# P44 Magnum

User Guide

Version 1.0

Foreword

It began with the intent to make the core P42 saturation circuit available to a wider audience at an accessible price point. The goal was never to simply recycle existing code, add a new graphical interface and present it as something novel. Fate had its own plans. While the initially named P42 Jr originated from P42 Climax, it rapidly established its own unique identity, style and workflow. With a determination to forge its path rather than live in its predecessor's shadow, P42 Jr demanded a distinct identity and was subsequently bestowed with the name P44 Magnum. A star was born.

Magnum, with its penchant for unleashing raucousness, demanded a new approach to conduct its chaos from within – a hard clipper was in order. The challenge was that Pulsar Modular had never delved into the realm of hard clippers before, often finding their glassy results undesirable. Thus began a quest to design a hard clipper that flat-out refused to produce unpleasant or glassy sounds. Once the new hard clipper design was complete and seamlessly integrated, Magnum truly found its voice, revealing its true colors, showcasing its potential and most importantly, showing how dangerous it can be when the cub becomes the alpha.

If you're acquainting yourself with P44 Magnum, my advice is not to approach the experience casually. Instead, push ahead with ferocity!

Pulsar Modular – **The sound is unbelievable.**

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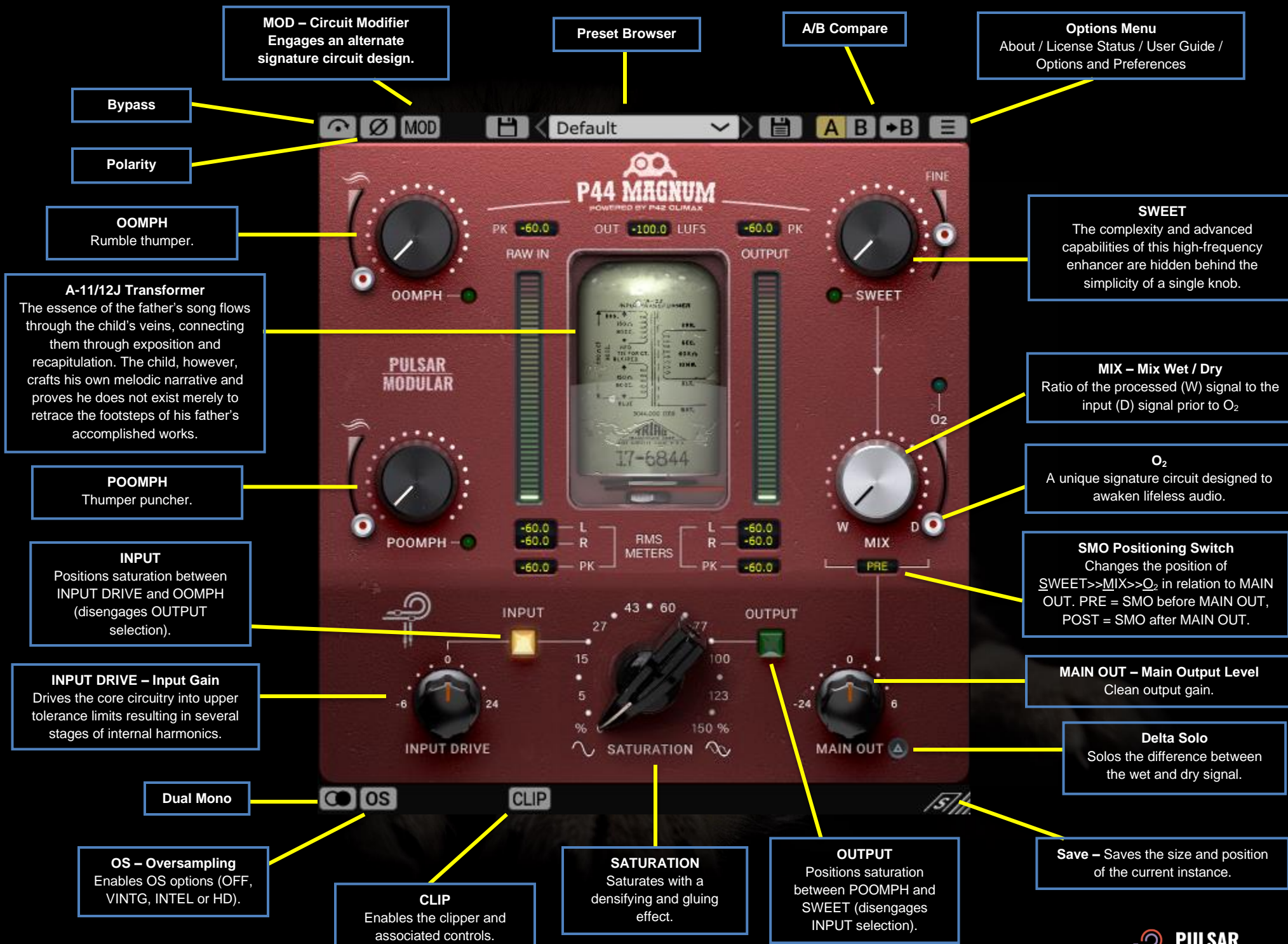
MOD – Circuit Modifier
Engages an alternate
signature circuit design.

Preset Browser

A/B Compare

Options Menu
About / License Status / User Guide /
Options and Preferences

Bypass

Polarity

OOMPH
Rumble thumper.

SWEET
The complexity and advanced
capabilities of this high-frequency
enhancer are hidden behind the
simplicity of a single knob.

A-11/12J Transformer
The essence of the father's song flows
through the child's veins, connecting
them through exposition and
recapitulation. The child, however,
crafts his own melodic narrative and
proves he does not exist merely to
retrace the footsteps of his father's
accomplished works.

POOMPH
Thumper puncher.

MIX – Mix Wet / Dry
Ratio of the processed (W) signal to the
input (D) signal prior to O_2

O_2
A unique signature circuit designed to
awaken lifeless audio.

INPUT
Positions saturation between
INPUT DRIVE and OOMPH
(disengages OUTPUT
selection).

SMO Positioning Switch
Changes the position of
SWEET>>MIX>>O_2 in relation to MAIN
OUT. PRE = SMO before MAIN OUT,
POST = SMO after MAIN OUT.

INPUT DRIVE – Input Gain
Drives the core circuitry into upper
tolerance limits resulting in several
stages of internal harmonics.

MAIN OUT – Main Output Level
Clean output gain.

Delta Solo
Solos the difference between
the wet and dry signal.

Dual Mono

OS – Oversampling
Enables OS options (OFF,
VINTG, INTEL or HD).

CLIP
Enables the clipper and
associated controls.

SATURATION
Saturates with a
densifying and gluing
effect.

OUTPUT
Positions saturation
between POOMPH and
SWEET (disengages
INPUT selection).

Save – Saves the size and position
of the current instance.

P44 MAGNUM
POWERED BY P42 CLIMAX

PK -60.0   OUT -100.0 LUFS   -60.0 PK

RAW IN   OUTPUT

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FINE

OOMPH   SWEET

POOMPH

-60.0 L   L -60.0
-60.0 R   R -60.0
RMS METERS
-60.0 PK   PK -60.0

W   D
MIX

PRE

INPUT   43 • 60   OUTPUT
27   77
15   100
5   123
%   150 %

INPUT DRIVE   SATURATION   MAIN OUT

OS   CLIP

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Bypass allows the unaffected audio signal to pass through without being processed.

Polarity inverts the audio signal.

P44 exhibits a sonic signature that melds with audio passing through it just by virtue of being enabled on a track, much like a hardware device. The **MOD** button activates an alternative circuit design that imparts a tape-like sonic character.
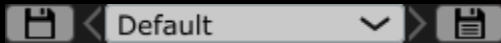
Browse, load and save presets using the Preset Browser. Save over the current preset by clicking the left save icon or create a new preset with the right save icon. A red asterisk* will show up next to the left save icon to indicate it can be overwritten.

Tip: Modified factory presets will be preserved when updating the software if the install presets option is not selected. This is the default update version installer setting.

A/B allows for temporary storage of different settings for quick comparison. The arrow button allows for copying the active side to the inactive side.

Tip: When comparing settings, clicking the A/B button will perform the toggle. This is a single button, so it is not necessary to move the mouse to alternate back and forth. This makes it easy to compare without knowing which one is selected. We recommend doing this with your eyes closed for maximum focus.
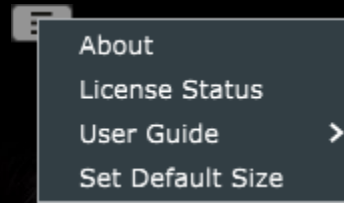
Options Menu

About – Check the version number or demo expiration date.

License Status – Manage your license and unlock upgrade options.

User Guide – Open the user guide.

Set Default Size – This option can be selected to apply the size of the current P44 instance as the default size for all instances of P44.

The **Dual Mono** feature enables analog emulated channel tolerance variations in left and right channels. Enable this option as an alternative to stereo operation to experience a naturally wide and dynamic image.

Note: Dual Mono cannot be activated on a mono track.
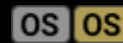
Oversampling allows P44 to optionally operate at a multiple of the host sample rate. With OS off, P44 operates at the host sample rate (x1).

When oversampling is on, different options are made available. See the descriptions of VINTG mode, INTEL mode and HD mode below.

Tip: Don't assume that an oversampled signal is better. Try each option and use your ears. At x1 when working at a sample rate of 44.1 Hz or 48 Hz, there may be some aliasing present, however this very often creates a pleasing color.

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Note: CLIP is always oversampled at x4 and is not affected by the OS selection or state.

VINTG   VINTG (vintage) mode operates at double the host sample rate (x2). It applies smooth filters to upper frequencies to maintain a classic rolled-off characteristic and allows any aliasing signals to remain unfiltered. This provides the ability to creatively combine a smooth, vintage top end with modern inharmonic distortion. This is most effective when oversampling at a 44.1 kHz or 48 kHz host sample rate.

INTEL   INTEL (intelligent) mode operates at double the host sample rate (x2). It scans the full frequency spectrum and attenuates any aliasing signals. The amount of processing applied by this advanced filtering is highly dependent on the signal and the degree to which P44 is being pushed.

HD   HD mode operates at an internal sample rate of 384 kHz. It utilizes the same full frequency scan filtering strategy as INTEL mode. The high sample rate and filtering mechanism make this a pristinely high-quality option at a surprisingly efficient CPU load. This mode is equally suitable for mastering duties or for key tracks when mixing.

To achieve HD oversampling, P42 applies the following logic:
- 44.1 and 48 kHz oversamples at x8
- 88.2 and 96 kHz oversamples at x4
- 192 kHz oversamples at x2, thereby enabling INTEL and VINTG options
- 384 kHz disables oversampling options

CLIP CLIP [0.0 dBFS] GR 0.0 dB OUT 0.0   Clicking the CLIP button enables the clipper and all associated controls. Having been crafted by a designer who had not yet met a digital hard clipper he had been satisfied with,

the clipping routine in P44 is of remarkable quality. This extraordinary go-to hard clipper uniquely maintains the integrity of source characteristics such as timbre, imaging and solidity with unmatched quality.

To the right of the CLIP button, a dBFS slider allows the clipping threshold to be set to a maximum of -18 dBFS. To the right of the dBFS slider, the GR display shows the amount of signal being clipped. Finally, the OUT slider allows for post clip level adjustments ranging from -18 dB to 9 dB.

CLIP is at the very end of the P44 signal chain, appearing after the MIX knob. It is always being x4 oversampled regardless of the OS button state.

Tip: Since CLIP appears at the end of the signal chain post MIX, it can be used to clip a fully wet signal, a combined parallel wet/dry signal or even a fully dry signal. When the MIX knob is set to 100% dry, P44 is essentially in 'clipper only' mode.

Tip: Try engaging CLIP and push signal into it using very aggressive SATURATION, INPUT DRIVE and any other parameter you wish. Compensate by bringing down the OUT slider. The result is a bombastically beautiful, brutalized signal that is suitable for all of your creative needs.

Tip: If you find that using CLIP takes just a little of your top end, use SWEET, O_2 or a combination of both to restore it.

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OOMPH brings thumping power that is felt as a low-end energetic rumble. It ranges from the infrasonic into the sub bass region.

Years of conventional myths that have spread throughout modern communication channels have misguidedly encouraged everyone to cut all the lows of a mix. We say embrace it and give it some OOMPH!

OOMPH is tuned by ear to enrich the currently selected center point with an ideal Q, curve and amplitude combination.

The smoothing slider found to the left of OOMPH allows you to contour the lower edge of the boosted frequencies thereby framing it with a little tightening and reduction of the effects of the circuit. At the lowest position, there is no smoothing. As the slider is moved upward, the contour will become more prominent, resulting in further reduction and tightening of OOMPH.

Pressing CTRL+ALT (Windows) or CMD+OPTION (Mac) on the keyboard while the mouse is positioned over this control will temporarily disable it until the keys are released.

Enable or disable with the green light.

Tip: Both OOMPH and POOMPH are non-linear processes that react in a non-static way to the incoming audio so don't be alarmed if you can't precisely gain match the audio at both ends of the plugin. Live with it :).

POOMPH picks up where OOMPH leaves off. POOMPH is to punch what OOMPH is to thump. POOMPH is both felt and heard, ranging from the sub bass region into the lower end of the bass region.

Please have a look over the OOMPH section above since the description of the structure of the curves and the design of the smoothing slider are consistent between OOMPH and POOMPH.

Pressing CTRL+ALT (Windows) or CMD+OPTION (Mac) on the keyboard while the mouse is positioned over this control will temporarily disable it until the keys are released.

Enable or disable with the green light.

Tip: The OOMPH and POOMPH curves interact in interesting ways depending on their intersecting crossover points. Sometimes complementary bumps occur at different points and sometimes there is a cumulative response. Experiment and trust what you hear when you hear it!

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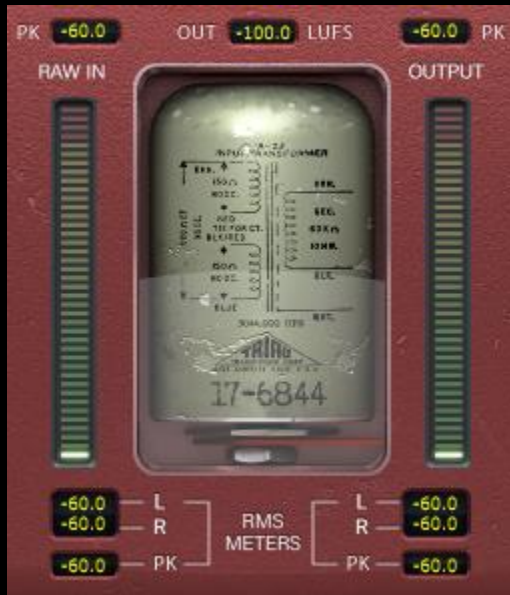
The metering shows several pieces of information including LUFS (Loudness Units relative to Full Scale) measurements, dBFS PK (decibels relative to full scale peak hold) measurements, and RMS / PEAK RMS (Root-Mean-Square) bar meters and measurements.

The top PK (peak hold) measurements hold the highest measured RAW IN and OUTPUT peak values.

The LUFS OUT measurement shows short term LUFS.

The bar meters show RMS / PEAK RMS measurements.

The bottom display shows LR (left/right) RMS averages and the PK RMS (RMS peak hold) RAW IN and OUTPUT measurements.

All measurements will be reset if the DAW is stopped/started.

SWEET is a custom designed high frequency filter effect created to be honey sweet and crisp without a hint of harshness.

Pause and listen carefully while sweeping through SWEET to take notice of your highs expanding in all directions. It is much more than a combination of filters with unique curves.

The FINE slider found to the right of SWEET allows for subtle adjustments to the amplitude of the bell filter portion of the circuit without affecting the unique combined shape of the curve.

Pressing CTRL+ALT (Windows) or CMD+OPTION (Mac) on the keyboard while the mouse is positioned over this control will temporarily disable it until the keys are released.

Tip: If you use any automatic frequency smoothing style plugins that notch out high frequency resonances, try following it with P44 Magnum with a combination of SATURATION and SWEET to inject and lift pleasing upper frequency content in place of what you removed.

The MIX WET/DRY knob blends unprocessed dry signal in with the processed wet signal.

Note: MIX always resides between SWEET and O_2. A blended wet/dry signal must be fed into the O_2 circuit as a single entity to retain the integrity and intention of the overall plugin design.

The SMO Positioning Switch (SMO is short for SWEET, MIX and O_2) changes the position of the SWEET >> MIX >> O_2 combination of controls in relation to the MAIN OUT knob. If it is set to POST, SMO is after MAIN OUT. If it is set to PRE, SMO is before MAIN OUT.

Note: A signal flow diagram is included near the end of this guide.

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O$_2$ is a unique circuit algorithm that has the effect of expanding or swelling an audio signal beyond the confines of the original sound. The sensation is reminiscent of introducing a long, deep, airy breath into the audio.

Pressing CTRL+ALT (Windows) or CMD+OPTION (Mac) on the keyboard while the mouse is positioned over this control will temporarily disable it until the keys are released.

Enable or disable with the green light.

The INPUT DRIVE knob pushes additional input gain into the transformer which increases the even order harmonics. Use this in tandem with the saturation slider to dial in an ideal harmonic balance that flatters your material.

Hold the shift key while adjusting INPUT DRIVE to have MAIN OUT automatically compensate.

Tip: Simply pushing INPUT DRIVE all the way up and pulling the MAIN OUT all the way down brings a liveliness and openness to any audio without ever being over the top. It accentuates the energy in the body of a sound and breathes a little life into it. Killer move.

If the saturation position option is set to INPUT, the saturation circuit is positioned at the beginning of the signal path, so all other processing is applied to the saturated signal.

If set to OUTPUT, the saturation circuit is positioned immediately before MAIN OUT, so all other processing has the opportunity to push different features of the signal into the saturation routine.

Tip: INPUT can be used for relatively pristine saturation which is then enhanced by blending in the distinctive qualities of the other circuits, whereas OUTPUT can result in more intensely focused and potentially aggressive saturation driven by characteristics you wish to be featured.

Note: A signal flow diagram is included near the end of this guide.

The P44 Magnum saturation has a gluing, compression-like effect that smooths out sharp digital peaks and densifies the source.

Tip: Magnum saturation tends to thicken and intensify signal throughout the mid to upper mid ranges. A simple and effective workflow is to first dial in the SATURATION while focusing on transient peaks and mid presence, then complement the setting by balancing the signal using OOMPH, POOMPH, SWEET and O$_2$.

The MAIN OUT knob is for pristine gain adjustment.

Hold the shift key while adjusting MAIN OUT to have INPUT DRIVE automatically compensate.

Tip: The wide range of attenuation to -24 dB helps to gain stage the signal when the drive is pushed to increase the audibility of the harmonics.

Delta solo allows you to hear the difference (or delta) between the wet and dry signal. This allows you to hear just what the plugin is adding to or removing from the

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unprocessed dry signal. By default, the switch is off as indicated
by the switch being unlit.

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Managing Presets

Basics

If the option to install presets is selected during installation, updates will overwrite the original presets but custom named presets will remain untouched. Be sure to save your own presets with different names using the save as option (to the right of the preset browser), or alternatively, ensure the preset installation option is not selected when updating the software.

Backing Up Presets

Presets can be backed up and restored using your operating system file manager. Simply perform a copy/paste of either individual preset files or the full presets folder to a backup location of your choosing. The presets folder can be found in the following locations:

FOR WINDOWS

'C:\Users\Public\Documents\Pulsar Modular\P44 Magnum\Presets'

FOR MAC OS X

'/Users/Shared/Pulsar Modular/P44 Magnum/Presets'

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General

Fine Tuning Mode

Press and hold the modifier key (in macOS: "control, option or command", in Windows: CTRL) while left clicking to adjust the knobs or sliders. Alternatively, right click when adjusting knobs or sliders without the need for a modifier key.

Uninstalling P44 Magnum

FOR WINDOWS

- In 'C:\Program Files\Common Files\VST3', locate the 'P44 Magnum.vst3' file and delete it.
- In 'C:\Program Files\Common Files\Avid\Audio\Plug-Ins', locate the 'P44 Magnum.aaxplugin' folder and delete it.
- In 'C:\Users\Public\Documents\Pulsar Modular', locate the 'P44 Magnum' folder and delete it. This folder contains the user guide and presets. If no other folders exist under 'Pulsar Modular', this can be deleted as well.

FOR MAC OS X

- In '/Library/Audio/Plug-Ins/Components', locate the 'P44 Magnum.component' file and delete it.
- In '/Library/Audio/Plug-Ins/VST3', locate the 'P44 Magnum.vst3' file and delete it.
- In '/Library/Application Support/Avid/Audio/Plug-Ins', locate the 'P44 Magnum.aaxplugin' folder and delete it.
- In '/Users/Shared/Pulsar Modular', locate the 'P44 Magnum' folder and delete it. This folder contains the user guide and presets. If no other folders exist under 'Pulsar Modular', this can be deleted as well.

Restrictions

The USER may not reverse engineer, disassemble, re-sample, create Impulse Response profiles or re-record, decompile, modify, alter in whole or in part PULSAR NOVATION LTD audio plugins for the intent of renting, leasing, distributing, repackaging (whether for profit or not).
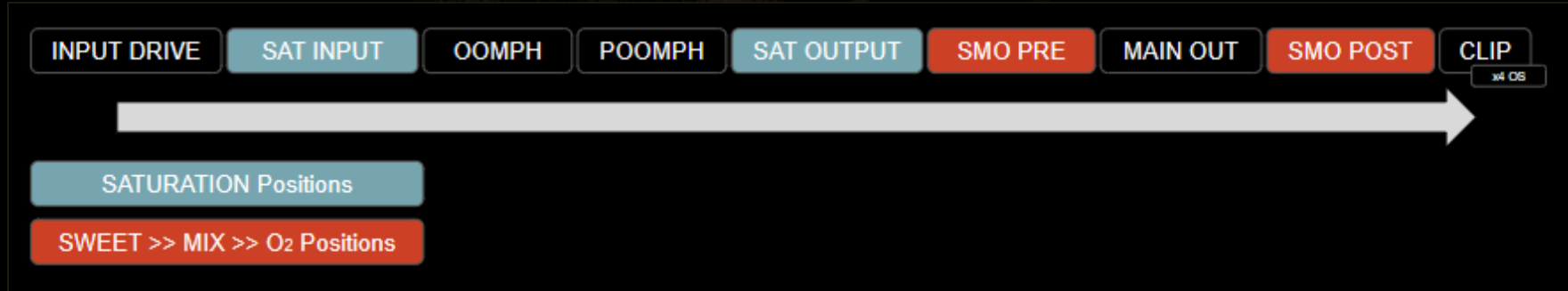
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Signal Flow Diagram

| INPUT DRIVE | SAT INPUT | OOMPH | POOMPH | SAT OUTPUT | SMO PRE | MAIN OUT | SMO POST | CLIP |

x4 OS

SATURATION Positions

SWEET >> MIX >> O₂ Positions

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