CS-5501

CHANNNEL STRIP

MANUAL

TBProAudio

2020

1   Introduction

Welcome to CS-5501, a channel strip plugin with gate/expander, EQs, compressor, saturation, limiter, deesser, extensive side-chain and stereo placement options, flexible module routing, over sampling and AB_LM-Lite for perceptual loudness matching.

2 Features

CS-5501 offers following features:

- 2x 7 band EQ
- 2x noise gate/expander
- 2x compressor, VCA/FET/OPTP design
- 2x deesser
- 2x limiter
- saturation
- thermal noise for analogue sound emulation
- HQ over sampling
- signal overshot protection
- linkable input/output fader including phase inversion
- module parameter link
- extended metering, input/output/gain reduction, Peak, RMS, EBU and VU
- perceptual loudness matching (powered by AB-LM Lite)
- module routing
- extensive side-chain support for many effect modules
- many comfort functions like soloing and signal monitoring
- parameter randomizer
- preset management
- selectable colour theme
- large and easy to use GUI
- GUI resizing
- 64-bit internal processing
- very efficient CPU usage design

3 Overview

CS-5501 is a multi functional channel strip providing all necessary tools to process all kind of audio signals like vocals and instruments.

CS-5501 comes with double EQ/compressor/limiter/gate/expander/deesser modules, saturation and thermal noise emulation. All modules have stereo placement options and are freely routable. Some of the effect modules have external side chain options.

CS-5501 provides also IN/OUT/GR VU meter, IN/OUT fader, extensive monitoring functions and over sampling.

On top CS-5501 adds a new function called AB-LM Lite providing perceptual loudness matching.

4 Minimum System Requirements

- Windows XP SP3 or newer
- Mac OS X 10.9 or newer
- Win: 32/64 Bit VST, 32/64 Bit VST3, 32 Bit RTAS, 32/64 Bit AAX
- OS X: 32/64 Bit VST, 32/64 Bit VST3, 32/64 Bit AU, 32 Bit RTAS, 32/64 Bit AAX
- Tested with: Cockos Reaper, Steinberg Cubase/Nuendo/Wavelab 6/7/8/9/10, FL Studio 12.x/20.x, PT10/12/2018, Reason 9.5/10, Studio One, Ableton Live

5 Plugin Controls

Mouse usage:

Click and drag horizontally changes parameter value
Ctrl click and drag changes parameter value faster
Shift click and drag changes parameter value slower
Double click resets to default value, double click on text opens text entry
Right click opens text entry edit box, finish with enter.
Text entry box allows in many cases also the usage of "k/K" as shortcut for 1.000 (e.g. 1k24 for 1.240).

Please note that any parameter change of an effect parameter also enables the unit itself.

5.1 Preset

5.1.1 Preset

Preset menu loads and saves user presets. Presets stored under %localappdata%/CS5501 (Windows) or /Users/xxx/Library/Application Support/ CS5501 (Mac OSX) are imported as user presets. Previous and next buttons step trough all factory presets.
The parameter randomizer modifies the current parameter set on a random base, only active modules.

5.2 Meter section

5.2.1 Meter

Left/Right IN/OUT VU meter with standard ballistics. Left value shows the current meter value (in dB/LU/VU), right value shows the maximum value. Mouse click on the meter resets the meter. The red LED indicates values above 0;

5.2.2 Meter mode

Click here to change the meter mode: PEAK (dB), RMS (dB), EBU ML (LU), EBU SL (LU) and VU (dBVU). RMS uses 600ms ballistics, VU 300ms.

5.2.3 Meter calibration

Controls the reference level of Left/Right IN/OUT meter, in dBFS.

5.2.4　Meter display mode

Set the current meter display mode: IN, GR (gain reduction) or OUT.

5.2.5　Monitor

Controls the main monitor mode: either stereo (normal), left, right, mid or side signal.

5.2.6　Monitor mode

Set the monitor mode either to in-place or centred.

5.2.7　Bypass

Global plugin by-pass.

5.3　Clip protection & OS

5.3.1　Clip protection

Toggles clip protection. If enabled signal is clipped at ceiling level, in dBFS.
The red LED lights if signal is above ceiling level, regardless if clip protected is enabled or not.

5.3.2　Over sampling

Incoming signal could be over-sampled up to 2 or 4 times. Over sampling reduces magnitude/phase distortions near Nyquist frequency and let the filter sound much more "analogue".

5.4 Fader section

5.4.1   Input/output fader

CS-5501 provides independent left/right faders for incoming and outgoing signal. Double click on the fader handle enables direct value input.

5.4.2   Input phase

This control lets you invert the phase of incoming left and right signal

5.4.3   Link input/output fader

Toggles linkage of left and right input/output fader.

5.4.4   Link output to input fader

If enabled movement of input faders changes output fader in reverse direction.

5.5 AB-LM Lite

Please refer to chapter 6.

5.6 Routing

This section controls the order of the individual modules. Right click the slot where you want to change the effect and select the new effect from the drop-down menu.
Left click just calls the respective module. Mouse wheel scrolls through the menu.

The yellow LED indicates the activation of the effect. Click with left mouse button to activate/deactivated the effect, click with the right mouse button to show the effect in the GUI.
The blue solo button indicates the solo state of the module. Click to solo/unsolo the effect module. Click with the right mouse button to show the effect in the GUI.Shift mouse click adds module to solo group.

5.7 EQ

CS-5501 provides 2 independent EQ modules with 7 filters each. The filters are based on analogue design and minimize amplitude cramping near Nyquist frequency. This lets the filter sound much softer than normal digital filters.

5.7.1   EQ Module selector

Select EQ1/EQ2 module from drop-down menu

5.7.2   Off/On

Enables the module.

5.7.3   Solo

Solos the module. Shift mouse click resets solo states of all modules.

5.7.4   Stereo placement

The stereo placement of the effect can be changed to stereo/left/right/mid/side.

5.7.5   Filter band monitor

Each filter band (except LC/HC) can be monitored.

5.7.6   LC/HC

Low-cut/high-cut filter with switchable filter slope.

5.7.7   HF/LF

Peak/shelf filter with adjustable Q-factor.

5.7.8   HMF/MF/LMF

Peak filter with adjustable Q-factor.

5.8 Compressor

CS-5501 provides 2 independent compressor modules. The compressor squeezes the incoming signal depending on threshold and ratio.

The compressor design is based on TBProAudio's Impress and offers 3 different classical types:

<u>VCA</u> stands for "Voltage Controlled Amplifier" and its compression behavior is based on PEAK, with fast attack and release.

<u>FET</u> stands for "Field Effect Transistor". The 1176 is his most prominent representative and offers very short attack and release times.

<u>OPTO</u> stands for "Optical compressor" and its compression behavior is based on RMS, with slow attack and release.

5.8.1   Effect module selector

Select effect module from drop-down menu

5.8.2   Off/On

Enables the module.

5.8.3   Parameter link

Links parameter of compressor 1 and 2.

5.8.4   Solo

Solos the module. Shift mouse click resets solo states of all modules.

5.8.5 Stereo placement

The stereo placement of the effect can be changed to stereo/left/right/mid/side.

5.8.6 Side chain options

5.8.6.1 Internal/External

Selects either internal or external side chain. VST2 uses channel 3+4 as ext. side chain. For VST3/AU/AAX/RTAS please consult your DAW manual.

5.8.6.2 Monitor

Lets you monitor the side chain signal

5.8.6.3 Low-cut

Off/On: enables low-cut
Slope: sets filter slope
Frequency: sets filter cut-off frequency

5.8.6.4 High-cut

Off/On: enables high-cut
Slope: sets filter slope
Frequency: sets filter cut-off frequency

5.8.6.5 Link

Toggles linkage of LC and HC frequency.

5.8.7 Compressor type

VCA, FET or OPTO design

5.8.8   Threshold

Sets threshold value, in dBFS.

5.8.9   Attack

Sets attack-time, in ms. Lower values make the compressor more responsive.

5.8.10   Release

Sets release-time, in seconds. Higher values make the compressor longer working.

5.8.11   Auto release

Enables program dependent release time calculation

5.8.12   Ratio

Sets compression ratio.

5.8.13   Output

Sets output volume, in dB.

5.8.14   Mix

Set mixing-ratio of compressed and original signal, from 0 % (dry) - 100 % (wet).

5.8.15   Gain reduction meter

Shows current gain reduction, in dB

5.9 *Gate/Expander*

CS-5501 provides 2 independent gate/expander modules. Gate/Expander opens only if the signal reaches a certain threshold.

5.9.1   Effect module selector

Select effect module from drop-down menu

5.9.2   Off/On

Enables the module.

5.9.3   Parameter link

Links parameter of gate 1 and 2.

5.9.4   Solo

Solos the module. Shift mouse click resets solo states of all modules.

5.9.5   Stereo placement

The stereo placement of the effect can be changed to stereo/left/right/mid/side.

5.9.6   Side chain options

5.9.6.1 Internal/External

Selects either internal or external side chain. VST2 uses channel 3+4 as ext. side chain. For VST3/AU/AAX/RTAS please consult your DAW manual.

5.9.6.2 Monitor

Lets you monitor the side chain signal

5.9.6.3 Low-cut

Off/On: enables low-cut
Slope: sets filter slope
Frequency: sets filter cut-off frequency

5.9.6.4 High-cut

Off/On: enables high-cut
Slope: sets filter slope
Frequency: sets filter cut-off frequency

5.9.6.5 Link

Toggles linkage of LC and HC frequency.

5.9.7   Gate/Expander mode switch

Toggles between gate and expander mode.

5.9.8   Threshold

Sets threshold value, in dBFS.

5.9.9   Attack

Set attack time, in ms. Lower values make the gate/expander more responsive.

5.9.10   Hold

Sets hold time, in ms. Lower values start release earlier.

5.9.11   Release

Set release time, in ms. Higher values make the gate/expander longer open.

5.9.12   Range

Variable range, in dB. In gate mode min value -72dB is treated as range off.

5.9.13   Attenuation meter

Shows current signal attenuation, in dB

5.10 Deesser

CS-5501 provides 2 independent deesser modules. Deeser is a kind of dynamic EQ. It compresses/expands the signal in a defined frequency range depending on the input/side-chain signal.

The design is based on TBProAudio's dEQ6, ensuring that any processing is done in a very musical way.

5.10.1 Effect module selector

Select effect module from drop-down menu

5.10.2 Off/On

Enables the module.

5.10.3 Parameter link

Links parameter of deesser 1 and 2.

5.10.4 Solo

Solos the module. Shift mouse click resets solo states of all modules.

5.10.5 Stereo placement

The stereo placement of the effect can be changed to stereo/left/right/mid/side.

5.10.6   Side chain options

5.10.6.1   Internal/External

INT.

Selects either internal or external side chain. VST2 uses channel 3+4 as ext. side chain. For VST3/AU/AAX/RTAS please consult your DAW manual.

5.10.6.2   Monitor

MON.

Lets you monitor the side chain signal

5.10.6.3   Low-cut

Off/On: enables low-cut
Slope: sets filter slope
Frequency: sets filter cut-off frequency

5.10.6.4   High-cut

Off/On: enables high-cut
Slope: sets filter slope
Frequency: sets filter cut-off frequency

5.10.6.5   Link

Toggles linkage of LC and HC frequency.

5.10.7   Filter type

Low-shelf/bell/high-shelf filter type.

5.10.8   Narrow band/wide band

In wideband (WB) mode the deesser reacts on events in the full frequency range, in narrowband mode (NB) only on events around deesser centre frequency.

5.10.9   Listen

Lets you listen to the signal removed by the deesser or to signal focused by the deesser.

5.10.10   Threshold

Sets threshold value, in dBFS.

5.10.11   Q

Sets filter bandwidth.

5.10.12   Frequency

Sets centre frequency.

5.10.13   Attack

Sets attack-time, in ms. Lower values make the compressor more responsive.

5.10.14   Release

Sets release-time, in seconds. Higher values make the compressor longer working.

5.10.15   Ratio

Set compression ratio.

5.10.16   Gain

Set static filter gain, in dB.

5.10.17   Output

Sets output volume, in dB

5.10.18   Range

Limits the gain reduction to a certain range.

5.10.19   Gain reduction meter

Shows current gain reduction (blue) or gain boost (green), in dB.

5.11 Limiter

CS-5501 provides 2 independent limiter modules.

The limiter keeps the signal below a certain "ceiling" level.

The design is based on TBProAudio's LAxLimiter and therefore ensures maximum loudness paired with very low aliasing.

Please to note that Limiter introduces 128 smp latency, which is usually compensated by the DAW.

5.11.1   Effect module selector

Select effect module from drop-down menu

5.11.2   Off/On

Enables the module.

5.11.3   Parameter link

Links parameter of limiter 1 and 2.

5.11.4   Solo

Solos the module. Shift mouse click resets solo states of all modules.

5.11.5   Stereo placement

The stereo placement of the effect can be changed to stereo/left/right/mid/side.

5.11.6   Gain

Controls the additional input gain, in dB.

5.11.7   Release

Sets the release time, in ms

5.11.8   Auto release

Enables program dependent release time calculation.

5.11.9   Ceiling

Set the maximum output level, in dBFS.

5.11.10   Gain reduction meter

Shows current gain reduction, in dB.

5.12 Saturation

CS-5501 provides a saturation module.

Saturation adds odd or even harmonics to the signal. The saturation effect emulates several tubes with odd and even harmonics.

5.12.1   Effect module selector

Select effect module from drop-down menu

5.12.2   Off/On

Enables the module.

5.12.3   Tube Character

Select either clean/warm/crisp saturation type.

5.12.4   Stages

Sets number of stages to enrich the effect.

5.12.5   Fluctuation

Controls the amount of saturation fluctuation, in percent.

5.12.6 Odd

Controls the amount of odd harmonics added to the signal, in percent.

5.12.7 Even

Controls the amount of even harmonics added to the signal, in percent.

5.13 Thermal noise emulation

CS-5501 provides a module to emulate thermal noise of analogue channel strips.

5.13.1 Off/On

Enables the module.

5.14 Info menu

5.14.1 About

Info about the plugin

5.14.2 Open Manual

Opens online manual

5.14.3 Check version

Opens online version info.

5.14.4 Enable tooltips

Toggles GUI hints.

5.14.5 Enable EQ component tolerances

Enables emulation of components of EQ section (currently experimental)

5.14.6 GUI Scale

Scales GUI from 50-200%

5.15 Themes

Changes background theme.

6 AB-LM Lite

AB-LM Lite is a **perceptual A/B loudness matching** algorithm to help you avoid the pitfall of 'louder is better', so you can evaluate the impact of the plugin on your incoming and outgoing audio signal at equal loudness.

When you engage AB-LM Lite, the algorithm analyzes the incoming signal and compares it to the outgoing signal via its RMS values and applies an automatic gain adjustment so you can focus on the plugin settings and what they are actually doing to your audio, without being distracted by loudness differences.

Please to note that AB-LM Lite limits the gain adjustment to +/- 12dB to avoid gain overshoots.

AB-LM Lite lets you automatically minimize the loudness either quickly (mode fast) or gently (mode slow).

AB-LM Lite is an automatic, simplified algorithm to help your workflow, based on our more advanced dedicated AB-LM plugin, which allows perceptual loudness matching of third party plugins and even complete plugin chains. AB-LM also offers more advanced options, including advanced measurement modes and snapshots.

For the more advanced features of AB-LM, please see https://www.tb-software.com/TBProAudio/ab_lm.html

7 Demo mode versus Registered mode

In demo mode (without registering) the plugin mutes audio every 90 seconds for a short period. This could be circumvented by clicking on the "TBProAudio" logo within 90 seconds.

8 Registration/Activation

This plugin must be registered and activated in order to be fully functional. You can purchase the license key here: http://www.tb-software.com\tbproaudio.
After purchase, you will receive the license key packed in a zip file by email. Unzip the license file to a suitable location on your PC (e.g. desktop). The license file is called "product name.license". Add the plug-in to any track in your DAW, click on the text "Demo: Click here to activate it" and select the license file. Remove the plug-in in your DAW and add it again. The GUI now says "Registered to your name".

9 Conclusion

So finally if you have any questions or suggestions just let us know. And have fun with our tools.

Your team from TBProAudio :-)