

O N D E S

U S E R G U I D E

Soniccouture

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THE ONDES MARTENOT

Perhaps one of the most enigmatic musical instruments of all time, the Ondes Martenot (literally 'Martenot waves') was invented by Maurice Martenot in 1928. More about its background can be found on [Wikipedia](#)

The instrument produces sound using oscillators, as with a conventional analogue synthesiser, but it is its method of control which give the instrument its unique character.



THE RING CONTROLLER & TOUCH D'INTENSITÉ

The most famous of the Ondes control methods is the metal ring, which is worn on the finger of the right hand. Contrary to popular belief, there is no 'ribbon' style controller, nor is the ring used when the keyboard is being played.



The keyboard and ring controller



In fact, when the Ondes is switched to 'ring mode' (au ruban), the ring becomes the sole method of determining pitch; a very skilful technique, particularly so when you consider that in order to produce any sound at all , you must simultaneously manipulate the clear, lozenge shaped device, known as the *touche d'intensité*.

The *touche d'intensité* is a large button, and is pushed and tapped to produce the tone of the instrument ; in effect , it controls the volume envelope of the instrument. Ondists employ a wide range of techniques here, from short, staccato tapping to long sustained, undulating pushes.

The *touche d'intensité* is controlled with he left hand while the player uses either the ring or the keyboard to produce the melody.

THE VIBRATO KEYBOARD

The final unique control trick that the Ondes has up its sleeve is the keyboard vibrato. To those familiar with MIDI keyboards, this is similar in concept to aftertouch, but the movement is lateral instead of being based on key pressure.

The entire Ondes keyboard is mounted on metal rails, and so slides left and right with the motion of the playing finger, producing a very natural vibrato.



DIFFUSEURS



The other important aspect of the Ondes sound are the three loudspeakers or *diffuseurs* which are used to amplify the instrument.

D1 This is the main loudspeaker, and is designed for straight reproduction of the *Ondes* sound. In practice, it has a warm tone, with the top-end rolled off quite a bit.



D2 This speaker has springs stretched across the inside panel, and is the reverb unit of the three. It has a knob on the back which is used to adjust the decay time of the springs from short to very, very long indeed. This speaker replaced the original *Palme* speaker which was unreliable in use. This speaker, like D3, can be used in varying amounts with D1, or switched off completely.



D3 The strangest speaker of the set, the D3 resembles a cymbal in a wooden cabinet. It produces, unsurprisingly, a very metallic, ringing sound, with very little low end. It has the most unique character of the three, and can be used to add sparkly highlights to staccato passages.



THOMAS BLOCH'S LINE OUT

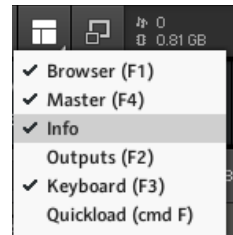
Most Ondes do not have a direct output - fortunately for us, and you, Thomas Bloch had his instrument modified with such a facility. This means we were able to record the output of the oscillators directly for use with convolution responses of the three *Diffuseurs*.



THE KONTAKT INSTRUMENT

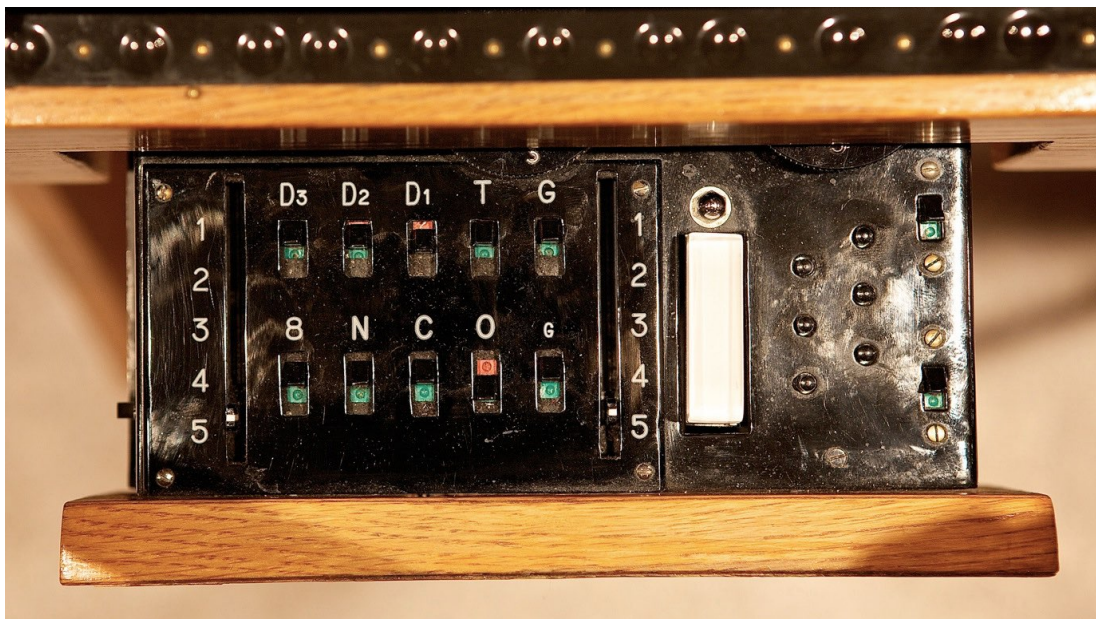
BUILT-IN HELP

If you activate the Info pane in Kontakt, you can hover over any control and a short note will appear in the Info pane at the bottom describing what that control does.



ONDES MARTENOT - MAIN PANEL

The graphical interface of the Soniccuture Ondes Martenot instrument is based on the "tiroir", or drawer that the Ondes player uses to control both the timbre and the performance of the instrument.



The Ondes "tiroir", or controller drawer

You can see there are many switches labelled "D3", "D2", etc. On the original instrument these switches turn on and off either the loudspeaker routings, or the various oscillators that the *Ondes Martenot* provides for different timbres.

In our instrument, these switches have been replaced by faders. So instead of just being able to turn each switch on or off, in our virtual instrument you can adjust the level of each of these. (You can also turn them precisely on or off by using command/control-click, and alt-click.)





The faders on the main part of the panel, to the top left, are as follows:

- D3** The 3rd “diffuseur”, or loudspeaker.
This is the “Métallique” speaker, which is made from a small gong.
- D2** The 2nd “diffuseur”, or loudspeaker.
This loudspeaker has a spring reverb built into it.
- D1** The main “diffuseur”, or loudspeaker, which is a large normal speaker.
- LINE** A line out signal, not processed through any of the loudspeakers.



THE OSCILLATORS

There are 7 faders (and one switch) that control the oscillators.



8 "Octaviant"

This is a timbre that reinforces the first harmonic, an octave above the fundamental played by the keyboard.

N "Nasillard"

This oscillator is a type of pulse wave, and very nasal sounding.

C "Creux"

This oscillator is a peak limited triangle wave.

O "Onde"

This oscillator is a sine wave.

G "Gambe"

A timbre close to a square wave, intended to sound like a string instrument.

g "Petit gambe"

A similar timbre to Gambe, but with fewer overtones.

S "Souffle"

A noise generator, approximately pink noise.

T "Tutti"

This is a switch that turns on everything except the petit Gambe and the Souffle generators.





Below the *Tutti* fader you'll see a little phase symbol switch. If this is **on**, the oscillators are in perfect phase with each other. This perfect phase sound is most authentic. If this is off however, there is some drift between oscillators which results in a fatter sound, which is especially nice in the polyphonic presets.

The combination of these oscillators is the main method of creating a timbre on the *Ondes Martenot*. There is also a "Brightness" control on the original instrument, which we've included as a dial at the top, labelled **BRIGHT**.



ADDITIONAL CONTROLS



On the right of the panel are three faders that do not exist in the original *Ondes Martenot*: **DETUNE**, **WIDE**, and **SAT**. These introduce a detune (with width control), and a saturation overdrive. If you want an authentic *Ondes* sound, these should be left in the OFF position, but for creating new sounds they can be very useful.

ADSR DIALS

At the bottom of the panel, on the right, there are four dials that give you control over the envelope.

ADSR = Attack, Decay, Sustain, Release.

In fact, the *Ondes Martenot* has no envelope generator at all, and all of the dynamics are controlled in real time by the player (more about this later). But for ease of use, we've provided an ADSR if you want to use it.



THE 12DB FILTER

At the top right, there is a small switch labelled “12dB”. If you turn this switch on, the screen changes and additional controls appear, as shown :



Now we’ve engaged a 12dB resonant filter instead of the more gentle **Bright** control. In this mode you have control over a dynamic filter (not available on the *Ondes Martenot* itself), with **Cutoff**, **Resonance**, and **Envelope Depth** (EG) controls along the top dials.

FEG

You will also notice that there is now a **FEG** switch, which switches the ADSR controls to those of a *Filter Envelope*. By setting the depth using the **EG** control at the top of the screen, you can vary the filter cutoff over time with each note played.



THE SPEAKER EDIT PAGE



By clicking on the speaker icon next to the top faders on the main panel, you access this, the **SPEAKER EDIT PAGE**.

This page offers one of the key things to the authentic *Ondes* sound, the three speakers or *diffuseurs*.

The three faders on the main panel provide the send levels to each of these speakers. The **LINE** fader provides a totally dry direct output.



IMPORTANT Switching the speaker faders so that they show a **RED** handle means that the send is **OFF** - this deactivates the convolution processor and saves processing power. Useful to remember if you don't need all 3 speakers.



MICROPHONE POSITIONS

The main function of the Speaker Panel page is to enable you to change mic setups for each speaker. There is a choice of **CLOSE**, **FAR** and **ROOM** distances (Each Mic setup is a stereo pair).

These positions can be selected from the drop-down menu above the picture of each speaker.

In the case of speaker **D2**, which functions like a spring reverb, there are a variety of different time settings to choose from as well, ranging from short to very long.

AMP + DECAY controls

AMP = This is the return level of the speaker send. Mostly you won't need to use these.

DECAY = This controls the size of the Impulse response. At 12 o'clock it is the default size. You can then reduce it or expand it from there as desired.



THE POLY ONDES



This instrument is designed for even more control, taking us further away from the original Ondes controls and into creative sound design patches.

Emulating the original Ondes is wonderful of course, but once we had these classic waves, we couldn't resist making polyphonic versions of the instrument and adding more synthesis features. You'll find that this instrument makes fantastic vintage sounding pads, and sounds great through the 3 speakers.

In this version, you are always in 12dB filter mode. And in addition to Cutoff, Resonance, and EG depth you also now have control over the Velocity and LFO depth to the filter.

The knobs in the middle of the right half of the panel control:

Pitch	LFO to pitch.
Rate	LFO rate.
Offset	LFO deviation between the oscillators. This introduces a slight timing difference if several oscillators are used.
Amp	LFO to amplitude.
Detune	Detune (the same as the fader in the previous panel)
Width	The width of the detune in the stereo field.
Sat	Saturation or overdrive.
HPF	A high pass filter without resonance.



THE MPE ONDES



As of version 3 (2019) Ondes includes a special instrument called “Ondes Martenot MPE”. Although Kontakt doesn’t officially support MPE yet, this workaround seems to perform well. It allows you to slide from pitch to pitch and use your finger for vibrato in a very similar way to the original Ondes Martenot.

Needless to say, you need an MPE controller to make use of this instrument, such as a Linnstrument or Roli Seaboard. It won’t work properly with a normal MIDI controller.

When you first load the preset, you need to manually set the incoming channel to Omni, so that it reads “omni + Groups”. Kontakt itself won’t remember this setting within the instrument (NKI) so in Kontakt Standalone you would need to set this each time you load the instrument. With a DAW however, or a Kontakt multi, this omni setting is remembered.

The pitch bend range of your controller and the Ondes Martenot MPE preset need to be set to the same value for correct behaviour. Typically this is 1 or 2 octaves.

If you press the “SETUP” button at the middle near the top, you will see this screen:





This is where you set the PITCH range, set it the same as your MPE controller.

You also need to set your “pressure” controller here. In the above example it’s set to Aftertouch (AT), but you should set this to the controller your MPE device is using for pressure (usually the Z-axis).

The Y-axis controller is not used by default in Ondes MPE, but you’re free to assign it to anything you like using the Automation tab or right clicking a parameter.

If you save the Ondes Martenot MPE instrument, NKI, your controller mappings will be saved with it and you won’t need to do this setup next time.



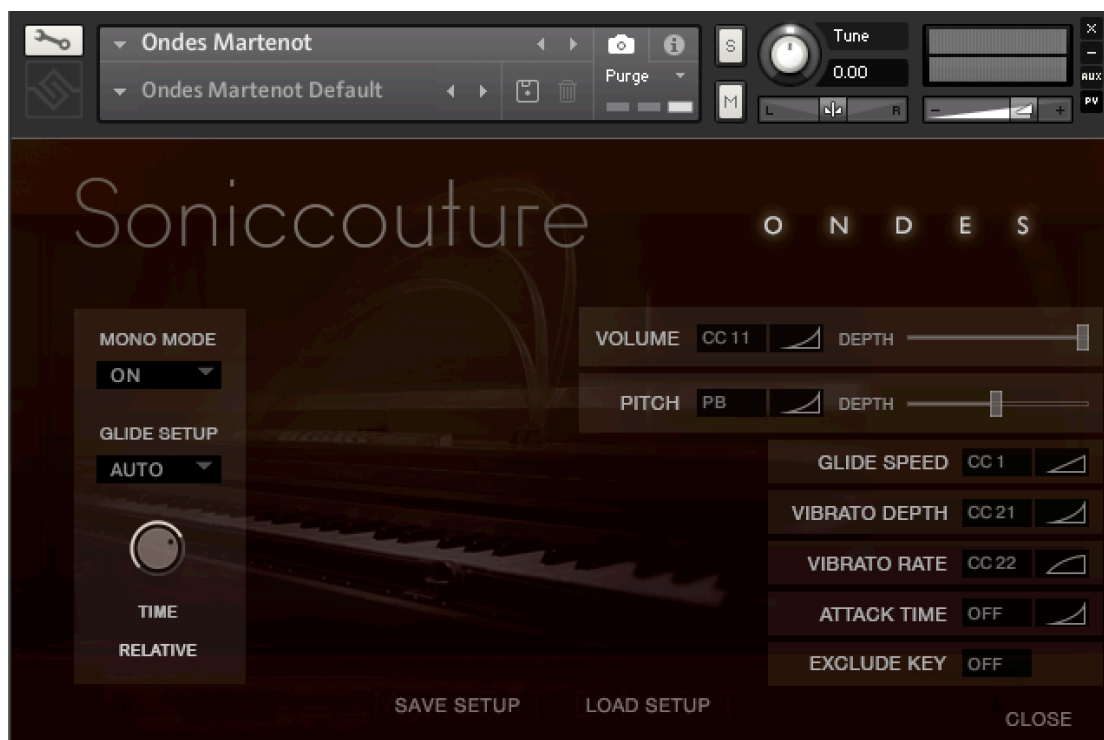
REALTIME CONTROL

See **Ondes QuickStart MIDI Setup.pdf** for setup tips.

Playing a real Ondes is not easy. And even if you have many realtime controllers at your fingertips, playing our virtual Ondes in real time is almost as difficult as playing the Ondes itself.

So what we decided to do was to allow you to access all of the things in real-time if you wish, but also to automate some of them if you prefer. How you set this up depends on what level of realtime control you want to try to manage, either in realtime or in sequencer editing.

The SETUP button, in the top middle of our panel, launches this window:



On the left of the Performance Setup window you have some menu controls for the type of Mono Mode and Glide of the instrument. The glide TIME can be set, and it can be set to be either Relative or Absolute (the time will vary depending on the interval if in Relative mode).

On the right however, is the MIDI Controller (CC) assignment matrix, and this is where you decide what real time controls you want to use.



The first of these is VOLUME. In the above example, this is set to CC11, which we have been using at Soniccuture to control the volume in realtime. This works very well if you have some kind of pressure pad, or XY controller that you can use with one hand, while the other hand plays the keyboard. If you had a Breath Controller, for example, you could change this with the drop down menu to CC 2, and then the volume would be controlled by the breath controller.

However, if you DON'T want to manage this in realtime, you can change this option to Velocity. Then the volume will simply be set by the key velocity of the notes you play, and the volume will only be set once per note. If you use Velocity for volume, you still have the ADSR envelope as well, to allow you to shape the dynamics of each note.



Note that to the right of the Volume Menu, there is a curve, and then a knob labelled "Depth". For Volume and Pitch you can control the depth of the controller. And for all controllers, there are three curves you can choose from that affect the response of that controller: linear, and exponential concave and convex.

The second important realtime control is PITCH. This can be used for two things, depending on the range. If it's range is small, you can use this for realtime vibrato (we've been using the X axis of an XY pad set to Pitch Bend). However, if you set this range very wide, you can also use a controller to slide the absolute pitch of the instrument (a bit like the Ondes "ruban"). Even with a large controller like a ribbon controller however, this is very difficult to do, it's hard to be precise enough to play a melody using a CC, so we generally have used this for vibrato, and use the GLIDE to recreate the "ruban" technique.

GLIDE SPEED is therefore the next realtime controller. If you want to adjust the speed of the glide in realtime, this is the assignment to use. As you can see from the picture, we've often been using CC1, the Mod Wheel, to adjust the glide speed.

If you don't want or need to control the vibrato manually with the PITCH controller, you can use an LFO for vibrato. VIBRATO DEPTH and VIBRATO RATE are the next two MIDI assignments, and these control the vibrato LFO.

Of course, an LFO doesn't sound as organic as a manual vibrato, so be aware that the more "automated" your setup, the less natural it will sound.

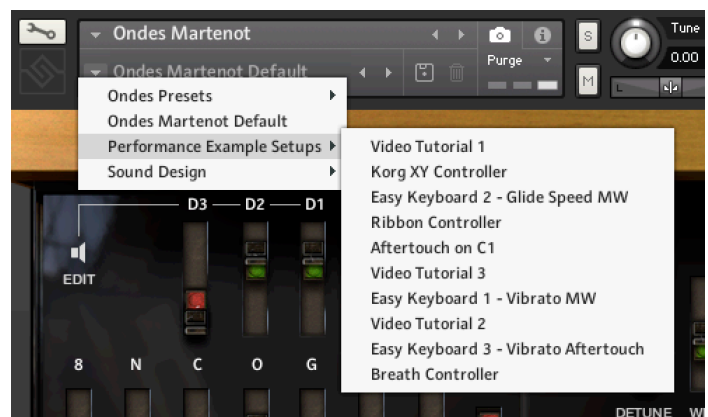


ATTACK TIME is another way of controlling the envelope if you don't want to use a MIDI CC for Volume. If you set ATTACK TIME and VOLUME both to Velocity, you can control the attack speed with velocity and this is a little easier to play. (Make sure you set the Attack on the EG to 9 in this case.)

Lastly, at the bottom, there is an EXCLUDE KEY. This can be set to any note on your keyboard. Essentially, this just stops that note from sounding. The purpose of this is if you want to use one hand to control Aftertouch, and not have that key interfere with the melody in your other hand, then using Exclude Key gives a key dedicated to aftertouch.

PERFORMANCE EXAMPLE SNAPSHOTS

We have provided several template Snapshots as starting points, with different control setups of varying complexity. Have a look at these, and see what works well for you. Definitely consider adding an XY pad, or some other control surface, to your setup if you don't already have one... it makes a huge difference to the dynamics of the Ondes Martenot if you are able to control a few realtime CCs.



SAVE / LOAD SETUP

Finally, at the bottom left of the Setup screen, you will see Save Setup and Load Setup. You can load or save a setup, separately from the Instrument. For example, if you have a certain setup you like, you can save it, and quickly load it back into any other preset.



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support@soniccouture.com

We will always endeavour to reply to any enquiry within 24 hours. We are based in the UK, so please bear in mind differences in time zones.



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