

# moonwind mk II

ANALOG FILTER TRACKER

## Quickstart Guide

### Single Presets

After turning on, the moonwind mk II is in Single mode and in the main menu i.e. quick edit mode.

The filter and the effects processor now work like a filter bank and can be edited directly by the rotary knobs. Each change is immediately audible and can be stored right away.

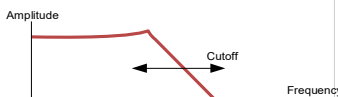


### SINGLE/SEQ

This button switches between the single mode and sequence mode. In single mode, the moonwind mk II works as a standalone filter bank.

### CUTOFF

This knob controls the cutoff (corner) frequency of the filter. According to the shape setting of the filter you change the fundamental properties of the filter and its sound influencing. The range goes from 16Hz-ca. 35KHz and accordingly covers the whole audio range.



The moonwind mk II owns two identical filters. Therefore only one side is described more detailed here because the three, in a triangle arranged knobs Cutoff, Q and Res have the same function on each filter.

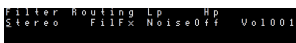
### Encoder 1-4

To the left of the OLED display there are four endless encoders which can adjust different values corresponding to the selected mode.

Four parameters are to be changed in every menu page. These incremental rotary knobs always work relative to a chosen parameter and increase with clockwise movement and decrease with counterclockwise rotation. In quick edit mode, the encoders edit the 4 FX parameters directly.

### Noise

Press the NOISE button, and a menu opens:



You can decide here if white or metallic noise is fed into the moonwind mk II filter or not. For some experimental sound applications this can be very useful. The moonwind mk II emerges to be a complete sound producer. Noise = 001 produces white noise. Above that the metallic noise pattern is a binary scheme derived from the noise value. None is the same, and you have a huge variety of metallic noise patterns to explore. Some are a bit tonal, some are hissy and noisy. The higher the number is, the more complex the repetitive noise signal can be.

### Noise Volume

The noise mixed to the main signal flow can be volume controlled here.

### Midi In

This jack serves to control the moonwind mk II by another Midi capable device, e.g. a soft- or hardware sequencer, a controller box, a Jomox Alpha Base or similar.

The moonwind mk II is processing midi note commands. Both FIL and VCA envelopes are triggered. The notes control the cutoff of both filters. The note number is scaled in such a way that with self-resonating filters roughly musical semitones are met – however the filter modes are never as precise as the VCO of a synth. The pitch varies with Q and resonance amount and the logarithmic scaling is not perfect too. Who expects here a synthesizer with perfect tuning will be disappointed - this is an analogue filter bank and not a synth.

### Midi Out

Serves to transmit Midi data from the moonwind mk II to another Midi capable device, e.g. a soft- or hardware sequencer, in order to exchange data.

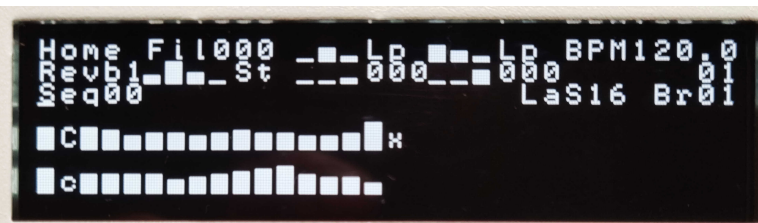
### Midi Thru

Serves to bypass Midi data from the moonwind mk II to another Midi capable device. The incoming Midi messages get passed through by hardware to the Midi Thru port without any change.



### Editing the Sequencer

Press the button SINGLE/SEQ. If the moonwind mk II was in the quick edit screen of single mode before, the display switches to sequencer mode now. The single preset quick screen remains in the display:



The bars of various height represent the values for the cutoff (or another parameter) which are played back at the steps of the sequence.

Besides cutoff, the sequencer can record and play back Q and resonance as well.

### START

Starts the sequencer. Regardless of the Single/Seq mode the sequencer runs and shows the played steps by the flashing of the Start LED. You can still move the cutoff knobs and add the steady cutoff value to the sequence.

### STOP

Stops the sequencer.

### RECORD

Activates the realtime recording of Cutoff/Q/Res knobs movements while the sequencer is running. You can see the recorded changes as a bar graph only if you are in sequencer mode. With UNDO/EXIT you can undo up to 1000 edit steps.

Record can only be activated if the sequencer is playing. The red LED next to the button lights up. Pressing the button again leaves the record mode.

### Editing Sequences via Touchpad

Go to Sequence Step Edit Mode by pressing STEP, and you can move the cursor with the touchpad and change the sequencer bars by moving up/down with your fingertip. Double touching flips between the left and right sequences.

### GAIN

Controls the gain of the input. The moonwind mk II can process almost any input levels, from weak guitar signals to very high studio line levels of +20dBu. Please adjust the gain so that the neighbored Peak LED just does not light up yet.

### DRY/WET

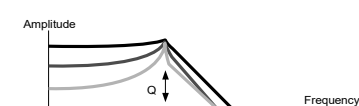
Controls the mix between the direct signal and the effects amount. Turned whole to the left the output signal equals the input signal without effects (bypass), turned fully clockwise you get the pure effects signal.

### VOLUME

Controls the output level. The output is unbalanced and adjustable from  $-\infty$  to about max. +20 dBu.

### Q

The Q (Q = quality) adjusts the narrowness of the filter. A high value leads to a nosy filter adjustment, a small one to broadband sounding filter. At Resonance = 0 the filter will not self-oscillate but instead becomes extremely narrowbanded if Q is at maximum.



### RES

Adjusts the resonance of the filter. Opposing to most other synth filters the moonwind mk II has different settings for Q and Resonance. With resonance the filter becomes able to self-oscillate and can produce a stable sine oscillation at cutoff frequency. To make this happen, Q must be set higher than zero as well.

### Touch Mode

Whilst you are in Single Mode, double touch on the touchpad, and shortly „Touch Mode On“ will be prompted in the display.



The screen empties and a dot follows your fingertip on the display. In the right half of the screen you control the right hand cutoff by right-left movement and the Q/Resonance by up/down movements. The left half applies for the left filter in opposite direction regarding to the cutoff.

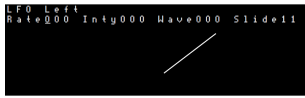
That makes the filters tweet and whistle at your fingertip, and you can expressively play the filter.

### Recording Sequences via Touchpad

If you want to record, just start the sequencer, and as soon as you touch the touchpad, recording starts automatically. All movements get recorded into the sequencer. Fun!

**LFO**

Press LFO1 or LFO2.



With the LFO (Low Frequency Oscillator) you can create interesting modulations of the cutoff. Slowly uprising and fading filter sweeps up to tonal vibratos are possible. A large number of 64 wave forms is at your choice.

If the filters are in self-resonance, you can create modulated sine waves with the LFOs which remember of large modular systems.

Turning the rate above 127 turns on Midi clock sync to the LFOs.

**LFO sync modes**

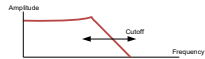
Abbreviation	One LFO Wave	Abbreviation	One LFO Wave
S32	1/32 <sup>n</sup> note	S3t	1/32 <sup>n</sup> -triplets
S16	1/16 <sup>n</sup> note	S6t	1/16 <sup>n</sup> -triplets
S8h	1/8 <sup>n</sup> note	S8t	1/8 <sup>n</sup> -triplets
S4h	1/4 <sup>n</sup> note	S4t	1/4 <sup>n</sup> -triplets
S2h	1/2 note	S2t	1/2-triplets
S1B	1 bar	S1t	1 bar-triplets
S2B	2 bars		
S4B	4 bars		
S8B	8 bars		

**SHAPE L / SHAPE R**

This button changes the Shape (form) setting of the left or right filter. By pressing it again four different shapes step through. They are displayed in the OLED. There are four settings:

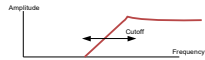
**Lp (Low Pass)**

Only low frequencies up to the cutoff (corner) frequency get passed. The trebles are being cut off.



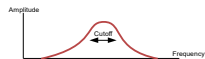
**Hp (High Pass)**

Only the high frequencies down to the cutoff frequency get passed. The low frequencies are being cut off.



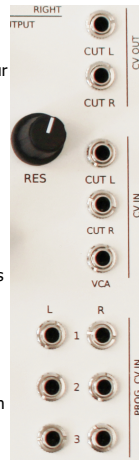
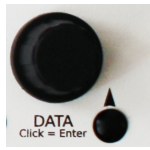
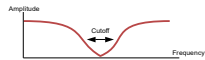
**Bp (Band Pass)**

Only frequencies within the pass band around the cutoff frequency get passed. The high and the low frequencies are being cut off.



**Nt (Notch)**

All frequencies except the stopband around the cutoff frequency get passed. The band around the cutoff frequency is cut out.



**CV Outputs**

CV OUT left and right of the internal cutoff CV. If you want to use the internal cutoff sequence to control an external device (for instance a VCO or another filter), connect it here. The CV follows all the internal filter modulations including sequencer, FIL Envelope and LFOs. Output 0-5 Volts.

**CUT L CV IN**

CUT L = Left cutoff  
Adds the CV to the internal cutoff of the left filter. So you can modulate the modulations if you will. This external CV does not affect the internal CV processing and works only on the hardware filter output. The CUT L in can be operated with negative CVs too, ranging from -5V to +5V.

**CUT R CV IN**

CUT R = Right cutoff  
Adds the CV to the internal cutoff of the right filter. Works the same like CUT L above.

**VCA CV IN**

VCA = final VCA (Voltage Controlled Amplifier)  
This jack has a switching function: unplugged the VCA is fully open and under control of the moonwind mkII OS, and as soon the plug is inserted the VCA only follows the applied CV. 0 Volt CV = VCA closed and no signal comes out. 5 Volt CV = VCA fully open and signal passes through.

**FIL Envelope / VCA Envelope**

Press ENV.

The moonwind mkII has got a filter and a VCA envelope that can be triggered by a midi note event. The first note opens the envelopes and the last released note releases the envelope on played chords. So you can use the moonwind mkII as a noise synthesizer or synth enhancement and add an analogue filter to your synth if you audioroute it through the moonwind mkII and apply the same midi notes. Pressing ENV again toggles between the FIL and VCA envelope.

You can adjust the typical ADSR parameters Attack, Decay, Sustain and Release with the 4 encoders. The simple graphics follows the values.  
→ Please note that only the display is linear but not the physical signal that modulates the CV. It's classic exponential. For the sake of simplicity it's drawn with straight lines.

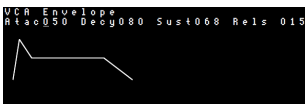
**Filter Envelope**

The filter envelope works on both filters, but the modulation amount can be different for each filter.



**VCA Envelope**

The VCA envelope controls the loudness curve of the final VCA (Voltage Controlled Amplifier). Please note that this strongly interacts with the parameter VCAm (VCA Amount). If VCAm is zero, only the envelope can open the VCA and the moonwind mkII is silent if no midi notes apply. If VCAm is opened to 127, the VCA envelope has no effect. The values between let the signal get through and add a little VCA loudness curve. Default-wise this value is fully opened, because the moonwind mkII actually works as a standalone filter in the first place.



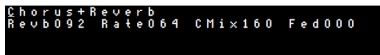
**Preset Selection**

By turning the DATA encoder you can recall a maximum of 256 preprogrammed sounds – a small number of them are factory presets. The number and the name are shown at scrolling. By clicking on the DATA knob the chosen preset gets loaded. A second way to choose presets is by stepping up or down with the Up/Down buttons. Now you don't have to explicitly load the preset, it loads automatically.

**Effects Program**

Press ALG.

The effects processor of SPIN semiconductor offers 7 unchangeable ROM programs and 8 algorithms updateable via OS, which makes a total of 15 effects programs plus a test program without function. They can be chosen one after each other.



On this page, you can select the effect program with the DATA encoder or the Up/Down buttons. Because the three available fx parameters have a different meaning for each fx program, the value description of them changes individually for every algorithm.

Firm algorithms of SPIN Semiconductor:

Algorithms 8-16 of Jomox:

Algorithm	Parameter 1	Parameter 2	Parameter 2
Chorus+Reverb	Revb (Reverb Level)	Rate (Chorus Rate)	CMix (Chorus Mix)
Flanger+Reverb	Revb (Reverb Level)	Rate (Flanger Rate)	FMix (Flanger Mix)
Tremolo+Reverb	Revb (Reverb Level)	Rate (Tremolo Rate)	TMix (Tremolo Mix)
Pitch Shift	Pitch (Pitch Shift)	-- (no function)	-- (no function)
Pitch Echo	Pitch (Pitch Shift)	Dely (Delay Time)	Echo (Repetition)
Test no FX	-- (no function)	-- (no function)	-- (no function)
Reverb 1 (Open Reverb)	Time (Reverb Time)	Hfil (Reverb Highpass)	Lfil (Reverb Lowpass)
Reverb 2 (Dense Reverb)	Time (Reverb Time)	Hfil (Reverb Highpass)	Lfil (Reverb Lowpass)

Algorithm	Parameter 1	Parameter 2	Parameter 2
Stereo Delay (Dual delay with cross feedback)	TimL (Delay time left)	TimR (Delay time Right)	Pfng (Ping pong L/R)
Delay + Chorus (Mono delay with chorus)	Time (Delay time)	Dmix (Delay mix)	Cmix (Chorus mix)
Wave Guide 1 (Single pipe with filter)	Pipe (Pipe pitch)	Rfx (Reflexion coefficient)	Filt (Lowpass filter)
Wave Guide 2 (Dual pipe)	PipA (Pipe A pitch)	PipB (Pipe B pitch)	Rfx (Reflexion coefficient)
Bit Crusher (Bit cut, quantize and chorus)	Bits (Bit depth min:24 max:5)	Quan (Quantization bits mix)	Chor (Crushed+ chorus mix)
Warp Tracker (Scratch effect VCO tracking)	Trac (Tracking VCO)	VCO (VCO mix)	Chor (VCO+chorus mix)
Warp 2 (Four pipes, two filters with modulation)	Pipe (Pipes pitch)	LFrt (LFO rate)	Warp (Warp modulation)
Formant Vocoder (Vocal formants with modulation and reverb)	F1pt (Formant 1 pitch 300-1000Hz)	F2pt (Formant 2 Pitch, relative to F1 Δ400Hz-3kHz)	Revb (Reverb mix)

**FX Feedback**

With this value you change the FX feedback. If delay programs are activated, you can create beautiful tape delays and ping pong echoes, as the filter output is fed back analogously and the signal is filtered a bit more with every run through. Basically you have to experiment with each fx program to get the desired result since every algorithm interacts different with analog feedback. Attention: if FX Feedback is cranked up it may suddenly result in strong feedbacks when certain fx programs are chosen which might sound pretty awful!

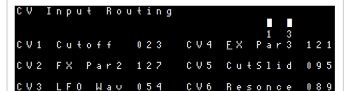
**Programmable CV IN**

Six CV input jacks are arranged in 2 columns.

The L (left) column modulates the left filter parameters and vice-versa for the R (right) column. Besides the filter-related parameters there are more parameters that can be routed from both sides.

**CV Input Routing Parameters**

You have to press SET L or SET R to program the assignments.



For each CV input you have a parameter that it routes to and an amount that goes from 0..127. If the amount is > 0 and a CV is applied to that jack, a bar appears and the number of the CV jack. The height of the bar symbolizes the CV voltage multiplied with the amount, i.e. the resulting modulation depth of the destination parameter.

CV Parameter	Abbreviation	CV amount result	Applies
Cutoff	Cutoff	0..511	L/R
Q	Q	0..511	L/R
Resonance	Resonance	0..511	L/R
Filter Mode	Fil Mode	0..3	L/R
LFO Rate	LFO Rat	0..127	L/R
LFO Intensity	LFO Int	0..127	L/R
LFO Waveform	LFO Wav	0..63	L/R
FX Parameter 1	FX Par1	0..127	Global
FX Parameter 2	FX Par2	0..127	Global
FX Parameter 3	FX Par3	0..127	Global
FX Feedback	FXFeedb	0..127	Global
FX Algorithm	FX Alg	0..15	Global
Noise Volume	NoiseVol	0..127	Global
Metallic Noise	MetaINz	0..127	Global
Cutoff Slide	CutSlide	0..31	Global
VCA	VCA	0..511	Global

