tasty chips electronics

GR-MEGA

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GR-MEGA Granular workstation
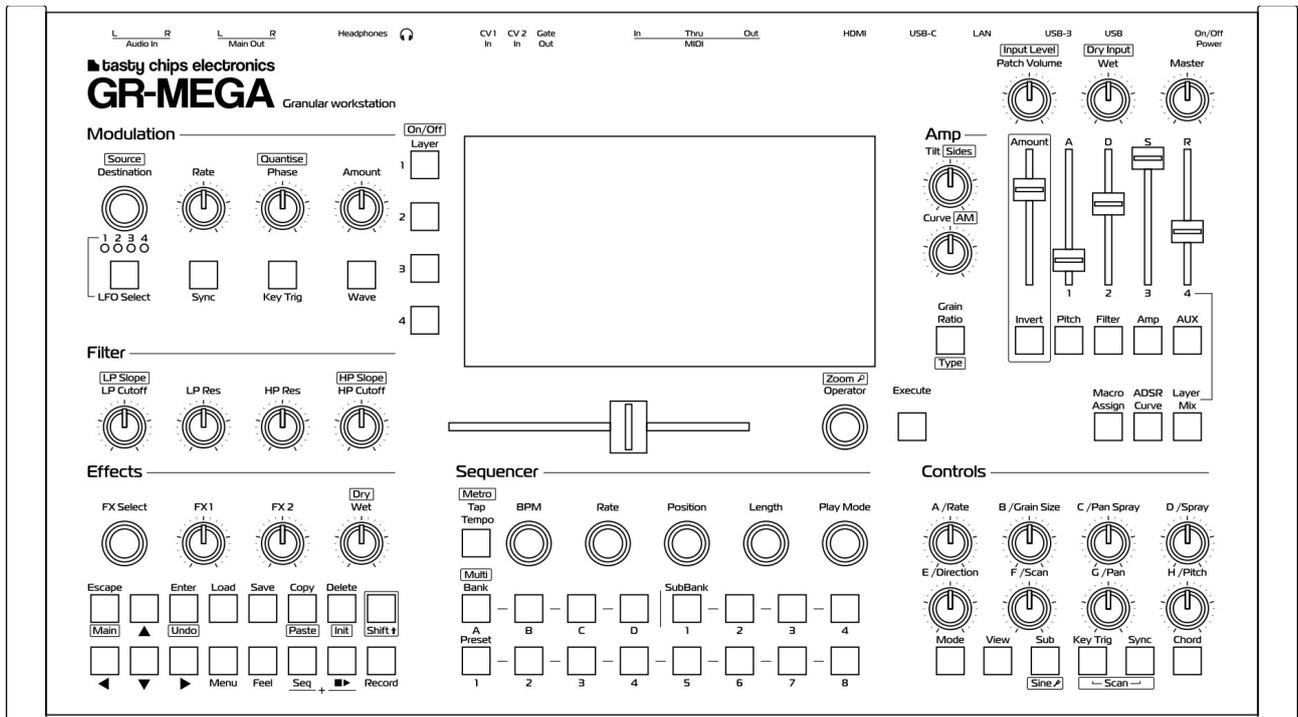
User Manual

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2024-2026

tasty chips electronics

Table of Contents

Document version naming

This document's version is written as:

v<major version>.<minor version>.<patch level>
v<number>.<number>.a-z

The major and minor versions follow the GR-1 firmware versions. The patch level is separate from the firmware version's patch level (a correction in the manual text vs a software fix in the firmware).

Major version updates involve a complete redesign of the user interface and possible feature additions. Minor version updates involve feature additions.

Firmware patch level updates [0,1,2,3,4,..] purely involve bug fixes.

Document patch level updates [a,b,c,d,e,...] involve additions to documentation: yet undocumented features, typos, and errata.

Document version

1.6.a

Applicable firmware versions

1.6.* (1.6.0; 1.6.1; 1.6.2; etc)

Contents of the box

Congratulations!
You are now the proud owner of the Tasty Chips Electronics GR-MEGA granular workstation.

The contents:
• The box with schematic drawing of the GR-1 on its top side.
NOTE: this box features a sticker with serial number GME-XXXX!

• External region-independent AC/DC power supply, boxed.

* Region specific AC cord.

• Quick start guide (single A4 sheet).

* USB stick.

• The GR-MEGA unit, with sticker GME-XXXX on the bottom plate.

The display has a protective sticker on it, which may be peeled off if you prefer.

Important safety and maintenance instructions

Important safety and maintenance instructions

Do not use an AC/DC adapter other than the one that comes with the GR-MEGA, or the ones explicitly recommended by Tasty Chips Electronics. Doing otherwise may damage your GR-MEGA!

Do not connect high voltage input/output connectors to the GR-MEGA.

Avoid this product from falling. Avoid spillage of fluids. Keep it dust free, and keep it out of damaging environments. Keep your GR-MEGA out of reach of children and pets.

Do not open this product. Please contact Tasty Chips Electronics when (part of) your GR-MEGA does not work (when it freezes or resets). Contact information can be found at the end of this manual.

Please treat your GR-MEGA well.

Power supply and power lead

Power supply

Brand: Mean Well
Model: GST40A12-P1J
Model: GSM60A12-P1J (deprecated.. present on older models from 2024 until October 2025. Recommended to replace with GST40A12-P1J)

Power specifications

Input voltage: 80 ~ 264VAC
Output voltage: 12V
Max output current: 3,3A
Barrel socket dimensions: 2,1 x 5,5 mm

Factory furnished AC lead

The GR-MEGA comes supplied with a IEC-60230 C13/C14 cable for your country. The so-called "kettle plug". [https://en.wikipedia.org/wiki/IEC_60320]
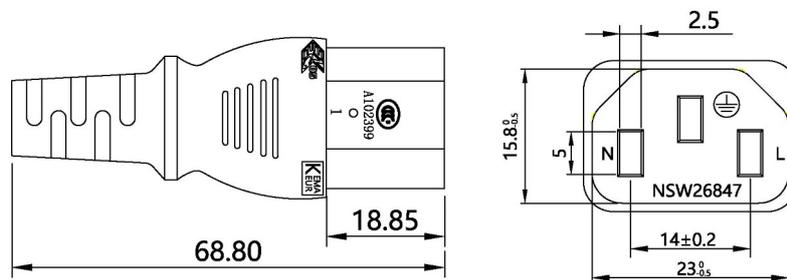
Power specification

Please do not use an adapter other than included in the GR-MEGA box. Using another adapter or power source, may cause damage to your GR-MEGA. It is protected against reverse polarity and over voltage, but extreme voltage will still cause damage! The GR-MEGA accepts heavier 12V adapters than the supplied 40W unit, but please contact us before trying! Badly designed power adapters can degrade noise performance, and even damage the GR-MEGA's hardware.

Reading this manual

How to get the most out of this manual:

The GR-MEGA is a powerful and flexible device, but it is designed to be easy to get into. The display and the controls directly next to the display speak for themselves. But this manual offers a full overview of all the controls. This starts in the chapter Global Overview.

This manual also functions as a detailed reference. The Tasty Chips Electronics Youtube channel [youtube.com/tastychips] features tutorials for the GR-MEGA, although this user manual is still more detailed.

In general the flow of this manual is from beginner and global at the start to advanced and specific near the end. Although we felt that we needed to explain some principles before getting to the tutorials.

The first chapter you should probably read is the quickstart chapter. It gets you up to speed with the basics: powering up and getting the first noises out of the GR-MEGA. In the beginning you can just stick to this quick start and basic tutorials. Should you "bump" into things later on, you can come back here to this chapter and get guidance on what part to read, or just Ctrl+F / Cmd+F and use the manual as a reference work.

The Global Overview chapter provides an overview of all physical controls: buttons, knobs, sliders, the display, as well as the sockets on the back panel.

Since the GR-MEGA has sound engines that require more explanation than for instance analog synthesis or wavetable synthesis, we've written an engine chapter especially for this purpose: "Sound Engines". It is recommended to read this if you are not familiar with granular synthesis or spectral synthesis, aka. "phase vocoding". The sound parameters are described for each sound engine.

Once the user is familiar with how to tweak sound parameters, we explain how data is organized in samples, patches (presets), and projects, and various other data types that can be useful. This is the chapter GR-MEGA Data. Logically, this is followed by how to load and save all these data types in the next chapter.

(Network) File sharing is probably the easiest way to transfer samples and other data between your MEGA and your PC/Mac. This is explained in the chapter File Sharing.

We then explain all the options in all the menus, which is the longest chapter.

Only then are were ready for the tutorials.. Although, you can actually skip directly to this chapter after having read the quickstart, we do recommend getting familiar with the data types first.

To get the most out of your GR-MEGA, we've added a chapter about polyphony.

The later chapters deal with tables of control functions, button combos (shortcuts), and MIDI command tables. A chapter about frequently asked questions and troubleshooting concludes the manual.

Warranty

The GR-MEGA comes with a 2 (two) year warranty on factory defects. Warranty is effective from the date of shipping of the unit. There is no need to register your unit with us. You buy it, you own it, even second-hand. As the owner you're always entitled to the unit's warranty, within the limits specified in this chapter.

For instance, if you buy a second-hand unit that's 1 year old, you still have 1 year factory warranty left.

"Factory defects" covers:

• Missing parts (see previous section)

• Broken parts (for instance: cracked screen, broken buttons, knobs or sliders)

• Non-functional unit ("dead on arrival")

• Semi-functional unit with serious defect (for instance: inability to access any USB stick or USB hard disk, left and/or right channels permanently muted).

In case of such defects, you can reach us at info@tastychips.nl, and claim your unit to be repaired. We'll contact you with all the necessary information for return shipping and will refund all postage costs incurred. Please understand that shipping and repairs may take several weeks depending on the severity of the defect and your location in the world.

We'll first attempt to repair your unit. If, and only if, the unit is damaged beyond repair, we'll send a new unit.

In some trivial cases like missing power adapter, or broken SD card, we will send the replacement parts directly to you, because they may be easily replaced.

Note that opening up the unit and tampering will void warranty. There are exceptional cases where we do allow the product owner to open up the unit, typically for a possible quick fix in the studio, but said person will need to have our explicit permission first. Ask here: info@tastychips.nl

GR-Mega Quickstart

1. Hook up the furnished power brick up to your power outlet.

2. Plug the power brick's barrel jack into the GR-MEGA.

3. The GR-MEGA will now start up, moving through its LEDs one by one. This will take only 2 seconds.

4. After a few seconds more the Tasty Chips logo appears on the screen, quickly followed by progress bar. And then after a few seconds more you'll see the main sample display.

5. Hook up your headphones or your monitor speakers on the back panel. Adjust the patch vol, dry/wet, and master knobs (all three of them) in the top right to suitable levels.

6. Hit the play button, and try the preset buttons to explore other sounds. Enjoy!
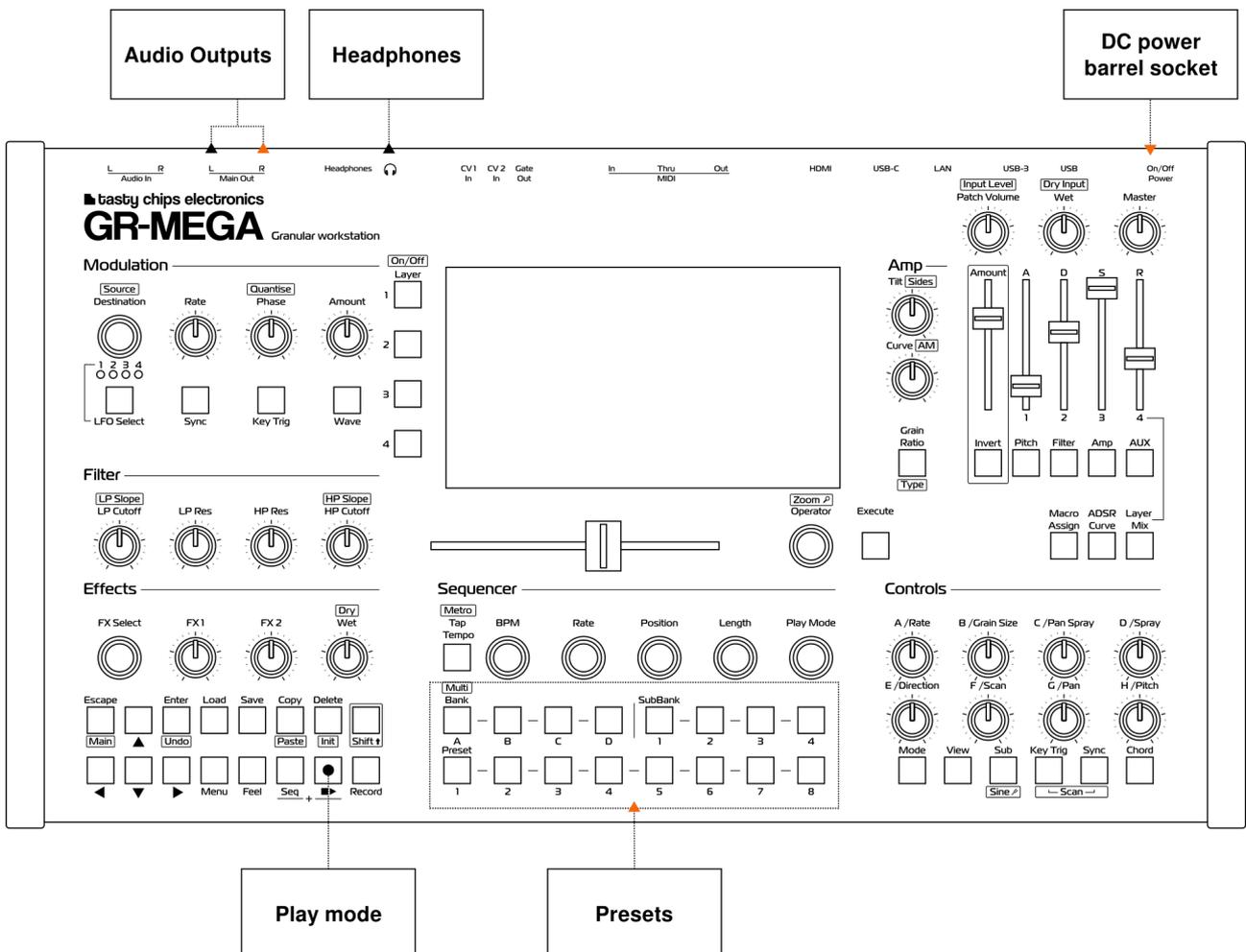
Global Overview

Front Panel
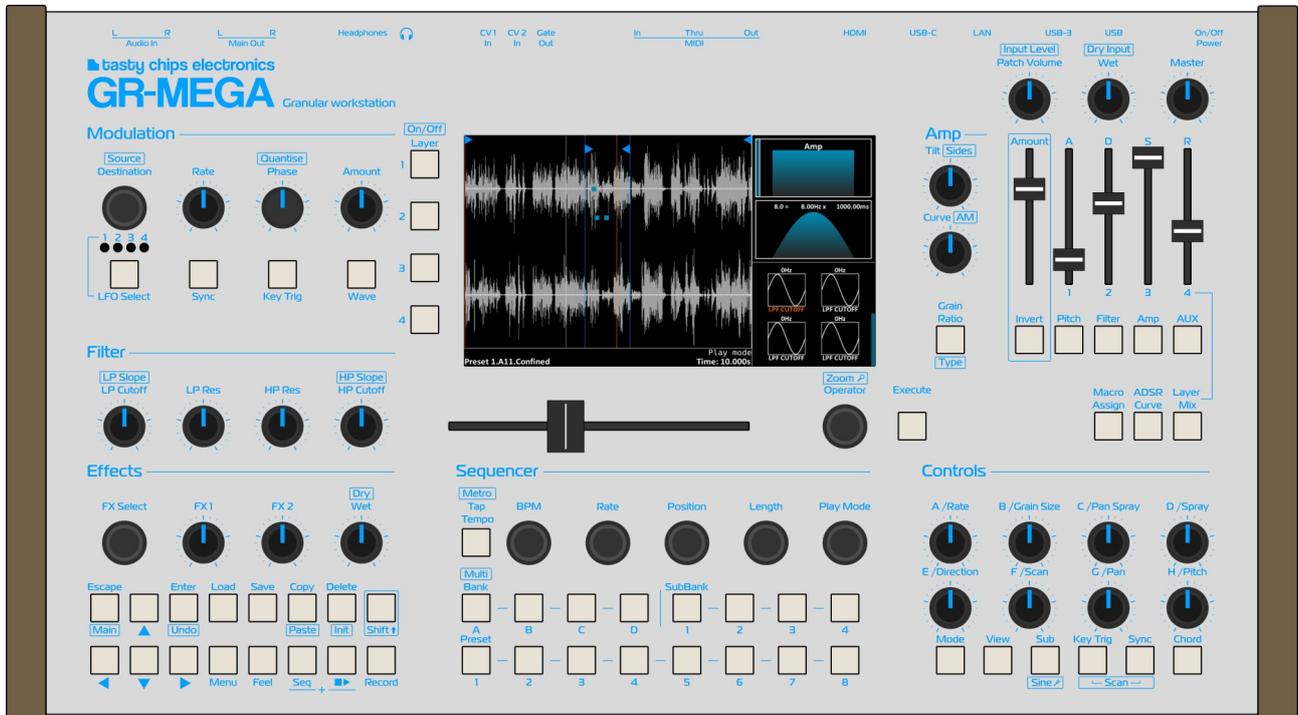
The GR-MEGA front panel offers a rich human interface. Controls are grouped by function. That function is written above the group, along with a separator line. Enough space is present between knobs as to not accidentally touch the neighboring knob.

There's no signal flow represented in the front panel. Some synthesizers have their flow laid out in a line from left to right: VCO → VCF → VCA. The GR-MEGA doesn't have this, but instead has the focus on the central screen. It's easy to start there, and then work your way outwards, starting with the presets (on the bottom) and play button (on the bottom left).

Many controls have got 2 or more functions. Typically you can access the secondary function by holding down [Shift]. Sometimes alternate functions are accessed through modes. These are controlled by physical buttons, encoders or GUI menu controls. Shift functions are mentioned in the text on the front panel, and are enclosed by a rectangle.

The following manual sections describe the function groups one at a time, in descending order of importance.

Display
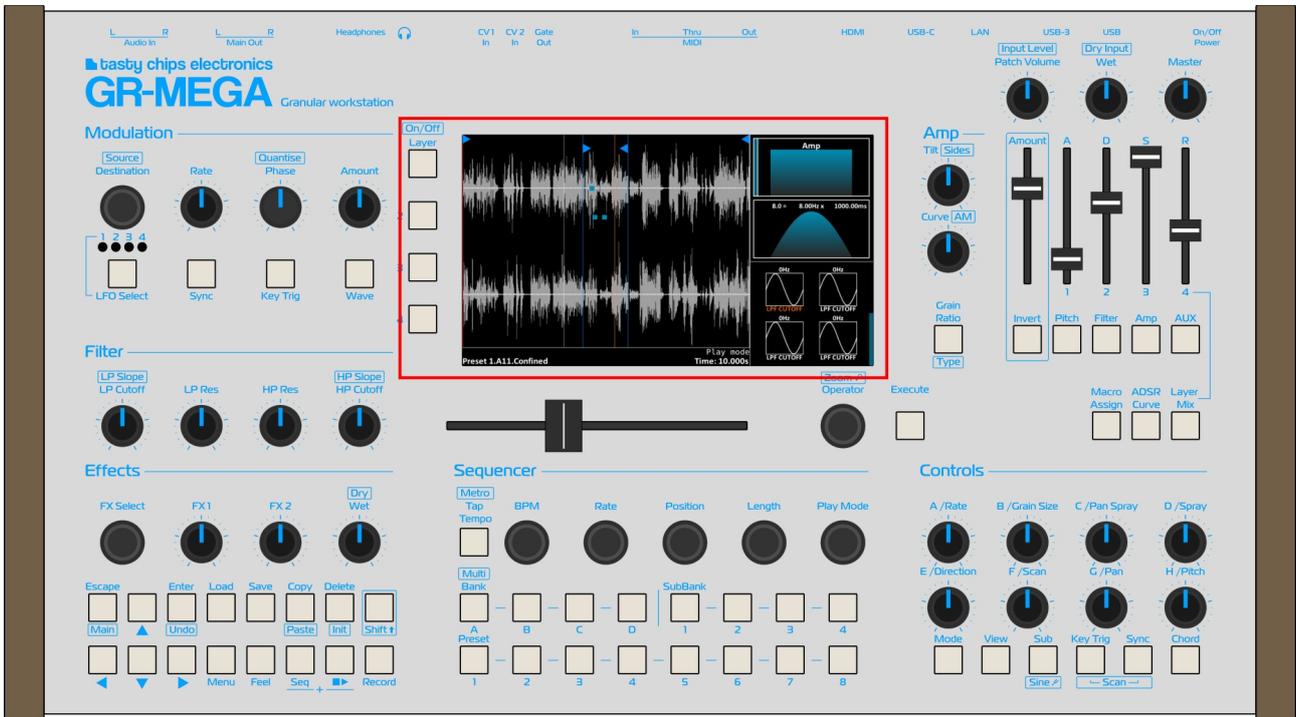
The GR-MEGA display is 7" full color and 1024x600 resolution. It is dimmable, to be suitable for low light conditions. There's a perspex window on top that is also scratch proof. A new GR-MEGA unit comes furnished with an additional plastic screen protector on top. This can be removed by peeling.

Directly left of the display are 4 layer buttons. Focus on a layer by pressing. Toggle it by holding it down or using Shift + layer button.

Position slider and Operation encoder
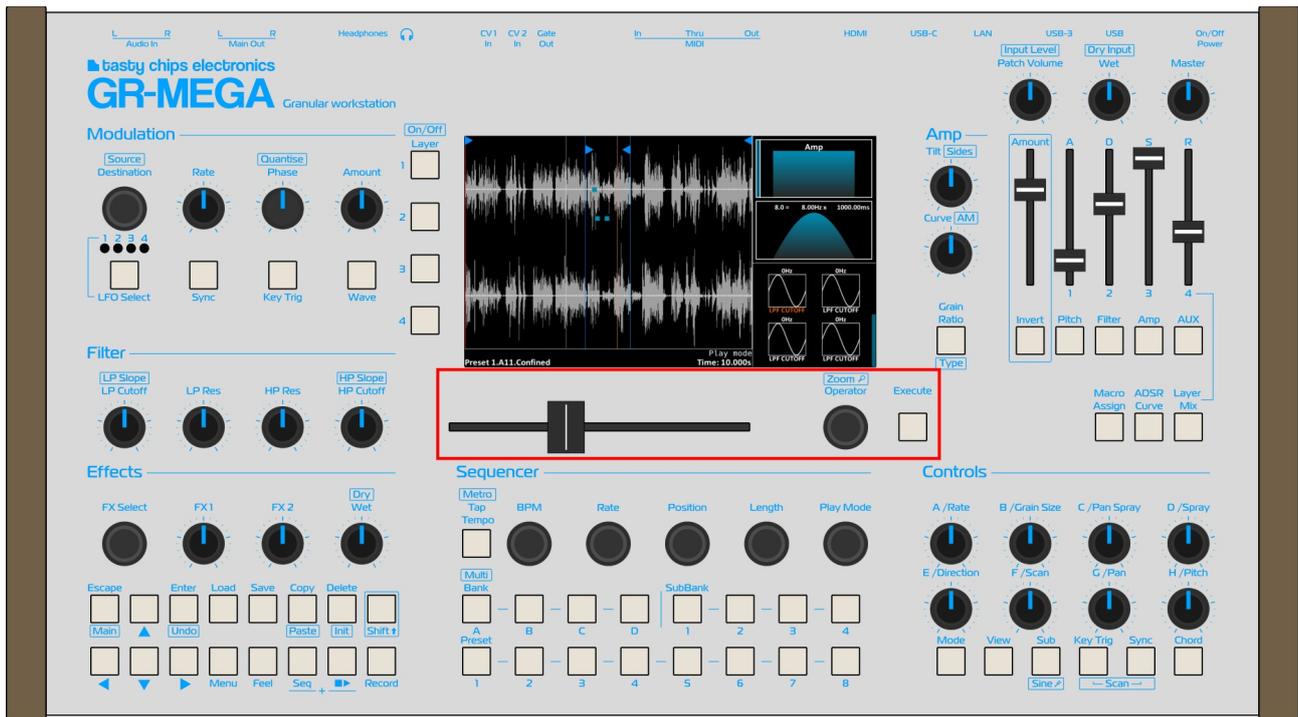
Directly underneath is the horizontal position slider. The travel of the slider is 100 mm. The position slider is essential for many things. First and foremost for setting play position in your samples. While zoomed in, hold [Shift] and move the slider to scrub through the entire sample. It is also used to dial in values in menus.

Next to the slider there's the operation encoder ("Op enc") and the Execute [Exec] button. Turn (Op enc) to select an operation like cropping or setting loop points, then press Exec to execute. Hold [Shift] and turn (Op enc) to quickly zoom in and out. (Op enc) is also used to step values in menus. Holding down shift will typically mean fine adjusting.

Menu, navigation, editing & disk access
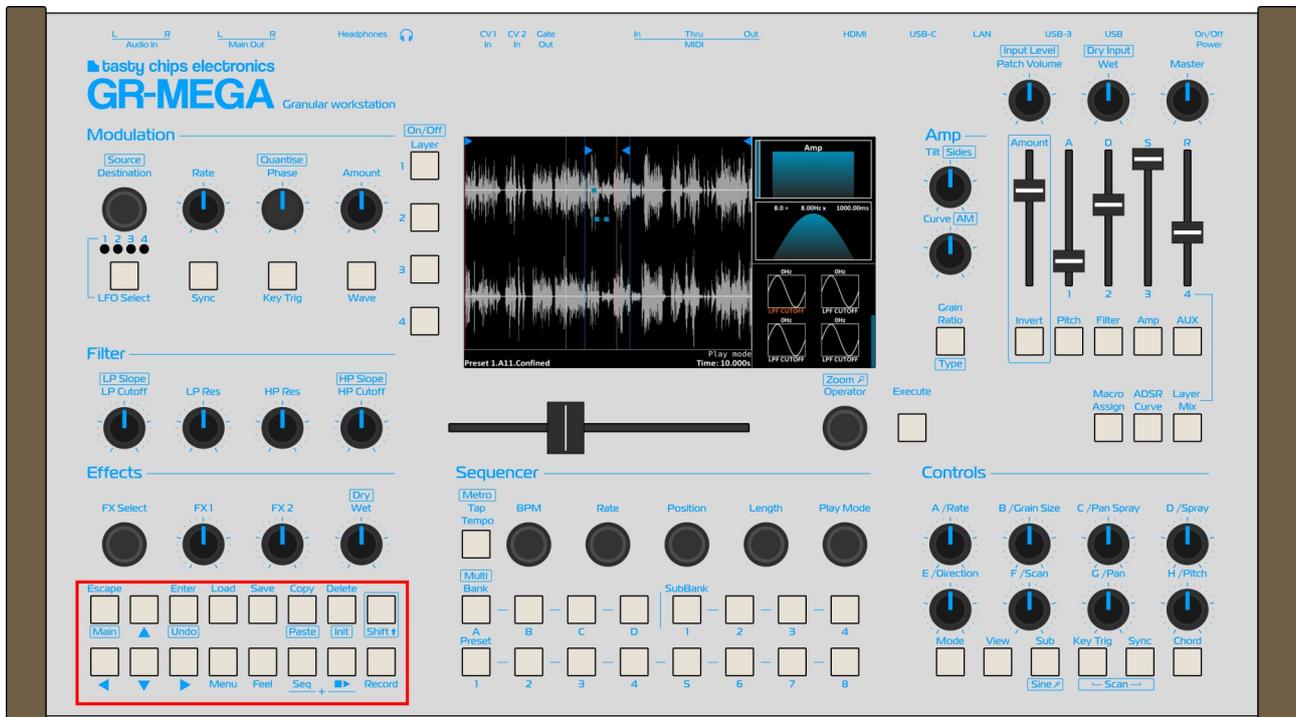
On the bottom left of there's a group of buttons for menu navigation, and disk access.

From left to right:

Navigation: On the far left there are the arrow buttons: left, right, up, and down, as well as escape, and enter buttons. These are used to navigate through menus and dialogs. Escape always escapes from the currently focused widget (button, text box, or slider), or escapes from the menu or dialog completely. The enter button is used to enter menus and text boxes (to start entering text).

[Load] and [Save] buttons call dialogs to load and save, and when said dialogs are open, press again to perform the actual load or save operation.

[Menu]: toggles between menu and main screen. Shortcut: Hold down menu button and press preset buttons 1 through 8 to enter one of the menu tabs directly!

[Feel]: allows you to check all button, knob and slider settings without actually changing them. Just hold down this button and move or press the control you want to check. The value is displayed on the bottom of the screen. The [Feel] button can also be used to query the function of a GUI control. This will show a help bubble.

[Copy]: used to copy, and to paste: hold down Shift and then press Copy. It of course copies different things depending on the menu tab you are in, or if you are in the main screen; then it copies patches.

[Seq]: used in conjunction with Play or Record buttons. Hold it and press Play to play the sequencer instead of just playing a single continuous note. Hold it and press Record to record MIDI notes into the sequencer.

[Delete]: used to delete or initialize data. In the main screen it initializes the patch. In menu screens it initializes different things such as sequencer notes, mod matrix rows. Inside a text box it acts like a backspace.

Play [▶]: plays and stops (press again) a single continuous note. Hold [Shift] and press [▶] to audition the current sample. Can be used in conjunction with sequencer as well. Hold down [▶] for 3 seconds to turn all sound off, like a panic button.

[Record]: record audio (when enabled in sampling menu), or record sequencer when Rec button is held down. Press Record again to stop recording.

Presets & banks
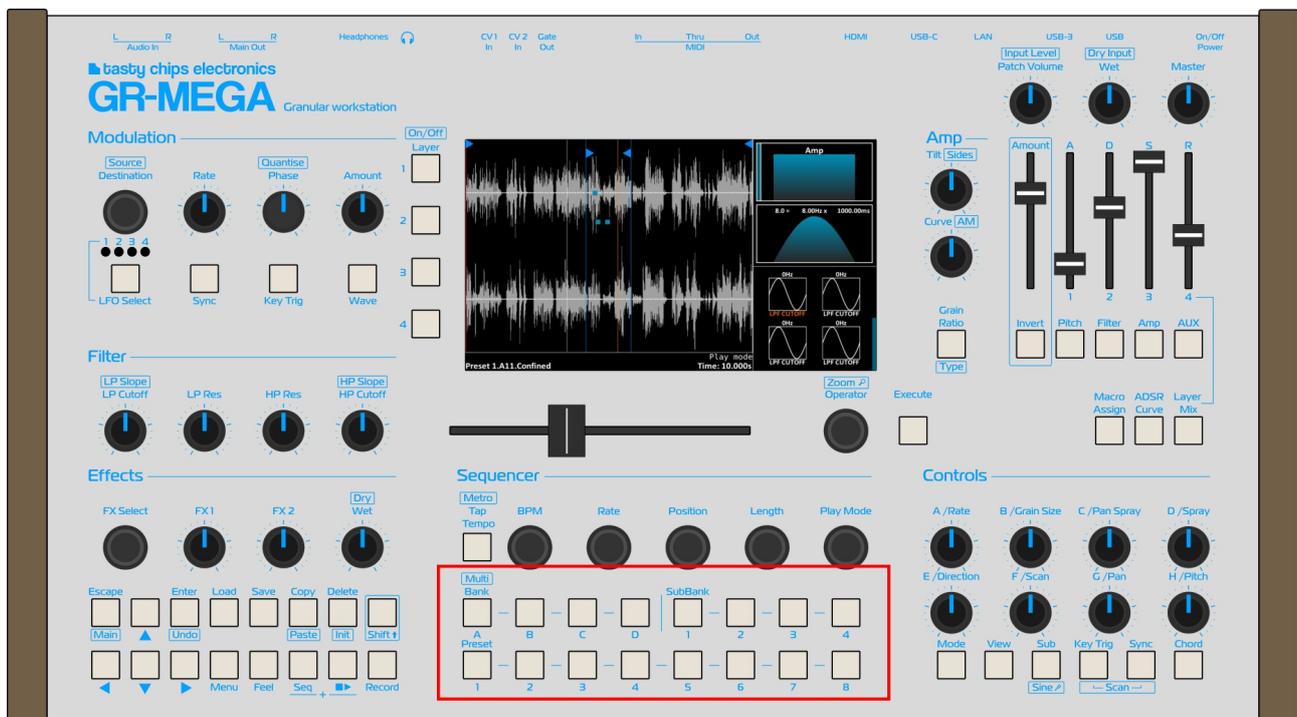
On the bottom center there are 16 buttons. They're marked: Bank, SubBank, Preset. Each bank has 32 presets, each subbank has 8 presets. In total you can directly switch to 128 presets with these controls.

Holding [Shift] while pressing one of these buttons will switch to multi timbral patch stack 1 .. 16. In the system menu you can toggle "Fast MT Select" to reach all 128 stacks, by pressing bank, subbank, and preset similar to setting a preset (starting firmware 1.1).

These buttons can also be used to change the sequencer position (lower row) or bar (upper row). [Seq] + [▶] have to be lit.

Sound engine controls (ABC knobs)
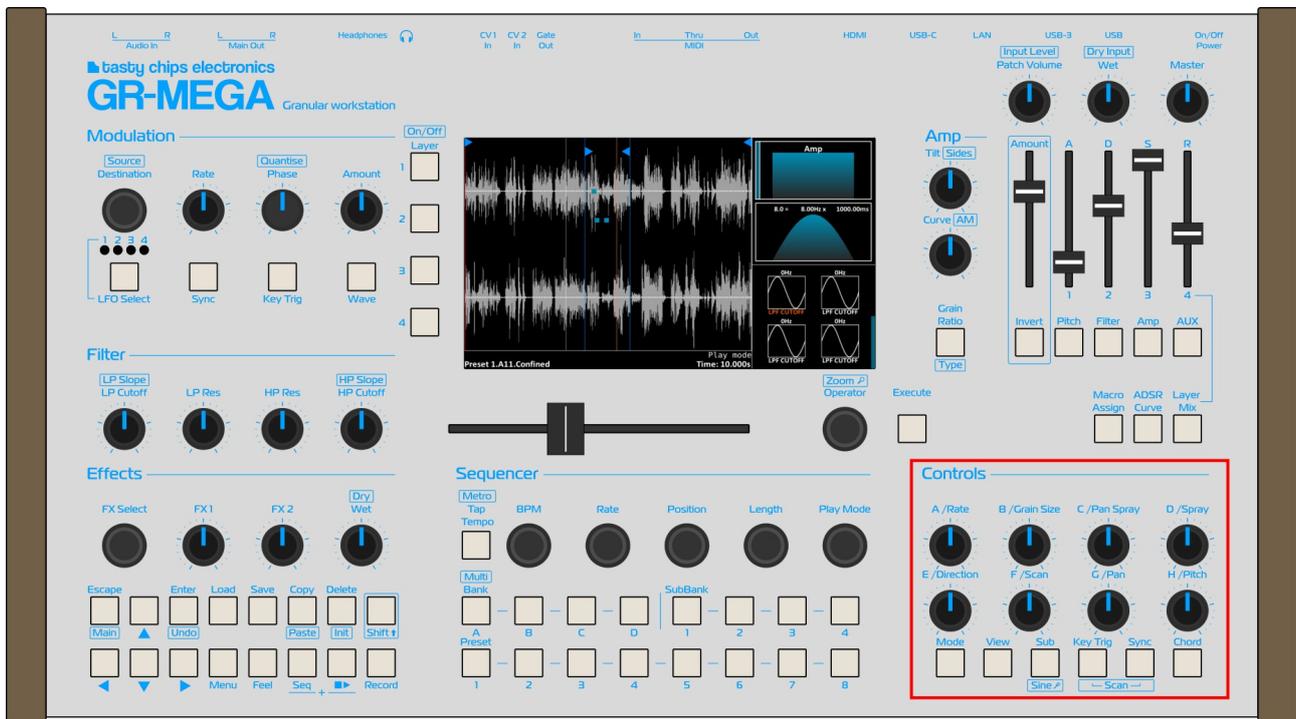
On the lower right you have 8 knobs. These control granular parameters, and are fun and powerful to tweak.

On the bottom there are buttons toggle sync of these parameters, change synth engine, and toggle chord mode.

The top knobs are unipolar: simply taking the setting from 0 to max. The bottom row is bipolar and has a "center detent". They snap at 12 'o clock. These have functions like panning and direction: stuff that has a neutral center.

Each engine has different functions for these knobs, but they are often very similar. Scan and Pitch are always the same. Once you get to grips with these knobs in one engine (say granular), they make sense in other engines as well (for instance sampler).

Amp section
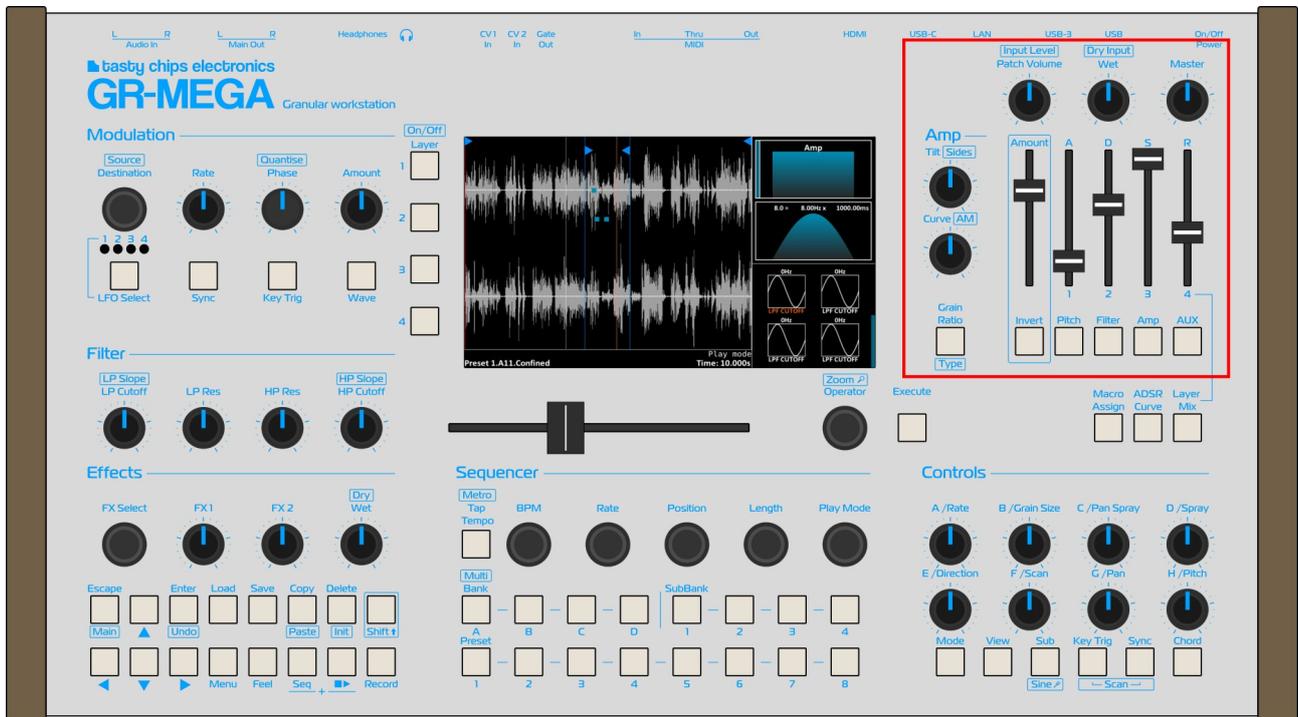
In the top right we find the grain window and envelope controls.

At the very top there are 3 knobs. These are volume setup, and mixer controls: Patch level, Wet/Dry, and Master:

* (Patch level) sets patch volume. Hold Shift to change audio input level. This is recalled from a patch.

* (Wet/Dry) sets wet granulated volume. Hold Shift to set dry audio input volume. Useful when the MEGA is used as a (granular) live audio FX unit. This is a system wide setting.

* (Master) sets the master volume. This is a system wide setting, and a hard control that always shows the actual master volume.

The curve and tilt knobs control the grain window. Use shift with these knobs to tweak the window even more. [Shift] + [Ratio mode] button (directly underneath these knobs) to toggle between GR-MEGA window type and GR-1 type for compatibility (and fine control over the attack and release timings).

The envelope controls are amount + ADSR. There are several buttons to switch to Pitch, filter, amp, or aux envelope. You can also invert the envelope and you can set the curve on every stage of the envelope. Press the [ADSR Curve] button for this.

The final button for the Amp section is [Layer Mix]. This turns the ADSR sliders into volume controls for layers 1, 2, 3, and 4.

Filter controls
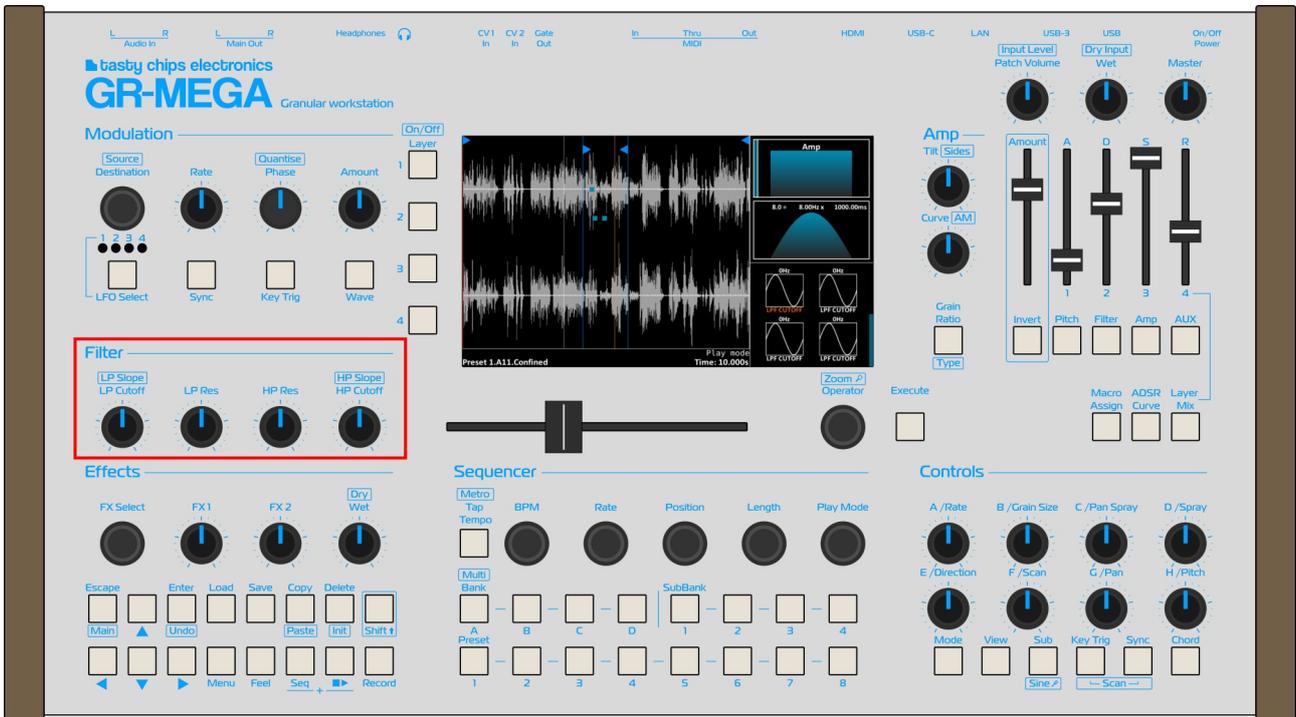
On the left there are 4 filter knobs: LPF cutoff, LPF resonance, HPF resonance, HPF cutoff. There is one LPF and one HPF filter per voice.

Modulation section
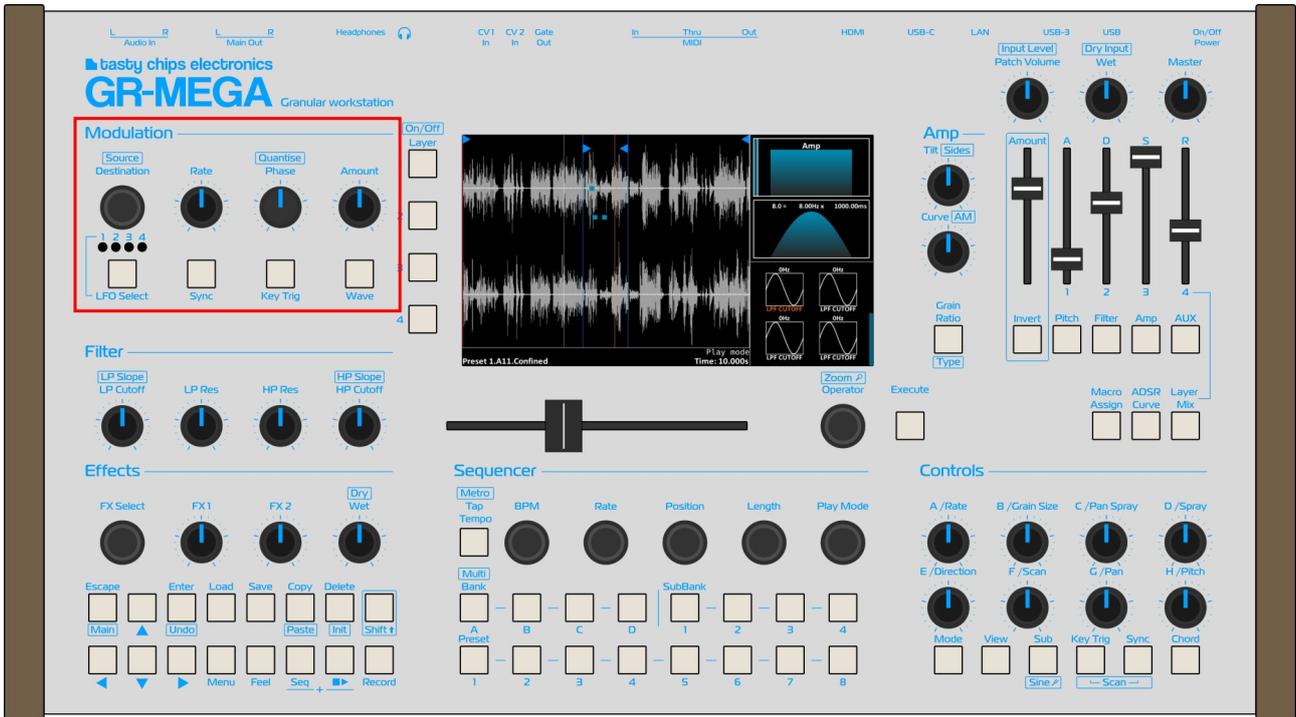
On the top left you'll find 4 knobs and 4 buttons. These allow you to:

Top row - knobs

(Destination)	Select destination
[Shift] + (Destination)	Select source
(Rate)	Set LFO rate 0..50Hz, set LFO rate division when sync
(Phase)	Set LFO phase
[Shift] + (Phase)	Quantize LFO phase
(Amount)	Set LFO amount, bipolar: left = -100%, right = +100% ..or set modulation source amount when source other then LFO is active.

Bottom row - buttons

[LFO Select]	Select LFO 1..4
Hold [LFO Select] + (knob)	Assign destination to current LFO
[Sync]	Toggle LFO sync
[Key Sync]	Cycle LFO keysync: OFF, LEGATO, ON
[Wave]	Cycle through LFO waveforms: sine, saw up/down, triangle, random, square
[Shift] + [Wave]	Toggle unipolar and bipolar

Sequencer section
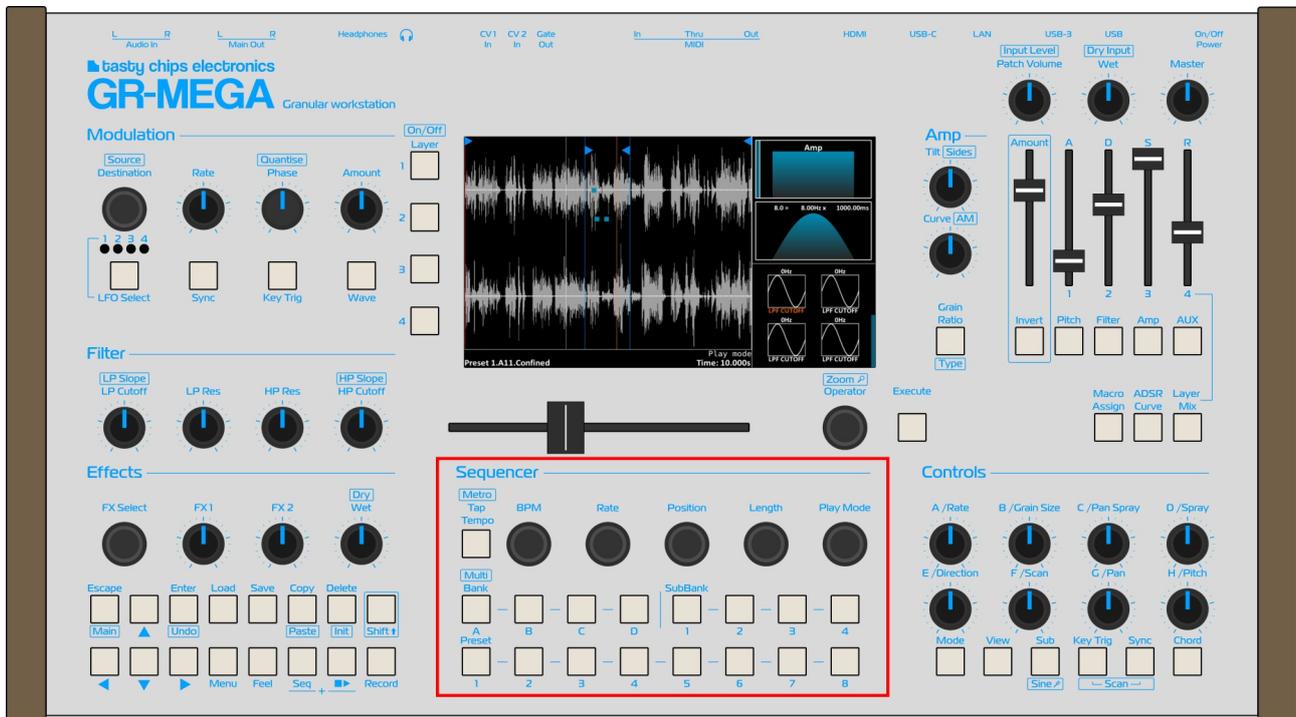
In the bottom center there's a row with a [Tap Tempo] button and 5 knobs: BPM, Rate, Position, Length, Play mode. Most speak for themselves. Rate sets the time signature: ¾, 4/4, 6/8, etc. Play mode does forward, reverse, random, etc.

Secondary functions of the sequencer knobs:
[Shift] + (Rate):   increase or decrease modulation slew time
[Shift] + (Position): transpose sequencer
[Shift] + (Play):   increase or decrease sequencer drunkness

Drunkness influences the chance and of a misstep, and the size of the misstep.

Press [Tap Tempo] 4 times to accept a new tempo. [Shift] + [Tap Tempo] toggles the metronome ON or OFF.

When the sequencer is running: when both [▶] and [Seq] buttons are lit, you can press Preset buttons to jump to any step, 1 .. 8, in the current bar. The Bank buttons jump to another bar.

Hold [Seq] and press Play [▶] to toggle the sequencer ON/OFF for the current layer. Hold [Seq] and press Layer buttons 1..4 to toggle the sequencer ON/OFF for a chosen layer. Pressing Play [▶] after this will then only start the sequencers for the layers it was enabled in.

Hold [Seq] and press the bank, and preset buttons to switch to another preset, while the sequencer is running.

Macros
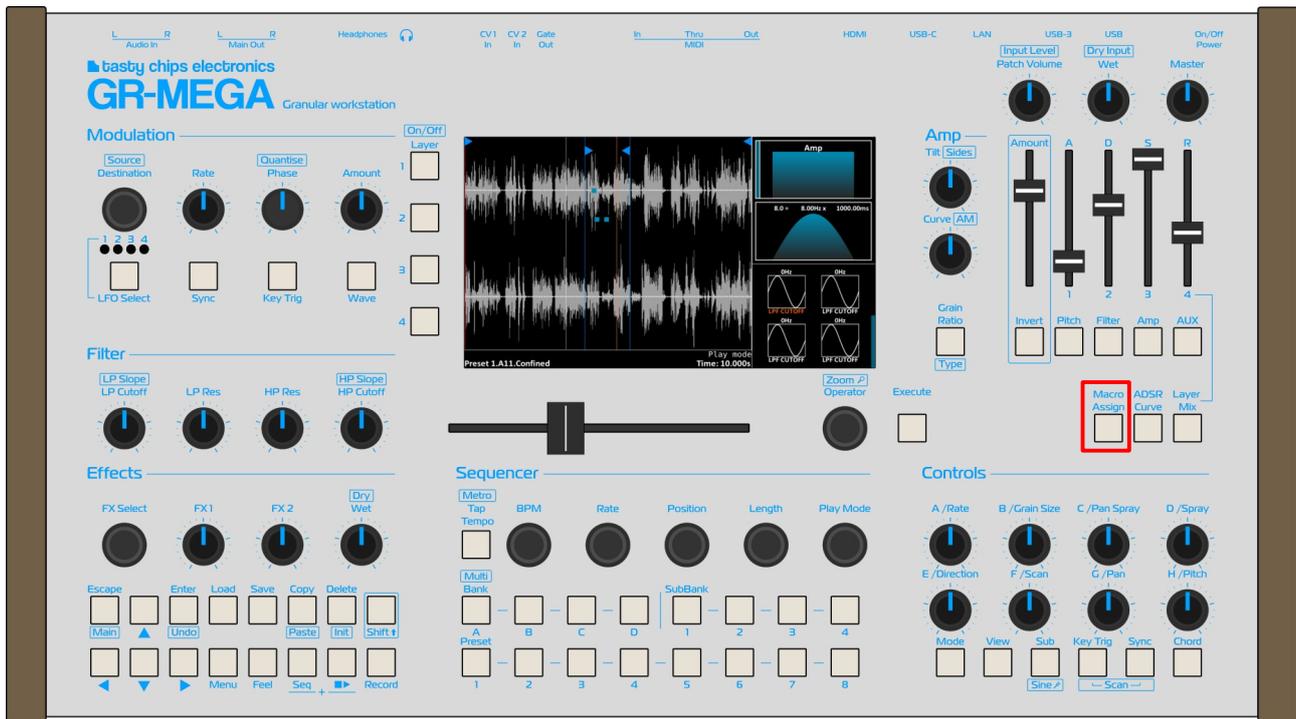
Macros are used to control multiple parameters with a single fader. The GR-MEGA has a complete macro system with start/end ranges, curve, and polyphonic modulation. It has a macro menu for a complete oversight of all 10 macros. But you don't have to enter the macro menu at all. You can setup macros by only using knobs and buttons and the main screen.

Press and release [Macro Assign], then use vertical faders (also with [Shift]) to control Macro1..10

Hold [Menu] + press [Macro Assign] to access the macro menu. Works like the matrix menu, including copy, paste, delete functions

Macro levels (and their modulations) are controlled by the 5 vertical faders. Use [Shift] to access macros 6..10.

Assignment parameters hands-on by holding the [Macro Assign] button and turning a knob of your choice. All 140 modulation destinations are supported. This includes FX parameters. This adds the assignment to your current macro. Keep turning the knob to expand the start, end range.

Hold [Macro Assign] and press ▲/▼, or turn (Op enc). This steps through available Macros 1..20

Hold [Delete], and press [Macro Assign]. This deletes currently selected macro.

Hold [Macro assign], and press [Invert]. This swaps start and end. In order words, it reverses the range.

The macro side panel that shows all macro destinations for the currently touched macro. Use [Shift] + [View] to change side panel.
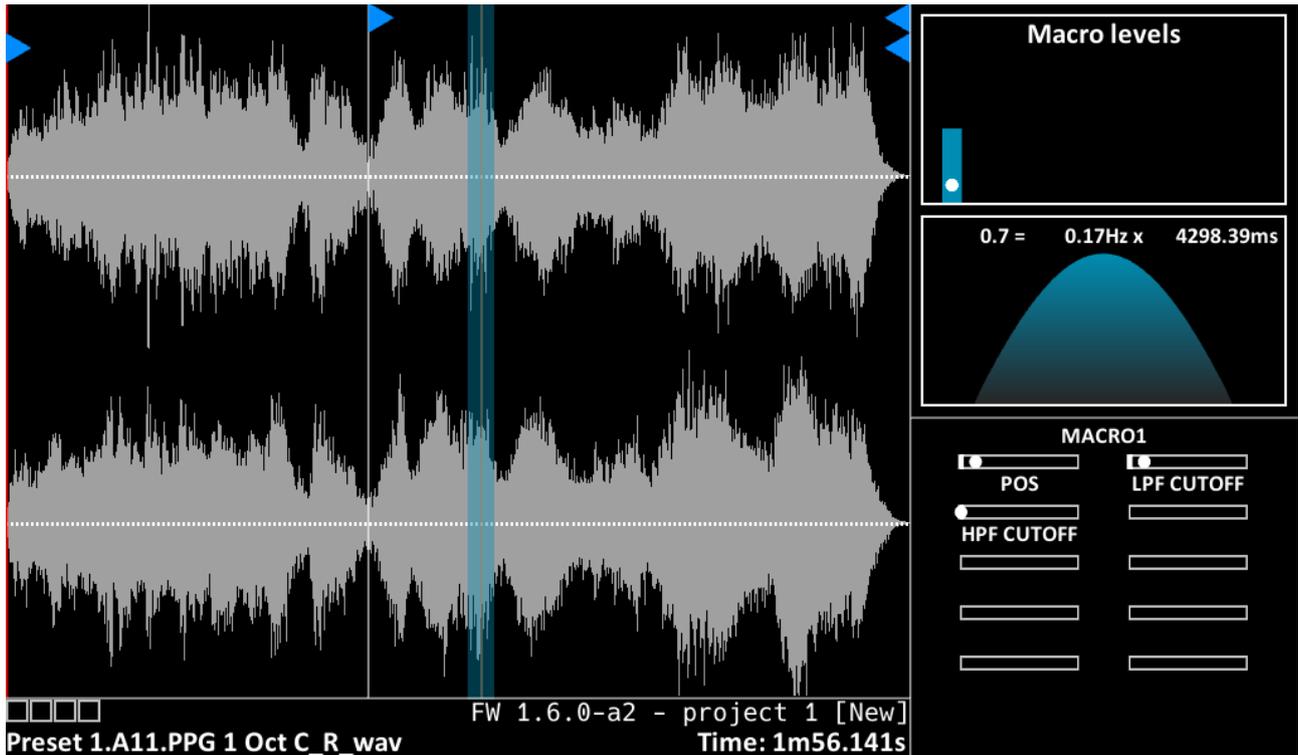
As you can see in the screenshot, the top right section displays the macro levels. The little white balls denote (global) macro modulation. On the bottom right, the macro parameters for the current macro (in this case macro 1) are displayed, also with modulation, and polarity.

When [Macro assign] is lit, hold down [LFO Select], and move one of the vertical sliders to assign a modulation source to a macro. You will now see a little *white ball* gliding along the blue macro level bar.

Macros are configured and stored per patch. We don't know if this will be made global some day, but maybe 10 macros for an entire project isn't enough.. In any case you can copy patch templates to other patches to have the same macros per patch.

Back Panel
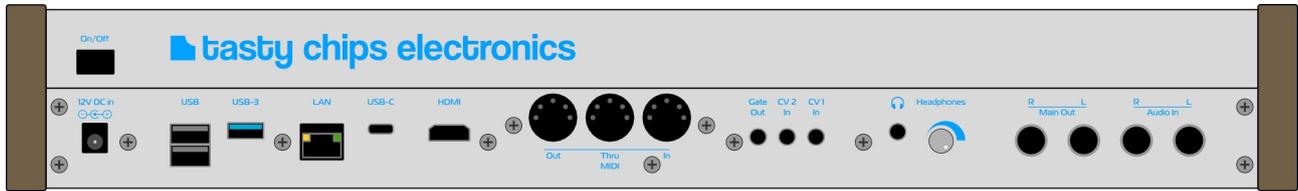
CV & Gate

There are 2 CV inputs on the GR-MEGA, which can be used as mod matrix modulation sources. The inputs have the typical Eurorack -5V .. +5V range. The inputs are protected and buffered.

The CV's are modulation sources. They're suitable for LFO speeds and low (sub-bass) audio range.

The gate output provides a gate signal (5V) when the GR-MEGA receives one or more note-on messages, or when its [▶] button is active. The gate output is against over current (shorting to ground).

Audio Outputs (L/R)

These are two balanced ¼" (6.35mm) TRS (Tip Ring Sleeve) phono jack sockets, that output the left and right channels of the master mix. We recommend you only use TRS cables, as TS cables are sensitive to noise, especially when they are long. The full output level is "pro level": +4 dBu. The outputs are protected by clipping diodes.

It has close to 114 dB signal-to-noise (SNR) and an almost completely white noise floor.

Headphone connection

This is a 1/8" (3.175mm) TRS (stereo) mini jack socket. Next to it is the volume knob.

The volume level is sufficiently loud, although a bit less than some dedicated external headphone amplifiers. Still, please be careful and keep in mind you can damage your ears over time.

NOTE: The headphone amp is optimized for 32 ohm headphones. High impedance headphones will sound quite soft.

Audio IN (L/R)

These are two balanced ¼" (6.35mm) TRS (Tip Ring Sleeve) phono jack sockets, representing the left and right input channels. We recommend you only use TRS cables, as TS cables are sensitive to noise, especially when they are long. The full input level is "pro level": +4 dBu. TBV!

It has close to 114 dB signal-to-noise (SNR) and an almost completely white noise floor.

Note that these inputs are not pre-amplified. They are not suitable for hooking up your guitar or microphone directly. Please use a pre-amp if you want to do this. Note that amplified output levels should remain below 5VPP, to avoid damage.

MIDI

The GR-MEGA has full set of 3 DIN-5 MIDI sockets: MIDI In, MIDI Out, and MIDI Thru. MIDI thru is a hard thru, which means it has almost no latency (in the microsecond range). MIDI in optically isolated as per MIDI standard, meaning there's no chance of noise entering the GR-MEGA from a connected MIDI controller.

DIN MIDI is still common and very reliable, but if you want to send many automations from your DAW, or large sysex dumps, it is recommended to use USB C instead.

USB-A

The GR-MEGA has 3 USB A ports:

1 x USB 3.0 port, which offers 0.9A and up to 5GBps speed. Suitable for fast USB sticks or even drives, and for supporting power hungry audio interfaces (to be supported in future firmware versions).

2 x USB 2.0 ports. These are intended for low power devices such computer keyboards, and MIDI controllers.

The USB A ports offer host mode only. This means that you can only connect USB devices here. Since a PC and Mac are typically USB hosts, that means they cannot be connected here! Use USB C instead.

USB C

The USB C port is intended to connect your PC/Mac to. It runs at USB 2.0 speed: 480Mbps max. It supports MIDI data, multichannel audio in and out, and file sharing. Use it to hook up your PC/Mac (with your favorite DAW) to your GR-MEGA.

If you use a modern Mac with USB C ports, please hook it up as follows. A direct USB-C connection will not work! You will need a cable + adapter combo. We suspect this has something to do with incomplete USB 2.0 support on the Mac's USB C ports. As far as we have tested, PC's don't have this issue, and can be hooked up directly with a single USB C cable. Please note that the hub or adapter/dongle should be on the MAC side!

[GR-MEGA's USB-C port] ↔ [USB C-to-A cable] ↔ [USB A-to-C adapter] ↔ [Mac]

| GR-Mega (USB-C) | USB-C / USB-A Cable | USB-A / USB-C HUB- or Adapter | Macbook (USB-C) |
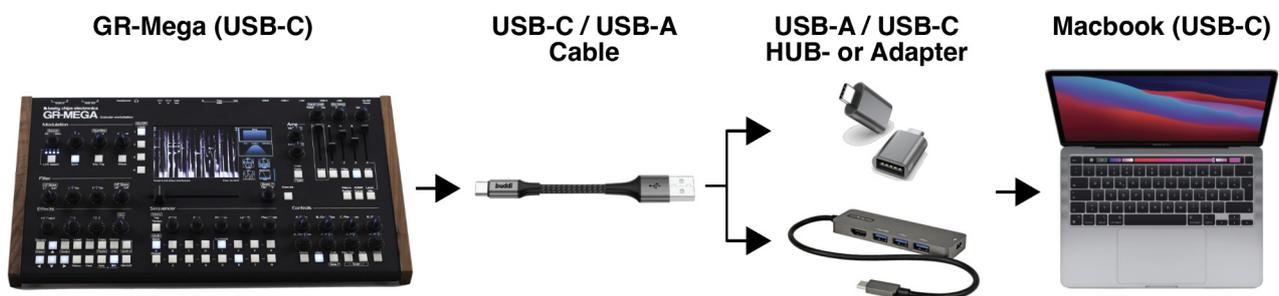
This port is resistant against injection of noise from your PC/Mac.

Multichannel USB audio, is stable since firmware v1.3, but when using on Mac, it is recommended to setup as follows: System menu → IO → USB C Mode → AUDIO ONLY. If you choose AUDIO + MIDI + FILES, there may be audio drop outs when using high polyphony and many effects.

This port does not power the GR-MEGA. The only way to power the GR-MEGA is via the 12V socket on the extreme right of the back panel.

HDMI

The GR-MEGA can output its internal display over HDMI, so you can hook up a big monitor or TV. The resolution is 1024 x 600, 60 Hz.

On older GR-MEGA's (pre October 2025) please note that you will need to:
1. power down,
2. then attach HDMI,
3. power up again.

On newer models (starting October 2025) you will be able to switch between internal and external display from within the system menu.

The internal display will then only display the splash screen GR-MEGA logo, nothing else. All the action will be on the external monitor.

Should you wish to use to the internal display again, then power down, detach HDMI, and power up again.

We could potentially support beamer-friendly 720p resolution, but we'll need users to "chime in" for this feature. Please contact us if you're interested.

HDMI allows digital multi-channel audio output as well. It is not used at this point, but again, please contact us if you're interested.

LAN

This is a standard 1 Gbps (gigabit) RJ-45 ethernet interface. It can be used to get firmware updates from our website, and for file sharing: accessing the files on the GR-MEGA from your PC or Mac.

Power button & DC adapter

Once the power is plugged in,

* the GR-MEGA will immediately start up (pre October 2025 models),

* or run a LED test and enter stand-by (models from October 2025 and newer).

Powering up (models pre October 2025):

1. Hook up the DC adapter to AC power.
2. Insert the adapter's barrel socket into the GR-MEGA's barrel socket.
3. The GR-MEGA will now power up and show a Tasty Chips logo on the display. It will load the last used project, and then show the main screen with a sample waveform.

WARNING: Do not use an adapter other than the one that comes with the GR-MEGA. If you insist, please contact us first.

Shutting down
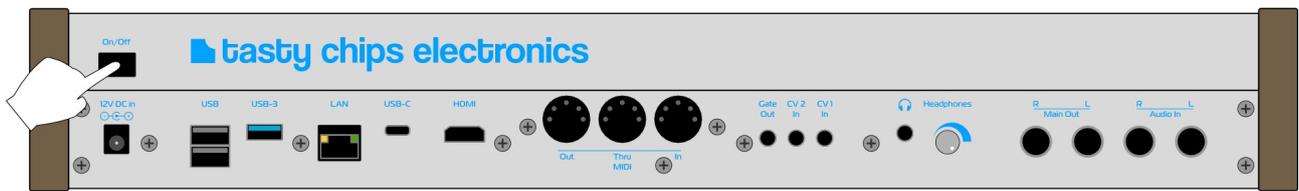
The barrel jack should not be pulled from the socket without first doing a clean shutdown. This can lead to loss of data! A clean shutdown is done as follows:

1. Make sure the GR-MEGA is up and running. The display should show the graphical user interface.

2. Push and hold the power button, and hold it for 2 seconds. If you let go, the shutdown will be canceled.

3. The GR-MEGA will now save any unsaved changes, if you configured it to do so, and fully shut down. The button lights will dim down slowly, and turn off completely. Early models dimmed them down to just barely visible. Newer models turn them off completely.

4. When the lights have dimmed down, you can unplug power if you want. If you don't unplug, the GR-MEGA is in stand-by. The display, CPU, and all connected USB devices are powered off. It will consume about 4 Watt, or about half of a modern LED bulb. The CPU fan will stay on, but we may change it to turn off in future firmware.

Powering up from stand-by

Shortly press the power button. The buttons will light up after 2 seconds. Then wait about 12 seconds before the display activates.

Powering up (models October 2025 and newer):

1. Hook up the DC adapter to AC power.
2. Insert the adapter's barrel socket into the GR-MEGA's barrel socket.
3. The GR-MEGA will run a LED test, and then enter stand-by.
4. Press the power button on the back.
5. The GR-MEGA will now power up and show a Tasty Chips logo on the display. It will load the last used project, and then show the main screen with a sample waveform.

WARNING: Do not use an adapter other than the one that comes with the GR-MEGA. If you insist, please contact us first.

Shutting down
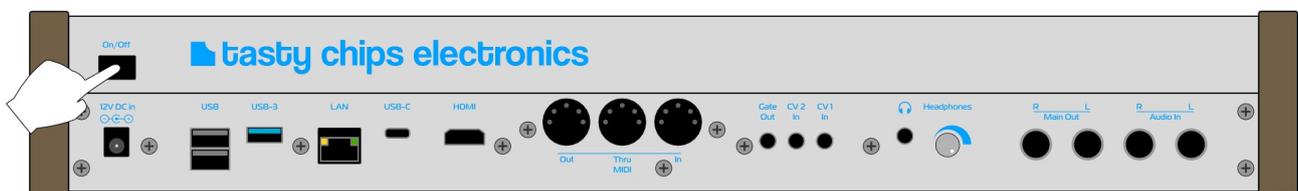
The barrel jack should not be pulled from the socket without first doing a clean shutdown. This can lead to loss of data! A clean shutdown is done as follows:

1. Make sure the GR-MEGA is up and running. The display should show the graphical user interface.

2. Shortly press the power button. A confirmation dialog is prompted. Confirm the shutdown dialog.

CAUTION: Holding the power button for 5 seconds will cause a HARD shutdown, where your work will not be saved, and possibly data corruption could occur.

3. The GR-MEGA will now save any unsaved changes, if you configured it to do so, and fully shut down. The button lights will dim down a bit, and turn off after 2 seconds.

4. When the lights have turned off, and the GR-MEGA splash screen has disappeared you can unplug power if you want. If you don't unplug, the GR-MEGA remains on stand-by. The display, CPU, CPU fan, and all connected USB devices are powered off. Stand-by power less is than 1 Watt.

Powering up from stand-by

Shortly press the power button. The buttons will light up immediately. Then wait about 10 seconds before the display activates.

GR- Mega signal path

Audio in — stereo / mono

SPL

SND ENG
Sub osc
LPF → **HPF**

FX → **M-S** → **Patch vol**

voices

layers

Layer mix

Wet

Dry → **+**

Tuning sine Metronome

Audition → **Master vol**

USB C

Analog out
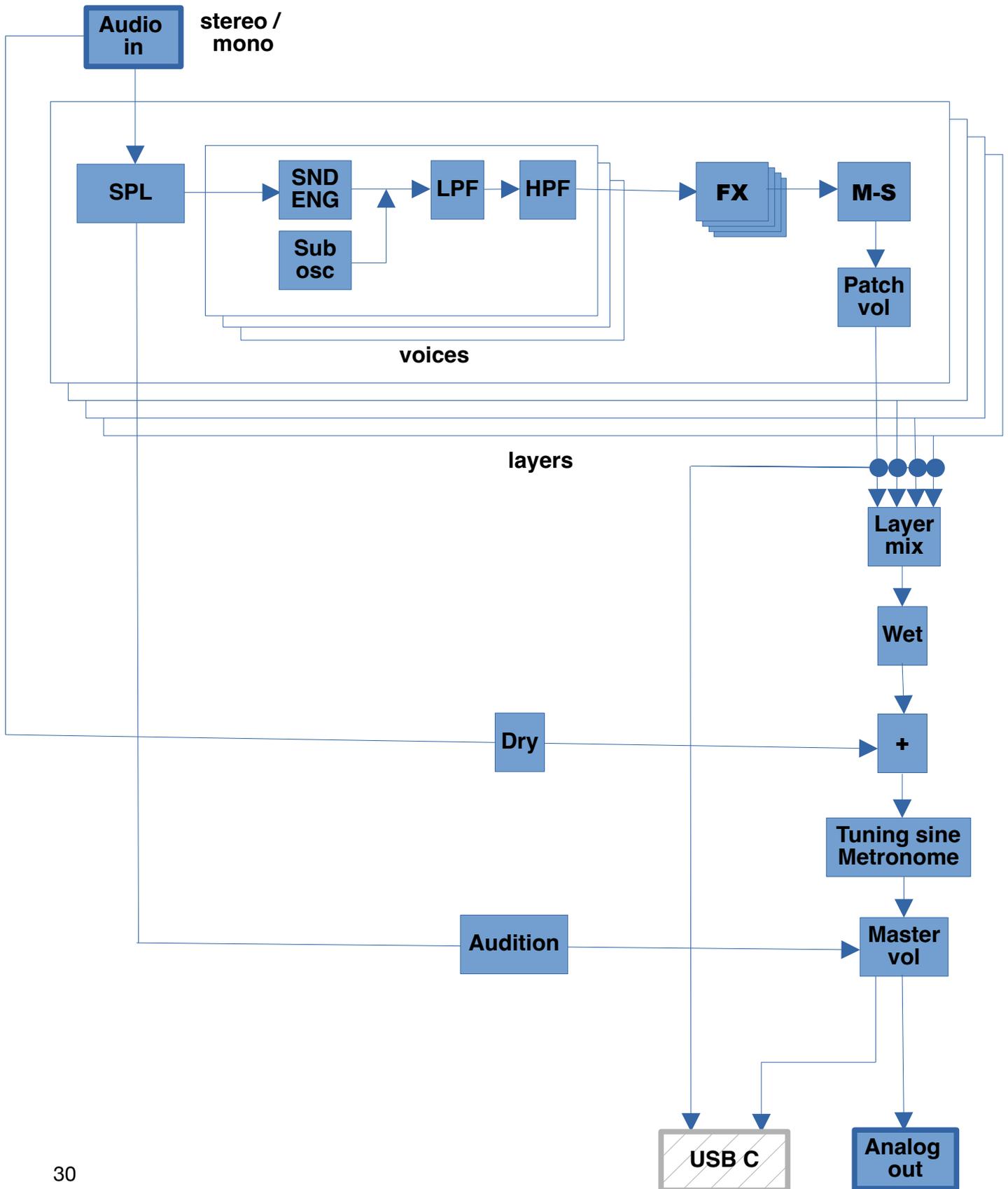
The main screen

Waveform display

Envelope

Window

LFO Side bar
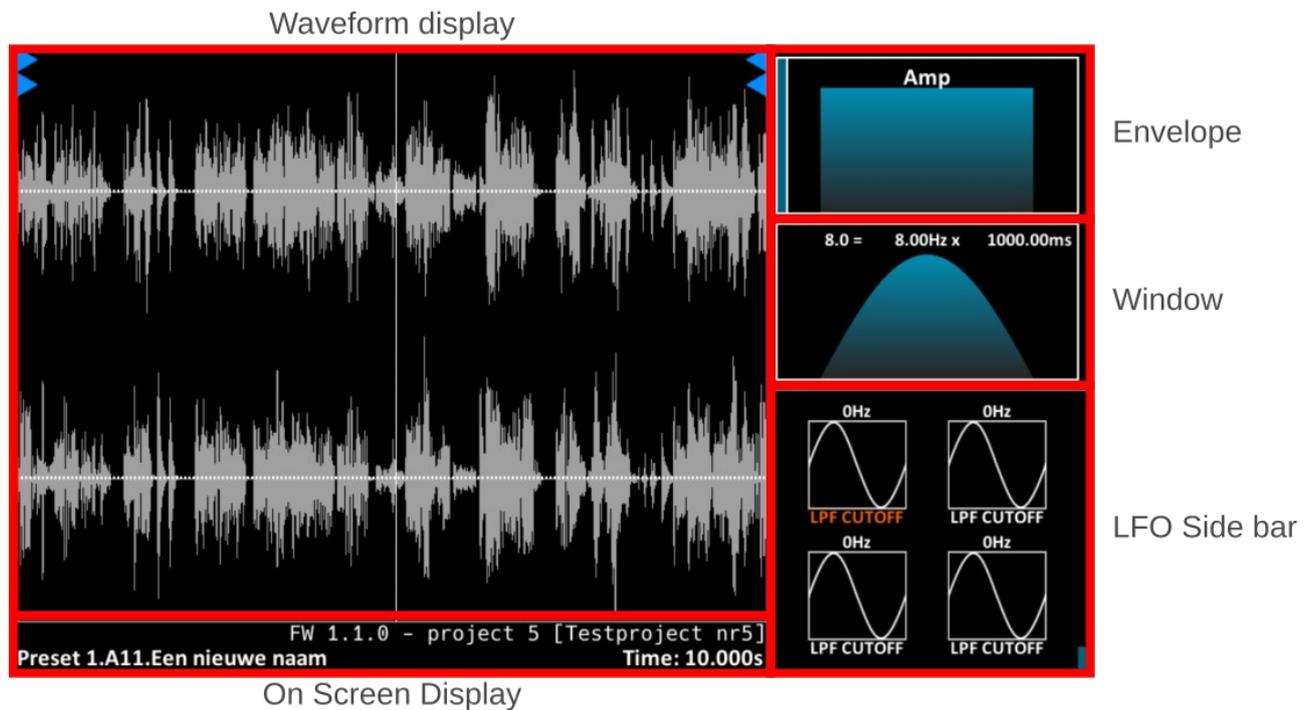
On Screen Display

Waveform

The biggest part of the main screen is dedicated to displaying the sample. The view mode can be changed from time series to spectrogram using the [View] button. The sample can be zoomed ([Shift] + turn (Op enc)) and scrolled (using ← and → arrows and [Shift] + Horizontal slider).

OSD

The On-Screen Display or OSD is the lower bar beneath the sample waveform. It displays messages like "Spray 0.0023s" and such. Every knob that is turned will display its value here. The same goes for most buttons. Also status messages such as "Loaded" or so will appear here.

The preset name, slot number and code (i.e. A-1-2, for bank A, subbank 1, preset 2) are displayed here. The amount of time in the (zoomed) sample waveform is also displayed here.

Envelope

On the top-right you can find the envelop display. It displays the envelope that's currently highlighted on the buttons underneath the ADSR section: [Pitch] , [Filter], [Amp] , or [Aux].

Window

Directly underneath the envelope you can find the grain window display. This displays the shape of the window and the density, rate, and grain size in the equation:

density (grains) = rate (grains/s) x grain size (s)

When the spectral engine (phase vocoding) is used, this changes to the amplitude spectrum.

"LFO" (modulation) sidebar

On the lower right the LFO's, CV's, and other information related to modulation is displayed. The display mode for this section can be cycled with [Shift] + [View], or by holding down [View] and turning the (Op encoder).

Currently the LFO sidebar supports 3 modes:

* "Four LFO" which displays waveforms, frequencies and rates, polarity, and amounts, and key sync.
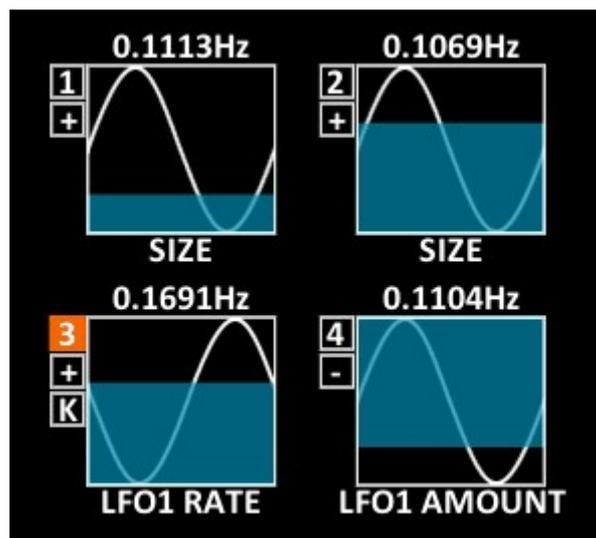
* Detailed Four LFO: similar to the mode above, but including several mod destinations
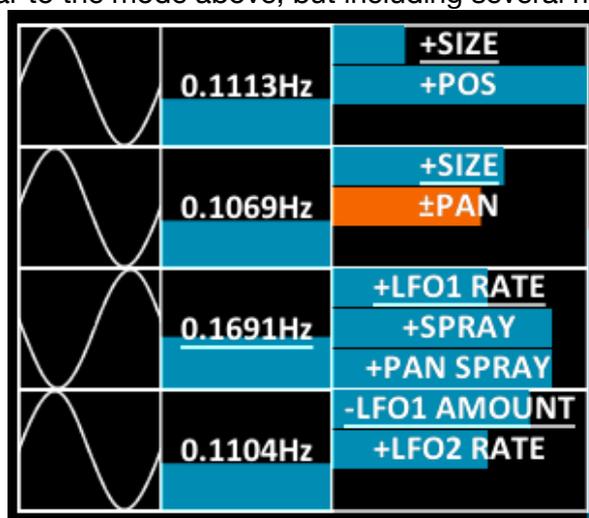
* 10 destinations: shows the recently used modulation destinations and their summed values.

Sound Engines

The GR-MEGA has 5 sound engines. Each one has different applications. It is primarily a granular machine (the primary engine), but the other engines are full featured as well. We designed each engine to have interchangeable controls. For instance, the Scan control will have the same function in almost every mode.

Chord mode can be used in all modes.

Sound Engine Controls

To summarize, here are the knob functions for all the sound engines:

	Granular	Granular Slice	Sampler	Tape	Spectral
Big Slider	Position	Position	Position	Position	Position
A	Rate*	Rate*	- - -	- - -	Amp thresh
B	Grain Size*	Grain Size*	- - -	- - -	FFT Size
C	Pan Spray	Pan Spray	Pan Spray	Pan Spray	Amp smear
D	Spray	Spray	Spray	Spray	Phase smear
D + Shift	Spray polarity	Spray polarity	Spray polarity	Spray polarity	FFT Reducer
E	Direction	Direction	Direction	Tape Slew	Freq shifter
F	Scan	Scan	Scan	Scan	Scan
G	Pan	Pan	Pan	Pan	Pan
G + Shift	Mid-Side	Mid-Side	Mid-Side	Mid-Side	Mid-Side
H	Pitch (-1 .. +1 octave)	Pitch (-1 .. +1 octave)	Pitch (-1 .. +1 octave)	Pitch (-1 .. +1 octave)	Pitch (-1 .. +1 octave)
H + Shift	Pitch (-1 .. +1 semitone)	Pitch (-1 .. +1 semitone)	Pitch (-1 .. +1 semitone)	Pitch (-1 .. +1 semitone)	Freq shifter
H + Chord	Pitch snapping	Pitch snapping	Pitch snapping	Pitch snapping	Pitch snapping

*) Depending on selected Ratio mode. Listed are the controls for Free ratio mode.

Pitch snapping, using the [Chord] button, works in two different modes:
A. No voicing data present → snap to semitone
B. Voicing data present → snap to chord notes.

Voicing data is set in the Patch menu → Voicing section.

Granular Sound Engine

Granular mode is the default engine of the GR-MEGA. It can be used for pads, to make massive spatial clouds, to scatter sounds, and for primitive 90's Jungle style time stretching that works well on non-transient material.

The highly complete and accurate implementation used in this engine opens up the world of micro sounds, where rate can control pitch, and window shape can act as a filter, but that's only the start. A good understanding of microsound can give complete timbre transformations. If you're interested in a deep dive into the world of micro sounds, there's the book by Curtis Roads – Microsounds, ISBN-13 : 978-0262681544

Granular mode is the most flexible of all the modes, evidenced by its large amount of parameters:

Rate

The rate parameter controls the amount of grains per second (Hz). The amount can be set between 0.1-1000 grains per second, with a maximum of 128 grains playing simultaneously, per voice.
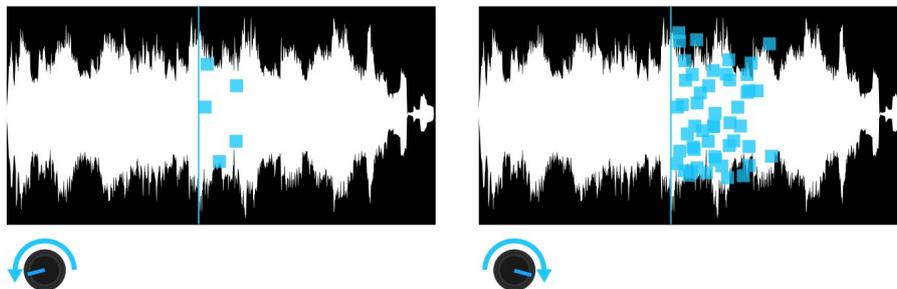
Grain Size

The grain size parameter controls the playing length of a grain.
The length can be set between 5-5000 milliseconds.
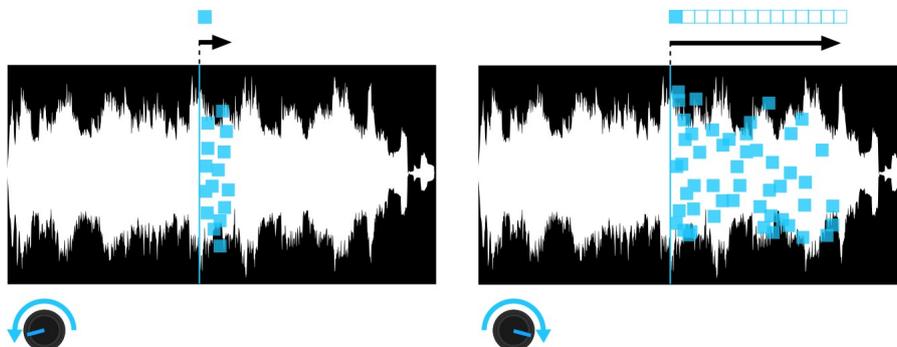
Rate, size, and density

Internally the granular engine only understands the above two parameters:
* Rate
* Size

To measure how many grains are playing at the same time, we have Density:
Density = Rate x Size

This is also used to measure the density of a granular cloud, or sometimes how much overlap there is between grains.

When the Ratio button is set to "Free", you control Rate and Size directly, and the Density is a result of this. But other ratio modes allow you to control Density directly and Rate or Size can be the result. It's even possible to mix in other parameters for creative purposes.

To better understand how these Ratio modes influence the granular scheduling, we've added a text display just above the grain window:

density = rate x size display

For instance:

3.0 = 30.0 Hz x 100 ms

Grain Ratio

Pressing the Ratio button will cycle through various grain ratio modes:

Table 1: rate modes

Ratio mode	Knob A function	Knob B function
Free	Rate	Size
DensitySize	Density	Size
DensityRate	Rate	Density
ScanRate	Rate (* Scan)	Size (/ Scan)
ScanOverlap	Rate (* Scan)	Size

As mentioned above, Free is the default mode and allows full freedom.
DensitySize and DensityRate are intended for granular "stretches" where you can keep density constant while tweaking the rate and size with a single knob. This can create powerful rhythmic speed-ups or slow-downs.

ScanRate is used to achieve the same rhythmic effects, but based on scan speed.

ScanOverlap is used to add more grains when Scan picks up speed, to keep the coverage in the original sample constant.

Spray

The spray parameter controls how much a grain's start position is randomized.
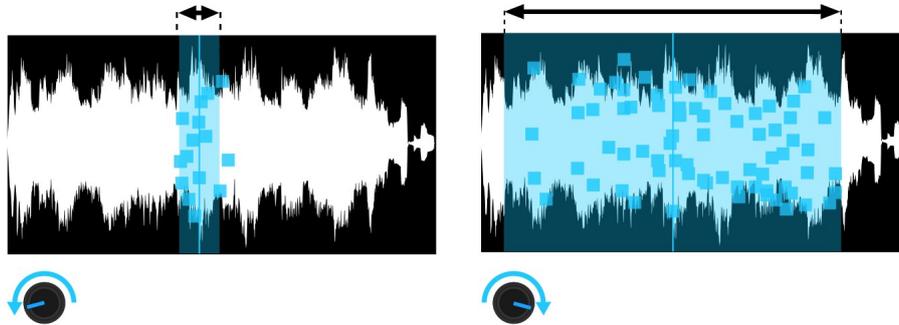
Pan Spray

The Pan Spray parameter controls how much a grain's stereo panning is randomized. 0 means completely centered. Maximum pan spray means a grain can appear everywhere in the stereo image.
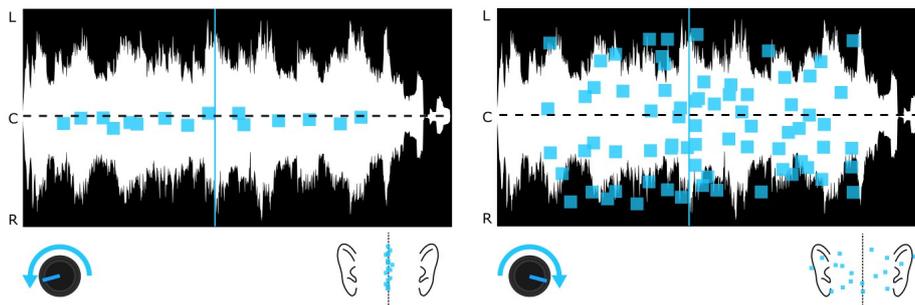
Panning

Shift+Pan knob: The Panning parameter controls how much a grain is panned to left or right. Can be combined with pan spray.
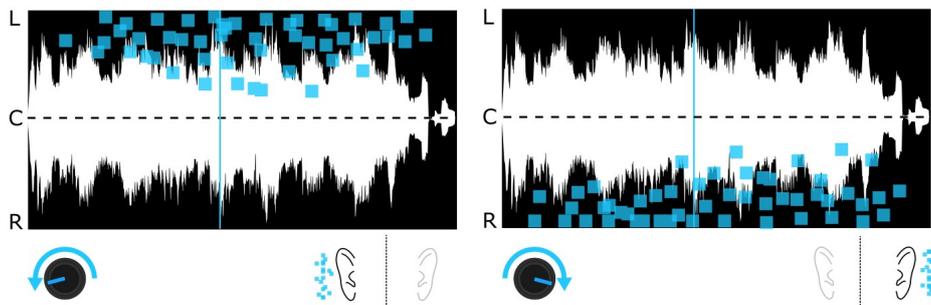
Scan

The Scan parameter sets the movement speed of the grain start position. It can vary from -2 times (reverse motion) the sample play speed to +2 times (forward motion) the sample speed. Scanning responds to stop and loop flags: looping, and pingpong is possible, it can be modulated, and can even be synced to the beat!
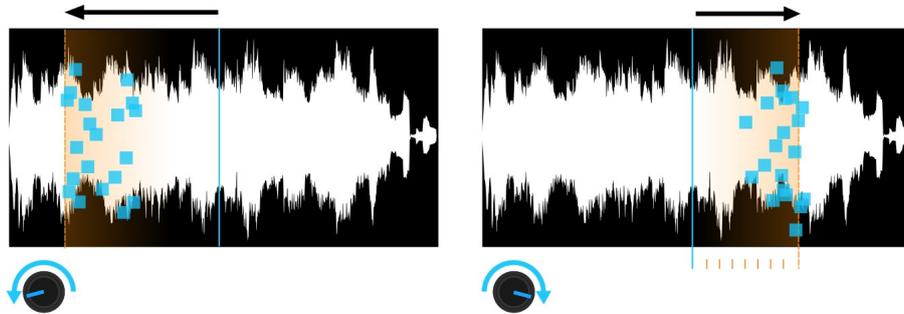
Direction

Grains can run in both forward- and reverse directions. Reverse direction can be used for special effect. Combining both can be used to make the sound more lush. Setting the bias completely left plays all grains in reversed direction. Setting the bias completely right plays all grains in forward direction. The center plays in 50/50% in both directions
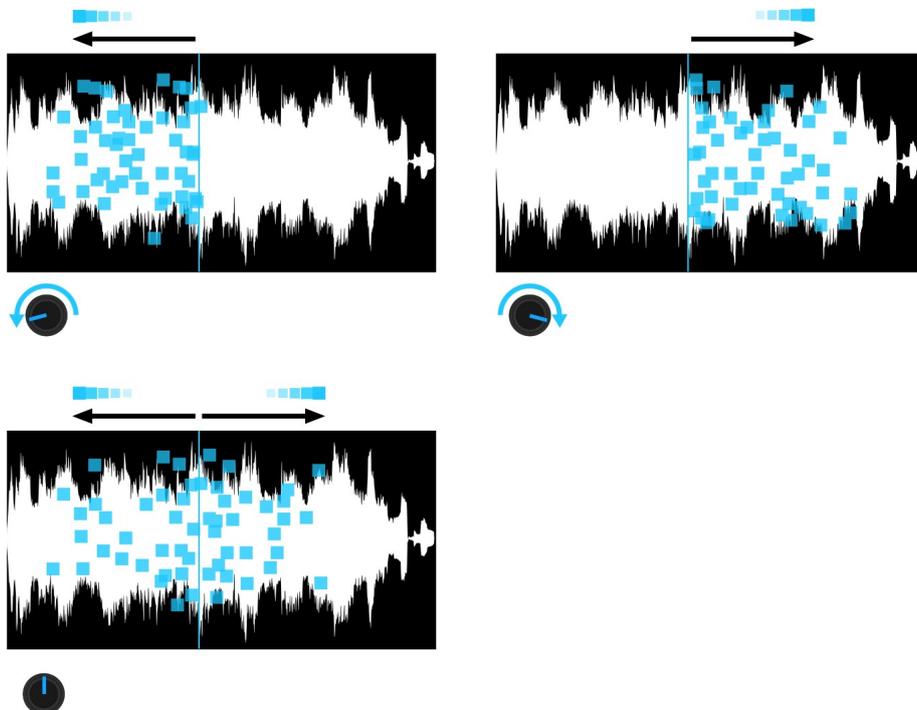
Granular Slice Sound Engine

Granular slice mode is very similar to granular mode, with the exception of the samples being chopped up into slices.

Slices

Slices are automatically mapped to the keyboard: C-2 and up. C-2 plays the left most slice, C#2 plays the neighbor directly to the right, etc.

Almost all the knobs described in Granular mode also work in this mode, with the exception of the position slider and the scan knob. Since you cannot freely move spawn position in the sample in this mode, these controls have no function. An alternative function may be added to them in newer firmware.

Setting slices (Operation menu)

In slice mode, setting slices is key. This can be done in two ways, manually or automatically. We'll now describe both:

Add slices

Manually move the position slider and use the (Operator) encoder and exec buttons next to it:

1. Drag the position slider to where you want in the sample.

2. Turn (Operator) to "AddSlice"

3. Press the Exec button, a white vertical line now appears, and you can already play MIDI or sequencer note C-2 to activate it.
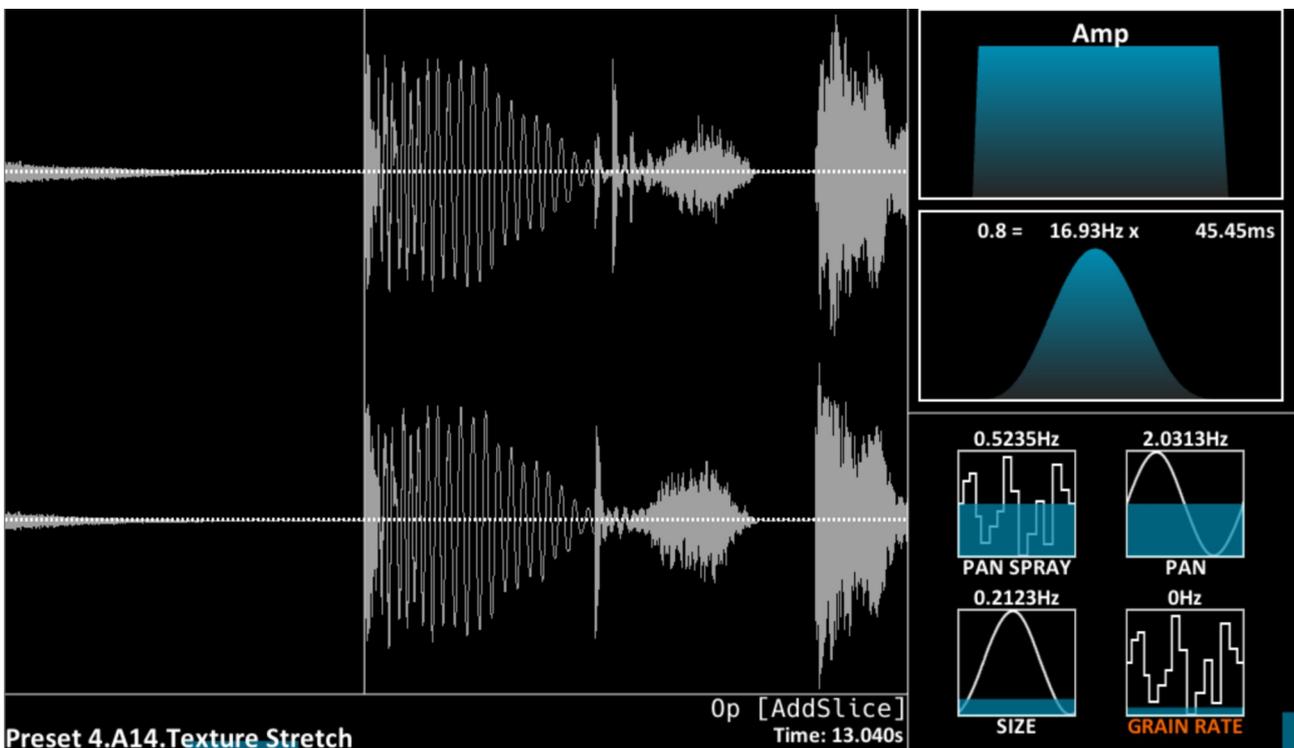
Auto slice

Automatically, by turning (Operator), and exec button:

1. Turn (Operator) to "AddSlice".

2. Hold [Shift].

3. Press [Exec]. A lot of slices now appear.

Auto slice sensitivity

Maybe there are too many slices, or too few? You can adjust auto-slicing sensitivity in the Menu:

1. Hold the Menu button

2. Press Preset button 1 to enter the Patch menu.

3. Navigate to the "Scan / Slice" column with the arrow buttons, at the bottom you'll find "Autoslice sens."

4. Navigate to the "Autoslice sens." slider and adjust the value with the position slider.

| Patch | Projects | Files | Sampling | Sequencer | Matrix | Effects | System |

Patch name			
Max polyphony	20	Pitch bend range	12.00
Glide	0.0 ms	Always	OFF
Sub-osc balance	0		

Voicing			Grain		Scan/slice	
Voice 1	C-4	0.00	Key trigger	ON	Key trigger	On
Voice 2	C-5	0.00	Sync	OFF	Sync	OFF
Voice 3	-	0.00	Grain spawn	Gradual	Scan mode	PingPong
Voice 4	-	0.00			Loop clock sync	OFF
Voice 5	-	0.00	Transpose	0.00	Looped release	OFF
Voice 6	-	0.00	Stealing thres.	0		
Voice 7	-	0.00			Autoslice sens.	50
Voice 8	-	0.00	Local pitch	OFF		
Voice 9	-	0.00	Arp mode	Up		
Voice 10	-	0.00	Anti-aliasing	ON		
Voice 11	-	0.00				
Voice 12	-	0.00				

Delete slices

You can delete slices with "DelSlice":

1. Turn (Operator) to "DelSlice"

2. Use the position slider to stand inside a slide. i.e. right of the vertical slice line.

3. Press the Exec button. The slice will disappear.

Combine DelSlice with holding down Shift: this deletes all slices!
Deleting all slices is often useful before doing autoslice.

Drag slices

You can drag slices with "DragSlice":

1. Turn the (Operator) to "DragSlice"

2. Use the position slider to stand inside a slide. i.e. right of the vertical slice line.

3. Press the Exec button. The slice will seemingly disappear, but you're now dragging it with the slider position line!

4. Go to the position you want with the position slider.

5. Press Exec again. The slice is moved!

Sampler Sound Engine

Sampler mode basically emulates a traditional sampler, like the AKAI S-series, or Ableton's Simpler. It is oldschool and can not do time stretching. In principle there's just one grain per voice, but that can be extended up to 12 by using chord mode notes in the patch menu. Sampler in combination with chord mode also has nice periodic properties, which can create a pitched Euclidean sequencer.

Knobs A (Rate) and B (Size) have no function here.

Controls like Spray and Pan spray do the same as in granular. They can create randomized clouds in both stereo field and sample position. Pitch does the same, but note that pitch also equals play speed! Direction works exactly the same. Scan is an interesting control since it only affects the central spawn position for new grains, and can loop and stop and everything, while grains can also do this… Allowing for creative results.

Nice extras: In this mode, all voices are displayed simultaneously. It also supports playing very large samples (up to an hour).

Grains follow loop flags (markers) like how scan follows them in other modes, including loop, pingpong and one shot modes. This means sample looping is supported, and a note off can released them from the loop: Patch menu → Scan/Slice → Looped release. Note that this kind of oldschool sample looping requires proper loop markers at zero crossings.

Tape Sound Engine

The tape engine simulates an analog play head moving over tape. It operates much like sampler mode, but the play position now controls the play speed, and hence also the pitch. You can easily perform scratches like on vinyl. All position and scan modulation is supported, so scratching can be fully automated.

Tape slew

In tape mode the Pitch knob has now got the function of "slew". This means how slow or fast the tape head catches up to the modulated position:
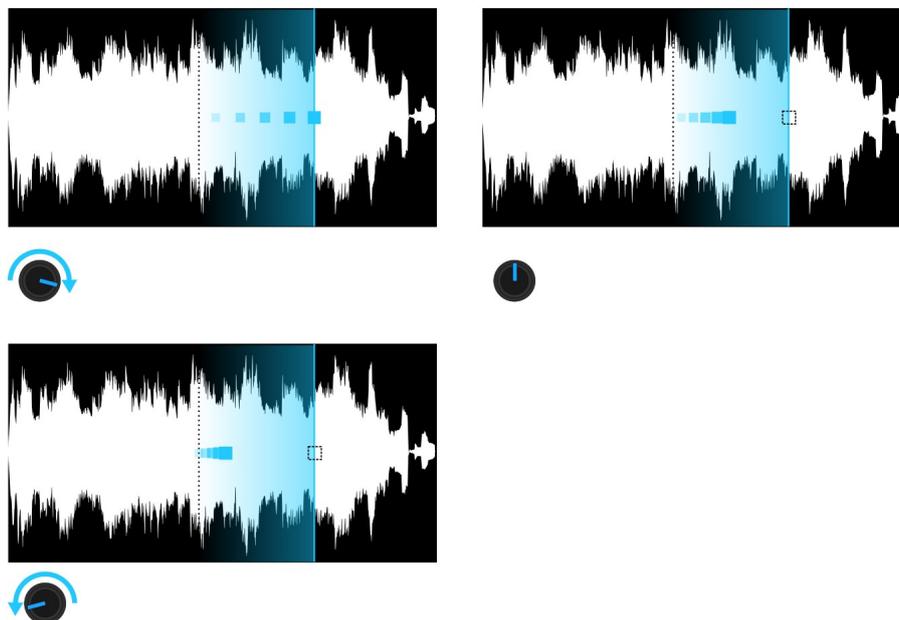
Chord mode (in Tape Mode)

When chord mode is active (lower right: Chord button), there can be multiple play heads (grains). Each will have a different pitch like set up in the chord in the patch menu. This can give a pretty wild, but harmonic twist to scratching. The first chord note (TBV: or was it the lowest) always tracks the position. The other chord notes are just pitch-bent copies!

Spectral Sound Engine

This mode allows smooth time stretches. Super long "Paul stretch" style ambient stretches where material is slowed down a thousand times. It also allows auto tuning while preserving the timing. However, it is not intended to be a DJ tool. This engine does not accurately preserve vocals, and has significant ringing. It is instead intended to spectrally manipulate and distort, to your heart's desire. Think experimental IDM.

Once again, like in all other engines, position can be moved freely without any bumps.

There are no grains in this mode. There's just blocks that are processed in the "frequency domain", meaning you can very easily manipulate the spectrum using the knobs A through H.

Position and scanning are the main control for this mode. Polyphony is limited to 3 voices per layer, because of the latency of the underlying Fast Fourier Transform (FFT).

Because this engine is quite different from the others, we'll discuss the knobs and modes that affect it one by one:

Rate knob (A) – amplitude threshold

This sets an amplitude threshold. Turn it up to reduce the harmonics, and eventually only leave the fundamental. Nice for going all whistly. Can be modulated in newer firmware.

Size knob (B) – FFT size

Sets the FFT block size. This is not continuous and takes jumps: 256, 512, 1024, 2048, 4096, 8192. Small sizes have less bass and get ringy more easily, especially when used with the FFT reducer knob. Although the sound is relatively bumpless, this control cannot be modulated. Note that 8192 is MONO! The other sizes are stereo.

Pan spray knob (C) – Phase smear / Reducer

Phase smear is a continuous control that can adds progressive amounts of "smear" to the sound. This can be used to turn transients into slush, and an "T" into an "F". Very effective for ambient soundscapes. Use in combination with big FFT size.
Hold Shift to use the FFT reducer. This turns your sound into lo-fi MP3 / 90s Realaudio[tm] galore!

Pan spray (D) – Amp smear

A continuous control that Smears the amplitude spectrum. Turn to the left to sharpen the spectrum.

Direction knob (E) – Direction

Not implemented at the time of writing. Potential to reverse playback of the block in randomized fashion.

Scan knob (F) – Scan

Just normal scanning. If scan = 0 and there's no position movement the sound can bluntly loop through the FFT block, but it can still be randomized by phase smear!

Pan knob (G) – Pan

Just normal panning

Pitch knob (H) - frequency shift

The pitch knob now does a frequency shift. You can easily get very metallic timbres this way.

Chord mode (in Spectral mode)

This basically adds pitch-bent versions of the playing sound while completely preserving timing. There's almost no added CPU cost. This means: while you can have 3 voices per layer, you can multiply this by 12!

The menus

Pressing the [Menu] button gets you here. Pressing [Menu] again will exit to the main screen. You are presented with 8 sub-menus represented by tabs: "Patch", "Project", etc. Use [←] [→] to highlight a tab. Press [Enter] to activate the tab. Pressing [↓] will enter the selected menu tab for navigation. Press [Escape] to exit a tab to navigate the menu bar again.

Patch menu

The patch menu is a large menu that deals with all the patch settings, that typically are not accessible from the physical front panel. It is divided up into 4 sections:

- General: at the top

- Voicing: lower left

- Grain: lower central

- Scan/slice: lower right

Patch	Projects	Files	Sampling	Sequencer	Matrix	Effects	System

Patch name	Invisible Hack		← Sample name	Prism_3_wav	

Max polyphony	20	Pitch bend range	12.00	Env pile-up	ON
Glide	0.0 ms	Always	OFF	LFOAMT25	OFF
Velosens	35	Sub-osc balance	0		

Voicing			Grain		Scan/slice	
Voice 1	-	0.00	Key trigger	OFF	Key trigger	Off
Voice 2	-	0.00	Sync	OFF	Sync	ON
Voice 3	-	0.00	Grain spawn	Gradual	Scan mode	Looping
Voice 4	-	0.00	Spray polarity	Bipolar	Loop clock sync	ON
Voice 5	-	0.00			Looped release	OFF
Voice 6	-	0.00	Transpose	0.00		
Voice 7	-	0.00	Stealing thres.	70	Autoslice sens.	50
Voice 8	-	0.00			Filter per slice	OFF
Voice 9	-	0.00	Local pitch	OFF		
Voice 10	-	0.00	Arp mode	Up		
Voice 11	-	0.00	Anti-aliasing	ON		
Voice 12	-	0.00				

Patch menu (General)

Patch	Projects	Files	Sampling	Sequencer	Matrix	Effects	System

Patch name	Scratch Bass		← Sample name			
Max polyphony	▨ 20	Pitch bend range	▨ 12.00	Env pile-up	ON	
Glide	0.0 ms	Always	OFF			
Velosens	▨ 35	Sub-osc balance	0			

Voicing			Grain		Scan/slice	
Voice 1	-	0.00	Key trigger	ON	Key trigger	On
Voice 2	-	0.00	Sync	OFF	Sync	OFF
Voice 3	-	0.00	Grain spawn	Gradual	Scan mode	Looping
Voice 4	-	0.00			Loop clock sync	OFF
Voice 5	-	0.00	Transpose	+12.00	Looped release	OFF
Voice 6	-	0.00	Stealing thres.	0		
Voice 7	-	0.00			Autoslice sens.	50
Voice 8	-	0.00	Local pitch	OFF		
Voice 9	-	0.00	Arp mode	Up		
Voice 10	-	0.00	Anti-aliasing	ON		
Voice 11	-	0.00				
Voice 12	-	0.00				

Patch name: the name of the patch, of course.

Sample name: the name of the sample. Use the [←] GUI button in between Name and Sample name to copy the sample name to preset name. This will come in handy.

Comment: up to 100 characters of comments for this patch.

Polyphony: slide this from 1 (monophonic) all the way up to 20. Please note that the PV (spectral) sound engine will limit this to 3. It will display "PV LIMIT" if that happens.

Pitch bend range: pitch bend range in semitones. NOTE: MPE mode will fix this to 48!

Env pile-up: By default this on. The GR-MEGA reuses the same voice if the same MIDI note is played repeatedly, and just piles up the amp envelope. This mostly works fine, but in sampler mode you may want to turn it OFF.

LFOAMT25: Turn this ON to use improved/correct LFO amount modulation. The 1.0 patches use an incorrect way to do this which is noticeable when you use external mod sources like the mod wheel. Default this is OFF to retain compatibility with factory patches and older user patches. At some point we will set the default to ON.

Glide: Can go from 0.0 ms up to 2000 ms. 0.0 means there is no audible glide.

Always (glide): Notes will always glide, even if notes do not overlap.

Velosens: This sets the amp envelope sensitivity to note on velocity. If this is 0, then it means all MIDI notes sound just as loud. If it is 100, then it means it's totally sensitive and very gently pressed midi note will have low volume, while a fast one, will have max volume.

Sub-osc balance: use this when you're using the sub-oscillator and playing polyphonically. Drag to the left to place more emphasis on the bass. Drag to the right to place more emphasis on higher pitch.

Patch menu (Voicing)

This displays the 12 chord notes and their fine tuning. You can add the same note twice or more to increase the number of times it's played in the granular arpeggiator, or to increase the chance of getting played when the arpeggiator is set to random.

Turn completely to the left ("-") to disable the chord note.

Note that the lowest note in the chord will match the playing note, and all the other chord notes are transposed up relatively.

In granular sound engines this will split the granular cloud, and distribute each chord note evenly among the grains, leaving total volume unaffected. In other sound engines chord mode will stack, meaning that it will add volume.

Patch menu (Granular settings)
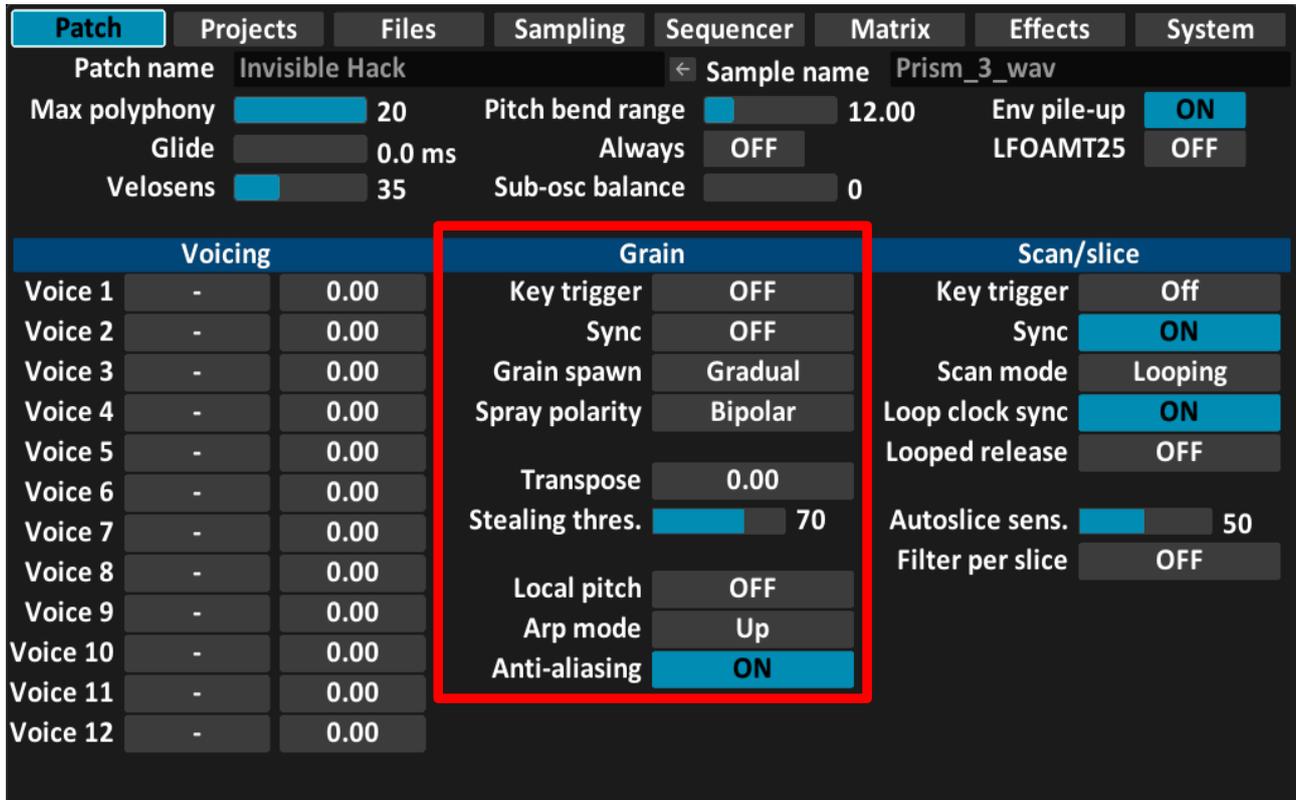
Enter the Patch menu by Holding [Menu] and pressing [1], or any of the [Key Trig],[Sync],[Chord] buttons on the bottom right of the GR-MEGA's physical panel.

Grain Key trigger: When this is on, a grain will trigger directly when a note is played. When this is off the grains sequencing is independent from note triggers.

Grain Sync: ON: let the grains spawn synchronized to the clock, and its clock division, OFF: use the knob setting.

Grain spawn: Set the mode in which the grains spawn:

This tells the granular engine how to spawn grains when a new note is triggered. There are four options:

    1. Gradual: gradually generate grains based on the configured clock

    2. Direct: Generate a full cloud as if the granular engine had been running continuously in the background.

    3. Direct reset: This does the same as direct mode, but with all grains starting within the spray area. This will boost the bass and the volume of the voice.

    4. Recycle: Re-use old grains. This can give silly effects.

Only applies to granular and granular slice sound engines. Technical note: spawn mode is a consequence of the energy / CPU saving properties of the engine. When a voice is not playing for a while, the granular scheduler is disabled.

Transpose: how many semitones the patch is transposed.

Local pitch: Independent Pitch per grain ON/OFF

Normally the grains that are playing will play until the end of the set "grain size" at the same note pitch of the note that was played when the grain started playing. When the setting is "OFF" the grains will be tuned to the notes that are played at that very moment.

If you want the grains to follow the played pitch immediately turn this setting "OFF". If you have longer grains and want to have a granular-chorus like function that glides between notes. Turn it "ON".

This feature can also be used to create a swarm like sound where all grains have a different pitch. Just try to wiggle the "Pitch" knob, or use an LFO to modulate Pitch. Set the LFO speed high enough and you'll get a swarm-like chorus effect. LFO amount can add additional dramatic effect.

This was called "granular glide" on the GR-1.

Grain stealing threshold: Grain stealing kicks in when the 128 grains per voice are used up. The GR-MEGA's grain stealing is intelligent and results in no crackles or clicks whatsoever. Leave this at 0 to disable grain stealing. With a high combination of density and grain size the grain scheduler will start oscillating. When the slider is set higher than 0.0 it will gradually start stealing grains. The higher the setting, the more aggressively the stealing will be. This will result in shorter grains, but the grains spread will be quite homogeneous. And the way in which this occurs is quite intuitive and natural.

ARP mode: set the mode of the granular arpeggiator:

Up, down, down-up, up-down, random, shuffle, forward, backward, forward-backward, backward-forward.

Note that up and down sort the notes in the chord, while forward and backward do not!

Anti-aliasing: Turn anti-aliasing filter ON or OFF. At the time of writing it's always ON. The intention is in later firmwares to be able to turn it off, and even have better anti-aliasing options, but we need to people to chime in here.

Patch menu (Scan / slice)

Patch	Projects	Files	Sampling	Sequencer	Matrix	Effects	System

Patch name Invisible Hack   ← Sample name Prism_3_wav

Max polyphony	20	Pitch bend range	12.00
Glide	0.0 ms	Always	OFF
Velosens	35	Sub-osc balance	0

Env pile-up ON
LFOAMT25 OFF

Voicing			Grain		Scan/slice	
Voice 1	-	0.00	Key trigger	OFF	Key trigger	Off
Voice 2	-	0.00	Sync	OFF	Sync	ON
Voice 3	-	0.00	Grain spawn	Gradual	Scan mode	Looping
Voice 4	-	0.00	Spray polarity	Bipolar	Loop clock sync	ON
Voice 5	-	0.00			Looped release	OFF
Voice 6	-	0.00	Transpose	0.00		
Voice 7	-	0.00	Stealing thres.	70	Autoslice sens.	50
Voice 8	-	0.00			Filter per slice	OFF
Voice 9	-	0.00	Local pitch	OFF		
Voice 10	-	0.00	Arp mode	Up		
Voice 11	-	0.00	Anti-aliasing	ON		
Voice 12	-	0.00				

Key trigger: The scanning through the sample can be reset by a voice trigger/note-on event. When "Off", scan position is never reset and all voices will have the same scan position. When "On", the scan position will reset to the "Play position" on every voice trigger/note-on event. "Legato" will only reset the play position on the first note played. "Poly" will reset scanning only for the newly playing note, comparable to envelopes per voice in a traditional polysynth.

Sync:
On: scanning is synchronized to the clock, and its clock division
OFF: use the scan knob setting.

Scan mode:
The GR-MEGA scanning movement has three modes: **[One shot / Loop / Ping pong]**
The scan knob influences speed and direction of all these modes.

Loop clock sync: Synchronize looping to the beat.
ON: synchronize the scanning motion in the loop to the system clock. This will allow loops to be synced to the beat. OFF: free running.

Looped release: stay in the loop when releasing voice
ON: Eventually exit the loop when releasing the voice. In pingpong mode it will have bounced an even number of times before doing so.
OFF: Stay in the loop when releasing the voice

Autoslice sens.: Autoslice sensitivity - How trigger-happy the autoslicer will get. At 0 it will probably miss a couple of onsets. At 100 it will probably waste all its slices before the end of the sample.

Filter per slice: Turn this ON to have independent filter cutoffs per slice. Of course this only affects slice mode. This applies to both the LPF and HPF, so each slice can have one pair of LPF and HPF. Default is OFF. When OFF, the filter settings affect all slices.

Project menu

Patch	Projects	Files	Sampling	Sequencer	Matrix	Effects	System

Project 1 - Project One
Project 2 - Hele nieuwe mooie naam
Project 3 - Project One - 0.6.1
Project 4 - Project One
Project 5 - Testproject nr5
Project 6 - Project One
Project 7 - Project One
Project 8 -
Project 9 -
Project 10 -
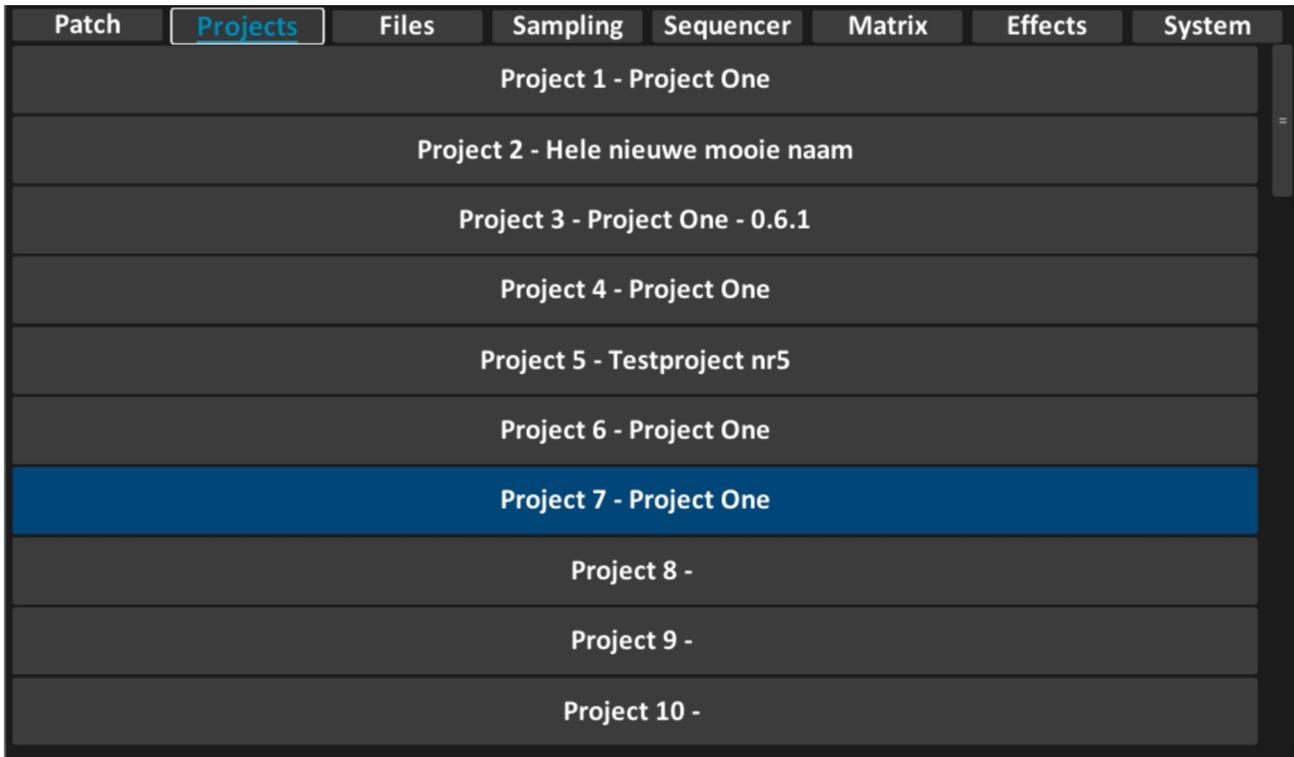
Enter the Project menu by Holding [Menu] and pressing [2].

The project menu is simple. You can load, save, and rename projects here. Each row represents a slot in which a project can be stored, numbered 1 through 50. The slot that's BLUE is the actual active project. The one that's enclosed by white rectangle, aka "highlighted", is the one you're looking to do something with.

Use the GR-MEGA's buttons to do the following:

[↓][↑]   Scroll through list, and highlight project.

[Enter]   Edit project. You are prompted a dialog with options: escape, rename, load from, or save to this slot.

[Load]   Load highlighted project. Loading an new project (a slot that was never saved to before) will let you start with an empty project.

[Save]   Save current project to highlighted project.

[Delete]   Initialize highlighted project.

Any potentially destructive action is protected. You will be prompted with a confirmation dialog when you load or save.

File manager
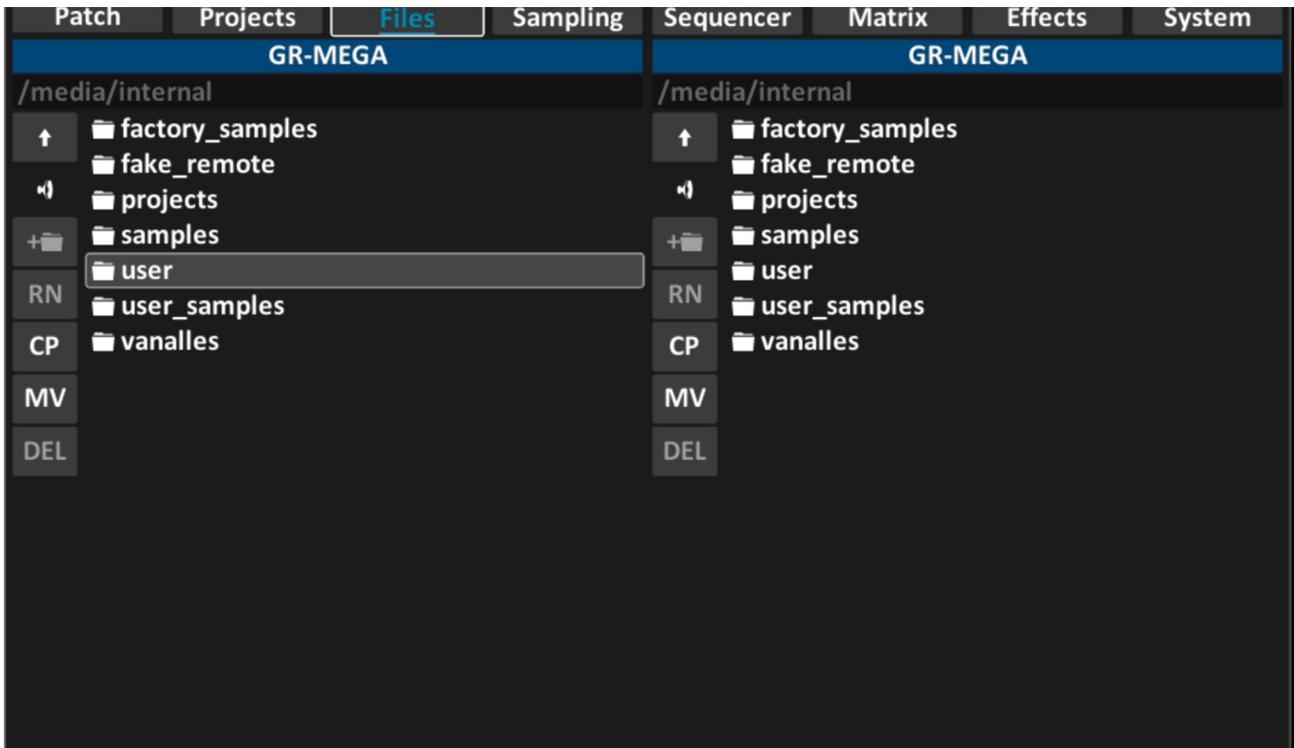
Enter the File manager by Holding [Menu] and pressing [3].

The file manager allows you to do everything you'd want to do with files:

* Backup your projects to USB stick.

* Import folders of samples to internal storage. For instance to the user sample storage: /media/internal/user/samples.

* Reorganize your user samples. For instance, delete groups of samples. Rename and move others.

NOTE: the file manager is a powerful, but also dangerous tool. If you can do things by simply using the save and load buttons in the main screen, then that is easier and safer! If you're restoring projects from USB backup, it's also easier to use the Projects menu!

NOTE: File sharing over USB C or LAN cable can do about the same as the file manager, but file sharing can be harder to set up initially.

NOTE: Factory data and projects are write-protected. They cannot be modified in the file manager.

Features

Here's an overview of all the features of the file manager:

Navigation

The file manager has two sides: left and right. You can edit files on both sides. You can copy and move files from left to right, and also from right to left. You can easily move the focus from the left side to the right side with the cursor keys [←] [→] [↑] [↓] and [Enter].

Traversing folders

Stand on a folder or drive and press [Enter] to enter said folder or drive.

Up to parent folder

Stand on the UP ↑ arrow GUI button, and then press the [Enter] button to go up in the directory tree (to the parent folder). Shortcut using the physical buttons: [Shift] + [←].
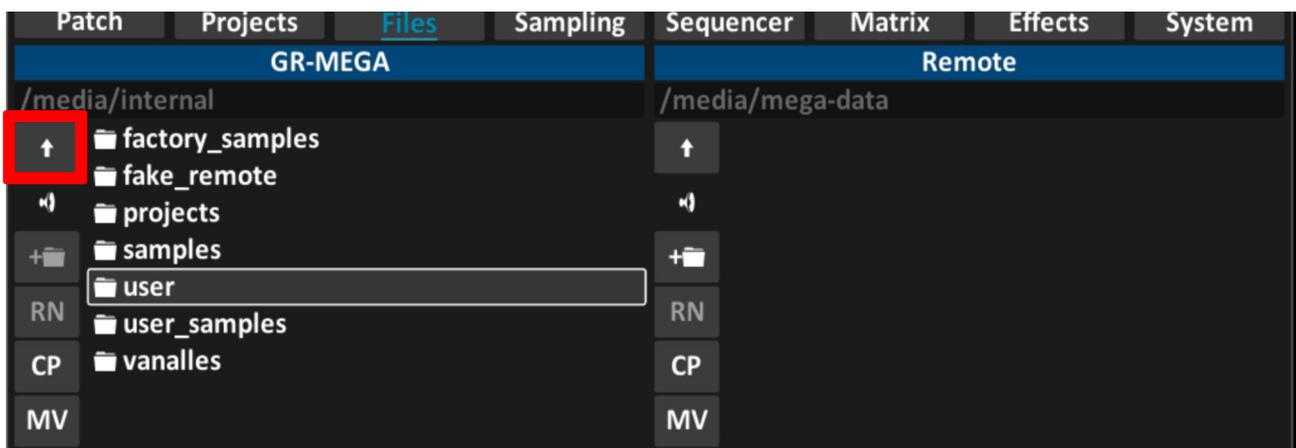
Sound previews

Stand on the speaker [🔊] icon end press [Enter] to enable sound previews for sample files. Stand on a sample file, and it will start playing it and also show stats like sampling frequency and number of channels.
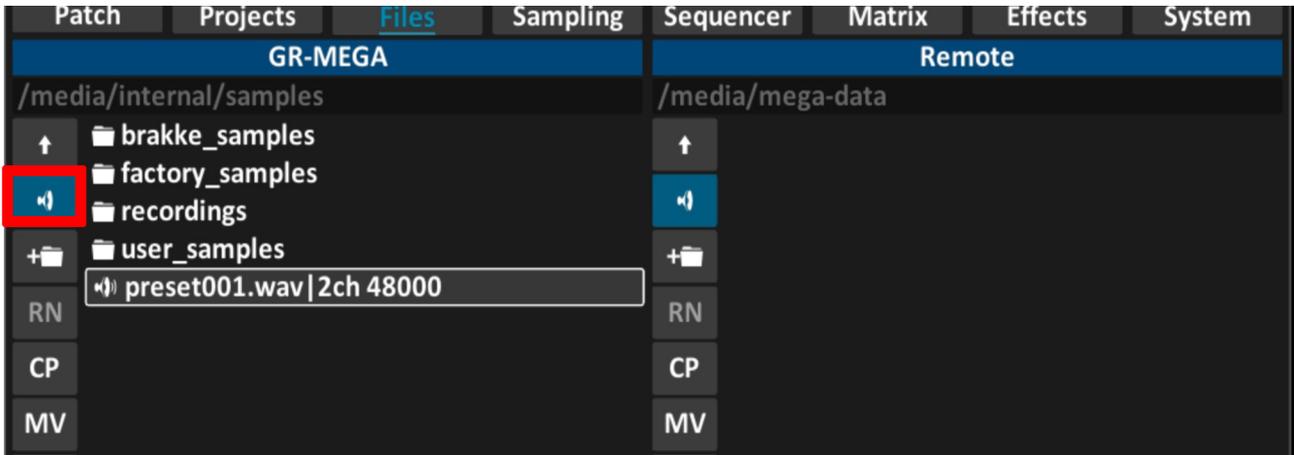
New folder

Standing on the [+🗀] icon will let you create and name a new folder:
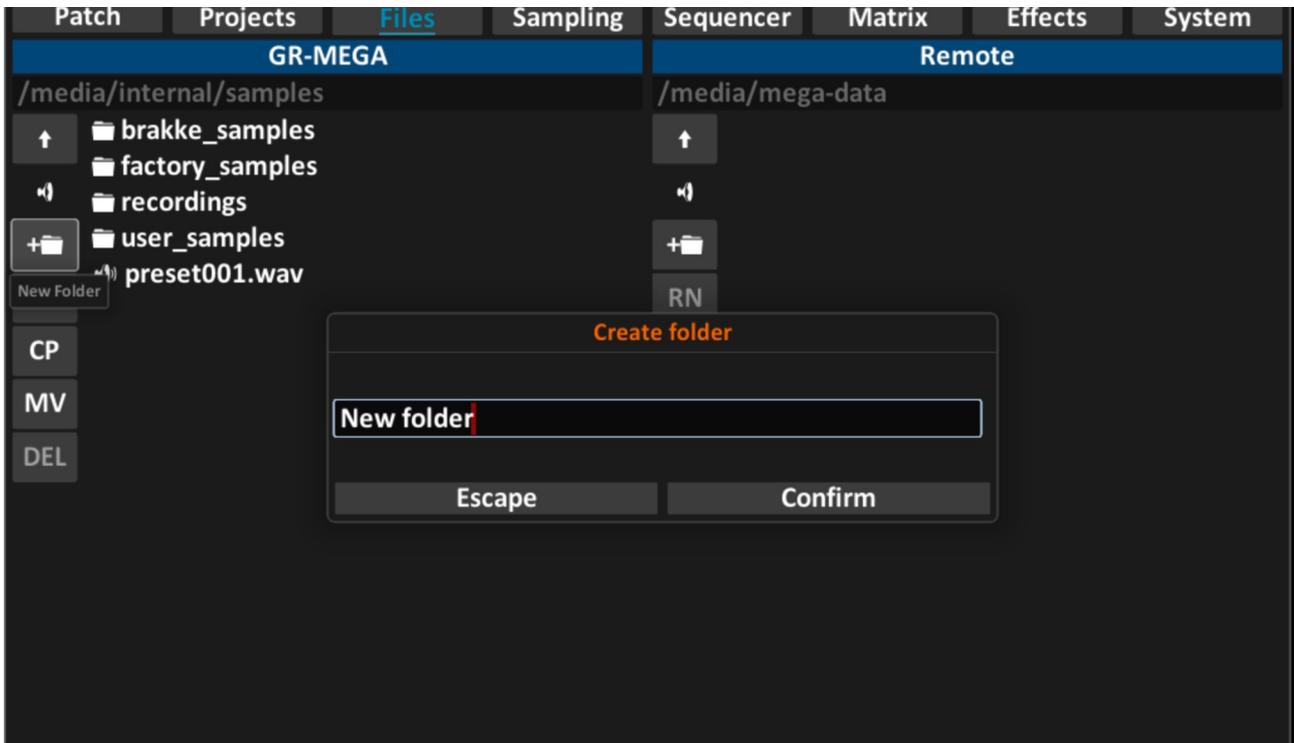
Rename

Stand on a file and press [Enter] to select it. It will be highlighted in BLUE.
Standing on the [RN] GUI button and pressing [Enter] will open the renaming popup.
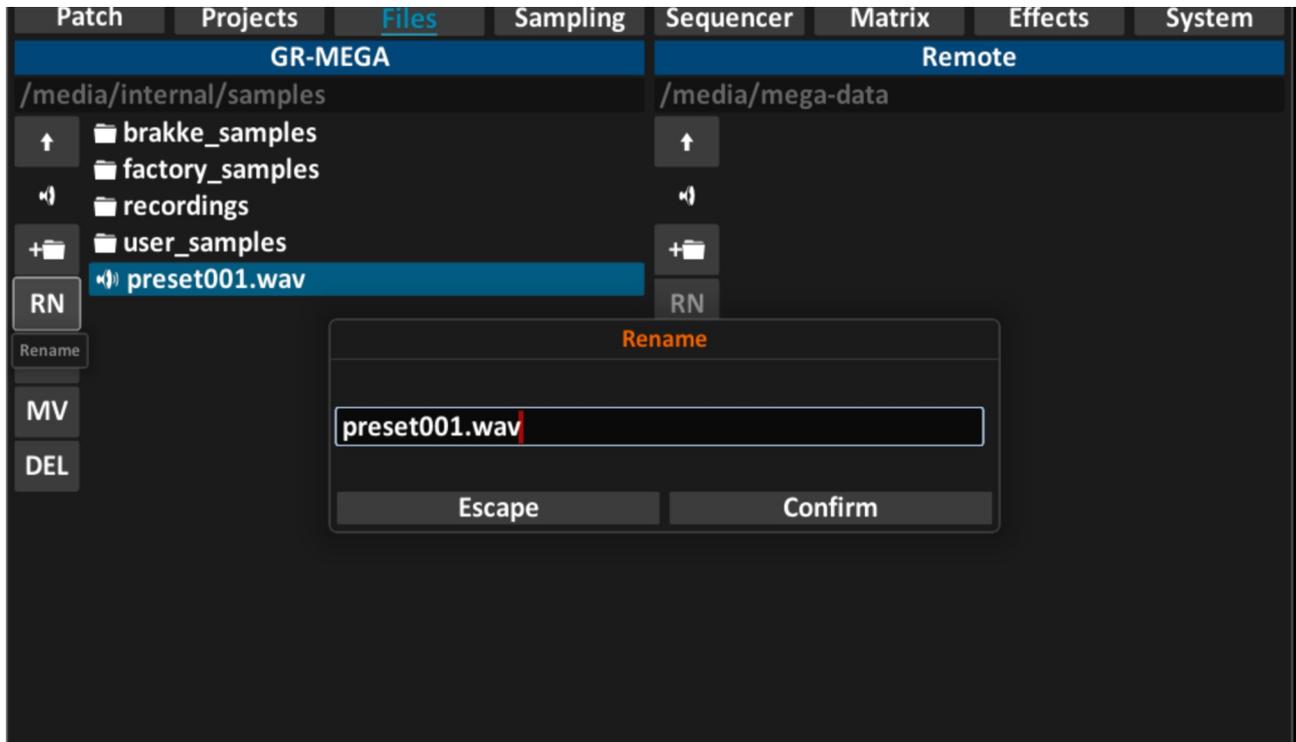
Copy

Stand on a single file and press [Enter] to select it. If you stand on a folder you have to hold [Shift] and press [Enter] to select it… a plain [Enter] without [Shift] will enter the folder!

Hold down [Shift] and use the arrow buttons [↑] [↓] to drag-select multiple files and folders. They'll all be highlighted in BLUE.

Then press the [CP] GUI button to copy.
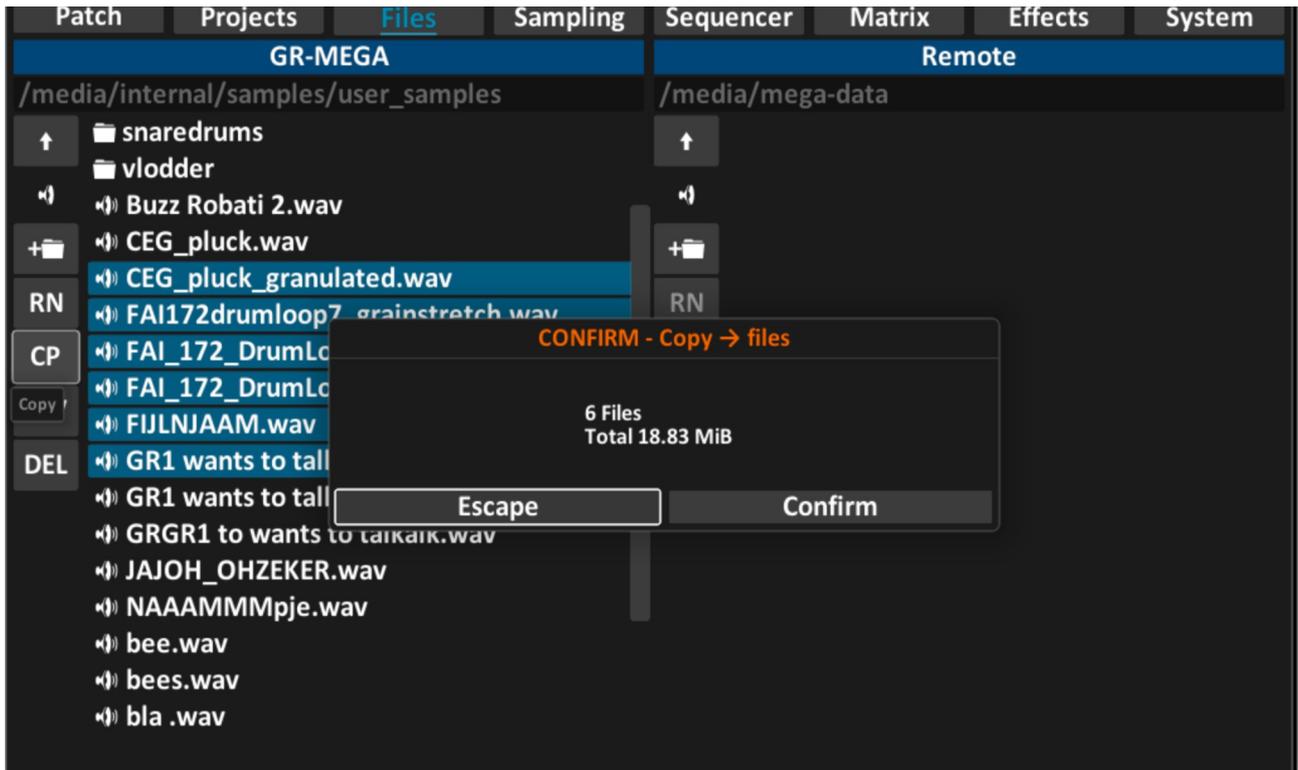
Eject drive [⏏]

Use the eject button to safely unmount a selected drive. Since firmware 1.3 the GR-MEGA is quite robust against pulling out USB sticks after copying, however, we added this button just in case. Operating systems will often complain that a stick is not cleanly ejected, so this feature will at least get rid of that message.

| Patch | Projects | **Files** | Sampling | Sequencer | Matrix | Effects | System |

GR-MEGA   **Select**

/media/internal   /media

↑   📁 factory   ↑   🖥 **boot**
     📁 factory_samples   🖥 internal
📢   📁 fake_remote   📢   🖥 mega-boot
+📁 📁 projects   +📁 🖥 mega-data
     📁 samples   🖥 mega-root
RN   📁 user   RN   🖥 oem
CP   📁 user_samples   CP   🖥 pieter
     📁 vanalles
MV   📄 grmega_system.json   MV

DEL   DEL

⏏   ⏏
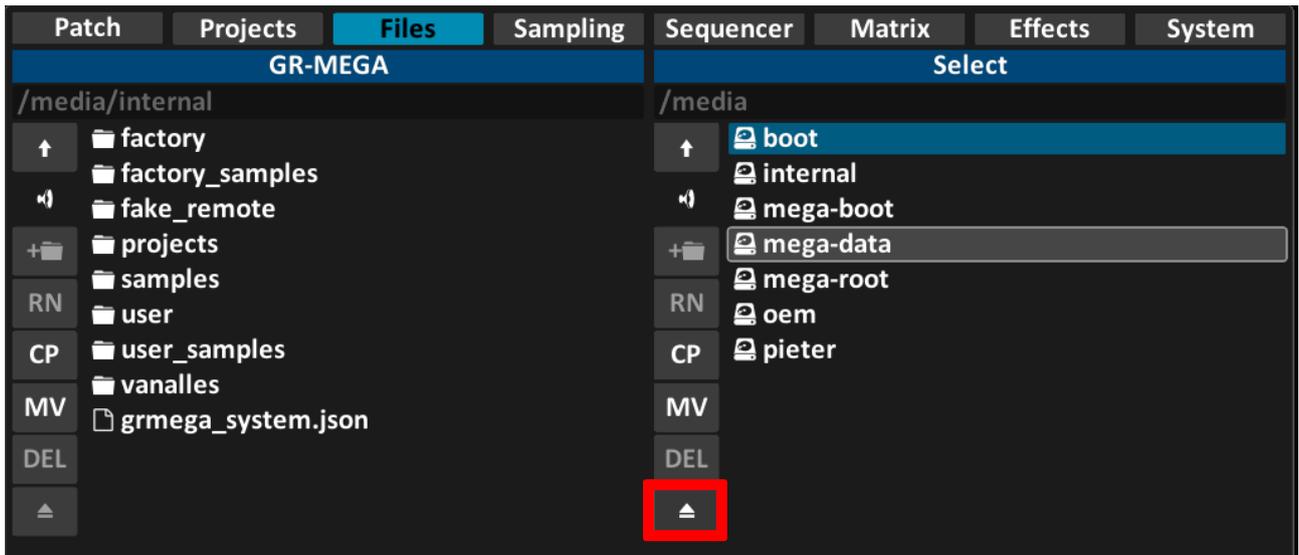
Move

Pressing the [MV] GUI button will do the same but will delete the originals after having copied them! This is a powerful feature to organize your files, but beware that's there's NO UNDO or recoverable trashcan like on your PC!

NOTE: Copy and move can transfer stuff from the left to the right, and also from right to left. However, they will refuse to transfer anything if there are files selected on both sides!

During transfer a progress bar will be displayed. You can abort the transfer with [Escape], although this is not recommended except in cases where you're mistakenly copying a vast amount of data.

Delete

Stand on a single file and press [Enter] to select it. If you stand on a folder you have to hold [Shift] and press [Enter] to select it… a plain [Enter] without [Shift] will enter the folder!

Hold down [Shift] and use the arrow buttons [↑] [↓] to drag-select multiple files and folders. They'll all be highlighted in BLUE.

Then press the [DEL] GUI button to copy.
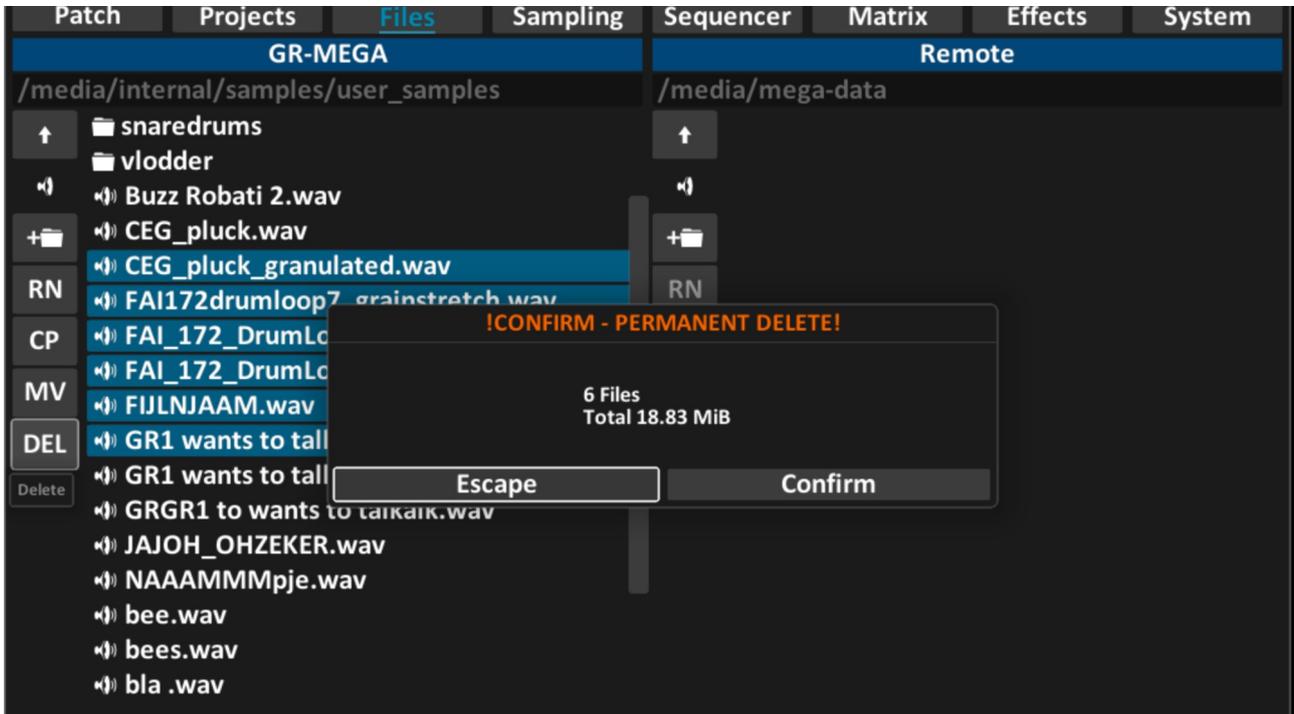
NOTE: Deleting is final! There's no UNDO function. There's no recoverable trashcan like on PC! Be careful. Project and factory data are protected, but in the user folder you can delete anything you want.

Sampling menu

The sampling menu allows you to setup your audio source, the recording destination, sample length, channels, and various things related to looping. Enter the Sampling menu by Holding [Menu] and pressing [4], or [Record].

Patch	Projects	Files	**Sampling**	Sequencer	Matrix	Effects	System

Audio source	ANALOG INPUT			
Destination	CURRENT PRESET	**File name**	Enter name	
Channels	STEREO			
Input gain (dB)	0.0	**Arm**	MIDI	LVL OFF
Record start mode	Start	**Play follows Rec**	OFF	
Loop recording	OFF	**Scrolling Rec**	OFF	
Sized	Fixed			
Clocked	OFF	**Sample size (s)**	8.000	
Init mono	Clear!			
Init stereo	Clear!			
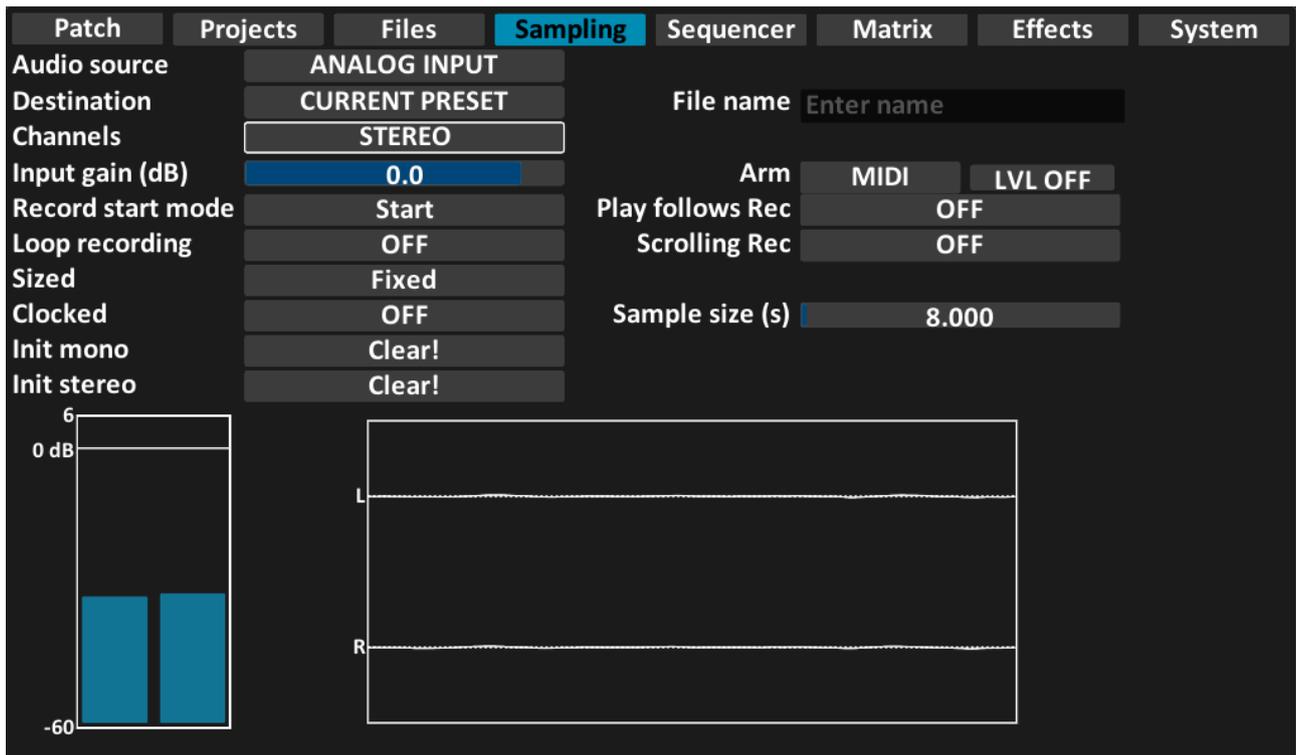
Audio source

* *ANALOG INPUT*: use the GR-MEGA high quality balanced analog inputs

* *RESAMPLING*: use the GR-MEGA engine output. It takes the signal after layer mix, before the (Wet) and (Master) knobs are applied.

* *USB C*: use the multitrack UAC2 audio from the USB C port. This allows you to record digital audio straight from your PC or Mac! Since firmware 1.3 this is reliable. At this moment just the first 2 tracks (the first stereo track) are used for recording. Only one layer may be recording at the same time.

* *USB A*: The idea here is that you can use your own USB class compliant interface. If it is recognized, the name should appear to the right. This is reliable since firmware 1.5. It may take up to 10 seconds for the stream to become synchronized after switching to this input source!

Some additional notes apply:

Many audio interfaces, especially the more exclusive ones, require special drivers, and we cannot implement them all.

While a lot of class compliant USB audio interfaces will work out of the box, a lot of them still require additional driver data for channel selection and volume control.

More importantly, since USB C enables you to already hook up your PC or Mac, that means that this feature is much less useful.

Destination

* *CURRENT PRESET*: record into the buffer of the current preset. Recommended if you're using an external source (NOT resampling).

* *WAV FILE*: use this to record to WAV file in the background. In the "File name" text field you can enter a prefix for your WAV file name.

When resampling, it will save to: `/media/internal/user/resampling/prefixNNNN.wav`

When recording, it will save to: `/media/internal/user/recording/prefixNNNN.wav`
(Where NNNN means a serial number like 0001, 0002, 0003, etc.)

Channels

Duplicate left (LL) or right channel (RR). Useful when recording from mono sources, such as guitar pedals.

Input gain

Attenuate or boost input signal up to 12 dB.

Arm

Use the Arm MIDI button to trigger on MIDI Beat start. The level slider can be to to OFF in which cases it doesn't care about the audio input level. Slide it to the right to set a trigger level in dB (-80..0).

Record start mode

You can turn on the ability to record here and select the start point for recording. The following start points are available:
   • Current position: When pausing the recording, recording will start from that same point when activated again
     • Wiper: Recording starts from the sample position, when activated
     • Start: Recording starts from 0.0s, when activated

When turned to Off, the [Record] button will refuse to record. You can use this to protect your preset against accidental button presses.

Loop recording

With "loop recording" turned off, the recording of the sample will be a one shot recording. Turn "loop recording" on to do continuous recording/real-time processing.

Sized

Set this to "Fixed", to have a buffer that is fixed in size. Set this to "Auto" to have a buffer that grows (up to 5m49s). NOTE: using auto/growing buffer mode, will require you to use init mono or init stereo buttons! Otherwise the GR-MEGA will *refuse* to record.

Play follows rec

Toggle this ON to sync the play and record heads together with minimum latency. This is the easiest way to turn the GR-MEGA into a live granular effect. When pressing [Play] and [Record] together, this will sync the play and record heads. Moving the horizontal fader will unsync them, allowing you to scratch the play head independent of the record head. Sync it back up again using the (Op encoder) menu: "PLAY REC SYNC" and press [Exec].

Recommended is also to use Patch menu → Grain → Spray polarity and set that to "NegUnipolar", or more quickly use [Shift] + (Spray). Keep the pitch below central C, and possibly set the Direction knob to -100%. This will guarantee that grains will not cross the play head and cause plops in the audio output. In a new firmware we may automate these settings and further confine the grains independent of pitch and direction.

TODO: screenshots of synced and unsynced heads

Scrolling rec

Turn this ON so you can easily keep the play head at the right distance from the rec head. [Shift] + [Record] forces scrolling rec. Scrolling record supersedes "Play follows rec". If you push the horizontal fader all the way to the right, it does the same as "Play follows rec", but you can easily add latency by moving it a bit more to the left. This way you can also use forward playing grains, and even grains with higher pitch, which may cross the record head.

Recommended is also to use Patch menu → Grain → Spray polarity and set that to "NegUnipolar", or more quickly use [Shift] + (Spray). Note that you can use [Shift] + (Op encoder) to zoom in and out, just like normally. Max zoomed in is 1 second, and max zoomed out is 10 seconds.

Clocked record

Toggle this ON to record in bars instead of seconds. Recording stops only after a bar (4 quarter notes) is completed.

Sample size

The sample size or "recording duration" (in seconds, or bars) can be set here. Max is close to 6 minutes, as this is the maximum the granular engine can efficiently handle. You need to explicitly press "Init mono" or "Init stereo" for this change to take effect!

Note that when setting time in bars, this is based on current internal BPM. Should this change, you will also need to change the buffer size.

Clocked

Turn this ON to count time in bars. Turn this OFF to count time in seconds.

Init mono

Press [Enter] on this button to create a new mono sample with the number of seconds set with "Sample size". If you did this accidentally, press this preset's button to undo all unsaved changes to sample and/or patch.

Init stereo

Press [Enter] on this button to create a new stereo sample with the number of seconds set with "Sample size". If you did this accidentally, press this preset's button to undo all unsaved changes to sample and/or patch.

Step sequencer

Position	1	2	3	4	5	6	7	8	
Note / Slice 1	C-2	G-2	D#2	F-2	C#2	A#2	E-2	C#2	ENABLE
Note / Slice 2	-	-	-	-	-	-	-	-	BPM
Note / Slice 3	-	-	-	-	-	-	-	-	GLOBAL
Note / Slice 4	-	-	-	-	-	-	-	-	LANES
Note / Slice 5	-	-	-	-	-	-	-	-	MATRIX
Note / Slice 6	-	-	-	-	-	-	-	-	
Note / Slice 7	-	-	-	-	-	-	-	-	1-8
Velocity	93	100	118	112	124	124	124	124	9-16
Note Length	1/16	1/32	1/32	1/16	1/32	1/16	1/32	1/32	17-24
Chance	100%	100%	100%	100%	100%	100%	100%	100%	25-32
Mod 1	43%	17%	23%	49%	67%	50%	56%	92%	33-40
Mod 2	43%	22%	0%	66%	54%	7%	9%	10%	41-48
Mod 3	0%	0%	0%	0%	0%	0%	0%	0%	49-56
Mod 4	0%	0%	0%	0%	0%	0%	0%	0%	57-64

120.00 BPM   1/16   POS 1   LENGTH 7   RANDOM 1

The GR-MEGA's step sequencer is present as a menu tab, but also accessible via the front panel. Enter the Sequencer menu by holding [Menu] and pressing [5], or [Seq]. When playing a sequence or when inside the sequencer menu, the preset buttons double as sequence position.

The GR-MEGA's sequencer can be used for chords, but in slice mode it can also be used to trigger slices: like a drum sequencer. In the phase vocoder sound engine, you can use it like chord mode is used. This can increase polyphony in this engine by a lot. You can use 3 chords of 7 fingers at the same time!

There can be 64 steps as maximum (8 bars of 8 steps), and each step can contain up to 7 chord or slice notes. Each step has a note length, velocity, chance, and 4 modulation settings (for use in the mod matrix). A note is disabled showing only a dash '-'. When you use the horizontal slider or (Op enc) you can change a disabled note to an enabled note of a certain key or slice.

Navigate using the arrow buttons [←] [→] [↑] [↓] to find a cell to edit, and then use the horizontal fader for coarse data entry and (Op enc) for fine tuning. Hold [Shift] along with the horizontal fader or (Op enc) to set all values in the current row. Hold [Shift] and press [Execute] (next to the operation encoder) to randomize the entire row.

Tip: using [→] and the horizontal fader repeatedly, you can enter a sequence of notes or modulations really quickly.

Note that navigating will highlight the step / column to edit in ORANGE. The playing column / step is highlighted in BLUE. Play position [BLUE] has priority over edit position and will hide [ORANGE] if they are on the same step.

You can also use the [Copy] button to copy a column to clipboard and [Shift] + [Copy] to paste it to another column. The [Delete] button initializes a cell, and [Shift] + [Delete] gives you a dialog to select what to initialize: the column, the row, all notes, all modulation, etc.

The sequencer is polyphonic. Even a horizontal track is polyphonic. Meaning notes can overlap. When the patch is set to a polyphony of 1 (i.e. monophonic), notes can no longer overlap and will replace each other.. which is useful when glide is enabled.

Global vs free BPM. In the rightmost column, there's a button underneath "BPM": GLOBAL/FREE. Setting this to FREE means you'll have free-running BPM for this layer's sequencer. This is quite an exotic feature, but it can probably be used to good effect by a creative mind.

Sequencer mod lanes

The sequencer offers 4 modulation lanes. These can be used as SEQ MOD 1..4 in the matrix. Modulation in each step can be changed as you like. There's also modulation slewing [0..1000ms] for the mod lanes: [Shift] + (Sequencer Rate). Slewing gives a laggy interpolation, very similar to what glide can do for the notes.

The mod lanes can be used without any sequencer notes. You can see them as alternative LFO's that allow for long and complex waveforms. Mod lanes can also be used in parallel with parameter locks. Read on.

Parameter locks

Sequencer parameter locks, or p-locks, are toggled in the right column under "LANES". You can toggle this from "MATRIX" (or mod lanes) to "P-locks". The 4 lanes will then be usable for locking parameters. A locked value can be present and is then denoted as 0..100%, or can be absent, and is then denoted by a dash "-", just like with the notes.

Turning a physical knob or a moving a fader will result in assignment of a parameter (one of the 140 modulation destinations) to a p-lock lane. You can then use the regular controls like the position fader and (Op enc) to enter lock values.

P-locks can be overridden by live tweaks. Just exit the sequencer menu, start the sequencer, and start tweaking. When a p-lock is triggered it will override the knob value, but if you're in an "empty" step, where no p-lock is present, you can just tweak the knob, and when you release it, it will be held until the next p-lock.

NOTE: if you would need more than 4 p-lock lanes, you can use macros.

Sequencer ties

Sequencer ties give you access to exotic note lengths like ¼ + 1/1, but also allow the sequencer to play legato and use glide on each row of notes. To tie two steps together, just hold press two neighbouring preset buttons, for instance preset [1] and preset [2]. To extend the tie to 3 steps,

you can then press preset [2] and [3]. This is denoted with "+" signs between the note lengths, and a brown background color. Press the preset buttons again to remove the ties.

Modulation Matrix

The GR-MEGA's modulation matrix consists, at the time of writing, of 24 sources by 140 destinations. There's 4 LFO's, CV, MIDI and MPE, and 4 sequencer modulators as sources. The destinations are numerous and listed in table 2.

Enable	Source	Curve	Amount	Polarity	Category	Destination
ON	LFO 1		69.05 %	BI +	ENGINE	PITCH
ON	LFO 2		100.00 %	UNI +	LFO	LFO1 RATE
ON	LFO 3		17.20 %	BI +	ENGINE	PAN
ON	LFO 2		100.00 %	UNI +	LFO	LFO3 RATE
OFF	LFO 4		0.00 %	BI +	ENGINE	POS
ON	NONE		0.00 %	UNI +	ENGINE	POS
ON	NONE		0.00 %	UNI +	ENGINE	POS
ON	NONE		0.00 %	UNI +	ENGINE	POS
ON	NONE		0.00 %	UNI +	ENGINE	POS
ON	NONE		0.00 %	UNI +	ENGINE	POS

Enter the Matrix menu by Holding [Menu] and pressing [6], or [LFO Select].

While the matrix is large, it's quite easy to set up. If you want to set an LFO to modulate a parameter, you can do it completely using the front panel. You don't have to be in the matrix menu:

Hold down the [LFO Select] button in the LFO section, and then turn a knob.. for instance (LPF Cutoff). You've now assigned the currently highlighted LFO to LPF Cutoff! Keeping holding and turning to automatically assign the amount in 1 go. Or, if you wish, just turn (LFO Amount). Press the [Wave] button to select the appropriate wave. Hold [Shift] + press [Wave] to toggle modulation polarity.

It doesn't need to stop there, because LFO sync options are also represented as physical buttons. There's even LFO phase and phase quantization [Shift] + (LFO Phase).

In the matrix menu, you can just navigate with the arrow buttons [←] [→] [↑] [↓] to a new row in the matrix (up to 50 are supported), and start editing the Source cell. Use the horizontal slider and (Op Enc).

Tip:

A shortcut to quickly assign a destination: hold down [Shift], and turn a knob, or move a fader. This will assign the control to the current modulation in the mod matrix.

If you need to access different modulation sources besides LFO's, this can also be done on the front panel, but in the current firmware it's easier to do this in the menu.

Still, if you want to do this you can use:

1. Hold down [Shift] + turn (Destination) encoder to set the source.

2. Then turn (Destination) encoder to set your destination.

3. Turn the (Amount) knob to set the amount for this modulation.

4. Possibly use [Shift] + [Wave] to set polarity.

Curve

With the Curve column you can smoothly bias the modulation to either extreme of the range.

Amount and polarity do speak for themselves, but [Shift] + (Op enc) maybe nice for fine tuning amount.

Destination is best set with the horizontal slider and then possibly fine tuned with (Op enc).

Using the amount curve you can smoothly and subtly (or not so subtly) bias the modulation to one side of the other. For instance:

Mod sources

* LFO1,2,3,4: the LFO's. Note that each layer has it's own LFO's.

* CV1, CV2: the two control voltages. These are of course global for the entire system. Range is -5V..+5V, so if you have a 0..5V source it will mean that in Unipolar modulation it will use the upper part of the range!

* SEQ MOD 1,2,3,4: Use the sequencer mod lane as a mod source. Each layer has its own sequencer, so each layer also has its own 4 mod lanes.

* MOD WHEEL: the mod wheel on your MIDI controller.

* KEY TRACK: key position of your MIDI controller. Note that the sequencer also sends this mod source.

* VELOCITY: MIDI note on velocity. MPE calls this "Strike"

* PITCH: MIDI pitch wheel. Also used by MPE controllers when sliding fingers between and over keys, called "Slide".

* AFTER: MIDI channel aftertouch. Also used by MPE. Since every key in MPE has its own channel: channel aftertouch becomes usable as polyphonic aftertouch.

* TIMBRE: MPE only. CC74.

* LIFT: MIDI note off velocity.

* AUX ENV: the auxiliary envelope, accessible from the front panel of the GR-MEGA.

* RANDOM1,2,3,4: sources that change to a new random value at each new note. Note that each layer has it's own random sources.

* POS X: the horizontal fader. Using this to modulate the destination POS can lead to interesting effects.

* IN ENV: audio input follower. Its AR envelope may be configured as follows: [Shift] + [ADSR Curve], followed by using the A and R sliders.

Effects menu

The GR-MEGA has 4 simultaneous effects (FX slots) per layer. You can choose effects from a list of 7 effects (at the time of writing). Each effect can only be used once per layer.

Enter the Effect menu by Holding [Menu] and pressing [7]. The menu displays the effects chain for the layer that is currently in focus (see and use the Layer buttons 1,2,3,4).

Selecting Effects

At the top there's a row displaying headers Effect 1, Effect 2, Effect 3, Effect 4. Navigate to the row just underneath to cycle through the effects:

Then standing on a GUI button with and effect name on it (highlighted here in RED), Turn (Op enc) or move the horizontal slider to cycle through the effects.

Note that the LIGHT BLUE denotes the effect that is accessible by (FX1) and (FX2) knobs on the front panel! You can change which effect is accessible by (FX1) and (FX2) by turning the (FX Select) encoder.

Effect types

At the time of writing the GR-MEGA has the following effects:

CHORUS	
COMPRESSOR:	A fully featured compressor, that also has VU meters since version 1.2.
DELAY:	Regular delay (independent stereo channels)
DIST(ortion)	
FLANGER	
PPDELAY:	Ping pong delay
REVERB:	a simple reverb that is easy on the CPU
LARGE REVERB:	huge and organic reverb (including a 6 parameter EQ)
REDUCER:	sample rate and resolution reducer
RING MOD	
VIBRATO	

Why 2 reverbs? The normal reverb is less impressive sounding with less parameters, but is easy on the CPU. The large reverb is very smooth sounding, yet can also be used to achieve metallic effects with small room sizes.

FX 1 and 2 Assign

Highlighted here in RED are the FX1,2 assign GUI buttons. Use the horizontal slider or (Op enc) to use assign one of the FX parameters from the list directly below in the same column.

Dry/Wet

Highlighted here in ORANGE are FX Dry and Wet. These can be changed with the horizontal slider and (Op enc), but also with the physical (Wet/Dry) knob on the front panel.

FX Parameters

Patch	Projects	Files	Sampling	Sequencer	Matrix	Effects	System

Effect 1		Effect 2		Effect 3		Effect 4	
LARGE REVERB →		NONE →		NONE →		COMPRESSOR →	
FX1 ASSIGN	LPF CUTOFF	FX1 ASSIGN	NONE	FX1 ASSIGN	NONE	FX1 ASSIGN	NONE
FX2 ASSIGN	ROOM SIZE	FX2 ASSIGN	NONE	FX2 ASSIGN	NONE	FX2 ASSIGN	NONE
DRY	100.00 %	DRY	100.00 %	DRY	100.00 %	DRY	0.00 %
WET	11.38 %	WET	0.00 %	WET	0.00 %	WET	100.00 %
LPF CUTOFF	1279 Hz					THRESHOLD	0.00 dB
HPF CUTOFF	10 Hz					KNEE	0.00 dB
PRE	0.00 %					RATIO	100.00 %
TIME	0.26 s					GAIN DB	6.51 dB
ROOM SIZE	299.88					ATTACK	9 ms
SPREAD	100.00 %					RELEASE	100 ms
EARLY	100.00 %					LOOKAHEAD	0 ms
TAIL	100.00 %						
LOSHELF CUT	10 Hz						
LOSHELF DB	0.00 dB						
HISHELF CUT	10 Hz						
HISHELF DB	0.00 dB						

Highlighted here in RED are FX parameters. Use the horizontal slider to quickly change the value, and use (Op enc) to step the value, for instance by 1% for each encoder tick. Hold [Shift] and turn (Op enc) to change 0.1% for each encoder tick. Some effect parameters like frequencies, times, and amplitudes have a cubic curve on them. Meaning the slider will have more precision in the lower range.

Almost all FX parameters are available in the modulation matrix.

System menu

Enter the System menu by Holding [Menu] and pressing [8]. This menu contains settings that are global to the GR-MEGA: settings for how the front panel controls and display should behave, settings for your studio's MIDI setup, and settings concerning loading, saving to/from disk, CPU usage, metronome and tuning volumes.

Patch	Projects	Files	Sampling	Sequencer	Matrix	Effects	System

Firmware Version	0.28.0
Firmware update	Update
Potentiometer Pickups	OFF
Menu Slider	ON
Direct Shift	ON
Instant bank switch	OFF
Display brightness	
LED Brightness	
MPE Mode	OFF
Part 1 MIDI Channel	1
Part 2 MIDI Channel	2
Part 3 MIDI Channel	3
Part 4 MIDI Channel	4
Receive CC	ON
Receive MIDI notes	ON
Receive PGM change	ON
Velocity curve	+0.500
External Beat Clock	OFF
Ext CC ch16	OFF

GLOBAL

Firmware update
One button click firmware search and update. See the section Update firmware for details.

Tuning sine volume
Controls the volume of the tuning sine.

Metronome sine volume
Controls the volume of the metronome.

DSP Metering
Turn ON to display a vertical bar that measures CPU usage in the right corner of the screen. Useful when you're pushing the system.

SEQ position
How is the sequencer position calculated:

* SEEDED: means the position is derived 100% from a master counter. Change play mode, and back again, and it will return to the position as if you never changed the mode.

* INCREMENTAL: position is incremented. This means changing play mode from forward to reverse works much like turning around and walking the other way. Position remains: continuous.

Soft cut enabled
When cropping a sample, turn this ON to generate cross-faded, clickless results. Eats up a small overlapping piece of sample. Turn OFF if you don't want cross-fading.

Save system settings
Does what it says. Reports back almost immediately with a popup saying "saved". You can also press the physical [Save] button in this screen.

UI

Control all layers

Toggle this ON to control all active layers at the same time. OFF by default. This means knob tweaks only affect the layer in focus.

Potentiometer pickups
Turn this on to lock pots between preset or layer switches. An alternative to the [Feel] button, and also useful when your MEGA is older and potentiometers may have become dusty without servicing. Pickups are usually preferred for live settings, while [Feel] is preferred for studio settings.

Menu Slider
Use the horizontal slider to change the GUI. Turn OFF to keep using the horizontal slider musically while inside the menus.

Direct Shift
When ON, you have to hold down the [Shift] button to access the shift functions of each control. When OFF you can just toggle [Shift] by pressing it. Freeing up one hand. The disadvantage is that you also need to toggle the [Shift] button quite often, depending on what controls you are using.

Instant bank switch
Turn ON so presets switch directly also when you press Bank and Subbank buttons. Turning this OFF will wait for you to press the Preset button to finish the Bank, Subbank, Preset button combo.

Fast MT select
Fast multi timbral preset selection. This makes the Bank and SubBank buttons act like a direct preset. So in total you will have access to only 16 multi-timbral presets, but you will be able to access them with a single button combo.

Since 128 multi-timbral presets per projects (and choosing them from 128 mono timbral presets) may be overkill or may not have much use to the majority of users, we may opt to drop support for 128 multitimbral presets in favor of only 16 which can be recalled quickly.

Message duration
Sets the OSD message and popup duration in seconds. Please note that some popups are exempt and have their own durations. An example is the copy/paste popups in the matrix menu.

External display (newer models only)
Toggle this ON to switch to your external HDMI monitor. This menu toggle is available only on models sold from October 2025 onwards. The older models do also support external monitors, but if you want to switch between internal and external, you need to power cycle and attach or detach the HDMI monitor.

Only one screen, internal or external, can be used at any one time. There are plans have the GUI on both internal and external at the same time, but this will

Display brightness
Does what it says. This CANNOT go all the way down to black. The GR-MEGA will not let you operate blind. It will remain at a very dim minimum.

LED brightness
Does what it says. This CANNOT go all the way down to black. The GR-MEGA will not let you operate blind. It will remain at a very dim minimum. But it can indeed go very dark for dark studios, without flickering.

MIDI

External Beat Clock
Turn ON to use MIDI beat clock for all synced parameters in the patches. Turn OFF to use the MEGA's internal master clock for this instead.

MPE Mode
Turn ON to let the GR-MEGA recognize your MPE controller's input. When this ON the notion of MIDI channels is gone, and the MIDI channel-to-layer mapping in this menu is disabled. It will darken to show these settings are then useless. An MPE controller will effectively control all layers.

Part 1..4 MIDI Channel
Allow a MIDI channel to control a layer. Only usable when MPE is OFF.

Play mode [for layer 1..4]
Turn ON to let the MEGA use its [▶] button for the selected layer.

PPQN

Set the amount of Pulses Per Quarter Note. This can go as low as 4, all the way up to 960. 24 is the default. 24 is the default for a lot of MIDI equipment, so leave it at this for most. Note that the GR-MEGA needs at least 48 PPQN to correctly quantize 1/64th grains and 1/64th notes.

Velocity curve
Adjust the velocity curve of your keyboard. Typically this should be some square root type function.

Ext CC ch16
NOT YET IMPLEMENTED. Turn ON to map the more exotic NRPNs (CC's >= 128) to CC's in MIDI channel 16.

Receive CC
Turn ON to handle MIDI CC messages. Filters them otherwise.

Receive MIDI notes
Turn ON to handle MIDI note on/off messages. Filters them otherwise.

Receive PGM change
Turn ON to handle MIDI program changes. Filters them otherwise.

MIDI clock starts SEQ
Turn this ON to let your MIDI controller start and stop the GR-MEGA's internal sequencer.

MIDI CC OSD
Previously known as "MIDI CC Visuals".
Toggle this ON to have incoming CC's displayed on the OSD in the bottom of the display.
Messages will read like:
`"CC GRAIN SIZE 500.0ms"`
If you send a lot of different CC's into the GR-MEGA, you may want to turn this OFF, because the OSD will change every 16ms, and this will make things unreadable.

Send clock
Turn this ON to let your GR-MEGA send MIDI beat clock information like START, STOP, CLOCK. Transmission of these MIDI messages is triggered by starting one of the GR-MEGA's sequencers.

Send precision CC
Turn this ON to let knob turning send 14 bit CC's (NRPN's) instead of the normal 7 bit CC's

Send Seq notes
Turn this ON to enable the sequencer to sequence off-board MIDI gear. Note that the sequencers will also trigger internal GR-MEGA sounds. To exclusively use it as a MIDI sequencer you will have to reduce the layer volume to zero.

IO

Save on shutdown

Turn this ON for the newschool way that almost every app uses nowadays. The MEGA will save all unsaved changes to patches when it shuts down, and also it will save its system settings automatically. Turn this OFF, and you will be forced to save everything manually.

Incremental Patch Save
To be implemented, if enough users chime in. The feature was implemented in the GR-1, but a user survey revealed it didn't see much use.

Convert to 48 kHz
Turn ON to automatically convert imported samples to the native 48 kHz. Will take noticeable extra processing time.

Auto normalize
Turn ON to automatically normalize imported samples. Will take some extra processing time.

Expert file chooser
Turn this ON to skip the type selection dialog before you start using the file chooser (when pressing [Load]. OFF by default, as this is more beginner-friendly.

RAM Usage
Watch out when this hits 95%. You may not be able to perform copying or loading of large samples / patches. This will probably only happen if you use many very long field recordings as presets, or in the future very large multi-samples.

Disk Usage
Watch out when this hits 99%. You may not be able to perform saves or copying files with the manager. Please delete unnecessary files from your /media/internal user folder.

USB C Mode
Disable/enable USB C device features for maximum compatibility with windows, mac, and linux… Press this to cycle between:

MIDI + FILES (default):   MIDI and Samba file sharing, and SSH.

AUDIO ONLY: USB Audio Class 2 (UAC2) only. Guaranteed to work well on Macs.

AUDIO + FILES + MIDI: All of the above combined. When hooked up to a Mac and streaming audio, this can cause CPU spikes and drop-outs. Linux PC's are unaffected.

Recording samples

To start sampling first see to it that you've used the sampling menu described above, and make sure you enabled sampling start position. You can turn on "looping rec" as well if you want to use the GR-MEGA as a granular effect: for live sampling and replay simultaneously. It will then keep looping through its sample buffer until the user manually stops it.

Once you've configured this menu you can just press the [Record] button on the physical front panel. Stop recording by pressing the [Record] button again, or wait until it has reached the end of the buffer when looping is disabled.

If you press the [Menu] button you'll go back to the main screen where you can enjoy the action:

A red wiper should appear and should start running forward. If it stays still, then re-plug the USB cable. The GR-1 will now record the incoming sound into the buffer.
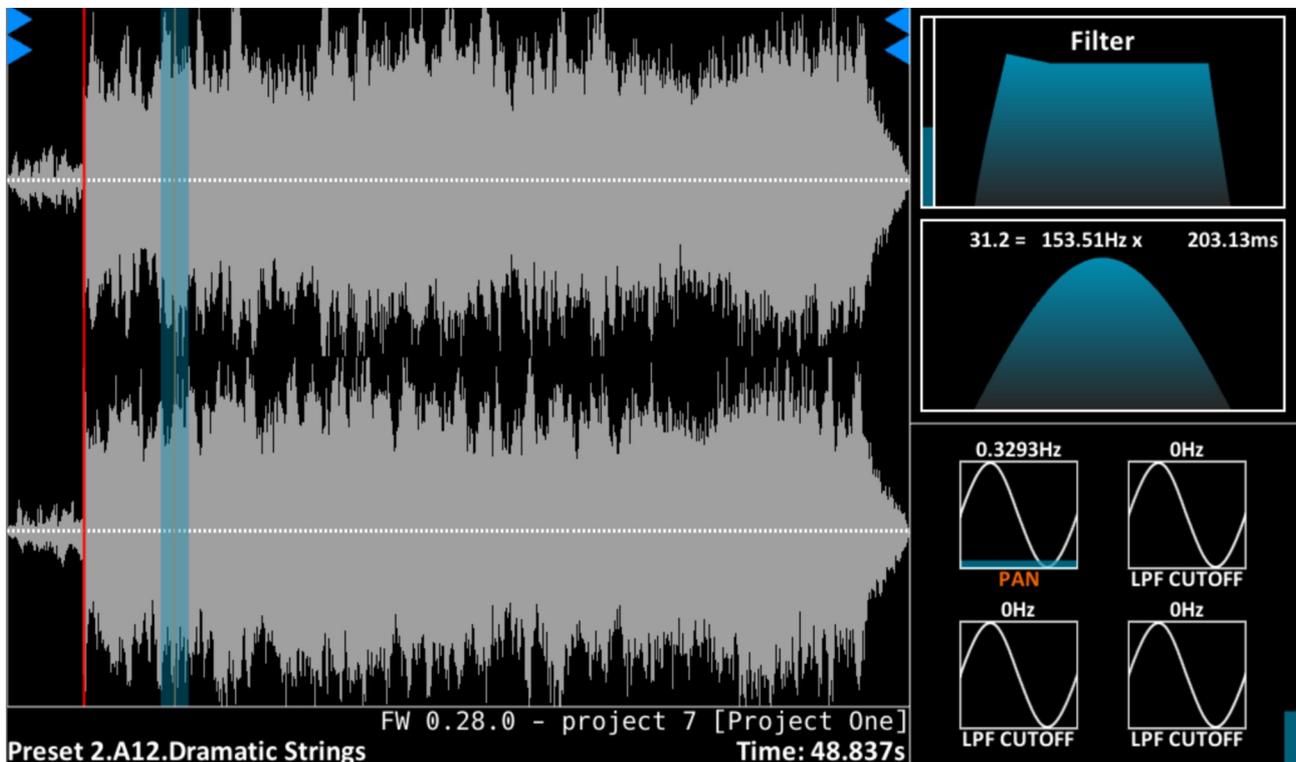
You can use the play button and scan knob to play through the buffer at different speeds, even backwards. You can use the play button, and even the sequencer to directly granulate or phase vocode the incoming live audio signal. All granular parameters and synthesizer parameters are also directly controllable while playing the recording sounds.

To stop recording, press [Record] once more.

Crop & Loop confinements

All of the sound engines support looping and stop positions, and cropping. In granular mode, looping is intended for the scanning motion. These are marked by flags:
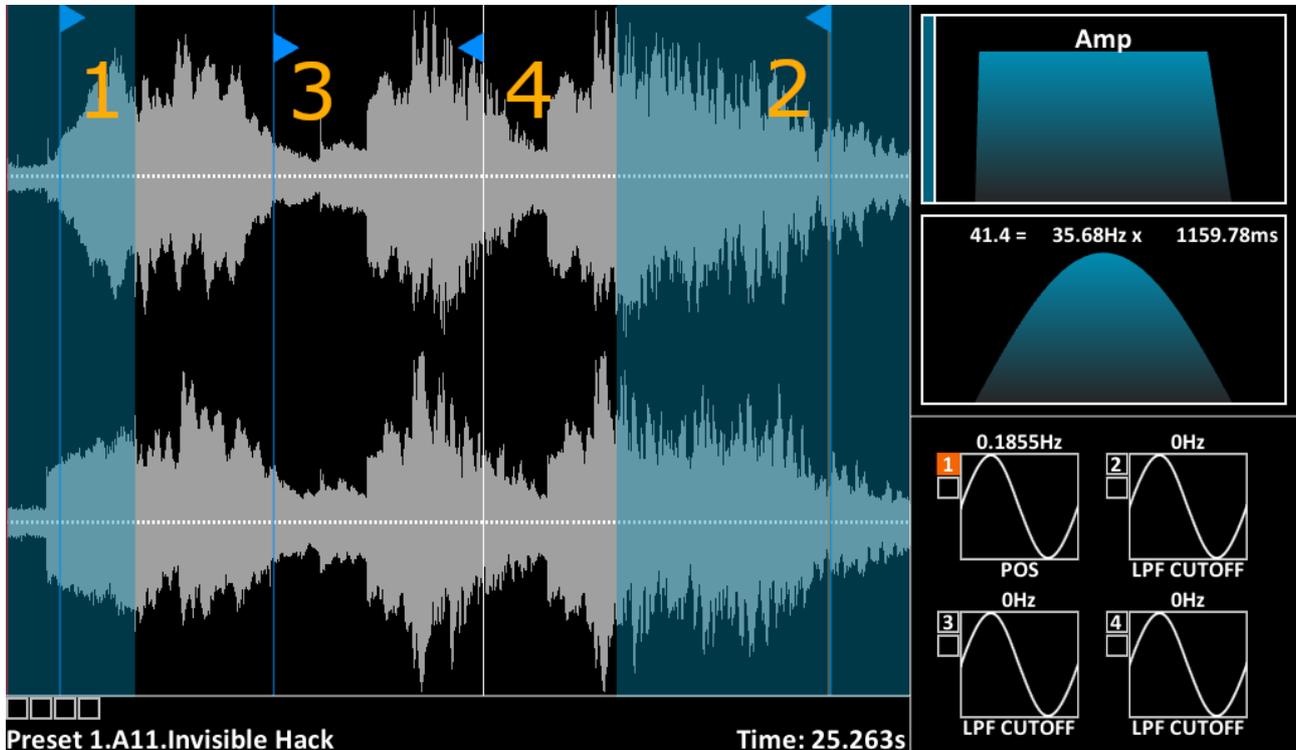
Start End (loop) flags

1) Start flag : high, points to the right. Used for setting the start of the crop area. *NOTE: this is not the grain start position. The grain start position is always set by touching the position slider.*

2) Stop flag : high, points to the left. This has two purposes:
- Sets the end of the crop area,
- Sets the end point for the scan motion.

3) Loop start flag: low, points to the right. Does what it says.

4) Loop end flag: low, points to the left. Does what it says.

Sample Loop Confinement

You can use the loop flags: loop start, and loop end, to confine sample playback to a specific region.

While the loop flags are used in the Granular and Spectral sound engines to confine scanning, in Sampler and Tape sound engines they are used to confine sample playback. The play heads will stay completely confined between the loop start and loop end. In these sound engines, especially in loop and one shot mode (Patch menu → Scan mode) there may be audible clicks and pops if you do not use zero crossings. Pingpong mode can somewhat remedy this.

1. Turn (Op Enc) to "SET LOOP START POS".
2. Drag the horizontal slider to the position in the sample you want.
3. Press the [Exec] button next to (Op Enc).
4. Turn (Op Enc) to "SET LOOP END POS".
5. Drag the horizontal slider to the position in the sample you want.
6. Press the [Exec] button next to (Op Enc).

Press [▶]. You'll notice all grains / play heads are confined to the region of your interest.
Please note that changing loop start and loop end will only take effect in the sound engine when you play a new note!
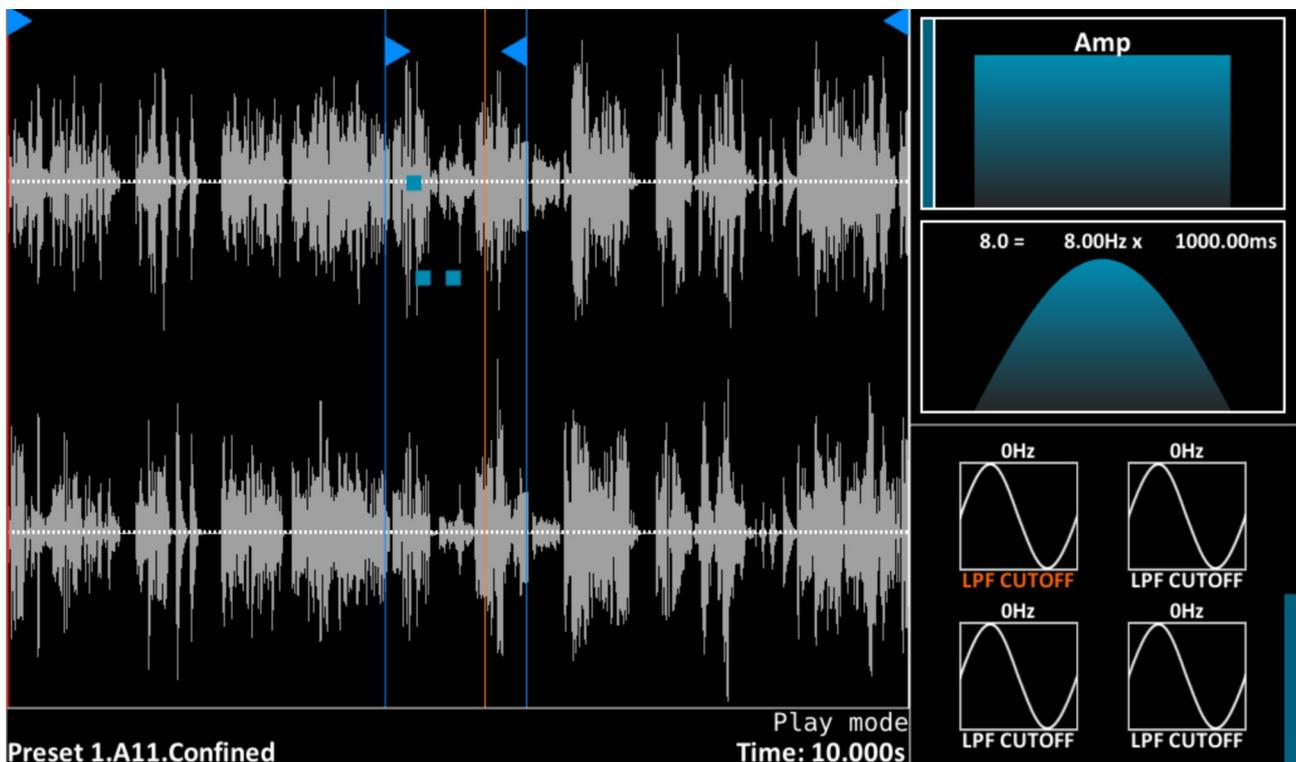
Scan looping
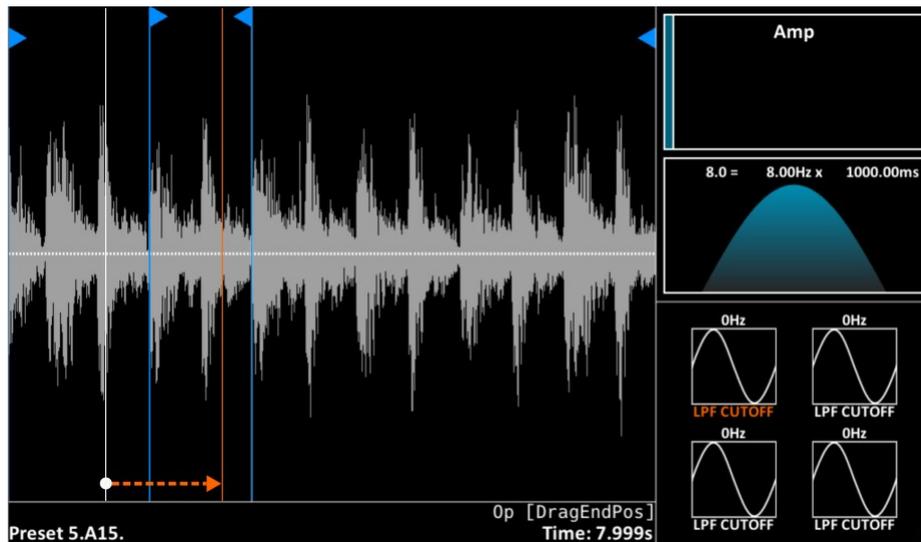
When a MIDI Note ON message is received, the Scanning motion starts at the white vertical line. The white line is stored in the preset, or is set by touching the slider position. Depending on the Scan setting it will move forward or in the reverse direction. You'll see an orange vertical line starting to move.

Scan mode (Patch Menu)

At some point the orange line enters the loop area. When it wants to exit the loop area it chooses depending on the [Scan / Slice mode] setting in the Patch menu.

[One-shot]

Enters Loop confinement, stops at Loop Flag.
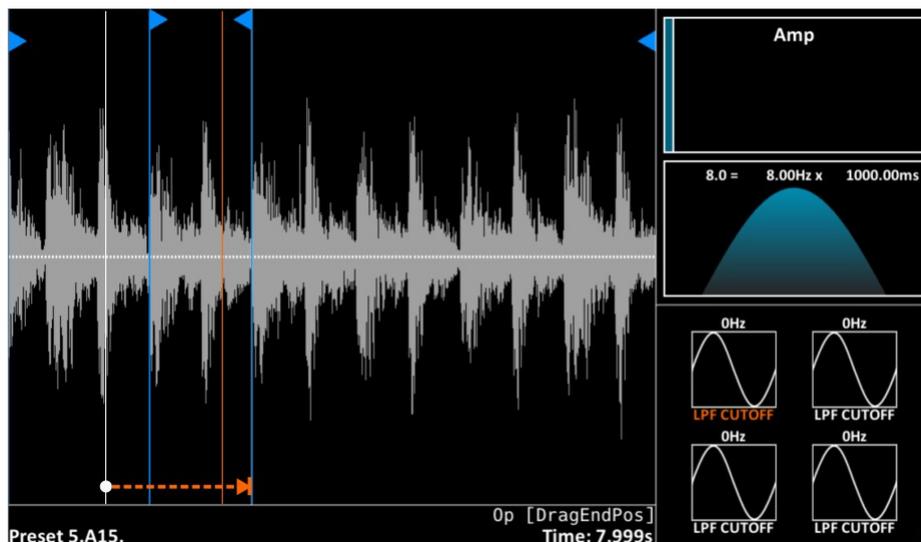
[Loop]

Enters Loop confinement, <u>wraps</u> in same direction when reaching Loop Flag.
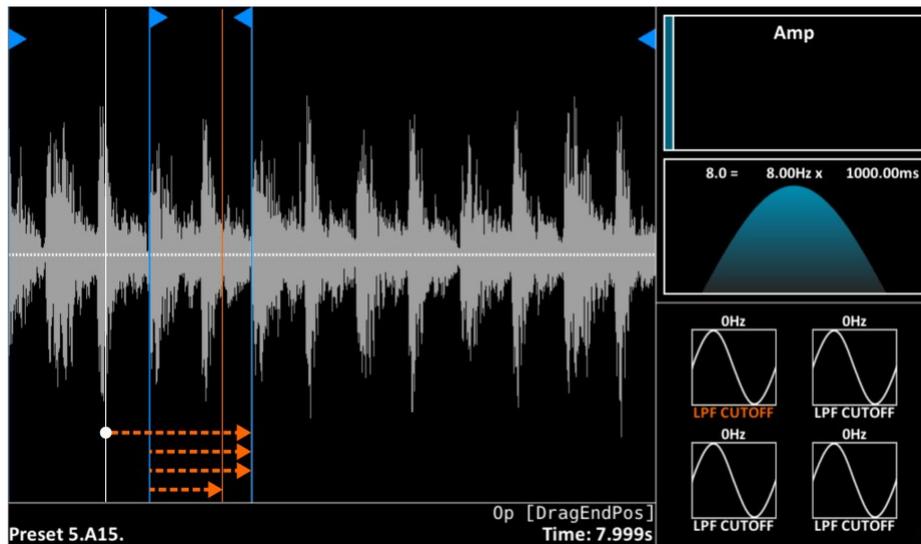
[Bounce]

Enters Loop confinement, bounces against Loop Flag into opposite direction.
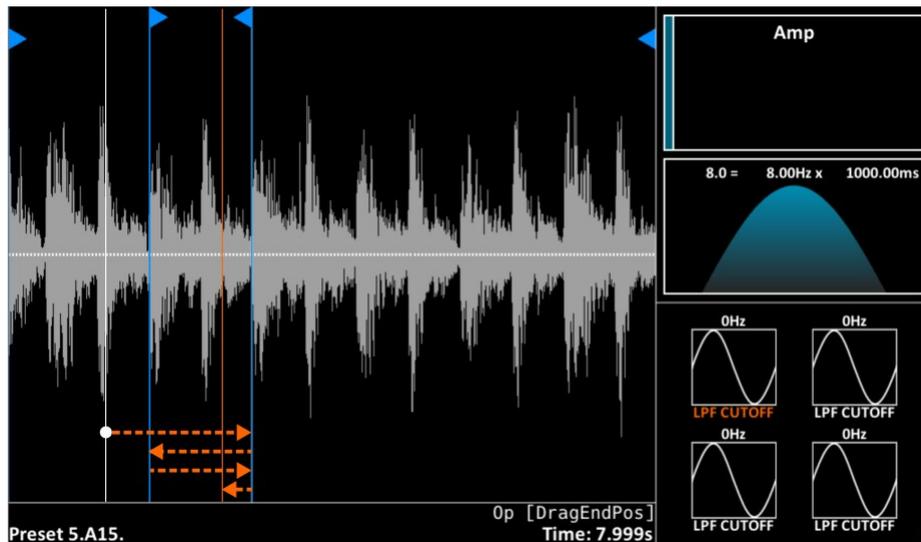
Scan Looped Release

When a MIDI Note OFF is received, the scanning motion either keeps looping or bouncing, depending on the [Looped release] settings in the Patch menu.

Patch name

Max polyphony		20
Glide		0.0 ms
Sub-osc balance		0

Pitch bend range 12.00
Always OFF

Voicing		
Voice 1	C-4	0.00
Voice 2	C-5	0.00
Voice 3	-	0.00
Voice 4	-	0.00
Voice 5	-	0.00
Voice 6	-	0.00
Voice 7	-	0.00
Voice 8	-	0.00
Voice 9	-	0.00
Voice 10	-	0.00
Voice 11	-	0.00
Voice 12	-	0.00

Grain	
Key trigger	ON
Sync	OFF
Grain spawn	Gradual
Transpose	0.00
Stealing thres.	0
Local pitch	OFF
Arp mode	Up
Anti-aliasing	ON

Scan/slice	
Key trigger	On
Sync	OFF
Scan mode	PingPong
Loop clock sync	OFF
Looped release	OFF
Autoslice sens.	50

If Looped release is ON, it will continue to scan *inside* the loop confinement.

If Looped release is OFF, it will exit the loop area, but only if it has performed an even number (0, 2, 4, 6, …) of loops or bounces.

Amp

8.0 = 8.00Hz x 1000.00ms

0Hz   0Hz
LPF CUTOFF   LPF CUTOFF
0Hz   0Hz
LPF CUTOFF   LPF CUTOFF

0p [DragEndPos]
Preset 5.A15.   Time: 7.999s
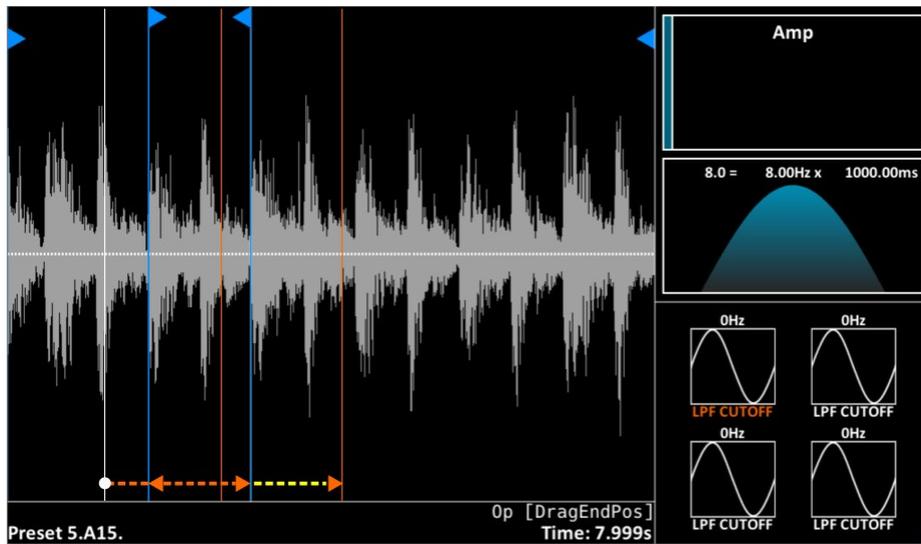
Sample editing

Sample Tuning

1. Go to Menu → Patch (Hold [Menu] and press [1])
2. Navigate to the column called "Grain" and to "Transpose"
3. Use the horizontal slider and/or turn (Op Enc) to transpose your sample in semitones. [Shift] + (Op Enc) fine tunes.

Using your ears you can now tune it using the on-board tuning sine. Hold [Shift] and press [Sub] (in the lower right region of the front plate). The tuning sine will activate, and you'll hear the central C (approx 261 Hz). You can transpose your sample to match the C.

You can also choose to use the Pitch knob for this purpose, but it's more often used live for performance.

Here we use the transpose option in the Patch menu to transpose the pitch up by 1 semitone and 5 cents:

Sample Normalize

1. Turn (Op Enc) to "Normalize"
2. Press the [Exec] button next to (Op Enc)

Note: the GR-MEGA can automatically normalize samples when loading them. This means that you don't need to normalize samples. You'll probably only need to do it after cropping.

Sample Crop

Sample cropping can be done in three ways:

Crop Zoomed

This way is easiest.

Just turn the (Op encoder) to "ZOOM IN OUT" and hit the [Execute] button. Of course you can also use [Shift] + (Op encoder) to zoom in and out. You can scroll with the arrow keys [←] [→], and also use [Shift] + the horizontal fader to scroll quickly.

Then turn (Op Enc) to "ZOOM CROPPED", and hit [Execute]

Crop recorded

After recording, turn the (Op Enc) to "ZOOM RECORDED", and hit [Execute]. This will crop everything up to the record head: the RED line.

Crop start-end

This way is more complicated, but will allow you to make high precision crops.

1. Turn (Op Enc) to "DragStartPos"
2. Drag the horizontal slider to the position in the sample you want.*Tip: You can use zooming to fine tune sample position: Hold [Shift] and turn (Op Enc) right to zoom in. Turn left to zoom out.*
3. Press the [Exec] button next to (Op Enc). This will set the Start marker.
4. Turn (Op Enc) to "DragEndPos"
5. Drag the horizontal slider to the position in the sample you want
6. Press the [Exec] button next to (Op Enc). This will set the End marker.
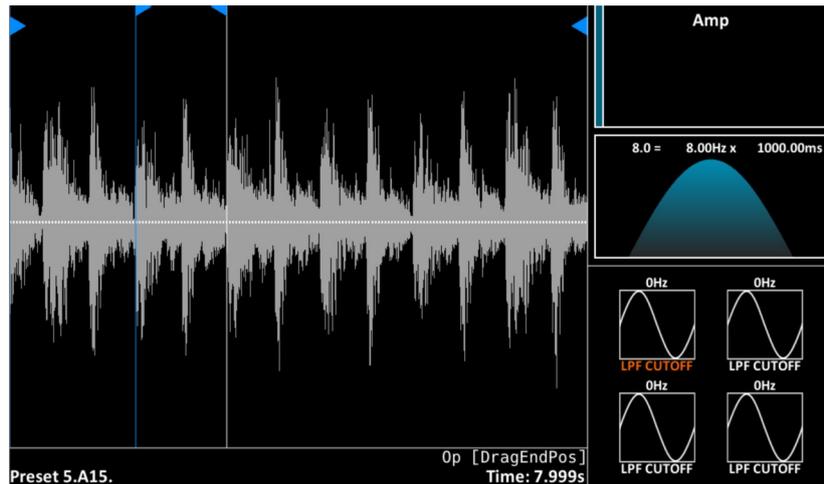
7. Turn (Op Enc) to "Crop"
8. Press the [Exec] button next to (Op Enc)
9. Your sample is now cropped to the range between the start and end flags.
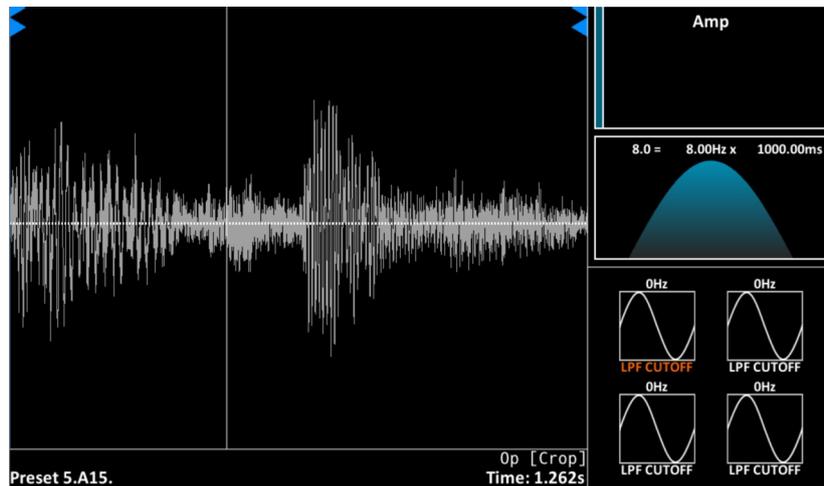
Soft cut

Cropping can cause jumps in the signal, when not done at zero crossings, and even zero crossings can cause somewhat artificial sample loops. To counter this effect, we offer a "soft cut" toggle. Turn this on to crossfade the start and the end of the crop region. Note that this will shorten the resulting sample a tiny amount.

Turn the (Op Enc) to "Soft cut" and then hit [Execute] to toggle it ON or OFF.

Saving & Loading

Loading

Loading (not to be confused with recalling, which is done with button combos) is typically done with the file chooser.

Press the Load button to open it.
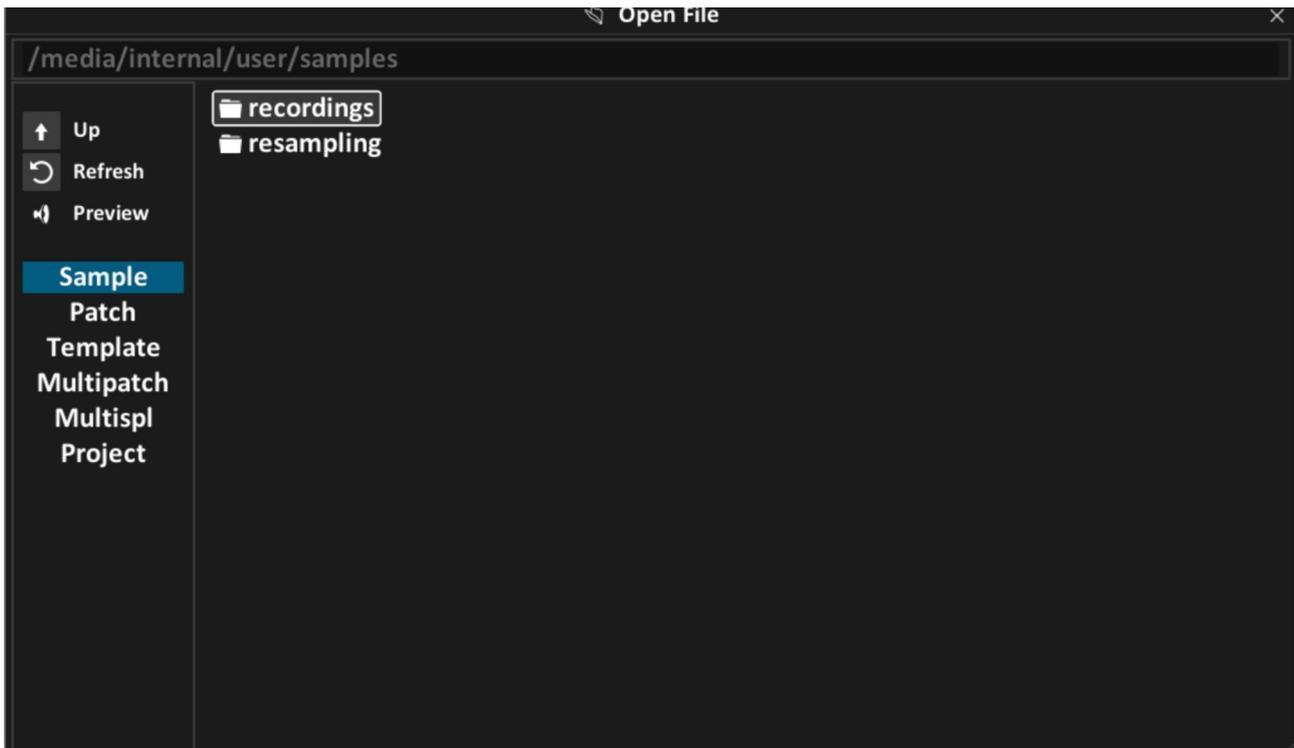
On the top left there are navigation options, on the bottom left you can chooser the data type. On the right there's you can navigate through the folder contents. Select a data type, and then navigate to the file you want to load, and press Load again.

Press Enter on the loudspeaker icon (🔊) to enable sound previews. You can now hear the wav file under the cursor. Use the horizontal fader to fast forward through the preview. [Shift] + [Play] lets you manually preview the sample, just like in the main screen.

* Press Load button

* Navigate

* Press Load button again

In 80% of the cases you'll use this to load samples.. Samples that you recorded, or from USB stick, or samples you copied to internal storage earlier on using the File manager.

Other data types are supported as well. You'll sometimes save patches to use (copy) them in another project. The same goes for templates, and because they can be used on to make several patches, you'll want to store them some place central. Multipatch aka multi layer stacks are almost never saved separately, but it's possible to load and save them.

Finally, projects can be saved and loaded with the file chooser, most often to make backups to USB.

Supported sample formats

WAV: Loading and saving. Almost all variants, 8,16,24 bit integer, 32 bit float.

AIFF: Loading only. Most variants, except proprietary Ableton encoding. At the time of writing AIFF sound previews are not possible.

Supported patch formats

GR-1: folders with .grp + .wav files. loading only

GR-MEGA: loading and saving

Saving

Saving is done with the save dialog.
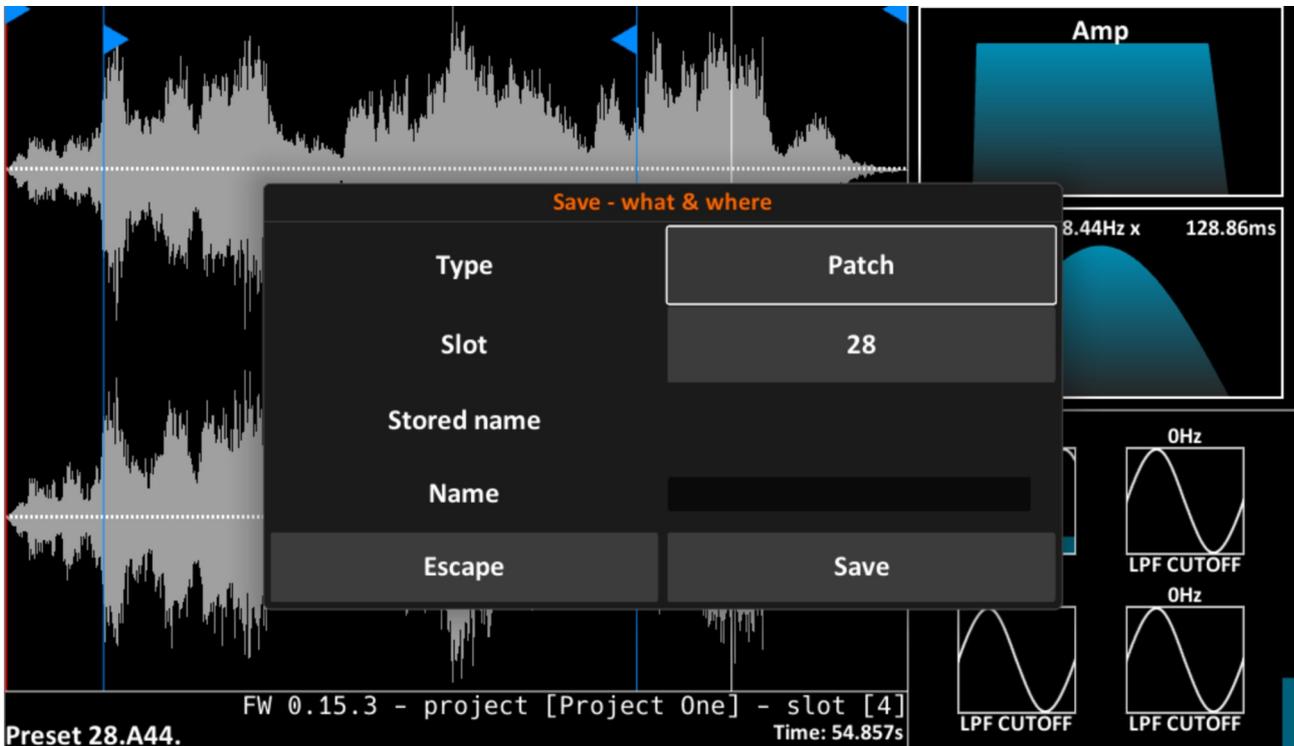
Most often you'll save edited or recorded samples. Select the Type, name the sample if you want and then press Save. The sample is then written to the internal storage at:

```
/media/internal/user/samples/
```

Patches can be saved to slots with the save dialog. Typically, you'll just save your progress with the current patch this way.

1. Press [Save]
2. Select type Patch (or keep it, if it was already selected)
3. Press [Save] again

Typically, that's just pressing save twice.

You can also save to another preset slot to make a sort of backup. Patches are not saved to custom folders or USB this way. Use the file manager for this. Multitimbral stacks, and templates can be saved in exactly the same way.

Projects can be renamed and saved to the current project slot or another slot in the same way (Remember: there are 50 project slots and 128 preset slots per project). When the project data type is already Project, you can just press save twice.

Undo

Saving will set a new *undo point*, meaning a point you can return to if you want to discard your recent changes.

Actions that will set a new undo point:

* Save patch
* Save project
* Load project or GR-1 performance

Actions that will not set a new undo point:

* Loading or saving separate patches
* Loading or saving samples

Note that this list changed in firmware 1.5.3.

Our philosophy is that loading samples or patches is typically for *experimentation*. Is this the sound I'm looking for? Mostly not, so just rewind and let's try another sample or patch. If yes, let's save to keep it.

Undo your changes by pressing the current preset button, or since firmware 1.5.2 press [Shift] + [Enter].

GR-MEGA Data types

Samples

The GR-MEGA is sample based device. Every sound it makes is made by using samples. The sample is the most basic data type the GR-MEGA understands. It can be loaded from disk as WAV or AIFF files, and saved as a WAV file.

Template

A template means all knob tweaks and menu parameters that influence sound generation. For example: the position in the sample, the number of grains per second, and the low pass filter cutoff. In total this is hundreds of parameters. A template can loaded and saved to/from disk, but it is often only used as a part of a Patch. It's mostly used to initialize multiple patches at the same time.

Patches

A patch consists of a sample + a template. A template can be very generic, meaning it can have settings that, for instance, suit to some ambient pads, but it can also be highly specific to the used sample. For instance, a drumbeat can be sliced up at very specific points (kick, snare, hi-hat, etc). That's why each patch comes with its own template data.

A stored patch that's recalled by button combination and by MIDI is called a "preset". Let's say you press bank button A, sub-bank button 2, preset button 7 this will recall preset A-2-7 : preset 16.

Multitimbral stacks

Also called "multi's" or simply "stacks", these are configurations of up to 4 layers. The layers refer to (monotimbral) presets. Layer volumes are also stored here, because they are important to recall when performing in multi timbral mode. There are a number of stacks you can immediately recall by using Shift + the bank & preset buttons.

Because multitimbral presets are just a couple of references to monotimbral presets + layer metadata, workflow is as follows:
1. Design your monotimbral presets.
2. Arrange your multitimbral patch by referencing monotimbral presets in each layer.

The multitimbral preset structure may change in later firmware versions to contain their own samples, and their own patch data, without referencing the monotimbral presets.

Projects

Projects are the biggest collection of data. A project is much like a project in a DAW on PC/Mac. To make things easier, projects are simply stored in a list of 50 slots. Projects can be easily loaded and saved by accessing the project menu, which is basically just a long list of project names. More about this in the Menus Chapter, section Project menu.

A project contains:
* 128 presets (meaning 128 patches = 128 samples + templates)
* 128 stacks
* 128 separate templates
* the project name

System settings

System settings contains things like brightness of the display, and LEDs, MIDI device configuration, clocking settings, etc. Things you typically set up to your own user preference which influence the entire system. System settings are saved in the system menu. They are recalled at startup, and cannot be loaded from or saved to USB.

Multisamples

This means a sample for each key. At the time of writing load and save of this data type is not supported and planned for v1.4. Only in a later firmware.. perhaps 1.9 or 1.10 will the GR-MEGA support multisamples.

File sharing

The GR-MEGA can share files over the LAN port, but also over USB C. The GR-MEGA can make sound when sharing files, and does not need to be restarted to enable file sharing. A physical connection is all that is required. You can use this as an alternative to the internal File Manager. All actions will be done from your PC/Mac.

Setup

Step 1 - A) USB C (Linux and Mac)
Use a USB C cable to connect your GR-MEGA's USB C port with your PC or MAC. If you have a USB C port on your Mac, it could be you need a USB C → USB A adapter and a USB A → cable. Please note that the hub or adapter/dongle should be on the MAC side!

[GR-MEGA's USB-C port] ↔ [USB C-to-A cable] ↔ [USB A-to-C adapter] ↔ [Mac]

GR-Mega (USB-C)	USB-C / USB-A Cable	USB-A / USB-C HUB- or Adapter	Macbook (USB-C)
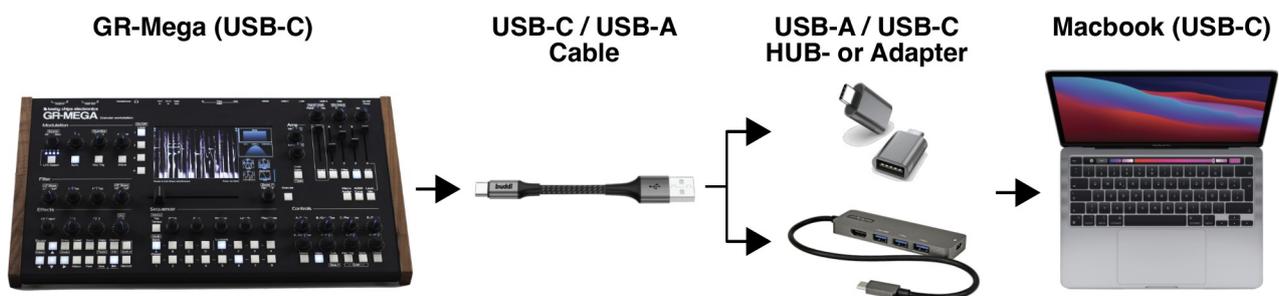
Step 1 - B) LAN port (Linux, Mac, Windows):
Using a standard RJ45 network cable, hook up your GR-MEGA to your router, modem, or directly to your PC.

Step 2. In Finder (Mac), Windows Explorer (PC/Windows) or in Files/Nautilus (Linux) you should see the name "GR-MEGA" advertised under "+ Other Locations". On Mac and Linux this is on the left side of the window.

On Windows 11 it seems to be the case that you may need to use the function "Add network location" or "Add network drive" and enter \\GR-MEGA\internal
See below for step-by-step Windows 11 screenshots:

Step 3. On your PC/Mac click on the GR-MEGA to browse the files in its internal storage ("/media/internal"). No user password is necessary, just choose to login as guest.

Note

By default the /media/internal/projects folder and /media/internal/user/samples cannot be written into. From firmware 1.4.2 onwards, the firmware makes these folders writable.

Important

The GR-MEGA does not have a recoverable trash can. A deleted file is permanently gone!

Windows 11
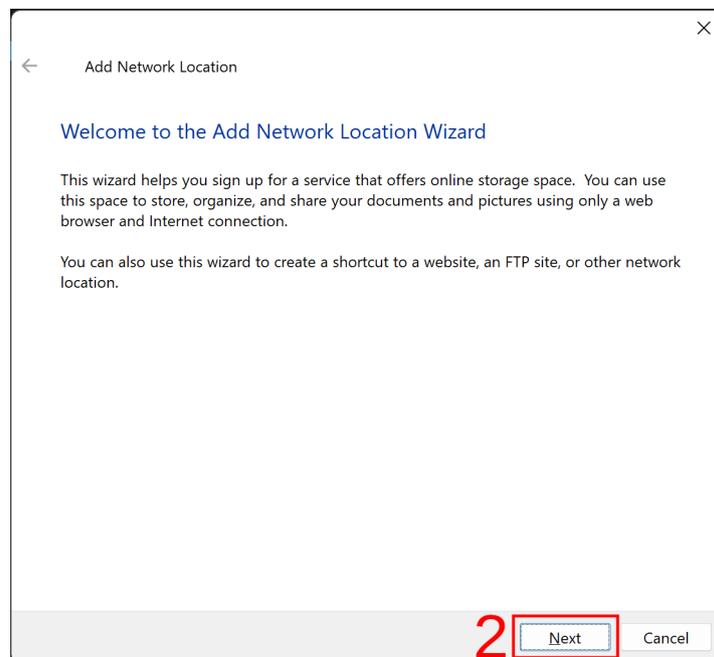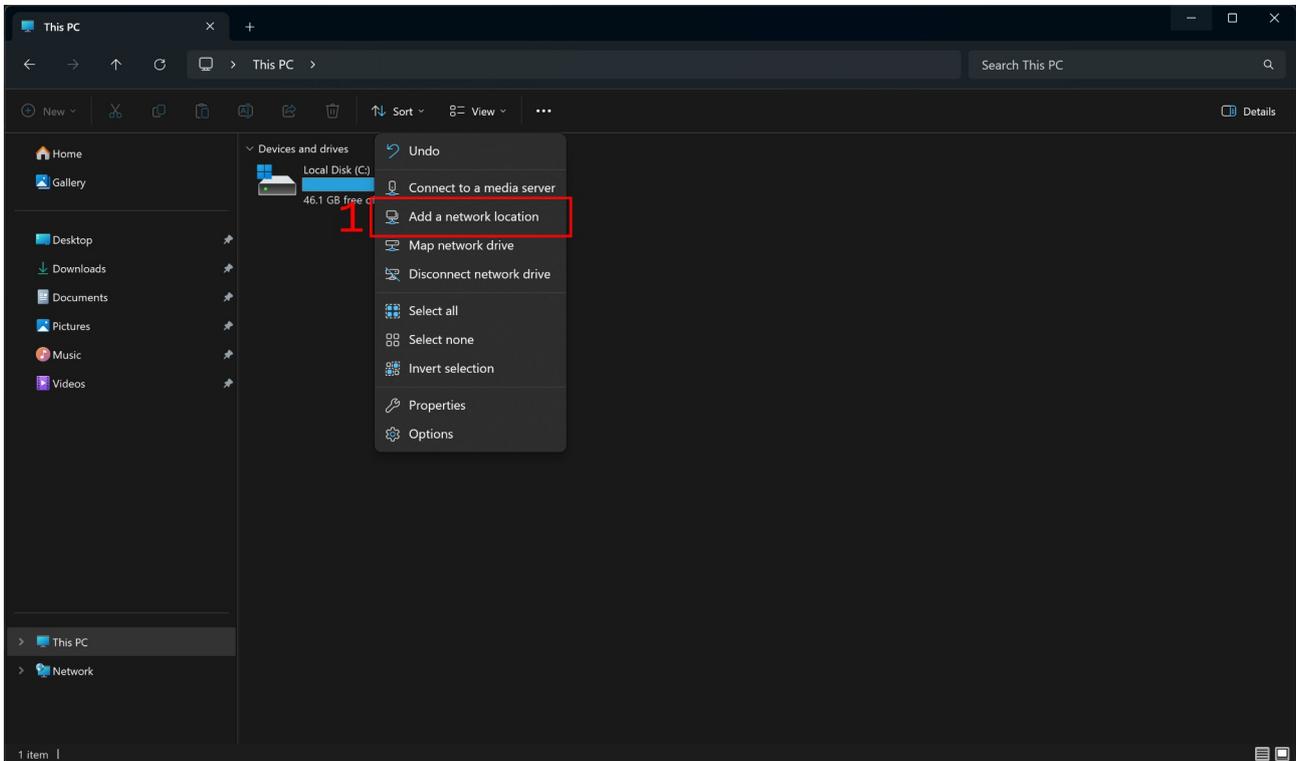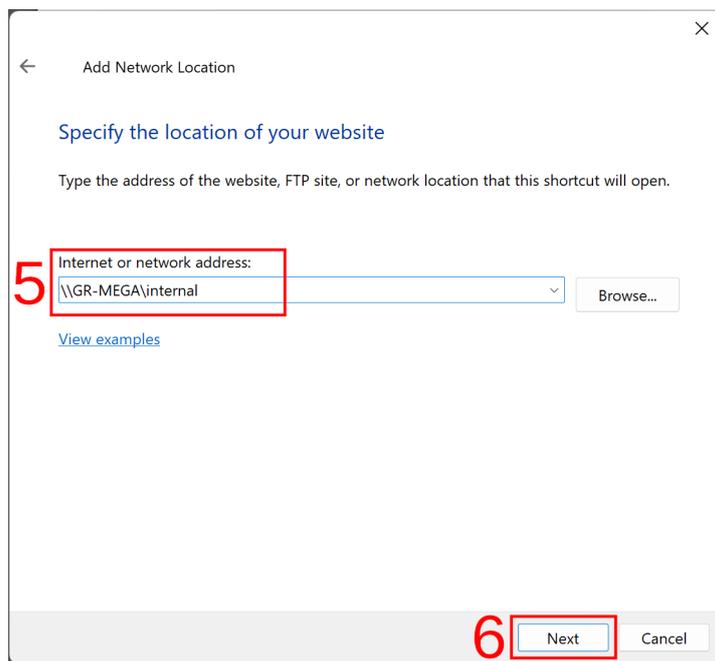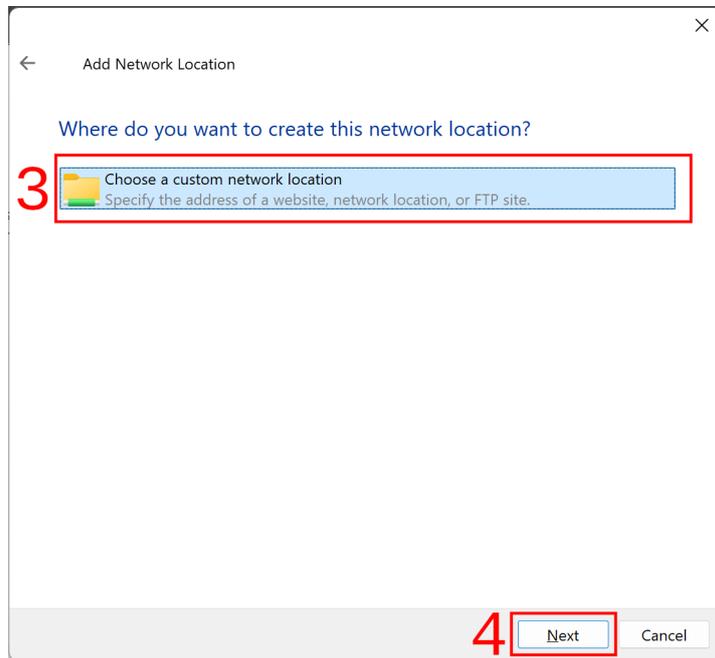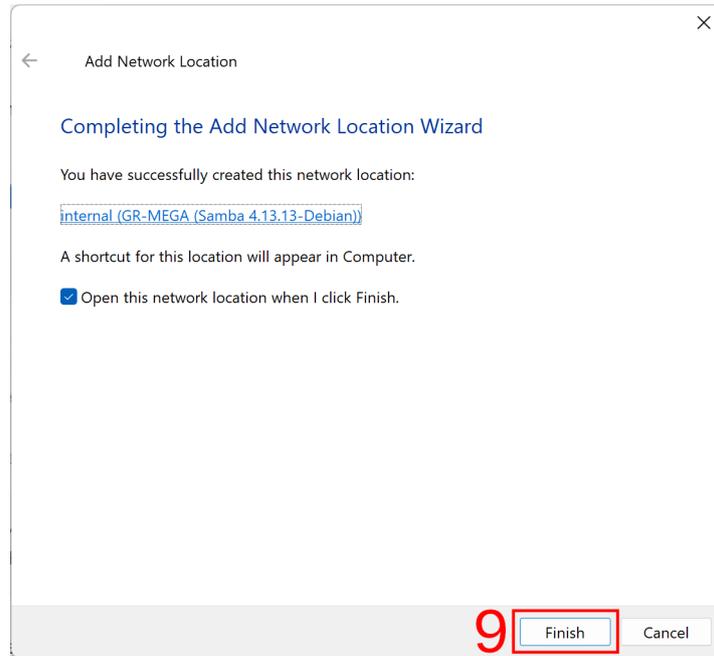
After competing all the steps the mapped drive should look like this:
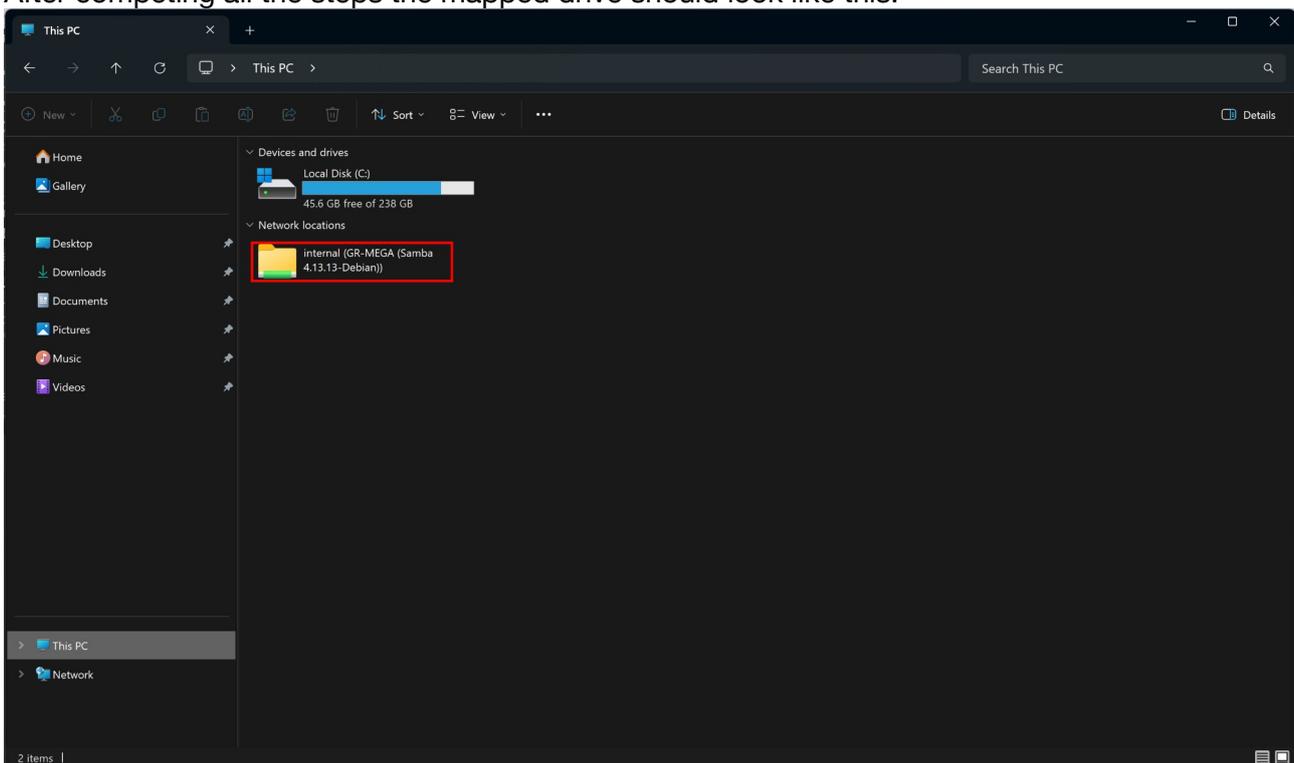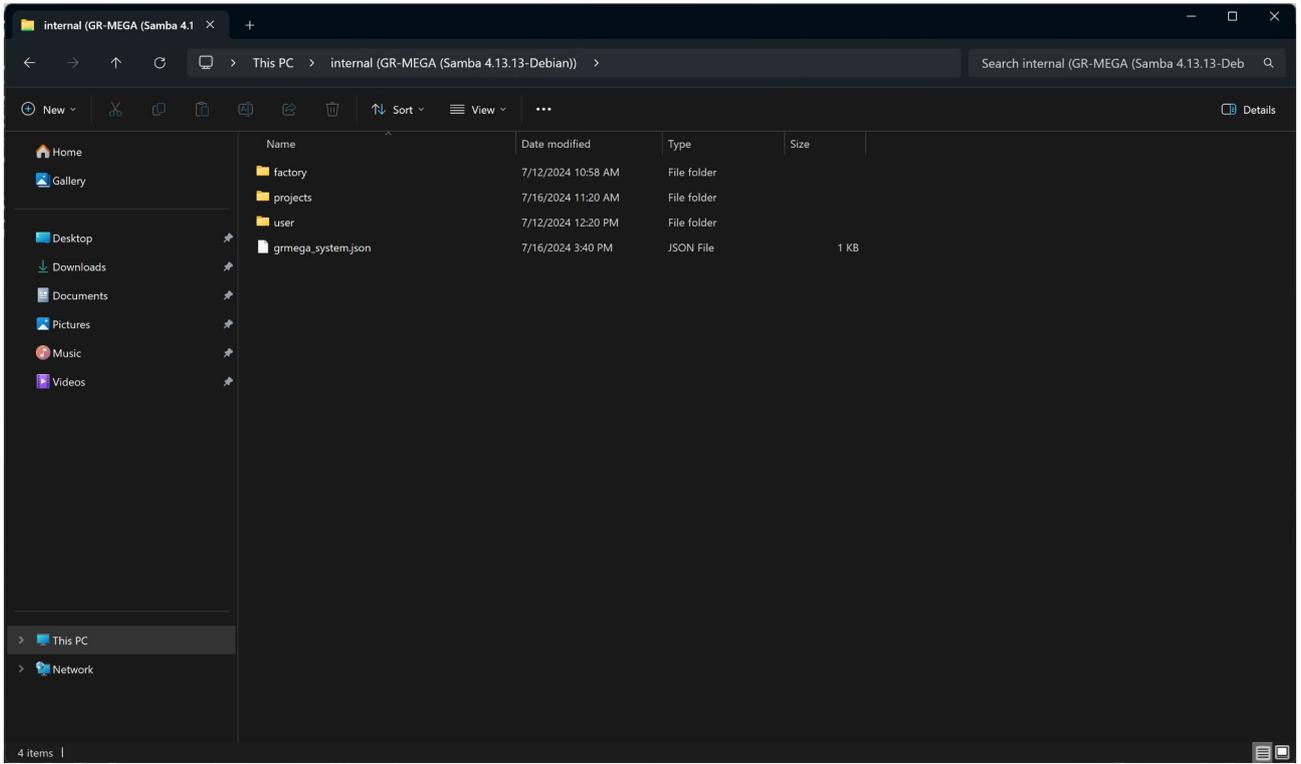
Polyphony

This section explains the GR-MEGA's forms of polyphony, the voice stealing algorithm, the grain window, and how to make the best of them. This applies to all sound engines, but especially to the granular ones, and the spectral engine which is the most CPU intensive of all.

Forms of polyphony

The GR-MEGA has two forms of polyphony:
- Grain polyphony: 128 grains per voice,
- Spectral polyphony.. 12 chord notes per voice,
- Voice polyphony: corresponding to playing notes: 20 voices at the time of writing.. and 3 voices for spectral mode.

Voice timbre

A voice may have anywhere from 0 to 128 grains playing at any time. This allows the flexibility to have a single grain playing (sporadically) up to a massive "cloud" of grains. No amount of playing notes will cause the amount of grains to be modified by the engine. The timbre of the voice will be kept intact as much as possible.

The same principle applies to the spectral sound engine. Higher polyphony will never influence the timbre. However, since spectral mode is (FFT) block based.. larger FFT sizes will increase engine latency. Using 3 spectral voices in 1 layer will be ok, even with 4096 or 8192 point FFT sizes, but doing this in multiple layers at the same time will risk audio drop-outs!

Note hold

The GR-MEGA supports the MIDI hold CC. All new notes will remain playing even if your fingers were lifted from the keyboard. This remains this way until hold is turned off again.

Voice stealing

When the GR-MEGA reaches maximum voice polyphony and the user presses yet more notes on the keyboard, it will choose to abruptly remove the oldest playing note, preferably already in release, that is not being held (by the hold CC explained above). It also makes choices based on the position of the notes on the keyboard in relation to each other. This should make note polyphony as full and responsive as possible.

Grain stealing

(Granular sound engines only) When the maximum amount of grains per voice (128) is reached, the grain scheduler will stall until grains have reached their end. This results in an oscillation effect where there's a big bunch of grains in one place and nothing elsewhere. Grain stealing remedies this effect. It will steal grains in a way that is inaudible to the user: no crackles or clicks. The only drawback is that it (logically) shortens grains. This depends a lot on the Grain stealing threshold setting. See the patch menu.

Audio, and avoiding drop-outs

Since the GR-MEGA has relatively modern digital hardware, audio drop-outs will not be common, unless you really push it. In terms of granular power, it can handle 4 layers at the same time with multiple voices and a bunch of grains per voice + each layer running 4 effects.. even with the large reverb and compressor effects.

An important thing to remember is that using USB C audio and MIDI at the same time will increase CPU demands drastically, so use audio only or MIDI+files only if you want to get the highest polyphony.

The spectral engine (Phase vocoding) is more hungrier than granular in terms of processing power. 1 layer is typically fine, but 2 layers can already cause problems. You may need to reduce the amount of effects or reduce the FFT size.

Further notes about granular polyphony.. if you're using 4 layers, effects.. Although this text is lifted from the GR-1 manual, and the GR-1 has only 1/3rd of the processing power.. it can still apply if you are combining granular and spectral:

It is important to remember that granular synthesis is random in nature. Too much and too scattered access to sample memory will result in a high strain on the engine..

- Maximum voice polyphony is caused by long envelope release and fast playing on the keyboard.. Beware, the GR-MEGA allows 45 second long envelope release!
- Maximum grain polyphony is caused by high grain size and density.
- High spray and long samples will cause scattering of sample memory access.

A suitable comparison is cooking with only 4 burners on your stove, but having a lot of pans around. The more powerful your hardware is, the more burners you have. The larger the sample, the higher the spray, and polyphony, the more pans you'll have around. You'll have to swap out many pans many times which causes slow downs.

The combination of the above factors can cause audio dropouts. The solution is to be aware of them, and apply some practical knowledge:
- If you desire long releases and many playing notes: consider limiting spray and/or choosing shorter samples. Alternatively, choose a short envelope release and use the built-in delay effect or use an external reverb that can generate long releases.
- With longer grains, it's often enough to have a density of 100 grains per second.
- The on-board play mode can be adequate for drones, by just using 4 voices.
- Anti-aliasing may be turned off. This is not recommended, but the aliasing sounds can be used creatively, in some cases.

Master volume and patch volume

When note polyphony increases the total volume will also increase. There is no compression on the end mix, so it will start *hard clipping* the output. So keep in mind that you can lower the volume with the master knob.

Grain window modification

For the sake of simplicity and optimization, there is only a single global grain window per part. This means that any change to the window while it is playing might result in crackles. However, if

the change is gradual and the window shape is convex (that means not pointy), the crackles will be minimal.

Temperature and the internal fan

When the strain on the engine increases the electrical power consumption of the computer in the GR-MEGA also increases.. which, after a while, leads to higher temperatures. The GR-MEGA has an internal fan which is intelligent and spins faster at higher temperatures. At 20C room temperature and normal work loads it should be almost imperceptible. You may be able to hear it at high polyphony and in warm studios.

Tutorials

This chapter contains a number of tutorials intended to get you started. More advanced tutorials for actual sound design (leading to actually usable and impressive patches) can be found on our Youtube channel:

* Designing a granular patch with the GR-MEGA:
https://www.youtube.com/watch?v=mav7oJWiswA&t=633s

* Setting up the GR-MEGA in slice mode to jam with a groove box:
https://www.youtube.com/watch?v=mav7oJWiswA&t=1003s

.. and in the same video there are many other tutorials to make use of the GR-MEGA's sound engines.

Our earlier video tutorial for the GR-1 is also a good one to watch. It will teach you how to make typical granular patches. The way the GR-1 works in granular and tape modes is very close to the way the GR-MEGA works.

Initializing a patch

1. Open a new project. Either;
      a. Menu → Projects → Navigate to an empty one and press Load.
      b. Or just stay in the main screen to init an existing patch.

Patch	Projects	Files	Sampling	Sequencer	Matrix	Effects	System

Project 1 - Project One
Project 2 - Hele nieuwe mooie naam
Project 3 - Project One - 0.6.1
Project 4 - Project One
Project 5 -
Project 6 -
Project 7 -
Project 8 -
Project 9 -
Project 10 -
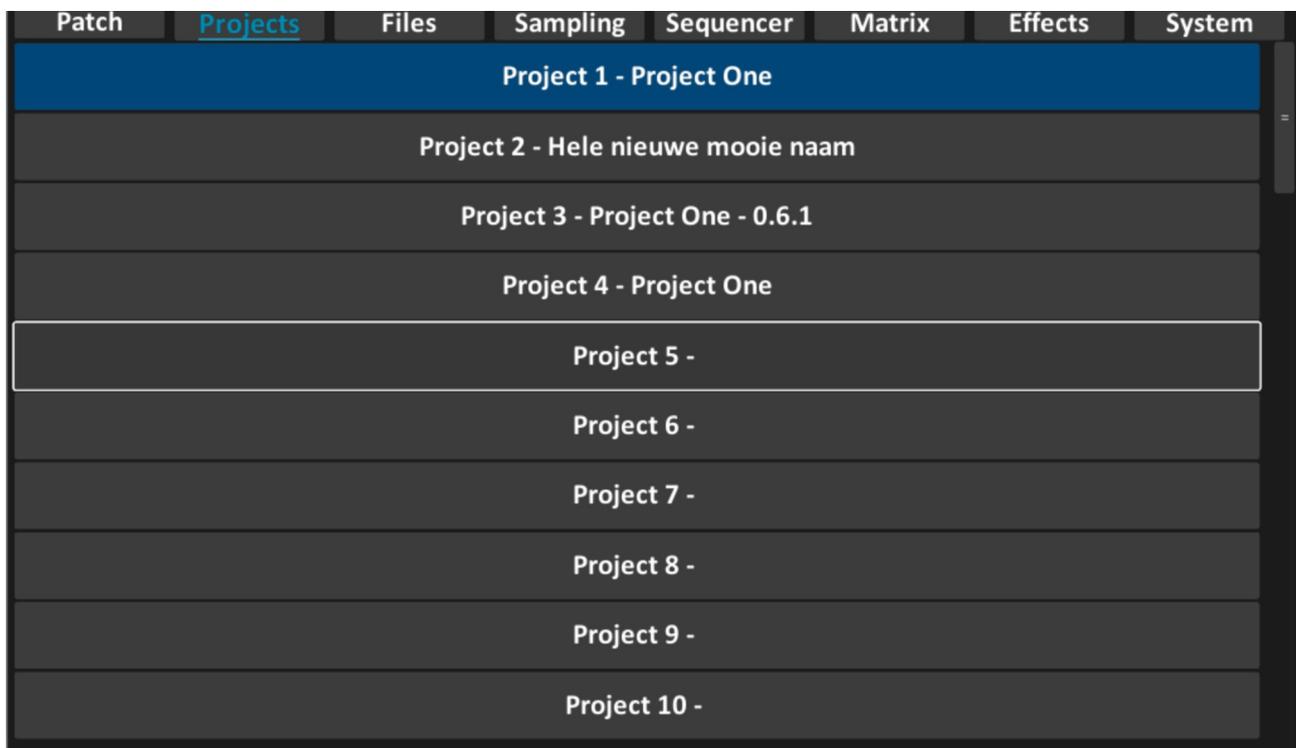
2.A.
      I. Exit back to main screen by pressing Menu.

104

II. Hold down Shift and press delete.

The preset will now initialize to 8 seconds of mono sample memory and defaults like granular mode, 120 BPM 4/4 time signature.

2.B

Alternatively, to have more freedom over your sample buffer, you can go to the Sampling menu, and init the sample there:

I. Menu → Sampling (Hold [Menu] and Press [4])
II. Set the sample size
III. Select "Init Mono" or "Init Stereo", and press [Enter]
IV. Press [Menu] to return to the main screen to witness your new and empty sample buffer.
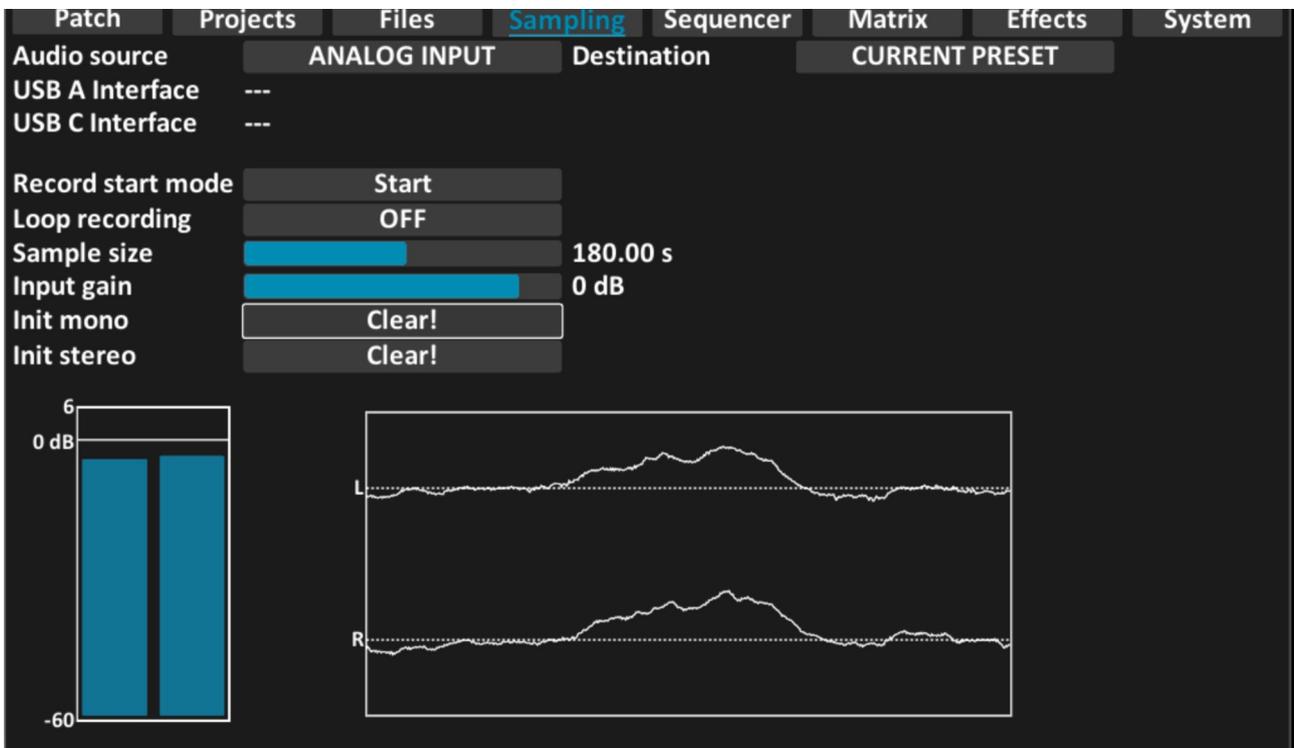
From sample to patch

You can now record into the patch or load a sample into it from USB or internal storage.

Samples from internal storage

Let's load a sample from internal storage:

1. Press Load, the file chooser will show.

2. Navigate to `/media/internal/factory/`
Use the arrow buttons to or Op Enc to scroll, then press the Enter button to enter a folder.

3. Scroll to the desired wav file using the arrows or (Op Enc), and press [Load]. See the chapter "Saving & Loading" for more details.

4. Use the horizontal slider and play button to find sweet spots in the sample, and adjust granular parameters to your liking.

5. Press Save, and enter a name using the Enter button, the (Op Enc) and [←] [→] [↑] [↓] arrows. Then press Save again. Your first preset is now saved.

If you would like to record audio instead of loading a sample, have a look at the recording section in Sampling Menu chapter.
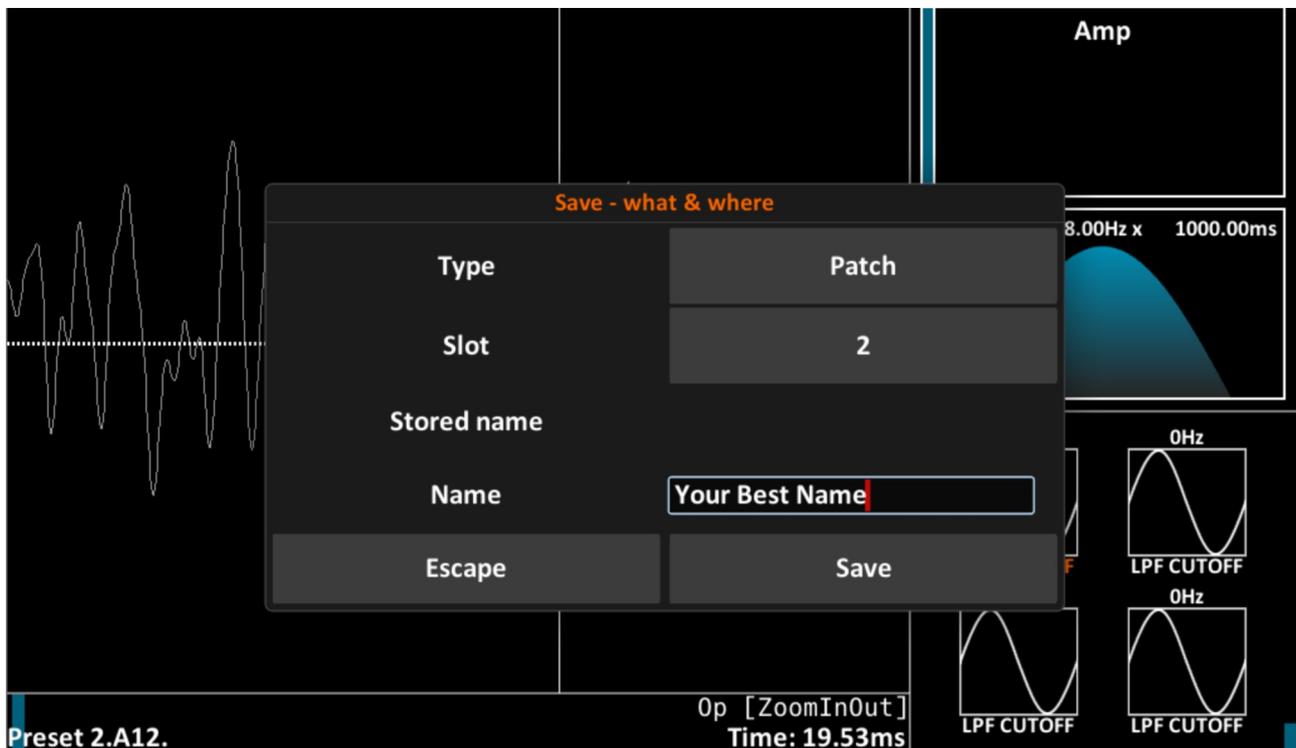
Samples from USB

If you want to quickly turn your samples into presets, that can then be recalled, even after power cycling the GR-MEGA:

0. Let's start at preset 1: Press [Bank A], [Sub-bank 1], [Preset 1]

1. Press [Load], the file chooser will show.

2. Navigate to /media/<YOUR USB STICK NAME>
Use the arrow buttons to or (Op Enc) to scroll, then press the Enter button to enter a folder.

3. Scroll to the desired wav file using the arrows or (Op Enc), and press [Load]. See the chapter "Saving & Loading" for more details.

4. Use the horizontal slider and play button to find sweet spots in the sample, and adjust granular parameters to your liking.

5. Press Save, and enter a name using the Enter button, the (Op Enc) and [←] [→] [↑] [↓] arrows. Then press Save again. Your first preset is now saved.

6. Press the next preset (for instance [Preset 2] if you just did Preset 1) and repeat.

Modifying a patch

To modify a patch is easy. Just use the knobs and buttons to change sound parameters.

Let's say you're in granular mode, and you want to reverse grain direction:

1. Use the Direction knob (knob "E" in the lower right section on the front panel), and turn it all the way left.

2. To store the preset, Press [Save] twice.

You've now stored your modified preset. If you skip step 2 and press any preset or bank button, your changes are undone.

Entering text with built-in buttons

A USB computer keyboard can be plugged in to make entering names super simple, but the built-in controls also do the trick:

Press [Enter] to enter the text field. Press [Enter] again, or press [Escape] to exit the field and resume navigation.

Once you've entered the text field:
* turn (Operator) or press [↑] [↓] buttons to select character (scroll through the alphabet)

Name
[↓]
Lame
[↓]
Kame
[↓]

* Press [←] [→] buttons to scroll the cursor through the name and focus on another character.

This name
[→]
This name
[→]
This name
[→]
This name

* Press [Delete] acts as a back space and will delete the character left of the cursor.

Backup
[Del]
Backu
[Del]
Back

* Press [Execute] (right next to (Operator)) will enter the selected character, and can be used to extend the size of the name.

Letter
[Exec]
Letter
[↑]
Letter a

* Hold [Shift] to change to capitals
caps
[Shift]
Caps

Button combinations

On board controls		
Control	***Screen/mode***	***Function in screen***
Display Section		
Position slider	Main	Sample position
[Shift] + Position slider	Main	Scroll through waveform
Position slider	Menus	Set widget value
Position slider	Text box	Scroll through alphabet
(Operator)	Main	Select sample / sound engine operation
(Operator)	Dialogs	Cycle button options & values
(Operator)	File chooser, File manager	Navigate vertically
Shift + (Operator)	Main	Zoom
[Exec]	Main	Execute selected Operation (with the Op Enc)
[Exec]	Text box	Insert space
[Layer 1] .. [Layer 4]	All	Focus on layer
Shift + [Layer 1] .. [Layer 4]	All	Toggle layer on/off
Hold [Layer 1] .. [Layer 4]	All	Toggle layer on/off
[View] + [Layer 1] .. [Layer 4]	All	Randomize sample color
[Shift] [View] + [Layer 1] .. [Layer 4]	All	Reset sample color (back to grey / white)
Navigation & Disk Section		
Escape button	All, except main	Escape to previous naming/saving step or screen
Menu	Main	Enter menu
Menu	Menu	Enter main screen
Menu + preset 1..8	All	Enter menu tab
Menu + [LFO Select]	All	Enter matrix menu
Menu + [Record]	All	Enter sampling menu
Menu + [Seq]	All	Enter sequencer menu
Menu + (FX Select)	All	Enter FX menu
Menu + [Chord],[Sync],[Key Trig]	All	Enter patch menu
Play	All	Toggle play mode
Play, hold 3 seconds	All	Emergency stop: ALL SOUND OFF
Shift + Play	All	Sample audition mode

Seq + Play	All	Sequencer play/stop
[Enter]	Standing on a button	Use button
[Enter]	Standing on a text box	Start editing text
[Enter]	Editing text	Leave text box
[Enter]	Focused on a file	Load / Save file
Shift + [Enter]	All	Undo
[Load]	All	Open file chooser (for loading)
[Load]	Selecting a file	Load file
[Save]	All	Open save dialog
[Save]	Save file dialog	Confirm overwrite
[↑]	Main	Fine tune last touched control
[↑]	Menu, dialogs	Navigate up
[↓]	Main	Fine tune last touched control
[↓]	Menu, dialogs	Navigate down
[←]	Main (when zoomed)	Scroll left
[Shift] + [←]	File chooser, file manager	Go to parent folder
[←]	Menu, dialogs	Navigate left
[→]	Main (when zoomed)	Scroll right
[→]	Menu, dialogs	Navigate right
[Feel] (hold button down)	Main	Display control value without changing it
[Copy]	Main	Copy preset to clipboard
Shift + [Copy]	Main	Paste clipboard to current preset
[Copy]	Sequencer	Copy step to clipboard
Shift + [Copy]	Sequencer	Paste step data
[Copy]	Matrix	Copy row to clipboard
Shift + [Copy]	Matrix	Paste row
[Delete]	Text box	Backspace
Shift + [Delete]	Main	Init preset
[Delete]	Projects menu	Initialize project in focus
[Delete]	Files menu	Deletes selected files
[Delete]	Sequencer menu	Initialize/delete cell
Shift + [Delete]	Sequencer menu	Initialize column (step)
Seq + Shift + [Delete]	Sequencer menu	Initialize all steps
[Delete]	Matrix menu	Delete modulation row
Shift + [Delete]	Matrix menu	Delete all modulation rows
[Delete]	Effects menu, focus on fx button	Set selected effect to NONE
Shift + [Delete]	Effects menu	Sets all links in the FX chain to NONE

Preset Section		
Preset 1..8	All, sequencer stopped	Switch preset
Preset 1..8	All, sequencer playing	Jump to sequencer step
Bank A..D	All, sequencer stopped	Switch preset
Bank A..D	All, sequencer Playing	Arm next sequencer bar [1..4]
Sub bank 1..4	All, sequencer stopped	Switch preset
Sub bank 1..4	All, sequencer Playing	Arm next sequencer bar [5..8]
Shift + Preset,(sub)bank	All	Switch to multitimbral preset
Preset,(sub)bank	Sequencer menu, not playing	Set sequencer step, arm sequencer bar
Sequencer Section		
Tap tempo	All	Press four times to set BPM
Shift + Tap Tempo	All	Toggle metronome
BPM knob	All	Set BPM
Shift + BPM knob	All	Fine tune BPM
Rate knob	All	Set sequencer rate division
[Shift] + (Rate)	All	Set sequencer modulation slew (0ms..1000ms)
Position knob	All	Set sequencer position
[Shift] + (Position)	All	Set sequencer transpose
Length knob	All	Set sequence length
Mode knob	All	Set sequencer mode (FWD, REV, etc)
[Shift] + (Mode)	All	Set sequencer drunkness
Engine "Controls" Section		
Knobs A..H (Rate, grain size, etc)	All	Varies per sound engine. See table in section "sound engine controls".
[Mode] (Op enc) + [Mode]	All	Cycle sound engine mode: granular, slice, sampler, ..
[View]	All	Change between time series and spectrogram
Shift + [View] (Op enc) + [View]	All	Change side panel: 4 LFO's, mod destinations, CV's, ...
[Sub]	All	Toggle sub-oscillator
[Key Trig] (underneath knobs A..H)	All	Key trigger mode for grains: Off, On, Legato
Shift + [Key Trig]	All	Key trigger mode for scan: Off, On, Legato, Poly
[Sync] (underneath knobs A..H)	All	Grain clock sync: On, Off

Shift + [Sync]	All	Scan clock sync: On, Off
[Chord]	All	Toggle chord mode
Shift + [Chord]	All	Start, stop recording chord notes
(Tilt)	All	Tilt grain window left-right
Shift + (Tilt)	All, PowAR window mode	Set grain window sides (make it pointy or square)
(Curve)	All	Set grain window curvature
Shift + (Curve)	All, Raised cosine window mode	Grain window Amplitude modulation frequency
[Grain Ratio]	All	Cycle grain ratio modes: Free, and "locked" modes DensitySize, DensityRate, ScanRate, ScanOverlap
Shift + [Grain Ratio]	All	Cycle window types: PowAR, Raised Cosine
"Amp" Section		
Amount slider	All	Set envelope amount
[Invert]	All	Invert envelope amount
A slider	Pitch, Filt, Amp, or Aux envelope. Curve and Layer Mix are OFF.	Set envelope attack time
A slider	[Curve] button lit	Set envelope attack curve
A slider	[Layer Mix] button lit	Set layer 1 mix volume
Shift + A slider	All	Set envelope attack curve
[Shift] + A slider	[Layer Mix] button lit	Set position in layer 1
D slider	Pitch, Filt, Amp, or Aux envelope. Curve and Layer Mix are OFF.	Set envelope decay time
D slider	[Curve] button lit	Set envelope decay curve
D slider	[Layer Mix] button lit	Set layer 2 mix volume
Shift + D slider	All	Set envelope decay curve
[Shift] + D slider	[Layer Mix] button lit	Set position in layer 2
S slider	Pitch, Filt, Amp, or Aux envelope. Curve and Layer Mix are OFF.	Set envelope sustain level
S slider	[Layer Mix] button lit	Set layer 3 mix volume
[Shift] + S slider	[Layer Mix] button lit	Set position in layer 3
R slider	Pitch, Filt, Amp, or Aux envelope. Curve and Layer Mix are OFF.	Set envelope release time
R slider	[Curve] button lit	Set envelope release curve
R slider	[Layer Mix] button lit	Set layer 4 mix volume

Shift + R slider	All	Set envelope release curve
[Shift] + R slider	[Layer Mix] button lit	Set position in layer 4
[Pitch]	All	Select Pitch envelope
[Filt]	All	Select Filter envelope
[Amp]	All	Select Amplitude envelope
[Aux]	All	Select Auxiliary envelope
[Aux] (hold down) + knob	All	Assign AUX envelope to mod destination
[Macro Assign] (press and release)	All	Vertical sliders now control macro levels.
[Macro Assign] + (Knob)	All	Assign knob to current macro, and determine start,end range by wiggling
[Menu] + [Macro Assign]	All	Macro menu
[Macro Assign] + [↑]	Main	Next macro
[Macro Assign] + [↓]	Main	Previous macro
[Delete] + [Macro assign]	All	Delete current macro
[Macro Assign] + [Invert]	All	Invert range of currently assigned knob.
[ADSR Curve]	All	Allow ADSR sliders to be used for setting ADSR stage curves
[Shift] + [ADSR Curve]	All	ADSR sliders now control envelope follower.
[Layer Mix]	All	Allow ADSR sliders to be used as layer mix volumes
(Patch Volume)	All	Set patch volume
Shift + (Patch Volume)	All	Audio input volume level
(Wet) (top-right "Amp" section)	All	Set volume of granulated audio
Shift + (Wet)	All	Set dry audio volume
Master	All	Master volume
Modulation Section		
(Destination)	All	Set LFO destination
Shift + (Destination)	All	Set MOD source
(Rate)	All	Set LFO rate [0 Hz .. 50 Hz]
(Phase)	All	Set LFO phase
Shift + (Phase)	All	Set LFO amplitude quantization [continuous .. 2 steps]
(Amount)	All	Set LFO amount [-1.0 .. +1.0]
Shift + (Amount)	All	Set MOD amount [-1.0 .. +1.0]
[LFO Select]	All	Cycle through LFO's 1..4

[LFO Select] + (Knob)	All	Assigns knob as mod destination to LFO (or to MOD source), and sets amount by turning said knob
[Sync]	All	LFO Clock sync on/off
[Key Trig]	All	Cycle LFO Key trigger: off, on, legato
[Wave]	All	Cycle LFO wave form
Shift + [Wave]	All	Toggle LFO unipolar - bipolar
Filter Section		
(LP Cutoff)	All	Set Low-pass filter cutoff
Shift + (LP Cutoff)	All	Set Low-pass filter slope (future firmware)
(LP Res)	All	Set Low-pass filter resonance
(HP Res)	All	Set High-pass filter resonance
(HP Cutoff)	All	Set High-pass filter cutoff
Shift + (HP Cutoff)	All	Set High-pass filter slope (future firmware)
FX Section		
(FX Select)	All	Cycle through active FX : select which FX is controlled by the FX1,2,dry,wet knobs.
(FX1)	All	Set FX1 parameter
Shift + (FX1)	All, [Sub] button lit	Sub-osc frequency
(FX2)	All	Set FX2 parameter
Shift + (FX2)	All, [Sub] button lit	Sub-osc amp
(Wet)	All	Set Wet volume of selected FX
Shift + (Wet)	All	Set Dry volume of selected FX

Special button combinations

In the matrix screen you can assign destinations by holding down the [Shift] button, and then turning a knob or moving a fader. An alternative for this is holding down the [LFO Select] button and turning a knob. This also allows knob shift (meaning alternative) functions to be accessed.

Computer keyboard support

Like many some other Tasty Chips products, the GR-MEGA supports using computer keyboard. Hook up your USB computer keyboard, and all of a sudden text entry is much easier. + additionally, a lot of button functions are also accessible this way.

Computer keyboard controls		
Key combo	**Screen/mode**	**Function in screen**
Navigation		
Arrows	All	Navigation
Enter	All	[Enter]
Escape	All	[Escape]
Ctrl + M / Cmd + M	All	Toggle menu
Editing		
Backspace	All	[Delete]
Ctrl + I	All	Initialize preset
Ctrl + C / Cmd + C	All	Copy
Ctrl + V / Cmd + V	All	Paste
Ctrl + X / Cmd + X	Menus	Cut
Load & save		
Ctrl + L / Cmd + L	All	Load
Ctrl + S / Cmd + S	All	Save
Play & record		
Alt + P	Main	Play
Shift + P	Main	Audition
Ctrl + P	All	Sequencer play/stop
Ctrl + R	Main	Record
Operator menu		
Ctrl + X / Cmd + X	Main	[Execute] button
Ctrl + O / Cmd + O	All	(Operator) encoder forward, aka next operation
Shift + [Ctrl + O / Cmd + O]	All	(Operator) encoder backward, aka previous operation

Presets		
Ctrl + 12345678	All	Switch preset 12345678
Alt + 1234	All	Toggle layer 1234
Shift + 12345678	All	TBV: Switch to MT preset 12345678
Various		
Alt + V	Main	[View] button
Alt + M	All	[Mode] button

MIDI Command Table

The following table contains all MIDI commands known to the GR-MEGA. This includes all the typical MIDI commands such as note on, note off, pitchbend, aftertouch, program changes, midi beat clock. Sysex is not implemented as the time of writing, but may be added for MTS (MIDI Tuning Standard) to support non equal temperament and non Western tuning.

Precision MIDI: "NRPN"

The GR-MEGA also supports all the CC parameters mentioned below as Non-Registered Parameters Numbers (NRPN). This means you can use the normal 7 bit MIDI values, but also use 14 bit values if necessary. This allows for more than 128 controls, and for control values with 16384 steps instead of the normal 128.

All CC's above number 127 are available as NRPN. We're working to also support these "high range" CC's on MIDI channel 16, in a newer firmware (hopefully 1.1).

All CC's that have range 0-127 (not the toggles, or triggers) are also available as 14 bit precision NRPN's. Since the GR-MEGA has many parameters that demand high precision, like sample position or filter cutoff, this feature exposes the full potential of GR-MEGA to MIDI controllers and sequencers.

Note that the GR-1's large modulation matrix is not fully represented as normal 7 bit CC, but also uses CC's that are only available as NRPN.

An NRPN is just 4 CC packets being sent:

CC header byte (176 + channel), 99, NRPN parameter MSB (upper 7 bit of CC number from above table)
CC header byte (176 + channel), 98, NRPN parameter LSB (lower 7 bit of CC number from above table)
CC header byte (176 + channel), 6, NRPN value MSB (high 7 bit of the 14 bit value)
CC header byte (176 + channel), 38, NRPN value LSB (low 7 bit of the 14 bit value)

For example, let's take parameter 2 (sample position) and set that to sample position 98.76% of the total length (16181 as a 14 bit number). We're using MIDI channel 1 (that's 0 in the header, since we start counting from 0).

176, 99, 0
176, 98, 2
176, 6, 16181 div 128 = 126
176, 38, 16181 mod 128 = 53

MIDI Command table

MIDI msg.	Parameter name	Command / CC	Value	Range/description	Control curve
Pitch bend	Pitch bend	-	0 - 16383	see CC 2 (pitchbend range)	2^n
Channel aftertouch	Aftertouch				
Poly aftertouch	Aftertouch				
Program change	Switch preset	-	0 - 127	MIDI PGM 0..7 -> Preset 1..8, Sub-bank 1, bank 1; MIDI PGM 8..15 -> Preset 1..8, Sub-bank 2, bank 1; MIDI PGM 16..23 -> Preset 1..8, Sub-bank 3, bank 1; MIDI PGM 24..31 -> Preset 1..8, Sub-bank 4, bank 1; MIDI PGM 32..39 -> Preset 1..8, Sub-bank 1, bank 2; ...	
Note on	Note on	-	0 - 127		Linear (volume)
Note off	Note off	-	0 – 127		
Sysex	System exclusive info		0xF0	We're thinking of supporting MTS with sysex	
Quarter frame	SMPTE time code quarter frame		0xF1	Unimplemented	
Song pos	Song position		0xF2, 0..16383	Song position * 4 (0: pos 1, 16383: pos 4096.. but clips to position 64, which is the maximum sequence length)	
Song select	Song select		0xF3	Unimplemented	
Tune request	Tune request		0xF6	Unimplemented	
End sysex	End of Sysex message		0xF7		
Timing clock	MIDI beat clock pulse		0xF8	The MEGA assumes 24 pulses per quarter note (PPQN)	

Start	MIDI beat clock start		0xFA	Start at position 0	
Contin ue	MIDI beat clock continue		0xFB	Start where internal sequencer left off	
Stop	MIDI beat stop		0xFC	Sequencer stop	
Active sensin g			0xFE	If your sequencer or controller actually sends this, please contact us.	
Reset			0xFF	Supported since firmware 1.5.2. This will reset all parameters in all layers, stop all voices, stop all sequencers, and all recording processes. Note that you will lose all unsaved changes in all layers.	
CC	Bank change	0	0 – 127	Unused	
CC	Mod wheel MSB	1	0 – 127	Assignable in mod matrix	linear
CC	Pitchbend range	2	0 – 127	0 – 48.0 semitones	linear
CC	Enable & focus layer	3	0 – 127	0 disable, 1 enable, 2 enable & focus	
CC	Subosc pitch	4	0 – 127	Relative sub-osc pitch (64: one octave down, 32: two octaves down)	linear
CC	Subosc amp	5	0 – 127	Sub-oscillator amplitude	linear
CC	NRPN value MSB	6	0 – 127		
CC	Layer volume	7	0 – 127		cubic
CC	Position	8	0 – 127	Start .. end of sample	linear
CC	Rate or density	9	0 – 127	Grain rate or density, depending on grain ratio mode	cubic
CC	Panning	10	0 – 127	0: 100% left, 64: center 127: 100% right	linear
CC	Pan spray	11	0 – 127	0: no spray, 127: full stereo field	linear
CC	Grain size	12	0 – 127	0.1 ms – 5 s	cubic
CC	Spray	13	0 – 127	0.0 s – full sample size, except in spectral mode where max means full FFT block size	cubic
CC	Direction (probability)	14	0 – 127	0: 100% reverse, 64: 50% reverse, 50% forward: 127: 100% forward	linear
CC	Scan	15	0 – 127	0: -2x 64: stop, 127: +2x	linear
CC	Tune	16	0 – 127	0: -1 octave 64: center 127: +1 octave	2^n
CC	M-S	17	0 – 127	0: 100% left, 64: center, 127: 100% right	Linear
CC	Patch volume	18	0 – 127		cubic
CC	Grain clock sync	19	0, >= 1		
CC	Scan clock sync	20	0, >= 1		
CC	Grain key sync	21	0, >= 1		
CC	Scan key sync	22	0..	0: OFF, 1: ON, 2: Legato, 3: Poly	
CC	Patch polyphony	23	0..19	Max number of voices – 1 (meaning: set to 0 to get monophonic, set to 19 to get	

				20 voices max)	
CC	Glide time	24	0 – 127	0: 0 ms – 127: 2000 ms	cubic
CC	Glide always	25	0, >= 1		
CC	Pitch per grain	26	0, >= 1	0: same pitch for each grain in the voice, 1: each grain can get a new pitch and keeps it until done	
CC	Grain ARP mode	27	0..	0: up, 1: down, 2: updown, 3: downup, 4: random, 5: shuffle, 6: forward, 7: reverse, 8: forward-reverse, 9: reverse-forward	
CC	Start pos	28	0 – 127	0: sample start, 127: sample end	linear
CC	Stop pos	29	0 – 127	0: sample start, 127: sample end	linear
CC	Loop start	30	0 – 127	0: sample start, 127: sample end	linear
CC	Loop end	31	0 - 127	0: sample start, 127: sample end	linear
CC	Scan mode	32	0..	0: looping, 1: oneshot, 2: pingpong	
CC	Mod wheel LSB	33	0 – 127		
CC	Sequencer BPM	34	0 – 127	(only useful in 14 bit NRPN mode)	linear
CC	Sequencer Rate	35	0 – 21	Rate division, see Table 3	
CC	Sequencer Pos	36	0 – 63		
CC	Sequencer Length	37	0 - 63		
CC	NRPN value LSB	38	0 - 127		
CC	Sequencer Mode	39	0 – 3	0: Forward, 1: Reverse, 2: Pingpong, 3: Random	
CC	Record trigger level	40	0 – 127	0: Off, 1-127: [-80 .. 0] dB	exp (dB)
CC	Record sample	41	-	Value does not matter. This CC is a toggle.	
CC	Dry audio input volume	42	0 – 127		cubic
CC	Wet (granulated) volume	43	0 – 127		cubic
CC	Grain window sides	44	0 – 127	0: no sides (square), 127: all sides (triangle shape). PowAR window only!	
CC	Grain window tilt	45	0 – 127	0: left, 64: center: 127: right	linear
CC	Grain window curve	46	0 – 127	0: hollow, 64: linear, 127: bulging all the way to square	linear
CC	Grain window AM	47	0 – 127	Amplitude modulation frequency relative to grain size. RaisedCosing window only!	
CC	Window type	48	0, 1	0: RaisedCosine 1: PowAR	
CC	Granular mode	49	0..	0: Free, 1: DensitySize, 2: DensityRate, 3: ScanRate, 4: ScanOverlap	
CC	LFP Cutoff	50	0 – 127	0: 0.0 Hz, 127: 20.000 Hz	cubic
CC	LPF Resonance	51	0 – 127		linear
CC	HPF Cutoff	52	0 – 127	0: 0.0 Hz, 127: 20.000 Hz	cubic

CC	HPF Resonance	53	0 – 127		linear
CC	Pitch env amount	54	0 – 127	0: -1.0 0:0.0 127: +1.0	linear
CC	Pitch env attack time	55	0 – 127	0: 0ms 127: 45s	cubic
CC	Pitch env decay time	56	0 – 127	0: 0ms 127: 45s	cubic
CC	Pitch env sustain level	57	0 – 127		linear
CC	Pitch env release time	58	0 – 127	0: 0ms 127: 45s	cubic
CC	Filter env amount	59	0 – 127	0: -1.0 0:0.0 127: +1.0	linear
CC	Filter env attack time	60	0 – 127	0: 0ms 127: 45s	cubic
CC	Filter env decay time	61	0 – 127	0: 0ms 127: 45s	cubic
CC	Filter env sustain level	62	0 – 127		linear
CC	Filter env release time	63	0 – 127	0: 0ms 127: 45s	cubic
CC	Sustain pedal	64	0 – 127	< 64 : OFF, >= 64 : ON	
CC	Amp env amount	65	0 – 127	0: -1.0 0:0.0 127: +1.0	linear
CC	Amp env attack time	66	0 – 127	0: 0ms 127: 45s	cubic
CC	Amp env decay time	67	0 – 127	0: 0ms 127: 45s	cubic
CC	Amp env sustain level	68	0 – 127		linear
CC	Amp env release time	69	0 – 127	0: 0ms 127: 45s	cubic
CC	Aux env amount	70	0 – 127	0: -1.0 0:0.0 127: +1.0	linear
CC	Aux env attack time	71	0 – 127	0: 0ms 127: 45s	cubic
CC	Aux env decay time	72	0 – 127	0: 0ms 127: 45s	cubic
CC	Aux env sustain level	73	0 – 127		linear
CC	MPE timbre MSB	74	0 - 127		
CC	Aux env release time	75	0 – 127	0: 0ms 127: 45s	cubic
CC	Mod list row	76	0 – 49	Index of row in modulation list (see matrix menu)	
CC	Mod row enable	77	0, >= 1	Mod entry enable. 0: OFF, >= 1 ON	
CC	Mod source	78	0 - 18	Source for mod entry. See Table 4	
CC	Mod curve	79	0 – 127	0: low flatline → accelerating -> 64: linear → saturating → 127: high flatline	linear
CC	Mod amount	80	0 – 127	Mod entry amount	linear

CC	Mod polarity	81	0..3	0: +uni, 1: -uni, 2: +bi, 3: -bi	
CC	Mod destination	82	0 – 90	Destination for mod entry. See Table 5	
CC	CV1 destination	83	0 – 127	See Table 6	
CC	Glide / porta	84	0 – 127	0: 0.0 ms .. 127: 2000 ms	
CC	CV1 amount	85	0 – 127		linear
CC	CV2 destination	86	0 – 90	See Table 7	
CC	CV2 amount	87	0 – 127		linear
CC	LFO1 clock sync	88	0..2	0: free, 1: MIDI, 2: sequencer	
CC	LFO1 frequency	89	0 – 127	0: Stopped .. 127: 50 Hz	cubic
CC	LFO1 wave	90	0..5	0: sine, 1: triangle, 2: saw, 3: -saw, 4: square, 5: random	
CC	LFO1 amount	91	0 – 127		
CC	LFO1 destination	92	0 – 90	See Table 8	
CC	LFO2 clock sync	93	0..2	0: free, 1: MIDI, 2: sequencer	
CC	LFO2 frequency	94	0 – 127	0: Stopped .. 127: 50 Hz	cubic
CC	LFO2 wave	95	0..5	0: sine, 1: triangle, 2: saw, 3: -saw, 4: square, 5: random	
CC	LFO2 amount	96	0 – 127		
CC	LFO2 destination	97	0 – 90	See Table 9	
CC	NRPN parameter LSB	98	0 – 127		
CC	NRPN parameter MSB	99	0 – 127		
CC	RPN parameter LSB	100	0 – 127		
CC	RPN parameter MSB	101	0 – 127		
CC	LFO3 clock sync	102	0..2	0: free, 1: MIDI, 2: sequencer	
CC	LFO3 frequency	103	0 – 127	0: Stopped .. 127: 50 Hz	
CC	LFO3 wave	104	0..5	0: sine, 1: triangle, 2: saw, 3: -saw, 4: square, 5: random	
CC	LFO3 amount	105	0 – 127		
CC	MPE timbre LSB	106	0 – 127		
CC	LFO3 destination	107	0 – 90	See Table 10	
CC	LFO4 clock sync	108	0..2	0: free, 1: MIDI, 2: sequencer	
CC	LFO4 frequency	109	0 – 127	0: Stopped .. 127: 50 Hz	cubic
CC	LFO4 wave	110	0..5	0: sine, 1: triangle, 2: saw, 3: -saw, 4: square, 5: random	
CC	LFO4 amount	111	0 – 127		
CC	LFO4 destination	112	0 – 90	See Table 11	
CC	Focus layer FX	113	0..3	Focus on FX 1,2,3,4 in chain	
CC	Set layer FX type	114	0..	0: None, 1: Compressor, 2: Delay, 3: Ping pong delay, 4: Distortion, 5: Large reverb,	

					6: Reducer, 7: Reverb	
CC	FX Dry	115	0 – 127	Dry FX volume	linear
CC	FX Wet	116	0 – 127	Wet FX volume	linear
CC	FX1 knob assign	117	0 – 127	Depends on effect, see table TODO	
CC	FX1 value	118	0 – 127		
CC	FX2 knob assign	119	0 – 127	Depends on effect, see table TODO	
CC	All sound off	120	-	Kills all sound on all layers, including delay and reverb. The MIDI panic button.	
CC	Reset layer CC's	121			
CC	Local keyboard OFF	122			
CC	All notes OFF	123		Releases all notes on this layer. Envelope release will keep running until done. Same for delay and reverb.	
CC	FX2 value	124	0 – 127		
CC		125			
CC	Mono mode	126			
CC	Poly mode	127			
NRPN	Sequencer record	128	0, >= 1		
NRPN	LFO1 Amp Quantization	192	0 – 16383		
NRPN	LFO1 Phase	188	0 – 16383		
NRPN	LFO2 Amp Quantization	193	0 – 16383		
NRPN	LFO2 Phase	189	0 – 16383		
NRPN	LFO3 Amp Quantization	194	0 – 16383		
NRPN	LFO3 Phase	190	0 – 16383		
NRPN	LFO4 Amp Quantization	195	0 – 16383		
NRPN	LFO4 Phase	191	0 – 16383		
NRPN	LFO1 Polarity	196	0..3	0: +uni, 1: -uni, 2: +bi, 3: -bi	
NRPN	LFO2 Polarity	197	0..3	0: +uni, 1: -uni, 2: +bi, 3: -bi	
NRPN	LFO3 Polarity	198	0..3	0: +uni, 1: -uni, 2: +bi, 3: -bi	
NRPN	LFO4 Polarity	199	0..3	0: +uni, 1: -uni, 2: +bi, 3: -bi	
NRPN	Anti-alias	210	0, >= 1		

NRPN	Tape slew	211	0 – 16383		linear
NRPN	Delay time	250	0 – 16383		cubic
NRPN	Reducer bit	269	0 – 16383		inv cubic
NRPN	Reverb time	253	0 – 16383		linear
NRPN	Delay feedback	249	0 – 16383		linear
NRPN	Distortion level	261	0 – 16383		linear
NRPN	Reducer rate	270	0 – 16383		inv cubic
NRPN	Reverb width	279	0 – 16383		linear
NRPN	Reverb dampening	280	0 – 16383		linear
NRPN	Navigate right	283	0 – 16383		
NRPN	Navigate down	284	0 – 16383		
NRPN	Navigate left	285	0 – 16383		
NRPN	Navigate up	286	0 – 16383		
NRPN	Bypass filter	289	0, >= 1	0: filter active, 1: filter bypassed	
NRPN	Rate mode	291	0..	See Table 12	
NRPN	Filter routing	293	0..2	0: LPF only, 1: LPF+HPF, 2: HPF	
NRPN	Input level	294	0 – 16383		cubic
NRPN	Amp attack curve	166	0 – 16383	0.0: low flat → hollow → 0.5: linear → bulging → 1.0: high flat	linear
NRPN	Amp decay curve	167	0 – 16383	0.0: low flat → hollow → 0.5: linear → bulging → 1.0: high flat	
NRPN	Amp release curve	168	0 – 16383	0.0: low flat → hollow → 0.5: linear → bulging → 1.0: high flat	
NRPN	Pitch attack curve	156	0 – 16383	0.0: low flat → hollow → 0.5: linear → bulging → 1.0: high flat	
NRPN	Pitch decay curve	157	0 – 16383	0.0: low flat → hollow → 0.5: linear → bulging → 1.0: high flat	
NRPN	Pitch release curve	158	0 – 16383	0.0: low flat → hollow → 0.5: linear → bulging → 1.0: high flat	
NRPN	Filter attack curve	161	0 –	0.0: low flat → hollow → 0.5: linear →	

			16383	bulging → 1.0: high flat	
NRPN	Filter decay curve	162	0 – 16383	0.0: low flat → hollow → 0.5: linear → bulging → 1.0: high flat	
NRPN	Filter release curve	163	0 – 16383	0.0: low flat → hollow → 0.5: linear → bulging → 1.0: high flat	
NRPN	Aux attack curve	171	0 – 16383	0.0: low flat → hollow → 0.5: linear → bulging → 1.0: high flat	
NRPN	Aux decay curve	172	0 – 16383	0.0: low flat → hollow → 0.5: linear → bulging → 1.0: high flat	
NRPN	Aux release curve	173	0 – 16383	0.0: low flat → hollow → 0.5: linear → bulging → 1.0: high flat	
NRPN	Invert pitch env	159	0, >= 1		
NRPN	Invert filter env	164	0, >= 1		
NRPN	Invert aux env	174	0, >= 1		
NRPN	LFO1 key sync	184	0, >= 1		
NRPN	LFO2 key sync	185	0, >= 1		
NRPN	LFO3 key sync	186	0, >= 1		
NRPN	LFO4 key sync	187	0, >= 1		
NRPN	Grain rate	1006	0 - 16383		cubic
NRPN	Sequencer clock div	1007	0 - 127	1 - 128	
NRPN	LFO3 clock mul	1010	0 – 127	1 - 128	
NRPN	LFO4 clock mul	1011	0 – 127	1 - 128	
NRPN	LFO3 clock div	1012	0 – 127	1 - 128	
NRPN	LFO4 clock div	1013	0 – 127	1 - 128	
NRPN	Sequencer clock mul	1014	0 – 127	1 - 128	
NRPN	Layer 1 preset	175	0 - 127	1 - 128	
NRPN	Layer 2 preset	176	0 – 127	1 - 128	
NRPN	Layer 3 preset	177	0 – 127	1 - 128	
NRPN	Layer 4 preset	178	0 – 127	1 - 128	
NRPN	Layer 1 midi channel	158	0 - 15	1 - 16	
NRPN	Layer 2 midi channel	159	0 – 15	1 - 16	
NRPN	Layer 3 midi channel	160	0 - 15	1 - 16	
NRPN	Layer 4 midi channel	161	0 – 15	1 - 16	
NRPN	Scan layer 1	140	0 – 16383		linear
NRPN	Scan layer 2	141	0 - 16383		linear

NRPN	Scan layer 3	142	0 - 16383		linear
NRPN	Scan layer 4	143	0 - 16383		linear
NRPN	Layer bias	500		To be implemented	linear
NRPN	Layer spray	501		To be implemented	linear

Rate divisions

Table 13: Rate divisions

Index	Division
0	1/64
1	1/48
2	1/32
3	1/24
4	1/16
5	1/12
6	1/8
7	1/6
8	1/4
9	1/3
10	1/2
11	1/1
12	2/1
13	3/1
14	4/1
15	6/1
16	8/1
17	12/1
18	16/1
19	24/1
20	32/1
21	48/1
22	64/1

Mod sources

Table 14: Mod sources

Index	Modulation source
0	LFO1
1	LFO2
2	LFO3
3	LFO4
4	CV1
5	CV2
6	Seq1
7	Seq2
8	Seq3
9	Seq4
10	Mod wheel
11	Key tracking
12	Note on velocity
13	Pitch (pitchwheel, MPE pitch)
14	Aftertouch
15	Timbre (MPE)

16	Lift (note off velocity)
17	AUX envelope
18	Random1
19	Random2
20	Random3
21	Random4
22	Pos X (position fader)
23	Input envelope follower
24	None (= modulation OFF)

Table 15: Modulation destinations

Category	Modulation destination
Engine	Tune
Engine	Pos
Engine	Spray
Engine	Grain rate
Engine	Grain size
Engine	Density
Engine	Amp
Engine	Pan spray
Engine	Sides
Engine	Tilt
Engine	Curve
Engine	Pan
Engine	Direction
Engine	Window AM
Engine	Scan
Engine	Tape slew
Engine	Spectral amp threshold
Engine	Spectral reducer
Engine	Spectral phase smear
Engine	Spectral amp smear
Engine	Spectral freq shift
Envelope	Pitch env amount
Envelope	Pitch env Attack time
Envelope	Pitch env Decay time
Envelope	Pitch env Sustain level
Envelope	Pitch env Release time
Envelope	Filter env amount
Envelope	Filter env Attack time
Envelope	Filter env Decay time
Envelope	Filter env Sustain level
Envelope	Filter env Release time
Envelope	Amp env Attack time
Envelope	Amp env Decay time
Envelope	Amp env Sustain level
Envelope	Amp env Release time
Envelope	Aux env amount
Envelope	Aux env Attack time

Envelope	Aux env Decay time
Envelope	Aux env Sustain level
Envelope	Aux env Release time
LFO	LFO1 rate
LFO	LFO2 rate
LFO	LFO3 rate
LFO	LFO4 rate
LFO	LFO1 amount
LFO	LFO2 amount
LFO	LFO3 amount
LFO	LFO4 amount
LFO	LFO1 phase
LFO	LFO2 phase
LFO	LFO3 phase
LFO	LFO4 phase
LFO	LFO1 quantization
LFO	LFO2 quantization
LFO	LFO3 quantization
LFO	LFO4 quantization
Filter	LPF cutoff
Filter	LPF resonance
Filter	HPF cutoff
Filter	HPF resonance
Sequencer	Sequencer length
FX	FX1 knob value
FX	FX2 knob value
FX	Chorus Rate
FX	Chorus Feedback
FX	Chorus Center
FX	Chorus Bandwidth
FX	Chorus Dry
FX	Chorus Wet
FX	Compressor threshold
FX	Compressor knee
FX	Compressor ratio
FX	Compressor Attack
FX	Compressor Release
FX	Compressor Dry
FX	Compressor Wet
FX	Delay length
FX	Delay amount
FX	Delay Dry
FX	Delay Wet
FX	Ping pong delay length
FX	Ping pong delay amount
FX	Ping pong Dry
FX	Ping pong Wet
FX	Overdrive amount
FX	Overdrive Dry
FX	Overdrive Wet
FX	Flanger Rate

FX	Flanger Feedback
FX	Flanger Center
FX	Flanger Bandwidth
FX	Flanger Dry
FX	Flanger Wet
FX	Large reverb time
FX	DISABLED: Large reverb size
FX	Large reverb dampening
FX	Large reverb M-S
FX	Large reverb early
FX	Large reverb tail
FX	Large reverb pre
FX	Large reverb Dry
FX	Large reverb Wet
FX	Reducer bit
FX	Reducer rate
FX	Reducer Dry
FX	Reducer Wet
FX	Reverb room size
FX	Reverb dampening
FX	Reverb stereo width
FX	Reverb Dry
FX	Reverb Wet
FX	Ring modulator Freq Coarse
FX	Ring modulator Freq Fine
FX	Ring modulator Dry
FX	Ring modulator Wet
FX	Vibrato Rate
FX	Vibrato Center
FX	Vibrato Dry
FX	Vibrato Wet
MACRO	Macro1
MACRO	Macro2
MACRO	Macro3
MACRO	Macro4
MACRO	Macro5
MACRO	Macro6
MACRO	Macro7
MACRO	Macro8
MACRO	Macro9
MACRO	Macro10

Technical Support

GR-Mega Specifications

Feature	Spec	Remark
General		
Multitimbrality	4 layers	
Polyphony per layer	20 voices	3 in PV engine
Total number of grains	10.000 (5000 on older models)	all layers combined, about 4 times as much as the gr-1
Engines	Sampler	(including loop, start end)
	Granular	
	Tape mode	
	Granular slice mode	Sampler slice mode possible
	Spectral	
Preset system		
Number of presets	128	per project
Multitimbral combinations	128	per project, 16 quickly accessible
Number of projects	50	
Sampling and samples		
Audio input	2 channels (stereo)	
Max sample length	60 minutes	3 minutes max in granular, because of polyphony
Sample rate	48 kHz	
Mix resolution	32 floating point	
Sample channels	mono or stereo	
Granular engine		
Max chord size	12	
Max grains per voice	128	
Rate modes	Free, Sync-size, Scan & rate	Free means independent rate and grain size, other modes have synchronized rate and size options
Loop modes	Bounce, wrap, kill	
Arp modes	Up, down, random, shuffle, play order, and more	
Spawn modes	Direct, gradual, recycle	

131

Phase vocoder

Max polyphony	3	
FFT size	256..8192	
Chord mode	up to 12 notes per voice	

Mod matrix

Number of LFOs	4	4 per layer
Number of modulation sources	18	
Number of modulation destinations	90	and growing
Number of step sequencer modulators	4	

Filters

Filters per voice	LPF and HPF	
Slope	12 dB per octave	Other slopes possible in future firmware

Envelopes

Destinations	Pitch	
	Filter	
	Amplitude	
	Aux	Freely assignable
Length	0.1 ms .. 45 s per stage	
Stages	ADSR	
Shape	Curved: from log to linear to exponential	

FX

Number of simultaneous fx	4	
Effects	Chorus	
	Delays	Plain, and ping pong
	Distortion	Overdrive, and reducer
	Dynamics (compressor)	
	Flanger	
	Reducer	
	Reverbs	Hall and large (algorithmic)
	Ring modulator	With AM mode
	..and more coming in new firmwares	

Step sequencer

Max chord size	7	
Max steps	64	
Step sequencers per patch	1	In multitimbral mode you'll get up to 4 step sequencers total

Connectivity

Analog audio output	Stereo TRS 1/4 " balanced	110 dB SNR
Analog audio input	Stereo TRS 1/4 " balanced	110 dB SNR
Headphone	1/8 "	
MIDI	DIN (in out thru), USB C (in and out)	
Eurorack interface	1x gate out, 2x CV in (-5V.. +5V)	
LAN (ethernet)	Gigabit (firmware update & filesharing)	
Disk / USB sticks	USB A 3.0	
Computer keyboard	USB A 2.0	
HDMI output (monitor or beamer)	1.2 full size	

Storage

Included USB stick	64GB, USB3, up to 200 MB/s	
Internal storage	512GB, 700 MB/s (300 MB/s on older models)	
Dimensions	495x270x95	mm WxDxH, including side panels
Weight	~4 kg	

List of tested (USB-)MIDI controllers and keyboards

Akai MPK25
Alesis Q25
Arturia Beatstep
Arturia Keystep
Korg Nanokontrol2
Korg Nanopad2
Moog Sub37
Roli Seaboard Block
...

List of recommended accessories

Tasty Chips Electronics recommends:

Hardcases:

VidaXL Hardcase 57 x 43 x 22 cm

User recommendations:

Padded soft cover by Custom

https://www.ebay.com/itm/135425518509

Power banks:

myVolts Dual Circuit PD Power Bank 65W Black + myVolts Step Up Explorer's Kit

Hardcases:

Panaro cases EK090S

Suitcase (Thomann):
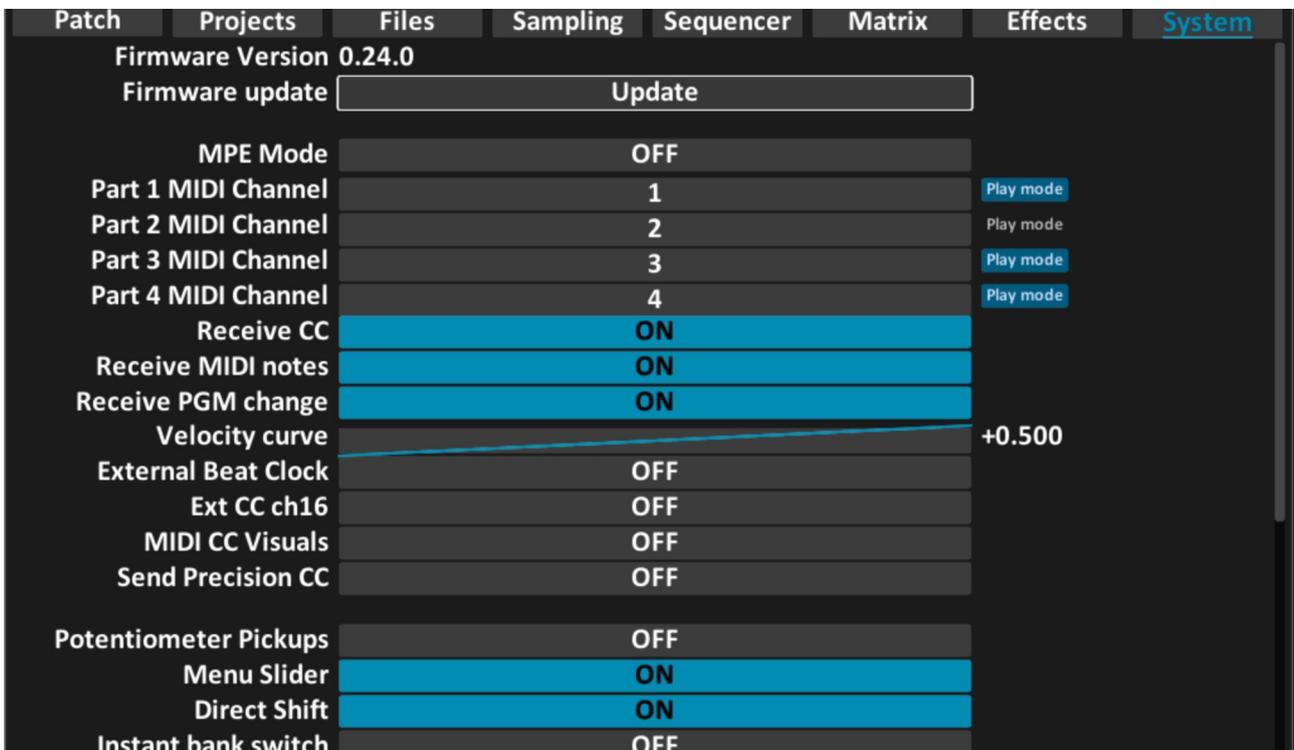
https://www.thomann.nl/thomann_effect_pedal_bag.htm

Firmware Updates

We recommend you upgrade to the latest firmware if you're waiting for specific bug fixes. When versions like x.y.0 are released this means new features. When a x.y.1, x.y..2, etc is released this means bug fixes.

Updating the firmware is relatively easy and only involves going into the system menu and pressing one single button. However, the update procedure can take a minute and will reboot your GR-MEGA twice (!)

Firmware upgrades can be done via LAN cable (to your router), or using a firmware zip file on your USB stick. See the troubleshooting section if you're having problems downloading.

DO NOT POWER DOWN YOUR MACHINE WHEN FIRMWARE IS UPDATING. DATA LOSS MAY ENSUE!

Patch	Projects	Files	Sampling	Sequencer	Matrix	Effects	System

Firmware Version 0.24.0

|	
Firmware update	Update
MPE Mode	OFF
Part 1 MIDI Channel	1	Play mode
Part 2 MIDI Channel	2	Play mode
Part 3 MIDI Channel	3	Play mode
Part 4 MIDI Channel	4	Play mode
Receive CC	ON
Receive MIDI notes	ON
Receive PGM change	ON
Velocity curve	+0.500
External Beat Clock	OFF
Ext CC ch16	OFF
MIDI CC Visuals	OFF
Send Precision CC	OFF
Potentiometer Pickups	OFF
Menu Slider	ON
Direct Shift	ON
Instant bank switch	OFF

1. Go to the system menu

    a. Hold [Menu] and press [8]

    b. Press [Menu]. Navigate right to the System tab and press [Enter]

2. Navigate down with the down arrow to the Update GUI button, then press Enter.

When a LAN cable is connected to your internet router, the GR-MEGA will search for the latest firmware on the Tasty Chips site. If there's no LAN cable, it will look for a firmware zip file on the inserted USB stick. This will take a few seconds.

When the GR-MEGA has found a firmware update, it will report what version and where it found it: Internet, or on USB stick.

It will then prompt you 3 choices: Escape to cancel, or choose "Online" or "USB" (if either of those are available). Assuming you choose Online or USB to upgrade:
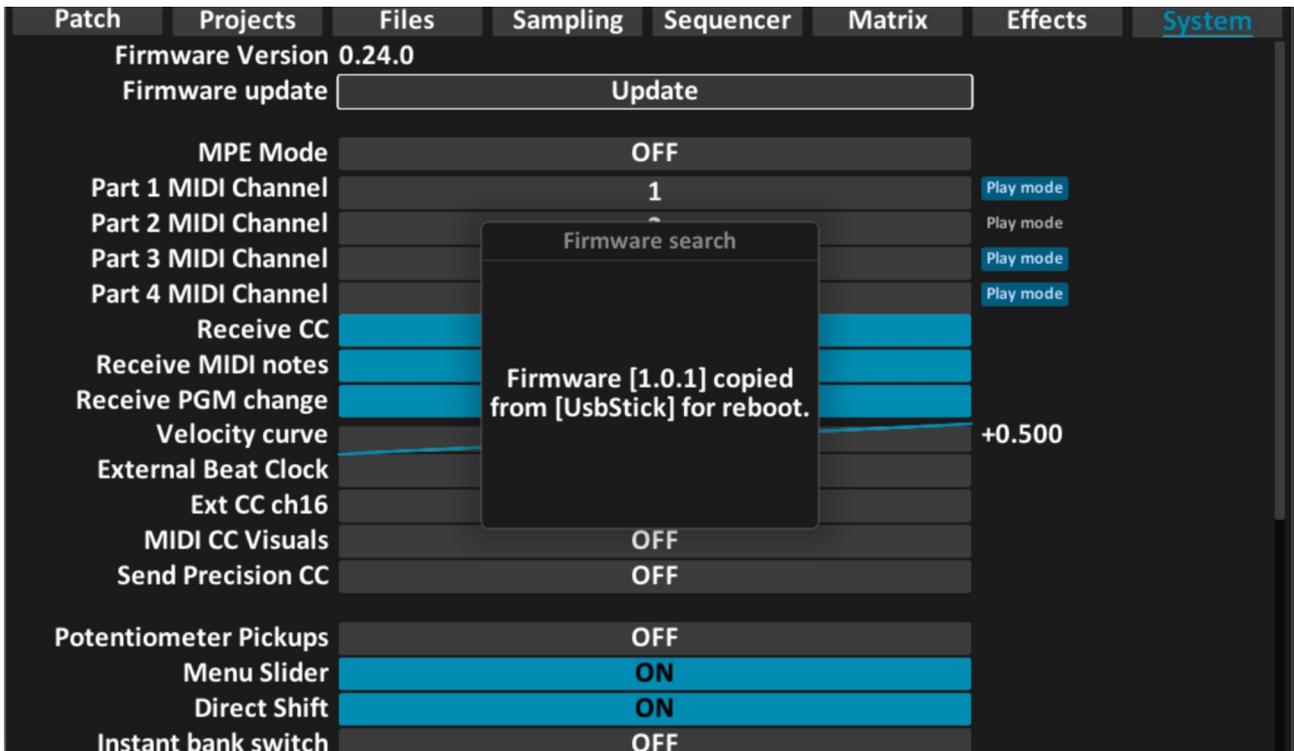

It will then show a popup that it will now reboot. The restart will take about 20 seconds. Then a grey screen will be visible for about 10 seconds until it reboots again.

After this it will start the actual installation. After this is complete, it will show a popup that it will reboot again.

After the second reboot it will show the new firmware version in the bottom of the screen. You've now updated your GR-MEGA's firmware.
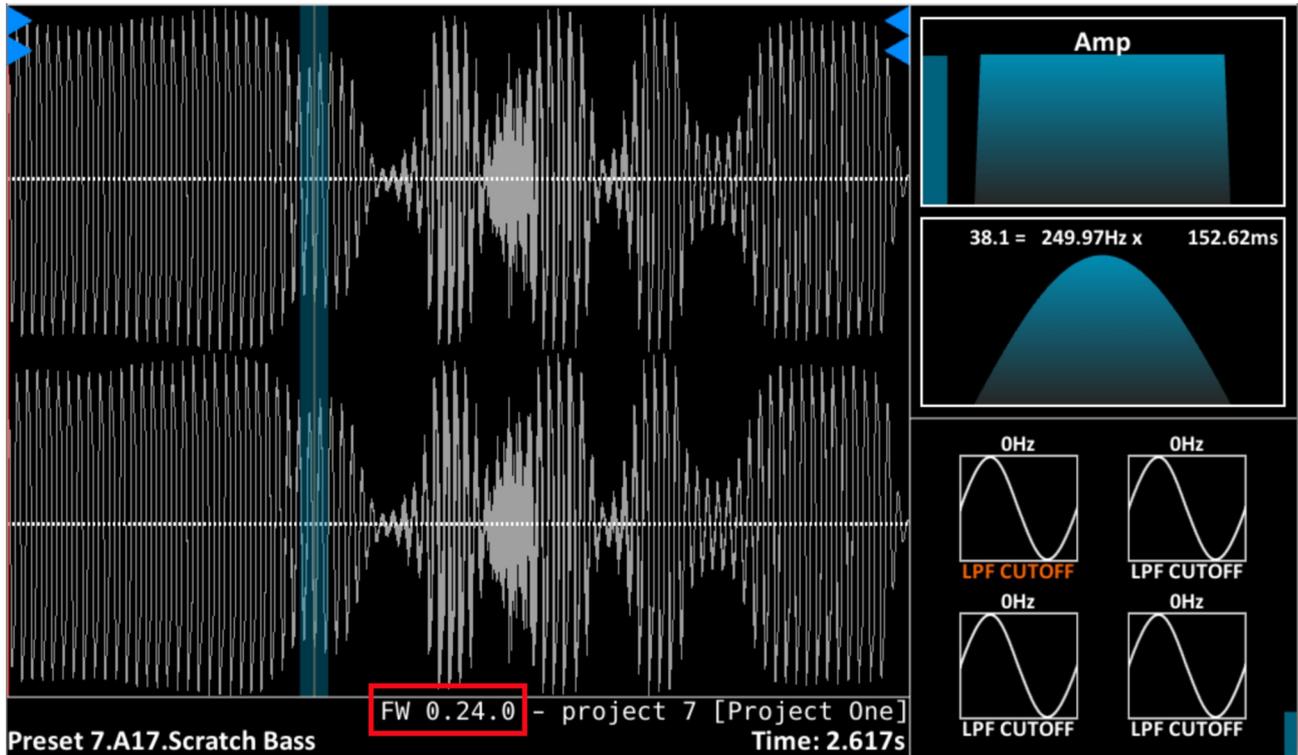
FAQ – Frequently Asked Questions

Q: I placed a preorder for the GR-MEGA. When can I expect my unit?
A: Please look up your number in the production time table. It's organized in batches. Your *webshop order number* should be between the start and end number of such a batch.

Q: I placed a preorder for the GR-MEGA. My postal address has changed. Where can I enter this?
A: When your unit is finished, we'll send you an email with a webshop payment link, which also contains a form to enter your current postal address.

Q: I placed a preorder for the GR-MEGA, and did the down payment. When can I pay the rest?
A: When your unit is finished, we'll send you an email with a webshop payment link, which also contains a form to enter your current postal address.

Q: I hooked my GR-MEGA up to my monitors or mixer, but the output volume is really low / there's noise?
A: Please make sure you use **balanced** audio cables (**TRS** – meaning Tip Ring Sleeve, so the phono jack has 2 black rings, not 1!). Also make sure that the knobs in the upper right are dialed all the way up. For audio input on the GR-MEGA, use balanced gear only, or use a DI box.

If you don't have a DI box, or insist on using specific unbalanced gear, we recommend you use the Meanwell GST40A12-P1J power brick.

Q: I'm getting jumps when I turn knobs, and making changes in one layer seems to be reflected in another layer. What's going on?
A: Do you have Ableton connected via USB C? If so, then it defaults to feeding back MIDI data to the source. Please disable this in Ableton's MIDI setup:

..and also make sure that you're using the correct MIDI channels on each GR-MEGA layer. Layers can use the same MIDI channel. System menu → MIDI → MIDI channels

Q: What are the differences between the GR-1 and GR-MEGA?
A: We made this table especially to compare the two: GR-MEGA and Integral specs

Q: Can the GR-MEGA import my old GR-1 patches?
A: It can do this. From firmware 1.5 it supports seemingly all GR-1 features. The scaling of some modulations do differ, though.

Q: I'm sure my MIDI controller is sending stuff to the MEGA, but it isn't responding?
A: System menu → MPE Mode → OFF

Q: I want a VESA mountable GR-MEGA. Is this possible?
A: We'll consider VESA mounting options is physically possible (the GR-MEGA is quite heavy) and if enough people chime in.

Q: I'm loading this 1 hour long sample and granular mode does nothing. What's up?
A: Granular mode is optimized for shorter samples. Crop the sample down to 5 minutes and 49 seconds and you should be fine.

Q: I'm using a big externally powered USB MIDI keyboard / controller, and unplugging it seems to crash my GR-MEGA??
A: Remove the MIDI controller's power supply. Unplug and replug your GR-MEGA's power to restart it. Only use an external power supply for the MIDI controller if you're using DIN MIDI. If using USB MIDI, please let your GR-MEGA power the MIDI controller! This USB MIDI controller is actually misbehaving and does not conform to the USB spec. A self-powered USB device should not "backpower" a host.

Q: The display seems to have a burned-in menu screen?
A: This is temporary. The display has a memory effect, but it's not permanent. It's an LCD screen, not an OLED. After a minute or two it will disappear.

Q: My display became white?
A: This is the result of unplugging the power or hard power down (holding down the power button for 5 seconds on newer models). The display is not properly shutdown. The whiteness will slowly disappear after a minute.

Q: In multitimbral – when loading a sample into one of the layers, other layers change to this sample as well! What is up?
A: The GR-MEGA's multitimbral patches, or stacks, are mainly *references* to monotimbral patches. If you have the same preset references by multiple layers, then if you load a sample into one of them, yes, both layers will change to the new sample.

For instance, assume the following multitimbral stack:

Layer 1 → preset 1
Layer 2 → preset 1
Layer 3 → preset 3
Layer 4 → preset 4

Now load a sample into layer 1, and yes layer 1 *and* layer 2 will both change to the new sample.

How the GR-MEGA's multitimbral stacks are designed to be operated:
1. First design your monotimbral presets, save them.
2. Then arrange those into a multitimbral stack.

Q: I have MIDI controller X and the GR-MEGA reacts in a strange way. How to fix this?
A: It depends a bit on the exact nature of the issue, and also on the popularity of your MIDI controller. The GR-MEGA adheres to the most important general MIDI CC's, but not all. We cannot buy or borrow every MIDI controller out there, so you just have to dump MIDI data from your controller and compare it with the GR-MEGA CC map found in the manual. You can also send your MIDI dump to us so we can analyze.

Q: When hooking up my Mac to the GR-MEGA, my internet connection is lost. How can I fix this?

A: System Settings → Network → ...∨ → Set service order → Drag GR-MEGA all the way down.

System Settings   Edit   View   Window   Help

network

Network

Networking services

Bluetooth networking

Configure Thunderbolt networking

Windows networking

Turn firewall on or off

Wi-Fi

Ask to join networks

Current network details

Joining a Wi-Fi network

Known networks

Show legacy networks and options

Advanced

Require administrator to

Users & Groups

Network account server

Allow network users at login window

Network

Wi-Fi
● Connected

GR-MEGA
● Connected

Firewall
● Inactive

Other Services

RNDIS/Ethernet Gadget
● Not connected

USB 10/100/1000 LAN
● Not connected

Thunderbolt Bridge
● Not connected

⋯ ⌄   ?

Add Service…
Add VPN Configuration   >
Manage Virtual Interfaces…
Set Service Order…
Locations   >

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you just have to dum
map found in the ma

, my internet conne

vice order → Drag GR

Service Order:

RNDIS/Ethernet Gadget
USB 10/100/1000 LAN
Wi-Fi
GR-MEGA
Thunderbolt Bridge

Drag services to change order.

Cancel   OK

Troubleshooting

Firmware upgrades

Some things to keep in mind when updating your firmware:

* Please only use the supplied USB stick. There are very cheap, unreliable and slow USB sticks for sale. That's why we supplied a decent one with the GR-MEGA.

* Place the firmware zip file in the root directory of the USB stick. DO NOT UNZIP IT. On Macs, Safari loves to unzip everything under the sun and even sometimes mangle the output. Use Alt + click to download, or use a different browser.

Crashes

Please report all crashes to us: info@tastychips.nl. Please mention:

* your GR-MEGA serial number, found on the bottom plate of the casing,

* your firmware version, found at the top of the system menu,

* the conditions under which the crash took place.

* is the crash reproducible, or is it intermittent?

* if you can find a minimal condition (the least amount of actions to trigger the crash), that is really useful!

Slow USB drive or stick

We've furnished a quality USB stick with the GR-MEGA for your convenience. Please use it. Don't use cheap, or second rate sticks, which can slow down loading and especially saving samples down to a crawl, and may cause corruption as well.

Also note that the GR-MEGA's internal storage is many times more reliable and faster than even a good USB stick. We recommend to only the USB stick for firmware updates and copying files from/to PC/Mac.

Factory reset

This feature is hidden in the system menu. Use the below steps to unhide it, and use it. BEWARE: THIS WILL DESTROY ALL USER DATA, and copy back the factory project to slot 1.

If you have any data at all you want to backup, please use file sharing or the file manager to first copy data from your GR-MEGA to your USB stick or PC! After using factory reset, no user data will be recoverable (!).

1. Go to the system menu:
      a. Press [Menu] and navigate to the "System" tab, and press [Enter]
      b. Hold [Menu] and press [Preset 8]

2. Hold [Shift] + [Seq], a button "Factory reset" will now appear.

3. While still holding [Shift] + [Seq], navigate to the factory reset button, and press [Enter] or [Execute].

4. A dialog will appear to ask for confirmation.

Allow Tasty Chips remote access to your GR-MEGA

This feature is hidden in the system menu. It is intended to be used in case you've reported a crash or another serious issue, which we at Tasty Chips Electronics cannot properly reproduce. The idea is that you hook up your GR-MEGA to your internet modem, and then give us access. Then we remotely login to your GR-MEGA, and trace where the crash occurred.

If you've reported such a problem, we may at some point ask you to use this feature. It is accessed as follows:

1. Hook up your GR-MEGA to your internet modem with a LAN (ethernet) cable. The green and amber LED's on the LAN port should be burning and blinking.

2. Go to the system menu:
   a. Press [Menu] and navigate to the "System" tab, and press [Enter]
   b. Hold [Menu] and press [Preset 8]

3. Hold [Shift] + [Seq], a button "Allow remote login" will now appear.

4. While still holding [Shift] + [Seq], navigate to this button, and press [Enter] or [Execute].

5. It will take a while to contact our server, but eventually it should say "Your GR-MEGA can now be contacted!"

6. Remote access will remain enabled until your GR-MEGA is rebooted.

Credits for the GR-MEGA

Development

Concept:	Luc Derks, Pieter van der Meer
Software & electronics engineering:	Pieter van der Meer
Prototype code, FX prototypes:	Luc Derks
Hardware prototyping:	Joeri Braams, Mihail Keremedchiev
MCU code:	Joeri Braams, Pieter van der Meer
Mechanical design:	Luc Derks, Pieter van der Meer
Original compressor code:	Niels de Wit
Original (small) reverb code:	"Jezas" (Freeverb)
Original storage hardware design:	Jeroen Bakker
New storage hardware design:	Hasan Akbulak
Testing:	Luc Derks, Joeri Braams, PJ Nyland, Ryder Walsh
Presets and Sound design:	Luc Derks

Special thanks to

Alpha, beta stage feedback:	Lennard Denninger, PJ Nyland
Vocals for presets:	Cezara Maria Gurau

Contact

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Facebook: https://www.facebook.com/tastychipselectronics
Instagram: https://www.instagram.com/tastychips_synth
Discord: https://discord.gg/CxuXG34xZA