

# The Mutant Rimshot

triple oscillator rimshot and clave generator with a state variable filter

Thank you for your interest in/purchase of the Mutant Rimshot eurorack module. We would like to thank you for considering a place for the Rimshot in your modular synthesizer! We think you will enjoy its unique character and find it highly useful in your musical endeavours. The Mutant Rimshot is a eurorack modular format product, and requires a +/-12V eurorack standard power supply and enclosure to operate. The Black version of the Mutant Rimshot is redesigned by Erica Synths in collaboration with Hexinverter Electronique.

## SOUNDS FROM THE EDGE

A mainstay of electronic drums, the rimshot has a woody, staccato character that helps it cut through your drum mix. The clave, which recreates the sound a pair of wooden claves make when struck together, has a higher and brighter tonal quality.

The Mutant Rimshot is a fully analog rimshot and clave generator inspired by the rimshot found in the legendary 909 drum machine; a triple bridged-T oscillator coupled with a state variable filter. The clave sound (not a feature of the original 909 rimshot) is achieved by using just one of the oscillators.

As with the other Mutant Drums, the Rimshot has been designed from the ground up to be fully integrated into your eurorack modular system, with a wealth of controls and CV inputs. Voltage control of pitch allows adjustment of the fundamental oscillator over about two octaves. Other parameters such as voltage controlled filter cutoff and resonance are present, allowing for distinctive and extreme percussive sounds.

### The Mutant Philosophy

There are already some pretty awesome clones of vintage gear out there in the modular world. The Mutant Drums were not made to replace these. Although each Mutant began as a favourable classic drum topology, we wanted to create something modern and different, while maintaining an analog nature. Features like CV inputs and signal routing not found on classic analog drum machines were incorporated to make these circuits powerful creative tools in your modular synthesizer.

## FEATURES

### Three oscillator modes

- **Rimshot HI** mode brings classic rimshot sounds
- **Rimshot LO** gives a lower pitch range; try playing with the filter on this setting to get low tom and kickdrum sounds.
- **CLV (Clave)** mode uses just one of the oscillators to give you a brighter, higher percussive sound.
- A switch on the back lets you select between original and extended pitch modes. Original mode can give you rimshots exactly modelling that of classic machines (in Hi mode), whereas extended mode gives a wider range of pitch, at the expense of classic accuracy.

### Three filter modes

- Use the **lowpass** or **highpass** filter modes for classic sounding rimshots
- Hipass and bandpass can give a wider range of clave and rimshot sounds, as well as completely different percussive elements (especially when turning the resonance up!)
- VCF IN lets you blend the clave or rimshot with other sounds. Try adding some filtered noise for a more acoustic sounding rimshot, or for pseudo-snare type sounds.

### Novel decay and filter mod controls

- The MOD DECAY envelope controls the decay of the VCA envelope
- The VCF MOD attenuverter allows you to modulate the filter cutoff with the MOD DECAY envelope
- Alternatively, a switch on the back lets you modulate the filter cutoff with the pitch-controlled internal VCO, for filter FM style percussive hits.

## TECHNICAL SPECIFICATIONS

**Width:** 8HP | **Depth:** 30mm  
**Current draw:** +45mA, -50mA @ 12V

# INTERFACE

## CUTOFF + RESONANCE

Modulate the filter cutoff with your fingers or the CUTOFF CV input. The filter self-resonates at extreme settings.

## PITCH

The pitch knob and CV input adjust the pitch of one of the three internal VCOs with a range of around two octaves. Voltage control applied at the PITCH jack and adjusted by the attenuverter at the PITCH CV control can modulate the pitch of the Rimshot. It is not v/oct, but has an approximate exponential response.

## MOD DECAY + VCF MOD

The MOD DECAY envelope controls a VCA allowing you to adjust the length of the sound. Because the VCA is situated **after** the filter, you can control the decay of the ringing when the filter is self-oscillating. The **VCF MOD** attenuverter lets you modulate the filter cutoff with the same MOD DECAY envelope or alternatively, using the **jumper** on the back, with the internal VCO.

## DRIVE

This adjusts the overall volume of the rimshot/clave before the filter. At high settings, it will overdrive for a different, more aggressive tone. It has no effect on external sounds going through the filter, so when using VCF IN you can use the drive control to find a pleasing balance between the internal and external sounds.

## TRIG

**This input jack is used to trigger the Rimshot.** This analog circuit is specifically designed for modular use and will trigger from virtually any positive-going signal source that lasts 2ms or longer, reaches a peak voltage of about 1V, and falls back down to 0 (or below 0) before occurring again. Many piezoelectric drum trigger pads from electronic drum kits should also be capable of triggering the Mutant Rimshot. The LED below the TRIG jack indicates when a usable trigger is received.

## ACC

The ACCent input jack allows you to modulate the intensity and volume of the Rimshot with CV input. A **jumper** on the back of the module allows you to select whether the default state (with no CV plugged in) is pulled UP (highest) or DOWN (lowest) to lowest accent level. 5V of CV will fully modulate the Rimshot to full accent level.

## VCF IN

An audio signal input here adds an external sound to the rimshot/clave before both are fed into the filter. To adjust the relative levels of the external input and the internal sounds, use the DRIVE control, which only affects the internal rimshot/clave sound.

## OUT jack

The OUTput jack is capable of putting out full modular level signals, up to 20 volts peak to peak.

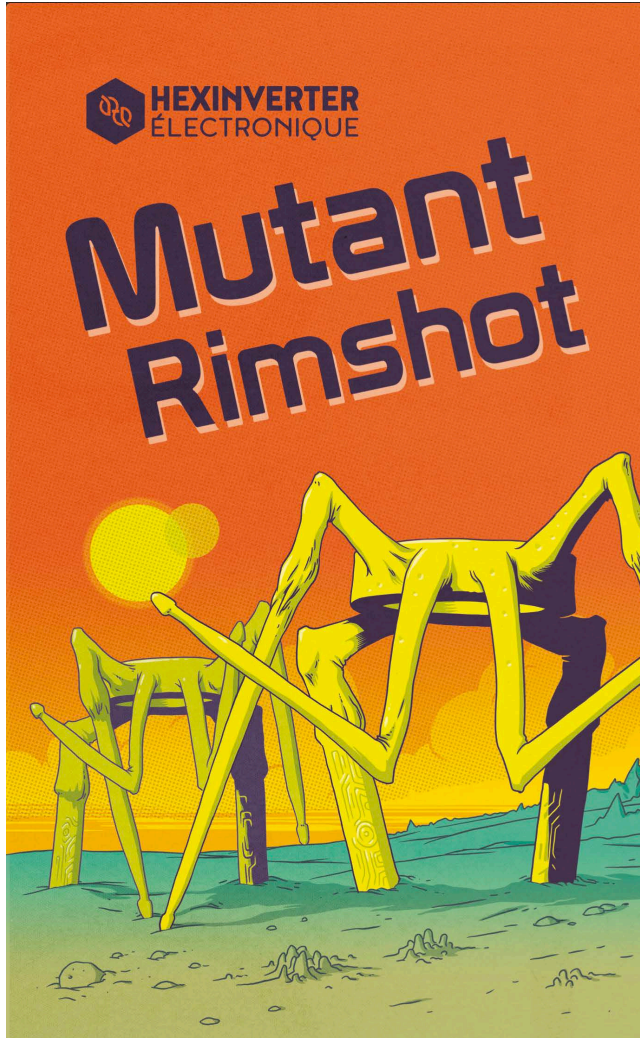


## SOME PATCH IDEAS

- While you can use the internal VCO to modulate the filter cutoff at audio rate (using the **Mod** switch on the back to select **Osc**), you can also use any CV signal input to the CUTOFF jack. Try using a fast LFO or VCO, with its own frequency being slowly modulated, for ever-changing hits.
- Try mixing different types of sounds with the rimshot and clave sounds for endless variants of percussion. The filter effects both the internal and external sounds. Some filtered noise mixed in gives a more acoustic style rimshot – with the sound of a snare as well as rim being impacted.
- Trigger the Rimshot with a very fast (audio rate) clock signal and you can use it as a strange kind of VCO in your system. Put a VCA after it in the signal chain and modulate the pitch and cutoff. You can also adjust the pitch by modulating the clock rate. Don't expect to be able to play Yankee Doodle like this!

## QUICK REFERENCE CARD

If you've lost the packaging, you might find it handy to print out this reference card and have it near your modular for reference.



## QUICK REFERENCE CARD

The Mutant Rimshot is comprised of a triple oscillator **Rimshot** and **Clave** generator, coupled to a **state variable filter**, for maximum versatility.

The **MOD DECAY** envelope controls a **VCA after the filter**. This allows you to alter the duration of the resulting percussive sound, including the filter's sine wave when it is self-oscillating.



**VCF MOD** lets you send the **MOD DECAY** envelope to the filter's **CUTOFF**, resulting in **sweeping percussive sounds** from the filter when self-oscillating. Combining this with the Rimshot or Clave sounds makes for interesting percussion!

An external **VCF IN** allows you to mix your own sound sources into the filter and VCA of the rimshot!

There are three main modes of drum synthesis. **Rimshot HI** and **LO** offer classic or lower pitch ranges, respectively. **CLV** (Clave) mode is what a 909 clave might sound like, if such a thing existed!

**Cutoff**, **resonance** and selectable **bandpass**, **highpass** or **lowpass** filtering let you shape and modulate the Rimshot to your liking.

**RIM DRIVE** controls the volume of the Rimshot/Clave before the filter. This lets you adjust the mix of VCF audio sources and the internal Rimshot synthesis. At extreme settings, the Rimshot will overdrive, resulting in different timbres.

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Current draw: +45mA, -50mA