nord wave 2
performance synthesizer

USER MANUAL

Nord Wave 2
English

OS version: 1.2x

Edition: G

IMPORTANT SAFETY INSTRUCTIONS
SAVE THESE INSTRUCTIONS

Warning - When using electric products, basic precautions should always be followed, including the following:

1) Read these instructions.

2) Keep these instructions.

3) Heed all warnings.

4) Follow all instructions.

5) Do not use this apparatus near water.

6) Clean only with dry cloth.

7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11) Only use attachments/accessories specified by the manufacturer.

12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13) Unplug this apparatus during lightning storms or when unused for long periods of time.

14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Additional Safety Information

No naked flame sources, such as lighted candles, should be placed on the apparatus;

Do not use the apparatus in tropical climates.

WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

The maims plug is used as the disconnect device and shall remain readily operable.

Il convient de ne pas placer sur l´appareil de sources de flammes nues, telles que des bougies allumées;

L´appareil n´est pas destiné á étre utilisé sous un climat tropical.

L´appareil ne doit pas étre exposé á des égouttements d´eau ou des éclaboussures et de plus qu´aucun objet rempli de liquide tel que des vases ne doit étre placé sur l´appareil.

Lorsque la prise du résau d'alimentation est utilisée comme dispositif de déconnexion, ce dispositif doit demeuré aisément accessible.

TABLE OF CONTENTS

1 INTRODUCTION

THANK YOU!

Thank you for choosing the Nord Wave 2!

The Nord Wave 2 is a powerful 4-part performance synthesizer combining Virtual Analog synthesis, Samples, FM and Wavetables with an intuitive layer-focused interface.

With innovative performance features and hands-on controls, the Nord Wave 2 offers outstanding sonic possibilites with advanced layering and tweaking on the fly.

FEATURES

The Nord Wave 2 has the following main features:

• 4-part Synthesizer with dedicated volume/pan faders

• Sample, Virtual Analog, Wavetable and FM synthesis

• 48 voice polyphony

• OLED Displays for Program and Oscillator sections

• 1 GB memory for Nord Sample Library 3.0

• User replaceable samples

• 61-note semi-weighted keyboard with aftertouch

• Advanced Arpeggiator with Polyphonic and Gate modes

• Advanced Morph features with Impulse Morph

• Extensive Effects section

NORD ONLINE

On the website *nordkeyboards.com* you will find:

» Information about the Nord Wave 2 and other Nord instruments

» Latest Operating Systems for download

» Free software: Nord Sound Manager, Nord Sample Editor 3 and drivers

» Nord Sample Library sounds for free download

» Nord World: Nord releated news stories and videos

» User Manuals for download

» Tutorials can be found at *nordkeyboards.com/tutorials*

Follow Nord Keyboards on Facebook, Instagram, Twitter and YouTube. Feel free to tag your content with our official hashtag #iseenord.

ABOUT THE USER MANUAL

The manual is arranged mainly as a reference manual. In many cases you'll also get tips on how to practically use the different features in a musical context.

READING THE MANUAL IN PDF FORMAT

This manual is available as a digital PDF file. It can be downloaded, free of charge, from the Nord Wave 2 section on our website.

RESTORING THE FACTORY PRESETS

The factory programs and samples are available as individual Nord Sound Manager backup files for download from our website. There is also a complete backup of the entire instrument and its factory content, in case it needs to be restored to its original state.

OS UPGRADES

The latest OS (Operating System) version for the Nord Wave 2 is always available for download from our website. There is also an Update History page on the website, which specifies what has been updated with each new version. Please visit our website from time to time, to make sure you have the latest version in your unit.

FREE SOUNDS

Since the Nord Wave 2 is designed as an open system, all samples in the Nord Wave 2 can be replaced. This is done using the *Nord Sound Manager* application which is available as a free download from our website.

The Nord Wave 2 is compatible with the continuously expanding Nord Sample Library. When new sounds become available, these can be download for free from the Sound Libraries section of our website.

The Nord Sample Editor 3 is an application for creating custom sample instruments, playable on your Nord Wave 2 and is available as a free download from the Software section of www.nordkeyboards.com.

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2 OVERVIEW

LAYER CONTROL

PROGRAM   SYNTH   EFFECTS
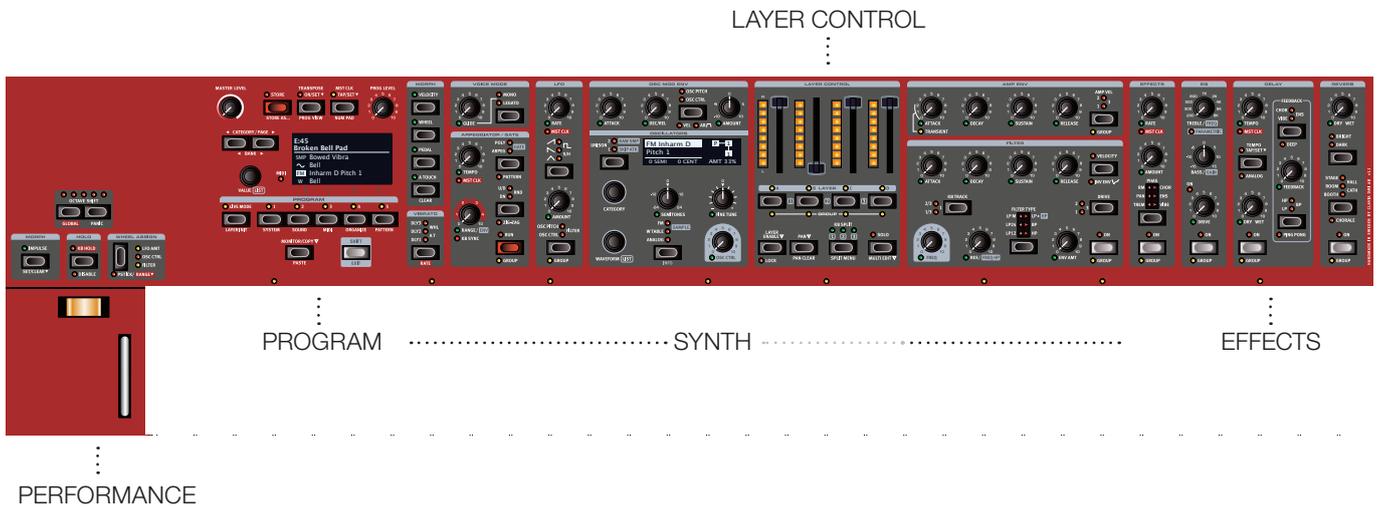
PERFORMANCE

The Nord Wave 2 is designed to be a highly flexible, musically expressive and easy-to-use instrument. Let's have a look at some of its key features:

PERFORMANCE SECTION

The *Pitch Stick* is used to bend the notes, with different ranges for each program if you like. There is no dead centre in the middle of the throw which allows for a very natural vibrato effect. The effect on pitch is exponential, meaning that the more the pitch stick is moved away from the center position, the more drastic the effect.

The **RANGE** for the PStick can be set in semitone steps by pressing Shift + Pstick and selecting a value from the displayed list.

The *Modulation Wheel* can be used for gradual vibrato, be direct assigned to the most common wheel destinations (Filter, LFO Amount, Oscillator Control) using the **WHEEL ASSIGN** control, or act as a Morph controller to change a wide range of parameters in real time.

The **IMPULSE MORPH** button can activate instant parameter changes in real-time, making it possible to add anything from subtle to very dramatic changes to your performance.

With **KB HOLD** active, all played notes are held even after the keys are let up. This can be deactivated per layer by pressing **DISABLE** (Shift + KB Hold)

OCTAVE SHIFT allows for shifting a layer up or down, in one octave steps. When the **GLOBAL** option is turned on (Shift + Octave Down), the octave shift is performed on all layers in a program.

PROGRAM SECTION

A *program* on the Nord Wave 2 contains settings for all 4 layers including effects. The Program section, with its large OLED display, is where programs are navigated and stored, and various performance features and settings menus are accessed.

There is an in-depth description of this section beginning on page 13.

SYNTH

Many panel sections are part of the "synth" feature set for each of the layers. This includes the powerful Arpeggiator/Gate section, the LFO, Oscillator, Envelope and Filter sections as well as the Morph features.

There are in-depth descriptions of all these sections beginning on page 17.

LAYER CONTROL

Layers are activated and controlled from the Layer Control section. Four LED faders provide hands-on volume level control, and the Layer A-D buttons are used for quickly turning layers On or Off. This is also where keyboard splits are activated, and layers assigned to be part of the Group, which lets them share panel features.

Read more about Layer Control, KB Split and Group, starting on page 22.

EFFECTS SECTION

A wide array of classic effects are at your fingertips, within the comprehensive Effects section:

The *Effects* units provide essential modulation effects such as Tremolo, Phaser, Chorus and Vibe, as well as a lush and characteristic Ensemble effect, modeled after legendary stomp boxes and effects units.

A versatile EQ effect allows for both broad and detailed sound shaping, in order to keep your performance in check or having a layer blend well in a multi-layer program. The Drive unit can provide both subtle overdrive for warming up a sound, or extreme distortion if desired.

The *Delay* effect can go anywhere from expressively vintage to modern and atmospheric sounding - with its Analog mode and feedback filters. The dedicated effects for the feedback loop open up a lot of possibilities for evolving and complex sounds.

Finally, the lush *Reverb* – independently available per panel – provides an array of small and large room simulations for instant atmosphere.

☼ *Many of the effect parameters can be morph controlled – that is addressed by the modulation wheel, control pedal or after touch – which opens up for all kinds of creative, real-time interaction.*

This section is described in further detail beginning on page 27.

3 GETTING STARTED

Let's spend a few minutes getting acquainted with the most funda-mental features of the Nord Wave 2. In this chapter the most common scenarios and tasks will be described in a step-wise fashion, hopefully serving as a good starting point for further programming and more advanced set-ups as well.

HOOKING IT UP

1. Connect the Nord Wave 2 power cord to the unit and a mains power supply, connect the sustain pedal and a set of headphones or a sound system.

2. Make sure to turn on the Nord Wave 2 first, before the sound sys-tem. Please be careful with the output volume.

For more information on all the connections on the Wave 2, have a look in the Connections section on page 35.

PANEL CONTROLS

DIALS AND KNOBS

The *dials* on the Nord Wave 2 are knobs without any fixed start and stop positions, used for navigating parameters and settings in a step-wise fashion. The **VALUE** dial is one such example. In this manual, dials are sometimes also referred to as *encoders*.

Potentiometer-type *knobs* are used for many parameters on the Nord Wave 2. When a program is loaded the physical positions of these knobs will in most cases not correspond to the actual parameter values. As soon as a knob is turned however, its associated parameter value will "snap" to the knob's position.

Knobs that can serve as a Morph destination are equipped with green Morph LEDs. These are locat-ed at the bottom left of the knob, and will light up if a Morph is targeting that parameter. Read more about Morphs on page 16.
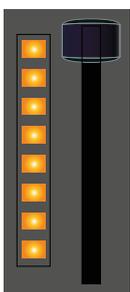
LED faders are used for controlling the volume level of each of the 4 layers. When a program is loaded the LEDs will show the stored volume levels, even though the positions of the faders themselves may be different. The faders are also used for controlling the Pan setting for each layer.

☀ Hold the **MONITOR** button – found in the Program section – and turn a knob to view the stored setting of a parameter in the display without changing it.

BUTTONS

Selector buttons are used to select one setting in an array. They have a set of round or triangular LEDs to indicate its current setting. Press the button several times to cycle through the possible options.

ON buttons are used for activating a function or a group of functions such as effects and have a LED close to them to indicate the on/off status and some-times also the source or zone.

THE SHIFT BUTTON

Many panel controls on the Nord Wave 2 have a *sec-ondary* function, which is printed immediately below it. These additional functions are accessed by pressing and holding **SHIFT** while operating the control.

The Shift button is also used to **EXIT** a menu or to cancel an ongoing Store operation.

PROGRAMS

The *Program* area is located at the left side of the panel and has an OLED display in the middle. Complete settings of every parameter in all 4 layers are stored in the program memory of the Nord Wave 2, with enough room for 400 programs.

Programs are organized into 16 banks, labeled A-P. All programs can be edited and replaced freely as desired.

❶ *A complete set of the factory programs is available on the www. nordkeyboards.com web site. This means that the program memo-ry can always be restored to its original state.*

SELECT A PROGRAM

1. Programs are selected by pressing any of the five **PROGRAM** but-tons, located below the display. The **PAGE** ◀ / ▶ buttons are used to navigate program *pages* – a page being a group of 5 programs. A Program bank on the Nord Wave 2 can contain up to 25 pro-grams divided into 5 program pages.

☀ *Some of the factory programs are labeled with Whl or AT. This indicates that the Mod Wheel or Aftertouch has an active part in the sound and invites you to use these performance features.*

2. Programs can also be navigated by simply turning the **VALUE** dial.

PROG VIEW

There are three distinct display modes for the main display. By default the display shows only the program name and number, in large print. Let's have a look at the other two modes:

1. Press **PROG VIEW** (Shift+Transpose) once. The display now also shows the *Category* name for the selected program. Use the **VALUE** dial to select other programs within that category.

2. Press the **PAGE ◂** or **▸** button and note that these buttons are now used for navigating between different categories. This makes it easy to quickly browse or audition programs within a specific category. Note that the 5 Program buttons are inactive in this mode.

3. Press **PROG VIEW** (Shift+Transpose) again. In this display mode the program name and number is shown in smaller print, and the oscillator setting for each active layer is displayed in the lower half of the display.

LIST VIEW

Any dial that has **LIST** written below it - such as the Value dial - can be used to access a useful list view.

1. Press **SHIFT** and turn the **VALUE** dial to enter a list view of all the Programs.

```
┌──────────────────────────────────┐
│ ▤  Program           Bass        │
│ A:24 Ac Guitar Finger            │
│┌────────────────────────────────┐│
││ A:25 Mini M Bass 4             ││
│└────────────────────────────────┘│
│ A:31 Gate Filter Whl             │
│ A:32 Pacific Pad Whl             │
│            Num │ Abc ▼│ Cat ▼    │
└──────────────────────────────────┘
```

2. Browse to any program, using the **VALUE** dial. All 16 program banks can be accessed when in List mode.

3. Try out the **Abc** and **Cat** (Category) sort modes by pressing the corresponding soft buttons (Program 4 and 5). Note that either of these buttons can be pressed down to access a list of all alphanumeric characters or categories, respectively.

4. Press **SHIFT** again to **EXIT** the List view.

☼ *List view for the Oscillator Waveform dials function in a similar way.*

EDIT A PROGRAM

Editing a program is as easy as turning a knob or pressing a button, to change an existing setting. Let's give it a quick try:

1. Dial up Bank A, Program 24 or another program that uses a single sample.

SELECT A DIFFERENT SAMPLE

2. Turn the **CATEGORY** dial in the Oscillator section to browse sample categories. Select the *Strings Ensemble* category and load a sample using the **WAVEFORM** dial.

3. Try selecting a sample from the **LIST** view, accessed by pressing **SHIFT** and turning the **WAVEFORM** dial. Use Shift again to **EXIT** the list view.

Note that changing any parameter on the Nord Wave 2 panel causes an "E" to appear next to the current program number in the display. This indicates that the program has been *edited* but not yet saved into memory. If a new program is selected prior to performing a Store operation any edits will be lost and the program will have its original settings the next time it is loaded.

TURN OFF MEMORY PROTECTION

When the Nord Wave 2 is shipped from factory its memory is protected to prevent accidental overwriting of original programs. Memory protection can be turned off by toggling a setting located in the System menu.

1. Hold **SHIFT** and press the **SYSTEM** (Program 1) button below the display.

2. Memory Protect is the first setting of the *System* menu. If the display shows a different setting, use the Page ◂ button to navigate to the Memory Protect setting.

3. Change this setting to *Off* by turning the **VALUE** dial.

4. Press **EXIT** (Shift button) to exit the *System* menu.

❶ *This setting, like all other System settings, will be permanently stored until it is changed again.*

Read more about menu settings, starting on page 31.

STORE A PROGRAM

1. Press the **STORE** button to the left of the display once, to begin the process of storing the current program.

2. The **STORE** LED will begin to flash and the display will ask for the location to which the program should be stored.

```
┌──────────────────────────────────┐
│        STORE PROGRAM TO          │
│                                  │
│  A:32                            │
│  Pacific Pad Whl                 │
│                                  │
└──────────────────────────────────┘
```

3. If you want to store the edited version to the *current* location, replacing the original, simply press **STORE** again. If not, use the dial and/or **PAGE ◂ / ▸** buttons to select a different location.

☼ *The program in the selected location becomes active on the keyboard, allowing it to be auditioned before it is replaced by the program being stored.*

4. When you have found a suitable location for your program, press **STORE** again to confirm the store operation.

❶ *Press Shift/Exit once to abort an ongoing Store process if you change your mind.*

Read more about Store and how to *name* a program in the Program chapter, on page 13.

LIVE MODE

The five **LIVE** programs differ from other programs in that all edits made to them are instantly stored - without the need for a manual Store operation.
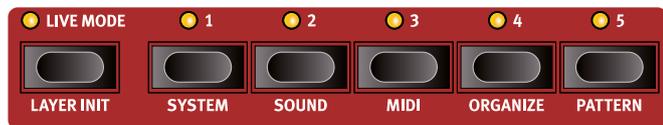
1. Press **LIVE MODE** and use the five **PROGRAM** buttons to navigate the five Live programs.

2. Make an edit, such as activating one of the effects sections, to one of the programs.

3. Select a different Live program and then return to the one that was edited. Note that the edit was automatically stored.

If Live Mode is active and you decide to store the settings permanently as a program in one of the Program banks, you can do so using the standard Store methods (see above).

You can also store programs into any of the five Live Mode memory locations, in which case the program settings will replace that current Live Mode memory setting.

Press the Live Mode button again to exit Live Mode and return to the Program banks.

LAYERS

There are 4 independent layers for each program. This allows for easy back-and-forth switching between different sounds, or for complex programs where up to four different sounds - synth or sample based - can be layered or split.

USING THE LAYER ENABLE BUTTON

With the **LAYER ENABLE** ▼ button kept pressed down, layers can be toggled On or Off by pressing their **A**-**D** buttons. Note that a single active layer can not be turned off (there is always at least one active layer).

USING THE LAYER A-D BUTTONS

Layers can also be turned On or Off directly be pressing their **A**-**D** buttons without using the Layer Enable modifier:

- Press the button for an *active* layer to focus that layer for editing. Which layer is focused is indicated by a blinking LED.

- Pressing the button for a single *non-active* layer turns that layer on and deactivates all others.

- To activate more than one layer at once, press the desired Layer buttons simultaneously.

CREATE A SPLIT

The Nord Wave 2 has 3 split points, for up to 4 zones, with 8 possible split locations (F2, C3, F3, C4, F4, C5, F5, C6). Here is how the four layers relate to the split points:

- Layer A is always left of split points 1, 2, 3
- Layer B is always right of split point 1 and left of 2, 3
- Layer C is always right of split points 1,2 and left of 3
- Layer D is always right of split point 1, 2, 3

Here is to set up a split using two layers:

1. Make sure that only Layer A is active.

2. To activate Split mode, press the **KB SPLIT** button located at the bottom of the Layer Control area. By default split point 2 is now active.

3. To adjust the *position* of the split point, press Shift and the KB Split button to access the **SPLIT MENU**.

4. There are two settings for each split point; *Note* and *xFade*. Make sure the *Note* row is selected by pressing the Program 2 button, corresponding to the ▼/▲ symbol in the display until the cursor is on the lower row. Set the *2* split point to C4 using the dial.

ℹ With xFade turned off ("-"), the split has no overlap between sounds above and below the split point. When set to 6 or 12, sounds are cross-faded across a range of 6 or 12 semitones respectively, above and below the split point.
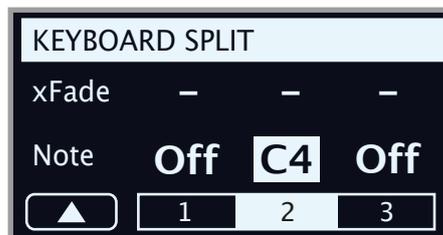
5. Make sure that the other two split points (*1* and *3*) are set to "Off". This can be done by pressing the 1 and 3 soft buttons respectively, or set their Note values to **Off** using the dial.

6. Activate Layer C by pressing down **LAYER ENABLE** and then the Layer **C** button.

The keyboard is now divided into two zones, with A to the left and C to the right. The split point is indicated with a green LED above the keyboard. The **2** LED above the **KB SPLIT** button will also be lit, indicating both that KB Split is turned on, and that only the split point 2 is active.

A BASIC ANALOG SOUND

Let's have a look at how to set up a sound using one of the classic **ANALOG** waveforms.

1. Make sure that only one of the layers is activate.

2. In order to start off from a "blank slate", let's *initialize* the layer to its default settings by pressing **LAYER INIT** (Shift + Live Mode) and then **Ok** using the display soft button.

3. Make sure the selector in the Oscillator section is set to **ANALOG**. Turn the **CATEGORY** dial until the *Shape* category is selected.

4. Select the *Triangle* waveform by turning the **WAVEFORM** dial.

5. Turn the **OSC CTRL** knob and note that this changes the *shape* of the waveform; in this case from a triangle wave to a sawtooth wave at max position. Leave it at any position that you like!

6. Press the **UNISON** button to choose one of the three Unison modes. The sound is now enriched by a number of additional oscillators, slightly detuned from the original.

Let's adjust the Amplifier Envelope (**AMP ENV**) to create a pad-like sound:

7. Turn the **ATTACK** knob clockwise and notice that the attack or onset of every played note becomes slower. The precise value for the Attack time is shown in the display when the knob is turned. Leave it around 3-400 ms.

8. Adjust the **RELEASE** time in the same fashion, to create a tail of sound when keys are released. Feel free to experiment with the **DECAY** and **SUSTAIN** parameters as well, in order to fine tune the shape of the sound.

As a final step, let's turn to the Filter section for some adjustments:

9. Make sure the **FILTER TYPE** selector is set to LP12 and turn the Filter **FREQ** knob counter-clockwise. Notice how the sound is gradually subdued. Repeat this with all Filter Type settings, paying attention to how they each have a different effect on how the sound is shaped.

☀ *The Filter Envelope, at the top of the Filter section, can be used to shape the Filter cut-off frequency over time, in the same way the Amp Env shapes the volume level. The amount of shaping that the Filter Envelope contributes is adjusted with the **ENV AMT** knob.*

❶ *Read more about the Filter Types, and other settings in the Filter section, beginning on page 25.*

ACTIVATE EFFECTS

1. Activate the **REVERB** by pressing the Reverb **ON** button.

2. Adjust the **DRY/WET** balance with the knob at the top of the Reverb unit.

3. Try out the different Reverb types by pressing the Reverb selector button repeatedly.

4. Activate the **EFFECTS** unit by pressing its **ON** button.

5. Set it to **ENS** (Ensemble) by pressing the Effects selector button repeatedly. Set the Amount knob to its max position to hear the full Ensemble effect. The Rate knob determines the speed of the effect – set this to a position that you like!

❶ *The other effects (EQ/Drive and Delay) are activated and adjusted in the same way.*

GROUP

Layers can be grouped together – having them share desired settings for various panel sections. This makes it possible to control the settings and sound of multiple layers from any of the grouped layers.

Let's use the sound from the previous example, layer it with a second sound, and group some panel sections:

1. Use the same program as in the previous example, or create a pad sound on one layer using that example.

2. Activate another layer by pressing **LAYER ENABLE** and one of the Layer **A**-**D** buttons.

3. Make sure the new layer is initialized by pressing **LAYER INIT** (Shift + Live Mode) and **Ok** using the display soft button.

4. Set the new layer to **SAMPLES** in the Oscillator section and select the *Mellotron Flute* sound from the *Mellotron* category, using the **CATEGORY** and **WAVEFORM** dials.

5. Now assign both layers to the **GROUP** by pressing Shift + the Layer buttons for the two active layers.

6. Focus the first layer for editing by pressing its Layer button and press Shift+Reverb to assign the Reverb to the **GROUP**. The Reverb will now be present on the *Mellotron Flute* layer too. Repeat this with the Ensemble effect.

7. Try removing the *Mellotron Flute* layer from the group by again pressing Shift and the corresponding Layer button. Note that the two effects (Ensemble and Reverb) are still active, but turning these off or adjusting them will now not affect the first layer.

MORPHS

Keyboard *velocity*, the modulation *wheel*, a connected *control pedal* or the keyboard *aftertouch* can be used to continuously alter one or several parameters while playing. This is achieved by using *morphs*. In short, this is done by selecting a a *source* (the physical controller) a *destination* parameter and the parameter *range* included in the morph.

1. We will now morph the *Reverb Dry/Wet* with the *wheel*, so start by making sure that the **REVERB** unit is turned *On*.

2. Choose a Reverb type, and then set the Reverb Amount to 0.

3. Press and hold the **WHEEL** button in the Morph Assign group, to the right of the Program area display.

4. Turn the Reverb **DRY/WET** knob to the desired position, perhaps around half way. Note that the display shows the starting point ("From:") for the morph and the end point ("To:"), which is determined by how far you turn the knob.

5. Let go of the Morph **WHEEL** button. Play a few notes or chords while moving the modulation wheel.

Note that the green LED below the Reverb Dry/Wet knob is now lit, indiciating that a morph has been assigned to it.

The **IMPULSE MORPH**, controlled using its button at the far left of the panel, is another morph source which *instantly* can change one or more parameter values. It is set up as the example above, except that the button is used both when assigning the morph and for performing the parameter changes.

☀ *One Morph source (Velocity, Wheel, Control Pedal, Aftertouch or Impulse Morph) can control several parameters at once.*

☀ *A Morph source can increase one parameter's value while decreasing the value of another at the same time. This makes it possible, for example, to crossfade between instruments.*

Read more about the Morph functionality on page 16.

THE ARPEGGIATOR/GATE

As a final exercise, let's create a sound using the arpeggiator.

1. Make sure that only one Layer is active and perform a **LAYER INIT** (Shift+Live Mode). Set the Amp Env **ATTACK** time to 0, **DECAY** to around 3 and **SUSTAIN** to 0, select a sawtooth waveform from the **ANALOG** oscillator types and open up the filter a little bit. This will produce a percussive sound.

2. Press **RUN** for the Arpeggiator/Gate section, play a chord on the keyboard and turn the **TEMPO** knob. This will play the notes that are held down, one after the other in a repeating fashion.

3. Press the direction *selector* button to select a different direction.

   When no direction LED is lit, the direction is Up, from the lowest key and up to the highest and then it starts over again. The other directions are **DN** (down), **UP/DN** (up and down) and **RD** (random).

4. Turn the Range knob to adjust the range of the arpeggio. When Range is set to 2, the arpeggiator will repeat the held notes in the octave above the original - and so forth up to the maximum range of 4 octaves.

   ☀ *Values between whole octaves are possible as well.*

5. Press the mode *selector* button and set it to **POLY**. Set the **RANGE** to 0. Note that the arpeggiator now simply repeats any chord that you hold. Try a larger range - the arpeggiator now plays inversion of the held chord, according to the direction that is selected.

6. Finally, select the **GATE** mode. Note that notes now are not repeated – instead the volume level of the sound is rhytmically gated according to the selected Rate. Adjust the Amp Env **SUSTAIN** parameter to ensure that your sound does not die out.

7. Adjust the **ENV** (Envelope) knob (same as the Range knob) and notice how the Gate becomes softer at 0 setting and very hard at the maximum Env amount.

MASTER CLOCK

Set up an arpeggio according to the previous section, and let's try the Master Clock feature to synchronize the arpeggio and bring in a synchronized effect as well.

1. Hold **SHIFT** and turn the Arpeggiator **TEMPO** knob to lock the arpeggio to the Master Clock, the **MST CLK** LED lights up.

2. Press down on the Mst Clk **TAP/SET** button in the Program area to dial in a tempo with the **VALUE** Dial. The display will indicate the BPM. Set this to 130 BPM for this exercise. Release the button to exit..

☀ *Tap four times on the Mst Clk button to set the tempo on the fly.*

3. Turn the Arpeggio **RATE** knob to select the meter subdivision (or note values) that the arpeggio should play. The setting is shown in the Program area display as the knob is being turned. Notice how 1/4 is half the "speed " of 1/8. A "T" after a numerical value indicates triplets. Set the subdivision to 1/8.

4. Turn on the **DELAY** effect, hold **SHIFT** and turn the Delay **TEMPO** knob to activate Master Clock for the Delay. The **MST CLK** LED lights up.

5. Turn the Delay **TEMPO** knob and again refer to the Program area display to monitor the setting.

6. Try 1/16, which will be half the note value or twice the "speed" of the arpeggio. Turn the **DRY/WET** knob up to around 12 o'clock to hear the delay taps together with the arpeggiated notes.

The Arpeggio/Gate, the LFO, the Delay and the Effect rate can be synchronized to the Master Clock in this fashion.

What's more, the Master Clock operates on all layers simultaneously so you can control arpeggios, LFOs and effects on all active layers in a program.

Some of the synchronizable units have division settings that are larger than 1/1 that allows for sweeps that are longer that one bar. And you can of course synchronize some functions, while leaving others free-running if you like.

4 PANEL REFERENCE

MASTER LEVEL

The **MASTER LEVEL** knob controls the overall amplitude for the audio outputs - the line level outputs and the headphone output. The knob's physical position indicates the output level and is not stored with a Program.

☼ *If you need to adjust the output level in individual programs, use the Program Level knob above the display. The setting of that control is stored with programs.*

STORE

The **STORE** button is used for storing an edited program to a location in the program banks. Storing a program will overwrite the existing data in the selected memory location.

ⓘ *When the Nord Wave 2 is shipped from factory its memory is protected, in order to avoid accidental overwriting of programs. To be able to store Programs, The Memory Protect parameter needs to be set to "Off" in the System menu. Read more on how to do this on page 31. The Memory Protect function does not affect the five Live Mode programs or operations performed through the Nord Sound Manager.*

STORING AND NAMING A PROGRAM

Here is how to store a program without changing its name:

① Press the **STORE** button once. The Store button will start blinking, and the display will show the name of the program and its location.

② To select a different store location use the dial and/or **PAGE ◀ / ▶** buttons. A program can also be stored to one of the five Live program locations. This is done by pressing the **LIVE MODE** button and then selecting the desired Live program button. The program at the selected store location can always be auditioned by playing the keyboard.

ⓘ *To cancel an ongoing Store operation, press* **EXIT**.

③ When a suitable location has been selected, press **STORE** again to confirm the operation.

STORE AS

① To store *and name* your program, press **STORE AS** (Shift + Store).

② Hold down the **ABC** soft button to bring up a row of alphanumeric characters and use the dial to select a character for the current position. Letting go of the **ABC** button moves the cursor to the next position. The dial or **PAGE ◀ / ▶** buttons can be used to move the

cursor freely. The **Ins** soft button is used for inserting a blank space at the current position and the **Del** soft button is used for deleting the currently selected character.

③ To assign a category to your program, press down on the **Cat** soft button and select any of the categories from the list. Using categories makes it easer to quickly locate your programs later on.

④ Pressing **STORE** will now bring up the *Store Program To* screen. Use the dial and/or **PAGE ◀ / ▶** and Program buttons to select a location.

⑤ When a suitable location has been found, press **STORE** again.

☼ *Naming programs can also be done using the Nord Sound Manager.*

TRANSPOSE

The Nord Wave 2 can be transposed in semitone steps on a per-program basis, with a range of +6/-6 semitones. Hold the Transpose button and set the transposition by turning the Value Dial. Press the Transpose button again to de-activate a transposition.

Transpose settings are saved and recalled as part of a program, and always affect all layers in a program.

☼ *To set up a transpose that affects* **all** *programs, use the Global Transpose parameter in the System Menu.*

PROG VIEW

There are three distinct modes for how programs are shown in the main display. Use the **PROG VIEW** (Program View, Shift+Transpose) function to switch between these.

The default view shows the Program name and number in large print, with the bottom half of the display reserved for parameter hints. The Nord Wave 2 reverts to this view when it is powered on.

Pressing Prog View once activates the *Category view*. In this mode the category for the selected program is displayed, and the **VALUE** dial is used for navigating programs in that category. The **PAGE** buttons are in this mode used for switching between different categories.

ⓘ *Note that the 1-5 Program buttons are inactive in category view.*

Pressing Prog View again activates the *Layer view*. Here, the oscillator selection for each active layer is shown in the bottom half of the display, with the Program name and number displayed in small print in the upper half.

Parameter hints, Copy/Paste operations and setting up morphs temporarily hides the layer info in the bottom half of the display.

MST CLK

The Master Clock allows you to synchronize the Arpeggiator/Gate, the LFO, the Delay and Effects Rate in the Nord Wave 2. Not only can these be made to run in sync with each other; different subdivisions can be set for all synced components, allowing for some great rhythmic effects.

Tap the **MST CLK** button a minimum of four times to set a tempo, expressed in BPM (beats per minute). Keep tapping the button to further refine the tempo setting if needed.

Hold down the Mst Clk button to bring up the Master Clock tempo and settings page. Use the **VALUE** dial to set the tempo. The set tempo will be stored with the program, after a Store operation is performed.

When the Master Clock tempo is set, you can select a subdivision of that tempo for the various functions that can be synchronized to the Master Clock. Any changes you make to the Master Clock tempo will be followed by all the functions in the Wave 2 that are synchronized to it.

EXTERNAL SYNC

The Master Clock on the Wave 2 can be controlled by incoming MIDI clock messages. This is an automatic behavior: As soon as the Wave 2 receives MIDI clock on the MIDI input or the USB MIDI input, the Master Clock will be synchronized to the incoming external clock.

When the Master Clock is locked to an incoming clock, "MIDI" will be shown in the display if **MST CLK** is pressed, together with the incoming tempo in BPM.

(KBS) KEYBOARD SYNC

Keyboard Sync for the Master Clock is activated by turning on **KB SYNC** (Shift+Range/Env) in the Arp/Gate section. This way you can control exactly which layers in a program reset the clock, and which do not. This is especially useful when a split is configured and only one side of the split should affect the Master Clock.

On the Master Clock display page, the Keyboard Sync behavior can be selected by pressing the *KBS* soft button. Note that this is a global parameter, which affects all programs.

Hard: When set to *Hard* the Clock is always reset after lifting all keys and then playing the keyboard again.

Soft: When set to *Soft* the Master Clock is only reset if waiting longer than one quarter note (in relation to the current tempo) to play the keyboard, after all keys have been lifted.

NUM PAD

There are two distinct options for how programs and banks are navigated: The default page based mode and the **NUM PAD** (Numeric Pad) mode, activated by pressing Shift+Mst Clk.

In Numeric Pad mode the Program 1-5 buttons are used for entering any program number (11-55) within the current bank, rather than directly switching between the 5 programs on a page.

As an example, to select program *12* within the current bank, first press Program button 1 (to select page 1) and then Program button 2 (to select program 2 within that page). Here are some additional points:

• In Numeric Pad mode the **PAGE** buttons switch between *banks*.

• The Value dial can be used for switching programs incrementally, just as in page based mode.

• A "num" symbol in the top right corner of the display indicates that Numeric Pad navigation is active.
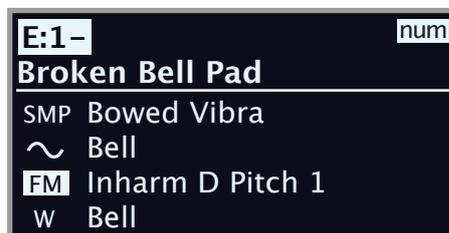
In this example, the Program 1 button has been pressed. The dash (-) indicates that another digit can be entered, to select program E11-15.

PROGRAM LEVEL

The **PROGRAM LEVEL** knob determines the overall sound level of a program, and is stored with the program unlike the Master Level control. Use this control to maintain equal levels between programs, without needing to adjust all 4 layer faders.

PAGE BUTTONS

Program *pages* are navigated by pressing the **PAGE** ◀ / ▶ buttons. Each bank holds 5 pages, with 5 programs in each page. These buttons can also be used for jumping between *categories* when browsing programs in category mode, and for navigating *menu settings* within the System, Sound and MIDI menus.

Press **BANK** ◀ / ▶ (Shift + Page buttons) to switch between program banks.

VALUE DIAL

The **VALUE** dial to the left of the Display is used to select programs, to set menu parameter values and to enter characters in program names. Pressing **SHIFT** while turning the dial activates the **LIST** view, which will display all programs in a list:

LIST OPTIONS

The Program list can be navigated either numerically by pressing **Num** (Program 2 button), alphanumerically – **Abc** (Program 3 button) or by category – **Cat** (Program 4 button).

NUMERIC

In numeric mode programs are displayed by their order in the Program banks. The dial and the **PAGE** buttons can be used for navigating the list.

```
┌─────────────────────────────────┐
│ ▤  Program          Bass        │
│ A:24 Ac Guitar Finger           │
│ A:25 Mini M Bass 4              │
│ A:31 Gate Filter Whl            │
│ A:32 Pacific Pad Whl            │
│          Num │ Abc▼│ Cat▼       │
└─────────────────────────────────┘
```

ABC

In Abc (alphanumeric) mode programs are instead ordered by name. By pressing down on the Abc soft button, as indicated by the " ▼ " symbol, a specific letter or number can be jumped to by selecting it with the dial.

```
┌─────────────────────────────────┐
│ ▤  Program      B               │
│ F:32  Bowed Pad Whl             │
│ E:53  Brass Sfz Whl             │
│ D:32  Brass String Whl          │
│ I:25  Briano                    │
│          Num │ Abc▼│ Cat▼       │
└─────────────────────────────────┘
```
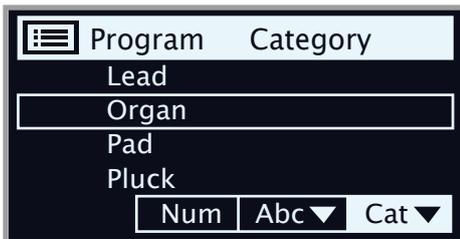
CATEGORY

In Category mode, programs are sorted by their category. By pressing down on the Cat soft button, as indicated by the " ▼ " symbol, an alphabetically sorted list of categories is displayed, as shown in the below picture. The dial can be used for selecting the desired category.

```
┌─────────────────────────────────┐
│ ▤  Program      Category        │
│     Lead                        │
│     Organ                       │
│     Pad                         │
│     Pluck                       │
│          Num │ Abc▼│ Cat▼       │
└─────────────────────────────────┘
```

☼ *In Cat sort mode, the Page buttons can be used for quickly jumping to the first program in the next category. Pressing Shift while turning the dial is another way to jump to the next category.*

LIVE MODE

The Nord Wave 2 has five easy-to-access Live program locations, differing from other programs in that any edits to them are *automatically stored*. When leaving a Live program or powering off the machine all edits are saved, without the need for a manual Store operation. To select a Live Program, press **LIVE MODE** and then any of the *1-5* buttons in the Program area.

The selected Live program can be stored to a program bank location, using the standard Store methods (see previous page for details). Conversely, a regular program can also be stored to a Live program location
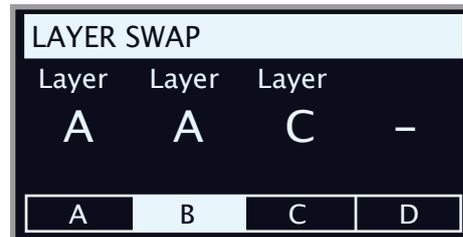
LAYER INIT

On the first page of the **LAYER INIT** menu (Shift + Live button), layers can be initialized to the default values for each panel section. Press **Ok** to initialize the active layer and press **All** to do this for all 4 layers. Note that the oscillator selection is *not* reset.

LAYER SWAP

From the Layer Init screen, use the **PAGE ▶** button to access the Layer Swap function. From here any layer can load the contents of another layer, in the loaded program. Use the **A**-**D** soft buttons (Program 2-5 buttons) to focus a layer, and turn the **VALUE** dial to select a layer whose settings should replace those of the focused layer.

In the example below, the Program has three active layers (A, B, C) and the settings from layer A have been applied to layer B.

```
┌─────────────────────────────────┐
│ LAYER SWAP                      │
│  Layer   Layer   Layer          │
│                                 │
│   A       A       C       –     │
│                                 │
│   A    │  B    │  C    │  D     │
└─────────────────────────────────┘
```

☼ *The original settings of all layers are always available in the Layer Swap function when turning the Value dial, even if settings have been replaced with those of other layers.*

PROGRAM BUTTONS

The five **PROGRAM** buttons give you immediate access to a range of five programs within the current program bank, when the default Page Based program button mode is set in the System menu. When the Numeric Pad program button mode is selected, these buttons are instead used to enter digits between 1-5. Read more about Numeric Pad program button mode above.
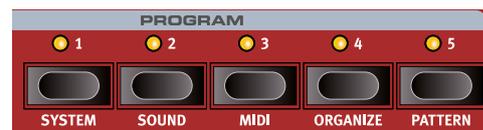
WHAT IS A PROGRAM?

A *program* stores and contains all settings made on each of the 4 layers, except for Master Level. To understand the internal architecture of the Nord Wave 2, keep the following in mind:

• For each layer, settings for all parameters affecting the sound, including all effects are independent.

• Splits, all settings made in the Layer Control area, and Morph assignments are also part of a Program.

SYSTEM, SOUND, MIDI MENUS

With Shift pressed, The **PROGRAM** 1-3 buttons are used to enter the System, Sound and MIDI menus respectively. Menu settings are described in the Menu chapter beginning on page 31. **ORGANIZE** is described in the following section. The **PATTERN** editor is described under Arpeggiator/Gate on page 18.

ORGANIZE

The order in which programs are stored in their respective banks can be rearranged using the *Swap* and *Move* **ORGANIZE** functions:

ENTER THE ORGANIZE VIEW

[1] Press **ORGANIZE** (Shift + Live button) to enter the Organize view.

```
┌─────────────────────────────────┐
│ ▤ Program        Organize       │
│ A:24 Ac Guitar Finger           │
│ A:25 Mini M Bass 4              │
│ A:31 Gate Filter Whl            │
│ A:32 Pacific Pad Whl            │
│              ( Swap ) ( Move )  │
└─────────────────────────────────┘
```

SWAP TWO PROGRAMS

A Swap operation interchanges the positions of two programs:

[2] Use the dial to select the program location which should be swapped with another and press **Swap**.

[3] Use the dial to select the destination and press **Ok** to complete the Swap operation. Pressing **Undo** will instead cancel the operation.

```
┌─────────────────────────────────┐
│ ▤ Program          🗗 A:25      │
│ A:24 Ac Guitar Finger           │
│ A:25 ⇄ Mini M Bass 4            │
│ A:31 Gate Filter Whl            │
│ A:32 Pacific Pad Whl            │
│              ( Undo ) ( Ok )    │
└─────────────────────────────────┘
```

MOVE A PROGRAM

[4] Use the dial to select a program which should be moved to another location and press **Move**

```
┌─────────────────────────────────┐
│ ▤ Program          🗗 A:25      │
│ A:24 Ac Guitar Finger           │
│ A:25 ⬍ Mini M Bass 4            │
│ A:31 Gate Filter Whl            │
│ A:32 Pacific Pad Whl            │
│              ( Undo ) ( Ok )    │
└─────────────────────────────────┘
```

[5] Select the *destination* location for the operation, using the dial and press **Ok**. Pressing **Undo** will instead cancel the operation.

⚠ *Note that programs between the source and destination locations are shifted one step up or down, changing which programs are part of each page within the range involved.*

ℹ *Content can also be organized using the Nord Sound Manager.*

MIDI LED INDICATOR

MIDI ◉

The **MIDI** LED, located to the left of the display, blinks as incoming MIDI messages are received by the MIDI In port, or through the USB connector.

ℹ *Short flashes indicates any kind of incoming MIDI data, longer flashes indicates MIDI data that the Wave 2 actually uses.*

MONITOR / COPY / PASTE

MONITOR/COPY ▽ / PASTE

To display what a parameter on the panel is set to, without changing it, hold down the **MONITOR** button and turn the associated parameter knob.

The **COPY** button can be used not only for copying a layer, but also for copying a *program* or a *morph,* as well as *patterns*:

[1] Make a copy by holding down the **COPY** button in combination with one of the options below:

- To copy a *Layer*, press one of the **LAYER A-D** buttons
- To copy a *Morph*, press the **VELOCITY**, **WHEEL**, **ATOUCH** or **CTRLPED** button
- To copy a *Pattern*, press **PATTERN** (Shift + Arp/Poly/Gate)
- To copy a *Program*, press one of the **PROGRAM 1**-**5** buttons.

[2] To *paste* the copied settings, hold down **PASTE** (Shift + Monitor/Copy Panel) and the button corresponding to the *layer*, *morph, pattern* or *program* the settings should be pasted into. Layers and morphs can either be pasted within the program they were copied from, or into any other program.

MORPH

VELOCITY
WHEEL
PEDAL
A TOUCH
CLEAR

Morphs allow for controlling several parameters at once using one control "source". For example, a foot pedal can be used to control the balance between two layers, the wheel to change the filter cut-off, and the rate of a selected effect controlled by keyboard aftertouch – all at the same time.

The four **MORPH** buttons, **VELOCITY**, **WHEEL**, **PEDAL** and **A TOUCH**, represent the four available *continuous* morph sources: keyboard *velocity*, the modulation *wheel*, keyboard *aftertouch*, and *control pedal*.

There is also the Impulse Morph button, which is an *instant* morph source, described below.

A Morph is set up by holding down one of the Morph buttons, while at the same time moving a parameter control (for example a knob or a LED fader) from the point where the morph should *start* to the point where it should *end*. It is a good practice to have the control set to the desired start position *before* pressing down the morph assign button. The display will show the start and stop values as the morph is set up.

Multiple parameters can be adjusted while pressing down a Morph Assign button, and additional morph destinations can be added after a morph has been assigned.

To **CLEAR** all morphs assigned to one of the morph sources, press Shift and the corresponding Morph button.

To clear a single morph, press down the corresponding Morph button, press Shift and turn the knob for the parameter that should be cleared.

Morphable Parameters		
Glide	Layer Level	Filter Resonance
Arp/Gate Rate	Layer Pan	Filter Env Amount
Arp/Gate Range/Env	Amp Env Attack	Effects Rate
LFO Rate	Amp Env Decay	Effects Amount
LFO Amount	Amp Env Sustain	Drive Amount
Osc Mod Env Attack	Amp Env Release	Delay Rate/Time

Morphable Parameters		
Osc Mod Env Dec/Rel	Filter Env Attack	Delay Feedback
Osc Mod Env Amount	Filter Env Decay	Delay Dry/Wet
Osc Semitones	Filter Env Sustain	Reverb Dry/Wet
Osc Fine Tune	Filter Env Release	
Osc Ctrl	Filter Frequency	

☀ *Double-clicking a Morph button activates morph latch mode, allowing for assigning morphs without keeping that button pressed down. Press EXIT to leave latch mode.*

IMPULSE MORPH

The **IMPULSE MORPH** feature allows for instantly changing one or more parameters at the press of a button, for dramatic or subtle changes in sound. Apart from all parameters that are available as morph destinations for the continuous morphs described above, the Impulse Morph can change various button controlled parameters, such as Filter Type, or turning the Arpeggiator/Gate on or off.

To set up an Impulse Morph, press down the Impulse Morph button and turn a parameter knob or press the button for the parameter that should be morphed. **SET** (Shift+Impulse Morph) activates a "latch" mode, useful for setting morphs without keeping the button pressed down. Press **SHIFT/EXIT** to leave the Set mode.

To **CLEAR** an Impulse Morph, press Shift and hold down the Impulse Morph button for a longer time.

Impulse Morphable Parameters		
Glide	Amp Env Release	Arp/Gate Run
Arp/Gate On/Off	Filter On/Off	Arp/Gate Mode
Arp/Gate Rate	Filter Env Attack	Arp/Gate Direction
Arp/Gate Range/Env	Filter Env Decay	Delay On/Off
LFO Rate	Filter Env Sustain	LFO Waveform
LFO Amount	Filter Env Release	LFO Destination
Osc Mod Env Attack	Filter Frequency	Osc Mod Env Dest
Osc Mod Env Dec/Rel	Filter Resonance	Osc Unison
Osc Mod Env Amount	Filter Env Amount	KB Track
Osc Semitones	Effects On/Off	Reverb On/Off
Osc Fine Tune	Effects Rate	Filter Type
Osc Ctrl	Effects Amount	Filter Drive
Layer Level	Drive Amount	Effect Type
Layer Pan	Delay Rate/Time	Delay FB Effect Type
EQ/Drive On/Off	Delay Feedback	Delay FB Effect Deep
Amp Env Attack	Delay Dry/Wet	Delay FB Filter Type
Amp Env Decay	Reverb Dry/Wet	Reverb Bright/Dark
Amp Env Sustain	Octave Shift	Reverb Size

VIBRATO

The **DLY1**, **DLY2** and **DLY3** settings add a *delayed* vibrato, their respective delay times being 0.25, 1.0 and 1.5 seconds.

When **WHEEL** is selected, the depth of the vibrato is controlled by the *Modulation Wheel* and incoming MIDI CC#1.

When set to **AT** the vibrato is controlled by keyboard *aftertouch*.

VIBRATO RATE AND DEPTH

The rate of the Vibrato and depth for the Vibrato Dly (delay) and AT (aftertouch) modes can be set by pressing **RATE** (Shift+Vibrato selector) and selecting the desired values from the display. These values are stored with the program.

Range: Rate 2.0-8.0 Hz (Default 5.5 Hz), Amount 0-10 (Default 4.8)

VOICE MODE

In both **MONO** and **LEGATO** mode only one note is played at a time, just like on a traditional monophonic synthesizer. The main difference between the two modes is in how the modulation and amplifier envelopes act when one is *playing* legato, i.e. with overlapping key presses:

In Mono mode both envelopes restart from the point in the attack phase where the level is equal to the previous note, *if* the decay or release phase has been entered. In Legato mode the envelopes do *not* move to the attack phase once the decay point has been reached, as long as one is *playing* legato.

❶ *An exception to the behaviour in Mono mode is that the oscillator modulation envelope is always reset to its start position when its release time is set to infinity (max position).*

Another difference is that in Legato mode, glide is active only when you *play* legato. I.e. a new key needs to be pressed *before* the previous key is released to get the glide effect.

When none of the Mono and Legato LEDs are lit, the Synth section is in its default polyphonic mode.

GLIDE

The **GLIDE** function makes the pitch "glide" from one note to the next when playing (traditionally referred to as *portamento*) and is available in Legato and Mono mode only.

ARPEGGIATOR/GATE

The Arpeggiator/Gate section is turned on by pressing its **RUN** button. Activating **GROUP** (Shift + Run) allows multiple layers to share the same settings. Read more about Group on page 23.

There are three available modes for the Arpeggiator/Gate section on the Nord Wave 2:

ARP (ARPEGGIATOR)

In Arp (Arpeggiator) mode, held notes are played back consecutively, outlining the played chord.

POLY (POLYPHONIC ARPEGGIATOR)

In Poly (Poly mode, notes are played back repeatedly, together. At larger Range settings inversions of the held chord are played in order according to the Direction setting.

GATE (RHYTHMIC GATE)

When set to Gate, the sound level of sustained notes is gated rhythmically according to the Rate setting, and the selected pattern if Pattern is turned on. The intensity or "hardness" of the gate is determined by the **ENV** (Envelope) parameter.

PATTERN

All three Arpeggiator/Gate modes can use the **PATTERN** setting (Shift + Arpeggiator mode). With Pattern On, the notes of the arpeggio or steps of the gate conform to the rhythm defined by the selected pattern. Patterns are selected or defined in the Pattern Menu (Shift + Program 5). Read more about patterns below.

DIRECTION

The direction of the arpeggio is set using the Arpeggiator *selector button*. If no LED is lit, the arpeggio will play in the Up fashion. The other directions are Down (**DN**), Up and Down (**U/D**) and Random (**RND**). This parameter has no effect when using the Gate.

ZIG ZAG

With **ZIG ZAG** (Shift + Arpeggiator Direction) activated, played notes will jump by two steps and then back one, in a given direction.

RANGE / ENV

The range which an arpeggio spans is determined by the **RANGE** knob.

At the 0 setting the arpeggio only uses the actual notes played on the keyboard. In Poly mode this translates to the played note or chord being retriggered and repeated as is. Apart from the the values of even octaves, ranging from 1-4, values between each octave can be used as well for arpeggios ranging for example 2 octaves and a fifth.

When the **GATE** is active this knob controls the envelope (**ENV**) of the Gate. At the zero position the envelope is very soft, producing a smooth amplitude modulation. At the maximum position the envelope is very "hard", in effect turning the sound on and off in accordance with the Gate tempo and pattern.

KB SYNC

In **KB SYNC** mode (Shift + Range/Env knob), the arpeggiator or gate will be reset any time a new note is played after all keys have been lifted. With keyboard sync *off*, any new notes played while the arpeggio or gate is running will conform to the "grid" of the current tempo setting.

When **MST CLK** is active, this KB Sync parameter determines whether the Master Clock is reset. This affects all parameters synced to the Master Clock in the entire program – for instance the LFO or Delay.

☀ *Note that you can choose which layer or layers should reset the Master Clock when played, by setting the KB Sync parameter for each Layer accordingly. For instance, an arpeggio sound on the left side of a split could reset the clock when played, while a lead sound on the right side of the split does not.*

ARPEGGIATOR TEMPO

The **TEMPO** knob sets the rate which will be displayed as quarter note beats per minute (BPM) in the display. Note that the arpeggiator plays 1/8 notes in the given tempo

ARPEGGIATOR MASTER CLOCK

Press **SHIFT** and turn the Arpeggiator **TEMPO** knob to sync the arpeggio with the Nord Wave 2 Master Clock. When the Arpeggio is synchronized to the Master Clock, the Tempo knob is used for setting the arpeggio's subdivision of the tempo of the Master Clock. The Subdivisions are described in meter: 1/2 equals half notes at the clock tempo, 1/4 equals quarter notes, 1/8 are eight notes etc. A "T" indicates a meter with triplet feel.

Read more about the Master Clock and how to set its tempo on page 14.

PATTERN

Enter the **PATTERN** menu by pressing Shift + Program 5. Apart from presenting a range of preset patterns, the pattern editor can be used to create custom patterns of varying length, in mono or using the stereo Pan function. Patterns can be used both with Arpeggio and Poly Arpeggio as well as with the Gate mode. The two pages of the Pattern menu are navigated using the **PAGE** ◀ / ▶ buttons.

PATTERN PRESETS AND STEPS

There are a number of preset patterns, designed to provide both simple and complex rhythms in both mono and stereo modes. These patterns can be used as is, or selected and then customised using the Pattern Editor.

The **Steps** soft button is used for setting the number of steps in the pattern, from 2 to 16.

PATTERN EDIT

Use the Pattern Editor to define custom patterns, created from scratch or based on one of the presets.

The **VALUE** dial is used to move back and forth in the pattern. At a given position the available soft buttons can be used in the following way:

Press **Shift** and turn the dial to offset the pattern across the grid. This can for instance be useful if the "one" of the pattern is not in the right place, or for using permutations of the same pattern in different layers.

Acc adds an *accent* to the selected step, indicated by a triangle above the grid.

❶ *Note that in Arp or Poly mode, a parameter affecting velocity sensitivity, such as Amp or Filter Velocity, needs to be active for the accent to occur.*

Press **Pan** to move the step between Left, Center and Right in the stereo panorama.

Gate is used for inserting or deleting steps, by pressing the button once. To alter the length of a selected step press down on the button and turn the dial.

LFO

The Low Frequency Oscillator (**LFO**) produces a waveform that can be used to create cyclic modulations to the selected destination; Oscillator Pitch (**OSC PITCH**), Oscillator Control (**OSC CTRL**) or the Filter cut-off frequency (**FILTER**).

The amount of modulation is set with the LFO **AMOUNT** knob . The LFO can be synchronized to the Master Clock. Activate **GROUP** (Shift + destination selector) to assign the LFO to all layers in the Group. Read more on page 23.

❶ *The LFO in the Nord Wave 2 is monophonic.*

RATE

The **RATE** knob sets the frequency of the LFO. Its range is 0.03 to 523 Hz**.**

DESTINATION

Use the selector button to choose whether the LFO should modulate the **OSC PITCH**, **OSC CTRL** or the **FILTER** frequency. When no LED is lit the LFO is turned off.

LFO MASTER CLOCK (MST CLK)

Enable **MST CLK** (Shift + Rate knob) to synchronize the LFO to the Master Clock. The Rate knob is used for controlling the time division.

Division	Description
4b, 2b, 1, 2, 4, 8, 16, 32, 64	The straight divisions range from 4 bars to 1/64 notes.
4bt, 2bt, 1t, 2t, 4t, 8t, 16t, 32t	The t indicates the triplet divisions, from 4 bars to 1/32 notes.

LFO WAVEFORM SELECTOR

Waveform		Description
⋀		**Triangle** Suitable for natural vibrato effects, also good for classic pulse width modulation.
⊓⊔		**Square** Used for abrupt modulation changes. Suitable for distinct tremolos and Pitch modulations such as trills etc.
⟍		**Sawtooth** Used for linear ramp type modulations.
⟋		**Inverted Sawtooth** Inverted linear ramp.
S/H		**Stepped Random** Recreates a stepped random modulation.

OSC MOD ENV

The **PITCH** (Semitones) or **OSC CTRL** parameter for the Oscillator (read more about this below) can be modulated by the dedicated Oscillator Modulation Envelope.

With **VEL** (Shift + Destination) active, the envelope is velocity sensitive and will produce a greater modulation with harder key presses and less modulation when keys are played softly. The **AR** mode (Shift + Destination) changes the envelope from the default Attack+Decay behaviour to instead provide Attack+Release.

ATTACK

Attack is the time it takes for the envelope to reach the maximum modulation level. This envelope phase begins when you press a key.

DEC/REL

When the AR mode is not active this knob controls the Decay. In AR mode it controls the Release parameter.

The Decay begins after the attack phase is completed. It is the time it takes for the modulation envelope to drop back down to zero again. If Decay is turned fully clockwise, the decay will be infinite, acting as a sustain level.

The Release phase of the envelope begins after you have released the key. This setting determines how long it should take for the envelope to drop to zero after the key is released. The release phase may start anywhere during the envelope's Attack phase and will begin as soon as a key is released as shown in this illustration.
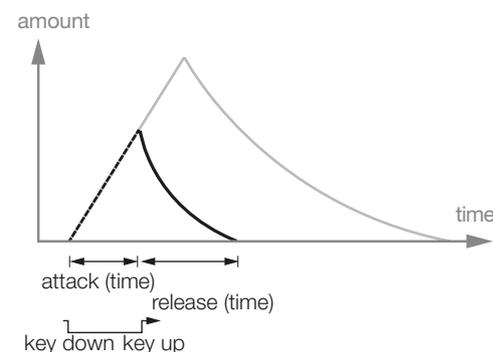
OSCILLATORS

The Oscillators section of the Nord Wave 2 features a wide array of both classic analog waveforms and rich wavetables, as well as FM algorithms and a large selection of samples from the Nord Sample Library. There is 1 GB of memory for samples, and additional samples can be downloaded from www.nordkeyboards.com. Custom samples can also be created and downloaded to the Nord Wave 2 using the Nord Sample Editor 3 software. Read more about this on page 34.

Using the Unison modes and/or the Multi analog waveforms, sounds utilizing a large number of oscillators can be used – without any loss of polyphony.

The dedicated Oscillators OLED display shows the current oscillator selection, including waveform shapes, FM algorithms and other important parameters such as oscillator pitch (Semi) and fine tune (Cent).

SELECTOR BUTTON

These are the four oscillator types, selected by using the Oscillator *selector button*:

- **ANALOG** (analog style) waveforms
- **W TABLE** (wavetables)
- **FM** (Frequency Modulation synthesis)
- **SAMPLE** (samples from the Nord Sample Library 3.0)

The **CATEGORY** dial is used for choosing a category within the specified oscillator type and the Waveform dial selects the specific waveform or sample to be used. Use the **LIST** command (Shift + Waveform dial) to display a *list view* of the waveforms, wavetables or samples in your current selection.

With a sample selected, pressing down **INFO** (Shift + Selector button) shows the size, full name and version of the sample.

UNISON / RAW SAMP / SKIP ATK

The Nord Wave 2 Oscillator has a number of "hidden" oscillators which can be added to the basic sound for those fat, classic synthesizer sounds. Note that using Unison does not reduce the polyphony! A **UNISON** setting of **1** equals a classic dual oscillator de-tuning effect, while the **2** and **3** settings add even more oscillators and further widens the stereo image.

When a sample is loaded, preset filter and Amplifier Envelope are loaded as well. Activate **RAW SAMP** to disable these presets. The **SKIP ATK** mode, available for most *samples,* skips part of the attack phase – giving a faster attack response. Read more about this on page 22.

OSC CTRL

Oscillator Control, **OSC CTRL**, is used to alter the sound in various ways depending on the currently selected waveform. The Osc Ctrl parameter can be modulated by the Osc Mod Envelope or the LFO, and *morph controlled*, allowing real-time use of the wheel, aftertouch or pedal for controlling the sound. There is also a direct Wheel Assign mode for the Osc Ctrl parameter, enabling instant control over its full range.

ANALOG

BASIC

The **Basic** category contains a selection of waveforms which are not affected by the Osc Ctrl parameter:

Sine	
Triangle	
Saw	
Square	
Pulse 33	
Pulse 10	

SHAPE

The **Shape** category contains waveforms where the Osc Ctrl parameter determines the shape.

	Osc Ctrl = 0	Osc Ctrl = 5	Osc Ctrl = 10	
Triangle				
Saw				
Square				
Half Sine				
Parabolic				

� *The Square waveform can be transformed from a square (50% pulse) to a very narrow pulse wave, making it suitable for Pulse Width Modulation (PWM) sounds, using the LFO or Osc Mod Env to modulate the Osc Ctrl parameter.*

SHAPE SINE

Waveforms in the **Shape Sine** category can all be gradually transformed from a pure sine wave to the selected waveform, using the Osc Ctrl knob.

	Osc Ctrl = 0	Osc Ctrl = 5	Osc Ctrl = 10
Pulse			
Saw			
Square			

Squeeze				
Fold				
ESaw				
ESquare				

MULTI

The **Multi** category contains a selection of multi-oscillator waveforms. In all instances, the **OSC CTRL** parameter determines the amount of *Detune* between the oscillators.

Dual Saw: Two sawtooth waveforms tuned an octave apart.

Dual Saw 5th: Two sawtooth waveforms where one is tuned a fifth above the other.

Dual Saw 5th+: Two sawtooth waveforms where one is tuned an octave and a fifth above the other.

Triple Saw: Three sawtooth waveforms, each separated by an octave.

Triple Saw 5th+: Two sawtooth waveforms where one is tuned an octave and a fifth above the other, with an added sub octave sawtooth waveform below the fundamental.

Super Saw, Super Square, Super Bright, Super Organ: A large number of simulatenously sounding oscillators, producing a very rich and full sound. The stereo width is increased in Unison mode.

SYNC

"Oscillator Synchronization" involves using the signal from one oscillator to *restart* another oscillator. When sync is applied, the basic pitch of Oscillator 1 is locked to that of Oscillator 2 (the "sync" oscillator). As the relative pitch of the synchronized oscillator is varied, this will be perceived as a dramatic change in timbre.

With Oscillator Sync, it can be useful to have the **OSC CTRL** amount modulated from one of the Morph sources, or by the Osc Mod Envelope. This generates a signal with continuously varied harmonic content.

The "Chop" waveforms in this category apply a sawtooth or square "window" to the synced waveforms which gives a unique and comparitively soft quality to the produced sound.

Sine	
Triangle	
Saw	
Square	
Pulse 33	
Pulse 10	
Chop Saw	
Chop Saw 2	
Chop Square	

BELL

Amplitude modulation is used to create a complex bell-like waveform. **OSC CTRL** controls the pitch of the modulator, and thereby the harmonic content and character of the waveform.

NOISE

There are three types of noise generators available:

White: Full-band noise, i.e. a random signal with equal spectral density at all frequencies.

Pink: A noise signal where the spectral density decreases with higher frequency, making it "softer" than the White Noise option.

Red: A noise signal with more energy in the low frequencies, and more dampened high frequencies than the Pink Noise option.

WAVETABLE

These waveforms have been carefully designed and selected to provide rich and interesting timbres with great variety, for those sounds that cannot be reached with the other oscillator types. Advanced wavetable synthesis techniques have been used to reproduce these waveforms perfectly over the whole keyboard range.

The **OSC CTRL** parameter has no effect on the Wavetable waveforms.

The available categories contain digital waveforms covering a wide range of tonal characteristics. Some of the waveforms are distilled from acoustic instruments while some are combinations of several overlapping spectra. Yet others are extremely bright, with a fundamental that is softer than the many harmonics.

FM

The basic principle behind *frequency modulation* (FM) synthesis is that one sine oscillator (the modulator) modulates the frequency of another (the carrier). The carrier can in turn modulate the frequency of yet another oscillator, etc. The resulting waveform is far more rich in harmonics than the original Sine waveform, and drastic changes in tonal character are provided by altering the amount of modulation.

Traditionally, FM oscillators are referred to as *operators*, and the FM categories of the Nord Wave 2 provide algorithms with 2, 3 and 4 operators (in reality 8 operators when using the Unison settings).

The **OSC CTRL** parameter controls the amount of frequency modulation for all FM categories.

HARMONIC

For the **Harmonic** categories the **Partial** parameter determines the relationship between the modulator and the carrier, expressed as a *multiple* of the root frequency. The Partial is selected with the **WAVEFORM** dial.

With these algorithms the modulator and carrier retain a harmonic relationship regardless of setting, making these categories suited for tonal FM sounds.

Available partials (**P**) range from 0.5 to 24.

FM Harmonic A: 2-OP algorithm at ratio P:1.

FM Harmonic B: 3-OP algorithm at ratios P:1:1. The modulation amount is greater at the first modulation stage than at the second.

FM Harmonic C: 3-OP algorithm at ratios P:3:1.

FM Harmonic D: 3-OP algorithm at ratios P:1:1. The modulation

amount is greater at the second modulation stage than at the first.

FM Harmonic E: 4-OP algorithm where one pair at ratio P:1 is mixed with another pair at ratio 1:1. Especially suited for bell and electric piano type sounds.

INHARMONIC

For the **Inharmonic** categories the **Pitch** parameter determines the relationship between the modulator and the carrier in *semitones* and is selected with the **WAVEFORM** dial.

With most Pitch selections the modulator and carrier are at an inharmonic relationship, making these algorithms suited for less tonal, more experimental FM sounds.

Available pitches (**P**) range from -12 to 48.

FM Harmonic A: 2-OP algorithm at ratio P:1.

FM Harmonic B: 3-OP algorithm at ratio P:1:1. The modulation amount is greater at the first modulation stage than at the second.

FM Harmonic C: 3-OP algorithm at ratio P:3:1.

FM Harmonic D: 3-OP algorithm at ratio P:1:1. The modulation amount is greater at the second modulation stage than at the first.

FM Harmonic E: 4-OP algorithm with one pair at ratio P:1 and one pair at ratio 1:1.

SAMPLE

The **SAMPLE** option uses samples from the Nord Sample Library 3.0 as an oscillator waveform and process it with the other components of the subtractive synthesizer architecture. This provides the synthesizer with a tremendous flexibility. What's more, custom samples can be created using the Nord Sample Editor 3 application, and loaded into the Nord Wave 2.

☀ *The Nord Sample Editor software is available as a free download from www.nordkeyboards.com..*

Sample categories are browsed using the **CATEGORY** dial and individual samples are selected with the **WAVEFORM** dial. Use **LIST** (Shift + Waveform dial) to browse categories and select samples from the list view.

The sample memory in the Nord Wave 2 can hold up to 1 Gigabyte of sample files in the Nord Sample Library format, all of which can be replaced as needed. The sample memory is loaded with a wide selection of sounds when the Nord Wave 2 leaves the Nord factory, and there are many more samples to be found on the *www.nordkeyboards.com* website.

SAMPLE PRESETS AND RAW SAMP

Samples from the Nord Sample Library come with preset filter and Amp Envelope settings, in order to make them instantly "playable".

❶ *Preset filter settings are applied using an additional "under-the-hood" filter, rather than the on-panel filter section. To override the preset values, or to browse samples while retaining the panel Filter and Amp Envelope settings use the* **RAW SAMP** *option.*

SKIP ATTACK

With **SKIP ATK** engaged, sample playback will begin at a fixed, alternative starting point, bypassing most of the original attack portion of the sample. As an example, this can be used to remove the "build-up" phase of a slow strings sound.

LAYER CONTROL

From the centrally placed **LAYER CONTROL** section the sound level of each of the four layers within a program can be controlled and individual layers can be turned On or Off. This is also where keyboard splits are activated and stereo Pan of each layer is controlled – among other things.
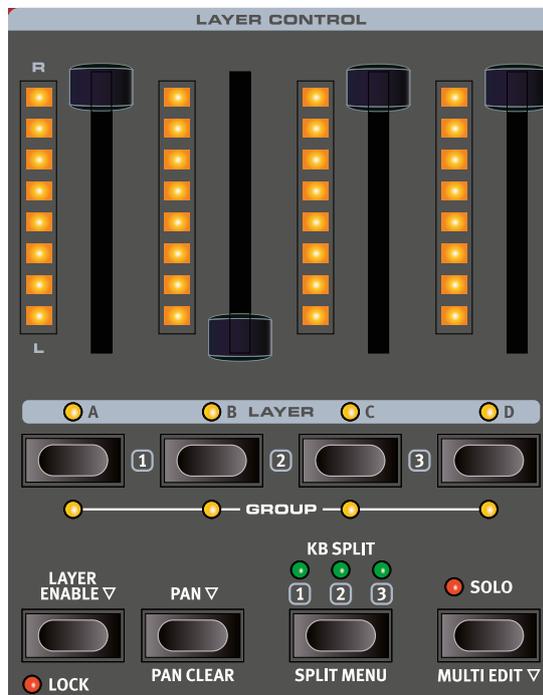
LED FADERS

The volume level of a Layer (A, B, C and D) is controlled with the LED light equipped fader. At the bottom position the Layer is silent, and at the top it is at full level. The LED bar indicates the current volume level, and will show the current level when a program is loaded even if the fader itself has a different physical position.

☀ *If sound is produced on an inactive Layer, for instance by MIDI data received on its Layer MIDI channel, this is indicated by a single LED at the volume level position for that Layer.*

PAN

The position of a Layer in the stereo panorama is controlled by pressing the **PAN** ▾ modifier button and moving the fader. At the bottom position the Layer is panned fully left (**L**) and at the top position fully right (**R**). Pan settings for all layers can be cleared at once by pressing **PAN CLEAR** (Shift+Pan).

LAYER A-D BUTTONS

Use the Layer A-D buttons to focus one of the layers for editing, and for turning layers On or Off. Here is how to activate and deactivate layers:

USING THE LAYER ENABLE BUTTON

With the **LAYER ENABLE** ▾ button kept pressed down, layers can be toggled On or Off by pressing their **A**-**D** buttons. Note that a single active layer can not be turned off (there is always at least one active layer).

USING THE LAYER A-D BUTTONS

Layers can also be turned On or Off directly be pressing their **A**-**D** buttons without using the Layer Enable modifier:

• Press the button for an *active* layer to focus that layer for editing. Which layer is focused is indicated by a blinking LED.

• Pressing the button for a single *non-active* layer turns that layer on and deactivates all others.

• To activate more than one layer at once, press the desired Layer buttons simultaneously.

❶ *Despite being inactive, a layer may still produce sound although it does not receive any keyboard input. A static arpeggio using KB Hold, for instance, will keep running even if its layer is deactivated.*

LOCK

When **LOCK** (Shift+Layer Enable) is turned on, the Layer **A**-**D** buttons can not be used for turning layers on or off, without using the **LAYER ENABLE** button.

☼ *In Lock mode, an inactive Layer can still be accessed and played, while pressing down its button. As soon as the button is let go however, the Layer settings will return to locked configuration.*

GROUP

Layers can be grouped together – having them share desired settings for various panel sections. This makes it possible to affect the settings and sound of multiple layers from any of the grouped layers.

Assigning a layer to the group is done by pressing **SHIFT**+Layer **A**-**D**. A lit yellow **GROUP** LED below the layer button indicates that it belongs to the group.

Panel sections that can be shared within that group have a **GROUP** LED below their On buttons, and these sections are made part of the group by pressing **SHIFT** + **ON**.

❶ *A layer needs to be assigned to the group in the Layer Control section before a panel section can be set to Group.*

SOLO

To monitor only the focused layer, press the **SOLO** button. The blinking led for the focused layer at this point turns red, and volume levels for the non-soloed layers are displayed with a single lit LED instead of the filled LED bar graphs.

The Solo function is useful both as a performance tool and when creating and editing programs.

MULTI EDIT

The **MULTI EDIT** function (Shift + Solo) can be used for editing parameters simultaneosly on all four Layers – regardless of whether they belong to the Group or not. Multi Edit is indicated by all four Layer LEDs blinking, rather than just the one for the focused layer.

☼ *Note that the Shift button can be let up, once Multi Edit is active.*

A double press on Multi Edit activates the "sticky" mode, allowing edits to be performed without keeping the Multi Edit button pressed down.

Exit the "sticky" Multi Edit mode either by pressing Multi Edit (Shift + Solo) again, or by pressing Shift/Exit.

KB SPLIT

The Nord Wave 2 has 3 split points, for up to 4 zones, with 8 possible split locations (F2, C3, F3, C4, F4, C5, F5, C6).

Each split point – ①, ②, ③ – separates the layers (A, B, C, D) in the following way, when active:

① A to the left and B, C, D to the right

② A, B to the left and C, D to the right

③ A, B, C to the left and D to the right

KB Split is turned on by pressing the **KB SPLIT** button. To adjust which split points are active and at which locations enter the **SPLIT MENU** (Shift+KB Split)

SPLIT MENU

To turn a split point On or Off in the split menu, press its corresponding **1**, **2** or **3** soft button – corresponding to the **PROGRAM 3**-**5** buttons. A split point can also be turned off by selecting it and setting its *Note* value to *Off* using the dial.

LEDs are provided above the keyboard, indicating which split positions are active at all times

CHOOSING A SPLIT POSITION

To adjust the position for a split point, make sure the lower display row is selected by pressing. the ▲/▼ soft button. Then select the split point *Note* value to adjust using its soft button (**1**, **2** or **3**) and turn the dial.

SPLIT XFADE SETTINGS

Normally the transition between two keyboard zones is direct, with no overlap between the sounds selected for each zone. By adjusting the *xFade* setting for a split point, sounds can instead be mixed or "cross-faded" across the split point, producing a smoother transition between them.

To adjust the split xFade press the ▲/▼ soft button, corresponding to the **PROGRAM 2** button, to access the upper display row.
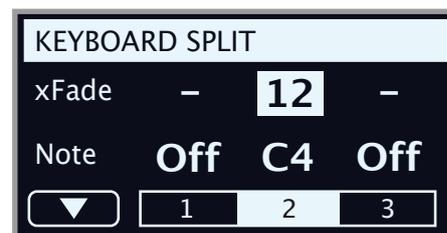
Select the split point to adjust by pressing its soft button (*1*, *2* or *3*) and turn the dial to change its setting.

– : When set to "–" there is no cross-fade between sounds at the split point.

6: The *6* setting represents a width of 6 notes *above* the split point, after sounds below the split point will be completely faded out. Sounds above the split point will similarly reach 6 notes *below* it.

12: The *12* setting provides a width of 12 semitones below the split point and 12 above it.

AMPLIFIER ENVELOPE

The Amplifier Envelope (**AMP ENV**) is used for controlling how the sound *level* changes over time. By modulating the amplifier with an envelope, the sound can be given its basic profile and evolving character. In fact, the "volume shape" is one of the most important factors to how we identify the sound. By setting up a proper amplifier envelope you can make a sound "soft", "hard", "plucked" "static" etc.

☼ *Press the* **MONITOR** *button and turn one of the envelope controls to see a graphic representation of the envelope!*
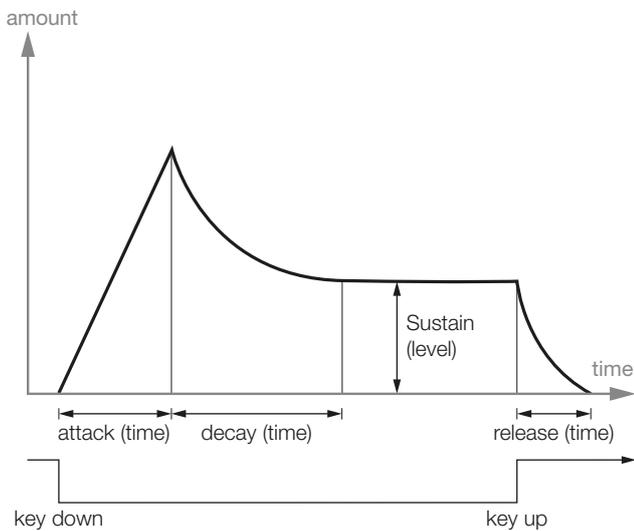
ATTACK

Attack is the time it will take for the envelope to go from zero to the maximum amplitude as soon as a key have been pressed.

☼ *A very short attack time could produce a click in the beginning of the sound. To eliminate this, increase the attack time slightly.*
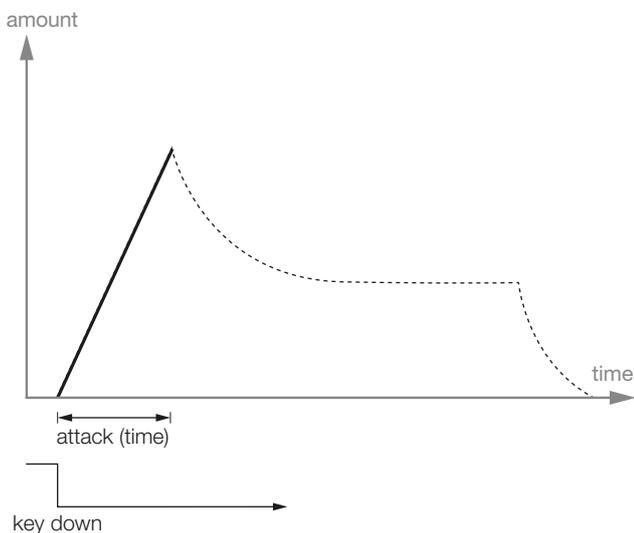
TRANSIENT

TRANSIENT (Shift + Attack knob) adds a short transient spike to the onset of the attack phase. The sound level of the transient decreases gradually between the 0 and 2 settings of the knob. The 2 setting of the knob corresponds to 0 Attack in non-Transient mode.

DECAY

Decay is the time it takes for the envelope to drop down to the sustain level after the attack phase has been completed.
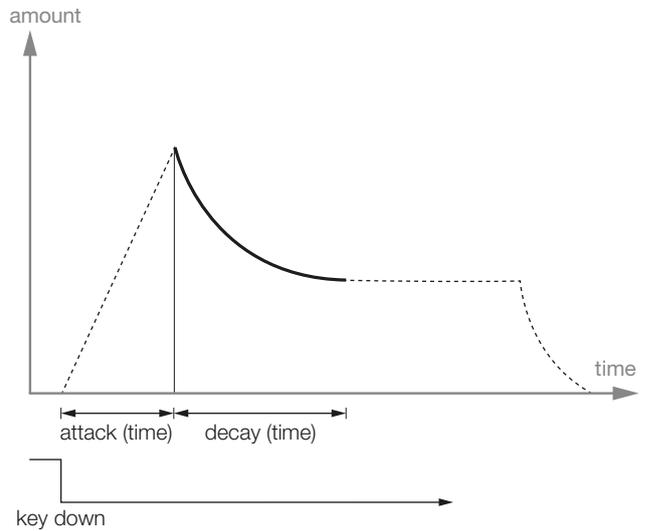
☼ *If Sustain is set to the maximum level, a Decay time will have no effect since the envelope "is already" at the Sustain level.*

SUSTAIN

Sustain is the level the envelope will reach after the decay phase has been completed. When the envelope has decayed down to the sustain level, it will stay at this level until the key is released. With a sustain setting of zero the envelope will drop down to zero during the Decay phase of the envelope.

❶ *The Sustain parameter is used to set a level, while Attack, Decay and Release parameters are all used to set times.*
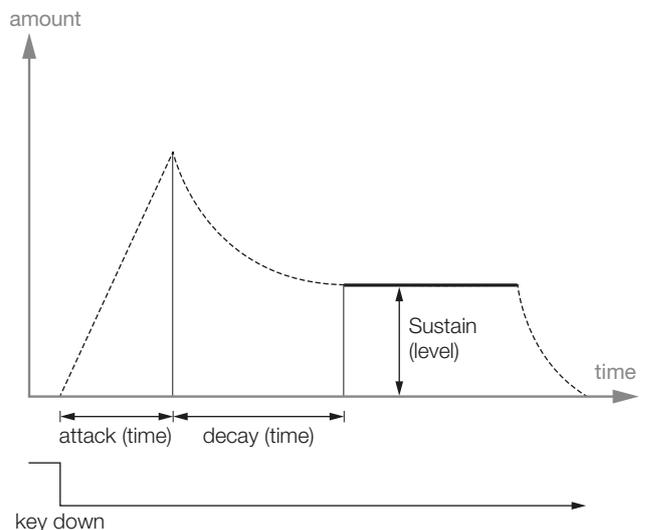
RELEASE

The Release phase of the envelope begins when the key is released and determines how long it takes for the envelope to drop to 0. The release phase may start anywhere during the other phases of the envelope.

☀ *A very short release time could produce a click in the end of the sound. This is a normal physical phenomenon. To eliminate such a click, increase the release time slightly.*
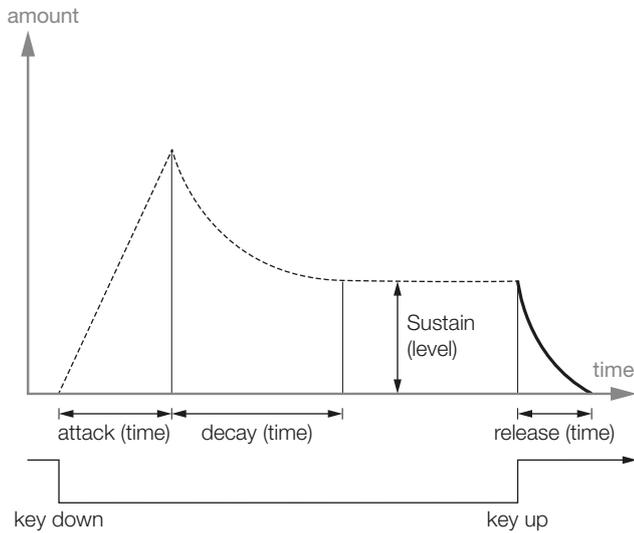
AMP VEL

With **AMP ENV** (Amplifier Velocity) active, the output level of the layer is controlled by the velocity with which the keyboard is played. There are four settings (including Amp Vel *off* – no LEDs being lit) giving an increasing amount of velocity sensitivity.

FILTER

The **FILTER** is an important component in shaping the overall timbre of the sound and can also be modulated by a number of sources. The Nord Wave 2 features a selection of both classic and innovative synthesizer filters.

Most filters share the same parameters: **FREQ** (Frequency) controls the cut-off frequency and **RES** (Resonance) controls the filter resonance. The one exception to this is the combined LP/HP filter, in which case the Res knob controls the HP filter cut-off frequency. More on that further down!

The Filter can be turned On or Off by pressing **ON**. It can also be made part of the **GROUP** by pressing Shift+On (read more about Group on page page 23).

FILTER SELECTOR BUTTON

Press repeatedly on the Filter selector button to select the desired filter type. The available filter types are:

LP 24 & LP 12

Frequencies above the Filter Frequency setting will be attenuated, frequencies below will not be affected.

The **LP12** setting provides a 12 dB/octave low-pass filter, which retains more harmonics than the **LP24** setting. A 12 dB filter is also known as a 2-pole filter.

The **LP24** setting, with an attenuation slope of 24 dB/octave, is a more classic "synth filter". It cuts out frequencies rather drastically, with a slope of 24 dB per octave. A 24 dB filter is also known as a 4-pole filter.
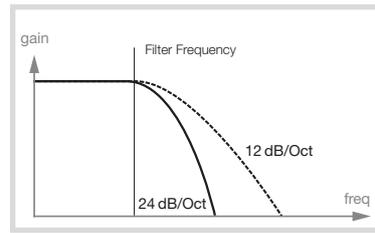
Both LP Filters can use the resonance control to emphasize frequencies around the filter frequency (cut-off frequency), making the sound thinner.

LP M

The low-pass **M** filter setting provides an emulation of the original transistor filter from the famous Mini. This groundbreaking and much loved filter design was created and patented in the 1960's by Dr Robert A. Moog.

The M filter is a four pole, 24 dB/octave, resonating low-pass filter. The character of the filter resonance is one detail that makes it stand out, leaving more of the low end of the signal than on a traditional 24 dB/octave low pass filter.

LP/HP

The combined low-pass/high-pass filter (**LP/HP**) consists of a 12 dB low-pass and a 12 dB high-pass filter *in parallell*. The Filter Freq knob controls the cut-off frequency of the LP filter and the Resonance knob controls the cut-off frequency for the HP filter.
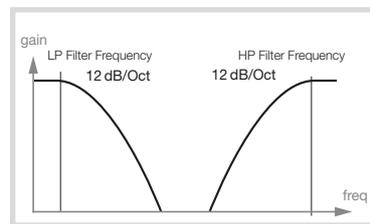

This combination is highly useful for extensive tonal shaping of any source, allowing for cutting the range *between* the two cut-off frequencies or for enhancing a particular range with overlapping filter ranges.

HIGH PASS - HP
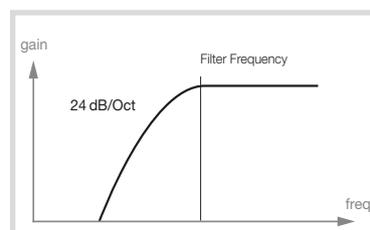
If **HP** (high-pass) is used, frequencies below the Filter Frequency setting will be attenuated, frequencies above the cutoff will not be affected. In practice, this means that the sound will become increasingly thinner as the Filter Frequency is increased.

BAND PASS - BP
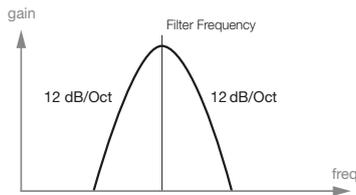
The **BP** (band-pass) filter allows frequencies close the Filter Frequency setting to pass, while frequencies above and below the cutoff are attenuated. This can for instance be used for producing narrow, nasal or very "controlled" sounds - its exact character depending on filter frequency and resonance settings.

FILTER FREQUENCY

The filter **FREQ** knob is used for setting the *cut-off frequency* point – that is where in the frequency range the filter begins to process frequencies. The actual result of this processing depends on the type of filter used.
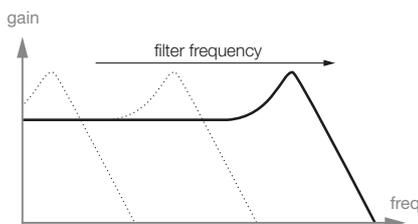
The Image above illustrates three different Filter Frequency settings using a low pass filter. The area to the left, up to the downward slope indicates the frequencies that passes through the filter. The area to the right of the slope are those frequencies that are reduced. Move the slope to the left and the sound gets duller. The "humps" at the top indicates a resonance setting.

FILTER RESONANCE

The Resonance (**RES**) parameter is used to further adjust the characteristics of the filter. Increasing the Resonance will emphasize frequencies around the cutoff frequency, making the sound thinner.

Further raising the Resonance will make the sound resonant to a point where the filter starts to self-oscillate and produce a ringing pitch. Exactly where in the frequency spectrum this "ringing" occurs, depends on the Frequency value.

When the **LP/HP** filter setting is used the **RES** knob instead controls the high-pass cut-off frequency, as indicated by the **FREQ HP** text.

KB TRACK
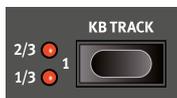
The reason for controlling *keyboard track* is related to basic acoustics. If the pitch of a waveform is raised, the harmonics naturally raise in frequency as well. If the cutoff frequency is constant, the sound will be perceived as getting "muddier" the higher up the keyboard you play. To avoid this effect, use **KB TRACK**.

KB TRACK SETTINGS

Off (no LEDs being lit): The filter frequency cut-off point is not altered by the note played.

1/3: The cut-off frequency will track the keyboard in a 1:3 relationship. Play one octave higher and the cutoff frequency will move by 1/3 of an octave.

2/3: The cut-off frequency will track the keyboard in a 2:3 relationship, play one octave higher and the cutoff frequency will move by 2/3 of an octave.

1: The cut-off frequency will track the keyboard in a 1:1 relationship.

The diagrams below illustrate the relationship between keyboard position and cut-off frequency at the 1:1 and 2/3 settings:
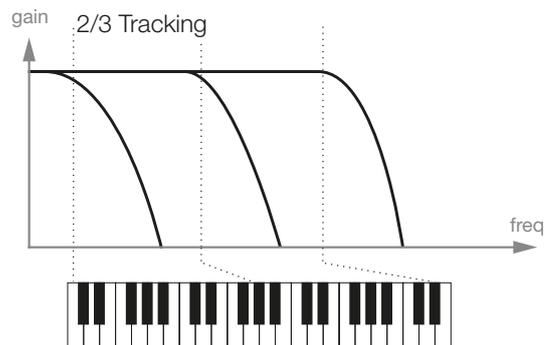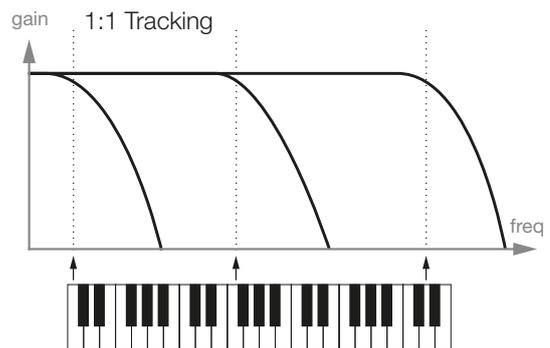
DRIVE

Activating **DRIVE** adds distortion to the Filter stage. The **1**, **2** and **3** settings represent low, medium and high amounts of drive respectively.

☀ *Using Drive with high Filter Resonance settings will often produce fun and/or interesting results.*

ENV AMT

The **ENV AMT** knob governs the amount of modulation to the filter frequency by the filter envelope.

FILTER ENVELOPE

The Filter Envelope, with controls for **ATTACK**, **SUSTAIN**, **DECAY** and **RELEASE** works on the same principles as the Amplifier Envelope – see above – except that it is used for modulating the filter cut-off frequency rather than the amplifier level. The amount of modulation is determined by the Env Amt control.

☼ *Press the MONITOR button and turn one of the envelope controls to see a graphic representation of the envelope!*

VELOCITY AND INV ENV

When **VELOCITY** is turned on, the modulation amount for the Filter Envelope is controlled by how hard the key is being played.

INV ENV (Shift+Velocity) inverts the envelope, having each phase of the envelope operate in the opposite direction. This can be useful for instance when creating a sound that should become brighter in the "decay" phase, such as a brass sforzando, or for a sound that brightens when released.

EFFECTS

The **EFFECTS** unit offers six different types of modulation effects. Use its Selector button to switch between the available settings.

Turning **MST CLK** (Shift + Rate) synchronizes the Effects Rate *for the Trem and Pan effects* with the Master Clock. In Mst Clk mode, the Rate is presented as subdivisions of the Master Clock tempo.

The rate and the amount of all effects are controlled with the **RATE** and **AMOUNT** knobs.

The Effects unit is turned On or Off by pressing **ON**. It can also be made part of the **GROUP** by pressing Shift+On (read more about Group on page 23)

TREM (TREMOLO)

TREM (Tremolo) provides a volume modulation that continuously varies the volume of the output signal.

PAN (AUTO PAN)

The **PAN** is an automatic panning modulation that smoothly pans the signal between the Left and Right outputs in the stereo panorama.

RM (RING MODULATION)

Ring Modulation (**RM**) is a type of modulation where two signals are multiplied with each other, resulting in an in-harmonic "bell like" sound. In the Nord Wave 2 the instrument signal is multiplied with a sine wave.

The pitch of the sine wave is set with the Rate knob and the amount of ring modulation with the Amount knob.

PHAS (PHASER)

The Phaser (**PHAS**) effect produces a characteristic "sweeping" sound which is created by splitting the audio signal into two paths. One path passes through a filter that alters the phase. The amount of change in phase depends on the frequency. When the signals from the two paths are mixed together, frequencies that are out of phase will cancel each other out, creating the phaser's characteristic notches. The phaser in the Nord Wave 2 is modeled after a vintage stomp box unit.

CHOR (CHORUS)

The versatile **CHORUS** effect gives the impression of "widening", or with more extreme settings severely detuning, the sound – achieved by blending a number of modulated copies of the audio signal.

ENS (ENSEMBLE)

The Nord Wave 2 **ENS** (Ensemble) effect is modeled after a vintage Eminent organ effect. The very characteristic sound comes from feeding the audio into three separate, modulated delay lines, that are cross-connected with each other.

VIBE

The **VIBE** effect draws its inspiration from a classic foot pedal effect and produces a sound with both pitch-bending and phasing qualities. The effect is created through a digital model of a staggered series of phasing filters, unlike the usually aligned filters of a normal phasing effect.

EQ (EQUALIZER)

There are two distinct modes for the **EQ** on the Nord Wave 2: A fixed 2-band mode with **BASS** and **TREBLE** controls and a **PARAMETRIC** 1-band mode, activated by turning the Treble control clockwise while pressing Shift.

To exit Parametric mode, press Shift and turn the Treble knob counter-clockwise.

The fixed Bass frequency is 100 Hz, the Treble frequency is 4 kHz and the sweepable frequency in Parametric

In Parametric mode the frequency (**FREQ**) is set using the Treble knob and the **GAIN** with the Bass knob.

The EQ unit is turned On or Off by pressing **ON**. It can also be made part of the **GROUP** by pressing Shift+On (read more about Group on page 23).

DRIVE

The **DRIVE** effect amplifies the audio signal until it distorts in the same fashion as an overdriven tube amplifier. This creates a very typical asymmetric soft clipping with warm-sounding, even-order harmonics that can be used for both subtle overdrive and more extreme distortion at higher amounts.

If the Drive LED is lit, it indicates that overdrive is active

DELAY

The **DELAY** unit produces echo/repeat effects. The Delay time is set with the **TEMPO** knob, or can be tapped using the **TAP** button.

The Delay unit is turned On or Off by pressing **ON**. It can also be made part of the **GROUP** by pressing Shift+On (read more about Group on page 23).

The **FEEDBACK** knob controls the number of delay repeats, or taps. At the lowest setting only the initial tap is heard, while the highest produces a very long feedback tail.

The **DRY WET** knob adjusts the balance between the dry signal and the delay repeats.

PING PONG

In **PING PONG** mode (Shift + Feedback filter button) delay repeats alternate between the left and right channels. If short delay times are used, these repeats will be "asymmetrical" and produce delays that are more like early reflections in reverb units.

TAP/SET

Tap the **TAP** button in the tempo you wish the delay to sync to a number of times, and the delay time will be adjusted automatically.

❶   *Tapping will never result in a pitch change of current repeats, even if Analog mode is activated.*

When the **TAP/SET** button is pressed down the Delay tempo is displayed in the main display.

FEEDBACK EFFECTS

Use the selector button to select one of the three effects – **CHOR** (Chorus), **VIBE** and **ENS** (Ensemble) – available for the Feedback loop. These effects do not affect the sound of the Dry signal, but only the sound fed into the delay, and become increasingly intense with each delay tap.

DEEP (Shift+selector button) engages a more pronounced version of the selected effect.

FILTERS

The filters in the delay **FEEDBACK** section are great tools for shaping the delay sound, especially when large feedback amounts are used. Each consecutive Delay tap is fed through the filter, resulting in a progressively more processed sound.

With the **LP** setting, all delay taps are passed through a *Low Pass* filter which reduces high frequency content in the delay feedback signal.

The **HP** setting provides a *High Pass* filter, removing low frequency content. This can be useful for making long delay tails sound less muddy.

The **BP** setting adds a *Band Pass* filter which dampens both high and low frequencies, making for a fairly thin and narrow sound.

ANALOG MODE

In **ANALOG MODE** (Shift + Filter) the pitch of any sounding repeats is altered if the tempo is changed – much like with a vintage analog delay. What's more, the exact character of each feedback Filter setting differs slightly from when in "non-analog" mode. In Analog Mode a slight distortion is also introduced into the delay line with each tap – especially noticeable with larger feedback amounts.

MASTER CLOCK

The Master Clock feature for the Delay section is activated by turning **MST CLK** (Shift + Tempo knob). This way the delay will be synced to the tempo set for the Master Clock, in the Program section. See page 14 for instructions on how this tempo is set.

With Mst Clk active the tempo is expressed in *subdivisions* ranging from 1/2 to 1/32 notes, relative to the Master Clock tempo. Apart from straight subdivisions there are also swing (S), triplet (T) and dotted (D) options to choose from.

REVERB

The **REVERB** unit simulates the natural sound reflections in various acoustic environments. There are five reverb types of various lengths and densities, indicated by the LEDs in the selector.

The Reverb unit is turned On or Off by pressing **ON**. It can also be made part of the **GROUP** by pressing Shift+On (read more about Group on page 23).

The five available reverb types; **BOOTH**, **ROOM**, **STAGE**, **HALL** and **CATH** (Cathedral) represent increasingly larger environments – from a short, reflective ambience in Booth mode, through more natural sounding rooms in Room, Stage and Hall modes to an extremely large and immersive reverb in Cath mode.

CHORALE (Shift+Type) is a distinctly modulated variation of each Reverb type, useful to give the Reverb signal more movement.

With the **BRIGHT** option active, more high frequency content will be preserved in the Reverb signal. In **DARK** mode, high frequencies will instead be dampened.

The **DRY WET** control sets the balance between the unprocessed and the processed signal from fully Dry to fully Wet.

5 MIDI

USING MIDI

The Nord Wave 2 is designed to be very flexible in a MIDI setup. It can be used as a keyboard to control both its internal sounds and other hardware or software sound sources. It can also be used as a set of individual sound engines to be played/controlled by external MIDI units such as a sequencer.

There are two fundamental methods of operation when using the Nord Wave 2 in a MIDI setup. You can use the Global MIDI Channel or individual Layer MIDI Channels. These methods differs a little bit in their flexibility and in what you can achieve.

Nord Wave 2	MIDI IN	MIDI OUT
Global	✔	✔
Layer A/B/C/D	✔	

Keys you play on a Nord Wave 2 keyboard, and any tweaks that you do on the Wave 2 panel will generate MIDI messages on the Global Channel.

A Layer MIDI Channel only *receives* MIDI messages.

MIDI SETTINGS

MIDI Channel selections and settings for how the Wave 2 handles Program Change, Pitch Bend, Control Change messages and other MIDI related paramters are made in the MIDI Menu.

GLOBAL MIDI CHANNEL

By using the Global MIDI Channel, all MIDI notes and Control Change messages can be transmitted and/or received on a single MIDI channel. MIDI that enters the Nord Wave 2 on the Global MIDI channel will play all the Layers that are active.

If a Performance includes layers and/or splits, or actions with the Morph controls, those aspects will be reproduced in the same way as if you played on the keyboard itself.

LAYER MIDI CHANNELS

Use the individual Layer MIDI channels on the Nord Wave 2 for individual control of each Layer, both for notes and for panel parameters. This can for example be used in a multitimbral setup, controlling 4 individual sound sources from a sequencer.

⚠ *A Layer does not have to be active in a Program to receive MIDI, it will always respond to incoming MIDI on its MIDI Channel. This makes it possible to control selected Layers from the keyboard, and other Layers from other external sources.*

The Layer channels can also be used for *sending* MIDI, when the Global MIDI channel is set to Off.

SEQUENCING: GLOBAL MIDI CHANNEL

Connect the Nord Wave 2 USB connection (or the 5-pin MIDI In and Out) to a computer/MIDI interface/sequencer. Set the sequencer track to all Channels or MIDI Channel 1, which is the default Global MIDI channel on the Nord Wave 2.
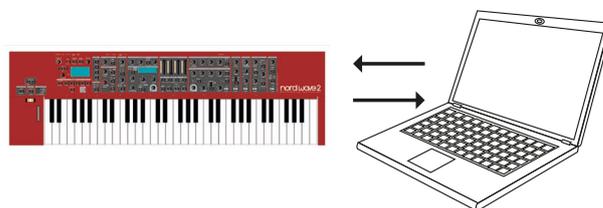
Play on the keyboard and record the performance. Any controllers that you use – Morphs, pedals etc. – will also be transmitted as MIDI messages.
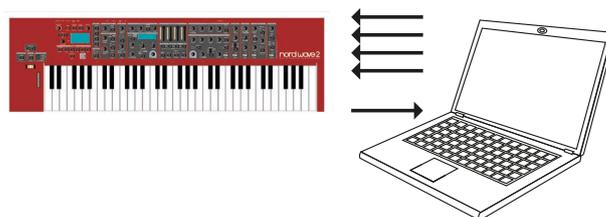
RECORDING PARAMETER CHANGES

There are more parameters available in the Nord Wave 2 Layers than there are available MIDI Control Change numbers. This means that the Layer buttons on the panel will be used to set the transmitting and receiving Layer focus of panel generated CC messages. This allows you to record and receive parameter changes on the Global MIDI Channel.

If you want to make parameter changes on more than one Nord Wave 2 Layer at the same time, the Layer MIDI Channel approach will be more suitable.

SEQUENCING: LAYER MIDI CHANNELS

Program or record the notes to tracks in the sequencer, tracks that are set to the Layer MIDI Channels. Keyboard and panel actions from the Nord Wave 2 will be transmitted on the Global MIDI Channel. Local may be turned Off, to avoid double triggered sounds.


Overdub tracks to record any parameter changes by making these on the Nord Wave 2 panel, or from other MIDI devices set to control the Nord Wave 2.

Continue with the next track, set to another Layer's MIDI Channel.

CONTROL LAYERS FROM ANOTHER KEYBOARD

Use a Program with some of the Layers controlled from the Wave 2 itself and other Layers from an external keyboard or sequencer, set to corresponding Layer MIDI channel(s). Active Layers will be controlled from the Wave 2 keyboard, inactive Layers are controlled from external units.

Layer C & D

Layer A & B
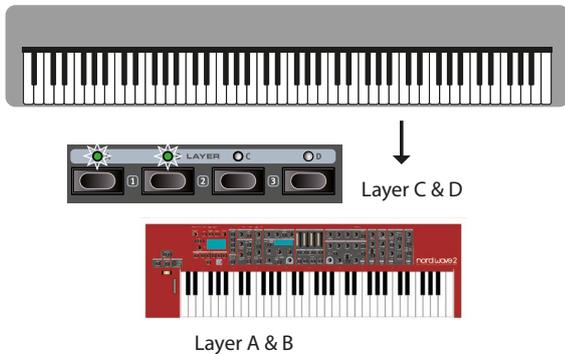
SENDING ON LAYER CHANNELS

When the Global MIDI Channel is set to *Off*, and MIDI channels have been defined for the four Layers, the Nord Wave 2 can be used for sending MIDI on four different channels simultaneosly. MIDI is only sent for layers that are active on the panel, and Octave Shift can be used to change the octave of outgoing MIDI, per channel. This mode can for instance be used for controlling four different software instruments independently.
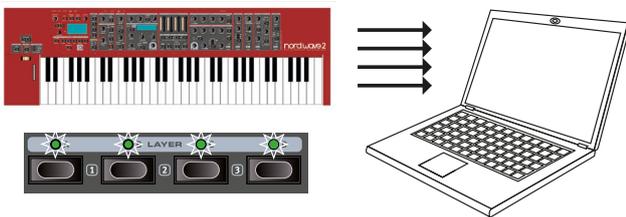
❶ *No Program Change messages are sent on the Layer MIDI channels.*

See the MIDI Menu section on page page 32 for further information on how to make these settings.

PROGRAM CHANGE OPERATIONS

Program Change messages are used both for the Program and Live banks, as well as for the Oscillators section – i.e. Program Change can be used to target a specific waveform or sample. The different entities are identified by which Bank *MSB* number is being used. Programs, Live Programs and Oscillators Category/Waveform will respond to Program Change messages according to the table below.

❶ *The extra Program Change functionality can be turned off by setting Program Change Select to "Programs Only" in the MIDI menu.*

The implementation is designed such that one MIDI LSB bank addresses as many Nord Wave 2 banks as possible, given the number of programs within each bank. As a result, program banks A-E on the Nord Wave 2 are all reached with a Bank LSB (and MSB) value of 0, banks F-J with Bank LSB 1, and so on.

	Program	Oscillators	Live
Bank MSB (CC#0)	0	2	6
Bank LSB (CC#32)	0-3	0-99	0
Program Change	0-124	0-127	0-4

❶ *A Program Change message that reaches the Nord Wave 2 unaccompanied by Bank Select messages will take effect in the currently focused Program bank – exiting Live mode if active.*

Whether Program Change messages should be sent and/or received on the Global channel is set in the MIDI menu. See page 32 for details.

OTHER MESSAGE TYPES

CONTROL CHANGE MESSAGES

Most parameters on the Nord Wave 2 panel generate a CC message when operated. Receiving these messages will change the parameter accordingly. A list of parameters and their CC numbers is on page 36. If you do not want the Nord Wave 2 to transmit or respond to Control Change messages, this can be turned off in the MIDI Menu.

PEDAL CONTROL CHANGE

A Control pedal transmits CC7 if set to "Volume" in the System Menu and CC11 if is set to "Morph". The sustain pedal transmits CC64.

VOLUME

The output level of a Program or a Layer can be set by transmitting CC7 to the Nord Wave 2 on the Global, or any of the Layer MIDI Channels.

PAN CC

The position of an Program or a individual Layer in the stereo panorama can be set by transmitting CC10 to the Nord Wave 2 on the Global Channel, or any of the Layer MIDI Channels.

MIDI LOCAL

If a sequencer is set to echo back incoming MIDI data, this can cause double triggered notes if the Nord Wave 2 keyboard is used. If this occurs, set MIDI Local to Off, in the MIDI menu.

MIDI CLOCK

The Nord Wave 2 Mst Clk automatically syncs to incoming MIDI Clock.

❶ *The Nord Wave 2 does not transmit MIDI Clock messages.*

USB MIDI

On Windows computers, the Nord v3.x USB driver is required for using the MIDI via USB functionality. This driver is normally installed automatically from Windows Update by having the Nord Wave 2 connected to a USB port, with the computer being online. The driver can also be found at www.nordkeyboards.com.

❶ *Computers running Mac OSX have native USB MIDI support for the Nord units. No driver installation is necessary.*

PANIC

If notes get stuck during a performance, press **PANIC** (Shift+Octave Shift Up). This resets incoming CC messages and sends an All Notes Off message to all Layers.

6 MENUS

Any settings that are made in the *System*, *Sound* or *MIDI* menus will take immediate effect, and will be stored until they are changed again.

❶ *The MIDI Local On/Off setting is an exception and always reverts to Local On every time the Nord Wave 2 is powered up.*

Enter a menu by holding **SHIFT** and pressing the **SYSTEM**, **SOUND** or **MIDI** buttons (Program buttons 1 to 3). Menus are navigated with the **PAGE** ◀ and ▶ buttons and settings are changed with the **VALUE** dial.

Exit the menus by pressing **EXIT** (Shift).

❶ *The Organize and Pattern functions are described in the Panel Reference chapter, starting on page 13.*

SOFT BUTTONS

One menu page may contain several related settings, in which case "soft buttons" - shown at the bottom of the display and controlled with the Program 2-5 buttons - are used for focusing a particular setting.
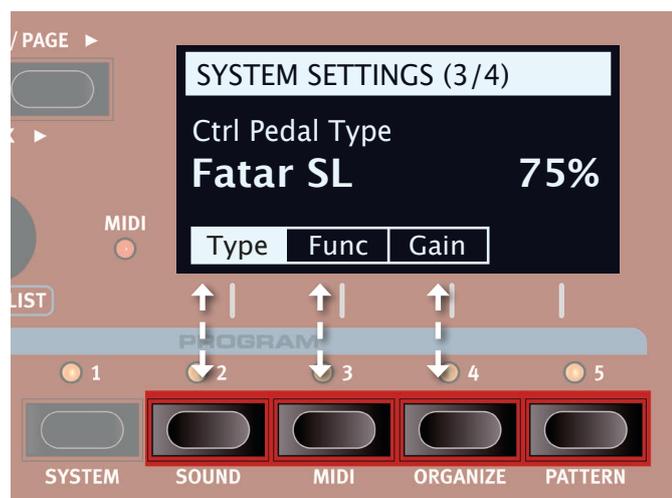
Menu "soft buttons" correspond to Program buttons 2–5. This particular menu page only contains three soft buttons.

SYSTEM MENU

Hold **SHIFT** and press **SYSTEM** (Program 1 button) to access the System menu settings. Use the **PAGE** ◀ and ▶ buttons to navigate between the various menu items on the System menu. The **VALUE** dial is used to change settings. When done, press **EXIT** (Shift) to leave the menu.

1 - MEMORY PROTECT

The memory protection setting will be *On* when a Nord Wave 2 leaves the factory, to prevent accidental overwriting of programs. Setting this to *Off* enables all Store operations. Menu settings and the five Live programs are not affected by this setting.

Range: On (default), Off

2 - SUSTAIN PEDAL TYPE

TYPE

This allows you to select the type of pedal connected to the **SUSTAIN PEDAL** jack, in case the functionality of the pedal is reversed (when the pedal is up, sustain is on and vice versa). The Auto setting can automatically determine the pedal type.

Range: Open, Closed, Auto (Default)

3 - CTRL PEDAL

TYPE

The Nord Wave 2 accepts many of the most commonly available control pedals through its **CONTROL PEDAL** input. Select a setting here that matches the pedal being used.

☀ *If a connected pedal is operated while this menu page is open, a percentage is displayed which can be used to determine the range of the connected pedal. This can be helpful when finding a suitable setting for a pedal that is not explicitly supported.*

Range: Roland EV7 (default), Yamaha FC7, Korg, Fatar (and Studiologic)

FUNC (FUNCTION)

This setting determines the functionality of a pedal that is attached to the Control Pedal input. Set this to *Morph* to use the pedal as a morph control source or to *Volume* to use the pedal as a master volume control.

Range: Morph (Default), Volume

GAIN

This setting allows for adding some gain to the output of the pedal. This can be useful if an attached pedal does not reach its maximum level or setting.

Range: 1 - 10

4 - VERSION AND MODEL INFO

The Version and model info menu page shows the full version number of the currently installed OS (Operating System) and, when turning the Value dial, the full model name of the instrument.

Use the Value dial to switch between Version and Model info

SOUND MENU

Hold **SHIFT** and press **SOUND** (Program 2) to access the Sound menu. Use the **PAGE** ◄ and ► buttons to navigate between the various menu items on the Sound menu. The **VALUE** dial is used to change settings, and soft buttons to access additional settings (as described above), where applicable. Press **EXIT** (Shift) to leave the menu.

1 - GLOBAL TRANSPOSE

This setting allows for transposing the entire Nord Wave 2 in semitone steps. This setting will be *added* to any on-panel transpose value stored with a program.

Range: +/- 6 semitones (default value is "none")

2 - FINE TUNE

Fine Tune can be used to fine tune the pitch of the Nord Wave 2 in finer increments.

Range: +/- 50 Cents (+/- half a semitone). Default value is "0"

MIDI MENU

Hold **SHIFT** and press **MIDI** (Program 3) to access the MIDI menu settings. Use the **PAGE** ◄ and ► buttons to navigate between the various menu items on the MIDI menu. The **VALUE** Dial is used to change settings. Soft buttons are used to access additional settings where applicable. When you are done, press Exit (Shift) to exit the menu.

1 - LOCAL CONTROL

MIDI Local control determines if the Nord Wave 2 keyboard and front panel controls should control internal instruments and programs or only transmit MIDI. Local On is the normal "play mode". In Local Off mode, front panel and keyboard actions are transmitted via MIDI only.

Range: On (Default), Off

❶ *Local always defaults back to "On" every time the Nord Wave 2 is powered on.*

2 - MIDI GLOBAL CHANNEL

This sets the transmitting and receiving MIDI channel for the Global Channel. The Global Channel transmits all keyboard, pedal and panel actions as MIDI signals. It can also be used as a receiving channel with full control of the entire Wave 2. When set to *Off*, the text "Send on Layer Channel" is displayed, indicating that the Layer Channels in this mode can be used for *sending* MIDI.

Range: 1-16, Off (Default 1)

3 - MIDI LAYER A / B / C / D CHANNEL

When a Global MIDI channel is set, i.e. not set to Off, this page defines the *receiving* MIDI channels for Layers A/B/C/D.

When the Global MIDI channel is set to Off, the channels defined on this page will both send and receive MIDI, and are stored per-program. In this scenario a Store operation needs to be performed for the settings to be recalled when the program is loaded again.

Range: 1-16, Off (Default Off)

4 - CC / PC / PC-SEL / PBEND MODE

CC (CONTROL CHANGE)

This allows you to set if you want your Nord Wave 2 to transmit and/or receive MIDI Controller Messages or not on the Global channel.

Range: Off, Send, Receive, Send & Receive (Default)

PC (PROGRAM CHANGE)

This setting determines whether your Nord Wave 2 transmits and/or receives MIDI program Change Messages, on the Global channel.

Range: Off, Send, Receive, Send & Receive (Default)

PC-SEL (PROGRAM CHANGE SELECT)

The Type setting determines whether Live Programs and the Oscillators section listen to incoming Program Change/Bank Select messages (*Extended*) or if only the Program Banks do (*Programs Only*). In Extended mode, Live Programs also send Program Change messages when changed. Read more about Program Change and Bank Select on page 30.

Range: Programs Only, Extended (Default)

PBEND (PITCH BEND)

Pitch Bend Mode specifies how the Nord Wave 2 handles incoming and outgoing Pitch Bend messages, generated by the pitch stick.

Range: Off, Send, Receive, Send & Receive (Default)

5 - TRANSPOSE MIDI AT

When set to *In*, any active transpose value (global and/or set per program) will *not* be applied to the outgoing MIDI stream, but only to incoming MIDI data. If set to *Out*, any active transpose value will affect sent MIDI notes but not incoming ones.
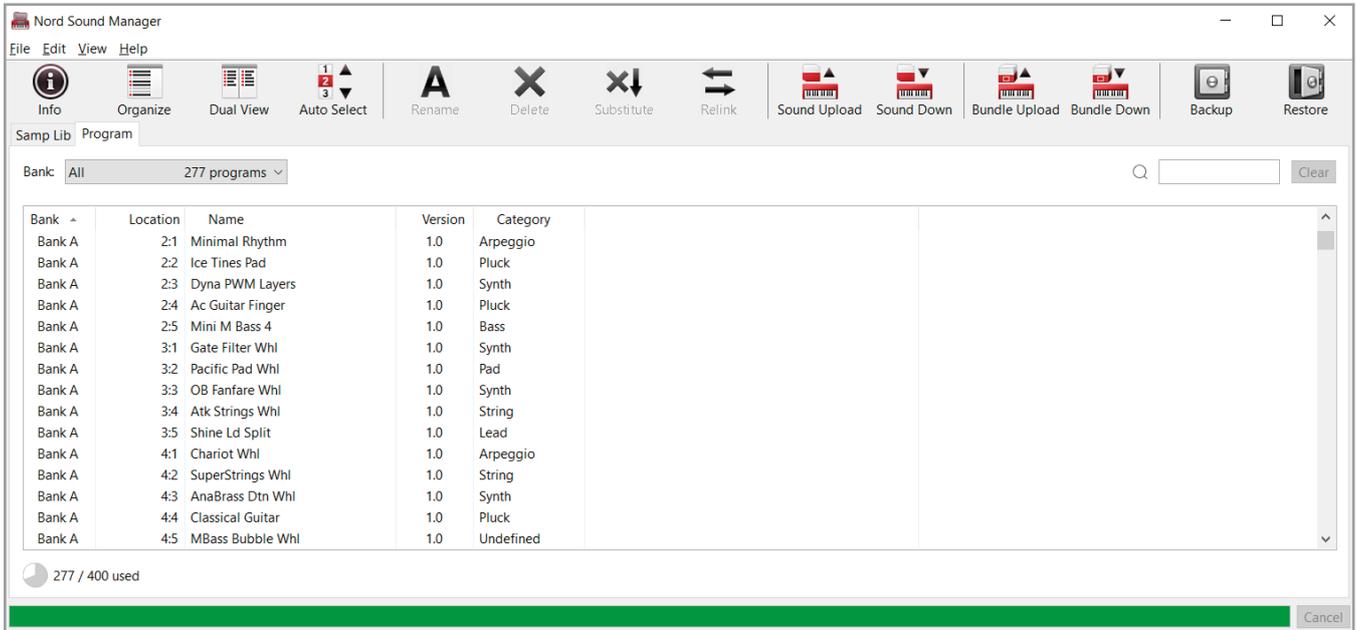
Range: In (Default), Out

6 - MIDI CC DUMP

From this page, a "dump" of the MIDI CC values for all panel settings can be sent, for any of the four Layers. This can for instance be used for initializing a sequencer track with the Layer parameters. Use the dial or the Layer A-D buttons to select the Layer to send.

Press "Dump" to send CC values for all panel parameters

7 NORD SOUND MANAGER

ABOUT NORD SOUND MANAGER

Nord Sound Manager is an essential application for any Nord Wave 2 owner, which allows for accessing, altering and backing up content within the various memory areas on the Nord Wave 2. These are some of the common tasks performed through the Nord Sound Manager:

- Organizing and naming Programs

- Downloading new Samples to the Sample partition

- Uploading Programs from the Nord Wave 2 to a computer

- Uploading *bundles* containing programs *and* their associated sample files

- Performing backups of the entire instrument

- Restoring the entire instrument to a previous state from a backup file.

The Nord Sound Manager *and the user manual* for the application can be found at the www.nordkeyboards.com website, in the *Software* area.

SYSTEM REQUIREMENTS

Mac OS X 10.7 or later
Windows 7, Windows 8 and Windows 10.

Nord USB Driver version v3.0 or later required for Windows. This is normally installed automatically through Windows Update, but can also be downloaded from www.nordkeyboards.com.

8 NORD SAMPLE EDITOR 3
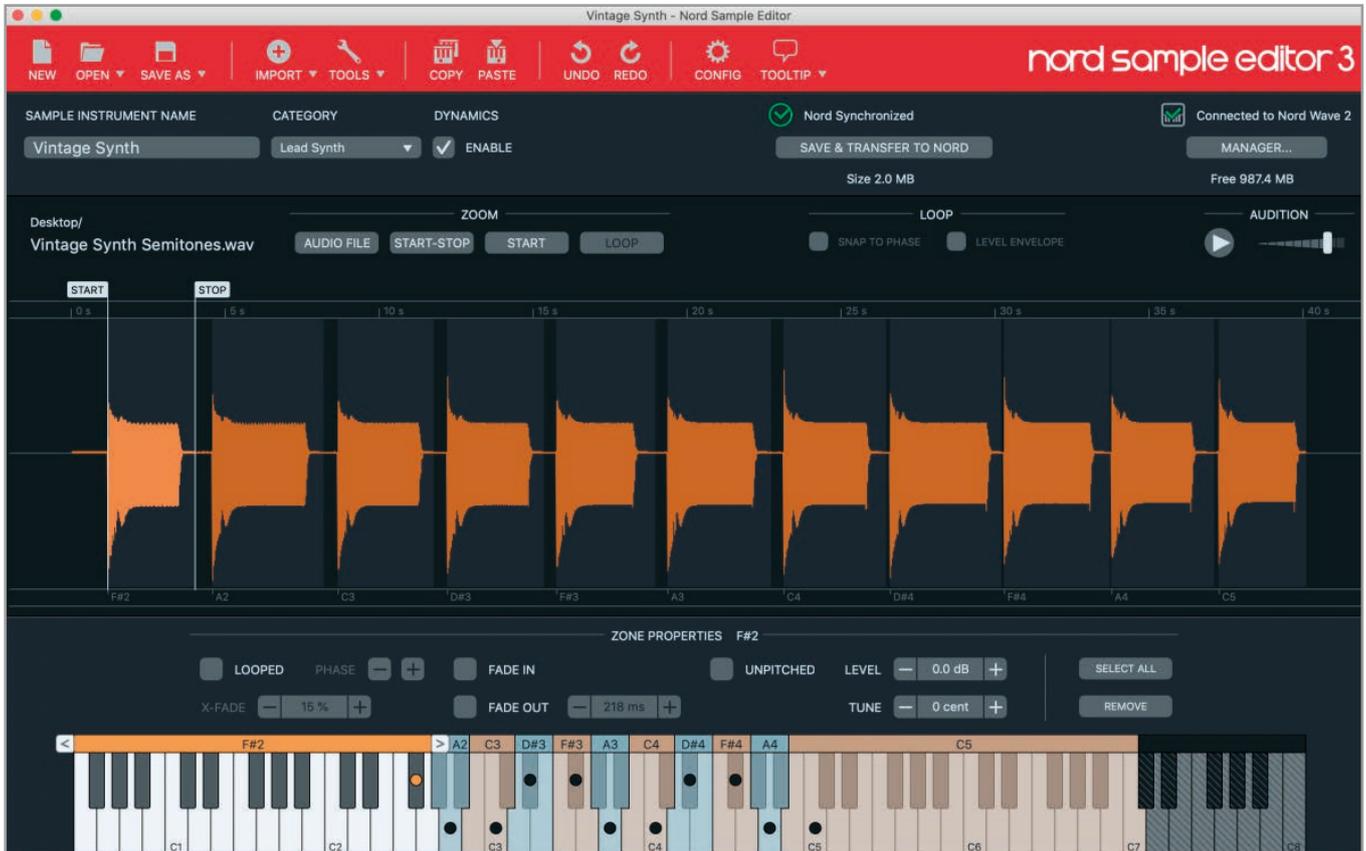
ABOUT NORD SAMPLE EDITOR 3

The Nord Sample Editor 3 is a tool for creating custom sample instruments, playable on your Nord Wave 2. Simply drop audio files (.wav or .aiff) on the desired keys, set Start, Stop and Loop points in the waveform editor and your custom sample is ready to be transferred to your connected Nord Wave 2!

Whether creating a fully mapped instrument, a simple FX sound or assigning a sampled song intro to a single key, the Nord Sample Editor 3 opens up many possibilities together with the Nord Wave 2. Here are some of the key features:

• Intuitive user interface

• Drag and drop single or multiple samples

• Automatic and manual import options

• Edit multiple zones at once

• Support for silent zones

The Nord Sample Editor 3 can be downloaded from the *Software* section at www.nordkeyboards.com.

SYSTEM REQUIREMENTS

Mac OS X 10.7 or later
Windows 7, Windows 8 and Windows 10.

Nord USB Driver version v3.0 or later required for Windows. This is normally installed automatically through Windows Update, but can also be downloaded from www.nordkeyboards.com.

APPENDIX: CONNECTIONS

AUDIO CONNECTIONS

General guide on audio connections: Before turning on your amplifier, make all audio connections. Always turn on the amplifier last, and when shutting down, always turn off your amplifier or active speakers first.

⚠ *Using your Nord Wave 2 at high volumes can damage your hearing.*

HEADPHONES

1/4 inch stereo headphone jack.

LEFT & RIGHT OUT

1/4 inch unbalanced line level outputs for amplifier or recording equipment. The Nord Wave 2 is a stereo instrument with separate signal paths for left and right audio channels.

MONITOR IN

1/8 inch jack for connecting devices such as smartphones, tablets or computers to the Nord Wave 2. This is useful for playing and rehearsing to pre-recorded music or a metronome, or to use an additional sound source on stage. The Monitor In signal is routed to the Headphones *and* Left & Right outputs.

⚠ *The Nord Wave 2 Master Level control does not affect the level of the Monitor In signal.*

MIDI CONNECTIONS

MIDI IN

The 5 pin MIDI In connection is used for receiving MIDI data sent from external devices such as controller keyboards, sequencers or computers.

MIDI OUT

The 5 pin MIDI Out connection will send MIDI data to devices such as external sound modules or computers.

USB CONNECTION

The USB port is used for connecting the Nord Wave 2 to a computer. The connection can be used for transferring MIDI, for OS updates and for connecting to applications such as the Nord Sound Manager or Nord Sample Editor 3. These applications, and the latest OS version can always be found for download at www.nordkeyboards.com.

ℹ *MIDI over USB and standard 5 pin MIDI connectors are both active at the same time. There is no need to choose between the two options in a menu or similar.*

PEDAL CONNECTIONS

SUSTAIN PEDAL

1/4 inch connector for all common types of sustain pedals. Sustain pedal polarity can be detected automatically or set manually in the System menu, see page 31.

CONTROL PEDAL

1/4 inch connector for an expression pedal of continuous type, used for controlling morphs and/or volume. Most of the common expression pedal makes and models are supported, and can be selected in the System menu.
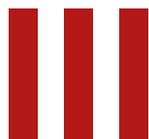
APPENDIX: MIDI CONTROLLER LIST

Nord Wave 2 Parameter	MIDI CC #
Bank Select MSB	0
Bank Select LSB	32
Sustain	64
Ctrl Pedal (Expression)	11
KB Hold	23
KB Hold Enable	27
PStick Enable	26
Octave Shift	24
Program Level	3
Vibrato	51
Glide	48
Voice Mode	49
Arp/Gate Rate	74
Arp/Gate Range/Env	76
Arp/Gate Mode	72
Arp/Gate Direction	75
Arp/Gate Zig-Zag	69
Arp/Gate Run	77
Arp/Gate KB Sync	71
Arg/Gate Mst Clk	68
LFO Amount	78
LFO Rate	79
LFO Mst Clk	110
LFO Waveform	80
LFO Destination	109
Osc Mod Env Attack	42
Osc Mod Env Dec/Rel	43
Osc Mod Env Amount	45
Osc Mod Env Destination	44
Osc Mod Env Vel	46
Osc Mod Env AR mode	47
Osc Unison	39
Osc Semitones	37

Nord Wave 2 Parameter	MIDI CC #
Osc Fine Tune	36
Layer A Level	12
Layer B Level	13
Layer C Level	14
Layer D Level	15
Layer A Pan	16
Layer B Pan	17
Layer C Pan	18
Layer D Pan	19
Amp Env Attack	82
Amp Env Attack Transient	81
Amp Env Decay	83
Amp Env Sustain	84
Amp Env Release	85
Amp Env Velocity	86
Filter Env Attack	52
Filter Env Decay	53
Filter Env Sustain	54
Filter Env Release	55
Filter KB Track	63
Filter Drive	61
Filter Freq	59
Filter Resonance	60
Filter Type	65
Filter Env Amount	62
Filter Env Velocity	56
Filter Env Invert	57
Filter On/Off	58
Effects On/Off	91
Effects Type	87
Effects Amount	89
Effects Rate	90
Effects Rate Mst Clk	88
EQ/Drive On/Off	105

Nord Wave 2 Parameter	MIDI CC #
Drive Amount	101
EQ Bass/Gain	102
EQ Treble/Freq	104
EQ Parametric On/Off	106
Delay On/Off	97
Delay Mst Clk	92
Delay Dry/Wet	93
Delay Tempo Tap/Set	94
Delay Analog On/Off	96
Delay Rate	94
Delay Feedback Effect Type	108
Delay Feedback Effect Deep	100
Delay Feedback	95
Delay Feedback Filter Type	99
Delay Ping-Pong	98
Reverb On	116
Reverb Type	115
Reverb Chorale	118
Reverb Bright/Dark	117
Reverb Dry/Wet	113

INDEX

FCC Information (U.S.A.)

1. IMPORTANT NOTICE: DO NOT MODIFY THIS UNIT!

This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Clavia may void your authority, granted by the FCC, to use the product.

2. IMPORTANT: When connecting this product to accessories and/ or another product use only high quality shielded cables. Cable/s supplied with this product MUST be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.

3. Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment is found to be the source of interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

    – Reorient or relocate the receiving antenna.

    – Increase the separation between the equipment and receiver.

    – Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

    – Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

Unauthorized changes or modification to this system can void the users authority to operate this equipment.

This equipment requires shielded interface cables in order to meet FCC class B Limit.

For Canada

NOTICE

This Class B - digital apparatus complies with Canadian ICES-003.

AVIS

Cet appareil numérique de la classe B - est conforme à la norme NMB-003 du Canada.

DECLARATION OF CONFORMITY
Compliance Information Statement

Model Name: Nord Wave 2

Type of Equipment: Digital Organ and piano

Responsible Party: Clavia DMI AB

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