GRAPHIC ENVELOPE

dual output
analog 8 step envelope

LEVEL CV inputs
A CV or audio signal patched into these jacks sets the level that passes thru the sliders. This can be used as a CV level control. The LEVEL switch is normalized thru these jacks.

SWAP
A high gate will swap the U and L slider outputs to the opposing channel (pre RESP).

R2
A high gate activates the 2nd rate control (R2).

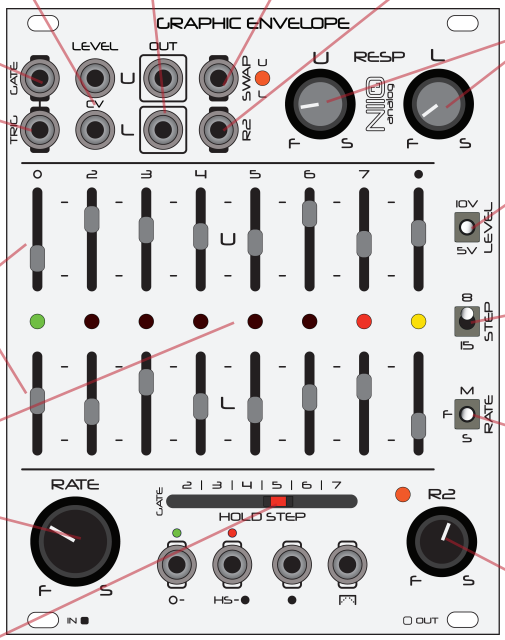
ENVELOPE outputs
The outputs for the U and L envelopes.

GATE input
A gate input starts the envelope and holds it at the HOLD STEP as long as it's high.

RESP
Sets the response time of the envelopes

TRIG input
A gate input starts the envelope and runs it thru all 8 steps.

LEVEL
The LEVEL switch sets the maximum output scale of the U and L envelopes.



8 step sliders
Set the levels of the 8 steps for the U and L envelopes. The ● step is the ending level and will remain until the envelope is triggered.

STEP
Sets the step length of the envelope. when set to 15 steps, the R2 and SWAP circuits will be active for the 2nd pass

8 step LEDs
Display the active step.

RATE
Sets the maximum time of the envelope
M = 1.8sec
F = 600ms
S =4.5sec

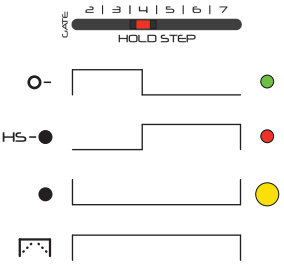
RATE
Sets the rate that the envelope steps thru the 8 steps.

HOLD STEP
Sets the step that the envelope will hold at when the GATE input is high.

R2
Is a 2nd rate that is activated with the R2 gate input. The orange LED illuminates when active.

HOLD STEP LED
Is on when the GATE input is high. Displays the length of the GATE input / hold time.

gate outputs



width: 20hp depth: 25mm 80ma +12v 20ma -12v

OVERVIEW

The GRAPHIC ENVELOPE consists of 2 separate analog envelopes, each derived from stepping thru 8 levels at a shared rate. The envelope can be run as a dual 8 step or a dual15 step envelope.

Once triggered by either the TRIG or GATE inputs, both the U (upper) and L (lower) envelopes step thru all eight steps at a rate set by the RATE control. By using a GATE input, the envelopes can hold at the step selected with the HOLD STEP slider. Both envelopes can be smoothed with RESPonse circuits.

INPUTS

TRIG input: any length of gate will cause the envelope to sequentially step thru all 8 steps.

GATE input: a gate input will cause the envelope to sequentially step to the HOLD STEP. If the gate is low when reaching the HOLD STEP the envelope will continue to run thru all 8 steps. If the gate is still high when reaching the HOLD STEP, the envelope will hold on the HOLD STEP level until the gate goes low, then will finish stepping though the remaining steps.

both inputs can be used simultaneously.

LEVEL switch

Runs a 5v or 10v dc level into the sliders and is normalized thru the LEVEL input jacks.

LEVEL CV jacks

Replaces the 5/10v dc level with any cv or audio source.

Patch in velocity, sequenced level, etc.

OUTPUTS

Both U and L envelopes are output at either 5 or 10v depending on the LEVEL switch or patched in Level.

U/L SWAP jack

The U/L SWAP jack excepts a gate or CV signal where a high gate swaps the output of the U/L sliders to the other channel post level jack / pre RESP circuits. An orange LED is illumined when active. When the STEP switch is set to 15, SWAP will be active for the 2nd pass, and is normalized thru the SWAP jack. This switches the envelope from dual 8-step envelopes to a dual 15 step envelope as both the U and L outputs are swapped.

R2 jack

The R2 time can be switched on / off with the HI / LO state of a gate or CV patched into the R2 jack. An orange LED is illumined when active. When the STEP switch is set to 15, a high gate is normalized thru the R2 jack for the 2nd envelope pass.

RESP knobs

The U and L envelope response (RESP) controls smooth the transitions between steps.

With no smoothing the stepped transitions can be audible.

STEP sliders

Set the levels for each of the 8 steps. A green LED illuminates for the first step, a yellow LED for the last step, and red LEDs for steps 2-7.

STEP switch

Sets the step length of the envelope to either 8 or 15 steps .

When set to 15, the step 8 slider is null.

15 step mode steps thru the first 7 steps and then triggers the envelope on the 8th step, which runs thru the 8 steps for a 2nd time. The 2nd rate (R2), and SWAP are activated on the 2nd run, switching the two slider rows and rate controls for steps 9-16.

The 2nd run switching of R2 and SWAP are normalized thru the corresponding jacks.

RATE switch

Sets the maximum time of the envelope.

F ~ 600ms / M ~ 1.8sec / S ~ 4.5sec

RATE knob

Sets the rate at which the envelope steps thru the 8 steps.

R2 knob

R2 is a 2nd rate control that is active when a high gate is present at the R2 jack.

An orange LED is illumined when active.

When the STEP switch is set to 15, R2 is normally active for the 2nd half of the envelope. In 8 step mode, patch HS-● into R2 for dual times around the HOLD STEP.

HOLD STEP slider

Selects the step at which the envelope will hold at when the input GATE is high.

HOLD STEP output jacks

These three jacks output gates from the different stages around the HOLD STEP.

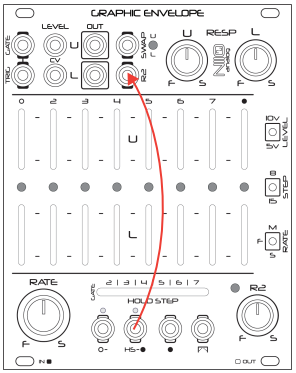
O- outputs a gate from the envelope start to the HOLD STEP. A green LED illuminates during this stage.

HS-● outputs a gate from the HOLD STEP through to the end of the envelope. A red LED illuminates during this stage.

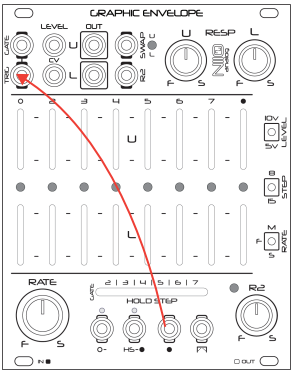
● outputs a gate at the end of the envelope. The yellow STEP LED represents this stage.

outputs a gate during the envelope cycle from the O- step thru the ● step.

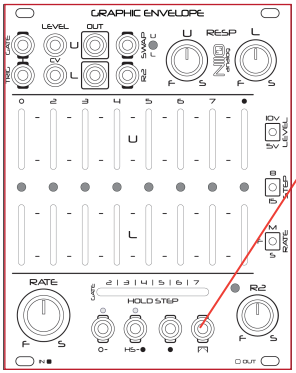
DUAL RATE patch:
This patch switches to the 2nd rate (R2)
after the hold step.

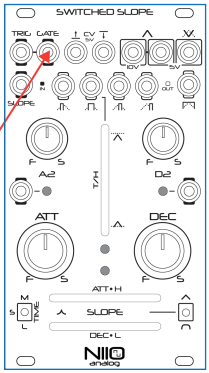


LOOPING ENV :
Use the ● output to re-trigger the envelope

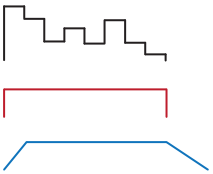


GATE in



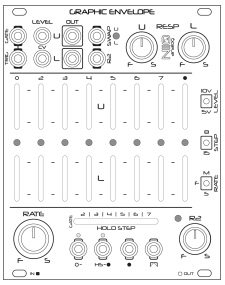


FULL CYCLE gate out
outputs a gate for the full cycle of the envelope

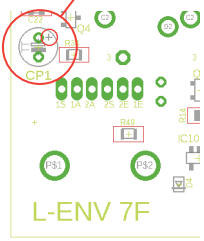


Allowing a 2nd envelope to conform to the envelope length

SLOW TIME MOD:
The slowst RATE of the envelope cycle is 4.5sec.
For a longer SLOW time, replace CP1 with 47uf: 7sec, 100uf: 14sec, etc.



Electrolytic capacitor,
pay attention to polarity.
Access from side, no need to remove panel.



NIIO analog