CREMA
ENSEMBLE

USER MANUAL

waldorf

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Worth Knowing

Thank you for purchasing the Waldorf Crema. You now own a high-class polyphonic instrument that offers more under its hood than you might initially imagine. Crema is a pad machine that features a wide range of unique string & ensemble sounds with approved Waldorf quality – made with love!

About this Manual

The biggest problem with any manual is to find a way to cover both the needs of an absolute expert and a beginner alike. There are people who read a manual cover to cover while others don't even touch it. The latter is the worst choice, especially when the manual describes a Waldorf instrument.

Anyone reading the following manual is in for a lot of fun while learning about and working with your new instrument.

Now have fun with your Crema musical instrument!

Your Waldorf Team

Hint

Waldorf Music is not liable for any erroneous information contained in this manual. The contents of this manual may be updated at any time without prior notice. We made every effort to ensure the information herein is accurate and that the manual contains no contradictory information. Waldorf Music extends no liabilities in regard to this manual other than those required by local law.

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ⓘ Please visit our website for further support and downloads for your Crema synthesizer:
waldorfmusic.com/crema

Very special thanks

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Crema contains sounds from

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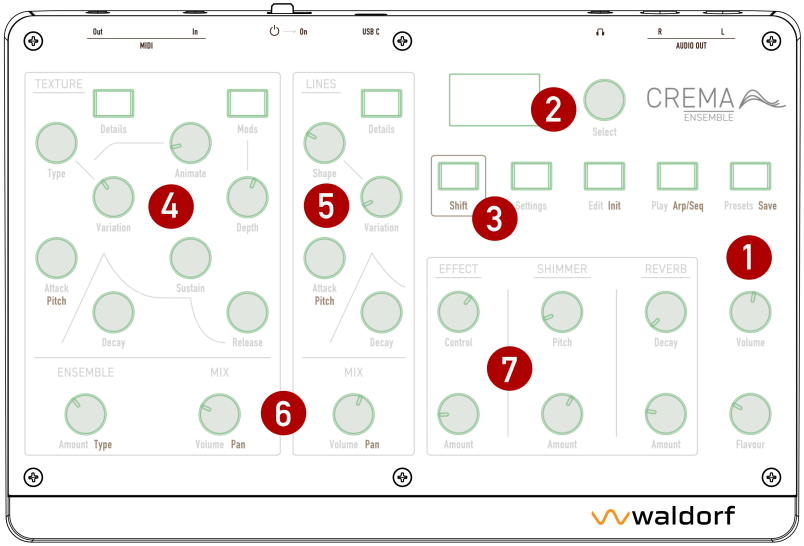
Front & Rear Panel Overview



1) Volume Dial

2) Display & Selection Encoder

3) Mode Buttons

4) Texture Section

5) Lines Parameters

6) Ensemble Mix

7) Effect Parameters

1) Stereo Audio Outputs (6.25 mm TRS)
2) Headphones Output (3.5 mm TRS jack)
3) USB-C Connection / Power Supply
4) Power Switch
5) MIDI In & MIDI Out 3.5 mm TRS Type A jacks

About this Manual

This manual was written to help you to become familiar with your Crema synthesizer. It will also aid experienced users with routine tasks.

To avoid confusion, the terminology in this manual is based on the Crema parameter names. You will find a glossary at the end of this manual; it explains the various terms used.

We also used a uniform set of symbols to show you topics of particular interest or significance. Important terms are highlighted in bold letters.

Symbols

⚠ **Caution** – The comments that follow this symbol will help you avoid errors and malfunctions.

ⓘ **Info** – Additional information on a given topic.

» **Instruction –** Follow these guidelines to execute a desired function**.**

Example – Real-world examples to try out.

Highlighted Control Features and Parameters

All of Crema buttons, controls and parameters are highlighted in **bold** letters throughout the manual.

Examples:

- Turn the **Select** encoder.
- Press the **Shift** button.

Crema different modes and parameter pages are illustrated in a depiction of the display.

The value range of a continuous parameter is indicated from low to high with both values shown in italic letters, separated by three dots.

Example:

Attack *0...100*

General Safety Guidelines

⚠ Please read the following safety tips carefully! They include several precautions you should always observe when dealing with electronic equipment. Read all of the instructions before operating your device.

Suitable Operating Conditions

- Use the device in enclosed rooms only.
- Never use the device in damp conditions such as bathrooms, washrooms, or around indoor swimming pools.
- Do not use the device in extremely dusty or dirty environments.
- Make sure that adequate ventilation is available on all sides of the device.
- Do not place the device near heat sources such as radiators.
- Do not expose the device to direct sunlight.
- Do not expose the device to extreme vibrations.

Power Supply

- Only use the USB-C cable that came with Crema.
- Use a suitable USB-C power adapter to power Crema.
- Unplug the device when you are not using it for longer periods.
- Never touch the cable with wet hands.

Operation

- Never place objects containing liquids on or near the device.
- Place the device on a stable base only.
- Make sure no foreign objects find their way into the chassis. If for some reason this occurs, switch the power off, unplug the device, and consult a qualified repair center.
- This device can generate volume levels that may do irreparable damage to your hearing when used on its own or with amplifiers, speakers, or headphones. For this reason you should keep the volume at tolerable levels.

Maintenance

- Do not open the device or remove the cover. Refer all service and repair tasks to qualified personnel. The interior of the chassis contains no components that require user maintenance.
- Use only a dry, soft cloth or brush to clean the device. Never use alcohol, cleaning solutions or similar chemicals. They will damage the surface of the chassis.

Proper Use

This device is designed exclusively to produce low-frequency audio signals for the purpose of generating sound. Any other use is prohibited and voids the warranty extended by Waldorf Music. Waldorf Music is not liable for damages due to incorrect use.

ⓘ The perfect crema is a hazelnut-brown, fine-pored foam about 2 mm thick that is created when coffee bean oils and carbon dioxide are crushed under high pressure. It is elastic, shiny and holds firmly in the cup.

Setup and Connections

Crema comes complete with:

- the Waldorf Crema Synthesizer itself
- a USB-C to USB-C cable (optional USB-C power supply necessary)
- a MIDI adapter cable set (Mini TRS to DIN sockets)
- a USB isolator
- a printed Quick start manual

Please ensure all the above items were included. If something is missing, contact your local dealer.

We recommend that you save the original packing material for future transport.

Setup

Place Crema on a clean, even surface.

Basic Connections

In order to get started with your Crema you will need an optional USB-C power supply or a computer for USB-C power supply, a mixing console, an amp, and/or an audio monitor such as a speaker cabinet, or a headphone.

You can also use a computer or sequencer to make use of Crema's MIDI features.

To connect the devices:

1. Turn all units off.
2. Connect Crema's **AUDIO OUT** outputs to your mixing console, your active speaker system, or your computer audio interface. Optionally connect your headphone the **Headphone** output.
3. If you want to use a computer, connect the Crema's **USB-C** port with a USB-C cable to your computer (Windows or macOS). Thereafter, the Crema becomes automatically available as a MIDI device. Your computer also provides the power supply for Crema.
4. To play notes, you need a MIDI master keyboard. Connect its MIDI Out jack to the Crema´s MIDI Input (by using the included MIDI adapter). Alternatively you can press the **Play** button below the display to trigger notes.
5. Connect a suited USB-C power supply with the Crema's USB-C jack (if your Crema is not connected to a computer).

6. Use the power switch on the rear panel of Crema to start the engine.
7. Then switch on your computer (if connected), the mixing console and finally the amplifier or speaker system.

ⓘ The overall volume of Crema can be controlled with the **Volume** dial on the right side of the front panel. This also affects the **Headphones** output.

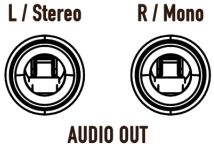
ⓘ If you do not choose to connect a mixing console, you can patch the Crema's output signals directly to an amplifier or an audio interface. Use an input usually called Line, Aux or Tape input.

⚠ Before connecting and disconnecting Crema to a power supply source, turn your amp's volume control all the way down to avoid damage due to on/off switching noise. Crema produces a high level output signal. Please take care that the connected playback device is suitable for the high level of an electronic instrument. Never use the microphone or phono input of the connected amp!

The Rear Connections

Crema provides an analog stereo audio output and a headphones output. This output and headphones output are affected by the setting of the **Volume** control dial.

Audio Output



Use 2 TS mono jack cables to connect the audio output to a mixer. Use your mixing console to appropriately distribute the stereo channels in case. If you want to connect an output monophonically, only use the **R/Mono** jack of the output pair with a 1/4 inch mono plug.

Headphones Output

Here you can connect any headphone with a 1/8-inch (3.5 mm) stereo plug. The headphone output uses the same signal as the audio output.

The USB-C Connection

Crema offers a USB-C port. It connects Crema to your computer with the following system requirements:

- Windows PC: Windows 10 or newer, a USB-C port
- Apple: Apple Silicon/Intel Mac with macOS 10.9 or newer, a USB-C port

ⓘ If your computer is not equipped with a USB-C port, you can use an optional USB-C to USB-A adapter or an optional USB-C to USB-A cable.

The USB-C connection allows transmitting and receiving of MIDI data and also serves as power supply.

ⓘ If you do not want to use a computer, you must connect the Crema's USB-C port to an optional USB-C power supply by using the USB-C to USB-C cable.

If you recognized any noise in your audio signal when using Crema, use the included USB isolator. This is a device designed to block computer noise from getting to USB equipment which is connected to your computer.

MIDI In/Out Jacks

ⓘ Make sure to use the included MIDI adapters for connecting standard DIN MIDI cables to your Crema.

You do not want to work with a computer? Use MIDI In for connecting a MIDI master keyboard that offers DIN MIDI. Use MIDI Out to send out MIDI data from Crema to a sequencer or hardware MIDI interface.

Basic Operations

Switching Crema On

- Use the **Power** switch to switch Crema on or off. The boot procedure takes just a few seconds. After this, the display is lit and Crema is ready to play. Life can be so easy.

Loading Sound Programs

Crema comes with numerous sound programs:

- When in Preset mode (press **Presets** button, so that it lights up red), use the **Select** encoder right beside the display to select the desired sound program in the sound list. Turning the encoder clockwise increases the sound number, turning the dial counter-clockwise decreases it. To finally load the desired sound, press the **Select** encoder once.

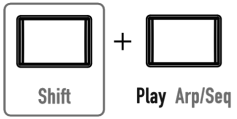
Adjust the Volume

- Use the **Volume** dial to control overall volume.

Playing Notes without a keyboard

- Press the **Play** button to play a note. Use the **Select** encoder to change the note or the octave, that triggers the sound. Press and hold You can choose the target engine (*All/Texture/Lines*), and *Octs* steps through octaves on each press. Holding **Play** also drives the Arpeggiator/Sequencer.

Using the Arpeggiator/ Sequencer



- When in Arp/Seq mode (press **Shift** + **Play Arp/Seq** buttons), set the arpeggiator or the sequencer to on. Hold down a few keys on your MIDI keyboard to trigger the arpeggiator/sequencer.
- To stop the arpeggiator or sequencer playback, just release the hold MIDI key(s).

ⓘ Press the Texture **Decay** and **Release** encoders simultaneously to send a MIDI panic command. This ends all currently playing notes.

The Crema Controls

Although Crema appears to have relatively few sound parameters, a vast wealth of editing possibilities lies beneath the surface. Crema offers 3 kinds of controls: endless encoders, dials and buttons.

Endless Encoders

In most cases, you can turn an endless encoder to make a selection. You can press the **Select** encoder to select options, to confirm selections or to switch through parameter options.

Dials

These are regular dials for parameter editing . Turn a dial to change the parameter setting. Some dials offer a second function (cream-colored printing) when using the **Shift** option.

Buttons

Buttons can be pressed to trigger a specific action. Some buttons offer a second function when using the **Shift** option (cream-colored printing below the button). If a button is pressed, it lights up in red, **Shift** lights up in amber.

The Display

The display reflects all actions of the controls and buttons in real time. Here you can check parameter names and values, set options, or edit advanced parameters, which are not available on the user panel. Read more on this on the next page of this manual.

The Texture Details page

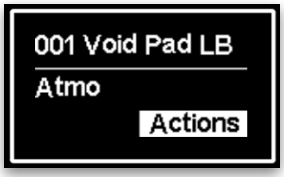
Basic Editing Principles

- The display shows additional infos about the current encoder/dial/button action.
- The dials and encoders each have its dedicated function. Just turn it and listen.
- Turning a dial or encoder will present the respective page on the screen showing the value of the edited parameter. In order to switch to the parameter page without changing the parameter, there is a special behavior implemented:
  - **Encoders**: If the parameter is not show in the display, the first increment or decrement of the encoder will show the parameter without changing it. Once the parameter is shown, the encoder will start to change the value if more increments or decrements are applied.
  - **Dials**: If the parameter is not show in the display, a small movement of the dial will show the parameter without changing it. Once the parameter is shown, the dial will start to change the value if more movement is applied. In addition, you can switch in the **Settings** between relative and absolute mode for the dials.
- Many display screens have a highlighted field shown in inverse colors. You can change which field is highlighted by turning the **Select** encoder.
- Pressing the **Edit** button displays the last used parameter knob and its current parameter value.
- Some dials have an alternate creme-colored function. To use it, hold the **Shift** button while turning the dial and release **Shift** afterwards. To put the knobs persistently in alternate mode, press and release **Shift** shortly without turning any knob (**Shift** will lit amber to indicate permanent shift mode). To finish permanent shift mode, just press **Shift** again.
- The highlighted field can be put in editing mode by pressing **Select**. The field then blinks and **Select** can be used to change the value. To finish editing mode just press **Select** again. If the field just selects between a few options, pressing **Select** will directly toggle between those options. Alternatively, many display fields can be edited by holding **Shift** while turning the **Select** encoder.

Working with Presets

Press the **Presets** button to open the Presets display menu. In addition to preset selection, numerous options for working with sound programs can be found here.

Loading Sound Programs



Turn the **Select** encoder to select a desired sound program in the sound program list. To finally load it, press the **Select** encoder once.

ⓘ You can change the gain for a sound program by pressing **SHIFT** and then adjusting the *Gain* using the **Volume** dial. The preset gain is saved in the sound program.

Preset Gain

The Preset Actions Menu

Press the **Select** encoder to open a pop-up menu in the display. Here, you can select the desired options and confirm by pressing on the **Select** encoder:

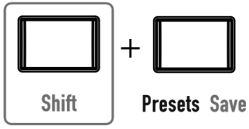
- *Filter*: Crema contains a preset selection category filter. Here, you can set up the filter. The first option selects the sound category (*Off*, *Uncategorized,* and some typical sound categories like *Pad*, *Keys*, *Lead* and so on). You must either confirm (*Set*) or cancel the category filter setup. If a category filter is active, only the corresponding sounds can be chosen.
- *Delete*: Deletes the current selected sound program. To prevent unwanted deletion, a final confirmation is required.
- *Delete Range*: Deletes a definable sound range. Here, you can set the first and the last sound slot of this range. To prevent unwanted deletion, a final confirmation is required.
- *Send*: The active sound (as edited) will be sent as MIDI SysEx dump to the USB-C port. The dump contains multiple MIDI SysEx messages.

- *Send Range*: Sends a definable sound preset range as MIDI SysEx dump to the USB-C port. The dump contains multiple MIDI SysEx messages. Here, you can set the first and the last sound slot of this range.
- *Start Receive*: Puts Crema in a receive mode for multiple sound presets as MIDI SysEx dump from any external MIDI source. Here, you can set the slot from which onwards received presets will be stored. No existing presets will be overwritten but instead the next empty slot chosen. You must either confirm or cancel the final start of the process.
- *End Receive*: This option allows you to end the receiving mode of Crema.
- *Copy:* Copies the current selected sound into a temporary buffer
- *Paste*: This option is only available, when a sound was copied before. Pastes the sound in the temporary buffer onto the current selected sound slot.
- *Close*: Closes the Actions pop-up menu. No further action is performed.

Saving Sounds

After you have finished editing a sound program you need to save it if you intend to use it again. All of Crema's memory locations are available for this purpose.

1. Press the **Shift** + **Save** buttons to bring up the Save Preset page. The **Save** button is blinking in red.



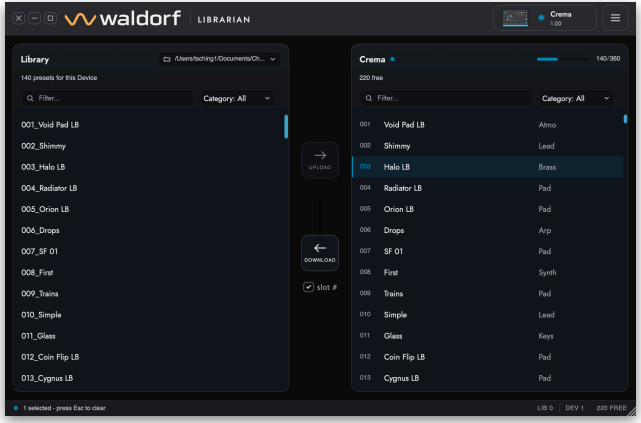
2. Optional: Use **Select** to select the sound slot number, where the sound is stored to..
3. Optional: Edit the sound name by pressing **Select** while the name field is selected. Use **Select** so select the character for editing and the selection for the desired character. When done editing, press **Select** again and repeat this procedure. Select *OK* for final confirmation of your naming.
4. Optional: Use **Select** to select the sound category. This is useful for the sound category filter option..
5. Finally, select either *Save* or *Cancel* by turning **Select** and press **Select** to either save the sound or cancel the operation.

Save display dialogue with selected category option

⚠ Whenever you save a sound program, the selected memory location is overwritten. Therefore, any previously stored sound programs at this location will be erased and there is no way to get it back.

Want to start with a clean initialized sound?
Press **Shift + Edit/Init** to initialize the current loaded sound. No sound is overwritten during this action.

ⓘ Did you know? Waldorf offers a free sound management software for Windows PC and Apple Mac called **Chutney**. This standalone application allows you to easily back up and manage your Crema sounds. Check out our Waldorf website!



Chutney Librarian Software

Sound Parameters

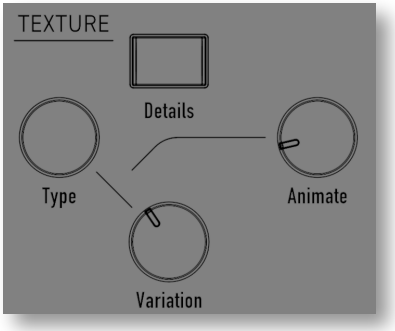
Crema consists of numerous sound-shaping components. The following manual pages describe all parameters in detail.

Crema is a synthesizer thats sound generation is optimized for producing typical pad, string and ensemble sounds. There are two sound generation engines (Texture and Lines) with a downstream effects section.

- **Texture** offers 24 types based of three synthesis modes: Strings, Wavetable & FM as well as the Ensemble effect from Streichfett. And there's much more to discover: modulation options, vibrato, and envelopes.
- **Lines** offers a polyphonic virtual analog synth based on the Waldorf's Streichfett solo engine with 2 de-tunable oscillators based of Square or Saw shapes.
- **FX** section: Here you will find two effect modules. **Effect** offers 14 different effects, such as modulation effects and delays. **Shimmer** provides a typical shimmer reverb for the main **Reverb**, that offers a classic reverb effect. The effects can be applied simultaneously to a single sound.
- Play options: The arpeggiator and a programmable sequencer generate interesting note sequences to support a player, whether in the studio or on stage.

The Texture Engine

Crema offers a Texture engine with selectable types, which is based on the sound generation of the Waldorf Streichfett synthesizer as well as a wavetable sound generation engine, and various 4 operator FM algorithms including feedback.



Type

Select the sound generation type based on one of the three engines (strings, wavetables or FM). The engine types are generally easy to distinguish. The string engine is called *Streichfett*, in reference to the well-known Waldorf string synthesizer. These are followed by a selection of various wavetables (from *Poly Saw* to *Vibes*), and then the FM types, which have the designation *FM* before their name.

About the String Engine

Offers an oscillator bank, equalizer, and formants setting. **Variation** morphs smoothly through Violin, Viola, Cello, Brass, Organ, Choir as well as combinations of the registrations.

About the Wavetable Engine

A wavetable is a table consisting of single waveforms. Each waveform is classified by its own special sound character. The main difference of wavetable synthesis in comparison with other sound-generation principles is the ability to not only to play one waveform but also to step through the wavetable via different modulations, thereby–creating wavetable sweeps. The results can be dramatic – much more so than anything any sample playback-based system could ever produce.

This principle offers powerful capabilities. To give some examples:

- The Wave Envelope can modulate the position within the wavetable.
- An Animation LFO can modulate the position within the wavetable. This creates subtle to drastic sound changes.

Wavetables are part of Waldorf's DNA. You should make yourself familiar with the sound and the characteristic of each wavetable. The best way to do so is to set up a kind of test sound to listen to the wavetables: Start with an initialized sound (**Shift** + **Init**) and turn down the **Volume** for the **Lines** section. Use the **Type** dial to select a desired wavetable texture, e.g. *Poly Saw*. With **Variation** you can move through the current selected wavetable. You will notice that the included wavetables cover an extremely wide range of interesting spectral timbres. Use **Animate** to apply a slow running LFO that periodically sweeps through the wavetable. Try it with one of the other wavetables.

About the FM Engine

Offers various 4 operator FM algorithms including feedback for typical FM sounds like bells, keys, and brass.

Variation

Depending on the chosen sound engine, this parameter has different functions:

- If *Streichfett* is chosen, it morphs smoothly through Violin, Viola, Cello, Brass, Organ, Choir as well as combinations of the registrations.
- If a wavetable is chosen, it determines the start point (*Position*) that is used when the sound starts.
- If a FM sound is chosen, it increases the *Amount* of FM intensity up to drastic tonal changes.

Animate

Behind this control is an LFO (Low Frequency Oscillator) that modulates the respective sound engine. In the String and Wavetable engines, the LFO sweeps through the registrations or wavetables, while in the FM engine, the FM intensity is periodically modulated. Additional settings can be made in the **Mods** menu. Further details follow below.

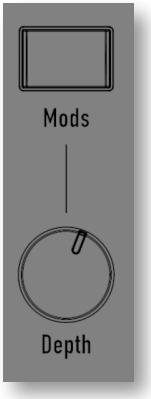
Depth

Sets the modulation intensity for the corresponding sound engine chosen with **Type**.

- If *Streichfett* is chosen, **Depth** determines feedback, depth and rate of a classic phase shifter effect according to the most pleasing settings we could find.

- If a wavetable is chosen, it determines the amount of influence the Wave envelope has on the wavetable modulation (when the *Wave Env* is selected), the amount of the filter cutoff modulation, when the *Filter Env* is selected as well as Vibrator and Cutoff Mod.
- If a FM sound is chosen, it determines the amount of influence the Mod envelope has on the frequency modulation.

Mods Button



Clicking the **Mod** button opens a menu on the display that offers further editing options for the modulations and additional parameters. Clicking the **Mod** button again returns to the previous display screen Here, too, the rule applies: depending on the selected sound engine, this menu offers different options:

Mods Parameters of the String Engine

- *AniDepth*: This option functions the same way as turning the **Animate** knob.
- *AniSpeed*: Determines the frequency of the Animate LFO in Hertz.
- *VibDepth*: Determines the intensity of the additional vibrato effect for typical pitch modulations.
- *VibSpeed*: Determines the frequency of the additional vibrato effect in Hertz.
- *VibBy*: Determines how the vibrato effect is triggered. *MW* (Mod Wheel) and *AT* (Aftertouch) use these performance controls to fade in the vibrato. *Fixed* produces a constant vibrato.
- *Phaser*: This option functions the same way as turning the **Depth** knob.
- *Close*: Closes the **Mods** menu.

Mods Parameters of the Wavetable Engine

- *AniDepth*: This option functions the same way as turning the **Animate** knob.
- *AniSpeed*: Determines the frequency of the Animate LFO in Hertz.
- *AniBy*: Determines how the animation effect is triggered. *MW* (Mod Wheel) and *AT* (Aftertouch) use these performance controls to scan the wavetable. *Fixed* produces a fixed modulation signal.
- *AniWave*: Determines the type of wave-shape to be generated by Animation LFO (*Sine*, *Triangle*, *Square, Saw Up*, and *Saw Down*).

- *VibDepth*: Determines the intensity of the additional vibrato effect for typical pitch modulations.
- *VibSpeed*: Determines the frequency of the additional vibrato effect in Hertz.
- *VibBy*: Determines how the vibrato effect is triggered. *MW* (Mod Wheel) and *AT* (Aftertouch) use these performance controls to fade in the vibrato. *Fixed* produces a constant vibrato.
- *WaveEnv*: This option functions the same way as turning the **Depth** knob.
- *Cutoff*: Determines the cutoff frequency for the low pass filter. All frequencies above the cutoff frequency are damped. At a value of 0.7 the low pass filter is open, values above this introduce saturation and slight distortion.
- *Resonance*: Determines the amplification of the frequencies around the cutoff point. Use lower values in the range *0.00...0.60* to give more brilliance to the sound. At higher values of *0.60...0.80* the sound gets the typical filter character with a strong boost around the cutoff frequency and a loss in the other range. When the setting is raised to values above *0.80*, the filter starts to self-oscillate, generating a pure sine wave.
- *FilterEnv*: Determines the amount of influence the filter envelope has on the cutoff frequency. For positive settings, the filter cutoff frequency is increased by the modulation of the envelope, for negative settings, the cutoff frequency is decreased. Use this parameter to change the timbre of the sound over time.
- *CutDepth*: Determines the intensity of an additional LFO for periodical filter cutoff modulations.
- *CutSpeed*: Determines the frequency of the additional LFO in Hertz.
- *CutBy*: Determines how the filter LFO is triggered. *MW* (Mod Wheel) and *AT* (Aftertouch) use these performance controls to fade in the LFO. *Fixed* produces a constant filter movement.
- *CutWave*: Determines the type of wave-shape to be generated by the filter LFO (*Sine*, *Triangle*, *Square, Saw Up*, and *Saw Down*).
- *Close*: Closes the **Mods** menu.

Mods Parameters of the FM Engine

- *AniDepth*: This option functions the same way as turning the **Animate** knob.

- *AniSpeed*: Determines the frequency of the Animate LFO in Hertz (from *0.05* to *40.0 Hz*).
- *AniBy*: Determines how the modulation effect is triggered. *MW* (Mod Wheel) and *AT* (Aftertouch) use these performance controls to fade in the vibrato. *Fixed* produces a modulation signal.
- *AniWave*: Determines the type of wave-shape to be generated by Animation LFO (*Sine*, *Triangle*, *Square, Saw Up*, and *Saw Down*).
- *VibDepth*: Determines the intensity of the additional vibrato effect for typical pitch modulations.
- *VibSpeed*: Determines the frequency of the additional vibrato effect in Hertz (from *0.05* to *40.0 Hz*).
- *VibBy*: Determines how the vibrato effect is triggered. *MW* (Mod Wheel) and *AT* (Aftertouch) use these performance controls to fade in the vibrato. *Fixed* produces a constant vibrato.
- *ModEnv*: Determines the amount of influence the Mod envelope has on the frequency modulation.
- *Feedback*: A FM operator can modulate itself, creating a continuous loop of self-influence. This is done with the feedback option, that adds complex timbres and movement without requiring extra modulators.

- *Close*: Closes the **Mods** menu.

The Texture Envelopes

The programmable ADSR envelopes allow you to manipulate sound parameters via rate or time based modulations. Here, too, the rule applies: depending on the selected sound engine, the envelopes offer different options:

Envelope Parameters of the String Engine

When the *Streichfett* **Type** is selected, the 4 envelope dials offer a classic ADSR envelope to shape the volume of the sound.

An ADSR envelope is started by pressing a key. It ascends to its maximum value at the rate determined by the **Attack** parameter. It then descends at the rate determined by the **Decay** value until it reaches the predetermined **Sustain** value. It remains at this value until the key is released. The envelope then descends to zero at the rate determined by the **Release** parameter.

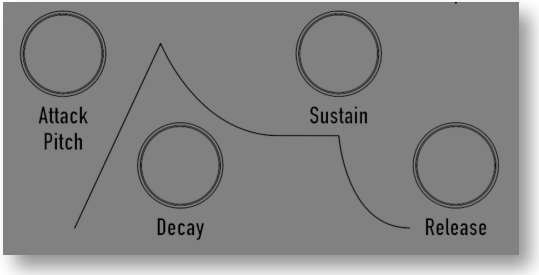
Attack

Determines the attack rate or amount of time it takes for a signal to go from zero to maximum level.

Decay

Determines the decay rate or amount of time it takes for a signal to reach the **Sustain** level.

Sustain



Determines the sustain level that is held until a note ends.

Release

Once the note has ended, the release phase begins. During this phase, the envelope fades to zero at the rate determined by the release value.

Envelope Parameters of the Wavetable Engine

When a wavetable **Type** is selected, the envelope dials controls 3 different ADSR envelopes to modulate the volume, the waves of a wavetable, or the filter cutoff.

To switch between these envelopes, move one of the four controls **Attack**, **Decay**, **Sustain** or **Release** and use the **Select** encoder to choose the desired envelope in the display menu: *Amp Env*, *Wave Env,* or *Filter Env*.

Keep in mind: The amplifier envelope has a direct effect on the volume contour of the texture sound when you adjust the four envelope controls.

If the Wave and Filter envelopes should modulate the signal, you must set the *Wave Env Amount* and *Filter Env Amount* to a value other than *0.00* – using either positive or negative values.

Envelope Parameters of the FM Engine

When a FM **Type** is selected, the envelope dials controls 2 different ADSR envelopes to shape the volume or to modulate FM.

To switch between these envelopes, move one of the four controls **Attack**, **Decay**, **Sustain** or **Release** and use the **Select** encoder to choose the desired envelope in the display menu: *Amp Env*, or *ModEnv*.

Keep in mind: The amplifier envelope has a direct effect on the volume contour of the texture sound when you adjust the four envelope controls.

If the Mod envelope should modulate the signal, you must set the **Depth** amount to a value other than *0.00* – using either positive or negative values.

Pitch (Secondary SHIFT Function)

The Attack knob offers a second SHIFT function. Again, the rule applies: depending on the selected sound engine, **Pitch** offers different options:

- When the *Streichfett* **Type** is selected, **Pitch** controls the octave setting for the engine. It selects between *Base* (the regular octave setting), *Both (*Base octave mixed with the 8va octave) and 8va (one octave higher than the base octave.
- When a wavetable or FM **Type** is selected, **Pitch** determines the pitch of the Texture engine in semitone steps.

Details Button

Clicking the **Details** button opens a menu on the display that offers further setting options for the Texture engine.

In the top-right corner of the **Details** display, you will find a **Load** button. You can use this to load the engine from any sound program into the current sound program. Click the **Select** encoder, choose the desired sound program, and confirm by selecting *Load*. Alternatively, you can cancel the process, which will return to the **Details** page.

- **Arp/Seq** determines whether the arpeggiator or the sequencer should play the Texture engine (*Enabled*) or not (*Disabled*).
- **Send To** determines the routing of the Texture engine output signal. The signal can be routed to *FX1* (and from there automatically to FX2 (the Shimmer/Reverb effect), when in serial mode), or only to *FX2*, or sent to the output completely unprocessed (*Direct*).
- **Velo Sens** defines the relationship between how hard you strike a key on a MIDI controller and the resulting MIDI velocity value. The higher **Velo Sens**, the harder you have to hit a key for maximum velocity.
- **Bend Range** determines the intensity of the pitch bend in semitones from *0* to *12* semitones.
- **Min Note** sets the lowest note for the Texture engine.
- **Max Note** sets the highest note for the Texture engine.

ⓘ You can also press the corresponding keys on your MIDI keyboard to select the **Min** and **Max** notes.

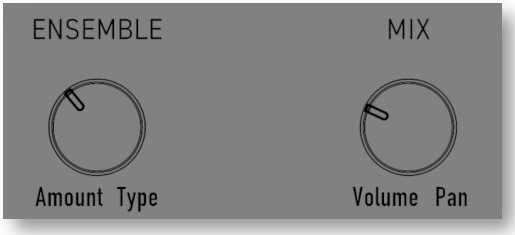
- **Split** opens a new menu for configuring keyboard split settings:
  - *Clear* resets the split settings to the default notes C-1 and G9, so that both engines can be played across the entire keyboard range. The *Clear* option requires confirmation to prevent accidental resetting.
  - *Set* allows you to define a base note for the split point by playing the desired key on your keyboard. Below this base note, only the Texture engine can be played, while the Lines engine plays at the split note an above *Cancel* aborts this process. Select *Mid C* to set the split note back to the default setting (C3).
  - *Close* closes the **Split** menu.
- **Transpose** allows a pitch transposition for the Texture engine in semitones from -12 to +12 semitones. *Off* means, that no transposition is made.
- **Pitch Bend** determines whether incoming MIDI Pitch Bend messages should be processed (*On*) or not (*Off*).

- **MW** (Mod Wheel) determines whether incoming MIDI CC#1 messages should be processed (*On*) or not (*Off*).
- **AT** (Aftertouch) determines whether incoming MIDI Aftertouch messages should be processed (*On*) or not (*Off*).
- **Sustain** determines whether incoming MIDI Sustain pedal messages (CC#64) should be processed (*On*) or not (*Off*).
- **Close** closes the **Details** menu.

Ensemble for the Texture Engine

The ensemble effect is an advanced chorus effect which consists of three delay lines with different modulation speeds and phase shiftings. This classic effect adds more depth and width to the sound. We recommend to always use it for strings and choir sounds.

- **Amount** controls the intensity of the ensemble effect.
- **Type** (secondary SHIFT function) selects the mode for the ensemble effect:
  - *Strings* offers the classic string machine ensemble effect with LFOs at two different frequencies.
  - *Str+Ch* is a combination of strings and chorus for maximum depth and width of the sound.
  - *Chorus* offers a classic chorus effect with only one LFO.



Mix for the Texture Engine

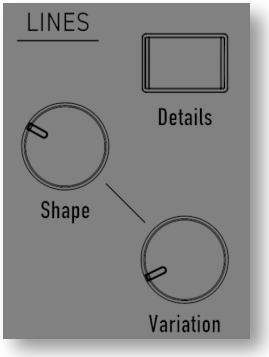
Volume

Determines the volume of the Texture engine.

Pan (Secondary SHIFT Function)

The pan position parameter pans the Texture engine in the stereo field.

Lines Parameters



Lines offers a polyphonic virtual analog synthesizer based on Waldorf's Streichfett solo engine.

Shape

This is the a sound control for the Lines engine. Moving this control blends smoothly through different sounds. Note that these sounds only have a faint resemblance to their names, which is common for the genre of String synthesizers.

With the **Select** encoder you can change the main sound characteristic between *Pulse* and *Saw*.

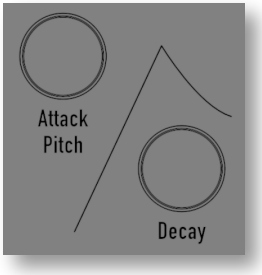
Variation

Behind this control you find 4 different options for shaping the Lines sound. These options can be selected using the **Select** encoder and then adjusted with the **Variation** control:

- **Detune** allows for various forms of detuning, ranging from subtle adjustments in the cent range to octave shifts with fine-tuning.
- **Tremolo** control adjusts both the rate and depth of the stereo tremolo effect.
- **Vibrato** adjusts the intensity of a fixed vibrato effect that is linked to the modulation wheel and faded in using it.
- **PWM** controls the intensity of classic pulse-width modulation. Please note: This option applies only to the *Pulse* **Shape**.

ⓘ All four **Variation** options can be used simultaneously.

The Lines Envelope



Here you will find a two-stage amplifier envelope: one with simple attack and decay control, and an additional switchable sustain phase.

On the envelope display you can use the **Select** encoder to switch between the simple envelope (*Trigger*) and the additional *Sustain* (with a fixed sustain level).

Attack

Determines the attack rate or amount of time it takes for a signal to go from zero to maximum level.

Decay

Determines the decay time until the signal fades out (in *Trigger* mode) or amount of time it takes for a signal to release in *Sustain* mode). If **SHIFT** is active, you can also use the Decay knob to switch between *Trigger* and *Sustain* mode.

Pitch (Secondary SHIFT Function)

The Attack dial offers a second SHIFT function. **Pitch** determines the pitch of the Lines engine in octave steps. The standard setting for this parameter is 0, but there might be cases where higher or lower octave settings values are required.

Details Button

Clicking the **Details** button opens a menu on the display that offers further setting options for the Lines engine.

- **Arp/Seq** determines whether the arpeggiator or the sequencer should play the Lines engine (*Enabled*) or not (*Disabled*).
- **Send To** determines the routing of the Lines engine's output signal. The signal can be routed to *FX1* and from there automatically to FX2 (Shimmer/Reverb), when in serial mode, or only to *FX2*, or sent to the output completely unprocessed (*Direct*).
- **Velo Sens** defines the relationship between how hard you strike a key on a MIDI controller and the resulting MIDI velocity value. The higher **Velo Sens**, the harder you have to hit a key for maximum velocity.
- **Bend Range** determines the intensity of the pitch bend in semitones from *0* to *12* semitones.

- **Mode** selects the polyphony mode for the Lines engine. In *Poly* mode, the engines offer a polyphony of 8 voices. In *Mono* mode, only the last played note sounds. *Legato* is similar to the *Mono* mode, but when you play legato, only the first note that was played triggers the envelope. Further played notes use the current envelope phase for playback.
- **Glide** offers 3 modes: *Off* disables the Glide effect. *On* selects the portamento-effect, resulting in a continuous transition between the last and new pitch. *Legato* means that a continuous portamento is performed only when notes are played legato. Staccato played notes start on the exact pitch of their note
- **Amount** determines the glide time. Low values will give a short glide time in the range of milliseconds that gives a special character to the sound. High values will result in a long glide time up to several seconds which can be useful for solo and effect sounds.
- **Min Note** sets the lowest note for the Lines engine.
- **Max Note** sets the highest note for the Lines engine.
- **Split** opens a new menu for configuring keyboard split settings:
  - *Clear* resets the split settings to the default notes C-1 and G9, so that both engines can be played across the entire keyboard range. The *Clear* option requires confirmation to prevent accidental resetting.
  - *Set* allows you to define a base note for the split point by playing the desired key on your keyboard. Below this base note, only the Texture engine can be played, while the Lines engine plays above the split point. *Cancel* aborts this process.
  - *Close* closes the **Split** menu.
- **Transpose** allows a pitch transposition for the Line engine in semitones from -12 to +12 semitones. *Off* means, that no transposition is made.
- **Pitch Bend** determines whether incoming MIDI Pitch Bend messages should be processed (*On*) or not (*Off*).
- **MW** (Mod Wheel) determines whether incoming MIDI CC#1 messages should be processed (*On*) or not (*Off*).
- **AT** (Aftertouch) determines whether incoming MIDI Aftertouch messages should be processed (*On*) or not (*Off*).
- **Sustain** determines whether incoming MIDI Sustain pedal messages (CC#64) should be processed (*On*) or not (*Off*).
- **Close** closes the **Details** menu.

Mix for the Lines Engine

Volume

Determines the volume of the Lines engine.

Pan (Secondary SHIFT Function)

The pan position parameter pans the Lines engine in the stereo field.

The Effect Section

Crema offers an effect section with two FX engines. One engine uses 14 selectable effects like Chorus and Delay, the other engine offers a reverb with a Shimmer option. That is why you find 3 columns of FX controls on the Crema panel.

ⓘ To edit the FX parameters, you can use the dials in the **Effects** section. Keep in mind that every knob offers a secondary SHIFT function.

Whether a sound engine uses this effect can be set separately in the details menus of the Texture and Lines engines.

If you press the **Select** encoder in the effect display menu, a pop-up window will open with additional effect settings:

- **Texture** determines the routing of the Texture engine's output signal. The signal can be routed to *FX1* (and from there automatically to FX2, when in serial mode), or only to *FX2*, or sent to the output completely unprocessed (*Direct*).
- **Lines** determines the routing of the Lines engine's output signal. The signal can be routed to *FX1* (and from there automatically to FX2, when in serial mode), or only to *FX2*, or sent to the output completely unprocessed (*Direct*).
- **Routing** can be switched in series (both effects one after the other) or in parallel (both effects independently of each other).
- **Close** closes this pop-up window.

Effect

Use the **Select** encoder allows to select the desired effect type. Once selected, you can use the **Amount** knob to adjust the effect intensity with the *Dry/Wet* control. Except for the Tremolo effect which offers a *Depth* control instead of Dry/Wet.

The **Shift** option allows you to use the second function of the **Control** and **Amount** knobs.

The Chorus 1 FX display page

Below you find a brief explanation of all effect types and the four available controls:

Bypass

Bypasses this effect section.

Chorus 1 / 2 / 3

A Chorus effect is generated by using multiple modulated delay lines that generate slightly detuned copies of the input signal and mix it into the output signal. The result sounds like an ensemble of several simultaneous sounds, like a choir as opposed to a single voice – hence being called Chorus. The detuning is generated by an internal LFO that can be controlled in speed and depth. Crema offers 3 different Chorus types with slightly different sound characteristics.

Amount

Controls the volume ratio between the original signal (Dry/Wet) and the effect output. If set to *0.00*, the dry signal is sent to the output only so that no effect can be heard. Higher values will increase the effect signal. For typical Chorus the amount shall be 0.5.

Control

Sets the LFO speed of the Chorus effect.

Control (Secondary SHIFT Option)

Controls the feedback amount of the signal.

Amount (Secondary SHIFT Option)

Sets the modulation depth of the Chorus effect.

Flanger 1 /2 / 3

The flanger effect is very similar to the chorus effect, but uses much shorter delay lines. This generates the typical colorization of a flanging signal. With extreme settings you can hear a whistling sound which is very characteristic of a flanger effect. Crema offers 3 different Flanger types with slightly different sound characteristics.

Amount

Controls the volume ratio between the original signal (Dry/Wet) and the effect output. If set to *0.00*, the dry signal is sent to the output only so that no effect can be heard. Higher values will increase the effect signal. For typical Flanger effects the amount shall be 0.5.

Control

Sets the LFO speed of the Flanger effect.

Control (Secondary SHIFT Option)

Controls the feedback amount of the flanger signal.

Amount (Secondary SHIFT Option)

Sets the modulation depth of the flanger effect.

Phaser 1 /2 / 3

Phase shifting is a sweeping effect that was first popularized in the 1960s. It adds motion and a swirling character to the sound. It works by splitting the incoming signal, changing the phase of one side, and recombining it with the unaffected signal. This creates a notch-comb filter that can be swept through the frequency spectrum, causing the signature 'whooshing' sound of the phase shifter. The sweep is caused when the phase of the affected half is modulated by an LFO, with the frequency determined by Speed. Depth sets the amplitude for the action of the filtering, while Feedback amplifies certain harmonics. Crema offers 3 different Phaser types with slightly different sound characteristics.

Amount

Controls the volume ratio between the original signal (Dry/Wet) and the effect output. If set to *0.00*, the dry signal is sent to the output only so that no effect can be heard. Higher values will increase the effect signal. For typical Phaser effects the amount shall be 0.5.

Control

Sets the LFO speed of the Phaser effect.

Control (Secondary SHIFT Option)

Controls the feedback amount of the phaser signal.

Amount (Secondary SHIFT Option)

Sets the modulation depth of the phaser effect.

Tremolo

Tremolo was the very first effect designed for electric guitars, even before reverb. It was of course predestined for the electronic sound generation of earlier synthesizers and quickly became a standard for all types of music. A tremolo effect based on a LFO that modulates the amplitude (level) of an audio signal to create a periodic movement of the volume.

Amount

Sets the depth of the amplitude modulation.

Control

Determines the modulation speed for the tremolo effect.

Control (Secondary SHIFT Option)

Determines the shape of the LFO waveform, which is used for the tremolo modulation. You can select between a sine, a triangle and a square, a saw up, and a saw down waveform..

Amount (Secondary SHIFT Option)

Determines the slew rate of the selected LFO waveform. The higher the setting, the smoother the slew rate.

Drive

Adds gain to a signal causing it to clip and distort. It introduces new harmonics that add a harsh edge to sounds.

Amount

Controls the volume ratio between the original signal (Dry/Wet) and the effect output. If set to *0.00*, the dry signal is sent to the output only so that no effect can be heard. Higher values will increase the effect signal.

Control

Determines the amount of saturation that is added to the signal. If set to *0.00*, no saturation will be added or, in other words, the signal will remain clean. Lower values will add

some harmonics to the signal, resulting in a warm character. Increasing the value will bring in more and more distortion, suitable for harder leads and effects.

Control (Secondary SHIFT Option)

Determines the character of the drive. The following drive curves are available:

- *PNP* generates a distortion based on a bipolar transistor.
- *Tube* simulates the asymmetric distortion of a tube circuit.
- *PickUp* simulates an electrostatic pickup. This drive type sounds very interesting, when the audio signal level is modulated.
- *Diode* generates a typical diode distortion.
- *Crunch* is a sinusoidal wave-shaper. It generates FM-like sounds that can be extremely distorted.

Amount (Secondary SHIFT Option)

Mostly affects the level of the output signal. Use *Gain* to adjust the overall gain to your needs..

Delay 1 /2 /3

A Delay is an effect that produces echoes of the input signal. Crema offers 3 different Delay types with slightly different sound characteristics.

Amount

Controls the volume ratio between the original signal (Dry/Wet) and the effect output. If set to *0.00*, the dry signal is sent to the output only so that no effect can be heard. Higher values will increase the effect signal.

Control

Controls the amount of signal that is routed back into the Delay line. Lower values, therefore, produce fewer echoes than higher values.

Control (Secondary SHIFT Option)

Sets the length of the Delay tap for the left channel in seconds.

Amount (Secondary SHIFT Option)

Dampens the high frequencies produced by the Delay effect. This filter is routed before the feedback circuitry meaning

that adjacent taps of the Delay will be dampened further. This creates the typical 'high frequency loss' that often happens in natural echoes. A minimal setting means that the signal isn't filtered, while higher settings filter the high frequencies of the feedback signal.

Shimmer

A shimmer reverb is an audio effect that combines a standard reverberation tail with a pitch shifter - usually set an octave higher - inside a feedback loop.

Strictly speaking, this is not an independent effect, but rather an additional effect option in conjunction with the following reverb effect.

ⓘ If the **Amount** of the reverb is set to *0*, a *Turn up Reverb* hint appears in the display when editing the Shimmer parameter, as the reverb is required for this**.**

Amount

Determines the intensity of the shimmer effect.

Pitch

Sets the interval of the pitch shifter, ranging from -12 to +12 semitones. Here, you can use the **Select** encoder to determine whether the shimmer should operate continuously (*Free*) or in steps (*Steps*).

Pitch (Secondary SHIFT Option)

Shimmer offers a second pitch shifter and expands the classic octave model with complex intervals, beats and thicker textures. The parameters are the same as for **Pitch**.

Amount (Secondary SHIFT Option)

The mode option determines how pitch-shifting interacts. with the reverb tail: *Single* pitch-shifts the tail in one direction (typically up +12 semitones) to create a classic, angelic choir-like or organ-like shimmer layer. *Mirror* shifts the feedback in both up and down directions simultaneously (in parallel), producing a broader, more balanced, and symphonic spatial field. *Double* uses two pitch-shifters, yielding a much smoother, backwards-swelling ambient pad texture.

Reverb

The Reverb effect is probably the most widely used effect in music production. Crema's reverb effect is an addition to the sound to make it more expressive with a three-dimensional feel.

Amount

Determines the intensity of the reverb effect.

Decay

The amount of time it takes for the reverb effect to fade away into silence after the original sound stops.

Decay (Secondary SHIFT Option)

Determines the spectral colorization of the reverb sound. Negative values dampen the higher frequencies while positive settings dampen the lower frequencies.

Amount (Secondary SHIFT Option)

Determines the intensity of the pitch modulation. If no pitch modulation is desired, set this parameter to *0.00.*

The Flavour Dial

The further you turn this control, the more you influence the sonic behavior of the current sound program. These changes do not happen completely randomly, but are methodical.

These are subtle parameter variations, primarily in the wave position and pitch.

ⓘ **Flavour** adds all sort of micro variations to the sound. This includes small pitch variations of both engines depending on the flavour value.

But why the endless explanations? Just turn it and enjoy!

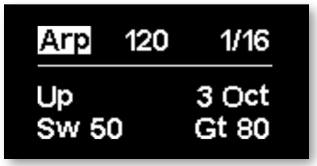
The Arpeggiator

ⓘ To enter the arpeggiator section, press **Shift** and the **Arp/Seq** button and click on the **Select** encoder until you enter the *Arp* section. If the display shows *Arp*, the arpeggiator is active now.

An arpeggiator is a device that splits an incoming chord into its individual notes and repeats them rhythmically. In addition to the synthesis features Crema offers a programmable arpeggiator.

Use **Select** to switch between the following arpeggiator parameters. Press **Select** to select the desired parameter and use the encoder again to edit the parameter value.

» To start the arpeggiator playback, play one or more notes on your keyboard.



The Arpeggiator page

Bpm

Sets the overall tempo for the Arpeggiator in beats per minute. The default tempo is *120* bpm.

ⓘ **Bpm** can be synced to an external tempo. The corresponding parameter can be found in the **Settings** menu.

Step Length

Determines the rate at which notes are triggered – that is to say, the speed at which the arpeggio is running. In addition to the **Bpm** parameter this gives you further control over the playback speed. You can specify a value in fractions of beats. For example, if **Step Length** is set to 1/8, the arpeggio plays eight notes per measure. Also, triplet and dotted value settings are possible.

Play Direction

Sets the direction that is used to play back the arpeggio. This parameter works in conjunction with **Octaves**:

- If *Up* is selected, the notes play from low to high keys. The arpeggio starts in the original octave and goes up to the highest octave (determined with **Octaves**). Then the arpeggio is repeated.

- If *Down* is selected, the notes play from high to low keys. The arpeggio starts in the highest octave (determined with **Octaves**) and goes down to the original octave. Then the arpeggio is repeated.
- If *Up-Down* is selected, the notes first play forward. After reaching the last note in the highest octave to play, the notes play backward and the octaves are transposed downward down to the first note in the original octave. Then the arpeggio is repeated.
- If *Up | Down* is selected, notes first play forward. After reaching the last note in the highest octave to play, this note is repeated and the notes play backward and the octaves are transposed downward down to the first note in the original octave. Then the arpeggio is repeated.
- If *Down-Up* is selected, the notes first play backward. The arpeggio starts in the highest octave (determined with **Octaves**). After reaching the first note in the original octave, the notes play forward and the octaves are transposed upward up to the last note in the highest octave to play. Then the arpeggio is repeated.
- If *Down | Up* is selected, the notes first play backward and the octaves are transposed downward. The arpeggio starts in the highest octave (determined with **Octaves**). After reaching the first note in the original octave, this note is repeated and the notes play forward and the octaves are transposed upward up to the last note in the highest octave to play. Then the arpeggio is repeated.
- If *Random* is selected, the notes will be played randomly.

Octaves

Determines the range of the single notes in octaves. When it is set to *1 Oct*, the notes will be played back in the same octave as originally entered. Higher octave values mean that the notes are repeated in higher octaves. The octave in which the arpeggio starts is determined by the **Play Direction** parameter. If you play notes that span more than one octave, they are still kept and play back before the notes are transposed.

Swing (Sw)

Determines how much the timing affects an arpeggio step. If **Swing** is set to *50,* the arpeggio is played back without any shuffled timing. Settings from *51* to *95* increase the shuffling of the notes and creates a typical swing. You can also use settings below *0.50* to influence the timing.

Gate (Gt)

Determines the note length depending on the original length. The lower the value, the shorter the played notes.

Reset

Sets up a limit for the played notes. This is useful to create inclined measures. Set **Reset** to *8* or *16* to start an arpeggio at the beginning of a measure.

Pattern

With **Pattern** you can select one of the 16 internal rhythm patterns.

Texture

Determines whether the arpeggiator should arpeggiate the Texture oscillator (*Enabled*) or not (*Disabled*).

Lines

Determines whether the arpeggiator should arpeggiate the Lines oscillator (*Enabled*) or not (*Disabled*).

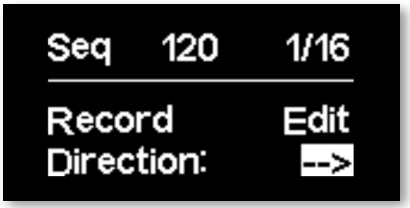
The Sequencer

To enter the sequencer section, press **Shift** and the **Arp/Seq** button and click on the **Select** encoder until you enter the *Seq* section. If the display shows *Seq*, the sequencer is active now.

Crema also contains a programmable step sequencer, where you can use up to 32 steps per measure. For each step the note and velocity can be defined.

Use **Select** to switch between the following sequencer parameters. Press **Select** to select the desired parameter and use the encoder again to edit the parameter value.

To start the sequencer playback, play one or more notes on your keyboard.



The Sequencer page

Bpm

Sets the overall tempo for the sequencer in beats per minute. The default tempo is *120* bpm.

ⓘ **Bpm** can be synced to an external tempo. The corresponding parameter can be found in the **Settings** menu.

Step Length

Determines the rate at which notes are triggered – that is to say, the speed at which the sequence is running. In addition to the **Bpm** parameter this gives you further control over the playback speed. You can specify a value in fractions of beats. For example, if **Step Length** is set to 1/8, the sequence plays eight notes per measure. Also, triplet and dotted value settings are possible.

Record

If you select this option, you can automatically record notes to the sequencer steps. Each incoming MIDI note creates a step and then automatically moves to the next step. You do not need to start the recording manually. If Record is active, the first note triggers the recording. Press *Stop* to end the step recording.

Length

Determines the length of the step sequence. A sequence must contain a minimum of one step and can go up to 32 steps.

Swing (Sw)

Determines how much the timing affects a sequence step. If **Swing** is set to *50,* the sequence is played back without any shuffled timing. Settings from *51* to *95* increase the shuffling of the notes and creates a typical swing. You can also use settings below *0.50* to influence the timing.

Gate (Gt)

Here you can determine the note length depending on the original length. The lower the value, the shorter the played notes.

Direction

Sets the direction that is used to play back the sequence:

- If → is selected, the notes run from the first step to the last. Then the sequence is repeated.
- If ← is selected, the notes run from the last step to the first. Then the sequence is repeated.

- If →← is selected, the notes run from the first step to the last, then back to the first note and so on.
- If →/←is selected, the notes run from the first step to the last. The last step is repeated and the sequence run back to the first note, which also is repeated and so on.
- If →/ is selected, the notes run from the first step to the last. Then the sequence stops.

Reset

Determines the behavior of the Step sequencer when a new note is triggered:

- If *Start* is selected, the sequence always starts from the beginning when a new note is triggered.
- If *None* the sequence always continues where it was left at the last time it was stopped.
- If *Random* is selected, the sequence always starts from a random position when a new note is triggered.

Scale Root

Determines the tonic keynote for the selected scale. When **Scale** is set to *Chromatic*, no root note can be specified.

Scale

Determines numerous musical scales, e.g. *Chromatic*, *Major*, *Minor* or *Lydian dominant*. When set to *Chromatic* the sequence is played as entered. Any other Scale defines the played notes, that move to the next scale note or above. This works in conjunction with the **Scale Root** parameter.

Pattern

With **Pattern** you can select one of the 16 internal sequence patterns.

Texture

Determines whether the sequencer should playback the Texture engine (*Enabled*) or not (*Disabled*).

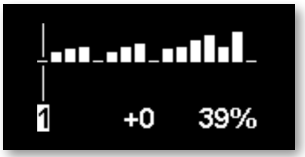
Lines

Determines whether the sequencer should playback the Lines engine (*Enabled*) or not (*Disabled*).

The Edit Option

For sure, we did not forget the **Edit** option, but deliberately placed it at the end of this chapter.

Behind this option you will find a graphical editor for the step sequencer, which is controlled via the display and allows visual control of the current step sequence.



The Step Sequencer edit page

Here is, how it works:

- In the upper area of the display, you can see all used steps shown as bar representation.
- In the lower are of the display you see three values: The first shows the current step position, the second value the pitch of the corresponding step and the third one the velocity in percent. In the display graphic above, the first step is selected with a pitch of *+0* (corresponds to the played note) and a velocity of *39%*.
- To edit the steps, use the **Select** encoder to select one of the three values, press it and edit the value.
- If you edit a preset with a step sequence, one or more steps are shown, but you can also start with an empty sequence and edit the steps by your desire.

ⓘ To leave the Edit page, press **Shift** + **Arp/Seq**.

The Settings Options

ⓘ To enter the Settings options, press the **Settings** button and use the **Select** encoder to scroll through the desired setting pages.

Texture MIDI Page

Channel

Determines the basic receive channel for the Texture engine from *1...16*. *Omni* is a MIDI mode in which MIDI message receiver will receive and act on any data that arrives on any MIDI channel.

Lines MIDI Page

Channel

Determines the basic receive channel for the Lines engine from *1...16*. *Omni* is a MIDI mode in which MIDI message receiver will receive and act on any data that arrives on any MIDI channel.

MIDI Out Pages

Send Chan

Determines the MIDI channel (from *1...16*) on which the Crema sends MIDI data via USB-C, e.g., to a DAW.

ⓘ Keep in mind that only those dials send MIDI CC data for which this data has been defined in the MID Control Change Mappings (see corresponding chapter later in this manual).

Arp/Seq

Determines if the arpeggiator and the sequencer will send (*On*) the generated notes to the MIDI out or not (*Off*).

MIDI Settings Pages

Device ID

Defines the device identification number for system exclusive data transmission. Transmission will only be executed successfully if the sender and receiver setting coincide. The default setting is *0*. Device ID 127 is a so-called broadcast ID that addresses all connected Crema units. Crema can receive this from other devices, but cannot send it itself.

Activity LED

Determines whether the **Play** button should light up (*On*) or not (*Off*) when MIDI messages are received.

Sync Settings Page

Source

Determines how Crema reacts to incoming MIDI Clock messages.

- *Intern* means that Crema doesn't react to incoming MIDI Clock. Crema only syncs to its own tempo base that is set with the **BPM** parameter in Arp/Seq display menu.
- *Extern* means that Crema automatically syncs to incoming MIDI Clock if it is sent by an external device like a DAW, a sequencer or a drum machine.

MPE Settings Pages

Status

Here, you can activate/deactivate the MPE status for Crema. If active, the following MPE options are supported:

- Per-Note Pitch Bend with the range of the MPE standard (+/- 48 semitones).
- MPE Y-Axis and poly aftertouch as sources in the modulation matrix.

Zones

Crema supports an optional second MPE zone (*Two*). To use dual MPE zones it is recommended set a split note for the Texture and the Lines sections.

Max Channel

Here you can determine the number of used channels for MPE purposes when only one zone is used.

Lower Chans

Determines the number of channels in the lower zone (1–13) if activated.

Pitch Settings Page

Master

Determines the Crema's overall master pitch. The value specified here is the reference pitch for MIDI note 69 (A above middle C, 440 Hz). The default setting is *0 cents*, which is commonly used by most instruments.

⚠ You should only change this setting if you really know what you're doing. You will have to adjust all your other instruments, too. Don't forget to set it back again!

Pot Settings Page

Mode

There are 2 modes available for the knob behavior:

- *Relative* means that a parameter value is changed from its current value by the relative movements of the dial. Over time the algorithm will match the parameter value more and more with the physical dial position.
- *Absolute* means that a parameter value change jumps directly to the value that is edited.

Display Settings Page

Brightness

Determines the brightness of the display.

LED Settings Page

Brightness

Controls the brightness of all LEDs.

Reset Settings Page

Press the **Select** encoder to reset all settings to their original values. Confirmation is required to prevent an accidental reset.

The Additional SHIFT Option

ⓘ Press **Shift** + **Settings** to open a pop-up window with further options. Use **Select** to navigate between the options.

Info

Here you can see the current firmware version of your Crema.

Map CC

Here you can map the Crema parameters to incoming MIDI control change data. Read more in the Appendix.

Mappings

Opens a display page with all mapped MIDI Control Change data. This page gives you an overview of all used MIDI mappings. Read more in the Appendix.

MIDI Mon

Here you can monitor incoming MIDI messages. This is useful to analyze which MIDI events, e.g., MIDI CC data come in.

Close

Closes the pop-up window.

Appendix

Updating the Firmware

All software updates come in the form of a UF2 file that can be directly use for updating the Crema firmware. The easiest way to get this file is by downloading it from our website at:

waldorfmusic.com/my-hardware

ⓘ You can check your current firmware version by pressing the **Shift** + **Settings** buttons and select the *Info* display page.

To update Crema's firmware:

- Download the lastest update from the MyHardware section in your MyWaldorf account. You need the file named CREMA.UF2 from the archive.
- Make sure, the Crema power switch is set to off.
- Connect Crema via USB-C cable to a computer.
- Hold the **Shift** button while putting the power switch to *On*.
- The display shows „*Crema Bootloader / Waiting…*".
- On your computer, Crema will appear as an external disk drive.
- Use your file manager like Finder on macOS or Explorer on Windows to drag the file CREMA.UF2 to copy it to the external drive called Crema.
- If your file manager asks if you like to overwrite this file, then confirm with *Yes*.
- The display will show the update progress. This should take a few seconds.
- When the update has been completed the display shows *Ready*.
- Now power Crema off and on again to start with the new firmware update.

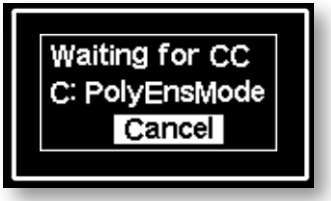
⚠ Do not turn off Crema while the firmware update is in progress!

MIDI Control Change Mapping

Crema allows you to map its parameters to incoming MIDI control change data.

How to map MIDI CC data

- Press **Shift** + **Settings** and use the **Select** encoder to select *Map CC* from the display menu. Confirm by pressing the **Select** encoder.
- The last edited parameter will be mapped to the next incoming CC data send by an external MIDI controller.
- Select *Cancel* to exit the Mapping option.
- To perform a new mapping, turn the desired parameter dial and start again with the first bullet point above.



MIDI Mapping page for Ensemble Mode

How to check and delete your mapped MIDI data?

- Press **Shift** + **Settings** and use the **Select** encoder to select *Mappings* from the display menu. Confirm by pressing the **Select** encoder.
- Use the **Select** encoder to scroll through your MIDI CC mappings.
- If you want to delete a mapping, press the **Select** encoder to delete it and finally confirm by pressing again.
- If no MIDI CC mapping was made, *Nothing Mapped* is displayed.

Glossary

Aftertouch

The majority of contemporary keyboards are capable of generating aftertouch messages. On this type of keyboard, when you press harder on a key you are already holding down, a MIDI Aftertouch message is generated. This feature makes sounds even more expressive (e.g. through vibrato).

Aliasing

Aliasing is an audible side effect arising in digital systems as soon as a signal contains harmonics higher than half the sampling frequency.

Amount

The extent to which modulation influences a given parameter.

Amplifier

An amplifier is a component that influences the volume level of a sound via a control signal. This control signal is often generated by an envelope or an LFO.

Arpeggiator

An arpeggiator is a device that splits an incoming chord into its individual notes and repeats them rhythmically. Most arpeggiators feature different sequence modes to cover a wide range of applications. Typical controls for an arpeggiator are the octave range, the direction, the speed and the clock, which means the repetition interval. Some arpeggiators also feature preset or programmable rhythm patterns.

Attack

An envelope parameter. 'Attack' is a term that describes the ascent rate of an envelope from its starting point to the point where it reaches its highest value. The Attack phase is initiated immediately after a trigger signal is received – i.e. after you play a note on the keyboard.

Clipping

Clipping is a sort of distortion that occurs when a signal exceeds its maximum value. The curve of a clipped signal is dependent of the system where the clipping takes place. In the analog domain, clipping effectively limits the signal to its maximum level. In the digital domain clipping is similar to a numerical overflow and so the polarity of the signal's part above the maximum level is negated.

Coffee Filter

A coffee filter is a coffee-brewing utensil, usually made of disposable paper. It is part of an essential toolkit for survival when working with the Waldorf Crema.

Control Change (Controllers)

MIDI messages enable you to manipulate the response of a sound generator to a significant degree.

This message essentially consists of two components:

- The Controller number, which defines the element to be influenced. It can be between 0 and 120.
- The Controller value, which determines the extent of the modification.

Controllers can be used for effects such as slowly swelling vibrato, changing the stereo panorama position and influencing filter frequency.

Decay

'Decay' describes the descent rate of an envelope once the Attack phase has reached its zenith and the envelope drops to the level defined for the Sustain value.

Envelope

An envelope is used to modulate a sound-shaping component within a given time frame so that the sound is changed in some manner. For instance, an envelope that modulates the cutoff frequency of a filter opens and closes this filter so that some of the signal's frequencies are filtered out. An envelope is started via a trigger – usually a fixed trigger. Normally the trigger is a MIDI Note. The classic envelope consists of four individually variable phases: Attack, Decay, Sustain, and Release. This sequence is called an ADSR envelope. Attack, Decay, and Release are time or slope values, and Sustain is a variable volume level. Once an incoming trigger is received, the envelope runs through the Attack and Decay phases until it reaches the programmed Sustain level. This level remains constant until the trigger is terminated. The envelope then initiates the Release phase until it reaches the minimum value.

Filter

A filter is a component that allows some of a signal's frequencies to pass through it and dampens other frequencies. The most important aspect of a filter is the filter cutoff frequency. The most common type is the lowpass filter. A low-

pass filter dampens all frequencies above the cutoff frequency.

Filter Cutoff Frequency

The filter cutoff frequency is a significant factor for filters. A lowpass filter dampens the portion of the signal that lies above this frequency. Frequencies below this value are allowed to pass through without being processed.

FM (Frequency Modulation)

Frequency modulation synthesis (or FM synthesis) is a form of sound synthesis whereby the frequency of a waveform is changed by modulating its frequency with a modulating source known as an operator.

LFO

LFO is an acronym for Low-Frequency Oscillator. The LFO generates a periodic oscillation at a low frequency and features variable wave-shapes. Similar to an envelope, an LFO can be used to modulate a sound-shaping component.

Low Pass Filter

Synthesizers are often equipped with a lowpass filter. A lowpass filter dampens all frequencies above its cutoff frequency. Frequencies below the cutoff point are not affected.

MIDI

The acronym MIDI stands for Musical Instrument Digital Interface. It was developed in the early 1980s so that diverse types of electronic musical instruments by different manufacturers could interact. At the time a communications standard for different devices did not exist, so MIDI was a significant advance. It made it possible to link any MIDI-equipped device with another through simple, uniform connections.

Essentially, this is how MIDI works: One sender is connected to one or several receivers. For instance, if you want to use a computer to play the Crema, then the computer is the sender and the Crema acts as the receiver. With a few exceptions, the majority of MIDI devices are equipped with two or three ports for this purpose: MIDI In, MIDI Out and in some cases, MIDI Thru. The sender transfers data to the receiver via the MIDI Out jack. Data is sent via a cable to the receiver's MIDI In jack.

MIDI Thru has a special function. It allows the sender to transmit to several receivers. It routes the incoming signal to the next device without modifying it. Another device is simply connected to this jack, thus creating a chain through which the sender can address a number of receivers. Of course it is desirable for the sender to be able to address each device individually. Consequently, there is a rule that is applied to ensure each device responds accordingly.

MIDI Channel

This is a very important element of most messages. A receiver can only respond to incoming messages if its receive channel is set to the same channel as the one the sender is using to transmit data. Consequently, the sender can address specific receivers individually. MIDI Channels 1 through 16 are available for this purpose.

MIDI Clock

The MIDI Clock message determines the tempo of a piece of music. It serves to synchronize processes based on time.

Modulation

Modulation influences or changes a sound-shaping component via a modulation source. Modulation sources include envelopes, LFOs, or MIDI messages. The modulation destination is a sound-shaping component such as a filter or an amplifier.

Note On / Note Off

This is the most important MIDI message. It determines the pitch and velocity of every generated note. The time of arrival is simultaneously the start time of the note. Its pitch is derived from the note number, which lies between 0 and 127. The velocity lies between 1 and 127. A value of 0 for velocity is similar to 'Note Off'.

Panning

The process of changing the signal's position within the stereo panorama.

Pitch Bend

Pitch bend is a MIDI message. Although pitch-bend messages are similar in function to control change messages, they are a distinct type of message. The reason for this distinction is that the resolution of a pitch-bend message is substantially higher than that of a conventional Controller message. The human ear is exceptionally sensitive to deviations in pitch so

the higher resolution is used because it relays pitch bend information more accurately.

Program Change

These are MIDI messages that switch sound programs. Program numbers 1 through 128 can be changed via program change messages.

Release

An envelope parameter. The term ‘Release’ describes the descent rate of an envelope to its minimum value after a trigger is terminated. The Release phase begins immediately after the trigger is terminated, regardless of the envelope’s current status. For instance, the Release phase may be initiated during the Attack phase.

Resonance

Resonance is an important filter parameter. It emphasizes a narrow bandwidth around the filter cutoff frequency by amplifying these frequencies. This is one of the most popular methods of manipulating sounds. If you substantially increase the resonance, to a level where the filter begins self-oscillation then it will generate a relatively clean sine waveform.

Sustain

An envelope parameter. The term ‘Sustain’ describes the level of an envelope that remains constant after it has run through the Attack and Decay phases. Sustain lasts until the trigger is terminated.

Trigger

A trigger is a signal that activates events. Trigger signals are very diverse. For instance, a MIDI note or an audio signal can be used as a trigger. The events a trigger can initiate are also very diverse. A common application for a trigger is to start an envelope.

Volume

The term describes a sound's output level.

USB

The Universal Serial Bus (USB) is a serial bus system to connect a computer with an external device. USB equipped devices can be plugged together while active. The recognition is made automatically.

Wave

In this context, a Wave is a digitally-memorized reproduction of one single wave pass insofar as it is identical to a sample that is looped after one single wave pass. In contrast to the samples in a sampler, all waves in Waldorf Wavetable synthesizers have the same lengths and are played back in the same pitch.

Wavetable

In Crema, an oscillator shape can based on waveform sets called wavetables. You should think of these as a sequence of up to up to 128 single waves. This can be played back in a static way or played through dynamically, which results in their typically interesting sound transformations. If the waves do not differ much, then the wavetable will probably sound smooth and pleasant. If they have a completely different structure then this will result in wild spectral changes.

Technical Data

Power Supply

USB Bus Power (either by optional USB-C power supply or computer USB port)	500 mA

Dimensions and Weight

Width:	252 mm
Depth:	170 mm
Height (incl. controls):	48 mm
Total weight:	0.9 kg

Declaration of Conformity

General Compliance Information

This product meets the key requirements outlined in the European Directives 2014/53/EU and/or 2014/30/EU (Low Voltage Directive: 2014/35/EU; General Product Safety Directive: 2001/95/EC).

A complete copy of the EU Declaration of Conformity is available upon request. Please contact us at the following email address for further details:

support@waldorfmusic.com

FCC Compliance Advisory

Please note that any modifications or alterations made to this device that are not explicitly approved by the responsible compliance authority may result in the loss of permission to operate the equipment.

This product has undergone testing and has been confirmed to meet the criteria for a Class B digital device, as outlined in Section 15 of the FCC regulations. These standards are intended to offer a reasonable level of protection against radio frequency interference in residential settings.

The equipment emits and utilizes radio frequency signals which, if not properly installed and operated according to the provided instructions, could negatively impact radio or television signals. While such interference cannot be guaranteed in every situation, the following actions may help mitigate it:

- Adjust or move the reception antenna.
- Relocate the device.
- Increase the distance between the device and affected equipment.
- Plug the unit into a power outlet on a different circuit than the receiver.
- Ensure all cables are adequately shielded; use ferrite cores or chokes where necessary.
- Consult with your product vendor or a qualified radio/TV technician for additional guidance.

This device adheres to the FCC's Part 15 regulations and may only operate under the following conditions: (1) it must not generate disruptive interference, and (2) it must accept any interference it receives, even if this results in undesired functionality.

FCC Exposure Information

The device complies with the FCC guidelines for exposure to radio frequency energy applicable to environments without special restrictions. Maintain a minimum space of 20 cm (approximately 8 inches) between the RF transmitter and the user's body during setup and operation to ensure compliance.

Product Support

Service & Repair

Crema does not contain any user-serviceable parts. If your Crema develops a fault or needs servicing, please refer to a Waldorf authorized service center. For more information, please ask your musicians dealer or your local Waldorf distributor.

Any Questions?

If you have any questions about your Waldorf product, feel free to contact us. We're here to help.

ⓘ You should definitely read our FAQ, perhaps your question will be answered there.

» Use the support page at our website. This is the most efficient and fastest way to find our FAQ or to contact us. Your questions will be forwarded immediately to the resident expert and you will quickly receive an answer.

support.waldorfmusic.com

» Although we are in the new millennium, you can also write us a letter. It will take a bit longer, but it is just as dependable as an email.

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