

ANTILOPE
// USER MANUAL (V 1.1.0)



Antelope is an analog and digital hybrid a pseudo drum and dynamics machine, a dual pingable fully resonant filter, with a distortion + multiFX feedback path, all controllable through a pattern recorder with 3 cv sources switchable between morphable AD envelopes or stepped voltages.

Its compatible with eurorack voltage levels (+10V/-10V) and can be synchronised to MIDI or analog clock signals.

Antelope has a stereo line level input for processing external sources, stereo line level out, and headphone output (up to 250 ohm impedance).

Powered through a USB C (2.4A) type input, it is powerable from a USB power bank.

Dimensions are ~28x21x6 cm.



The antelope backplate connections, the headphone potentiometer direction and orientation is shown by the arrow.

NOTE ON THE PSU: it is highly recommended to use a good, solid 5V USB charger that can deliver 2.4A.

If Antilope doesn't power-up, or if its RGB window blinks, it means your charger is not delivering enough current!

// INPUT-OUTPUT LIST

A. Front panel (3.5mm, mono):

BLACK nuts are INs, GOLD nuts are OUTs.

- PING: this is a modular level audio input, but its main purpose when using the antilope standalone is to receive the trig signals from the core, in order to PING the filter;
- PITCH: v/oct input;
- RES: CV control for resonance amount, the resonance pot acts as an offset, when it is fully CW, it ducks the resonance;
- LEVEL: input level CV control, the knob acts as an offset;
- FEED: CV feedback control, the knob acts as an attenuator;
- DRY.WET: CV for dry.wet, the knob acts as an offset;
- 1: CV for FX parameter no 1;
- 2: CV for FX parameter no 2;
- 3: CV for FX parameter no 3;
- CORE OUTPUTS(GOLD nuts): these are the CV and TRIG outputs generated by the core, use these to ping your filter and modulate antilope controls (CV OUTs are +10V, trig OUTs are +5V);

B. BACK PANEL:

- PWR: USB type C power input, needs a 2.4A USB power supply;
- IN : 3.5mm stereo line input for antilope (Left goes to VCF1, Right to VCF 2);
- OUT(L-R): 6.35mm line level outputs;
- HP: Headphone output, with dedicated level knob;
- MIDI: MIDI clock input;
- .CLK: 0 to 5V GATE/TRIG input;

- ø: CV input for PHASE parameter / trig IN for channel 1;
- f: CV input for SHAPE parameter / trig IN for channel 2;
- x: CV input for MULTIPLIER/DIVIDER parameter / trig IN for channel 3;

Antelope is divided in 4 sections

1. FILTER [analog (red knobs)]:

Antelope has a dual filter with common cutoff (labeled "pitch") and resonance controls, a spread control (labeled "{~}") which moves the 2 filter cutoffs in opposite directions, independent input level controls for each filter (the small black knobs at the top of the section), LP/HP crossfade controls (labeled "notch") and attenuverters for v/oct CV in.



There's independent eurorack level audio/ping INs and CVs for v/oct (normalised from VCF1 to VCF2) and common resonance cv input.

The filters can self-oscillate in order to be treated as a dual VCO that can track v/oct up to 4 octaves (when attenuverters are set to maximum!).

But antelope shines when pinged, its worth mentioning that its resonance pot control has been shaped in order to offer a quasi-linear control for the decay length of the excited filters.

Distribution of the independent filter controls
(1 = VCF1, 2 = VCF2).

2. DISTORTION [analog (black knobs)]:

The 2 filters get summed then into the distortion section, modeled after the sunn beta bass amplifier.

The section is composed of a level control (which also acts as a master volume for the whole instrument), drive, feedback and a three-band equaliser with an emphasis on the low mid frequencies (don't worry, the High End can scream too!).

The level and feedback are VCAs, making them CV controllable.

A 2 position switch allows you to decide the feedback path:

LEFT: The distortion output goes straight back to its input; this drastically shapes the distortion harmonics until self oscillation;

RIGHT: The distortion output goes through the FX chain, which then goes back to the distortion input; this allows you to shape and control the color of the FX through the EQ and distortion, extend the length of delays and reverbs and create wild resonances within the FX.

3.FXs [*digital (blue knobs)*]:

A spin fv-1 FX section runs right after the distortion, it offers 7 different stereo algorithms, spanning from multitap echoes and flanger delays to pitch shifting delays and reverbs.

There is a dry/wet control, and 3 control parameters for the selected effect, each with corresponding CV inputs.

As mentioned before, the analog feedback path that brings the FX out back to the distortion section adds warmth and tone control, the drive amount can also completely change the character of the fx going up to crunchy, distorted and broken textures and howling resonances.

Hidden behind the star just above the dry/wet CV input, lays a clipping LED, this will light up to let you know when HARD clipping occurs at its ADCs (which is extremely rare).

// FX LIST

RED: short to medium size delay.

pot 1: delay length;
pot 2: digital feedback;
pot 3: tone;

GREEN: dual pitch shifting delay.

pot 1: delay length/pitch Left;
pot 2: delay length/pitch Right;
pot 3: phaser/comb filtering;

YELLOW: three tap delay/echo.

pot 1: tap 1 length;
pot 2: tap 2 length;
pot 3: tap 3 length;

BLUE: dual Ring Mod + chorus.

pot 1: frequency Left;
pot 2: frequency Right;
pot 3: chorus depth (fixed frequency LFO);

PINK: dual Chorus.
pot 1: LFO 1 rate;
pot 2: LFO 2 rate (shorter range than LFO 1);
pot 3: depth;

LIGHT BLUE: reverse reverb.
pot 1: pre-delay;
pot 2: decay length;
pot 3: damping;

LILLA: plate reverb.
pot 1: pre-delay;
pot 2: decay length;
pot 3: damping;

4. THE CORE [digital (grey knobs, white faders)]:

The brain of the antelope is a pattern recorder, which allows you to record events for 3 independent channels.

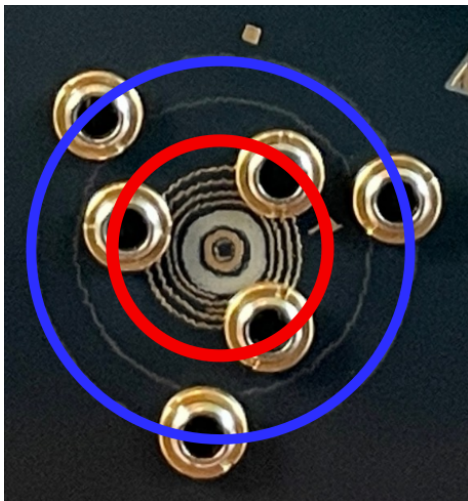


Image A

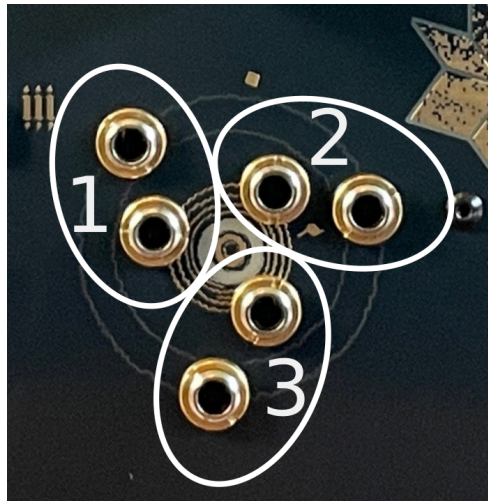


Image B

Each channel has a dedicated CV and TRIG outputs, available on the front panel (gold nuts); outer circle (Image A - in blue) are triggers, inner circle (Image A - in red) are CVs.

Image B shows the channel outputs distribution.

The CV channels are triggered by the CHERRY-MX keyboard buttons (short press) or through the o-f-x CV inputs (only when the sequencer is not running).

Each of the channels can be switched between an AD envelope (switch on the left) or a stepped voltages sequence (switch on the right).

Faders in AD mode control envelope lengths, while step mode will read all 3 channels fader values to define each step voltage;

the extracted sequence will have max 12 values (cycling between normal fader values and inverted) but no limit in number of steps. When the switch is at centre position, the pattern recorder is ignored, acting as a mute/freeze (you will still be able to play the CV trig buttons manually).

NOTE: While in record mode the MUTE is bypassed.

The envelope speed goes from 20ms/50Hz to 8s/0.125Hz.

Once a pattern has been recorded, each channel has independent control of the following parameters on the three grey knobs:

- phase (labeled "ø");
- shape (labeled "f ");
- multiplication/division over playback speed (labeled "x");

In envelope mode (labeled "env"), the Shape encoder morphs the envelope shape between:



1.EXP AT/EXP DE 2.LOG AT/EXP DE 3.EXP AT/LOG DE 4.LOG AT/LOG DE

The morphing between these forms uses linear interpolation, which means you can obtain shapes in between these 4 envelope types.

In Step mode (labeled "step") the Shape Encoder controls glide amount.

These parameters can be CV controlled externally, through the jack inputs on the rear panel of the antilope (see later section for details).

A touch/magnetic surface allows you to introduce various types and combinations of cross modulations between the 3 channels. This is a great expressive tool to add momentary embellishments, and widen the palette of possible variations in an otherwise steady and repetitive pattern.

At the moment, up to 7 patterns can be saved and recalled (only the core parameters, as filter/distortion/FX are controlled in the analog domain).

Since the pattern recorder is unquantised, the external midi clock and eurorack clock inputs work as a reset.

Antilope has a usb port for future CORE firmware updates.

HOW TO RECORD A PATTERN:

To record a pattern, first make sure the CV switches are either set in envelope mode (left) or step mode (right). pressing the red button will engage recording, Antelope will be waiting for the first CV button press before starting recording on the buffer.

To stop and loop your recording press the Play button, now you have set the buffer length!

Pressing the rec button again will let you overdub over the pattern.

Holding stop + tapping play (short press) will erase the buffer. Holding stop + tapping a CV trig button will erase only the trig recordings for that CV channel.

HOW TO CHANGE SETTINGS ON CV CHANNELS:

Each channel has independent settings for phase, shape and playback speed (which comes in various divisions and multiplications of the buffer length).

To access those settings press and hold the desired CV trig button and turn the encoder (pressing the encoder will reset its value to zero).

While holding the button, the LEDs will show the levels in brightness, for mult/divider, turning left multiplies (steady lit LED), and turning right divides (blinking LED).

SELF CYCLING MODE:

Sometimes there is the need to have free cycling envelopes/step voltages (a la Sample and Hold) that don't follow the length of your recorded pattern; Each of the CV channels can be set independently in self-cycling mode, to do that press and HOLD the desired CV channel trig button and press play. The pattern recorder led will blink green when engaged, and blink red when disengaged. When channels are in self cycling mode, the top green LEDs will pulsate. Any recorded triggers on the engaged channel will be ignored.

Stop and play buttons work the same for self-cycling channels, as the env/mute/step switches.

In step mode, the output will be a random S&H style output, where attack defines the rate, and decay the range.

THE external CV INPUTs:

ø-f-x CV inputs interpret the incoming signals in 2 different ways:

1.

As trigger Inputs for each of the core channels

(ø – channel 1, f – channel 2, x – channel 3).

This behaviour happens only when the core sequencer is NOT running. Simply send gate/trigger signals into o-f-x CV Ins (maximum trig rate is about 45 Hz).

2.

As traditional CV Inputs for the ø-f-x parameters.

HOW TO ASSIGN EXTERNAL CVs:

Once you have an external CV source plugged in the back, press and HOLD the corresponding encoder and then select the CV trig button to which you want to assign the CV.

This lets you for send modulations to specific channels only.

While holding the encoder, the green LEDs will be lit to show which channel is receiving external CVs for that specific parameter.

HOW TO SAVE/LOAD:

TO SAVE: once you have a pattern, Long press the rec button for at least 1 second, the 3 green LEDs on the side of the encoders will display the slot number in binary (from 1 to 7), in SAVE mode the LEDs will be steady.

The FX encoder lets you select the saving slot, while pressing the FX encoder will confirm and save your selection.

TO LOAD: to enter the load menu, long press the play button for 1 second, the 3 green LEDs on the sides of the encoders will show you the slots available to load, the FX encoder lets you scroll between them and select (by pressing the encoder) the desired slot.

In LOAD mode the LEDs will be pulsating.

!!BEWARE!! as said before, only pattern recordings, fader positions and encoder settings can be saved and recalled.

MIDI CLOCK:

Antilope, when receiving a midi clock, automatically sets its buffer to a 4/4 bar related to the midi BPM.

For this, Antilope needs to receive a midi start message (PLAY from your external device).

If antilope has already a buffer recorded before sending a MIDI clock, it will clip the original buffer length to a 4/4 bar loop.

Antilope can detect when a MIDI cable is unplugged and will reset to its original buffer length.

EURORACK CLOCK IN:

when sending an external gate clock (input marked as .clk) antilope resets its buffer every "n" ticks.

Quickly double tap the X encoder to enter/exit the sub-menu for selecting the "n-reset" value; the top green LEDs will display slot numbers in binary (this sub-menu has a specific blinking pattern, double blink followed by a long pause).

Slot from 1 to 7 correspond to the following "n-reset" values: 2,4,8,10,12,16,32; → (check the binary code reference)

Clock rates slower than 4.095s will be ignored.

!!WHEN BOTH MIDI AND EURORACK CLK ARE SENT TO ANTILOPE, THE EURORACK CLK HAS THE PRIORITY AND MIDI WILL BE IGNORED!!

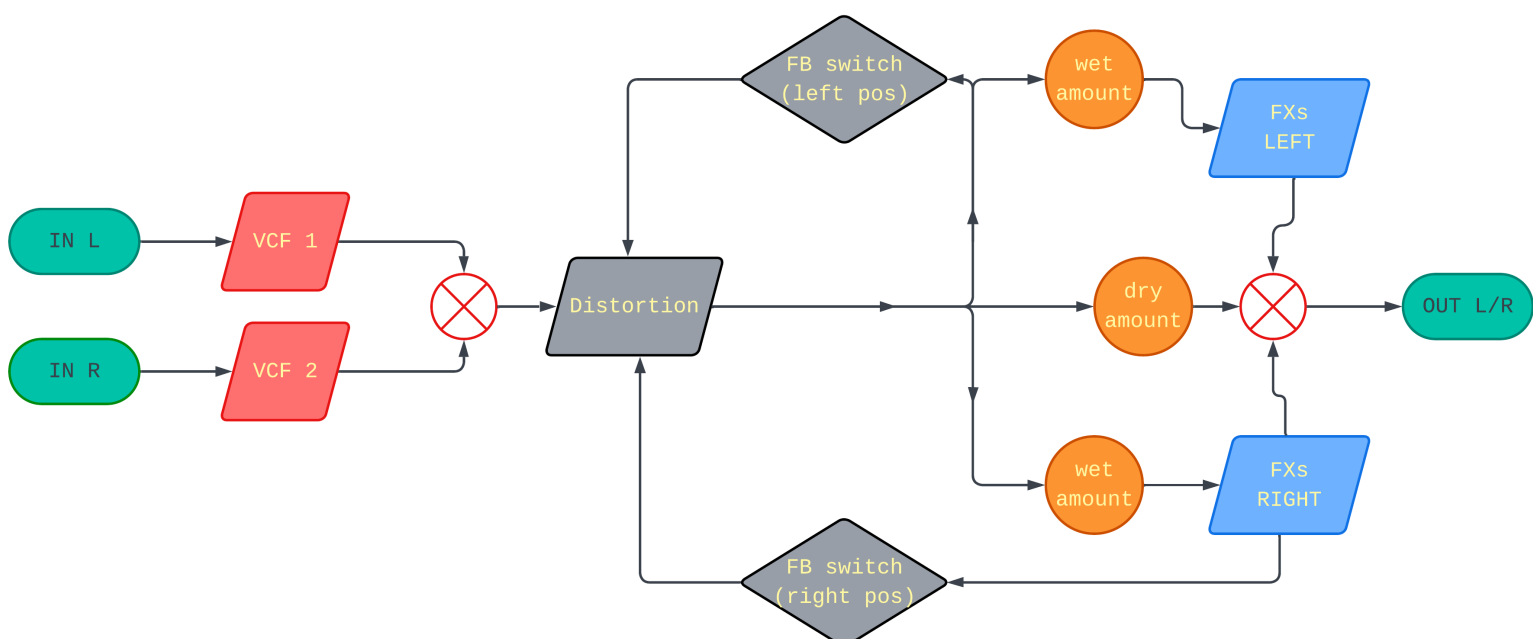
HOW TO UPDATE ANTILOPE'S CORE:

While antilope is not powered, connect a micro usb cable between your laptop and antilope's port on the right side.

Power-up your antilope while holding the grey button on the right side next to the usb port, hold for 1-2 seconds, then release it. Antilope will appear as a usb device, drag and drop the .uf2 firmware file.

The usb device will eject on its own, you can now unplug the usb micro cable.

// AUDIO ROUTING PATH



// *BUTTON COMBOS CHEAT SHEET*

It is worth to keep in mind that antelope buttons recognize two different type of presses: short (less than half a second, more precisely < 350 ms) and long (approx. half a second, > 450ms). This is essential to remember, i.e. only a short press of the keyboard switch will trig its correspondent CV channel.

HOLD CV trig + turn grey ENCODER : change CV channel settings;
HOLD CV trig + push grey ENCODER : set CV channel parameter to 0;
HOLD CV trig + play: engage/disengage self cycling mode;
HOLD grey ENCODER + press CV trig : assign external CV to channel;
HOLD STOP button + press PLAY button : erase all recorded buffers;
HOLD STOP button + press CV trig : erase CV channel buffer*;

*by erasing single channels buffers recordings, you'll still preserve the buffer length set by your original recording, to start with a blank slate, erase all three channels buffers

LONG PRESS RECORD button : enter SAVE menu;
LONG PRESS PLAY button : enter LOAD menu;
while on SAVE or LOAD menu:
→ FX ENCODER turn : change slot;
→ FX ENCODER press : select slot;

FAST double TAP X encoder: enter/exit sub-menu for selecting external clock (.clk) reset settings.

BINARY REFERENCE:

you can use this as a reference for decoding the top green LEDs on the core section when in "SAVE/LOAD" or the "ext clock" sub-menus.

Binary	Slot no.	N-reset
0 0 1 →	1 →	2
0 1 0 →	2 →	4
0 1 1 →	3 →	8
1 0 0 →	4 →	10
1 0 1 →	5 →	12
1 1 0 →	6 →	16
1 1 1 →	7 →	32

// PATCH EXAMPLES:

Antelope is a semi-modular instrument, only the audio path is pre-routed.

Here are a few basic patch examples:

Audio input level controls the ping input level, make sure you have them open!

Also, make sure your attenuverters are open (turned CW or CCW) and not closed (12 o'clock) to let your CV inputs affect the VCFs pitch.

1. HARMONIC DRUM VOICE + SHORT DELAY:

Patch TRIG_1 into PING_1, and CV_1 into PITCH_1.

Now CORE channel 1 will ping and modulate both filters at the same time.

Now you have a basic percussive patch, the res control amount sets the duration of your sound.

Record a simple 4/4 sequence on channel 1.

If you take a copy of CV_1 using a stackable patch cable, you can patch it to the dry/wet CV input, your percussive sound will duck the dry/wet balance (adjust dry/wet knob to taste).

You can set a quite short delay as an FX (RED) by turning the FX pot 1 to 9 o'clock (start with pot 2 and 3 fully CCW), flick the feedback switch to the right and increase the feedback amount pot. Patch CV_2 into FX_parameter_1 CV input and set channel 2 to step mode, now every time you hit CV trig button 2 you will change FX_parameter_1 (which is delay length).

2. KICK + LEAD:

Patch TRIG_1 into PING_1, and CV_1 into PITCH_1, and patch TRIG_2 into PING_2, and CV_2 into PITCH_2.

You now have 2 independent percussive elements in your patch, if you switch CV channel 2 into step mode, you will obtain a melodic part (play with VCF2 attenuverter to adjust its range).

Whenever I play with this type of patch, I love to use the Three tap delay FX (YELLOW), to add space and mystery to it.

...to expand ...