MANTHER GROWL
MANUAL V.1

MANTHER GROWL

LFO PITCH	LFO PW	LFO CUTOFF

OUT · CV IN · OUT · CV IN · OUT · CV IN · SHAPE CV IN

2'
4'
8'
16'

FINE

1 V/O

SHAPE

TRI
ALL

LFO SPEED · RND · PULSE WIDTH · EXT LEVEL · CUTOFF · RES

GATE · ENV OUT · LFO OUT · PWM · EXT IN · VCA OUT · VCA CV · GATE · ENV OUT · FREQ CV · RES CV

A · D · S · R · VCA LEVEL · ENV LEVEL · A · D · S · R

VCA ENVELOPE · FILTER ENVELOPE

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SPECIFICATIONS

FORMAT:
EURORACK

DIMENSIONS:
26HP, 34mm deep

INTERNAL AND EXTERNAL SIGNALS (3.5mm jacks):
0-5V Logic I/O

MAX CURRENT:
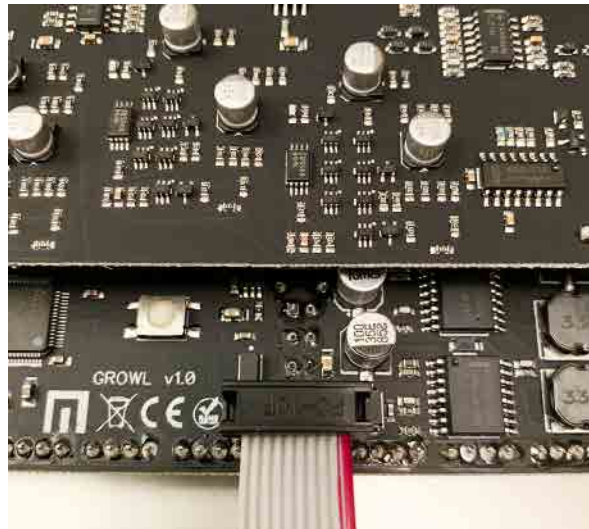+12V: 300mA
-12V: 200mA
+5V: n/a

INSTALLATION

Remove module from packaging.

Power down your modular synthesizer and disconnect the power cable from the wall outlet.

Attach the included power cable to the module's power connector and connect the other end to the power distribution bus in your EuroRack synthesizer case.

Position the module on the mounting rails in your EuroRack case and screw down mounting screws. Power up! If your case does not turn on properly then you have installed the module incorrectly. Simply power down and make sure to follow the diagram when reconnecting the module.

DESCRIPTION

MANTHER GROWL is a full featured, Eurorack monophonic synth voice with an analog signal path, and like the Manther Tabletop, it includes a coveted CEM3340 VCO IC chip. The analog filter is based on an SSM2044 chip. Square, Saw and Triangle waveforms have their own individual level controls (manual control as well as CV jack inputs), as well as their own individual outputs. Wavefold control can be set to Tri or ALL (folds all waveforms and external input post-filter). Dial the independent LFO level controls to modulate pitch, pulsewidth and filter cutoff. Also includes manual controls over both VCA and filter ADSR and both the VCA and filter have individual gate inputs.
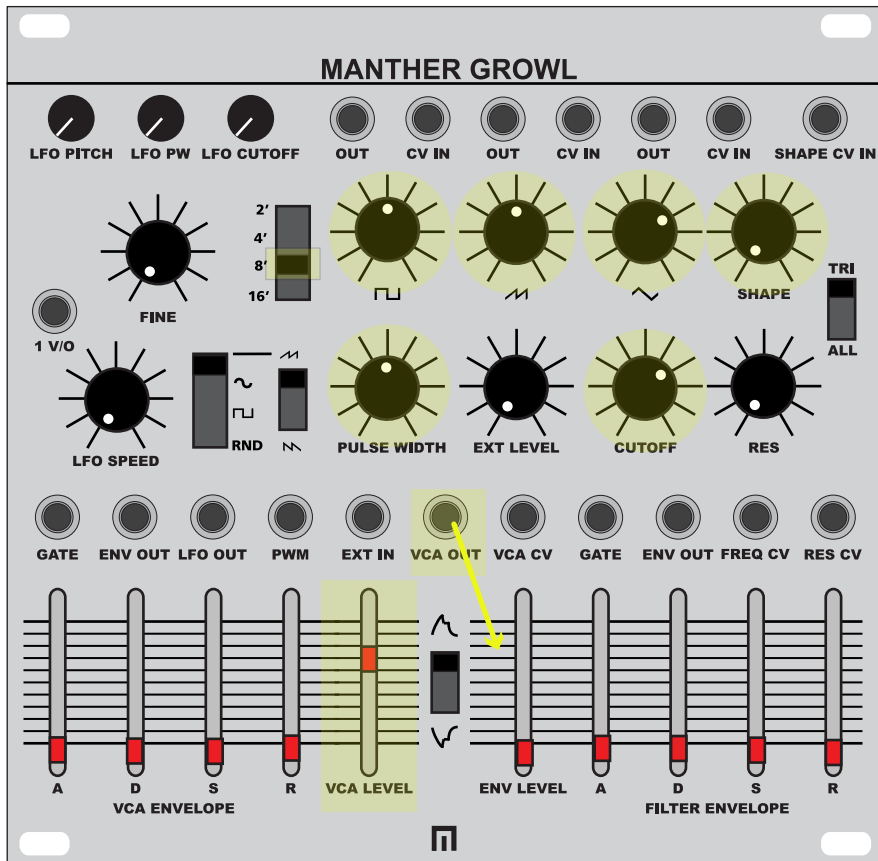
Features include:

- VCA and Filter ADSR envelopes with CV and gate inputs
- External source input routed to the filter
- CV inputs for Square, Saw, Triangle levels and waveshape amount
- CV inputs for filter resonance and frequency
- 1V/oct input
- Individual outputs for Square, Saw and Triangle waveforms
- Individual outputs for the VCA envelope and VCF envelope
- Output jack, post VCA
- Invert filter envelope switch
- 4 LFO shapes (ramp, sine, square and random)
- LFO ramp to saw switch
- Level controls for LFO over Pitch, PW and Filter cutoff
- Pitch range switch and knob for fine tuning
- Direct LFO output
- 26hp

GETTING STARTED

To get right into your first patch, patch from the VCA OUT which is at the end of the signal flow (post VCA audio output). Make sure your VCA LEVEL is up as well as CUTOFF if you're going from the VCA OUT.

Turn up the VCF Filter cutoff control per diagram, set the manual controls for the Square, Saw, and Tri-Shape controls. Dial the Pulse Width control to 12 o'clock. Sweep the SHAPE (waveshape) control left to right.

OSCILLATOR

INDIVIDUAL VCO WAVEFORM DIRECT OUTPUTS:
Square, Saw, Tri-Shape output. Patch to external mixers or modulate other modules.

INDIVIDUAL VCO CONTROLS:
Square, Saw, Tri-Shape manual level controls. Becuase the level controls are sent to the VCA OUT, the manual controls do nothing if you're patching from the individual outputs

VCO FINE TUNE CONTROL:
Control the tuning of the VCO by small increments.

VCO 1V/OCT INPUT:
Insert 1V/oct (4-5 octave range available) from an external CV source like the Malekko Voltage Block.

VCO OCTAVE RANGE SWITCH
Raise or lower the VCO octave.

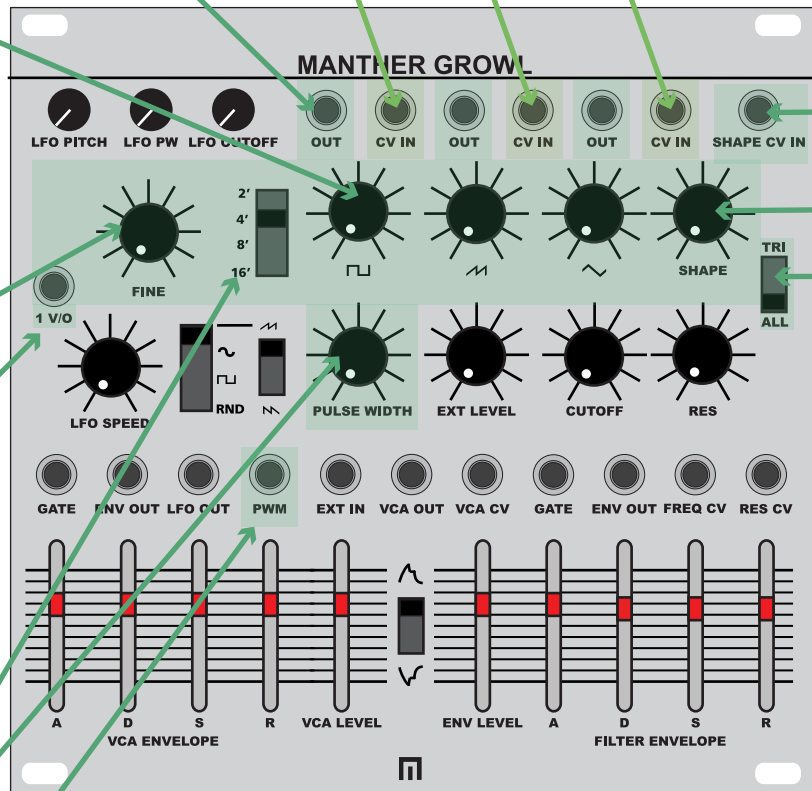**VCO PULSE WIDTH MODULATION CONTROL**
Manual control over the square wave's pulse width.

VCO PULSE WIDTH MODULATION CV INPUT
External control over the square wave's pulse width. Accepts 0 to +5V.

WAVEFORM CV INPUTS:
Patch from external CV sources to control the levels of the Square, Saw and Tri-Shape waveforms. Accepts 0 to +5V.

MANTHER GROWL

LFO PITCH   LFO PW   LFO CUTOFF   OUT   CV IN   OUT   CV IN   OUT   CV IN   SHAPE CV IN

2'
4'
8'
16'

FINE

1 V/O

LFO SPEED   RND   PULSE WIDTH   EXT LEVEL   CUTOFF   RES   SHAPE   TRI   ALL

GATE   ENV OUT   LFO OUT   PWM   EXT IN   VCA OUT   VCA CV   GATE   ENV OUT   FREQ CV   RES CV

A   D   S   R   VCA LEVEL   ENV LEVEL   A   D   S   R
VCA ENVELOPE   FILTER ENVELOPE

ASSIGN WAVEFOLDING SHAPE TO TRI OR ALL:
Switch wavefolding from Triangle only to ALL (fold signal post-filter). The ALL position also shapes the EXT IN sound.

WAVEFOLD SHAPE CONTROL.
Manual shape control.

WAVEFOLD SHAPE CV INPUT:
CV input controls wavefolding amount. Accepts 0 to +5V.

LFO

The LFO (low frequency oscillator) can be assigned to modulate the oscillator pitch, pulse width and the filter cutoff.

LFO ASSIGNMENT CONTROLS:
Assign LFO amount to VCO Pitch, VCO Pulsewidth and VCF Cutoff.
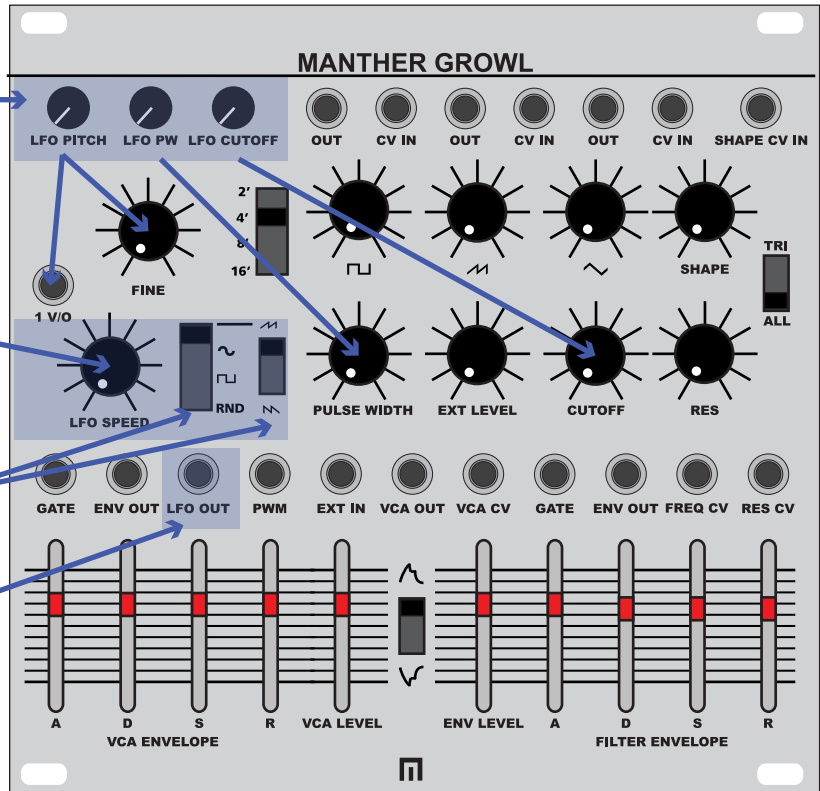
LFO SPEED:
Control the LFO speed from 60 mHz (16 seconds) to 20hz.

LFO WAVEFORM SWITCHES:
Switch between Saw/Ramp, Sine, Square and Random LFO shapes.

LFO OUTPUT:
Patch the LFO out to modulate other gear or patch to other Growl inputs like SHAPE, RES, or waveform CV inputs.

VCA

The VCA is a voltage controlled attenuator envelope and includes manual controls for attack, decay, sustain, release of the envelope and VCA output level.

VCA ENVELOPE OUTPUT:
Patch the VCA Envelope out to attenuate other modules or gear or patch it to other Growl input jacks.

VCA GATE INPUT:
Insert any gate over 1.6V to start VCA envelope. If there is no gate input on the Filter Envelope, the VCA envelope gate input will be normalled to the Filter (both will start at the same time based on VCA envelope gate input).

VCA ADSR CONTROL:
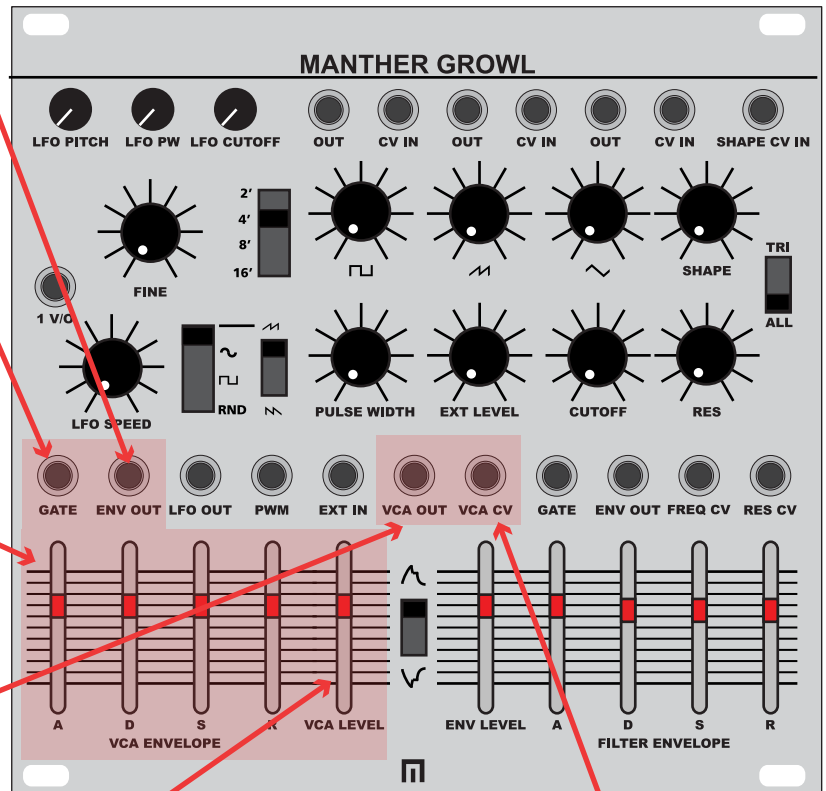Controls for Attack, Decay, Sustain and Release of VCA Envelope.

The LEDs simply indicate the slider position.

VCA OUTPUT:
AUDIO OUTPUT (post VCA)

VCA LEVEL CONTROL:
Manual control of the VCA output level. Maximum setting bypasses VCA envelope.

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LFO PITCH   LFO PW   LFO CUTOFF   OUT   CV IN   OUT   CV IN   OUT   CV IN   SHAPE CV IN

2'
4'
8'
16'
FINE

1 V/O
LFO SPEED   RND

PULSE WIDTH   EXT LEVEL   CUTOFF   RES

SHAPE

TRI
ALL

GATE   ENV OUT   LFO OUT   PWM   EXT IN   VCA OUT   VCA CV   GATE   ENV OUT   FREQ CV   RES CV

A   D   S   R   VCA LEVEL   ENV LEVEL   A   D   S   R
VCA ENVELOPE   FILTER ENVELOPE
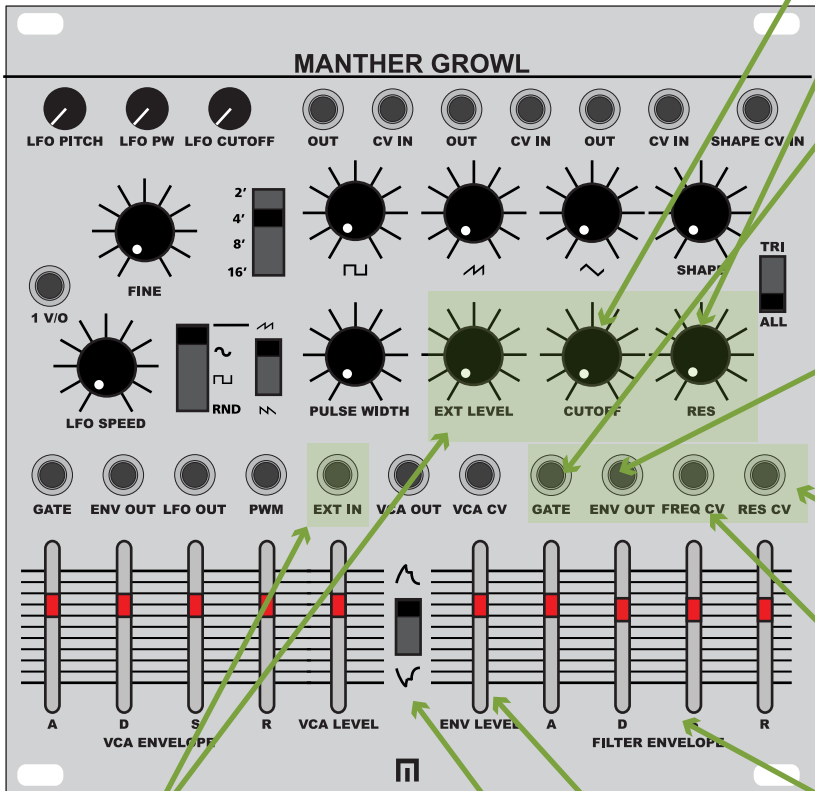
VCA CV INPUT:
CV input controls VCA level. Accepts 0 to +5V.

FILTER

The VCF is a voltage controlled filter envelope with manual control over attack, decay, sustain, release and envelope level.

MANTHER GROWL

LFO PITCH LFO PW LFO CUTOFF OUT CV IN OUT CV IN OUT CV IN SHAPE CV IN

2'
4'
8'
16'

FINE

1 V/O

TRI
ALL

LFO SPEED

RND

PULSE WIDTH EXT LEVEL CUTOFF RES

SHAPE

GATE ENV OUT LFO OUT PWM EXT IN VCA OUT VCA CV GATE ENV OUT FREQ CV RES CV

A D S R VCA LEVEL ENV LEVEL A D R

VCA ENVELOPE FILTER ENVELOPE

FILTER CUTOFF CONTROL:
Manual filter frequency control.

FILTER RESONANCE CONTROL:
Manual filter resonance control

FILTER GATE INPUT:
Insert gate to trigger Filter Envelope. This gate is nomalled to the VCA gate until another gate source is inserted.

FILTER ENVELOPE OUTPUT:
Patch the Filter Envelope out to attenuate other modules or gear or patch it to other Growl input jacks.

FILTER RESONANCE CV INPUT:
Modulate the resonance of the filter. Accepts 0 to +5V.

FILTER FREQUENCY CV INPUT:
Modulate the frequency of the filter. Accepts 0 to +5V.

FILTER ADSR CONTROLS:
Controls for Attack, Decay, Sustain and Release of the Filter Envelope.

The LEDs simply indicate the slider position.

FILTER EXTERNAL INPUT & LEVEL CONTROL:
Audio input routes to filter and knob controls incoming level. Note that the waveshape mode switch set to the ALL position also shapes the External In sound.

FILTER ENVELOPE LEVEL CONTROL:
Control the amount of envelope sent to the filter cutoff.

FILTER ENVELOPE INVERT SWITCH
Switch to invert the Filter Envelope.

EXAMPLE PATCH
("Reverse Osmosis" a la Paul Barker)

Assign the LFO to Filter Cutoff.

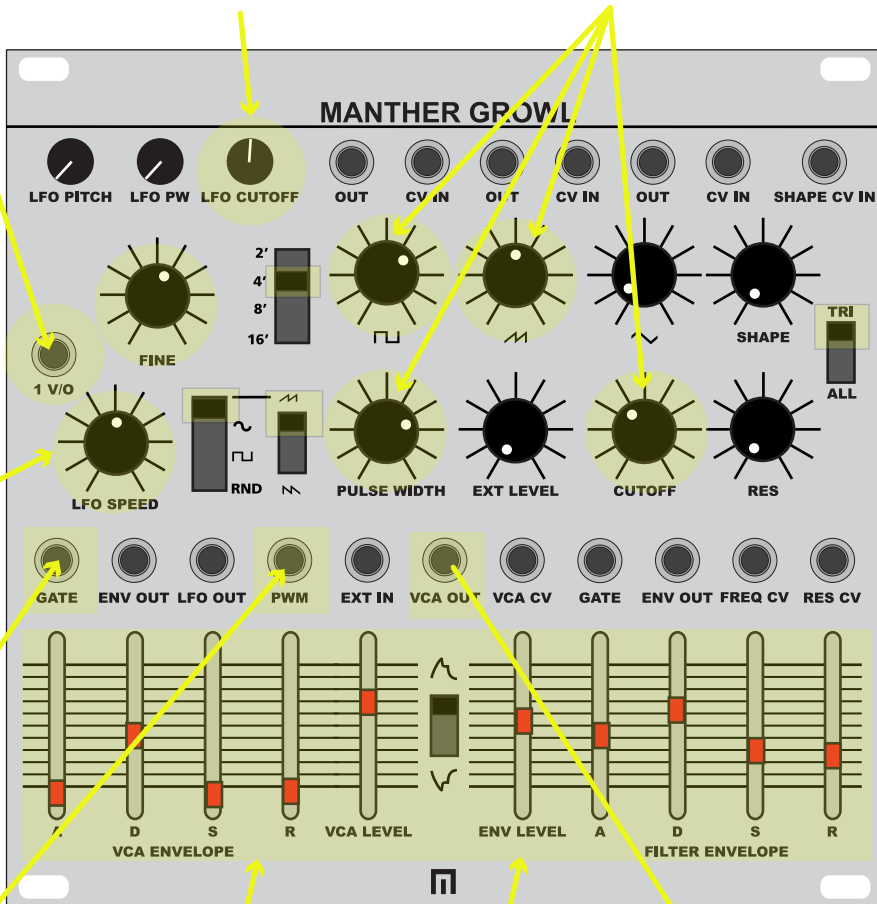Set your Square, Ramp, Pulse Width and Filter Cutoff knobs accordingly.

Patch from a voltage source like the Voltage Block.

Set FINE to around 1 (or depending on your incoming 1 V/oct input).

Set your LFO speed to 12 o'clock and shape to Ramp.

Insert a repeating gate input to trigger the VCA and Filter Envelope.

Insert a clocked LFO into the PWM CV input.

Switch between TRI and ALL, ALL especially with your octave switch set to 16'.

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LFO PITCH LFO PW LFO CUTOFF OUT CV IN OUT CV IN OUT CV IN SHAPE CV IN

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TRI

ALL

RND

LFO SPEED PULSE WIDTH EXT LEVEL CUTOFF RES

GATE ENV OUT LFO OUT PWM EXT IN VCA OUT VCA CV GATE ENV OUT FREQ CV RES CV

A D S R VCA LEVEL ENV LEVEL A D S R
VCA ENVELOPE FILTER ENVELOPE

Adjust your VCA and Filter Envelopes accordingly and "sweep" the Filter by adjusting the Envelope Level control.

Patch the VCA OUT to your mixer or output module.

WARRANTY

This product is covered by the Malekko Heavy Industry warranty, for one year following the date of purchase. This warranty covers any defect in the manufacturing of this product. This warranty does not cover any damage or malfunction caused by incorrect use such as, but not limited to, power cables connected backwards, excessive voltage levels, or exposure to extreme temperature or moisture levels. The warranty covers replacement or repair, as decided by Malekko Heavy Industry. Please visit our website malekkoheavyindustry.com to obtain full warranty information and to register your product for coverage.