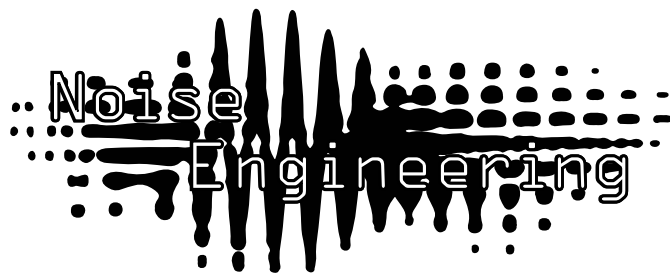


Noise Engineering Pons Asinorum

Small four-channel voltage-controlled linear envelope generator and LFO



Overview

Type	Quad Envelope/LFO
Size	6HP Eurorack
Depth	.8 Inches
Power	2x5 Eurorack
+12 mA	60 mA
-12 mA	50 mA

Pons Asinorum is a compact four-channel multimode envelope generator and LFO with voltage control. PA has three different envelope shapes, CV over cycle length, and a unique single-encoder control scheme that makes adjusting multiple channels mid-performance easy. Channels can be set separately to envelope mode or to cycle in LFO mode, giving PA maximal flexibility in a minimal footprint.

Etymology

Pons-- from latin: "Bridge"

Asinorum -- from latin: "Donkey" with suffix -orum forming an adjective.

"Bridge of Asses"

Also used as a name for proposition 5 from Book 1 of Euclid's Elements.

Input & output voltages

CV inputs respond to 0-5v.

Envelopes will trigger on a rising edge of about 3 volts.

Output voltage is 0-5 volts.

Interface

Channel select 1-4 buttons: Enable or disable channels for editing. LEDs for selected channels will display as red or purple, depending on cycle length; deselected channels will be unlit (indicating minimum length) or blue.

Length encoder: Adjusts the cycle length of selected channels. Pressing the encoder resets selected channels to their minimum length. Tap again to undo the reset.

Hit button: Tap to trigger selected channels in envelope mode or to reset phase in LFO mode. Hold down Hit for two seconds to activate/deactivate LFO mode on selected channels.

Mode switch: Switches all four channels between ramp up, up/down, and ramp down modes.

CV inputs 1-4: Change each channel's cycle length.

Trigger inputs 1-4: Triggers an envelope or resets LFO phase, depending on channel mode. Trigger ins are internally circularly normalised: sending a trigger to any channel with no other triggers patched triggers all four envelopes. Patch another trigger in to break normalization past that point.

Outputs 1-4: Channel outputs.

Behavior settings:

Sample and Hold: Holding Hit down on power up changes CV response from continuous to sample and hold. On startup, after initial LED flashing, all four channel LEDs will flash blue to indicate sample and hold mode or red for continuous mode.

Short/long response: Holding the encoder down for about 2 seconds and pressing a channel button changes the CV response range of that channel (blue for short, red for long).

LFO Mode: Hold down Hit for two seconds to activate/deactivate LFO mode on selected channels.

A note on cycle length:

Using the encoder, PA's envelopes can range in length from 2.5ms to 9 seconds. With CV applied, PA'S envelopes can be up to 95 seconds in short mode and 320 seconds in long mode.

Patch Tutorial

Basic patch: Patch a trigger or gate into Channel 1's trigger in. Patch Channel 1's output to something in your system that would enjoy an envelope. Select Channel 1 and use the mode switch and encoder to change the envelope length and type. Unpatch the trigger in and hold down Hit to switch to an LFO, and again adjust cycle time and shape to best suit your patch.

Variety is the spice of life, and different types of modulation are the spice of eurorack. Set each channel to what you need: envelope mode or LFO mode. If you only need one envelope, you can still use three other channels as separate LFOs. With four channels of CV-controlled modulation, there are many self-modulated patches that can be created with a little creativity. For instance...

Quadrature LFO

Set each channel to envelope mode with a reasonably long cycle time. Set the mode switch to the middle up/down position. Mult Channel 1's output to a CV destination in your system, and to Channel 2's trigger in. Do the same for Channels 2/3, 3/4, and 4/1. Deselect all but one envelope, and trigger it with Hit. The envelopes will now cycle 90 degrees out of phase from each other, much like a quadrature LFO.

Design Notes

Like so many of our modules, PA has had several incarnations. Sky King (Kittyspit) originally suggested we make a small dual decay module. For years, we worked on that and it was just never compelling by itself. It languished. When NE friend Dave Driggers mentioned the name of his band, Pons Asinorum, something clicked and we realized what we needed to do: expand the functionality beyond just decay. It's the first module we've done where the function was inspired by the name (loosely, yes). We added attack and attack/decay to the module and we were excited again! Getting near-final hardware coincided with us finding Markus Cancilla as the first NE employee and he made so many good suggestions that substantially improved the final product you now hold.

Special Thanks

Skyler King
Dave Driggers