# IE

Iron Ether
FMeron
Owner's Manual

Shifts synth up one octave (+1), down one octave (-1), or equal to your playing (=).

Left of center, envelope rises when you pluck a note. Right of center, envelope starts high and decays. Farther from center lengthens envelope.

Applies envelope to FM amount or Synth volume.

Turn up for higher frequency harmo-nics. Numbers indicate in-tune sounds; between numbers, it sounds gnarlier.
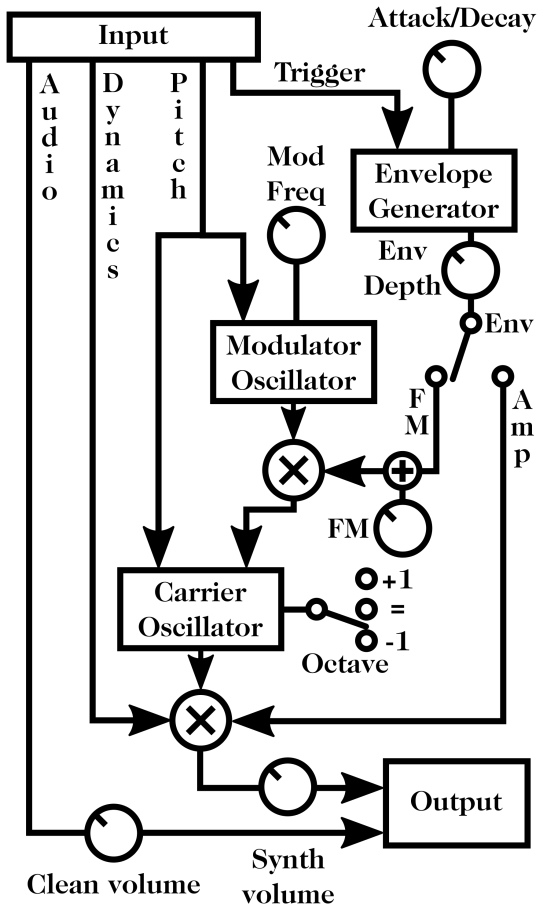
Turn up to increase envelope influence over FM or Synth volume.

+1
=
-1

Oct

Env

FM
Amp

2   3

A D

1   4

Mod
Freq

Attack/
Decay

Env
Depth

Clean

Synth Vol

FM
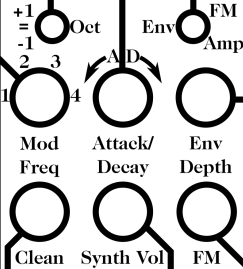
Turn up to blend in the unprocessed signal.

Turn up to hear the synth louder.

Turn up to increase the harmonic complexity.

FMeron is a frequency modulation (FM) synthesizer, controlled by the pitch and dynamics of your bass, guitar, or other electric/electronic instrument.

It contains two very pure sine wave oscillators which both track the frequency of the notes you play into it. One oscillator, called the Modulator, is not heard directly – instead it's used to *modulate* the *frequency* of the main oscillator, called the Carrier.

A form of frequency modulation that's familiar to most musicians is vibrato – the pitch of a note being raised and lowered cyclically, several times per second. What the FMeron does is like vibrato, except that it sweeps the Carrier oscillator's pitch up and down hundreds or thousands of times per second. The result is not heard as vibrato, but as a series of added harmonics that transform the pure sine wave into bells, clangs, and all kinds of intense electronic timbres.

FMeron also includes an Envelope Generator, triggered by plucking the

strings of your instrument. This envelope can either control the amount of FM (thus the intensity of the added harmonics) or the volume of the synthesizer voice, for slow-attack or percussive, plucky sounds.

Controls

Mod Freq: Sets the frequency ratio between the Carrier and Modulator oscillators, which defines the type of harmonics generated by FM:

- 1x - unison, both oscillators at the same pitch
- 2x - Modulator one octave above Carrier
- 3x – Modulator one octave plus a fifth above carrier
- 4x – Modulator two octaves above Carrier

In addition to stepping through these harmonic ratios, this special control also allows fine tuning above and below the in-tune "sweet spots" indicated by the markers 1-4 around the knob. Detuning the two oscillators farther from these

sweet spots results in more atonal and bizarre timbres.

Attack/Decay: Sets the speed and direction that the triggered envelope sweeps. To the left, the envelope will start low and sweep up when triggered by a note pluck (Attack). To the right, it will start high and sweep down (Decay). Turning the knob farther from center increases the length of the envelope, so all the way counter-clockwise is a very slow Attack, and all the way clockwise is a very slow Decay.

Env Depth: Sets how strongly the envelope affects the FM amount or Synth Volume, depending on the Env switch.

Clean: Controls the volume of the clean signal, which remains analog throughout the signal path.

Synth Vol: Controls the volume of the synthesized signal.

FM: Controls the amount of frequency modulation. At 0 (fully CCW), the

waveform is a pure sine wave with no harmonics. As this control is turned up, the harmonic complexity increases.

Env switch: Assigns the generated envelope to control either the FM amount or the Synth Volume.

Oct switch: Sets the octave of the Carrier Oscillator relative to the notes you play:

- **+1 (one octave up)**
- **= (unison, same pitch)**
- **-1 (one octave down)**

Tracking

FMeron is a monophonic synthesizer, so it can only track and play a single note at a time, although interesting results can come from "confusing" its pitch detector by playing arpeggios and multiple notes simultaneously.

The pedal will track most consistently from a signal with a strong fundamental and few harmonics. Here are some suggestions for getting the best tracking:

- **Turn the tone or treble knob on your instrument down, and use the neck pickup rather than the bridge.**
- **Pluck the strings cleanly close to the neck, with fingers rather than a pick or slapping.**
- **Place the FMeron at or near the beginning of your effects chain, and avoid placing it after anything that adds harmonics, like distortion.**

Try doing the exact opposite of everything above to intentionally introduce glitches and octave-shifting into your playing.

Tips for building sounds

When the envelope is set to FM mode, think of the Env Depth knob as setting the maximum amount of FM (harmonic complexity), and the FM knob as setting the minimum amount. With the envelope set to Attack, it will start at the value set by FM and sweep up to the value set by Env Depth. With the envelope set to Decay, it will start at the maximum set by

Env Depth, and sweep down to the value of FM. Notice that the values don't need to be changed when swapping between Attack and Decay – the envelope will cover the same range, only changing the direction of sweep.

Expression control

Connecting an expression pedal to the FMeron's EXP jack lets you sweep the FM amount while playing. When an expression pedal is connected, the FM knob sets the maximum amount of FM to which you can sweep.

Power supply

The FMeron is powered by the industry-standard 9 volt DC center-negative power supply (2.1mm jack). It draws 85 mA of current. Use a power supply that can source at least this much.

Warranty

Your FMeron is warranted for materials and manufacturing for one year from the date of purchase. The warranty is void if you use the wrong type of power supply, take the pedal apart, attempt to modify it, or use it in a way not intended.

Bypass

The FMeron features a relay-based true bypass system. When the pedal is bypassed, the signal is connected directly from the input jack to the output jack via a mechanical switch, and does not pass through any buffers, electronic (FET) switching, or other circuitry that could have an effect on sound fidelity. It's different from the more common true bypass in that instead of a 3PDT stomp switch, this uses a mechanical relay designed specifically for low-voltage signals like audio. This makes for a quieter switch, greater reliability, and the bonus of automatically going into bypass if power to the pedal is lost.
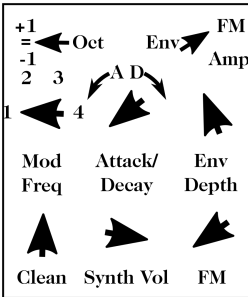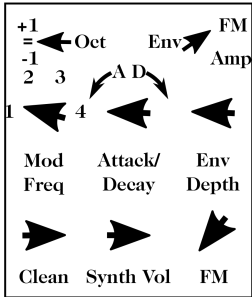
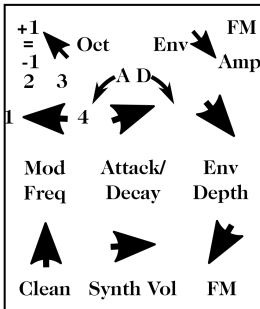## Example Settings
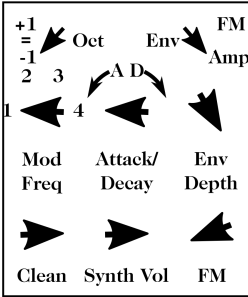
**Slow Growly
Octave Down**
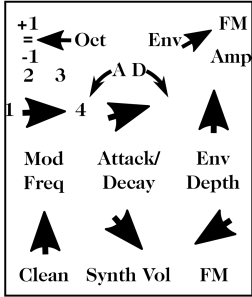
Rubbery Robot
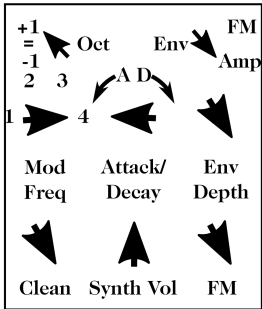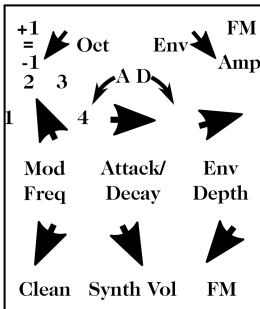

**Creeping Up
the Walls**

**Slow Onset
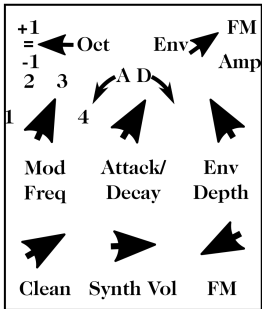Detuned Waves
[Mod Freq slightly
above "1"]**

Octave Up Sine
Wave Percussion

Trembling Ghost

Sine Wave Sub
Punch

Percussive Plonk