the LPG modules is used to create bassdrum and second LPG is used to emulate open hihat and SEQ with both VCOs and BBD to create simple lead sound. MOD is the master clock and trigger source for the LPGs and Sequencer.





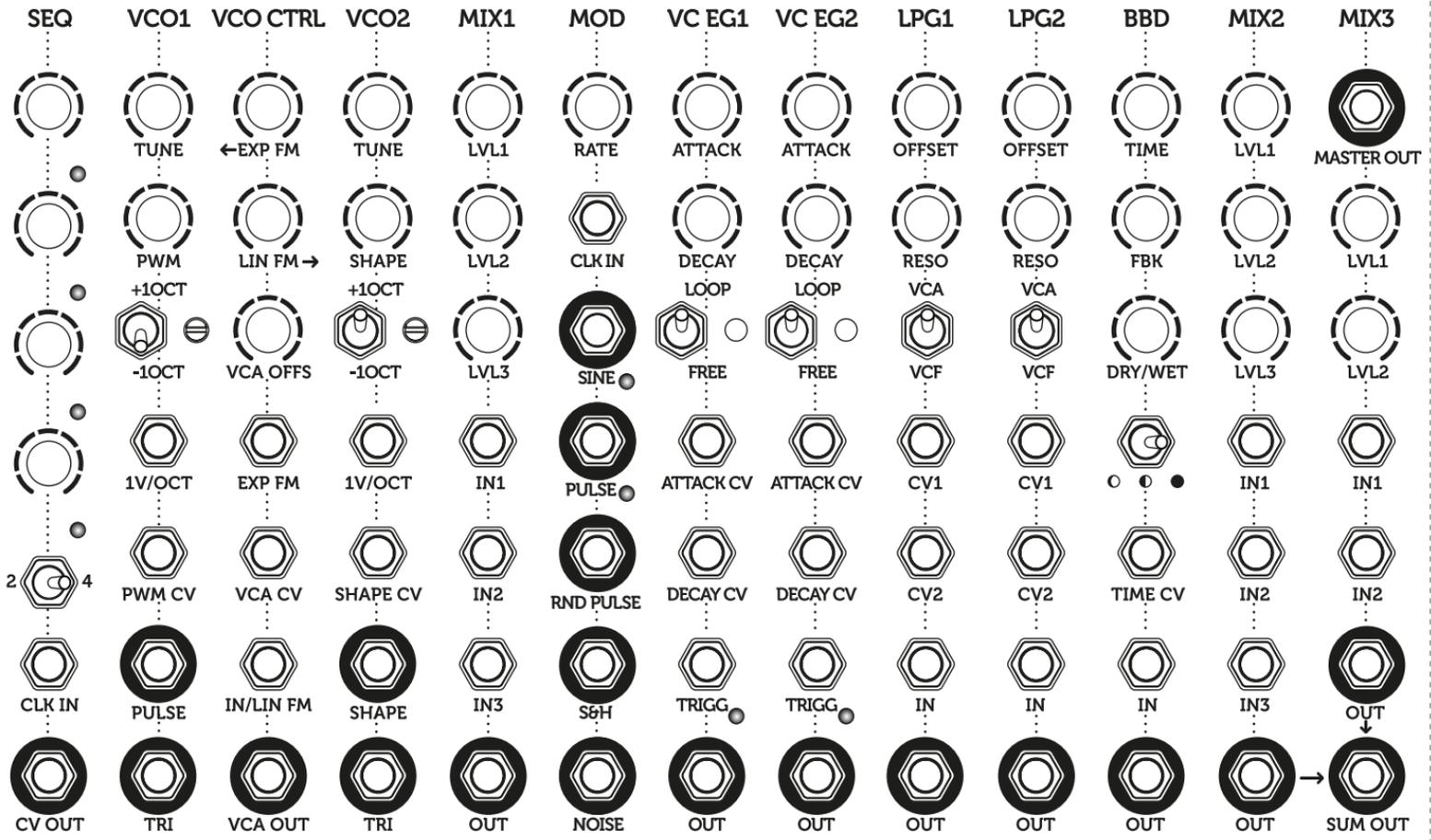
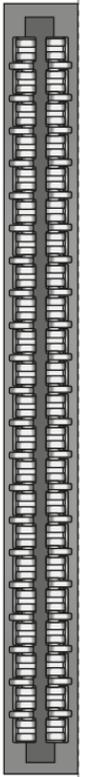
PATCH NOTES





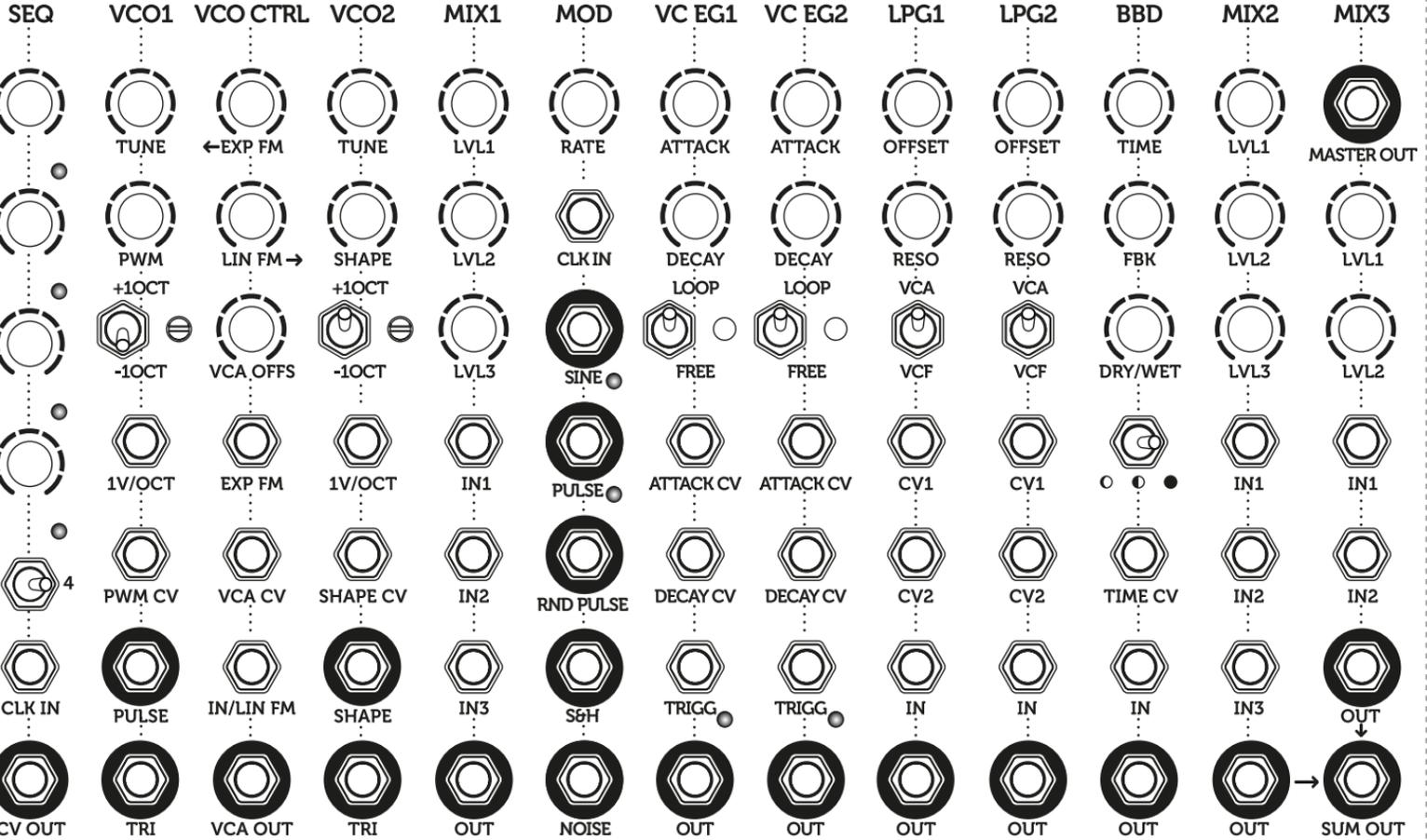
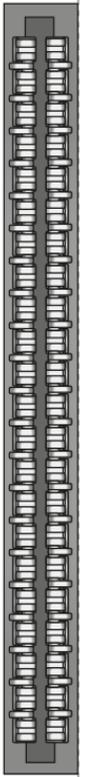
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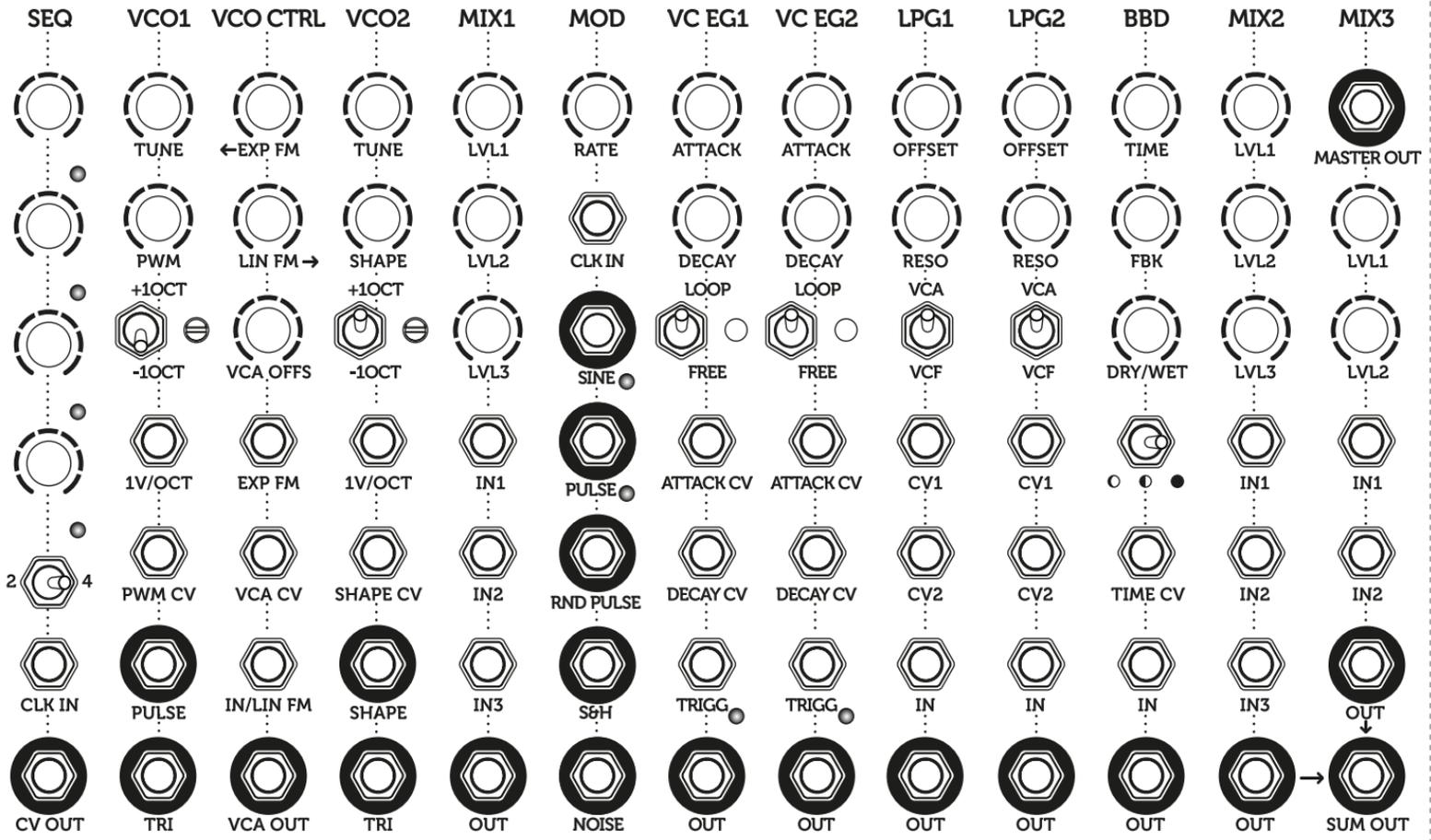
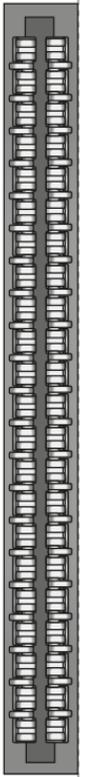
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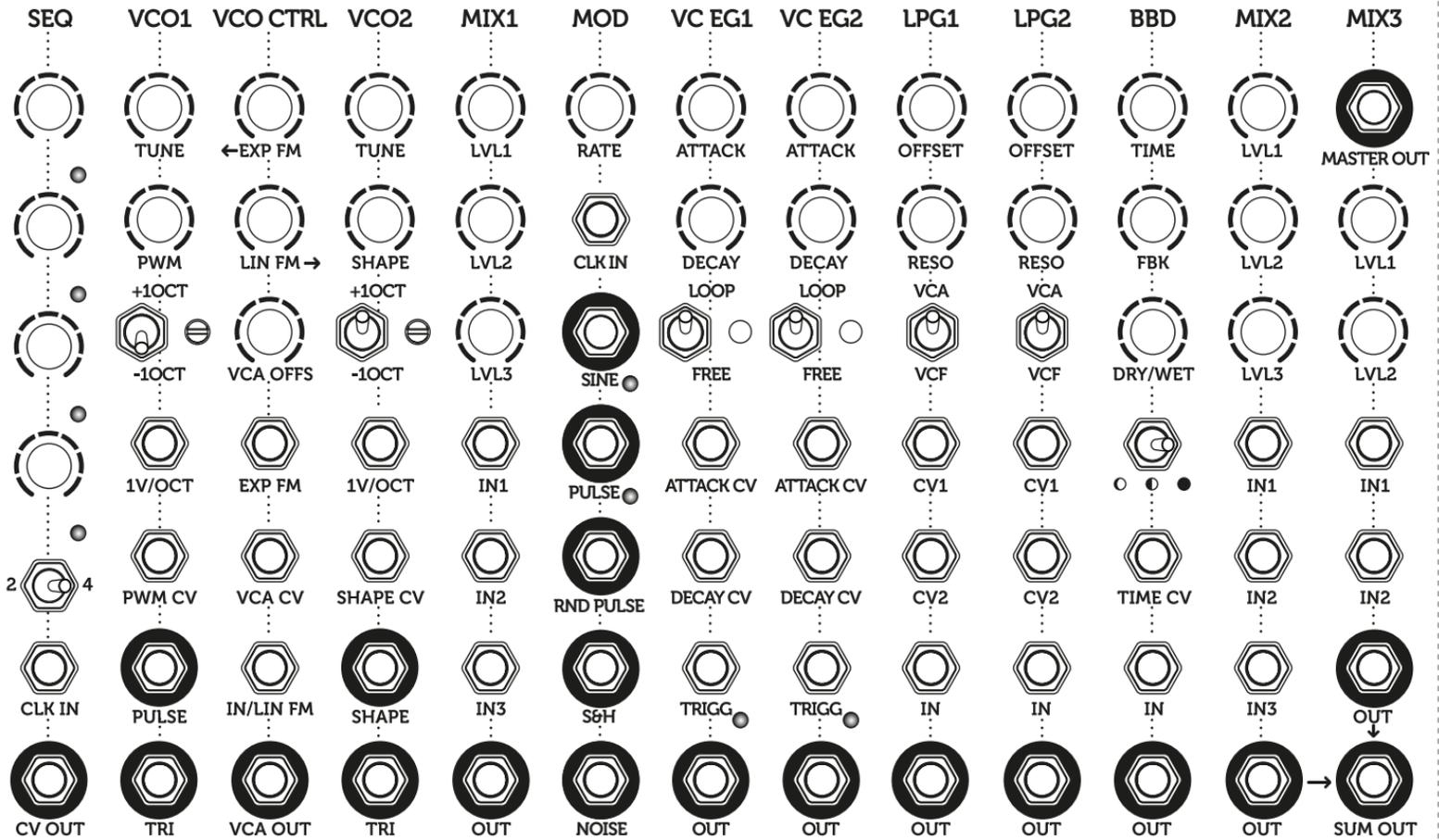
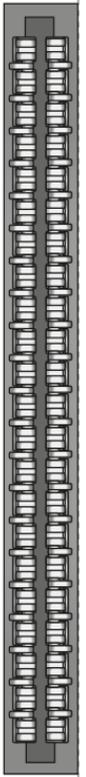
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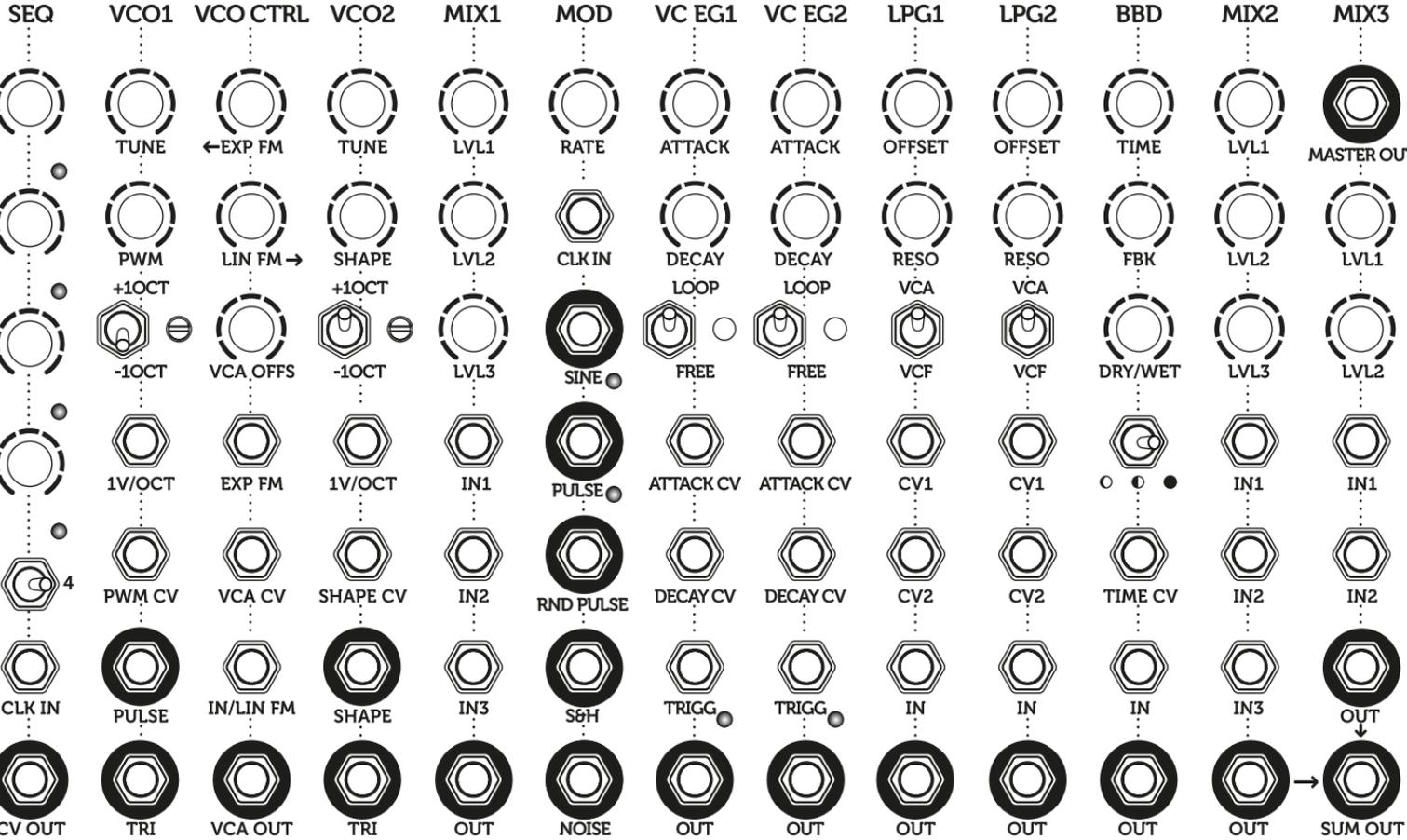
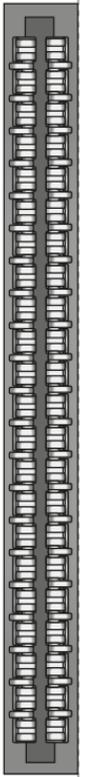
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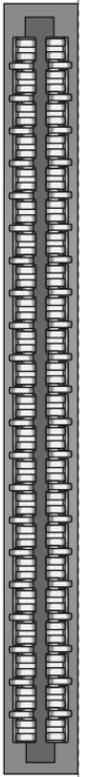
PATCH NOTES





PATCH NOTES





SEQ

VCO1

VCO CTRL

VCO2

MIX1

MOD

VC EG1

VC EG2

LPG1

LPG2

BBD

MIX2

MIX3



TUNE

←EXP FM

TUNE

LVL1

RATE

ATTACK

ATTACK

OFFSET

OFFSET

TIME

LVL1

MASTER OUT

PWM
+1OCT

LIN FM →

SHAPE
+1OCT

LVL2

CLK IN

DECAY
LOOP

DECAY
LOOP

RESO
VCA

RESO
VCA

FBK

LVL2

LVL1

-1OCT

VCA OFFS

-1OCT

LVL3

SINE

FREE

FREE

VCF

VCF

DRY/WET

LVL3

LVL2

1V/OCT

EXP FM

1V/OCT

IN1

PULSE

ATTACK CV

ATTACK CV

CV1

CV1

TIME CV

IN1

IN1

2 4

PWM CV

VCA CV

SHAPE CV

IN2

RND PULSE

DECAY CV

DECAY CV

CV2

CV2

TIME CV

IN2

IN2

CLK IN

PULSE

IN/LIN FM

SHAPE

IN3

S&H

TRIGG

TRIGG

IN

IN

IN

IN3

OUT

CV OUT

TRI

VCA OUT

TRI

OUT

NOISE

OUT

OUT

OUT

OUT

OUT

OUT

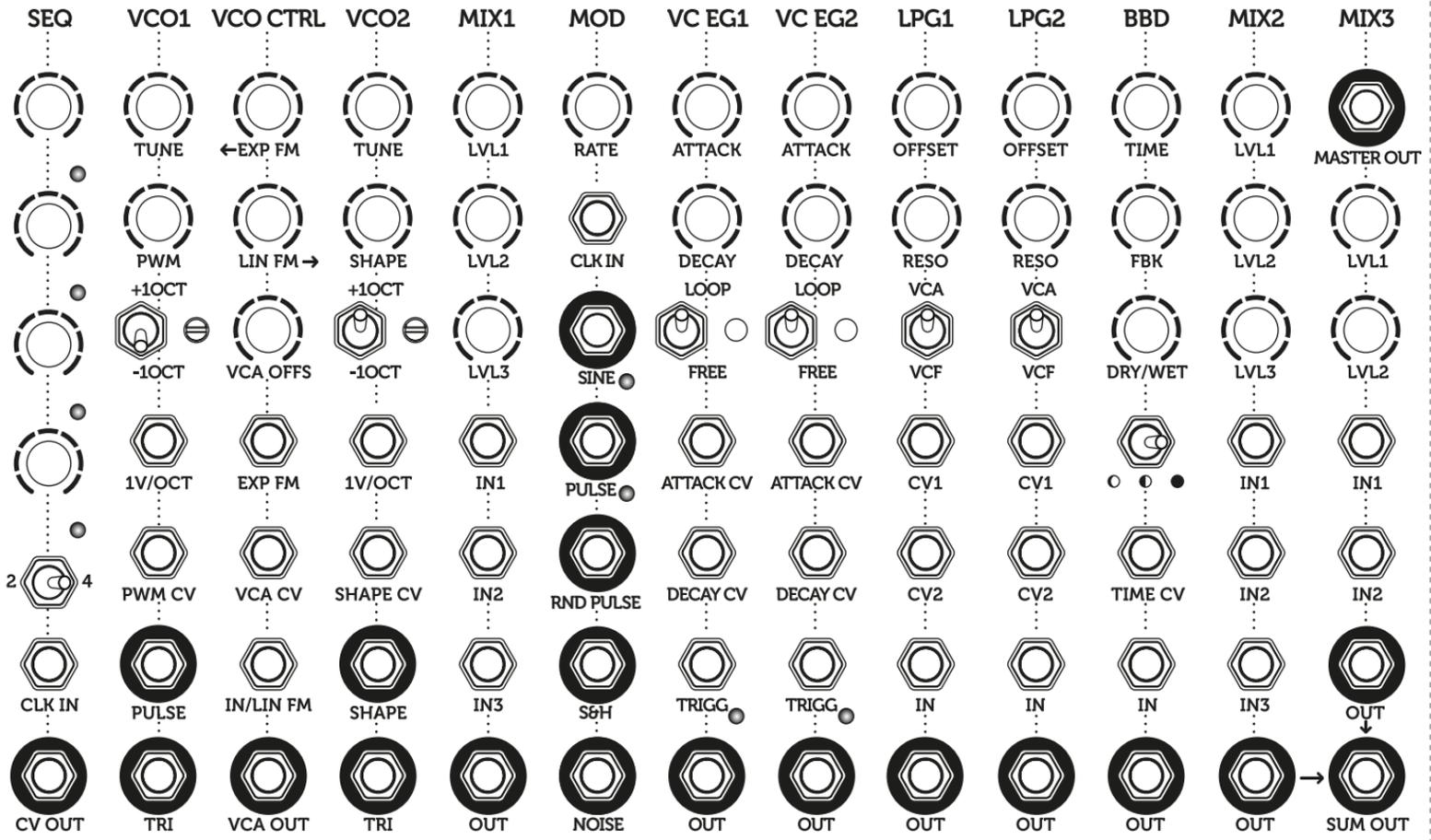
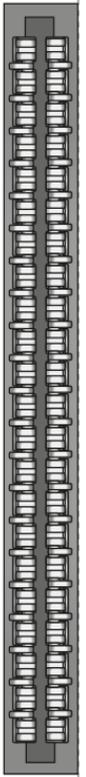
OUT

SUM OUT



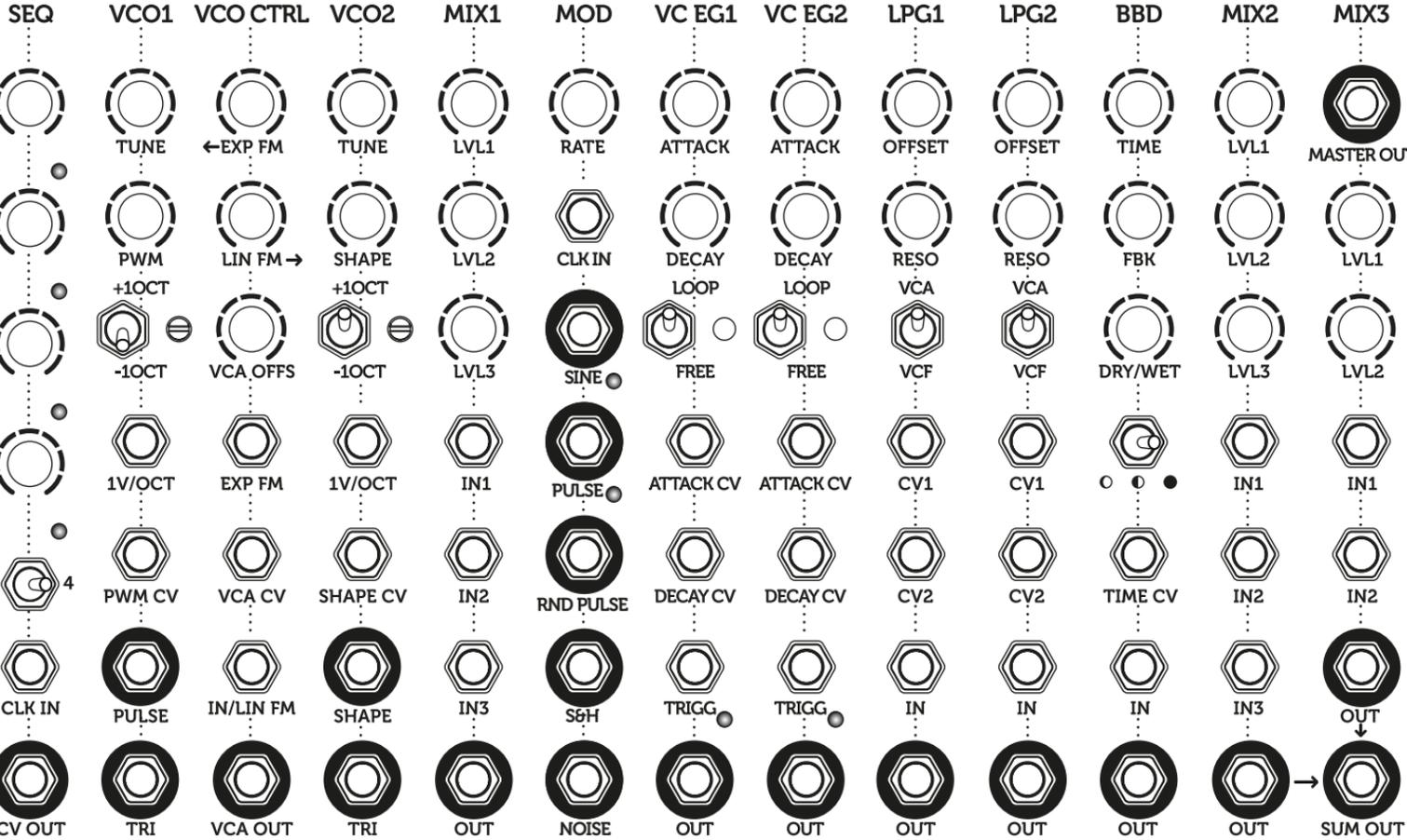
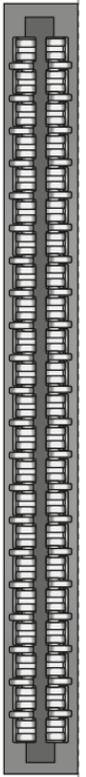
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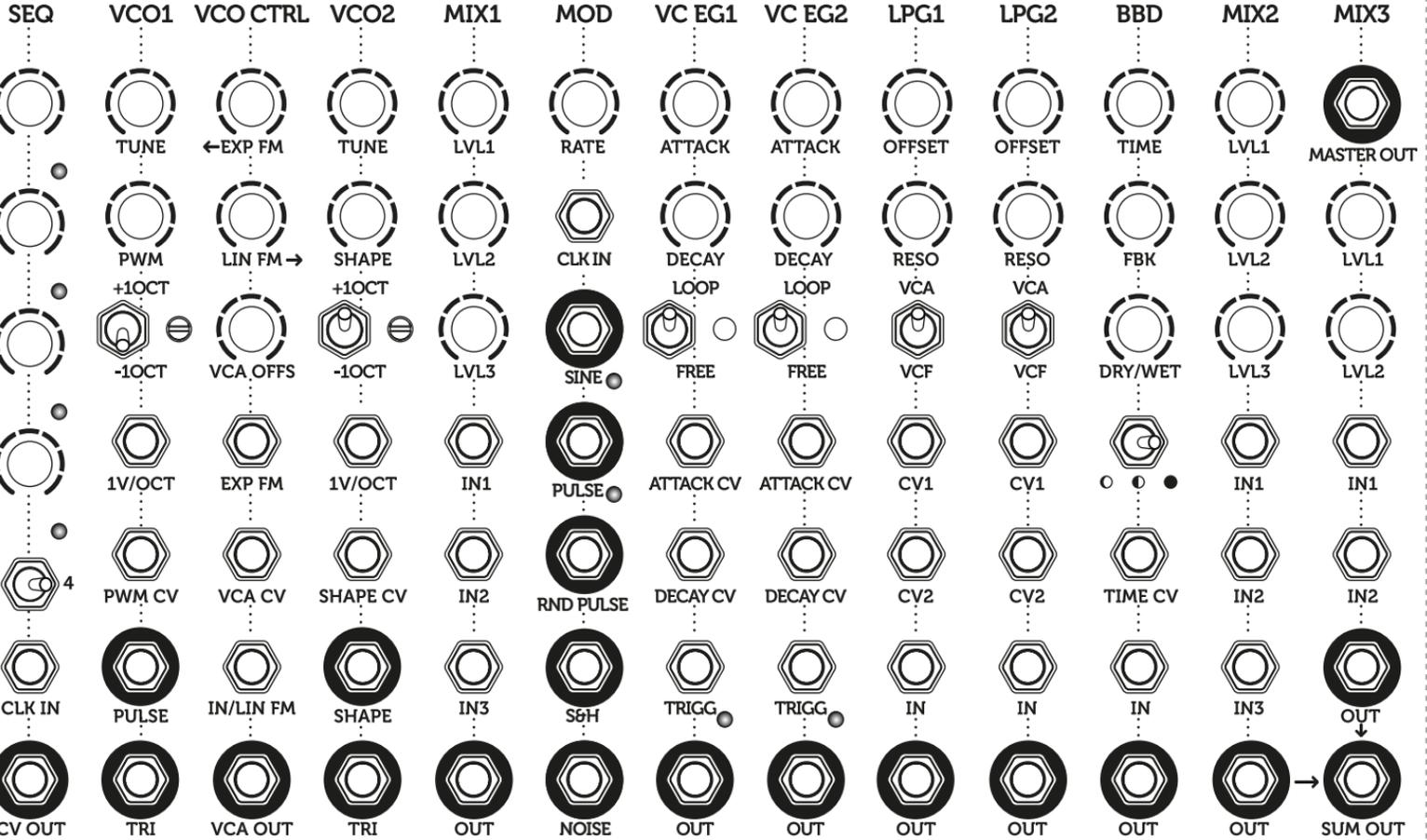
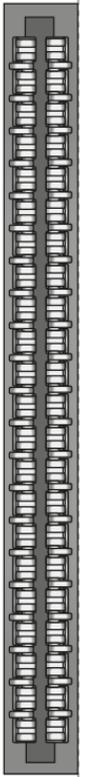
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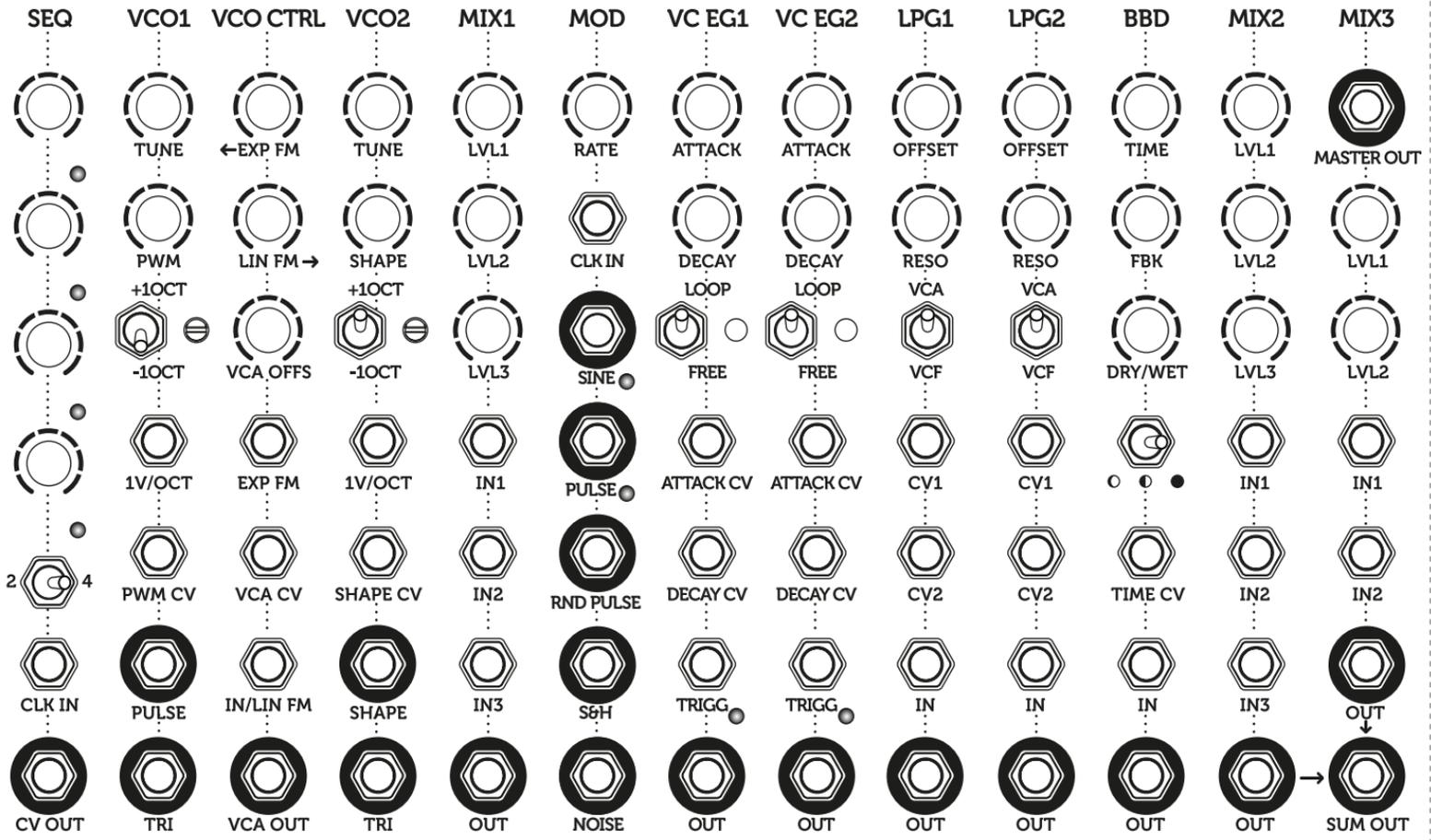
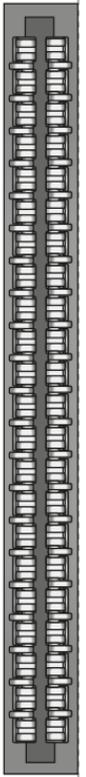
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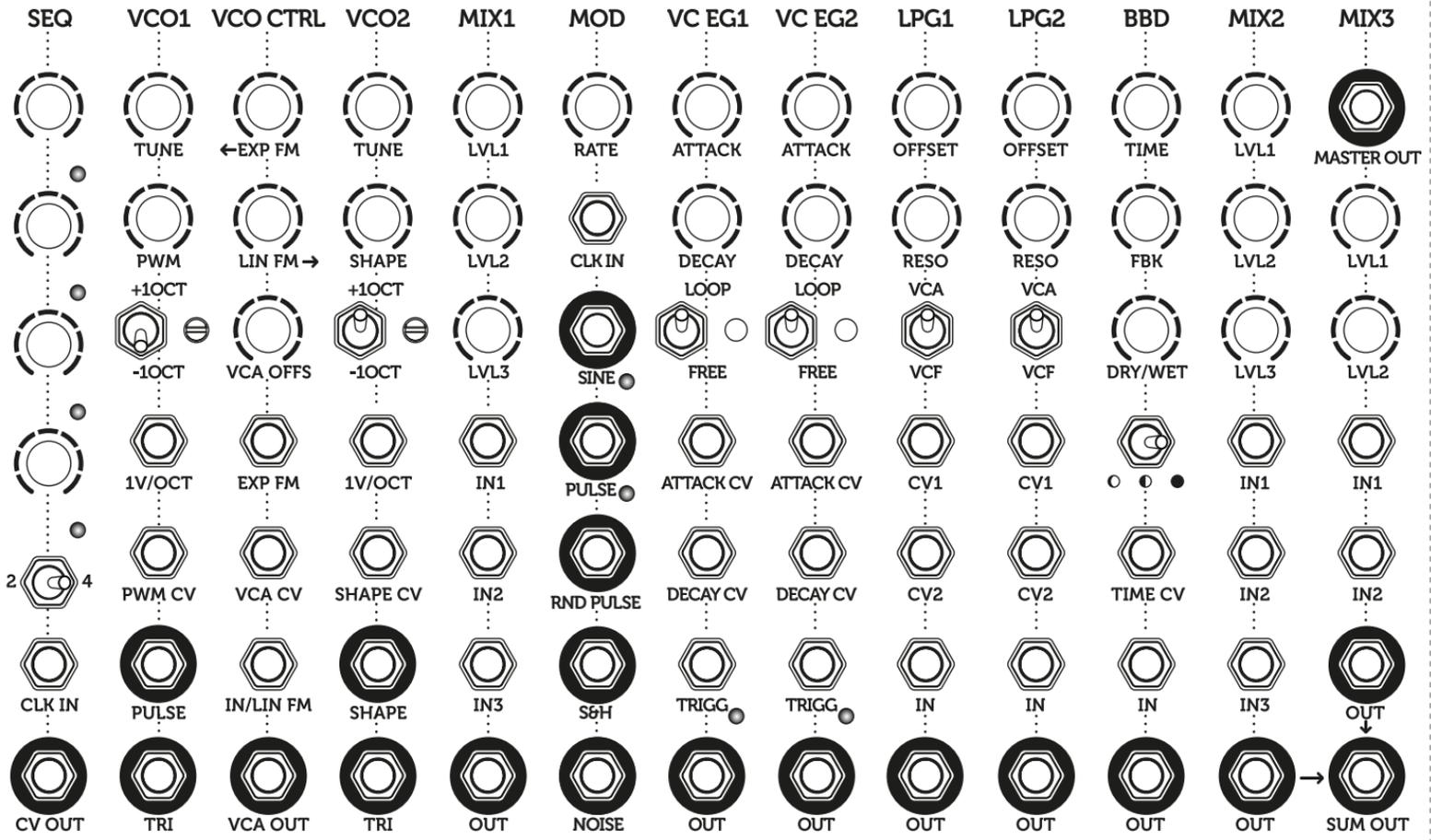
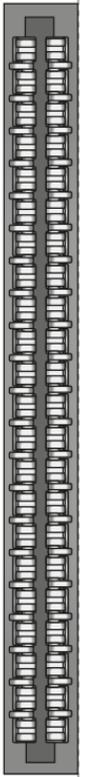
PATCH NOTES





PATCH NOTES





PATCH NOTES





THE ERICA SYNTHS PICO SYSTEM II

is the world's smallest modular synthesizer of its functionality. It contains wisely selected modules so that beginners are introduced with basics of modular synthesizers and advanced users can play hours long live gigs.





SAFETY INSTRUCTIONS

Please follow the instructions for use of the Erica Synths Pico System below, 'cause only this will guarantee proper operation of the module and ensure warranty from Erica Synths.



Use Erica Pico System exclusively with the power supply unit (PSU) supplied with the system. Powering it with other PSU units may cause permanent damage of the device.



Water is lethal for most of the electric devices, unless they are made waterproof. Erica Pico System is NOT intended for use in a humid or wet environment. No liquids or other conducting substances must get into the module. Should this happen, the module should be disconnected from mains power immediately, dried, examined and cleaned by a qualified technician.



Do not expose the module to temperatures above +50° C or below -20° C. If you have transported the system in extreme low temperatures, leave it in

room temperature for an hour before plugging it in.



Transport the instrument carefully, never let it drop or fall over. Warranty does not apply to modules with visual damages.



The system has to be shipped in the original packaging only. Any system shipped to us for return, exchange and/or warranty repair has to be in its original packaging. All other deliveries will be rejected and returned to you. Make sure you keep the original packaging and technical documentation.

You will find Erica Synths terms of warranty at www.ericasynts.lv. Items for return, exchange and/or warranty repair have to be sent to:

Erica Synths
Andrejostas Str. 43
Riga
Latvia
LV-1045

DISPOSAL

This device complies to the EU guidelines and is manufactured RoHS conforming without use of led, mercury, cadmium and chrome. Nevertheless, this device is special waste and disposal in household waste is not recommended.

User manual by Girts Ozolins@Erica Synths.
Design by Ineta Briede@Black8.

Copying, distribution or any commercial use in any way is prohibited and needs the written permission by Erica Synths.

Specifications are subject to change without notice.
In case of any questions, feel free to contact us through www.ericasynts.lv or via e-mail info@ericasynts.lv.