SB4001 STEREO COMPRESSOR

Thank you for your purchase of the Serpent Audio SB4001. This unit is proudly 100% designed and built in the USA. Through our dedication to advanced engineering, high-quality components, and research from industry pros, you can expect years of reliability and great customer service.

THANK YOU

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1. DESCRIPTION / OVERVIEW:

The SB4001 is a Quad VCA based compressor, and can be used for either stereo or mono applications. The VCA is used for the gain reduction and is a very accurate and powerful design, perfect for a number of signal types and musical applications. VCA's have historically been used in a large number of classic compressors. While the SB4001 is not directly based off of any of these classic compressors the nature of the VCA lends itself to share some of the sonic characteristics. We have taken these sonic qualities and have done our best to improve and augment them by carefully tuning our circuit and features to take full advantage of what can be done with these VCA's. We hope you enjoy it as much as we do.

2. SPECIFICATIONS:

Input: 22KHz Input Impedance, Electronically Balanced (Accepts Balanced or Unbalanced Signals)

Output: <100 Ohm Output Impedance, Transformer-like Floating Output, Electronically Balanced (Accepts Balanced or Unbalanced Signals)

External In: 22KHz Input Impedance, Electronically Balanced (TRS), (Accepts Balanced or Unbalanced Signals)

Maximum Input Level: +21dbu

Maximum Output Level: +21dbu

Maximum Output Load: 600 Ohm

Gain: 24db (+/-1dbu) [-6 to +18]

Gain Reduction Element: Quad VCA

Frequency Response: (20Hz-20KHz) +/-0.11dB

THD+N: (20Hz-20KHz) Typically 0.008%

Noise Floor: -100dbu

Dynamic Range: >119db

3. FRONT PANEL CONTROLS:

Comp In:
This is a true hardwire relay bypass.

> *Note: Use this to quickly and easily hear what the SB4001 is doing to your audio. Also use this to help balance and adjust unity gain through the unit.*

Threshold:
[The threshold is defined as the point in which compression takes place. The threshold point of the SB4001 is approximately +8dbu.]

A fully adjustable rotary potentiometer, the threshold knob will lower the threshold point as it is turned. Unlike a traditional “compress” knob, the threshold knob will induce the least amount of compression when it is turned fully clockwise, and will increase compression as it is turned counterclockwise (which lowers the threshold point).

Gain:
A fully adjustable rotary potentiometer, the gain knob allows a total gain range of 24dbu (+/-1dbu), from -6db of attenuation to +18dbu of gain.

Ratio:
The Ratio is defined as the amount of compression that takes place after the signal has crossed the threshold point. The higher the ratio, the more the signal that crosses the threshold will be compressed. Ratios of 10:1 or higher are generally considered “limiting”, rather than compression.

For example: With a 10:1 ratio, for every 10db of signal above the threshold, the output will be only 1db louder.

The SB4001 has stepped ratio times of: 1.5:1, 2:1, 4:1, 6:1, 8:1, 10:1.

> *Note: You may find that you get a more transparent sound to the GR with higher ratios and more density and hold from lower ratios. Experiment with the ratio setting and adjust the threshold along with the ratio until you have the sound you desire.*

Attack:
The Attack time is defined as the amount of time the compressor takes to respond once the signal has crossed the threshold.

The SB4001 has stepped attack times of (In Milliseconds): 0.1mS, 0.3mS, 1mS, 3mS, 5mS, 10mS, 15mS, 20mS, 25mS, 30mS, 40mS, 50mS.

Release (Stepped):
The release time is defined as the amount of time it takes the compressor to return to 63% of the original signal level once the signal has passed above the threshold point.

-Classic Predefined stepped release times of (In Seconds): 0.3Sec, 0.6Sec, 1.2Sec.

-A1 (Classic Auto Release) – Classic Autorelease time, which results in a fast release time on fast transients, and a slow release time on long, quiet passages.

-A2 (Alternate Auto Release) – A faster responding, more dynamic Autorelease, unique to the SB4001.

Variable Release:
A fully adjustable rotary potentiometer, the Variable Release control is engaged by the “Var” position on the Stepped Release switch. It allows for any release time from 0.1 Seconds to 1.2 Seconds (+/-10%).

> *Note: Use the variable release to dial in the speed / tempo of the song. This allows you to dial in the perfect release of the compression to help lock in to the groove.*

Blend:
A fully adjustable rotary potentiometer, the Blend knob enables blending between the dry (uncompressed) signal and wet (compressed) signal, allowing parallel compression completely within the box, with zero phase shift and zero additional routing required.

> *Note: One of our favorite ways to use this feature is to set the Blend to 100% Wet. Adjust the other settings on the compressor so that you can clearly hear the style and characteristic of compression until you have the desired sound of the gain reduction. At this point you may have too much of a good thing. Simply turn the Wet signal down until you have blended in the desired amount of Dry signal. Listen for overall amount of dynamics and control. You should be able to dial in quickly and easily just the right amount for detail and density, squeeze and sustain.*

Filters (Sidechain):
The “Filter” control affects the frequencies going to the internal sidechain (In any compressor, the internal sidechain is what controls the compression taking place). Please note, this control does not filter the audio frequencies themselves, but rather the frequencies that are being compressed.

High pass: 60Hz, 90Hz, 120Hz

Note: Use the HPF to tailor the amount of low frequency triggering the sidechain detector. The filters for instance can drastically change the kick drum on a drum subgroup or the 2 buss. Just twist until you have the desired amount of low end control.

“Boost” & “Slope” both induce very useful predefined eq curves onto the sidechain material, both essentially over compressing the high end, while under compressing the low end. “Boost” offers more mid band compression than “Slope”.

Boost: Induces a 1K high shelf boost and a 60Hz roll off onto the internal sidechain.

Slope: Induces a sloped filter with a crossover at 1Khz onto the internal sidechain.

External “Key” Input:
The SB4001 allows the use of an external signal to trigger the compressor’s internal sidechain, a feature not commonly found in a 500 format module. This makes for an endless array of possibilities, limited only by one’s imagination (duck the bass guitar when the kick drum hits! Compress the snare out of the overheads, etc).

The external signal is sent to the mono balanced front panel TRS connection, which is engaged by the “Ext In” pushbutton switch. Some examples of usage are:

Ducking: By sending an external trigger track (i.e. kick drum or snare) the main audio signal will only compress when the trigger track hits.

De-Essing: By sending the main audio signal to an external EQ (by use of a “Y” splitter or other means), and then sending the eq’d signal to the “External In” TRS connector, the SB4001 can instantly be transformed into the ultimate de-esser as well.

Stereo Mix: By branching off the Left and Right input signals to the compressor (by use of a “Y” splitter or other means) summing these two signals through an external means (ie via your DAW or Mixer), and then sending the summed signal to an eq and lastly, to the “External In” TRS connector, SB4001’s compression response of a Stereo Mix can be fully manipulated via the external eq.

Grind:
Grind mode induces a tube style harmonic overdrive onto the content material, resulting in asymmetrical distortion. The level of distortion is signal dependent, so higher levels of distortion can be achieved by driving the input signal louder. Grind affects the final output stage of the compressor, so it will affect both wet and dry signals alike, and can be used simply for sonic color of the dry signal even if no compression is desired.

> *Note: Switch the Grind in and out. Listen to what it is doing to the tone of the audio. Listen to things like the snare and kick. Grind can help add density and glue to the tones with in a mix. Its not a subtle effect and is great for Rock and Pop mixes. Many of our users just leave it in all the time. It is sonically like a second compressor all together. For classical and some acoustic music, or if you want transparent dynamic control, you may prefer to leave it out.*

4. INSTALLATION:
The SB4001 is a 500 series format compressor. It requires two channels in a 500 series compatible rack.

Be sure to safely and securely seat the edge cards of the SB4001 into the edge connectors of your 500 rack before inserting the module. If the mounting holes on the front of the module do not properly align with the mounting holes on the rack, it can be adjusted by using a gentle, slight up and down rocking motion while inserting the module.

NEVER TWIST OR FORCE THE MODULE INTO THE RACK!

> *Note: The SB4001 can also be used in a 51x rack. If you do we suggest that you place a small piece of card board into the bottom 2 fingers of the 51x edge connectors in to insure that you have the SB4001 in the proper alignment to be compliant with the standard VPR alliance.*

5. MAINTENANCE AND CLEANING:
Normal cleaning and maintenance practices should be followed with the SB4001 as all of your other studio gear. The SB4001 uses high quality components, and sealed pro-audio switches and pots, so the switches and pots do not require any regular cleaning.

6. WARRANTY:

The SB4001 is covered under a limited warranty from manufacturer defect for a period of 2 years from date of purchase by the original owner, subject to factory inspection. Warranties are tracked by serial number. Warranties are non-transferrable.

Warranty does not cover loss or theft, nor does coverage extend to damage caused by misuse, abuse, neglect, unauthorized modification or tampering, improper storage conditions, power surges, lightening, or other natural disasters. Warranty does not cover wear and tear items (such as pots and switches) or cosmetic wear. Shipping and transport damages are not covered under warranty.

In the event of required maintenance within the warranty period, unit should be returned to Serpent Audio (or authorized repair facility). Inbound freight charges are the responsibility of the end user. Warranty does not cover return overnight or express shipping charges.

Serpent Audio does not authorize field repairs. Any modifications/attempted repairs by unauthorized personnel or tampering/ removal of the warranty seal or serial number label will void the warranty. Repairs outside of the warranty period will be subject to parts and labor charges determined at the time of repair.

Serpent Audio reserves the right to alter the hardware, software, documents, and design of its products without notice.

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