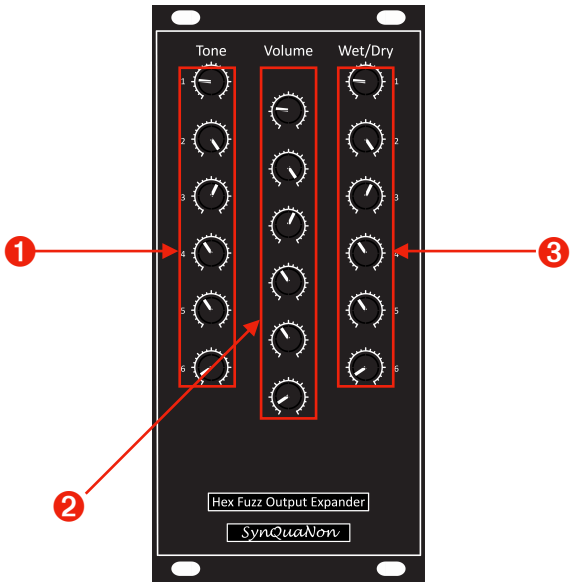
Hex Fuzz Output Expander

Introduction

Congratulations on your purchase of this SynQuaNon product! It is our belief that our products will enable you to find new and interesting ways to create custom sounds with your synthesizer and other SynQuaNon modules. Check out our full line at www.synquanon.com.

Module front panel overview



❶ Tone controls	Individual channel potentiometers adjust tone according to switch settings on rear of the module
❷ Volume controls	Individual channel potentiometers adjust final volume from 0.1x to 2x gain
❸ Wet/dry controls	Individual channel potentiometers adjust mix between clean input signal and fuzz (or any other effect)

Overview

The Hex Fuzz Output Expander module is an important add-on for the Hex Fuzz Amplifier, creating a large variety of tones with complete control over the mix of sounds for each of the individual channels.

The module features passive tone control circuitry that consists of low-pass and high-pass filters with cross-fade control, much like the classic fuzz pedals. The Tone controls determine the relative amounts of each filter type. On the rear of the module one can select two different values for each resistor and capacitor in the each of the two filter types, resulting in 16 different possible response curves for each channel.

The tone circuit outputs are fed into an active buffer with variable gain of 0.1x - 2x via the channel Volume controls.

The six EQ'd and volume-adjusted fuzz signals are cross-faded with the corresponding clean guitar inputs (obtained from the Hex Fuzz Amplifier Input Thru connector) for the desired wet/dry balance.

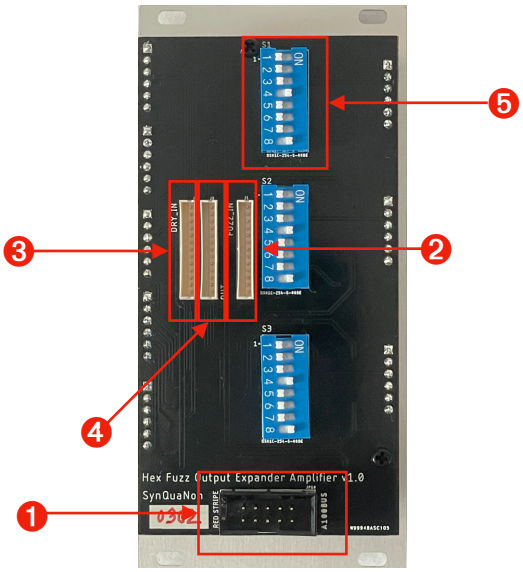
Ideal for guitar or bass single-string processing.

Made in the USA.

Features

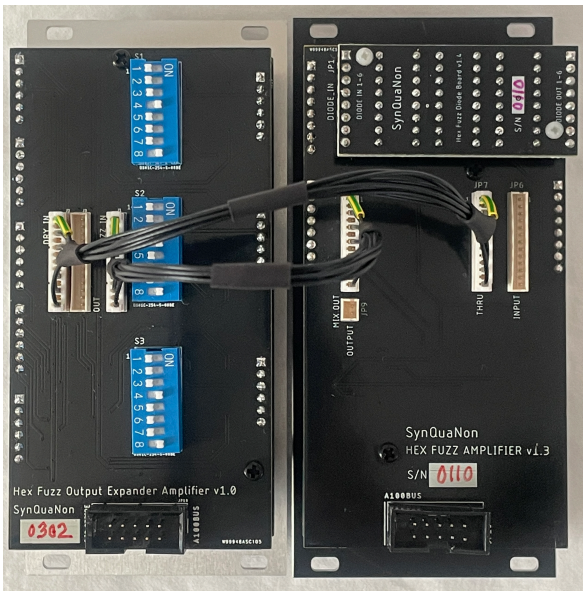
- 16 different tone curves for each channel, selectable through dip switches on rear of module
- Fuzz output volume adjustment to match guitar signal levels
- Clean guitar input
- Wet/dry mix of fuzz and clean guitar
- Not necessarily limited to Hex Fuzz - will work with any SynQuaNon module
- Ideal front-end mixer for Hex VCF or Hex VCA
- SynQuaNon Bus audio input and output headers on the back of the module
- Pairs well with 13-Pin Input Breakout, Hex Fuzz Amplifier, Hex VCF, Hex VCA

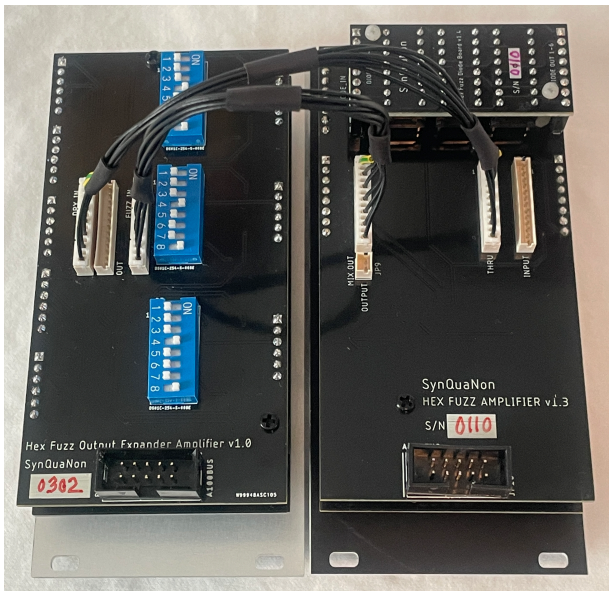
Module rear panel overview



❶ A100 Bus	Keyed power connection with reverse polarity protection. Red stripe is on the left.
❷ Fuzz Inputs	SynQuaNon Audio Bus input connection for 6 inputs. While designed for fuzz, *any type of hexaphonic effects output may be connected to these inputs*.
❸ Dry Inputs	SynQuaNon Audio Bus input connection for 6 dry guitar inputs. *Can be any type of audio input to be mixed with the processed signals*.
❹ Outputs	SynQuaNon Audio Bus output connection for 6 outputs.
❺ Filter curve switch	Selects resistor and capacitor values for each channel's low-pass and high-pass filter.

Connections to Hex Fuzz Amplifier





Use two 6-inch (or 12-inch if the modules are not located next to each other) SynQuaNon Audio Bus cables to connect the Hex Fuzz Output Expander to the Hex Fuzz Amplifier (or any other SynQuaNon hexaphonic audio effects module) and a third SynQuaNon Audio Bus cable to connect the Expander output to the input of the next SynQuaNon module in the signal chain or to the Hex I/O module for patch cable connections to non-SynQuaNon modules.

1. Connect the FUZZ IN on the Expander to the OUTPUT from the Hex Fuzz (or other effects output)
2. Connect the DRY IN on the Expander to the THRU connector on the Hex Fuzz (or other audio signal you would like to blend with the processed signal)
3. Finally, connect OUT on the Expander to the next module in the signal chain

Filter switch settings overview

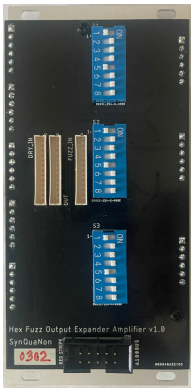
1	2	3	4	Filter response	Chart
OFF	OFF	OFF	OFF	Notch	1
ON	OFF	OFF	OFF	Flat Mids	2
OFF	ON	OFF	OFF	Notch	3
OFF	OFF	ON	OFF	Bandpass	4
OFF	OFF	OFF	ON	73 Ram's Head	5
ON	OFF	ON	OFF	Bandpass	6
ON	OFF	OFF	ON	Resonant Highpass	7
ON	OFF	ON	ON	Resonant Lowpass	8
OFF	ON	ON	OFF	Mid Hump	9
OFF	ON	OFF	ON	75 Ram's Head	10
OFF	ON	ON	ON	Flat Mids	11
OFF	OFF	ON	ON	Notch	12
ON	ON	OFF	OFF	Notch	13
ON	ON	ON	OFF	Bandpass	14
ON	ON	OFF	ON	Triangle/Civil War/Russian	15
ON	ON	ON	ON	Resonant Lowpass	16

Making filter adjustments:

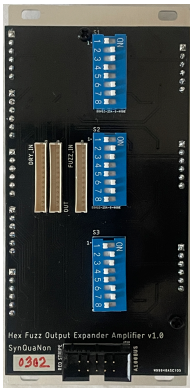
The upper dip switch is for channels 1 (switches 1-4) and 2 (switches 5-8), the center dip switch is for channels 3 and 4, while the lower dip switch is for channels 5 and 6. Experiment with different settings for each or for all channels by rotating the corresponding Tone control between minimum and maximum and selecting combinations that create the desired tone.

Examples:

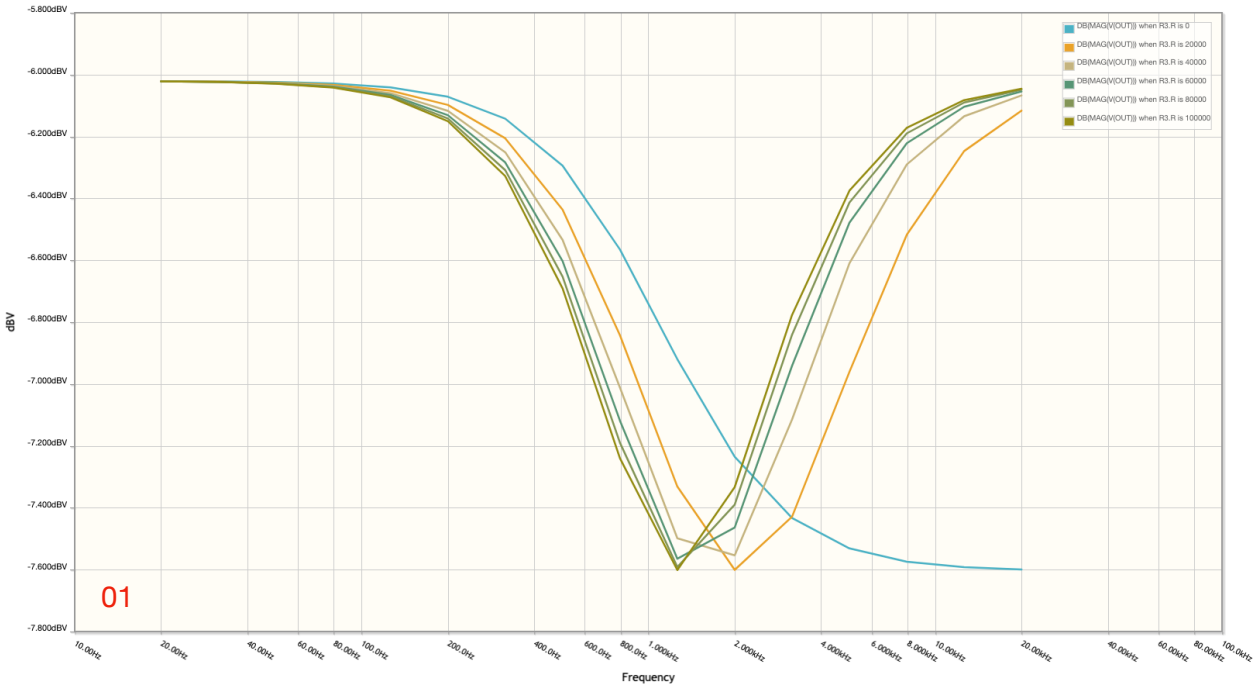
Flat Mids

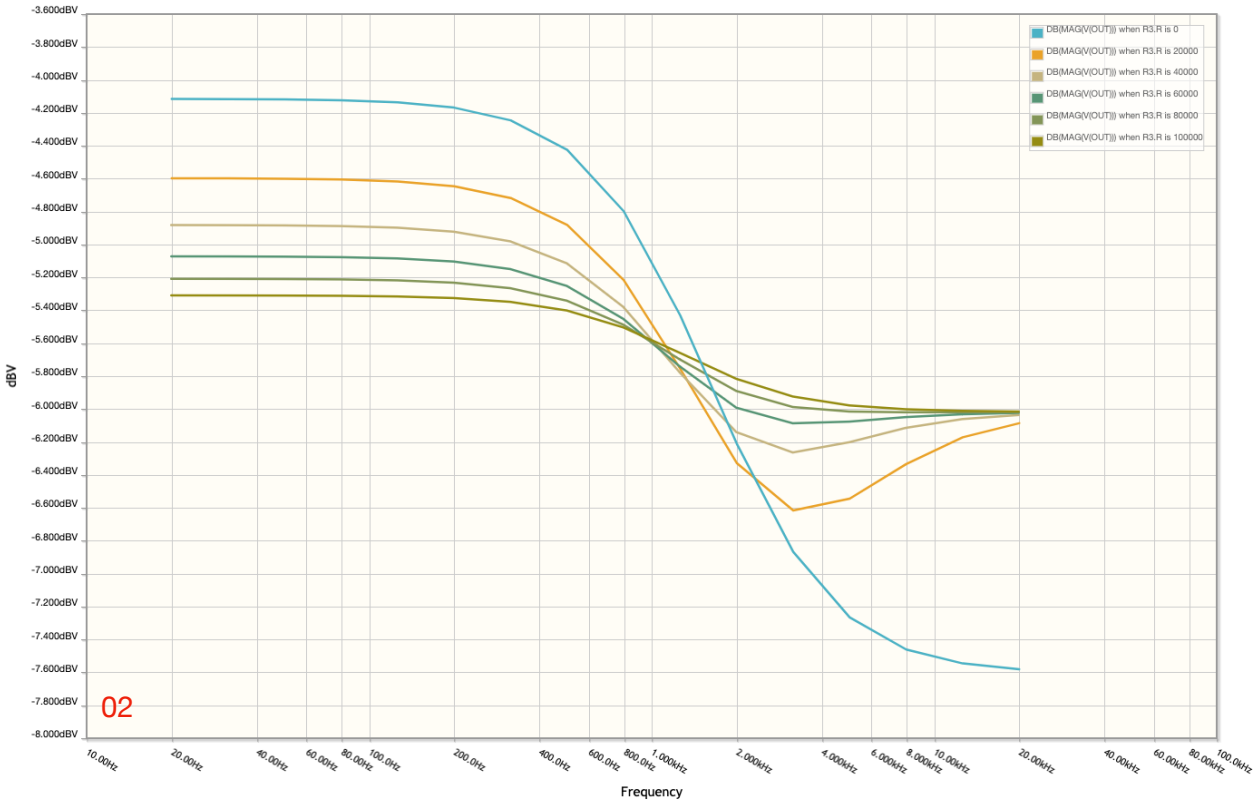


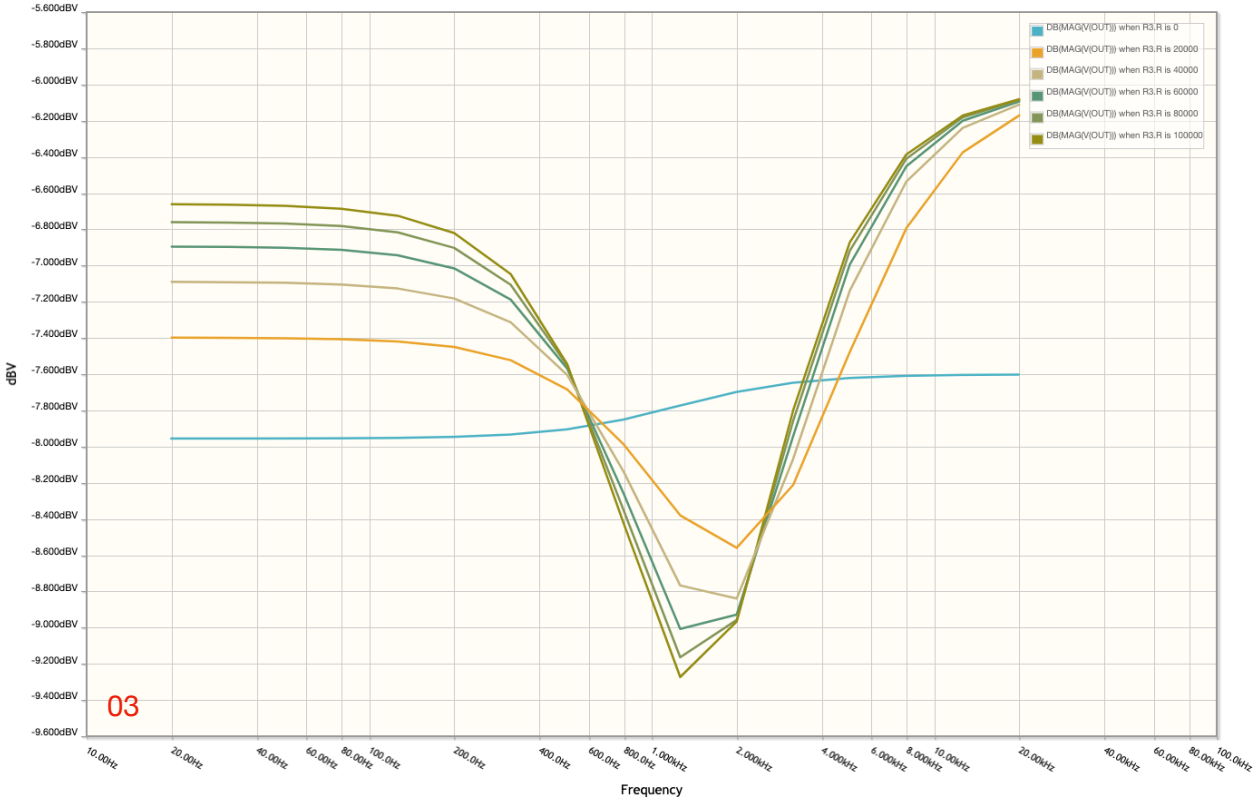
Mid Hump



Filter charts



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Frequency
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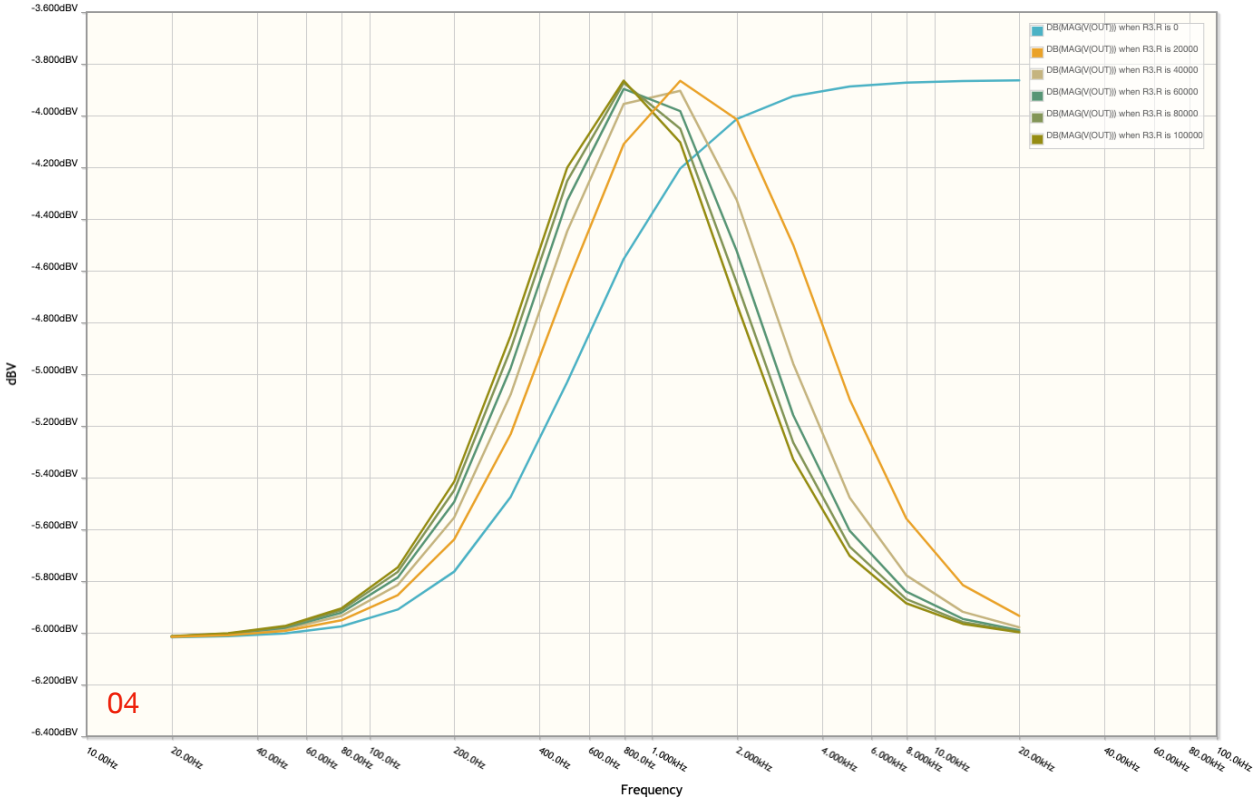
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Frequency
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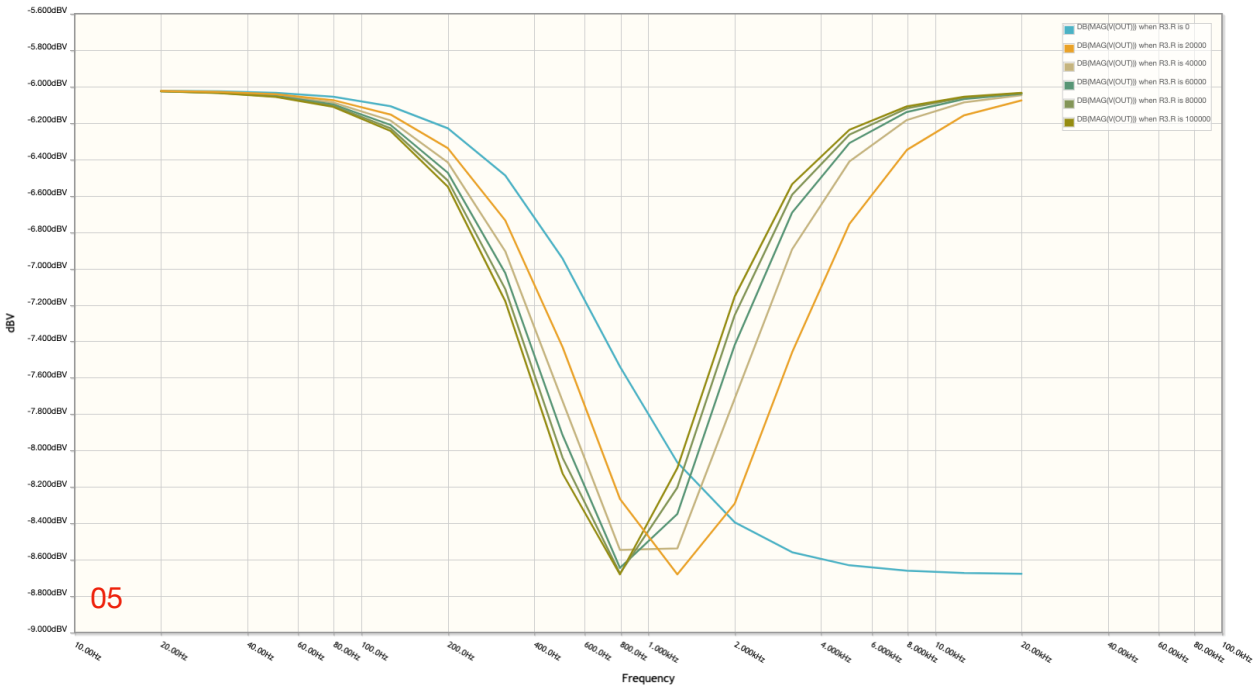
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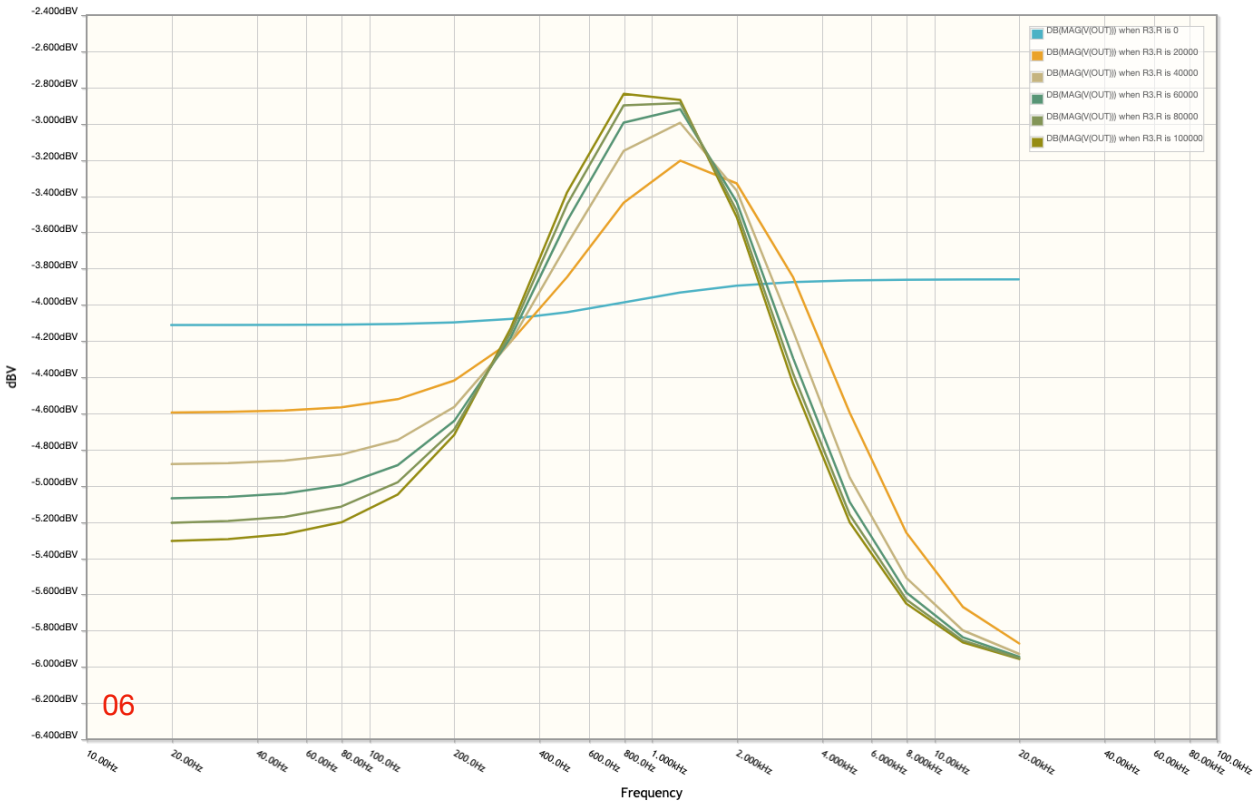
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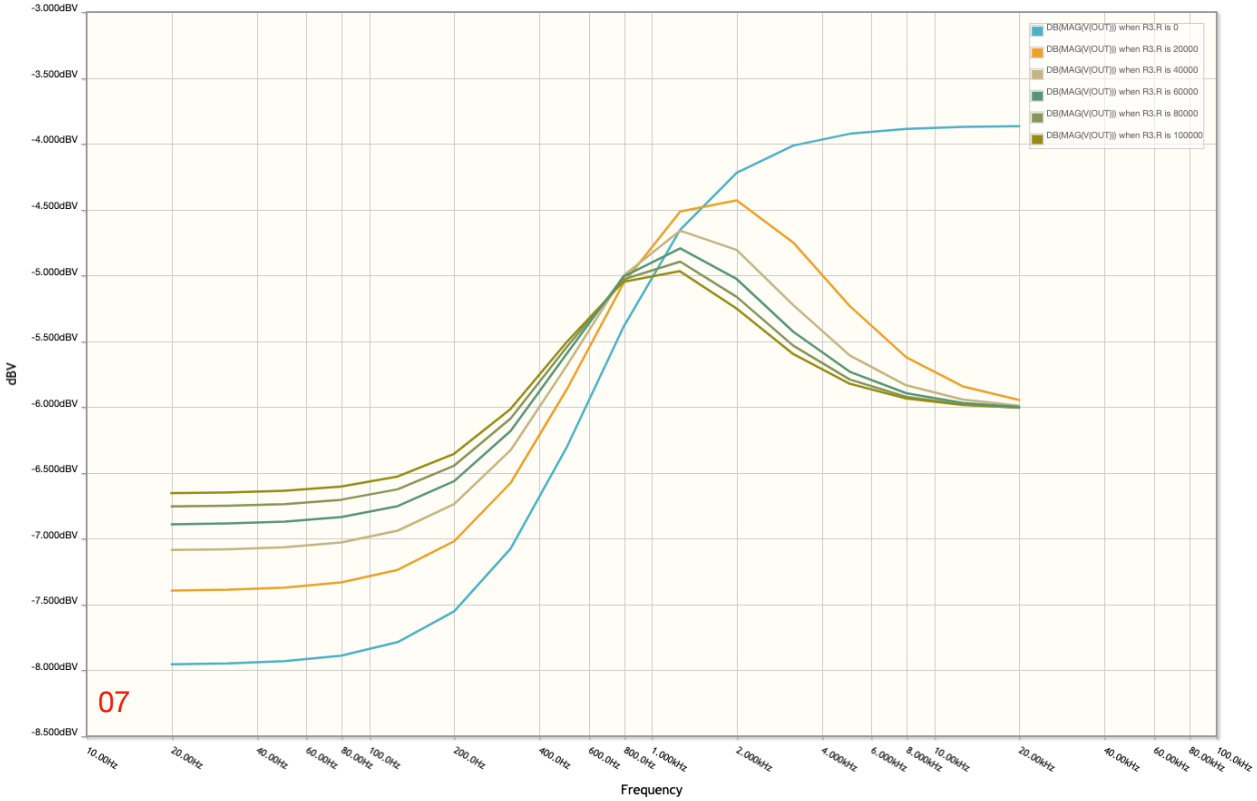
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100.0Hz
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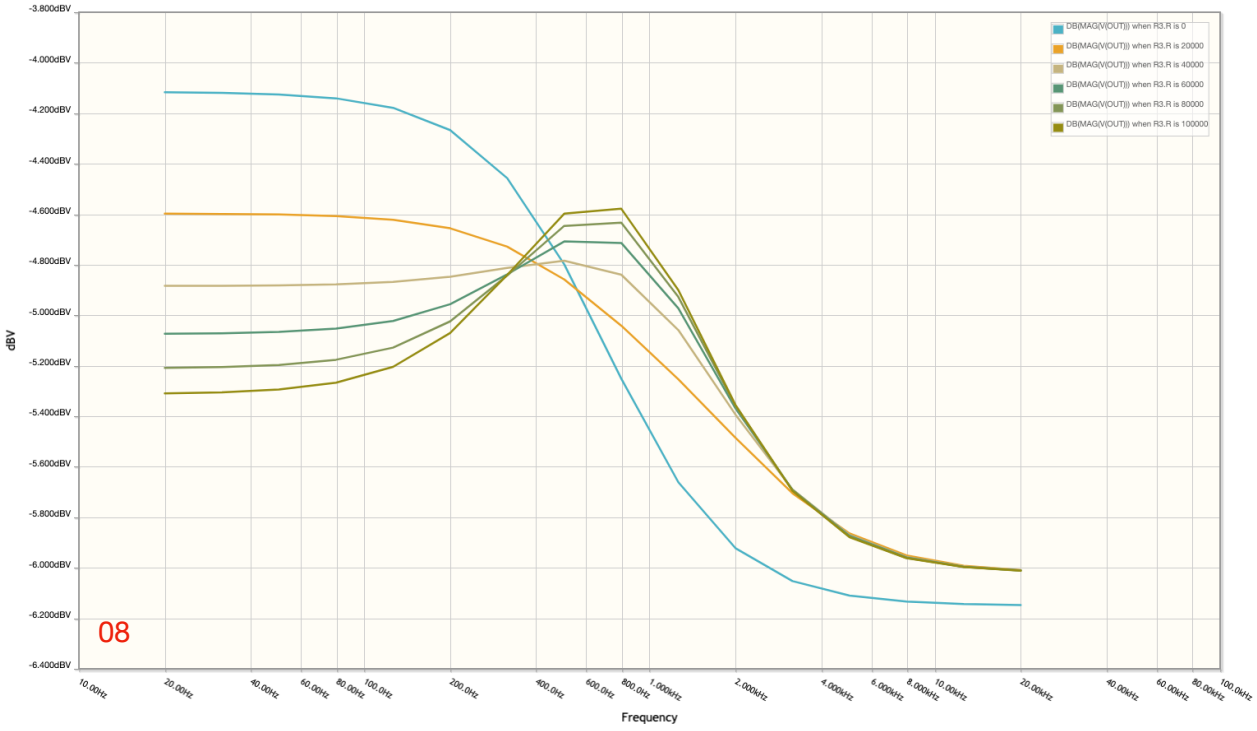
Frequency
07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dBV
10.00Hz
20.00Hz
40.00Hz
60.00Hz
80.00Hz
100.0Hz
200.0Hz
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Frequency
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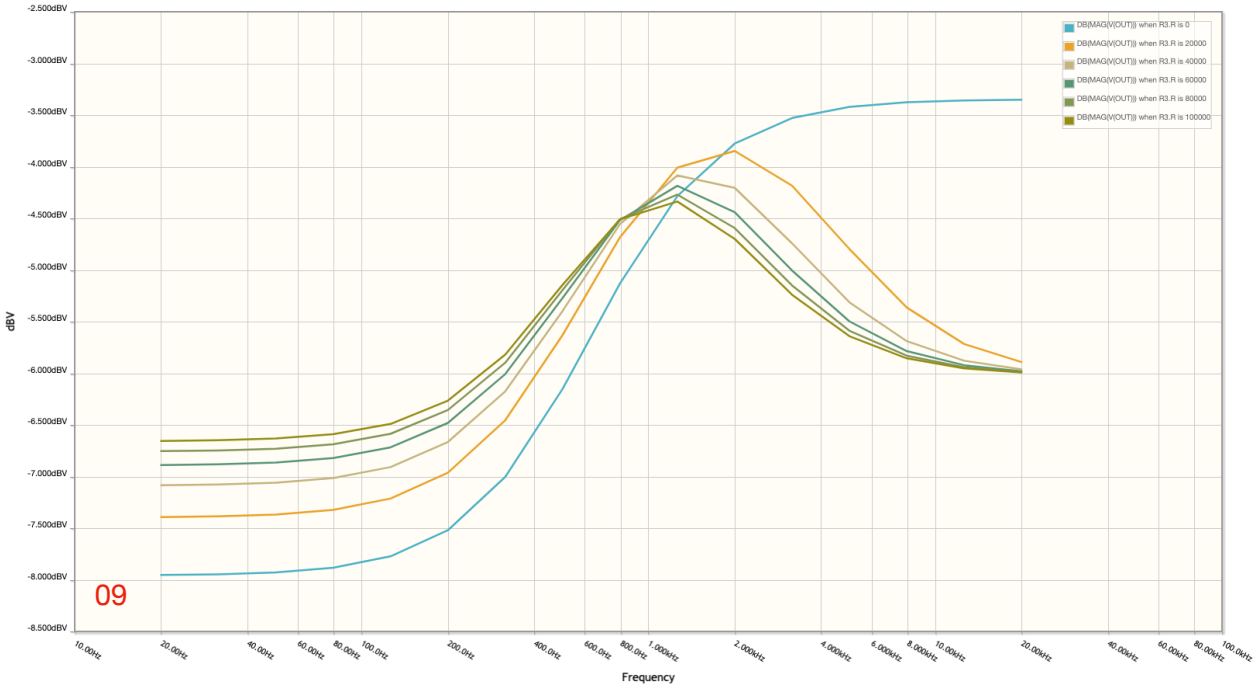
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dBV
Frequency
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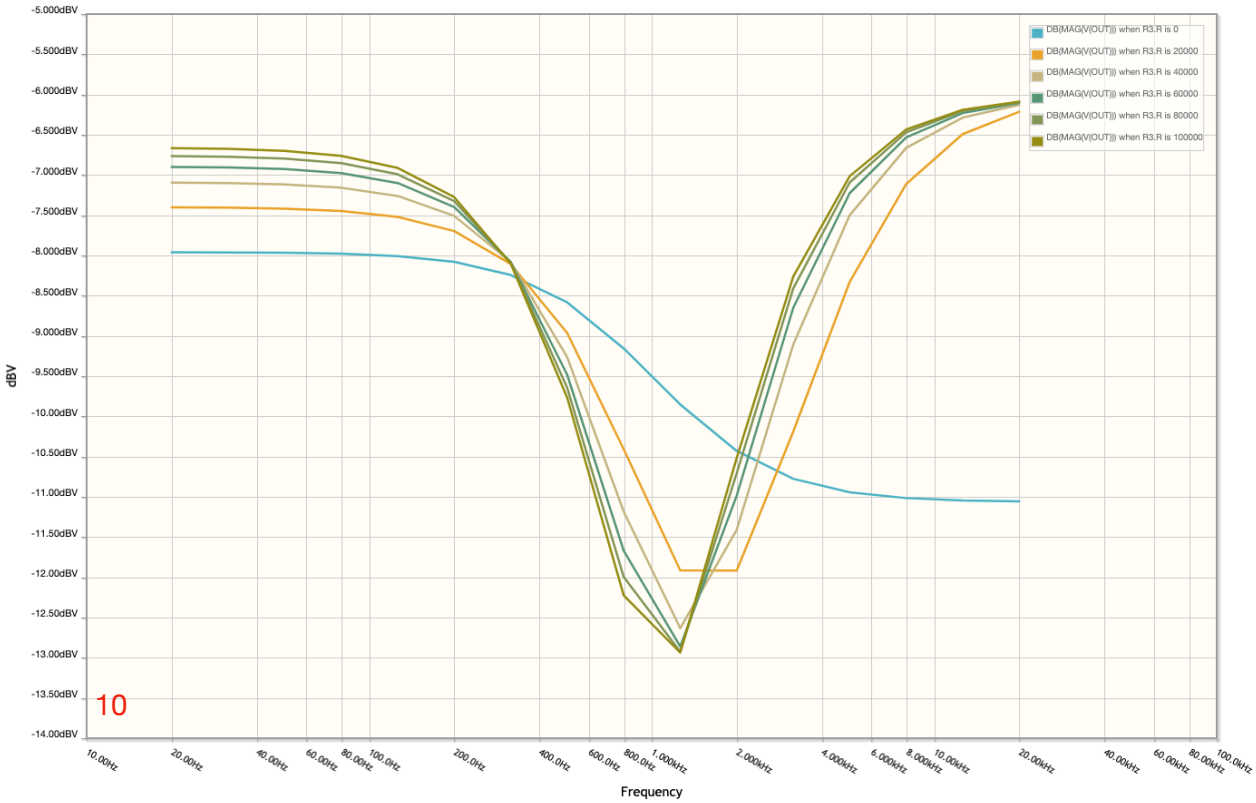
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Frequency
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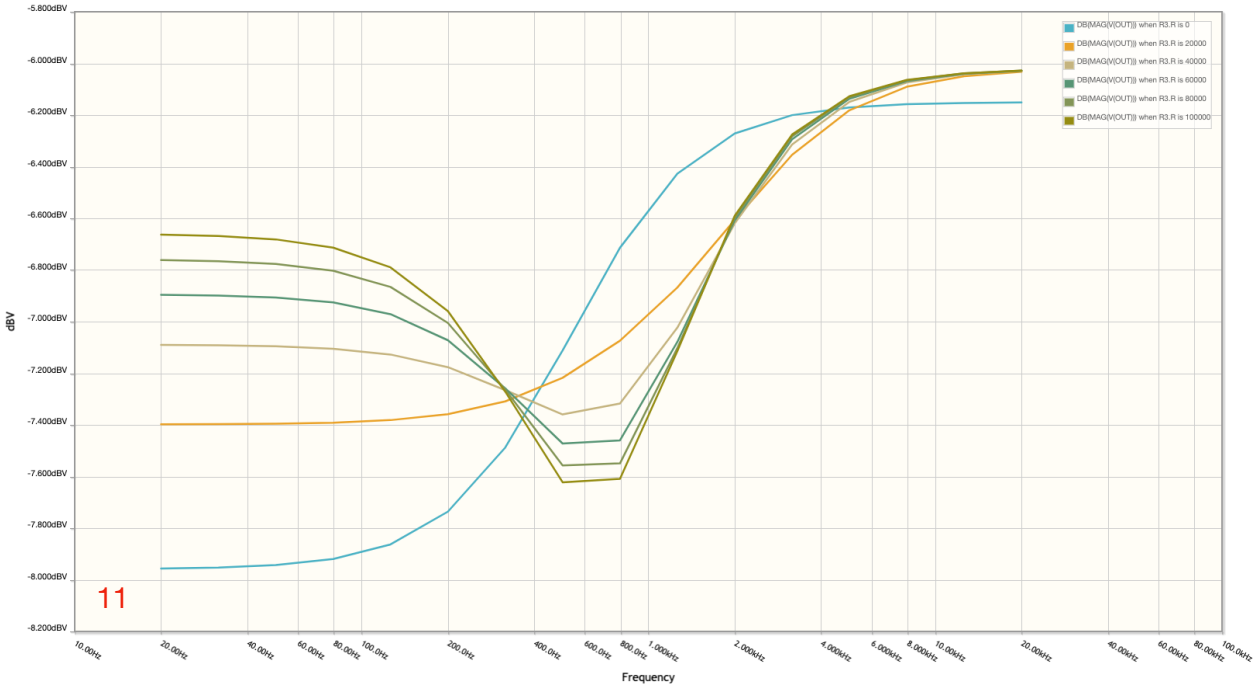
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dBV
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DB(MAG(V(OUT))) when R3.R is 80000
DB(MAG(V(OUT))) when R3.R is 100000
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10.00Hz
20.00Hz
40.00Hz
60.00Hz
80.00Hz
100.0Hz
200.0Hz
400.0Hz
600.0Hz
800.0Hz
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4.000kHz
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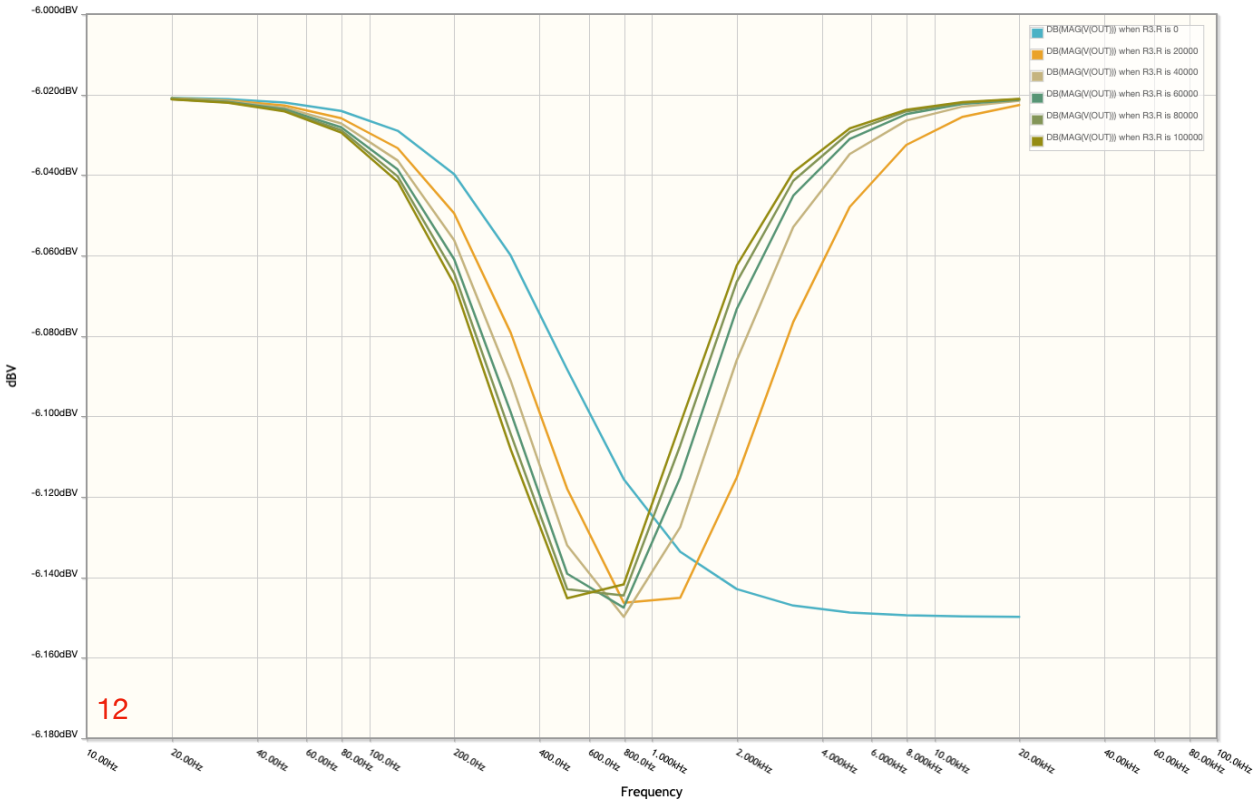
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DB(MAG(V(OUT))) when R3.R is 100000
12
10.00Hz
20.00Hz
40.00Hz
60.00Hz
80.00Hz
100.0Hz
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400.0Hz
600.0Hz
800.0Hz
1.000kHz
2.000kHz
4.000kHz
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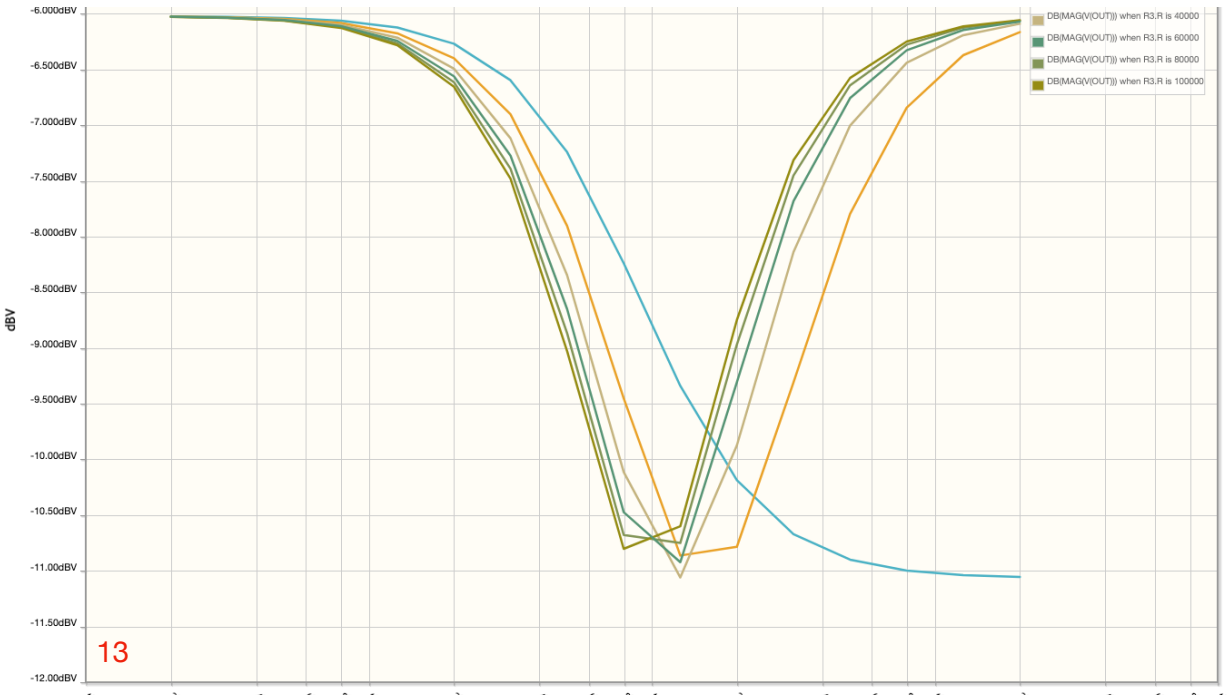
60.00kHz
80.00kHz
100.0kHz
Frequency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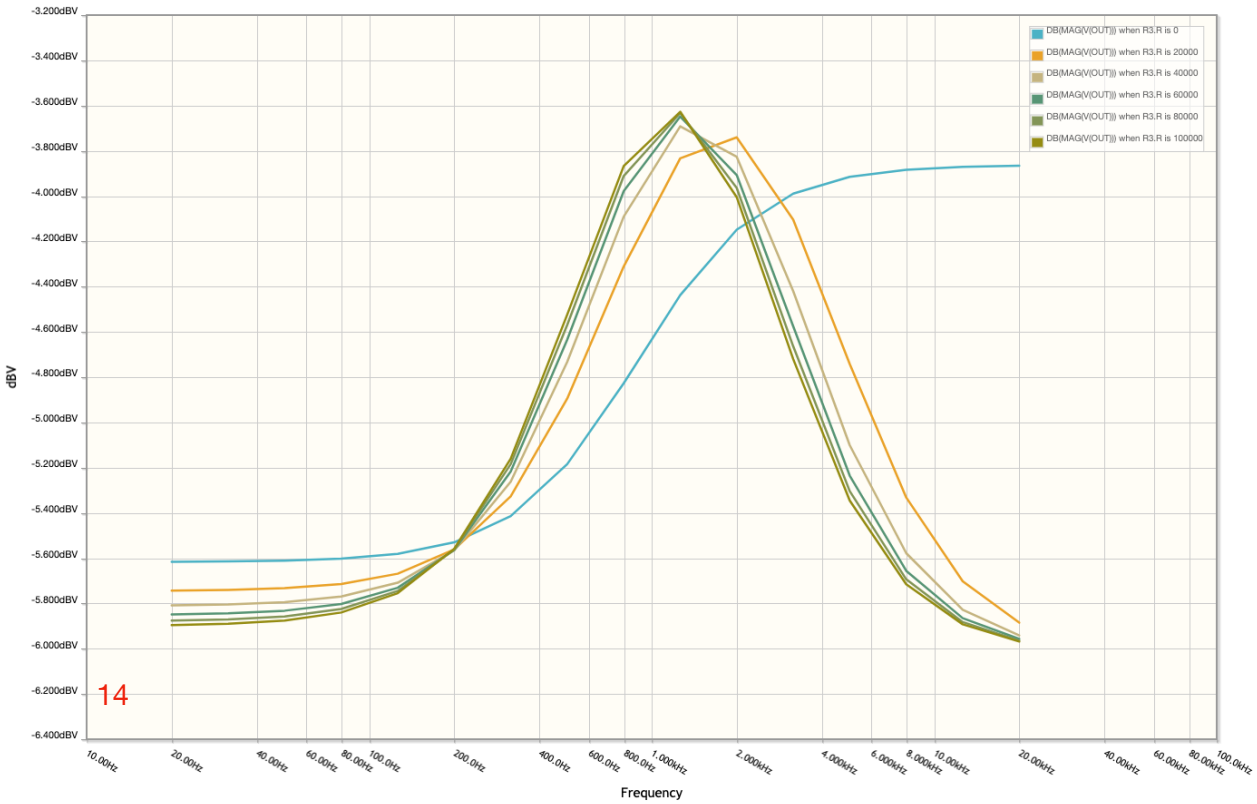
13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dBV
-3.200dBV
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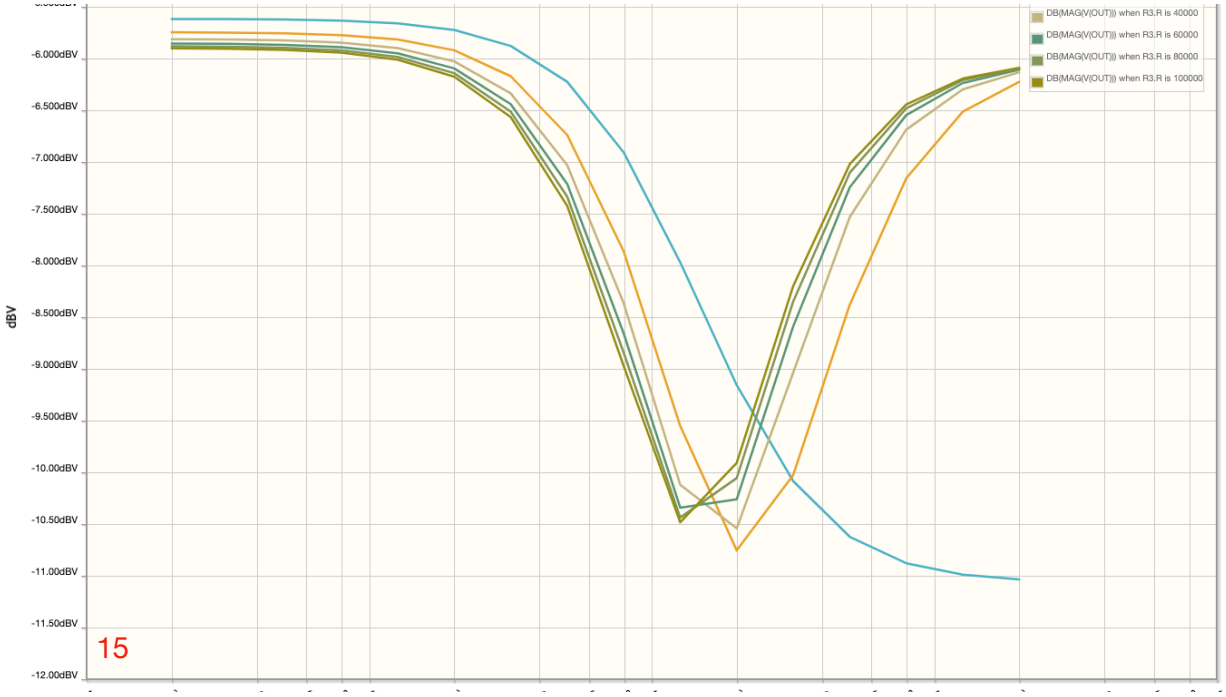
Frequency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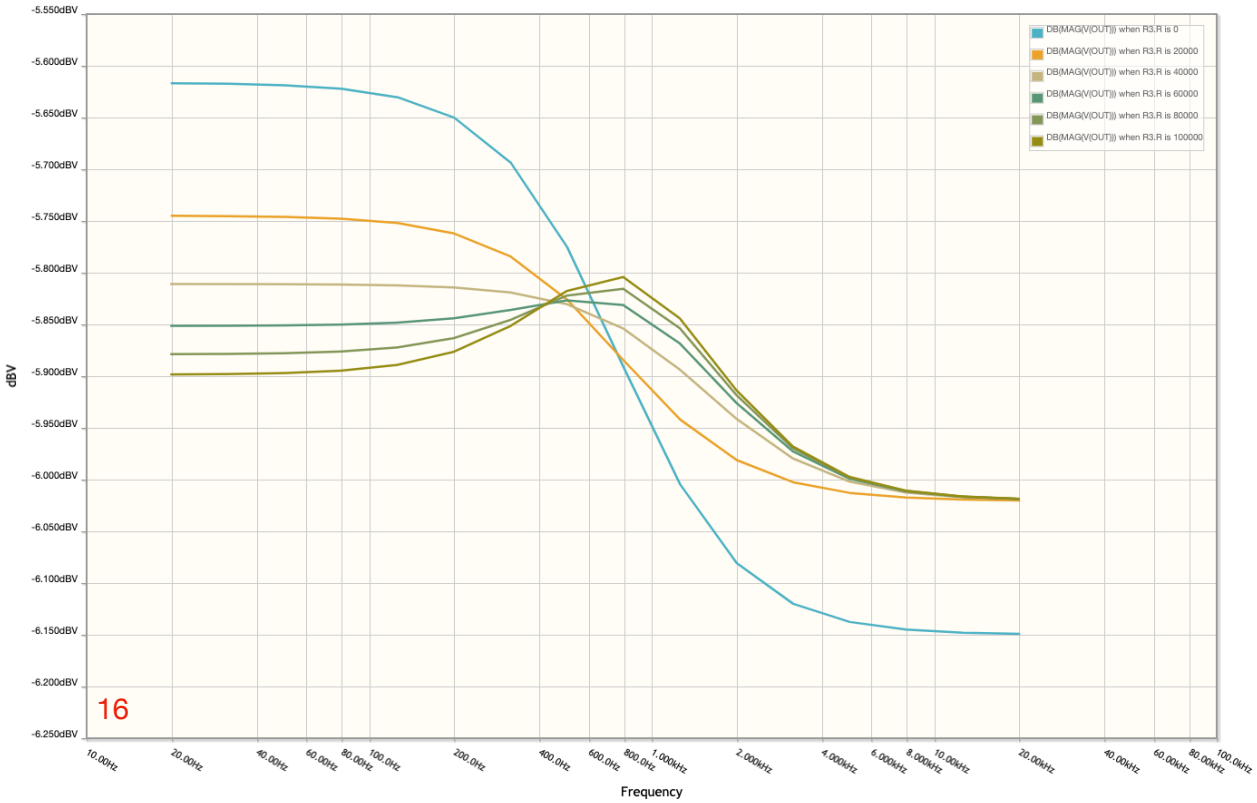
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dBV
16
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60.00Hz
80.00Hz
100.0Hz
200.0Hz
400.0Hz
600.0Hz
800.0Hz
1.000kHz
2.000kHz
4.000kHz
6.000kHz
8.000kHz
10.00kHz
20.00kHz
40.00kHz
60.00kHz
80.00kHz
100.0kHz
Frequency

Technical Specifications + Downloads

Width	12 HP	Gain	-20dB to +6 dB (each channel)
Depth	36 mm		
Power	23 mA @ +12V		
	23 mA @ -12V		
	0 mA @ +5V	ModularGrid	Hex Fuzz Output Expander

Reverse power protection, resettable fuses, extensive power supply filtering.

Support

In case of difficulty:

1. Make sure power is available to the Eurorack and that it is turned ON.
2. Check the rear module power connection (turn OFF Eurorack power first)
3. Check patch cables for continuity or shorts.
4. Check level settings on front panel. Check gain select header on rear of module for proper gain range selection (turn OFF Eurorack power first).

For additional information please feel free to contact us at support@synquanon.com