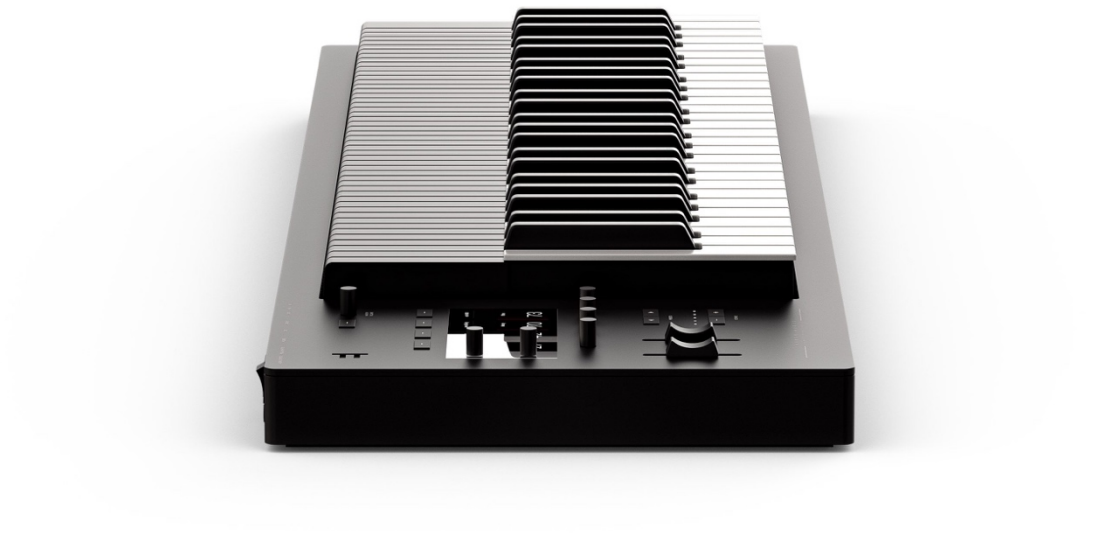
EXPRESSIVE



Osmose Manual

v1.0

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[manual v23.1.29 / Mike Lee Birds]

1. OVERVIEW

before you start

box content

- 1x Osmose expressive synthesizer
- 1x printed Quick Start Guide
- 1x product safety manual. Please read it before using Osmose.
- 1x USB cable
- 1x power supply with international adapters

lockable power supply connector



⚠️ Osmose's power supply has a locking connector to prevent accidental disconnection. When inserting, first align the power connector's wings so they match the horizontal notches on the power input. Push firmly, then rotate the barrel clockwise to secure it to the casing.

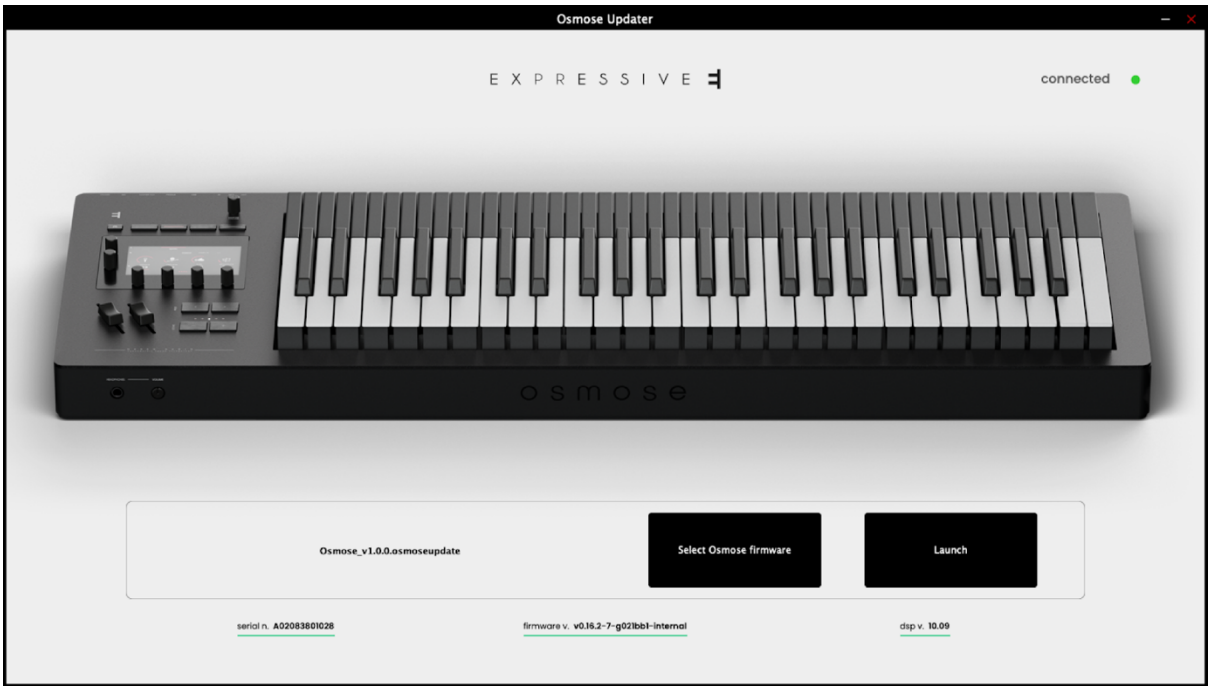
keyboard calibration

The rest position of Osmose's keys is calibrated while the unit is booting. Please make sure nothing is touching the keys during this step.

register your device

Please enter the activation code from the printed leaflet that came with your unit on the product registration page of your user account.

firmware update



We recommend that you always install the latest firmware available on your device. The OsmoseUpdater needed to update both Osmose's operating system, as well as the EaganMatrix DSP, can be downloaded from your customer account after registering your product on our website.
The procedure is explained here.

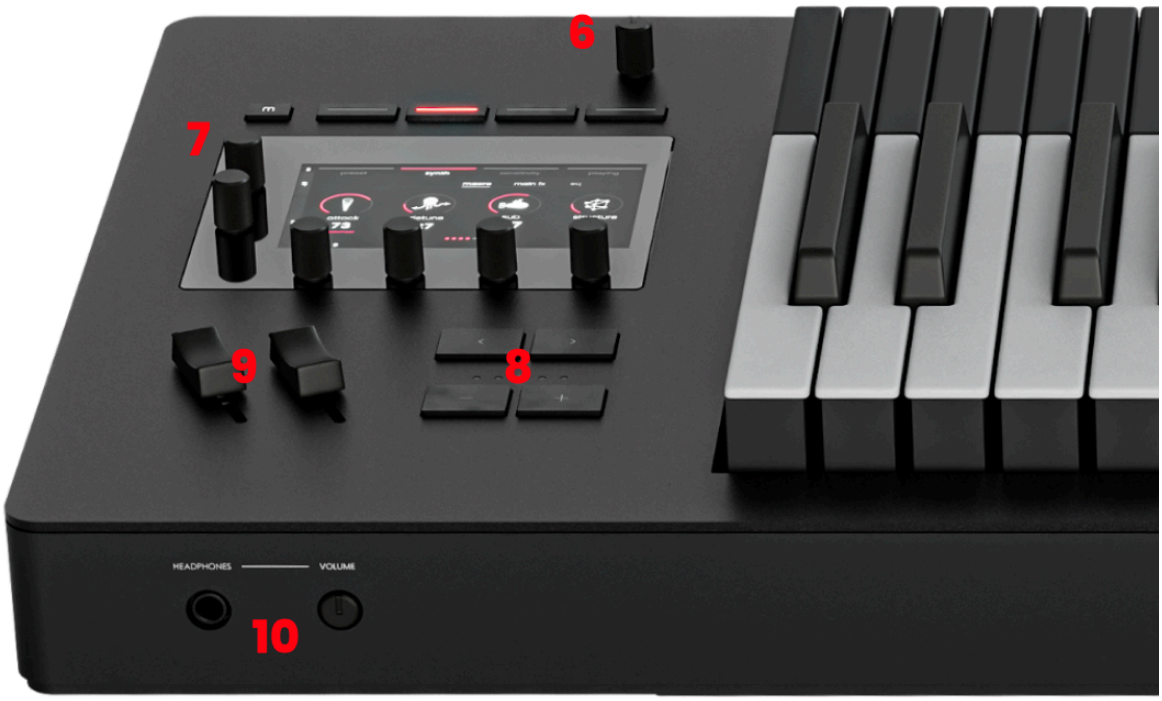
quick start video

Watch Osmose's quick start video for an overview of the internal sound engine mode.

hardware overview



1 **Power Input** - 12V, 1.5A power adaptor, center positive with lockable connector
2 **Audio Outputs** - pseudo balanced, ¼ inch TRS audio outputs, controlled by the *master volume* knob on the front panel
3 **Pedals Inputs** - Two 1/4" TRS jack inputs for continuous control of parameters. By default Pedal 1 is assigned to Sustain, Pedal 2 to a macro parameter.
4 **USB** - Class Compliant USB for bidirectional MIDI communication with a computer
5 **MIDI DIN IN/OUT**- Standard 5-pin connectors for communication with MIDI devices

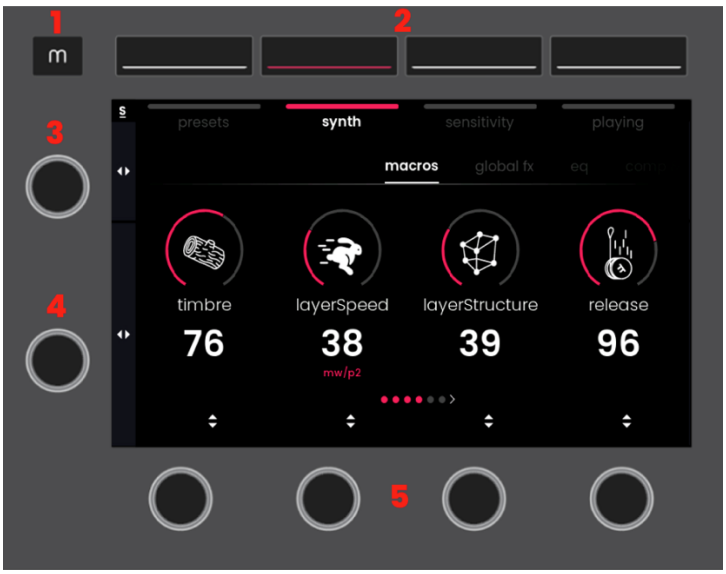


6 **Master Volume** knob
7 **Main Control Interface** - access to all of Osmose's parameters
8 **Preset and Octave Buttons** - < and > buttons select previous and next preset. - and + buttons transpose the keyboard up or down in octaves. The LEDs indicate the current keyboard transposition state.
9 **Sliders** - for global pitch bend and extra control over synth parameters

10 **Headphones Output** - 1/4" TRS stereo output, controlled by the *headphone volume* retractable knob to its right.

main control interface

The left side of Osmose is built around an interactive graphic interface that provides access to all onboard parameters. The navigation works via five buttons and six clickable encoders whose functions change depending on the current screen.



1. MODE Button - allows switching between controlling Sound Engine mode and External MIDI mode.
2. MENU Buttons - access one of the four menus of a mode.
3. TAB Selector - scrolls through the tabs of a menu. When in Sensitivity or Playing menu, pressing the Tab Selector freezes the settings of the menu to retain them even when switching presets.
4. PARAMETER Selector - scrolls through parameters inside a tab. When in Playing menu, pressing the Parameter Selector starts or pauses the Arpeggiator or switches Pressure Glide on and off.
5. VALUE Encoders 1-4 - change the value of the parameter displayed above or scroll through a list of options. Pressing a Value Encoder might perform another special operation depending on the context.

mode selection screen

Press the Mode button, then turn and press Value Encoder 1 to switch between controlling the internal Haken Audio EaganMatrix sound engine and configuring the behavior of the External MIDI mode. The two modes work in parallel and independently from each other.



A symbol in the upper left corner will indicate the currently selected mode at all times:



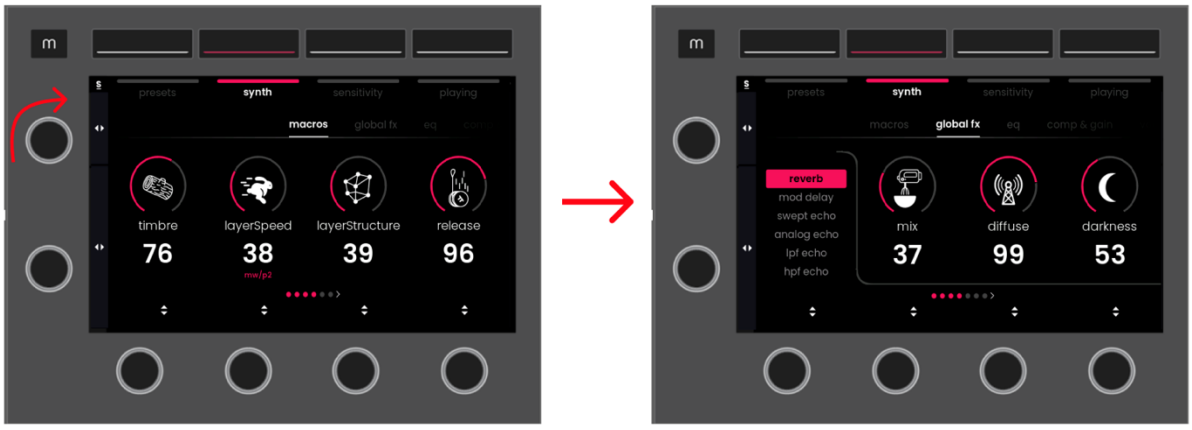
global settings

Pressing Value Encoder 4 while in Mode Selection screen opens the global settings of Osmose. They allow you to change the global tuning, calibrate pedals, display the firmware versions, change the screen brightness, etc.

navigation principles

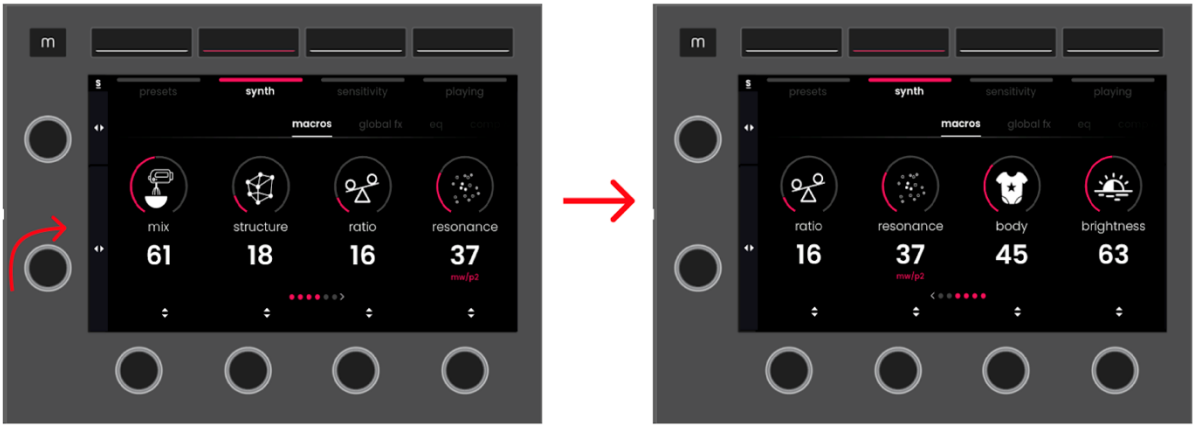
tab navigation

To select a tab in a Menu, turn the TAB Selector



parameter navigation

If more than 4 parameters are available in a tab, turn the PARAMETER Selector to display the next parameters

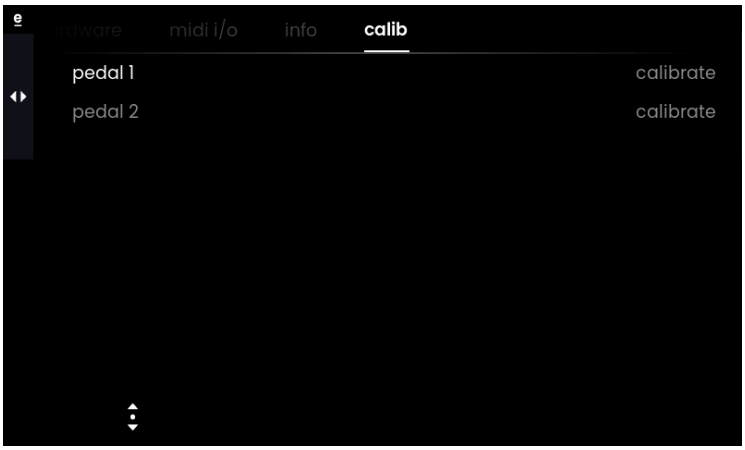




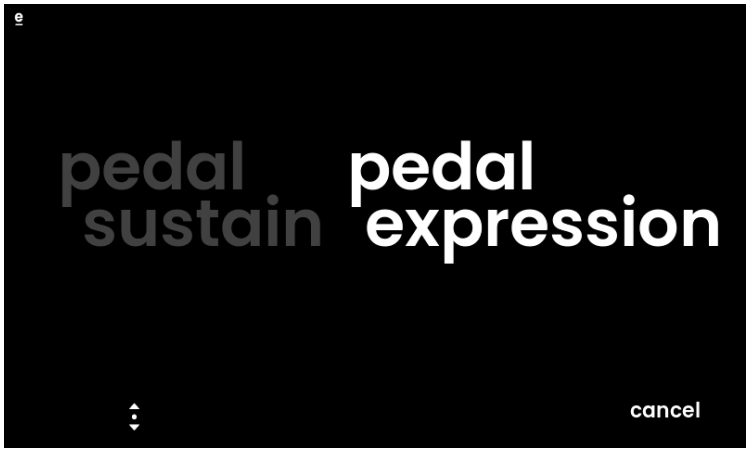
At the bottom of the screen, the icons pictured above indicate the number of total parameters in the tab.

global settings - calib tab

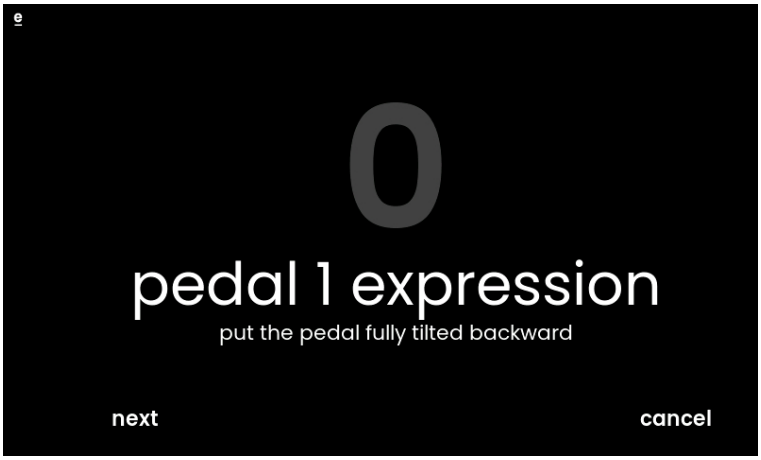
The calibration tab of the global settings allows you to calibrate the pedals connected to pedal inputs 1 and 2 of Osmose.



Turn Value encoder one to select the pedal input your pedal is connected to and then click to start the calibration process.
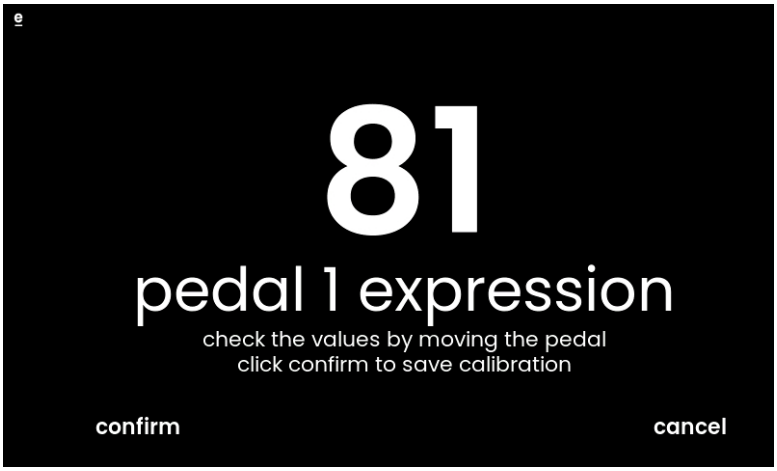


First, select whether you have connected an on/off switch (pedal sustain) or a continuous or half-damper pedal (pedal expression).



Make sure your pedal is at minimum position (or not pressed for on/off switches), then press ‘next’.



Make sure your pedal is at maximum position (pressed for on/off switches), then press ‘next’.



The last page of the calibration process lets you check whether you are able to smoothly go through values from 0 to 127. Click on confirm if all is okay. Read below if you encounter glitchy behavior.

pedal compatibility and recommendations

There is no clearly established electrical norm for pedals in the industry, so there will be several pedals that don't work well with Osmose. Here are the ones that we found to work flawlessly:

Clavia Nord Single Sustain
Dunlop Volume X Mini
Lead Foot LFD-2
Moog EP-3 [mode: other, knob at max.]
M-AUDIO SP-2
M-AUDIO EX-P [mode: other, knob set low]
Roland DP-10 [Switch]
Yamaha FC3A
Yamaha FC4A
Yamaha FC7

Don’t hesitate to share a recommendation with us if you find a pedal that works great but isn’t on the list yet.

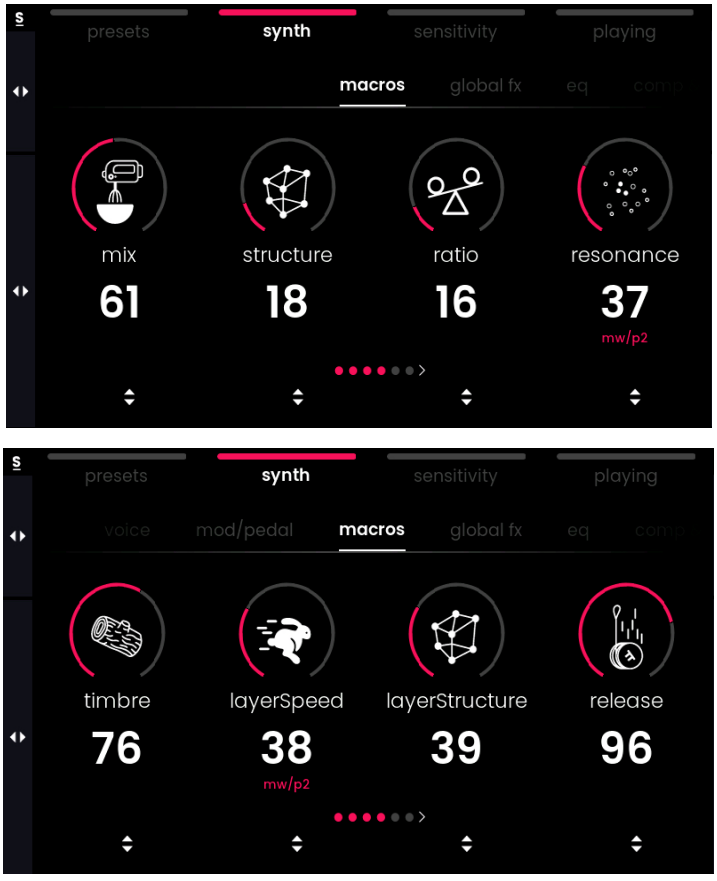
⚠️ When playing the Internal Sound Engine, we always recommend using expression or half-damper pedals instead of on/off switches with Osmose. This is due to how the sustain works in the EaganMatrix:

In the EaganMatrix, sustain/sostenuto holds the actual pressure of a sound as if you keep your fingers in that position. If a preset is programmed to not only change the intensity of the core sound but also produce an additional sound aspect when the pressure value is changed, e.g. some strings scratching or other mechanical noises, this noisy portion of the sound will be triggered in a possibly unnatural sounding way when using an on/off switch type pedal where values jump between min and max.
Using an expression or half-damper pedal will avoid glitchy noises and produce smoother results.

global settings - workflow tab



infinite scroll when enabled, you will be able to pass from the first to the last tab of a menu and vice versa without the need to scroll through tabs in between. See the first screenshot below with infinite scroll set to off, and the second with infinite scroll enabled.



Menu reset when enabled, upon switching between menus, the navigation will always bring you back to the first tab of a menu instead of showing the tab that you had last accessed within that menu.

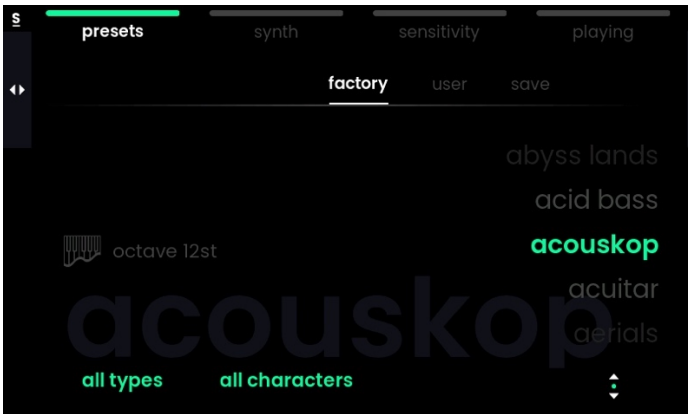
2. SOUND ENGINE MODE

presets menu

The Presets menu allows you to browse the sounds of the internal EaganMatrix sound engine and save user presets. It contains the following tabs :

factory tab : access the factory library of presets
user tab : access the user presets
save tab : save your current preset into the user preset memory

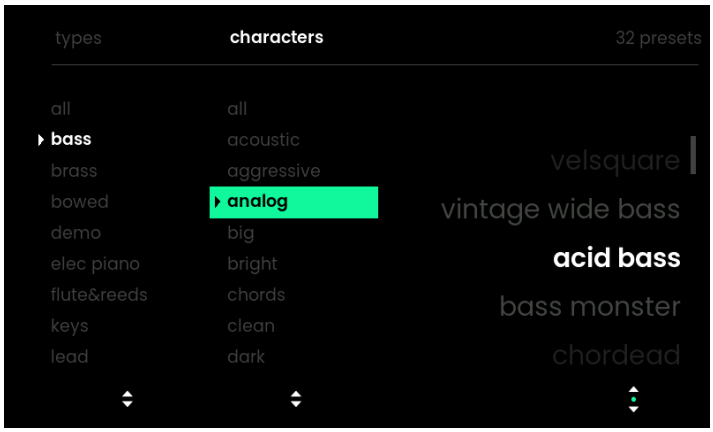
factory tab



In alphabetical order, this tab displays all the factory presets available. The currently loaded preset is highlighted in green, and also displayed in gray in the background..
Turn the right-most VALUE ENCODER to select another preset. You'll need to push the Encoder to actually load it. You can also step through the current preset list with the PRESET BUTTONS below.



If a playing feature is activated on a preset, a press glide or arp icon appears on the left side of the screen.



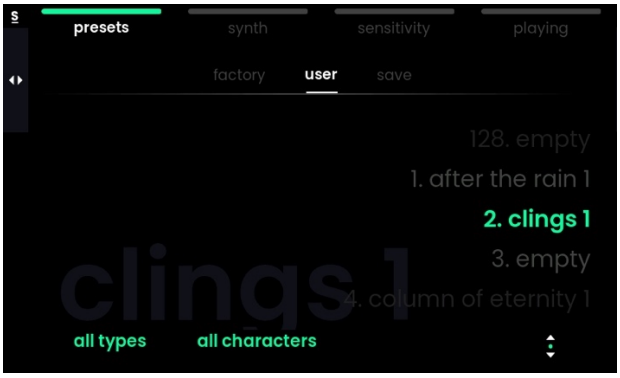
There are more than 500 factory sounds coming with Osmose, if you want to quickly find a specific sound, you can narrow down the preset list by selecting a type and character.

For this, use the first two VALUE ENCODERS.
Turn the first to choose a specific type of sound, like bass, pads, leads, or mallets.
Push or simply let go for a moment to make your selection.
Use the second encoder to filter down the list based on a sound's character, like acoustic, fm, dark, electric…

💡if you want to explore specific interactions allowed by Osmose like Strum and Shake, both are available as a character tag.

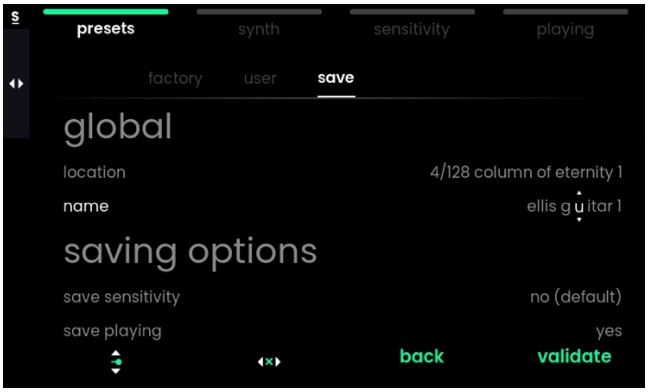
ℹ️ factory presets cannot be overwritten or erased but can be modified and saved as a user preset with the help of the next two tabs.

user tab



This tab allows you to find your modified and favorite presets or to prepare for a gig.
In memory location order, it displays all the user presets that you saved. 128 user slots are available, and the slot number is displayed in front of the preset name.
Following the same logic as the factory tab, you can narrow down the preset list by selecting a type and character.

save tab



This tab allows you to save the modifications you have made to a sound, in order to find and recall it later from the user tab.
When arriving on this tab, you can directly save a preset by clicking on the rightmost value encoder.
That allows you to quickly save a preset without editing something. However, you can change some options before saving your preset by using the left-most value encoder to select an option to edit :

location

Osmose will automatically select the first empty slot to save a preset coming from the factory library, and the same slot if you want to save again a user preset.
If you want to change the location to another slot from the 128 available, turn the first encoder to select the “location” line and click to enter in its edition. Turn the left-most value encoder to select a slot where to save to, and validate by pressing the right-most encoder.

name

To avoid duplicate preset names, Osmose will automatically add a number at the end of the name. This number will be incremented if you save the same preset in different slots several times.
To give your user preset a specific name of your choice, turn the first encoder to select the “name” line and press to enter the renaming process. You can then scroll through characters by turning the first encoder. Turn the second encoder to move the cursor. Once you’re done, validate by pressing the fourth encoder.

save sensibility

This saving option lets you decide whether or not you wish to save the current sensitivity menu settings with that preset or not.
Turn the first encoder to select the “save sensitivity” line and click to change this option.
This option is deactivated by default but could be useful in a live gig situation for instance; after playing a lead with a lot of vibrato and bending, you can directly open a key sound without any bending by default.

save playing

This saving option lets you decide whether or not you wish to save the playing menu settings with that preset.
This option is activated by default to allow you to keep the same glide settings or open an arpeggiator with your preset.

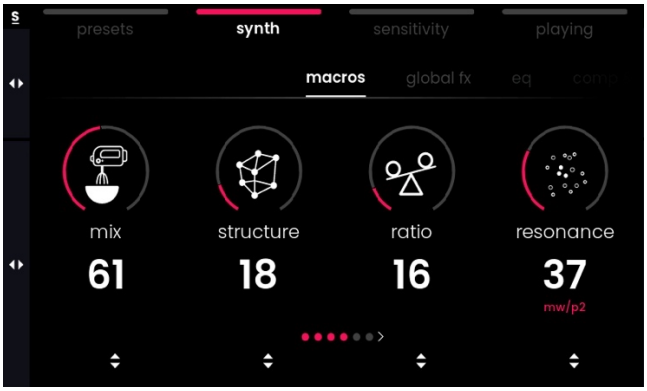
synth menu

The Synth menu allows you to adjust the sound of each selected preset individually. It also lets you change the behavior of the sliders and pedals for that sound. it contains the following tabs :

macros tab : tweak predefined macros for subtle to drastic changes to the sound of the preset
global fx tab : select the preset's global reverb or delay effect and adjust its parameters
eq tab : access a shelving equalizer to change the frequency balance between lows and highs
comp & gain tab : configure the pre-gain, the compressor settings, and the post gain
voice tab : set the pitch slider range
assign tab : define the parameters controlled by the modulation slider and the pedals.

ℹ️ If you wish to save the changes you have made, use the save tab inside the presets menu.

macros tab



The first tab in the synth menu gives access to the sound macros to change the global sound of the current preset. They allow for subtle to drastic changes to your sound and can be entirely different from a preset to another one.

Up to 6 macros are available per preset. Those macros are defined at the preset creation and can control multiple parameters at the same time. Parameters could be envelope times, cutoffs, FM ratios.. it depends on the preset type. Adjusting the value of several macros can drastically change the sound of a preset, making new variations of it.

In order to quickly find the parameter you want to adjust, you will often find the same kind of macro for presets sharing the type and character. If you are curious of what you will find or not very familiar with synthesis, here are some examples of basic macros you will often see :

analog and fm sounds

timbre changes the tone of the sound source, adding more or less harmonics

fmAmt is the amount of FM synthesis applied to the sound, generating complex timbres by modulating the frequency of one sound source with another.

fmRatio changes the FM ratio, the overtones/harmonics relations impacting the timbre of the sound

cutoff is a filter control for attenuating high or low frequencies of the sound

envAmt is the amount of envelope applied to the sound when you press the key; it is a form of automation that is triggered by the velocity of your gesture.

envTime is the time length of the envelope applied to the sound. You can for instance morph from a very long pad with a lot of release, to a short brassy sound.

modulation is a cyclic and automatic variation applied to the whole timbre of the sound.

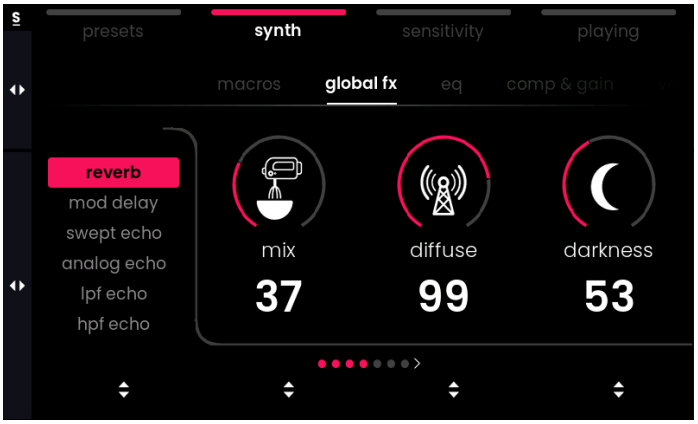
physical modeling "acoustic" sounds

structure changes the harmonics of the sound by controlling the ratio between partials: it could be perceived as changing the structure of an instrument, from a plucked string to something reminiscent of a marimba, a vibraphone...

body modified the tone by crossfading between different eq (convolutions) of instruments and material. For instance, it could morph a woody bamboo flute into something that sounds rather metallic

resonance changes the decay/release of the sound, from long at low values could be like palm muting a string or beam.

global fx tab



The Main FX Tab allows to add a sense of space to the sound by adding a global time-based effect on the preset. The first parameter selects one of the six reverb/delay types described below.
Depending on the effect chosen, four parameters allow adjustments of the FX.
Two parameters are always available :

mix controls the dry/wet of the FX, the amount of sound that passes through the FX

extend can double the effective max delay time by running the effect at a lower sample rate. This means the "wet" part of the signal contains only lower frequencies (below the half sample rate), and you have to mix in "dry" to get more highs. In many cases, this sounds pretty natural, there are many reverb effects which don't do much with highs and work well with "extend".

The effect available and their dedicated four parameters are :

reverb

A versatile digital reverb that can mimic small rooms to huge ambient spaces.
💡try to change the **extend** parameter to change time but also timbre of this reverb.

diffuse is pretty subtle, it interacts with decay time in a way. Depending on decay time, different diffuse times can make the decay sound smoother or if wanted more metallic (ringing). It helps to fine tune the reverb sound to try to get maximum quality out.
damping reduces high-frequency content with each feedback loop in the reverb. The sound gets duller over time.

darkness applies a high-frequency roll-off to the input into the reverb. The sound gets duller immediately.
decay is the amount of Decay/Reverb time

mod delay

A modulated delay for chorus and vibrato-like effect. It can sound really atmospheric, creating a very smooth modulated reverb-like sound (at the expense of obvious early reflections and a pitch tail in the echoes that sweeps a bit)

modDepth is the amount of modulation in the delay
modRate is the rate of the modulation in the delay
feedback is the amount of delay feedback
time is the delay time

swept echo

Another flavor of a delay with modulations; it can achieve a more flanger-like effect with huge stereo movements.

modDepth is the amount of modulation in the delay
modRate is the rate of the modulation in the delay
feedback is the amount of delay feedback
time is the delay time

analog echo

A delay with a more analog-like response; like some old echo, you can push the feedback to loud oscillations and play with time for crazy SFX.

noise is being added to the delay.
offset is a reverb timing offset between left and right channel (left channel time is the same as left channel time if the offset is 0 but is less when offset is increased; this effect is not a linear time scale but can be noticeable/useful in some situations.)
feedback is the amount of Delay feedback
⚠️ it can produce very loud feedback when this parameter is increased above a value of 70. Be ready to lower the volume when experimenting with this effect!
time is the delay time

LPF echo and HPF echo

A clean digital echo with a low or high pass filter for a more focused separation of the delay from the sound source.

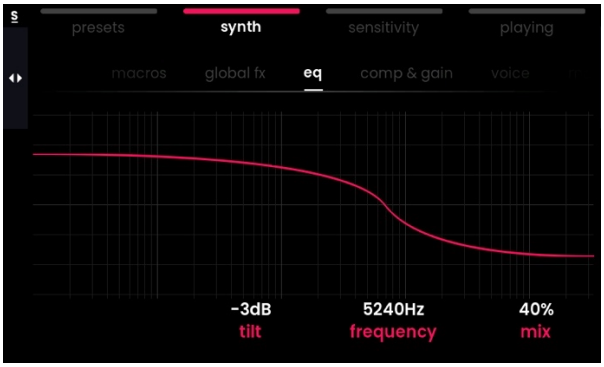
LPF or HPF : when LPF is set to zero it is similar to full damping, and when HPF is set to max it's like full damping. The LPF and HPF are applied at the very end, not

internal to the delay structure. So the echo is echoing the unfiltered signal internally, and then only filtering the output of the echo.
offset is a reverb timing offset between left and right channel (left channel time is the same as left channel time if the offset is 0 but is less when the offset is increased; this effect is not a linear time scale but can be noticeable/useful in some situations).
feedback is the amount of delay feedback
time is the delay time

💡If you still got delay like effect on your sound even with **mix** at 0, check the macro tab; on some presets, a delay-like effect is programmed directly in the matrix to add even more ambiance. A macro (often the 6th) is here to change its time or remove it from the sound.

🔴 In the EaganMatrix Editor, global fx are also called “Recirculator”. fx parameters are accessible as a destination to add even more modulations with LFO etc.

eq tab



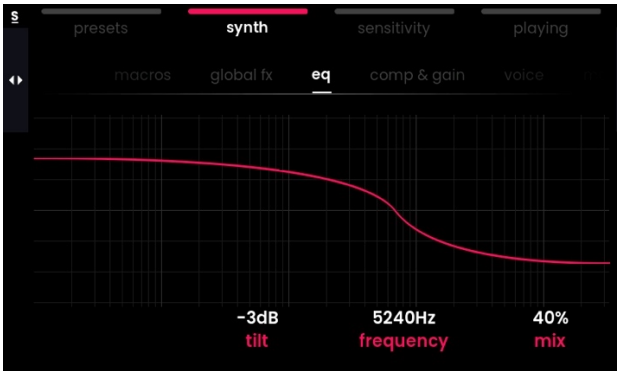
The EQ Tab allows to adjust the balance between frequency components of a preset, shaping the sound either subtly or drastically “brighter” or “darker”.

It is a general tilt eq based on a stereo pair of shelving filters with separate controllable low and high-frequency components in the range 120Hz to 15KHz.

According to a chosen frequency, it increases treble boost but cuts bass proportionately and vice versa with the help of those parameters :

tilt : Over the 63 value, you get more highs and fewer lows, under the 63 value, and lows are boosted while highs are attenuated.
frequency : choice of the central frequency from which highs and lows are boosted or attenuated
mix : dry/wet of the Tilt EQ

comp & gain tab

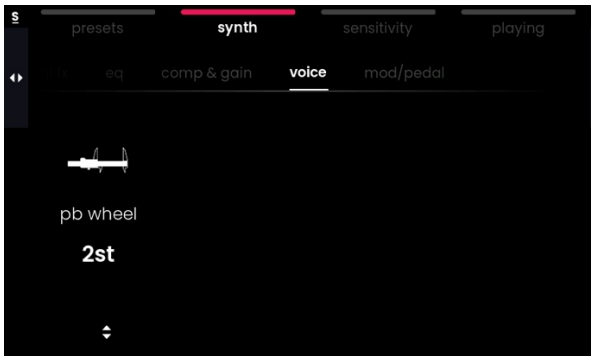


Osmose is an extremely dynamic keyboard, and there are plenty of possibilities for shaping the volume with the sound engine while creating or modifying a preset. This tab allows you to control the level and the dynamic of a preset with those parameters :

pregain set the level which enters in the compressor and can add a global saturation with a high value
comp. amt is a one-knob light compressor for keeping levels more consistent
comp. mix allows mixing the wet and dry signal of the compressor
postgain changes the overall volume of the sound right after the compressor, at the end of the signal chain. Could be useful for instance, if you like the saturation effects created with the pregain but just want it quieter by taming the volume.

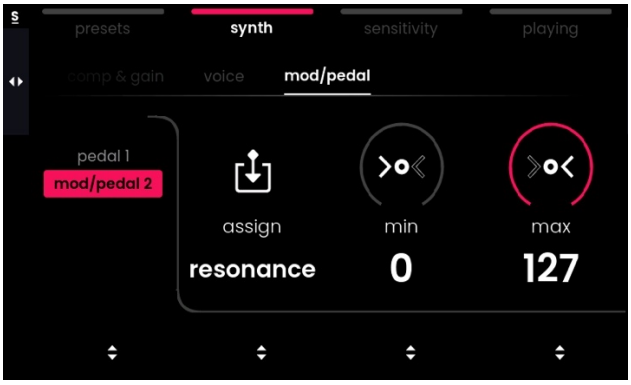
Compression amount is a macro parameter that controls 3 parameters available on the Haken Editor: comp. amt from 0 to 127 = comp. threshold from 127 à 0 + comp. attack from 127 to 0 + comp.ratio from 0 to 127

voice tab



The voice tab features only one parameter: the pitch bend range of the pitch slider. Contrarily to note bending on the keys, the slider will affect all played notes as a whole, just like your regular pitch wheel or touch strip would do.

assign tab



The mod/pedal tab lets you choose the parameters that you control from the modulation slider and the two pedal inputs. Those parameters aren't per-note modulation but are globally controlled.
N.B.: Make sure to calibrate your pedals via the global settings before using them.

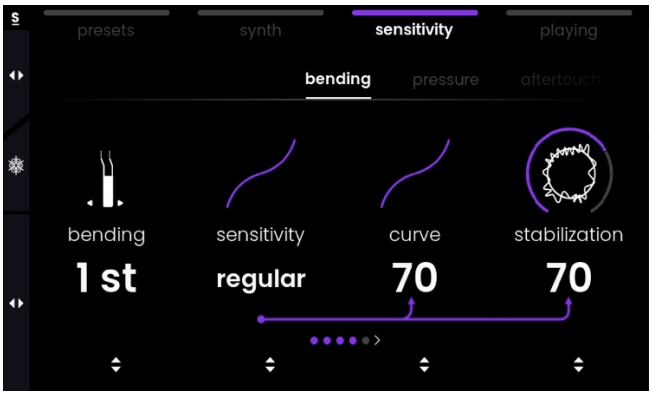
The first parameter allows you to select one of the two sources of modulation :
Pedal 1 is assigned to Sustain by default
Pedal 2 and the Mod Slider will always control the same parameter and are assigned to a macro by default.

For each of those two controller sources you can modify:
assign for selecting the modulation targets like different types of sustain, the synth macros, the effects parameters, and the post gain. (For instance, If you map your pedal to the post gain, then it will act like a classic volume pedal.)
min set the minimum value controlled
max set the maximum value controlled

ℹ️ The sustain and sostenuto in Osmose work a little differently compared with regular keyboard instruments. Sustain takes the current pressure/position of the notes played and keeps them in that state. However, on Osmose, Sustain and Sostenuto are continuous controls, allowing for fade and swell of sustained notes with an expression pedal.

ℹ️ sostenuto will only sustain notes that were held at the moment you pressed the sostenuto pedal. It lets you hold one or several "drone" notes with your pedal, and then lets you use both hands to play another part without any sustain on top. If you assign the two pedals to sostenuto 1 and sostenuto 2 respectively, you can hold and fade two sets of sostenuto notes at the same time.

sensitivity menu

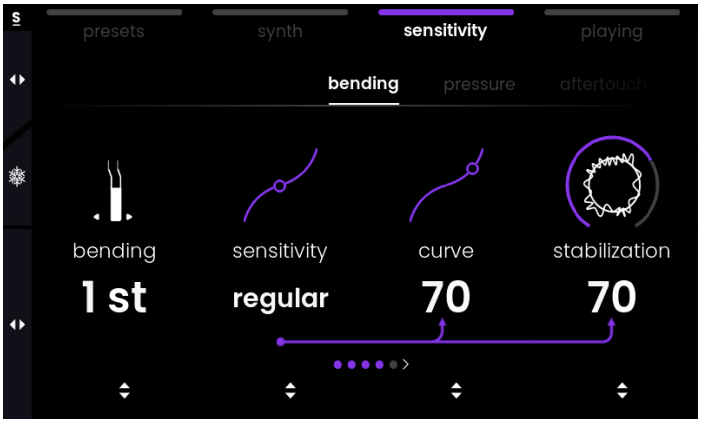


The Sensitivity Menu allows the user to change the response of the keyboard action. It contains the following tabs :

bending tab : change the response of the lateral movement on each key, incl. the pitch bend range and the amount of stabilization.
pressure tab : change the response of the first part of the key travel. 'note on' determines the position where a key actually triggers a note.
aftertouch tab : change the response of the second part of the key travel.
default sensitivity tab : save your current settings as the default sensitivity that will then be used across all factory sounds.

💡 The tabs that deal with the three axis motions on Osmose all contain curves. A point on the curve shows the value detected for that parameter on the last note played. This helps with understanding how your changes to the curve influence the gesture data sent to the sound engine.

bending tab



The bending tab lets you change how the lateral bending of a key will affect the pitch. it contains the following parameters:

bending is the range that defines how far the pitch will be modulated at maximum deflection. Given the limited sideways key travel, you'll probably want to go with 1 or 2 semitones most of the time, but wider ranges can also produce interesting results.
sensitivity allows you to quickly choose between a set of predefined responses that affect how Osmose reacts to vibrato or bend gestures in a natural way, while at the same time helping you to stay in tune when no bending is intended. It steps through useful settings for both curve and stabilization at once. There are five sensitivity sub-presets that go from low, medium, regular, to sensitive, and high.

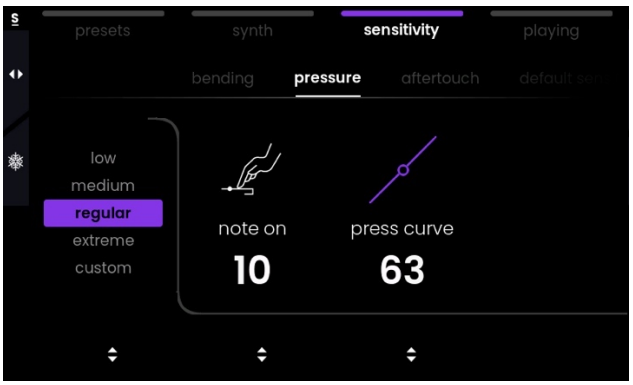
💡bending range and sensitivity work great if you use them as counterparts: If you set a range of 2st for making bends while playing chords, medium sensitivity could be a good setup, however, if you only want to play vibrato and have subtle pitch variations selecting ¼ or ½ st with high sensitivity will yield best results.

curve will establish a dead zone around the middle of a key in order to avoid unwanted bends. However, playing vibrato with only subtle gestures will become increasingly difficult the bigger the dead zone is.
stabilization is an algorithm that will intelligently smooth out uneven motions that tend to happen especially during the first few moments of your keystroke.

💡to visualize the difference between curve and stabilization, look at both curves while playing with a note: the point on sensitivity shows the result of both curve and stabilization while the point on curve only shows the raw sensor data of this parameter.

activation allows you to enable bending only for specific notes. For instance, it might come in handy to only activate bending for the highest note when playing chords with the left hand and soloing with the right.

pressure tab



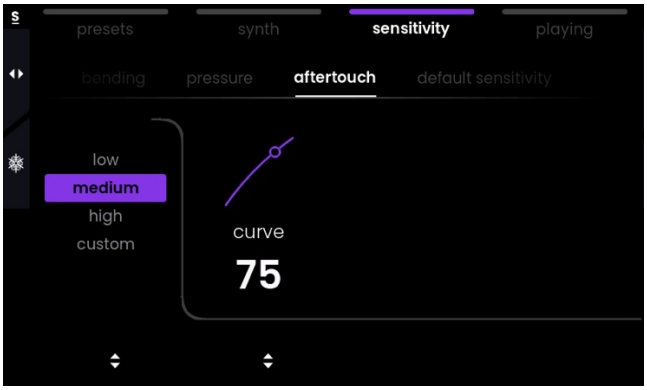
The pressure tab concerns the first vertical dimension of the keys.

The first parameter of the pressure tab offers sub-presets that adjust the following two parameters at once:
note on lets you define at which point of the downward key travel an actual note is triggered, which is called the 'note on' threshold
press curve adjusts the response of the pressure dimension with a curve.

If you change those two parameters individually, the sub preset will switch to 'custom'.

💡If you find yourself triggering notes unintentionally, then you may want to shift the 'note on' threshold for more downward downwards the key travel by increasing its value. This will bring you more and more towards a classic keybed feel where notes are only triggered when you push a key right down to the bottom.
On the other hand, if you're eager to experiment with triggering notes using only light taps on a key's surface, then an 'extreme' setting for the pressure dimension will allow you to do exactly that.

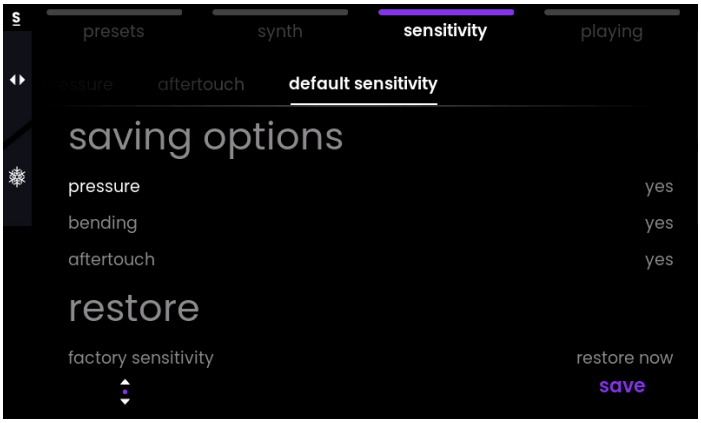
aftertouch tab



The aftertouch begins where the pressure dimension is at the maximum. Aftertouch is the second part of the vertical key travel, following a clearly detectable pressure point
The first parameter of this tab suggests quick settings for the aftertouch **curve,** which adjusts the response of the aftertouch dimension.

💡The more notes you play at once, the harder it will become to really push fully into the keys' aftertouch without bending notes unintentionally. This would be an example of a situation where you might prefer to have a sensitive aftertouch that doesn't require lots of force to activate.
On the other hand, if a preset triggers a special sound feature upon entering the aftertouch, e.g. automatic ratcheting of a plucked sound, and you wish to have a clearer separation, it will help to dial down the aftertouch curve.

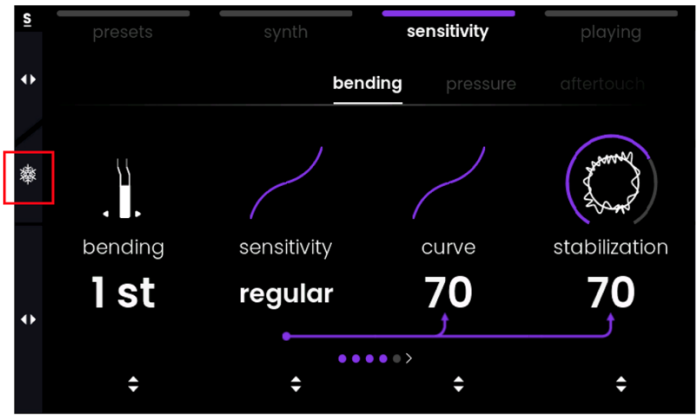
default sensitivity tab



The last tab of the sensitivity menu allows you to save your current settings as the default sensitivity that will then be used across all factory sounds. Factory sounds

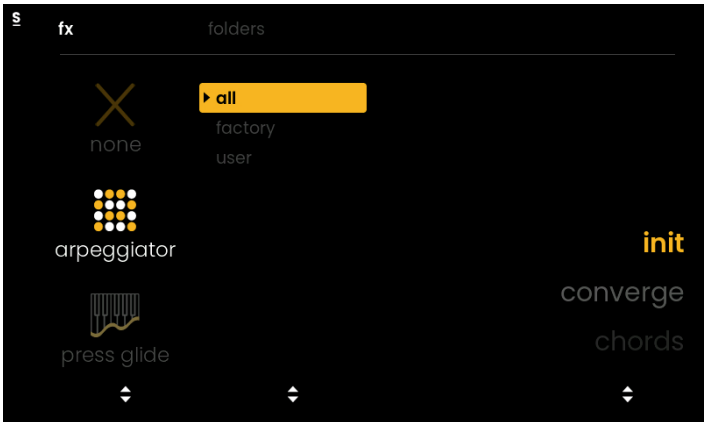
don’t have a specific sensitivity saved with them, so upon preset change, you will always fall back to the default setting saved at that time.
Defining your default sensitivity will help you feel at home with the instrument. While you’re growing your level of comfort with Osmose, you may want to update that setting from time to time.

freeze sensitivity function



Pressing the Tab Selector in Sensitivity Menu switches the Sensitivity Freeze on and off. When Freeze is enabled, the current sensitivity settings will be kept across preset changes, no matter the default sensitivity and no matter whether there is a custom sensitivity saved in a user preset.
‘Sensitivity Freeze’ lets you test a specific sensitivity setting without having to overwrite your ‘default sensitivity’. It also allows for testing a sensitivity setting while scrolling through user presets that have custom sensitivity settings saved with them (compare the ‘save sensitivity’ option in the save tab of the preset menu).
Frozen sensitivity values are lost when turning off Osmose. If you want to keep a sensitivity setting, use the default sensitivity tab (see above).

playing menu



The Playing menu gives access to advanced features that interpret your raw playing gestures in intelligent ways. After accessing the Playing menu with the fourth Menu button, turn Value Encoder 1 to choose either Pressure Glide, the Arpeggiator, or no playing feature at all.

If a playing feature is activated on a preset, a press glide or arp icon appears on the left side of the screen and will remain visible also in the factory and user tab of the presets menu:



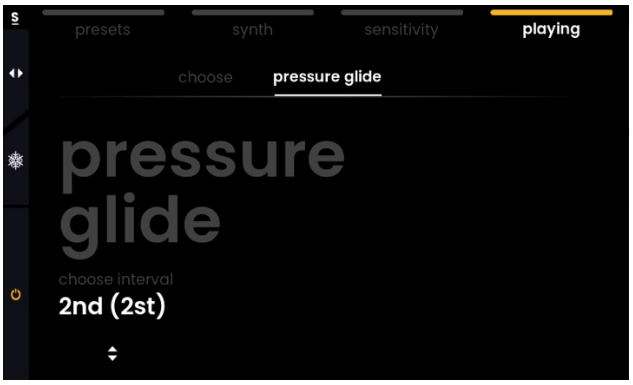
freeze playing function

Pressing the Tab Selector in Playing Menu switches the Playing Freeze on and off. When Freeze is enabled, the current playing settings will be kept across preset changes, no matter what is saved in the preset you dial up.

pressure glide

The Pressure Glide feature lets you define a pitch interval within which two keypresses are interpreted as a legato line instead of polyphonic playing.

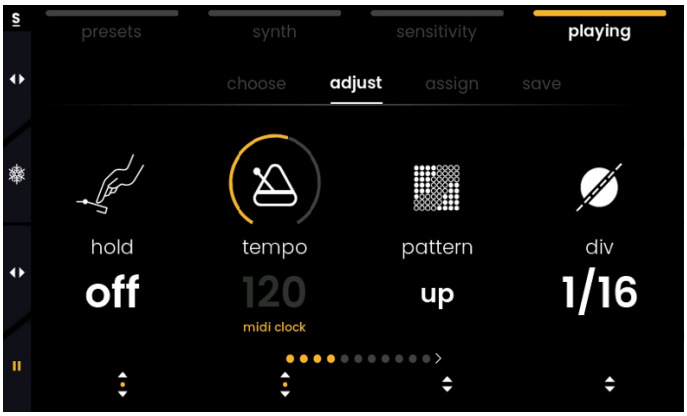
Unlike regular portamento which makes the pitch glide to a new note within a fixed amount of portamento time, Haken Audio's Pressure-weighted Portamento reacts to the pressure ratio between the two notes. The pitch will dynamically glide between the notes in real time, reacting to how you distribute pressure between them.



ℹ️ Important note when intending to play chords with pressure glide activated: Two notes pressed simultaneously within the interval that you have set will always be joined into one pitch. For instance, with a pressure glide interval of 2 semitones, you can play chords with stacked thirds or wider voicings, but as soon as you play seconds, you will end up with one note with an averaged pitch instead of two discrete notes.

⏻ While in Playing menu, activate or deactivate Pressure Glide with a click on the Parameter Selector.

arpeggiator



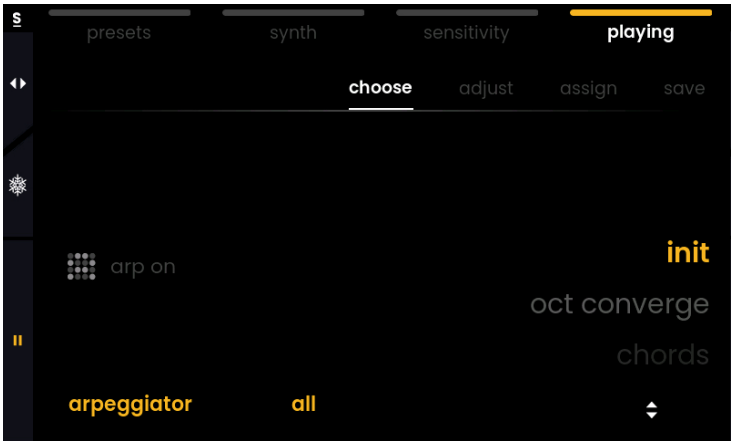
Our MPE Arpeggiator has the classic parameters that you would expect, but on top of that, your gestures can introduce variations to your pattern by modulating every single note independently with your fingertips.

choose tab : load an arpeggiator preset
adjust tab : set the arpeggiator parameters.
assign tab : let gestures and controllers modulate arpeggiator parameters
save tab : save the current arp settings as an arp preset

⏯ Start or pause the Arpeggiator with a click on the Parameter Selector.

Once you select the arpeggiator with Value Encoder 1, several tabs allow configuring the arpeggiator's behavior.

choose tab



The first tab is the 'choose' tab, giving access to several arpeggiator presets. The currently loaded preset is highlighted in yellow. Turn Value encoder 4 to select

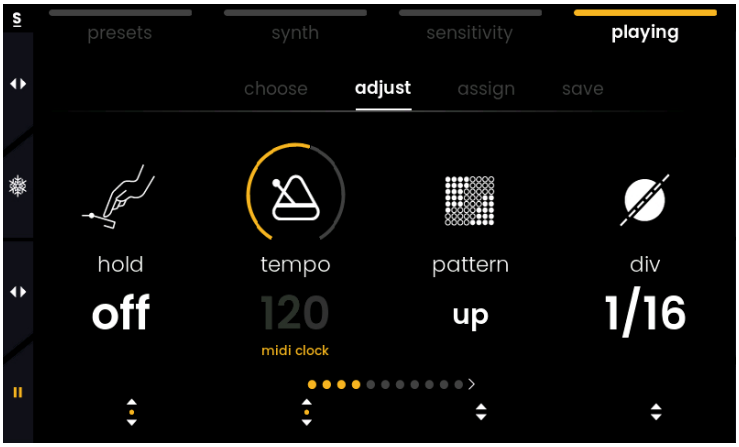
another preset. With Value encoder 2, you can filter between the Factory arp presets and your User arp presets.

Usually, arpeggiators of other instruments only offer a mechanical playback of all notes with the same intensity. Osmose's arpeggiator takes advantage of the fact that the instrument knows the exact position of each key at every given time. When playing the arpeggiator pattern, Osmose takes into account all three axis motions of the Augmented Keyboard Action keys: Pressure, Aftertouch, and Bending. It means that you can highlight single notes within your arpeggiator sequence just by pressing them differently from the others.

💡 To discover the arp presets and their interactions, try to load a polyphonic flute or brass sound, or some other preset without too much attack and release. It will be a good start to understanding how your gestures modulate the arpeggiator.

💡 If you want to scroll between sound presets while keeping the same arp settings, use the freeze playing function (see above).

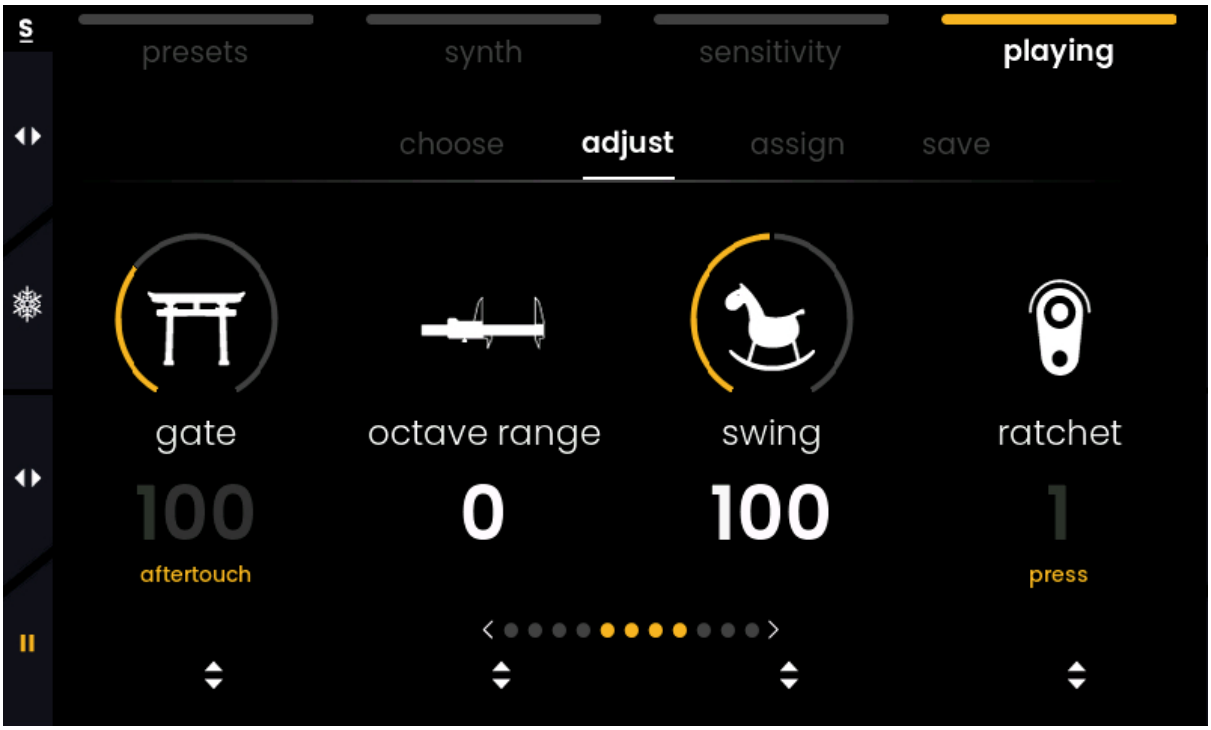
adjust tab



This tab contains all the arpeggiator parameters:

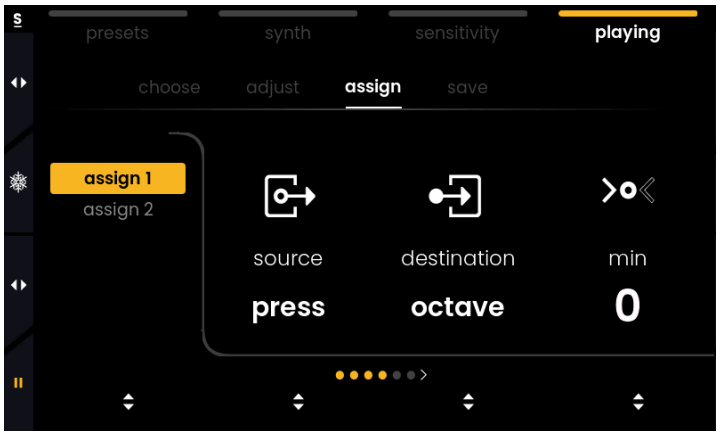
- **hold** will make sure that the notes you pressed will continue to be triggered even when you let go of the keys. It'll remember the maximum pressure applied to each key. The note repertoire will only be reset when you have already released all keys and then press a new key.
- **tempo** defines the beats per minute. Pressing the encoder below will switch between synching to an external MIDI clock and using the internal clock.
- **pattern** lets you choose in which order the notes are played back.
- **division** defines the note value of one arpeggiator step, select a division of the tempo that determines the speed at which the notes are played.
- **gate** determines the length of the notes as a percentage of the duration of one note according to the arpeggio speed

- **octave range** lets you add multiple octaves above the notes played.
- **swing** allows shifting every second arpeggiator step in time. 100 equals an even playback of all steps. Values above 100 will introduce more and more swing, until, eventually, every second step is joined with the next step.
- **ratchet** will introduce multiple triggers during one arpeggiator step and
- **rise & fall** will add some inertia to parameter changes, smoothing out fast increases or decreases in value.



ℹ️ when a parameter is controlled by a gesture of a controller, its value will be grayed out and the modulation source appears in yellow below the parameter.

assign tab



Additionally to following the programmed behavior of a sound preset when it comes to Pressure, Aftertouch, and Bending, the way you press individual notes on

the keybed can also influence arpeggiator parameters for that specific note. The ‘assign’ tab lets you set up the parameter mapping for this. You could also use the mod slider or expression pedals as modulation sources, but in this case, changes will be global (not per-note).

Two 'assign slots are available with the following set of parameters:

- **source** selects a motion axis of the key or a controller that will affect the destination parameter. Here, bending to the left and bending to the right are available as separate sources
- **destination** selects the arpeggiator parameter that will be modulated
- **min** sets the minimum value sent
- **max** sets the maximum value sent
- **curve** changes how resulting values are distributed when the source value goes from min to max. A linear response means values have equal ranges along the curve. If min is set to 1 and max is set to 2, then 2 is already selected when the source control is at 51% (MIDI value 64).

3. EXTERNAL MIDI MODE

introduction: legacy midi vs mpe

a word on mpe

Osmose is part of a family of MIDI Polyphonic Expression (MPE) instruments and controllers that strive to tear down the expressive restrictions of common electronic instruments. When starting to control external instruments from Osmose, It's useful to understand the way legacy MIDI communication is set up and how the MPE extension builds upon this.

In a classic MIDI environment, all MIDI messages that belong to a sound are sent on one single MIDI channel. Any modulations (such as pitch bend or changes in timbre) are sent per channel and thus affect all notes of that sound in the exact same way. If other MIDI channels are used, then this is commonly done to address a separate instrument or track of a multitimbral sound engine, e.g. in a hardware workstation or in your DAW.

MPE is an official extension to the MIDI standard where multiple MIDI channels are used to control the same sound. One channel is retained for global messages (master channel), but every single note that is played is granted its own MIDI channel. This way, per-channel modulation can be applied to each note individually, giving you much more control over your polyphonic performance.

backwards compatibility

Please be aware that some synthesizers and DAWs might not support the new kind of interactions that Osmose offers, or only support them to a certain extent.

But even if the external software or hardware instrument that you hook up Osmose to doesn't support MPE, you can still intuitively shape their sound directly via the keys of Osmose's Augmented Keyboard Action. Pressure and Aftertouch motion axes can continuously control any parameter inside the synth on a global basis. Bending can perform a pitch bend of all the notes you play as a whole.

In a non-MPE context, this global value of a motion axis will affect all the notes you play in the same manner, just as if you would move a knob or a fader on a standard MIDI controller. You can define whether the global value sent by a motion axis is calculated as an average of the individual values of all keys pressed, or whether it is derived from the pressure or bending you apply to a specific single key (highest note, most pressed down, etc.).

ℹ️ Monophonic lines on external synths can always be played very expressively from Osmose. For monophonic sounds, there's always one dedicated channel per voice.

connect osmose to your computer

When you connect Osmose to your computer with its USB cable, two USB MIDI ports should be recognized:

external midi port

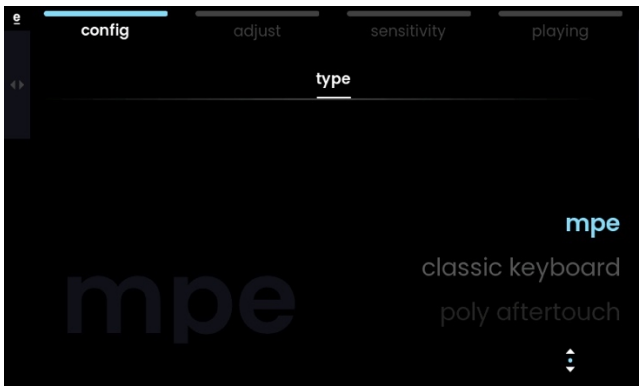
'Osmose Play/Port 1' [macOS] or **'Osmose' [Windows]**
Sends data according to the configuration chosen in External MIDI Mode (MPE by default). Use this port to control any external synth.

haken audio port

'Osmose Haken/Port 2' [macOS] or **'MIDIIN2/MIDIOUT2 (Osmose)' [Windows]**
Sends data of the internal synth engine in MPE+ format. Use this port to make the connection with the Haken Editor and to record performances using the internal engine in an external sequencer to replay or edit them.

⚠️ By default, Osmose doesn't send any data on the Haken port. This avoids receiving every message twice in applications that activate all recognized MIDI ports by default. You can activate the Haken port in the Global Settings -> midi i/o -> haken usb mode.

config menu



The Config menu gives you access to 4 standard configurations that help match the messages sent by Osmose with what is supported by your external synthesizers. Those configurations also contain a dedicated sensitivity setting.

ℹ️ Your last configuration will be kept when turning Osmose off.

ℹ️ External MIDI configurations can be fine-tuned via the Adjust and Sensitivity menus.
🚧 saving your own external MIDI configurations will be possible with an upcoming firmware update.

mpe

is the default for controlling MPE-compatible software and hardware.
Sends MIDI messages according to the MIDI Polyphonic Expression standard. The Pressure axis sends Velocity and Channel Pressure, the Aftertouch sends CC74 (it's the parameter that other MPE controllers often address with a movement along the Y axis on the playing surface which is not supported by Osmose due to the lack of progressive physical feedback). Note Bending sends pitch-bend messages. MIDI channel 1 is reserved for global messages, channels 2 to 15 are used to transmit one voice each.

classic keyboard

is the best choice for full backward compatibility.
It sends MIDI messages like a legacy MIDI keyboard would do. The 'Note On' threshold is moved down further along the key travel to mimic traditional keyboard actions.
The Pressure axis only sends Velocity, and the Aftertouch axis sends Channel Pressure (commonly called Aftertouch). Note Bending is deactivated.
All messages are sent on MIDI channel 1.

poly aftertouch

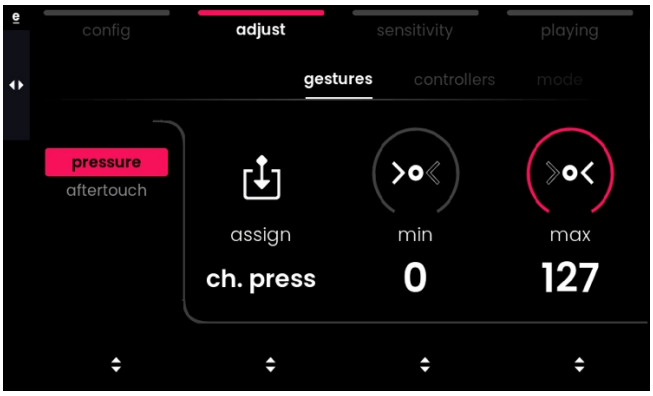
is perfect for controlling software and hardware synths that offer polyphonic aftertouch.
It behaves just like the Classic Keyboard configuration but sends Polyphonic Aftertouch instead of Channel Pressure for the Aftertouch axis.

multi-channel

is useful for imitating the advantages of MPE with non-compatible software and hardware. For this, multiple instances of the same plugin or sound are dialed up in the external device, each responding to a single MIDI channel.
It behaves just like the MPE configuration, where one MIDI channel is used to transmit one voice each, but lacks a channel for global messages.

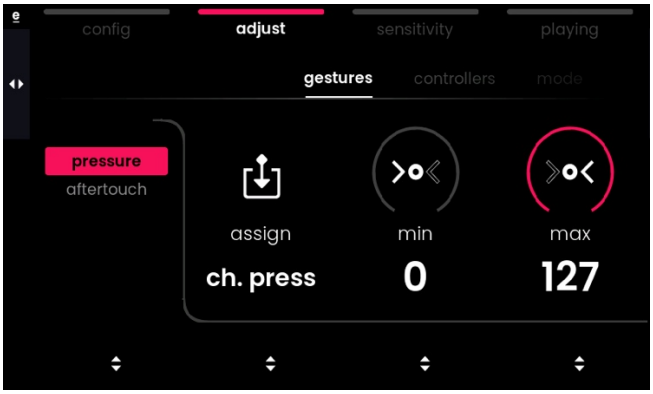
adjust menu

The adjust menu lets you determine the MIDI channel(s) used, as well as which MIDI message is sent by which key axis motion or controller.



gestures tab : set what is sent by the pressure and aftertouch axes
controllers tab : set what is sent by the mod slider and the two pedals
mode tab : choose the MIDI configuration and MIDI channel(s) used

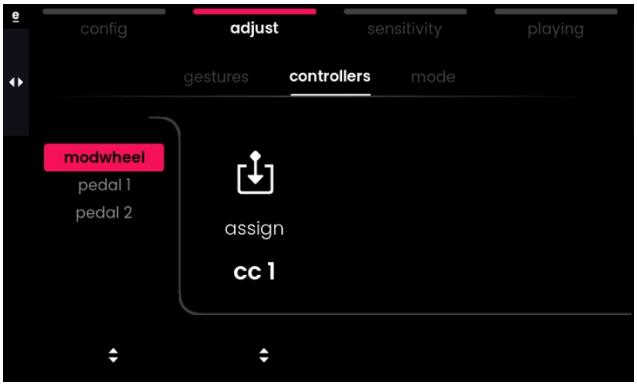
gestures tab



This tab set what is sent by the pressure and aftertouch axes
First, select pressure or aftertouch with Value encoder 1, then change its parameters :

- **assign** selects the MIDI message sent for the axis motion selected on the left.
- **min** sets the minimum value
- **max** sets the maximum value

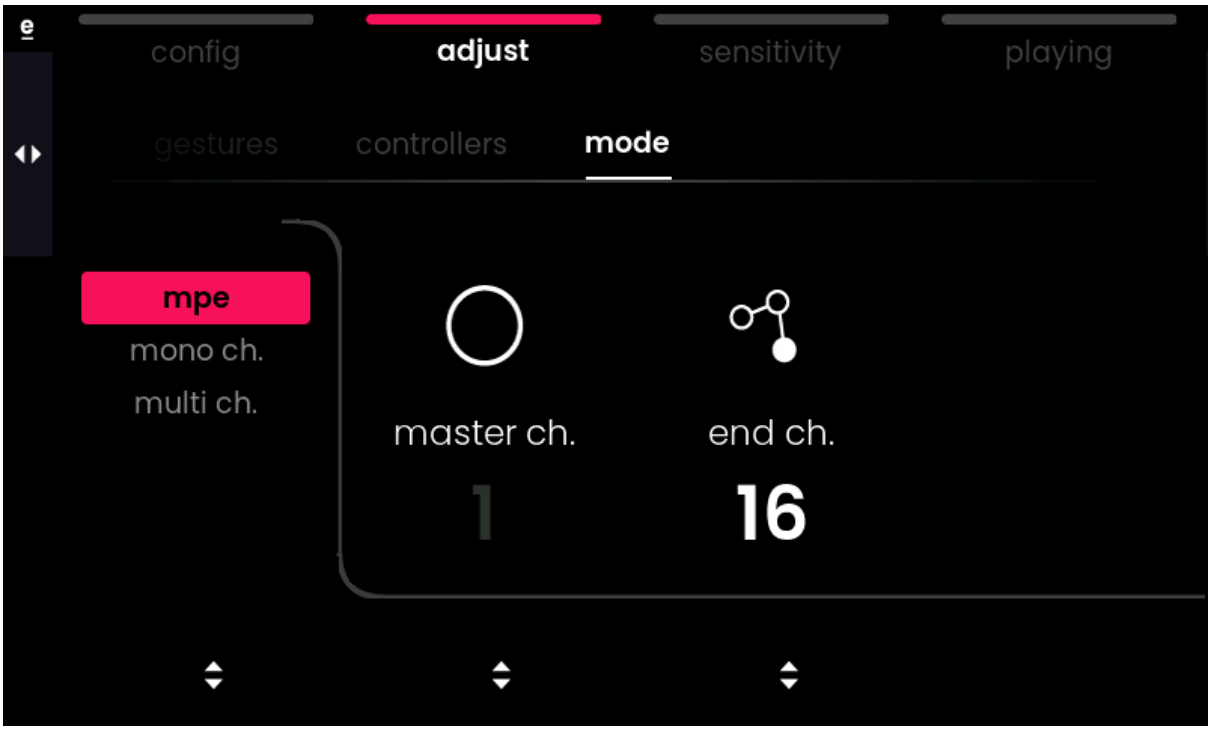
controllers tab



This tab defines what is sent by the mod slider and the two pedals.
First, select the controller with Value encoder 1, then change its parameters :

- **assign** selects the MIDI message sent by the controller on the left.
- **min** sets the minimum value
- **max** sets the maximum value

mode tab



This tab allows you to determine the general MIDI mode and how MIDI messages are distributed across MIDI channel(s) within that mode. It is used to refine the configuration you chose within the config menu when the external software or hardware you wish to control requires it. Find possible adjustments below:

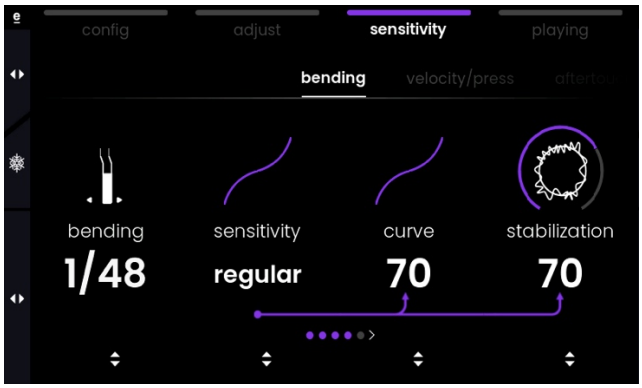
mpe
lets you define the end channel for the ‘mpe’ configuration. The master channel for global messages must remain 1 as per the official MPE specification, but the end channel parameter allows you to reduce the channels used for transferring single notes, e.g. when your target device only has limited polyphony. Example: When setting the end channel to 13, notes are distributed in a round-robin pattern across channels 2 to 13, leaving you with 12 notes of polyphony.

mono ch.
lets you define the single channel on which notes are sent for legacy MIDI configurations like the ‘classic keyboard’ and ‘poly aftertouch’ configuration.

multi ch.
lets you define the start and end channel for the ‘multichannel’ configuration. Example: When selecting start channel 4 and end channel 9, notes will be sent in a round-robin pattern across channels 4, 5, 6, 7, 8, and 9, leaving you with 6-note polyphony.

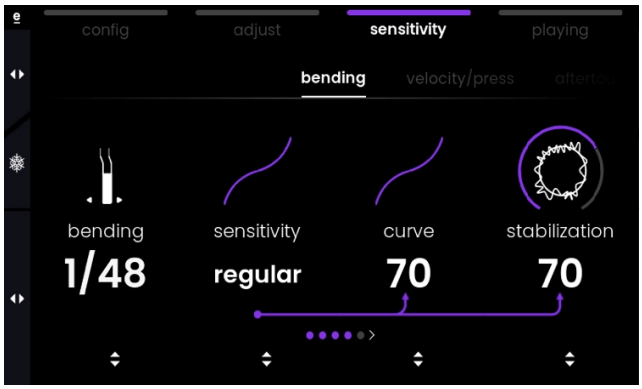
sensitivity menu

The Sensitivity menu of the External MIDI Mode offers the same functionality as the Sensitivity menu of the Sound Engine Mode. Read here to learn about it.



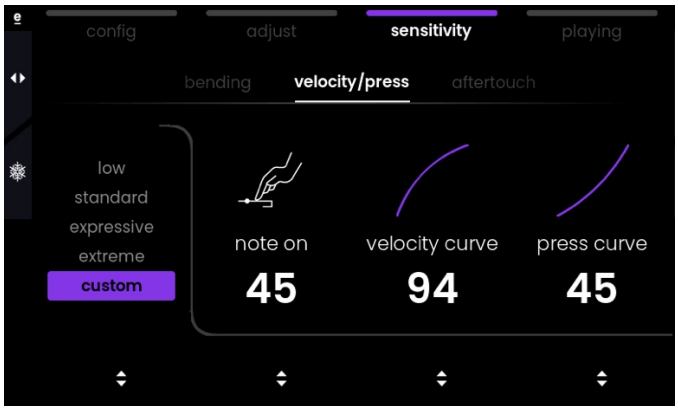
Find information specific to the External MIDI mode below:

bending tab



ℹ️ The bending range inside the **bending tab** isn't shown as a number of semitones but as a fraction. It works together with the maximum bending range that can only ever be set inside the external software or hardware that you control.

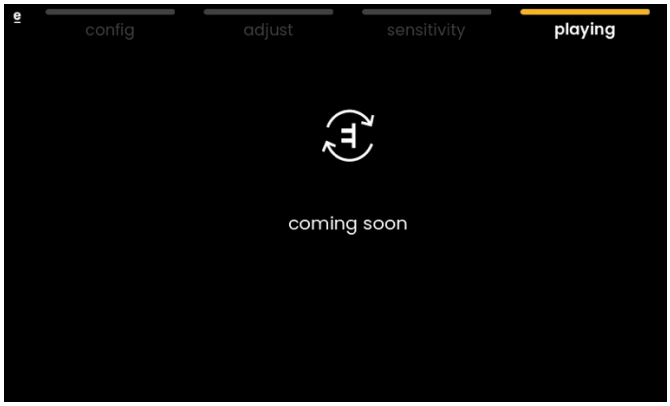
velocity/press tab



ℹ️ In External MIDI mode, the **velocity/press tab** features additional velocity parameters. Internally, Osmose doesn't use MIDI Velocity at all, but for controlling external devices, MIDI Velocity is derived from the Pressure axis motion.

playing menu

🚧 While Pressure-Weighted Portamento is a patented feature by Haken Audio reserved for the internal synth engine for the time being, Osmose's MPE Arpeggiator will be available for the External MIDI Mode in a future firmware update.

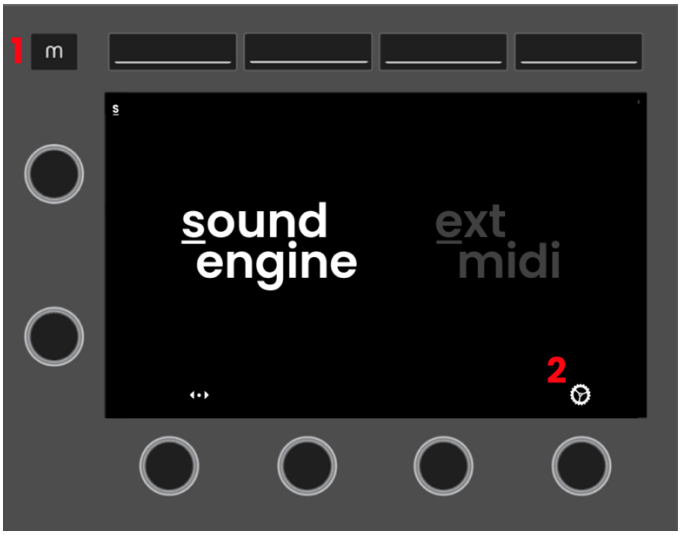


4. ADVANCED USERS

connecting osmose to the haken editor

precaution: firmware update

⚠️: Do not use the Haken Editor if your Osmose still has the factory firmware installed on it. Follow [these instructions] to update your firmware to version 1.0 or higher *before* using the Haken Editor.



change global settings

On Osmose, press the Mode button to enter the Mode Selection screen, then press the value encoder 4 to open the global settings of Osmose.



Go to the midi i/o tab, then turn the first value encoder to select the “usb haken mode” line and click to edit. Turn the value encoder to change the setting to “2/3 note & matrix” and validate by pressing the right-most encoder.

If “haken local control” below is “off”, turn it to “on”.

connect your osmose

Use the USB cable provided with your Osmose to connect it to your Mac or PC and turn it on.

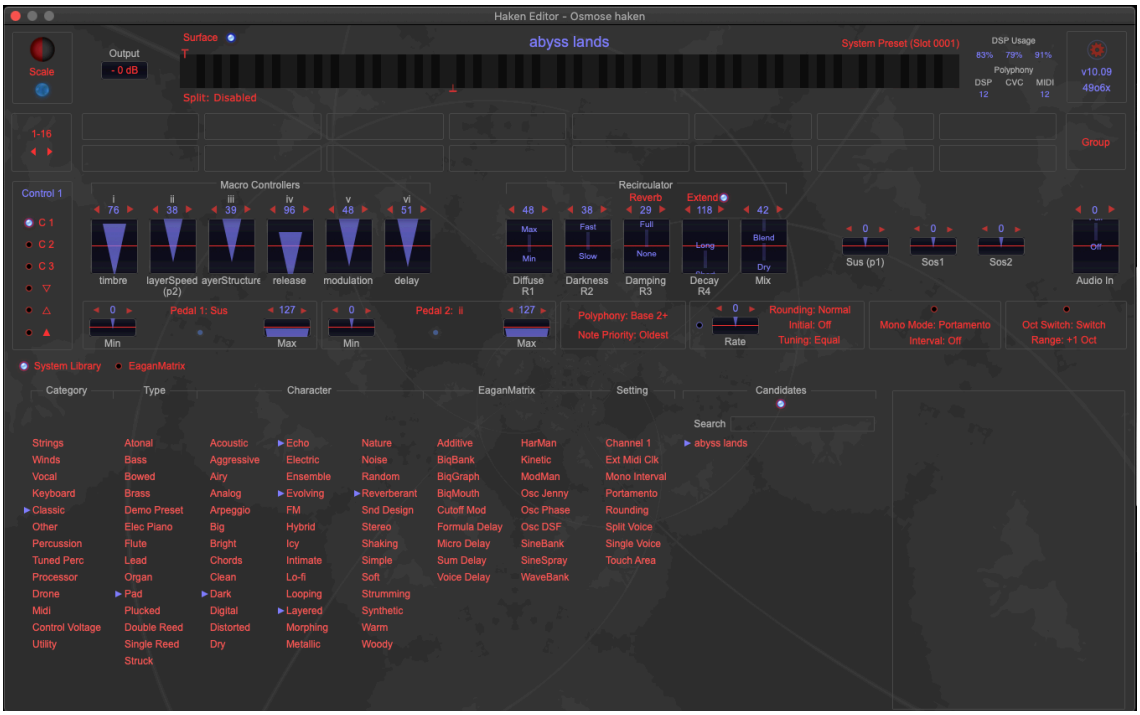
download and install max/msp and the editor

Max by Cycling ‘74 is needed in order to open Haken Editor. Download and install it from here. Purchasing Max is not required in order to use the Haken Editor.
The Haken Editor is available for download inside your Expressive E customer account after registering your instrument.

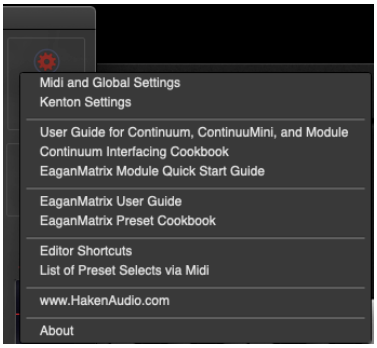
launch the haken editor

On your computer, Inside the 10.0x Editor directory you have downloaded, double-click on “Haken Editor.maxpat”, and wait 30 seconds for a small startup window (don’t do more mouse clicks!) to come up, then wait another 30 seconds for the Editor to come up, then wait another 30 seconds for one-time synchronization.

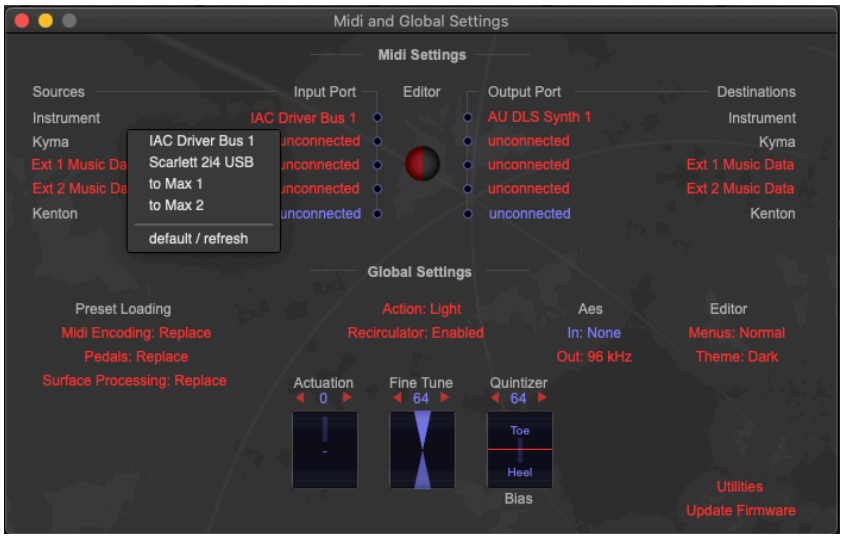
A solid blue on-screen led indicator (top-left in the Editor’s main window under “Scale”) indicates your device and Editor are communicating.



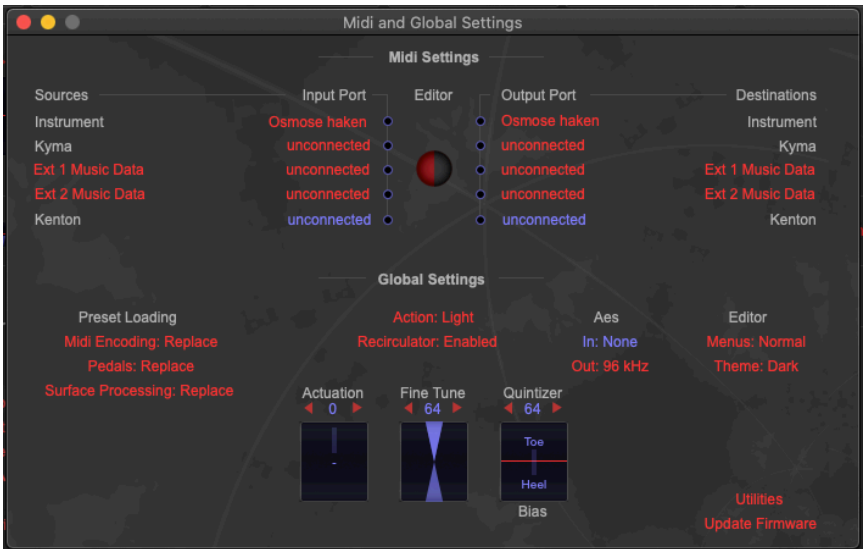
troubleshooting



If you connected your Osmose after opening the Editor, you will need to manually refresh the MIDI connections to make Haken Editor recognize Osmose. Go to the Midi and Globals settings accessible by clicking on the cog icon in the top-right in the Editor's main window.



On the Midi and Globals settings windows, click on the input port device on the instrument line, then click on "default/refresh"



Make sure ‘Osmose Haken/Port 2’ [macOS] or ‘MIDIIN2/MIDIOUT2 (Osmose)’ [Windows] is selected for both the Input port and Output port on the instrument line.
Osmose will connect with the Editor.

ℹ️ On Windows systems, please make sure that no DAW (or other MIDI application) is running in the background when using the Haken Editor. MIDI ports of devices running as USB MIDI class-compliant without specific drivers (like Osmose) can only ever be used by one application at a time, so having another application opened in the background could block the communication between Haken Editor and Osmose.

MIDI CC implementation chart

The following messages need to be sent to the Haken USB port (port 2) on MIDI Channel 1.

Haken Sound engine parameter	**MIDI CC #**
macro 1	CC 12
macro 2	CC 13
macro 3	CC 14
macro 4	CC 15
macro 5	CC 16
macro 6	CC 17
postgain	CC 18
global fx parameter 1	CC 20
global fx parameter 2	CC 21
global fx parameter 3	CC 22
global fx parameter 4	CC 23
global fx mix	CC 24
pregain	CC 26
sustain	CC 64
sostenuto 1	CC 66
sostenuto 2	CC 69
eq tilt value	CC 83
eq frequency	CC 84
eq mix	CC 85
compressor mix	CC 93