

**RUBBERFILTER**



extreme  
filter  
with **384** dB/OCT

Version 1.00



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## **WELCOME**

Thank you for downloading this top-quality plug-in.

RUBBERFILTER is a VST plug-in offering four classic filter modes to cut frequencies with up to 384 dB/Oct.

RUBBERFILTER *removes* frequencies in any audio signal, while providing an additional creative purpose. RUBBERFILTER has a controllable filter order of 6 dB/Oct up to 384 dB/Oct. At high filter order levels, a psychoacoustic effect appears which is usually an unwanted sound of zips and sweeps, almost as if there is a tone present at the filter's cut-off frequency. RUBBERFILTER allows you to use this psychoacoustic effect for creative purposes.

In order to get the most out of the RUBBERFILTER, please spend a few moments reading this brief manual.

## **LICENSE**

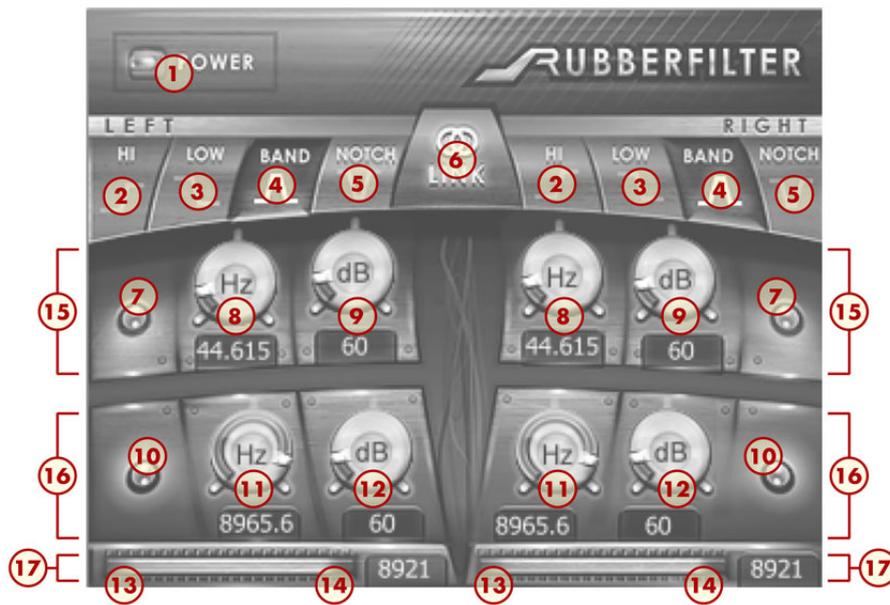
RUBBERFILTER has a very simple license:

RUBBERFILTER is freeware. This means that you are free to distribute it, give it to friends, or share it around in anyway you choose. However, distribution is only allowed by including the entire unaltered archive, which must contain this manual.

1. Copyright of the code and the finished plug-in remain the property of Christian-W. Budde and Stilianos Doussis.
2. This plug-in is provided at no cost; therefore the authors (Christian-W. Budde and Stilianos Doussis) assume no responsibility for any negative effects that may occur to the end user or the equipment used to run the plug-in.
3. Magazine editors are welcome to include the plug-in on cover mount discs or similar media; however, the authors request that they are informed about it via e-mail ([Christian@savioursofsoul.de](mailto:Christian@savioursofsoul.de)).

A few copies of the publication would be appreciated, but not expected.

# GRAPHICAL USER INTERFACE (GUI)



<p><b>1 Power Button</b> Enables RUBBERFILTER's interface and processing.</p>	<p><b>7 Upper Filter Enabler</b> Enables the upper row's Filter.</p>	<p><b>13 Bottom Range of Frequency Bar</b></p>
<p><b>2 High Pass Filter Enabler</b> High frequencies <b>above</b> the cut-off point (<b>8 / 13</b>) are allowed to pass. Only <b>one</b> filter mode at a time is possible.</p>	<p><b>8 Upper Filter's Cut-off Range</b> Use the <i>Knob</i> (see next page) to change the desired filter frequency.</p>	<p><b>14 Top Range of Frequency Bar</b></p>
<p><b>3 Low Pass Filter Enabler</b> Low frequencies <b>below</b> the cut-off point (<b>11 / 14</b>) are allowed to pass.</p>	<p><b>9 Upper Filter's Order</b> Use the <i>Knob</i> (see next page) to change the desired filter Order, starting from 6 dB/Oct with up to 384 dB/Oct. The higher the filter Order, the higher the CPU usage.</p>	<p><b>15 Upper Filter Section</b> Available in Filter modes <b>2 / 4 / 5</b>.</p>
<p><b>4 Band Pass Filter Enabler</b> <b>Passes</b> frequencies in a desired range. Select the lower frequency range using <b>8 / 13</b> and the higher frequency range using <b>11 / 14</b>.</p>	<p><b>10 Lower Filter Enabler</b> Enables the lower row's Filter.</p>	<p><b>16 Lower Filter Section</b> Available in Filter modes <b>3 / 4 / 5</b>.</p>
<p><b>5 Band Notch Filter Enabler</b> <b>Eliminates</b> frequencies in a desired range. Select the lower frequency range using <b>11 / 14</b> and the higher frequency range using <b>8 / 13</b>.</p>	<p><b>11 Lower Filter's Cut-off Range</b> Same functionality as <b>8</b>.</p>	<p><b>17 Frequency Bar Section</b></p>
<p><b>6 Stereo Link</b> This switch allows the left and right channels of RUBBERFILTER to be linked.</p>	<p><b>12 Lower Filter's Order</b> Same functionality as <b>9</b>.</p>	

# USING KNOBS AND THE FREQUENCY BAR

## Using Knobs



To **increase** the value of any knob, press and hold the left mouse button and move the mouse pointer in the upper direction.



To **decrease** the value of any knob, press and hold the left mouse button and move the mouse pointer in the lower direction.

### TIP

Hold and press the left CTRL-Key on the Keyboard while turning Knobs to finetune levels.

If available, you can also use the mouse wheel to change the Knobs value. Simply move the mouse pointer over the Knob. Scrolling the mouse wheel up will increase the Knob's value, while scrolling down will decrease it.

## Using the Frequency Bar



The Frequency Bar is an alternative way to use knobs.

To change the frequency range, simply press and hold the left mouse button on the bottom end of the Frequency Range (**13**), while moving the mouse to the left or right.

The knob will turn respectively to match the Frequency's Bar value.

The value next to the Frequency Bar displays the processing range.



The same technique can be used to change the top end of the Frequency Range (**14**).

If available, you can also use the mouse wheel to change the Filter Order. To do this, just move the mouse cursor to either end of the Frequency Range. Scrolling up will increase the frequency range, while scrolling down will decrease it.

### NOTE

Depending on the Filter mode, it's not always possible to change the Bottom or Top End of the Frequency Bar.

## The Frequency Bar's Order range



The red area marks the fading range of the filter's Order. The longest fading range appears at 6 dB/Oct.



The higher the Order value, the smaller the fading range within the Frequency Bar.



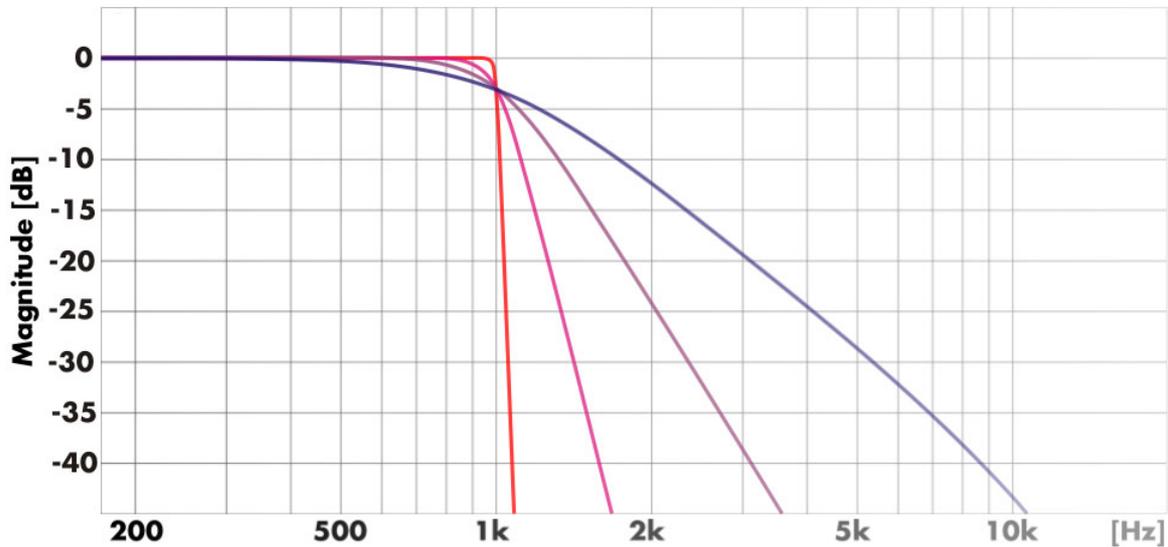
Please note, the fading range also works on the bottom range of the Frequency Bar (not displayed in this example).



A Order value of 384 dB/Oct creates a psychoacoustic effect.

# **SOME TECHNICAL DETAILS**

## **Frequency Response**



The above graph shows a typical second order low-pass at 1kHz with 12 dB/Oct in blue, a fourth order low-pass with 24 dB/Oct in purple, an eighth order with 48 dB/Oct in pink and finally a 384 dB/Oct filter in red. The filters are designed as butterworth filter, thus there is no ripple or overshoot in the frequency response. At least technically. Because of the resonant behaviour of high order filters, it is likely that the particular frequency region around the cut-off frequency will get more attention. That's why we suggest choosing an order which is as low as necessary.

## **CPU Usage**

RUBBERFILTER is designed to have the lowest CPU usage possible. However, the more filters used, the higher the CPU usage is. This should be kept in mind to set the filter orders carefully and avoid wasting CPU power for inaudible frequency ranges.

## **Other facts**

The internal DSP code is written entirely in assembler code. This guarantees low CPU usage and an internal bit depth of up to 80bit. Therefore, the SNR (Signal-to-Noise-Ratio) of RUBBERFILTER is always far beyond the SNR of any soundcard used and should not be an issue.

## **FEEDBACK / BUG REPORTS**

We are always eager to hear feedback or have bugs reported. The easiest way to do this is to send a e-mail to the developer: [Christian@savioursofsoul.de](mailto:Christian@savioursofsoul.de)

## **VERSION HISTORY**

1.0.0            First release!

## **CREDITS**

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