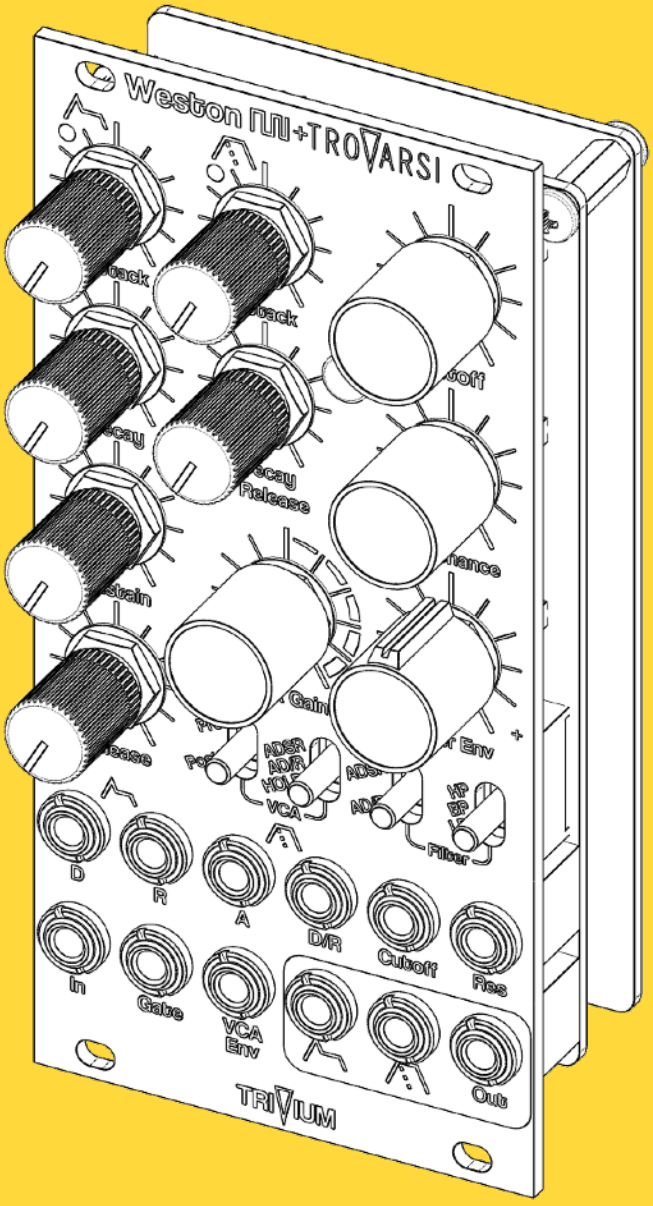
Trivium

Analog Multifunction

Eurorack Module

User Manual



Weston Precision Audio

Designed In Portland, Oregon
Revision 01 - February 5, 2026

TABLE OF CONTENTS

Trivium Overview

Envelope times for AD/AR envelope

Toggles AD/AR envelope behavior between Decay and Release

Envelope times and sustain level control for ADSR envelope

Filter Controls:

Cutoff,
Resonance
&
Envelope
Attenuverter

CV Inputs:

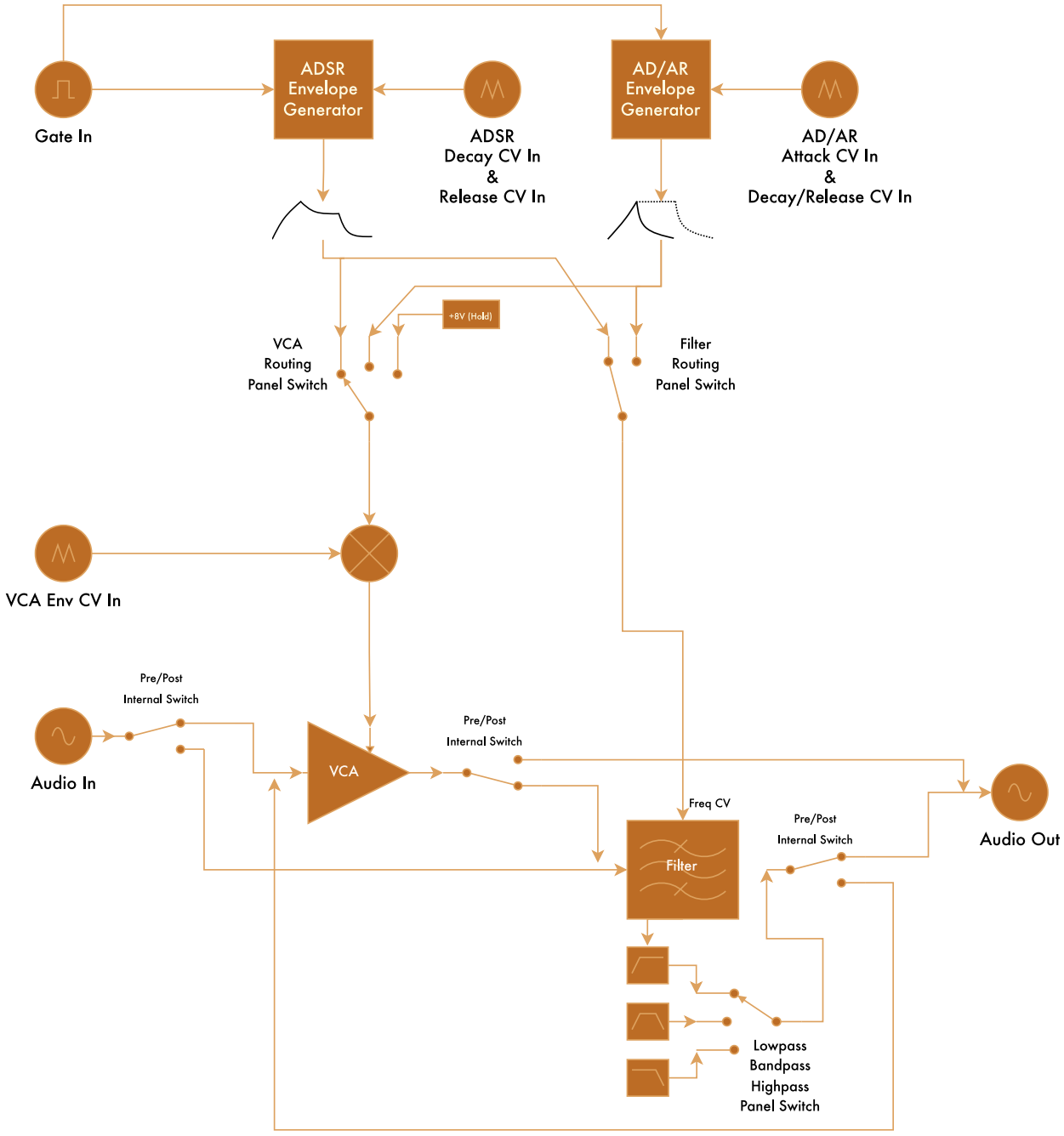
ADSR Decay,
ADSR Release,
AD/AR Attack,
AD/AR Dec/Rel,
Filter Cutoff,
Filter Resonance,
&
VCA Envelope

Routing selection switches

Audio Input & Gate Input

Outputs: Envelopes & Audio Out

Trivium Basic Block Diagram



DESCRIPTION

Trivium is a collaboration between Weston Precision Audio and modular/hybrid music performer and producer Trovarsi. At the most basic level, Trivium provides all that you need to make a versatile voice in your modular synthesizer with the addition of any signal source such as a VCO, all in a compact 12HP package. But, Trivium can be used for many other purposes: Drum and percussive sounds, a modulation source, and more.

Having been designed from the beginning for usage in compact performance cases, Trivium was created with a fairly tight and compact layout and has no protruding power connector, allowing it to fit in the shallowest available Eurorack cases.

The core functions inside Trivium are as follows: A discrete OTA state variable voltage-controlled filter, a VCA, a ADSR type envelope, a AD/AR envelope, and a routing section allowing assignment of the envelopes as well as the pre/post arrangement of the filter and VCA. Trivium's discrete VCF provides a clean but warm sound. Coupled with the VCA's overdrive section, a lot of sonic ground can be covered, from clean and precise to dirty and distorted.

Important or helpful bits will be in red.

SPECS

Module Size: 12HP
Depth: 26mm

Outputs:
250 Ohm Output Impedance

Inputs:
>= 100kOhm Input impedance
Audio Input: AC Coupled
Gate Input: 0V = Off, >1.5V = On

Power input:
+12V & -12V via standard 10 pin Eurorack connector. Internally rectified so either polarity for cable installation is OK.

Power consumption:
+12V: 60mA
-12V: 60mA

Envelope Times (via Pots):
(Even faster or slower adding CVs)
ADSR:
-Attack: 1ms - 7s
-Release: 2ms - 7s
AD/AR:
-Attack: 1ms - 7s
-Decay/Release: 2ms - 7s
Envelope Level (Both): 8 Volts

MAXIMUM LIMITS

Supply Voltage: +13.5V / -13.5V

All inputs: Up to power supply levels.

USING TRIVIUM:

GETTING STARTED

After installing and powering up Trivium in your rack, using the module is as easy as patching an audio signal into the "In" inputs on the lower left corner of the module. You may also want to apply a gate signal to the "Gate" input, which controls the triggering of the 2 envelopes.

ROUTING: PRE/POST

Looking at the routing switches going from left to right, the first one controls how the signal moves through the VCA and VCF. The following image shows this arrangement visually:

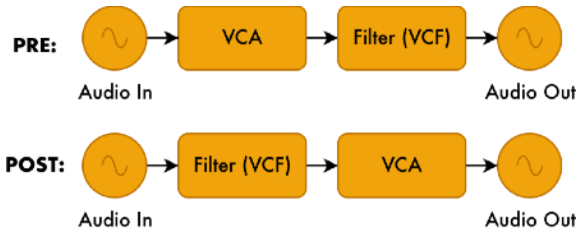


FIG 1: PRE/POST ROUTING

"PRE" allows overdriven signals to be put into the filter, which will naturally saturate them due to it's discrete transistor topology, reducing resonant peaks in an interesting way. "POST" allows the output of the filter to be attenuated or boosted up to +17.2dB before leaving the module.

ROUTING: VCA/VCF CV

The second switch selects which control voltage will be routed to control the VCA. This can be either the ADSR envelope, the AD/AR envelope, or "HOLD" which will hold the VCA open. Note that the selected CV goes through a VCA which is modulated by the "VCA Env" input, as shown by the block diagram on page 4.

The third switch selects which control voltage will be routed to the filter (VCF). This can be either the ADSR envelope or the AD/AR envelope. This CV passes through an "*Attenuverter*" before going to the VCF. This attenuverter is the bottom right potentiometer labeled "Filter Env". Center (high noon) of this pot means 0 CV. Full CW means +100% of the selected CV, and full CCW means -100% (in other words, inverted copy) of the selected CV.

ROUTING: FILTER RESPONSE TYPE

The fourth and final switch controls which output is taken from the filter. The filter, being of "State Variable" type, produces 3 responses: Low Pass, Band Pass, and High Pass. The filter will self oscillate at high resonance settings, but the amplitude and shape will vary some depending on the response type. LP (Low Pass) will produce the nicest sine waves in oscillation, around 5 Volts peak-to-peak.

THE ENVELOPES

Trivium has 2 envelopes: an ADSR (Attack/Decay/Sustain/Release), and an AD/AR (Attack-Decay OR Attack Release). In addition to being routable to the VCA and VCF as described on the previous page, both the envelopes are available as front panel outputs. In this way, the envelopes can be patched to other modules or even patched back into Trivium's inputs for other patching options. The following 2 oscilloscope image shows the 2 envelopes along with a gate signal:

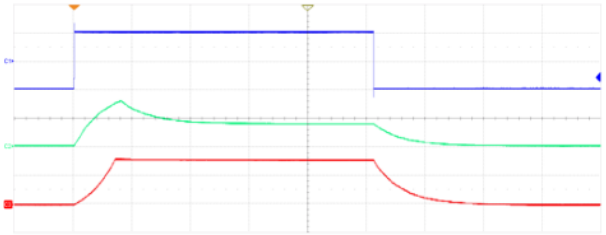


FIGURE 2: ENVELOPES WITH "RELEASE" SELECTED FOR THE AD/AR ENVELOPE.

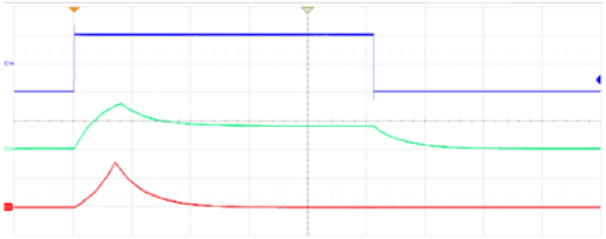


FIGURE 3: ENVELOPES WITH "DECAY" SELECTED FOR THE AD/AR ENVELOPE.

In the above 2 figures, the blue trace is the GATE signal inputted to Trivium. The green trace is the ADSR output (with sustain at roughly 50%), and the red trace is the AD/AR output. As can be seen by comparing the 2 red traces, the white front panel button changes the behavior of the AD/AR envelope.

Another thing that may be observed is that while the ADSR envelope has a traditional logarithmic shape to the transitions, the AD/AR envelope has an attack section which is slightly convex (pseudo-exponential). The reason for this is that this shape mimics the attack shape of impact-type sounds, giving flexibility in sound-shaping. This AD/AR envelope, for example, is excellent for "pinging" the internal filter or other filter to create kick drum sounds when used with short attack times.

THE ENVELOPES: CV

Each envelope's parameters (A/D/S/R and A/D(R) can be directly controlled from the front panel potentiometers. Additionally, there are CV controls for the following:

ADSR DECAY TIME
ADSR RELEASE TIME
AD/AR ATTACK TIME
AD/AR DECAY(OR RELEASE) TIME

These CVs are simply summed with their respective potentiometer voltages. More + voltage means longer times, and more - voltage means shorter times.

ADDITIONAL CV INPUTS

There are 3 other CV inputs on the front panel of Trivium, which will be discussed in this section.

CUTOFF

This input is simply a CV which controls the cutoff frequency of the filter. It is summed with the corresponding potentiometer CV before going to the filter.

RES

This input is simply a CV which controls the resonance (Q) of the filter. It is summed with the corresponding potentiometer CV before going to the filter.

VCA ENV

The VCA ENV allows modulation of the level of the CV which is sent to the VCA. This CV, as discussed in the previous section, can be either of the 2 envelopes, or a solid 8V ("HOLD"). The following diagram shows how this input is connected:

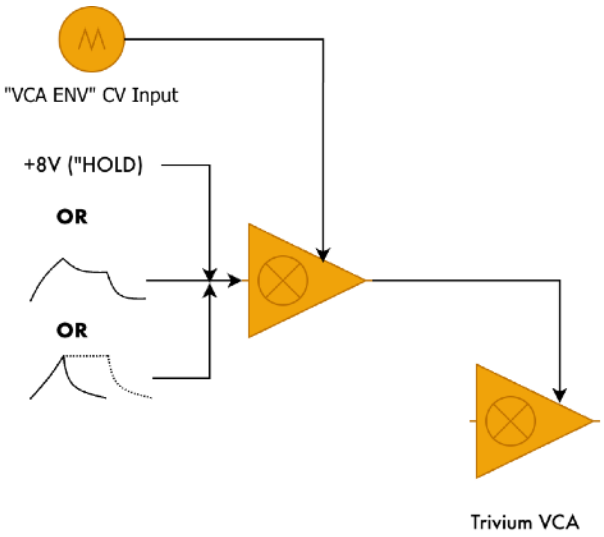
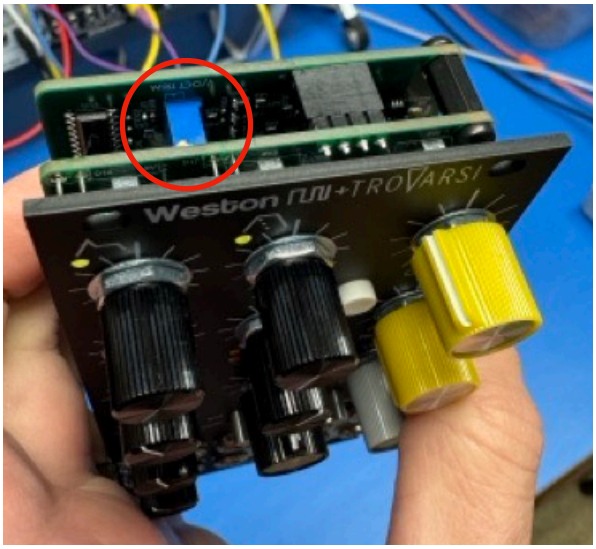


FIGURE 4: "VCA ENV" INPUT DIAGRAM

APPENDIX: TRIMMERS (SERVICE ONLY)

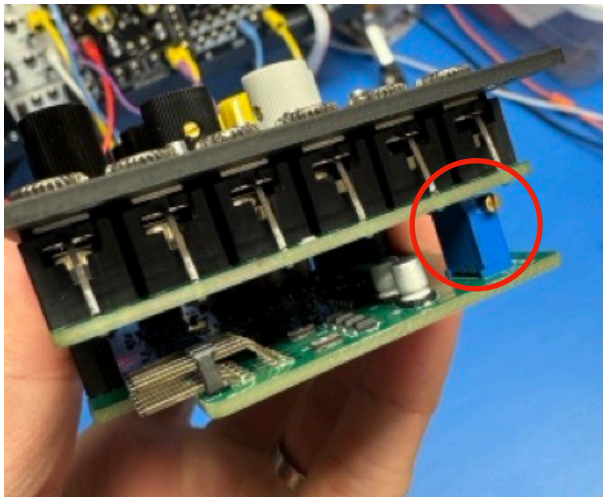
Trivium has 2 trimmers, which have been adjusted at the factory. Normally these will not ever need to be adjusted, but this section explains their purpose in case of adjustment:

Volts/Octave (Located on top of the module as shown in the pic below):



This trimmer adjusts the volts/octave scale of the filter in Trivium. The filter, being a discrete transistor type, is really only good for 4-5 octaves of tracking, but it can be adjusted here. To adjust, set the resonance to 100%, the Pre/Post switch to "PRE", and filter type switch to "LP". Plug your pitch CV source into the "CUTOFF" input and tune the response like you would an oscillator, using your favorite method.

VCA Null Trim (Located on the bottom of the module as shown in the pic below):



This trimmer normally won't need to be adjusted ever. However, to adjust, do the following: Switch the Pre/Post switch to "POST", and the filter type to "LP". Set resonance to 0% and cutoff to 100%. Remove any patch cables from Trivium and input an audible oscillator into the audio input. Select AD/AR envelope to route to both the VCA and Filter. Set VCA gain to center (high noon). Monitor the audio output on speakers turned up loud and turn the VCA null trimmer clockwise until you hear the oscillator you inputted leaking through. Then turn back counter-clockwise 1/2 turn and the sound should disappear.

REVISION HISTORY

01: Initial release.