

brainworx



bx_cleansweep Pro Plugin Manual

Bypass A B C D Copy Paste Reset A About

brainworx
bx_cleansweep Pro

Phase Rev. Matrix

Gain -3.2 dB

LP Off On Cutoff 3184 Hz Type Elliptic Order 6 Selectivity 98.40 dB

HP Off On Cutoff 273 Hz Type Resonant BW Order 2 Resonance 21.54 dB

Spectrum Analyzer

+24 dB -48

20 50 100 200 500 1k 2k 5k 10k 20k

In Out

1.06dB @ 260.2Hz (Note C4 -9.3cent)

Quick Start

Install and Authorize your New Plugin:

- If you do not have an account, [register for free on the Plugin Alliance website](#)
- Double-click the .mpkg (Mac) or .exe (Win) file
- Follow the installation instructions
- Open the plugin in your DAW of choice and click on the interface to activate
- If your computer is connected to the internet, click the "I'm Online" button and enter your Plugin Alliance credentials on the following page

For offline activation instructions and additional information, please refer to the Activation Manual included in the installation folder of this plugin
You may also follow this link to the [online version of the manual](#)

For more information, please visit: www.plugin-alliance.com

[System Requirements and supported Platforms](#)

For latest System requirements & Supported Platforms, please click the link above, and visit the [product list page](#) on the Plugin Alliance website to see particular details for your product.



Brainworx bx_cleansweep Pro

Advanced filtering plugin with Sweepable X/Y Controls

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Introduction - bx_cleansweep Pro

Introduction

Brainworx founder and CEO, Dirk Ulrich, has always emphasized the importance of accurate filtering when treating frequencies in a mix. During his long-lived days as a producer and engineer, working with the likes of Dream Theater, Toto and Michael Jackson, he found that some of the most critical parts of a mix lay within the sub-sonics and super-sonics of a sound. That is, by simply filtering out the imperceptible spectra above and below the desired core character of a sound, one could be well on their way to an immaculate sounding mix—even before the addition of any further dynamics or frequency treatment.

It was on this principle that Dirk designed the bx_cleansweep, a deceptively simple and yet powerful hybrid High-Pass and Low-Pass Butterworth filter that implements gently sloped curves (6 dB/octave) in order to achieve a musical and nonintrusive effect when zeroing-in on a sound's intended character. A joystick control, much like an X/Y pad, helped facilitate intuitive and direct movements towards a cleaner sound stage. The bx_cleansweep design, like it's bigger siblings – bx_digital V3 and bx_hybrid V2, features Anti-Crush technology. This analog model for filter curves prevents the harshness and aliasing found in certain other EQs.

Now, Brainworx has introduced a third incarnation of the beloved filter plugin: the bx_cleansweep Pro. Sporting the addition of five filters with adjustable slopes and characters for each, and spectrum analysis with an advanced frequency/phase plot, this next generation in the bx_cleansweep legacy provides an accurate and intuitive tool for your mixing needs. Use it to tweak and tune the deeper regions of your mix, or create interesting spectral sweeps and effects when designing sounds. Make it the first piece in your chain on every single track, and you'll be amazed at how just a little filtering can go such a long way.



About the bx_cleansweep Pro

What the bx_cleansweep Pro can do for your mix

Anyone who has spent a significant amount of time working with recorded audio understands the need for a simple way to reduce and remove sub-sonic rumble and super-sonic noise. This is why the bx_cleansweep Pro is so useful; it provides an intuitive means to zero in on the character of a sound while attenuating the trash that comes with acoustic recordings. The variety of filter types, combined with the comprehensive adjustability of each, allows users to severely clean unwanted high-end and low-end noise from a sound, if not completely remove it. The spectral analysis, as well as the multiple filter views for magnitude, phase, and group delay, allow for comprehensive feedback on the effects of frequency treatment with this handy plugin.

But the bx_cleansweep Pro does much more than subtract. It's also a highly creative tool for designing sounds and creating dramatic effects in your music. The ability to intuitively create huge changes in frequency response using the joystick or X/Y pad of bx_cleansweep Pro adds a new dimension to performing filter effects on the fly or in a live setting; the customization of filter types and characteristics aid in the creation of interesting frequency behaviors that have all the desired sonics with none of the artifacts.

There are, of course, plenty of filtering plugins on the market that can reduce noise or

generate sweeping frequency effects. What makes the bx_cleansweep Pro so special is its ability to provide the cleanest filtration possible by ensuring the lack of phasing and aliasing with Anti-Crush technology. Just like the original bx_cleansweep, it models the behavior of analog filters, dramatically improving the resulting filtered sound. All Brainworx EQs feature this behavior, and it's why they all sound great compared to your standard EQ plugin.

If you're one of the many customers who have been using the original bx_cleansweep for years, you already know what Anti-Crush

technology can do for your mix. You also know that its functionality is somewhat limited. That's where the Pro version comes in. It adds several new dimensions to the filtering process, allowing for more accurate filtering and frequency effects, as well as the ability to see the effect of your setting in several different lights. This plugin's functionality is almost equivalent to the filter section of the Brainworx EQs, but with an in-depth ability to track frequency response and power to customize the way your sound is filtered. It should absolutely be the first effect in just about every chain of your mix.



bx_cleansweep Pro Global Controls

Same Idea, Different Feel

The bx_cleansweep Pro includes the same handy global features as its predecessor, bx_cleansweep V2. New to the Pro version, you now have the ability to switch between a Joystick or Matrix for dual-filter control. The indispensable Phase Reverse remains, adding the ability to flip the phase of sounds processed by the plugin.



Using the Joystick or Matrix on the interface is a great way to zero-in on a desired character frequency range, without the need to jump back and forth between the LPF and HPF. Once you have found the character you are looking for, adjust the Makeup Gain to compensate for any loss in volume due to filtering. Then, the deeper controls for each filter allow the setting to be tweaked to a point of perfection.

GAIN

Input Gain allows compensation for post-filter volume reduction.

PHASE REV.

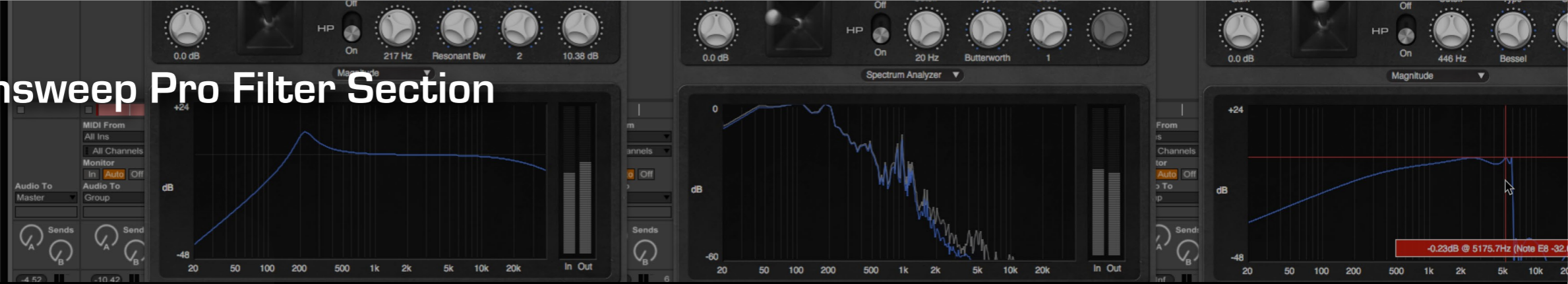
Onboard phase reverse tool.

CONTROLLER SELECT

Alternate between Joystick and Matrix control to intuitively zero-in on the desired sound.



bx_cleansweep Pro Filter Section



Six Filters with Numerous Possibilities

The filter controls for both the High Pass and Low Pass bands are identical in functionality, with the exception of the Cutoff frequency range. Each have a fourth knob whose parameter changes depending on which filter type is selected. See the following section for filter definitions and use cases.

OFF/ON

Enable or disable the filter.

CUTOFF

The filter Cutoff knob is a continuous controller that ranges from 20 Hz to 22 kHz on the Low Pass filter, and 20 Hz to 11 kHz on the High Pass filter.

TYPE

The filter Type knob has six discrete steps: Butterworth, Bessel, Chebyshev I, Chebyshev II, Elliptic, and Resonant Butterworth. The value can also be set via numeric text entry, by using the following metric: 1=Butterworth, 2=Bessel, 3=Chebyshev I, 4=Chebyshev II, 5=Elliptic, and 6=Resonant Butterworth.

ORDER

The Order knob has six discrete steps that range from 1 to 6.

FILTER PARAMETER

This is a continuous controller whose values depend on the filter Type setting. It is disabled when the filter Type is Butterworth or Bessel. For other types, the parameters are as follows:

- **Chebyshev I:** Ripple, -6dB to -0.1dB
- **Chebyshev II:** Doesn't apply when LP Order is set to 1, otherwise: Ripple, -160dB to -40dB
- **Elliptic:** Doesn't apply when LP Order is set to 1, otherwise: Selectivity, +20dB to +120dB.
- **Resonant Butterworth:** Doesn't apply when LP Order is set to 1, otherwise: Resonance, -6dB to +24dB



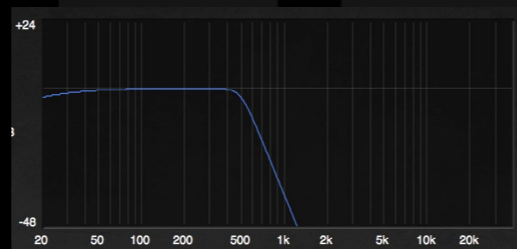
About the bx cleansweep Pro filters

In General

- All filters are available from 1st to 6th order.
- All filters are available as Low Pass and High Pass; assuming an identical setting for each HP and LP filter, the behavior will be an exact mirror image of each.
- The behavior of the filter becomes increasingly interesting with higher orders. In the first order, almost all filters behave exactly the same. The only exception is the Chebyshev I filter, which has a ripple difference of -3 dB.
- **Passband** = frequency range that passes a filter without being affected (a theoretically optimal filter)
- **Stopband** = frequency range that gets affected by a filter

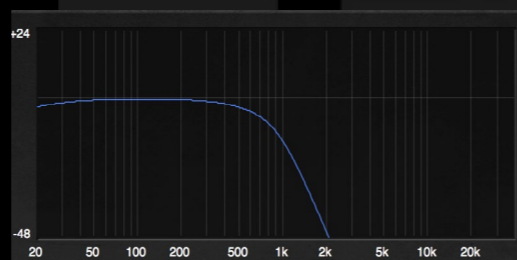
Butterworth

- "Standard" 6 dB/octave filter. This adds up with the order, up to 36 dB/octave at the 6th order
- Maximally flat magnitude behavior. The frequency response in the passband is as flat as possible
- Has no parameter besides order



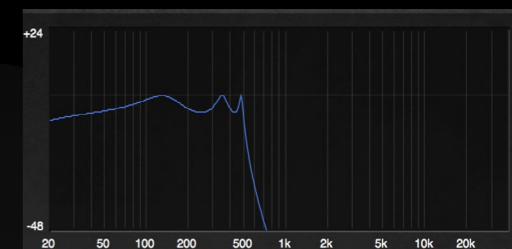
Bessel

- Gentler slope than Butterworth filters
- Maximally flat group delay/phase delay
- Constant group delay in the passband; this means that there are no frequencies/frequency ranges in the passband that get delayed differently from the rest. Filters without constant group delay can lead to audible delay of frequencies, or phasing.
- Has no parameter besides order



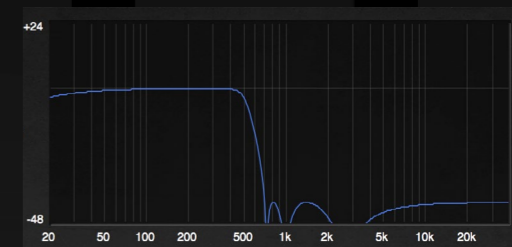
Chebyshev I

- Ripple in the passband
- High slope filter. High ripple settings lead to very high slope but also an audible ripple in the passband.
- Parameter: ripple, defines the ripple amplitude



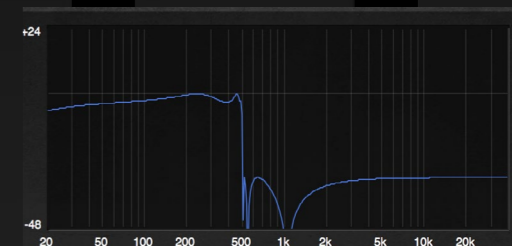
Chebyshev II

- Ripple in the stopband
- High slope filter. Low ripple settings lead to very high slope but the stopband attenuation is lowered. This can lead to an audible ripple in the stopband.
- Chebyshev II filters are not as steep as Chebyshev I but the ripple is in the stopband.
- Parameter: ripple, defines the ripple amplitude



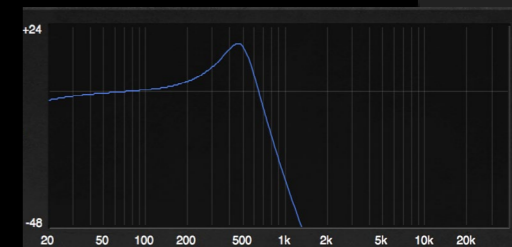
Elliptic (also known as Cauer filters)

- Ripple in passband and stopband
- Highest slope but has ripple in both passband and stopband
- Behaves more or less like a Chebyshev I or II, or combination of both, depending on the setting.
- Parameter: Elliptic filters generally have two parameters, selectivity and ripple (labeled Selectivity here). Ripple is set to a fixed value, resulting in a -3dB passband gain.



Resonant Butterworth

- Resonant filter
- Higher order leads to a plateau at the resonance frequency
- Parameter: resonance



bx_cleansweep Pro Graphs and Metering

More Ways to View Your Sound

New to bx_cleansweep Pro is the ability to view several different perspectives on the sound you are processing. Aside from the traditional frequency response plot, the Graph can now show Phase, Group Delay, and spectral analysis with value callouts at each coordinate. It is also possible to view further reaches of the plot by scrolling with your mouse when the cursor is placed over the Graph.

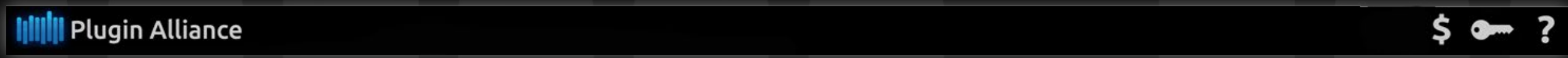
Mousewheel Control

With cmd + mouse wheel (Mac) and ctrl + mouse wheel (Win) you can zoom in and out and reset the view via right-click.

The screenshot shows the brainworx bx_cleansweep Pro interface. At the top, there are controls for Bypass, A, B, C, D, Copy, Paste, Reset A, and About. Below this, the main controls include a Gain knob set to -3.2 dB, a Phase Rev. checkbox, and a Matrix dropdown. There are two filter sections: a Low Pass (LP) filter with a Cutoff of 3184 Hz, Type of Elliptic, Order of 6, and Selectivity of 98.40 dB; and a High Pass (HP) filter with a Cutoff of 273 Hz, Type of Resonant BW, Order of 2, and Resonance of 21.54 dB. At the bottom, there is a Spectrum Analyzer graph showing a frequency response plot with a red callout box indicating 1.06dB @ 260.2Hz (Note C4 -9.3cent).

This is a close-up view of the Spectrum Analyzer graph. The y-axis represents dB, ranging from -48 to +24. The x-axis represents frequency in Hz on a logarithmic scale, ranging from 20 to 20k. A blue line shows the frequency response, and a red vertical line is positioned at 260.2 Hz. A red callout box at the bottom of the graph displays the text: 1.06dB @ 260.2Hz (Note C4 -9.3cent). The graph also includes a vertical bar meter on the right side labeled 'In Out'.

The bx_cleansweep Pro Toolbars



Plugin Settings Toolbar

BYPASS

Bypasses processing done by the bx_cleansweep Pro

UNDO/REDO (Arrows)

Up to 32 steps of parameter history

Settings A / B / C / D

Select banks of parameter settings; use the A/B/C/D settings to copy a complex channel setting and alter it slightly for different parts of your song, for example. These settings can be automated by your DAW system, so you can jump from setting A (in the verse) to setting B (in the chorus, for example).

COPY / PASTE / RESET

Copy and Paste between setting banks, reset parameters of selected bank

ABOUT

Information about the development of the plugin

Plugin Alliance Toolbar

“KEY” ICON

Opens the plugin Activation Dialog

“?” ICON

Opens a dialog through which one can access the plugin’s help documentation, online product page, or any available updates.

“\$” ICON (When Applicable)

If you’ve purchased your plugin using the Plugin Alliance Installment Payments option, the “\$” icon, links to your account so you can make a payment on your Lease-License