IGNITE AMPS
engineering for the moshpit

PTEq-1a

AUDIO PLUG-IN

USER MANUAL

Summary

Introduction

PTEq-1a is a digital emulation of a famous Vintage Program Equalizer. It has been developed to have all the characteristics of the original hardware, plus some additional features to increase it's versatility.

Every single component on the signal path of the real analog circuit has been taken into account and modeled in the best possible way to match the original sound, keeping an eye to CPU performances and real-time playability at the same time.

PTEq-1a is meant to be used as a studio equalizer for tracking, mixing and mastering inside hosts capable of VST or AU Plug-Ins support.

Minimum System requirements

Windows:
Windows XP/Vista/7/8 (32/64 bit)
Intel Pentium 4 or AMD Athlon XP

Mac:
OSX 10.5
Intel processor with SSE2 instructions support

Installation

To install the PTEq-1a Plug-In, just follow the instructions below, according to the platform and plug-in format you want to use.

Windows VST:
Copy the **PTEq-1a.dll** file into your VST Plug-Ins folder (i.e. C:\Program Files\Steinberg\VSTPlugins)

Mac OSX VST:
Copy the **PTEq-1a.vst** bundle at the path: /Library/Audio/Plug-Ins/VST/

Mac OSX AU:
Copy the **PTEq-1a.component** bundle at the path: /Library/Audio/Plug-Ins/Components/

For Windows VST format, we provide separate x86 (32 bit) and x64 (64 bit) binaries, so make sure to choose the right one according to your operative system and plug-in host specifications.
Keep in mind that x64 binaries will not run on 32 bit environments, while x86 binaries will most likely run on 64 bit environments, although we do not reccomend such usage for performance and stability reasons.
We strongly advice the Windows user against putting both x86 and x64 versions in the host VST folder(s), as it may cause one of the versions to not be recognized as a plug-in.

Mac plug-ins (VST/AU) are compiled in Universal Binary format, containing both 32 bit and 64 bit code in the same bundle, which means that the user doesn't need to care about choosing x86 or x64 version, as the system will handle that automatically.

After installing the plug-in, you should (re)start your favourite VST/AU host, making sure it re-scans your Plug-Ins folder(s) to recognize PTEq-1a as a new "Effect" Plug-In (please note that some hosts may not re-scan the plug-in folder automatically at every start-up, so you may need to do it manually. Refer to your host's manual for instructions).
If everything is right, you should now see the PTEq-1a entry into the "Effect" Plug-Ins list of your host.

You're now ready to shape your tracks!

Main Features

– Three bands equalization with analog curve response
– Dynamic ECC88 / 6DJ8 SRPP stage analog modeling
– Additional selectable frequencies compared to the original design
– Mono / Stereo processing support
– Switchable Eq and Tube stage modeling for better CPU usage management
– Internal oversampling for aliasing reduction
– Variable Input and Output Level controls
– Double precision (64 bit) floating point internal processing
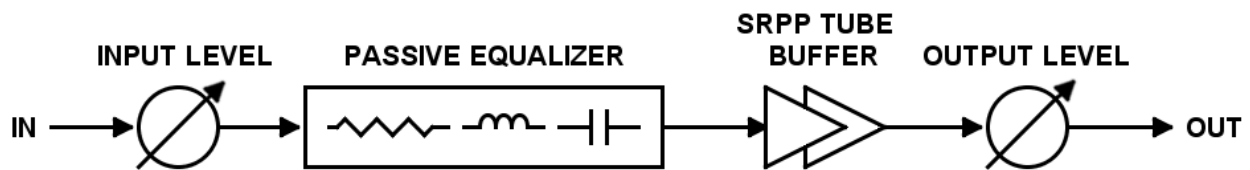– Fully automatable controls

PTEq-1a Circuit Diagram

Fig. 1 - PTEq-1a Circuit Diagram

Graphic User Interface

Fig. 2 - PTEq-1a Graphic User Interface

As you can see from the screenshot (fig.2), we decided to make PTEq-1a as similar as possible to a real studio rack unit, in order to make the user experience easier, giving the chance to tweak the controls of the plug-in like one would do when having a parametric tube equalizer in front of him.

Controls

In the PTEq-1a GUI you'll find the classic parametric equalizer controls along with other features.
From left to right:

Mono / Stereo: lets the user select the processing mode of the plug-in. Stereo Mode will obviously double the CPU load of the plug-in, as the two audio channels are being implicitly processed by two separated instances of the PTEq-1a core.

Input Level: lets you control the amount of signal going through the virtual circuit. The gain excursion of this control goes from -18db to +18db (there is a tick every 3db). The default value (knob at half) is 0db, or unity gain. It is very important to note that this control acts before the tube gain stage, so you can use it to drive the tube harder in order to achieve more harmonic distortion to enrich your tracks.

Low Frequency "Boost": controls the amount of gain applied to the low frequencies. The circuit is configured as a low shelving filter. You can select the frequency range with the Low Frequencies Selector. When setted to zero (potentiometer fully turned counter-clockwise), no boost will be applied.

Low Frequency Selector: a rotative 6 positions switch that controls the center frequency of the Low Boost and Atten controls. It features all the original design frequencies, plus some additional ones to increase it's versatility.

Low Frequency "Atten": controls the amount of cut applied to the low frequencies. The circuit is configured as a low shelving filter. You can select the cut frequency with the Low Frequencies Selector. When setted to zero (potentiometer fully turned counter-clockwise), no audible cut will be performed.

High Frequency "Bandwidth": controls the bandwidth (or "Quality" factor) of the high frequencies peak equalizer. Turning it to the left (Sharp) will result in a sharper "bell", turning it to the right (Broad) will increase the "bell" size.

High Frequency "Boost": controls the amount of gain applied to the high frequencies. The circuit is configured as a peak filter. You can select the peak frequency with the High Frequencies Selector and you can tweak the peak bandwidth (or "Quality factor") with the Bandwidth control. When setted to zero (potentiometer fully turned counter-clockwise), no boost will be applied.

High Frequencies Boost Selector: a rotative switch that controls the peak frequency of the High Boost control. It features all the frequencies available on the original design.

High Frequencies "Atten": controls the amount of cut applied to the high frequencies. The circuit is configured as a high shelving filter. You can select the cut frequency with the High Frequencies Selector. When setted to zero (potentiometer fully turned counter-clockwise), no audible cut will be performed.

High Frequencies "Atten Sel": a rotative switch that controls the center frequency of the High Atten control. It features all the original design frequencies, plus some additional ones to increase it's versatility.

Output Level: lets you control the amount of signal coming out of the plug-in. The gain excursion of this control goes from -18db to +18db (there is a tick every 3db). The default value (knob at half) is 0db, or unity gain. It is very important to note that this control acts after the digital circuit, so it is completely transparent on the harmonic content of the output. Having the same excursion of the Input Level control, you can easily use it to compensate for the eventual input boost/cut, in order to keep the output level constant.

Eq: a toggle switch to enable or disable the passive equalizer circuit. When switched off, the equalizer circuit will be completely bypassed. It is important to note that the equalizer circuit is placed before the tube output buffer, so every cut or boost performed will affect the tube stage and the harmonic content of the output signal.

Tube: a toggle switch to enable or disable the output buffer, featuring an ECC88 tube in SRPP configuration. When switched off, the tube circuit will be completely bypassed, saving a good amount of CPU. The tube simulation algorithm is advanced to the point of being comparable to the ones found in the most used electronic CAD softwares, but with real-time processing capability.
It delivers extremely realistic and detailed dynamic response. Even if it is not meant to saturate by design, it will still add even and odd harmonics, making you tracks instantly sound more rich, lively and pleasant. You can use the Input Level Control to drive the tube buffer harder. The tube is what makes these kind of vintage equalizers so special, so we suggest you to keep it enabled, especially when rendering your tracks.

Acknowledgments

Ignite Amps wants to thank the KVR Community for hosting the KVR Developer Challenge 2012, for which this plug-in has been developed.
Thanks to all the musicians interested in the Ignite Amps project, trusting us into taking care of their sound. You know who you are.

Thanks to You too, for downloading and trying the PTEq-1a Program Tube Equalizer plug-in and for reading the f***ing manual! :-)

Sincerely
The Ignite Amps Crew

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