

frei:raum  
think beyond the usual



# welcome to frei:raum

what is frei:raum?

A high grade equalizer is certainly one of the most important tools for every audio engineer.

frei:raum offers everything that a demanding engineer could wish for ... and a lot more!

With frei:raum, you get the world's first equalizer with three different interaction layers for different audio processing tasks.



## smart eq

manual and automatic adjustment of the spectral balance of a track



## proximity eq

simple and fast adaption of the spaciousness of a recording within different frequency ranges



## entropy eq

frequency dependent modification of the tonal and inharmonic components of a sound

Using these three independent processing layers, frei:raum is not only a top quality, linear phase equalizer with an interactive user interface, but a completely novel approach to high quality audio postproduction and sound design.

All processing stages operate fully parallel and in realtime – so there's no need for time-consuming pre-analysis steps.

Just grab frei:raum and let your creativity flow!

We hope you will enjoy using frei:raum as much as we do ...

yours, Alexander Wankhammer  
Peter Sciri  
Ralf Baumgartner

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# system requirements

<b>cpu</b>	Intel Core Duo i5
<b>ram</b>	2GB
<b>operating systems</b>	Windows 7 (32/64 bit) Windows 8 (32/64 bit) Mac OSX 10.7 and newer

# frei:raum

an overview



# frei:raum

the smart eq

The core of frei:raum is a fully interactive equalizer with state-of-the-art mastering quality.

Each band can either be used in “classical” mode for manual EQing, or in the unique “smart” mode, offering automatic detection and removal of problematic resonances in different frequency bands.



# frei:raum

the proximity eq

Got your spectral balance right but some frequency ranges still sound blurred and lack presence?

That's where the proximity EQ comes into action: With a few clicks, the clarity and spatial impression of your recording can easily be adjusted. This way, components degrading the transparency of a track can be removed without any impact on the overall frequency leveling. Please note that the "gain" of a filter curve is not an actual gain, but the mixing ratio between direct and reverberant components in the respective frequency range of the filter band.

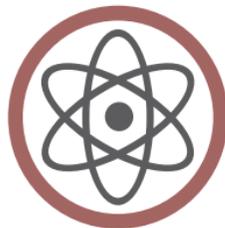


# frei:raum

the entropy eq

Perfect, nice and clear sound, but still not "tight" enough?

Get your hands on the entropy EQ! By separating tonal components (e.g. sustained notes) from inharmonic parts (e.g. drum attacks), the entropy EQ can be used to freely adjust the tonal characteristics of your sound at any given frequency. Turn up picking sounds and play with the sharpness of your snare drum! Please note that the "gain" of a filter curve is not an actual gain, but the mixing ratio between tonal and inharmonic components in the respective frequency range.



# frei:raum

an overview of the user interface

frei:raum is a plug-in with three different processing layers and four different control sections.



## 1 – eq selection

Switch between the three processing layers (smart EQ, proximity EQ, entropy EQ) by clicking on the respective icons.

*Hint: When hovering over the icon of a non-active layer, the sum curve of the corresponding layer is displayed inside the equalizer display for a quick overview.*

## 2 – master section

Here you find the color-coded global control parameters for each processing layer.

(smart EQ = green, proximity EQ = blue, entropy EQ = brown)

# frei:raum

the interface sections in detail

## 3 – interactive equalizer display section

Use this section to interactively control the filter curves of the currently active processing layer. All parameters (center frequency, quality and gain) can be adjusted freely.

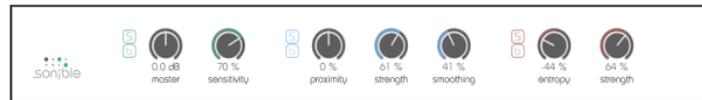
## 4 – parameter section

Here you can find the parameters of all filter bands:

- basic control parameters of each filter
- filter type selection
- small meter indicators for each band
- bypass and solo options

In this section you can also enable the “blind:flug” mode, where the interactive display is replaced by “old school” rotary sliders.

## master section



In the master section you can control the main (global) parameters of each processing layer.

## smart EQ



**s** solo button - listen to the smart EQ only  
**b** bypass button - bypass the smart EQ

**master** master gain of the plug-in

**sensitivity** encoder for adjusting the sensitivity of smart bands

generally speaking, the higher the value, the stronger each smart filter tries to compensate “spectral deficiencies”.

## sensitivity behavior

at lower values (<25%), the smart filters are primarily trying to compensate small and narrow-band peaks and notches

at higher values (>75 %), the smart filters tend to correct more “global” spectral deficiencies

## hint

It is very important to note that the sensitivity encoder is only active while a smart band is in “learn mode”. To observe the impact of this parameter, the value has to be changed BEFORE a new smart band is learning its filter curve

## proximity EQ



**s** solo button - listen to the proximity EQ only  
**b** bypass button - bypass the proximity EQ

**proximity** offset parameter for the proximity EQ  
use this parameter to globally adjust the mixing ratio between direct (>0%) and diffuse (<0%)

**strength** adjusts the separation strength between direct and diffuse parts of the audio signal

## strength behavior

lower values (<50%) lead to a wider transition range between different signal parts (direct and diffuse) and may sound more natural

higher values (>50%) result in a harder separation and can be used to get more distinct results

## smoothing

smoothing of the calculation results

## smoothing behavior

low values (<50%) may be used to reduce the amount of smoothing during computation. in some cases, this may lead to computation artifacts.

high values (>50%) increase the amount of smoothing during computation and may lead to a more natural sound but less distinct results

## entropy EQ



**s** solo button - listen to the entropy EQ only  
**b** bypass button - bypass the entropy EQ

**entropy** offset parameter for the entropy EQ  
use this parameter to globally adjust the mixing ratio between inharmonic (>0%) and tonal (<0%)

the higher the value, the more “punchy” and “impulsive” the resulting sound

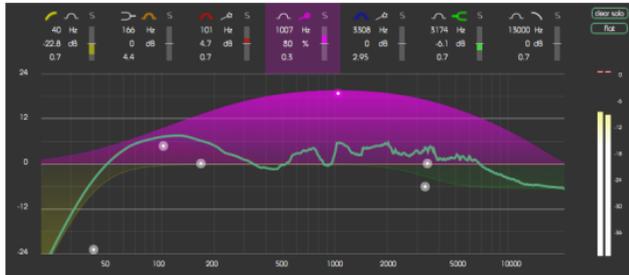
**strength** adjusts the separation strength between harmonic/tonal and inharmonic components of the audio signal

## strength behavior

lower values (<50%) lead to a wider transition range between different signal parts (inharmonic and tonal)

higher values (>50%) result in a harder separation and can be used to get more distinct results

## interactive equalizer display



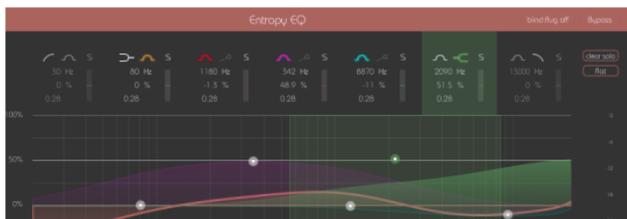
The interactive equalizer display of frei:raum allows for a very intuitive and quick control of all parameters of a filterband. You can simply drag and drop the thumbs related to each filter and immediately see (and hear) the resulting curve.

There are also three complementary key combinations for enhanced parameter control:

- alt+click+drag → change quality of the filter
- shift+click+drag → lock the center frequency, only change gain
- double-click → reset filter band

In addition, it is also possible to change the quality of a filter using the scroll wheel of your mouse while hovering over an active thumb.

## parameter section



The parameter section offers a complete overview of all filter settings in the current processing layer. The additional small effect meters for each band indicate how much signal energy is affected by the applied filter curve.

When hovering over the parameter section of a band, the band is highlighted with the color of the related filter curve inside the interactive EQ display.

- All filter parameters in the parameter section can be changed by dragging the respective value up and down with your mouse.
- With a click on the filter symbol (peq, cut, shelving, smart) the filter type of each band can be selected.
- With another click on the selected filter symbol, the filterband can be enabled or disabled.
- To quickly analyze certain frequency ranges, each filterband can be “soloed” by clicking on the small “s”-button next to the filter types.
- The “clear solo”-button deletes all active solos and the “flat”-button resets all filter gains of the active processing layer to 0dB. All other filter parameters are retained.

## special feature of the smart EQ: smart filters

Bands 3, 4 and 5 of the smart EQ can be used as so-called “smart filters”. Based on different analysis methods, a smart filter is able to recognize spectral deficiencies in the audio signal (broad- and narrowband) and can compensate them with an accurate and complex filter structure.

A smart filter is enabled by selecting the wand symbol as filter type. Once a smart filter has been “learned” (see next page), you can interact with it as with any “normal” filter (gain, quality and center frequency).

The only difference is that the bell function shown in the gui is not the filter which is deployed to the signal, but the weighting function for the complex smart filter function.

To use a smart filter, frei:raum has to learn the adaptive filter curve performing the following steps:

1. Choose a representative part of your track and start the playback.  
Hint: the selected snippet of the track should not contain longer silent parts
2. Click the wand symbol to activate the smart filter.  
Hint: A small box with a “record” (start learning) and “stop” (reset learned filter curve) button will be displayed above the thumb of the filter.
3. Click on the record button to start the learning process.
4. Wait until the filter finished learning (becomes stationary) or click on the record/pause button to stop learning manually.  
Hint: To continue learning, repeat steps 3 and 4. To restart learning from scratch, click on the stop button to reset the filter curve and repeat steps 3 to 4.

## blind:flug on / off

A nice little feature of frei:raum is its “blind:flug” mode. This mode replaces the commonly used interactive equalizer display with an “old school” view, where all parameters have to be adjusted using rotary encoders. The lack of visual feedback may sometimes help to focus on your ears...



## bypass

The “bypass”-button (positioned on the upper right-hand corner of the plug-in window) can be used to bypass all processing of frei:raum.

This internal bypass may be helpful when the bypass function offered by your host leads to glitches or sync-problems with other tracks.



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