

# NOVATRON

## DEEPER INTO THE CONTROLS



## WELCOME TO NOVATRON

Novatron is an analog-modeled compressor that borrows so many sonic properties from so many different classic hardware units that, ironically, it could only exist in the world of dsp. It has separate input and output transformer Saturations, two optional Tone circuits, and a monstrous Compressor with groundbreaking attack and release characteristics, all of which give you a nearly endless set of colors and styles to play with.

But what mainly sets this plugin apart from all the others is its gorgeous sound; through painstaking modeling of the first 100 microseconds of the compressor's response to transients, Novatron produces the same three-dimensional 'solidity' and tonal smoothing effect that is typically reserved for expensive hardware. It also tames transients with a distinctly analog character: fast, firm, and weighty, bringing a much-needed warmth and realism to the world of ITB productions.

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### THE COMPRESSOR



**ATTACK** Novatron's Attack knob is unlike any other in that it doesn't just adjust the attack time, it also adjusts the personality of the compressor's "grab" by morphing through the attack characteristics of 3 analog compression circuits: FET, VCA, and Variable-Mu (tube). FET is known for its growl, VCA for its snap, and Variable Mu for its size and weight. At its fastest, Novatron is more akin to distortion than compression; at its slowest, it packs a hefty punch. As with all Kush processors, experimentation is rewarded.

**RELEASE** Like the Attack knob, Release morphs thru FET, VCA, and Variable M $\mu$  characteristics. While people don't often think of different compressors' Releases as having personalities, they do. Fast FET is bright and aggressive, medium VCA is thick and dense, and slow Variable M $\mu$  is transparent and musical. Pairing a 100 microsecond FET attack and 1000 millisecond Variable M $\mu$  release is something only Novatron can do, and it's quite a trick.



**COMPRESSION** This knob is a threshold control coupled to a finely tuned auto-gain algorithm. Turn this knob clockwise to increase the amount of compression, turn it counter-clockwise to ease up on the total gain reduction. As a general rule, Novatron operates in its sweet spot when this knob is between 9 and 3 o'clock. If you find yourself constantly setting the Compression knob very low or very high in order to get the compression you like, consider optimizing your gain staging using the simple procedure outlined in the Tips and Tricks section at the end of this manual.

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### SATURATION



**DUAL TRANSFORMERS** Novatron is the first compressor we know of — analog or plugin — to offer fully controllable Transformer Saturation on both the Inputs and the Outputs. This allows the operator to shape the tone and transients before compression, making them rounder and easier to control, as well as after compression, where they can be

further softened and thickened. Either or both Saturation stage can be driven into outright distortion, and each has a distinctive tone. The Input Transformer is steel and favors odd order harmonics for a brighter, more aggressive sound. The Output Transformer is nickel and favors even-order harmonics for a warmer, weightier sound.

Clicking the Link control in the center links both Saturation levers, allowing for adjustments to both circuits simultaneously while preserving the relative ratios of one to the other. This is especially useful for fine tuning the amount of grit and distortion after the Compressor has been dialed in.

### ATTITUDE



**MODE** This rotary switch activates one of three compression ratios, each with its own ratio, knee, release taper, and harmonic character, all crafted by UBK to cover the tasks engineers do most often. Mix is a very gentle, low ratio, soft knee affair, tuned for mix bus glue but equally adept at transparently reigning in the most delicate of instruments, including vocals. Limit is a 6:1 medium knee leveler that can impart heavy density without completely crushing the internal dynamics of a sound. Punish does exactly what its name implies, and was purpose-built for the era of parallel compression and artfully destructive forms of smashing.



**TONE SHIFT** Use this rotary switch to choose between 2 switchable pre- and post-compression emphasis circuits — Dark, with a gently rolled-off 525-ish vibe, and Airy, with a softly present La2a sparkle — along with 'Flat', which defeats the tone circuit entirely and allows for more neutral processing when desired.

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### METERING



#### ENERGY DELTA

In mathematics, 'Delta' is the measure of variation or change in a variable. Novatron's simple trick of superimposing the Input and Output meter directly on top of one another makes it extremely easy to see the change in energy and movement of a sound as a result of the processing applied. It also makes quick work of accurately matching Input and Output levels, allowing the operator to make more accurate a/b comparisons.

#### GAIN REDUCTION

It's true, your eyes are not deceiving you: this is a genuine gain reduction meter with actual numbers to indicate how much compression is being applied. If you're familiar with the Kush design aesthetic you'll know this is a rare thing to find on Kush gear, which tends to emphasize using your ears instead of your eyes. So when in doubt, ignore the meter and trust your instincts!



### ROUTING AND GAIN STAGING



#### SIDECCHAIN / BLEND

The Sidechain knob controls a simple HPF filter which does not affect the audio path, it simply filters out unwanted frequencies from the detector path, allowing the operator to shape what the compressor responds to. What sets this filter apart is that it sweeps all the way up to 3kHz, which allows the Novatron to focus primarily on the harsh midrange and presence frequencies while preserving all of the punch and definition of the bass and low-mids.

The Sidechain filter is also in effect when the Sidechain switch is set to External (see below), allowing for even greater control over signals sent into the Novatron for keying, pumping, and ducking effects.

The Blend knob is a standard wet/dry control, and blends the Output with the raw, unprocessed Input signal.



#### INPUT / OUTPUT

Input controls the level being fed to the whole circuit. Output controls the level after all processes have been applied, including the wet/dry Blend (below). Input controls are often overlooked, but on Novatron it's a great way to increase or decrease the cumulative effect of all the individual processors, while preserving their relative relationships to one another. So if you like the way everything sounds but it's just a bit too much (or too little), just massage the Input knob.

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### DSP / AUXILIARY CONTROLS



**BYPASS** Bypasses Novatron

**OVERSAMPLING ON/OFF** Toggling this switch defeats Kush's custom, proprietary oversampling algorithm and filters, which frees up critical CPU cycles. This is a session-wide preference, so toggling the Oversampling for one Novatron automatically toggles it for every other Novatron in the session. Novatron's code has been highly optimized so this control can generally be left On in all but the most demanding sessions.

**SIDECHAIN: INTERNAL/EXTERNAL** This switch allows the operator to route an external signal from the DAW directly to the Novatron's detector, which lets the compressor apply gain reduction to the input signal in response to a completely different audio stream. See Tips and Tricks below, or visit UBK TV on [thehouseofkush.com](http://thehouseofkush.com), for more information on how to use this function creatively in your productions.

**POLARITY (∅)** Toggle this switch to invert the polarity (aka "flip the phase") of the Novatron's Output.

**LINKED/UNLINKED** This button affects the detector and determines whether, on a stereo instance, the left and right channels of the Compressor react and behave completely independently (Unlinked), or whether they both respond with the same amount of gain reduction by averaging the energy of the left and right channels (Linked). Unlinked is generally associated with a wider, more open stereo image, Linked ensures that there are no dramatic imaging differences or distracting 'flicker' of the stereo field when compressing an unbalanced or 'tilted' program.

**HELP** Press this button to go directly to the Support page at [thehouseofkush.com](http://thehouseofkush.com)

**NOVATRON INFO** Click to view a handy reminder of what all these fancy controls are for.

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### PRESET MANAGEMENT



**BANK** Banks are handy ways to organize groups of presets into categories you create. To select a bank, click directly on the current bank name and a dropdown list will appear. Select New to add a new bank to this list. Select Rename to rename the current bank, editing directly on the name itself. Select Delete to delete the current bank. **WARNING** deleting a bank deletes ALL of the presets within that bank, and cannot be undone. A warning dialog will appear to confirm you wish to do this, please choose carefully!

**PRESET** A preset stores the state of every knob and switch on the main GUI, as well as the state of the Sidechain select, Polarity switch, and detector Link. Use this to save and recall your favorite settings, trade settings with other Novatron users, and import new banks from UBK whenever he can remember to do such things.

To select a preset, click directly on the current preset name and a dropdown list will appear. Select Save As to create a new preset in the current bank. Select Save to overwrite the current preset.

**STATUS LED** This light indicates whether the current state of Novatron's controls is identical to the settings in the currently active preset. Green indicates that the Novatron's settings and the preset are identical, Red indicates that controls have been changed since the preset was loaded. **WARNING** If you load a different preset when the Status LED is Red, you will lose the changes you've made to the current preset.

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### TIPS AND TRICKS

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#### **GAIN STAGING**

When you first bring a signal into Novatron, set all the compressor knobs straight up, all Saturation levers at minimum, Mode to Limit, S/C HPF to 0 (Fully CCW), and Blend to 100. Now adjust the Input control until you just begin to see meaningful compression, 1-3dB of reduction. This initial setup will optimize the plugin's internal headroom and levels flowing thru the various circuits in a way that allows for maximum control over all the nuances each section can afford, in a way that respects the degree of processing you prefer to hear. This also lets the Compressor's Auto-Gain algorithm function in its sweet spot, minimizing level shifts as a result of intense processing.

#### **INITIAL EXPLORATION**

Put Novatron on a drum buss with a simple kick, snare, and overheads/cymbals setup. Set the controls as above in Gain Staging, then adjust Compression until you have 7dB of gain reduction on the peaks. Now, with the volume on your monitors lower than usual, adjust one control at a time to one extreme, back to baseline, then to the other extreme, and listen to what each control does. For a relatively simple set of controls, you'll soon find that Novatron is capable of creating almost any imaginable style and texture of dynamics and tone shaping.

#### **COMPRESSION AS DISTORTION**

The Novatron is brutally fast, and when set to its fastest attack and release will result in a sound that's more akin to distortion than compression. Learning to hear and shape this ability can be a remarkable tool for shaping, e.g., the tone of a bass instrument. Try inserting Novatron on a bass sound, setting both controls to their fastest, and digging in with Compression to 5dB. Now slowly ease up on the attack a little at a time and listen to the changes in tone. Do the same for release. When you get a tone that's interesting, use the Blend knob to restore some transients and movement.

#### **LEVEL MATCHING**

When using the Energy Delta meter to line up Input and Output levels, remember that both saturation and compression decrease peak energy and increase average (rms) energy. That means that, in general, your Output meter won't deflect as high as your Input meter, nor will it drop as low. It will also tend to move slower in general. If you set the Output level so that the yellow Output meter is riding ever so slightly out in front of the green Input meter, your bypass will result in a relatively minimal gain change.

#### **PRESET MANAGEMENT**

It's common practice to organize presets by Instrument type, such as Drums, Guitars, Mix Bus. But consider organizing some by tone, attitude, or theme. In UBK's various preset folders you'll find banks named 'fast and aggressive', 'smooth and open', 'slow but dirty' etc. These allow you to explore various textures regardless of what instrument you're focusing on, and can promote a different state of mind when mixing, namely one that thinks in terms of color and personality.

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### WHAT'S NEXT?

#### GOT QUESTIONS?

We've got answers! Head to [www.thehouseofkush.com/support](http://www.thehouseofkush.com/support) for all your plugin support needs.

#### INTO ANALOG?

Ready to pull the trigger on some of Kush's Analog options? Head to [www.thehouseofkush.com/analog](http://www.thehouseofkush.com/analog) to read up on all the latest Kush has to offer. Watch videos, hear demos, and drool over the fantastic, warmth and detail only Analog can bring to your sound.

#### WANT TO WIN A FREE PLUGIN?

Learn to mix while Gregory Scott (UBK) of Kush Audio and ITB Mixing pro Nathan Daniel answer listener questions, crack themselves up, and offer weekly chances to win FREE Kush plugins! Search "UBK Happy Funtime Hour" on iTunes and Stitcher, or visit...

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