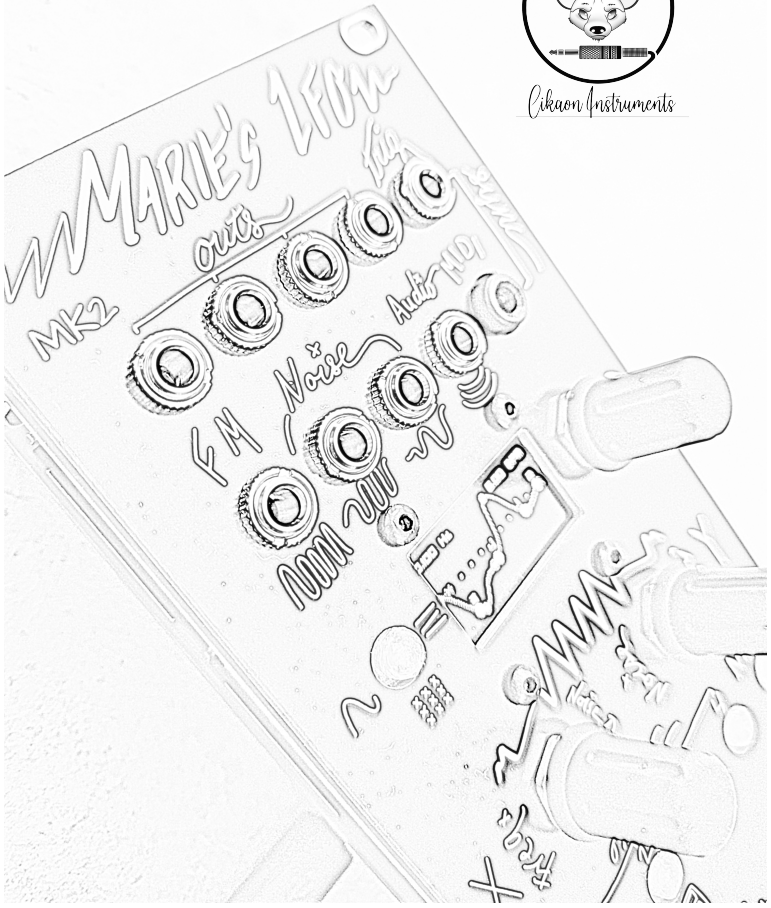




Pikaon Instruments



WELCOME AND THANK YOU !

As its name implies, this LFO was inspired by an idea from Marie Ann Hedonia, herself inspired by Daphne Oram: draw the oscillator's waveform. Literally.

Instead of messing around with sine, square, triangle and sawtooth waveforms, you can define exactly the shape you want !

Are you familiar with vector-drawing software like Adobe Illustrator™ or Inkscape ? This is exactly the same drawing process, in Eurorack format :)

This module uses Bézier paths to let you draw what you need.

Marie's LFO can also be used as a quad envelope generator.

And as an experimental feature, it can also output signal at audio rates !

Let's visit all the features Marie's LFO has to offer !

And thank you for reading this fucking manual :)

DRAWING A CURVE

A curve is made of points located on the curve itself, and to each point are associated two control points which allow you to pull the curve away from a point into a certain direction. The first and last points only have one control point.



MANIPULATING POINTS

The point selection is achieved by turning the **Navigation encoder** of the module on the right of the screen.

When a curve point is selected, an animated circle is visible around it. You can **move** it around by turning the **X and Y encoders** on the module.

If the selected point is a control point, it is represented as a square, and moving it with X and Y will pull the curve towards the wanted direction. A point and its two control points can be **rotated** all at once by **pressing + turning the Navigation encoder**.

Trick : to make a sharp angle, move the two control points as close as possible to the curve point.

ALIGNING END AND START

Sometimes we want a hard, vertical break between the end and start of the waveform, sometimes not.

When the start or end point is selected, a horizontal line is visible. It helps you align the two extreme points, if you want a smooth voltage transition between the end and start of the wave.



Alignment guide

NOISE GENERATOR

To make things funnier, Marie's LFO includes a noise generator. The noise is driven by two parameters : amplitude and density.

To change the noise parameters, press the Noise button and turn X (noise density) or Y (noise amplitude) while the Noise button is pressed. Or use the dedicated CV inputs !

LFO outputs

When configured in LFO mode, the module has four outputs. You can see them move along the curve when the frequency is low enough (Above 3Hz, the visualization of moving dots is useless).

Notice that these outputs are offset in time. It means that you can define, for outputs 1, 2, 3 and 4, a time offset relative to the "playing head". To do this, simply press the offset button number you want to move, and turn the navigation encoder into the wanted direction while the button is pressed. The value above each output indicates how far it is from the playing head (it's a percentage value)

The LFO frequency can be manually defined by pressing + turning the X encoder.

It can also be controlled with the FM port, the max frequency of 10Hz is obtained with roughly 10V.



Output offsets

AUDIO OUTPUT

In audio mode, only the Audio output is available. The LFO outputs will keep their last values as a fixed voltage.

The audio signal frequency can be controlled with a MIDI device (TRS MIDI port), or with the FM input. Audio is very experimental, so... Get ready for badly tuned stuff.

CV INPUTS

CV inputs allow 0-10v external controls for :

- Frequency modulation
- Noise density
- Noise amplitude

SYNCHRONIZATION

When running as an LFO, the module can run in three synchronization modes:

- No synchronization,
- MIDI synchronization, via the TRS MIDI port (***see warning in red a bit later in this manual***),
- Trigger synchronization, via the Trig port.

When the module is synchronized to an external device, **click+tuning the X encoder will multiply or divide the source clock frequency.**

SAVING YOUR WORK

Marie's LFO offers 32 memory slots to save your wave shapes, numbered 0 to 31.

The slot 0 is always loaded by default when the module is powered on.

Select the memory slot with the navigation encoder, and preview the curve by clicking the navigation encoder.

To load the selected preset, press the Offset 2 (load) button.

To save the playing curve into the selected preset, press the Offset 3 (floppy) button.

Note : the presets contain the curve shape, but also the frequency, noise parameters, offsets and synchro mode.



MAIN MENU

As promised, there is no menu diving.
Just a few parameters :

Mode : LFO, envelopes or audio.

In LFO and envelopes mode, the four outputs are available ; in audio mode only the Audio output is available.

Sync : none, MIDI or trigger (LFO mode only)

When none, the frequency is manually defined by click+turning the X encoder, or by sending a CV into the FM input.

When MIDI, the midi clock received in the MIDI port is used to set the LFO frequency. Click+turning the X encoder will multiply or divide the received clock frequency.

NEVER SEND ANYTHING ELSE THAN MIDI SIGNAL INTO THE TRS MIDI PORT !

It would certainly burn the LED inside the optocoupler (the white chip on the back PCB)

Trigger sync behaves the same as MIDI, except that the clock signal is expected in the Trig input.

Accept MIDI : on or off (Audio mode only)

When on, the oscillator will play notes from the MIDI input. When off, it will play notes from the FM input.

Speed unit : Hz or BPM

Sets the unit to be used when manually changing the frequency.

Speed incr. : 0.001 to 1000

Amount of Hz (or BPM - or seconds in envelope mode) added or subtracted when changing the frequency manually.

Segment count : 1 to 16

Number of Bézier segments in the current curve. It allows you to add details to the shape.

Voltage range : 1 to 12

The output voltage range, both in LFO and audio mode. In practice it won't get higher than ~10.5V

Note on MIDI types : A or B

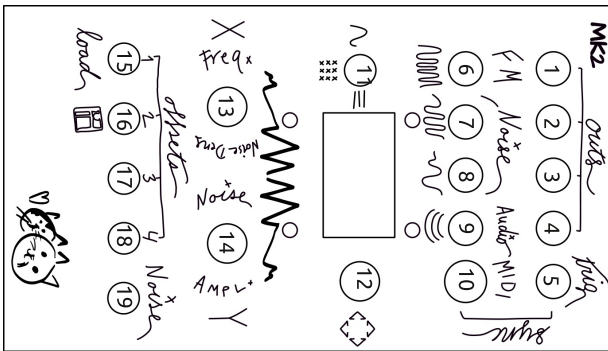
The MIDI connector is a TRS female jack, and there are two types for MIDI over TRS : type A and type B. The official standard is type A, but unfortunately there are many devices using type B, and type B converters.

So, you have the possibility to change the type with two jumpers behind the module.

If the two jumpers are at the bottom, the type is A, and if they're on top the type is B.

MAPPINGS

MARIE'S LEON



1, 2, 3, 4 : LFO outputs

5 : Trigger input (for synchronization)

6 : Frequency modulation

7, 8 : Noise modulation (density, amplitude)

9 : audio output

10 : MIDI input (for synchronization, and notes in audio mode)

11 : Switch between screens : curve, menu, presets

12 : Navigation encoder:

- Change the selected point.
- Offset an output when an offset button is pressed.
- Click to edit a menu item. Turn to change the value.
- Select preset, preview when pressed.
- 13 : Move the selected point horizontally.

Change Frequency (when pressed and turned)

Noise density (when noise is pressed)

14 : Move the selected point vertically. Noise amplitude

15, 16, 17, 18 : change the offset of the corresponding output.

19 : Keep pressed and turn X and Y to change the noise params.

ENVELOPE GENERATOR MODE

The latest firmware lets you use Marie's LFO as an envelope generator.

In the menu, select the mode "Envelopes".

Now, 4 individual envelopes can be triggered by the 4 inputs the module has :

Trig : starts an envelope on output 1

FM : starts an envelope on output 2

Noise density: starts an envelope on output 3

Noise amplitude : starts an envelope on output 4

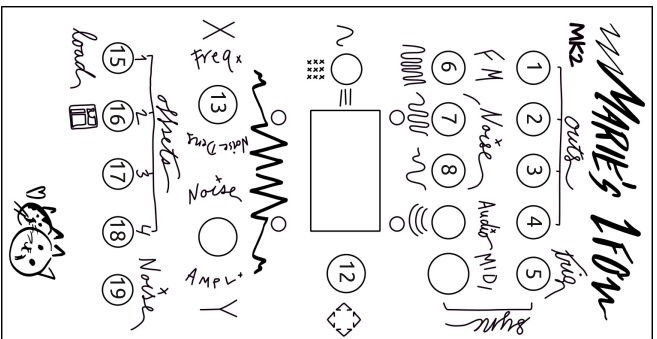
To change the duration of the 4 envelopes at once, click+turn the X encoder.

Each envelope's duration can also be adjusted individually, by pressing the corresponding button in the offsets section, and click+turn the X encoder.

Each envelope's starting point can be offset exactly the same way as in LFO mode : press the corresponding button(s) and turn the Navigation encoder.

Bonus track : in the menu, you can configure how many times each envelope will loop, by setting the values of the parameters **Loop 1, 2 3 and 4.**

MAPPINGS IN ENVELOPE GENERATOR MODE



1, 2, 3, 4 : Envelope outputs

5, 6, 7, 8 : Envelope triggers

12 : When an offset button is pressed, changes the corresponding output's offset

13 : Press + turn : change the duration of all the outputs.

When an offset button is pressed, turning this changes the corresponding envelope's duration.

15, 16, 17, 18 : the 4 offset buttons

19 : Keep pressed and turn X/Y to modify noise density/amplitude