U2A

Manual

THE LEVELING AMPLIFIER

The U2A is an homage to what is rightfully considered the ultimate opto compressor of all times. It celebrates the bold minimalism and beautiful nonlinearities which built the legend, while providing unique access to system relevant component conditions for unconventional flexibility and control.

THROUGH THE DECADES

In the analog world, there is a wide variety in how the individual hardware units sound and behave due to physical aging effects. The U2A makes use of this phenomenon, allowing to blend from a freshly serviced unit with a new opto cell to an age-old vintage device in its original state. Meanwhile, the near magical program-dependent release character of the T4B attenuator can be tweaked with an individual knob.

TWO IN ONE

The U2A assigns makeup gain and THD injection to separate controls, so opto compression and tube saturation can be adjusted independently of each other. Rounded off with onboard parallel processing and the usual suspects like the infamous R37 sidechain filter network and a limiter mode switch, the ultimate tool for beefy and most musical leveling just got... complete.

T4B

This is where the magic happens! The legendary heart of this compressor design is its opto attenuator, which is the key for its ultimately smooth and natural leveling characteristics. While T4 cells basically consist of just an electroluminescent (EL) panel and a pair of photocells, getting their spec and interaction right has proven to be a tricky science in itself.

12AX7

Most of the dense tube sound associated with this epic compressor comes from a 12AX7 dual-triode which feeds into a 12BH7 based cathode follower. The original builds exclusively utilized the infamous Black Plate types by RCA as amplifier tubes, which today are highly sought after for their warm and deep tone with excellent low and high end projection. The additional 12AX7 and 6AQ5 tubes operate within the gain reduction control circuit.

HA-100X

The HA-100X input transformer found inside early models was created by UTC, incorporating a Hipermalloy nickel iron core, hum balanced coil structure and multiple alloy shields... a severe case of unobtanium these days. Replaced by the more broadly used A-10 later on, it forms a legendary pair of iron combined with the A-24 plate to line output transformer.

QUICK START

① Controls high frequency compression intensity. Turn left for more high frequency smack.

② Switches the characteristics of the compressor to a higher ratio and harder knee in Limit mode.

③ Influences the inertia of the opto cell and thereby the release behavior.

④ Defines the age-related condition of the opto cell and thus compression and sound characteristics.

⑤ Provides linear makeup gain to compensate for the level drop resulting from compression.

⑥ Shows either input level, gain reduction or output level (meter screw changes mode).

⑦ Sets the threshold and thus controls the desired amount of compression.

⑧ Controls the amount of soft clipping/saturation introduced by the tube amplifier.

⑨ Mixes the dry and processed signals for on-board parallel compression/saturation.

⑩ Engages or bypasses the entire signal processing chain.

ⓘ **Basic Workflow**

◔ Set compression with Peak and Gain.

◑ Tweak behavior with Recovery and Aging.

◕ Add harmonics/saturation with Drive.

● Finish off by adjusting Mix.

PARAMETERS

Peak

This knob controls the peak reduction intensity. It sets the threshold and thus controls the desired amount of compression. Technically, it adjusts the gain of the sidechain amplifier: Higher gain means more light being emitted from the EL panel and then absorbed by the photo resistors inside the opto cell, resulting in stronger compression. Just turn the control clockwise to increase peak reduction and you're done. Simplicity is king.

Note: If the Peak control is set fully counterclockwise, you can use the tube saturation stage of the U2A as a stand-alone module with basically no compression taking place at all. Read on…

Gain

Like on the classic hardware devices, this is the makeup gain for compensating the level drop caused by the peak reduction process. However, on the U2A this is a linear amplifier providing clean gain within a range from 0 to 40 dB, while all the beautiful audible effects coming from the tube amp have been assigned to an individual control: Drive. By separating level compensation and THD generation, you have full control over the desired amount of tube grit added to your signal at any given level.

Meter

The VU meter displays either input level, gain reduction or output level in dB. Its mode can be changed with the black screw at the bottom of the housing. The reference point is 0 VU = -14 dBFS.

PARAMETERS
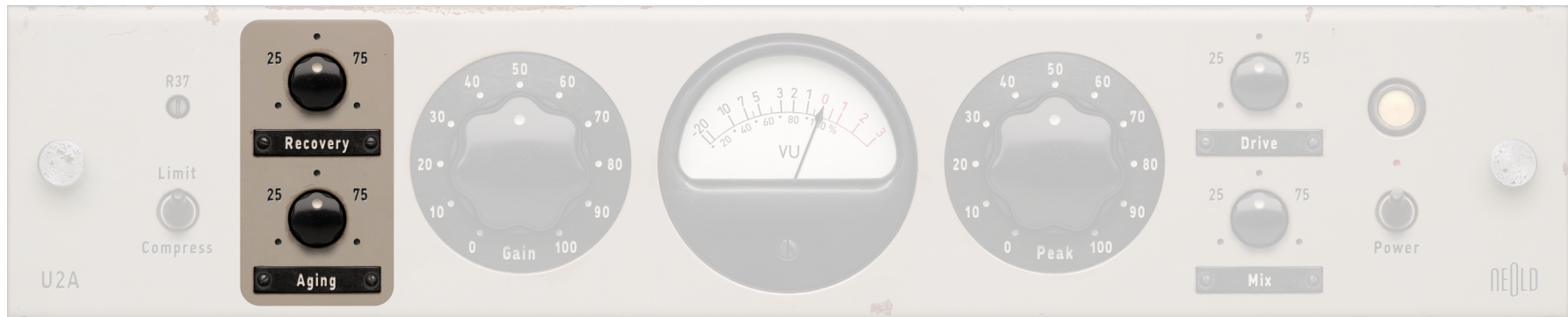
Recovery

The special program-dependent release behavior of the T4B opto cell is where the true magic of this epic compressor design happens. While the attack remains in the millisecond range, the release shows a wonderfully musical behavior which is fast at the beginning and slows down towards the end of the recovery phase. An additional memory effect extends the release time when strong gain reduction has been going on for some time.

While this works great for many signals, the downside is that there is no chance of adapting in case it doesn't fit so well. This is where the Recovery knob comes into play, as it provides control over the inertia of the EL panel and therefore over the unique release process. Turning counter-clockwise results in slower progressions.

Aging

The quest for referencing "The One" hardware unit is pretty much in vain, simply as it does not exist after all these decades. The electroluminescent panel and the photocells inside the T4B circuit as well as further electronic components are subject to aging effects which significantly alter the compression characteristic of each individual device.

The Aging knob makes use of this phenomenon by granting control over the physical material constants of the EL panel and the LDR components inside the T4B cell. Basically, this lets you blend from a stock unit with a brand new opto cell to a very old device after decades of operation. This complex, non-linear behavior modification impacts sound as well as compression charactersistics.

PARAMETERS
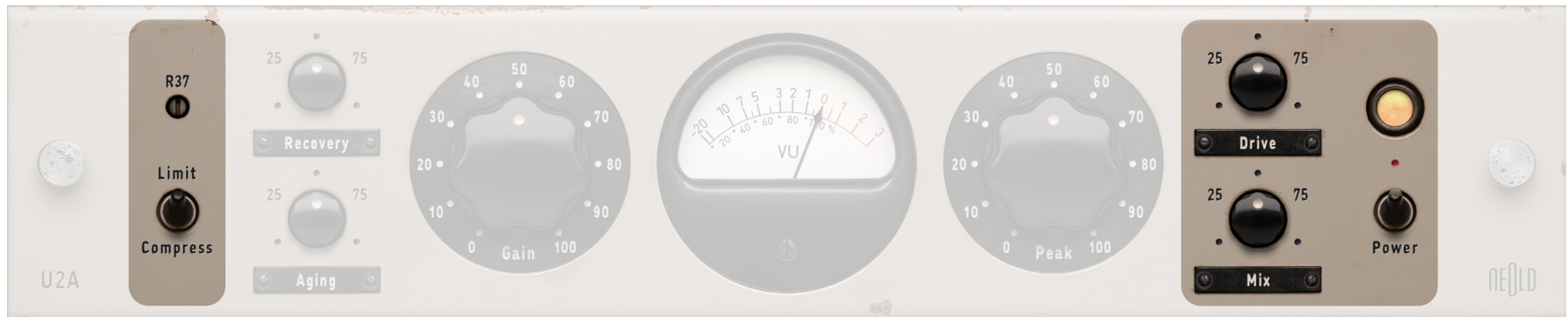
R37

Basically a relic from its roots in broadcast, the R37 trimmer controls the response of an emphasis filter inside the sidechain circuit. Turning the screw counter-clockwise attenuates the lower frequencies in the sidechain signal which results in a higher sensitivity of the compressor to HF content. Like on the original, flat is fully clockwise.

Limit | Compress

This switch alters the operation point of the T4B and hence the characteristics of the compressor. The Compress position produces a more gentle curve, while Limit results in stronger peak reduction with a higher ratio and a harder knee.

Drive

This control sets the saturation generated inside the 12AX7 tube amplifier stage. It is fully level-compensated for painless THD injection without levels jumping all over the place.
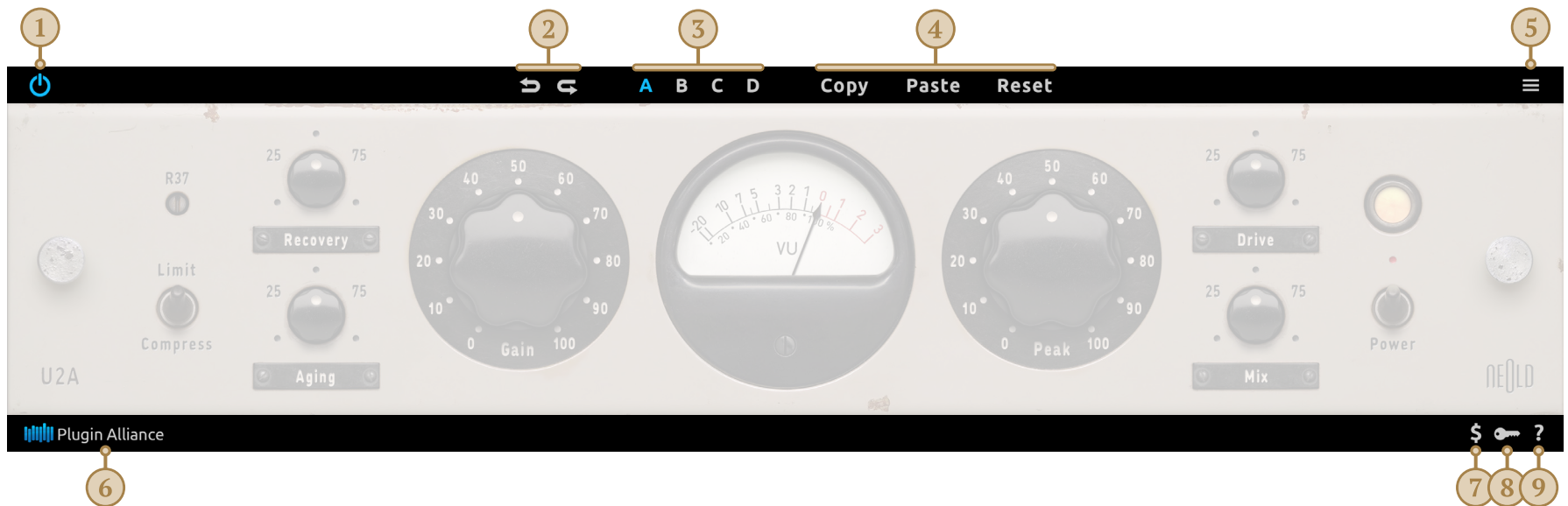
Mix

This knob blends between the dry and the wet signals and therefore provides instant on-board parallel saturation/compression.

Power

Clicking on the power switch or lamp engages or bypasses the entire plugin.

TOOLBARS

1. This icon provides a master bypass function for the entire plugin.

2. Undo/Redo offers up to 32 steps of your recent settings. Just go back and forth.

3. Four individual preset banks which can also be automated in your DAW.

4. Copy and paste current settings to/from clipboard or reset current settings to default.

5. Opens GUI preferences (set interface size and quality).

6. Clicking the Plugin Alliance logo will send you to the PA website via your web browser.

7. This icon will guide you to the Plugin Alliance Store via your web browser.

8. Brings up the activation dialog for authorizing plugin licenses for your devices.

9. Here you will find the manual (requires PDF reader installed) and other useful info.

ⓘ System Requirements & Supported Platforms Installation, Activation, Authorization, FAQs