Signal Noise SN01/SN01-G

Dynamic Range Compressor

INSTALLATION

The package should contain the following files:

SN01 VCA Comp.dll	– 32bit GUI-less version
SN01G VCA Comp.dll	– 32bit version with GUI
SN01 VCA Comp x64.dll	– 64bit GUI-less version
SN01G VCA Comp x64.dll	– 64bit version with GUI
sn01_manual.pdf	– manual (this file)

To install the plug-in, copy the DLL files of the version(s) you wish to use to the respective VST plug-in folders. Tested with Cubase 5.1 (32-bit) and Cakewalk 2019 (64-bit).

CREDITS

Core DSP algorithm of SN01/SN01-G is based on a paper by D. Giannoulis, M. Massberg, and J. D. Reiss, "*Digital Dynamic Range Compressor Design—A Tutorial and Analysis*", 2012 [1]. Side-chain processing further implements biquad algorithms by Robert Bristow-Johnson as found in "*Cookbook formulae for audio EQ biquad filter coefficients*", 2005 [2], and also uses original code of pink noise PRNG by Andrew Simper, 2006, which is based on algorithms by Allan Herriman, James McCartney, Phil Burk, Paul Kellet and Robin Whittle [3]. Plots used in Appendix of this manual were generated with VST Plugin Analyser by Christian-W. Budde [4].

DISCLAIMER

DESCRIPTION

SN01/SN01-G is a dynamic range compression plug-in, inspired by two classic VCA bus compressors of UK and US variety. It has switchable linked feed-forward/feedback topology, with highly variable knee, optional internal side-chain filtering and 'push' effect, and adjustable wet/dry ratio (Figure 1). The plug-in is designed to work both as musically pleasing buss glue while also being an efficient channel insert with low ASIO/CPU footprint.

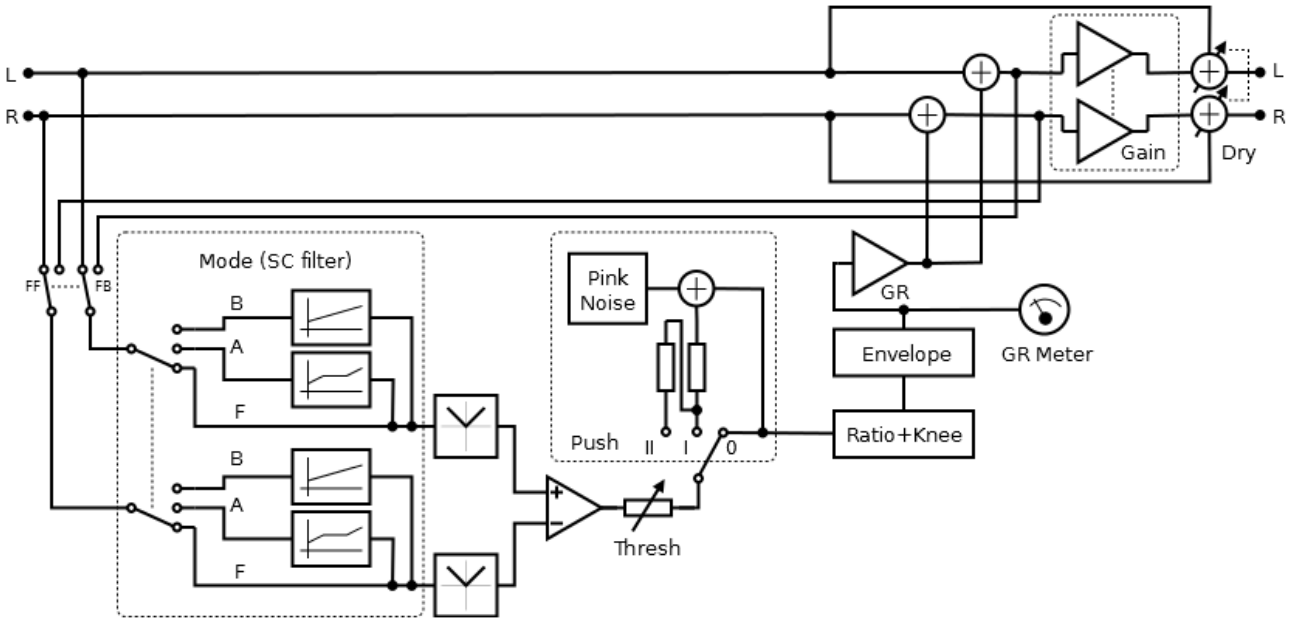

Figure 1.

GENERAL USAGE

Click and drag the knobs to increase or decrease the value. Click and drag the switches horizontally to increase or decrease the value, alternatively, click on the left, right or center of the switch. Ctrl-click any control to reset it to default (hard coded) value.

CONTROLS

Figure 2. - GUI

1) **Thresh:** Sets the threshold of the compressor from +20dB to -20dB. Zero mark is set to be at -20dBFS.

2) **Ratio:** Sets the compression ratio from 1:1 to infinity (limiting).

3) **Gain:** Sets the make-up gain up to +24dB.

4) **m/sec:** Sets the envelope attack time in ms from 0.03ms to 30ms.

5) **sec:** Sets the envelope release time in seconds, ranging from 50ms up to 2 seconds.

6) **dB:** Sets the width of the knee in dB centered around threshold. Maximum value is 24dB. Note that setting this value to minimum, i.e. zero, essentially disables the knee and makes the compressor work in hard-knee mode.

7) **%:** Sets the 'strength' of the knee from 0% to 100%. Setting this value to zero switches the compressor to hard-knee mode.

8) **Mode:** Selects one of the two side-chain filters ('Mode A', 'Mode B'), or bypasses the filtering section completely to save ASIO/CPU, and give a flat (in fact, no) filter

response ('Mode F'). To see the curves of filters A and B, please refer to Figure 3. and 4. in the Appendix below.

9) **Push:** Lowers the threshold further by 9dB ('Push I') or 18db ('Push II') while also modulating the gain reduction with pink noise to introduce some random 'rounding'. Setting the switch to 'Push 0' bypasses the whole "circuit", thus saving computing power.

10) **Dry:** Sets the amount of dry signal to be mixed with compressed signal. Left-most position is 0% and lets only wet signal through, while right-most position is 100% and lets only dry signal through.

11) **GR meter:** A visual representation of actual gain reduction.

12) **FF/FB switch:** Flip the switch up for feed-forward topology, flip it down for feedback behavior.

APPENDIX

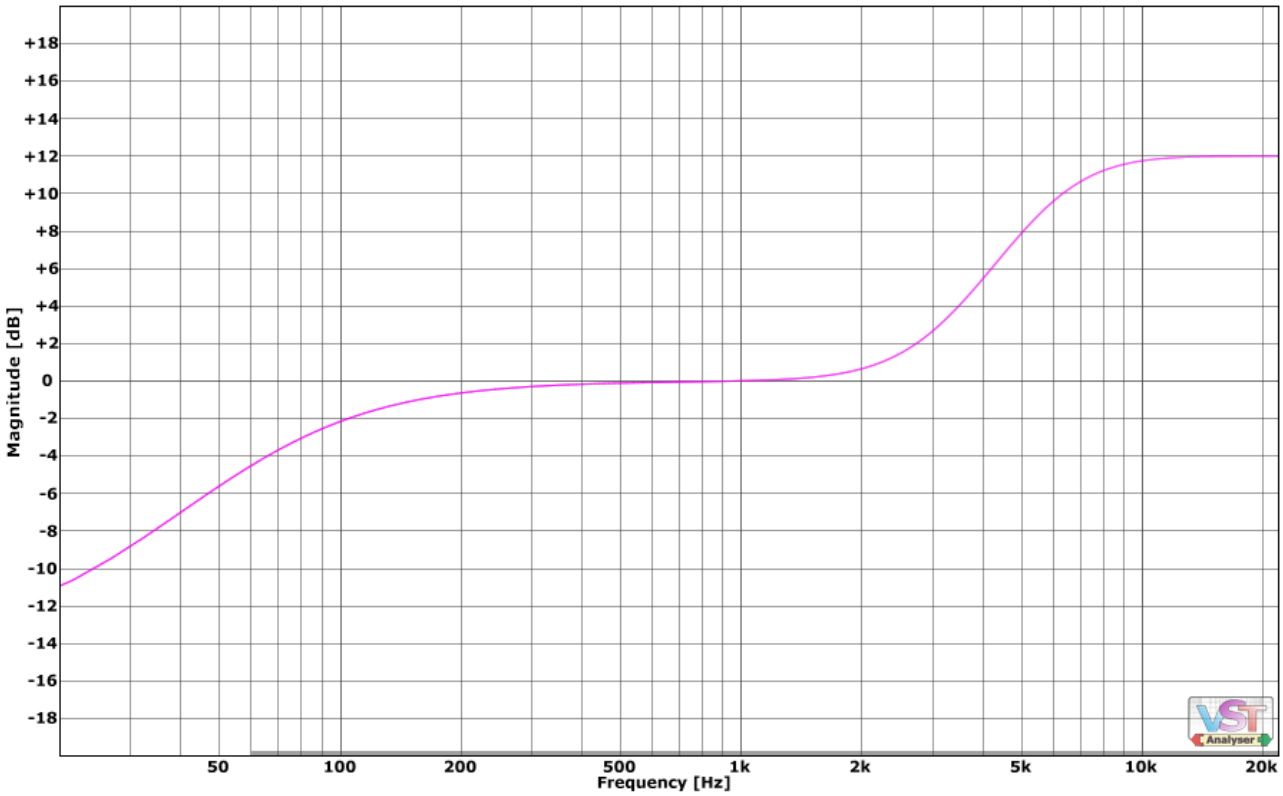

Figure 3. - Frequency response of SC filter 'Mode A'

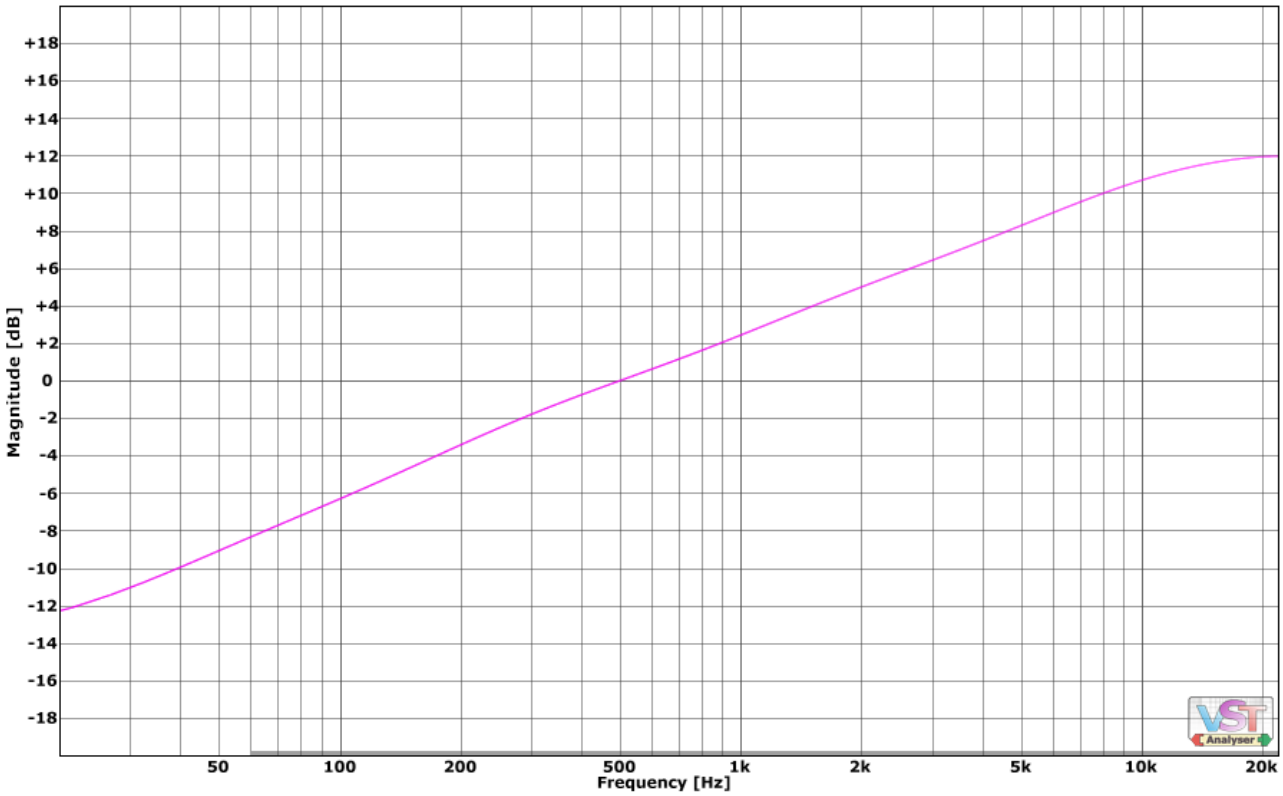

Figure 4. - Frequency response of SC filter 'Mode B'

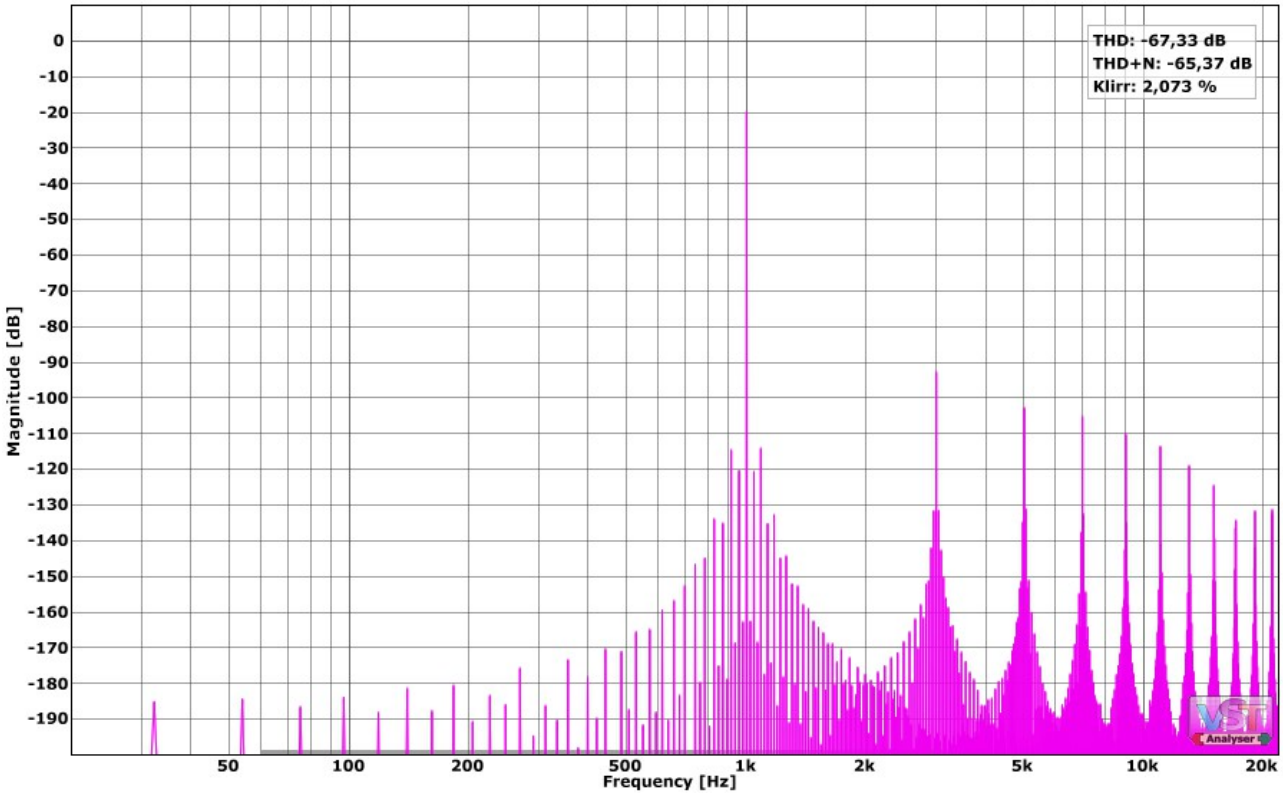

Figure 5. - THD at default settings in 'Mode 0' and 'Push 0'

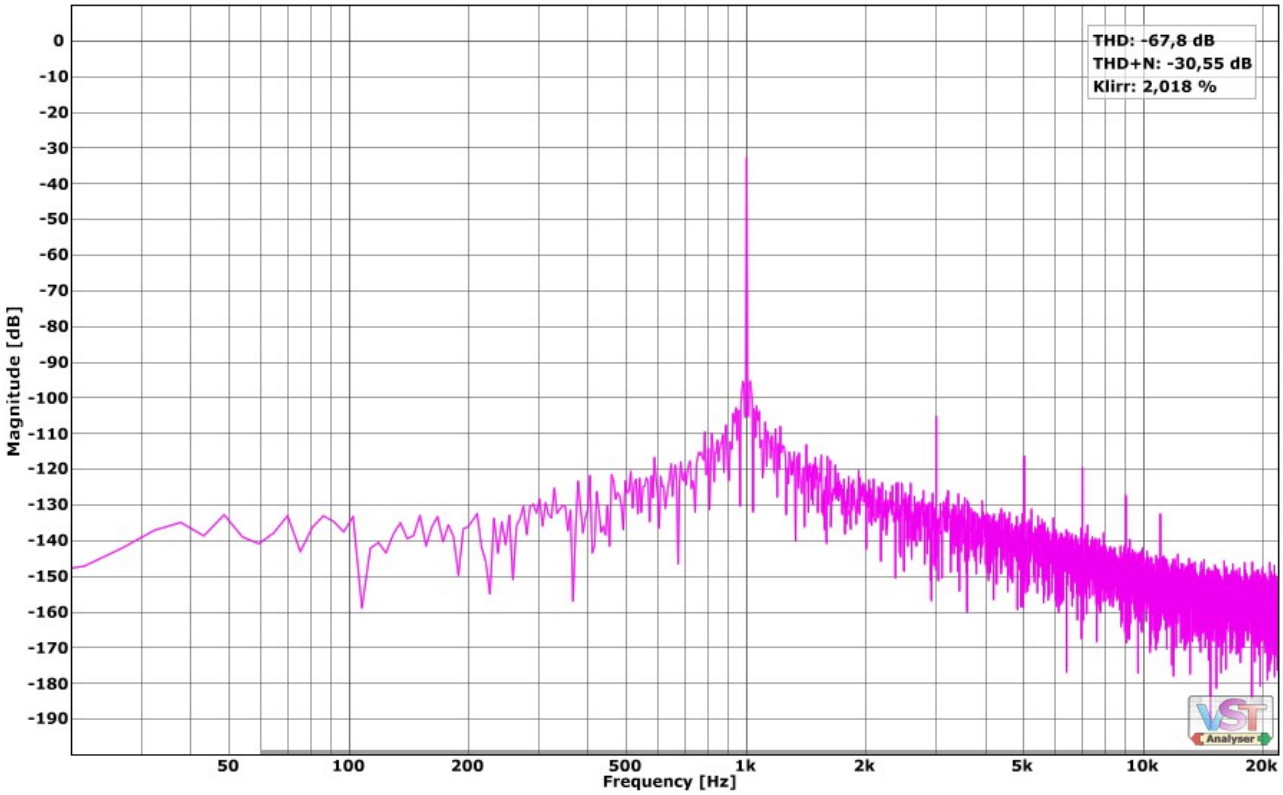

Figure 6. - THD at default settings in 'Mode B' and 'Push II'

REFERENCES

[1]https://www.eecs.qmul.ac.uk/~josh/documents/2012/GiannoulisMassbergReiss-dynamicrangecompression-JAES2012.pdf

[2]https://www.musicdsp.org/en/latest/Filters/197-rbj-audio-eq-cookbook.html

[3]http://www.firstpr.com.au/dsp/pink-noise/

[4]http://www.pcjv.de/applications/measurement-programs/