



TREMOR

OPERATION MANUAL

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1 Introduction to Tremor

Tremor is a drum synthesis software instrument with built-in step-sequencing, effects and an extensive modulation system.

Synthesis Engines

- There are 8 Synthesis engines available, each of which provides an independent drum synthesis voice.
- By default, each Engine acts monophonically, with a new voice choking the previously playing voice.
- Each Engine can be set to polyphonic operation by disabling its Cut button (in the **Engine Setup** section). This may provide more desirable behaviour for cymbal sounds, for example. Note that polyphonic operation can build up much higher CPU usage.
- All 8 voice engines have an identical architecture, and each can be used for any type of sound that you desire.
- **Harmonic oscillator**
 - Tremor features a high quality analogue-modelled oscillator with adjustable harmonics that are arranged according to a drum-skin's harmonic modes of vibration.
 - The oscillator features various functions that twist the oscillator's output into shapes which are suitable for woody, metal or abstract synthetic percussion sounds.
- **Multimode filtering**
 - A multimode analogue-modelled filter is available per voice.
 - The filter is switchable between 2 models ('Clean' OTA-array and 'Fat' SVF designs), with a large range of interesting modes.
- **LFOs and envelopes**
 - Each voice features 2 LFOs and 3 envelopes
 - The Amp Env is hard-wired to the voice's output amplitude.
 - The 3 envelopes are optimised for a range of different time-scales.
 - LFO 1 is capable of modulating the oscillator pitch at audio-rates with the use of the FM control.
 - A Sample & Hold function is also available for each voice, which provides a 'random LFO' modulation source.
 - In addition to the per-voice LFOs, 2 Global LFOs are also provided.

Transmod Modulation system

- Tremor's TransMod modulation system is more intuitive and powerful than a standard 'mod-matrix'.
- It allows a single modulation source to be routed to any number of synth parameters, with modulation depths edited directly on the parameter itself.
- A large variety of modulation sources are available including velocity, velocity-scaled envelopes and random sources as well as sequencer step-automation graphs and macro controls.

Effects

- Each synthesis engine in Tremor features 3 FX slots for sculpting sounds into new shapes.
- The Master Out channel also has 3 FX slots for processing engines sent to it - these are not applied to any engines which have been assigned to a dedicated sub-output.
- A large number of built-in FX are available, including high quality modelled filtering, compression and drive processors.

Built-in step-sequencing

- While Tremor's synthesis engines can be triggered with live MIDI input or from a sequence in your DAW, it also includes a built-in step-sequencer.
- 24 pattern memories are available, with each pattern featuring 8 tracks - 1 for each of the 8 voice engines.

- Each track is capable of running with a different number of steps, so you can quickly introduce variation and complex polyrhythms to your sequences.
- The sequencer section also contains a classic drum-machine style Swing control, which is applied globally across all patterns.
- Each pattern also features 4 assignable Graphs - step-based automation sequences assignable to controls within the TransMod modulation system - so you can quickly and easily bring your sequences to life.
- The VST plugin and standalone application versions of Tremor feature a MIDI output for transmitting pattern note events as MIDI events to trigger external MIDI devices.

MIDI and host automation mapping

- Tremor features a comprehensive system for directly mapping its controls and synthesis parameters to MIDI continuous controllers and host automation parameters.
- As well as synthesis parameters, many controls that cannot be modulated using the synthesis modulation system can be mapped.
- This functionality is intended for:
 - continuous control of parameters during real-time use or within a larger host project when running Tremor as a plugin
 - remote control of many aspects of Tremor's operation, such as the Transport functions and Swing control

About this manual

Chapter 1 contains an overview of the interface and information about presets, playing Tremor via MIDI and other aspects of Tremor's interface.

Chapters 2-5 contain information about the synthesis, effects, sequencing and mapping in Tremor.

Chapter 6 covers the Tremor Preferences.

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1.1 Interface overview



Preset pickers

The preset pickers allow you to load/save presets for the current **Drum** synth engine, for the entire **Kit** of 8 engines, and for the entire state of Tremor (**Preset**). See sections [1:2](#) and [1:3](#) for more details.

LCD screen, LCD page switches

The LCD screen contains the Pattern, Graphs and Mapping pages, which are switchable using the LCD page switches. The Pattern and Graph pages are described in [chapter 4](#), while the Mapping page is discussed in [chapter 5](#).

Synth engine editing area, Engine Mix controls

These areas of the interface are related to the actual drum synthesis engines, described in [chapter 2](#).

Effects section

The Effects section shows the effects slots for the currently selected synth engine, or for the Master Out channel if it is selected. See [chapter 3](#) for more details on Tremor's built-in FX.

Transport area

The Transport area contains several controls to start, stop and record into the **Tremor sequencer**, several other controls relating to MIDI input, and the Undo and Redo buttons. See [section 1:5](#) for more details.

Other global controls/indicators, Tremor menu

These provide tempo controls, various status indicators and additional functions for managing your Tremor sessions - see sections [1:6](#) and [1:7](#).

Other Tremor functions

This chapter also contains important information on:

- [Playing Tremor via MIDI](#)
- [Common interface conventions](#) used in Tremor

1.2 Preset Picker types

Preset picker types

There are several preset pickers in Tremor, each of which load and save different types of presets.



Preset (main preset)

The preset picker at the top of the Tremor interface allows access to full Tremor presets which store the state of the entire instrument.

It is possible to save a default preset using the **Tremor menu**.

Kit preset

The Kit preset picker lets you load and save the state of the entire kit. These presets contain the state of the 8 synth engines, their FX and the Master Out FX. The contents of the sequencer are not included.

Drum preset

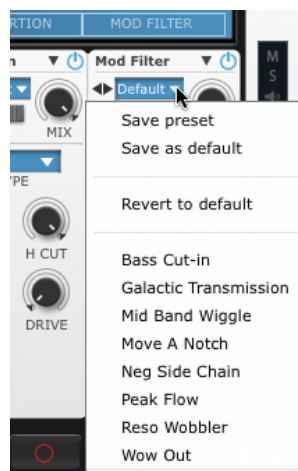
The Drum preset picker lets you save the state of the currently selected synthesis engine or load an existing synthesis engine preset.

FX Chain preset picker



Each synth engine, as well as the Master Out channel, features its own FX chain preset picker. It lets you load and save an entire setup of up to 3 FX devices.

FX preset pickers



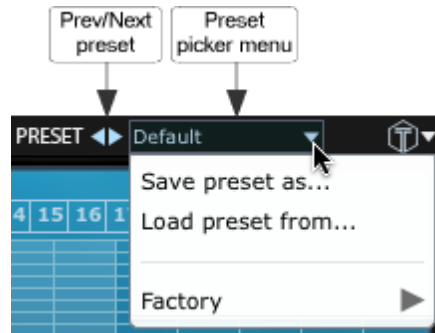
Each FX device features its own preset picker, which allows you to load and save the state of the FX device.

It is possible to save a default preset for each FX device - see the **Common FX slot controls** section for more details.

1.3 Preset Picker controls

Preset picker controls

All the preset pickers have similar controls:



Preset picker menu

This drop-down menu displays all available presets of the relevant type, arranged in category sub-menus, as well as the **Save preset as...** and **Load preset from...** functions.

Save preset as...

This function prompts you for a filename in order to save the current settings (of the relevant type - see below for a summary of the different types of preset pickers) to disk. It is recommended that you save presets to the default folder that is shown so that they can easily be reloaded using the preset picker menu.

Load preset from...

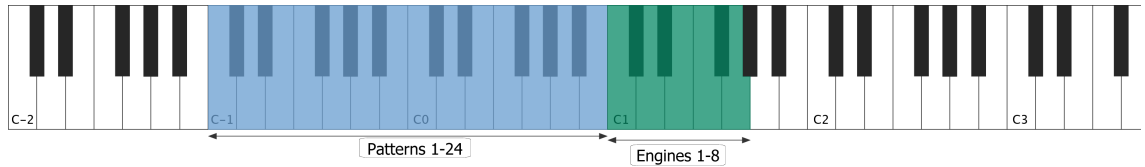
This function allows you to browse to and load a preset from any location.

Prev/Next preset

The **Prev/Next preset** buttons sequentially step backward/forward through the current preset category

1.4 Playing Tremor via MIDI

Tremor's synth engines and patterns can be triggered via MIDI. The following layout uses MIDI octave labelling with C-2 as the lowest note (the default state of the **Octave numbering** setting in the **Tremor preferences**).



Playing synthesis engines

Although Tremor features its own built-in pattern sequencer, you may prefer to trigger its drum synthesis engines with live MIDI input or from MIDI tracks in your DAW or host sequencing environment.

Note: The notes for engines 1-8 are duplicated on every octave above C1 for convenience.

Selecting synthesis engines

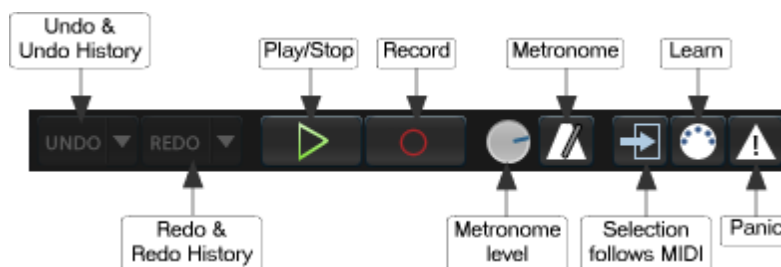
If the **Selection follows MIDI** button is enabled, incoming MIDI notes select the corresponding synthesis engine. To disable this behaviour, turn off this button. There are a number of ways of selecting synthesis engines with the mouse - see the **Selecting engines** section for details.



Playing and selecting patterns

Tremor's 24 patterns are played and selected via their corresponding MIDI notes. How each pattern plays back depends on its **Playback modes**. See the **Pattern memory keys** and **Pattern controls** sections for more details.

1.5 Transport area



Transport controls

Play/Stop

The Play/Stop button starts and stops the Tremor sequencer transport.

Note: When running Tremor as a plugin, its transport is always locked to the host transport.

Record

Enabling the Record button puts the Tremor transport into Record mode. When the transport is active while in Record mode, incoming MIDI input is recorded to the current sequencer pattern.

Metronome

With this button enabled, the metronome 'click' is active while the transport is active (during recording and playback). You can choose from a range of metronome sounds in the **Tremor preferences**.

Metronome level

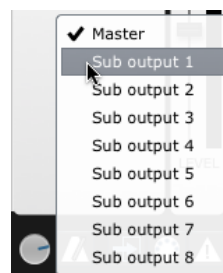
This control allows you to set the volume of the metronome signal to the desired level.

Metronome output

Right-click on the **Metronome** button to display the metronome output menu. This menu allows you to specify a sub-output for the metronome signal – this can be especially useful for routing the metronome to a headphone output for live performances.



1. Right-click on the Metronome button



2. Select the desired sub output from the menu that appears

Panic

Clicking this button stops any sounds and patterns that are currently playing. It also stops the transport and clears all audio buffers.

Other controls in the Transport area

Undo & Redo

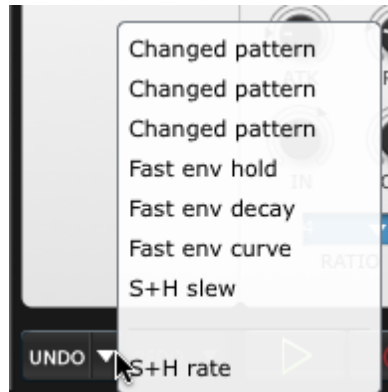
The multiple-level **Undo** & **Redo** applies for all functions in Tremor. The number of Undo steps can be defined in the Tremor preferences.

Undo & Redo History

The **Undo** and **Redo** functions also provide a sequential list of previously performed actions, which forms an undo 'history'. Click the buttons to the right of the Undo/Redo buttons to display each history as a pop-up menu.

The **Undo History** is arranged chronologically with the most recent at the bottom (closest to the button) – the most recent action is separated from previous actions. Click on any stage of the displayed history to revert back to its state.

The **Redo History** is a sequential list of undo actions. The most recently performed undo action is at the bottom of the list (closest to the button).



Click the Undo History button for a list of recent actions that can be undone.



If any actions are undone, they then appear in the Redo History.

Selection follows MIDI

With this button enabled, received MIDI input (on the relevant notes) results in changing the currently selected pad. Deactivate the button to disable this behaviour.

Learn

This button activates Learn mode, for assigning MIDI CCs (continuous controllers) and host automation parameters to Tremor controls. See the **Mapping page and Learn mode** section for more information on this feature.

1.6 Other global controls/indicators



Tempo

The **Tempo** control sets the master tempo when using the Tremor standalone application. When using Tremor as a plugin, the Tempo is always locked to the host tempo.

Tap (Tap tempo)

The **Tap** control is only usable when running the Tremor standalone application. It allows you to tap out a tempo in beats (quarter notes) by clicking the Tap button twice or more in succession.

MIDI/Audio stream indicator

Flashes when any MIDI note event is received.

If the indicator is highlighted in red, Tremor cannot establish an audio stream connection with the audio interface (standalone version) or the host audio engine (plugin version), meaning that the software will not function until this is resolved.

Voice steal indicator

This indicator lights up if the voice limit of 128 voices is reached and voice stealing (based on the oldest playing voices) has to occur.

Master Out level meter

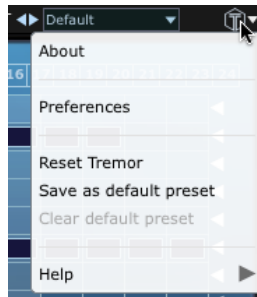
This meter represents the audio output from the Master Out channel - any engines which have been routed to a dedicated sub-output are not represented in this meter.

Tremor menu

The **Tremor menu** contains a number of additional management and settings functions for Tremor, described in the next section.

1.7 Tremor menu

To display the Tremor menu, click the Tremor logo at the top-right of the user interface.



About

This function displays the 'about' box containing the Tremor version number and credits listing.

Preferences

Using this function displays the **Preferences** panel, which contains a number of options for customizing Tremor's workflow.

Reset Tremor

This function resets Tremor to the default preset state (see below), or to an entirely blank state if a default preset is not currently specified.

Save as default preset

This function saves the current state of Tremor as the default preset, which is loaded every time you launch the Tremor standalone application or plugin, or when using the **Reset Tremor** function.

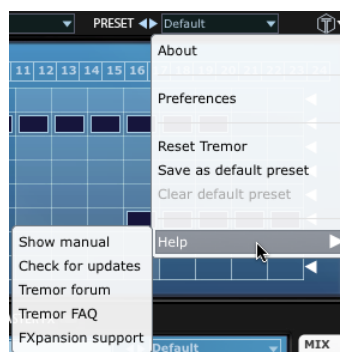
Using a default preset is particularly useful for loading a set of **mappings** or favourite sounds when launching or resetting Tremor.

Note: If a default preset is not specified, Tremor loads an internal default Kit when it is launched, and using the **Reset Tremor** function resets to a blank initialized state.

Clear default preset

This function removes the default preset if one exists.

Help sub-menu



Show manual

This function opens the Tremor manual in your OS's default PDF reader (usually Preview on Mac and Acrobat Reader on Windows).

Check for updates

This function checks the FXpansion website for any Tremor software updates.

Tremor forum, Tremor FAQ, FXpansion support

These functions open the Tremor forum, FAQ and FXpansion support page in your system's default browser.

1.8 Interface conventions

Adjusting Rotary and Slider controls



Click and drag up/down the main part of the rotary control.



Click and drag up/down the 'cap' of the slider.

Adjusting TransMod modulation on Rotary and Slider controls

For a full guide to using the TransMod system, see the [TransMod modulation](#) section.

Rotary controls



1. Select a modulation source (e.g. LFO1). Mouse over the control's outer ring.



2. Click and drag up/down on the outer ring of the control.

Slider controls



1. Select a modulation source and mouse over the travel path of the slider (away from the slider 'cap').

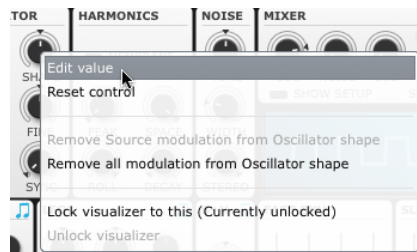


2. Click and drag up/down on the slider path.

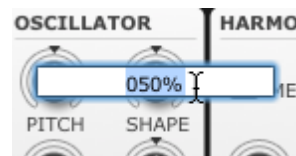
Context menus

Context menus exist in several areas on the Tremor interface. They are invoked by right-clicking (you can also CTRL-click on Mac).

Editing a value manually using the control context menu



Right-click on any synthesis parameter to display the control context menu, which contains the **Edit value** function for entering values via the keyboard.

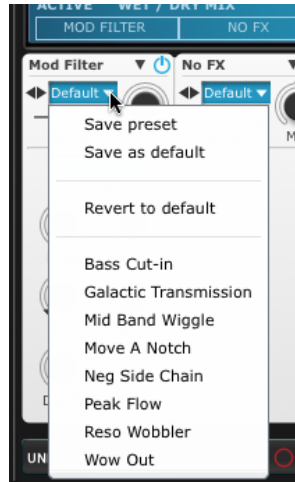


This menu also contains the **Reset control** function to reset a parameter to its default value and additional functions related to the [TransMod modulation](#) system and to the [Visualizer](#).

Resetting a control to its default value

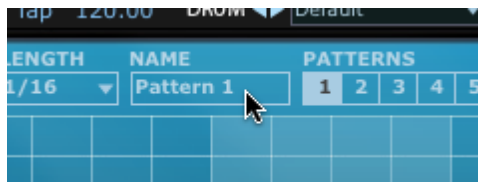
Double-click a control to reset it to its default value. This is also possible using the control context menu. You can set double-clicks to edit the value instead in the [Tremor preferences](#). The **Edit value** and **Reset control** functions are both available in the control context menu.

Drop-down menus



Drop-down menus are indicated by a downwards triangular arrow icon. Click the drop-down box in order to display the menu.

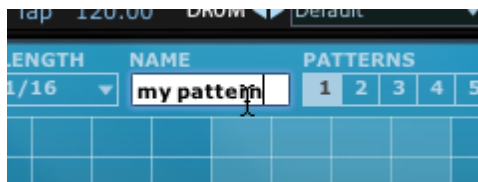
Text boxes



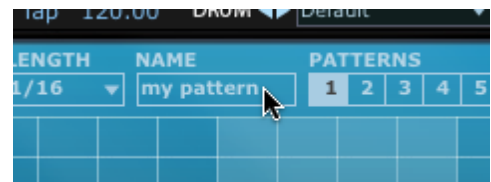
1. Double-click a text box in order to edit it.



2. The contents of the text-box are highlighted.



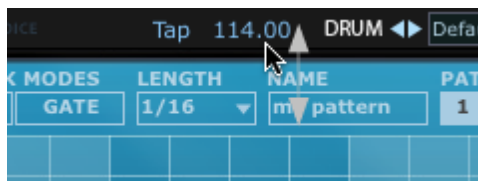
3. Start typing to overwrite the contents.



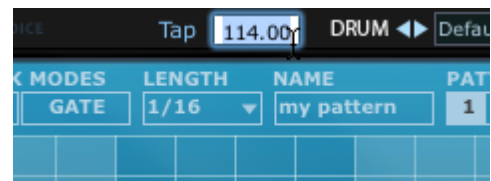
4. Press **ENTER** to commit the changes. Cancel the change by pressing **ESC**.

Numerical text boxes

Numerical text boxes can be edited in 2 ways:



1. Click and drag the control up/down.



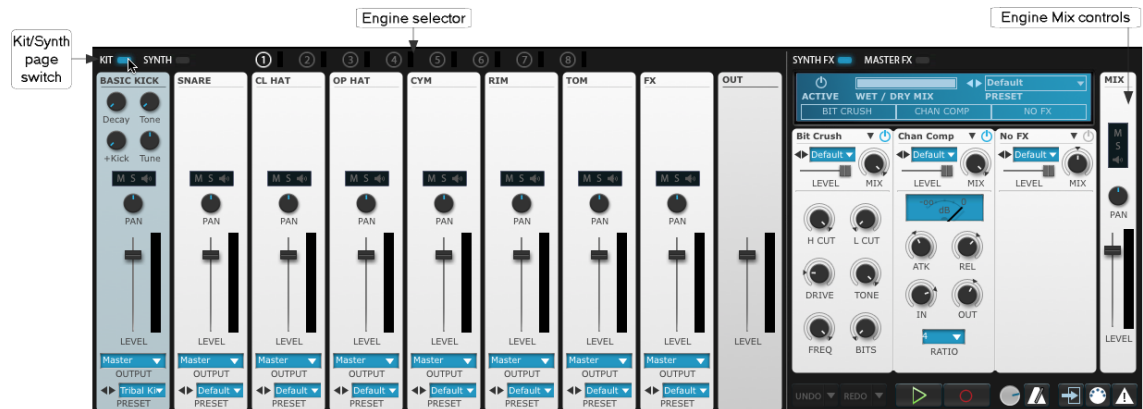
2. Double-click the field, type a new value and press **ENTER** (or **ESC** to cancel).

2 Synthesis Engines

Tremor has 8 synthesis engines, accessible using 2 views - the Kit page and Synth page. Use the **Kit/Synth page switch** to change between them.

Kit page

The **Kit page** is designed to be used with presets, and contains a set of 4 Macro controls for each synthesis voice alongside several other controls for mixing, output routing and loading individual synth engine presets. With a blank, initialized Tremor state, no Macro controls are shown in the Kit page until they are assigned to modulate controls via the **TransMod modulation** system.



The layout of the Kit page features the 8 synthesis engines arranged as channels on a 'mixer', along with a Master Out channel.

The currently selected channel's FX slots are shown in the **Effects section**.

The currently selected channel's Mix controls are also shown in the **Engine Mix controls** section.

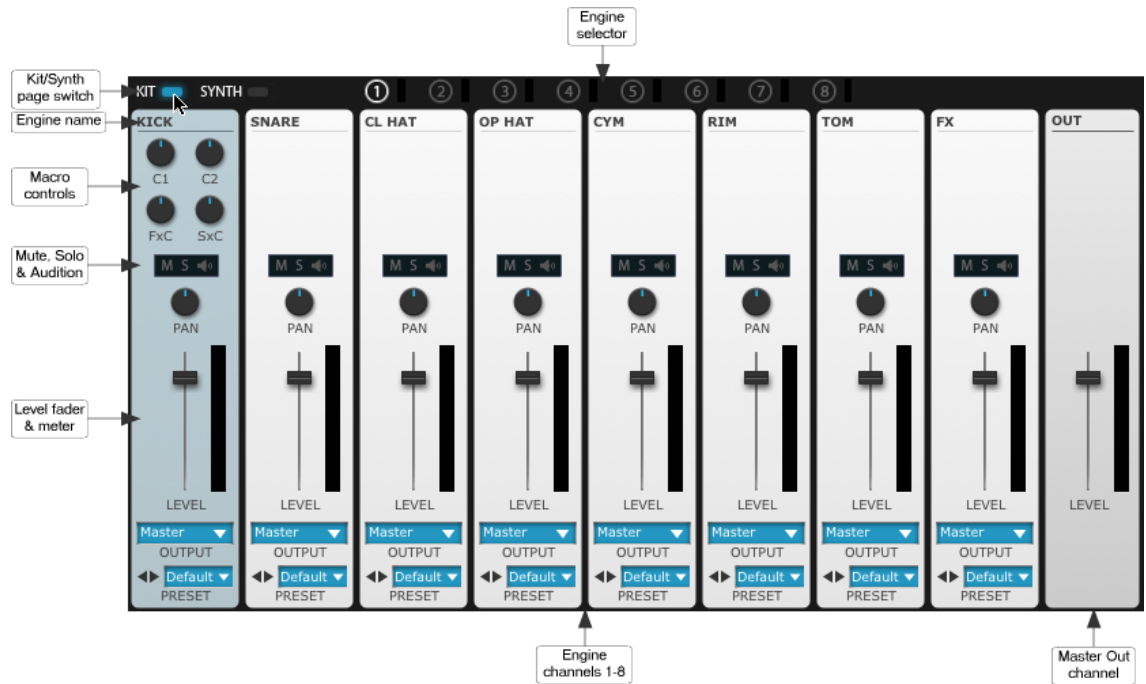
Synth page

The **Synth page** contains the actual synthesis parameters for the currently selected synth engine. It also contains a number of additional **Engine Setup** controls.

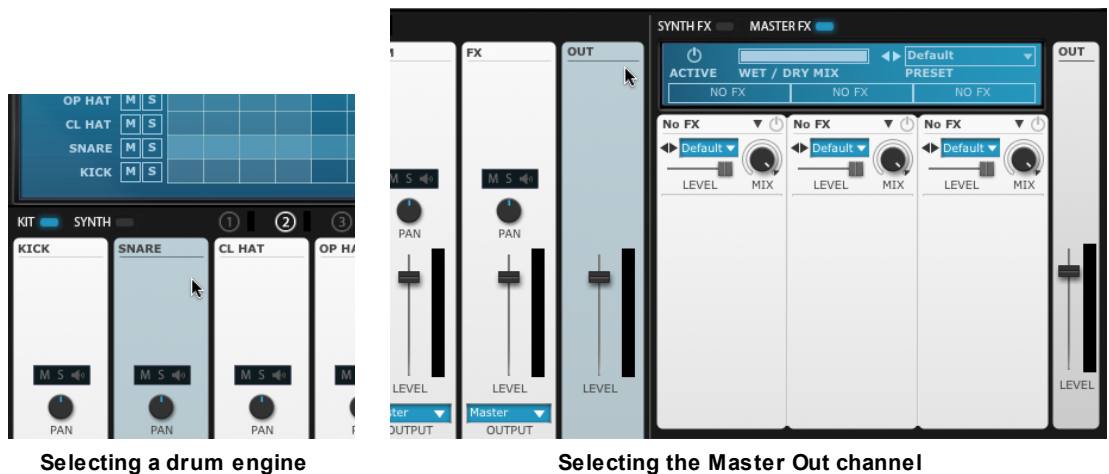


The Synth page must be used for actual direct editing of each synthesis engine. It is also necessary to use the Synth page for all **TransMod modulation** applications.

2.1 Synthesis Engines - Kit page



Selecting engines or the Master Out channel



Selecting a drum engine

Selecting the Master Out channel

Selecting a drum synthesis engine

Clicking any part of a channel (including any of its available controls) causes it to become the current selection. When any engine channel is selected, the Effects section shows that channel's FX devices. A duplicate of the current channel is shown in the **Engine Mix controls** section.

Selecting the Master Out channel

When the Master Out channel is selected, the Master FX section is also shown. The **Engine Mix controls** section also changes to show the Master Out channel **Level** fader/meter.

Other ways to select engines

There are other ways to select engines using both the mouse and incoming MIDI - see the **Selecting engines** section for more details.

Engine name

Double-click the **Engine name** to rename it. The new name is also shown to the left of pattern tracks.

Macro controls

The 4 Macro controls in each engine are intended for preset designers to provide 'easy' editing controls for the Engine's synth parameters. They are associated with **TransMod modulation** sources which can be routed to any combination of synthesis parameters in the Synth page.

With Tremor in an initialized state, the Macro controls are not routed to any synthesis parameters and therefore do not appear on the Kit page. It is first necessary to switch to the Synth page, select C1, C2, FxC or SxC as the **TransMod modulation source** and create modulation depths on any desired synthesis parameter(s). Any Macro controls which feature modulation depths now appear on the engine's channel in the Kit page.

The Macro controls (and their corresponding TransMod modulation sources) can be renamed by the user in the Synth page - see the **Macro controls** section.

C1, C2

The 1st and 2nd Macro controls, **C1** and **C2**, are straightforward rotary controls which send a value from 0 to 100%.

FxC

FxC, the 3rd Macro control is hard-wired to be scaled by the voice's Fast Envelope. Its corresponding modulation source is effectively an Fast Envelope source, the intensity of which is scaled by the **FxC** control.

SxC

SxC, the 4th Macro control is hard-wired to be scaled by the voice's Slow Envelope. Its corresponding modulation source is effectively an Slow Envelope source, the intensity of which is scaled by the **SxC** control.

Mute, Solo

Each engine channel contains **Mute** and **Solo** buttons. These operate on the audio output of each engine, rather than the per-pattern **Track Mute and Solo** controls visible in the Pattern page.

Audition

Clicking the **Audition** button triggers the synthesis engine for preview purposes, useful if you want to edit sounds without sending MIDI into Tremor, or without running the sequencer which may have active graph modulation. An engine can also be auditioned by clicking its **Engine selector** button.

Pan

The **Pan** control offers a balance panning stage after the final output of the voice. This Pan control is distinct from the voice-level Pan control in the Synth page's **Output** section, which can be modulated via the TransMod system.

Level fader/meter

Each engine, and also the Master Out channel, features a **Level** fader/meter for adjustment of the final output level of each. Each Level fader is applied post-FX, and is distinct from the Level control in the Synth page's **Output** section, which operates at voice level and can be modulated by the TransMod system.

Output

By default, each engine is assigned to the Master Out channel - it is mixed with other engines routed to the Master Out channel and heard in the primary stereo output pair from the Tremor plugin or standalone application. However, the **Output** drop-down menu allows you to change the assignment to any of the 8 stereo sub-outputs. The audio from each engine is routed to the output post-FX.

Note: Assigning an engine to a sub-output means that it is not heard in the Master Out channel or processed by the Master Out channel's FX.

Drum Preset

Each synthesis engine features a preset picker to load and save individual drum sound presets (which includes everything in the engine including its FX). These preset pickers perform the same function as the **Drum preset picker** at the top of the Tremor interface, which operates on the currently selected synth engine and is always visible.

2.2 Synthesis Engines - Synth page

The Synth page contains all the synthesis parameters for the currently selected voice engine. Use the **Kit/Synth page switch** to display the Synth page.



If the Master Out channel is selected, switching to the Synth page results in the following display:



Synth page with Master Out channel currently selected.

This view is provided in order to use the Global TransMod modulation sources to modulate Master Out channel FX parameters. For more details of the TransMod modulation system, see the **TransMod Modulation** section later in this chapter.

In order to switch to a synthesis engine, you can use any method described in the next section, or use the **Synth/Master FX switch**:



2.2.1 Selecting engines for editing

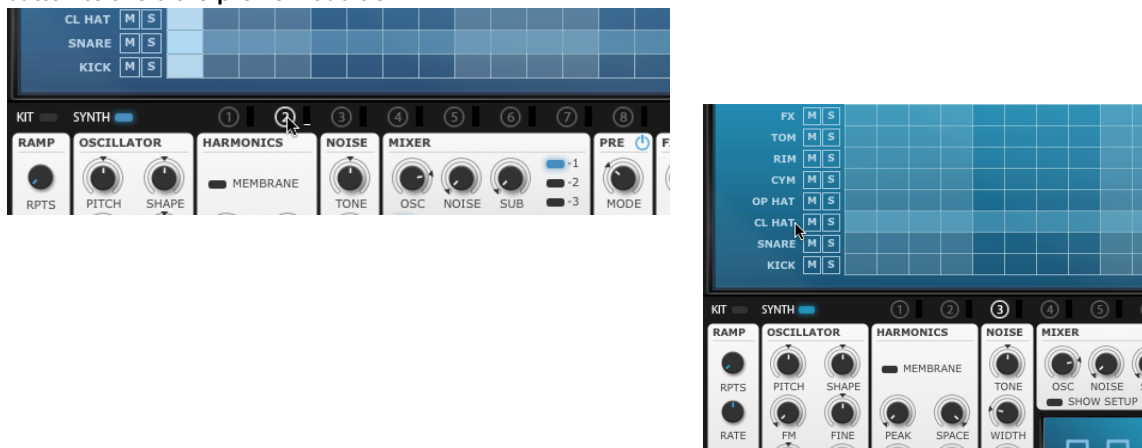
There are several ways of selecting an engine for editing.

Selecting engines using the mouse

The following 2 methods can be used while viewing the Synth page.

At the top of the Synthesis Engine section is the Engine selector. Click on any of the 8 voice engine buttons to select it for editing.

Clicking an engine button also previews the sound of the engine. Any activity in the engine is indicated by a small meter to the right of each engine selector button. You can also ALT-click an Engine selector button to avoid the preview audition.



Click the name of an engine to the left of its sequencer track in order to select the engine for editing.

You can also switch engines using the Kit page:

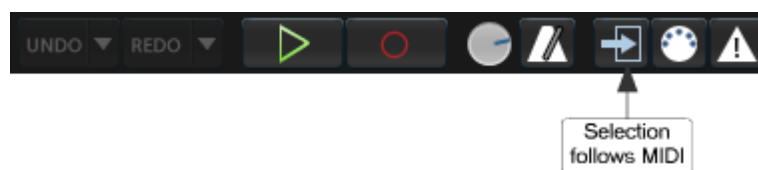


1. Display the Kit page by clicking the Kit button.

2. Click the desired synth engine 'channel' in the Kit page mixer layout.

Selecting engines via MIDI

If the **Selection follows MIDI** button is enabled, incoming MIDI notes select the corresponding synthesis engine. To disable this behaviour, turn off this button.



2.2.2 Ramp/Input Transform

This section has 2 functions. Firstly, it allows you to create repeat triggers from a single trigger input, useful for creating handclap, snare roll and other such sounds. Secondly, it also provides a downward Ramp modulation source when the Repeat count is set to 1 or more.

Note: The Ramp/Input Transform controls cannot be modulated using the TransMod system.



Input Transform function

Rpts (Repeats)

The **Rpts** control dictates how many repetitions will occur in addition to the initial trigger from the sequencer or incoming MIDI. The default setting of the control is 'off' - this can be changed to a number between 1 and 12.

Rate

The **Rate** control dictates the time between each repetition if the Rpts control is set to 1 or more.

Ramp function

When the **Rpts** control is set to 1 or more, an additional Ramp modulation source can be used. This source provides a simple downward slope from 1 to 0. For more details, see the **TransMod modulation** section.

2.2.3 Oscillator & Harmonics

The Oscillator is the tonal heart of each voice. It is a specialized oscillator for drum synthesis, and features many controls which are quite different from those found on a conventional subtractive synth oscillator.

The Oscillator is based on the characteristics of a drum's vibrating membrane (its skin or head) - it features multiple partials that oscillate at the typical harmonic mode intervals of a drum skin.

Note: The **Osc** control in the **Osc Mixer** must be turned up in order to hear the Oscillator signal.

Oscillator



Pitch, Fine

The **Pitch** control adjusts the oscillator pitch in semitones. The **Fine** control adjusts the osc pitch in cents (0.01 semitones).

Both controls can be modulated smoothly via the TransMod system. Modulate the Fine control for subtle vibrato and detuning effects; modulate the Pitch control for more extreme pitch sweeps, such as those used to generate a kick drum sound.

Shape

The **Shape** control morphs the base waveshape of the oscillator from saw to square to triangle. The default setting, with the control at the halfway-point, is a square wave.

FM

The **FM** control adjusts the amount of pitch modulation from LFO1. This modulation routing is capable of audio-rate modulation, as the LFO is capable of reaching speeds of 1024 Hz.

Note: Audio-rate modulation in Tremor is only possible using this control, and is restricted to using a voice's LFO1 as the modulation source. All modulation within the TransMod system occurs at control rates.

PWM

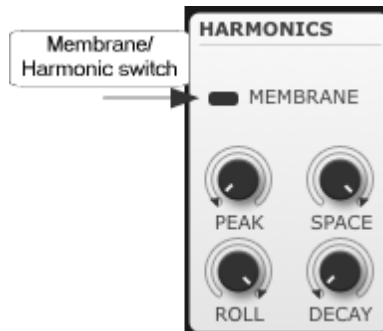
The **PWM** control adjusts the pulse width of the oscillator waveform when the **Shape** contains a square wave.

Sync

The Tremor oscillator features a built-in 'hard sync' function: you can increase the frequency of the oscillator with the **Sync** control, but it is re-synced on each cycle of the sub-oscillator.

The resulting waveform has the same overall pitch as the original osc but with added harmonics that create more complex timbres.

Harmonics



Membrane/Harmonic

When this button is set to **Membrane**, the Oscillator's partials are arranged in a similar way to the modes of vibration of a circular drum membrane. With the **Space** control set to 50%, the pitch of each partial is 1.5, 2.14, 2.3, 2.65, 2.92, 3.16 and 3.5 octaves above the fundamental pitch (set by the **Pitch** and **Fine** controls).

When the button is set to **Harmonic**, the Oscillator's partials are spaced evenly apart. This mode does not resemble a drum membrane, but is provided for sounds that are more typically reproduced with regular synth oscillator tunings. With the **Space** control set to 100%, the partials are 3 semitones apart.

Peak

The **Peak** control adjusts which harmonic partials are emphasized - at the lowest setting, the fundamental partial is emphasized, while at higher settings, higher partials are emphasized.

Roll (Rolloff)

By default, the **Rolloff** control is at the highest setting and all partials are heard at the same level. As the control is decreased, the levels of partials further away from the **Peak** partial are proportionally reduced, with the furthest partials being the quietest.

With Rolloff set to the minimum value, only the nearest 1 or 2 partials to the Peak partial are heard.

Space

The **Space** control relates to the spacing between the harmonic partials.

With the control set to 50% (with the knob positioned at the centre), the partials are spaced apart at their default intervals. These intervals depend on the state of the **Membrane/Harmonic** switch - see above.

With the control set to 100%, the interval between partials is doubled, while a setting of 25% halves the interval between them. When set to 0%, there is no spacing between the partials and they are all tuned to the same frequency.

Decay

The oscillator features a built-in **Decay** function for the harmonic partials, which is adjusted with the Decay control.

At the lowest setting, there is no decay for the partials, and the decay for the overall sound is entirely created by the Amp Envelope.

As the control is increased, the decay function is introduced. Partial further away from the Peak harmonic decay more quickly.

Increasing this control is similar to increasing the thickness of a drumskin membrane.

2.2.4 Noise

Noise is a crucial component of drum synthesis. It is very useful for synthesizing aspects of sounds such as snares and claps.

The Noise section in Tremor features a stereo white noise source with a built-in bandpass filter for 'tuning' the noise signal prior to further processing.

Note: The **Noise** control in the **Osc Mixer** must be turned up in order to hear the noise source.



Tone

The **Tone** control adjusts the centre frequency of the bandpass filter used to tune the noise signal.

Width

The **Width** control adjusts the bandwidth of the bandpass signal. At low settings, the filter has a narrow response around the centre frequency, while at high settings the filter has a wider response, allowing more of the input signal to pass through.

Stereo

This control adjusts the stereo width of the noise signal. The underlying noise source is generated as a stereo signal - the **Stereo** control adjusts the signal between mono (minimum setting) and unaltered stereo (maximum setting).

2.2.5 Mixer & Sub-oscillator

The Osc Mixer section allows you to blend between the audio sources within the voice.

The **Osc** and **Noise** signals have been discussed previously. The Mixer section includes a third audio source, a sub-oscillator tuned to 1, 2 or 3 octaves below the main oscillator pitch. The shape of the sub-oscillator is hard-wired to be a sine.



Osc

The **Osc** control adjusts the level of the Oscillator section.

Noise

The **Noise** control adjusts the level of the Noise section.

Sub

The **Sub** control adjusts the level of the sub-oscillator sine wave signal.

Sub Oct

The **Sub Oct** control allows you to set the Sub-osc to 1, 2 or 3 octaves below the main oscillator's frequency set with the **Pitch** and **Fine** controls in the **Oscillator** section.

2.2.6 Pre-Drive and Post-Drive

The Pre-Drive and Post-Drive sections apply overdrive to the signal before and after the **Filter** section.

The Drive algorithms add non-linear grit and bite to the sound at lower settings, with higher settings leading to more extreme distortion.

Pre-Drive

The Pre-Drive is designed to 'glue' the mixed osc sources - overdriving them produces additional harmonics from the mix of their signals.

Post-Drive

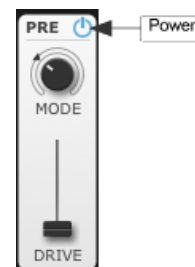
The Post-Drive lets you drive and distort the signal after filtering, and to add extra grit and power when using high resonance settings.

Drive

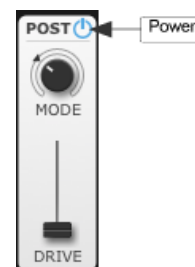
These controls set the amount of drive that is applied to the signal.

Mode

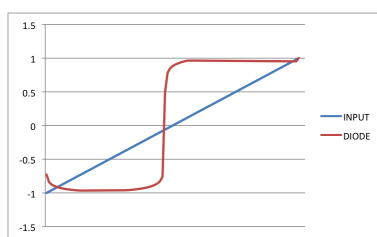
Each of the available Mode settings changes the input to output amplitude in a non-linear way. The following response curves show the amplitude of the input signal vs. the output signal.



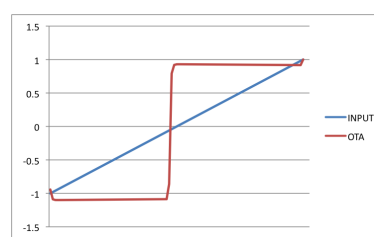
Pre-Drive



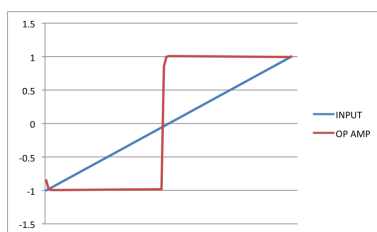
Post-Drive



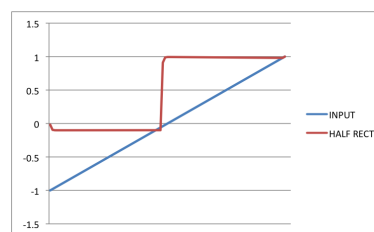
Diode



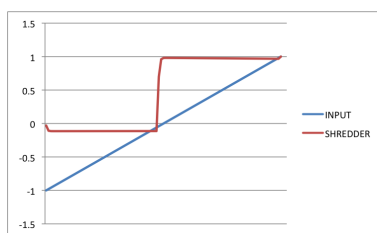
OTA



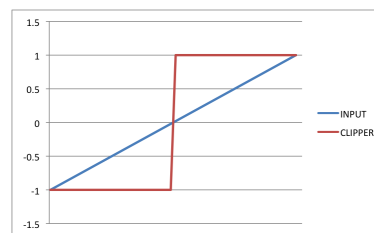
Op-amp



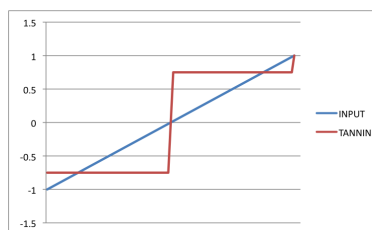
Half-rectifier



Shredder



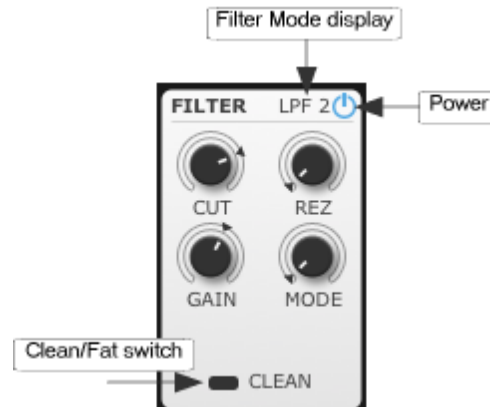
Clipper



Tannin

2.2.7 Filter

While Tremor's oscillator is capable of a very large range of timbral variation just by itself, the Filter section allows you to sculpt the timbral shape of the voice even further. Tremor's Filter can be switched between 2 modes with the **Clean/Fat** switch - an OTA-array design (**Clean**) and an SVF design (**Fat**).



Power

The **Power** button activates or deactivates the filter section. When the filter is deactivated, the signal from the Osc Mixer passes through to the output without being filtered.

Filter type (Clean/Fat)

The **Clean/Fat** toggle switch switches between 2 different filter models - OTA-array (**Clean**) and State-variable (**Fat**) designs.

This switch also dictates which filter mode responses are available using the Mode control. The OTA-array Clean model features a number of unusual filter tap combinations which result in more complex filter modes. These filter responses are not available with the Fat SVF design.

Cut (Cutoff)

The **Cut** control adjusts the frequency cutoff of the Tremor filter.

Rez (Resonance)

The **Rez** control adjusts the emphasis around the frequency cutoff of the filter.

Gain

The **Gain** function in the Filter section increases the level of the signal going into the filter circuit, resulting in a grittier, more saturated sound. The effective resonance is reduced at higher Gain settings.

Mode

The **Mode** control selects between a number of different filter responses. The responses available depend upon the currently selected filter type, set by the Clean / Fat switch. The OTA-array **Clean** design features a number of unusual filter responses, while the **Fat** SVF design features 2-pole and 4-pole lowpass, highpass, bandpass, notch and peak modes.

2.2.8 Output

The Output section controls the maximum output level and pan position of the voice (while the Amp envelope is active).

This section is actually a VCA (voltage-controlled amp) which is hard-wired to the **Amp Envelope**. This modulation routing cannot be defeated, as it allows each voice to be heard when the Amp Envelope is triggered by a MIDI note or sequencer event - the Amp Env 'opens' the VCA.

The **Level** and **Pan** controls in this section are part of the synthesis voice, and can be modulated via the TransMod system.

The **Kit page Level** and **Pan** controls comprise a mixing stage after the voice output, and these cannot be modulated via the TransMod system.



Level

The **Level** control adjusts the final output level of the voice.

Pan

The **Pan** control adjusts the final output pan of the voice (its position in the stereo field).

2.2.9 LFOs

LFOs are low frequency oscillators. They are similar to conventional oscillators except that they do not generally oscillate at audio-rate - their frequency is usually too low to be audible directly, but is more suitable for creating movement of parameters over time. Tremor features 2 LFOs per voice and 2 Global LFOs.

With the exception of using the **FM** control in the **Oscillator** section to modulate the osc pitch from LFO1, all LFO modulation in Tremor must be performed using the **TransMod system**. Select the relevant LFO **modulation source** - LFO1, LFO2, GL1 or GL2 - and create modulation depths on any desired synthesis parameter(s).

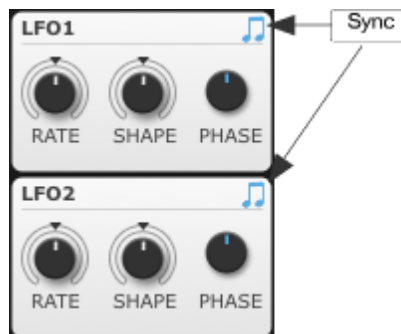
TransMod modulation operates at control rates. Audio-rate modulation of Tremor's oscillator by LFO1 is possible using the dedicated **FM** control in the Oscillator section.

LFO1, LFO2

These LFOs are available per-voice, meaning that these 2 LFOs are independent in each voice.

Tremor features a dedicated routing to the Oscillator pitch from LFO1 - the depth of modulation is adjusted using the **FM** control in the Oscillator section. This dedicated routing is capable of audio-rate modulation when the LFO is used at audible rates (LFO1 can operate at speeds of up to 1024 Hz).

For any other purposes, LFOs must be assigned to synthesis parameters with the TransMod system, using the LFO1 and LFO2 modulation sources.

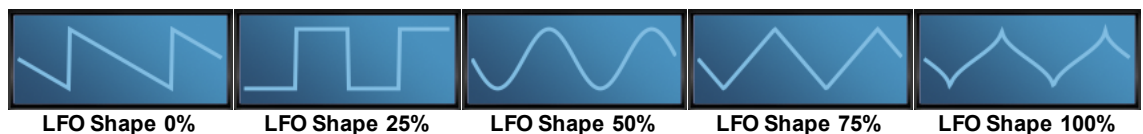


Rate

The **Rate** control dictates the speed of the LFO's oscillation.

Shape

The **Shape** control morphs the shape of the LFO continuously through various waveform shapes. At the default setting of 50%, the LFO shape is a sine wave.



Phase

The **Phase** control allows you to adjust the phase of the LFO within 360 degrees.

Note: This control cannot be modulated with the TransMod system.

Sync

With the **Sync** button enabled, the **Rate** control is set in note values derived from the Tremor tempo or that of the host when running Tremor as a plugin.

With the Sync button disabled, the Rate control is set in Hz.



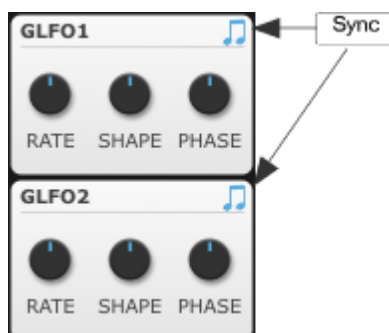
In this example, the Sync function has been deactivated on LFO1. It is still active on LFO2.

GLFO1, GLFO2

Global LFOs do not operate per-voice - there are only 2 Global LFOs in total, whereas there are 16 voice LFOs in total (2 for each voice). The same 2 Global LFOs are visible within each of the 8 voice engines.

For Global LFOs to have any effect, they must be assigned to synthesis parameters with the TransMod system, using the **GL1** and **GL2** modulation sources.

Note: The Global LFO controls themselves cannot be modulated using the TransMod system.



Rate, Shape, Phase, Sync

These controls operate in an identical way to the per-voice envelopes described above.

2.2.10 Sample + Hold

A Sample and Hold (S+H) function is designed to output a stream of varied modulation values - typically random values derived from a dedicated noise signal to produce a 'random LFO'.

To modulate synthesis parameters with the S+H you must use the **TransMod system**. Select the S+H **modulation source** and create modulation depths on any desired synthesis parameter(s).



Rate

The S+H function is driven internally by a series of pulses called a clock, the speed of which is dictated by the **Rate** control. When a clock pulse occurs, the dedicated internal noise signal is 'sampled' - its current value is 'snapshotted' - and held constant at the sampled value until the next clock pulse, when the process repeats.

Slew

The **Slew** control introduces lag between each sampled and held value, resulting in a smoother transition between values instead of abrupt changes with the control at the minimum setting.

Sync

With the **Sync** button enabled, the **Rate** control is set in BPM values derived from the Tremor tempo or that of the host when running Tremor as a plugin.

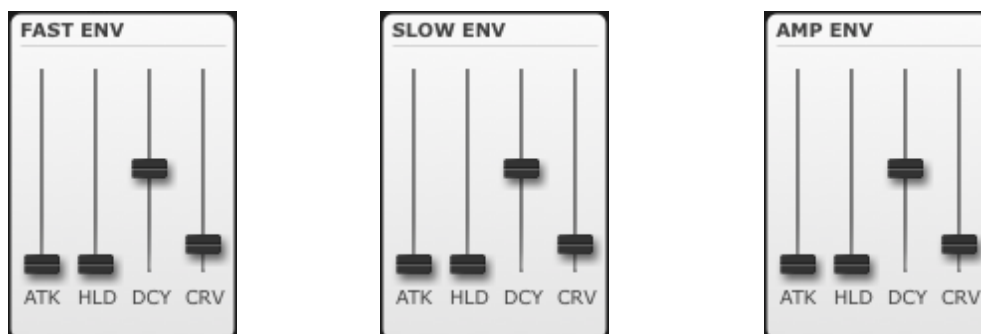
With the Sync button disabled, the Rate control is set in seconds.

2.2.11 Envelopes

Each voice in Tremor features 3 envelopes. They are all AHD envelopes, although each one operates at a different time scale.

With the exception of a hard-wired routing from the Amp Env to the **Output** section's VCA amplitude (to hear the voice when it is triggered), all envelope modulation in Tremor must be performed using the **TransMod system**. Select the desired **modulation source** - FENV, SENV, AxV, FxV and the FxC and SxC Macro controls - and create modulation depths on any desired synthesis parameter(s).

Note: The FxC and SxC sources are the 3rd and 4th Macro controls, which can be renamed.



Envelope controls

Atk (Attack)

The **Attack** is the time taken for the envelope to rise from 0 to a value of 1.

Hld (Hold)

The envelope is held at a value of 1 for the duration of the **Hold** time.

Dcy (Decay)

The **Decay** is the time taken for the envelope to return to 0.

Crv (Decay Curve)

This setting controls the shape of the **Decay** stage. At low settings it has a linear decay behaviour, while at high settings, the curve is exponential.

Envelope types

Fast Env

This envelope is optimized for very fast transients. The Attack and Decay stages have a maximum time of 0.5 sec, while the Hold stage has a maximum time of 0.25 secs.

To modulate synthesis parameters with the Fast Envelope, use the FENV, FxV or FxC TransMod sources and create modulation depths on any desired synthesis parameter(s).

Slow Env

This envelope is optimized for slower transients. The Attack and Decay stages have a maximum time of 5 sec, while the Hold stage has a maximum time of 2.5 sec.

To modulate synthesis parameters with the Slow Envelope, use the SENV or SxC TransMod sources and create modulation depths on any desired synthesis parameter(s).

Amp Env

The Amp Envelope is hardwired to the voice's VCA (in the **Output** section), so it always controls the amplitude shape of the voice - it is not possible to defeat this routing. The Attack and Decay stages have a maximum time of 10 sec, while the Hold stage has a maximum time of 5 sec.

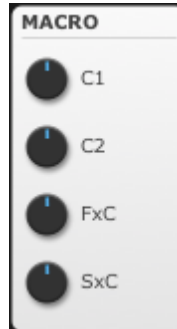
The Amp envelope is also available as a TransMod source which is scaled by incoming velocity. To modulate synthesis parameters with this source, select the AxV TransMod source and create modulation depths on any desired synthesis parameter(s).

2.2.12 Macro controls

These controls are duplicates of the engine's Macro controls on the [Kit page](#).

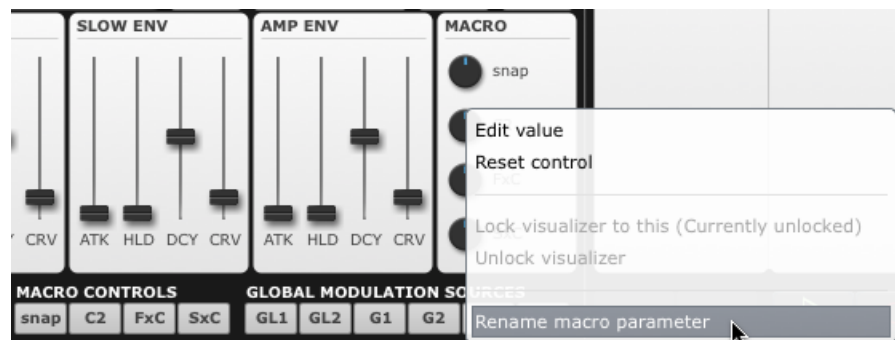
For Macro controls to have any effect, they must first be assigned to modulate parameters using the **TransMod system**. Select the relevant Macro control **modulation source** - C1, C2, FxC or SxC (although these can be renamed) - and create modulation depths on any desired synthesis parameter(s)

Note: The Macro controls themselves cannot be modulated using the TransMod system.



Renaming Macro controls

The engine's Macro controls can be renamed using the control context menu. Right-click on a control and use the **Rename Macro** control function. It is recommended to keep new names short, so that they fit within the TransMod buttons.



Renaming the 2nd Macro control

2.2.13 Visualizer

The **Visualizer** is a context-sensitive graphical display which represents the section of the Tremor voice structure currently under the mouse cursor.

The Visualizer is not an 'oscilloscope' and is not intended for scientific waveform measurement. Instead, it displays graphical representations of LFO and envelope shapes, Oscillator waveforms and distribution of harmonics, filter frequency response curves and so on.

The Visualizer display is switchable to show the **Engine Setup** controls instead, using the **Show Setup** button in the **Osc Mixer** section.

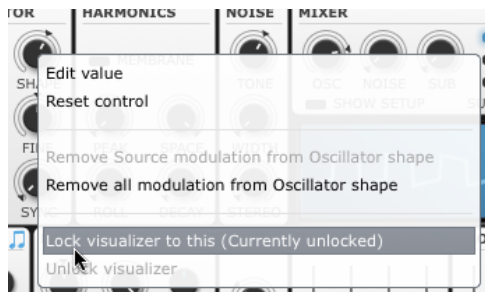


Visualizer representation of Input Transform settings

Locking the Visualizer to a control

Usually, the Visualizer operates in a context-sensitive way - its focus changes depending on which part of the interface is currently beneath the cursor. The control context menu (which appears when right-clicking on a Tremor control) includes Lock and Unlock functions for the Visualizer.

Lock Visualizer to this control



Using this function on any control focuses the Visualizer to the control, so that moving the mouse over other parts of the interface does not interrupt the display.

Unlock Visualizer

If the Visualizer is currently locked, this function unlocks the Visualizer so that it returns to its usual context-sensitive behaviour.

This function can be used on any control's context menu, not only that of the control to which the Visualizer is locked.

2.2.14 Engine Setup

By default, the **Engine Setup** controls are not visible - the **Visualizer** is displayed instead. Click the **Show Setup** button in the **Osc Mixer** above the Visualizer to show the Engine Setup controls.



Link (Link Group)

Tremor contains 3 Link groups. Each Engine can be assigned to Link group 1, 2 or 3. When triggered, any Engine within a Link group also triggers any other Engines assigned to the same group.

Grp (Choke Group)

Tremor features 3 Choke groups. Each Engine can be assigned to Choke group A, B or C. When triggered, any Engines within the same group choke any existing voices from each other which are already playing.

Tempo multiplier

The Tempo modifier allows you to scale the master tempo for each engine track in a pattern - allowing each track to operate at a distinct multiple or fraction of the master tempo. Click and drag up/down to change the values, or double-click to type a new value.

When a track plays, it is looped according to the Tempo modifier ratio. Therefore, if the pattern's track 1 and track 2 are set to the same number of steps, and track 2's Tempo modifier is 1/2, track 1 will have played through twice in the time that track 1 takes to play once.

If it is set to 1/2, the track is played at half the master tempo; if it is set to 2/1, the track is played at double the speed of the master tempo. With a track's Tempo modifier ratio set to 1/1 (or, indeed, 2/2 or 3/3 for example), it plays at the master tempo.

It is possible to set the ratio to anything from 1/16 (a 16th of the master tempo) to 16/1 (16 times faster than the master tempo). Of course, any ratio between these values can be set, such as 2/3, 3/5 etc. These values are useful for polyrhythmic and unconventional rhythms.

Cut (Cut Self)

With this button enabled, the voice cuts or chokes any existing instance of the voice that may be playing.

With the button disabled, new voices do not choke existing voices - therefore, the engine acts polyphonically. This may provide more desirable behaviour for some sounds, such as cymbals.

RT1, RT2 (Retrigger for Global LFO1 and Global LFO2)

These buttons dictate whether the engine's voices retrigger each Global LFO.

Output

The **Output** drop-down menu allows you to route each Tremor voice engine to any of the 8 stereo sub-outputs. This control is also available on the [Kit page](#).

By default, each engine is assigned to the Master Out channel - it is mixed with other engines routed to the Master Out channel and heard in the primary stereo output pair from the Tremor plugin or standalone application.

The audio from each engine is routed to the output post-FX.

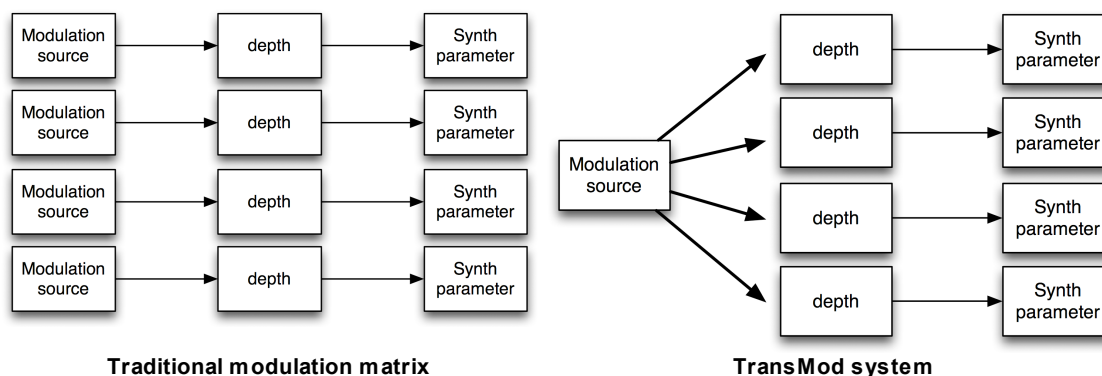
Note: Assigning an engine to a sub-output means that it is not heard in the Master Out channel or processed by the Master Out channel's FX.

2.3 TransMod Modulation

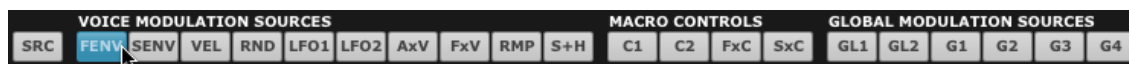
The TransMod modulation system allows you to route a single modulation source to multiple synthesis and effect parameters, each with its own definable depth.

Modulation depths are represented visually on the parameter itself, rather than in an abstract list of assignments.

The following diagram illustrates how a single modulation source, such as an LFO, is routed to destination parameters in a traditional mod-matrix and in the TransMod system:



The way that the TransMod system works is that there are 2 types of 'views' of the synthesis parameters.



Initial Source view (SRC)

To activate this view, click the SRC button.

In this view, no modulation depths can be viewed or created. You simply set the initial value of any parameters before any modulation occurs.

TransMod modulation source views

To the right of the SRC button are a number of buttons which represent modulation sources.

Clicking any of these buttons means that you can view and create modulation depths from the modulation source onto synthesis and effect parameters. Modulation depths can be seen and set visually on parameters, with indicators showing the current state of the control.

The modulation depth that is set represents the maximum amount of modulation possible from the modulation source. The changing intensity of the modulation source dictates the actual modulation that occurs at any one time.

This section contains several sub-sections:

- **Using the TransMod system:** creating TransMod modulation depths and setting modulation sources to uni-polar or bi-polar operation
- **Managing TransMod modulation:** additional functions for the TransMod workflow
- **TransMod modulation sources:** A full list of the available TransMod modulation sources

TransMod and Effects

Usage of the TransMod system with the Effects section is described in the **Effects and TransMod modulation** section later in this manual.

2.3.1 Using the TransMod system

SRC (Initial Source value)

Clicking this button results in showing no modulation depths. It is purely for editing synthesis parameters without adjusting modulation - to set the parameters' initial source values before any modulation occurs.

Modulation sources

When any of the TransMod modulation sources are selected, the synthesis parameters also display modulation depths which can be adjusted alongside the initial value.

Only one modulation source 'view' is visible at any one time.

In the following example, synth engine 1 is a very simple kick sound, with only the Fast Env modulating the Oscillator **Pitch**.

The extent of the modulation depth shown represents the maximum amount of possible modulation from the source - in this example, when the envelope has reached its maximum level - during the Hold stage (after the Attack stage and before the Decay stage).



With the SRC button selected, no modulation is shown.



With the FENV TransMod source selected, the destination modulation amount is shown around the Osc Pitch control.

Adjusting modulation depths

To adjust the modulation depth of a control:



First make sure that the desired TransMod source is selected.



For rotary controls, click and drag up/down on the main body of the control to

set the Initial SRC value.



Mouse over the outer ring of the control - notice the cursor has changed. Click and drag up/down on the outer edge of the control to set the modulation amount.



For slider controls, click and drag up/down on the slider cap to set the initial SRC value. Mouse over the slider path rather than the slider cap - note that the cursor has changed. Click and drag up/down on the slider path to set the modulation amount.

Adjusting modulation depths with MIDI CCs or host automation

Tremor's **mapping system** makes it possible to assign controls and controls' TransMod modulation depths to MIDI continuous controllers (CCs) or host automation messages. This is useful for changing the amount of modulation over time, something that is not possible with most modulation sources in Tremor, aside from modulating the **FM** control in the **Oscillator** section with a TransMod source such as an envelope, LFO or Macro control.

Controls that cannot be modulated

Most voice engine parameters can be modulated, although there are some exceptions:

- Ramp/Input Transform **Rpts** and **Rate** controls
- Global LFO controls
- **Phase** control in voice LFOs
- Macro controls and Engine Mix controls
- All buttons and switches

Setting a TransMod source to unipolar or bipolar operation

By default, all TransMod modulation sources act as unipolar sources. In other words, the modulation occurs only in one direction - from the initial SRC value to the modulation value.

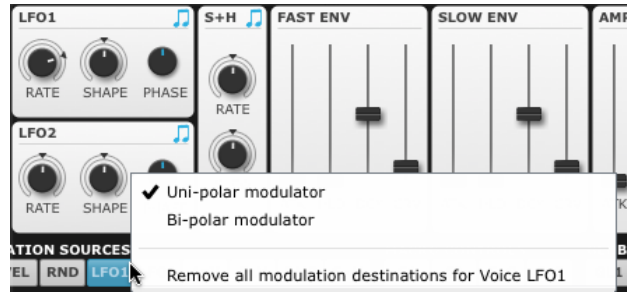
You can set each source to act as bipolar sources, so that the modulation occurs in both directions from the initial SRC value.

In the following example, LFO1 is shown first as a unipolar source, modulating the **Roll** control in the Harmonics section.

By right-clicking on the LFO1 TransMod button, it is then set to bipolar mode. The modulation then occurs in both directions, as shown by the indicator around the control.



Uni-polar mode



Right-click on the TransMod button and click on 'Bi-polar modulator'



Bi-polar mode

2.3.2 Managing TransMod modulation

Displaying which TransMod sources are modulating a Tremor parameter

To see which TransMod modulation sources are modulating a Tremor parameter, move the mouse over the parameter. Any TransMod sources which contain destination modulation depths on the parameter flash on the interface.

Control context menu

Right-click on a Tremor parameter to display its context menu, which contains several functions relating to managing TransMod modulation.



Remove modulation from control

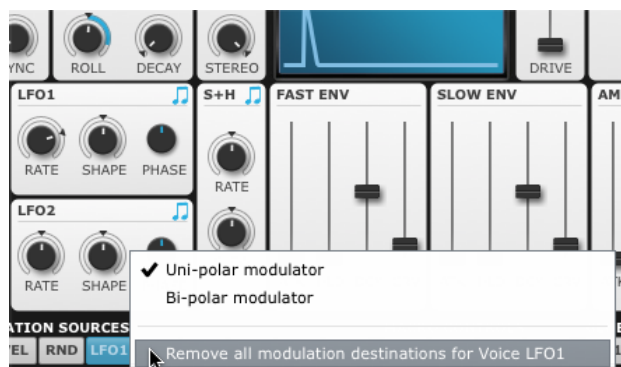
Click this function to remove the modulation depth on this control for the currently selected TransMod source.

Remove all modulation from control

Click this function to remove the modulation depths on this control for all TransMod sources that contain modulation depths on it.

TransMod source context menu

Right-click on any TransMod modulation source button to display its context menu. Uni-polar/Bi-polar modes are discussed in the previous section.



Remove all modulation destinations

Click this function to remove destination modulation depths for all parameters modulated by this TransMod source.

2.3.3 TransMod Modulation sources



SRC

Clicking this button switches to the initial source view - no modulation depths can be viewed or edited.

Voice modulation sources

FENV (Fast Env), SENV (Slow Env)

These sources allow you to modulate any parameter(s) with the **Fast/Slow Envelopes**. A typical usage scenario is to modulate the **Oscillator's** pitch with the Fast Env to create kick sounds - set the osc's **Pitch** initial SRC value to a low setting, and add a positive depth from the initial value as high as required.

VEL (Velocity)

The Velocity source allows you to modulate controls with note-on velocity. A very common use for this source is to modulate the voice's **Output Level** for a classic 'velocity to amplitude' behaviour.

RND (Random)

The RND source provides a new random value between 0 and 1 on every note-on. It is useful for achieving random modulation on every instance of a voice.

LFO1, LFO2

These sources provide the output from the voice's 2 **LFOs**.

LFO1 features a direct routing to the osc's pitch using the **FM** control in the **Oscillator** section. This dedicated routing is capable of modulating the osc frequency at audio rates when using fast LFO1 speeds. The **FM** control is a depth control, and can itself be modulated by any TransMod source such as envelopes or other LFOs.

When using the LFO1 and LFO2 TransMod sources the modulation always acts at control rates, and fast LFO speeds are quantised to the audio buffer size. The amount of modulation cannot be modulated over time, as with any other TransMod modulation source, although you can use Tremor's **mapping functions** to automate individual modulation depths with MIDI CCs or host automation.

AxV (Amp Env x Velocity), FxV (Fast Env x Velocity)

These sources provide the Amp Env and Fast Env scaled by incoming note-on velocity. This means that the velocity dictates the intensity of each of these envelope sources, allowing a dynamic polyphonic source of modulation (Velocity) to vary the amount of modulation during a sequence or performance.

RMP (Ramp)

The Ramp is a modulation source which is generated from the **Ramp/Input Transform** section. It offers a simple linear decay from 1 to 0, the time of which is dictated by the **Rate** multiplied by the **Rpts** parameter in the Ramp/Input Transform section.

The **Rpts** parameter must be set to 1 or more for the Ramp modulation source to be active.

S+H

This source provides the output of the **S+H section** so that it can be used to modulate synthesis parameters.

Macro controls

C1, C2, FxC (Fast Env x C3), SxC (Slow Env x C4)

These sources represent the voice's **Macro controls**. These sources can be renamed by renaming the Macro controls in the Synth page.

The 1st and 2nd Macro controls, **C1** and **C2**, are straightforward rotary controls which send a value from 0 to 100%. The **FxC** control is scaled by the Fast Envelope, while the **SxC** control is scaled by the Slow Envelope. This means that:

- The FxC TransMod source is effectively an Fast Envelope source, the intensity of which is scaled by the 3rd Macro control.
- The SxC TransMod source is effectively an Slow Envelope source, the intensity of which is scaled by the 4th Macro control.

These 2 sources allow real-time scaling of Fast and Slow Envelope modulation amounts with Macro controls, useful for live performance or automation during a host project. It is possible to adjust individual modulation depths using Tremor's **mapping system**.

Global modulation sources

GL1, GL2

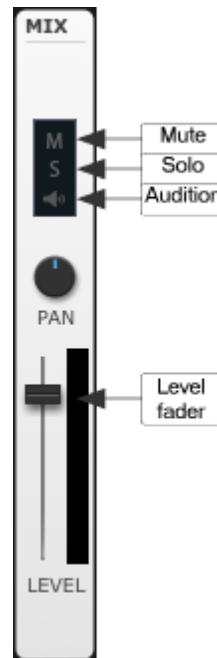
These sources allow you to modulate synthesis parameters with the 2 **Global LFOs**. There are only 2 Global LFOs - they do not operate independently for each voice like LFO1 and LFO2.

G1, G2, G3, G4

These sources allow you to modulate parameters with the Engine's 4 **graph lanes**. These provide a sequence of values at the onset of each step in the pattern.

2.4 Engine Mix controls

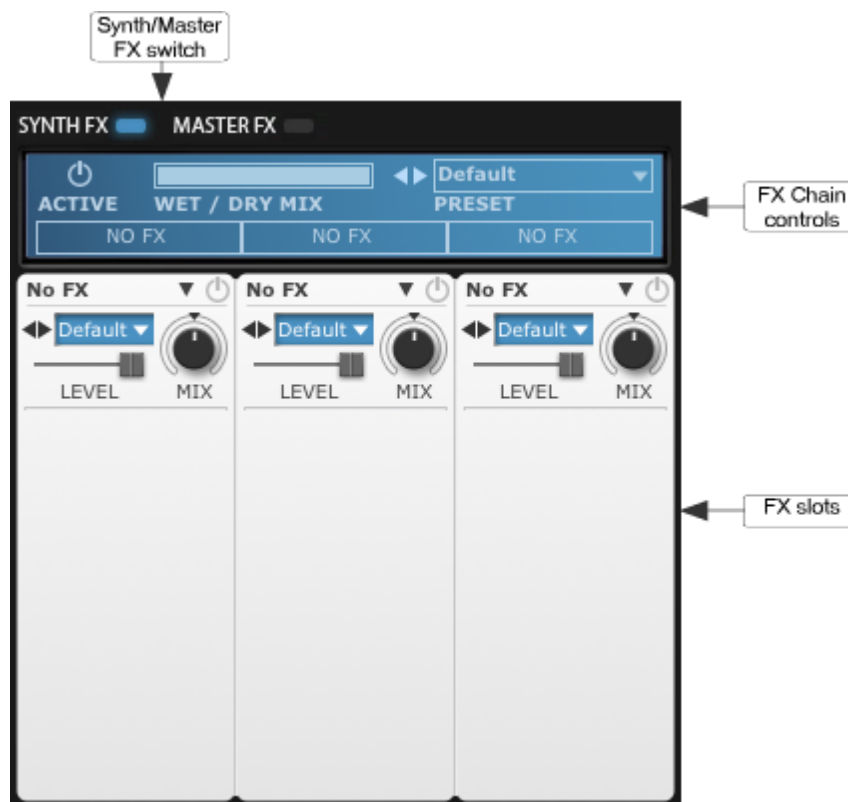
The Engine Mix controls area contains duplicate versions of the **Level** fader/meter, **Pan**, **Mute**, **Solo** and **Audition** controls for each synthesis engine, which are also located on the [Kit page](#). If the Master Out channel is currently selected, this section only displays the Master Out **Level** fader/meter.



3 Effects

Each of the 8 synthesis engines in Tremor possesses 3 FX slots, while the Master Out channel also features 3 FX slots.

Note: FX devices on the Master Out channel only process engines sent to the Master Out channel. Master FX are not applied to any engines which have been assigned to a sub-output.



Synth/Master FX switch

The **Synth/Master FX switch** changes between the current synth engine's FX and the Master Out channel's FX.

FX Chain controls

The FX Chain controls are used for the overall chain of 3 FX slots in each channel. These controls are described in the [FX Chain](#) section.

FX slots

All FX slots feature a number of common controls, described in the [Common FX slot controls](#) section.

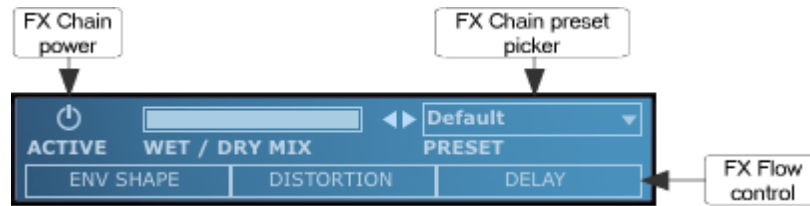
FX devices

For a reference to all the available effect processors that can be loaded into each slot, see the [Effects devices](#) section.

TransMod modulation

FX device parameters can be modulated by [TransMod modulation](#). See the [Effects and TransMod modulation](#) section for details.

3.1 Working with the FX chain



FX Chain preset picker

The FX Chain preset picker provides a preset system for the entire chain of 3 FX slots. The drop-down menu displays all available presets - click on a preset in the menu to load it. The **Prev/Next** buttons allow you to sequentially browse through the available presets.



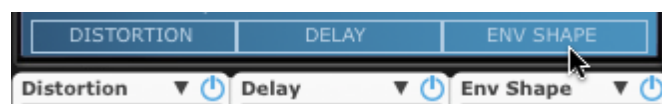
The drop-down menu also includes the **Save preset...** function, which saves the current chain as a preset, and the **Clear chain** function to reset the entire FX chain.

FX Flow control

The **FX Flow** control lets you re-order the signal flow of the FX chain (in other words, change the order of the FX slots). Each slot is represented by a 'block' in the control. In order to re-order them, click and drag the relevant FX slot left/right.



Click and drag the relevant FX device left/right



The order of the FX devices is rearranged according to where the FX device is dropped

FX Chain power

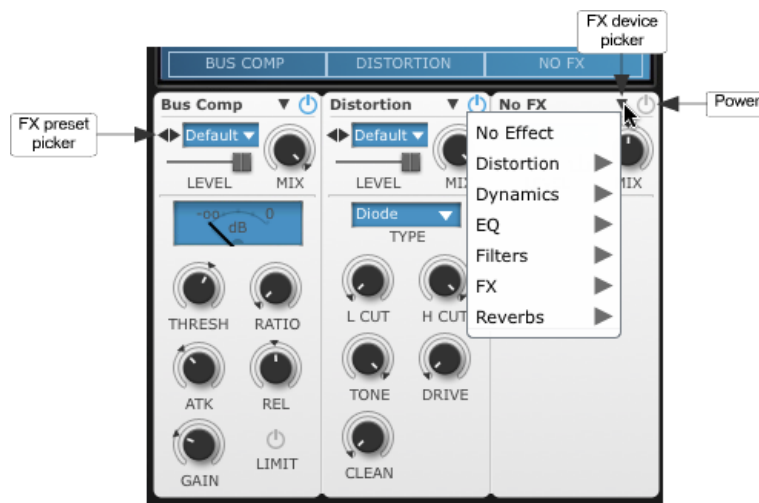
With this button enabled, the FX Chain is active. When it is disabled, none of the Chain's FX devices process the channel's audio, which is passed through unaffected.

Wet/Dry Mix



This control acts as a 'wet/dry' control for the entire FX Chain section, blending between the input signal and the output of the FX devices. Click and drag the control left/right to adjust it.

3.2 Common FX slot controls



The 3 FX slots on each channel contain the following common controls:

FX Power

Enabling an FX Power button enables the FX device in the slot. Disabling the button bypasses the slot.

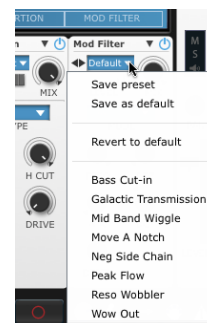
FX device picker

Use this drop-down menu to load the device for the FX slot.

Preset picker

Each FX device features the ability to store and recall presets. The preset picker drop-down menu displays all available presets for the current FX device - click on a preset in the menu to load it. The **Prev/Next** buttons allow you to sequentially browse through the available presets.

The preset picker drop-down menu also includes the **Save preset...** function, which saves the current state of the FX device as a preset, and the **Save as default** function for saving the current settings as the initialized state of the FX device whenever it is subsequently loaded. Use the **Revert to default** function to return to the default settings at any time.



Mix

This control acts as a 'wet/dry' control, blending between the input signal and the output of the FX device. It is very useful for parallel processing through inserted FX such as compressors, reverbs and so on.

Level

Click and drag this control left/right to adjust the output level from the FX device.

FX context menu

Right-click within an FX device to display the FX context menu.

Cut

This function stores the current FX slot state in the clipboard and removes the slot's contents, effectively resetting the slot to an empty state.

Copy

This function copies the FX slot to the clipboard, leaving the slot unchanged.

Paste

If the clipboard contains suitable data, this function pastes it into the FX slot, replacing its previous contents.



3.3 Effects and TransMod modulation

Any FX device can be modulated using the TransMod system, opening up a vast array of sound design possibilities.

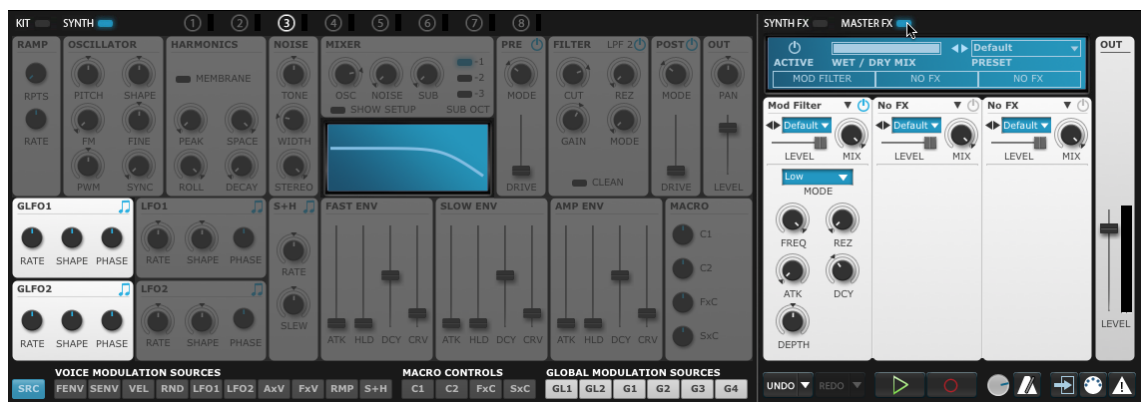
It is necessary to use the **Synth page** in order to operate the TransMod system.

Each synthesis engine channel features its own set of 3 FX slots and voice-level TransMod routings and depths.

The Master Out channel FX can only be modulated with global modulation sources that do not operate on the voice level - the Global LFOs and Graphs 1-4.

Synth FX and Master FX

You can switch to the Master FX at any time by clicking the **Master FX** switch. If you are currently viewing the Synth page for a synthesis engine, you'll see the following display when switching to the Master FX:



Note that only the Global modulation sources are accessible - all voice-level parameters are greyed out, as are the previously-viewed engine's voice-level synthesis parameters and Macro controls.

When Tremor is in this state, you can switch to any engine using any method described in the **Selecting engines** section, or click the **Synth FX** switch to return to the engine you were editing previously:



3.4 Effects devices

Distortion

Distortion

This is a versatile DCAM-modelled overdrive/distortion effect. The **Type** drop-down menu switches between 4 different distortion models – 'Diode', 'OTA', 'OpAmp' and 'HalfRect' – each of which provides a different flavour of distortion. The **Low Cut** and **High Cut** controls allow you to filter the signal before the distortion stage.

The **Drive** control sets the amount of drive or distortion applied to the signal. The **Tone** control adjusts a 1-pole low-pass filter for removing unwanted high-frequencies from the driven signal. The **Clean** control reintroduces the signal previously filtered out by the Low Cut and High Cut controls.

Bit Crusher

This effect emulates the digital distortion that occurs when lowering the bit-depth or samplerate of an audio signal. The **L Cut** (Low Cut) and **H Cut** (High Cut) controls allow you to filter the signal before the distortion, bit-reduction and samplerate-reduction stages. Adjust the bit-depth with the **Bits** control and the samplerate with the **Freq** control.

The **Drive** control sets the amount of non-linear distortion applied to the signal. The **Tone** control adjusts a 1-pole low-pass filter for removing unwanted high frequencies from the processed signal.

Ring Mod

This effect is used for radical shifts in timbre and experimental effects. It multiplies the input signal with its internal oscillator, the shape and pitch of which are set with the **Mode** and **Pitch** controls. The **Drive** control applies non-linear distortion on the input signal.

Dynamics

Gain

This effect is a simple tool for increasing or decreasing a channel's gain. The **Gain** control sets the channel's gain between -inf dB and +36 dB.

Stereo Width

This device provides a **Width** control that adjusts the stereo width of the signal between full stereo (maximum position) and mono (minimum position). It also features a **Gain** control that sets the signal's gain between -inf dB and +18 dB.

Channel Compressor

This is a DCAM circuit-modelled channel compressor based on a classic 'limiting amplifier' design. Increase the **In** control to increase the level going into the compressor (higher signals engage the compression circuit more), and adjust the **Out** control to reduce the output level as required.

The **Ratio**, **Atk** (Attack) and **Rel** (Release) controls adjust the compression characteristics. The amount of gain reduction is indicated on the VU meter in real time.

Bus Compressor

This is a DCAM circuit model of a classic British console bus-compressor design. The **Thresh** (Threshold) control dictates the level over which signals are compressed. The **Ratio**, **Atk** (Attack) and **Rel** (Release) controls adjust the compression characteristics, while the **Gain** control allows you to increase the audio level after the compression circuit. The amount of gain reduction is indicated on the VU meter in real time.

Noise Gate

The Noise Gate attenuates the signal until its amplitude reaches the **Thresh** (Threshold) level. The **Atk** (Attack) and **Rel** (Release) controls set the speed at which the gate opens and closes after the signal goes above or below the threshold, while the **Hold** control forces the gate to remain open for an adjustable length of time after it is opened, even if the input signal drops below the Threshold level.

The **LPF** (Low-pass filter) control allows you to low-pass filter the signal used for the amplitude-detection circuit, which can achieve better results with some types of material. Increasing the **Hyst** (Hysteresis) control smooths the gate's response, although this can result in a side effect of lower sensitivity to small changes in amplitude around the Threshold level.

Env Shaper

The Envelope Shaper allows you to adjust transients and change the dynamic shape of a signal in a different way to using a compressor. The **Sens** (Sensitivity) control adjusts the sensitivity of the Env Shaper's peak detection circuit.

The **Atk** (Attack) control adjusts the intensity of the attack phase of detected peaks in the audio signal. Increase the control to intensify attack transients, and decrease it to soften them.

The **Sustain** control adjusts the intensity of release portions of detected peaks in the audio signal, which increases or decreases the apparent sustain of sounds in the signal. Increase the control for more sustain, and decrease it for less sustain. This control is useful for adjusting the perceived level of ambience in a channel. Very low settings can produce damping effects for drum sounds.

The processed signal level can be adjusted using the **Gain** control.

Enabling the **Linked** button mixes the left and right input channels before the peak detection circuit (although the audio is still processed in stereo). If this button is disabled, each input channel uses a separate peak detection circuit.

EQ

Parametric EQ

This is a 2-band parametric EQ.

The **Low Freq**, **Low Q** and **Low Gain** controls set the centre frequency, gain and Q of the low band.

The **High Freq**, **High Q** and **High Gain** controls set the centre frequency, gain and Q of the high band.

The current frequency response curve is indicated on the graphical display.

DJ EQ

The DJ EQ offers a simple 3-band parametric EQ with fixed Q. The **L Gain** and **H Gain** set the amount of gain for the low and high bands. The **M Gain** and **M Freq** settings adjust the gain and centre frequency for the mid band.

The frequency response curve is indicated on the graphical display.

Vari EQ

The Vari EQ is a single-band EQ processor which provides a wide variety of filter response types, selected using the drop-down menu.

Bell, Low shelf, High shelf types: these parametric EQ-style curves provide **Freq** (Frequency), **Gain** and **Q** controls.

LPF, BPF, BPF (0 dB), HPF, Notch, Allpass types: these filter-style curves provide **Freq** (Frequency) and **Q** controls.

The frequency response curve is indicated on the graphical display.

Filters

Filter

The Filter device provides simple 1-pole high-pass and low-pass filters. Each filter features a **Power** button and frequency control - **High Freq** (for the high-pass) and **Low Freq** (for the low-pass).

The frequency response of the filters is indicated on the graphical display.

Modulated Filter

This is a DCAM circuit-modelled multimode resonant filter with envelope follower modulation.

The **Freq** and **Rez** controls adjust the cutoff frequency and amount of resonance (emphasis around the cutoff frequency). The **Mode** drop-down menu allows you to select between low-pass, band-pass, high-pass, peak and notch modes.

This device contains a built-in envelope follower for modulating the cutoff frequency with the amplitude of the input signal. It features controls for envelope **Atk** (Attack) and **Dcy** (Decay) in response to detected peaks in the signal. The **Depth** control sets the amount of modulation of the cutoff frequency by the generated envelope shape.

Comb Filter

The Comb Filter operates by feeding a delayed version of the input signal back on itself, generating phase effects that cause an array of peaks in the frequency response.

The **In Drive** control adjusts the level of the signal entering the comb filter. The **Pitch** control adjusts the length of the delay in the comb filter circuit, while the **Rez** (Resonance) control sets amount of feedback. The **Mode** button switches the comb filter polarity between positive (on) or negative (off).

Three Oh! Three Filter

Hoover Filter

Grandad Filter

Little Fatty Filter

Child Genius Filter

Japan Filter

All these filter devices, each modelled on classic vintage filter circuits, feature a common set of controls.

The **Mode** control sets the response of the filter – each filter device features a different set of filter responses. Each Mode offers a huge variety of timbral variation and character, so please experiment with each device!

The **Freq** and **Rez** controls adjust the cutoff frequency and resonance of the filter circuit. The **Drive** control adjusts the level of the signal entering the filter. The circuit responds with varying characteristics depending on the input level - higher levels can decrease the apparent resonance of the filter.

FX

Delay

This is a classic stereo delay line. The **Time** (Delay Time) and **Feed** (Feedback) controls set the amount of delay and feedback intensity in the effect. The **Swing** control adjusts between a wide variety of delay feels, while the **H Cut** (High Cut) and **L Cut** (Low Cut) controls adjust the filters in the feedback chain. The **Sync** button enables setting the Delay Time control with tempo-synced note-based values instead of in seconds.

Flanger

The Flanger effect is a short modulated delay line with feedback to the input. It is used for swirly movement and psychedelic effects.

The **Freq** control sets the frequency of the sine LFO used to modulate the flanger's delay time, while the **Depth** control adjusts the amount of modulation.

The **Feed** (Feedback) control adjusts the amount of the processed signal that is fed back into the input. Higher settings result in a more pronounced flanging effect, with settings over 50% leading to extreme comb filter type effects.

The **Pos** (Position) control adds up to 10ms to the flanger's delay time. The **Spread** control adjusts the panning of the left and right channel processed signals, while **Phase** offsets the phase of the internal LFOs for the left and right channels.

Chorus

The Chorus device is a pitch-based modulation effect that is useful for thickening up sounds. The **Freq** (Frequency) control affects the speed of pitch modulation. The **Depth** control adjusts the amount of modulation away from the input signal's original pitch. The **Spread** control varies the panning of the left and right pitch-modulated signals.

Phaser

The Phaser effect applies a set of allpass filters on the input signal, with the option to sweep the filters with an LFO for psychedelic timbral movement effects. The **Mode** drop-down menu selects between 8 phaser algorithms. 2, 4, 6 and 8 stage phasers are available (the number of stages, or 'poles', is the number of allpass filters), each with positive or negative feedback.

The **Drive** control sets the level of the signal entering the phaser circuit. The **Pitch** control sets the centre frequency of the allpass filter array, while the **Rez** control sets the resonance of the filters.

The **Freq** (Frequency) parameter controls the rate of the LFO, with the **Depth** control setting the amount of modulation of the centre frequency of the filters.

Frequency shifter

This effect changes the pitch of the input signal without preserving the harmonic information, resulting in very alien and abstract timbres.

The **Pitch** control sets the amount of frequency shifting above or below the original signal, while the **Amp** control adjusts the level of the output signal.

Audio Freezer

This is a granular buffer-looping/freezing effect that is useful for glitchy and stuttery sounds. Once the **Gate** control is turned up, the Freezer effect starts recording audio from the input into a buffer, the length of which is dictated by the **Loop** control (1-16 beats). After the loop buffer is filled, subsequent incoming audio is ignored, until the buffer is re-gated (by turning the Gate control down and up again). The audio in the loop buffer is divided up into slices, the size of which is set by the **Grain** parameter in seconds.

Once the buffer has been filled, the first grain is looped – or 'frozen' – while the **Speed** parameter is set to 0. Increasing the Speed control plays through the available grains sequentially. The **Smooth** control adjusts the amount of smoothing between grains.

The **Scr** (Scratch) parameter scales the pitch of the loop in a similar way to scratching a record on a turntable, so you can play the loop forwards and backwards and everywhere in between.

Reverb

TinCanVerb

This effect is a recreation of a low-end room reverb unit, perfect for emulating 'cheap and nasty' onboard synth FX.

The **Size** control adjusts the size of the virtual reverberation room. Smaller rooms offer subtle ambience, while large rooms result in a more 'cavernous' and reflective effect. The **Decy** control adjusts the decay time of the reverb effect. Use smaller Decay times for subtle small room effects and larger times for special effects.

Increasing the **Damp** control results in less high frequencies in the effected signal, leading to a darker reverb sound. At least some damping is essential to avoid overly tinny and fatiguing results.

The **Pinch** and **Sqz** (Squeeze) controls manipulate the shape of the virtual reverb room, leading to a variety of resulting effects. They make the reverb sound a lot more artificial and are useful for special effects.

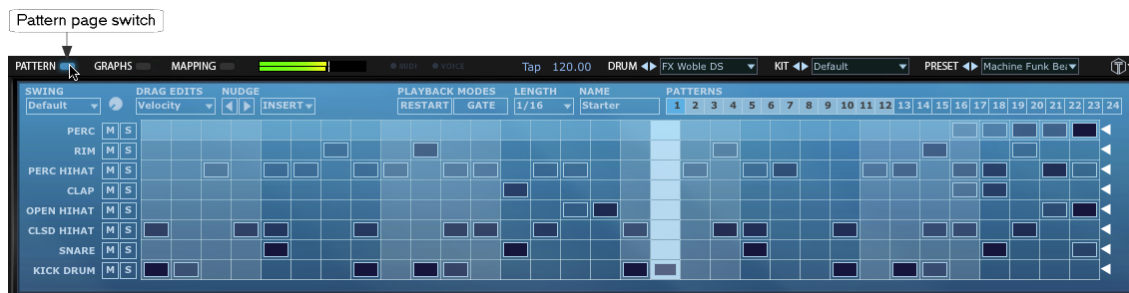
4 Sequencing with Patterns and Graphs

Tremor's built-in sequencing functions are accessed using 2 pages in the LCD - the Pattern page and the Graphs page.

Pattern page

The Pattern page is used for creating and editing events that trigger Tremor's synthesis engines. Each of the 24 patterns features a track for each of the 8 synthesis engines.

If the Pattern page is not already showing in the LCD, switch to it using the **Pattern** page switch.



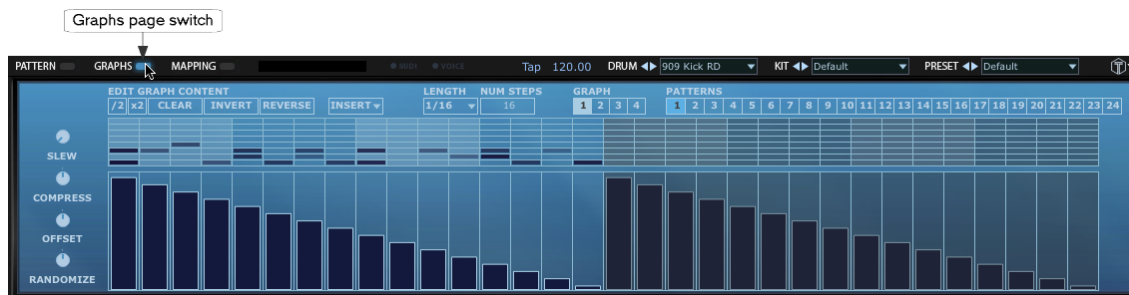
This chapter contains sections for:

- **Patterns and pattern memory keys**
- **Editing patterns**
- **Additional controls in the Pattern page**

Graphs page

Graphs are step-based automation sequences. Each pattern contains 4 graphs, which are assignable to Tremor's synthesis parameters using the **TransMod modulation system**.

Switch the LCD to the Graphs page using the **Graphs** page switch.



This chapter contains sections for:

- **Editing graphs**
- **Additional Graphs page controls**

For continuous automation of Tremor's synthesis parameters, you should use its mapping functions to automate synthesis parameters via MIDI CCs or host automation. These functions are described in **chapter 5**.

4.1 Patterns and pattern memory keys

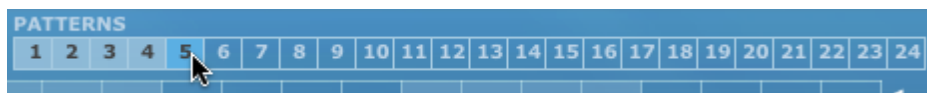
Each of Tremor's 24 patterns is represented by a pattern memory key, or pattern key. Each pattern key is also associated with a MIDI note.

Pattern keys are shown on both the Pattern page and the Graphs page, as each of the 24 patterns contains:

- 8 tracks of note events
- 4 lanes of graph events

The currently selected pattern is highlighted (a pattern must always be selected) and plays according to its **Playback modes**.

All patterns that contain events are also highlighted.

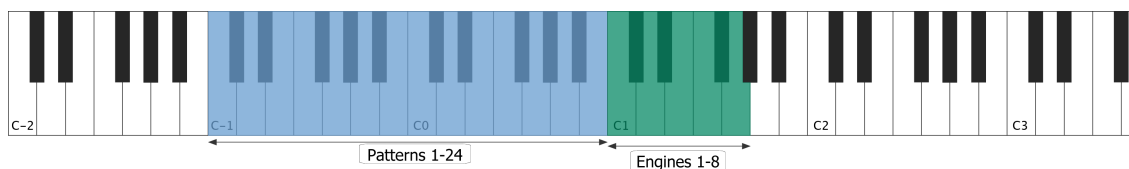


In this example, patterns 1-4 contain events, 5 is the current pattern and 6-24 are unused.

Selecting a pattern

Clicking a pattern memory key selects it as the current pattern.

You can also play the pattern key's corresponding MIDI note in order to select it as the current pattern.



Pattern and engine MIDI notes (engine notes are repeated in all octaves above C1)

Playing a pattern

Selecting a pattern is not necessarily the same as 'playing' the pattern. The way in which the pattern is played and heard depends on its **Playback modes**. For example, a pattern with Gated mode enabled is only heard while the pattern key, or its corresponding MIDI note, is held down. A pattern with Restart mode enabled (and the Gated mode disabled) starts playing as soon as it is selected, from the start of the pattern.

See the **Pattern controls** section for a visual guide to the **Playback modes**.

Using MIDI input to trigger engines

It is not necessary to use Tremor's pattern page to trigger events - you can also trigger the synthesis engines **via MIDI notes**.

Graph modulation is only available when using the pattern sequencer, although it is possible to use patterns to send graph information but no note events to trigger the engines. These graph-only sequences can be played using the pattern MIDI notes alongside note events using the engine MIDI notes.

Sending pattern events to Tremor's MIDI output

In the VST plugin and standalone versions of Tremor, it is possible to send note events from the pattern sequencer as MIDI events from Tremor's MIDI output, in order to trigger external MIDI devices. In order to enable this function, ensure that the **Send** button in the **Mapping page** is enabled.

Pattern key context menu

Right-clicking on a pattern key displays the pattern context menu, which offers several pattern management features.

Cut/Copy

These functions cut or copy the pattern's note and graph event data to the clipboard.

Paste

If the clipboard contains pattern data, this function pastes the note and graph event data to the pattern.

Paste notes

If the clipboard contains pattern data, this function pastes the note event data to the pattern.

Paste graph

If the clipboard contains pattern data, this function pastes the graph event data to the pattern.

Clear pattern, Clear all patterns

These functions clear the current pattern or all patterns.

Lock/Unlock pattern

The **Lock pattern** function locks the entire pattern (all tracks within the pattern) so that it cannot be altered. If the pattern is currently locked, unlock it with the **Unlock pattern** function.

Reset pattern velocity

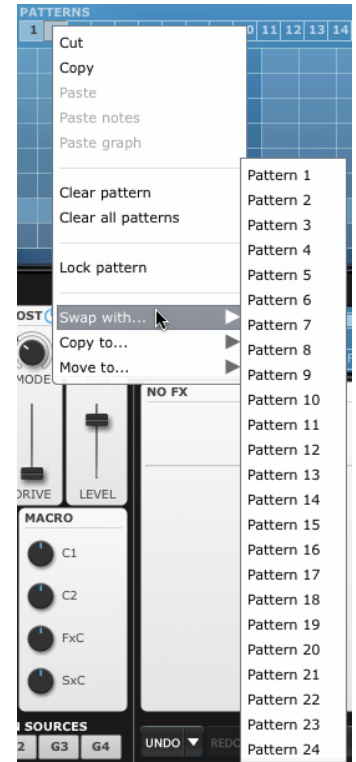
This function resets the Velocity for all note events within the pattern.

Swap with...

Move to...

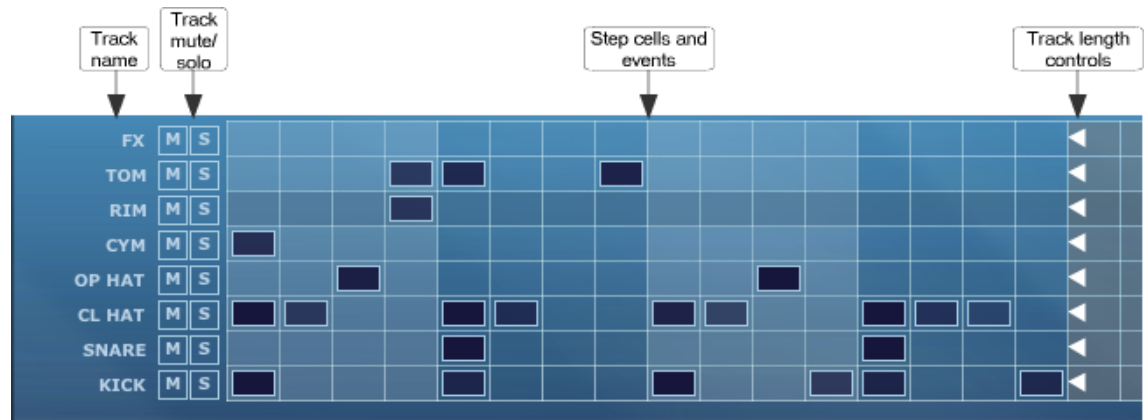
Copy to...

These functions allow you to swap/copy/move patterns between the available pattern keys.



4.2 Editing patterns & events

The Pattern page display shows the currently selected pattern for editing.



Tracks

Each of the 8 voice engines is associated with a track.

Track names

Clicking on an engine track name selects that engine as the current engine for editing.

Track Mute/Solo

Each track features a **Mute** and **Solo** button, which operate on the current pattern only - muting or soloing a track in a pattern does not affect any other patterns.

These buttons are not related to the engine **Mute** and **Solo** buttons in the **Kit page** and **Engine Mix** section, which act on the engine itself and therefore result in the same effect with all patterns.

Step cells

The cells in each track represent possible positions for events in the pattern.

Events are shown as dark blocks, the shading of which represents the event's Velocity. The events' Repeats and Probability values (accessed using the **Drag edits** function) are also represented graphically. For more details, see the editing guide below.

Track length

The triangular indicators at the end of each pattern track can be dragged left/right in order to set the number of steps for the track to any number less than the maximum length of 32 steps. Track lengths are set per-pattern.

To adjust the lengths of all tracks simultaneously, hold down ALT as you click and drag a triangular indicator.

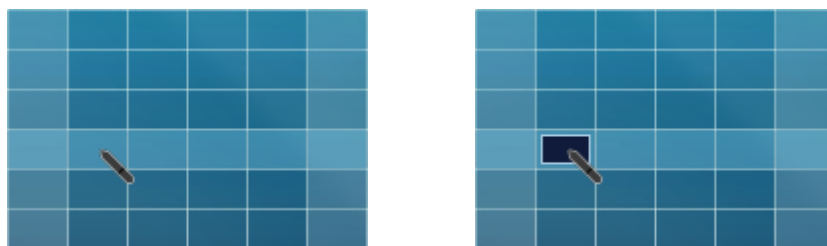
Setting individual tracks to differing lengths is useful for polyrhythmic rhythm composition.

The 4 graphs in a pattern each can be set to individual lengths with the **Num Steps** control.

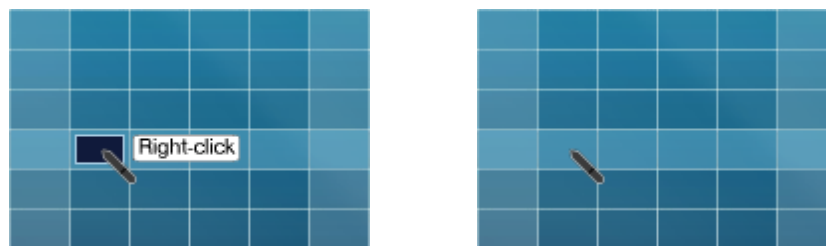
Editing events

There are no 'tools' in Tremor - there is only a single, multi-functional mode in which to enter and manipulate events in the pattern.

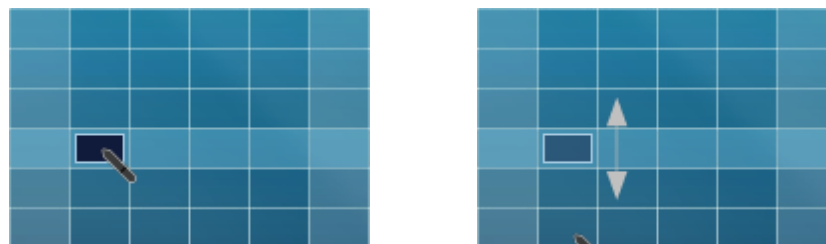
Basic event editing



Click in a step cell to enter an event.



Right-click on an existing event or a selection to erase it.



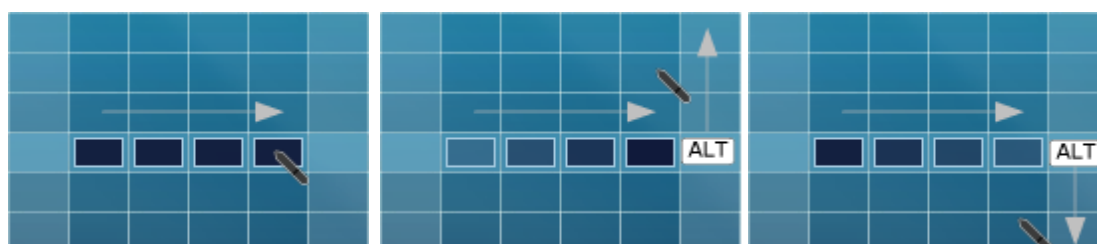
Click in a step cell and drag up/down without releasing the mouse to adjust the entered event's velocity (default) or alternative Drag edit type (see below for details of Drag edit functions).

You can click and drag up/down on an existing event to adjust its velocity (default) or alternative Drag edit type.

Entering a series of events



1. Click and drag right across a series of step cells to add a series of events.
2. Without releasing the mouse, you can drag up/down after entering the series of events in order to adjust their velocity simultaneously.

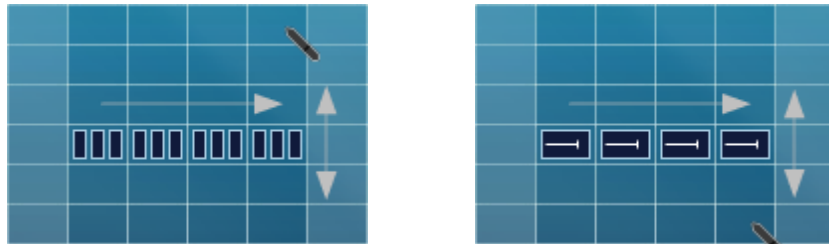
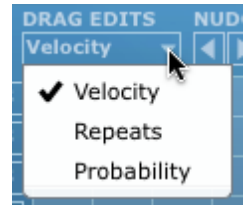


Click and drag right across a series of step cells. Without releasing the mouse button, hold down the ALT key and then drag up/down to add a series of events and create velocity fade-in or fade-out.

Working with other Drag edit modes

All the above operations involving event velocity are possible when the **Drag edits** menu is set to adjust Velocity. This menu also allows you to edit Repeats and Probability in these ways.

See the **Pattern controls** section for details of these functions.

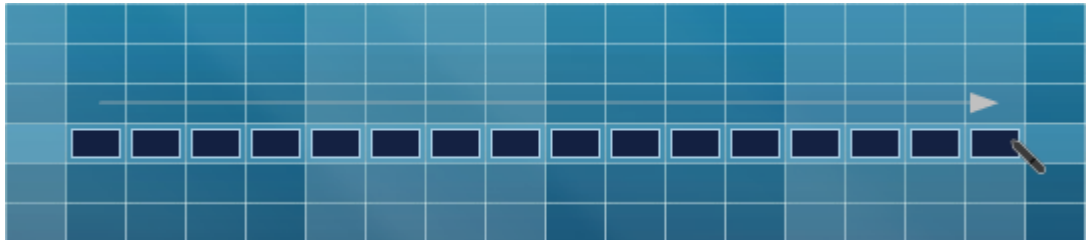


Adjusting the Repeats or Probability functions after entering a series of events.

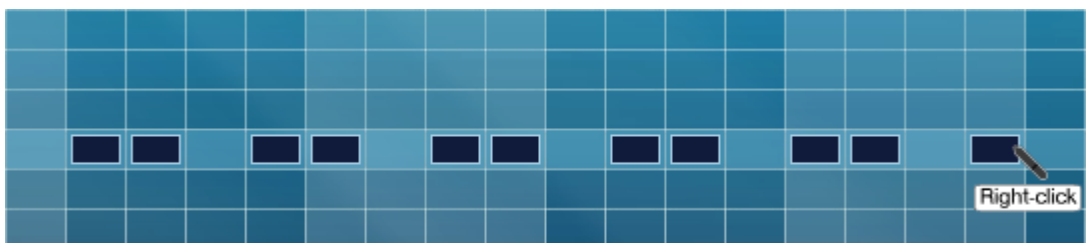


Creating Repeats/Probability 'fades'.

Using Insert patterns



1. Click and drag right across a series of step cells.



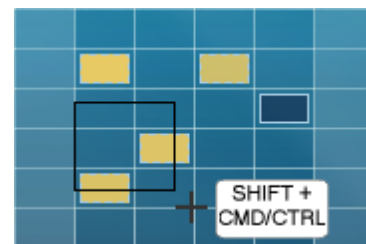
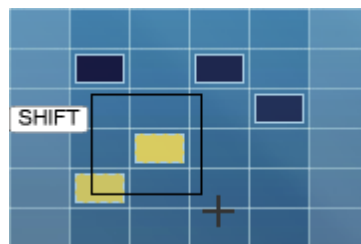
2. Right-click repeatedly (without releasing the mouse button) to cycle through Insert patterns for the entered events.

Creating selections



SHIFT-click on an event to select it.

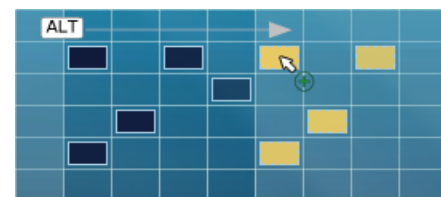
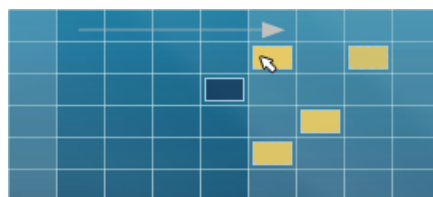
You can perform this action while also holding down **CMD** (Mac) or **CTRL** (Win) to add to an existing selection.



SHIFT-click and drag to draw selection box around multiple events.

You can perform this action while also holding down **CMD** (Mac) or **CTRL** (Windows) in order to add to an existing selection.

Moving and copying selections



Click and drag a selection in order to move it.

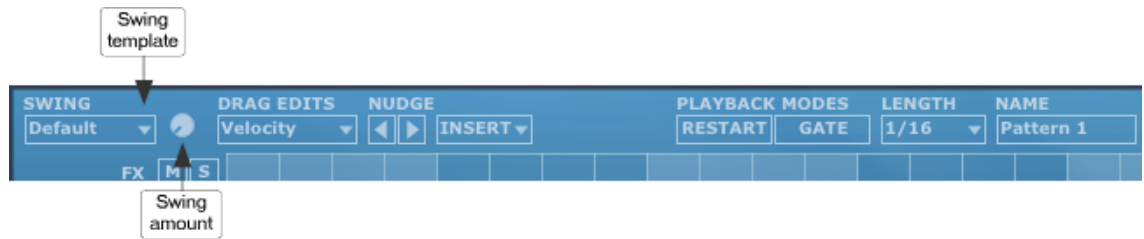
Click and drag a selection while holding down **ALT** in order to copy it.

Deselecting all events



SHIFT-click on empty area to de-select any selected events

4.3 Pattern controls



Pattern name

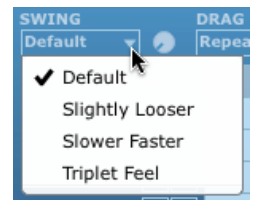
This field sets and displays the name of the currently selected pattern. Double-click the text-box to edit it or enter a new name.

Swing amount

Tremor's Swing function allows you to apply non-destructive syncopation on Tremor's patterns. The **Swing** control adjusts the amount of swing that is applied, globally across all patterns.

Swing template

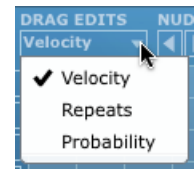
All the currently available Swing templates are shown in this drop-down menu. Each provides a different type of swing feel.



Drag edits...

By default, you can click and drag up/down on an event to adjust its velocity. The **Drag edits** menu allows you to change this to 2 alternative editing modes.

Note: When using these alternative editing modes, the visual representation of the event differs from the gradient shading used for representing Velocity. See the [Editing patterns](#) section for details.

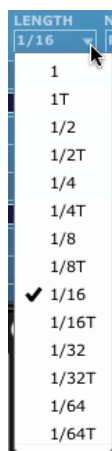


Repeats

This **Drag edits** mode allows you to set a number of repeats, up to 12, on each step. Repeats are useful for glitchy-sounding effects.

Probability

This **Drag edits** mode allows you to define the probability of an event being heard. Clicking and dragging up/down on an event sets its probability as a percentage. With a setting of 100%, the step event always occurs each time the pattern is played. As the setting is reduced, the probability of the event occurring is also reduced.



Insert

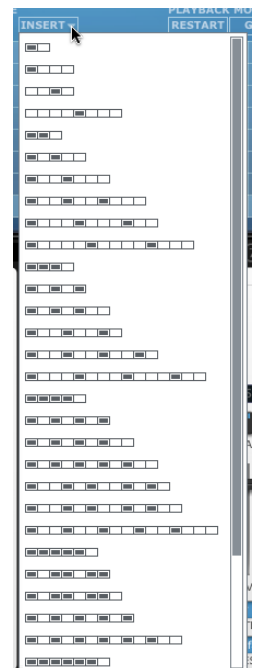
The **Insert** drop-down menu offers a number of useful rhythmic patterns to automatically insert onto the currently selected pad's pattern lane. Any existing events are overwritten.

You can cycle through Insert patterns for newly entered notes - see the [Editing patterns](#) section for more details.

Length (Step Length)

The **Length** parameter sets the length of each step in the step sequencer grid - 1, 1/2, 1/4, 1/8, 1/16, 1/32, 1/64 straight and triplet settings are available.

Each of the 4 graphs in a pattern feature their own **Length** parameter for setting the length of each graph step.



Nudge left/right

These buttons move the events in the pattern left or right by 1 step. Events 'wrap around' the beginning and end of the pattern. With one or more events selected, using the Nudge buttons results in moving only the selected events.

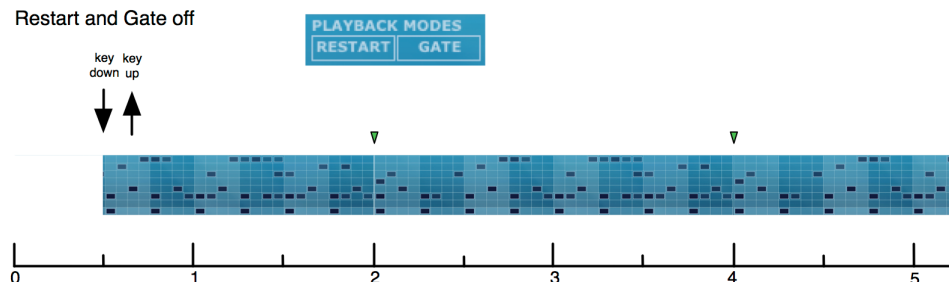
Playback Modes: Restart / Gate

When a pattern is set to **Restart** mode, it always plays from the beginning of the pattern when triggered. With Restart mode disabled, the pattern starts in phase with the playing position.

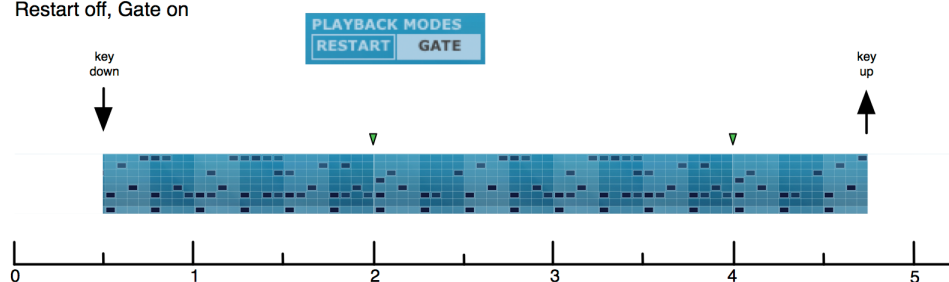
When a pattern is set to **Gated** mode, it only plays while the pattern's MIDI key is held down. With Gated mode disabled, patterns are started and looped indefinitely by playing the key and releasing it.

Both of these modes can be active at the same time.

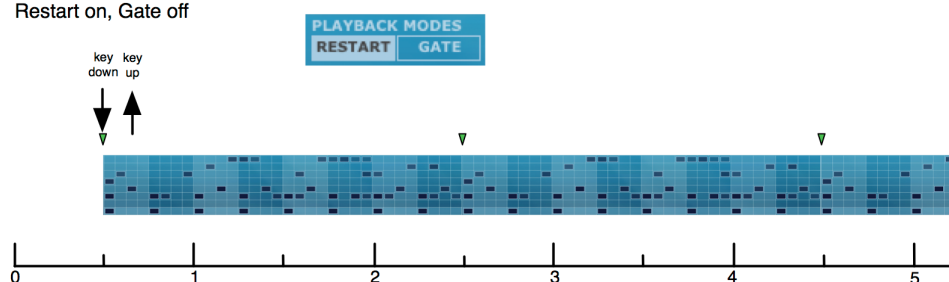
Restart and Gate off



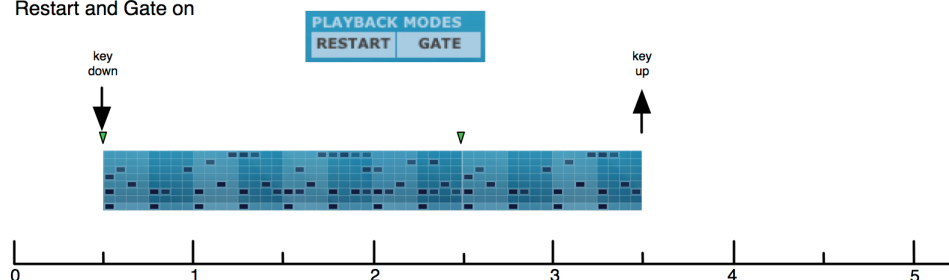
Restart off, Gate on



Restart on, Gate off



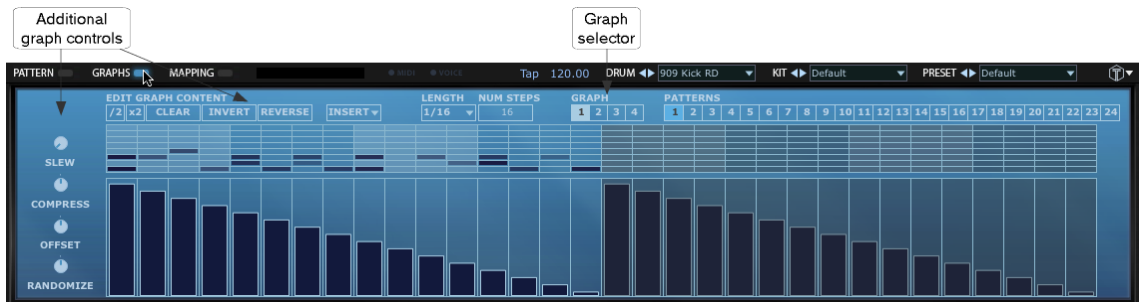
Restart and Gate on



4.4 Graphs

Each of Tremor's 24 patterns features 4 step-based automation sequences called 'graphs' for varying synth engine parameters on each step of the pattern.

Before a graph can have any effect, it must be assigned to 1 or more parameters using the **TransMod system**. Each of the 4 graphs, G1, G2, G3 and G4, is presented as a **modulation source** for the TransMod system. A single graph TransMod source can be routed to any parameter(s) in any of the 8 voice engines - therefore, the effect of the graph sequence depends entirely on the parameters and depths to which the graph is assigned.

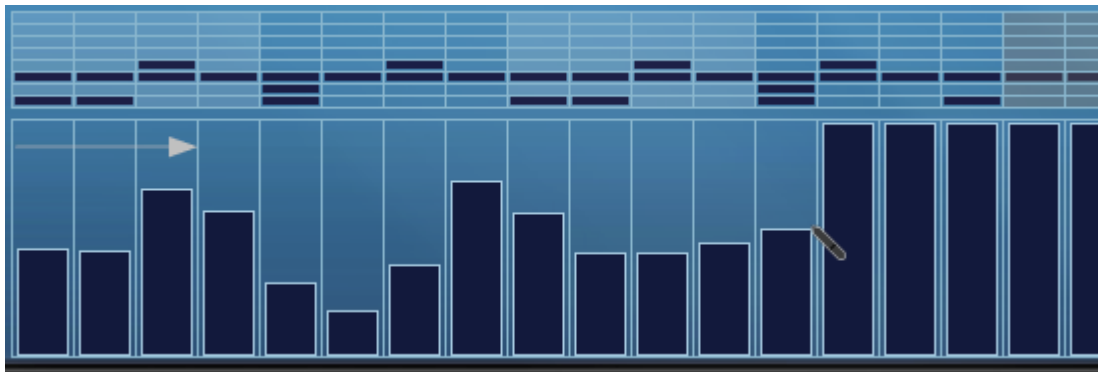


Graph selector

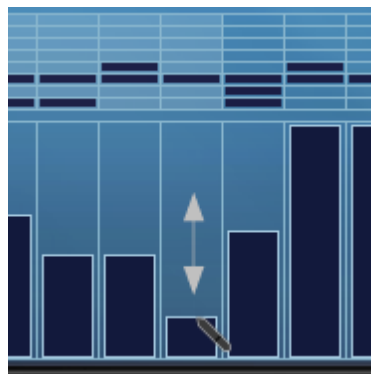
Click one of the 4 graph buttons in order to select that graph for editing.

Editing Graphs

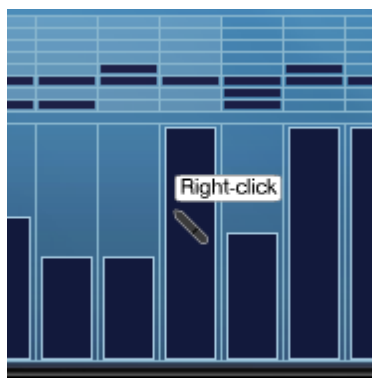
Graphs can only be created using the mouse and the Graphs page. Further manipulation of graph events is possible using the **Additional graph controls**.



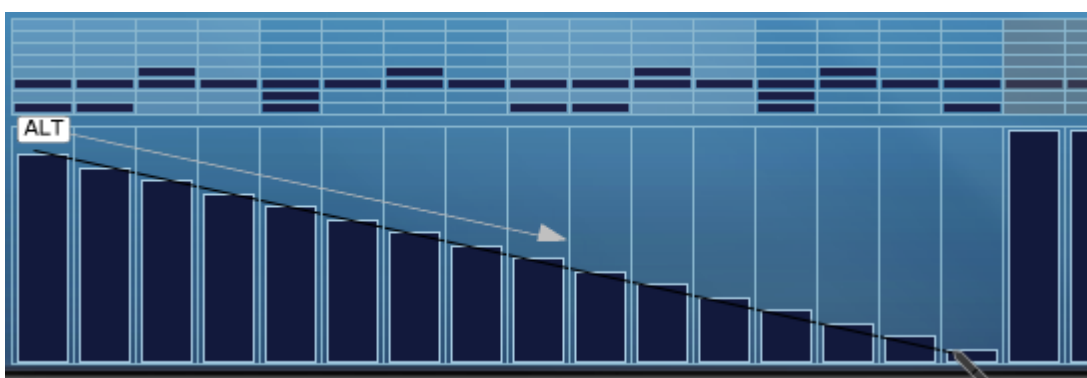
Click and drag across the graph to 'paint' values across sequential steps, moving the mouse up/down in order to set different values.



Click in a single step and drag up/down to set a single value.

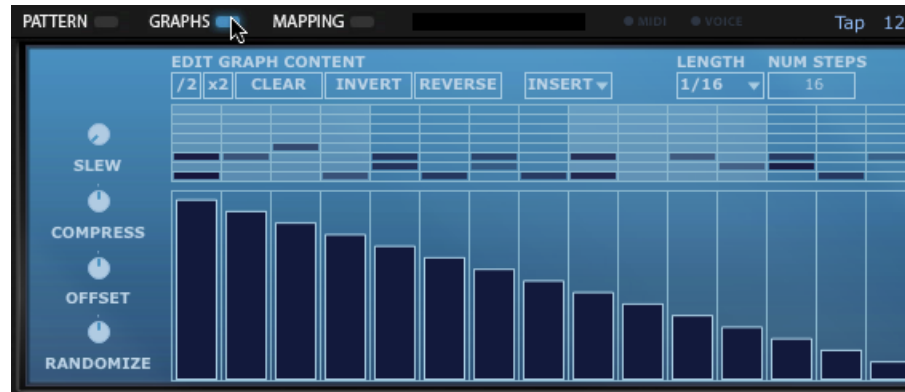


Right-click on a step to reset its value to the default. You can also paint across multiple steps with the right mouse button held down in order to reset sequential values.



Click and drag while holding down the ALT key to draw a 'line' of graph values.

4.5 Additional graph controls



/2, X2

The **/2** and **X2** buttons operate on the entire graph lane, and stretch or expand the duration of the sequence of values. The **/2** button expands the first half of the graph value sequence to double the length so that its duration is the entire pattern length. The **X2** button compresses the graph value sequence to half the length, and repeats it to fill the entire length of the pattern.

Clear

Clicking this button clears all graph values - all values are restored to the default, maximum, value.

Invert

Clicking this button inverts all graph values about the middle value.

Reverse

Clicking this button reverses the graph sequence.

Insert

The **Insert** drop-down menu provides a number of useful graph automation shapes to insert onto the lane.

Note: Using a shape from this menu results in overwriting all existing values in the graph lane.

Length

The **Length** setting, like the **Length** setting in the Pattern page, dictates the length of each step. Even though graphs are part of a pattern, they can feature step lengths that differ from the 'parent' pattern. In fact, each of the 4 graphs in a pattern feature individual Length settings.

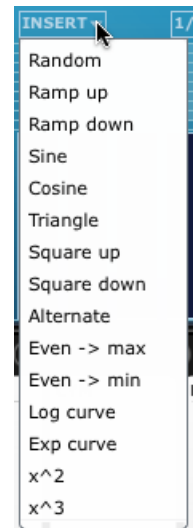
Num Steps

This parameter sets the length of the active graph lane. Each of a pattern's 4 graphs feature individual **Num Steps** settings.

Slew

The **Slew** control adds smoothing between graph values, so that any parameter changes between steps occur gradually rather than abruptly (provided that the affected parameters are continuous controls, rather than multi-position switches such as the **Mode** control in the Drive or Filter sections).

Note: This control operates differently to the neighbouring **Compress**, **Offset** and **Randomize** controls - its effect is non-destructive and it simply sets the amount of smoothing, rather than applying an amount and springing back to 0.



Global edit controls

The **Compress**, **Offset** and **Randomize** controls are used to adjust multiple graph values simultaneously.

Adjusting any of these controls results in destructive edits to the graph values in the currently viewed graph. If a selection of steps exists on the track, the effect is applied only to the selected steps.

When the control is released, it springs back to the default position (with value 0).

Compress

As the **Compress** control is turned to the right, it gradually increases all graph values towards the maximum value, effectively 'compressing' the range between the maximum and minimum value. If the control is turned to the left, graph values are reduced towards the minimum value.

Offset

The **Offset** control adds the same value to all current values for the relevant graph.

Randomize

The **Randomize** control adds a random value to all graph values that is between 0 and the current value of the control. The value can be positive or negative, depending on whether the Randomize control is turned to the right or to the left.

5 Mapping page and Learn mode

Tremor features a system for mapping its parameters to external MIDI continuous controllers (CCs) or automation parameters from your host DAW. While the Graphs page provides *step-based* parameter automation, Tremor's mapping system is intended for *continuous* automation of parameters. It is useful in the following situations:

- continuous control of parameters during real-time use or within a larger host project when running Tremor as a plugin
- remote control of many aspects of Tremor's operation, such as the Transport functions and **Swing** control

Mappings are stored with presets. You can choose not to load mappings stored in presets by enabling the **Lock** button on the **Mapping page**, which preserves the current set of mappings when loading presets.

Using MIDI CCs

MIDI CC messages have limited resolution (128 steps) but hardware controllers which transmit them tend to be cheap and accessible. Tremor's MIDI CC mapping function is described in the [next section](#).

Using host automation

Host automation parameters are messages that tend to feature higher resolution. Although hardware controllers that transmit them tend to be more expensive, you can draw high-resolution continuous automation curves alongside tracks in most host DAWs. See the [Host automation mappings](#) section for details on this type of mapping.

Mapping page

The **Mapping page** in the LCD is used during the host automation mapping process, and additionally for managing all mappings (including those for MIDI CCs). It is also the location for the **Send** function which dictates whether note events are transmitted from Tremor's MIDI output (VST plugin and standalone only).

Switch the LCD to the Mapping page using the **Mapping** page switch.

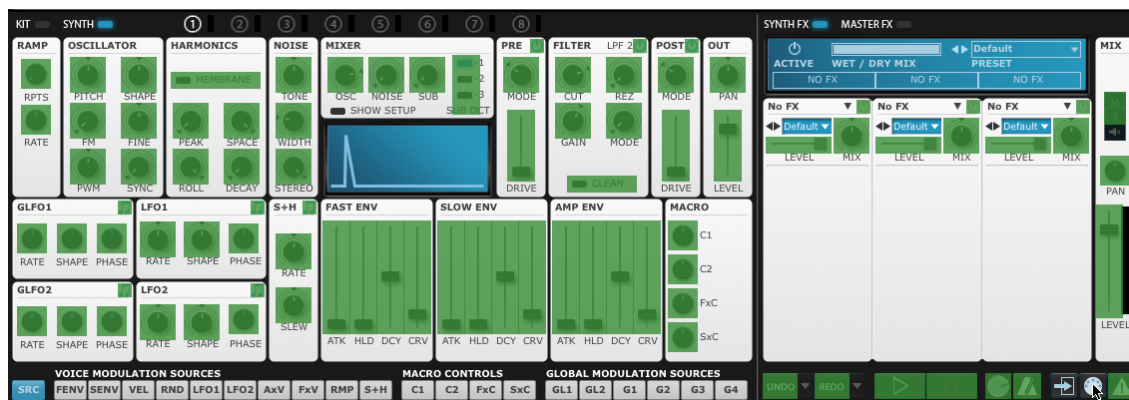


5.1 MIDI CC mappings

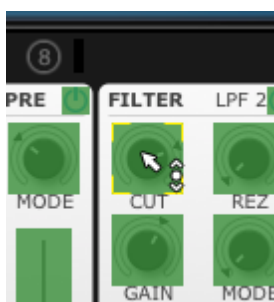
Tremor's Learn system allows you to map Tremor parameters to MIDI CCs (continuous controllers).

MIDI CCs offer a range of 127 'steps' from minimum to maximum. You can typically send them from hardware controllers or from 'drawn' sequences in your DAW/sequencing host.

Mapping a MIDI CC to a control



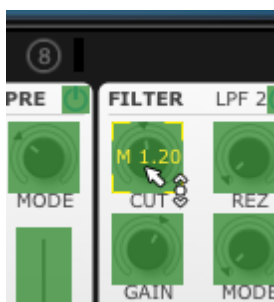
1. Click the Learn button to enter Learn mode. Parameters in Tremor which can be mapped to MIDI CCs are highlighted in green. Note that no TransMod modulation source is currently selected.



2. Click the parameter you want to map on the Tremor interface.



3. Move the physical MIDI CC knob, slider or other controller you want to use.



4. The parameter is now mapped. The MIDI channel and CC number are overlaid on the control.



5. Click the Learn button again to exit Learn mode.

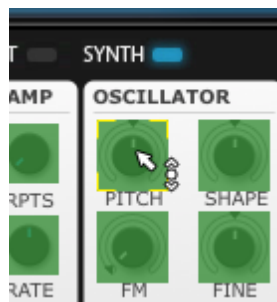
Mapping a MIDI CC to a control's modulation depth for a TransMod source



1. Click the desired TransMod modulation source button.



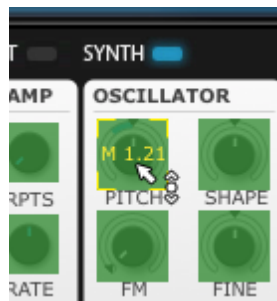
2. Click the Learn button to enter Learn mode.



3. Click the parameter you want to map on the Tremor interface.



4. Move the physical MIDI CC knob, slider or other controller you want to use.



5. The parameter's modulation depth for the current TransMod source is now mapped. The MIDI channel and CC number are overlaid on the control.



6. Click the Learn button to enter Learn mode.



7. Click the Mapping page button. You will notice that both the mappings created above are shown in a list. In the Name column, the 2nd entry indicates that the Pitch control is mapped within the Voice LFO2 TransMod modulation source.

5.2 Host automation mappings

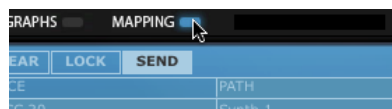
Host automation parameters generally offer higher resolution than MIDI CCs.

They can be drawn graphically in most DAWs/sequencing hosts, or recorded with a dedicated automation controller. Such controllers are usually dedicated devices that integrate specially with the host.

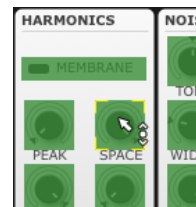
Mapping a host automation parameter to a control



1. Click the Learn button to enter Learn mode. Assignable controls are highlighted in green.



2. Click the Mapping button to display the Mapping page. This page contains 32 buttons which represent the available host automation parameters.



3. Click the Tremor control that you want to map to a host automation parameter.



4. Click the required host parameter number button. The Tremor control is mapped to the host parameter, with the host parameter number overlaid on the control.



5. Click the Learn button again to exit Learn mode.

Mapping host automation to a control's modulation depth for a TransMod source



In order to map a host automation parameter to a modulation depth for a TransMod modulation source, proceed as above, after selecting a TransMod source first - such as LFO2 in this example.

5.3 Mapping page



Tremor's Mapping page features deeper functionality for mappings created for MIDI CCs and host automation parameters.

Mapping table

All current MIDI CC and host automation mappings are listed in the Mapping table.

Clear

Click in the Clear column to remove an assignment.

Source

The Source column shows what is assigned to the parameter - either a MIDI channel and CC number, or a host automation parameter number.

Path

The Path column displays the part of Tremor containing the mapped control – whether it is a global control (such as the Master gain control) or within a specific voice engine.

Name

This column displays the name of the assigned parameter.

Min, Max

These columns allow you to define the minimum and maximum value of the parameter across the range of the MIDI CC range of 0-127.

Type

By default, all assignments are 'Continuous' – the parameter's value follows the incoming MIDI CC values continuously. There are 3 other possible settings for this column, and are only suitable for mapping button controls in Tremor to MIDI CCs.

Momentary

The parameter is set to its maximum value while the incoming MIDI CC is at a value of 127.

Latching

Every time the MIDI CC reaches a value of 127, the assigned control toggles between Min and Max values.

Trigger

When the incoming MIDI CC reaches the maximum value (127), the assigned parameter is set to its maximum value. The assigned parameter does not respond to any MIDI CC value other than 127.

Foc. (Focus)

This setting is only available for engine-specific controls. It implements the mapping on the currently 'focused' element's control. For example, enabling the Focus setting for an engine's **Pitch** control results in the mapping being active on the currently focused engine. If it is disabled (this is the default state), the mapping is absolute, to the specific engine of the mapped parameter.

The Focus setting is unavailable for 'global' controls such as the Master Out **Level** fader.

Mapping context menu

Right-click in any column of a mapping to display the mapping context menu. This menu provides a number of functions with which to manage the currently set up mappings.

Remove mapping

This function clears the selected mapping.

Collapse/Expand column

This function collapses or expands the column underneath the mouse when the context menu is invoked, depending on its current state. The 'Foc.' (Focus) and Clear columns cannot be collapsed or expanded. It can be useful to collapse columns if you want to minimize the amount of scrolling required within the panel.

Collapse all columns, Expand all columns

These functions collapse or expand all columns (except the Clear and Focus columns).

Invert range

This function swaps the Min/Max values for the selected mapping, inverting its range.

Reset min, Reset max, Reset min and max

These functions reset the Min/Max values to the default values associated with the control.

Other Mapping page controls

Auto

With **Auto** enabled, any MIDI or host automation received results in any related mapping being selected.

Clear

The **Clear** button deletes all current MIDI CC/host automation mappings.

Lock

This button locks all current mappings so that they are not overwritten by loading a new preset.

The **Lock** mappings button does not apply when using the **Load** function in the Mapping page or when using the **Reset Tremor** function, in the **Tremor menu**, to return a default preset which contains different mappings.

Send

This button enables or disables note events from Tremor's sequencer being sent to the MIDI output. The button is enabled by default, meaning that notes are transmitted from the MIDI output.

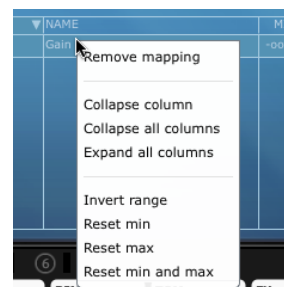
This button's state is preserved as the default when you next initialize Tremor. The state is also saved within Tremor presets (and when saving a host session containing the Tremor plugin). When a preset is loaded, its Send button state does not change the default initialized setting.

Load

This button allows you to load any mapping setups previously saved using the **Save** button. The **Load** function overrides the **Lock** function for any existing mappings.

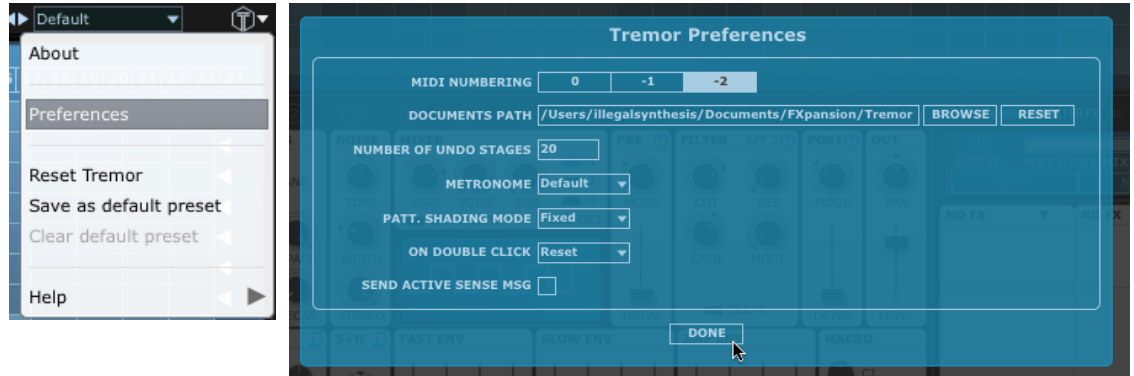
Save

The **Save** button allows you to save the current mapping setup to disk for later recall using the **Load** button.



6 Tremor Preferences

To adjust the Tremor Preferences, use the Preferences item in the Tremor menu at the top-right of the Tremor interface.



Octave numbering

Different MIDI devices and software often have different MIDI octave numbering conventions. The lowest octave in the MIDI note range can be referred to as octave 0, -1 or -2. This preference is provided so that you can set the MIDI octave numbering for your own requirements.

Documents path

This is a disk location used by Tremor for things like sampled audio, as well as user presets for FX and so on. It defaults to your user documents path:

Mac: **<user>/Documents/FXpansion/Tremor**

Windows: **C:\Documents and Settings\<user>\My Documents\FXpansion\Tremor**

You can Browse to and specify any location using this preference. Click the Reset button to change this setting back to the factory default.

Number of Undo stages

This setting defines the number of available Undo stages.

Note: More Undo stages use more RAM!

Metronome

This drop-down menu allows you to choose from a range of metronome sounds to use as a 'click' while recording sequences. You can add your own metronome sounds manually as follows:

1. Create a sub-folder with the desired metronome name within the following folder:

Mac: **Library/Application Support/FXpansion/Tremor/System/Metronomes**

Windows: **Program Files\FXpansion\Tremor\System\Metronomes**

2. Copy 2 audio files into the folder – the first must be called **bar.wav**; the second must be **beat.wav**.

3. On the next relaunch of Tremor, the metronome you added is available in the Preferences panel's Metronome drop-down menu.

Pattern shading mode

This setting specifies the type of shading used for grid steps in the pattern page. Some of the shading modes dynamically react to the setting of the Step Length parameter.

Fixed

The shading of steps changes every 16 steps, regardless of the Step Length setting.

Adaptive

The shading of steps changes on every beat. With a 1/16 Step Length, the shading changes every 4 steps; with a 1/16T setting, the shading changes every 6 steps, and so on.

Cyclic

The shading of steps alternates every measure: for a Step Length of 1/4 or 1/4T, the shading changes every 4 steps; for 1/8 or 1/8T settings, the shading changes every 8 steps, and so on.

Off

All steps are the same colour – there are no differences in shading.

On double click

This setting allows you to change the behaviour when double-clicking synthesis parameters.

Reset

This is the default setting, and causes a double-click to reset a control to its default value. You can also use the **Reset control** function on the **control context menu**.

Edit

This setting allows you to invoke the **Edit value** function found on the **control context menu**.

Send Active Sensing messages

Certain hosts such as Ableton Live can deactivate the Tremor plugin after a period of inactivity from the sequencer, and do not reactivate the plugin when a pattern containing events is started, due to relying on an explicit MIDI note input into the host. This setting causes Tremor to send Active sensing messages to the host to prevent it from being deactivated. It is not necessary to enable this setting unless you use Ableton Live or instructed to do so by technical support.