



SpectroMorph

Dual-Bank 16 Band Filter Array

Introduction

SpectroMorph is a 2-bank, 16 band filter array inspired by the likes of the FRAP Tools FUMANA (<http://frap.tools/products/fumana/>) and the Buchla 296e Spectral Processor (<https://buchla.com/296e-spectral-processor/>)

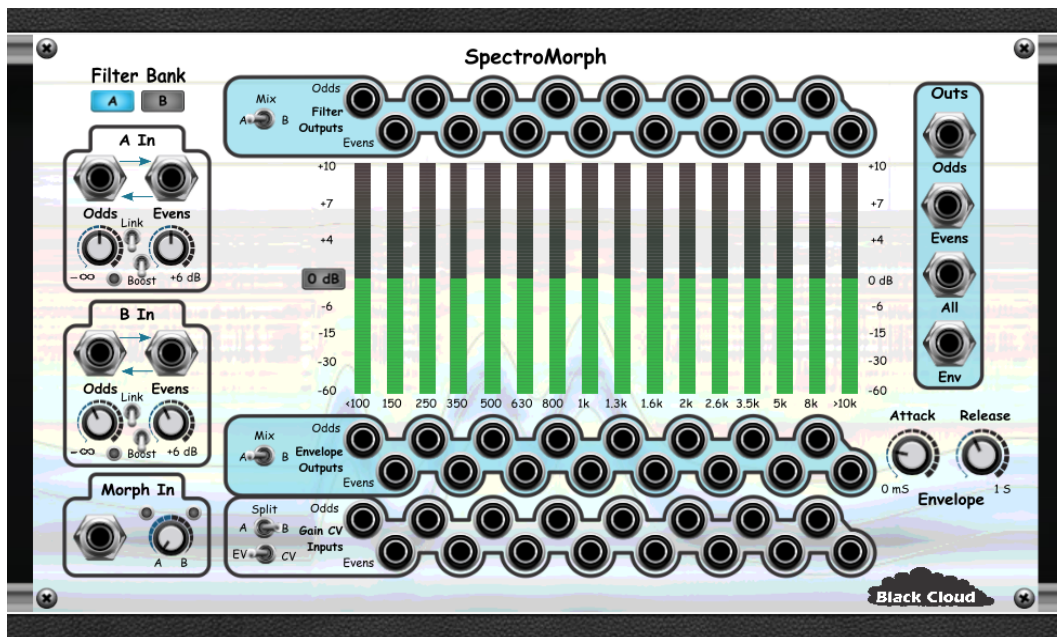
Each filter bank has separate "odd" and "even" inputs, adjustable input gains, and a +10dB "Boost" function for use with low-level inputs. A "Morph" knob and CV input allow the output from the two filter banks to be blended or switched between.

16 individual filter outputs are switchable between the two banks and the blended outputs. Each filter also has it's own VCA, with "touch sensitive" gain controls, and Envelope Follower. Each filter also has it's own switchable outputs for the it's envelope follower output and VCA gain CV inputs. The VCA gain inputs can configured for either CV (-5V0..5V0) or EV (0V0..5V0) signals.

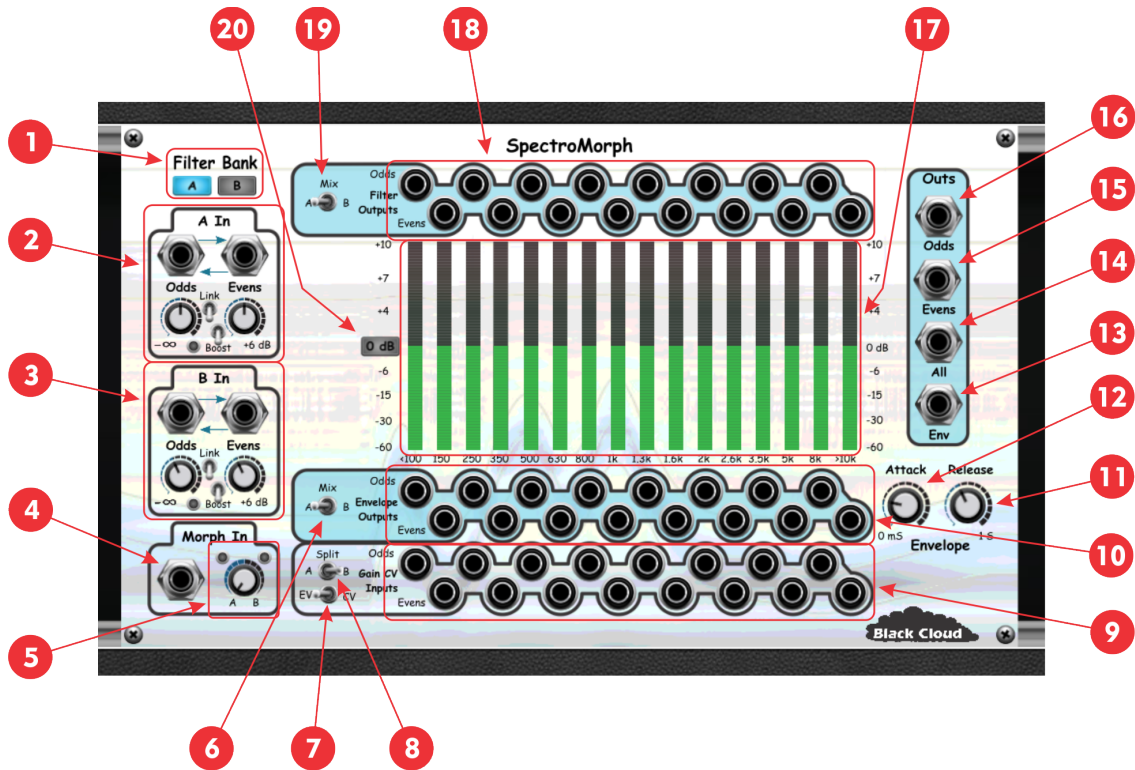
Summed "Even", "Odd" and "All" outputs are also provided.

Global Attack and Release Time adjustments are applied to all the filter Envelope Followers as well as an overall follower that tracks the "All" output.

The "EV" setting, and some cables, allows the module to be configured as a Vocoder, with one input signal acting as the carrier, and the other the modulator... Spectral Morphing, here we come!.



Knobs, Buttons and Sliders



1	Filter Bank Display Switches between displaying the “A” and “B” filter gain controls.	12	Envelope Attack Time Adjust envelope follower attack time for all envelope followers (filter and master).
2	Filter Bank A Input See “Input Section” below for details.	13	Envelope Output, “All” Envelope follower output for the “All”/Master output channel.
3	Filter Bank B Input See “Input Section” below for details.	14	Filter Bank Output, “All” Summed output of all filters in one or both banks as per the current Morph value.
4	Morph CV Input Morph from bank A to B under CV control.	15	Filter Bank Output, “Evens” Summed output of all odd numbered filters in one or both banks as per the current Morph value.
5	Morph Knob and LEDs Controls and displays the Morph amount. Set fully counter clockwise for Bank A only, fully clockwise for Bank B only.	16	Main Filter Bank Output, “Odds” Summed output of all odd numbered filters in one or both banks as per the current Morph value.
6	Envelope Output Selector Route envelope from Bank A, Bank B or A/B Mix to the Envelope Output Jacks.	17	Filter VCA Gain Controls The VU Meters are “touch sensitive” and adjust the VCA gain for individual filters.

7 Gain Scale Select Select CV (-5v0..5v0) or EV (0V0..5V0) scaling for gain input signals.	18 Filter Output Jacks Individual filter outputs.
8 VCA CV Input Selector Route input CV signals to the VCAs for Bank A, Bank B or both banks.	19 Filter Output Selector Route filter outputs from Bank A, Bank B, or A/B Mix to the Filter Output Jacks.
9 VCA CV Input Jacks Individual VCA gain CV inputs.	20 0 dB Reset Reset currently displayed gain sliders to 0 dB position.
10 Envelope Follower Outputs Individual Envelope Follower outputs.	
11 Envelope Release Time Adjust the envelope follower release time for all envelope followers (filters and master).	

Input Section Details

Both filter banks have identical input controls, as detailed below. Both A and B bank inputs are normaled such that if only one of the “Odd” or “Even” inputs for a particular bank is connected, the signal will be duplicated to the unconnected input of the bank. Additionally, if no inputs are connected to the B bank, both are normaled to the matching input in the A bank.

A Filter Bank “Odds” Input Input signal distributed to odd numbered filters (1, 3, 5, etc.).	
B Filter Bank Input Gain, “Odds” Adjust gain for odd numbered filters.	
C Input Boosted LED On when Input Boost is enabled for the filter bank.	
D Input Boost Boosts filter bank input level by 10dB. Useful with low-level audio inputs.	
E Filter Bank Input Gain, “Evens” Adjust gain for even numbered filters.	
F Input Gain Link Links the Odd and Even input gain knobs.	
G Filter Bank “Evens” Input Input signal distributed to even numbered filters (2, 4, 6, etc.).	

Example Vocoding Configuration



<p>A Modulation Signal Left and Right outputs from the Sampler, connected to Bank B inputs.</p>	<p>F “EV” Gain Scaling Selected For processing Envelope Follower level signals.</p>
<p>B Carrier Signal In this example, a MegaSaw oscillator, connected to Bank A “Odd” input (and normaled to the “Even” input).</p>	<p>G Bank A VCA Inputs Selected To access the VCAs for the carrier signal in Bank A.</p>
<p>C Input Boosted (Optional) For low-level input signals, apply +10dB of boost.</p>	<p>H Envelope To Gain Connections Using cables, route the envelope outputs to the VCA inputs. You can get creative here, swapping evens for odds, mix them up as you like.</p>
<p>D Morph Knob Fully Counterclockwise So only the output from Bank A will be routed to the global outputs.</p>	<p>I Adjust Attack and Release Times Tune the global attack and release times for best performance/desired results with your input source and filter settings.</p>
<p>E Bank B Envelopes Selected To access the Envelope Followers for the modulation signal in Bank B.</p>	<p>J Output to Host Connect the “All”, “Odd” or “Even” output to the host input or some other module (for further processing).</p>