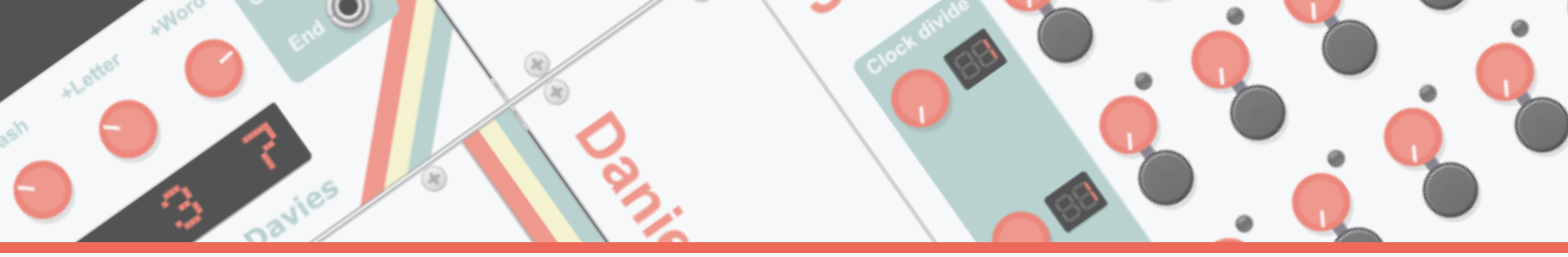
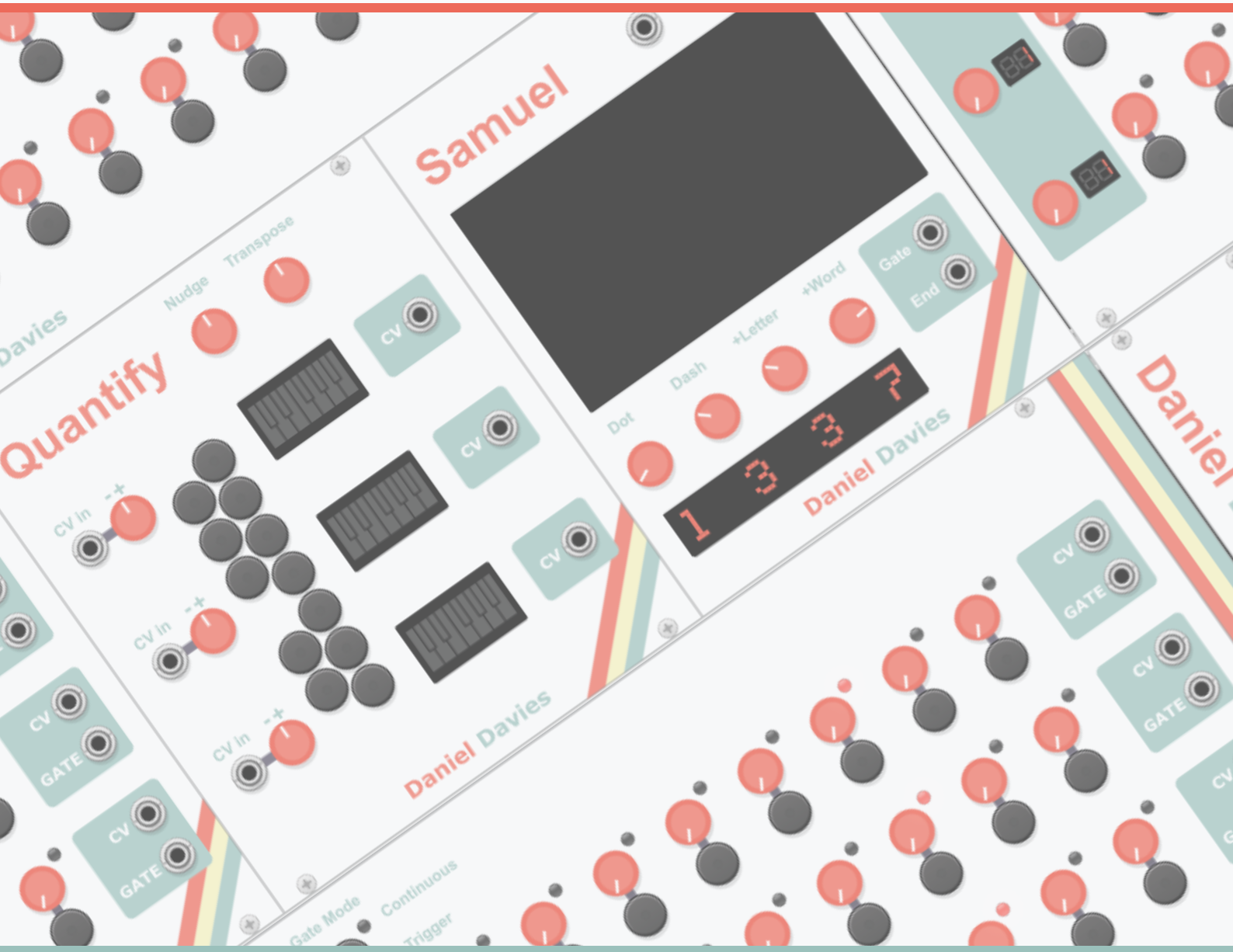


Daniel Davies

Modules for VCV Rack
Manual



For DanielDaviesVCV v2.3.0

Samuel

Morse code based rhythm generator - 20HP

From words, to rhythms. Named after Samuel Morse, the creator of Morse code. Samuel takes text input and constructs natural sounding rhythmic sequences using Morse Code.

Special thanks to Paul Gatt, for both the initial idea, and testing of Samuel

Panel

A. Clock input

B. Reset input

C. Message input screen

D. Dot length control

E. Dash length control

F. New letter length control

G. New Word length control

H. Gate output

I. End of sequence output

J. Length indicator screen

How it works

Samuel uses international morse code:

A .-	G --.	M --	S ...	Y -.--	4 ....-
B -...	H	N -.	T -	Z --..	5 .....
C -.-.	I ..	O ---	U ..-	0 -----	6 -....
D -..	J .---	P .--.	V ...-	1 .----	7 --...
E .	K -.-	Q --.-	W .--	2 ..---	8 ---..
F ..-.	L .-..	R .-.	X -..-	3 ...--	9 ----.

- The length of a dot is one unit
- A dash is three units
- The space between parts of the same letter is one unit
- The space between letters is three units
- The space between words is seven units

Explanation:

Samuel requires 2 things before it will do anything useful:
1. A clock input
2. Some text input

To provide text input to Samuel, click anywhere within the text input screen **(C)**, you can then type using your computer's keyboard (until you click anywhere outside of the text input screen)

Note: currently only letters A-Z and numbers 0-9 are supported

Samuel treats one unit of time as the time between two clock inputs recieved via the clock input **(A)** because of this, fast clocks tend to work best.

Once you have entered some text, and hooked up the clock input **(A)** to a clock source you can then use the gate output **(H)** to trigger drums, envelopes, Nuclear Armageddon etc.

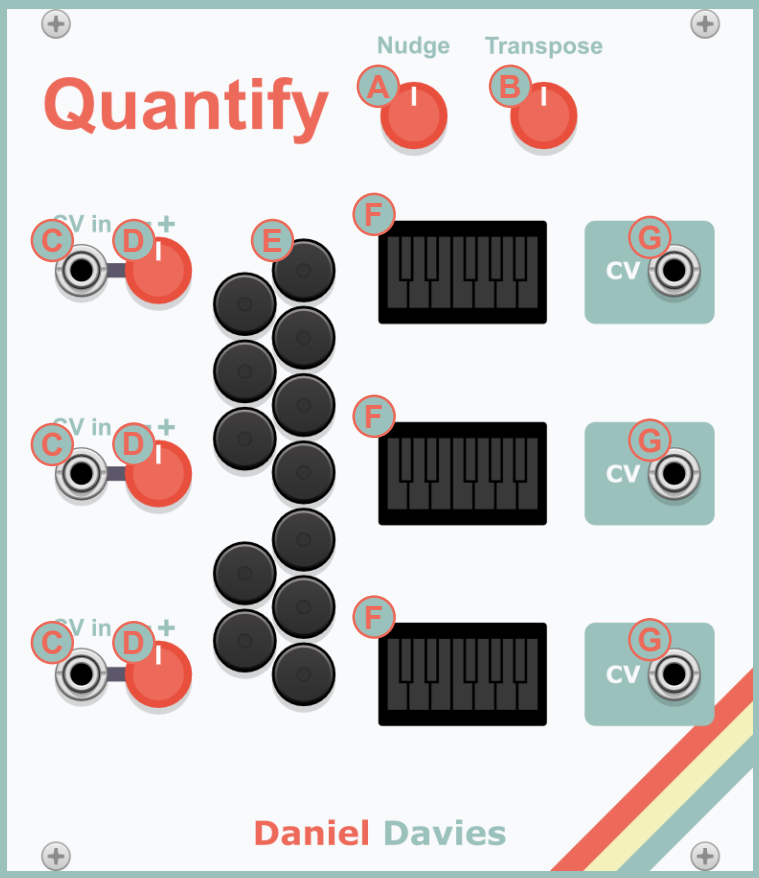
Knobs **(D - G)** can be used to vary the length of dots, dashes, new letters, and new words. Altering these values will change the characteristics of the resulting rhythms.

Quantify

3x Quantizer with nudge and transpose controls - 23HP

Designed to work seamlessly with my Sequel range of sequencer modules, this quantizer can be used to build 3 part melodies within a scale/chord of your choosing. Quantify gives you extra fine control over the range of your melodies in the form of attenuverted inputs and the built in *nudge* control allows you to shift your melody within your scale.

Panel



A. Nudge control

B. Transpose control

C. CV inputs

D. Input value attenuverters

E. Note select buttons (notes C - B)

F. Current note indicator

G. CV outputs

How it works

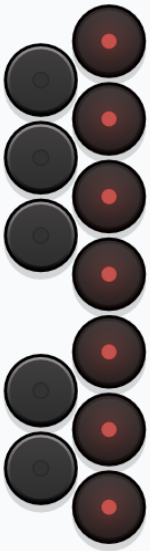
Explanation

Quantify works by rounding your CV inputs to the nearest available note in your selected scale.

To select a scale/chord, click on the note select buttons **(E)** that relate to your intended scale. You can think of the note select buttons as a single octave piano keyboard that has been rotated 90 degrees.

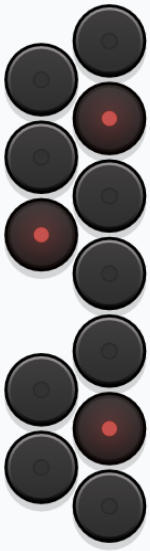
Note: when no notes are selected, Quantify will round all CV inputs to the nearest C.

C Major/A Minor scale



C Major chord

D Major chord



Quantify will display the note that is currently being output on note displays **(F)**

You can change the range of values Quantify will output per-row by altering the attenuvert knobs **(D)**. while these knobs are set to the 12 o'clock position, only one note will play for that row.

The nudge knob **(A)** will shift your CV outputs up or down within the scale, while the transpose knob **(B)** will shift the CV output values up/down by semitone values by a maximum of one octave in either direction.

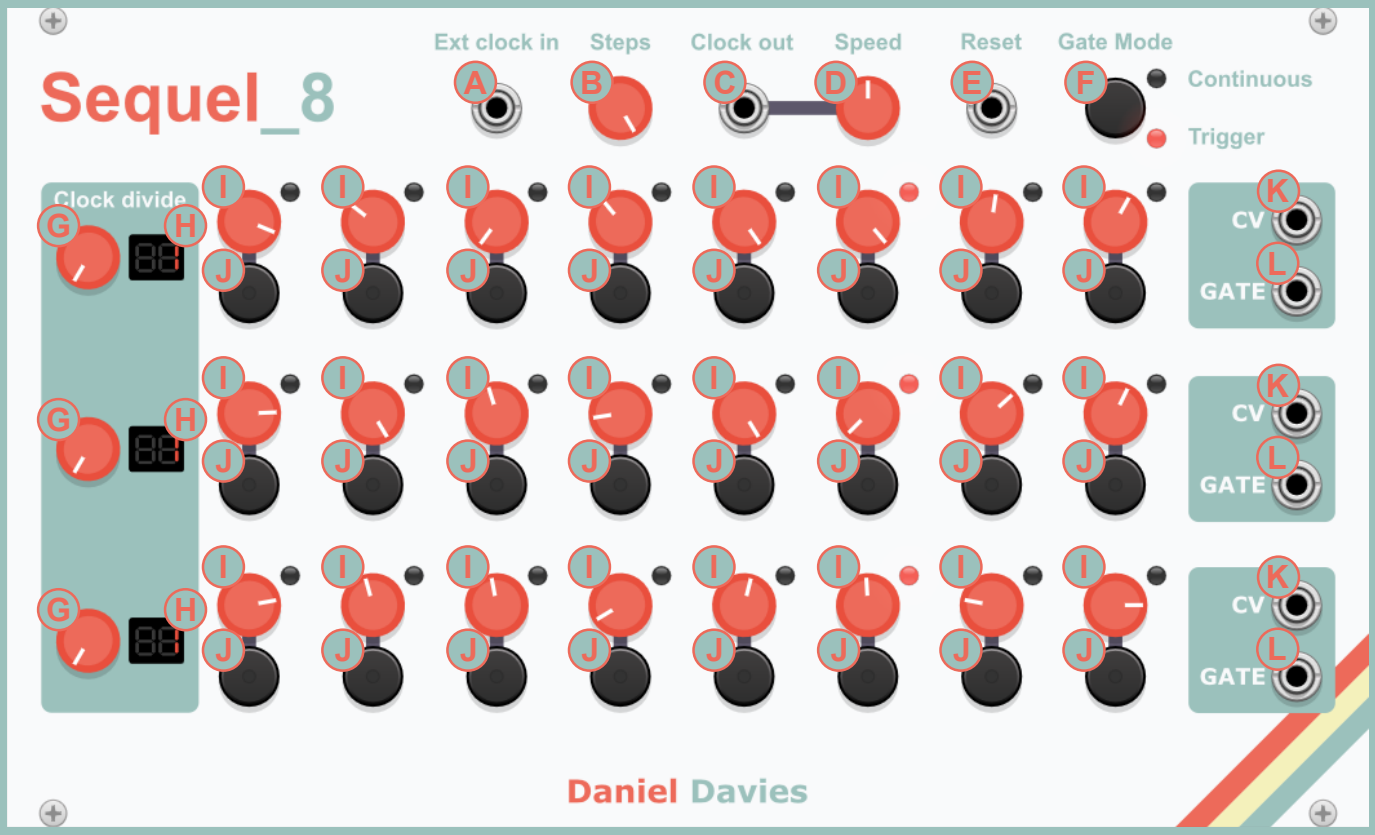
Note: currently the note screens **(F)** do not show the transposed output. This is likely to change in a future update.

Sequel 8 & Sequel 16

Three row 8/16 step sequencer - 48/73 HP

Powerhouse step sequencers with built in clock divide functionality (Sequel 8 and Sequel 16 are identical aside from number of steps). Each row of Sequel has both a gate output and a CV output, this allows Sequel to be used as a powerful drum sequencer, melody generator or controller.

Panel



A. External clock input

B. Step count knob

C. Clock output

D. Speed control knob

E. Reset input

F. Gate mode select

G. Clock divide knobs

H. Clock divide displays

I. CV control knobs

J. Gate on/off buttons

K. CV outputs

L. Gate outputs

How it works

Explanation

Sequel is a CV & Trigger sequencer, inspired by hardware analogue sequencer modules.

Each step of each of Sequel's 3 rows has a CV Knob **(I)**, a trigger button with an led indicator **(J)**, and an active step led. The voltage outputted by each row's CV output **(K)** is equal to the value of the CV knob **(I)** for the currently active step. Similarly the gate output **(L)** is controlled by switching on or off the gate button **(J)** for the currently active step.

There are two methods for controlling the speed of Sequel. You can use the internal clock controlled by the speed knob **(D)**, or you can feed an external clock source into Sequel via the external clock in port **(A)**.

Clock Divide:

One of the most powerful features of Sequel is it's per-row clock divide functionality.

Set a clock divide value for each row using the clock divide knobs **(G)**, the value is indicated via the clock divide displays **(H)**. The clock divide value determines how many clock inputs are needed before that row will progress to a new step. This means that Sequel's rows are able to become out of sync with eachother, allowing for the creation of interesting polyrhythms.

Gate Modes

Sequel is capable of two different gate modes. The active gate mode is controlled by the gate mode select button **(F)**:

Trigger mode: Gates output 10V for a duration of 1ms.

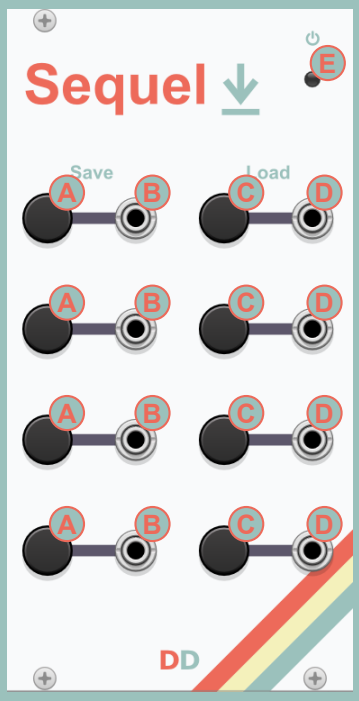
Continuous mode: Gates output 10v for as long as gate buttons **(J)** are toggled on.

Sequel Save

Save state expander module for Sequel 8 & 16 - 13 HP

Get even more out of Sequel 8 & 16 with the Sequel Save module. Save the state of Sequel to one of 4 slots and then restore that setting via CV or button controls.

Panel



A. Save buttons

B. Save trigger inputs

C. Load buttons

D. Load trigger inputs

E. Active LED

Explanation

To active Sequel Save, place it directly to the right of Sequel 8 or 16, the Active LED **(E)** will light when positioned correctly.

Sequel Save has 4 slots that can be saved to, using either the Save Buttons **(A)** or the Save trigger inputs **(B)**. Upon saving, the state of all the panel parameters of Sequel are remembered.

Use either the Load Buttons **(C)** or the Load trigger inputs **(D)** to load a previously saved state.

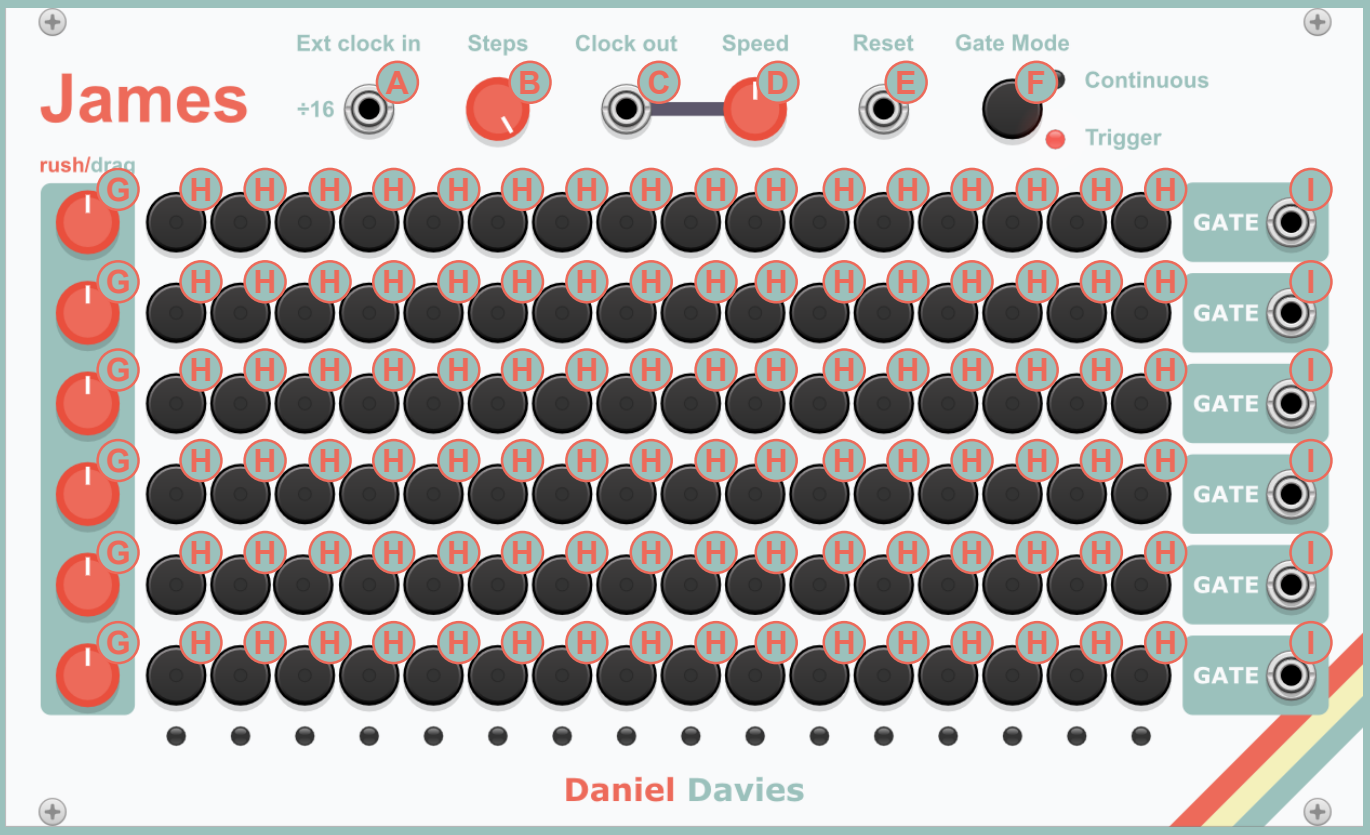
James

Six row 16 trigger sequencer - 42 HP

Drawing inspiration from the rhythmic innovations of the renowned music producer and songwriter, J Dilla. James is a dynamic 6-row drum sequencer, featuring rush/drag controls for each row.

Special thanks to Paul Gatt, for both the initial idea, and testing of James

Panel



A. External clock input

B. Step count knob

C. Clock output

D. Speed control knob

E. Reset input

F. Gate mode select

G. Rush/Drag knobs

H. Gate on/off buttons

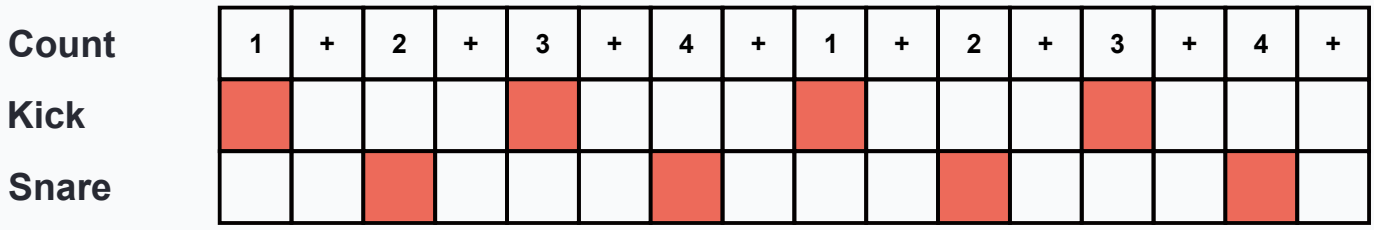
I. Gate outputs

How it works

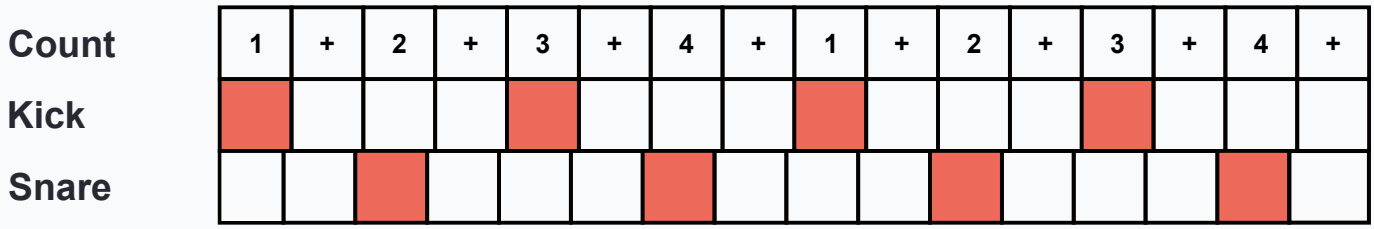
Explanation - Concept

James is a unique step sequencer that allows each of its 6 rows to be rushed or dragged independently of the other rows. For a visual breakdown of James' rush/drag feature, refer to the diagram below.

No rush/drag:



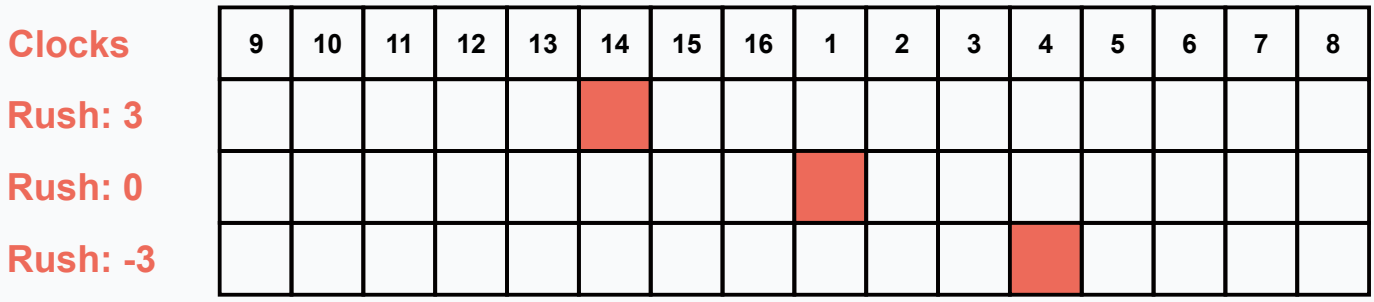
Rushed snare:



By introducing rush/drag for specific elements of a beat, you can create conflict with the straight beat.

Explanation - James

James works by dividing its clock input **(A)** by 16, and then using the rush/drag knobs **(G)** to rush/drag each element by up to 15 clocks. For every 16 clock inputs sent to James, the currently active step will advance by 1.

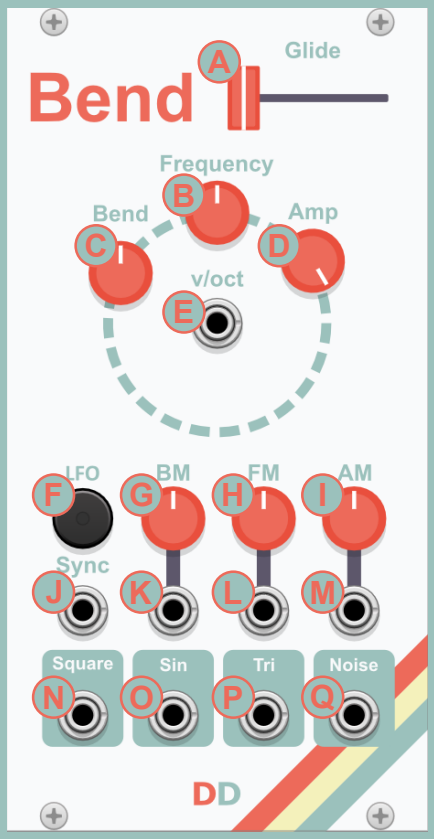


Bend

Phase modulation oscilator - 13 HP

Bend takes the classic wavetable oscillator and adds a unique twist. It's a polyphonic VCO and LFO with phase modulation and glide controls. This module is a labor of love and represents my debut in sound generation.

Panel



A. Glide time slider

B. Frequency knob

C. Bend amount knob

D. Amp amount knob

E. V/Oct input

F. LFO mode toggle switch

G. Bend mod knob

H. Frequency mod knob

I. Amp mod knob

J. Sync input

K. Bend mod input

L. Frequency mod input

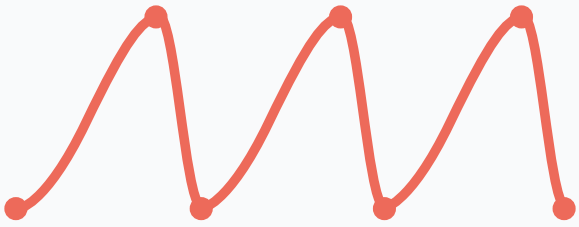
M. Amp mod input

N. Square wave output

O. Sin wave output

P. Triangle wave output

Q. Noise output



How it works

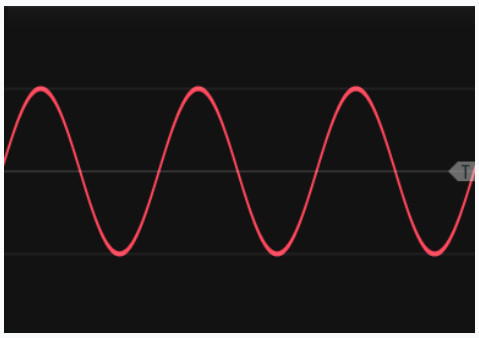
Bend uses phase modulation:

While phase modulation is a complex subject, detailed explanations can be found in various resources elsewhere. If you're new to this topic, I recommend watching the YouTube video by Groovy DSP as an excellent starting point:

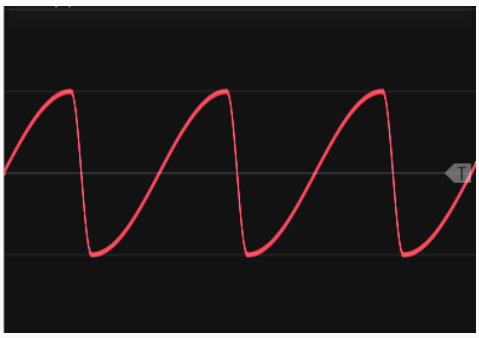
https://www.youtube.com/watch?v=EW12RYc7QRA

If you're more interested in understanding what phase modulation (referred to as 'bend' in the context of this module) can achieve with Bend, here's a concise overview. When you apply phase modulation (bend) to a sine wave or a triangle wave, the resulting waveform gradually transforms into something resembling a sawtooth wave. This effect can be harnessed to create a sound akin to a low-pass filter. Below, you'll find a visual representation of the phase modulation (bend) functionality to illustrate this concept.

Bend: 0.00

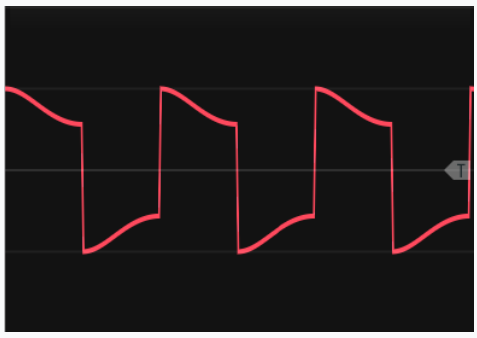


Bend: 0.8



Applying phase modulation to a square wave is akin to pulse width modulation:

Bend: 0.00



Bend: 0.98

Additional features

Glide:

The glide slider **(A)** is responsible for adjusting the portamento time when control voltages are applied to the V/oct input **(E)**. This feature introduces a smooth transition between note changes instead of sudden jumps.

Noise:

The noise output **(Q)** outputs white noise which can be used to add texture to a voice or, when paired with a sample & hold module, to generate random/ unpredictable control voltages.

LFO Mode:

You can activate LFO Mode by toggling the LFO mode switch **(F).** When activated, the frequency ranges of the square, sine, and triangle wave outputs **(N, O, P)** are significantly attenuated, extending into frequencies below the audible range. This transformation makes Bend a versatile modulation source.

Note: When LFO mode is enabled, the glide functionality of Bend is disabled.

Sync:

Bend features a hard sync input **(J)**. Experiment with connecting the square wave output of another oscillator to this input, and then adjust the frequencies of the two oscillators independently to unlock intriguing sonic possibilities.

Bend, Frequency, and Amp modulation:

Bend: By modulating the bend amount using the BM input **(K)** you can simulate a filter sweep effect on the tri/sin wave outputs, and PWM on the square output.

Frequency: Bend features frequency modulation that is commonplace on most oscillators via the FM input **(L)**.

Amplitude: Modulating the amplitude of a waveform can bring about significant changes in the sonic characteristics produced by an oscillator. This is why I've included this parameter, which is often absent in other oscillator modules. Experiment by connecting another VCO or LFO to the AM input **(Q)** to explore intriguing and creative outcomes.