



MASSIVE X

Stereo Effects

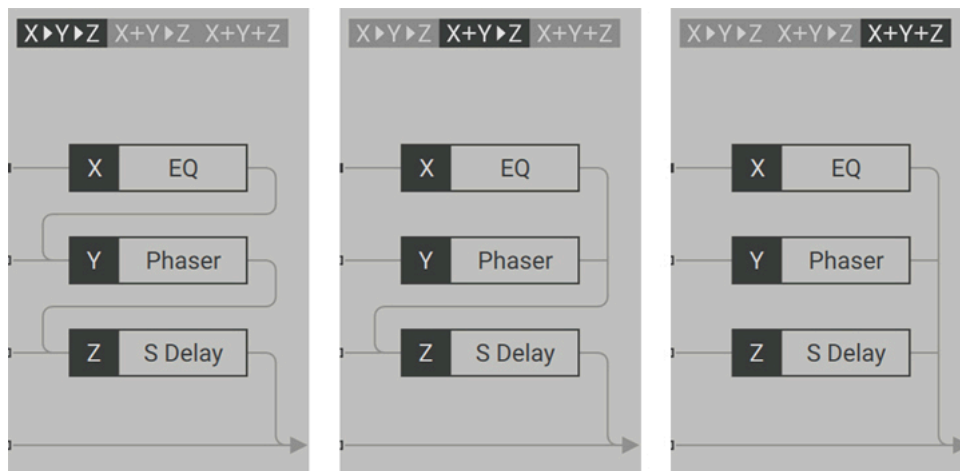
 **NATIVE INSTRUMENTS**

THE FUTURE OF SOUND

1. STEREO EFFECTS

Stereo Effects are the final stage that the signal passes through before reaching the main output. A wide range of effects are offered, from time-based effects like flanging, phasing and chorus, to spatial effects that allow you to adjust and expand the stereo field. Versatile distortion, saturation and overdrive effects can be produced, and combined with a true stereo reverb or delay.

Effects can be loaded into three slots (**X**, **Y**, **Z**), and three routing options offer different ways for the effects to be mixed: **X > Y > Z** chains the three effects, **X + Y > Z** sends the sum of the X and Y effects to the Z effect, and **X + Y + Z** sums all three effects.



Stereo Effects Routing options

The following section provides an overview of the Stereo Effects section:

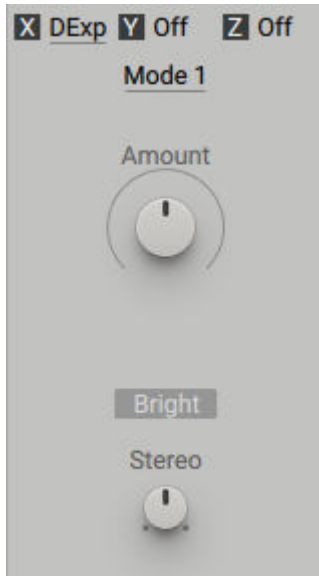


- (1) **Stereo Effect X Menu:** Selects a Stereo Effect for slot **X**. The active Effect panel on display is highlighted with an underline.
- (2) **Stereo Effect Y Menu:** Selects a Stereo Effect for slot **Y**.
- (3) **Stereo Effect Z Menu:** Selects a Stereo Effect for slot **Z**.
- (4) **Parameter Controls:** This area hosts a range of buttons and knobs that control different parameters of the effect. Each Stereo Effect has a set of controls that relate to its behaviour and operation.

1.1. Dimension Expander

The Dimension Expander is a Chorus with stereo expansion capabilities, that can add an extra dimension to your sound. The results range from subtle enrichment to a shimmering, expanded stereo sound.

The Dimension Expander contains the following parameters and controls:



- **Modes:** Selects one of four modes of the effect (1 - 4), ranging from subtle to strong.
- **Amount:** Adjusts the strength of the effect.
- **Bright:** When on, the character is neutral. When off, the effect produces a slightly filtered sound.
- **Stereo:** Morphs the output of the device from mono to stereo. Turn the control fully right for a complete stereo effect.

1.2. Equalizer

The Equalizer is used to balance and shape the frequency content of a sound. Internal algorithms make this equalizer sound particularly musical.

The Equalizer contains the following parameters and controls:



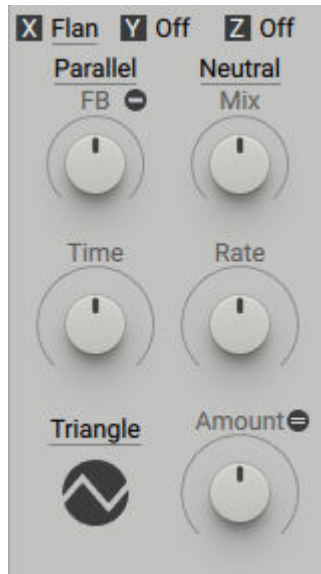
- **Freq:** Sets the frequency of the high shelf filter (1.2kHz to 23.6kHz).
- **Hi Gain:** Adjusts the level control of the high shelf filter (-24dB to +24 dB). Center position is 0dB.

- **Freq:** Sets the frequency of the parametric mid band (90Hz to 14kHz). Center position is 2.14 kHz.
- **Mid Gain:** Controls the boost factor of the mid band (from -24dB to +24 dB). Center position is 0dB.
- **Q:** The Quality Factor (Q) gives you control over the sharpness or bandwidth of the filter. A wide and round setting is produced when the control is turned left. Turning the control right creates a narrow resonance.
- **Low Gain:** Adjusts the level of the low shelf filter (-36dB to +18 dB). Center position is 0dB. The frequency range is dependant on the level boost, sitting between 120Hz and 260Hz.

1.3. Flanger

The Flanger is a sonically diverse module, featuring seven different play modes, ranging from classic stomp box-style to wild and complex flange effects. The delay range of typical flanger is expanded, allowing you to also create unusual and unique effects. To achieve a classic flanger sound, the range must be chosen carefully.

The Flanger contains the following parameters and controls:



- **Modes:** Selects one of seven modes that determines the type of modulation and the internal routing of the flanger. The available parameters vary depending on the chosen mode.
 - **Parallel:** The LFO modulation is identical for the left and right channels while the audio inputs are still true stereo. This mode is best suited for the classic stomp box flanger sound.
 - **Wide:** The LFO modulation of the left and right channel is slightly offset, resulting in a wider, stereophonic sound.
 - **Inverse:** The LFO modulation is shifted by 180 degrees (inverse modulation) on one side, resulting in an even wider stereophonic sound.
 - **Difference:** The internal signals are mixed so that the output stages show the sum and the differences of this operation. This results in a sound with a metallic character, that is most clearly heard when the **Time** control is set to a short delay time. The **Triangle LFO Shape** is recommended for this mode.
 - **Cross:** The LFO uses inverse modulation. The internal signals are mixed and the output stages show the sum and the differences of this operation. As Cross mode relies on a spe-

cific, internal modulation to achieve its result, the **LFO Shape** is predefined and can not be changed. While it shares similarities to Difference mode, it creates stable frequency sidebands resulting in less movement and sonic wobble.

- **Cross Astral:** A variation of Cross and Difference modes, using more complex internal modulation. The **LFO Shape** is fixed and the shape menu is removed. This mode can be particularly effective for raw pads or pure waveforms.
- **Manual:** In Manual Mode, independent Time control for the left and right channels is available and the internal LFO modulation is removed. Applying different modulations to the left and right sides can produce dramatic results.
- **Mix:** Blends between the input signal and the effect signal, determining how much phasing is applied. Turn the control fully left to bypass the effect. At center position, the largest frequency gaps are created. Turning the control fully right creates a pure flanger effect.
- **FB:** Sets the amount of signal that will feed back from the delays output into the delays input. The more feedback, the more the frequency peaks and gaps are modeled out of the sound spectrum.
- **FB +/-:** This switch heavily influences the overall characteristics of the flanger. It determines whether the feedback signal is mixed in with normal or inverse polarity. Negative feedback produces uneven harmonics from the comb filter circuit. Positive feedback creates even and odd harmonics. Cross and Cross Astral modes do not offer **Feedback** polarity.
- **Time:** Sets the delay time or fundamental frequency of the flanger. The LFO modulation is applied around this center frequency. In Manual mode, independent **Time** control of the left and right channel is available.
- **Rate:** Sets the Modulation Rate of the LFO.
- **LFO Shape:** Selects one of three modulation shapes (Triangle, Logarithmic, Sine). The LFO shapes are tweaked to be musical rather than mathematically perfect shapes. Besides the standard **Triangle** and **Sine** shapes, a **Logarithmic** shape is an option to recreate classic flanger sounds.
- **Amount:** Sets the amount of **Time** modulation by the LFO. Classic flange sounds can be achieved with lower **Amount** settings.
- **Constant Amount Button:** When deselected, the LFO amplification applied by the **Amount** control works in a typical manner. A faster LFO rate setting will apply stronger detuning to the comb filter. When **Constant Amount** is active, the amount of detuning applied is fixed, regardless of the LFO rate. This leads to very interesting pitch shifting effects when using internal Triangle modulation with high **Feedback** values.

1.4. Nonlinear Lab

The Nonlinear Lab offers a multitude of overdrive and distortion characteristics. Several optional speaker cabinet simulations further expand the sonic flexibility of the Nonlinear Lab. The available parameters and controls are dependant on the chosen Drive type and Cabinet.

The Nonlinear Lab contains the following parameters and controls:



- **Drive type:** Selects one of three different HQ saturator/distortion models (Hard Clip, Soft Clip, Overdrive).

Hard Clip: A standard tanH (=hyperbolic tangens) saturator. This model offers great standard distortion that works particularly well for acidic sounds.

- **HP Pre:** Adjusts the frequency of the high-pass filter, applied to the input signal before the saturator. Use this control to avoid overloading the saturator stage with excessive bass.
- **HP Post:** Frequency of the high-pass post-stage (after saturator). Adjusts the bass output of the saturator.
- **Comp:** Adjusts the output level compensation for the **Drive** amount. The output level of different **Drive** amounts is highly dependent on the input signal. The **Comp** control helps to keep the output level under guard.

Soft Clip: The most gentle distortion mode of the Non Linear Lab. It works well for a wide number of signals like bass, guitar and drum sounds. This mode offers three different models of different sonic flavors.

- **HP Pre:** Adjusts the frequency of the high-pass filter, applied to the input signal before the saturator. Use this control to avoid overloading the saturator stage with excessive bass.
- **Models:** Selects one of three sub models for this mode (Glue, Warm, Hot). **Glue** offers compression with relatively subtle distortion. **Warm** offers compression with medium distortion while the **Hot** setting features compression with strong distortion.
- **Comp:** Adjusts the output level compensation for the **Drive** amount. The output level of different **Drive** amounts is highly dependent on the input signal. The **Comp** control helps to keep the output level under guard.

Overdrive: An extreme, intense distortion effect, that produces exaggerated sonic results.

- **HP Pre:** Adjusts the frequency of the high-pass filter, applied to the input signal before the saturator. Use this control to avoid overloading the saturator stage with excessive bass.
- **Inertia:** Determines how fast the loading of the stage occurs, depending on the frequency. Turn the control fully right for the fastest response.
- **Comp:** Adjusts the output level compensation for the **Drive** amount. The output level of different **Drive** amounts is highly dependent on the input signal. The **Comp** control helps to keep the output level under guard.

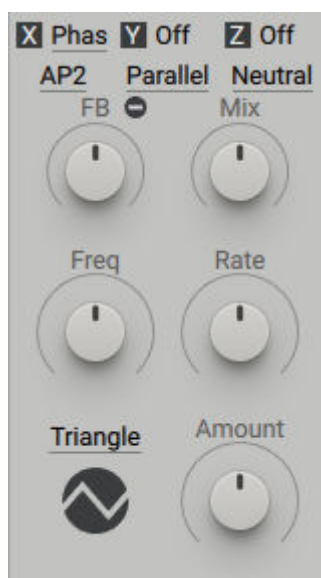
- **Stereo:** Selects between Mono and Stereo. In **Mono**, the left and right sides are mixed together and sent to the monophonic saturator and cabinet stages. The dry path remains stereo. In **Stereo** mode, the device operates in true stereo.
- **Drive:** Controls how hard the saturation stages are driven, from subtle to extreme.
- **Mix:** Blends between the unaltered input signal and the affected output of the Lab.
- **Cabinet Stage:** Selects one of six different guitar cabinet simulations (California, West Coast, Classy, Hi Gain, Crank, British). The cabinets drastically shape the overall colour of the output. Bypass the cabinet stage by selecting **Off**. Without a cabinet selected, the distortions may sound raw, and are particularly suitable for raw synth sounds.
- **Bass:** Finely adjusts the bass response and boominess of the cabinet model.
- **Vari:** Selects one of three sub-models of the cabinet (A, B, C).

1.5. Phaser

The Phaser can produce a wide array of sonic results exceeding the conventional limits of standard phasers. Phasing is a modulation effect that sends a signal through a series of allpass filters. Each filter alters the phase of a set frequency, and an LFO is used to modulate this phase shifting, producing a characteristic sweeping sound. When the effect signal is mixed with the original, the out of phase frequencies create notches and peaks in the frequency spectrum. The number of all-pass filters (**Stages**) determines the amount of notches and peaks, and the **Feedback** control sends the effect signal back through the series of allpass filters, increasing the resonance for an even more intense sound.

For a simple and classic guitar stomp-box style phaser, a relatively low Feedback setting should be used, with a positive polarity setting. For a sonically complex sound, use a higher number of allpass stages. Fine-tuned coloration settings are predetermined, with each option producing varied sonic characteristics typically found in different phaser effects. The wide sonic range and potential combinations makes the Phaser effect highly powerful and versatile.

The Phaser contains the following parameters and controls:



- **Stages:** Selects the number of allpass (AP) filter stages (2, 4, 5, 6, 8). Additionally there are two modes that offer Barber Pole phasing. In these modes the traditional LFO modulation con-

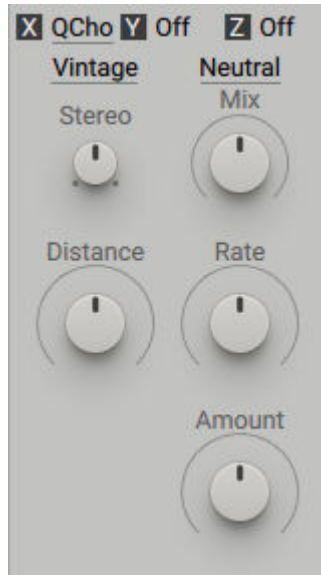
trols are replaced by a **Freq** control that is used to create infinite upwards-downwards motion through the frequency spectrum. The two Barber modes differ in range. The AR mode features audio rate modulation.

- **Modes:** Selects one of five modes that determines the type of modulation and the internal routing of the phaser. The available parameters vary depending on the chosen mode.
 - **Parallel:** The LFO modulation is identical for the left and right channels while the audio inputs are still true stereo. This mode is best suited for the classic stomp box phaser sound.
 - **Wide:** The LFO modulating the flanger is identical for the left and right side, but one side is slightly offset, resulting in a wider, stereophonic sound. The modulation itself remains monophonic.
 - **90°:** The LFO phase is shifted by 90 degrees on one side, producing a bigger difference between the left and right channels. This results in a wider, more stereophonic sound.
 - **180°:** The LFO modulating the flanger is shifted by 180 degrees (inverse modulation) on one side, resulting in an even wider stereophonic sound. In Barber mode the movement is inversed between both sides.
 - **Manual:** In Manual mode, the internal LFOs are switched off and you have individual control over the frequency parameter of both channels. Applying different modulations to the left and right sides produces dramatic effects.
- **Color:** Selects one from three different settings (Neutral, Stomp, Narrow) that determine the coloring of the phaser. For classic stomp-box behavior, the **Stomp** setting is ideal. **Narrow** does not influence the spectrum around the allpass peaks as strong as the other settings, making it suitable for darker, bass-heavy sounds. Use the **Neutral** setting to produce a neutral tone.
- **Mix:** Adjusts the amount of phasing applied. Turn the control fully left, to bypass the effect. Center position typically produces the maximum notch effect. Turned fully right, the pure phaser is heard. The best position will be dependant on the number of stages, the polarity setting and the desired effect. The sweet spot is very often around the middle or close to fully wet.
- **FB:** Controls how much feedback is applied to the signal. The more feedback the stronger the allpass filters will resonate. This is similar to your typical lowpass resonance filter. The more resonance, the more the frequency peaks, and gaps are modeled out of the sound spectrum. For a classic phaser sound, set the range between 30%-70%.
- **FB +/-:** Switches between Positive and Negative polarity settings, which determine whether the internal feedback is mixed in with normal or inversed polarity. This greatly influences the overall characteristics of the phaser, particularly with stage settings **2** and **4**. Negative feedback produces funky, formant-style sounds. Positive feedback produces round, bass-heavy sounds.
- **Freq:** Determines the basic operating frequency of the phaser. The LFO modulation is applied around this center frequency. In **Barber** mode the **Freq** parameter controls the rate of the upwards/downwards movement through the frequency spectrum.
- **Rate:** Determines the Modulation Rate of the LFO. In **Barber** mode, the Rate of the modulation is controlled by the **Freq** parameter.
- **LFO Shape:** Select one of four modulation shapes (Triangle, Round, Ramp Up, Ramp Down).
- **Amount:** Sets the range of how much the LFO is animating the allpass filters. This control is only available when an LFO is active.

1.6. Quad Chorus

Choruses are used to enrich sounds by adding spatial movement and giving them an ensemble-like quality. The Quad Chorus comes with multiple characteristics and different play modes. The Chorus is true stereo.

The Quad Chorus contains the following parameters and controls:



- **Modes:** Selects one of five modes that determine how the four delay lines are activated and modulated in different ways. The modes are based on the most successful classic chorus effects.
 - **TriVintage:** Modeled after a famous device, this mode use only three of the available four delays. It can reproduce the classic sound of a triphase chorus, but also offers additional controls, expanded ranges and stereo possibilities.
 - **Quadron:** Follows the same principles as TriVintage mode, but is optimized for a stereo signal. It can be used for subtle to over the top chorusing.
 - **Random:** This mode uses random walk generators instead of the internal LFO's. This avoids audible modulation patterns, making it ideal for subtle chorusing.
 - **Even:** Offers a special combination of two synced LFO's, spread and applied to four delay lines.
 - **Manual:** Gives you direct access to the basic core of the algorithm, in this case the four delays. You can use this to create a subtle aural room effects, or modulate it with the LFO's, envelopes or performers. You can access the delay lines by the four controls, labeled **Time Left1, Time Left2, Time Right1, Time Right2**.
- **Flavor:** Selects one from five different settings (Neutral, Light, Controlled, Warm, Dark) that determine the coloring of the chorus. Which flavor fits best is highly dependant on what you want to achieve, but their names suggest the general character of each setting.
- **Mix:** Blends between the input signal and the effect signal, determining how much chorus is applied. Turn the control fully left to bypass the effect. The sweet spot often lies around center position.
- **Stereo:** Adjusts the width of the stereo field. Turn left for a narrow stereo field, and turn right to widen the stereo field of the chorused signal.

- **Distance:** The time distance of the modulated delay lines to the original sound. Turn the control right for longer settings that will result in a recognizable delay effect. It can also produce interesting results for auxiliary modulation when the internal LFOs are not used. The Distance control is not available in **Manual** mode.
- **Rate:** Sets the Modulation Rate of the internal LFOs. The LFO shapes cannot be chosen, as they are an integral part of the models. The Rate control is not available in Manual mode.
- **Amount:** Sets the range of how much the LFO is animating the delay lines. The Amount control is not available in Manual mode.

1.7. Reverb

The Reverb offers a range of modes that mimic different room types and spaces, designed for various kinds of applications.

The Reverb contains the following parameters and controls:



- **Modes:** Selects one from seventeen different Reverb modes (Late, Large Hall, Jazz Hall, Stage, Med Synth, Fat Synth, Reflective, Rave Cellar, Small Early, Small Dense, Micron, Tight, Metolla, Wave, Woosh, Non Linear, Wanderlust), that determines the sound character and behavior of the Reverb effect.
- **Send:** Determines the amount of input signal that will be routed into the reverb engine.
- **Mix:** Blends between the input signal and the effect signal, determining how much of the reverb effect is mixed with the dry signal. Turn the control fully left to bypass the effect, or turn right to mix in the reverb.
- **Size:** Adjusts the size of the simulated room, or reverb effect. This control affects the duration of the reverb tail.
- **Color:** Adjusts the coloration of the reverb using an internal filter to subtly change the sound from dull to bright.
- **Delay:** Determines the pre-delay of the reverb effect. No delay is added when the control is turned fully left.
- **Chorus:** Applies a chorusing effect to the reverb. This can add movement and depth to the sound, producing a lively reverb that evolves over time.

1.8. Stereo Delay

The Stereo Delay offers individual time control over the left and right channels, making it an extremely powerful and versatile stereo delay effect.

The Stereo Delay contains the following parameters and controls:



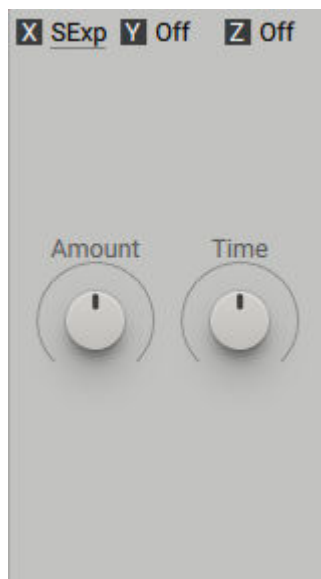
- **Route:** Determines if the internal feedback is in Parallel or Cross mode. When **Parallel** is selected, the output from the left delay is fed into the left delay input and the output from the right delay is fed into the right delay input. They do not interact with each other. When **Cross** is selected, the output from the left delay is fed into the input of the right delay, and the output from the right delay is fed into the left delay input. This creates different reflection patterns that are typically longer and more complex. By default, Route is set to Parallel.
- **Color:** Selects between three different characteristics (Neutral, Warm, Hot). With a **Neutral** setting, the internal EQ filters have no resonance and there are almost no nonlinearities, making this the most clean sounding with a neutral character. With a **Warm** setting, the internal EQ filters have some resonance, creating a warm character sound. **Hot** has strong nonlinearities and the internal EQ filters have a strong resonance that is very audible in the final sound.
- **FB:** Determines the amount Feedback applied to the signal. Applying more Feedback increases the number of echoes. Each one of these repetitions will gradually fade out as new ones are produced, with shorter delay times typically causing reflections to disappear faster than longer delay times. The Stereo Delay rescales the reflection levels so that the decay is time independent.
- **Mix:** Blends between the input signal and the effect signal. Turn the control fully left to bypass the effect, and right to mix in the delay.
- **Sync:** Selects one of two basic time manipulation modes (Sync, Free). In **Sync** mode, the fader scans through five individually assignable, synchronized times in a quantized manner. Adjust the individual dominators and denominators by clicking a number and dragging the mouse up or down. This delay's sophisticated algorithms enables you to jump from one time division to another without audio artefacts. This also applies when the host tempo is changing the master tempo of the effect. This makes it possible to modulate the faders. When **Free** is selected, the stepped fader(s) is replaced by a continuous fader, operating in a manner typical to vintage delay.

- **Mono:** When activated, **Mono** modulation is switched on. The effect remains in stereo, but the delay time is controlled by a single fader for both channels.
- **Latch:** This button enables you to recall the delay times with note-on messages received from the synth engine. This means you will only hear the change of delay times, when a new note is pressed. This enables you to synchronize the delay changes to actual notes playing and is available in both **Sync** and **Free** modes.
- **Send:** Determines the amount of input signal that will be routed into the delay engine.
- **Flutter:** Moves the delay time slightly, creating a more lively effect and avoiding fixed phase relationships to the input signal. This control can be likened to a subtle chorusing.
- **Color:** Adjusts the internal filters of the delay circuitry. Turn the control left for a strong lowpass effect that becomes weaker towards center position. At center position the color is neutral. Turn the control right to increase the highpass filtering.

1.9. Stereo Expander

This module is the next iteration of the Dimension Expander found in the original MASSIVE. It is cleaner, more versatile and less CPU intensive than its predecessor. The Stereo Expander can be used to create room-style spatial effects for a wide range of mono and stereo sound sources. It has a clear, diffused character sound.

The Stereo Expander contains the following parameters and controls:



- **Amount:** Adjusts the strength of the effect.
- **Time:** Adjusts the delay time of the effect. Turning the control right increases the **Time** parameter, making the sound appear more distant.

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