Shadow Hills Mastering Compressor Class A Limited Edition

Plugin Manual

Plugin Developed by Brainworx Audio in partnership with Shadow Hills Industries and Shadow Hills Kinetic distributed by Plugin Alliance

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Intro

The Shadow Hills Mastering Compressor Class A VK is part of a special run of unique SHMC units which celebrates the success of one of the most notable mastering compressors ever created. For this special edition, Shadow Hills has included an updated Class-A discrete compressor section, Lundahl input transformers and hand-wired each compressor with Mogami cables. This version is easily distinguished by the red LEDs on the front panel instead of the normal green ones.

The Shadow Hills Mastering Compressor features truly remarkable functionality from mastering grade compression and limiting to nearly flawless dynamic control during tracking and mixing. Inside you have access to two compressors that can process audio in stereo or in dual mono. First you can work with the mastering grade electro optical compressor which is then followed by the discrete Class A compressor/limiter. Both of these compressors feed the switchable custom output transformers which are comprised of Nickel, Iron and Steel. There is enough gain in each section to overdrive the hottest tapes or to clip your converters, whatever kind of compression you are seeking, this unit will easily deliver.

Overview

The Shadow Hills Mastering Compressor Class A Plugin is a faithful 1:1 model of the corresponding hardware version, offering all its non-linear behavior and analog sound quality in the digital domain. As is standard in all equipment deployed by Shadow Hills, the Mastering Compressor boasts discrete op-amp technology, custom-designed transformers, and a signal path devoid of any IC's. The unit houses two linkable channels of two separate compressors, which can be operated independently, or in a chain. The first compressor in the circuit is the Optical Section. Utilizing electroluminescent optical attenuator, the circuit provides gain reduction with a very musical two-stage recovery. The second compressor in the circuit is the Discrete Section, which is powered by our discrete voltage-controlled amplifier in a feed-forward mode. By the versatility of its features and the precision of its controls, the Discrete Section capably finishes the job started by the Optical Section. However, the coup de grace lies in the final processing stage of the Shadow Hills Mastering Compressor. Each channel is equipped with three distinctive output transformers, which can be toggled via the Transformer Select Switch, effectively changing the frequency response and distortion characteristics of the entire unit.

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Plugin Only Features - Not found in the hardware

Not only does the plugin nail the heart and soul of the Shadow Hills Mastering Compressor Class A but you'll find the extra features you've come to expect from Brainworx products. A full BX Module with Brainworx's patent-pending Tolerance Modeling Technology (TMT) Parallel Mix Control, Variable High Pass Filter for compressors Side Chain, M/S Processing, Mono Maker, Stereo Width and Headroom control to adjusts the internal operating level.

❶ Hardwire Bypass

The operation of the Shadow Hills Mastering Compressor is controlled by a series of toggle switches. When flipped to "IN", the "Hardwire Bypass" switch engages the line amp and output transformer circuitry. When flipped to "OUT", the inputs are directly connected to the outputs with no processing. The Optical, Discrete, and Side Chain switches function in an identical manner – "IN" engages the corresponding circuit, and "OUT" bypasses it. In order for the compressors to operate, the hardwire bypass must be "IN", however the hardwire bypass can be engaged with the compressors "OUT". This allows audio to be colored by our discrete op-amp and custom transformer technology at unity gain, even when no compression is desired, turning the Mastering Compressor into an effective tone shaping tool.

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1 Stereo Operation

The Shadow Hills Mastering Compressor can operate in Dual Mono or Stereo. While in Dual Mono, each side has independent operation and all of the controls on both sides are active. In Stereo, the left-hand controls operate all of the Mastering Compressor's features with the right-hand controls not having any effect and the red light bulbs reflecting the left-hand settings. The only exception is the Meter Select Switch, which remains independent on both channels. This facilitates viewing a combination of gain reduction and output, or the two different stages of compression simultaneously while in Stereo.

1 Metering

The Shadow Hills Mastering Compressor is equipped with two VU meters for proper visual analysis of audio processing. Each VU meter has the capability of displaying optical gain reduction, discrete gain reduction, and output level, as determined by the position of the "Meter Select" switch. When used on mono signals, the two VU meters can be used to display the gain reduction of both compressors simultaneously. The same goes for linked Stereo mode. It is only in Dual Mono mode that the VU meters show gain reduction independently for both

channels. The internal reference level corresponding to 0 VU can be set in the "About" dialog, which is brought up by clicking on any of the two meters.

By default, the meter reference is set to 0 dBu = -14 dBFS

3 OVL LED

The OVL (Overload) LED indicates internal clipping. Whether the clipping is audible or not depends on the kind of audio material you are processing. You should always avoid that the OVL LED illuminates. Use the OUTPUT GAIN control to reduce the output level if the OVL-LEDs keeps flashing.

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1 Magic Eye

The green, glowing Magic Eye tube at the bottom of the unit is the final component in the metering system. When both VU Meters are in "Output" mode, the Magic Eye displays a mono signal in its top quadrant.

2 Transformer Switching Matrix

You have remarkable control over the tone and vibe of your music thanks to three switchable output transformers. This matrix switches the selected transformers in and out of the circuit. The various material compositions, size and methods of winding impart different frequency and distortion characteristics as well as the transient limiting caused by the magnetics. The ability to switch between the different transformer selections, equates to being able to switch in the final gain stages from different vintage consoles and provides remarkable flexibility.

Besides its obvious use on the stereo master buss and stereo subgroups, we highly recommend to use the mono version of the Mastering Compressor Plugin on individual tracks, adding coloration to vocals, electric bass or guitar.

3 Transformer Choices

Top Position: Nickel

The cleanest position with the least distortion. This position has a subtle accentuation of ultra-high frequencies.

Middle Position: Iron

This position has an additional Class-A amplifier section adding even-ordered harmonic distortion, resulting in a very musical upper low frequency boost.

Bottom Position: Steel

The most distorted selection with an extremely tight boost in the low frequencies.

Mastering the Transformer Switching Matrix involves a certain learning curve and the sonic differences between the three transformers can be more or less obvious depending on the audio signal running through. In general, differences are most easily heard on "busy" mixes with rich low end and sizzling high frequencies – like a real drum kit with open hi hats or dance mixes. Listening through a big speaker system will also help to get a feel for each transformer as they primarily affect the very low end of the frequency spectrum.

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1 Side Chain Filter

The Side Chain Filter switch engages a high-pass filter on the side chains of both the optical and discrete compressors. Thus the Side Chain Filter can help to reduce unwanted "pumping" artifacts, as the compressors will react less to low frequency content such as bass drum hits.

Note: Please read the info on Page 9 #3 HP-SC-Filter

Optical Section

The Optical Section is the first gain reduction circuit in the Mastering Compressor. The compressor is characterized by its very musical compression circuit featuring a slow attack and a two-stage release. The initial eighty percent of compression is released very quickly, whilst the remaining twenty percent takes over a second to recover, varying slightly with the amount of attenuation applied. Modeling the Optical Section with its unique electro-luminescent optical attenuator was certainly the biggest challenge during the production of the Mastering Compressor Plugin.

2 Optical Gain

This control provides post-compression make-up gain or attenuation using a 24-position rotary switch. The gain control provides greater accuracy around unity gain, which occurs roughly at position "7", and offers coarser adjustment towards more extreme settings.

3 Optical Threshold

This control determines at what input level compression begins to occur. The compressor operates with a fixed ratio of 2:1, so compression is achieved by lowering the threshold into a range in which it begins to attenuate. Minimum compression occurs at "1" and maximum compression occurs at "24".

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Discrete Section

The Discrete Section is the final gain reduction circuit in the Mastering Compressor. It achieves compression by means of our custom, discrete voltage-controlled amplifier. Due to the breadth of the controls, the discrete compressor is extremely versatile and can be configured to attain a variety of sounds.

1 Discrete Gain

This control provides post-compression make-up gain or attenuation using a 24-position rotary switch. The gain control provides greater accuracy around unity gain, which occurs roughly at position "7", and offers coarser adjustment towards more extreme settings.

2 Discrete Threshold

This control determines at what input level compression begins to occur. Minimum compression occurs at "1" and maximum compression occurs at "24".

3 Discrete Ratio

This control determines the amount of compression achieved when the input signal reaches the threshold. A ratio of "1.2" means that for every 1.2 dB of input over the threshold, 1 dB will be outputted. At "2", 1 dB will be outputted for every 2 dB of input over the threshold, etc. When the dial is set to "Flood", a ratio of 20:1 occurs.

4 Discrete Attack

This control determines how quickly the compressor engages attenuation once the threshold has been reached. Each setting is in milliseconds.

5 Discrete Recover

This control determines how quickly the compressor disengages attenuation once the threshold has no longer been reached. Each setting is in seconds. At "Dual" the compressor mimics the two-stage recovery of the optical section.

BX Module - Features not found in the hardware

TMT

The Shadow Hills Mastering Compressor Class A offers 20 different compressor channels, made possible by TMT. TMT is Brainworx's patent-pending "Tolerance Modeling Technology", originally found in the bx_console line of plugins. It takes the real-world tolerances of audio components found in audio circuits into account, and offers various channels of analog audio which have realistic variances in frequency response, time constants in dynamic sections, etc. The result is digital audio that sounds as analog as possible, whereas even the L/R channels of a stereo instance will react slightly different. For more information please check www.brainworx.audio

1 Stereo Mode

Toggles between using the same TMT channel for both units (Digital) and using two adjacent TMT channels (Analog).

2 Channels

TMT, switches between 20 different channels. In a Stereo instance, two adjacent channel numbers will be displayed. Each channel has its own, different character!

3 Random Channel

Whenever you instantiate a Shadow Hills Mastering Compressor Class A plugin on a channel, it will start with the Default setup, which is Channel 1 in a flat setting. You can now randomize a channel by clicking the Random Channel button. Only the plugin instance you click on will switch to any unused channel number in that session randomly. The plugin will remember which channel numbers are already used in a session and activate an unused channel number, unless you engage more than 20 channels. At that point the plugin obviously would have to use a channel number that has already been used.

4 M/S

Engages Mid/Side processing. When this is set to On, the Left Channel processes the Mid (Sum) of both channels and the Right Channel processes the Side (difference) of both channels.

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① Paramter Link

This enables or disables linking of parameters for Dual Mono and Stereo operations. When both parameters have different values and link is engaged, both parameter values remain unless one of them is touched and any control offsets between channels are lost.

② Headroom

Adjusts the internal operating level so that the Plugin produces more or less gain reduction. Rotating the control clockwise will allow signals at the input to be pushed higher before they compress, this will result in less compression overall. By rotating counter-clockwise headroom is decreased resulting in a greater amount of gain reduction and more colour and compression being added to the signal. This parameter is perfect for fine tuning the effects produced and also for accurate level matching.

③ HP-SC-Filter

Continuously variable 6dB per octave High-Pass Filter for the Compressors Side Chain. Sweepable from 20 Hz to 666 Hz Thus the Side Chain Filter can help to reduce unwanted "pumping" artifacts, as the compressors will react less to low frequency content such as bass drum hits.*

Note: Please make sure the Side Chain switch is engaged (Page 6)

④ Mono Maker

This tool is a critical component to several Brainworx processors, and it is an invaluable tool when mastering or tightening up a mix. Sweepable from 20 Hz to 2 kHz, this parameter folds the processed sound to mono at and below the frequency set. The most common setting is between 100–200 Hz, below which bass frequencies reside, where common practice deems that most sound should be mono. Other uses include folding an entire mix in order to check mono compatibility and avoid phase incoherency.

⑤ Stereo Width

Make your mix wider than it originally was by increasing the Stereo Width without losing the center of your recordings! You will not lose bass drum power or vocals by making your mix wider this way... and it will not sound different played back in mono at all. If you notice your Correlation Meter (e.g. bx_meter) showing less than 90°, dial up the Mono Maker a bit to tighten up the low-end until acceptable levels are shown.

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1 Parallel Mix

Controls the amount of unprocessed signal being blended with the processed (compressed) signal, effectively providing the option of parallel compression.

100% = you'll only hear compressed signal.

0% = you'll only hear un-compressed signal.

In Use

In the vocal chain, on the master fader or the drum buss, the S.H.M.C's two-stage compression and transformer matrix will impart its unique sound quality and character upon your best work to take you to new levels of creativity. Sometimes there is no finer chain for female vocals than the optical cell with medium compression, side chain filter out and nickel transformer selection from the output matrix. The optical will soothe as it adjusts sultry voices as only this combination can deliver. The nickel transformer adds that ultra high frequency 70's hi-fi sheen like a subtle air band.

Mastering is the most subtle use of the Mastering Compressor. Dial in one dB of optical gain reduction and two dB of discrete gain reduction. Select a ratio of 1.2:1, an attack time of thirty milliseconds and a recover time of .1 seconds. Set the side chain filter to "In" and select the transformer matrix to taste. Another application of the Mastering compressor is to bypass the optical and discrete cell and to pass the signal through the transformer matrix only, for the color it imparts. If you record dry electric bass or guitars through a DI box for re-amping or use of amp simulation software, try the transformer matrix as the last part of your signal chain before going into the amp.

The Mastering Compressor's flexibility and precision of controls will enable you to apply any type of compression you can imagine, on purpose, every time.

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Top Toolbar

1 UI Scaling

Adapt the graphical user interface to the size and resolution of your screen. The plugin will check if the user interface will fit your screen before enlarging it. So if you accidentally chose a zoom factor which is too big for your current settings, the plugin will automatically stay at the maximum possible zoom factor.

2 Undo / Redo

You can undo and redo changes you made to the controls of the Shadow Hills Mastering Compressor plugin at any time. The Undo / Redo will work for as many as 32 steps. This makes experimenting and tweaking knobs easy. If you don´t like what you did… just undo it.

3 Settings (A/B/C/D)

The Plugin offers four internal settings (A/B/C/D) which will be stored with every preset. So, one preset can contain up to four settings. You may use similar settings with more or less compression in one setup / preset. Now, the SETTINGS can be automated in your DAW! This way it´s possible to use different sounds for your lead vocals or drums in various sections of the song. Automate the A/B/C/D settings, and you can still tweak knobs of the individual settings without overriding multiple parameters in your DAW, which would be time-consuming.

4 Copy / Paste

To set up variations of similar sounds you don´t have to dial in the settings several times. Let´s say you like your setting A and want to use the same sound, just with less compression, as setting B.

• Simply press Copy while you are in setting A.
• Switch to setting B by pressing ‘B’ in the settings section.
• Press PASTE, now setting B is identical to setting A.
• Reduce the compression on the B setting.

Now you can switch between A & B and decide which one sounds best or automate different settings for various sections of your session.

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1 Key In - External Sidechain

You can route an External Sidechain signal to the plugin Dynamics if your DAW supports this. When engaged, the Compressor will react to the External Signal instead of the input signal of the plugin.

2 M/S Monitoring (for Stereo Channels only)

Solo M: Solos the Mid (Sum) signal being processed by the plugin.
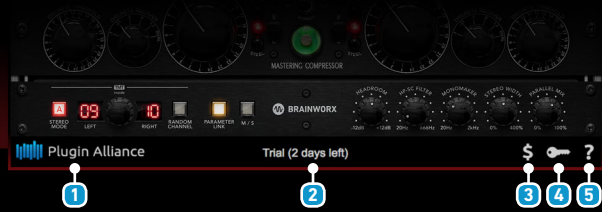Solo S: Solos the Side (Difference) signal processed by the plugin.

3 Icon

The icon closes and opens the bottom panel containing the Brainworx's plugin only features.

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Bottom Toolbar

1 PA Logo

Clicking the Plugin Alliance logo takes you to the Plugin Alliance website via your web browser, that´s if your computer is online.

2 License Type

The toolbar displays information about the type of license you're running: Trial licenses will be displayed along with the number of days until expiration; there is no note for full licenses as these are unlimited.

3 $ (Icon)

If you are using a demo / trial version of our products, you can always click this icon to open a browser that redirects you to the respective product page in the Plugin Alliance store. This is where you can easily purchase a product without having to look it up on our website.

4 Key (Icon)

Clicking on the key icon brings up the activation dialog, allowing you to manually reauthorize a device in the event of a license upgrade or addition. You can also use this feature to activate additional computers or USB Flash Drives.

5 ? (Icon)

Clicking the ? icon opens up a context menu that links to the product manual PDF, as well as other helpful links, e.g. to check for product updates online. You must have a PDF reader installed on your computer to be able to read the manual.

System Requirements & FAQ (Links)

For latest System Requirements & Supported Platforms

https://www.plugin-alliance.com/en/systemrequirements.html

Particular details for your product

https://www.plugin-alliance.com/en/products.html

Installation, Activation, Authorisation and FAQ´s

https://www.plugin-alliance.com/en/support.html