

SendBlender SendBlender Pro

User Manual
Version 1.2



About SendBlender	3	Level Matching	10
About SendBlender Pro	4	Crossfade Curves	12
Basic Controls	5	Equalizer [PRO ONLY]	13
Advanced Controls [PRO ONLY]	6	Routing Examples	14
Signal Routing	7	Application Examples	17
Routing Procedures	8		

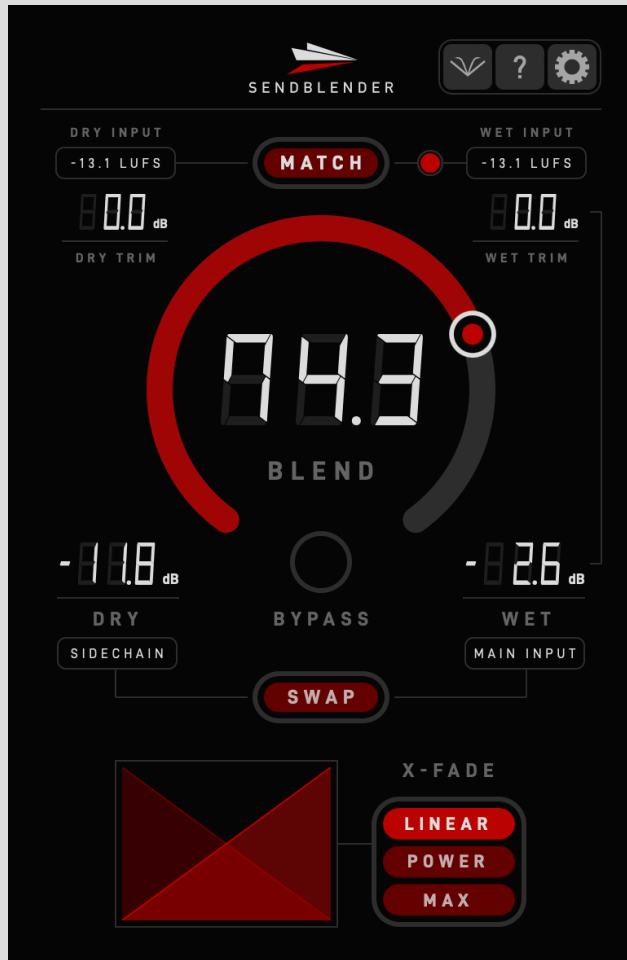


Figure 1: SendBlender user interface

SendBlender provides the “missing mix control” for your parallel processing chains.

The primary use cases it was designed to address are those where more than one processor is being applied in parallel. Often times this is either compression or saturation with an EQ following the primary processor. The compressor or saturator may have a mix control, but that is of limited value when additional processing is being applied—generally you’ll want to EQ the compressed signal directly, which means losing out on the mix control.

The “old school” way of blending these signals is to use the channel faders. Inevitably, overall level tends to creep up while blending in this way. This obscures the effect of the processing as the level increase tends to be convincing on its own.

SendBlender addresses these challenges by providing a mix control that can be applied to the entire parallel FX chain and dialed in without any increase in level obscuring the result. This enables both better and quicker processing decisions.

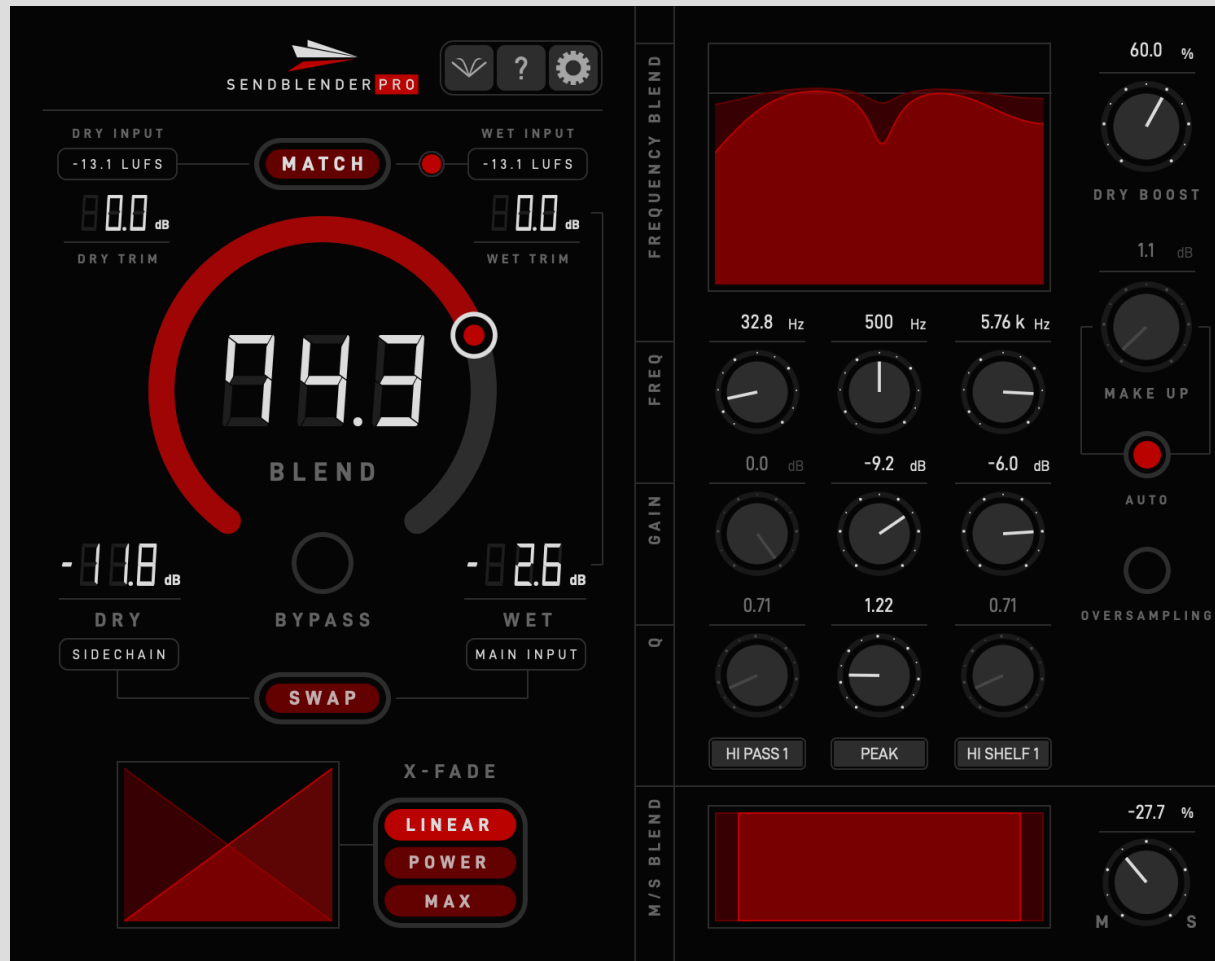


Figure 2: SendBlender Pro user interface

SendBlender Pro extends the basic concept of SendBlender into the critical dimensions of frequency balance and stereo image, making it a “multi-dimensional mix control”, featuring:

- A cut-only EQ section with a special “dry boost” compensation circuit that allows reducing select frequencies in the wet signal while also boosting them in the dry signal, avoiding any unwanted shift in overall tonal balance.
- A mid/side section that can reduce the proportion of wet signal in either the sum or difference channel.

These functions provide powerful ways to manipulate the impact of your other processors, both for subtle fine-tuning and in the execution of more radical effects—well beyond what the standard version was designed for.

1. Level Match Sets the wet trim (6) such that the wet & dry input signal levels (displayed in the indicators to left & right) are equal. See the Level Matching section for more information.

2. Blend Sets the balance of wet & dry signal. 100% is full wet, 0% is full dry. The actual mix of wet & dry signals depends on the selected crossfade curve (7). †

3. Dry Gain Dry signal attenuation applied to achieve the wet/dry blend. Can be adjusted directly. Changes are applied via the Blend control (1), which is primary. †

4. Swap When enabled, the signal inputs are switched so that the wet signal is pulled from the sidechain input, & the dry signal from the main input. This may be needed for special cases where the standard signal routing may be undesirable.

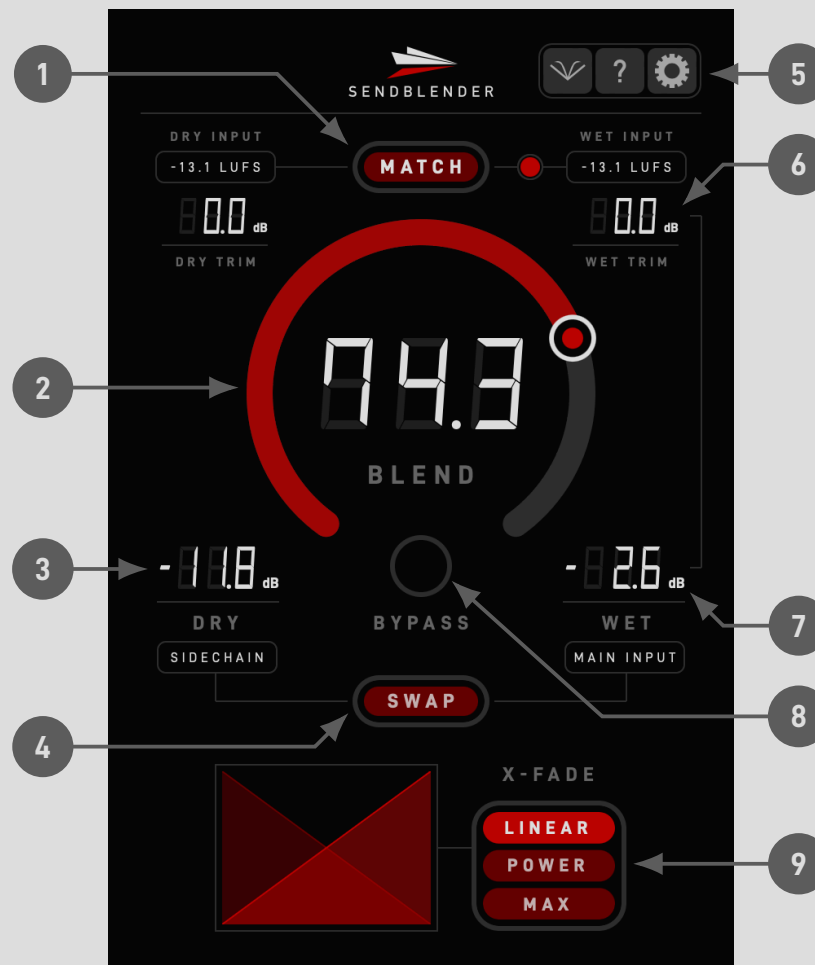


Figure 3: Main section controls

† Digital display values can be modified by dragging, or edited directly by clicking.

5. Toolbar Manual (left) opens the manual. Help (center) enables tooltips. Settings (right) opens the settings menu.

6. Wet Trim Gain applied to the wet input before any other processing. Intended for level matching the dry signal. †

7. Wet Gain Wet signal attenuation applied to achieve the wet/dry blend. Can be adjusted directly. Changes are applied via the Blend control (1), which is primary. †

8. Bypass When enabled, the dry signal is heard on the output so processing impact can be evaluated, bypassing the entire wet FX chain. With the default Swap (3) setting, this routes the sidechain input to the output.

9. X-Fade Curve Switches the curve used to determine the wet/dry attenuation from the Blend amount. See the Crossfade Curves section for more information.

- 1. EQ Band Frequency** Adjusts the frequency for the band.
- 2. EQ Band Gain** Adjusts the gain for the band (shelf & peak filters only).
- 3. EQ Band Q** Adjusts the bandwidth (Q) for the band (peak filters only).
- 4. EQ Band Mode** Sets the filter type for the band. Available types differ for each band, and include:
 - HI PASS 1 6dB/oct high pass
 - HI PASS 2 12dB/oct fixed Q (Butterworth) high pass
 - LO SHELF 1 first order low shelf
 - LO SHELF 2 second order fixed Q low shelf
 - PEAK variable Q bell filter
 - LO PASS 1 6dB/oct low pass
 - LO PASS 2 12dB/oct fixed Q (Butterworth) low pass
 - HI SHELF 1 first order high shelf
 - HI SHELF 2 second order fixed Q high shelf

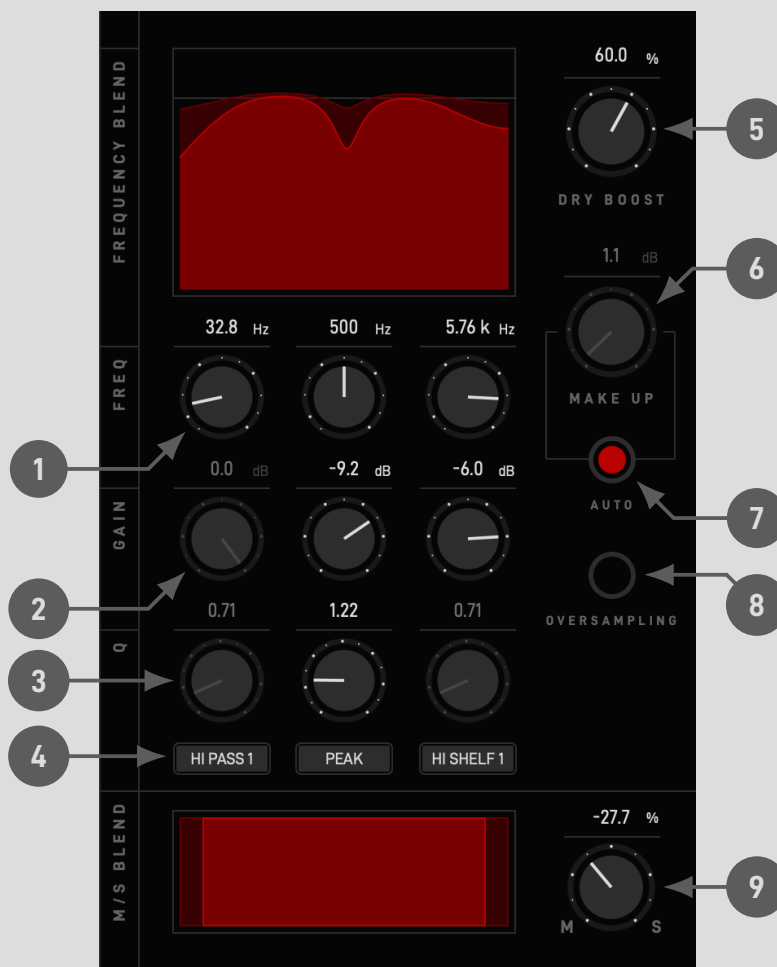


Figure 4: Pro section controls

Note: EQ parameters are discussed further in the Equalizer section.

- 5. EQ Dry Boost** Sets the amount for the dry boost circuit.
- 6. EQ Make Up** Sets the amount of gain applied to the wet signal post EQ. The intention here is to offset any loss in perceived level introduced by EQ.
- 7. EQ Auto Make Up** If enabled, the EQ Make Up (6) amount is determined automatically based on the selected EQ curve (1-4) and EQ Dry Boost (5) level.
- 8. EQ Oversampling** Enables 2x oversampling for the EQ section to reduce cramping of filters at high frequencies.
- 9. Mid/Side Blend** Sets the effective wet/dry blend in the Mid or Side channel. Turning toward "M" reduces the proportion of wet signal in the Side channel. Likewise, turning toward "S" reduces the proportion of wet signal in the Mid channel. At the center, mid/side processing is disabled.

Signal Routing Requirements

For SendBlender to work as intended, the wet and dry signals must be routed correctly. It is important to understand that both the wet and dry signals are routed through SendBlender.

Note that SendBlender requires routing signals differently than you normally would to accomplish parallel bus processing.

In typical parallel bus processing configurations, the dry signal is routed directly to the mix bus/master out (or a group bus). However, for SendBlender to do the blending, it must have access to both signals, which means it must expose two inputs. How this is done depends on the DAW, and is discussed further in this section.

Note that since the dry signal is included in SendBlender's output, there is no need to also route this signal to the mix bus/master out/group bus. In fact, doing so would result in excess dry signal.

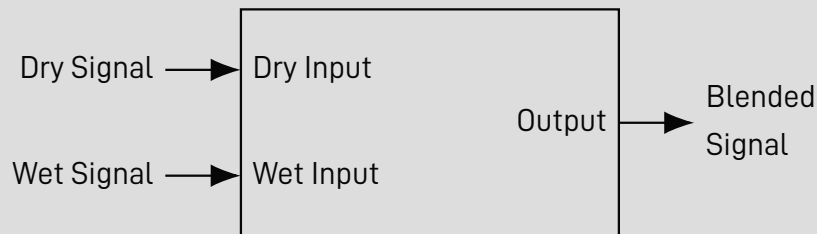


Figure 5: Intended signal routing for SendBlender

Input Configurations

SendBlender always exposes two inputs, but most DAW software only allows plugins one mono or stereo main input, plus an optional sidechain input. Thus, in most DAWs SendBlender uses the sidechain input as the additional signal input. Thus:

If not using Pro Tools, route the dry signal to the sidechain input.

Pro Tools is the exception, both because it limits sidechain signals to mono, and because it has extremely flexible support for multichannel plugin processing. For this reason, the AAX version of the plugin uses multichannel configurations to provide the required number of inputs. When blending mono signals, it also supports using the sidechain (key) input like the AU/VST3 version.

The table below summarizes the default input configurations:

<i>Plugin</i>	<i>Signals</i>	<i>Channel format</i>	<i>Dry input</i>	<i>Wet input</i>
AU/VST3	Stereo	Stereo → stereo	Sidechain	Main input
	Mono	Mono → mono		
AAX	Stereo	Quad → stereo	Front pair	Rear pair
	Mono	Stereo → mono	Left channel	Right channel
	Mono	Mono → mono	Key input	Main input

To accommodate special routing scenarios, the **Swap** function can be used to switch the Dry and Wet inputs.

The way to achieve the correct routing is DAW dependent. The following procedures are intended as a general guide. Note that some DAWs provide multiple ways to configure equivalent routing.

The *Sidechain Routing Procedure* below should be used in most DAWs. Pro Tools users may wish to skip to *Pro Tools Multichannel Routing Procedure*, though note that the sidechain routing procedure can be used when blending mono signals in Pro Tools and has the advantage of not requiring an extra track for blending.

Sidechain Routing Procedure

This assumes the dry signal is already on a track called Dry Track.

1. Create a track for FX processing. We will refer to this track as the FX Track. The channel format for the FX Track should match that of the Dry Track.
2. Insert the FX processors (compressor, saturator, etc.) on the FX Track. Place SendBlender as the last insert on the FX Track.
3. Route the output of the Dry Track to the input of the FX Track. If required by the DAW, ensure input monitoring is enabled for the FX Track.

The wet signal is now routed correctly.

4. Set the Dry Track as the sidechain source for SendBlender.

The dry signal is now routed correctly.

Specific configurations for various DAWs can be found in *Routing Examples*.



Figure 6: Example routing in Logic Pro 11

Pro Tools Multichannel Routing Procedure

This assumes the dry signal is already on a track called Dry Track.

1. Create a track for the wet FX. We will refer to this track as the Wet Track. The channel format for the Wet Track should match that of the Dry Track.
2. Insert FX processors (compressor, saturator, etc.) on the Wet Track.
3. Create a track for blending (the Blend Track). This should have twice as many channels as the Dry Track. If the Dry Track is stereo, the Blend Track must be a quad. If the Dry Track is mono, the Blend track must be stereo.
4. Insert SendBlender on the Blend Track. If the track is a quad, SendBlender will be in “quad/stereo” configuration. If the track is stereo, SendBlender will be in a “stereo/mono” configuration.
5. Route the Blend Track output as desired (e.g. to the mix bus or output device).
6. Route the Dry Track output to the Blend Track input, and enable input monitoring on the Blend Track. If the Blend Track is a quad, the Dry Track should be panned to the front. If the Blend Track is stereo, the Dry Track should be panned to the left.

The dry signal is now routed correctly.

7. Set up a send from the Dry Track to the Wet Track, and enable input monitoring on the Wet Track. The send level should be 0 dB (unity gain).
8. Route the Wet Track to the the Blend Track, and pan it opposite from the Dry Track. If the Blend Track is a quad, the Wet Track should be panned to the rear. If the Blend Track is stereo, the Wet Track should be panned to the right.

The wet signal is now routed correctly.



Figure 7: Example routing in Pro Tools

Loudness And Its Impact

As most mix engineers are well aware, perception of audio signals is heavily influenced by relative loudness. For this reason, signal level must be given careful consideration when making processing decisions. Otherwise, we are likely to conclude our processing improves on the original signal when it may just be an increase in loudness that we are responding to.

This concern around loudness is particularly pertinent when we are blending signals. If the signals are not properly level matched, we will generally favor a blend that leans toward the louder of the two signals, even if that is not the optimal processing for the material. Thus, making good mix decisions somewhat depends on our ability to level match the wet and dry signals.

Level Matching Strategies

Many seasoned mix engineers prefer to level match signals by ear. There are good reasons to prefer the manual approach, including the simple fact that loudness metering (and therefore automated level matching) is not perfect.

There are also subjective aspects to the process of level matching two signals. We all hear differently, and therefore perception of loudness varies from one person to the next. In a mixing context, we may also be more interested in certain elements than others. For example, we may care more about maintaining a consistent vocal level than about matching overall loudness.

However, there are use cases where automated level matching can help achieve better results. In particular, this can be the case when applying creative processing that creates substantial differences in signal level as a side effect of processing. For example, a resonant filter can easily produce a signal that is either much quieter or much louder depending on the filter resonance.

Automatic level matching may also simply be faster.

Level Matching Functions

SendBlender offers trim controls for both the wet and dry signals. To aid in manual level matching, the wet and dry input levels are shown in the plugin window. These figures are in units of short term LUFS and are calculated after the input trim is applied.

Automatic level matching is provided via the **Level Match** button. Clicking this button sets the Wet Trim such that the dry and wet signal loudness is equal. A special "latching mode" can be engaged by holding down Command (Mac) or Control (Windows) while clicking. When latched, the wet trim is continuously adjusted to maintain equal loudness with the dry signal, enabling free experimentation with creative effects while keeping signal loudness in check.

Note that since input signal levels are computed post-trim, automatic level matching is influenced by the level of the dry input trim control. In other words, reducing the dry input trim will also reduce the wet trim required to match the dry signal level. This can be useful for creating headroom while matching a dry signal that is on the loud side. The output trim control can be used to recoup loss in level if needed.

Peak Max

When level matching, SendBlender will constrain how much upward gain is applied to the wet signal if it would result in excessive peak levels. This is done to protect both ears and equipment. When the level matching algorithm is enforcing this limit, a red "PEAK MAX" indicator is displayed.

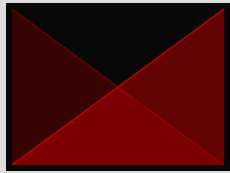
Note that if the wet signal does not peak above 0dBFS (post trim), the peak max limit has no effect.

The peak max threshold can be changed via the settings menu. With the default setting "Automatic", the threshold is set to 0dBFS, but if the dry signal peaks above 0dBFS (post trim), the threshold is increased to match it. The other settings allow configuring a fixed threshold, or disabling the peak max safety feature entirely.

Use caution when changing the peak max setting as high signal levels can result.

To allow for increased headroom in the wet signal when using the level matching feature, simply decrease the dry signal input trim. This is especially helpful when the dry signal has already been limited or clipped, as additional wet processing on such a signal is very likely to cause peaks that extend beyond the maximum dry peak level.

Under the hood of every mix control is a crossfade curve. The crossfade curve defines exactly how much of each signal is blended in the output for a given mix percentage. SendBlender supports 3 different crossfade curves, which are discussed below.

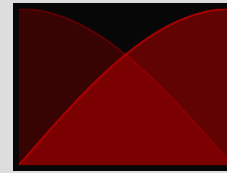


The **LINEAR** curve is the most straight-forward. With this curve selected, 75% wet means the output signal will contain exactly 75% of the wet signal by amplitude (the signal's voltage, in electrical terms). The remaining 25% will come from the dry signal.

A linear curve is the best choice when blending *correlated* signals. These are signals that have similar content and are mostly in phase, so they reinforce each other when summed. As long as the wet and dry signals are well correlated and level matched, the output level will remain consistent as we move through the blend range.

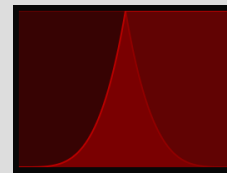
With the linear curve selected and the blend control at center (50%), the dry and wet signals are both attenuated by 6dB. Use this curve when blending parallel compression & saturation.

Blending *uncorrelated* signals requires a different type of curve. These are signals that are either completely dissimilar, or were similar but have been shifted out of phase using time-based effects like delay and reverb.



The **POWER** curve will give approximately constant *power* (as opposed to constant *voltage*) output through the entire blend range when the input signals are largely uncorrelated. This means that, unlike with the linear curve, the output will not be noticeably quieter when the blend control is near the center.

The equal power curve is based on the sine function. In the center (50%) position, both the wet and dry signals are attenuated by 3dB. Use this curve when blending tighter reverbs & delays.



The **MAX** curve offers another choice for use with uncorrelated signals. This curve does not attenuate the dry or wet signals at all in the center position. With this curve selected, the blend control functions similarly to the crossfade control on a DJ mixer. Use this curve when blending unrelated audio and longer reverbs & delays.

Filters

The filters in the EQ section are implemented as TPT filters and are capable of artifact-free automation (though automating the filter mode will produce a discontinuity, as you might expect).

These filters have been deliberately designed to provide cuts only. This is part of the reason most of the filters have a fixed Q, since higher Q values can produce boosts even when the overall effect of a filter is to cut.

This cut-only design is necessary to facilitate the dry boost feature described in the next section. It is also aligned with the general principle of a mix control as a device that reduces (cuts) the amount of wet signal in its output.

Dry Boost

Just like the core function of a mix knob is to reduce the impact of the FX processing chain, the EQ section is intended to provide a similar reduction in a frequency selective way. The dry boost circuit plays a critical role in achieving this goal.

Regardless of dry boost setting, the selected EQ curve is applied directly to the wet signal. The dry boost circuit works by applying the *inverse* curve to the dry signal as well, and blending the result with the output such that cuts to the wet signal are compensated with additional dry signal in proportion to the dry boost setting.

This means that if the dry boost control is set to 0%, EQ cuts to the wet signal are uncompensated. This is no different than inserting an EQ in the chain just before SendBlender Pro. But if the dry boost control is set to 100% (the default setting), the cuts in the wet EQ are fully compensated with dry signal boosts. In this way, the EQ section functions like a spectral mix knob with per-band settings. Making a cut in a band removes a portion of the wet signal and replaces it with dry signal.

Note that the dry boost circuit is governed by the main blend control as well. If it is set to 0%, the dry signal is passed through unchanged, regardless of the current EQ settings.

Make Up

If dry boost is fully engaged and the parallel FX chain has been properly level matched, cuts made in the EQ section should have a mostly negligible effect on the overall level of the blended signal. However, if dry boost is set to anything less than 100%, the EQ section cuts will reduce the output signal level. The Make Up control is provided to compensate for this shift in level.

If the Auto Make Up control is switched on (as it is by default), then the make up gain will be set automatically. No auto gain function is perfect (though we believe we've designed SendBlender Pro's to be pretty good), so if necessary this can be switched off and the appropriate gain can be set manually.

Ableton Live 12

- Standard Audio tracks are used.
- Dry Track: *Audio To* is set to *FX Track*, *Sidechain-SendBlender*.
- FX Track: *Audio From* is set to *Dry Track* with *Monitor* set to *In*.

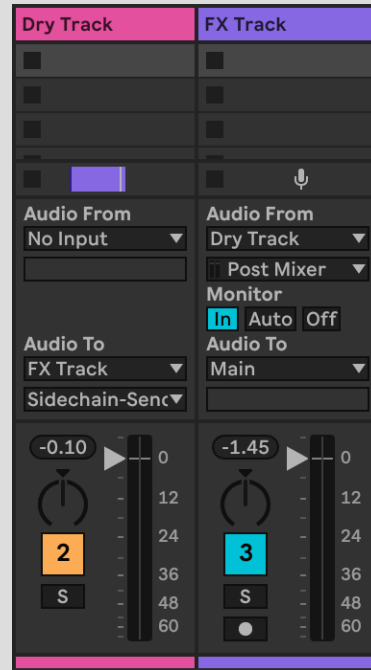


Figure 8: Example routing in Ableton Live 12

Universal Audio Luna

- The Dry Track is a standard Audio track, while the FX Track is a Bus track.
- Dry Track: *Output* is set to *FX Track*.
- FX Track: *Sidechain Input* is set to *Dry Track* with sidechain assigned to SendBlender.



Figure 9: Example routing in Universal Audio Luna

Logic Pro 11

- The Dry Track is a standard Audio track, while the FX Track is an Aux track.
- Dry Track: *Output* is set to *Bus 1*.
- FX Track: *Input* is set to *Bus 1*. *SendBlender Side Chain* is set to *Dry Track (Audio 1)*.



Figure 10: Example routing in Logic Pro 11

Steinberg Cubase 14

- The Dry Track is a standard Audio track, while the FX Track is an Effect track.
- Dry Track: *Output Routing* is set to *FX Track*.
- FX Track: *SendBlender Side Chain Source* is set to *Dry Track*.

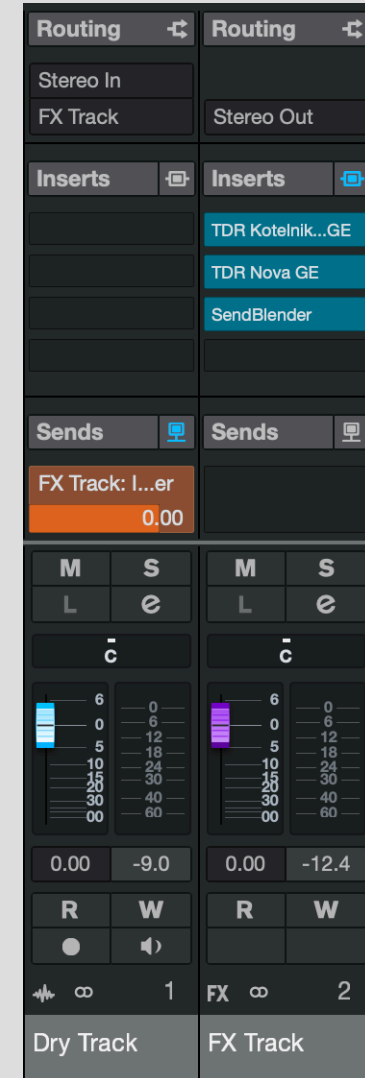


Figure 11: Example routing in Steinberg Cubase 14

Reaper 7

- Standard tracks are used.
- Dry Track: "Master send channels from/to" is unchecked. Add Sends to *FX Track* channels 1 / 2 and *FX Track* channels 3 / 4.
- *FX Track*: Track channels 3 / 4 are automatically routed to the SendBlender sidechain input.



Figure 12: Example routing in Reaper 7

Mix Bus “Decompression” [Pro Version]

Mix engineers very often use a mix bus compressor to achieve density and glue. In many cases the compressor is set up fairly early in the mixing process. Doing this leads to better mix decisions since these decisions are made in the context of how the bus compressor reacts. However, it also means the mix balance may be intrinsically tied to the action of the compressor.

There are cases where the overall mix balance feels right, but the compressor is impacting certain instruments and frequencies a bit more than desired—usually in the low end. The mix engineer may face a difficult task backing the compressor off of the low frequencies (usually with adjustments to the sidechain filter) without negatively affecting overall mix balance.

The necessary adjustments can instead be made with SendBlender Pro inserted after the compressor, using the EQ section. Leaving dry boost set to 100%, introduce a low shelf or high pass filter. We usually start with a gentle first order filter, but select the filter that sounds best for the material.

As the low end is reduced from the wet signal, the compensation introduced by the dry boost circuit effectively restores dynamics in the low frequencies without changing the apparent compression action elsewhere.

Parallel Compression With Tonal Shift [Standard Version]

Parallel (or “New York”) compression techniques are widely used as a means of adding weight and glue while preserving dynamics and reducing peak artifacts. By adding an equalizer after the compressor, we can extend this technique to also introduce changes in tone with minimal impact on transients. This can be helpful for shifting tonal balance brighter without making transients overly aggressive sounding, or reducing dynamic range without bringing up mud, and is appropriate for mastering and mix bus processing.

For this type of compression, a fast peak compressor is needed. The attack time should be set as short as possible—ideally 1ms or less. Other parameters can vary substantially depending on the goals and material, but generally the compressor should be set to apply heavy gain reduction. Transients should be highly subdued and the compressor should pump and breathe in an obvious (but pleasing) way. A relatively low ratio like 2:1 is often appropriate, with the threshold set deep, and make-up gain should be applied as needed to level match the dry signal.

An equalizer suitable for making broad boosts and cuts should be inserted after the compressor, and SendBlender inserted after that (with the dry signal routed to the sidechain). Adjust the blend control to achieve appropriate microdynamics for the material.

Once the dynamics feel about right, we can turn our attention to tone. Is the compressor bringing up too much low and low-mid frequency content, making things sound muddy? A broad cut using a low shelf or low-Q peaking filter can reduce this. Want to make things brighter? Try a broad boost with a high shelf or low-Q peaking filter in the high-mids and above. A boost or cut of 1dB or less may be enough to subtly shift tonal balance without any apparent impact on transients.

Addressing Harsh Harmonics [Pro Version]

In cases where aggressive distortion is called for, the overall effect of the processing may be desirable while also producing harmonic content that is harsh and unpleasant. In this situation, the mix engineer may consider switching to a different processor entirely. But SendBlender Pro offers an alternative solution that may be a better choice if the original processor has a particular desirable character, or if a suitable alternative processor cannot be found.

It is often the case that the unwanted frequency content is relatively localized, usually in the upper midrange frequencies. If so, SendBlender Pro's EQ section can be used to reduce the added harmonics with a relatively narrow cut. With dry boost set to 100%, the overall frequency balance can be maintained while applying such a narrow cut to reduce the offending frequencies.

Support

For support, email us at:

support@minordrama.studio

Or visit our website for other support options:

<https://minordrama.studio/>

Legal Notices

Minor Drama, SendBlender, and their respective logos are trademarks of Minor Drama, LLC.

All other trademarks are property of their respective owners.

Copyright © Minor Drama, LLC. All rights reserved.