DUAL SEQUENTIAL CV

dual analog 8 step modulator

LEVEL
The level control for the outputs of that channel. Sets the maximum level for both the single and mixed outputs.

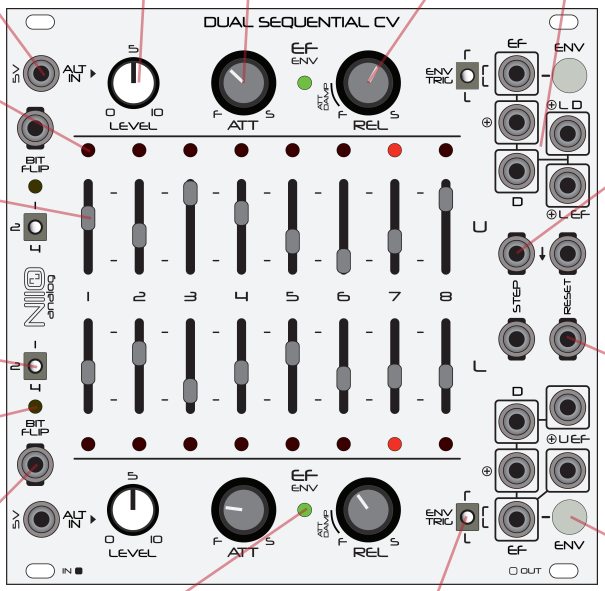
CV outs
The 10 outputs consist of direct slider and envelope follower/envelope, and mixes of both within and between the 2 channels.
The direct slider outs are labeled (D).
The envelope follower/envelope outs are (EF).
The 50/50 mixes are labeled with a (⊕ name) and a line connecting the mixed output.

ALT IN
Patch in any 5v cv or audio source to create the voltage that passes thru the sliders. Use the LEVEL control to adjust the level of this signal with the center (5) position equaling unity gain, and CW (10) equaling 2X gain.

ATT
The attack time of the envelope follower.

REL
The release time of the envelope follower.

U & L
Upper and Lower channels are marked with a U or L.



LEDS
illuminate on the active step.

SLIDERS
Set the level for each step.

BITFLIP step
Sets the bit to flip resulting in single, double, or quad step jumps.

BITFLIP LED
illuminates when active.

BITFLIP jack
A high gate turns on the BITFLIP circuit.

U and L STEP
The rising edge of a gate signal advances the sequence forward one step.

U and L RESET
The rising edge of a gate signal resets the sequence to step 1.

ENV SWITCH
Switches the envelope follower (EF) to an A/D envelope (ENV) that triggers on every step. The sliders set the level of the envelope for each step.

EF LED
The EF LED dynamically illuminates with the level of the EF / ENV for a visual reference of its response.

ENV TRIG
Sets the step gate polarity for how the ENV triggers.

- ⌜ "Normal" rising edge triggers from the STEP gate.
- ⌜⌞ Both normal and inverse triggers.
- ⌞ "Inverse" falling edge triggers from the STEP gate.

width: 24hp depth: 25mm 110ma +12v 20ma -12v

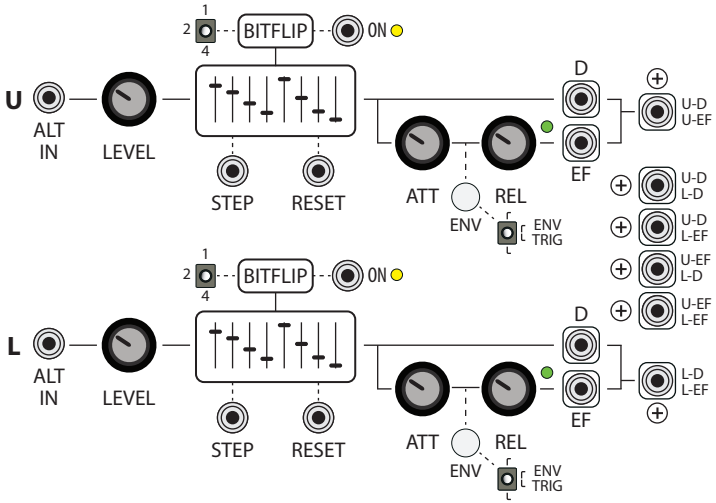
OVERVIEW

The DUAL SEQUENTIAL CV is a dual channel analog modulator that steps thru 8 level sliders. Each slider sets the level of a voltage set by the level control, or any signal patched into the ALT IN.

The output from the sliders passes thru an envelope follower. The envelope follower can be switched to an attack decay envelope where the envelope level is set by the slider position. Outputs direct from the sliders, the EF/ENV, and a mix of both is included per channel, as well as mixed outputs between the channels for a total of 10 outs.

Step/clock inputs and resets are available per channel.

A controlled random circuit (BIT FLIP) can be switched on that causes the sequence to step out of sequence by either 1,2, or 4 steps.



STEP/CLOCK

Each channel (U/L) has it's own step/clock input which advances the sequence forward one step per gate. Each channel has it's own reset that restarts the sequence with a gate. The Upper channel step & reset are normalized to the Lower channel.

ALT IN

The ALT IN feeds the LEVEL gain control knob. A 5V CV signal is ideal for the ALT IN as it allows full gain control. 5V is normalized thru this jack.

Audio can be patched into the ALT IN. The level of the audio will be set by each step.

LEVEL

The LEVEL knob sets the gain of what is patched into the ALT IN jack, which is 5V normally. CCW is 0v, center is unity gain or normally 5v, and CW is 2x gain or 10v. Use this control as a level control for the channel feeding the outputs, from 0 to 10v.

Keep in mind that the MIX output jacks use 50% of this value for each channel in order to mix together to the selected level.

STEP SLIDERS

The 8 sliders set the level per step. The overall level passing thru the sliders is set by the LEVEL control or the ALT In. The red LEDs display the current step.

BITFLIP

Each channel has an analog circuit that flips the step position by 1, 2 or 4 steps. BITFLIP can be used as a kind of step randomize where a re-arranged step sequence is switched in. A gate or CV input turns on the bitflip, and the bit that is flipped is selected with the 3-way switch with 1,2, and 4 selections and step in these sequences:

1) 2,1,4,3,6,5,8,7
2) 3,4,1,2,7,8,5,6
4) 5,6,7,8,1,2,3,4

EF/ENV

In addition to direct out, each channels sliders pass thru an envelope follower that smooths the step transitions with control over the attack and release times. A green LED displays the signal level from the EF output.

ATT DAMP: If the release time is close to its fastest position while the attack time is slower the output of the EF will be dampened as the attack doesn't have time to respond. This dampened zone is marked on the front panel. If the release time is in this zone adjust the attack time to control the amount of dampening. This can be used as a level control for the EF.

The EF can be switched to an attack / decay envelope (ENV). The ENV triggers on every step and the level of each envelope is set by the corresponding slider. The white ENV push button illuminates when the ENV is on.

ENV TRIG

The ENV can be triggered on the rising edge of the step gate (⌜), the falling edge (⌞), or both (⊓). When both is selected the envelope triggers twice per step. Use a clock with a 50% duty cycle for on time (⌞ and ⊓) triggers.

OUTPUTS

All outs output at the voltage set by the level control.

Each channel has an output direct from the sliders (D), from the EF/ENV (EF), and a 50/50 mix of both (⊕).

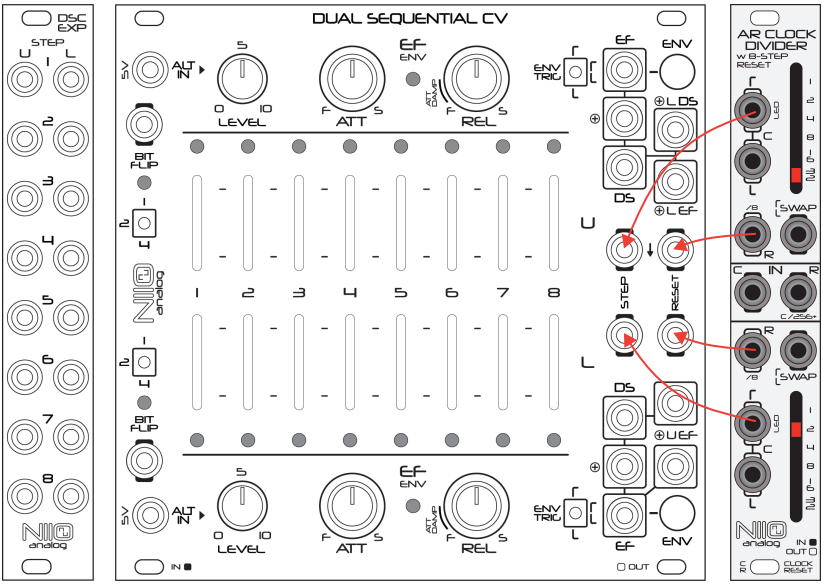
4 mixed outputs between the channels combine 50/50 mixes from the D and EF outputs from both channels. Graphic lines connect to the mixed output with a (⊕) that names the mixed signal.

All EF outputs are used by either the EF and the ENV.

Audio signals patched into the ALT IN will be low pass filtered by the EF.

• Use with the DSC EXP to trigger envelopes or switch CV functions per step.

The DSC EXPander outputs a logic level on each step.



Recommended: Use with the AR CLOCK DIVIDER for solid analog clock dividing with unique features.

• Each of the 2 channels on AR CLOCK DIVIDER resets every 8 steps regardless of division. The sequence step order stays in sync within one cycle of changing the division, this allows for live division change without the sequence getting out of cycle.

• Each channel outputs both even and odd divisions and can swap them with a gate input.