

ALMØ32

MFX

USER

GUIDE.

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Introduction

The MFX is a compact 6HP Eurorack stereo digital audio multi effects processor. It offers 16 different full featured effects programs plus a number of metering utilities.

Inspired by our favourite classic hardware effects processors, the MFX incorporates DSP technologies from the dawn of digital effects in the 70s to the present day. This combines with ALM character and uniqueness to form a highly useful, fun and practical Eurorack effects module.

Reshape sounds with the distortion and dynamics engines. Bend time, space and pitch with multiple feature rich reverb and delay engines. Modulate signals with the flexible panner, frequency shifter, and range of ensemble effects. Fracture sounds with the one of a kind granular and glitch engines. Check signals and tune oscillators with various utilities.

The MFX user interface is designed to be familiar, quick and easy to use. Each program contains a wide range of controllable parameters both directly editable or freely assigned to CV or clocked control. Additionally, each program includes factory presets as well as the ability to store and recall user presets. All states are preserved across power cycles.

Features

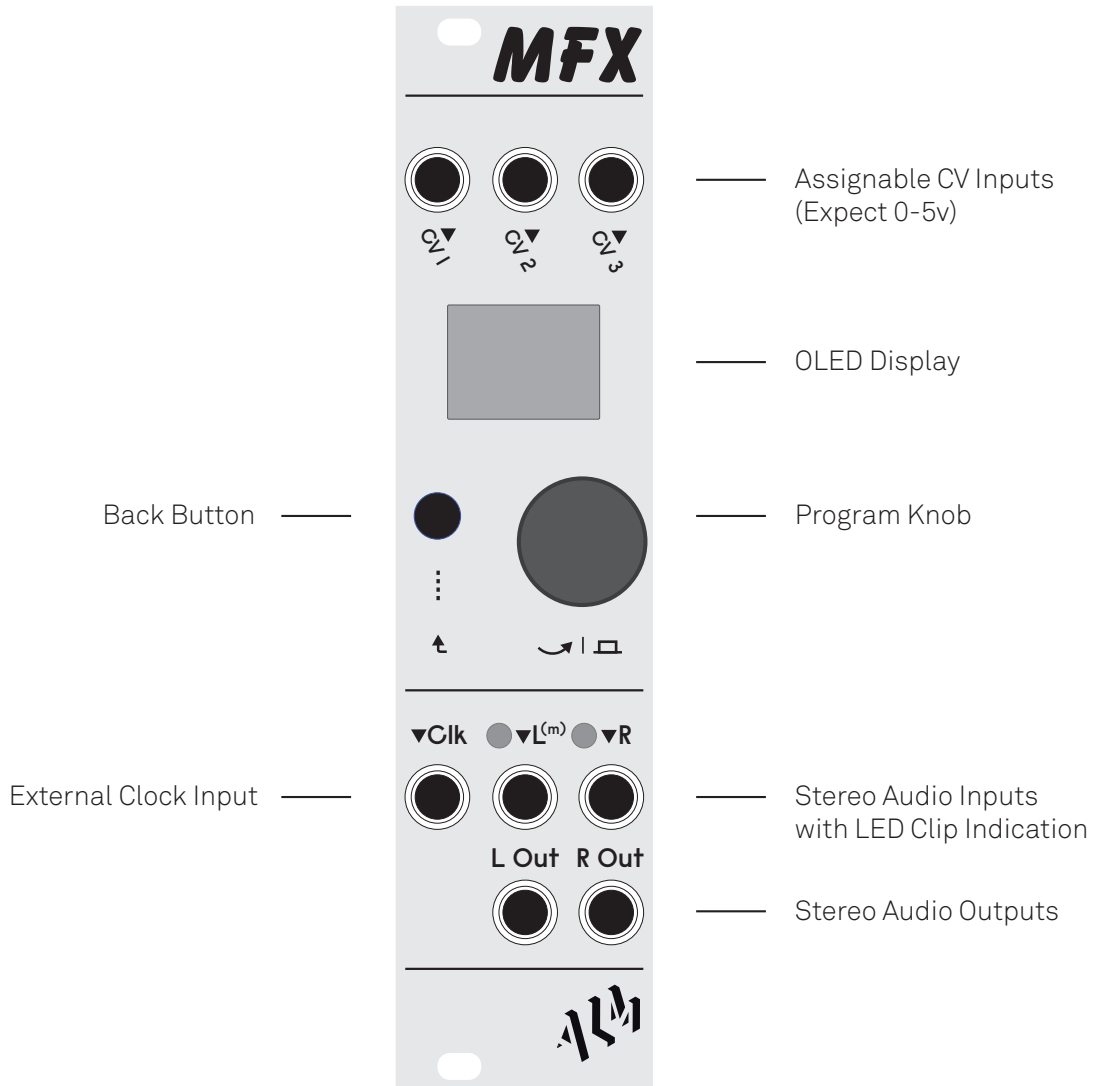
- A large collection of effects programs with numerous controllable parameters.
- All settings remain between power cycles.
- Factory and user saveable presets per effect.
- Stereo I/O paths.
- 3 freely assignable CV inputs and 1 clock / trigger input.
- Support for the 'Axon-1' expander for up to 7 assignable CV inputs.
- USB-C for quick and easy 'drag and drop' firmware updates via computer.
- Skiff friendly with reverse power protection.
- Made in England.

Technical Specifications

- Supply: *+12V 50mA Max / -12v 15mA*
- Size: *6 HP*
- Depth: *32mm*
- *16 Bit / 44.1Khz Stereo processing*
- *ARM CPU based DSP*

Operation

Panel Layout



General Usage

The MFX provides a browsable selection of effects programs that can each be selected and made active. Once active, a program's various parameters can be browsed, edited or assigned to CV. The programs have a number of common features as well as unique parameters specific to their functions. Factory and user presets can also be loaded and saved per engine.

ALM-032 - 'MFX'

When initially powered, after a short start up animation, MFX displays the active effects program. Other available programs can be browsed by twisting the program knob and made active by clicking the program knob. Once a program is made active, its last edited parameter screen is displayed. Parameters can be cycled through by turning the program knob. Clicking the knob will highlight the selected parameter and turning will then set its value from a range of available values (and CV assigns - see next para). Clicking again will exit. To return to the program selection, press the back button.

Audio signals are patched in to either the left input (mono source) or both left and right inputs (stereo source). The audio signals are then processed by the selected effect program and sent to the stereo audio outputs. The red LEDs indicate when audio signals are too high (max 16Vpp approx) and are causing clipping at the inputs - if this occurs, care should be taken to lower signal volumes into the MFX.

Assigning CV Control

On a parameter screen, scrolling left past the lowest value of a parameter will select one of the assignable CV inputs to externally control that parameter. Alternatively, when a parameter is highlighted, *holding the back button + twisting the program knob* will immediately jump to the CV input selection.

Each CV assignment includes its own digital attenuation and offset settings for scaling the incoming voltage. To adjust this, hold the program encoder for >1 sec. with the CV assignment selected. (To exit press the back button). When a CV is assigned, a small bar graph will be displayed indicating the CV level (after attenuation and offset).

The expected input voltage range is unipolar 0-5 Volts (Euro voltages outside of this range won't damage the module but will be ignored). CV control of program or preset selection is not currently supported.

Externally Clocking

Some effects programs include a parameter for setting internal 'INT' or external 'EXT' clock. When external clock is enabled, the MFX then follows a clock pulse at the 'Clk' input. Additionally, some effect programs repurpose the clock input as a gate input for controlling special functions. See the Programs section for specifics on how the clock input is used by each program.

Common Program Parameters and Features

Mix

Every effect includes a standard mix control for setting the wet/dry blend of the effect with the original input source. At 0%, only the input signal is heard at the outputs. As 'Mix' is increased, the affected signal is brought in until 100% is reached and no dry signal remains.

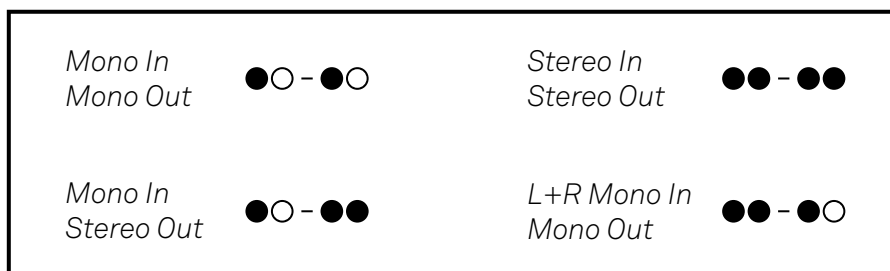
The wet/dry mix parameter can be disabled globally from within the Utilities program and is then set fixed to 100% wet. This is useful when patching the MFX in a mixer's send and return. Please see the Utility Program section for more info.

Presets

Following the mix parameter is a screen labeled 'Preset' where the parameters of each effect may be initialised, loaded and saved into the available user slots. Each effect includes a collection of factory presets to showcase its versatility and provide a range of starting points. Keep in mind that the last used settings of each effect will remain both when changing effect programs and power cycling. It is only necessary to save a preset to return to a favourite setting following parameter adjustments. By selecting one of the two 'User-X' presets, a custom preset can be saved and later recalled.

I/O Indicators

The bottom left corner of the screen displays two pairs of dots that indicate the input/output arrangement of the currently loaded program / parameter setup. A solid dot represents an audio signal expected at the inputs or produced at the outputs. Some effects are fully stereo whilst others expect a mono input and produce either a stereo or mono output. Certain effects programs may change their I/O arrangement depending on the 'mode' setting. The possible I/O arrangements are as follows:



ALM-032 - 'MFX'

For a mono input, L+R inputs are generally summed to mono however some effects take just a pure mono input from the L input (This may well change with future firmware updates).

Bypassing

At any time, the audio processing of the MFX can be bypassed to mute the effect and route the dry input source straight to the outputs. To do so, *hold the back button + press the program knob*. The word 'Bypass' is displayed in the bottom left corner of the screen (covering I/O indicators). Repeat this shortcut to disengage bypass.

Programs

Digi-PCM Echo

Mono or Stereo In → Mono or Stereo Out

The 'Digi-PCM Echo' is an unapologetically digital delay inspired by early digital rack delays. It includes an assortment of additional features such as external clock sync, five different delay modes, audio quality settings and wide ranging times.

Parameters

Mode

Sets the delay mode. Depending on the selection, the output can be mono or stereo.

- *Mono Delay* - A single delay line with a mono output.
- *Dual Tap* - A pair of delay lines mixed to a mono output.
- *Stereo Tap* - A pair of delay lines, each hard-panned to one side of the stereo output.
- *Ping Pong* - A pair of delay lines that swap sides with each repeat.
- *Ext Feedback* - A single mono delay line using only the left in and out. The right output is repurposed as a send and the right input as a return for the external feedback path.

Clock

Sets if the delay time is based on internal 'INT' or external 'EXT' clock.

Time

Sets the length of the delay buffer in ms when 'Clock' is set to internal. (Ranges from 0-998ms x8).

Clock Mult

Sets the buffer length as a multiple of the incoming pulse when 'Clock' is set to external.

Tap Mult

Sets the time of the second tap as a multiple of the main time, not used in 'Mono' and 'Ext Feedback' modes.

Bandwidth

Sets the sampling frequency of the delay line. Doubles delay time with each step down.

Bit Depth

Sets bit depth of the delay line.

Regen

Sets the amount of feedback into the delay buffer.

Flip Phase

Inverts the phase of the delay line.

High Cut

Sets the cut off frequency of a low pass filter in the delay line.

Low Cut

Sets the cut off frequency of a high pass filter in the delay line.

Mod Depth

Sets the depth of modulation over the delay time.

Mod Rate

Sets the rate of modulation over the delay time.

Reverse

Reverses playback of the delay buffer.

TIPS:

1. Use the ratio set between the Delay Time and the Tap Mult parameters to greatly alter the rhythms of the repeats.
2. Try using the High / Low Cut filters and modulation to create distance between the source and the echoes.
3. Modulating the Bandwidth parameter can have interesting melodic results.
4. Remember to experiment with all of the delay modes to find the most suitable echo type for your patch!

Tape-Tech Echo

Mono In → Mono Out

The 'Tape-Tech Echo' is an analog tape style delay with a pitch shifter bolted on. Inspired by gritty vintage tape echo units, it has a darker analog sound. Several unique parameters including tape age and wow + flutter, combined with the built in pitch shifter, make the Tape-Tech a fun and eccentric program.

Parameters

Time

Sets the length of the delay buffer in ms. (Ranges from 0-998ms).

Feedback

Sets the amount of feedback into the delay buffer.

Tape Age

Sets the age of the tape: increases noise, saturation and darkness in the repeats.

Wow + Flutter

Introduces slight changes to the delay time, adding pitch warble and chorusing to the repeats.

Pitch Shift

Shifts the pitch of the delay line without affecting the time.

Pitch Destination

Routes the pitch shifter to either the delay's 'Feedback' path or the 'Input' signal.

Loop

Loops the currently stored delay buffer.

Clock

Sets if the delay time is based on internal 'INT' or external 'EXT' clock.

Clock Mult

Sets the buffer length as a multiple of the incoming pulse when 'Clock' is set to external.

TIPS:

1. Try assigning CV to the Time parameter for warping tape speed effects.
2. Try setting the pitch shifter to Oct-, P5+, Oct+, etc. for tuned ascending or descending pitch shifting delay.

Crumbular Echo

Mono In → Mono or Stereo Out

The 'Crumbular Echo' is a granular type multi-tap delay designed to produce busy clusters of stuttering repeats. With a wide ranging set of parameters, it is capable of producing anything from broken glitch sounds to reverb-like washes of smeared grains.

Parameters

Time

Sets the length of the delay buffer in ms. (Ranges from 0-742ms).

Spray

Sets the amount of random time offset for each grain.

Density

Sets the amount of grains.

Size

Sets the size of the grains.

Variance

Randomly varies the size of the grains.

Mode

Sets the mode to either mono or stereo.

Feedback

Sets the amount of feedback into the delay buffer.

High Cut

Sets the cut off frequency of a low pass filter in the delay line.

Low Cut

Sets the cut off frequency of a high pass filter in the delay line.

TIPS:

1. This granular delay can get very crazy, very fast - fine tuning a combination of the Spray, Density and Size parameters is key to taming this powerful effect.
2. Try controlling the Time parameter with a random CV for unusual pitch shifting effects and timing variation.

Ursa Minor Echoverb

Mono In → Mono or Stereo Out

The 'Ursa Minor Echoverb' is a complex, wide ranging multi-tap delay heavily based on a rack unit of a similar name. It is configurable as either a reverb or an echo and includes 20 different programs (time arrangements for the 8 delay taps). From long ethereal reverbs to complex resonant comb filtering, this program offers a unique take on reverb and delay.

Parameters

Mode

Selects between 'reverb' or 'echo' modes.

Time

Sets the length of the delay buffer. Only applies to the 'echo' mode. (Ranges from 0-254ms).

Program

Selects one of 20 different time arrangements for the 8 delay taps (4-L and 4-R).

Feedback

Sets the amount of feedback into the delay buffer.

High Cut

Sets the cut off frequency of a low pass filter in the delay line.

Low Cut

Sets the cut off frequency of a high pass filter in the delay line.

Tap Level 1

Sets the level of the first tap panned left and the first tap panned right.

Tap Level 2

Sets the level of the second tap panned left and the second tap panned right.

Tap Level 3

Sets the level of the third tap panned left and the third tap panned right.

Tap Level 4

Sets the level of the fourth tap panned left and the fourth tap panned right.

TIPS:

1. Make sure not to overlook the four Tap Level parameters which serve the important purpose of controlling the mix between the 8 taps.
2. There are loads of sounds to discover, don't forget to try out the many tap arrangements available in both the reverb and echo modes!
3. With a deep program like this, patching manual voltage offsets to the CV inputs and assigning them to one or more key parameters offers quick hands on control and simultaneous parameter adjustments.

Pocket PL8 Reverb

Mono In → Mono or Stereo Out

The 'Pocket PL8 Reverb' offers all the magic of a massive aluminium plate whilst remaining small enough to fit in your pocket. It is based on early digital reverb algorithms with a dense metallic sound.

**Clk In* - Patching a trigger into the clock input will gate the reverb tail.

Parameters

Size

Sets the size/time of the reverb tail.

Pre-Delay

Delays the onset of the reverb tail.
(Ranges from 0-99ms).

High Cut

Sets the cut off frequency of a low pass filter on the reverb tail.

Low Cut

Sets the cut off frequency of a high pass filter on the reverb tail.

Stereo

Widens the reverb to faux stereo via phase inversion. Includes settings for both mild and full widening.

When set to 'off' the reverb is mono.

TIPS:

1. Try using the High and Low Cut parameters to emphasise different metallic qualities in the virtual plate.
2. Remember, a trigger sent to the Clk input will gate the reverb tail for unique dynamic and rhythmic effects!

Almicon Reverb

Mono In → Stereo Out

The 'Almicon Reverb' is a program based on classic 80s high end studio style reverb algorithms. Great for bright small rooms and extending into vast synthetic spaces, the Almicon offers a lush, polished reverb with a classic sound.

Parameters

Size

Sets the size/time of the reverb tail.

Damping

Darkens the reverb tail, both shortening its length and reducing high frequencies.

Diffusion

Reduces or increases the uniformity of the reverb tail, causing reflections to appear more distinct or thicker.

Pre-Delay

Delays the onset of the reverb tail.
(Ranges from 0-99ms).

TIPS:

1. Keep in mind that the Damping and Diffusion parameters also affect the perceived size and depth of the reverb tail.
2. Under CV control, Diffusion can be used to create swells and throws by quickly altering how much the input signal excites the reverb.

Quaidra Reverb

Mono In → Stereo Out

The 'Quaidra Reverb' is a 90s style reverb with a simple, musical set of parameters. It excels at unnaturally large and airy spaces, producing a rich atmosphere from any sound sent through it.

Parameters

Size

Sets the size/time of the reverb tail.

Damping

Darkens the reverb tail, both shortening its length and reducing high frequencies.

Low Cut

Sets the cut off frequency of a high pass filter on the reverb tail.

TIPS:

1. Try setting Size around 90-100% and Damping to 0% for massive infinite reverb trails.
2. The Low Cut parameter sits within the feedback path, meaning its setting will multiply over time as the reverb decays.

Yetti Reverb

Mono In → Stereo Out

The 'Yetti Reverb' is a feedback delay network based reverb fused with a 4 octave pitch shifter. It can produce a variety of crystalline spatial effects and other worldly shimmering reverbs ranging from subtle to extreme.

Parameters

Size

Sets the size/time of the reverb tail.

Damping

Darkens the reverb tail, both shortening its length and reducing high frequencies.

Pre-Delay

Delays the onset of the reverb tail.
(Ranges from 0-100ms).

Pitch Shift

Shifts the pitch of the reverb, interacting with both the size and damping to create a rising or falling tail.

High Cut

Sets the cut off frequency of a low pass filter after the reverb tail.

Low Cut

Sets the cut off frequency of a high pass filter after the reverb tail.

TIPS:

1. A minor 0.01-0.03x increase or decrease in the pitch shift setting results in slightly ascending or descending reverb tails.
2. Try setting the pitch shifter to P5-, M3-, m3-, P5+, etc. for other worldly reverb tails that remain in tune with pitched input sources.

TY-50 Compressor

Stereo In → Stereo Out

The 'TY-50 Compressor' is a flexible stereo compressor with wide ranging attack and release times that make it great for adding punch, smoothing transients or as a clean mix bus compressor. Compression can range from super subtle to extremely intense, working great to shape any source material patched through it.

Parameters

Mode

Sets the compressor mode.
Depending on the selection, the output can be mono or stereo.

- *Stereo* - Stereo in to stereo out.
- *Sidechain in R* - Mono compression using the left in and out. The right input is repurposed as an external sidechain input.

Threshold

Sets the amplitude at which the compressor begins to take effect.

Ratio

Sets the amount of gain reduction applied to the incoming signal when it crosses the threshold.

TIP:

It is common to bypass compressors frequently when adjusting settings to quickly compare levels between the original and compressed versions. (To engage Bypass hold the back button + press the program knob).

Attack

Sets the time it takes for the signal's gain to be fully reduced after crossing the threshold.

Release

Sets the time it takes for the signal to return to its original level after being reduced (compressed).

Make Up Gain

Sets the final output gain of the compressed signal.

Meters

GR - Displays the amount of gain reduction applied to the incoming signal.

OP - Displays the output gain of the compressor.

Transient Shaper

Stereo In → Stereo Out

The 'Transient Shaper' is a fast acting dynamics processor for reshaping the attack and release envelope of any sound.

Parameters

Attack

Shortens or lengthens the attack transients of the incoming signal.

Make Up Gain

Sets the final output gain of the shaped signal.

Release

Shortens or lengthens the release transients of the incoming signal.

Tilt Filter

Tilt style EQ filter that sets the region of frequencies detected by the envelope followers.

TIP:

The tilt filter has a huge impact on the strength of the Attack and Release controls. Carefully adjust the tilt setting with regard to the frequency content produced by your input source.

TH-30 Distortion

Stereo In → Stereo Out

The 'TH-30 Distortion' is a versatile distortion program with a collection of different distortion types ranging from analog style saturation to intense digital wavefolding. A built-in wide ranging tilt filter allows for emphasis of the high or low frequency content of the distortion.

Parameters

Type

Sets type of distortion.

- *Soft* - Analog style soft clipping.
Rounds transients.
- *Saturate* - clipping with compressed harmonics.
- *Overdrive* - clipped signal introduces harsher harmonics.
- *Digital* - Digital hard clipping, squares off transients.
- *Wavefold* - The digital wavefolder from the Tyso Daiko.
- *Nuclear* - Maximum clipping!
Squares off ALL incoming transients.

Drive

Sets the amount of drive.

Tilt Filter

Tilt style filter EQ applied to the distorted signal, emphasising either high or low frequencies.

Output Gain

Reduces the final output of the distorted signal.

TIP:

Try using more subtle drive settings with a light bass or treble boost from the tilt filter to excite synth voices, drums or even full stereo mixes.

2051 Bit Corrupter

Mono or Stereo In → Mono or Stereo Out

The '2051 Bit Corrupter' is a real-time audio buffer designed to imitate malfunctioning digital audio equipment. A large range of low res, rhythmic stuttering and glitch effects can be created with this one of a kind program.

Parameters

Bit Depth

Sets the bit depth of the dry signal.

Sample Rate

Sets the sample rate of the dry signal.

Clock

Sets if the buffer size is based on internal 'INT' or external 'EXT' clock.

Buffer Size

Sets the size of the buffer in ms when 'clock' is set to internal. Ranges from 1-1000ms (Mono) and 1-500ms (Stereo and Dual modes).

Clock Mult

Sets the buffer length as a multiple of the incoming pulse when 'clock' is set to external.

Max Repeats

Maximum number of repeats that may occur with every glitch. (Up to 10).

Repeat Risk

Random variation to the amount of repeats. (+/- 10 repeats).

Glitch Risk

The chance that a glitch will occur.

Lock In

Loops playback of the buffer (even if there is no audio in it).

Reverse

Reverses playback of the buffer.

Mode

Sets the I/O mode.

- *Mono* - Mono in to Mono out (Max buffer size 1000ms).
- *Stereo* - Stereo in to stereo out with the same random seed on both sides. (Max buffer size 500ms).
- *Dual* - Stereo in to stereo out with different random seeds per side. (Max buffer size 500ms).

Modulating Panner

Mono or Stereo In → Mono or Stereo Out

The 'Modulating Panner' is a clock-syncable mono or stereo auto-pan with a scan mode that cross fades between 2 input signals. It has a range of uses from adding slow stereo motion to clock-synced rhythmic panning as well as filtering signals with the built-in resonant multimode filter.

Parameters

Mode

Sets the mode. Depending on the selection, the I/O can be mono or stereo.

- *Mono* - Pans the left input between the left and right outputs.
- *Stereo* - Pans the left and right inputs between the left and right outputs equally and opposite of one another.
- *Scan* - Cross fades between the left and right inputs, outputting the mix in mono.

Offset

Offsets the signal towards the left or right side.

Slope

Shapes the panning movement across the ears.

Mod Clock

Sets if the modulation rate is based on internal 'INT' or external 'EXT' clock.

Mod Depth

Sets the maximum width of the panning modulation.

Mod Rate

Sets rate of modulation in Hz when 'clock' is set to internal. (Ranges from 0.05-8Hz).

Filter Mode

Selects the filter type, from no filtering to low pass, high pass, or band pass.

Cutoff

Sets the cutoff of the filter. (Ranges from 20-20kHz).

Resonance

Sets the amount of filter resonance.

Ring + Freq Modulator

Mono or Stereo In → Mono or Stereo Out

The 'Ring + Freq Modulator' is a pair of classic modulation effects - ring modulation and frequency shifting - tailored towards otherworldly and dissonant sounds. Both the Ring Mod and Frequency Shifter operate in true stereo, offering more flexibility than traditional analog circuits.

Parameters

Mode

Sets the mode to either ring modulation or frequency shifter.

Modulator (Ring Mod)

Selects between either the internal modulation oscillator (INT) or external source (LxR).

LxR mode expects the carrier signal at the left input and modulator at the right, outputting the result in mono.

Osc Rate (Ring Mod)

Sets the rate in Hz of the internal modulation oscillator. (Ranges from 20Hz-11kHz).

Shift (Freq Shifter)

Changes the frequency of the incoming signal in Hz. (Ranges from 0Hz-1kHz).

High Cut (Freq Shifter)

Sets the cut off frequency of a low pass filter on the wet signal.

Env Follow (Freq Shifter)

Enables envelope following to control the dynamics of the frequency shifted signal.

TIPS:

1. Try patching all kinds of sources through the ring mod and frequency shifter. Samples of acoustic sounds and voices can sound particularly interesting.
2. For less dissonant oscillator ring mod, duplicate the pitch CV from your VCO and assign it to control the internal Osc Rate parameter.

Ensembles Ensemble

Mono In → Mono or Stereo Out

The 'Ensembles Ensemble' is a diverse collection of chorus and ensemble effects based on circuits from the 70s and 80s. It includes many modes inspired by the on-board choruses found in synthesisers like the Juno-60 and Solina. A built in digital pitch shifter takes the effect beyond traditional chorus circuits.

Parameters

Mode

Selects the chorus or ensemble mode. Modes are as follows:

- *Juno I*
- *Juno II*
- *Juno II + I*
- *RS I*
- *RS II*
- *Solina (mono)*
- *Wide*
- *Wide II*

Depth

Sets the depth of modulation.

Pitch Shift

Shifts the pitch of the incoming signal without affecting its time.

TIPS:

1. For wobbly pitch vibrato effects, set Mix to 100%.
2. Try patching drums through the ensemble and pitch shifter for a splashy and more relaxed sound.

Multi Phaser

Mono or Stereo In → Mono or Stereo Out

The 'Multi Phaser' is a rich phase shifting effect great for creating slow subtle timbral changes, swirling motion, or thick doubled sounds. Control over the number of notch filters as well as their shape and the speed of modulation makes it easy to create various classic phasing and flanging effects.

Parameters

Depth

Sets how pronounced the notches are (depth of the phasing effect).

Mod Rate

Sets the modulation rate of the phasing.

Feedback

Sets the amount of feedback, narrowing the shape of the notches as it is increased.

Stages

Sets the number of notches ranging from 2-8 (mono) or 2-4 (stereo).

Mode

Sets the mode. Depending on the selection, the I/O can be mono or stereo.

- *Mono* - Mono in to mono out, up to 8 stages.
- *Stereo* - Stereo in to stereo out with a max of 4 stages.

Spread

Sets the width of the stereo image. Only applies to stereo mode.

TIPS:

1. Try assigning an external CV of your choice to control the Depth parameter for more complex movement or random changes.
2. A high Feedback setting with slow Mod Rate will result in more of a resonant flanger style effect.

Utilities

Mono In → Mono Out

A basic utility program for tuning sources, viewing the incoming waveform and displaying the current firmware version.

Pages

Tuner

Displays both the frequency in Hz and pitch (note and cents) of the incoming audio.

Test Tone

A fixed sine wave oscillator that produces a standard 440Hz A note.

Scope

Displays a basic rendering of the incoming waveform. Time can be adjusted by clicking and turning the encoder.

Clock Meter

Detects the BPM, counts the number of pulses and displays the pulse width of a clock signal patched to the 'Clk' input.

Clicking the encoder resets the counter.

Wet/Dry Mix

Disables the 'Mix' parameter globally.

Selecting 'NO' locks the mix to 100% wet across all effects programs for use in a mixer's send and return.

FW Version

Displays the currently installed firmware version.

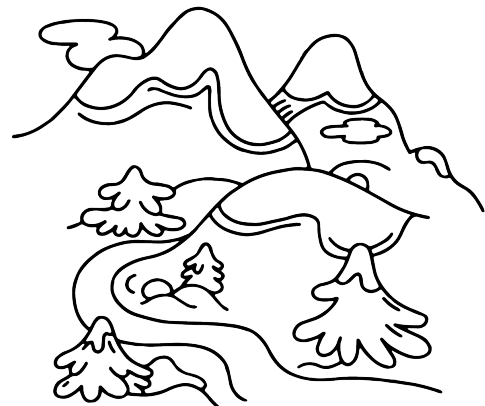
Limited Warranty

From the date of manufacture this device is guaranteed for a period of 2 years against any manufacturing or material defects. Any such defects will be repaired or replaced at the discretion of ALM. This does not apply to;

- Physical damage arising from mistreatment (i.e. dropping, submerging etc).
- Damage caused by incorrect power connections.
- Overexposure to heat or direct sunlight.
- Damage caused by inappropriate or mis-use.
- Use of incorrect or non official firmware

No responsibility is implied or accepted for harm to person or apparatus caused through operation of this product.

By using this product you agree to these terms.



Support

For the latest news, additional info, downloads and firmware updates please visit the ALM website at <http://busycircuits.com> and follow @busycircuits on twitter and instagram.

Questions? email help@busycircuits.com .

APPENDIX

I. Factory Reset

Powering up the MFX with the Encoder knob held down will initiate a 'factory reset' - resetting and clearing all saved values and user presets. Factory presets remain.

When initiated, keep the encoder held down until the progress graph animation completes and usual startup animation is shown.

II. Firmware Updates

Remove the MFX from power. Locate the USB C port at the right side of the PCB just below the program knob. Using a standard USB C cable, connect the module directly to a computer. The MFX will power on displaying 'USB Disk Update Mode' on screen and appear as a standard removable storage device on your computer.

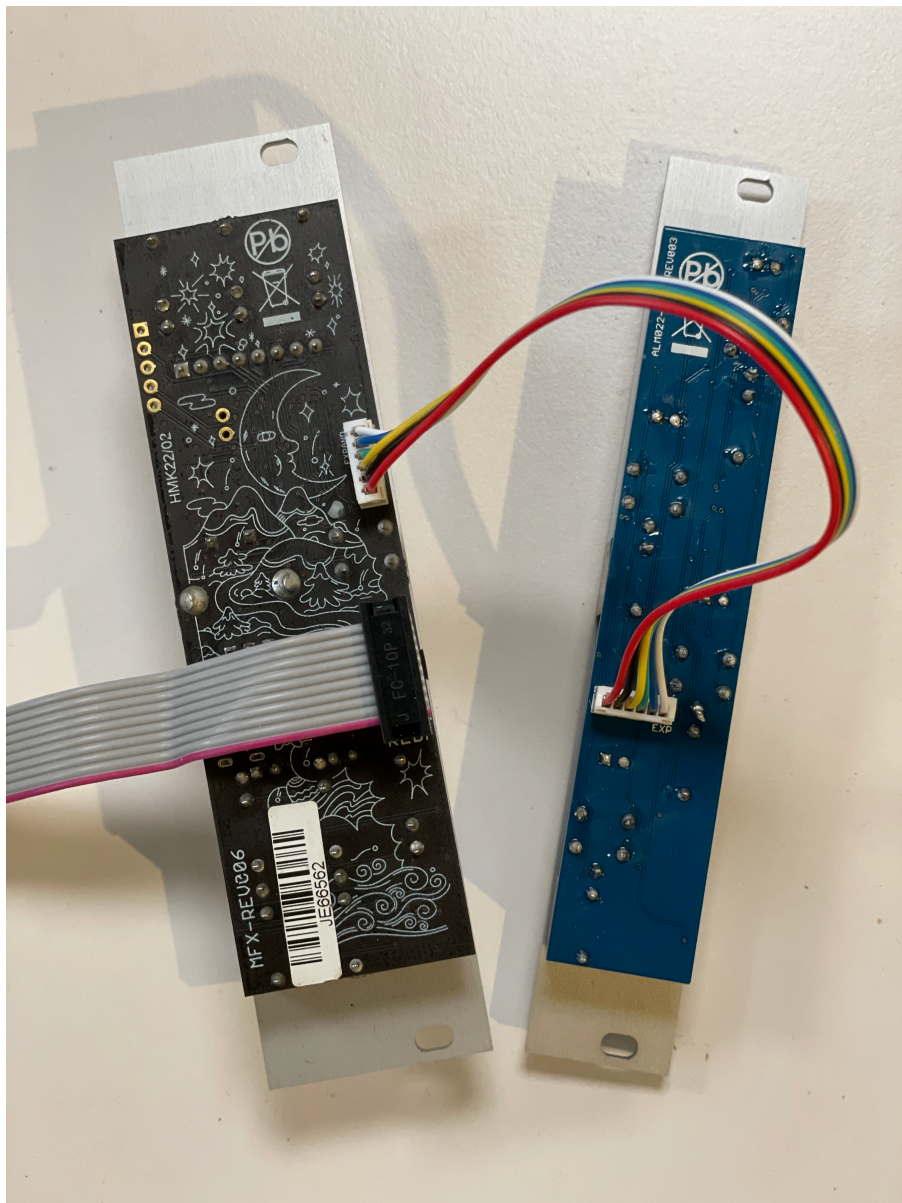
Copy a valid firmware file to the root directory of the MFX to update. After the copy has completed, MFX will automatically disconnect and display 'Update Complete' on screen. Carefully remove the usb cable from the MFX as not to damage it. Your MFX should then be updated and ready to use.

Please use only official firmware files when made available from the [BusyCircuits website](#).

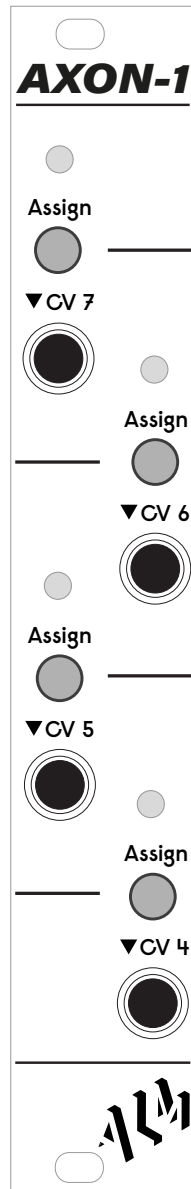
III. The 'AXON-1' Expander

The 'AXON-1' is an optional expander module available for use with both the MFX and Squid Salmples. It extends MFX's functionality by adding 4 additional freely assignable CV inputs that behave exactly like the 3 built-in CV inputs.

The 'AXON-1' connects to the 6 pin header on the back of the MFX via the supplied keyed cable. Connect before powering the MFX.



Axon-1



4HP module provides MFX with 4 additional freely assignable CV inputs. CV is assigned directly from the buttons or from the on-screen list alongside the 3 built in CV inputs. Per assignment digital attenuation and offset is accessed by long pressing the program encoder with the selected CV highlighted.

IV. Factory Presets

Digi-PCM Echo

<i>PRESET</i>	<i>DESCRIPTION</i>
Pong	Classic L/R ping pong echo for rhythmic widening.
Broken Taps	Lo-res 8 bit dual tap echo.
Drum Resonator	Comb filter style stereo resonators suited for percussion.
Tube Flange	Negative feedback flanging with a tubular sound.
Reverser	Realtime reverse playback with no repeats.
Wide Shadows	Warm and noisy true stereo delay.
Far Far Away	Long, 12 bit delay with thinning repeats.
Stereo Alias	Wide, warm aliasing stereo slapback.
Old Friends	Drawn out low bandwidth responses.

Tape-Tech Echo

<i>PRESET</i>	<i>DESCRIPTION</i>
Tired Tape	Warm and fuzzy tape echo with lightly descending pitch.
5th Response	Pitch shifting delay with repeats that ascend in fifths.
Pitch Shifter	Real-time octave up pitch shifting with no echo.
Flutter Echo	Fast fluttering echoes.
Comet Trails	Pitch shifting delay with sparkly ascending feedback.
Reel Delay	Vintage tape echo with a slight pitch drift.
Cassette 1	Echo from a 3 head cassette deck running at 15/16 ips.
Cassette 2	Echo from a 3 head cassette deck running at 1-7/8 ips.

Crumbular Echo

<i>PRESET</i>	<i>DESCRIPTION</i>
Soggy Whirls	Fluttering medium grain delay with long feedback.
Untidy Kitchen	Scattering echoes with a reverb-like quality.
Mogs Breath	Fast gritty stereo scatter.

Ursa Minor Echoverb

<i>PRESET</i>	<i>DESCRIPTION</i>
Springy	Tonal, full bodied metallic resonator.
Landscape	Wide, impressionistic background echoes.
Diffuser	Small space ambience and smear.
Particles	Fast and restrained stereo trills.
Infinite	Floating supernatural reverb.
Scatter	Diffused delayed reverb.
Little Star	Busy metallic flutter echo.

Pocket PL8 Reverb

<i>PRESET</i>	<i>DESCRIPTION</i>
Barrel	Reverb from inside a metal barrel.
Splash	Airy extended reverb.
Vintage	Solid vintage stereo plate reverb.
Dense Metal	A heavy resonating metallic body.

Almicon Reverb

<i>PRESET</i>	<i>DESCRIPTION</i>
Dark Dream	Heavy reverb with a darkening tail.
Workshop	Full bodied medium sized room reverb.
Blurry	Smearly small room ambience.
Galleria	Massive, sprawling reflective space.
Mosaic	Medium sized room with tile surfaces.

Quaidra Reverb

<i>PRESET</i>	<i>DESCRIPTION</i>
Back Scatter	Fluttering background atmosphere.
Underpass	Desolate concrete reflections.
Cirrus	Wispy and bright synthetic reverb.
Silo Psiega	Carefully selected ambience.
Outer Core	Dark reverb extending below the surface.

Yetti Reverb

<i>PRESET</i>	<i>DESCRIPTION</i>
5th Bounce	Delayed, smeared copies of the source shifted up by a 5th.
Uplift	Lightly ascending medium reverb.
Bacta Tank	Dark, octave down tubular reverb that heals.
Rain Drops	Sparkly repeats shifted up 1 octave.
Mystery Crystal	Atonal crystalline reverb.

TY-50 Compressor

<i>PRESET</i>	<i>DESCRIPTION</i>
Subtle Bus	Light compression for polishing a stereo mix.
Tighten	Heavy compression for adding glue and punch.
Transient Eater	Heavy compression for squashing transients.
Clicky	Sharp compression for emphasising transients.
Parallel Comp	50 / 50 mix of the dry signal and an over-compressed version.

Transient Shaper

<i>PRESET</i>	<i>DESCRIPTION</i>
Short & Sharp	Shortens transients, emphasising attack.
Smear	Subtle rounding and lengthening of transients.
Blown Out	Adds punch and crunch.

TH-30 Distortion

<i>PRESET</i>	<i>DESCRIPTION</i>
Parallel Fuzz	50 / 50 mix of the dry signal and the squared off nuclear version.
Radio Static	Dynamically responsive spectral noise.
Harmonic Hi-Pass	Crunchy, saturated high pass filtering.
Dad Acid	Computer controlled bass companion.
Tyso Crush	Intense noisy wavefolding.
Half Stack	Heavy valve amp overdrive.
Combo Amp	Bright boxy saturation.

2051 Bit Corrupter

<i>PRESET</i>	<i>DESCRIPTION</i>
Connection Error	Sputtering data transfer sounds.
Beat Repeat	Quick glitchy repeats at the end of every bar.
Wavetable Generator	Generates a real-time wavetable version of the input. Buffer size sets pitch.
Random Reversal	Randomly reverses segments of the audio.
Steady Skip	Steady rhythmic glitching reminiscent of a skipping CD player.
Crossed Wires	Heavily crushed and slowly pulsing 4 bit sounds.

Modulating Panner

<i>PRESET</i>	<i>DESCRIPTION</i>
Subtle Widening	Fast medium width auto-pan for mono sources.
Wide Pendulum	Wide swaying slow auto-pan for mono sources.
Stereo Converge	Wide intersecting stereo pathways. *Only works with 2 inputs!
Subtle Scan	Auto mixes in a small amount of signal from the right input.
Autofade	Evenly auto-fades between the 2 inputs. Works best with droning sources.

Ring + Freq Modulator

<i>PRESET</i>	<i>DESCRIPTION</i>
Maximum Shift	Frequency shifts the input up by 1kHz.
LxR Ring Mod	Ring mod, multiplies 2 external input sources by one another.
2KHz Ring Mod	Ring mod, multiplies a mono or stereo input by the internal oscillator set to 2kHz.

Ensembles Ensemble

<i>PRESET</i>	<i>DESCRIPTION</i>
Seasick	Slow, pitch warping vibrato with a wide spread.
Supersaw Maker	Phasey mono chorus, suited for giving droning sources a thick, layered sound.
Swirly Strings	Wide and fast swirling ensemble suited for chords.
DCO Bass	Subtle thickening for Juno style bass.
Splash Shift	Splashy real-time octave up pitch shifting.
Future Past	Lo-res and wide real-time pitch lowering.

Multi Phaser

<i>PRESET</i>	<i>DESCRIPTION</i>
Voice	Thick phasing with a vowel like characteristic.
Fast Flange	Flanging with fast modulation.
Detuned Oscs	Doubles an oscillator, imitating 2 detuned oscs.
Drum Smear	Adds splash to drums or fast warble to voices.