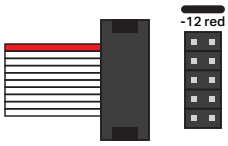
constellation

parametric rhythm generator

firmware version 1.0



Constellation requires a +12V / -12v power supply with a 2x5 pin ribbon cable (included). The red line of the ribbon cable must be aligned with the -12V marking next to the module's power header and on your case's power distribution board. Constellation draws 75mA from the +12 rail and 18mA from the -12 rail. Please ensure you have enough power available before installing.

About Constellation

Constellation is an 8 channel rhythm generator that works by combining multiple dense and sparse euclidean patterns to create long, complex and musically interesting trigger and gate rhythms. Constellation takes a "parametric" approach to rhythm - there is no explicit step sequencing on the module, rather the rhythms are defined by euclidean (and more) parameters that build the rhythm mathematically.

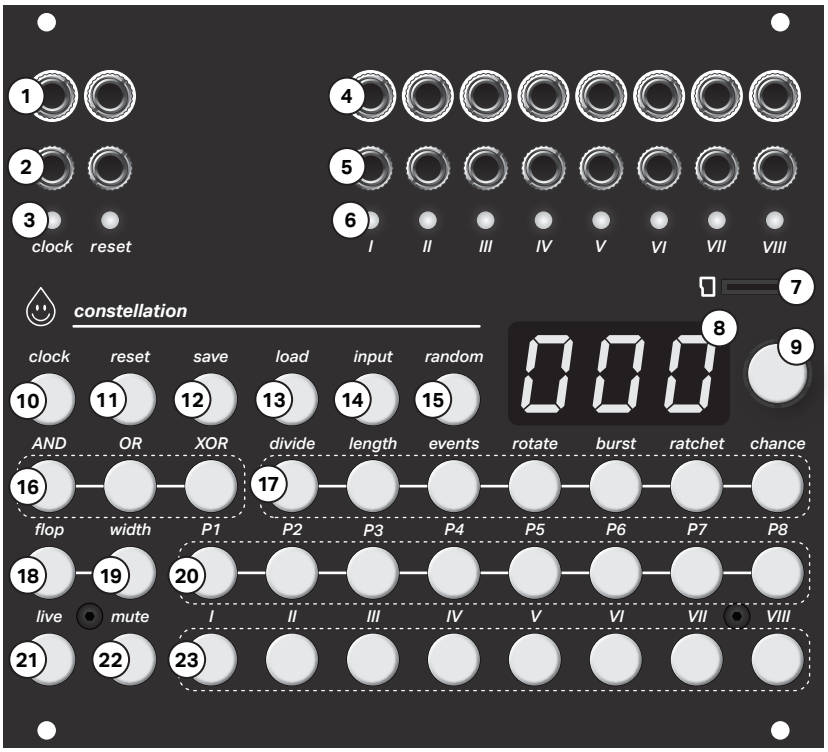
Overview

Constellation is comprised of 8 identical channels, each with a selection button (23), output jack (4) and output state LED (6). Within each of these channels, you can combine up to 8 unique looping patterns of different length and density to generate complex rhythmic output. Each pattern has a selection button (20) and a set of parameters selectable on buttons (17) and editable with the encoder (9) and numeric display (8).

When you power on constellation, it will be in "edit mode" where one channel and one pattern within that channel are always selected. From this mode you can edit pattern parameters and enter other menus like save, load, live and mute. These are described in detail in the full constellation manual available online. Here is a diagram of how multiple patterns on a single channel are combined to generate the channel output:

Quick Reference Guide

full manual available on acidraintechnology.com



Pattern 1 - length 32, events 1, rotate 28, burst 4, ratchet 1

Pattern 2 - length 16, events 4, rotate 2, burst 1, ratchet 1

Pattern 3 - length 12, events 4, rotate 0, burst 1, ratchet 1

Pattern 4 - length 32, events 1, rotate 0, burst 3, ratchet 2

Channel output - a combination of all the above patterns using OR logic

75mA +12 / 18mA -12 ***28 HP / 25mm Deep*** ***Reverse Power Protection*** ***Assembled in USA***

Pattern Parameters

The following is a brief overview of constellation's pattern parameter buttons:

Divide - sets the pattern's clock divider. Divide can be any integer between 1 to 255 as a division of constellation's main clock

Length - sets the length of the core euclidean pattern, in terms of steps of the pattern clock. A pattern can have a length of up to 999 steps

Events - sets the number of events that the core euclidean pattern will distribute across the steps. It can be set to any integer between 0 and the length of the pattern

Rotate - sets the rotation of the core euclidean pattern. This can be set to any integer between 0 and the pattern length minus 1

Burst - sets the burst amount for the pattern. The maximum burst setting available is dynamically calculated in relation to the event density of the pattern (the available pattern clock pulses between events). Burst adds events onto the end of every euclidean event of the pattern at the rate of the pattern clock

Ratchet - sets the number of events emitted per input event of the pattern's ratchet generator. This creates a very fast string of pulses at a multiplication of the pattern clock during every event and burst event of the pattern. It can range from 1 to 255

Chance determines the probability from 0% to 100% that a given event, burst event or ratchet will pass the pattern's probability gate and enter the logic section of the channel

Channel Logic

All patterns within a single channel of constellation are combined together using "boolean logic". The three different kind of logic available all combine the patterns a little differently based on whether the individual patterns are "high" (a pattern even is playing) or "low" (no pattern event is playing) at a given moment. For more detail and visual examples of these concepts please consult the full constellation manual available online.

AND - outputs a pulse at the channel output only when all unmuted patterns are high at the same time. AND logic will result in the least output density because all of the patterns playing have to be high at the same time and if just some are high and some are low, no pulse will be outputted.

OR - outputs a pulse at the channel output when any pattern output is high. OR logic will result in the most output density because it can be thought of as "overlaying all the patterns at once" and outputting all pattern events together as pulses.

XOR - outputs a pulse at the channel output only when an odd number of the un-muted patterns are high at the same time. This will create an interesting alternate variation on the relationship between a channel's patterns, typically somewhere between AND and OR in output pulse density.

Clock Menu

Constellation's internal and external clock settings can be adjusted by pressing the "clock" button and entering the clock menu. When the constellation is internally clocked (nothing patched into the clock input) the encoder will adjust the tempo of the main clock in beats per minute. The width button controls swing of this main clock from 50 (no swing) to 90 (lots of swing).

The reset button is available in edit mode, the clock menu and several other of constellation's sub menus - it allows you to reset all patterns of all channels back to the beginning. This can be very useful to re-align patterns.

For much more detail on Constellation's extensive clock system please consult the full manual available online.

Mute Menu

Pressing the "mute" button will enter the mute menu where channel outputs, and individual patterns of the channel selected before entering the menu can be muted. Pattern and channel buttons can be pressed one at a time or together with multiple fingers to mute or unmute them simultaneously.

Constellation has many more features described in the full manual available on acidraintechnology.com