GLISS

A touch controller for modular synth

User Manual

Firmware v2

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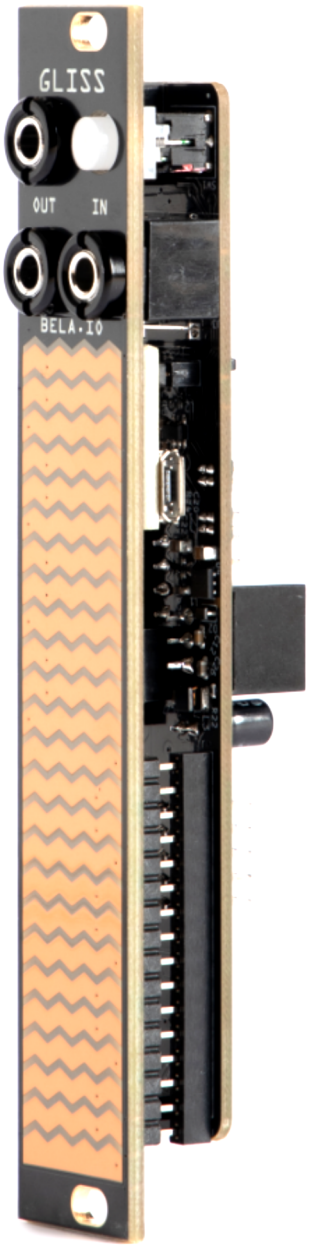
INTRO

Gliss is a touch controller for your modular synth.



Introducing gestural control into synthesis is as old as the field itself and covers a wide range of implementations, from antennae, sensors, and joysticks, to touch pads, buttons and wheels. Traditionally, musical instruments are based on a physical interplay between human and apparatus, so trying to introduce this type of interaction into the abstract world of early electronic instruments made intuitive sense. But one of the key strengths of electronic instruments was exactly that - they were not like their traditional predecessors. The departure from physical interplay toward a programmed language was and remains a crucial component of their appeal.

Gliss treads a middle ground between these 2 poles. It offers high-precision touch control that brings physical interaction into your synthesiser setup while also being a powerfully practical tool for generating and managing control voltages in your modular system, whether you're interested in the aural style that touch control produces or not. That both ideas are simultaneously available is Gliss's core strength.

Powered by the technology behind Bela's Trill capacitive touch sensors, Gliss tracks your finger position and touch size (or, how hard you're

pressing on the Touch Strip). Gliss offers a huge array of ways to generate this data, and use it for modulation in your system. For example, Control and Record Modes output two streams of data, which are different combinations of finger position and touch size that you can use to modulate signals around your system. In Signal Mode, finger position is used to precisely set factors like signal clipping and offsetting, and in Notes Mode position is used for live effects like vibrato. These signals are available via 2 CV outputs, offering 2 distinct but related dimensions of control to route around your system.

In Record Mode, Gliss can record two gestures (position, touch size, or a combination of both) for up to 150 seconds. This is an incredibly useful tool that allows you to create exactly the modulation you've imagined for a certain parameter in real time, rather than delicately fine-tuning a patch of different modulation sources. The recorded gesture can then be looped to create custom LFOs at low rates or custom oscillators in the audio rate domain.

Despite its compact size, Gliss is a powerful visualisation tool that diffuses LEDs through its faceplate to provide clear feedback of both internal and external signals. These illuminate and track your gestures, as well as give clarity to external modulation sources. What's more, those external signals can be clipped, offset, scaled, and smoothed on the fly by touch, expanding CV utility work into an interactive, performative domain.

Gliss packs in a huge variety of features through its concise Menu system, providing ways of generating signals through a tuneable 5-key keyboard with glissando and vibrato, 5-step sequencer, waveshaper, wavetable, and much more. Gliss is also open source, allowing users to hack, remix and extend the module.

1 controller, 4 Performance Modes

Gliss's touch functionality exists over 4 Performance Modes. These are:

CONTROL
Generate CV and GATE signals based on combinations of your precise finger position and touch size (how hard you press on the Touch Strip)

RECORD
Draw waveforms directly into your system and record gestures of up to 150 seconds, then play them back in a variety of ways (loop your gesture to make a custom LFO, trigger it as an envelope, and much more)

SIGNAL
Along with visualising any signal, you can scale, offset, clip and smooth CVs performatively, outputting the processed signal, an envelope of the input, or both

NOTES
5 notes at fixed, customisable voltages that can be used as an expressive keyboard of 5 pressure-sensitive buttons, or as a step sequencer that's played using an input clock signal

The Menu and other controls

The Menu is central to Gliss. You'll use it to step between Performance Modes, customise the Mode you're in, and set your Mode's voltage ranges. Along with this Menu for Mode settings, more high-level settings can be found in the Global Settings, and you can also recalibrate Gliss at any time using Calibration Mode. You'll find full explanations of everything in this manual.

About Gliss Firmware v2

This manual is for Gliss Firmware v2, released October 2024. This update has several new features:

- **New orientation: 1U.** A horizontal version of Gliss for your 1U rack is available as a module from distributors worldwide, or as a faceplate from the Bela Shop. Read more here.
- **New touch input: Slider + Touch.** We've added a fourth input type for Control and Record Modes, Slider + Touch. This input type combines a separate position slider and pressure-sensitive touchpad. Read more here.
- **Custom slews for Control Mode.** Where the output voltage used to immediately jump up on touch and back down to 0V on release, you can now set attack and release slew rates to customise your touch behaviour. Read more here.
- **Longer recording times in Record Mode.** In Control Mode, gestures recorded in Loop, Trigger, Wavetable and Waveshaper playback can now be up to 150 seconds in length.
- **Record discrete gestures in Loop playback.** Now you can tap the Button while recording to create gestures where you lift your finger, pause, and jump between values as much as you like. Read more here.
- **New editing controls in Waveshaper and Wavetable playback.** In Control Mode's Wavetable and Waveshaper playback, you can now trim your gesture's start and end points, giving you access to a whole new realm of oscillator timbres and distortion effects within a single gesture. Read more here.
- **Voltage range improvements.** We added a new voltage preset (-1V to +1V for video synth enthusiasts and for mod wheel interaction), and made setting a custom voltage range easier with a colour-coded interface. Read more here.
- **A simple web-based flashing process for upgrading.** If you already own a Gliss, you can upgrade to the new firmware using our web-based upgrade page. Visit **bela.io/upgrade-gliss**

Upgrade your Gliss, for free

We're now shipping all new Gliss modules with Firmware v2, and we're also making these new features available for free to all current Gliss owners. This is part of Bela's commitment to responsibly using electronic resources, and delivering customers maximum value from the products they buy.

If you want to flash your Gliss module with Gliss Firmware v2, we have created a web service for doing so quickly and painlessly. Connect Gliss to your computer with a micro USB cable, and use our new web-based upgrade tool. Since this process requires WebMIDI, it requires using a Chrome browser. Find it here: **bela.io/upgrade-gliss**

Note 1: When you flash your module to a new version, all your settings (such as custom voltage ranges) are erased, so you'll have to set them again.

Note 2: After flashing the module and reconnecting it to your system you'll have to run the one-minute calibration process. Your Gliss should enter Calibration Mode automatically when you reconnect it after flashing, but you can also enter Calibration Mode by holding down the Mode Selector from any mode Menu.

About this manual

This manual has been written to guide you through all the functions of Gliss, from basic to advanced. To get the most out of Gliss we recommend you follow this manual step by step with the module in front of you. Gliss has been designed to grow with you over time and has many surprises and hidden talents, which we'll explain in this guide.

About this version

This version of the manual is for Gliss Firmware v2, released October 2024. This is a free Gliss firmware upgrade that expands Gliss's functionality.

Get support

Something missing in this manual? Spot a mistake? Have a suggestion? We'd love to hear from you. Drop us a line at info@bela.io.

If you'd like more information about using Gliss, our YouTube channel has a video version of this manual, in-depth how-tos, and interviews with artists using Gliss. Subscribe here: youtube.com/BelaPlatform

If you run into problems, we invite you to search and post to the Bela Forum: forum.bela.io

And finally ...

We hope you love making music with Gliss as much as we loved creating it.

Love,
Your friends at Bela HQ

HELLO GLISS

Technical specifications

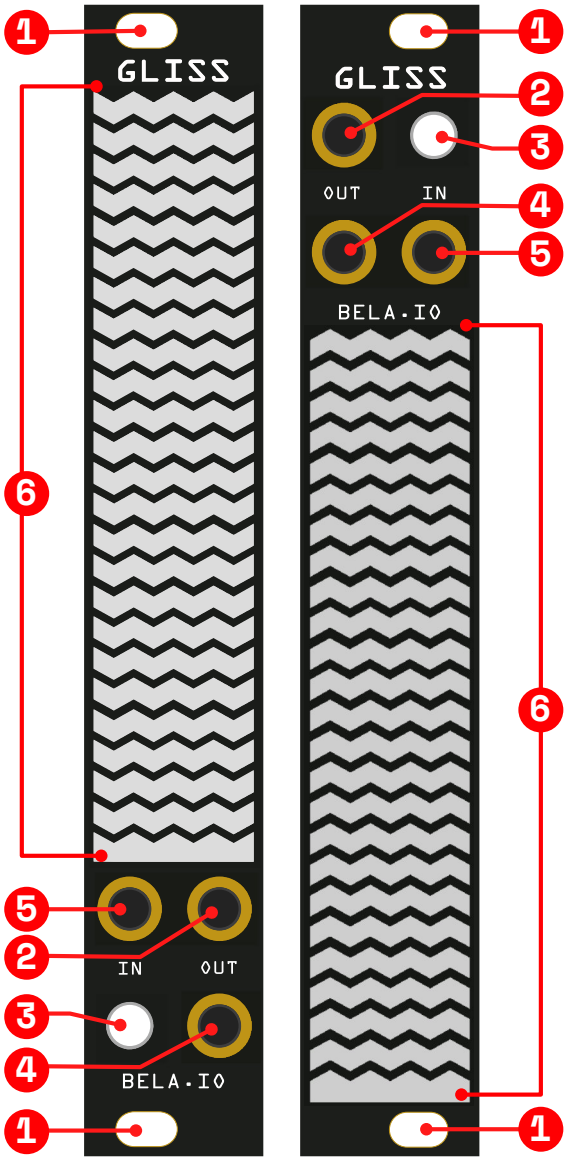
Width: 4 HP
Depth: 27mm
+12V: 150mA
-12V: 30mA
Voltage rating: Input and Outputs are ±10V safe. The full usable range for the Input and the Outputs is -5V to +10V. Trigger threshold is 2V.

Physical features

Gliss has 6 physical features (see diagram):

1. Mounting holes
2. Top Output
3. The Button
4. Bottom Output
5. Input
6. Touch Strip

Gliss comes in a 4HP version with a faceplate installed that places the jacks and button at the top. Another faceplate that places the jacks and button at the bottom is also included, so you can choose the orientation that works best for you and your setup. Additionally, Gliss is also now available as a 1U version (see the Gliss 1U section for details). The function of the physical features of Gliss are identical across all versions.



Touch Strip

Gliss's main feature is a large capacitive touch surface called the Touch Strip. It senses your finger position with sub-millimeter accuracy and can read single or multiple touches, depending on the Mode.

The Touch Strip also senses touch size, which refers to how much of your fingertip makes contact with the surface. This is broadly equivalent to pressure sensitivity: Pressing down harder will result in a larger output voltage, and more softly results in a smaller one.

The Touch Strip is backlit by a column of 23 LEDs, which provide important visual feedback in all Modes. For example, in Record Mode the LEDs visualise the movements of your recorded gestures, and in Signal Mode the LEDs display the voltage of the connected signal.

The Button

Gliss features a physical button. The Button has various functions depending on the Mode, and is also important for navigating the Menu and Global Settings. The Button is illuminated, and can display 3 colours (green, red, and yellow).

The Input

Gliss has one input, a mono 3.5mm jack. Use the Input to connect clock signals, triggers, and control voltage signals to Gliss. The full voltage range for the Input -5V to +10V, and is fully customisable in Record and Signal mode (in Control and Notes mode the Input either isn't used or has a set range).

Control Voltage Outputs

Gliss has 2 mono 3.5mm jack outputs - the upper is the Top Output, and below it is the Bottom Output (these are Output 1 and Output 2 on the 1U version of Gliss). Both Outputs are used to carry CV signals, GATE signals, and triggers from Gliss to other parts of your synth. Each Output's full voltage range is -5V to +10V, and each Output's range is individually configurable for each Mode. This means the Outputs can always have voltage ranges that are perfectly set for the other modules and instruments in your rack controlled by Gliss.

Installing Gliss

1. Disconnect your Eurorack case from any power.
2. Connect the 2x5 pin side of the Gliss power cable to the 2x5 pin header on the back of Gliss. Ensure that the red stripe is aligned with -12V.
3. Connect the 2x8 pin side of the Gliss power cable to the 2x8 pin header on your Eurorack power supply. Ensure that the red stripe is aligned with -12V.
4. Line up the mounting holes with the rail in your case, and attach Gliss using the included screws.
5. Power up your Eurorack system, and enjoy Gliss!

Getting started

Throughout this guide we will suggest ways for you to try out Gliss to hear and understand how the module performs, but here's 3 ideas to get you started right away after installation.

Visualise finger position and touch size

Turn on Gliss. You will be in **CONTROL** Mode.

Slide a finger on the Touch Strip. A red point will illuminate your finger position.

Now vary your touch size, by pressing down harder. The point will get bigger and smaller in response.

Sonify your finger position

Connect the Top Output to the frequency of a voltage-controlled oscillator (VCO).

Slide your finger up and down the Touch Strip to hear the frequency change. The position on the Touch Strip will correspond to what comes out of the Top Output. (This will be in Gliss's default 0V to +10V voltage range. Don't worry if that's not ideal, we talk about configuring custom voltage ranges later in this manual.)

Sonify your touch size

Now, connect the Bottom Output to the amplitude CV input to a voltage-controlled amplifier (VCA).

Vary how hard you're pressing on the Touch Strip, and hear the change in amplitude. Your touch size corresponds to the signal coming out of the Bottom Output (again, this will be 0V to +10V by default). This might be very loud, so be careful!

The faceplates

If you buy the 4HP version of Gliss, it comes with a faceplate installed that places the jacks and Button at the top of the module. The faceplate is attached to the module using 2 strips of pin connectors, and secured in place with 3 nuts, one on the Input jack and the other two on the Output jacks.

However, we know that not every setup, synth, or musician is the same. Some people want the jacks and Button at the bottom, or at least want to be free to change their mind. For this reason, the 4HP version of Gliss includes a second faceplate with the jacks and Button at the bottom, so you can choose the one that's right for you.

Gliss 1U (New!)

With the debut of Gliss Firmware v2, Gliss is also available in 1U format. Gliss 1U is available everywhere as a complete module, or just as a faceplate from the Bela Shop for those who already own a Gliss but would like to swap the 4HP faceplate for one that can be used in their 1U row.

Physical Features

Gliss 1U has the same 6 physical features, just laid out differently (see diagram):

1. Mounting holes
2. Button
3. Input
4. Output 1
5. Output 2
6. Touch Strip

How the outputs work

The 4HP version of Gliss has two stacked outputs, which we refer to as the Top Output and the Bottom Output. Gliss 1U differs in that the outputs are now next to one another, and are labelled OUT 1 (Output 1) and OUT 2 (Output 2).

In this manual, where we refer to Top Output and Bottom Output, this refers to Output 1 (left) and Output 2 (right).

Using Gliss 1U

It's important to note that when using Gliss 1U, the values go from minimum on the left to maximum on the right. For example, when using a Double Slider input type in Control or Record Mode, the two side-by-side sliders follow this convention: Minimum voltage on the left, maximum voltage on the right.

Similarly, Gliss 1U menus are oriented from left to right, and all sliders go from minimum on the left to maximum on the right. This means when adjusting a continuous setting you'll set it between the minimum (on the left), and the maximum (on the right).

How to get Gliss 1U

Gliss 1U is available 2 ways: As a complete module, or as a faceplate for a Gliss module you already own.

Gliss 1U: Complete module

You can buy Gliss 1U as a complete module from the Bela Shop, and from fine Eurorack retailers who stock Gliss. Find a complete list at https://bela.io/products/gliss/.

Gliss 1U: Faceplate only

If you already own a Gliss module but want to use it in a 1U orientation, you can buy a faceplate exclusively from the Bela Shop.

Swapping faceplates

These instructions apply to each of the 4HP faceplates, as well as 1U.

1. Disconnect Gliss from all power, and remove it from your rack.
2. Loosen the 3 jack nuts (these are the black rings around the Input and Output jacks, which keep the faceplate attached to the module). Remove them and keep them in a safe place.
3. The faceplate will still be attached to the module with 2 rows of pins, which you'll have to loosen so the faceplate will come off. You can do this by placing a flat-headed screwdriver between the faceplate and the module. Carefully loosen the pins on one side, then switch to the other side of the module and repeat. You'll have to go back and forth a few times until the pins are loose enough on each side to remove the faceplate. Be careful here, and go slowly - if you bend the pins you'll have difficulty putting the faceplate back on.
4. Line up the 2 rows of pins of your new faceplate with the headers on the back of the module. Press down gently, checking one side and then the other, until the pin rows are fully in place. When you're sure the pins are in place, give it a gentle press to settle all pins completely into their sockets.
5. Reattach the jack nuts around the Input and Outputs (don't over-tighten them). Then reattach Gliss to the power supply and mount it back in your rack with the mounting screws. Gliss is now ready to go!

TIP

After swapping your faceplate, you'll have to change the module orientation to re-orient all the menus and controls. Do this by entering the Global Menu, and using the red Module Orientation selector. See a full explanation in the Global Settings section.

THE INTERFACE

The 4 Performance Modes

Gliss features 4 Performance Modes, which allow you to manipulate and perform with your signals in real time. These are:

CONTROL
Control signals in real time, with the touch of a finger

RECORD
Record and play back gestures for custom modulation signals, LFOs, and envelopes

SIGNAL
Clip, scale, offset, smooth, and visualise your CV and audio signals

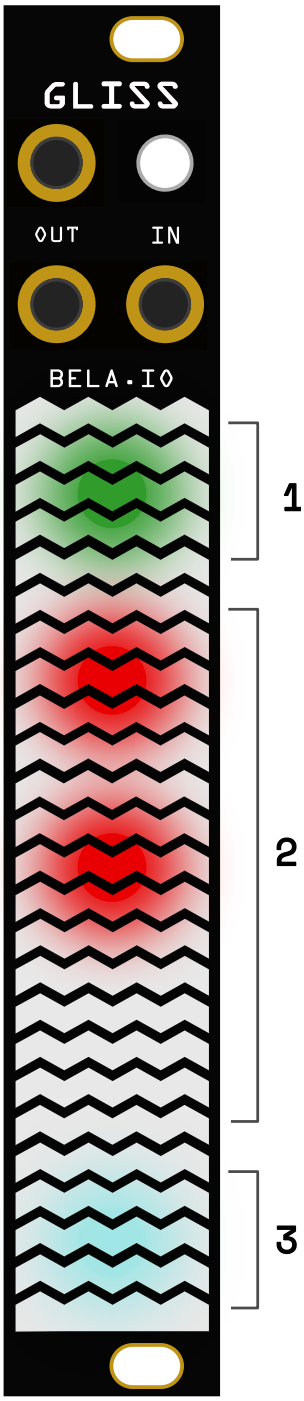
NOTES
A set of 5 tunable notes, playable as a keyboard or a step sequencer

Each of these Modes is thoroughly customisable, using the settings in its Menu. Each Mode's chapter includes a full explanation of its functionality and all available settings.

The Menu

The Menu is the central control interface of Gliss, accessible from any active Mode. In the Menu you can:

- Customise the behaviour of the current Mode by changing the settings (see each Mode's chapter for details)
- Move between Modes
- Customise the voltage ranges for the Input and Outputs for the current Mode



The Menu

Above is a diagram of the Menu, with 3 sections:

1. Mode Selector
2. Settings Selectors
3. Voltage Range Selector

Accessing the Menu

You can access the Menu from any Performance Mode by doing the following:

1. Hold down the Button
2. Tap the Touch Strip with 2 fingers
3. Release the Button

To exit the Menu and return to the active Mode, tap the Button.

Using the Menu

When you're in the Menu you will see a Mode Selector at the top (green), then up to 3 Settings Selectors, and the Voltage Range Selector (blue/white). Refer to the diagram on the left. (On Gliss 1U, these are laid out from left to right.)

1. Mode Selector

The green Mode Selector is used for cycling through the 4 Performance Modes. Tap the Mode Selector to step to the next Mode. A brief animation representing the current Mode will be played. You can skip the animation and continue to the next Mode by tapping the Mode Selector again.

2. Settings Selectors

The Settings Selectors (either 2 or 3, depending on the Mode) allow you to change settings in your current Mode, in order to fully customise its behaviour. In the majority of cases you can tap these Settings Selectors to cycle through the set of available options, but there are 2 instances in which they function as continuous input selectors, and 1 instance in which tapping takes you to a sub-menu. We explain how these work below in Some notes on selectors, while Mode-specific functions are described in each Mode's chapter.

3. Voltage Range Selector

The Input voltage range, as well as the voltage range of each Output, are customisable for every Mode. By default these are configured to 0V to +10V, but the full available voltage range is -5V to +10V. To customise the voltage range for a given Mode, tap the Voltage Range Selector, then follow the steps listed in the Configuring voltage ranges section below.

The Menu vs Active Mode

Each Performance Mode consists of a Menu for customisation, and an Active Mode where you can use the settings you've

chosen. To enter Active Mode from the Menu, press the Button. To get back to the Mode's Menu, hold down the Button, tap the Touch Strip with 2 fingers, and release the Button.

Some notes on selectors

There are 2 different types of Settings Selectors in the Menu: Discrete and continuous. They look the same but their behaviour is different when they're selected.

Discrete selectors

Most Settings Selectors are **discrete**, meaning that they represent a group of related settings (from 2 to 5). Tap the selector to step through the settings in this group. The selector colour indicates its order in the group. The colour order is:

- **Red**
- **Orange**
- **Gold**
- **Green**
- **Blue/white**

Continuous selectors

Along with discrete selectors, there are some that are **continuous**. This means that instead of representing a group of settings, a continuous Setting Selector represents a single setting that can be set between a minimum and maximum value, like a slider.

When you tap one of these continuous Setting Selectors you'll see a point on the Touch Strip, which represents the setting's current value. Slide it with your finger to adjust. When you slide the point over the Touch Strip it will be gold, and will change to red when you reach the original default setting.

Slew Rate sub-menu

In Gliss Firmware v2 we've added a new feature to Control Mode: Custom slew rates. When you tap this selector you'll be taken to a sub-menu where you can adjust the slew rate for the attack and release of each of the two Outputs. See the Control Mode chapter for details.

Resetting selectors

Any Settings Selector - discrete or continuous - can be returned to its factory state by pressing it and holding for 3 seconds.

Configuring voltage ranges

Voltage ranges are a critical aspect of any modular system, as voltage requirements

can differ across modules, systems, and applications. Gliss comes with all voltage ranges configured to 0V to +10V (the full voltage range is -5V to +10V), but you can configure the voltage ranges for the Input and Outputs individually for each of the 4 Performance Modes.

The Voltage Range Menu is accessible from every Mode's Menu, by tapping the Voltage Range Selector. Any customisation you make applies only to the ranges for the Mode you're currently in, and no other ranges will be affected.

Access the Voltage Range Menu

Enter the Menu (hold down the Button, tap the Touch Strip with 2 fingers, release the Button). At the bottom is the blue/white Voltage Range Selector. Tap it to enter the Voltage Range Menu. You'll see 3 gold selectors. (Note that in both Control and Notes Mode the top selector, Input, is red; this is because the Input is not customisable in these modes).

To exit the Voltage Range Menu and return to the current active Mode, press the Button.

Select a range to customise

The Voltage Range Menu has 3 selectors. Starting from the top, these are:

1. Input voltage range (disabled in Control and Notes Mode)
2. Top Output voltage range
3. Bottom Output voltage range

Tap a selector to start customising that range.

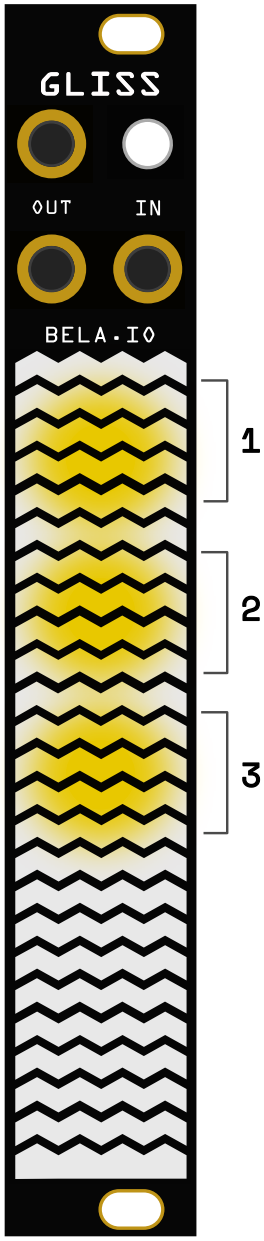
Customising the voltage ranges

Customising a voltage range means that you specify the minimum and maximum voltages that Gliss can receive from or send to other devices when it's in a particular Mode. The voltage ranges you set are specific to the current Mode, and will be remembered when you switch off your module and turn it back on again at a later point. This is to make Gliss as flexible as possible as a performance tool.

There are 2 ways to customise the voltage range: Choose a preset, or set the range manually.

Using a voltage preset

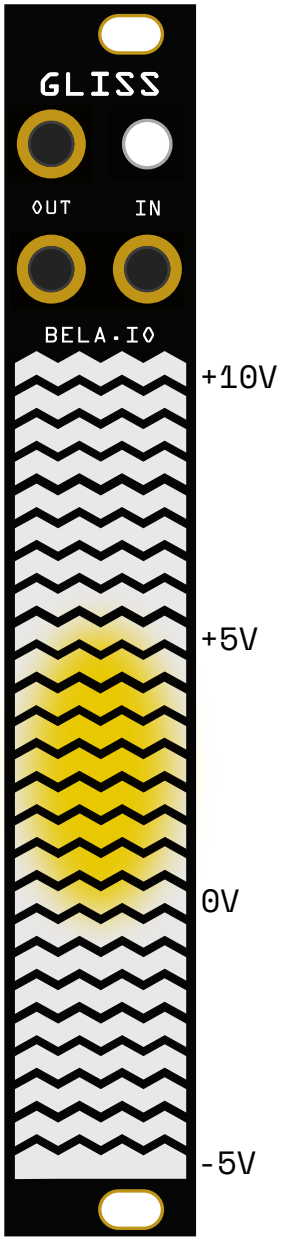
From the Voltage Range Menu, tap the Selector for the Input or Output you want to customise. Every time you tap the selector,



The Voltage Range Menu

Selectors, from the top:
1: Input
2: Top Output
3: Bottom Output

* In Control and Notes Mode the Input isn't used and is not configurable, so the top selector is red.



Using a voltage range preset

Tap the selector to move to the next voltage preset. The above diagram shows a voltage range set from 0V to +5V.

Hold the selector to create a custom range.

you cycle through the preset ranges, which will be displayed by a highlighted range on the Touch Strip. The default ranges are:

- 0V to +10V (default)
- -5V to +5V
- 0V to +5V
- -1V to +1V
- Customisable range, default is the full range of -5V to +10V

Manually setting a voltage range

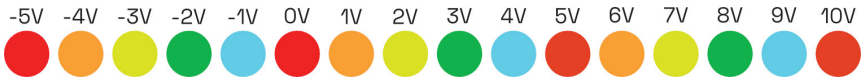
Instead of using a voltage range preset you can also manually set a custom range.

Hold down the selector for the range you'd like to customise. Two points will appear with a glowing bar between them. By default this is the full range of -5V to +10V.

Drag the points to the voltage level. The point will move in 1V steps. We've also implemented a colour-coded system so you can see that your voltage range is exactly where you want it.

The voltage ranges move through the selector colours: Red, orange, gold, green and blue. This means that -5V, 0V, +5V and +10V are red points.

Here's a handy chart so you can make sure you're setting your range to the right value:



The voltage range increases from the bottom of the Touch Strip to the top. If you're using Gliss 1U, the voltage range increases from left to right.

When you have your voltage range set, tap the Button, and the range will be saved as a custom preset for that Input or Output.

Global Settings

The Global Settings menu is where you control settings that affect the whole module, regardless of which Mode you're in. In the Global Settings menu you can adjust: Touch sensitivity, LED brightness, toggle menu animations on or off, and change the module orientation.

The Global Settings Menu is for settings that you will rarely have to adjust, and are consistent across Modes. Access it from any Active Mode by doing the following:

1. Hold down the Button
2. Tap the Touch Strip with 3 fingers
3. Release the Button

Upon entering the Menu, you'll see 3 orange selectors and a red Selector at the bottom. From the top, these select Touch Sensitivity, LED Brightness, Toggle Menu Animations, and Module Orientation.

Selector 1: Touch Sensitivity

As well as sensing touch position, Gliss can sense touch size. Touch size is roughly equal to how hard you press on the Touch Strip - pressing hard on the strip creates a large touch size, and pressing lightly creates a touch size that's very small. Though Gliss is calibrated to be as responsive as possible, everyone's fingers, skin capacitance and touch habits are different. This selector allows you to scale the touch size by applying gain, to make it feel just right.

Tap Selector 1. A point will appear that you can slide to adjust the sensitivity between no gain (bottom) and maximum gain (top). Lift your finger to finish adjusting.

The point will be gold while you're adjusting it, but when it lands on the default sensitivity setting it will turn red so you can find it again. When set to maximum, any touch will immediately send the voltage from 0V (no touch) to the maximum of your selected voltage range.

While you are setting the sensitivity, the touch size of your finger is processed through the gain and is sent out as a CV through the Bottom Output. You can use this voltage as a "preview" of the adjustment you're making, so you don't have to keep exiting this menu to try out your changes.

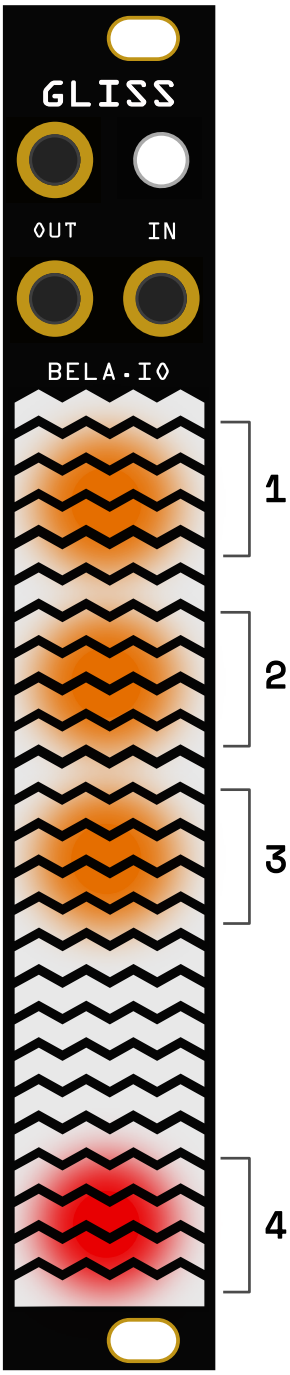
Selector 2: LED Brightness

This setting adjusts the brightness of the LEDs that illuminate the Touch Strip, so you can adjust the brightness for maximum visibility in whatever context you find yourself. This is particularly useful when working with Gliss outdoors, or in dimly-lit conditions.

Tap Selector 2. A point appears that is gold while you adjust it, and turns red when you're at the default brightness value. Slide the point to adjust the brightness between the minimum (bottom) or maximum (top). Lift your finger to save your setting.

Selector 3: Toggle Menu Animations

This setting activates a series of animations which are shown on



Global Settings

The selectors:

1. Touch Sensitivity
2. LED Brightness
3. Toggle Animations
3. Module Orientation

the Touch Strip while you're using the Menu, to help remind you of what each of the settings do. These animations can serve as a handy reminder of the setting selector functions.

To turn the animations on, hold Selector 3 for 3 seconds. When animations are active the selector will pulsate. Now, when changing a Mode's settings in the Menu, you'll see an animation reflecting the function of the parameter you've just changed.

To turn the animations off again, re-enter the Global Settings and hold this selector down for 3 seconds. When the animations are off, the selector will be solid orange.

Selector 4: Module orientation

The 4HP version of Gliss comes assembled with a faceplate that puts the jacks and button at the top of the module, and we include a second faceplate that places the jacks at the bottom. This allows you to choose the orientation that suits your setup, or change your mind later. Additionally, we now sell a 1U version of the Gliss module (available as a faceplate from the Bela Shop if you already own a Gliss) to take advantage of your 1U row.

When you change the faceplate you'll have to change the module orientation to change the layout of the menus. Press and hold Selector 4. A red point will appear indicating the orientation. If you're using the 4HP version of Gliss, drag this point down to the bottom of the Touch Strip in your current orientation. If you're using the 1U version of Gliss, drag this point to the middle. Release to save the orientation.

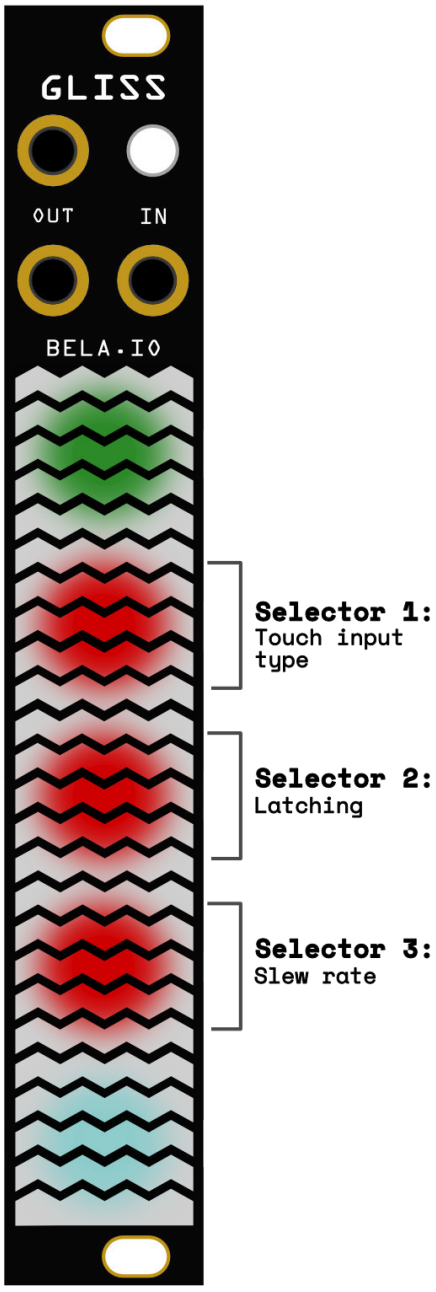
Note that when you change orientation everything is automatically reoriented. This means that "Top Output" refers to the output that's at the top, no matter what orientation you're in (or Output 1 if you're using Gliss 1U). There's nothing you have to remember or remap; by adjusting this setting, Gliss does all the work for you.

Mode 1:

CONTROL

Control signals in real time, with the touch of a finger

Control Mode allows you to generate CV signals in real time using touch. There are options for combining control via finger position and touch size, or using various combinations of position and touch.



The Settings Selectors

Selector 1: Touch Input Type

This setting allows you to choose your type of control. Tap the selector to step through the 4 options:

- ***Single Slider***
  A single touch point that outputs finger position (Top Output) and touch size (Bottom Output).

- ***Dual Slider***
  2 stacked sliders that each output finger position.

- ***Dual Touch***
  2 touch-sensitive pads that each output touch size.

- ***Slider + Touch*** **(New!)**
  This splits the Touch Strip into a position slider (80% of the space), and a touch-sensitive pad.

Selector 2: Latching

Latching means holding the value when a touch ends. All control types can use latching.

There are 3 options for latching:

Unlatched

When you lift your finger off the Touch Strip, both CV outputs go to 0V.

Latched

When you lift your finger off the Touch Strip, both CV outputs will be held at their last values (either position or touch size, depending on your chosen input type).

When you're using the Dual Slider input you're only using half the Touch Strip for each slider. However, ***this does not mean your voltage ranges are halved!*** *You still have the full voltage range available for each output, they're just scaled to fit half the Touch Strip.*

Latch Position

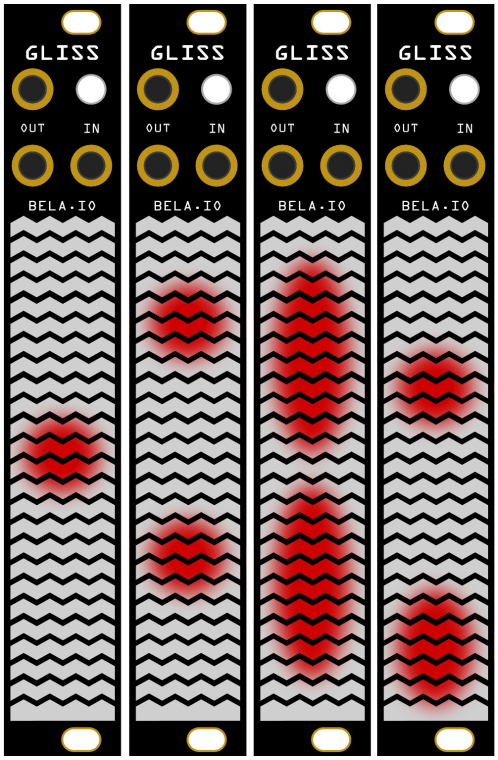
When you lift your finger off the Touch Strip, any CV output mapped to position is held at the last value, but any output mapped to touch size will drop to 0V.

Creative uses for latching

Latching is a subtle feature with lots of creative potential. As you patch with Gliss, we recommend experimenting with different latching settings. Here's some ideas:

Control oscillator pitch and trigger an envelope

Latch position only (Selector 2, Setting 3), leaving touch size unlatched. In this case, you're controlling pitch with finger position. Your finger position will be latched when you lift your finger, but the touch size will go to 0V. You can trigger your envelope by pressing your finger on the Touch Strip, thereby generating a high GATE signal, which will be high for as long as you press down.



Touch input types

This diagram shows the four touch input types (Selector 1). From left: Single Slider, Dual Slider, Dual Touch, and the new input type, Slider + Touch.

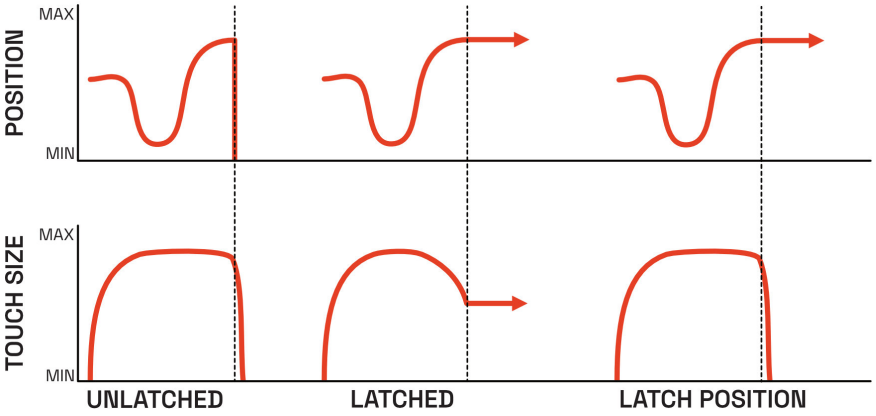
Unlatch values to create silence

When controlling an oscillator's frequency with position and its volume via a VCA with touch size, try unlatching both those values (Selector 2, Setting 1). This will mean that the sound is only heard while your finger is on the Touch Strip.

On-the-fly latching

You can also latch and unlatch values on the fly. This affects both finger position and touch size.

Start with values unlatched (Selector 2, Setting 1). With a finger on the Touch Strip, press the Button. When you lift your finger, all output voltages will be held. Press the Button to unlatch, or place a finger on the Touch Strip to change values.



UNLATCHED
When you lift your finger, the voltage immediately goes to 0V.

LATCHED
When you lift your finger, the voltage for both position and touch size remain at their last position in the voltage range.

LATCH POSITION
When you lift your finger, the voltage for any position input remains at its last voltage level, and any touch value immediately goes to 0V.

Sample and hold with latching

Start with values unlatched (Selector 2, Setting 1). You can create a "sample and hold" effect by moving your finger on the Touch Strip, and pressing the Button to latch values as you go. Every time you press the Button you "sample" a new touch position value, and it "holds" there until you either push the Button to unlatch the values, or update the output with a new touch.

Latching with a trigger signal

As well as pressing the Button to latch and unlatch, you can also do this using a trigger signal connected to the Input. This is also an interesting way to create a "sample and hold" effect as described above.

Selector 3: Slew rate (New!)

Slew Rate allows you to customise how quickly a signal rises and falls when you start or release a touch. This feature means that you no longer need a ADSR module to create custom attack and release for your touches - you can set it right within Gliss.

Tap Selector 3 to go to the Slew Rate sub-menu. You'll see four orange selectors. Going from top to bottom (or left to right in Gliss 1U), tap these selectors to adjust:

- Top Output attack slew
- Top Output release slew
- Bottom Output attack slew
- Bottom Output release slew

The default for each of these is zero, meaning the voltage immediately jumps from 0V (untouched) to the voltage corresponding to your finger position or touch size when a touch begins, and drops immediately to 0V when a touch is released.

Tap a selector for the slew rate you want to customise. A flashing point will appear that is red at the bottom

Custom Attack/ Release Menu

When you tap Selector 3 you'll be taken to this menu. From the top, these selectors control the following slew rates:

Output 1 attack
Output 1 release
Output 2 attack
Output 2 release

Tap a selector and slide the point to set the rate between minimum (bottom) and maximum (top).

Slew following

The above diagram shows a red point following a touch, and the orange point representing the slew rising to meet it.

(the default value), and gold when you adjust it. Slide to adjust the slew rate between 0 and the maximum (100 seconds).

The no-touch voltage of Gliss is 0V. This is relevant if your voltage range includes values below 0V (such as -5V to +5V). If you lift your finger while the value is below 0V, the voltage will **rise** to 0V on release in accordance with your customised slew rate. If you place your finger on the Touch Strip at a value below 0V, the value will **decrease** from 0V to your selected level.

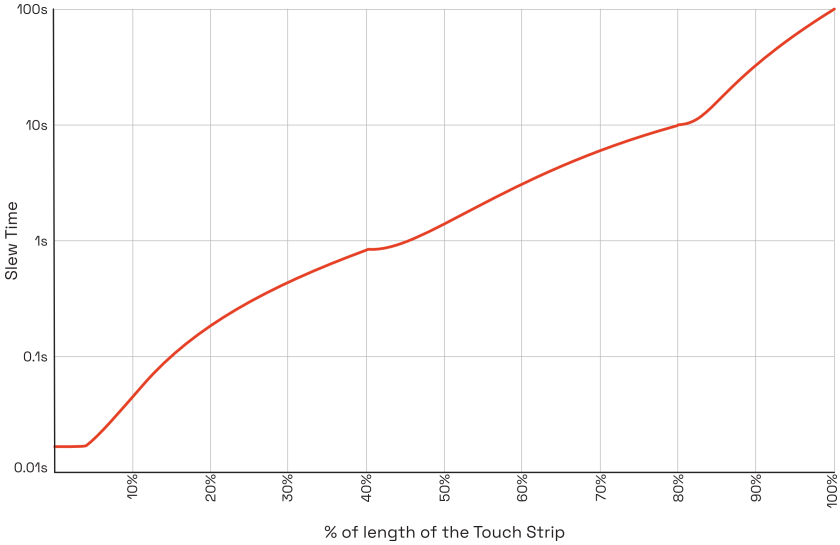
Slew rate visualisation

If you have a custom slew rate set that's greater than the minimum default value of 0, a red point will follow your finger on the Touch Strip, and an orange point will visualise the slew. In this way you can see the voltage rise and fall according to your settings, as well as hear its effects in your system. See the diagram on the left for an illustration.

Understanding the slew time range

The maximum slew time is 100 seconds. This is a really long time, because we wanted to build in a way to create very, very long attacks and releases which can produce interesting musical effects. However, this range from 0s to 100s isn't laid out linearly on the Touch Strip, because most people will probably want to define a precise slew time of far less than the full 100 seconds.

For this reason we've laid out the ranges so the first 40% of the Touch Strip is mapped to 0-1 second (from bottom up on Gliss 4HP, and from left to right on Gliss 1U). The next 40% of the Touch Strip is mapped from 1-10 seconds, and the last 20% is mapped to 10-100 seconds. In this way there's enough Touch Strip to adjust the most common ranges with some precision, as well as a smaller length of Touch Strip to explore more extreme attacks and releases. Here's a visualisation of this mapping:



Input and Outputs

Gliss 4HP

Top Output
Single slider: Finger position
Dual Slider: Top position
Dual Touch: Top touch size
Slider + Touch: Slider position

Bottom Output
Single slider: Touch size
Dual Slider: Bottom position
Dual Touch: Bottom touch size
Slider + Touch: Touch size

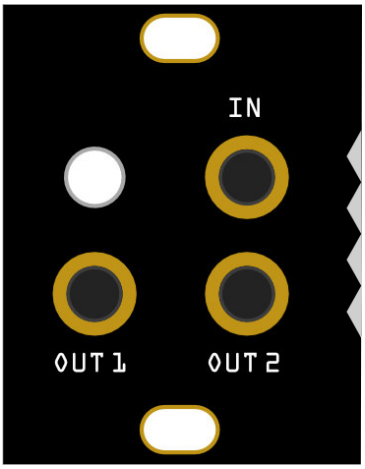
Button
Toggle on-the-fly latching

Input
Trigger signal for latching

Gliss 1U

Button
Toggle on-the-fly latching

Output 1
Single slider: Position
Dual Slider: Left position
Dual Touch: Left touch size
Slider + Touch: Touch size



Input
Trigger signal for latching

Output 2
Single slider: Touch size
Dual Slider: Right position
Dual Touch: Right touch size
Slider + Touch: Slider position

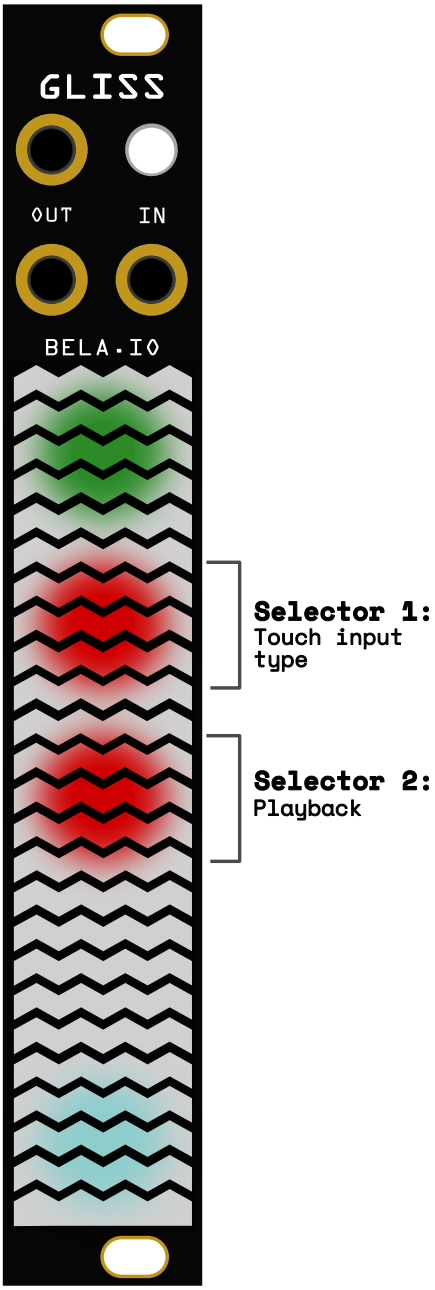
Mode 2:

RECORD

Record and play back gestures for custom modulation signals to use as LFOs and envelopes.

In Record Mode you can record custom gestures up to 150 seconds in length. Gliss starts recording your gesture as soon as you place your finger on the Touch Strip, and saves your gesture when you lift it again.

Record Mode also offers a variety of ways to play back your gesture, enabling a huge range of ways to create modulation signals like custom LFOs, envelopes, and much more.



The Settings Selectors

Selector 1: Touch input type

There are 4 options:

🔴 ***Single Slider***
Use the whole Touch Strip to record a gesture that combines both finger position and touch size.

🟠 ***Dual Slider***
Each half of the Touch Strip is a slider, and 2 independent finger position gestures are recorded (no touch size).

🟡 ***Dual Touch***
Each half of the Touch Strip is a touch-sensitive touch pad, and 2 touch size gestures are recorded (no finger position).

🟢 ***Slider + Touch*** **(New!)**
Splits the Touch Strip into a position slider (80% of the space), and a touch-sensitive pad.

Selector 2: Playback

There are 5 options for the way your recorded gestures are played back: Loop, Trigger, Clock, Wavetable, and Waveshaper.

Loop

When using Loop playback, you can start recording a gesture up to 150 seconds in length by placing your finger on the Touch Strip. When you lift your finger, Gliss will play back the recorded gesture indefinitely at the speed it was recorded. Overwrite your gesture at any time by placing your finger on the Touch Strip and recording a new gesture.

A trigger signal is a signal that goes from minimum to maximum voltage, like a momentary switch.

A GATE signal, however, is a voltage that goes from minimum voltage to maximum voltage, and stays there until it is turned off. Common ways of creating GATE signals are keyboards, sequencers, and LFOs.

Recording discrete gestures (New!)

Normally, during Loop playback, Gliss starts recording your gesture when you put your finger on the Touch Strip and starts playing it back when you lift your finger. In this latest firmware update we've added the ability to latch the recording, meaning you can create gestures that have discrete parts - in other words, you can lift your finger off the Touch Strip to create pauses, or to jump from one value to another.

When you have your finger on the Touch Strip, press the Button. You can now lift your finger while you record your gesture. Press the Button again to stop recording, and your gesture will start looping straight away.

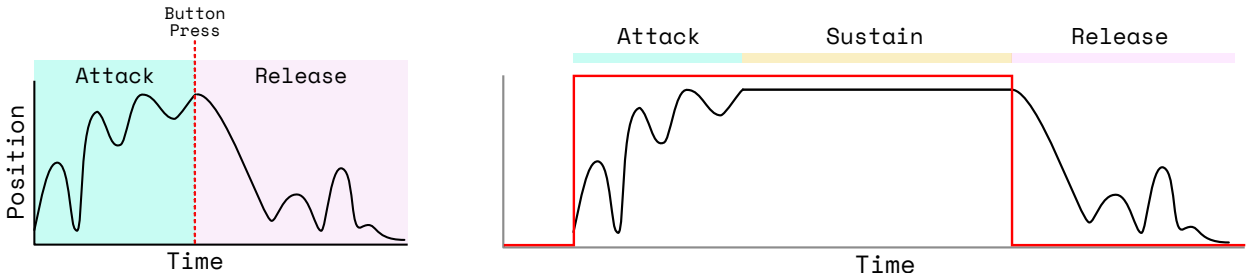
Triggering the loop

While your gesture is looping you can trigger your gesture to play from the beginning by pressing the Button, or by connecting a trigger signal to the Input (minimum 2V).

When using Dual Slider, Dual Touch and Slider + Touch input types, the gestures are not looped synchronously - they loop completely independently. If you re-trigger the gestures by pressing the Button or connecting a trigger signal, the gestures are triggered from the beginning.

PATCHING TIP

Set the input to Dual Slider and playback to Trigger, to have 2 envelope generators with custom shapes. You can draw in your envelope shapes on the 2 halves of the Touch Strip and then trigger them simultaneously with the Button or a trigger input. This is great for situations in which you want to simultaneously control a VCA as well as a VCF cutoff frequency for some acid bass lines.



Recording an Attack/Release envelope using the Button
LEFT: Creating a custom Attack/Release envelope.
RIGHT: Playing back your custom envelope using a GATE signal (indicated in red).

Erasing your recording

You can erase your looping gesture by holding down the Button for 3 seconds. This erases all recorded gestures. If you're using Dual Slider, Dual Touch, or Slider + Touch input types, you can choose to erase only 1 part of your gesture by holding your finger on it while you hold down the Button. That part of the Touch Strip will flash red when the gesture is erased.

Synchronising to the length of your gesture (New!)

We've added a new feature in Firmware v2 that allows you to synchronise other parts of your system to the length of your gesture. There are two conditions of this feature:

1. It only works with Single Slider input. This is so you can record a gesture with your finger position, and use the touch size as a GATE signal output.
2. Your Touch Sensitivity has to be set to maximum in the Global Settings menu. This is to ensure that your touch goes from 0V at the beginning of the gesture to maximum voltage as quickly as possible.

When you record a gesture with Single Slider input with maximum Touch Sensitivity, the Bottom Output (mapped to your touch size) will send a 4ms 0V pulse when the loop begins, and then return immediately to maximum voltage. This means the Bottom Output now sends out a GATE signal, which goes low at the beginning of the gesture for 4ms and then goes to maximum voltage for the remainder of the gesture's length. You can use this 0V "inverse trigger" to time the start of other processes in your system.

Trigger

While in Trigger playback you can record a gesture of up to 150 seconds that will be played back when Gliss receives an external trigger signal (minimum 2V), or when the Button is pressed. When a gesture is triggered it plays once, at the speed it was recorded. This is a great way to create envelopes with completely custom shapes.

Creating a custom Attack/Release Envelope

As well as triggering a whole gesture, it's also possible to create a custom envelope with marked Attack and Release sections.

To create a custom Attack/Release envelope (see diagram above):

1. Make sure you have Trigger playback enabled (Selector 2, setting 2).

2. Draw in the first part of your envelope, and then, with your finger still on the Touch Strip, push the Button to mark the end of the Attack portion. Do not lift your finger.
3. Draw the Release portion of your envelope. Lift your finger to complete the gesture.

To play back your custom Attack/Release envelope we recommend using an external GATE signal. You can also use the Button, but note that you'll need to hold down the button to create the sustain of a GATE.

When the incoming GATE signal goes high, the Attack section of the envelope is played. The last value of the Attack section will be held as long as that signal is high. When the signal returns to low, the Release section is played. If the signal is high for less time than it takes to play back the Attack section, Gliss will play the Attack followed immediately by the Release.

When using Dual Slider, Dual Touch or Slider + Touch input types you can set the Attack and Release points separately for each gesture, but both Attacks will be triggered together when Gliss receives a high GATE signal, and both Releases will play when the GATE returns to low.

Clock

Clock playback records your gesture of up to 75 seconds against an incoming clock, meaning that you can dynamically vary the speed that your gesture is played back by varying the speed of your clock signal.

When using Clock playback the Button is used to start and stop the recording. The recording is quantised, or "snapped", to the tick that's closest in time to those Button presses, meaning that Gliss will keep the playback synchronised with the external clock, and will stretch the playback rate if the rate of the clock changes.

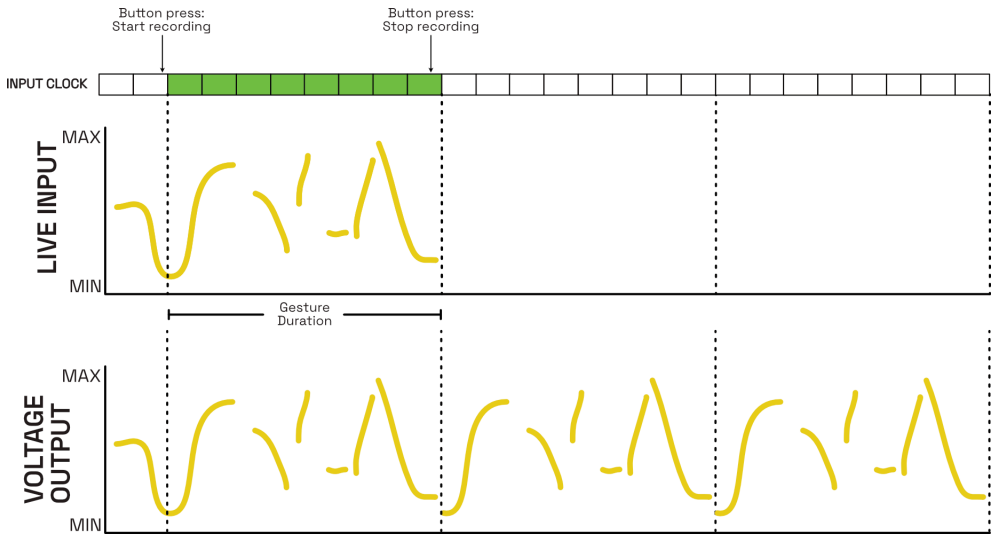
How to record a gesture synced to an incoming clock

Make sure you have a clock signal connected to the Input. The Button will flash yellow each time a clock tick is received.

1. Tap the Button to start recording. It will go red.
2. Draw in your gesture (up to 75 seconds) on the Touch Strip. Because you're using the Button to start and stop recording, you can lift your finger off the sensor as many times as you like while you're recording your gesture.
3. Press the Button again to stop recording.

If you're using Dual Slider, Dual Touch or Slider + Touch input, you can record on both halves of the Touch Strip together or separately. (If one half of the Touch Strip is

Another great advantage of Clock playback is that you can perform on the Touch Strip while your recorded gesture is playing. Because you have to use the Button to signal the start and stop points of a recording, performing on the Touch Strip while a gesture is playing won't overwrite anything that's already recorded.



Clock playback: Recording a gesture
When recording a gesture in Clock playback, press the Button to start recording, draw your gesture (up to 75 seconds), and press the Button to stop the recording. Gliss quantises your gesture to the closest incoming ticks, and adjusts the speed of playback to the speed of the incoming clock signal. In the illustration above, the gesture is recorded over 8 clock ticks, and will play back over 8 clock ticks - no matter how fast or slow those ticks arrive.

not touched during a recording, nothing will be recorded and any existing recording will persist.) If recorded together, they will have the same loop duration. If recorded separately they can have separate loop lengths - perfect for polyrhythms.

Erasing your recorded gesture

To erase all recordings, tap the Button 3 times. You will see the Touch Strip briefly flash red to confirm you have cleared the recording.

If you're using Dual Slider, Dual Touch or Slider + Touch input, you can select just one recording to delete. Keep your finger on the portion of the Touch Strip you'd like to erase, and tap the Button 3 times. When the recording is deleted, that half of the Touch Strip will flash red.

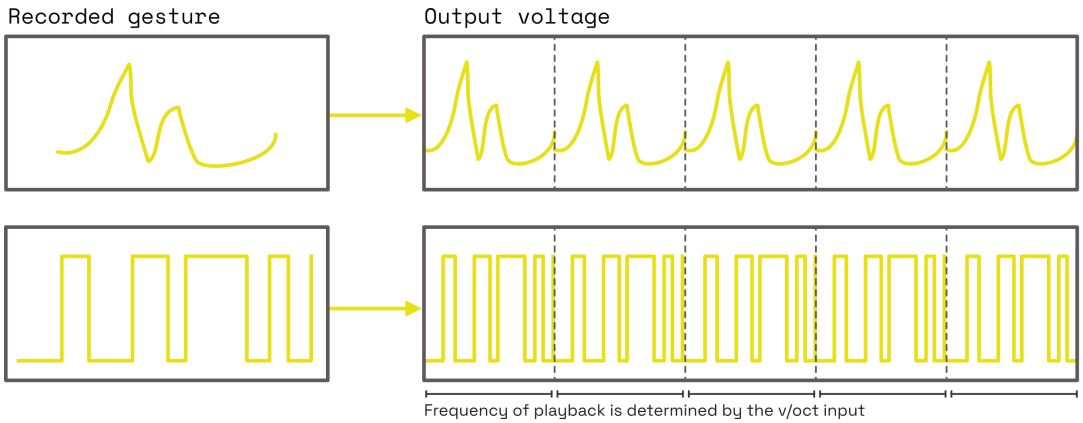
Syncing to the length of an existing gesture

Once you have a gesture recorded, you can record a new gesture that, instead of being synced to the incoming clock ticks, will instead use that existing gesture as a time reference.

To record this second gesture, tap the Button twice to arm recording. Recording starts the next time the reference gesture restarts. When you are finished recording, tap the Button once. The recording will stop the next time the reference sequence starts.

If you're using Dual Slider, Dual Touch or Slider + Touch input, you'll record your new gesture on one half of the sensor. This new gesture will use the length of the gesture playing on the other half as a reference.

If you're using Single Slider input, the time reference for your new gesture will be the original duration of the gesture that was already recorded. When you're finished recording your new gesture, the previous one is overwritten.



Wavetable playback: Using a 1V/oct oscillator signal to control gesture playback

Creating loops without a clock

If you don't have a clock signal available but would still like to create gestures by lifting your finger, no problem! Just press the Button to start recording, draw in your gesture, and press the Button again to stop. Your gesture will start playing back in a loop at the speed you recorded it.

Wavetable

Wavetable playback lets you record a gesture of up to 150 seconds, and plays it back at a rate corresponding to an incoming V/oct input, which is mapped to an oscillator frequency with a V/oct scaling. The scaling is important here; the frequency for a 0V input is 65.4Hz (equivalent to a C2 note), and each 1V increase on the incoming signal raises the frequency by an additional octave. In Wavetable playback the full voltage rage is available, from -5V to +10V, but not all frequencies in those ranges will be audible. (Note that, for Wavetable playback, any customised voltage range for the Input is ignored.)

This makes Gliss into a voltage-controlled wavetable oscillator. The gesture you record is the waveform loaded into the wavetable, and is played back at the frequency of the note represented by the incoming V/oct signal.

To get the most from Wavetable playback we recommend setting the Output range to -5V to +5V. This will mean that each Output can be treated like audio signal, and you can connect each one directly to a Eurorack level mixer.

While you're using Wavetable playback the gesture you've recorded will play on the Touch Strip at the speed you recorded it. Your gesture will actually be playing back much, much faster, far too fast for real-time visual feedback to be useful, so we show you the original gesture so you can edit it (more on that below), or overwrite it by drawing in something new.

Controlling wavetable timbre

The most influential factor on the timbre of your Wavetable playback is the start and end values of your gesture. Starting and finishing your gesture at the same point on the Touch Strip will produce more gentle timbres with fewer overtones or partials, because there will not be a jump in values when the waveform starts again.

If you want a more complex tone with lots of overtones and partials, or want to explore

really noisy outputs, try starting and ending the gesture in two different positions. Another strategy for complex partials is to create a square wave by holding your finger at one position on the Touch Strip and tapping above it to make the value jump.

Though the waveform is an important factor in the audio output of a wavetable, you can also vary the voltage level of your 1V/oct input signal to explore different sonic results.

Erasing your recording

To erase all your recordings, hold the Button for 3 seconds. The Touch Strip will flash red when the gestures are erased.

When using Dual Slider, Dual Touch, and Slider + Touch input types you can select one gesture to erase by putting your finger on that gesture on the Touch Strip while holding down the button for 3 seconds. That half of the Touch Strip will flash red when the gesture is erased.

Editing the in/out points of a gesture (New!)

While your gesture is playing back, you can also now edit the gesture's start and end points.

Tap the Button once. It will turn green, and two green points appear at the top and bottom of the Touch Strip. The bottom point represents the start of your gesture, and the top point represents the end. By dragging these points you can trim the start and end points of your recorded gesture, and isolate a portion of it for use in the wavetable. This is a great way to try out how different potions of a gesture result in different harmonic effects, and allow you to fully explore the sonic potential of a single gesture.

If you're using Dual Slider, Dual Touch or Slider + Touch input types, the two points represent the start and end points of **both** gestures.

To exit this editing mode, tap the Button. If you overwrite your gesture, erase one or both parts of your gesture, or record a new gesture, the in/out points are reset to the beginning and end of your new recording.

Waveshaper

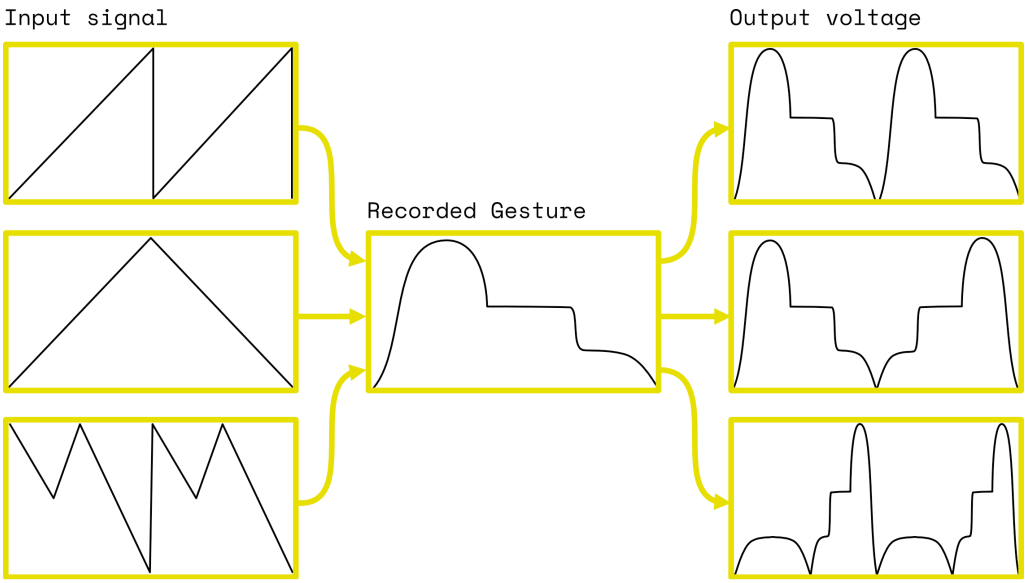
Waveshaper playback allows you to record a gesture of up to 150 seconds, and then scrub through it using an input voltage.

In Waveshaper playback, the input voltage range is mapped to the gesture length. For example, if your input voltage range is set to -5V to +5V, a -5V input will correspond to the beginning of the gesture, 0V corresponds to the middle of the gesture, and +5V corresponds to the end of the gesture. This means that by using a varying input voltage from an oscillator you can play different parts of your gesture. For example a rising sawtooth wave will play through your gesture from beginning to end, then jump back to the beginning. A triangle wave will play your gesture from beginning to end as it rises, and from end to beginning as it falls.

Editing the in/out points of a gesture (New!)

When your gesture is playing back according to the CV signal connected to the Input, you can edit the in and out points of your recorded gesture to create new effects.

Tap the Button once. It will turn green, and two green points appear at the top and bottom of the Touch Strip. The bottom point represents the start of your gesture, and



Waveshaper Playback: Use different oscillator wave shapes to control how a gesture is played back.

the top point represents the end. By dragging these points you can isolate just a portion of your gesture to be shaped by the incoming CV signal. This is a great way to explore the full potential of a single gesture.

If you're using Dual Slider, Dual Touch or Slider + Touch input, the green points represent the start and end of **both** gestures.

To exit this editing mode, tap the Button. If you overwrite your gesture the in/out points are reset to the beginning and end of your new gestures.

PATCHING TIP

When using Waveshaper playback you can use an external Attack/Sustain envelope for 1-shot playback of recorded gestures. The envelope's attack time determines the playback time. You can also try other sloped modulation sources, such as smoothly fluctuating random voltages or complex LFOs.

Try using the Waveshaper with Dual Slider touch input. Plug a sine or triangle wave into the Input, connect each Output to a mixer, and draw gestures into both sections of the Touch Strip to generate 2 timbrally different tones.

Input and Outputs

Gliss 4HP

Top Output
Single slider: Position
Dual Slider: Top position
Dual Touch: Top touch size
Slider + Touch: Slider position

Bottom Output
Single Slider: Touch size
Dual Slider: Bottom position
Dual Touch: Bottom touch size
Slider + Touch: Touch size

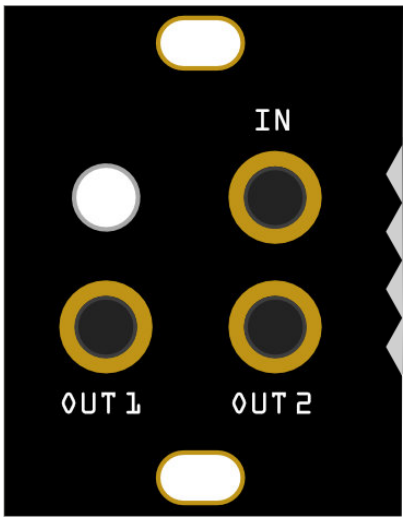
Button
Loop: Trigger; hold to erase;
tap to record discrete gestures
Trigger: Trigger; GATE
Clock: Arm recording, tap 3x to erase
Wavetable/Waveshaper: Tap to edit in/out

Input
Loop: Trigger signal
Trigger: Trigger signal; GATE
Clock: Clock signal
Wavetable: CV input (V/oct)
Waveshaper: CV input

Gliss 1U

Button
Loop: Trigger; hold to erase;
tap to record discrete gestures
Trigger: Trigger; GATE
Clock: Arm recording; tap 3x to erase
Wavetable/Waveshaper: Tap to edit in/out

Output 1
Single Slider: Position
Dual Slider: Left position
Dual Touch: Left touch size
Slider + Touch: Touch size



Input
Loop: Trigger signal
Trigger: Trigger signal; GATE
Clock: Clock input
Wavetable: CV input (V/oct)
Waveshaper: CV input

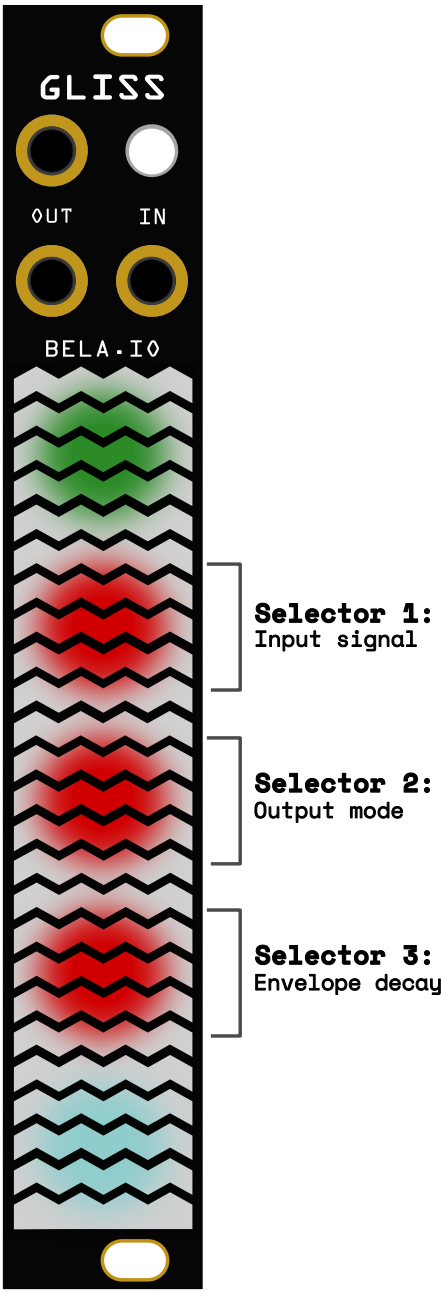
Output 2
Single Slider: Touch size
Dual Slider: Right position
Dual Touch: Right touch size
Slider + Touch: Slider position

Mode 3:

SIGNAL

Clip, scale, offset, smooth, and visualise your signals

In Signal Mode, you can visualise and manipulate incoming signals, significantly enhancing the flexibility of your pre-existing modulation sources. Clip, scale, offset, and smooth CV or audio input, ready to be passed around your system.



The Settings Selectors

Selector 1: Input signal

There are 2 options:

- ***Control Voltage (DC coupling)***

Choose this option if your input is a CV signal. The input signal will be visualised as a green point moving across the Touch Strip.

- ***Audio Signal (AC coupling)***

Choose this option if your input is an audio signal. This setting visualises your incoming signal like a classic level meter on a mixing desk.

Selector 2: Output type

There are 3 options:

- ***Signal/Inverted signal***

The Top Output passes the clipped, scaled and shifted version of the input signal. The Bottom Output passes the inverse of the Top Output.

Signal/Envelope detector

The Top Output passes the input signal. The Bottom Output passes a scaled and shifted version of a smoothed envelope of the clipped signal.

Envelope detector/Inverted envelope detector

The Top Output passes the envelope detector, a smoothed signal that rises and falls with the peaks in your input signal. The Bottom Output passes the inverse of this envelope detector.

Selector 3: Envelope decay

Envelope decay controls the amount of smoothing applied to the decay of your envelope detector output. See the diagram below for an illustration of input signal and the resulting envelope decay, with various levels of smoothing applied.

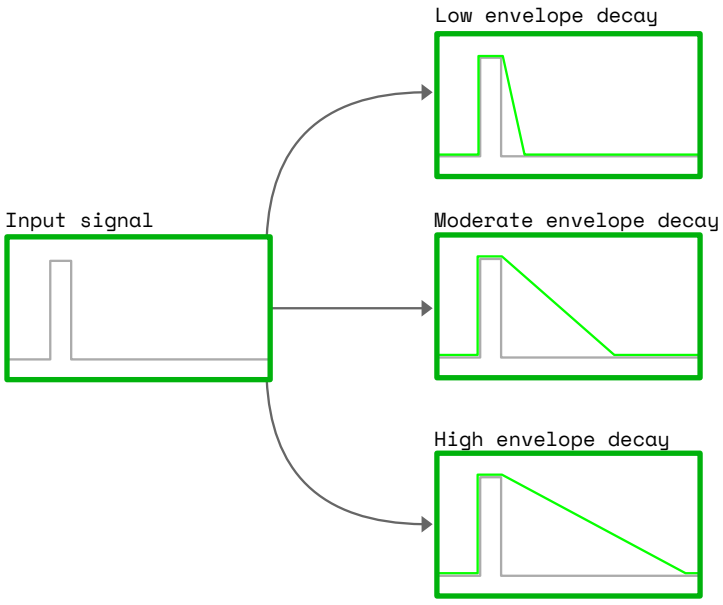
This is a continuous setting. Press the Selector, and a single flashing point appears, representing the current rate of decay. Slide the point towards the bottom to reduce decay, and slide it towards the top to increase it. The point is gold, but turns red when you return to the default value.

Additional capabilities of Signal Mode

Signal Mode has a number of capabilities for processing signals outside of what you can achieve with the Menu settings. The capabilities available and their effects will depend on whether your input signal is Control Voltage or Audio (Selector 1).

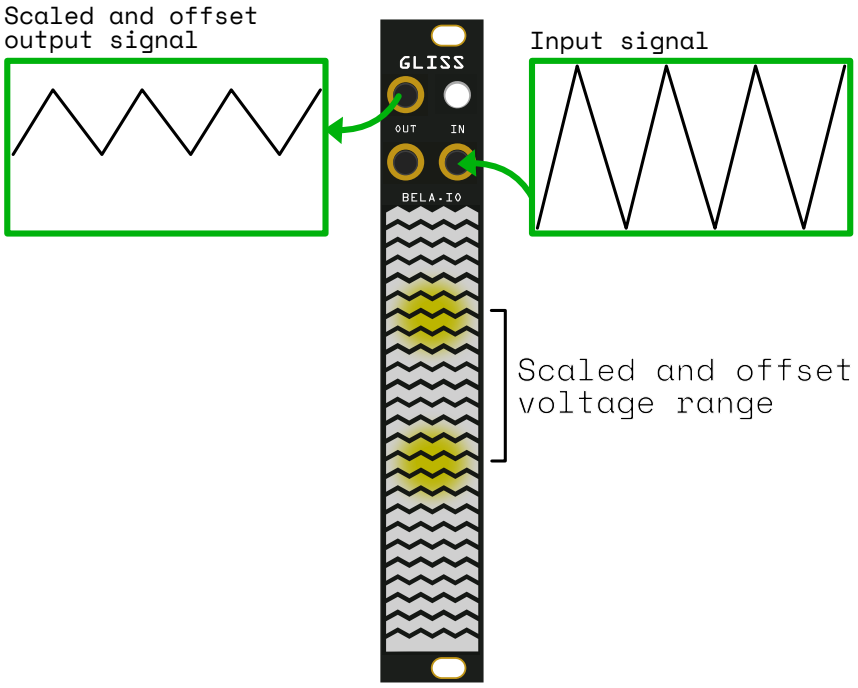
CV signal tools

If you choose CV signal input (Selector 1, Setting 1) you'll have access to CV signal tools. For best results, set the voltage range for your Input and Outputs for Signal Mode to match that of your incoming devices (you can do this in the Menu by tapping the Voltage Range Menu Selector).



Envelope decay

The image at left shows how differing levels of envelope decay produce different envelope signals. The envelope signal is shown in green.



Scaling and offsetting a CV Signal
This diagram shows a scaled and offset CV signal.

Visualise CV signal

Connect a CV signal to the Input. The CV input will be visualised as a green point moving across the Touch Strip, like a very simple oscilloscope.

If you have selected one of the envelope detector outputs (Selector 2), you will also see the smoothed output animated as an additional green point that rises and falls according to your rate of envelope decay (Selector 3).

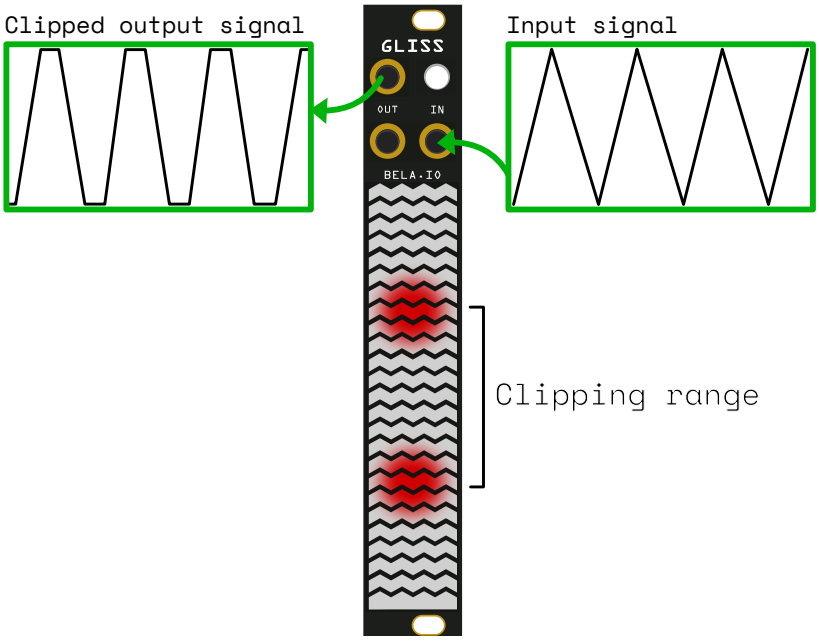
Scaling and offsetting CV signal

One of the great utility features of Signal Mode is the ability to scale and offset incoming signals from other modules on the fly, which offers interesting performance possibilities.

To scale and offset a CV signal, make sure you're in active Signal Mode (not in the Menu). Place 2 fingers on the Touch Strip, one at the top and one at the bottom. Gold points will appear under your top and bottom fingers. Keeping both fingers on the Touch Strip, slide the points to scale your signal. You'll see the green animated point representing your input moving between your fingertips.

As well as scaling your incoming signal, you can also offset it. With your fingers still on the Touch Strip, drag your scaled voltage range within the full output range you have specified (this is 0V to +10V by default).

As soon as you lift your fingers off the Touch Strip, your chosen values will be stored.



Clipping CV Signal

This diagram shows a clipped CV signal. Note that the output signal is clipped within the range specified on the Touch Strip, and then scaled to fill the voltage range.

Clipping a CV signal

You can also clip and rescale incoming signal. To edit the clipping points, press the Button. The Button will be red, and two red points will appear on the Touch Strip.

By default the clipping points are at the very top and very bottom of the voltage range, passing the whole signal. While editing clipping you can change the position of the clipping points by sliding your fingers to move the red points on the Touch Strip. This selects a portion of your input signal to pass through to the output.

While adjusting the clipping points you will see the green point representing your incoming CV signal moving across the Touch Strip. The portion of the signal that moves between the red clipping points will be clipped and rescaled to fill the whole output voltage range (0V to +10V by default, but customisable from the Signal Mode Menu by tapping the Voltage Range Selector).

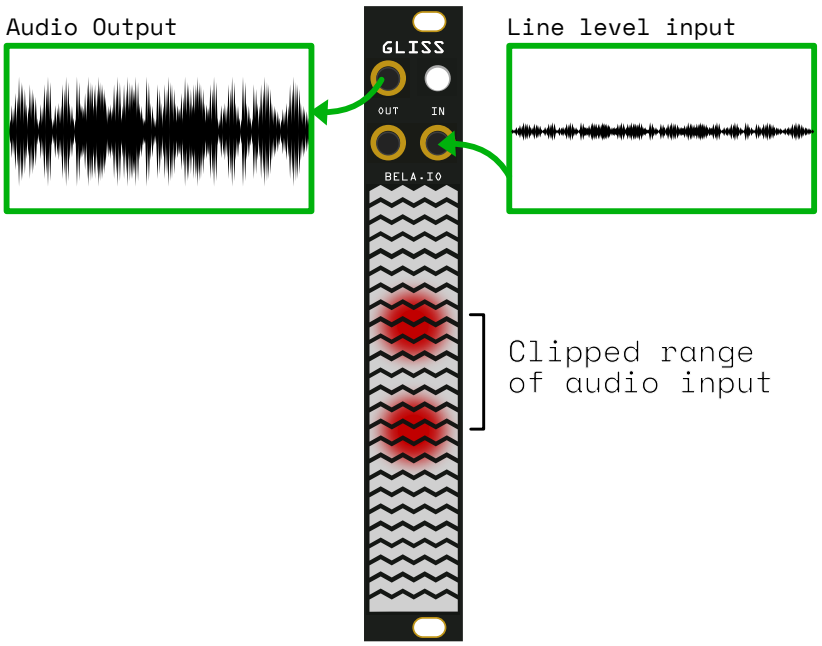
Anything outside of this clipping range will be hard clipped to the minimum and maximum of your range (see the illustration above).

Audio signal tools

Monitoring audio signals with the level meter

If you select Audio input (Selector 1, Setting 2), you can visualise incoming audio signals with a level meter. The level meter shows you the amplitude behaviour of your audio signal, with a representation common on mixing desks (with the signal visualised as green, orange and red, rising from the bottom of the Touch Strip, or the left of the Touch Strip if you're using Gliss 1U).

The signal for the visualisation of audio input and the input of the envelope detector is obtained from the input signal by applying a DC-blocking filter and a 12ms RMS window. The visualisation is displayed on a logarithmic scale, as on a conventional level meter.



Using signal clipping as amplification
This diagram shows how clipping can be used as a signal amplifier for weaker signals in your system by setting the clipping points to the upper and lower limits of the visible signal on the Touch Strip.

If you have selected one of the envelope detector outputs (Selector 2), you will also see an animation of the smoothed output animated as a point that rises through the level meter and falls back down according to the selected rate of envelope decay (Selector 3). The envelope with decay will look like a peak on your audio signal, which decays more slowly than the audio signal itself. The envelope detector will be particularly visible for input signals with large transients (sounds that go from silent to loud and back to silent quickly, like a drum hit).

Scaling and offsetting an audio signal

The same logic of scaling and offsetting can be applied to your audio signal as described above for CV. In active Signal Mode, place both fingers on the Touch Strip. Gold points appear under your top and bottom fingers, representing the scaled amplitude range of your incoming signal. Slide your fingers to scale your input.

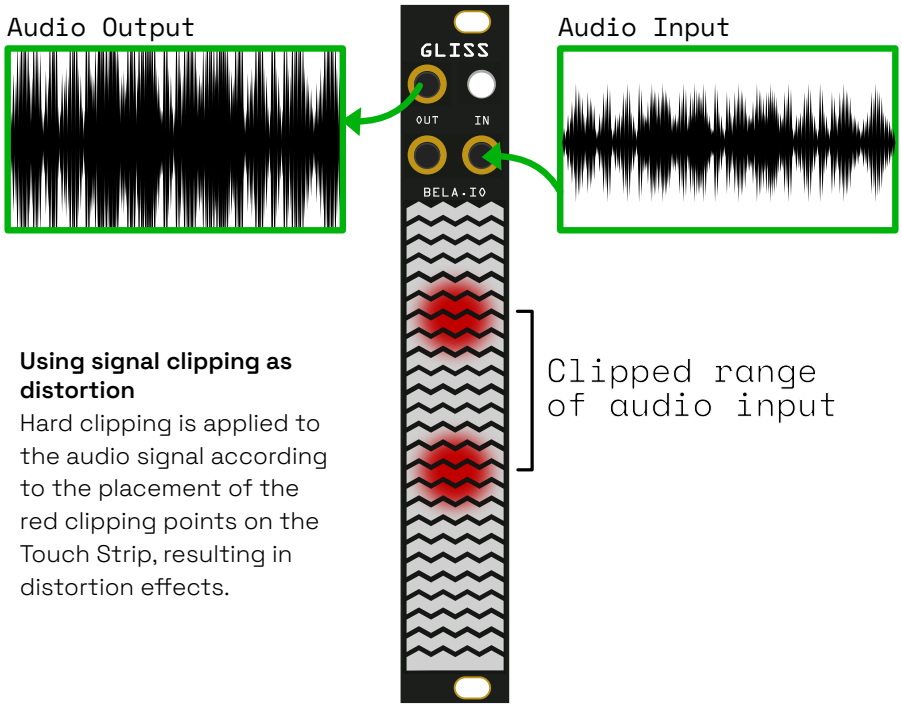
To offset your incoming audio signal, slide your fingers up or down the Touch Strip to shift the overall range anywhere between your output's minimum and maximum voltages (0V to +10V by default, but this is customisable using the Voltage Range Selector).

Clipping an audio signal

Clipping your incoming audio signal can create all kinds of interesting-sounding distortion effects.

From active Signal Mode (not in the

The clipping functionality can also be used as a signal amplifier for weaker signals in your system by setting the clipping points to the upper and lower limits of the visible signal on the VU meter.



Using signal clipping as distortion
Hard clipping is applied to the audio signal according to the placement of the red clipping points on the Touch Strip, resulting in distortion effects.

Menu), tap the Button to edit the clipping points. Two red points appear on the Touch Strip, representing your 2 clipping thresholds. While editing the clipping points the Button will be red, and your incoming audio signal will be visualised on the Touch Strip.

Adjusting these points allows you to limit the positive and negative parts of the audio signal independently. This can create a hard clipping distortion, adding interesting harmonics to your original audio signal. Changing the position of the clipping points on the Touch Strip changes the character of the distortion and the harmonics which make it through to your output audio signal.

Input and Outputs

Gliss 4HP

Top Output
Signal/Signal: Processed output
Signal/ED: Processed output
ED/ED: Smoothed envelope

Bottom Output
Signal/Signal: Inverted input
Signal/ED: Smoothed envelope
ED/ED: Inverted envelope

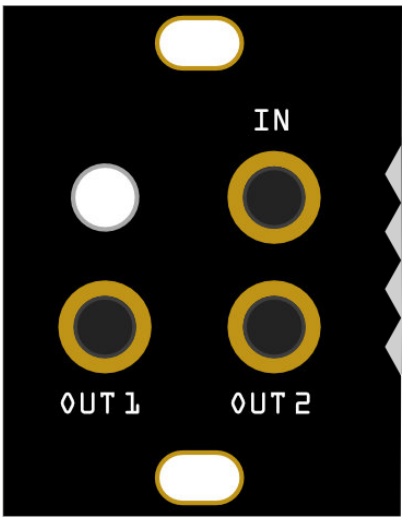
Button
Enter/exit input clipping

Input
Signal to be processed

Gliss 1U

Button
Enter/exit input clipping

Output 1
Signal/Signal: Processed output
Signal/ED: Processed output
ED/ED: Smoothed envelope



Input
Signal to be processed

Output 2
Signal/Signal: Inverted input
Signal/ED: Smoothed envelope
ED/ED: Inverted envelope

Mode 4:

NOTES

A set of 5 tunable notes, playable as a keyboard or a step sequencer.

Notes Mode turns the Touch Strip into a set of tuned notes. These notes can be played like a keyboard that you play with your fingers (with expressive glissando and vibrato), or like a sequencer where the notes are triggered one at a time by an incoming clock signal.

Notes Mode has customisation options so you can configure not only the available notes or steps but also their behaviour, to make these playable tones behave precisely how you want.

The Settings Selectors

Selector 1: Play type

There are 2 options:

- ***Keyboard***

When you're playing the notes as a keyboard, the notes on the Touch Strip are playable by touch and have expressive capabilities. Press a note and vary your touch size, and wiggle your finger for vibrato, and slide between notes with glissando.

- ***Sequencer***

When you're playing the notes as a Sequencer, the notes are triggered in sequence by an incoming clock signal. Pressing a step will reset the position of the sequencer to that note.

Selector 2: Quantisation

This setting refers to quantisation while tuning the notes. There are 2 options:

- ***Quantisation OFF***

With quantisation OFF, the pitches are not stepped, allowing you to achieve voltage levels that do not conform to 12-tone equal temperament.

- ***Quantisation ON***

With quantisation ON, the pitches are stepped to help you achieve a precise voltage level while tuning manually (see the Manual Tuning section below for details.)

Selector 3: Variable setting

The variable that this setting controls depends on whether you have selected Keyboard or Sequencer playback (Selector 1). Note that the variable value is shared between the Keyboard and Sequencer settings, though it has different functions for each play type.

This is a continuous setting. Press the Selector and a single flashing point appears, representing the current value. Slide the point to adjust. The point is gold while adjusting and turns red when you return to the default value.

When using Keyboard play type

If you choose Keyboard play type, this Selector sets the **vibrato depth**, or the range of frequency variation when you wiggle your finger on a note while activating it. Slide the point down for minimum vibrato and up for maximum vibrato.

When using Sequencer play type

If you choose Sequencer play type, this selector controls the amount of **glide** between each step in the sequence. Slide the point down for minimum glide, and up for maximum glide.

Tuning the notes

Notes Mode comes configured with 5 notes tuned to a pentatonic scale, but the tuning of the notes is fully customisable. Tuning the notes means you can set the precise voltage level that's sent out of the Top Output when that note is played, whether the notes are played as a Keyboard or Sequencer.

To enter tuning, make sure you're in active Notes Mode (not in the Menu). Press the Button rapidly 3 times. The notes on the Touch Strip begin to pulse when they're ready to be tuned, and the Button turns solid red. These notes can be tuned in 2 ways - manually, or by CV input.

Manual tuning

If you're tuning manually it can be difficult to achieve a precise voltage level. To help, you can enable Quantisation (Selector 2), which divides your range into 12-TET

The total voltage range available for tuning is the Top Output voltage range for Notes Mode. This comes configured to 0V to +2V, but the full range is -5V to +10V (and is customisable).

semitones - 12 semitones for each volt of the voltage range. For this reason, in Notes Mode, the default range for the Top Output is 0V to +2V. This gives you a 2-octave range and makes manual tuning simpler, but you can customise that range using the Voltage Range selector in the Menu.

To tune the notes manually, press and hold the note you want to tune for 5 seconds. A point will appear on the Touch Strip, representing the current tuned voltage level. Slide your finger down to the point, and slide it to adjust its tuning. You can save a tuning by lifting your finger, or by pressing the Button while your finger as on the Touch Strip.

Using the Button to store precise tuning values

Though you can store a note's tuning just by lifting your finger, the movement of lifting off the Touch Strip can change your intended tuning because Gliss responds to very small variations in position. This is especially true if you're working with a larger voltage range. To prevent any variation in tuning, store your value by pressing the Button while your finger is still on the Touch Strip. This will store the exact voltage that you were holding, and ensures no tiny position changes take place when you release your finger.

When you're finished tuning, press the Button once to return to active Notes Mode.

CV input tuning

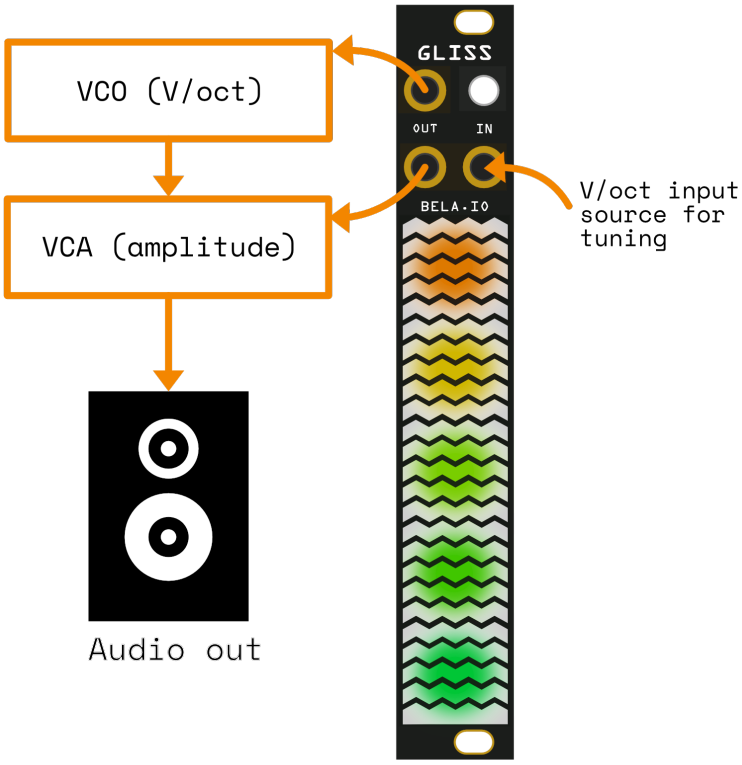
Most people find tuning with CV input more straightforward, because it removes the guesswork of selecting a precise value for each note.

To tune the notes with CV input, connect a V/oct CV signal (from a keyboard, sequencer or another module) into the Input. Play a note from the connected device, and press the note on the Touch Strip that you want to tune to that voltage level.

When you're finished, press the Button once to return to the Active Mode.

TUNING TIP

We recommend working with a small voltage range for the Top Output when tuning manually, as this limits the available range of notes. The Top Output comes configured with a 0V to +2V range (2 octaves), but you can customise this to any range you like. While you're manually setting the voltage range for the Top Output in the Voltage Range Menu, you can connect it to a VCO to listen to your potential range of notes.



Keyboard patch example

In this diagram we're controlling the pitch of a VCO by connecting Gliss's Top Output to the V/oct input. Then, we're controlling the volume of that VCO via a VCA that is controlled by the Bottom Output's signal, which is mapped to touch size.

Since touch size is variable, you can achieve a range of different dynamics by varying how hard you press on the Touch Strip while playing notes.

Keyboard configuration

Using the notes as a Keyboard (Selector 1) means that you can trigger the notes by tapping them on the Touch Strip. The tuned voltage of the active note will be sent out the Top Output, and the touch size of your finger will be sent out the Bottom Output.

Expressive control

When you play the notes as a Keyboard you also have some expressive features:

1. Add vibrato holding down on a note and wiggling your finger (you set the vibrato range in Setting Selector 3).
2. Play the keyboard by tapping each note, or slide continuously between notes to create glissando.

A note on expressive vibrato and glissando

You can tune the notes of your keyboard to any pitches you like using the procedure described in the current section, but if you'd like to use the expressive vibrato and glide features we recommend that the pitches are arranged in ascending order from the bottom of the Touch Strip to the top.

Gliss assumes that pitches are arranged in ascending order up the Touch Strip. For example, this means that when using vibrato, moving your finger up the Touch Strip bends the pitch up, and moving your finger down bends the pitch down. Therefore if your notes are not ascending, or if the vibrato depth exceeds the spacing between two adjacent notes, using vibrato/glissando may produce some unexpected behaviours.

Customise the number of keys

By default Gliss is configured for a 5-note keyboard, but you can choose anywhere between 1 and 5 notes.

To change the number of notes in your keyboard, make sure you're in the Active Mode (not in the Menu). Press the Button twice. The notes will begin to flash, and the Button will pulse red.

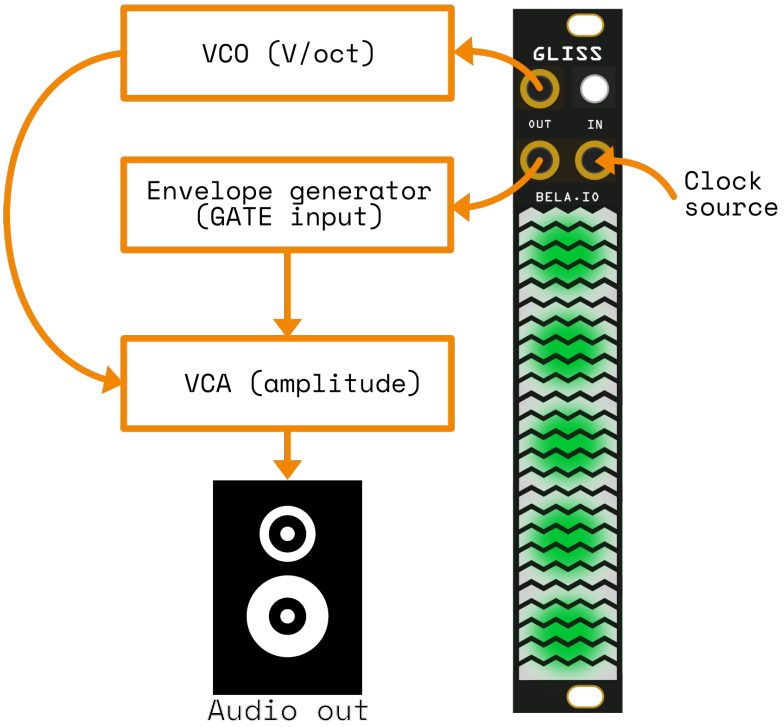
You can now disable or enable the notes by tapping them. Only the selected notes—with their associated voltage levels—will now be in your keyboard.

Decreasing the number of keys can make the keyboard easier to play, and provides more space for vibrato and sliding between notes.

When you've selected your desired notes, press the Button once to confirm. You will see that the notes are laid out to use the full length of the Touch Strip. Each of these notes will have the tuning that they have already been assigned (though this is configurable by entering the Tuning mode as described above).

Sequencer configuration

Using the notes as a Sequencer (Selector 1) means each of the notes becomes a step in a sequencer, with each step triggered by a signal connected to the Input. The Top Output sends the voltage associated with the current active step, while the Bottom



Sequencer patch example

This diagram shows a VCO's pitch controlled by the V/oct signal from the current note in the sequence. The trigger signal from the Bottom Output that's sent when the note is played by the sequencer is used to trigger an envelope generator, which controls the amplitude of a VCA.

Output sends a trigger out for each active step. The trigger out is +10V if the current step is the first in the sequence, otherwise the trigger is +5V. In addition to customising the glide between the steps (using Setting Selector 3), you can also customise how each step behaves.

Choose the next active step

While in active Notes Mode and using the Sequencer, you can choose which note is played next on-the-fly by tapping it. That step will be played next, and the sequence will continue looping from that note. Holding the step will cause it to repeat for as long as it's held.

Configure the steps

Each of the 5 steps is individually configurable.

Make sure you're in active Notes Mode (and not in the Menu). You will see the steps on the Touch Strip. Press the Button twice. The steps will now pulse.

Each step can be placed in one of 4 states, and you can cycle through these states by tapping the step. The available states are:

- **Active (default)**
  The note will be played when triggered
- **Hold**
  The previous note will be held until the next trigger, and no trigger will be sent out the Bottom Output
- **Mute**
  This disables the step. Output is 0V, and no trigger is sent from the Bottom Output
- **Skip (off)**
  Removes the step from the sequencer

Mute vs Skip

The difference between Mute and Skip states is subtle, but important. In Mute, that note will output 0V when it's active, resulting in a pause in the sequence. However, if that note is set to Skip it is removed from the sequence, reducing the overall length.

Here's an example: If one note of 5 is set to Mute, the sequence is still 5 steps long, and the output will be 0V when that muted note is active. However, if that step is set to Skip, the note will be removed from the sequence, and the sequence length will be reduced from 5 steps to 4.

Tuning while playing the notes as a sequencer

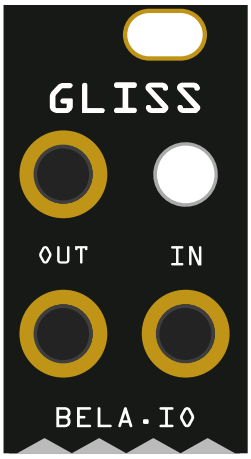
It is also possible to retune the steps on-the-fly while your sequence is playing in Sequencer play mode. Press the Button 3 times and follow the instructions listed above in the "Tuning the notes" section. While tuning in Sequencer mode, only Manual Tuning is available, but you can adjust the voltage associated with each step while the sequence is playing.

Input and Outputs

Gliss 4HP

Top Output
Keyboard: Pitch of current note
Sequencer: Pitch of current note

Bottom Output
Keyboard: Touch size
Sequencer: Trigger signal is sent when an active note is played



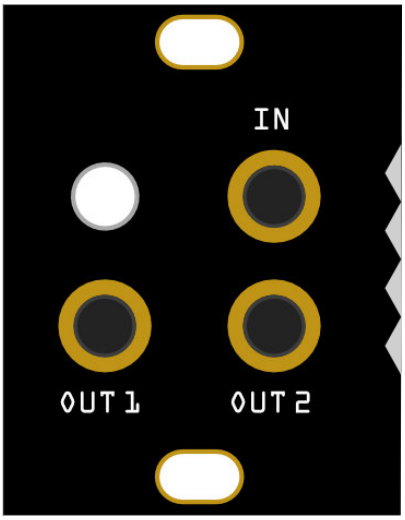
Button
Enter/exit Tuning mode; configure notes/steps

Input
Tuning: Input voltage to be stored as note voltage
Sequencer: Clock signal to trigger playback

Gliss 1U

Button
Enter/exit Tuning mode; configure notes/steps

Output 1
Keyboard: Pitch of current note
Sequencer: Pitch of current note



Input
Tuning: Input voltage to be stored as note voltage
Sequencer: Clock signal to trigger playback

Output 2
Keyboard: Touch size
Sequencer: Trigger signal is sent when an active note is played

OTHER FUNCTIONS

Calibration Mode

All Gliss modules are calibrated for optimal responsiveness before we ship them, but every setup is different. If for some reason you find your Gliss module needs calibration, follow this method.

Note that calibration must be done with Gliss installed in your rack.

Step 1: Enter Calibration Mode

Go to the Menu in any Mode (hold down the Button, tap the Touch Strip with 2 fingers, release the Button).

Press and hold the green Mode Selector for 2 seconds. You will be taken to Calibration Mode.

Step 2: Evaluate voltage levels

When you enter Calibration Mode you'll see an orange point on the Touch Strip moving up between 4 fixed positions. These positions indicate the voltage levels of -5V, 0V, +5V, and +10V. These voltages are sent out of the Top Output, so you can check those voltage levels if you want to confirm them.

You can also check the accuracy of Gliss's voltage levels by moving your finger up the Touch Strip and evaluating the output. As you move your finger Gliss will output voltages from -5V to +10V, in 1V steps.

Step 3: Disconnect any cables

Make sure that your Gliss module is installed in your rack, connected to the rack's power supply, and everything is unplugged from the Input and Outputs.

Step 4: Perform calibration

Press the Button to start calibration. When the middle of the Touch Strip blinks orange connect a cable to the Top Output, and then to the Input (make sure you connect the cable to the Top Output before connecting to the Input - the order matters). The middle of the Touch Strip will now pulse orange and red as Gliss calibrates itself.

If calibration is successful, the Button will be green and the Touch Strip will show a point glowing orange and red. This point will move up the 4 fixed positions, indicating voltages of -5V, 0V, +5V, and +10V on the Top Output. If you like, you can confirm the calibration by testing the CV from the Top Output, to make sure that the voltage coming out matches these levels.

Step 5: Save calibration

After successful calibration, tap the Button to return to the Mode from which you entered Calibration Mode. Your calibration will be saved. If your calibration was unsuccessful pressing the Button will return you to the beginning of the calibration process. If you shut down or power off your Gliss module during calibration, your settings won't be saved and you'll need to calibrate again.

After flashing with new firmware, Gliss may need calibration. If this is the case, you'll be put in calibration mode when you disconnect it from USB and reinstall it in your rack. This is essential to ensure that Gliss works as expected after an update!

You can recalibrate Gliss at any time by repeating this process.

Reset all menu settings

This will reset all settings on your Gliss module to default, and restore it to the way it was configured when it was shipped to you. This process also resets calibration.

To reset Gliss:

1. Hold the Button, and touch the Touch Strip with 5 fingers. The Button will start blinking red and green. Hold for 10 seconds. (This is deliberately awkward — you don't want to be able to erase all your customisations by mistake!) The Touch Strip will start blinking gold in the top half, and red in the bottom half.
2. Release the Button and take your fingers off the Touch Strip. Then place 2 fingers on the Touch Strip, one on the top half, and one on the bottom half.
3. The Touch Strip will light up from the centre to the bottom and top. When the whole Touch Strip is green, Gliss is reset.

After resetting your settings, Gliss will be in Factory Test Mode.

Factory Test Mode

This is for debugging your module in case of unexpected behaviour. Factory Test Mode goes through a series of phases that allow you to test every part of your module, and make sure it's all working.

You automatically enter Factory Test Mode after resetting all menu settings, but you can also enter Factory Test Mode at any time by holding the Button and touching the Touch Strip with 5 fingers. The Button will begin blinking red and green. Release your fingers and the Button, and press the Button again to enter Factory Test Mode.

When you first enter Factory Test Mode, the entire Touch Strip will be illuminated and

flashing between red and gold. The Button will flash between green and red. To begin the testing process, press the Button.

Phase 1: Testing of the LEDs under the faceplate

One LED at a time is illuminated in white. Verify that there are no gaps in the line of LEDs, and all LEDs are the same colour.

Press the Button to continue.

Phase 2: Testing of the capacitive pads on the Touch Strip

All Touch Strip LEDs turn gold. Slide your finger on the Touch Strip until all LEDs go off; this indicates that all your capacitive pads are functioning. When all the Touch Strip LEDs go off and the Button LED goes green, this test is passed.

Unplug all jacks (if any are connected), and press the Button to continue.

If some pads don't seem to be working

If you run your finger up the Touch Strip and not all the lights go off, the problem is usually with the connecting pins between the module and the faceplate.

Gliss's faceplate (both the 4HP version and the 1U version) is attached to the module via 2 rows of pins and headers. Pins that most commonly cause disruption with the pads are those at the very top and very bottom of the Touch Strip.

If you experience problems with the capacitive pads, remove Gliss from your rack and disconnect from power. Gently press each row of pins to make sure they're making full contact, paying special attention to the pins closest to each end of the Touch Strip. Reinstall Gliss, and run the factory test again.

Phase 3: Calibration of the Input and Outputs

The middle of your Touch Strip will blink orange. Plug a cable into the Top Output (Output 1 on Gliss 1U), and then into the Input. The Touch Strip will glow orange and red as Gliss calibrates the Input and Outputs.

Leave the cable plugged in for the next step. Press the Button to continue.

Phase 4: Test Top Output for intermittent connections

This step tests that your Top Output is communicating as expected.

Press the Button to start the 5 second test. The top of the Touch Strip will turn gold. If the Top Output is communicating as expected, the Touch Strip will turn off and the Button will be green. If there's a problem, the Button will be red.

Leave one end of the cable connected to the Input, and move the other end to the Bottom Output. Press the Button to continue.

Phase 5: Test the Bottom Output for activity

This phase checks that the Bottom Output is active, and is performed automatically.

When you press the Button to start this phase an orange point will move across the Touch Strip. If the Bottom Output is working as expected, the Button will be green. Otherwise, the Button will be red.

Phase 6: Test Bottom Output for intermittent connections

This step tests that your Bottom Output is communicating as expected.

Make sure your cable is connecting the Input and Bottom Output. Press the Button to start the 5 second test. The bottom of the Touch Strip (or the right on Gliss 1U) will turn gold. If the Bottom Output is communicating as expected, the Touch Strip will turn off and the Button will be green. If the test fails, the Button will be red.

Phase 7: Confirm the test

If all tests are passed, the Touch Strip will glow green. If one or more tests fail, the Touch Strip will glow red.

If all tests are successful, press the Button once to exit Factory Test Mode and return to the Mode you were in. Your calibration settings are saved.

If any test failed, you can go through the testing process again by pressing the Button once.

Hacking and expanding Gliss

Gliss, along with all Bela products, is open source hardware. This means that the hardware designs, as well as the firmware and software that runs on it, are available online for you to hack, remix, and extend.

Find all the Gliss hardware and firmware files here:

github.com/BelaPlatform/Gliss

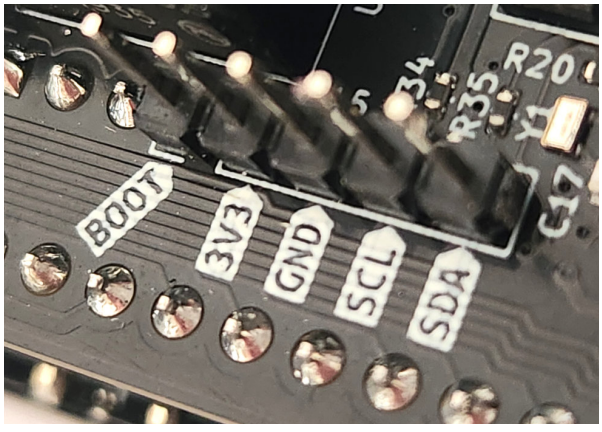
You can also find all the Bela repos (for all Bela products, including Trill sensors) on Github: **github.com/BelaPlatform/**

You can upload your own custom firmware using the Gliss upgrade page. Please note that adding your own hardware or loading your own firmware will void your warranty, as we can only guarantee the features and implementation that we have tested.

Experimental feature: I2C

Gliss has an I2C port on its underside, which has the potential for chaining multiple modules together.

We may release a public firmware update to support this in the future, but at the moment it's unsupported.



However, developers who want to explore the potential of chaining multiple Gliss modules together are welcome to explore its use.

Licensing

Gliss's hardware designs are available under a Creative Commons Sharealike license (CC BY-SA 4.0). This means that Gliss hardware designs can be freely reused and remixed with attribution, and requires that any modifications remain open source.

Gliss firmware is licensed under GNU Public License (GPL 3.0), meaning that you can freely use, remix, change and extend the code, but you are obligated to make the modified source code available alongside any binaries (flashed, or as files) that you release.

Commercial licenses

If you're interested in using Gliss technology in a commercial project but don't want to make your changes open source, merge your changes to our repository, and/or provide attribution, this requires a commercial license. We believe in offering paid commercial licenses that are tailored to fit your project and its scope, and are very experienced in integrating Bela technology into commercial products. Drop us a line at info@bela.io and tell us about your project, we are always happy to chat!

Get Support

If you run into trouble with Gliss (or any Bela products), the best place to get help is to visit the Bela Forum: **forum.bela.io**. Here you'll find expert advice from the Bela team, as well as great information from our worldwide community of artists, makers, musicians, and hackers.

Show us!

We are always excited to see what you're working on, and we love featuring great projects. Check out the Bela Blog at **blog.bela.io** for a collection of the amazing things creative makers are doing with Bela products. If you have a great project that uses Gliss (or any other Bela product), please drop a line to info@bela.io and tell us about it! Please also include links to any photos and videos that you have. Use the subject line "Blog Submission".

WARRANTY & COMPLIANCE

3-year warranty

All assembled Gliss modules come with an extended warranty of 3 years from the date of purchase. This warranty covers the failure or malfunction of the device within this period which is due to our manufacturing processes or the components used. The warranty covers return shipping to the customer (worldwide), but not the shipping to have the device returned to Bela.io.

The warranty is void if the device has failed due to the customer's negligence including (but not limited to) connecting the device to an inappropriate power supply, damage due to mishandling, and/or damage due to extreme conditions (including but not limited to temperature, humidity, moisture, or dust).

For warranty claims please email with info@bela.io with proof of purchase and we'll take it from there.

A note for Gliss hackers

Hacking the device, for example by adding additional hardware to the I2C port or editing the firmware on the device, will void the warranty. This is because we can't be responsible for code or use cases that we haven't tested and released ourselves.

However, we want to support people expanding Gliss and hacking its component parts! If you run into trouble we will be happy to advise you of the best course of action. Please post on the Bela Forum at **forum.bela.io**.

Compliance information

This product complies with the relevant provisions of the RoHS Directive for the European Union. In common with the Waste from Electrical and Electronic Equipment (WEEE) directive, this product should not be disposed of as household waste.

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

Gliss is created, designed, and produced by the team at Bela.io. Visit **bela.io** to discover the Bela systems for creating beautiful interaction with sensors and sound, as well as the Trill family of touch sensors that drive Gliss's touch interaction.

bela.io

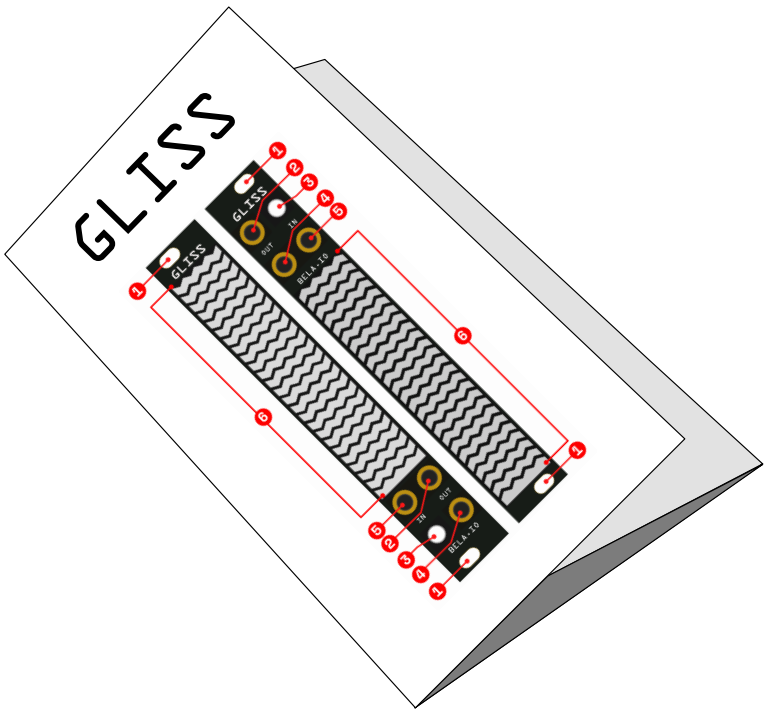
CHEAT SHEET

The following 2 pages are a printable Cheat Sheet for quick reference while you're using Gliss.

To create your Gliss Cheat Sheet:

1. Print the pages double-sided, and in the same orientation
2. Crease along the fold lines on the back
3. Fold like a pamphlet, with the Gliss diagram on the cover

** If you're using Gliss 1U, rotate the cheat sheet counter-clockwise by 90 degrees, so the green Mode Selector is on the left.



Mode 1:
CONTROL

Control gestures in real time, using your finger position, touch size, or both.

SELECTOR 1: TOUCH INPUT
- Single Slider
- Dual Slider
- Dual Touch
- Slider + Touch

SELECTOR 2: LATCHING
- Unlatched
- Latched
- Latch Position

SELECTOR 3: SLEW RATE

Tap to customise the attack and release of both inputs via a sub menu

Mode 2:
RECORD

Record gestures up to 150 seconds long. Play them back in various ways, as LFOs or envelopes.

SELECTOR 1: TOUCH INPUT
- Single Slider
- Dual Slider
- Dual Touch
- Slider + Touch

SELECTOR 2: PLAYBACK
- Loop
- Trigger
- Clock
- Wavetable
- Waveshaper

Mode 3:
SIGNAL

Scale, smooth, clip and visualise your incoming signals.

SELECTOR 1: INPUT SIGNAL
- Control Voltage (DC Coupled)
- Audio Signal (AC Coupled)

SELECTOR 2: OUTPUT TYPE
- Signal/inverted signal
- Signal/envelope
- Envelope/inverted envelope

SELECTOR 3: ENVELOPE DECAY
- Continuous; tap and slide point to adjust.

Mode 4:
NOTES

5 tunable notes to play as a keyboard or step sequencer.

SELECTOR 1: PLAY TYPE
- Keyboard
- Sequencer

SELECTOR 2: QUANTISATION
- On
- Off

SELECTOR 3: VARIABLE
- Continuous; tap and slide point to adjust.

In KEYBOARD: Vibrato depth
In SEQUENCER: Glide

Global Settings

The Global Settings menu is for adjusting general behaviours of Gliss.

To enter Global Settings:

1. Hold the Button
2. Tap the Touch Strip with 3 fingers
3. Release the Button

TOUCH SENSITIVITY
Continuous; tap then slide point to adjust.

LED BRIGHTNESS
Continuous; tap then slide point to adjust.

MENU ANIMATION
Hold to toggle on/off

MODULE ORIENTATION
After changing your faceplate, hold and drag to desired position to reorient your module.

The Mode Menu

The Mode Menu - or Menu - is where you can customise the Mode you're in, and move between Modes.

To enter the Menu:

1. Hold the Button
2. Tap the Touch Strip with 2 fingers
3. Release the Button

MODE SELECTOR
Tap to move to the next Mode.

SETTINGS SELECTORS
Up to 3. Each represents a group of related settings. Tap to step through.

VOLTAGE RANGE
Tap to customise the voltage range of the Input and Outputs for the current Mode.

FOLD HERE

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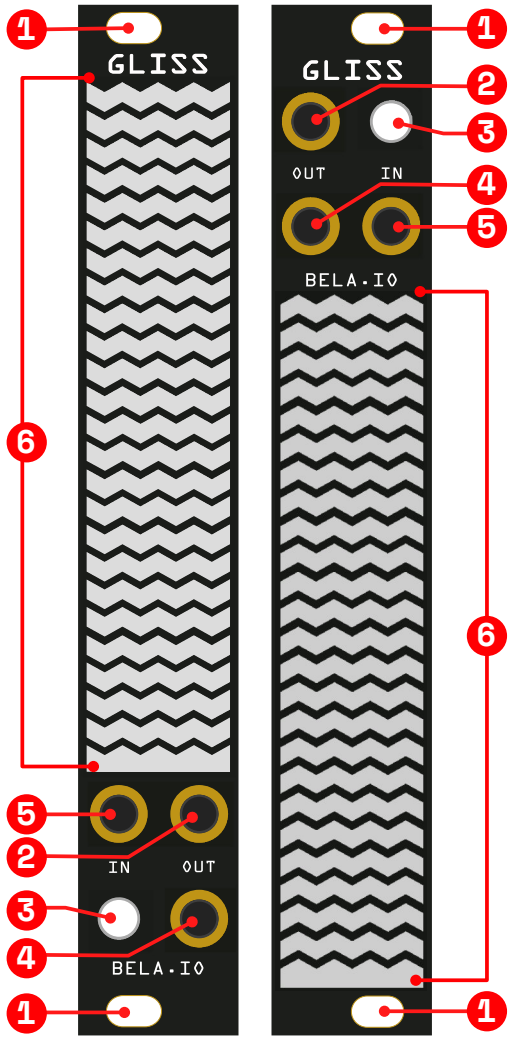
GLISS

A touch controller for modular synth



1 Mounting Hole
2 Top Output
3 Button
4 Bottom Output
5 Input
6 Touch Strip

There are 3 available faceplates - 2 for Gliss 4HP as well as Gliss 1U - so you can choose the layout that's right for your system.