



MM+ User Manual

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Requires FULL version of Kontakt 5.2.1 or above . This instrument will NOT work with the Kontakt Player .

INTRODUCTION



MM+ is a sample library for Native Instruments' [Kontakt 5](#) based on the [Moog Memorymoog](#) .

All 3 oscillators' waveforms have been sampled chromatically from C1 to C7 .

In addition to the Triangle / Sawtooth & Pulse waveforms , a range of other settings have been sampled . For the full list , see [oscillator waveforms](#) .

MM+ features :

- 3 Oscillators
- 2 Filters
- 2 Aux Envelopes
- 2 Aux LFOs
- 1 Dedicated LFO for each filter
- 1 Programmable Arpeggiator
- 3 Monophonic Pitch Sequencers
- 2 Additional Sequencers for filter and resonance modulation
- 25 Custom Impulse Responses
- 5 FX : Transient Shaper / Phaser / 2 Delays & Convolution Reverb
- 6.97 GB (compressed) samples (44.1Hz/24bit)
- 200+ Presets

Oscillators

The Octave & Tune knobs determine the oscillators' pitch .

The Routing slider determines which filter the oscillator is routed to . If 1&2 is selected , filters are serial only .

Noise is linked to Oscillator 1's filter routing .

Poly mode : Normal polyphonic operation .

Mono mode : Plays a single note per oscillator .

Legato : Similar to Mono mode , with the exception that the current playback position of the preceding note will be carried over to the next note .



Unison

Spread : Determines the panorama among the voices .

Detune : Determines the detuning among the voices .

Voices : Controls the number of voices played .



Note : Unison can be very CPU demanding with multiple oscillators playing in polyphonic mode .

Oscillator Waveforms

Each of the 3 oscillators can select the following waveforms :

Sine :	Self-oscillating filter from the MemoryMoog
Triangle :	Triangle wave from oscillators 1 / 2 / 3
Square :	Pulse wave @ 50% from oscillators 1 / 2 / 3
Sawtooth :	Sawtooth wave from oscillators 1 / 2 / 3
Pulse :	Pulse wave @ 90% from oscillators 1 / 2 / 3
PWM Slow :	PWM $\approx 0.25\text{Hz}$ from oscillators 1 / 2 / 3
PWM Medium :	PWM $\approx 5\text{Hz}$ from oscillators 1 / 2 / 3
PWM Fast :	PWM $\approx 11\text{Hz}$ from oscillators 1 / 2 / 3
Classic :	Mixed waveform with filter modulation
Chorus 1 :	3 VCO mixed waveform w/ slow mild chorus effect
Chorus 2 :	3 VCO mixed waveform w/ mid heavy chorus effect
Chorus 3 :	3 VCO mixed waveform w/ heavy chorus / phasing effect
Classic :	2 VCO mixed waveform w/ filter modulation
Filter FM :	VCO 3 modulating the MemoryMoog's self oscillating filter
Filter Env. 1 :	Square wave w/ short filter envelope
Filter Env. 2 :	Square wave w/ long filter envelope
Pitch LFO :	Pitch modulated square wave
Self Oscillation :	Schippmann VCF-o2 in self oscillation
Ring Mod :	Triangle wave being modulated by an Animodule LM-VCO
Static Filter :	Static pulse wave w/ high res filter setting (keytracked)
Unison Multimode :	3 VCO mixed waveform w/ medium filter envelope
Slow Sync 1 :	Mixed waveform - mild sync w/ slow modulation
Slow Sync 2 :	Mixed waveform - mild sync w/ slow modulation & long filter envelope
Sync 1 :	Synced square wave w/ no pitch modulation of the slave's pitch
Sync 2 :	Synced square wave w/ short envelope modulation
Sync 3 :	Synced mixed waveform w/ slow LFO modulating slave's pitch
Sync 4 :	VCO 2 square wave (only) synced
Ultra Sync :	Static sync - 2 octave spread
Vintage Sawtooth :	VCO 1 Sawtooth & Noise (Auto Tune not used)
Vintage Square :	VCO 1 Square & Noise (Auto Tune not used)
Vintage Triangle :	VCO 1 Triangle & Noise (Auto Tune not used)

Note : Oscillator 3's (MM+) **Sine** waveform features a different waveform found in oscillators 1 & 2 . Includes small amounts of pitch & amplitude modulation .

Oscillator 3's **F.Env 2** waveform features a different waveform found in oscillators 1 & 2 . Includes 2 detuned VCOs w/ heavier filter modulation .

Oscillator 3's **Filter FM** waveform also differs from those in 1 & 2 . Greater depth of filter modulation .

Filters

Filter 1 includes :

LADDER LP₁ : 6db/oct low pass

LDR LP₃ : 18dB/oct low pass

LDR BP₂ : 12dB/oct band pass

SV LP₂ : 12dB/oct low pass

Filter 2 includes :

LADDER LP₂ : 12db/oct low pass

LDR BP₄ : 24dB/oct band pass

LDR HP₁ : 6dB/oct high pass

DAFT LP : 12dB/oct low pass

The filter LFO includes the following waves :

Sine

Triangle

Sawtooth

Square

S&H



Note : The exclusion of the 4 pole Low pass LDR filter is due to the fact it sounds nothing like the Memorymoog's filter .

The filter LFO is set to no retrigger / unsynced mode . If you need a synced or triggered lfo to modulate the cutoff frequency , you can either use the **Aux LFO's** in the **Mod page** , or you can open up Kontakt and change the setting of the LFO internally .

Click on the **Spanner icon** . Click **Group Editor** . Select **Edit All Groups** . Double click the active filter . Click the **Mod tab** .



The 2nd entry is LFO (multi) . Click the icon with the down arrow . That will bring you to the relevant lfo .

Global Controls

Vibrato : Controls the amount of pitch modulation .

Speed : Controls the speed of the pitch modulation .

Glide : Only functions in Mono / Legato mode . Controls the amount pitch transition between two notes played legato style .



Mod Page

Aux Envelope 1

Destinations :

LFO 1 Rate
LFO 1 Amount
Filter LFO Rate
Pitch



Aux Envelope 2

Destinations :

LFO 2 Rate
LFO 2 Amount
Filter LFO Amount
Filter 2 Cutoff



LFO 1

Destinations :

Pitch
Amp
Oscillator 1 Level
Filter 1 Cutoff
Filter 1 Resonance

LFO waves :

Sine / Triangle / Sawtooth /
Square & S&H .



Fade In - Controls the ramp time for the LFO when a note is triggered .

LFO 2

Destinations :

LFO 1 Rate
LFO 1 Amount
Oscillator 2 Level
Filter 2 Cutoff
Filter 2 Resonance



Arpeggiator



Rate : Synced only - **1/1** to **1/128**

Duration : Changes the length of the note played .

Steps : 1-16

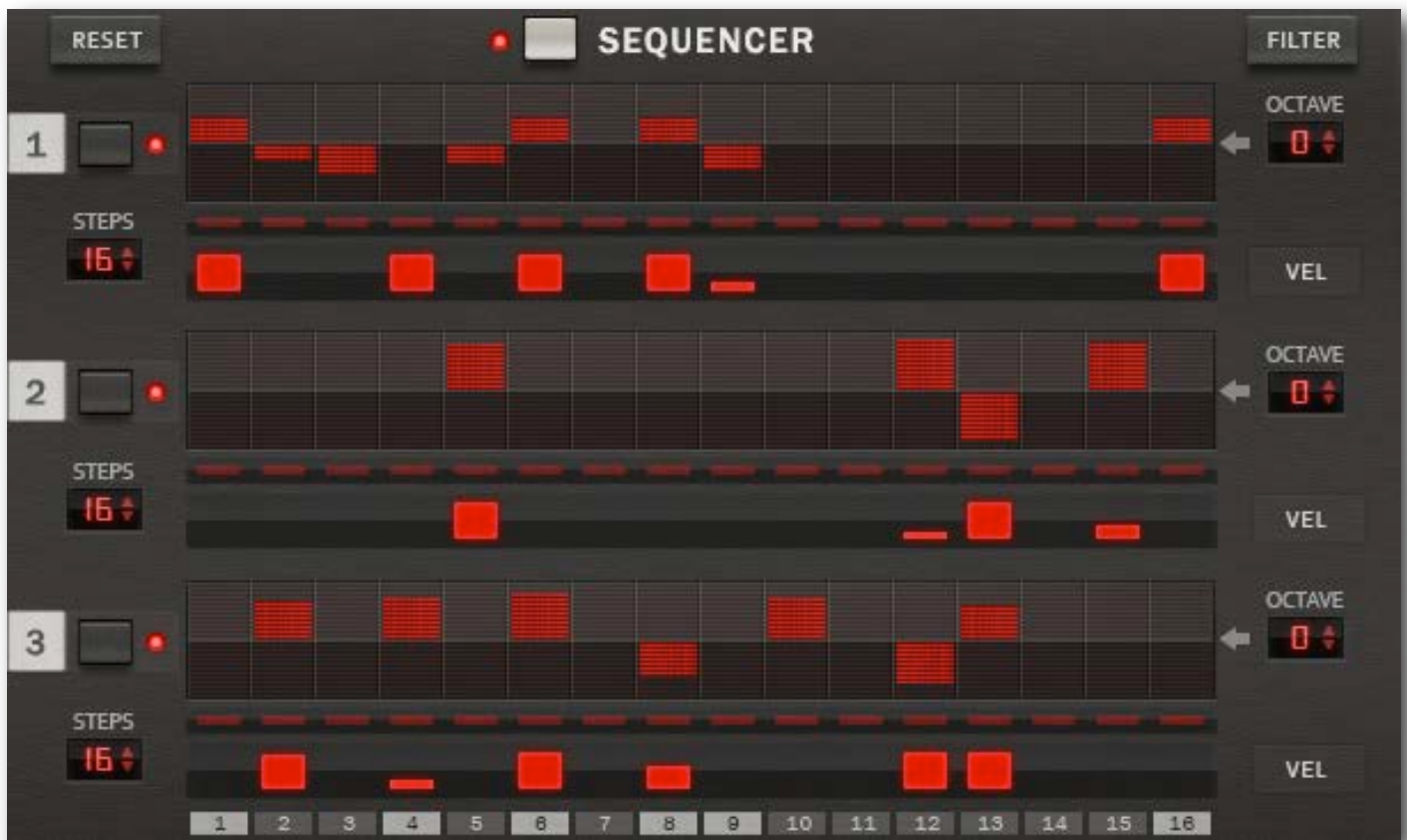
Mode :

As Played / Up / Down / Up & Down / Down & Up / Move In / Move Out / Chord

Note : Chord mode can very *extremely* heavy on CPU especially when more than one oscillator is active . To reduce CPU load , shorten the amp release time , or use only one oscillator .

The Arpeggiator features the same [key commands](#) as the sequencers .

Pitch Sequencer



Reset : Resets all parameters to default settings .

Filter : Accesses the filter sequencer page .

Steps : 1-16

Octave : -3 to +3

Each pitch sequencer is monophonic and has a 4 octave range (-2 to +2) with an amplitude bar for each step .

Controls :

Command + Click - Clears step (**Pitch & Amp**)

Shift + Click - Instances full step (**Amp only**)

Shift + Click - Fine Tune (**Pitch Only**)

Option + **Command** + Click - Clears all steps (**Pitch & Amp**)

Alt + Click - Changes all steps by the same amount (**Pitch & Amp**)

Shift + **Alt** + Click - Fine tune amount - All steps (**Pitch & Amp**)

Alt (Mac) - **Option** (Windows)

Command (Mac) - **Ctrl** (Windows)

Filter Sequencer



The filter sequencer has the same [key controls](#) as the pitch sequencer .

Unlike the pitch sequencers , the filter sequencers are polyphonic .

When editing the pitch sequencer , the numbers 1-16 will light up to show which steps are active , to aid in editing the filter sequencer steps .

Each active step in the pitch sequencer will trigger the amp / filter envelope & aux envelopes & LFOs (if set to retrig) .

Note : If any of the pitch sequencers are turned on , **MM+ will only play monophonically** . If sequencer 1 is active , and you have a waveform selected in oscillator 2 , you will need to turn on sequencer 2 to hear oscillator 2 .

If **mono** mode is selected (main page) , and sequencers 1 , 2 or 3 have the active notes on the same step , only one of the pitch sequencers will sound .

Global



Retigger : Restarts all sequencers when a note is triggered (legato) .

Oneshot : Sequencers trigger once and do not loop .

Rate : Synced only - **1/1** to **1/128** .

Duration : Sets note length - **0%** - **200%** .

Click once on any of the 1-8 **Write** buttons and the sequences will be saved to that memory location . Click the same **Load** button to recall . To save the setting to disk , click on the *Bank* **Save** button .

Writing sequences will save all 3 pitch sequencers' setting **or** both filter sequencers' setting . If you are in the pitch sequencer page , and you write to a memory location , only the pitch sequencers' settings will be saved , and vice versa .



Effects

Transient Shaper

Used for altering the transient characteristics of a sound .

Input : Controls the input gain

Attack : Controls the scaling of the attack section of the sound's amplitude envelope .

Sustain : Controls the scaling of the sustain section of the sounds' amplitude envelope .

Output : Controls the output gain .

The transient master is especially useful for sequenced or arpeggiated sounds .



Phaser

Speed : Controls the LFO's modulation speed .

Depth : Controls the amount of LFO modulation .

Feedback : Controls the amount of emphasis (feedback) of the all-pass filter .

Mix : Controls the respective mix of the wet & dry signals .



Delay

Time : Controls the delay time .

Feedback : Controls the amount of signal that is fed back into the delay line .

Pan : Controls the amount of panning of the delayed signal .

Mix : Controls the respective levels of the wet & dry signals





Panning :

Pan : Controls the position in the stereo field for each oscillator .

Rate : Controls the speed of the LFO modulation of the pan position .

Depth : Controls the pan LFO amount

LFO waves : Sine / Triangle / Sawtooth / Square / S&H

Reverb :



Pre-Delay : Controls the amount of delay time between the input signal and the wet signal .

Size : Stretches or compresses the impulse response's length .

Send : Controls the respective levels of the wet & dry signal .

Type : Selects the impulse response .

List of Impulse Responses :

Soft Space
Closed Space
Deep Space
Chamber
Smooth
Classic (plate)
Warped
LX Hall 1
LX Hall 2
Big Hall
Non Lin 1
Non Lin 2
Dreamy
Reflections
Empty Space
Drift Away
Sacred
Ambience
Echo
Panning
Unknown
Comb Filter
Wide Open
Long Decay
Noise Wash

IR's are loosely organized by size . Smaller (top) - larger (bottom) .

All IRs were made using a range of hardware reverbs , delays and a eurorack modular system .



Tips

CPU :

MM+ can be heavy on **CPU** under certain circumstances . Here are some tips to reduce CPU load :

Unison - Use only in Mono / Legato mode . If you use it in poly mode , multiple oscillators and/or filters will cause CPU overload .

Arpeggiator chord mode - another heavy cpu user . To lessen CPU consumption , reduce amp envelope release time . Minimize number of oscillators / filters . Use shorter impulse responses .

Amp Release - Longer release times demand a *lot* more CPU .

DAFT LP in Filter 2 consumes more CPU than the other filter modes . In polyphonic mode with multiple oscillators , it might be an issue for some CPUs . Use the lighter LDR LPx filter modes instead .

MM+ includes programming to mimic the Memorymoog's behaviour . Most oscillator groups use an amp LFO and / or a pitch LFO for small amounts of pitch & amplitude variation . If you dont need / want this , it is fairly straightforward to turn it off .

Click the **Spanner Icon** button (top left - Kontakt main window) .

Click the **Group Editor** button .

Enable **Edit All Groups**

Click on **Osc 1 Sawtooth Wave** Group

Click the **Mod Tab** in the **Tune** section

Reduce the **bottom LFO** (multi) **intensity** to zero

Repeat in the Amp tab .



Tips (continued)

To allow as much range in the pitch sequencers as possible (4 octaves) , compromises were made . This makes the sequencers a little fiddly to use . Each visual step is 2 semitones , which can make precise editing less than ideal . You can either use the shift-click combination for fine tuning , or go for the trial and error method .

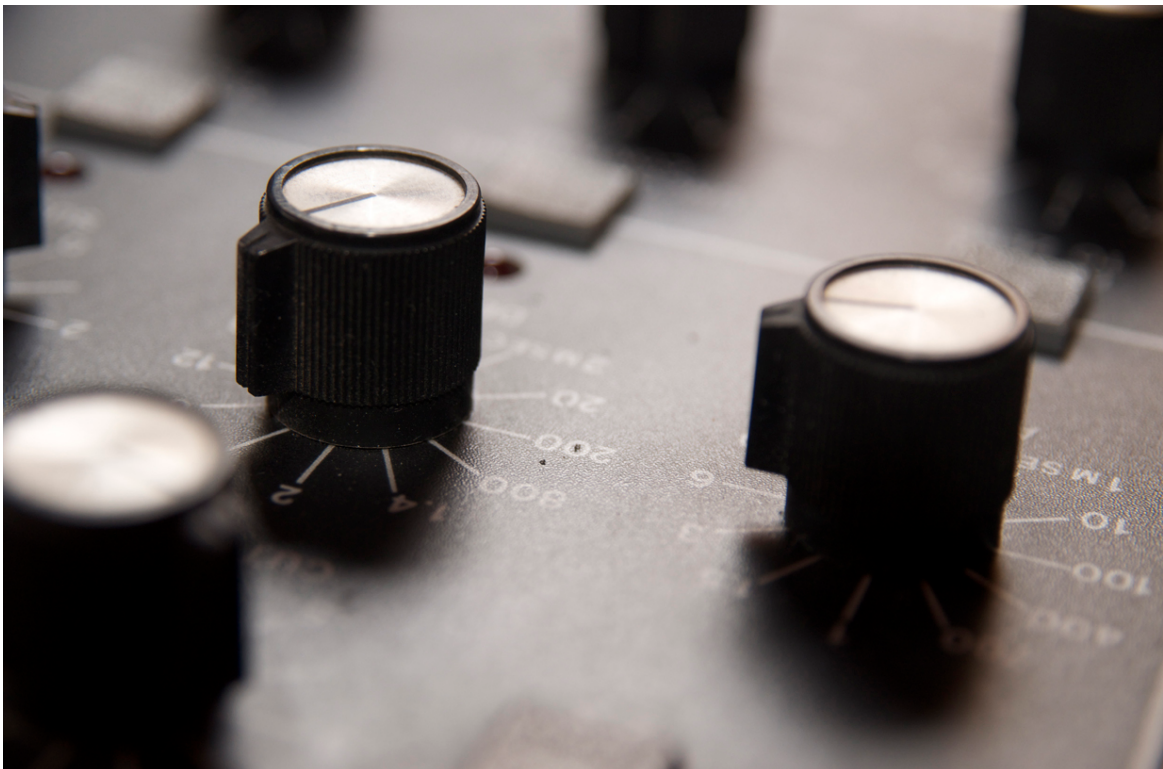
Modulation :

Almost everything in MM+ can be modulated via Midi CC . Right (ctrl) - click on a destination and a “Learn CC Midi Automation” dialog box will appear . Move your desired controller and voila !

Besides destinations , like level , cutoff , resonance , lfo speed etc , you can automate individual arpeggiator steps , sequencer steps (number) & octaves , arpeggiator & sequencer rates , and a whole lot more .

Miscellaneous :

Command-click on any parameter resets it to its default state .





Credits

Concept & Sounds : Simon Ball

Graphical User Interface : Anders Hedstrom

Kontakt Programming : Mario Krušelj

A huge thank you to both Mario and Anders for their work , and patience .

Special thanks to Patrick Walsh.

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