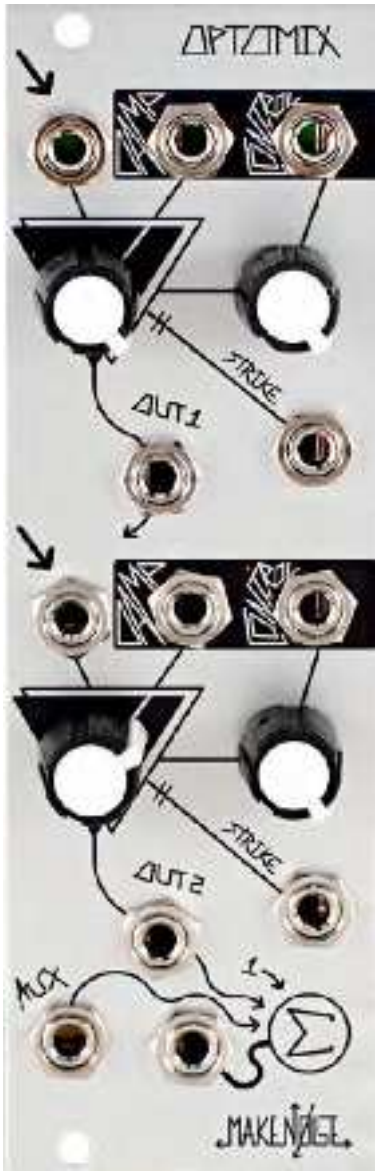
Optomix



Limited WARRANTY:
Make Noise warrants this product to be free of defects in materials or construction for a period of one year from the date of purchase (proof of purchase/invoice required).

Malfunction resulting from wrong power supply voltages, backwards power cable connection, abuse of the product or any other causes determined by Make Noise to be the fault of the user are not covered by this warranty, and normal service rates will apply.

During the warranty period, any defective products will be repaired or replaced, at the option of Make Noise, on a return-to-Make Noise basis, with the customer paying the transit cost to Make Noise. Please contact Make Noise for Return To Manufacturer Authorization.

Make Noise implies and accepts no responsibility for harm to person or apparatus caused through operation of this product.

Please contact technical@makenoisemusic.com with any questions, needs & comments, otherwise...

go MAKE NOISE.

http://www.makenoisemusic.com

THANK YOU QMMG

Installation:

The Make Noise Optomix is an electronic signal generator requiring 30 mA of +/- 12V regulated power and properly formatted distribution receptacle to operate. It is designed to be used within the euro format modular synthesizer system.

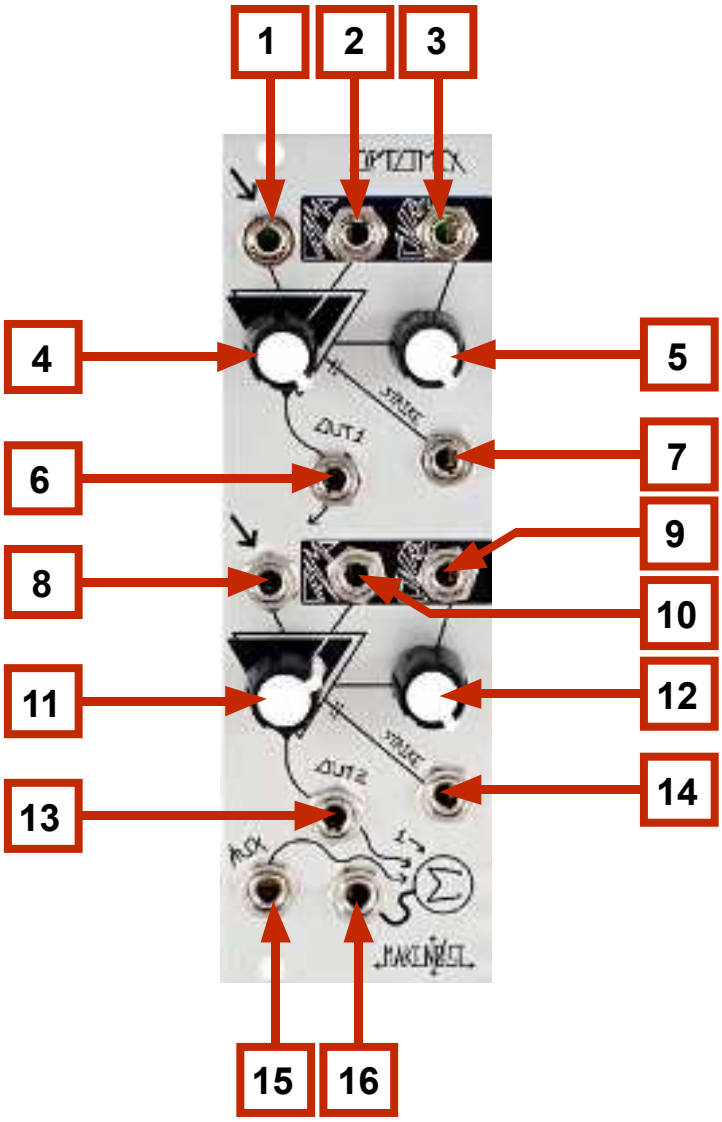
Go to http://www.doepfer.de/a100_man/a100t_e.htm for the details of this format.

To install, find 8HP of space in your euro-rack synthesizer system, confirm proper installation of included power cable on backside of module (see picture below), plug the 16pin end power cable into the euro-rack style power distribution board, minding the polarity so that the RED stripe on the cable is oriented to the NEGATIVE 12 volt supply line. This is USUALLY at the bottom.

Please refer to your case manufacturers' specifications for location of the negative supply.



Proper installation of included power cable on module.
Please note the RED BAND.



Panel Controls

1. Signal IN CH. 1: Direct coupled signal input capable of accepting audio or control signals. Range of up to 18Vpp.

2. DAMP CV IN CH. 1: Direct coupled, CV input for the corresponding channel's DAMPing parameter. Normalized to +8V so that with nothing patched the associated attenuator operates as a manual control for the parameter. Range 0V-8V.

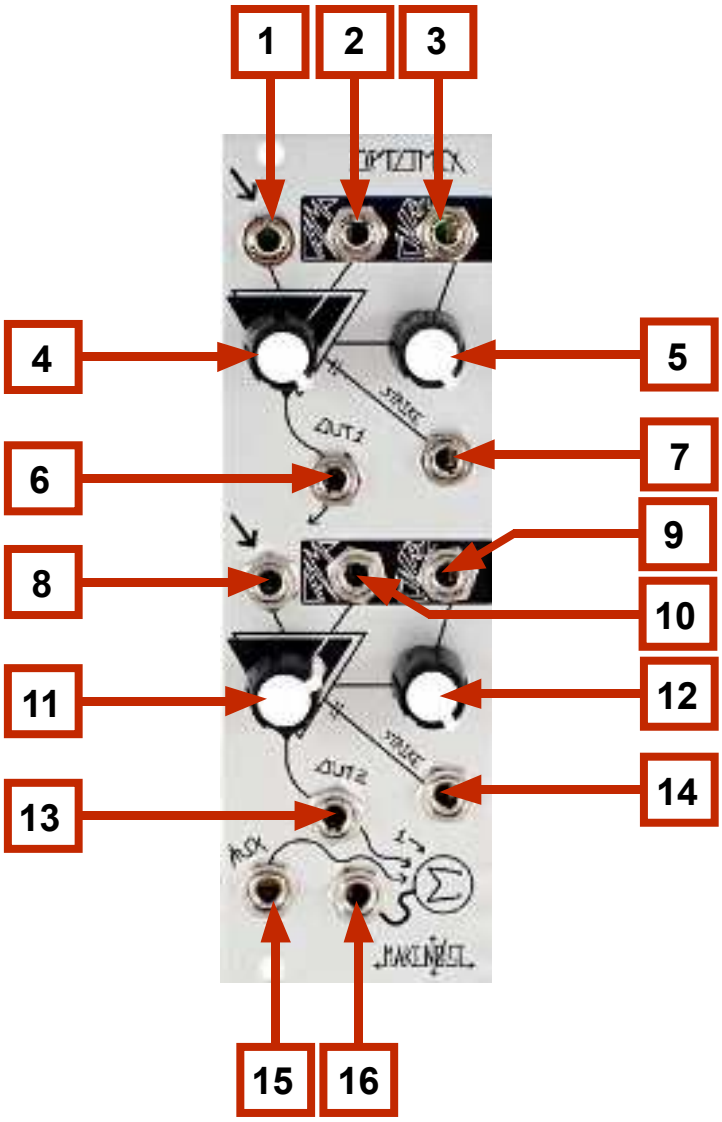
3. Control Signal IN CH. 1: Direct coupled, highly sensitive CV input for the corresponding channel's vactrol gate. Normalized to +8V so that with nothing patched the associated attenuator operates as a manual control for the parameter. Range 0V-8V.

4. DAMP Attenuator CH. 1: unipolar attenuator for DAMP CV IN. With nothing patched to the DAMP CV IN, operates as a manual control for the parameter.

5. Control Attenuator CH. 1: unipolar attenuator for Control Signal IN. With nothing patched to the Control Signal IN, operates as a manual control for the parameter.

6. Signal OUT CH. 1: Direct coupled output of the si gnal applied to the input, as pro-cessed by the LPG. 10Vpp (depending upon settings and source material).

7. STRIKE IN CH. 1: Gate input striking or plucking the vactrol. Expects 8V Gate.



Panel Controls (cont'd)

8. Signal IN CH. 2: Direct coupled signal input capable of accepting audio or control signals. Normalized to Signal OUT CH. 1 for series processing. Range of up to 10Vpp.
9. Control Signal IN CH. 2: Direct coupled, highly sensitive CV input for the corresponding channel's vactrol gate. Normalized to +8V so that with nothing patched the associated attenuator operates as a manual control for the parameter. Range 0V-8V.
10. DAMP CV IN CH. 2: Direct coupled, CV input for the corresponding channel's DAMP-ing parameter. Normalized to +8V so that with nothing patched the associated attenuator operates as a manual control for the parameter. Range 0V-8V.
11. DAMP Attenuator CH. 2: unipolar attenuator for DAMP CV IN. With nothing patched to the DAMP CV IN, operates as a manual control for the parameter.
12. Control Attenuator CH. 2: unipolar attenuator for Control Signal IN. With nothing patched to the Control Signal IN, operates as a manual control for the parameter.
13. Signal OUT CH. 2: Direct coupled output of the signal applied to the input, as pro-cessed by the LPG. 10Vpp (depending upon gate settings and source material).
14. STRIKE IN CH. 2: Gate input for striking or plucking the vactrol. Expects 8V Gate.
15. AUXiliary IN: Direct coupled signal input to the SUM circuit to allow for the chaining of multiple Opto mix and modDemix units to create larger mixes. Capable of accepting audio or control signals. Range of up to 10Vpp.
16. SUM OUT: The sum or mix of all signals processed by the Optomix is output at this jack. 10Vpp (depending upon settings and source material).

OVERVIEW

The Optomix is a direct coupled, two channel low pass gate utilizing 4 vactrols to pro-vide simultaneous voltage control over amplitude and frequency content of a signal. It is in essence, a VCFA (Voltage Controlled Filter Amplifier). Additionally the Optomix offers a summing stage complete with an AUXiliary IN allowing for the chaining of multiple units to create larger mixes (this also works well in combination with the modDemix.

The DAMP parameter, unique to the Optomix, allows the artist to program the way the low pass gate responds to a decaying control transient, such as and envelope signal generated by MATHS or a Gate applied to the STRIKE INput (see below). DAMP is continuously variable from long, slow and ringing to short, fast and muted.

The STRIKE INput, allows the artist to use a typical 8V Gate signal to trigger the LPG (Low Pass Gate) circuit by “plucking” or “striking” the vactrol, thus allowing it to impart its magically slow response time upon the amplitude of the signal being processed (this concept is also featured on the Make Noise DPO and MMG). Combined with the DAMP parameter, STRIKE allows for the programming of percussive sounds (sharp Attack w/ Voltage Controlled Decay) without the need for a voltage controlled envelope generator.

As a VCA, Optomix has a moderate attack response and slow decay response, meaning that it turns on quickly, but takes a while to shut off, yielding a smooth natural sounding decay to almost any sound processed dynamically. Folks have often de-scribed the sound as “ringing,” and while the circuit is not technically ringing, that does describe many of the sounds possible when using a LPG such as the Optomix to process complex signals generated through FM or Ring Modulation.

As a VCF it is a mild, nonresonant Low Pass circuit acting to gently reveal (or hide) the sharper edges of a sound. This characteristic also adds to the “ringing” effect. As the amplitude of the sound decays, there is a simultaneous loss in high frequency content that is similar to the natural loss of energy in idio and mem-branophonic instruments.

PERSPECTIVE

The Optomix being a vactrol based circuit, will never have the speed or tight tolerances found in many other VCA and VCF circuits. I would recommend that musicians desiring closely matched gain across multiple channels of VCAs look elsewhere! If you seek to program extremely short sounds, clicks, pops and ticks, the Optomix is not the best choice. What the Optomix does offer is extremely low noise and low distortion and a smooth, natural sounding circuit.

Getting Started

It's a VCA, It's a VCF...

The Low Pass Gate operates simultaneously in the amplitude and frequency domains. As the Control Signal becomes more positive, the Amplitude of the processed signal in-creases with the lower frequencies being more quickly amplified than high frequencies. As the Control Signal become less positive, the Amplitude decreases with the high frequencies being attenuated much sooner than the low frequencies. The net effect is that in fast, transient modulation of the signal's amplitude the low frequencies will be more pronounced, lurking in the spectrum, while the high frequencies are eagerly diminished. Manual manipulation of the controls will not well display this phenomenon. A fast/ short envelope (control signal) of around +8V will provide beautiful example of the Optomix's ability to produce acoustic like Attack & Decay transients. The processed signal will seem to ring, not unlike a struck drum, piano string or xylophone bar.

The DAMP CV will lessen this ringing, not unlike applying your hand to the head of a drum while striking or muting a guitar string with your palm while plucking; increasing the DAMP parameter could be likened to applying greater pressure, further muting, until finally, there is almost no ringing.

In the past it has been common practice to follow the Low Pass Gate with a VCA in order to control the RINGING and reduce or eliminate the signal bleed associated with Low Pass Gates. The DAMP circuit in the Optomix allows for this control without the use of an additional VCA. To control the ringing adjust the DAMP CV Attenuator or apply a control signal to the DAMP Control IN. To reduce the signal leakage (when the Gate is closed), add a touch of DAMPing. If further reduction of signal bleed is needed (during extremely quiet passages for example) use 2 gates in series. Normalization of Signal OUT CH. 1 to Signal IN CH. 2 makes this possible without additional patching.

Tips and Tricks

The DAMP CV IN may act as an ACCENT parameter if utilizing the Optomix in a sequencing patch. Patch your non-Accent Envelope signal to the Control IN and set the associated attenuator to about 70%. Apply an Accent GATE/ signal to the STRIKE IN. Steps where the Accent Gate is Triggered will be LOUDER.

Add to the above patch, some DAMPing on the Accented Steps, by multing that same Accent Gate to the DAMP CV IN and setting the associated attenuator to taste (at least 20%).

Set up a dynamic FM patch using Optomix to control the FM INDEX. Rather than applying an envelope to the Control input, just apply a gate to the Strike input and set Damp to taste. Great for burst of modulation, works with any mod source (LFO, Ran-dom, Noise etc...)

Program a palm mute by applying your gate signal to both STRIKE IN on the Optomix and the TRIGGER IN on MATHS. Set MATHS for longer Rise time, at least 60% and short Fall time (less then 50%). Apply Signal OUT MATHS to DAMP CV IN on Optomix, set associated attenuator to at least 65%.

Patch Ideas

The New Bongo:

Set up a VCO for two-operator FM by applying a SINE wave to its linear FM input, and patch it to the input of an Optomix. Patch Pressure Points Common Gate OUT to the Optomix Strike Input, and Gate OUT 3 to the DAMP input. Strike the “Bongo” with Touchplate 4 and “dampen” it during or after striking with touchplate 3. Use the DAMP input attenuator to set the amount of damping.

Optional: use one or more of the Pressure outputs to the Control and/or DAMP input on the Optomix for more fine control.

FM Pings:

Patch an FM source such as an audio-rate SINE wave to Optomix Ch1 INput. Patch Ch1 OUTput to the Linear FM input on STO, or another VCO of your choice. Adjust Optomix Control full CCW (0%). Patch a trigger or gate source to Optomix STRIKE input to “ping” the destination VCO with a short burst of FM. Adjust DAMP control to taste.

Optional: Dynamically control the FM Pings by setting up the patch as above with Ch1, applying a slow MATHS or Function Cycle (or any positive-going control voltage) to Ch2 Control Input, and patching the Optomix SUM Out to the VCO’s FM input.