

# ROUGH DRAFT *Audio*

*Presents*

## EQ22



An Equalisation Processor for Enhancing Transient Dynamics

Developed for the KVR Dev Challenge 2006



## Features

- 5 2Octave EQ bands, Enhanced with *Transient Dispersion* technology
- Global Tuning control to shift band centre frequencies +/-1Octave
- **Tube Warmer** control (with *Tube Freeze* feature) [for those without tube amps]
- Input and Output Gain controls
- Oversampled Audio Engine (easily turn off-and-onable)
- Internal soft limiting
- **Real Analogue** Sound

## Installation

Just drop the EQ22 dll into your VST plugins folder and restart your host. For further instructions, consult your host documentation.

### Notes

- *To uninstall, simply delete the files from where you placed them, and the file 'EQ22MIDI.txt' which EQ22 generates to keep track of MIDICC configuration. EQ22 makes no use of the Windows registry.*

## Usage

EQ22 has a very simple signal path, which can be visualised via the GUI controls when read left to right.

The Audio stream arrives at the left and is attenuated according to the InGain control; it is then split into the 5 EQ bands for user processing.

The processed bands are summed, and fed into the Tube Warmer, then a soft limiting section and finally passed back to the host application.

## Controls

*Note: Except where stated, all slider and knob controls have a 'Fine Tune' control by holding down Shift when moving the mouse, and can be re-centred by using Ctrl+Shift+click.*



### *InGain, OutGain*

These are simple controls which operate on a sliding scale, providing attenuation/gain from -∞dB->+6dB.

Above the halfway mark, the gain is linear in dB from 0dB->+6dB.

Below the halfway mark is scaled downward from 0dB->-24dB for the upper quarter, then -24dB->-96dB(-∞dB) for the lowest quarter.



### ***Tuning***

This scales the centre frequencies of the EQ bands upto a maximum of  $\pm 1$  Octave, and has been included to provide flexibility to the user, in recognition of the fact that not all audio responds well to traditional EQ centre frequencies.

For instance a part may be processed correctly through most of a song, but then there are a couple of key changes the harmonic content has shifted, and the sound is no longer as desired.

The EQ22 Tuning Control seeks to redress that problem by allowing the EQ bands to be adapted globally to the needs of the incoming audio.

NB. Tuning can be stepped by SemiTone by holding Shift when altering.



### ***EQ Bands - Lo, LoMid, Mid, HiMid, Hi***

These work in a familiar fashion to other Equalisation control found on many processors.

When attenuating a band, EQ22 is little different to these other processors; however, when boosting a band, a proprietary ***Transient Dispersion*** algorithm kicks in adding additional dynamic range to the audio.

***Transient Dispersion*** is a dynamic, adaptive technology developed at *RoughDraftAudio*, which works with a signal to enhance it's intrinsic properties.

NB the attenuation control follows the same pattern as for the InGain and OutGain controls, with 0dB- $\rightarrow$ -24dB in the upper quarter, and -24dB- $\rightarrow$ -96dB(-oodB) in the lowest quarter.



### *Tube*

The Tube Warmer section of EQ22 adds additional harmonics to the audio, reminiscent of traditional valves in older hardware processors.

Turning the knob clockwise from the central position will enhance the *warmth* of the audio. Turning the knob anti-clockwise from the central position will trigger the ***Tube Freeze*** feature and add a *brittleness* to the audio.



### *Muting/ Soloing EQ Bands*

EQ22 features the ability to Mute or Solo individual bands.

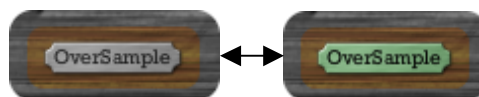
By clicking the name plate of a band, it can be muted/unmuted.

The nameplate takes on a reddish hue when muted.

To Solo a band, either right-click the relevant nameplate and select 'Solo', or click holding down Shift.

There are other shortcuts available when clicking the nameplates:

- Shift+click: Solo band
- Ctrl+click: Invert Muting configuration
- Ctrl+Shift+click: Unmute all bands



### *OverSample* (new in v1.1)

EQ22 has a built-in OverSampling engine (previously only available as a separate plugin). When enabled, EQ22 uses 2x oversampling to give enhanced clarity in the upper audio registers. Since there is a CPU overhead incurred doing this, it may be best employed during rendering operations.

*Note: Note that whilst the OverSample switch can respond to Automation, it is not recommended since it can cause clicks in the audio put through.*



### ***Context Menus***

Each of the controls in EQ22 has a menu associated with it. The Sliders and knobs have self describing 'Centre' option, and the EQBand nameplates have a 'Solo' option described above. The menus also give access to the MIDI Automation capabilities of EQ22.

### ***Automation***

All parameters of EQ22 can be automated via VST automation and MIDICC. To make use of VST Automation, refer to your host documentation for specific implementation. For MIDICC automation, ensure that your host can direct MIDICC data to an effect, and EQ22 will respond appropriately to the incoming control messages.

### ***MIDI Learn***

EQ22 features a MIDI Learn capability. To see the current configuration, right click a control and click the MIDI->Current Config option.

If you wish to redefine which CC is associated with a control, click the MIDI->MIDI Learn option, then move a controller on your MIDI control surface and EQ22 will respond.

To completely Reset MIDI Learn, either choose the MIDI->Reset to completely wipe out all MIDICC configuration, or MIDI->Restore Default to put the factory assignments back in place.

The factory assignments are:

<b><i>MIDICC</i></b>	<b><i>Parameter</i></b>	<b><i>MIDICC</i></b>	<b><i>Parameter</i></b>	<b><i>MIDICC</i></b>	<b><i>Parameter</i></b>
20	Lo	25	LoMute	30	Tube
21	LoMid	26	LoMidMute	31	Tuning
22	Mid	27	MidMute	32	InGain
23	HiMid	28	HiMidMute	33	OutGain
24	Hi	29	HiMute		

### Credits

- VST is © and <sup>TM</sup> Steinberg GmbH.
- All dsp and gfx © Duncan Parsons 2006/7
- DIB controls courtesy of Pete Morris [www.droopyeyes.com](http://www.droopyeyes.com)
- I am indebted to those who beta-tested EQ22, you know who you are...
- Thanks to all at KVR for being a great crowd
- Many thanks for the support and encouragement of the mighty BetabugsAudio Team [hurrah!] [www.betabugsaudio.com](http://www.betabugsaudio.com)
- Finally, 2^32 thanks to tuz whose inspiration kicked off the developer challenge ☺

This version [1.1] was prepared for Keys Magazine [www.keys.de](http://www.keys.de)

Watch out for updates and further RoughDraftAudio releases...  
[www.roughdraftaudio.com](http://www.roughdraftaudio.com)

**ROUGH DRAFT**  
*Audio*