EOWAVE

QUADRANTID SWARM

USER MANUAL

SAFETY INSTRUCTIONS

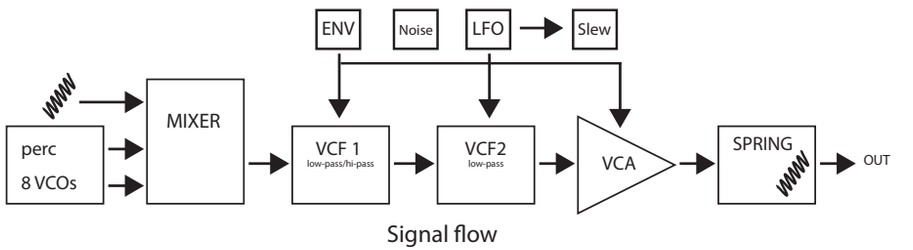
Before using Quadrantid Swarm, please follow the instructions for use of the instrument as this will warrant proper operation of the instrument. Due to the fact that these instructions touch on product liability, we recommend you reading them carefully. Any claim for defect will be rejected if one or more of the topics have not been observed. Ignoring the instructions can eventually void warranty.

• RISK OF ELECTRIC SHOCK! DO NOT OPEN OR MODIFY Quadrantid Swarm.
• REFER SERVICING TO QUALIFIED SERVICE PERSONNEL ONLY.
• TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE.
• The instrument may only be operated at the voltage noted on the power input on the rear panel. Before plugging in Quadrantid Swarm, always check for the correct voltage. Before using Quadrantid Swarm in a foreign country,check whether the mains voltage is compatible with the unit.
• When Quadrantid Swarm is not in use, disconnect the power supply from the power outlet. This will save energy (and keep your electric bill within reason).
• Never attempt to repair Quadrantid Swarm on your own. Never open the casing. For technical support, please get in touch with Eowave.
• The instrument is not to be operated outdoors (never ever!) but in dry, closed rooms only. Never use the instrument in a moist or wet environment or near flammable materials.
• No liquids or conductive materials must get into the instrument. If this happens to be the case, the instrument is to be disconnected from mains power immediately and examined, cleaned, and eventually repaired by a qualified person (that would be us).
• Never expose the instrument to temperatures above +50 °C or below -10 °C. Before powering up, the instrument should have a temperature of at least +10 °C. Do not place the instrument in direct sun light. Do not install the instrument near heat sources such as radiators, open fire places, or thermo-nuclear testing sites (or power plants that would employ people like Homer Simpson).
• Keep the top of the instrument clear in order to warrant proper ventilation, otherwise the instrument may overheat and malfunction.
• Never place heavy objects such as beer crates, trucks, or mothers-in-law on the instrument.
• Before moving place with Quadrantid Swarm, make sure the unit is disconnected from other devices (external controllers, mixers etc.). If not, watch for cables and other pit-falls. Funny films can be uploaded to the internet.
• Transport the instrument carefully, never let it drop or be rude to it. Make sure that, during transport and while in use, the instrument is properly supported (no pizza cartons or king-size buckets of chicken-wings) and cannot fall or slip from your (possibly greasy) fingers – people might get injured and, even worse, sue you for this.
• Never use the instrument in the immediate proximity of interfering electronic devices (e.g. computers and monitors, power supplies, speakers, flux compensators, or hadron colliders) since this might cause Quadrantid
Swarm to behave erratically – and may result in corrupted memory data as well.
• Before cleaning Quadrantid Swarm, make sure the unit has been unplugged.Use a soft, dry cloth only to clean Quadrantid Swarm. Never use any liquids, abrasive cleaners or cleaners containing solvents such as alcohol, terpentine, or other spirits (such as Scotch Single Malts in cask strength).
• The instrument is to be shipped in the original packaging only. Any instruments shipped to us for return, exchange, repairs covered under warranty, update or examination must be in their original packaging! Any other deliveries will be rejected. Therefore, you should keep the original packaging and this user documentation – if only as a doorstop.
• The instrument may only be used for the purpose described in this operating manual. Due to safety reasons, the instrument is never to be used for purposes other than musical (e. g. disintegrating neighbours, bending the space-time continuum, impressing girls etc.).
• When using the instrument in Germany, ACHTUNG: the appropriate VDE standards are to be obeyed. The following standards are of special and utmost importance: DIN VDE 0100 (Teil 300/11.85, Teil 410/11.83, Teil 481/10.87), DIN VDE 0532 (Teil 1/03.82), DIN VDE 0550 (Teil 1/12.69), DIN VDE 0551 (05.72), DIN VDE 0551e (06.75), DIN VDE 0700 (Teil 1/02.81, Teil 207/10.82), DIN VDE 0711 (Teil 500/10.89), DIN VDE 0860 (05.89), DIN VDE 0869 (01.85). VDE papers can be obtained from the VDE-Verlag GmbH, Berlin. German readers will know where to turn to, all others do not really need to bother.

QUADRANTID SWARM

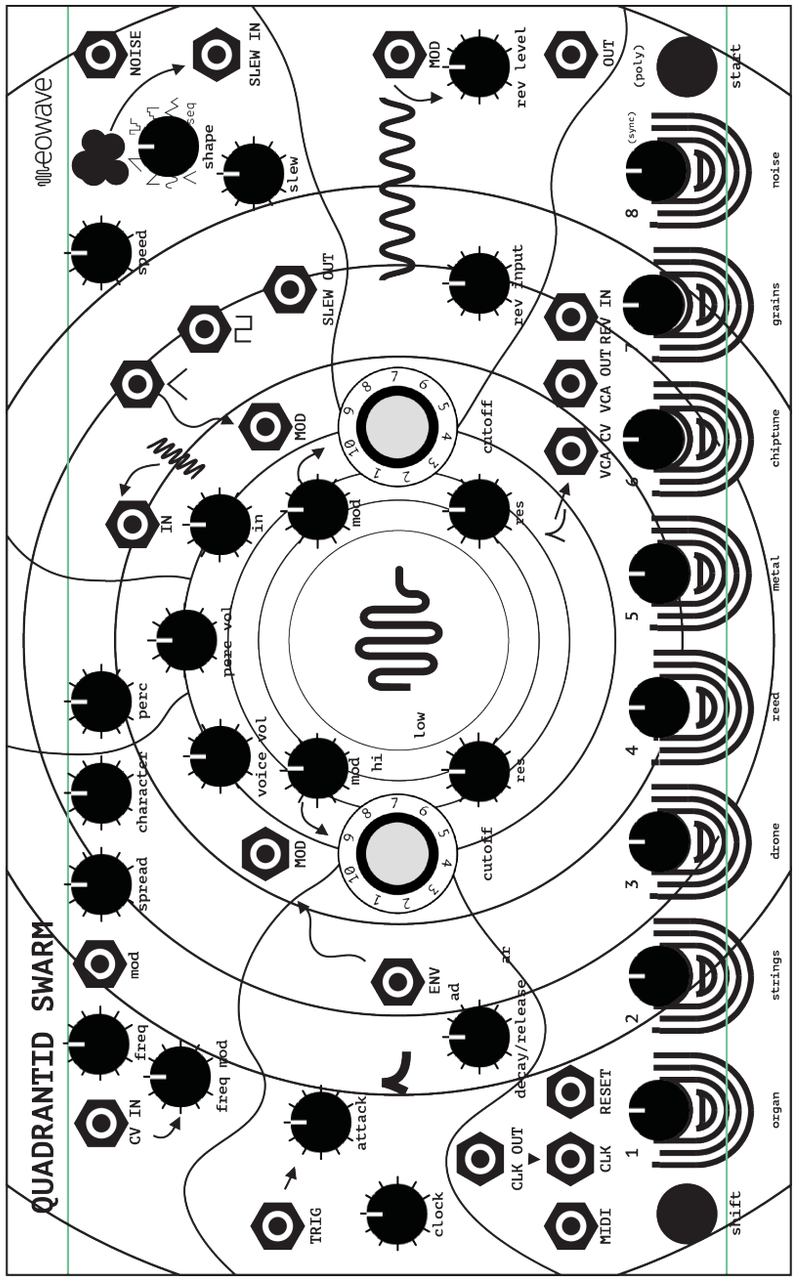
Paraphonic synthesiser

We designed the QS for immediate use without having to worry about complex patching, so pre-patching is used to make connections in logical places. Some of these are highlighted using arrows, particularly the modulation sources and connections, the audio routing hasn't been highlighted to keep the design clean but as expected runsfrom mixer, to filter, to reverb then to VCA.



Signal flow

The VCO section is Digital, while the filters, the VCA and the spring reverb are analog.VCOThe QS offers 8 different VCO models and an additional percussive soundthe VCO has 3 parameters, Freq, Spread Character. The Percussive sound has one parameter, perc which determines the length of the percussion decayFreq : controls the base pitch of the VCOs. It can be modulated by the CV in input associated to it's attenuator :



freq mod.

Spread : this function only works in monophonic mode.
It controls the frequency ratio between the 8 VCOs.Depending on the model this ratio can be harmonic (organ and string) or inharmonic (the others).Character : this parameter has different functions depending on the VCO model Organ, String, Drone, Reed :
it determines the amount of signal passing thru a wavefolder.
The more character you add the more distorted yousound will be.
Metal : it adjust the amount of modulation the modulating oscillator has on the 8 main VCOs Chiptune :
it adjust the amount of modulation the modulating LFO has on the pluse width of th 8 main VCOs
Grains, Noise : it adjust the amount of short delay.

To switch between models,
press shift and the dedicated touch key :

- Organ => 8 sine VCOs
- Strings => 8 saw VCOs
- Drone => 8 triangle VCOs
- Reed => 8x2 VCOs the second VCO is slighly detuned
- Metal => 8 sine VCOs with an additionnal 9th that modulate the frequency of the other VCOs.

- Chiptune => 8 square vcos with pulse width modulation
- Grain => 8 granual generators bases on sine wavelets
- Noise => digital pitched noise

Filter

The Signal coming from the VCO's is feed into a 3 inputs mixer.
You can mix the main VCO, the percussion VCO and an external signal.
By default input 3 in connected to the output of the reverberation. The 2 12dB filters are connected in serial. Filter 1 can be switched between Low pass and Hi pass. Filter 2 is low-pass only.
You can control the individual frequency and amount of resonance for each filter. An extra Modulation input associated with it's attenuator can modulate the Filter's frequency. By default Filter 1 modulation is connected to the envelope , and filter 2 modulation to the LFO.

VCA

The VCA has an audio input, a control and an audio output.
By default the envelope is connected to the VCA control. If you want to generate drones, you should connect a constant positive voltage 0-10V to the VCA input.You can also use very long attack and release times with a slow sequence. Spring Reverb The VCA has an audio input, a control and an audio output. You can externally control the amout of reverberation by the mod input.
By default the Reverberation output is connected to the third input of the mixer.
That allow you to create some feedback effects.

Modulations

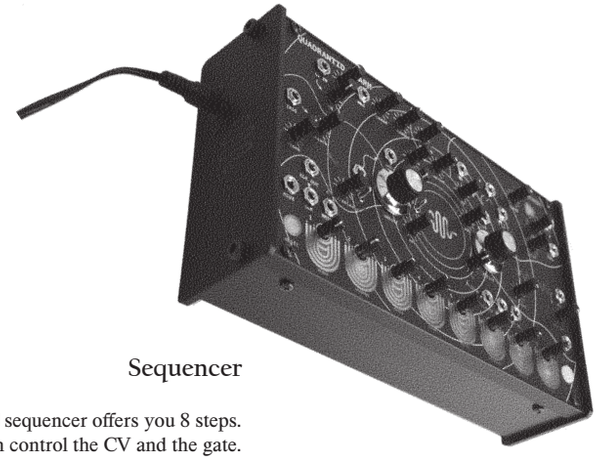
Thee modulation sources unlock the expressivity of the synth.
The first is an envelope, pre-patched to the cutoff on filter pole 1.

Envelope

the envelope offers 2 modes of operation AR and AD in AR mode (attack/release) it's trigger input acts as a gate. The envelope stays open until the gate is released. In AD mode (attack/decay) the envelope continues up to the end of it's cycle even if the gate is released. If you want to play chords we suggest you to use AR mode and if you play with the sequencer the AD might give better results.

LFO

The LFO section is pre-patched to cutoff pole 2 and features seven selectable waveforms :
triangle , sine, ramp down , ramp up , and 3 different random modes. the 8th selection which is the sequencer CV out (allowing the sequencer to be patched to other compatible devices). Speed is set using the ‘speed’ knob. An additional square output has been included which can be useful for triggering clock resets.
The square pulse widht is determinated by the LFO waveform, the random mode won’t give you a perfect square.A slew limiter (with CV signal in and out) enable you to round the waveforms coming from the LFO. By defaut the main LFO output is connected to the slew in.



Sequencer

The internal sequencer offers you 8 steps.
On each step you can control the CV and the gate.
To active a gate, simply press on the touch keyboard.
To change the pitch use the individual potentiometers on each step.
The CV is internally connected to the VCO’s frequency. And the gate output to the gate of the envelope. It is not possible to control an external sound source from the internal sequencer except by using the 8’s preset on the LFO. In this mode you will have the sequencer output with a 0-5v range. It’s speed is controlled by the LFO and not the Sequencer’s clock. The sequencer clock has its individual output. To sync the sequencer to an external clock , use the clock input.
A trigger signal at the reset input reset the sequence to step 1.
The start button enables you to start and stop the sequence.

Polyphonic Mode

By holding shift and pressing the start button you can switch for monophonic mode to polyphonic mode.In polyphonic mode the spread mode will have no function.
Each of the 8 VCOs is controlled by the 8 touch keys. The individual frequency of each vco is controlled by the potentiometers above each key.
Each VCO has his onw VCA controlled by the touch key.

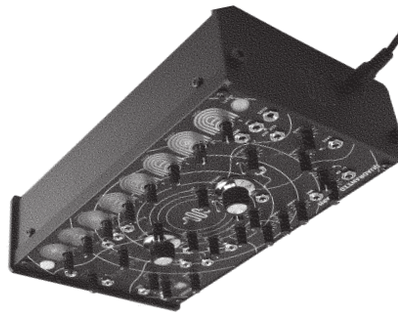
MIDI implementation

by default the QS responds to MIDI channel 1.
To change the MIDI channel simply press SHIFT while powering up the unit.
Send a note on the new midi channel. And press START to validate your choice.
The new MIDI channel will be stored in the internal memory. By pressing the 8th key (noise) you can also activate the external MIDI clock. It will be available at the clock output.
You can divide this clock using the clock potentiometer. The QS response also to MIDI CC for a couple of parameters. The Ccs are added to the current potentiometer value.

CC1 ==>lfo speed
CC2 ==>spread
CC3 ==>fold
CC4 ==>perc
CC5 ==>attack
CC6 ==>decay
CC7 ==>volume

Noise

A noise output gives you an additional modulation source



Patchnotes

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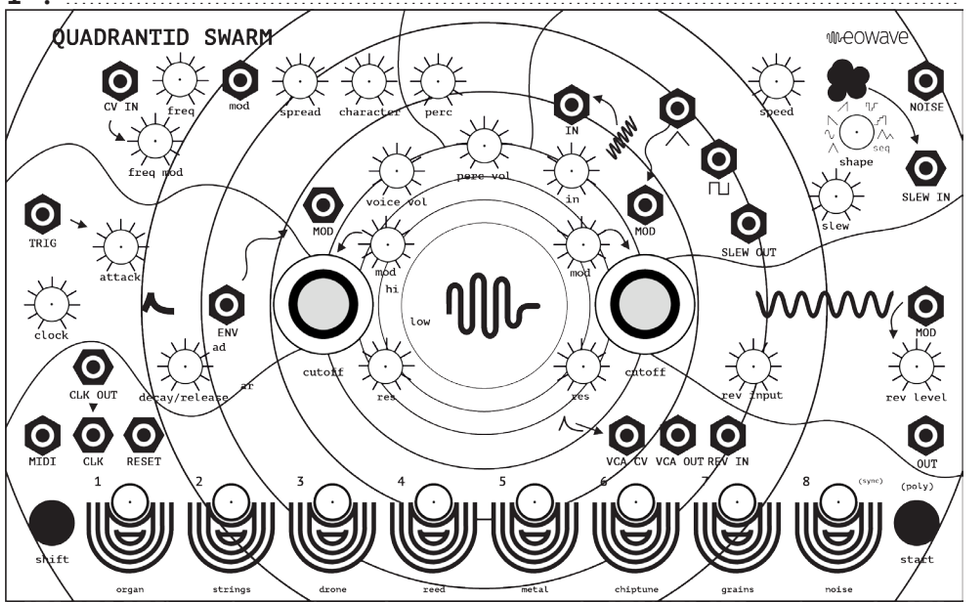

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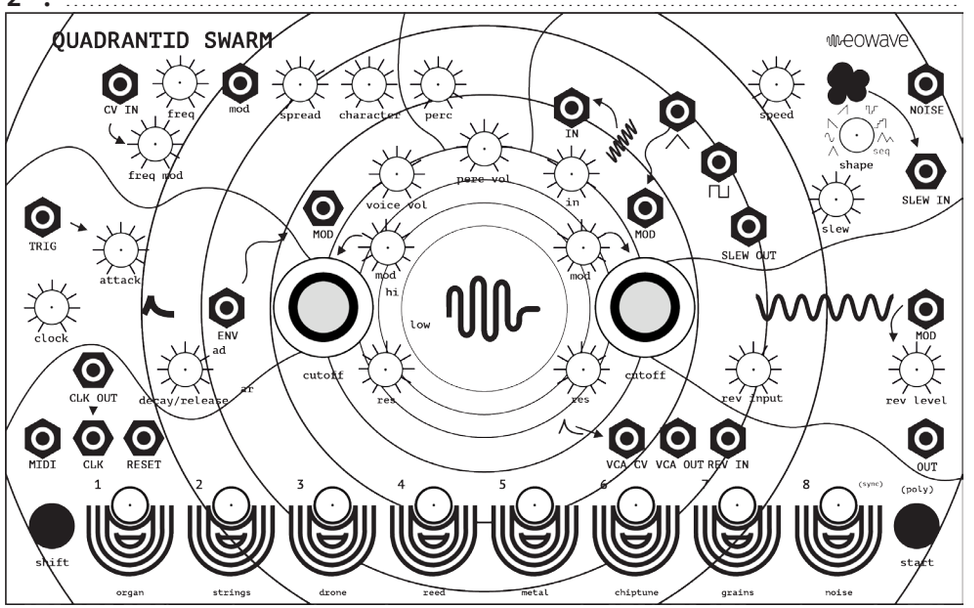

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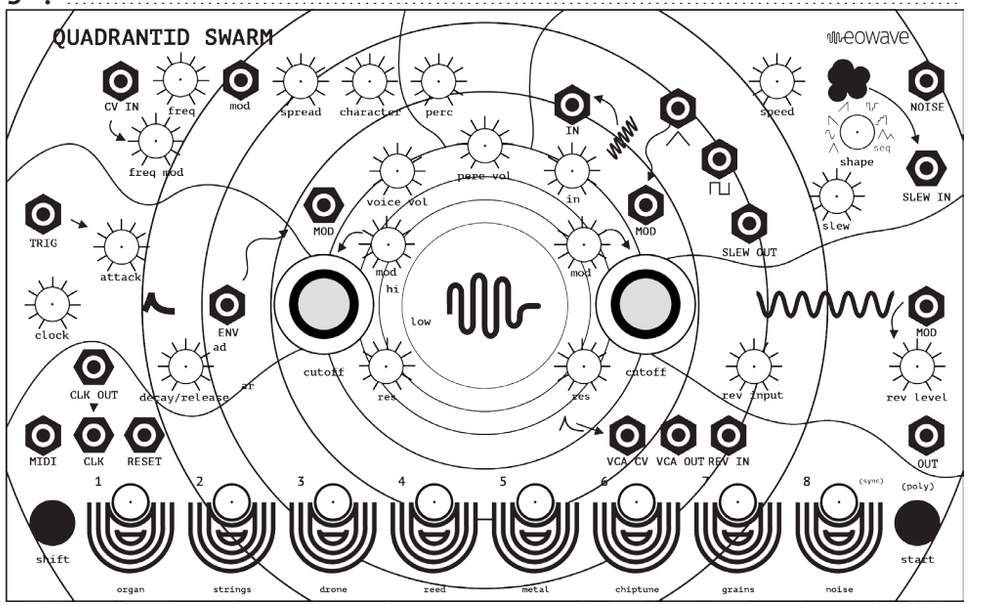

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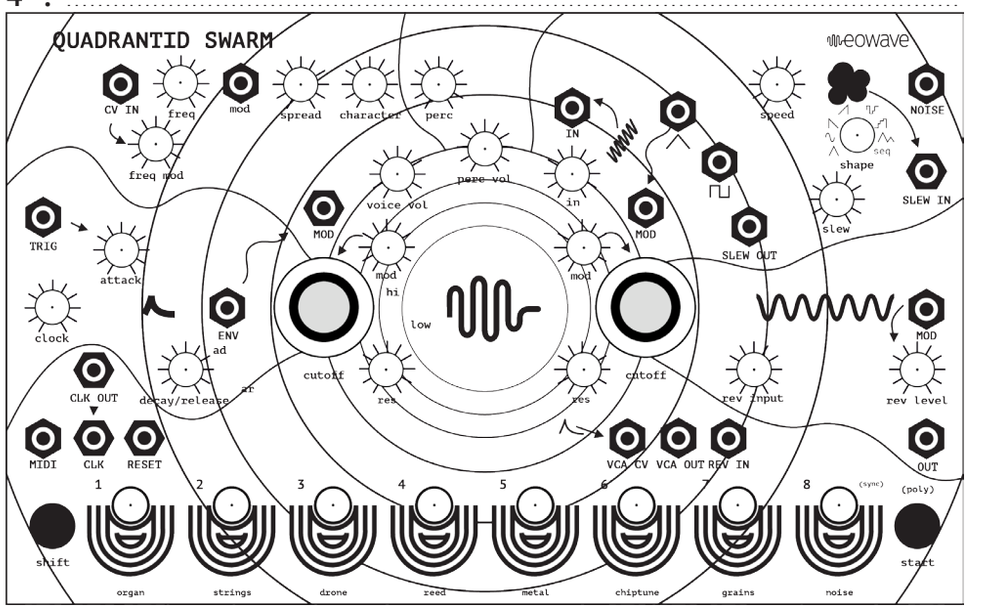

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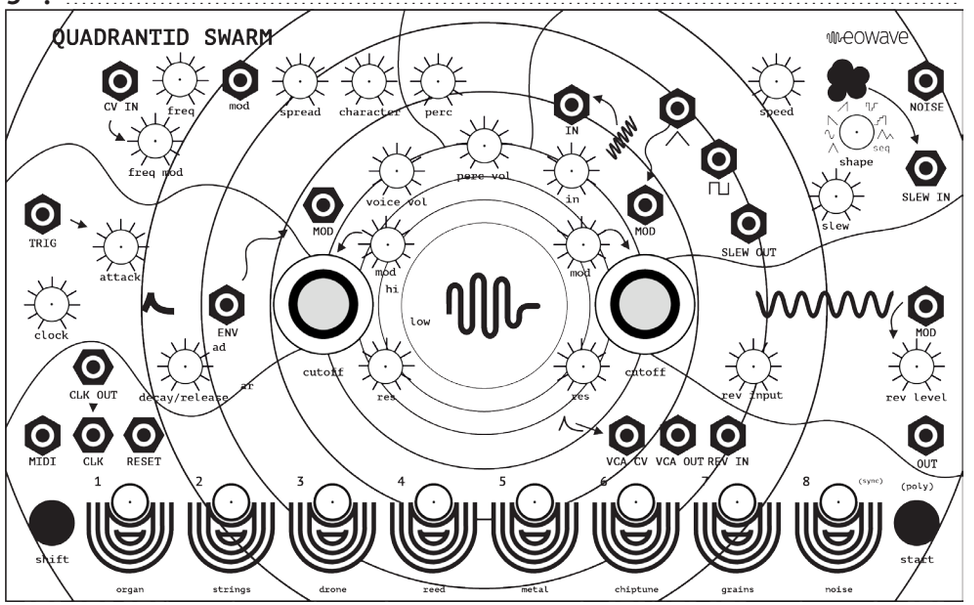
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eowave
CV IN
freq
mod
spread
character
perc
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speed
NOISE
freq mod
shape
seq
SLEW IN
TRIG
voice vol
perc vol
in
slew
attack
MOD
SLEW OUT
clock
ENV
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low
hi
cutoff
res
rev input
rev level
CLK OUT
decay/release
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MIDI
CLK
RESET
VCA CV
VCA OUT
REV IN
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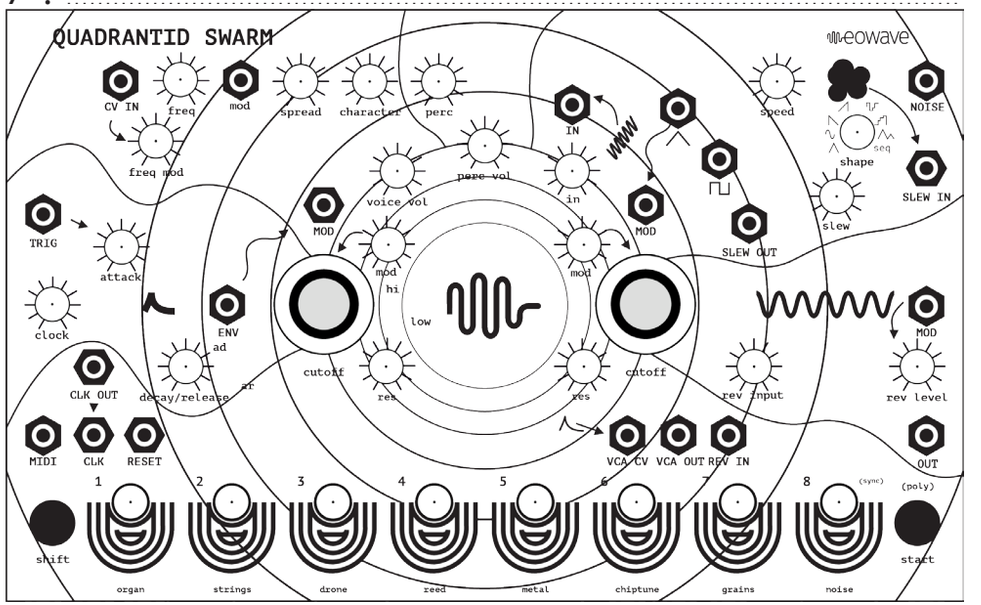
(poly)
shift
start
organ
strings
drone
reed
metal
chiptune
grains
noise

7 :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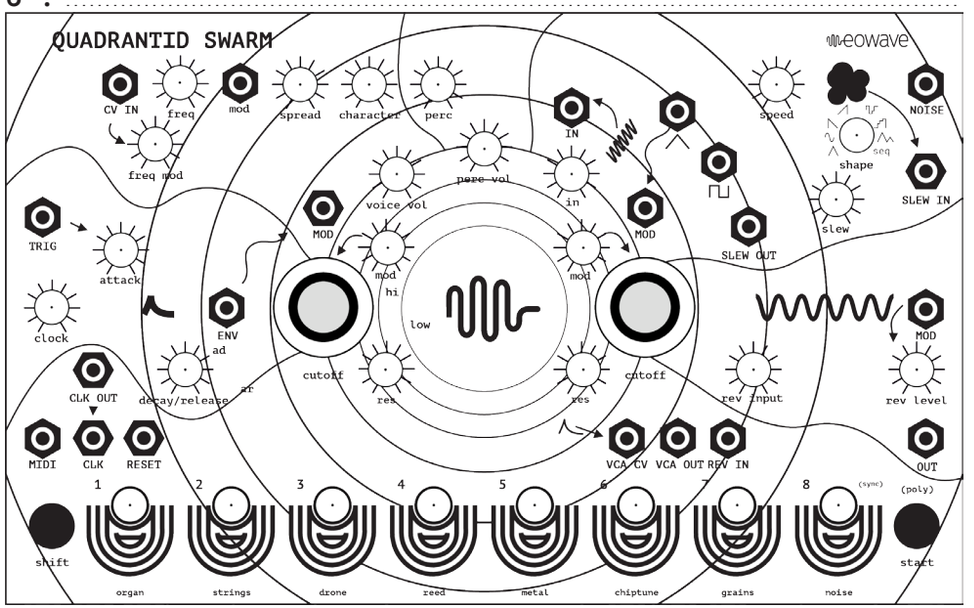
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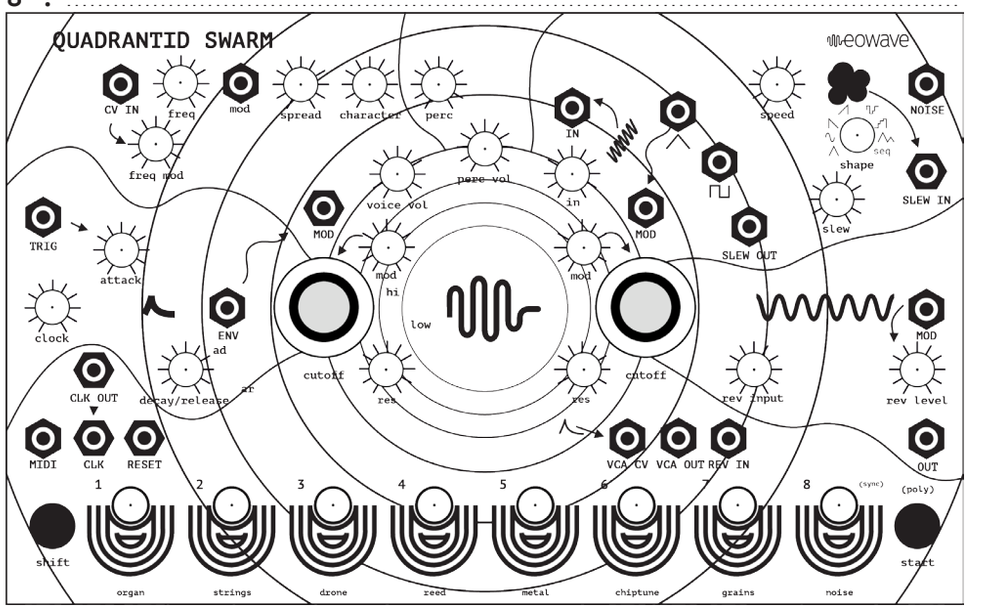
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