

# ENSEMBLE

## String Synthesizer

by Max for Cats

(+ Chorus Ensemble & Ensemble Phaser)

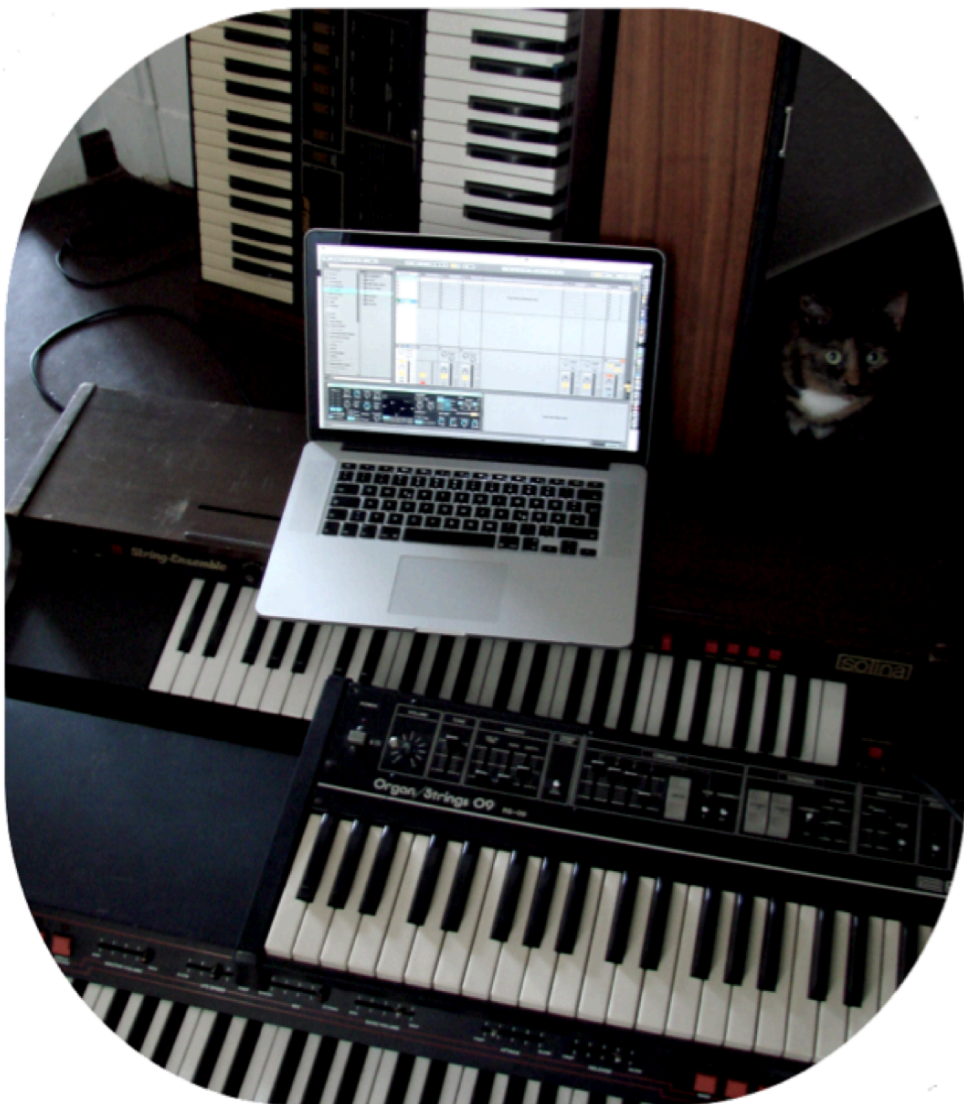
Thank you for purchasing the Ensemble Max for Live String Synthesizer.

Ensemble was inspired by the string machines from the 1970's such as the Solina String Ensemble, the Arp Omni and others. It is not meant to be a copy of those machines nor a substitute but its aim is to fill a similar sonic space.

Here's a nice history lesson about the birth of string synthesis:

<http://www.soundonsound.com/sos/feb07/articles/freemanstring.htm>

Max for Cats wishes you a lot of fun and inspiration with the new instrument and effects!



In addition to the Ensemble instrument itself, the Ensemble Live pack also includes two audio effects, which are commonly associated with those particular sounds: the Ensemble Chorus and the Ensemble Phaser.

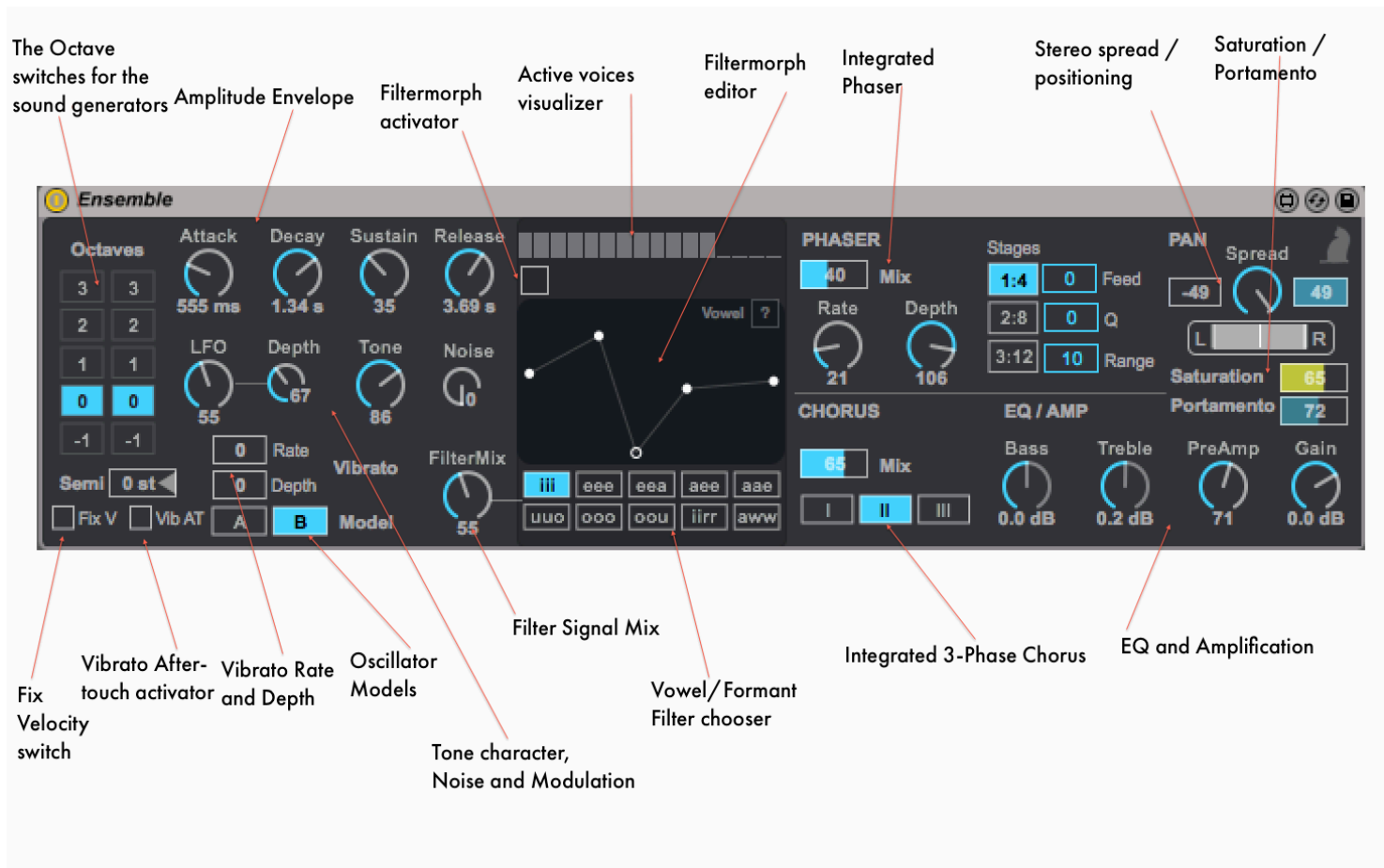
Both are integrated in the Ensemble instrument but if you want to apply these effects to other sound sources, simply use these standalone audio effect versions.

## I. System Requirements:

Live 9.0.1 or higher, Max for Live 6.1.6 or higher.

Any 'modern' computer will do. If it can handle Live, you should have no problems with Ensemble.

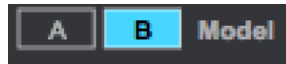
## II. Ensemble Overview



### III. Ensemble function

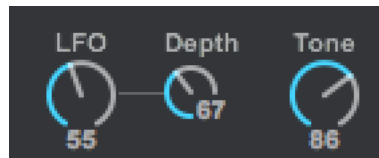
#### The Oscillators:

The main sound sources of Ensemble are 2 antialiased Oscillators per voice. These produce either triangular or rectangular waveforms. You can switch between the Oscillator waveforms with the 'A-B' Model buttons:



The Tone labeled dial will offset the pulse-width and therefore change the tonality / character of the sound.

The pulse-width can be modulated with the LFO and this modulation intensity can be adjusted with the LFO Depth dial.



A pulse-width modulated wave produce two pitches simultaneously, so the perceived result is a sonically rich sound. Performing this on 2 Oscillators produces then of course 4 pitches.

Each of the Oscillators pitch can be transposed with the Octave switches, while Oscillator 2 can also be detuned in semitones:



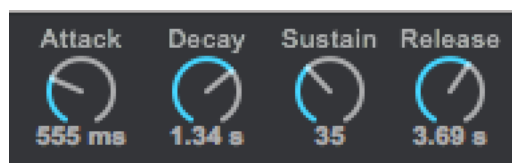
You can pitch-modulate the Oscillators with the Vibrato function:



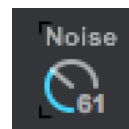
Note that you can control the Vibrato via Aftertouch: 

If this function is active, the depth parameter is controlled with the amount of Aftertouch applied to it. Please adjust the Vibrato rate according to your taste and needs.

The Attack, Decay, Sustain, Release - type Envelope lets you shape the amplification of the sound:

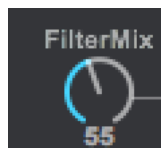


You can also add a touch of noise to the signal patch via the Noise dial:



## The Filter

A unique characteristic of the Ensemble is the Formant/Vowel filter. You can mix the filtered with the unfiltered signal with the FilterMix dial:

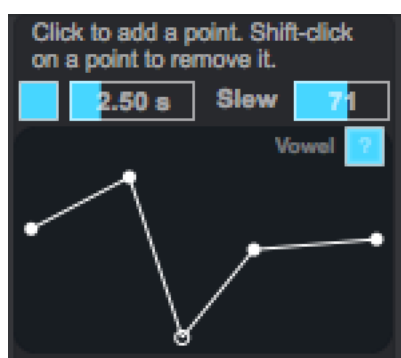


This formant filter offers 10 different vowel filters, this can be identified and, if the filter-morph mode is switched of, manually activated.

The filter types are:



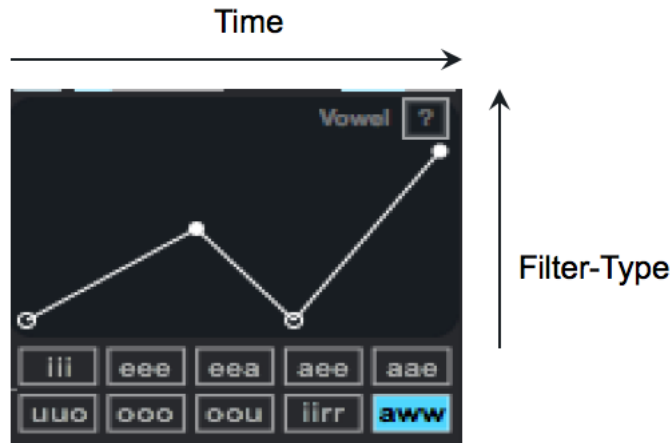
Above the filter type section, there's the unique filter morph section:



With each note on message, the filter morph 'travel' will be started.

You can grab a filter morph break-point with the mouse and place it on the XY grid. In this XY grid, the left side defines the start of the filter morphing and it will 'move' over the adjusted timespan to the right side of the XY grid.

The lower left corner is defined as the first filter type ('iii') and the right upper corner as the 'aww' type. The shape of the break-point envelope will define the time and type of the filters.



In the above example, a note on message would start the filter travel with the 'iii' filter, morph over time to the 'aee' filter type in the middle (half-way through the filter travel, come back to the 'iii' filter and finally morph through all types to the 'aww' filter. Just experiment with the system a little bit and you'll see the relationships in this system.

The filter-morph time can be adjusted from 0-10 seconds. The 'slew' parameter will smooth the transitions between the different formant / vowel filters - so if this parameter is set to 0, you'll hear stepped transitions between the filter types.

## EFFECTS

Ensemble offers various built-in effects to modify and shape the sound. These are:

- Phaser
- Chorus
- Saturation
- Equalizer

### 1. THE PHASER



The MIX parameter defines the ratio between the dry and the wet signal. The RATE parameter is responsible for the modulation speed (a sine wave modulation). It's range goes from 0-25 Hz.

The DEPTH parameter amplifies the modulation and leads to a deeper 'phased' sound.

In this case, the phaser uses Bandpass and Comb filters to achieve its sound.

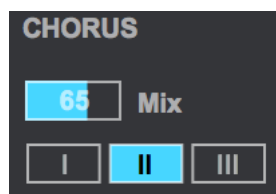
A Comb filter mixes a current input sample with earlier input and/or output samples. That is why we find the FEED parameter here - it simply Feedbacks samples back into the equation of the Comb filter.

The Q (= Resonance) parameter adjust the resonance of the Bandpass filter, which is used in the signal chain before the Comb filter. The RANGE parameter defines the frequency range of the Bandpass filter and the Comb filters Delay at the same time.

The Phaser has several stages:

1:4, 2:8 and 3:12. Usually in Phaser designs, the number of stages indicated the number of used Allpass filters but in our case the design is a little different - it defines the number of used Bandpass/Comb filter

## 2. THE CHORUS



The Chorus in Ensemble is a simplified version of the Ensemble Chorus which is, similar to the Phaser, available as audio effect device. It offers 3 Presets - while I and II are usually used for standard string chorus-type sounds, III is reserved for more drastic effects

## 3. EQ and AMPLIFICATION



Ensemble offers a simple but effective 2 band EQ for Treble / Bass adjustments.

The Bass Frequency is set to 180 Hz and can have a range of +/- 30 dB.

The Treble Frequency is set to 2000 Hz and has also a range of +/- 30 dB.

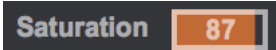
You can set the final gain with the PreAmp and Gain dials:

The PreAMP is an amplification before the Chorus/Phaser effects while the GAIN is a final volume stage.

Ensemble can boost your signal quite a lot so be careful adjusting the gains.

A lot of gain is needed because a formant filter 'shapes' the signal to achieve its sound quite heavily and a lot of 'power' is needed to turn the signal up again.

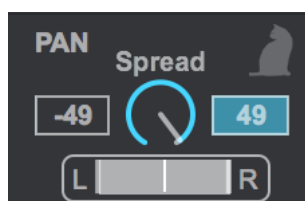
Ensemble also offers a SATURATION parameter to distort the harmonics:



Depending on the value, this parameter will change its color.

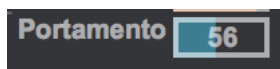
## STEREO PAN

You can freely place each of the two Oscillators in the Stereo field or simply use the SPREAD knob to equally distribute them:



a indicator (L | R) will indicate the amount of spreading.

Last but not least there is a simple PORTAMENTO function (=Polyphonic Glide) which can be adjusted.



and the FIX V button:



Unlike old vintage string machines, ENSEMBLE can be played dynamically via Velocity but in order to simulate the play-behavior of these old machines, activating this function will let you play ENSEMBLE with a fixed Velocity (value= 100).

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TIP:

PRESET AND RACK loading.

Since ENSEMBLE has quite many voices, it takes a while to load. Once loaded, hotswapping Presets does not take any time unless you swap Rack Instruments on device presets or vice versa. So: swapping racks with racks does not take any time and swapping device presets with other device presets does also not take any time.

## ENSEMBLE CHORUS



The ENSEMBLE CHORUS is a Audio Effect Device version of the built-in Chorus from ENSEMBLE. It is a classic, so-called 3-Phase Chorus.

These Chorus types are built around 3 phase-shifted and modulated delay lines.

The ENSEMBLE Chorus lets you even see the modulated delay lines in a little window!

Similar to the built-in version, you have 3 Preset buttons but in addition to that you can adjust or automate RATE, DEPTH, FEEDBACK, CENTER and DRY/WET parameters.

## ENSEMBLE PHASER

The ENSEMBLE PHASER is also 'ripped out' from the ENSEMBLE but here it is in 'true stereo'.

You can achieve wide stereo spreaded sounds via the SPREAD dial.

