

Re

User Manual



ES20

SYNTHESIZER

Introduction

Thank you for choosing **Ekssperimental Sounds ES20 Analog Synthesizer**.

The **ES20** is a patchable synthesizer modelled from the schematics of a classic 1978 semi-modular: two oscillators, a high-pass and a low-pass filter, two envelope generators, a modulation generator, an external signal processor and a patch bay with cables. Below the synth sit two fold-out units, the **SE-10** step sequencer and the **FX-30** effects unit. On the back you find plenty of CV connections that let you connect with the rest of the Reason rack.

We urge you to read this user guide thoroughly in order to make the most of the **ES20 Synthesizer**.

CONTENTS

[Introduction](#)

[Signal Flow](#)

[Basic Settings](#)

[VCO](#)

[VCO Mixer](#)

[VCF](#)

[Envelope Generators](#)

[MG](#)

[S&H, VCA and Noise](#)

[Patch Bay](#)

[External Signal Processor](#)

[SE-10 Sequencer](#)

[FX-30 Effects Unit](#)

[Options](#)

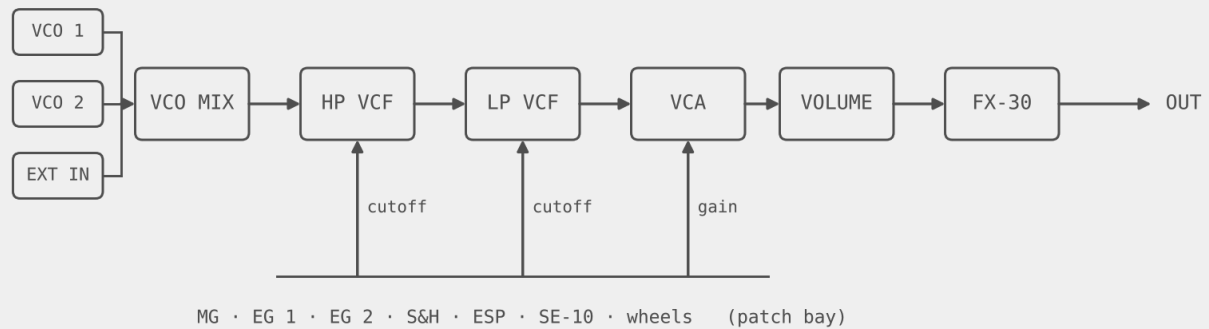
[Back Panel](#)

[Factory Patches](#)

[Usage](#)

Signal Flow

Graphic representation of the signal flow scheme.



Each voice has its own oscillators, filters, envelopes and VCA. The MG, noise, S&H, ESP and the SE-10 are shared by all voices.

SEQUENCER / EFFECTS: Show or hide the SE-10 and the FX-30 below the synth. The view is saved with the song.

OPTIONS: Opens the settings panel. See [Options](#).

NOTE LED: Flashes when the ES20 receives notes via MIDI or CV/Gate.

Basic Settings

VOLUME: Output level. Sits before the **FX-30**, so it also pushes gain into the **DRIVE** effect.

PORTAMENTO TIME: The time it takes to Glide from one note to another.

PORTAMENTO (Back panel): When the glide applies.

- **On:** always
- **Auto:** only between overlapping notes
- **Off:** never

VEL (Back panel): How much velocity reaches the VCA. At 0 every note plays at full level, at 10 the VCA follows velocity. Applies to MIDI and to GATE IN.

PB RANGE (Back panel): Pitch bend depth, 0 to 24 semitones.

VOICES (Back panel): Mono, Poly or Unison.

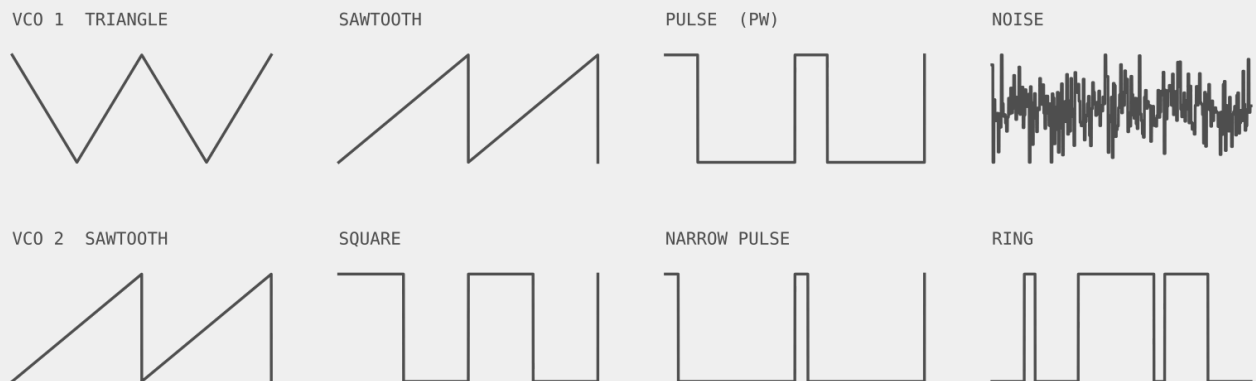
- **Mono** one voice.
- **Poly** plays one voice per note, up to **MAX VOICES**, found in Options.
- **Unison** plays five detuned voices per note, spread in stereo.

UNISON AMOUNT (Back panel): Width and detune in one knob. The stereo spread reaches full width at the halfway point. The detune grows over the whole travel: slight in the first half, up to 60 cents at the top. At 0 the stack is mono and in tune.

Important! The mod wheel and sustain pedal do nothing until patched. They arrive on the patch bay as **M.W** (0 to +5 V) and **S.P** (a gate). The pitch wheel needs no patching: it bends both VCOs by up to **PB RANGE**. A cable in **P.W** on the patch bay breaks that connection, and the wheel then goes only where the cable goes (-5 to +5 V, not scaled by **PB RANGE**).

VCO

The **Voltage Controlled Oscillators** are the sound generators of the **ES20**. The pitch is determined by the notes from your keyboard or sequencer, or by a CV patched into the **CV IN** jacks.



VCO 1 WAVEFORM: Triangle, sawtooth, pulse or white noise.

PW: Pulse width. 0 is a square, 10 so narrow the pulse disappears.

VCO 1 SCALE: 32', 16', 8', 4'.

VCO 2 WAVEFORM: Sawtooth, square, narrow pulse or RING. Ring is VCO 1's pulse gated against VCO 2's square: metallic and hollow, and VCO 1's PW changes its timbre.

PITCH: Tunes **VCO 2** ± 1 octave from **VCO 1**, for intervals and detuning.

VCO 2 SCALE: 16', 8', 4', 2'.

MASTER TUNE: ± 100 cents.

FREQUENCY MODULATION: MG / T.EXT: Depth of the **TOTAL** jack on both oscillators. With nothing patched, the **MG** triangle: vibrato.

FREQUENCY MODULATION: EG 1 / EXT: Depth of the **FREQ** jack on both oscillators. With nothing patched, **EG 1**. **EG 1** rests below the tuned pitch and sweeps up to it.

VCO 1 PW, VCO 2 PW (Back panel): CV inputs for the pulse widths, each with a trim knob.

Try: Set VCO 2 to RING and both SCALE selectors to 8'. Turn PITCH slowly: the ring tone changes character at every interval, and VCO 1's PW changes it further.

VCO Mixer

Mix the two oscillators and the external signal into the filters.

VCO 1 LEVEL, VCO 2 LEVEL: Balance and drive. The levels set how hard the filters are driven: push them and the filters saturate, pull them back and they clean up. The default patch has VCO 1 at 10.

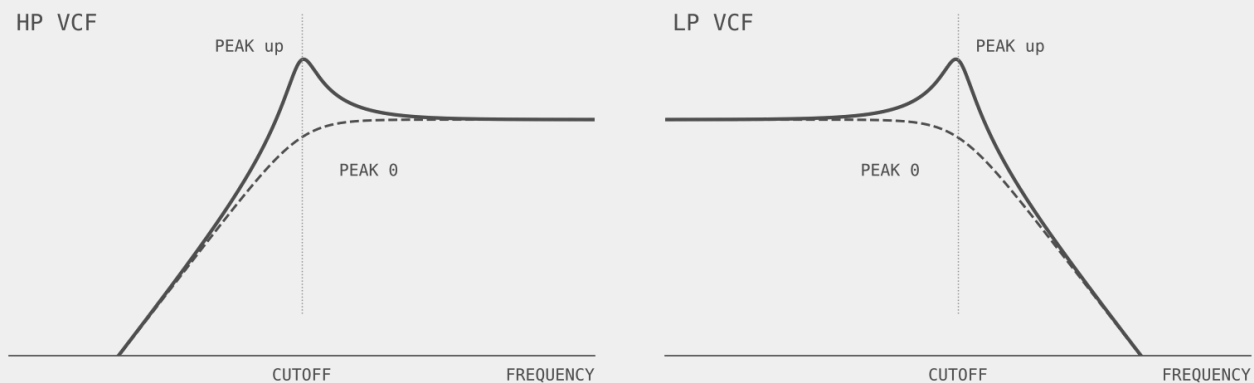
EXT IN (Patch bay): Adds an external signal to the mix at unity. A full-scale signal equals an oscillator at 10.

VCO 1 LEVEL, VCO 2 LEVEL (Back panel): CV inputs for the two levels, each with a trim knob.

Important! With both levels at 0 the filters still play. Turn PEAK up and either filter sings on its own, tracking the keyboard.

VCF

The **Voltage Controlled Filters** alter the sound by cutting off frequencies. The signal passes the high-pass filter first, then the low-pass filter. Both are resonant and both can self-oscillate.



CUTOFF FREQUENCY: 50 Hz to 15 kHz. On the **HP VCF** frequencies below the cutoff are removed; on the **LP VCF** frequencies above are removed.

PEAK: Emphasises the frequencies near the cutoff for a sharper sound. Fully up, the filter rings on its own and plays as a sine oscillator.

CUTOFF FREQ MODULATION: MG / T.EXT: Depth of the **TOTAL** signal on this filter. With nothing patched, the **MG** triangle.

CUTOFF FREQ MODULATION: EG 2 / EXT: Depth of the **CUTOFF FREQ** jack on this filter. With nothing patched, **EG 2**.

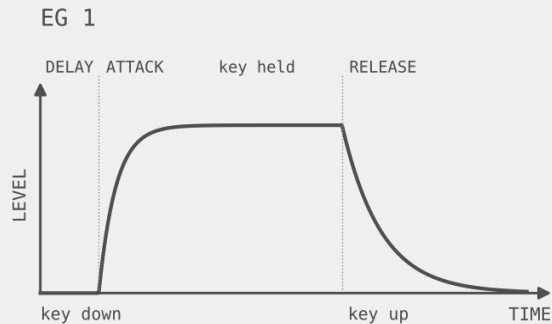
FILTER MODEL (Back panel): Early or Late, the two filter circuits of the original. Early is the discrete design: raw, with a resonance that bites. Late is the integrated design: smoother, with a softer saturation.

HP FREQ, LP FREQ (Back panel): CV inputs for the two cutoffs, 2 octaves per volt, each with a trim knob.

Important! The high-pass filter still passes bass. Below its cutoff the slope is gentle, so low notes thin out rather than vanish. Raise **PEAK** for a sharper edge and boost of the frequency at the cutoff.

Envelope Generators

The **EG 1** and **EG 2** blocks contain the **ES20** envelope generator controls. Both are triggered from **TRIG IN**, which is the keyboard unless something else is patched there.

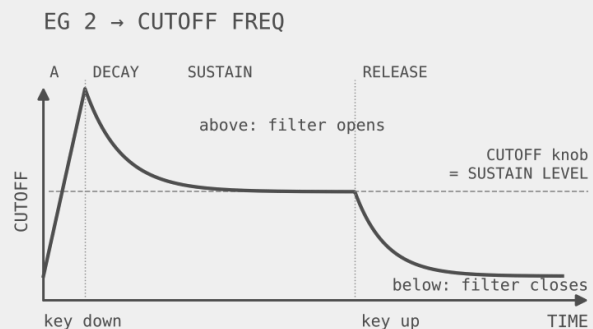
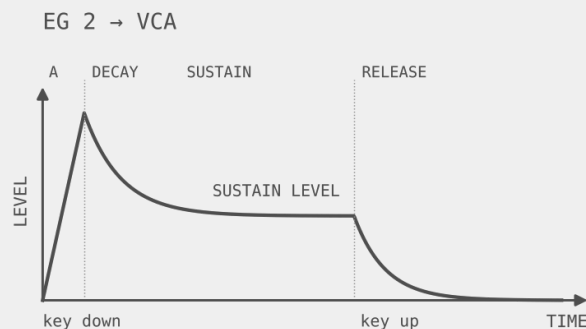


EG 1: DELAY TIME: Delay before the attack starts.

EG 1: ATTACK TIME: Time for the envelope to reach maximum level.

EG 1: RELEASE TIME: Time to fall back after the key is released. There is no decay or sustain: **EG 1** holds at maximum while the key is down.

EG 1 feeds **FREQ** (pitch) and **VCA CTRL IN** by default. On the patch bay **EG1 OUT** is 0 to +5 V and **REV OUT** the same shape upside down, +5 to 0 V. **EG 1 TRIG IN** triggers **EG 1** alone.



EG 2: HOLD TIME: Extends the gate after the key is released. A short tap with HOLD up plays like a held key.

EG 2: ATTACK TIME: Time to reach maximum level when a note is played.

EG 2: DECAY TIME: Time to fall from maximum to the sustain level.

EG 2: SUSTAIN LEVEL: The level held for as long as the key is down.

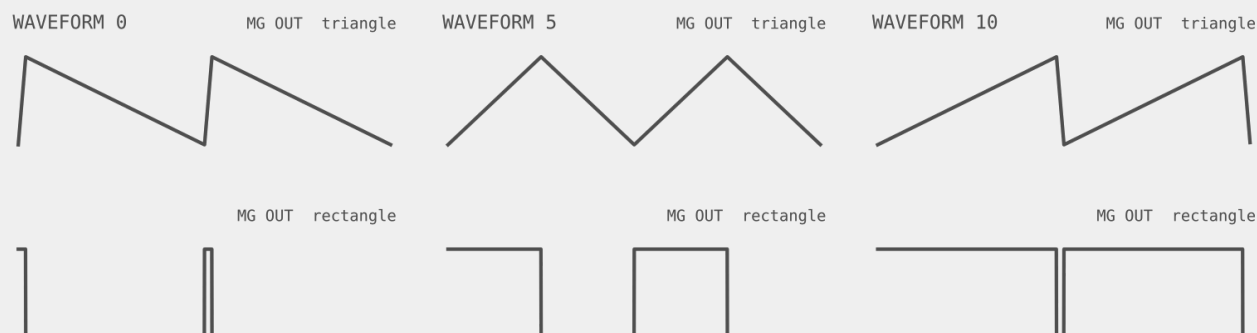
EG 2: RELEASE TIME: Time to fade out after the key is released.

EG 2 drives the VCA and both filter cutoffs, but the filters see it differently: the cutoff moves relative to the sustain level. Above sustain the filter opens, below it closes, and with SUSTAIN at 10 only the release moves the filter. REV OUT on the patch bay is the envelope inverted around its sustain level.

Important! A short note with a slow attack never reaches full level, and a slow decay keeps falling towards the sustain level for the whole note.

MG

The **Modulation Generator** is a low frequency oscillator, shared by all voices, for vibrato, tremolo, filter sweeps and clocking the **S&H**.



WAVEFORM: Morphs the shape from a falling sawtooth, through a triangle at 5, to a rising sawtooth. The rectangle output's pulse width follows the same knob.

FREQUENCY: 0.1 to 20 Hz. The lamp breathes at the **MG** rate.

SYNC / FREE: At **SYNC** the **FREQUENCY** knob picks a note division instead, 1/1 to 1/32, locked to the song position.

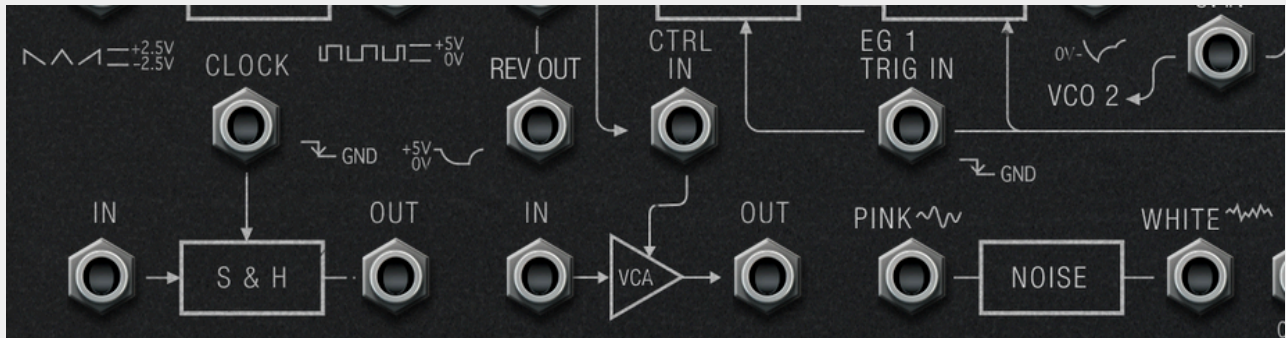
MG OUT (Patch bay): The triangle (± 2.5 V) and the rectangle (0 to +5 V). The triangle's range can be changed in Options.

MG FREQ (Back panel): CV input for the rate, with a trim knob.

Try: Patch **MG OUT** (rectangle) into **S&H CLOCK** and **WHITE** into **S&H IN**, then **S&H OUT** into **LP CUTOFF FREQ**. Turn up **EG 2 / EXT** on the **LP VCF**: random filter steps at the **MG** rate.

S&H, VCA and Noise

Noise, **S&H** and the second **VCA**, lower half of the patch bay.



S&H: Samples **IN** on every rising edge at **CLOCK** and holds the value at **OUT**. There is no internal clock. The back panel has a second **CLOCK** and **IN** that work alongside the front ones.

VCA (IN, OUT, CTRL IN): A second, independent **VCA** for shaping any patch-bay signal. The control is **EG 1** unless patched.

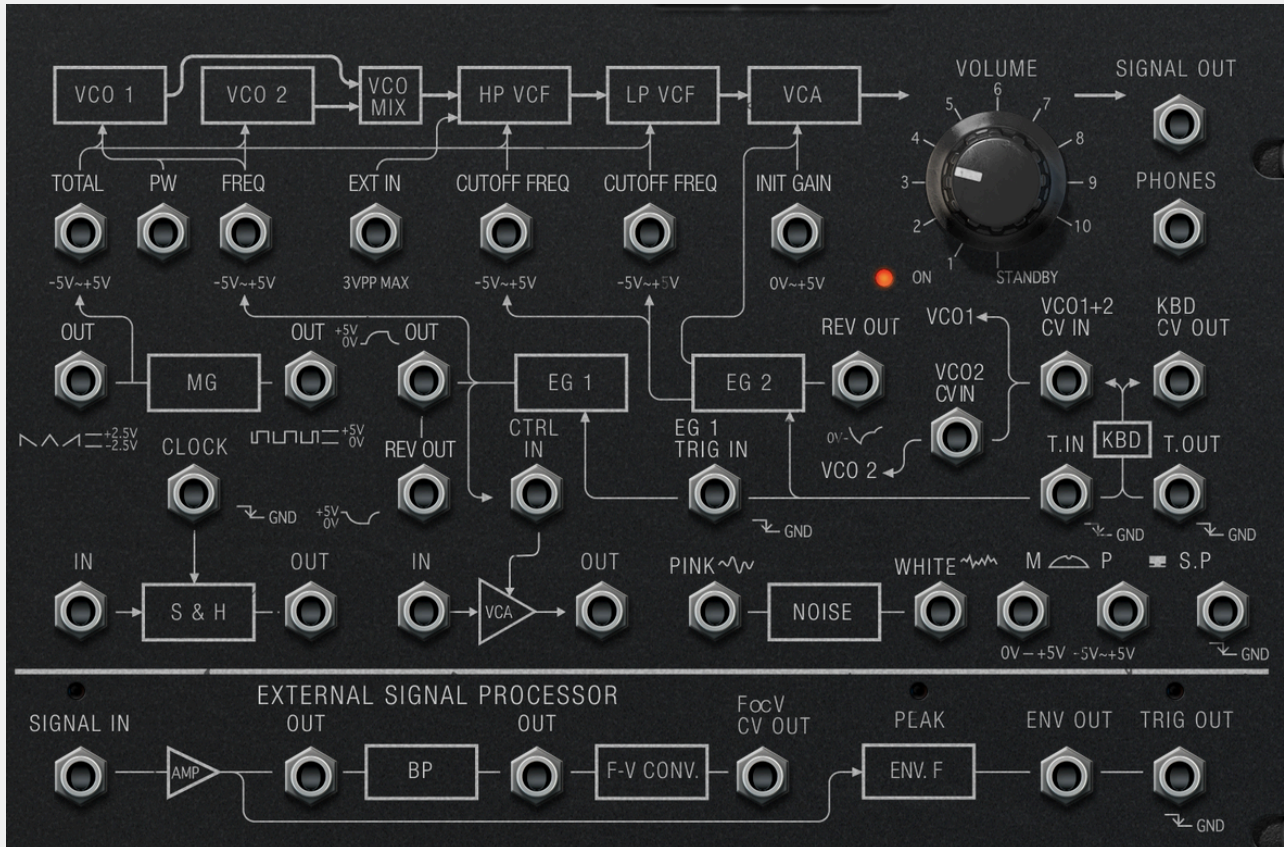
PINK, WHITE: Two noise outputs. Into **EXT IN** for noise in the mix, into **S&H IN** for random voltages.

***Try:** Patch **MG OUT** (rectangle) into **S&H CLOCK** and **Pink** into **S&H IN**, then **S&H OUT** into **VCO FREQ**. Turn up **EG 1 / EXT** on the **VCO F.M**: random pitches at the **MG** rate.*

Patch Bay

The patch bay reroutes the control signals of the **ES20**. Drag between two jacks to connect, pick a cable up by either end to move it, drop it on empty panel to remove it, or right-click an input for **Disconnect** and **Disconnect all**. **Cable colour** can be selected in the Options.

Cables connections are saved with the patch.



To send a signal to the rack as well, patch it into MIX: it comes out of both the front MIX OUT and the back **MERGE OUT**. To split a rack signal four ways, use MULT on the back panel.

An empty input uses its normal connection.

INPUTS

Jack	Takes	Normal
TOTAL	CV, 1 oct/V, depth MG/T.EXT	MG triangle
FREQ	CV, 1 oct/V, depth EG 1/EXT	EG 1
PW	CV, VCO 1 pulse width	—
EXT IN	audio into the mixer	—
CUTOFF FREQ (HP, LP)	CV, 2 oct/V, depth EG 2/EXT	EG 2
INIT GAIN	CV, 0 to +5 V	—
VCO 1+2 CV IN	pitch CV	keyboard
VCO 2 CV IN	pitch CV	VCO 1+2 CV IN
TRIG IN	gate for both envelopes	keyboard
EG 1 TRIG IN	gate for EG 1	TRIG IN
S&H CLOCK, S&H IN	gate, any	—
VCA IN, CTRL IN	any, CV	—, EG 1
ESP SIGNAL IN	audio	EXTERNAL AUDIO IN

OUTPUTS

Jack	Carries
MG OUT (triangle)	± 2.5 V
MG OUT (rectangle)	0 / +5 V
EG 1 OUT, REV OUT	0 to +5 V, +5 to 0 V
EG 2 REV OUT	the envelope inverted
KBD CV OUT	keyboard pitch, Reason note CV
KBD TRIG OUT	high while a key is held
S&H OUT	the held voltage
VCA OUT	the second VCA
PINK, WHITE	noise
M.W, P.W, S.P	mod wheel 0 to +5 V, pitch wheel ± 5 V, sustain pedal gate
SIGNAL OUT, PHONES	the main output, patchable

PITCH CV

KBD CV OUT, **F→V CV OUT** and the back-panel **CV IN** always speak Reason note CV. KBD Jacks **VCO 1+2 CV IN** and **VCO 2 CV IN** can be configured in Options (see possible configurations below). At "**NOTE ABS**" (default setting) a Matrix, an RPG-8 or any external Reason note CV plays them in tune.

TOTAL and **FREQ** jacks are always 1V/Oct, added to the pitch and scaled by their depth knobs: Absolut Note CV patched there will play out of tune.



KBD Jacks possible configurations:

Hz/V ABS: Hertz per Volt, Absolut, the original's linear law, replacing the keyboard. Pitch is proportional to voltage, 1 V = C4 (at 8'), 2 V an octave up; 0 V and below stops the oscillators. A Volts lane at WIDE set to 20, 40, 60, 80 and 100 % plays the first five harmonics of C4.

NOTE ABS (default): Absolute Reason note CV, replacing the keyboard. On **KBD VCO 2 CV IN** it replaces VCO 2's pitch only: VCO 1 keeps the keyboard, so two sources can play the two oscillators.

V/OCT REL: 1 octave per volt, added to the keyboard pitch. For intervals and transposing, and for the sequencer's **Semitones** mode. **VCO 2 CV IN** is relative to **VCO 1+2**, so a lane can move VCO 2's interval while the keyboard plays both.

External Signal Processor

The **ESP** turns an external sound into control signals: an envelope, a gate and a pitch. The source is the back-panel **EXTERNAL AUDIO IN**, or whatever is patched into **SIGNAL IN**.

SIGNAL LEVEL: Input gain, from microphone to line level. The top of the dial turns anything into a square wave; the **PEAK** lamp shows when you are there.

LOW & HIGH CUT: The band the pitch detector listens to, ranges are 50 Hz to 2.5 kHz and 100 Hz to 5 kHz. Narrow it around the sound you want to track. **LOW CUT** also sets how the tracker responds: slow and smooth at 0, snappy but rougher higher up.

CV ADJUST: Tuning of the tracked pitch. 5 is in tune with the input; above transposes up, below transposes down.

THRESHOLD: The level at which **TRIG OUT** will fire. The **TRIG** lamp shows when trigs are fired.

AMP OUT: The amplified signal, before the band-pass. **BPF OUT:** After the band-pass.

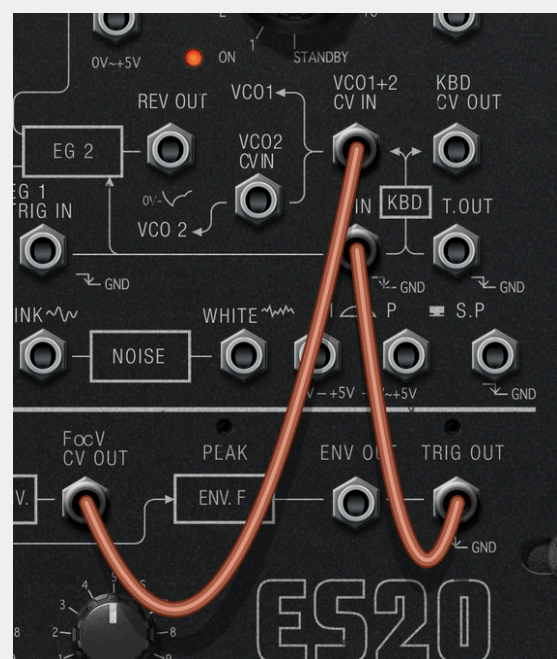
F→V CV OUT: The tracked pitch as Reason note CV. Follows a single clean note; falls to zero when the sound stops.

ENV OUT: The loudness envelope, 0 to +5 V. **TRIG OUT:** High while the envelope is above **THRESHOLD**.

TO ESP / TO FX (Back panel): Sends **EXTERNAL AUDIO IN** to the **ESP**, summed to mono, or to the effects unit in stereo.

Try: A pitch follower.

Connect a monophonic source to **EXT AUDIO IN**. Raise **SIGNAL LEVEL** until the **PEAK** lamp flickers on loud notes, then back off a little. Patch **F→V CV OUT** to **KBD VCO 1+2 CV IN** and **TRIG OUT** to **KBD T.IN**. Set **THRESHOLD** where the **TRIG** lamp fires on notes, tune with **CV ADJUST**.



SE-10 Sequencer

A twelve-step analogue sequencer with three channels. Press **SEQUENCER** at the top of the front panel to reveal it.



RUN: Start and stop the sequencer. It follows Reason's transport: Play starts it, Stop pauses it on the current step, and a second Stop returns it to step 1. You can also start and stop it by hand at any time. The LED is lit while running, blinks while paused and is dark when stopped.

CLOCK: Step rate. **FREE:** the internal clock, from one step every 20 seconds to 50 steps a second. **SYNC:** Reason's tempo; the knob picks the step length, 1/1 to 1/32 with dotted and triplet values, locked to the song position. **EXT:** each rising edge at STEP IN advances one step while RUN is on. **STEP** button advances 1 step.

STEPS: Length, 1 to 24. Up to 12, A, B and C run side by side. Above 12, A and B join into one chain. E.g; at 16 steps, **A** plays its 12 steps, then **B** plays 4. **C** runs to the same length but repeats its own row: at 16 steps, **C** plays steps 1 to 12, then 1 to 4. **CH A & B** LEDs show which row is playing.

REV: Backwards. **PORTAMENTO A / B:** Glide between steps. **DUTY:** Gate length as a share of the step, for channel **C** and **GATE OUT**.

CH A & CH B: Bipolar voltage rows.

CH C: 0 to +5 V, gated by DUTY, so it works as a gate row too. The lamp above each column shows the current step.

A/B RANGE (Back panel): FINE or WIDE for each channel.

RESET: Returns to step 1 on a gate. TRIG 5 into RESET gives a five-step loop.

LIN, X2, /2: CV inputs that vary the clock rate. **LIN** scales it (+5 V doubles it, -5 V halves it), **X2** doubles it **per volt**, **/2** halves it **per volt**. **CH C OUT** into one of them varies the step spacing from the sequence itself.

A, B, C OUT: The channel voltages. Above 12 steps, a cable in either **A OUT** or **B OUT** carries the whole chain. To keep **A** and **B** separate, patch both: each then plays only its own steps and rests at 0 V while the other plays.

TRIG: A short pulse on every step. **GATE:** A gate on every step, as long as DUTY sets. GATE into TRIG IN plays the synth; TRIG suits the S&H clock and RESET.

MIX: Four inputs summed to one output. The way to send one signal to several places, or to add two together. The front and back MIX jacks are one circuit, so it also carries signals between the patch bay and the rack.

CV Jack: RUN (Back) starts or stops the sequencer on each rising edge, like the RUN button; stopping returns to step 1.

CV Jack: CLOCK (Back panel): An external clock. With CLOCK set to EXT and the sequencer running, each pulse advances one step. Use it to run the SE-10 from another device's clock.

STEP (Front & Back): Advance one step per pulse, like the STEP button. They work at any time, in any clock mode, running or stopped. With CLOCK at EXT they can also drive the sequence as its clock.

CV Jacks: TRIG 1 to 12 (Front & Back): One output per step, high while that step plays.

SEQ A PITCH, SEQ B PITCH (In OPTIONS panel)

What the **A** and **B** knobs are.

- **Semitones (default):** Each knob is a pitch in semitones, ± 1 octave at **FINE**, ± 2 at **WIDE**. Use it for melodies played on top of the keyboard: patch into **TOTAL** with **MG/T.EXT** at 10, or into a **FREQ IN** set to V/Oct Rel.
- **Note: A and B** lane knobs sets a fixed note from C2 to C6 depending on **RANGE** switch (back panel). Set C2 and the synth will play C2. **Important!** When using **NOTE** mode set **VCO CV** (in Options) to Note CV absolute (Reason) and patch the lanes output into the KBD **VC01+2 CV IN** or **VC02 CV IN** - the lanes backside jacks can also be used to sequence any other device in the rack that takes note CV.

Volts: Each knob is a plain control voltage, shown in percent, ± 1 V at FINE, ± 5 V at WIDE. Use it for anything that isn't pitch, such as filter sweeps, pulse width or the MG rate.

Important! A patch named **[RUN]** needs the sequencer running: press Play in Reason, or **RUN** on the **SE-10**.

FX-30 Effects Unit

Press **EFFECTS** on the front panel to reveal the **FX-30** which houses six effects: **DRIVE**, **MODULATION**, **ECHO**, **TREMOLO**, **REVERB**, **COMP**. Each section has an on/off button.



Drive

AMOUNT: Gain into the saturator, level compensated. **COLOR**: **I** is symmetric, odd harmonics. **II** is asymmetric, brighter, even harmonics.

Modulation

MODE: Phaser, flanger, chorus. **DEPTH**: feedback on the phaser and flanger, sweep width on the chorus. **RATE**: Sweep speed. **WIDTH**: Stereo spread. **MIX**: Dry to wet. **ORDER**: **PRE ECHO** runs the modulation before the echo, **POST ECHO** after it.

Echo

TIME: 20 to 1000 ms. At **SYNC**, a note division from 1/1 to 1/32. **FEEDBACK**: Repeats. **P-P**: Ping-pong stereo. **MIX**: Dry to wet.

Tremolo

RATE: 0.1 to 20 Hz. **DEPTH**: None to a full chop. **WIDTH**: Stereo offset, from mono tremolo to auto-pan at 10.

Reverb

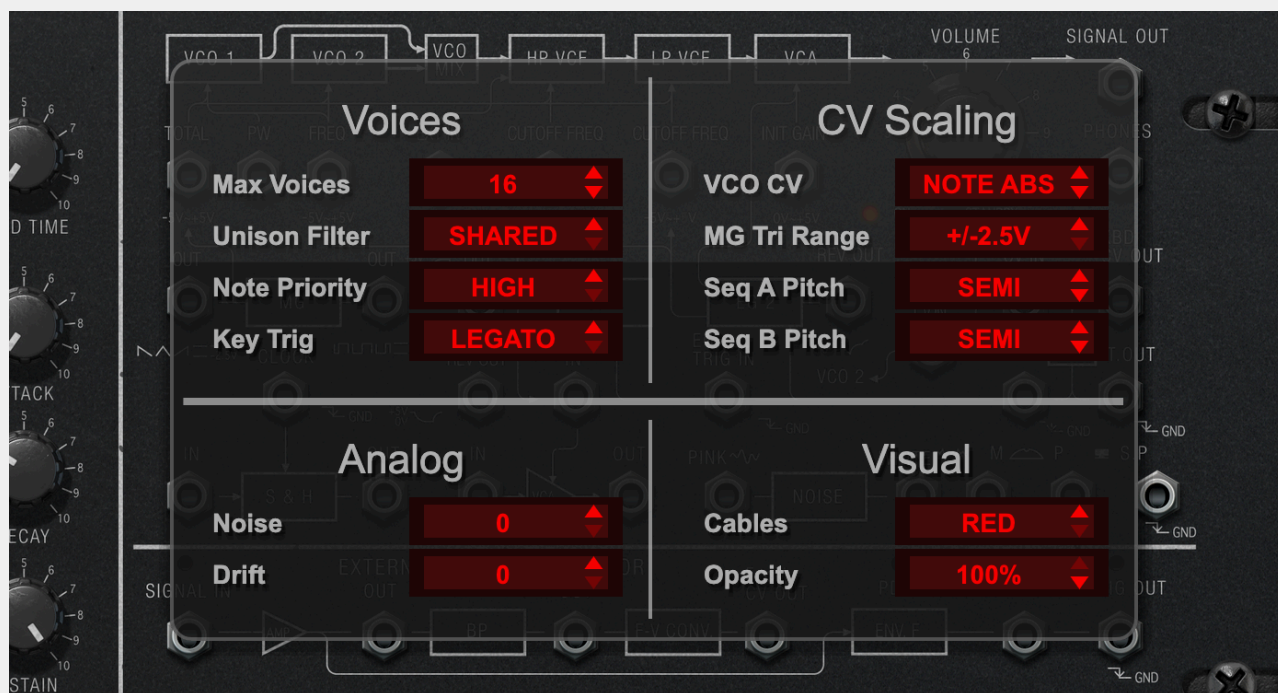
MIX: Dry to wet; some dry always remains. **TONE**: Darker below 5, brighter above. **PRE-DELAY**: 0 to 100 ms.

COMP

AMOUNT: One knob: more lowers the threshold and raises the ratio, with automatic timing. The lamp shows gain reduction.

Options

Click **OPTIONS** to open the panel above the patchbay area. Settings are saved with the patch.



MAX VOICES: 2 to 20, default 16. For 1 voice use **Mono**. In **Unison** each note uses five voices, so 16 plays three notes and 20 plays four.

UNISON FILTER: **Shared** (default): the left, centre and right voices share a filter each; lighter on the CPU. **Full**: every voice has its own filter.

NOTE PRIORITY: **High** (default), **Low**, **Last**. In **Poly** and **Unison** it picks which held note is stolen when the voices run out.

KEY TRIG: **Legato** (default): a new key while one is held does not restart the envelopes. **Retrig**: every key restarts them.

VCO CV: Hz/V Abs, **Note Abs** (default), V/Oct Rel. See [Patch Bay](#).

MG TRI RANGE: ± 2.5 V (default), ± 5 V, 0 to +5 V.

SEQ A PITCH, SEQ B PITCH: Volts, Semitones (default), Note. See [SE-10 Sequencer](#).

NOISE: 0 to 100, default 0. The analogue noise floor: a faint hiss with mains hum.

DRIFT: 0 to 100, default 0. Each oscillator wanders in pitch on its own. Around 50 the wander is slow and deep, towards 100 fast and shallow.

CABLES: Red (default), Yellow, Blue, Purple, Auto. Auto colours by signal: audio = red, CV = yellow, gates = blue, MIX OUT = purple.

OPACITY: draw cables with 20 to 100 % opacity.

Back Panel

The CV input jacks are directly connected to the parameter marked on the panel. Using them allows several modulations of one parameter: the **MG** from the front panel and **EG2** from the back on the same cutoff, for instance.



GATE IN, CV IN: Gate and note CV; the gate level is the velocity.

M.W, P.B, TRIG: Mod wheel, pitch bend and sustain pedal inputs, added to the host's own.

CV INPUTS: VCO 1 PW, VCO 2 PW, VCO 1 LEVEL, VCO 2 LEVEL, HP FREQ, LP FREQ, MG FREQ, VOLUME. The CV adds to the knob; HP and LP FREQ move the cutoff at 2 octaves per volt, the trim sets the depth.

CV OUTPUTS: KBD GATE, KBD CV, EG 1, EG 2, MG TRI, MG PULS, the same signals as on the patch bay.

SAMPLE+HOLD: CLOCK and IN work alongside the front S&H jacks; OUT is the held voltage.

EXTERNAL SIGNAL PROCESSOR: INPUT takes a control voltage into the ESP; F-V OUT and ENV F OUT are its pitch and envelope.

SIGNAL OUT: The main output.

EXTERNAL AUDIO IN: Into the ESP, summed to mono, or with the switch at TO FX into the effects unit in stereo.

SEQUENCER: RUN, CLOCK, STEP and RESET as CV inputs. A/B RANGE. Trig outs 1 to 12. Lanes A, B, C. TRIG and GATE outputs.

MERGE & MULT: MERGE sums four inputs to one output, the same circuit as the front MIX. MULT copies one input to four outputs. Signals can be transferred from the front to back and vice versa by patching to MIX on front panel or MERGE on back panel, the MERGE and MIX output collect all inputs.

Usage

1. **Self-oscillation.** Turn both VCO levels to 0 and PEAK up on either filter. The filter plays as a sine oscillator, tracking the keyboard.
2. **EG 1 to pitch** rests below the tuned pitch and sweeps up. For a sweep that falls, patch EG 1 REV OUT into FREQ.
3. **A weak filter modulation from EG 2** probably means that **SUSTAIN** is set high. Lower it to reveal the **DECAY** shape.
4. **F→V dives at the end of a note.** Patch **TRIG OUT** into **TRIG IN** so the VCA closes first.
5. **Vibrato on the mod wheel.** **MG OUT** (triangle) to **VCA IN**, **M.W** to **VCA CTRL IN**, **VCA OUT** to **TOTAL**, dial in max vibrato with the **MG/T.EXT** knob. The **mod wheel** now sets the vibrato depth.
6. **Drone.** EG 1 REV OUT → INIT GAIN. Play the keyboard for pitch.
7. **Acid line.** **A OUT** to **TOTAL** with **VCO MG/T.EXT** at 10, **GATE** to **KBD T.IN**, add a little **PORTAMENTO A**, **LP PEAK** at 7.
8. **Envelope filter on external audio.** Audio into **EXTERNAL AUDIO IN**, **AMP OUT** to **EXT IN**, **ENV OUT** to **LP CUTOFF FREQ**, **EG 1 REV OUT** to **INIT GAIN**, both VCO levels at 0.
9. **The sequencer runs but nothing sounds.** Cables needed! Connect **GATE** to **KBD T.IN**, and the pitch lane into **TOTAL** with **MG/T.EXT** at 10.

Thank you!

Ekssperimental Sounds Studio is a one-man project driven by a passion for experimental electronic sounds and for new and old synthesizers. Thanks to everyone who buys these devices, I can keep learning and building more for our beloved rack.

I hope you enjoy **ES20**!

Cheers,

Erik Söderberg 2026

EKSSPERIMENTAL SOUNDS STUDIO

<https://ekss.se>