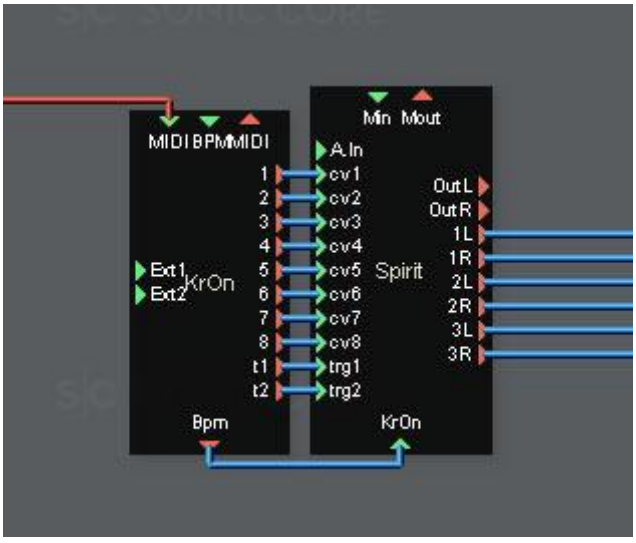
SPIRIT

Semi-modular DCV synth

SpaceF-Devices 2018



Content

INTRODUCTION

Spirit is a hybrid FM/VA Paraphonic synth to be used with SpaceF KrOn, or with external modulators from Modular Patches, VSTi and audio tracks, and Eurorack modulators.

Spirit oscillators use **FM**, **Ring** Oscillators, **VA**, and rely a lot on **Phase cancellation** through the mix of the different oscillators and filters.

Spirit's filters are fully stereo. There are 4 filter types inside: 1 formant filter (evolution of BB2 voxal), 1 Dual BandPass (evolution of BB2 SideBand filters), and two 24dB low pass filters.

Spirit can be used "standalone" just like most Scope synths.

Used with KrOn or external modulators, it becomes a **rhythmic and melodic machine** to create sequences with up to 6 different sounds (5 internal sound sources + 1 external audio): you can **modulate the volume of each "oscillator** mixer channel", the filters, and the final VCA. You can achieve complex sequences very quickly.

You can **modulate 21 parameters** with **8 external modulators,** and **2 trigger inputs**.

You can **trigger the VCA** with the included LFOs, external triggers, CV, and of course notes on/off.

You can also **modulate the speed of LFO 2**.

OSC 1

Oscillator 1 is an FM oscillator modulated by a multi-oscillator.

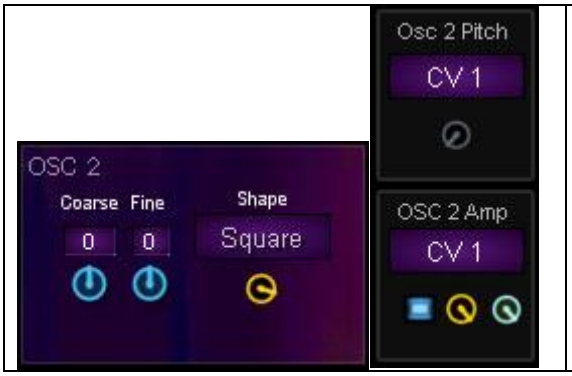
The arrows and triangles show the audio and modulation streams.

The “Modulator” oscillator modulates a “Carrier”.

The Tuning of the Carrier is like the “root key” of the Modulator. The modulator pitch is relative to the Carrier pitch.

You get access to the Pitch of the Carrier and Modulator independently through the CV modulation. You can also modulate the “FM amount”: the FM amount pot of OSC 1 should be more than 50%. The modulation will not well be hearable at low FM amounts.

OSC 2

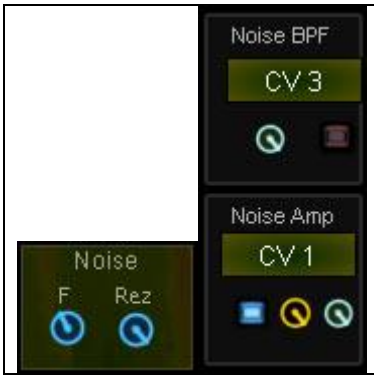


OSC 2 is a classic multi-oscillator.

The square “pulse width” parameter appears only when “square” is selected.

You can modulate the pitch and the Amp through CV.

FILTERED NOISE OSCILLATOR



The Noise oscillator is a white noise with a 24dB resonant Bandpass.

You can modulate the Band Pass Frequency and the Noise Amp through CV.

AUDIO INPUT

Basically made to input 1 external sound source such as oscillators from a Eurorack or Modular Patch, or Vsti Synth. A Mono effect allows to Equalize or apply effects before hitting the filters.

OSCILLATOR MIX

You can send oscillators to filter 1 (green) or Filter 2 (red)

OSC 1 can be switched between FM Osc and Analog oscillator (the 'Modulator" oscillator).

You still have access to all FM parameters to use in the Ring oscillators.

The Ring oscillators should be used as oscillators of their own.

Phase cancellation is a normal and wanted effect in Spirit. Subtlety in the volume of each oscillator is required for a wider range of results.

You can modulate the Amp of each Ring oscillators through CV.

THE FILTERS

The filter section is where you will fine tune your sound.
There are two filters:

Filter 1 is a chain of Fomant + LowPass or Dual-BandPass+Lowpass.
You have access to the Formant/DualBand or Lowpass filters individually.

Stereo options are different for each filter. For example, the formant allows different L/R vowel and filter. The low pass can be stereo modulated through CV modulation.
Filter 2 has L/R offsets and stereo CV modulation.

Please note that Formant filter is a "slow"

filter, that sounds great used like a phaser, but that cannot achieve fast and angular modulations. However, it is great to color the sound in stereo by applying different vowels and offsets to the Left and Right channels.

The Button at the top-left of the Filter 1 section allows switching between a Formant and a Dual-Bandpass filter.

In the Dual Band Pass filter, you have access to both resonances independently. You can also set the Frequency of the second band relative to the main one, with the tiny grey pot below the Frequency pot.

FILTER MIXER

Tip: The direct outputs of Spirit are taken after the Pan of each 3 channels of the filter mixer.

Filter 1 is stereo or "dual mono".

You can have Formant, Low pass, or Formant + Low pass independently on each channel. Gain, high pass, and pan are also available independently. The insert slots are for mono Fx, such as Eqs.

You can, link the gain and High pass faders by clicking on the orange button between the two faders.

The gain faders are +12dB gains, and distortion can occur easily with bass sounds.

If you get distortion, lower the gain below 0dB.

Filter 2 is always stereo.
It also has a 12dB booster gain and can distort.

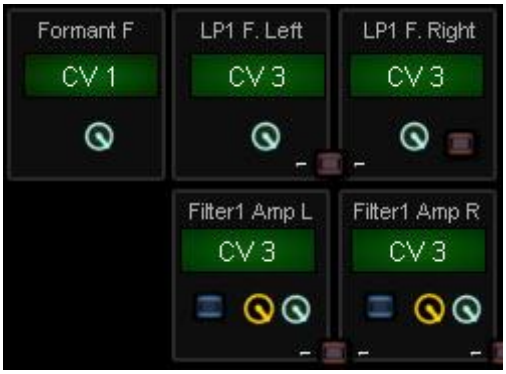
The HPs of Filter 1 are 12dB (2 poles) and the HP of filter 2 is 24dB (4 poles).

Pans are centered at -6dB, which allows to merge the dual channels of Filter 1 (by centering both Pan like on the picture).

To use Filter 1 in stereo, put each pan on its extreme Left or Right position. Filter 2's Pan is generally left untouched, as stereo is controlled through CV. It is there in case it is useful, to get a better L/R balance if needed.

FILTER CV CONTROLS

Filter 1



Filter 2

The formant filter modulator is the same for L/R channels. Stereo formant is achieved with the vowels and offsets rather than with CV modulators.

The 'LP1.F" is the Cutoff of the low pass and it can be modulated independently on left and right channels.

The Amp CV section allows modulating the level of filter 1 L/R channels independently.

The button between 2 CV modulators allows linking all or some parameters such as selectors and CV level.

The button at the right of some CV level is a "inverse modulation" which allows to create stereo effects with the same modulators on L and R channels.

To save resource, inverse modulation is available on the Right channel.

LFO 1 & 2

LFOs can be synced to BPM or to KrOn.

The LFO can be retriggered by a notes on/off (keyboard or midi track) or manually on the press of a button.
Make sure the Trigger buttons are "on" if you want to retrigger (on the picture attached, they are both off, ie, the LFOs are running freely and do not retrigger).

LFOs are classic SpaceF-LFOs (perfect sync with Daws).

Phase starts at -180° for saw up/down and at 0° for square, sine and triangle.

LFO 2 speeds can be modulated through CV.This CV input allows to select LFO1 to modulate LFO2. The precision of the "modulated-modulation" has been limited in order to save resources, while being able to achieve something useable with most common LFO rates (from ¼ to 16 per cycle).

VCA

Classic scope ADSR.

The VCA can be trigger by Notes-On, LFO 1, LFO 2, Trigger 1, Trigger 2, or a CV signal.

The “Time” parameter allows stretching all ADSR parameters at once :
- divide by 10 (minimum position),
- multiply by 10 (max)
- 1:1 (middle position).

TOP PARAMETERS

A display allows showing the preset name of the main preset list.
The No CV list recalls all parameters except the CV modulators.
The “Drone Button” allows bypassing the final VCA, and using Spirit without a midi keyboard or daw.

OTHER PARAMETERS

Classic **Master Tune**, **Pitch bend** and **Portamento** functions.

Keyboard range allows to use Spirit is a split configuration with other SpaceF Synths.

The **Output level** is a mix level (- inf to 0dB), and can be boosted up to +12dB.

Thanks a lot for your interest in Spirit!

 www.spacef-devices.com