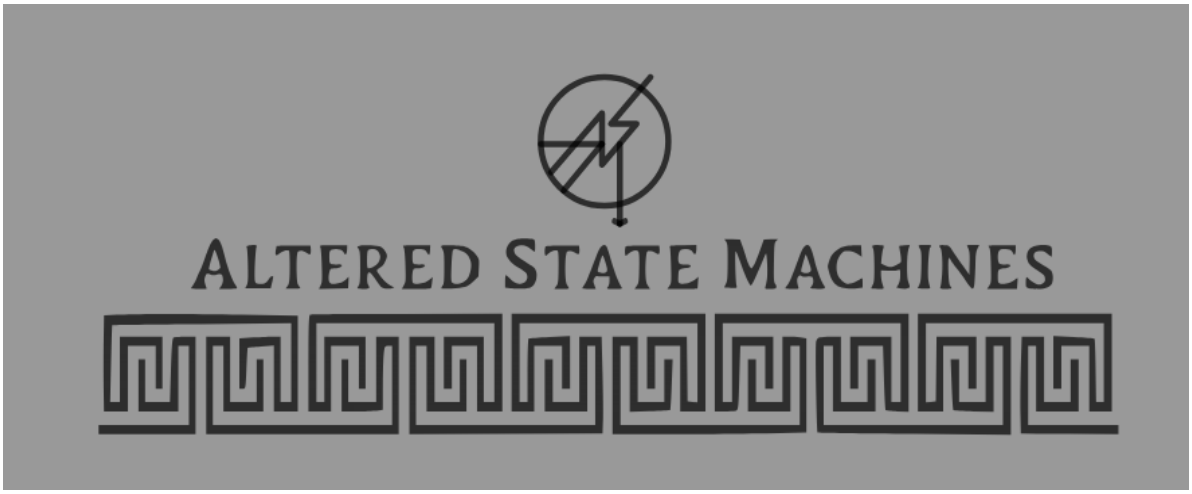

Aristotle Quick Start Guide

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Many thanks for purchasing an Aristotle. This document is intended to provide the basics of how to get started using this module with the rest of your Eurorack modular synthesizer. I will cover all of the basics but I am literally still finding new ways to use the device all the time, so this document will not be exhaustive by any means. If you do end up with questions please feel free to reach out to me via the email posted above and I will try to answer any questions. OK, let's get started.

Powering the module

To power the Aristotle, please attach the provided 10 pin header as labeled on the silk screen, with the **-12V red stripe side down**. Please make sure this cable is connected to your power supply bus in the correct orientation before powering the case. Aristotle is reverse Voltage protected, but connecting the 16 pin header to the bus board in reverse will cause your power supply damage.

The 8 pin header at the top of the module is not for power.

What is Aristotle?

Aristotle is a dual additive nonlinear counterpoint voltage sequencer, and now in english, that means that Aristotle has the following characteristics:

1. It has two channels of voltage sequencing outputs
2. The channels' outputs are additive, meaning that the voltage at each output is the sum of the voltages set at each of the channels active stages, (the sliders with lit LEDs)
3. Since aristotle changes states via trigger patterns into it's 4 trigger inputs it is possible to move from any of the 16 available steps to any other step rather than being forced to move through them in one direction. (it is possible to step through them in a linear fashion and I will cover that later in this document)
4. The two channels of Aristotle are linked and related in the sense that as one channel goes up in voltage (and therefore pitch), the other goes down in voltage (and therefore pitch). This creates a sort of baked in counterpoint to the melodies the aristotle creates
5. Aristotle only takes in triggers and only outputs 2 voltage patterns so it's a voltage sequencer. If your patch requires triggers for your oscillator envelopes those will need to be sequenced elsewhere.

How do I use Aristotle?

You will need to provide some trigger patterns (at least 1) to the Trig inputs of Aristotle, and connect at least one of the Pitch outputs to the CV input of an oscillator in your synth. If you would like the notes it plays to be within the constraints of western music, you will want to run the CV through a quantizer before it goes into the chosen oscillator.

Each channel's output is the sum of the Voltage added by it's energized stages. A stage is energized when it's slider LED is lit and the slider controls what percentage of the maximum voltage that stage will add to it's channel's output.

Pitch out A = the sum of voltages A1 + A2 + A3 + A4.

Pitch out B = the sum of voltages B1 + B2 + B3 + B4.

If a stage is not energized it will add 0V to these sums.
If a stage's slider is set to the lowest point, it will add 0V to these sums regardless of it being energized or not.

Since there are 4 stages per channel, and each can be on or off, that gives us 16 different voltage steps or states that can be created by the Aristotle.

For example state 1 is the lowest and all 4 stages are off, this is always 0V. If we trigger stage 1 to turn it on the output is now only the Voltage added by the slider A1, there are a total of 16 possible combinations of on and off stages.

The panel

Reset inputs -->
Triggers into these ports will set all of the associated channels stages to off (the root note), while setting the other channel's stages to all on (the highest sequenced voltage).
Gates are acceptable too, but are converted to triggers internally.

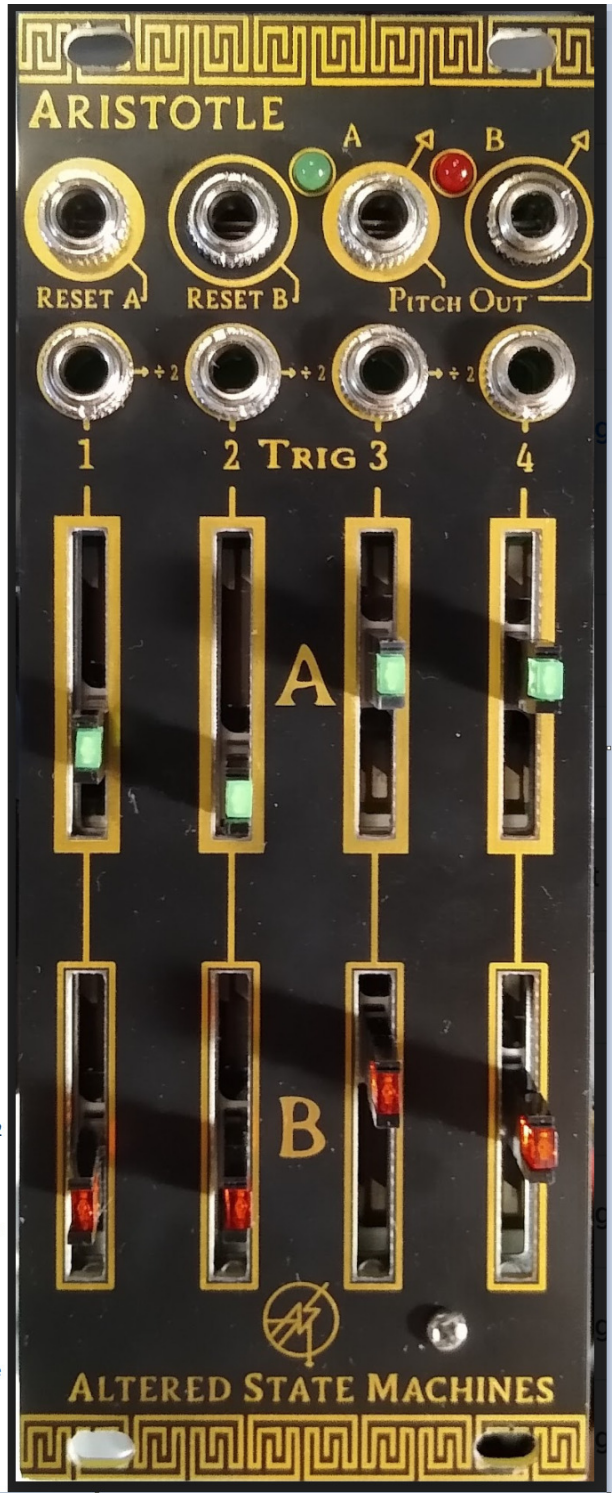
Trigger inputs-->
Triggers into these ports will cause the associated stage to change states, so if stage A1 is off (and B1 is on) a trigger into Trig 1 will cause B1 to turn off and A1 to turn on.

Each Trig port is internally normalled so that every other trigger will cause the next port down to change states as long as no cables are place into the next port. This is indicated with the divide by 2 lable between the Trig ports. This allows a user to access all 16 sequencer "steps" with a single clock singnal .

This works just as well if you have 2 or 3 trigger patterns, and just want to leave 1 or 2 ports unpopulated, feel free to experiment with this to explore the possibilities. you may notice that in this mode the lower number ports change more frequently than the higher numbered ports, try setting the lower numbered ports to smaller intervals than the higher ones and seeing how this affects the sequence, then try the opposite.

Sliders-->
The sliders control how much voltage is added to the channels output when they're energized (the LED is lit when the stage is energized). If the slider is at it's lowest point it will add 0V whether it's energized or not, and at it's highest point it will add around 1-2 volts depending on the jumper settings on the back of the module.

These are the part of the module that let you "play" in the melody. With looping trigger patterns being fed into the device you can start to adjust the sliders to control the interval that each stage is adding to the channel's total voltage output. Once you get some values that you like you can change the trigger patterns to rearrange the order they are being played.



At the top right of the module you can see the A and B pitch out ports of the device. These ports are where the voltage sequences are output to be sent to the other modules in your rack. There are color coordinated LEDs for each output which indicate the instantaneous voltage level of the output at any given time, Green for A, Red for B. The brighter the LED the higher the output voltage. You can see that these are outputs as there are arrows pointing out of the port. You can tell the associated channels inputs and outputs by the matching borders, Thicker borders for A and thinner borders for B.

What kind of patterns does Aristotle like?

There's really no right or wrong answer here, but the easiest rule of thumb is that if it would sound good on a drum machine it will probably sound good on aristotle. Aristotle likes repeating trigger patterns and if it gets them it will make up a different repeating melody for every pattern it is fed, and every combination of slider settings. If the patterns change, so will the melody. Smaller changes in pattern create smaller changes in melody. Switching the pattern suddenly will create a brand new pattern unique to that rhythm and trigger order. Even feeding it the same pattern but starting at two different starting states will create totally different melodies.

For this reason I've included the reset ports. These allow you to get back to a known starting state whenever you restart your sequencer, to ensure the melody stays the same each time you play the same pattern. (provided the sliders are also in the same position, of course).

This is actually one of the most interesting ways to get new patterns on Aristotle, without changing the pattern or the stages. By sending a regular trigger to one of the reset inputs once per pattern, you can sequence where the reset happens. Doing this on different steps each time creates entirely different note orders while retaining the same rhythm and note values.

By sequencing patterns that include probability you can create numerous instant variations which diverge from the original sequence, and as long as you play that reset signal you can always come back to that same starting point and not lose the seed sequence.

Chaos

Taking this to the extreme, feeding the Aristotle random triggers will make a controllable random source. Random in order, but controllable in amplitude. You still get the 16 possible combinations of the 4 stages of each channel, but since the trigger pattern never repeats, the voltage patterns will randomly navigate the 16 possible states, meandering about like an agent of chaos.

Voltage Ranges

Aristotle has 4 pairs of jumpers on the back at the top of the module. The top 2 pairs select the voltage range that can be added by each stage of channel A and the lower 2 pairs select for Channel B. With jumpers across the lower position of each pair, each stage adds somewhere just over 1 volt. The total voltage range is somewhere around 4+ volts.

 <-- jumper in lower position

 ← jumper in upper position

With the jumper across the upper position of each pair the output is closer to 2 volts per stage. Aristotle is not really a precision voltage device, and much of it's charm comes from its idiosyncrasies so these voltages are better to be thought of as a rough estimate. You'll be able to get more than enough melodic range out of either setting, and the larger range was added mainly to use for modulation purposes, however I do often find myself enjoying having larger jumps in melody, though usually I'll limit these to just one stage and keep the other 3 in the lower half of their range. Your mileage may vary.

The most important thing to remember is to have fun.

The fine print

Altered State Machines will offer warranty coverage for all modules for 1 year after which you can contact me and I will make sure to get your problem solved but there may be some cost to you. For warranty coverage you can make arrangements with me via email at the above address. I will cover shipping costs back to you, but you'll be responsible for covering shipping costs to get it to me.