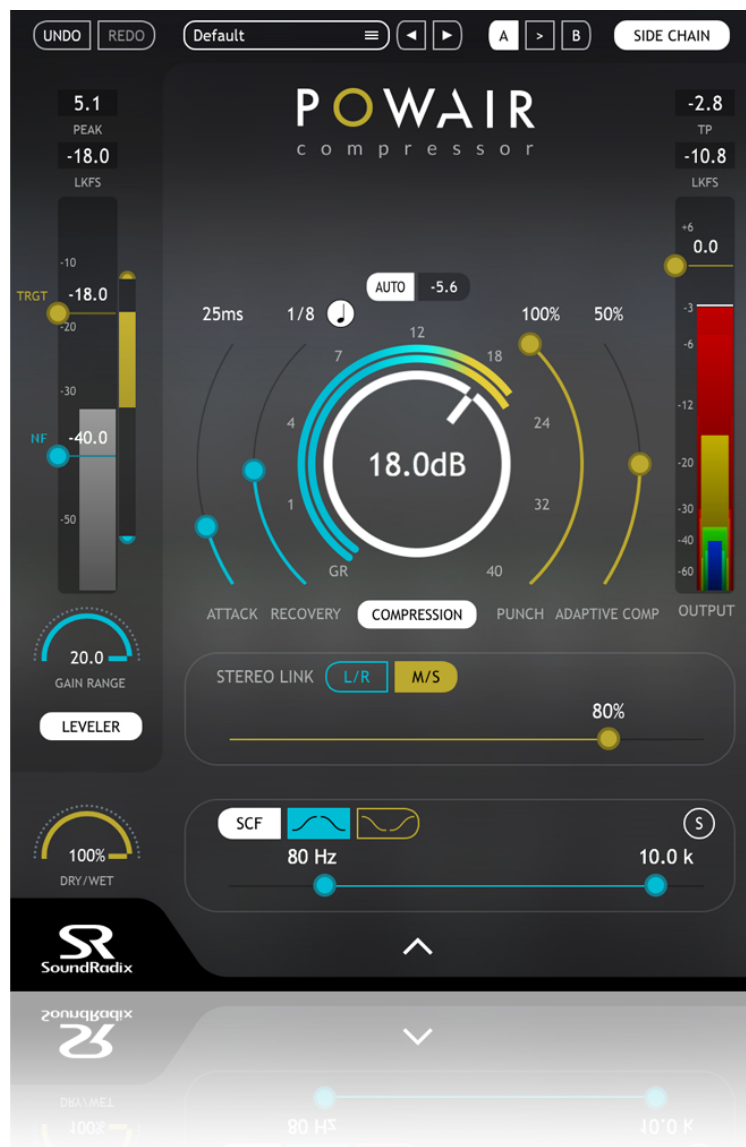




POWAIR

compressor



User Manual

Overview

POWAIR is a novel design, two-stage loudness leveler and compressor plug-in. It enables greater control and transparency of the source's perceived loudness and intensity and brings a sense of power to vocals, instruments and mixes.

The first stage in POWAIR is a K-weighted perceived loudness (LKFS) auto-leveler. Whether you need to deliver tracks to EBU specifications or control the levels of a dynamic performance, the loudness leveler will smoothly ride your tracks and get them to your target level.

In its second compression stage, POWAIR uses an innovative gain detection and reduction engine, capable of fast gain changes with minimal distortion and adaptive response to the recorded source signal. The unique characteristics of POWAIR allow for powerful dynamics shaping while maintaining the timbre of the source material, even when pushed to extremes.

The unique Punch feature enables full control over the transients' levels during the Attack stage, making it possible to shape the transients' lengths while keeping peak levels under control.

A couple of years ago at the AES show, multi Grammy award winner [Frank Filipetti](#) pulled us aside and said (more or less in these words): *"Listen guys, I'm working on this vocal track and I get the compressor to work all smooth and nice on this section, and then when the loud part comes in, the compressor over-compresses and kills my sound. Now, I could automate the threshold but what I want is a compressor that will keep the sound I did in the soft part, in the loud part as well. Can you do it?"*

After a few drinks and sleepless nights we're happy to say "Yes we can!"

In an industry first, POWAIR features [Adaptive Compression](#) to maintain an average compression action, adding intensity and glue while keeping the natural dynamics of the recording.

We hope that you enjoy POWAIR it as much as we enjoyed developing it.

Features

- Novel, ultra-fast gain detection and reduction compression design
- K-weighted loudness auto-leveler
- Punch enables precise level control of transients during the attack period independent of attack time
- Adaptive Compression enables maintaining average compression for natural performance dynamics
- Machine learning-based perceived loudness auto makeup gain compensation
- Bandpass and band-reject side-chain filter
- External side-chain key input
- Mono, stereo and mid/side operation modes with continuously-variable compression link control
- [ITU-R BS.1770.4](#)-compliant LKFS and true-peak output level meters

System Requirements

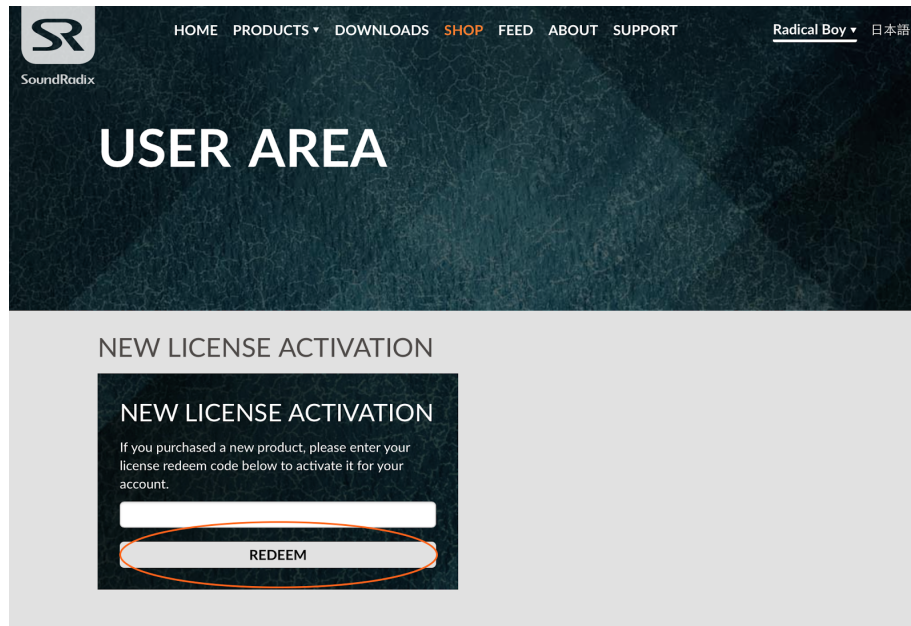
- Mac: Intel Core CPU, 2GB RAM, macOS 10.7 or higher
- Windows: Intel Core CPU, 2GB RAM, graphics card supporting OpenGL 2.1, Windows 7 or higher
- Plug-in formats: AAX, Audio Unit, VST, VST3
- Free iLok account and iLok License Manager (iLok USB key is not required)

License Redemption

To use POWAIR, you'll need a free iLok account and the iLok License Manager. To create an iLok account and download the iLok License manager, please point your browser to <https://www.ilok.com/>. An iLok USB device is not required.

1. Log-in to your [User Area](#) at <https://www.soundradix.com/users/>
2. Enter your license redeem code into the **New License Activation** box and click the **Redeem** button.
3. Enter your iLok Account User ID and email address and click **Redeem**.

POWAIR will now appear in your products downloads and the license will become available in your iLok account.

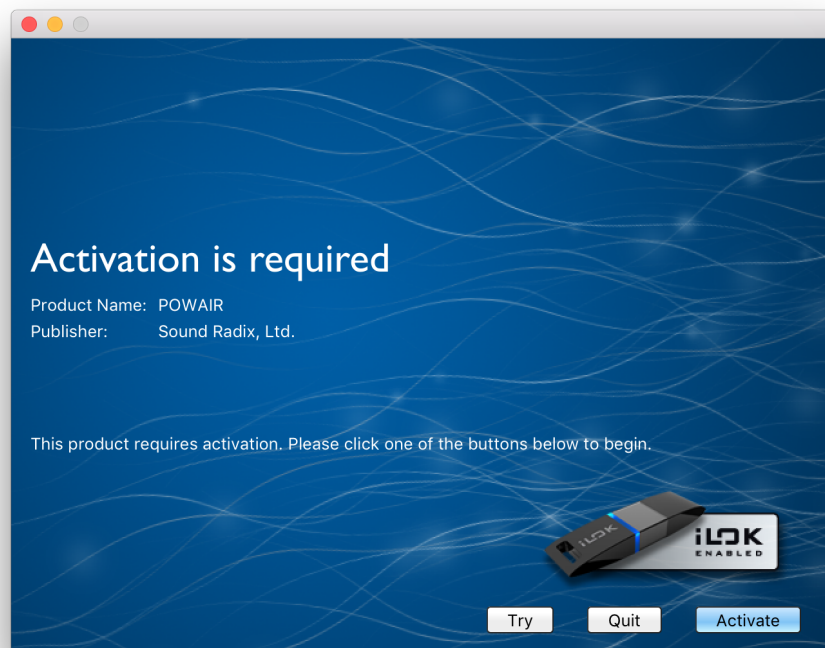


Installation

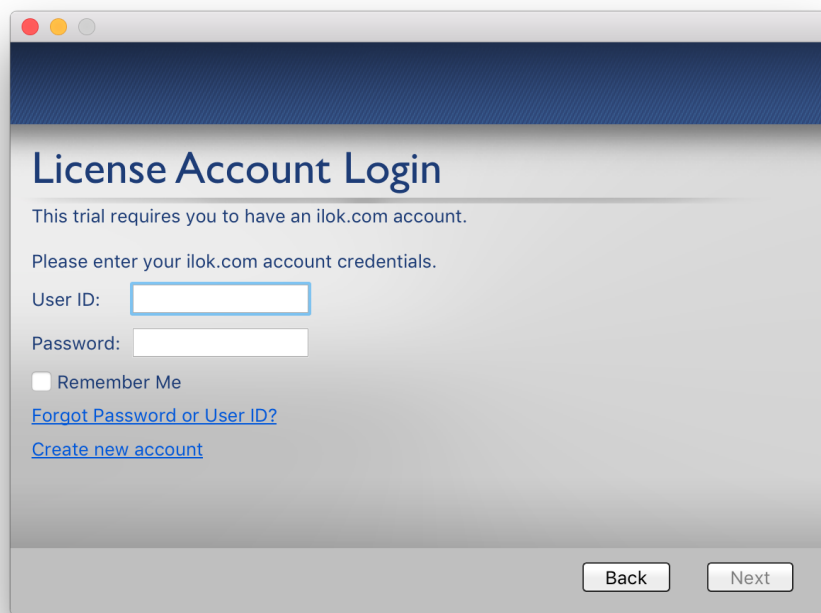
Download and run the the POWAIR installer file and follow the steps on the screen. Please note that you may need administrator permissions and password for your machine to install POWAIR. When installation is complete, quit the installer and launch your digital audio workstation.

License Activation

When first launching your DAW after installation, you will see the following screen:



Click **Activate** to start the full license activation or **Try** to start the trial activation process.



A screenshot of a 'License Account Login' window. The window has a dark blue header bar. Below the header, the title 'License Account Login' is displayed in a large, bold, dark blue font. Underneath the title, there is a message: 'This trial requires you to have an ilok.com account.' followed by 'Please enter your ilok.com account credentials.' Below this, there are two input fields: 'User ID:' and 'Password:'. To the right of the 'Remember Me' checkbox is a link that says 'Forgot Password or User ID?'. Below that is another link that says 'Create new account'. At the bottom right of the window, there are two buttons: 'Back' and 'Next'.

License Account Login

This trial requires you to have an ilok.com account.

Please enter your ilok.com account credentials.

User ID:

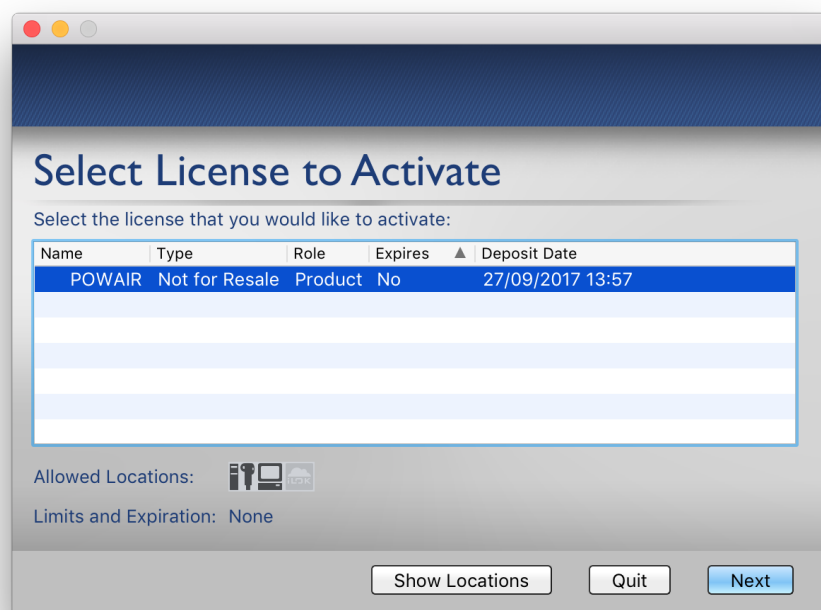
Password:

☐ Remember Me

[Forgot Password or User ID?](#)

[Create new account](#)

Enter your iLok account ID and password and click **Next**.






A screenshot of a 'Select License to Activate' window. The window has a dark blue header bar. Below the header, the title 'Select License to Activate' is displayed in a large, bold, dark blue font. Underneath the title, there is a message: 'Select the license that you would like to activate:'. Below this, there is a table with the following columns: Name, Type, Role, Expires, and Deposit Date. The first row of the table is highlighted in blue and contains the following data: POWAIR, Not for Resale, Product, No, and 27/09/2017 13:57. Below the table, there are two sections: 'Allowed Locations:' with three icons (a person, a computer, and a mobile phone) and 'Limits and Expiration: None'. At the bottom right of the window, there are three buttons: 'Show Locations', 'Quit', and 'Next'.

Select License to Activate

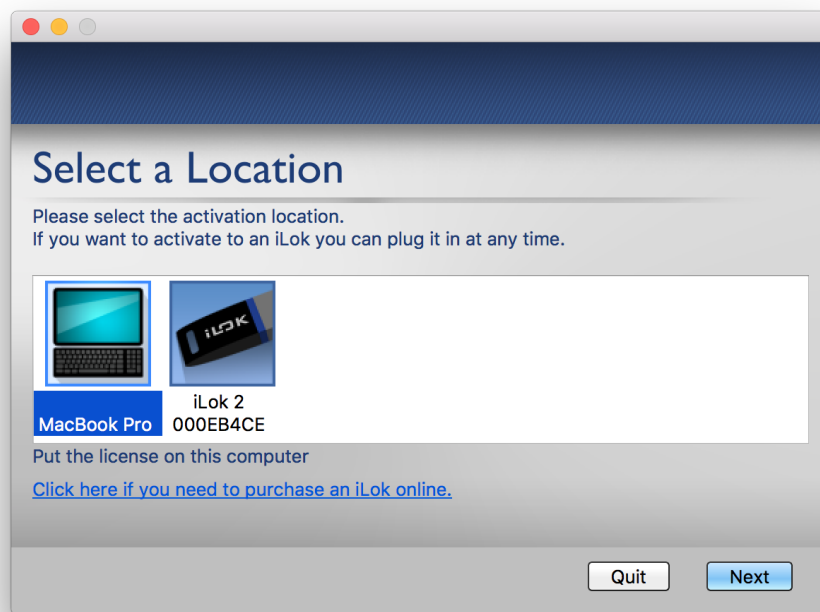
Select the license that you would like to activate:

Name	Type	Role	Expires	Deposit Date
POWAIR	Not for Resale	Product	No	27/09/2017 13:57

Allowed Locations:   

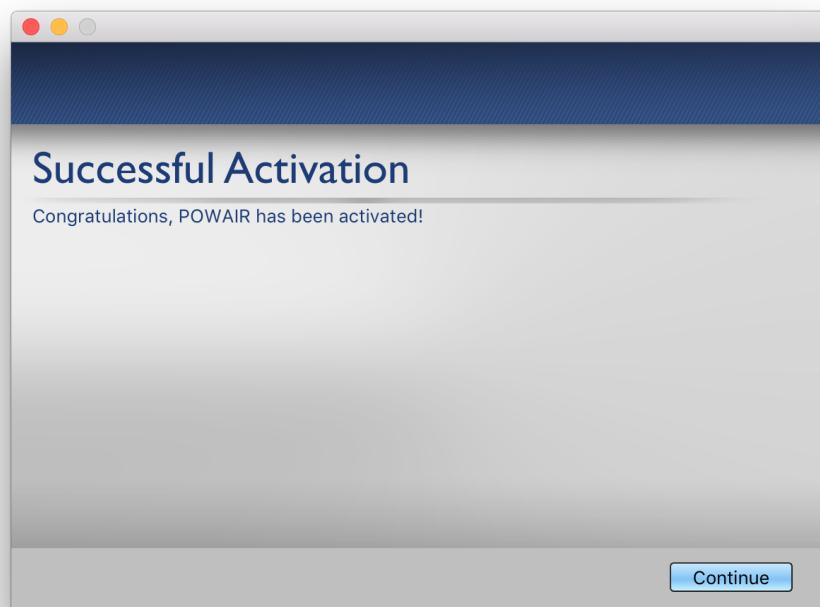
Limits and Expiration: None

Click to select your POWAIR license and click **Next**.



Select your preferred activation location for your POWAIR license and click **Next**.

Important: If you've opted-in to authorize your machine's drive, don't forget to deactivate your license to move it back to your iLok account before upgrading or retiring your machine.



Click **Continue** to finish the installation and you're done. POWAIR will now be available in your DAW's audio plug-ins menu.

Using POWAIR

K-Weighted Perceived Loudness (LKFS) Auto-Leveler

The LKFS auto-leveler stage is designed to smoothly ride the levels of the incoming signal to achieve an [ITU-BS 1770](#)-compliant target loudness level. The input meter shows the incoming audio's loudness level and the gain changes applied to it. The input signal is illustrated by a light-grey colored LKFS meter bar, while level (LU) boosts will appear yellow and level reductions will appear turquoise on the gain boost/reduction meter on the right-hand side of the input meter. The resulting output LKFS level values are displayed above the leveler's meter display.

TARGET LVL

Defines the loudness level target for the auto-leveler. Input signal levels below the target level will be boosted while those above the target level will be reduced to achieve the desired target level.

NOISE FLOOR (NF)

Defines the threshold at which the leveler will cease its operation and recover back to unity gain. Set this above the noise floor to keep the leveler from boosting unwanted noise.

LEVELER RANGE

Defines the reduction/boost gain range for the leveler, limiting the amount of gain change it will apply in both directions. For example, when set to 6LU, the leveler will limit the gain boost or reduction to 6LU. The maximum settable gain range is ± 20 LU. When set to 0LU, the leveler will effectively be turned off.

LEVELER ON/OFF

Toggles the loudness-leveler on and off. When off, the LKFS meter will continue to operate but no gain changes will be applied.

LU INTEGRATION TIME

Located under the additional settings tab, the LU Integration Time control adjusts the auto-leveler's level detection and reaction time. Set to 400ms for momentary loudness measurement and response and to 3000ms for short-term response. Clicking on the MOMENTARY and SHORT-TERM labels will set the integration time to the matching [ITU-BS 1770](#) standards.

Compressor Stage

ATTACK

Sets the time it takes to the compressor to reach the maximum compression for the current input.

RECOVERY

Sets the time period it takes the change in gain level to recover back to unity gain. Clicking on the note button will sync the recovery time to your project's tempo and display the recovery time in musical divisions.

COMPRESSION

The compressor section is a fixed-threshold soft-knee design, if you want more gain reduction just turn up the compression control. The dB figure in the middle is the gain of the signal going into the detector. More level, more compression.

GAIN REDUCTION METERS

Located around the compression dial you'll find the Gain Reduction (GR) meters and labels. The labels indicate the amount of gain reduction achieved when the meters reach their position.

When POWAIR is running in mono, a single gain-reduction meter will be visible. When running in stereo, two gain-reduction meters will be displayed. When stereo-link is set to L/R, the outer meter reflects the left channel and the inner meter reflects the right channel. When stereo-link is set to M/S, the outer meter reflects the MID channel and the inner meter reflects the SIDE channel.

PUNCH

Limits the level of the transients during the attack time. When set to zero, no transients will be passed and POWAIR will effectively behave as a brick-wall limiter. This enables independent attack time and level controls, allowing for greater transients shaping flexibility.

In classic compressors, reducing the attack time is required in order to achieve less punch. However, this often forces a compromise of the source transient shape. Using POWAIR, it's possible to dial in greater attack times while independently controlling the transients' loudness, so less punch can be achieved without compromising on the transients' shape.

ADAPTIVE COMPRESSION

Controls the dynamic adaptation of the compression amount to the incoming signal. When set to zero, the stronger the input signal and compression, the more compression will occur, similarly to what you expect from a regular compressor. When increasing the the Adaptive Compression value, the fun begins! Now instead of increasing the compression as the input increases, POWAIR will preserve the average compression amount and maintain the timbre and intensity even when the input level increases. The average-level calibration point is defined by the leveler's Target Level.

AUTO MAKEUP GAIN (AUTO)

Toggles auto-gain compensation on and off for the compressor stage and displays the calculated gain compensation for the current compression settings. Clicking on the makeup gain value enables manual adjustment.

Thanks to our ears' (and brains') physics, to most mortal humans, small volume changes are harder to notice compared to changes in pitch. On the other hand, louder seems to always sound better to us. Add to that our hearing's nonlinear frequency sensitivity which changes with loudness, and you may come to the conclusion that it would have been easier to become a rocket scientist than an engineer. After all, how can one make a good sounding decision if his main gauging tool is unreliable?

Luckily, we have the power (or rather, the POWAIR) to help you avoid these pitfalls and make better decisions when dialing in the compression for the track. Whenever you move any of the

compression stage controls, POWAIR's true auto-gain compensation analyzes the ongoing compression in real-time and automatically adjusts the makeup gain to maintain a consistent loudness. Finally, this enables to truly hear the effect of the compression without getting fooled by loudness differences.

STEREO LINK

When used on a stereo track, the stereo link enables variable compression-stage linking of the left and right channels, or mid and side channels when the M/S mode is engaged.

When set to 100%, both sides will be equally compressed by the maximum gain reduction.

When set to 0%, compression will be applied separately to each channel.

SIDE-CHAIN FILTER (SCF)

The side-chain filter enables feeding POWAIR's gain detection engine with a filtered source to make it less or more sensitive to a certain frequency range. POWAIR incorporates a unique bandpass and band-reject side-chain filter which can be used to shape POWAIR's spectral action.

Why would we want that? Remember our non-linear hearing frequency? Well, machines doesn't have this problem. And since on many sources we measure more energy in the low-end frequency range than mid and high frequencies, the signal will be driven into the compression zone more than what we would expect given the low end we audibly perceived. Setting the bandpass side-chain filter at 80hz on the low-end, and about 14kHz on the high-end will reduce the weight these frequencies going into the compression engine, which will result in a more pleasant compression response.

Alternatively, by using the band-reject side-chain filter mode, we can "ask" POWAIR to concentrate or compressing the frequency range outside of the filter's range. This can help control the frequencies out of the main source's range, while keeping the dynamics of the most important range in the source.

The Solo (S) button in the side-chain filter section engages a preview of the filter. If the side-chain filter (SCF) is not engaged, the filter section could be used as a post-compression filter, without affecting the compression stage. When the side-chain input is engaged, The 'S' button will engage the filter on the side-chain input only if the SCF is turned on.

SIDE-CHAIN INPUT

The side-chain input provides a way for an audio processor to process audio based on external key input, e.g, compressing a pad track to a kick-drum beat. To engage the side-chain input, simply click the side-chain button on the top right-hand side of POWAIR's view.

Side-chain routing configuration varies from one DAW to another. Please consult your DAW's user manual on how to route side-chain input to POWAIR.

DRY / WET

The DRY/WET control enables freely mixing the post-leveler stage output (Dry) and POWAIR's Compressor stage output (Wet), effectively enabling [Parallel a.k.a New York compression](#) right within POWAIR, without requiring complex auxiliary routing configuration.

OUTPUT FADER

The output fader handle is located on top of the output meters and controls the final output level from POWAIR. Clicking on the dB value enables entering a desired output level directly.

OUTPUT METERS

At the top of the output meter, you'll find a true-peak (T.P) and LKFS short-term output readouts.

Our unique **Spectral Level Meter** is in fact a frequency spectrum analyzer within a peak level meter. Bars of different widths and colors show the entire frequency range, ranging from wide red bars for low frequencies, to thin violet bars for high frequencies.

Additional Settings

Additional settings can be accessed by clicking on the arrow at the bottom of POWAIR's window.

INPUT TRIM

Adjusts the input gain to POWAIR.

LU INTEGRATION TIME

See [Perceived Loudness Auto-Leveler](#) sections on page 7.

ACKNOWLEDGEMENTS

POWAIR uses the following libraries:

- JUCE by ROLI Ltd. - <http://juce.com>
- KISS FFT by Mark Borgerding - <http://sourceforge.net/projects/kissfft>
- Protocol Buffers by Google - <https://developers.google.com/protocol-buffers/>
- VST PlugIn Technology by [Steinberg Media Technologies GmbH](#)

To Frank, your next cigar is on us.



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