

# OBSESSION



## User's Manual - Rack Extension

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## 1. Introduction

Thank you for choosing Obsession by Synapse Audio!

Obsession brings the power of a great polyphonic vintage synthesizer to your fingertips. It combines the astute modeling of voltage-controlled oscillators (VCOs), voltage-controlled filter (VCF) and voltage-controlled amplifier (VCA) with a comprehensive individual voice control that has never been done before in this detail. Each sound parameter of each voice board can be freely modified by the user, allowing to model specific hardware instances, with their rich, dynamic sound. Even extra parameters like oscillator and filter scaling, found on the real hardware, are present in this emulation. Temperature-dependent fluctuations can be simulated by the novel “Organic” knob, lifting the expressiveness and sound quality to a new level.

On top of this, Obsession offers additional controls not found on the original hardware, greatly enhancing its already impressive feature set. The most significant additions are 16-voice polyphony, Stepped LFO modes with freehand drawing and a high-quality effect block with Delay, Reverb and Chorus.

Obsession is available in VST, AAX, Audio Unit and Rack Extension formats, and supports Multidimensional Polyphonic Expression (MPE), as well as the Native Kontrol Standard (NKS).

## 2. Basic Operation

Obsession's user interface is divided into two pages: A front and a back panel. The front panel contains the main sound parameters of Obsession, while the back panel hosts additional settings, such as CV connections, Modulation Matrix, pitch bend ranges and three effect processors, Delay, Reverb and Chorus.

### 2.1. Patch selection



The patch operation in Obsession RE is the same as in any other Reason device. To select a patch, either click on the patch name, the folder icon or the arrow buttons. To save a patch, click on the disk icon.

### 2.2. Controlling parameters

Knobs, faders, and numerical displays are controlled by left-clicking on them, then dragging the mouse up or down in vertical direction (see fig. 2.2). Hold down Shift while turning knobs to slow down the movement, in order to set precise values. Use Ctrl+Click to set knobs to their default position.

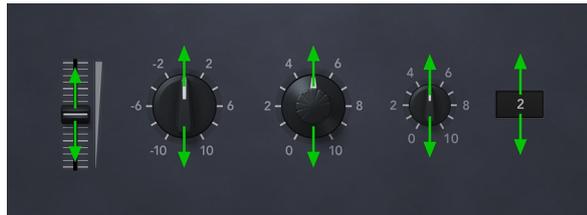


Figure 2.2. Controlling parameters

### 2.3. Controlling by MIDI

Most controls of Obsession can be remote controlled via MIDI. The default controller assignments follow common conventions and the MIDI standard as much as possible.

## 2.4. Single, Dual and Split modes



Obsession can operate in 3 modes: Single, Dual and Split.

The default mode is Single. Single mode simply plays the current patch. Whenever a key is pressed, Obsession will trigger the next free voice in Single mode.

For more advanced sound design tasks, the Dual mode can be used. Dual mode can stack two different patch settings A and B, called parts. To access the parts, click on either the "A" or "B" button. Use the fader between A and B to control the balance between both parts. Right-click on A or B to copy/paste or swap parts. You can copy parts from any patch, or from different instances of Obsession currently open. Since the Dual mode consists of two parts, pressing a key will cause two voices to be used, instead of just one as in Single mode.

Split mode functions in the same way as Dual mode. The only difference is that instead of stacking two parts, one part (A) will be played in the lower region of the keyboard, while the other part (B) will play in the upper region. This mode can be used to put e.g. a Bass sound on the lower half of the keyboard to be played by the left hand, and a lead sound on the upper half to be played by the right hand. The split point can be set on Obsession's back panel.

## 2.5. Adjusting polyphony

Obsession can be toggled between 8 and 16 voices. Since both the Dual and Split modes described above essentially cut the polyphony in half, it can be useful to double the polyphony to 16 voices in those modes. Another useful application for 16 voice polyphony is when playing pad or string sounds with a long release time. In case a specific amount of voices is desired (say exactly 6 voices), this can be accomplished by muting excess voices at the bottom.

### 3. Sound Engine

Fig. 3 shows the overall signal flow of Obsession.

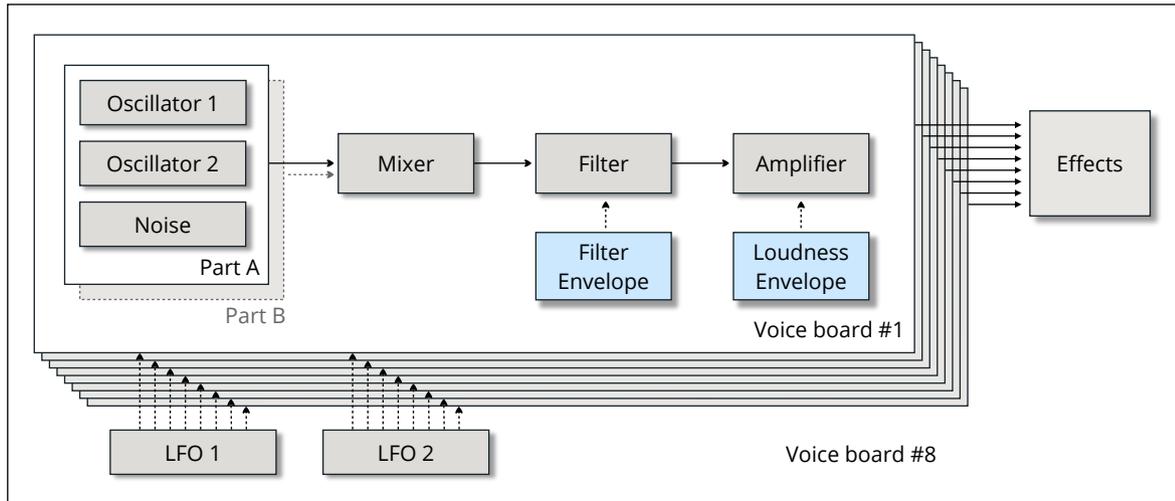


Fig. 3 Signal Flow of Obsession

Obsession uses two oscillators and a noise generator for its sound generation. Those three sources are mixed and then processed by a low-pass or band-pass filter. The output of the filter passes through an amplifier. All voices are then summed, and optionally processed by the Delay, Reverb and Chorus effects located on the back panel. The final output is scaled in volume by the Master Volume control.

The filter and amplifier are controlled by two envelopes, the Filter and the Amp envelope. On top of this there are two global modulation sources, LFO-1 and LFO-2. Both can be used to modulate the oscillators and the filter via the front panel controls. More sophisticated modulations can be set up by using the modulation matrix on the back panel.

## 4. Front Panel

This chapter describes all sound parameters of Obsession, from the top-left to the bottom-right.

### 4.1. Pitch Bend (PB) and Modulation Wheel (MW)



This section reflects the current state of the Pitch-Bend and Modulation Wheels, typically controlled via a MIDI controller. Note that the modulation wheel directly controls the amount of modulation in Obsession, without any routing matrix in between. Therefore, the state of the modulation wheel is saved with all patches, to ensure all patches sound just like the sound designers intended it. The maximum amount of pitch bending can be fine tuned on the back panel.

### 4.2. Control section



#### Portamento

Portamento is an important effect in Unison mode, where just a single voice is audible at a time. When holding down a key then pressing another new key, the voice will glide smoothly from the old pitch to the new pitch.

The Portamento parameter adjusts how fast this transition takes place. When Portamento is set to zero, the transition is basically instantaneous. When using Portamento on polyphonic patches (with Unison off), pressing a key will cause the voice just triggered to glide from its last pitch to the new pitch. This can be interesting in some cases, but the outcome is much more difficult to control than in Unison mode.

## Unison

By default, Obsession uses 8 voices (or 16 in 16-voice mode) that are triggered successively when pressing keys on your keyboard. Enabling unison turns Obsession into a monophonic synthesizer, where all voices are played simultaneously on each key press. This feature can be used to create fat bass and lead sounds.

## Osc 2 Detune

This knob controls the fine tuning of oscillator 2, relative to oscillator 1.

## Osc 2 X-Mod

Controls the cross-modulation of oscillator 2, that is how much the pitch of oscillator 2 is modulated by the oscillator 1 output. Often, X-Mod is used in combination with oscillator sync to provide a stable pitch for oscillator 2.

## 4.3. Common/Master section



## Effects

Turns on/off Obsession's global effects (Delay/Reverb/Chorus).

## Tuning

Adjusts the overall tuning of the synthesizer in a +/- 1 semitone range.

## Spread

Each of the 8 (or 16) voices in Obsession can be positioned in the stereo field, by using the Pan knob in the voice edit section. The Spread knob offers a shortcut to control the panorama of all voices at once. By turning the spread knob to the right, voices 1,3,5,7,... will be panned increasingly to the left speaker, while voices 2,4,6,8,... go to the right speaker.

## Volume

Controls the master volume of Obsession (post-fx).

## 4.4. Modulation section



Obsession features two low-frequency-oscillators (LFOs) to modulate its sound parameters. The LFOs are controlled by the parameters described below.

### LFO switches

Switch between LFO 1, LFO 1 steps control, LFO 2 and LFO 2 steps control.

### Rate

Adjusts the LFO rate from 0.02 Hz to 22 Hz. If the LFO shape is set to "Steps" mode, the rate is synchronized to the host tempo and can be set in musical intervals (half note, triplets, etc).

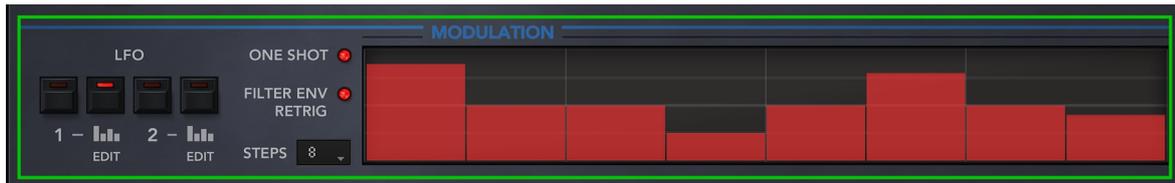
## Shape

Toggles the waveform shape between sine, square, sample-and-hold (S+H) and the step mode. Step mode allows the waveform shape to be drawn freehand.

## Depth

Depth controls how much an LFO affects the destination parameters. The destination parameters can be enabled or disabled by the switches next to the Depth knobs. The first Depth knob affects the frequencies of oscillators 1 and 2, as well as the filter frequency. The second Depth knob controls the impact of the LFO on the pulse widths of oscillators 1 and 2. Note that the pulse waveform must be selected for an oscillator for pulse width modulation to have any effect.

## 4.5. LFO Steps



The Steps control is designed to greatly improve the flexibility of the two LFOs. To use the Steps control, it must be chosen as the LFO shape for either LFO 1, LFO 2 or both.

Afterwards, the LFO will cycle through the steps which can be drawn with the mouse. The LFO Steps are synchronized to the host tempo, making it ideal for rhythmic effects. Thus, if Steps is chosen, the LFO Rate parameter is adjustable in musical intervals (1 = half note, 1/8 = eighth note, T = Triplet etc), instead of the usual Hz.

### LFO switches

Switch between LFO 1, LFO 1 steps control, LFO 2 and LFO 2 steps control.

## Steps

This pop-up adjusts the amount of steps to draw. The default of 16 steps is useful for rhythmic effects, while the maximum of 128 steps can be used to draw arbitrary LFO shapes or create an extra envelope (using one-shot mode, see below).

## One Shot

Triggers the Steps just once on each key press. In this special mode, the Steps control can be used as an additional auxiliary envelope.

## Filter Env Retrigger

Each step encountered on LFO-1 retriggers the filter envelope. In this special mode, arp-style sequences can be created.

## 4.6. Oscillators section



Obsession uses two oscillators as the core of its synthesis, which produce periodic pitched tones. The sound parameters are explained below.

## Frequency

The first frequency knob adjusts the coarse tuning of oscillator 1, ranging from 0 to +3 octaves. The second knob adjusts the tuning of oscillator 2 in the range from 0 to +63 semitones.

The detuning between both oscillators is controlled by the Osc 2 Detune knob at the top of the interface.

### **Pulse Width**

Sets the pulse width of both oscillators (when in Pulse mode). Note that the pulse width of each oscillator can be controlled individually via the Modulation Matrix, if required.

### **Waveform**

The waveform switches set the waveform shape. The available shapes are:

- **Sawtooth** if "Saw" is chosen.
- **Pulse** if "Pulse" is chosen.
- A mix of **Sawtooth** and **Pulse** if both switches are enabled.
- **Triangle** if no switch is enabled.

### **Sync**

Enables oscillator hard sync. If switched on, oscillator 2 will be reset each time oscillator 1 has finished a cycle. When changing oscillator 2's frequency, the classic hard sync sound is achieved.

To obtain interesting sounds, usually the frequency of oscillator 2 is modulated. This can be accomplished via the Modulation matrix on the back panel, or more directly by using the Filter Envelope (F-Env) switch.

### **F-Env**

If the Filter-Env switch is enabled, oscillator 2's frequency will be modulated by the filter envelope. The amount of modulation is controlled by the Env Amt knob. This is particularly useful in combination with the Sync switch above.

## 4.7. Filter section



After all sound sources have been mixed, the composite signal is sent to the filter section. The raw composite signal coming from the mixer section is typically too bright to be useful, especially when ramp or pulse waveforms are used. Most sounds have a much darker timbre, and this is where the filter section comes in. Obsession comes with a low pass filter, which attenuates frequencies above a variable cutoff frequency. Additionally there is a band pass filter, which attenuates frequencies both below and above the cutoff frequency.

### Frequency

The Frequency knob sets the cutoff frequency. When the knob is turned from right to left, the sound will become progressively darker. Note that the range of the Frequency knob is somewhat limited, mimicking the hardware it is based on. For additional brightness, the envelope amount knob or the modulation matrix can be used.

### Resonance

This knob controls the filter resonance. Resonance in a filter creates a sharp peak around the cutoff frequency, emphasizing those frequencies.

### Env Amt

Controls the amount of the filter envelope, which is added to the cutoff frequency.

## **OSC 1**

Sends the oscillator 1 signal into the filter. If this switch is disabled, oscillator 1 will be inaudible.

## **OSC 2**

Sends the oscillator 2 signal into the filter. This button has three states, off, half and full volume, corresponding to the emulated hardware. Other mix levels are possible by using the modulation matrix on the back panel.

## **Noise**

Sends noise into the filter. The level is fixed according to the emulated hardware, but can be changed via the modulation matrix if needed.

## **BP**

Turning on BP will switch to a band pass filter, instead of the usual low pass filter.

## **4-Pole**

The filter can be toggled between an attenuation of 12 dB and 24 dB (4-pole) per octave. This affects how quickly the high frequencies are attenuated above the cutoff frequency, either by 12 dB per octave or 24 dB per octave. Most common is 24 dB, however 12 dB can be useful to create brighter sounds.

Another technical difference between the 12 dB and 24 dB filters is that adding resonance increases the volume in 12 dB mode, whereas it decreases in 24 dB.

## **Track**

Enabling key track increases the cutoff frequency according to the key currently played, so higher keys correspond to a higher cutoff frequency. With key track enabled, moving up an octave approximately doubles the cutoff frequency. This is also known as 100% key tracking. Values other than 0% or 100% can be set by using the modulation matrix destination, "Filter KeyTrk".

## 4.8. Envelopes section



### 4.8.1. Filter envelope

An envelope controls a sound parameter over time, starting from the instant a key is pressed (see fig. 4.8.1). The filter envelope is designed specifically to modify the filter cutoff frequency over time. Most sounds, whether synthetic or acoustic, start out very bright then become dark quickly. The filter envelope achieves precisely this effect in combination with the low pass filter.

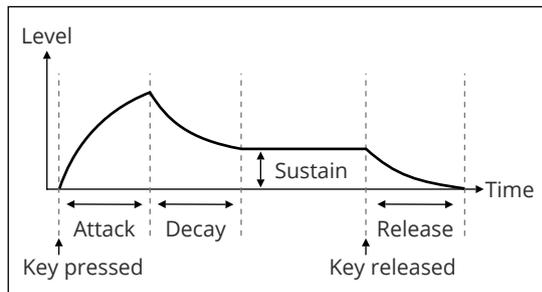


Fig. 4.8.1. The filter envelope

#### Attack

The Attack knob sets the duration it takes for the envelope to reach its maximum value. Most sounds use a setting near the minimum in order to create a snappy attack.

#### Decay

After reaching the peak, the decay stage commences. During the decay stage, the envelope falls back to a lower level, the sustain level. The Decay parameter specifies the duration of the decay stage, i.e. how long it takes to fall back to the sustain level.

## Sustain

This parameter specifies the sustain level that is reached after the decay stage ends. The sustain stage lasts as long as a key is depressed.

## Release

The release stage is triggered whenever a key is released. The release parameter specifies the duration it takes the envelope to hit zero. Note that when the sustain level is set to zero, the release parameter may have no effect if the envelope has previously reached zero already.

### 4.8.2. Loudness envelope

The loudness envelope works just like the filter envelope, but controls the volume of the sound, rather than its timbre.

## Attack

The Attack knob sets the duration it takes for the envelope to reach its maximum value. Most sounds use a setting near the minimum in order to create a snappy attack.

## Decay

After reaching the peak, the decay stage commences. During the decay stage, the envelope falls back to a lower level, the sustain level. The Decay parameter specifies the duration of the decay stage, i.e. how long it takes to fall back to the sustain level.

## Sustain

This parameter specifies the sustain level that is reached after the decay stage ends. The sustain stage lasts as long as a key is depressed.

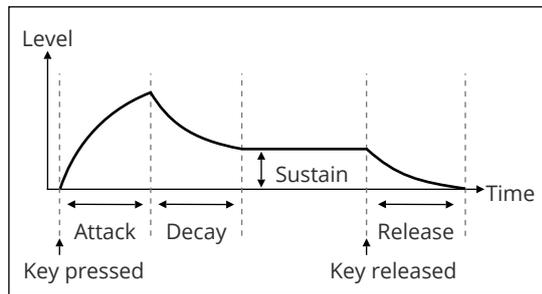


Fig. 4.8.2. The loudness envelope

## Release

The release stage is triggered whenever a key is released. The release parameter specifies the duration it takes the envelope to hit zero. Note that when the sustain level is set to zero, the release parameter may have no effect if the envelope has previously reached zero already.

### 4.9. Voice edit section

This is probably the most important feature of Obsession: Each voice can differ noticeably from the other voices in many ways, creating that organic, lively sound that vintage-analog poly synths are famous for. By clicking on one of the EDIT buttons, each of the 8 voices can be fine tuned (or each of the 16 voices, when in 16-voice mode).



After choosing one of the voices, the knobs change to trimpots, thus indicating a voice is being fine tuned. Almost all trimpots directly correspond to the underlying sound parameter. For instance, turning the Cutoff Frequency trimpot to the left means that the Cutoff Frequency of that particular voice is going to be lower than average, whereas turning it to the right means it is higher than average. Likewise, turning the Amp Release trimpot to the left is going to shorten the release time somewhat for that particular voice, whereas turning the trimpot to the right will result in a longer release time.

Some sound parameters cannot be changed per voice in a meaningful way. For instance, since the LFOs are global, those LFOs cannot have different rates per voice. Thus for those sound parameters, we devised useful alternatives:

- **LFO Offset** causes the output of the LFO to be shifted up or down per voice.
- **Pan** sets the panorama position of the edited voice.
- **SEMI** changes the tuning of the voice, in semitones. This feature can be used to create chord stabs in Unison mode.

In order to make Obsession as authentic as possible, the voice editing additionally also comprises a few voice trimpots seen only in analog hardware:

- **OSC Scale 1/2** adjusts the oscillator key tracking across the keyboard. In any analog synthesizer based on VCOs, this key tracking is imperfect. Furthermore, since all oscillators in all 8 voices have a slightly different key tracking, there is a lot of pleasant variation in the sound when playing the synthesizer.
- **Filter Scale** adjusts the key tracking of the filter per voice, if key tracking is enabled (TRACK switch on).
- **Filter presence** adjusts the treble of the filter when in 24dB mode (i.e. the 4-POLE switch is on). If the presence trimpot is turned to the right, the filter sounds somewhat brighter, while turned to the left it sounds darker. The difference is easiest to hear if the filter is fully open.

#### 4.10. Active/Mute voice section



This section indicates the voices that are currently playing. Additionally these buttons work as switches by which the specified voices can be muted (left mouse click) or soloed (Alt + left mouse click). This can be useful to set up a particular polyphony, for instance a single, monophonic voice.

## 5. Back Panel

The back panel of Obsession provides parameters to fine-tune the analog simulation and hosts the parameters of the Delay, Reverb and Chorus effects.

### 5.1. Mod Matrix



Obsession features a modulation matrix with six slots.

A modulation matrix is used to combine different modulation sources, such as LFOs, envelope generators or MIDI controllers, with specific targets such as the filter's cutoff frequency or LFO depth.

The AMT (Amount) knob between a source and destination controls the amount of modulation. Set to center, there is no modulation. Negative values correspond to negative modulation while positive values correspond to positive modulation.

#### 5.1.1. List of Sources

The following section lists all available modulation sources with a brief explanation. All sources, whether it is MIDI data or synth parameters, are converted to the same range, which is [0,+1] for unipolar and [-0.5,+0.5] for bipolar sources. The LFOs, the Pitch bend wheel and the Random modifier are bipolar sources, all other sources are unipolar.

The current value of a source is multiplied with the amount value [-100 to +100] in the same modulation slot. The result of the multiplication is then added to the selected destination parameter.

### **CV 1,2,3,4**

The CV Input signals coming from the back panel.

### **Velocity**

The MIDI Note-On velocity information, which is transmitted once at the instant a key is pressed. The harder a key is hit, the higher the transmitted value.

### **Keytrk (C0)**

The MIDI Note number becomes the source of modulation, relative to the root key C0. This means low keys emit a low value while high keys emit a high value. This source can be used to make a patch key-dependent, for instance by shortening the envelopes when pressing a higher key. This is a common feature of various acoustic instruments, for instance plucked-string instruments.

### **Keytrk (C4)**

Identical to Keytrack, however with a root key of C4.

### **Modwheel**

The MIDI modulation wheel data (controller CC#01).

### **Pitchbend**

The MIDI pitch wheel data. Note that the pitch bend wheel always changes the pitch up or down dependent on the Bend up/down setting in the main panel. Set both to zero if you wish to use the pitch wheel exclusively for a different purpose.

### **Aftertouch**

Quality MIDI keyboards not only transmit velocity, but send pressure information as well.

This parameter is called Aftertouch. In contrast to velocity, the aftertouch information is sent permanently and for the entire keyboard, not per key. It is transmitted for as long as any key(s) are being pressed.

### **Foot**

MIDI Foot controller (CC#04).

### **Expression**

MIDI Expression controller (CC#11).

### **Timbre (74)**

The MIDI controller for brightness/timbre (CC#74).

### **Const**

This source simply sends a constant value of 1. Hence, the amount setting is directly added to the destination parameter. This can be useful to set parameters only available in the modulation matrix. For instance, both oscillators and the noise generator are enabled via switches on the front panel. Using the modulation matrix with Const as the source, it is possible to set the exact level of the oscillators or noise generator where necessary.

### **Random**

Creates a random value whenever a voice is triggered. This source can be useful to add various sorts of subtle modulations, such that a patch sounds different each time a new key is pressed. This can make a patch sound more dynamic or natural.

### **LFO-1/2**

Current value of LFO-1 or LFO-2.

### **LFO\*MW**

The value of LFO-1 or LFO-2 multiplied by the modulation wheel data.

## **LFO\*AT**

The value of LFO-1 or LFO-2 multiplied by the aftertouch data. Useful to create vibrato type effects when applying pressure on the keyboard.

## **Flt Env**

Current value of the filter envelope.

## **Amp Env**

Current value of the loudness envelope.

### **5.1.2. List of Destinations**

The destinations of the modulation matrix comprise most sound parameters Obsession offers, plus most effect parameters and a few helper functions not available on the front panel.

#### **Cutoff**

Adjusts the cutoff frequency of the filter relative to the front panel knob ("Frequency") and using the same value range.

#### **Resonance**

Adjusts the resonance for the filter relative to the front panel knob, using the same value range.

#### **Env Amt**

Adjusts the envelope amount for the filter relative to the front panel knob, using the same value range. A common application of this destination is to change the envelope amount dependent on how hard a key is hit (Velocity).

#### **Volume**

Sets the voice volume. The primary application of this destination parameter is to combine it with Velocity as a source.

### **Pitch Semi**

The overall tuning in semitones. An amount value of +1 corresponds to one semitone, +12 transposes the oscillator one octave up, -12 transposes one octave down etc. This destination is useful in combination with LFO 1 or 2 in "Steps" mode, which creates arpeggiator-like melodic sequences.

### **Pitch Fine**

The overall fine tuning. The maximum amount value of +100 corresponds to a full note up, -100 means a full note down.

### **Osc 1/2 Semi**

The tuning of oscillator 1 or 2 in semitones.

### **Osc 1/2 Fine**

The fine tuning of oscillator 1 or 2.

### **Osc 1/2 Vol**

Allows to adjust the volume of oscillator 1 or 2.

### **Osc 1/2 Phase**

This destination provides a way to set the initial phase for oscillator 1 and 2. By default, both oscillators are in free-run mode. For some bass or effect sounds it can be useful to fix the initial phase, in order to have static transients that do not vary.

### **Osc 1/2 PW**

Pulse width of oscillator 1 or 2.

### **Osc 1+2 PW**

Sets the pulse width of oscillators 1 and 2 simultaneously.

### **Osc 2 X-Mod**

Adjusts the cross-modulation (X-Mod) relative to the front panel knob.

### **Noise Vol**

Adjusts the volume of the Noise generator. Useful to have more volume control than just on/off, or to create effect sounds by routing an envelope or LFO to noise volume.

### **Organic**

Adjusts the Organic parameter.

### **Flt Keytrack**

Adjusts the filter key tracking, where an amount of +100 corresponds to 100% key tracking. This destination parameter is useful to have more control over the precise key tracking than just the on/off state the front panel button offers.

### **Flt Attack, Decay, Sustain, Release**

Adjusts the filter envelope parameters relative to whatever is set on the front panel.

A common application of this destination is to change the attack or decay parameter dependent on how hard a key is hit (Velocity).

### **Amp Attack, Decay, Sustain, Release**

Adjusts the loudness envelope parameters relative to whatever is set on the front panel.

### **LFO 1/2 Depth**

Controls the depth of LFO 1 or 2, relative to the front panel knob.

### **LFO 1/2 Rate**

Controls the rate of LFO 1 or 2, relative to the front panel knob.

## Part Mix

Adjusts the mix between part A and part B. This destination is relevant in Dual and Split modes, it will have no effect in the default Single mode.

## DL Feedback/Width/LowCut/HighCut/DryWet

Adjusts the delay parameters, relative to the back panel knob positions. Note that all three effects in Obsession including the delay unit are global, and hence the modulation source should be typically global as well. If a per-note source like Velocity is used as the modulation source, the voice last played is used to determine the modulation value.

## RV Time/Color/Width/Regen/Shimmer/DryWet

Adjusts the reverb parameters, relative to the back panel knob positions.

## CH LowCut/HighCut/Rate/DryWet

Adjusts the chorus parameters, relative to the back panel knob positions.

## 5.2. Delay



The Stereo Delay in Obsession creates a series of echoes, synchronized to the host tempo.

## **Active**

The active switch enables or disables the delay effect.

Disabling the delay effect saves CPU if the delay is not used, i.e. set to dry.

## **Time**

Sets the delay time in musical intervals (1 = half note, 1/8= eighth note etc). All delay times have two further variations marked "T" and "\*". "T" denotes a triplet, whereas "\*" extends the delay time by +50%.

## **Feedback**

The feedback parameter adjusts how often the echoes are repeated. The parameter specifies the level change from one echo to the next, so mid position cuts the level of each subsequent echo approximately in half, etc.

## **Width**

The Width parameter blends echoes seamlessly from monophonic to full stereo.

## **Low Cut**

Echos pass through a low cut filter with an adjustable low cut frequency. Set to high values, the echoes become very thin.

## **High Cut**

The echos also pass through a high cut filter with an adjustable high cut frequency. Set to high values, the echoes become dampened.

## **Dry/Wet**

Adjusts the amount of the delay effect, by blending between the dry and processed signals.

## 5.3. Reverb



A reverb effect is used to create the illusion of a sound being played back in a spatial environment such as a living room, hall or cathedral. The reverb effect in Obsession is designed to give best results for synthetic sounds, which are often more difficult to process than natural sounds.

### Active

The active switch enables or disables the reverb effect.

Disabling the reverb effect saves CPU if the reverb is not used, i.e. set to fully dry.

### Time

Adjusts the reverb time in seconds.

### Color

Sets the damping of the reverb. High values cause the reverb to become increasingly dark very quickly.

### Width

Adjusts the stereo width from mono (0%) to full stereo (100%).

## Regen and Shimmer

The reverb in Obsession features a Shimmer effect, which blends the reverberated sound with a copy of itself, transposed up +1 octave. The Shimmer knob controls the blend, while the Regen(erate) knob creates a feedback loop of the effect, transposing additional octaves. Combined this results in a nice shimmer effect of the reverb, great for atmos, leads and pads.

## Dry/Wet

Adjusts the amount of reverb, by blending between the dry and processed signals.

## 5.4. Chorus



A chorus effect is obtained by summing a signal with a delayed copy of itself. When the delay is continuously varied with a low-frequency oscillator and separately for the left and right channel, the sound becomes thicker and more spatial.

### Active

The active switch enables or disables the chorus effect.

### Ensemble

Switches between chorus mode (off) and ensemble mode (on). Ensemble is a special kind of chorus with multiple delay lines instead of just one.

## Rate

Adjusts the rate of the chorus or ensemble effect.

## Low Cut

The chorus output signal passes through a low cut filter with an adjustable low cut frequency. Set to high values, the effect signal becomes very thin.

## High Cut

The chorus output signal passes through a high cut filter with an adjustable high cut frequency. Set to high values, the effect signal becomes very dark.

## Dry/Wet

Adjusts the amount of the chorus effect, by blending between the dry and processed signals. If the Ensemble mode is chosen, this knob controls the effect Depth instead of the blend, as ensembles must be 100% wet.

## 5.5. Global



## VCA Sat

Enables saturation in the amplifier. This will cause the output of each voice to be slightly distorted. A subtle effect, which can however spice up some sounds.

## Limiter

Enables the output limiter, which prevents the output signal from exceeding 0dB. The limiter is a zero-latency type, which means it can be used safely in most situations.

## Organic

Modulates all sound parameters in all voices randomly. This control can be used to further enhance the "analog feel" of the instrument.

## PB Range

The two Pitch Bend Range controls adjust the maximum amount of semitones the pitch wheel will transpose up or down. Note that the controls operate just like all other knobs, i.e. they must be left-click/dragged to change their value.

## Transpose

Transposes the overall pitch from -24 semitones (-2 octaves) to +24 semitones (+2 octaves).

## Split

Defines the split point between the upper and lower patch when in SPLIT mode.

## 5.6. CV Inputs



The Global CV inputs allow to modulate the pitch and modulation wheel amounts and add four CV sources to the modulation matrix.

## 5.6. Sequencer Input



The sequencer inputs can be used to connect Reason's step sequencers (such as Matrix, RPG-8, or Thor's) to program monophonic note sequences using Gate/CV signals.

## 5.7. Filter Input



External sources (both mono and stereo) can be routed into Obsession using the Filter Input jacks, in order to take advantage of its high-quality low-pass filter. The level of the signal can be controlled with the Volume knob next to the input jacks.

## 5.8. Output



This section hosts the stereo output of Obsession. For mono output, use the left (L) connector.

## Appendix A. Sound Design Reference

Ab.	Author name	Email or website
AB	Alex Butcher	<a href="https://www.alexbutcher.de">https://www.alexbutcher.de</a>
EX	Daniel Thiel (eXode)	<a href="https://soundcloud.com/exodesound">https://soundcloud.com/exodesound</a>
GW	Ghostwave	<a href="https://www.ghostwaveaudio.com">https://www.ghostwaveaudio.com</a>
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Nk	W. R. Bones	-
KS	Kevin Schroeder	<a href="https://www.facebook.com/DejaVuSound">https://www.facebook.com/DejaVuSound</a>
RH	Richard Hoffmann	<a href="https://www.synapse-audio.com">https://www.synapse-audio.com</a>
SC	Harald Karla (Soundcells)	<a href="https://www.soundcells.de">https://www.soundcells.de</a>
SM	Sascha Meola	-
TK	Marc Hoppe (Teksonik)	teksonik@outlook.com

## Appendix B. MIDI Implementation Chart

Parameter	CC#
Parts Mode	14
Parts A/B Mix	10
Portamento	5
Unison	8
Effects	13
Tuning	15
Spread	16
Volume	7
Mod LFO 1 Rate	17
Mod LFO 1 Rate (Sync)	18
Mod LFO 1 Shape	19
Mod LFO 1 Freq Depth	20
Mod LFO 1 Freq Osc 1	21
Mod LFO 1 Freq Osc 2	22
Mod LFO 1 Freq Filter	23
Mod LFO 1 PW Depth	24

Parameter	CC#
Mod LFO 1 PW Osc 1	25
Mod LFO 1 PW Osc 2	26
Mod LFO 2 Rate	27
Mod LFO 2 Rate (Sync)	28
Mod LFO 2 Shape	29
Mod LFO 2 Freq Depth	30
Mod LFO 2 Freq Osc 1	31
Mod LFO 2 Freq Osc 2	33
Mod LFO 2 Freq Filter	34
Mod LFO 2 PW Depth	35
Mod LFO 2 PW Osc 1	36
Mod LFO 2 PW Osc 2	37
[A] OSC 1 Frequency	39
[A] OSC Pulse Width	40
[A] OSC 2 Frequency	41
[A] OSC 1 Saw	42

## MIDI Implementation Chart cdn.

Parameter	CC#
[A] OSC 1 Pulse	43
[A] OSC PW O2 Sync	44
[A] OSC PW F-Env	45
[A] OSC 2 Detune	46
[A] OSC 2 X-Mod	47
[A] OSC 2 Saw	48
[A] OSC 2 Pulse	49
[A] Filter Frequency	74
[A] Filter Resonance	71
[A] Filter Envelope Amount	77
[A] Filter OSC 1	50
[A] Filter OSC 2	51
[A] Filter Noise	52
[A] Filter BP	53
[A] Filter 4-Pole	54
[A] Filter Track	55

Parameter	CC#
[A] Filter Envelope Attack	78
[A] Filter Envelope Decay	79
[A] Filter Envelope Sustain	80
[A] Filter Envelope Release	81
[A] Loudness Envelope Attack	73
[A] Loudness Envelope Decay	75
[A] Loudness Envelope Sustain	76
[A] Loudness Envelope Release	72
[B] OSC 1 Frequency	56
[B] OSC Pulse Width	57
[B] OSC 2 Frequency	58
[B] OSC 1 Saw	59
[B] OSC 1 Pulse	60
[B] OSC PW O2 Sync	61
[B] OSC PW F-Env	62
[B] OSC 2 Detune	63

## MIDI Implementation Chart cdn.

Parameter	CC#
[B] OSC 2 X-Mod	65
[B] OSC 2 Saw	66
[B] OSC 2 Pulse	67
[B] Filter Frequency	68
[B] Filter Resonance	69
[B] Filter Envelope Amount	70
[B] Filter OSC 1	82
[B] Filter OSC 2	83
[B] Filter Noise	84
[B] Filter BP	85
[B] Filter 4-Pole	86
[B] Filter Track	87
[B] Filter Envelope Attack	88
[B] Filter Envelope Decay	89
[B] Filter Envelope Sustain	90
[B] Filter Envelope Release	91

Parameter	CC#
[B] Loudness Envelope Attack	92
[B] Loudness Envelope Decay	93
[B] Loudness Envelope Sustain	94
[B] Loudness Envelope Release	95
Voice 1 Mute (#8 voices)	111
Voice 2 Mute (#8 voices)	112
Voice 3 Mute (#8 voices)	113
Voice 4 Mute (#8 voices)	114
Voice 5 Mute (#8 voices)	115
Voice 6 Mute (#8 voices)	116
Voice 7 Mute (#8 voices)	117
Voice 8 Mute (#8 voices)	118
Voice 1 Mute (#16 voices)	131
Voice 2 Mute (#16 voices)	132
Voice 3 Mute (#16 voices)	133
Voice 4 Mute (#16 voices)	134

## MIDI Implementation Chart cdn.

Parameter	CC#
Voice 5 Mute (#16 voices)	135
Voice 6 Mute (#16 voices)	136
Voice 7 Mute (#16 voices)	137
Voice 8 Mute (#16 voices)	138
Voice 9 Mute (#16 voices)	139
Voice 10 Mute (#16 voices)	140
Voice 11 Mute (#16 voices)	141
Voice 12 Mute (#16 voices)	142
Voice 13 Mute (#16 voices)	143
Voice 14 Mute (#16 voices)	144
Voice 15 Mute (#16 voices)	145
Voice 16 Mute (#16 voices)	146
LFO 1 Steps	102
LFO 2 Steps	103
LFO 1 Steps One Shot	104
LFO 2 Steps One Shot	105
Filter Env Retrigger	106

## Appendix C. Remote Map

Synapse Audio	Obsession			
Parts Mode	0	2	Value	ValueOutput
Parts A/B Mix	0B 100A	100B 0A	Value	ValueOutput
Portamento	0	10	Value	ValueOutput
Unison	0	1	Toggle	ValueOutput
Effects	0	1	Toggle	ValueOutput
Tuning	-10	10	Value	ValueOutput
Spread	0	10	Value	ValueOutput
Volume	0	10	Value	ValueOutput
Mod LFO 1 Rate	0.02	22	Value	ValueOutput
Mod LFO 1 Rate (Sync)	0	26	Value	ValueOutput
Mod LFO 1 Shape	0	3	Value	ValueOutput
Mod LFO 1 Freq Depth	0	10	Value	ValueOutput
Mod LFO 1 Freq Osc 1	0	1	Toggle	ValueOutput
Mod LFO 1 Freq Osc 2	0	1	Toggle	ValueOutput
Mod LFO 1 Freq Filter	0	1	Toggle	ValueOutput
Mod LFO 1 PW Depth	0	10	Value	ValueOutput

Remote Map cdn.

Synapse Audio	Obsession			
Mod LFO 1 PW Osc 1	0	1	Toggle	ValueOutput
Mod LFO 1 PW Osc 2	0	1	Toggle	ValueOutput
Mod LFO 2 Rate	0.02	22	Value	ValueOutput
Mod LFO 2 Rate (Sync)	0	26	Value	ValueOutput
Mod LFO 2 Shape	0	3	Value	ValueOutput
Mod LFO 2 Freq Depth	0	10	Value	ValueOutput
Mod LFO 2 Freq Osc 1	0	1	Toggle	ValueOutput
Mod LFO 2 Freq Osc 2	0	1	Toggle	ValueOutput
Mod LFO 2 Freq Filter	0	1	Toggle	ValueOutput
Mod LFO 2 PW Depth	0	10	Value	ValueOutput
Mod LFO 2 PW Osc 1	0	1	Toggle	ValueOutput
Mod LFO 2 PW Osc 2	0	1	Toggle	ValueOutput
[A] OSC 1 Frequency	0	4	Value	ValueOutput
[A] OSC Pulse Width	0	10	Value	ValueOutput
[A] OSC 2 Frequency	0	63	Value	ValueOutput
[A] OSC 1 Saw	0	1	Toggle	ValueOutput

## Remote Map cdn.

Synapse Audio	Obsession			
[A] OSC 1 Pulse	0	1	Toggle	ValueOutput
[A] OSC PW O2 Sync	0	1	Toggle	ValueOutput
[A] OSC PW F-Env	0	1	Toggle	ValueOutput
[A] OSC 2 Detune	-10	10	Value	ValueOutput
[A] OSC 2 X-Mod	0	10	Value	ValueOutput
[A] OSC 2 Saw	0	1	Toggle	ValueOutput
[A] OSC 2 Pulse	0	1	Toggle	ValueOutput
[A] Filter Frequency	0	10	Value	ValueOutput
[A] Filter Resonance	0	10	Value	ValueOutput
[A] Filter Envelope Amount	0	10	Value	ValueOutput
[A] Filter OSC 1	0	1	Toggle	ValueOutput
[A] Filter OSC 2	0	2	Value	ValueOutput
[A] Filter Noise	0	1	Toggle	ValueOutput
[A] Filter BP	0	1	Toggle	ValueOutput
[A] Filter 4-Pole	0	1	Toggle	ValueOutput
[A] Filter Track	0	1	Toggle	ValueOutput

Remote Map cdn.

Synapse Audio	Obsession			
[A] Filter Envelope Attack	0	10	Value	ValueOutput
[A] Filter Envelope Decay	0	10	Value	ValueOutput
[A] Filter Envelope Sustain	0	10	Value	ValueOutput
[A] Filter Envelope Release	0	10	Value	ValueOutput
[A] Loudness Envelope Attack	0	10	Value	ValueOutput
[A] Loudness Envelope Decay	0	10	Value	ValueOutput
[A] Loudness Envelope Sustain	0	10	Value	ValueOutput
[A] Loudness Envelope Release	0	10	Value	ValueOutput
[B] OSC 1 Frequency	0	3	Value	ValueOutput
[B] OSC Pulse Width	0	10	Value	ValueOutput
[B] OSC 2 Frequency	0	63	Value	ValueOutput
[B] OSC 1 Saw	0	1	Toggle	ValueOutput
[B] OSC 1 Pulse	0	1	Toggle	ValueOutput
[B] OSC PW O2 Sync	0	1	Toggle	ValueOutput
[B] OSC PW F-Env	0	1	Toggle	ValueOutput
[B] OSC 2 Detune	-10	10	Value	ValueOutput

Remote Map cdn.

Synapse Audio	Obsession			
[B] OSC 2 X-Mod	0	10	Value	ValueOutput
[B] OSC 2 Saw	0	1	Toggle	ValueOutput
[B] OSC 2 Pulse	0	1	Toggle	ValueOutput
[B] Filter Frequency	0	10	Value	ValueOutput
[B] Filter Resonance	0	10	Value	ValueOutput
[B] Filter Envelope Amount	0	10	Value	ValueOutput
[B] Filter OSC 1	0	1	Toggle	ValueOutput
[B] Filter OSC 2	0	2	Value	ValueOutput
[B] Filter Noise	0	1	Toggle	ValueOutput
[B] Filter BP	0	1	Toggle	ValueOutput
[B] Filter 4-Pole	0	1	Toggle	ValueOutput
[B] Filter Track	0	1	Toggle	ValueOutput
[B] Filter Envelope Attack	0	10	Value	ValueOutput
[B] Filter Envelope Decay	0	10	Value	ValueOutput
[B] Filter Envelope Sustain	0	10	Value	ValueOutput
[B] Filter Envelope Release	0	10	Value	ValueOutput

## Remote Map cdn.

Synapse Audio	Obsession			
[B] Loudness Envelope Attack	0	10	Value	ValueOutput
[B] Loudness Envelope Decay	0	10	Value	ValueOutput
[B] Loudness Envelope Sustain	0	10	Value	ValueOutput
[B] Loudness Envelope Release	0	10	Value	ValueOutput
Voice 1 Mute (#8 voices)	0	1	Toggle	ValueOutput
Voice 2 Mute (#8 voices)	0	1	Toggle	ValueOutput
Voice 3 Mute (#8 voices)	0	1	Toggle	ValueOutput
Voice 4 Mute (#8 voices)	0	1	Toggle	ValueOutput
Voice 5 Mute (#8 voices)	0	1	Toggle	ValueOutput
Voice 6 Mute (#8 voices)	0	1	Toggle	ValueOutput
Voice 7 Mute (#8 voices)	0	1	Toggle	ValueOutput
Voice 8 Mute (#8 voices)	0	1	Toggle	ValueOutput
Voice 1 Mute (#16 voices)	0	1	Toggle	ValueOutput
Voice 2 Mute (#16 voices)	0	1	Toggle	ValueOutput
Voice 3 Mute (#16 voices)	0	1	Toggle	ValueOutput
Voice 4 Mute (#16 voices)	0	1	Toggle	ValueOutput

## Remote Map cdn.

Synapse Audio	Obsession			
Voice 5 Mute (#16 voices)	0	1	Toggle	ValueOutput
Voice 6 Mute (#16 voices)	0	1	Toggle	ValueOutput
Voice 7 Mute (#16 voices)	0	1	Toggle	ValueOutput
Voice 8 Mute (#16 voices)	0	1	Toggle	ValueOutput
Voice 9 Mute (#16 voices)	0	1	Toggle	ValueOutput
Voice 10 Mute (#16 voices)	0	1	Toggle	ValueOutput
Voice 11 Mute (#16 voices)	0	1	Toggle	ValueOutput
Voice 12 Mute (#16 voices)	0	1	Toggle	ValueOutput
Voice 13 Mute (#16 voices)	0	1	Toggle	ValueOutput
Voice 14 Mute (#16 voices)	0	1	Toggle	ValueOutput
Voice 15 Mute (#16 voices)	0	1	Toggle	ValueOutput
Voice 16 Mute (#16 voices)	0	1	Toggle	ValueOutput
LFO 1 Steps	0	1	Toggle	ValueOutput
LFO 2 Steps	0	1	Toggle	ValueOutput
LFO 1 Steps One Shot	0	1	Toggle	ValueOutput
LFO 2 Steps One Shot	0	1	Toggle	ValueOutput
Filter Env Retrigger	0	1	Toggle	ValueOutput