



redline monitor



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INTRODUCING...

Redline Monitor is a listening, mixing, and mastering tool. It replaces the extreme stereo separation that is characteristic for headphones by the detailed stereo image of near-field monitor speakers without any detrimental effect on the audio.¹

Redline Monitor performs a sophisticated combination of filtering, frequency-dependent delaying, mid/side processing, and room simulation to create an acoustic soundstage that allows you to properly localize sound sources. It also adjusts the relative levels of panned sources as they appear on speakers, and moves the soundstage from somewhere inside your head (with headphones) towards a clearly defined location in front of you.

- True stereo soundstage with adjustable speaker position
- Transparent sound with perfectly flat frequency response
- Separately adjustable phantom center level for optimal speaker matching
- Distance control to simulate placement of near-field monitors in room
- Auxiliary left/right solo and phase invert controls for critical listening
- Output switchable to mono for mono-compatibility checking

HEADPHONES — THE PERFECT MONITORS?

Judging only by specifications, one would conclude that a pair of quality headphones is ideal for monitoring. Headphones have excellent frequency response, no sound dispersion, and don't suffer from frequency anomalies in acoustically questionable rooms. They require incomparably less effort to carry around than studio monitors, and allow you to work where and when you want—while travelling, in the middle of the night, or both! Not to mention that they are relatively affordable and extremely portable.

Sounds too good to be true? Unfortunately, it is.

Headphones achieve many of their virtues by the fact that (unlike with monitor speakers) the sound source is located almost on top of your ears. This creates a host of problems, which

¹ The frequency response is flat within $\pm 0.1\text{dB}$ for the entire 10Hz–22kHz range with the Distance control disabled. Enabling the Distance control intentionally boosts or cuts certain frequencies to recreate the filtering effect of your pinnae on real-world sound sources. You may find that, while no longer flat, this frequency response may actually bring the perceived frequency response of your near-field monitors and headphones closer together. With some signals subtle phase cancellations may occur between the left and right channel, but only to the extent that the phenomenon occurs on monitor speakers.

any regular headphones user will be familiar with. The stereo image is lost due to extreme separation of the left and right channels and has no discernible phantom center. Sound sources are impossible to locate and, because of the unnatural stereo image, ear fatigue sets in even after short listening sessions. The bottom line is that the listening experience lacks any similarity to natural hearing, which makes it impossible to judge a mix with any level of accuracy.

That is, until now.

Redline Monitor brings the soundstage of near-field monitor speakers to your headphones. Now you can accurately judge levels, stereo placement, and overall balance on your favorite set of headphones—anywhere, anytime, and without ear fatigue even after prolonged listening. No more night long headphone sessions that turn out lifeless and with too little reverb and separation on speakers.

Redline Monitor makes mixes sound identical on speakers and headphones, at least within the tolerance of the different frequency responses of headphones and monitor speakers. (That's the best anyone can hope to achieve—no two pairs of monitor speakers sound identical either, and they definitely sound different from the speakers in headphones.) Redline Monitor uses sophisticated acoustic and psycho-acoustic processing to trick the ear into perceiving both stereo and depth information even though the sound sources—the headphones—are in reality located someplace else entirely. This gives you a portable uniform listening environment even in home studios and untreated rooms that is rivalled only by a set of good monitor speakers. Whether in the studio or on the road, whether on a full-blown studio rig or your notebook, the stereo image, tonal balance, and sound are identical where ever you go.

And better still, Redline Monitor gives you direct access to the best from both worlds. Headphones provide detail in a way that no speakers can, allowing you to zoom in on even the tiniest details. Clicks, room ambience, and soft details that are nearly impossible to distinguish on speakers are easily revealed on headphones. Simply engage the Bypass function to switch between traditional and speaker-simulating headphones.

WHAT IT CANNOT DO

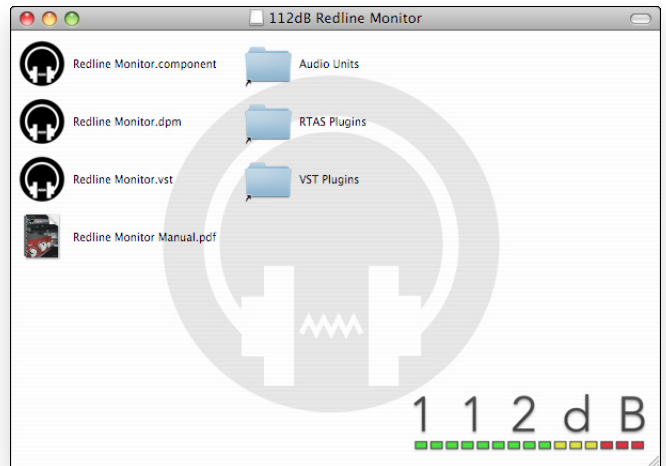
Redline Monitor is a great and useful tool, but it is not a replacement for a decent set of near-field monitor speakers! If possible you should always perform at least a final check on monitors.

INSTALLATION

Redline Monitor comes in the form of a single installer for all available plugin formats: RTAS, VST, and Audio Units.

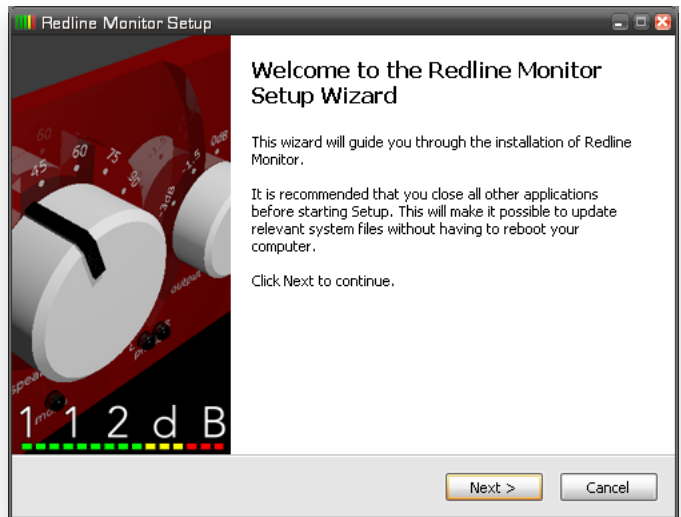
MAC OS X

1. Download the Redline Monitor disk image and double click the icon to mount it. A window similar to the one shown appears.
2. Drag the plugin formats you want to install onto the corresponding folder alias directly to the right of it. In other words, the `component` needs to go onto the `Audio Units` folder, the `dpm` onto the `RTAS Plugins` folder, and the `vst` onto the `VST Plugins` folder.
3. After the installation finishes you may safely eject the disk image.



WINDOWS XP/VISTA

1. Run the Setup program to launch the installer.
2. Make sure to read the license agreement. This is in your best interest, as it is a description of your rights and limitations as a user.
3. There are two installation options: *Default* and *Custom*. *Default* uses typical settings and is fine for most configurations, but if you like more control over your installation choose *Custom*. Steps 4–7 below are skipped in the *Default* setup.
4. The setup program detects whether you already have VST or RTAS plugins on your system and selects the plugin formats it installs accordingly. If you wish you may override this choice and manually select your desired plugin formats.
5. By default Redline Monitor installs to `\Program Files\112dB\Redline Monitor`. In general, it is not recommended to change this but if you have a compelling reason to do so, either type in the desired directory in the *Destination Folder* box, or click on the *Browse* button to the right of the *Destination Folder* box and select the directory within which you would like Redline Monitor installed.
6. If you opted to install the VST plugin, the *Choose VST Location* step is one you should pay attention to. The setup program *should* detect your default plugin folder, but you may prefer another directory for your plugins—particularly if you use multiple hosts—in which case you will need to manually direct the installer to the desired directory. The process for this is identical to that in the previous step.
7. The *Start Menu Folder* step is for convenience and for quick access to troubleshooting files. Currently, it points to the readme, the error log, this manual, and the uninstaller executable. It should be noted that all of these files are directly accessible in the Redline Monitor program folder (wherever the installer was directed in Step 6, and under `\Documents and Settings\[current user]\Local Settings\Application Data\112dB`). In addition the uninstaller for Redline Monitor will be listed under *Control Panel » Add/Remove Programs*, so if you like to keep your start menu clean, you can safely select *Do Not Create Shortcuts*.
8. After Redline Monitor installs, Setup is complete and you may click the *Finish* button. It is recommended to view the readme if this is a new installation or an update, as it may



contain important last-minute information that was not available at the time of writing.

AUTHORIZATION

Our plugins do not rely on a dongle or challenge/response authorization for copy protection, as these schemes place an unnecessary burden on the customer. Instead we protect our plugins by means of a *keyfile*—a text file that holds your personal authorization. Unlike challenge/response authorization our keyfiles are *not* tied to a specific computer system. Thus you can use the same keyfile for authorizing a copy of our plugins on any system, now and at any point in the future.

Unlike most challenge/response authorization schemes, you do not need our permission to change your hardware, upgrade to a new operating system, or even to install the plugin on your studio setup, your home computer, **and** your travel notebook all at the same time. You will find that this is one of the least intrusive forms of copy protection you are likely to encounter.

The authorization process itself is equally simple. With your purchase you should have received a license in the form of an XML keyfile. To authorize, save this keyfile to your desktop, fire up your preferred host, and load the plugin. Redline Monitor now prompts you to select the license file. Navigate to the folder where you saved the keyfile and click *Ok*. That's all there is to it, Redline Monitor is now fully functional.

To activate a new license—for example, to replace an evaluation license with a purchased permanent license—either right-click anywhere in the Redline Monitor window and select ***Authorize with license...*** or drag and drop the new license .xml file onto the Redline Monitor window.

If you encounter any problems during the authorization process please contact our support staff by email at <support@112dB.com>. We will accommodate you as soon as humanly possible.

SYSTEM REQUIREMENTS

Redline Monitor is compatible with any host that adheres to the RTAS, VST, and/or Audio Units protocol.

REQUIRED CONFIGURATION

OPERATING SYSTEM

- Windows 2000/XP/Vista
- Mac OS X 10.4 (Tiger)/10.5 (Leopard)

PROCESSOR

- AMD Athlon 800+
- Intel Core @ 1.6 GHz
- Intel Pentium 3 @ 850 MHz
- PPC G4 @ 1.2 GHz

SYSTEM SPECIFICATIONS

- 256 MB RAM / 10 MB free disk space
- Sound card with MME, ASIO, or Core Audio compatible drivers
- Graphics card with 800x600 resolution and 16-bits color depth

RECOMMENDED CONFIGURATION

OPERATING SYSTEM

- Windows XP/Vista (32 or 64-bit)
- Mac OS X 10.4 (Tiger)/10.5 (Leopard)

PROCESSOR

- AMD Athlon 64 2800+
- Intel Core Duo @ 1.6 GHz
- Intel Pentium 4 @ 2.8 GHz
- PPC G5 @ 1.2 GHz

SYSTEM SPECIFICATIONS

- 1 GB RAM or more / 500 MB free disk space
- Sound card with ASIO or Core Audio compatible drivers
- Graphics card with 1280x1024 resolution and 32-bits color depth

OPERATION

The Redline Monitor interface has been designed to be as intuitive and easy to operate as possible. However, in the interest of innovation, some functions operate in ways that may be initially unfamiliar. This section will cover the less obvious aspects of the interface.

TOOLTIPS

If you're lost, hovering over any item of the interface for approximately one second brings up a floating tooltip window with a brief description of that control's function.

RESET TO DEFAULT VALUE

<Ctrl>-clicking knobs and sliders will reset them to their default value. This is handy if you would like to undo some programming you have done.

NUMERICAL VALUE ENTRY

Double-clicking knobs will open a small edit window that allows you to type the desired value from the keyboard for maximal value control. To dispose the edit window either hit <Enter> or click anywhere outside the window.

MIDI AUTOMATION

In addition to host-based automation, all "useful" controls can be controlled by an external MIDI keyboard or MIDI controller. To assign a MIDI control simply right-click on the control in question and a menu will pop up. You can either directly choose a MIDI control from the MIDI Controllers submenu, or choose Learn... and move the control you want to assign on your external MIDI keyboard or controller within ten seconds. Redline Monitor will automatically assign the control.

ALTERNATIVE SKINS

Redline Monitor supports custom *skins* that modify the look and feel of the plugin. At present it comes with two additional skins: **Vintage** by Scott Kane, and **Easier Readability** for visually impaired users. Additional skins may be made available as downloads from the 112dB site as they become available.



OTHER CONTROL-SPECIFIC OPTIONS

Many controls have additional options that can be selected or set, such as knob mode or skinning support. To open a popup menu from which to enable or choose these options, right-click the control in question

DRAG AND DROP

112dB authorization keyfiles can be dropped into Redline Equalizer for convenient one-click authorization. Simply locate an authorization file (on your desktop or any other location on your filesystem), click and drag it over an open Redline Equalizer editor window, and release the mouse button. Note that you may need to quit and restart your host for the new license to take effect.

An alternative way to authorize an evaluation version is to right click anywhere in the editor window and select **Authorize with license...** Locate and select the authorization file from the file dialog to fully unlock the demo for all eternity.

CONTROLS AND SETUP

This section describes the various interface controls and how to get the most out of Redline Monitor. From big to small:

SOUNDSTAGE WIDTH

The Soundstage control determines the width of the acoustic soundstage, or put another way: the spacing of the virtual speakers. At the minimum setting of 30 degrees the speakers are placed close together and the resulting stereo image very narrow. Adjusting the control upwards moves the speakers apart until at the maximum setting of 90 degrees they are located directly to the left and right of the listener.



In general, speakers achieve optimal performance when the listener and the two speakers form an equilateral triangle. The default setting of 60 degrees approximates this placement and should provide a good starting point.

PHANTOM CENTER

You will notice that with Redline Monitor a proper phantom center emerges from the stereo image. Sounds panned in or near the stereo center appear to originate from a position directly in front and no longer from an indeterminate location inside your head.

Compared to speakers this so-called phantom center may be slightly dominant relative to the sounds panned more towards the sides. This discrepancy can be adjusted for through the

Phantom Center control, which attenuates the phantom center in relation to the sides (and automatically compensates for the resulting volume loss). The default setting of -1.5dB should be appropriate for most setups.

D I S T A N C E

External real-world sounds are reflected by your pinnae before they can reach the ear, which causes complex cuts and/or boosts of certain frequencies. Due to the particular shape of your pinnae the exact frequencies and amounts of cut/boost depend on where the sound is coming from. Sounds from straight in front of you are filtered differently from those more to the sides, the back, or from a higher or lower position. These subtle changes in the frequency spectrum help your brain determine the position that the sound originates from.

The Distance control simulates this effect by applying a complex series of subtle cuts and boosts that trick the brain into perceiving directional clues. (The control was modeled after precise measurements obtained from recording a 'dummy' head model with in-ear microphones in an anechoic chamber.) The result is an enhanced directional perception of the simulated soundstage and a feeling of proper distance from the virtual speakers.

You will find that engaging the Distance control makes the soundstage feel more 'real' and tangible. By the nature of the process this slightly alters the overall frequency balance, but your ears will soon get accustomed and compensate for this—in fact, you may find that the altered frequency response brings the resulting sound of your headphones and near-field monitors closer together!

If you absolutely require zero frequency change, set this control to its minimum setting.

Doing so will dim the knob and disable the effect, resulting in a frequency response that is flat within ± 0.1 dB for the entire 10Hz–22kHz range. (Detailed frequency response graphs are shown at the end of this manual.)

S O L O

Click on L (or R) to listen to only the left (or right) speaker solo'ed in place. For prolonged solo listening you may prefer to engage Mono at the same time.

M O N O

When this is enabled the incoming left and right signals will be mixed to mono. This serves a variety of purposes: mono compatibility checking, more comfortable L/R solo listening, and to check the pure stereo component of the signal—see the Phase control below.

DIM

Even though Redline Monitor does not change the perceived loudness of the signal, its processing may affect (and sometimes increase) the measured signal amplitude. This can cause digital overloads if you are listening to pre-mastered material that peaks close to 0dB. Activating this control attenuates the entire signal, which should suffice to keep the signal below 0dB at all times. The amount of dimming can be toggled between -3dB and -6dB from the right-click popup menu.

PHASE

Select L (or R) to phase invert the left (or right) channel. Useful for phase checking of signals, and for listening to only the side components (as in Mid/Side) when combined with Mono.

RECOMMENDED SETUP PROCEDURE

To get the most out of Redline Monitor we recommend you start with the default settings.

Insert Redline Monitor on the stereo output buss of your host application and play some music with a wide and detailed stereo image—preferably music you are intimately familiar with—through both your near-field monitor speakers and headphones. Listen carefully to differences in the apparent width of the soundstages generated by the headphones and the speakers. Keep performing frequent A/B comparisons by taking off your headphones (and putting them back on) while adjusting the Soundstage control a little at a time until sound sources are panned identically and you can imagine the headphone sound to originate from your speakers.

Once you feel you have arrived at the best Soundstage setting, proceed to the Phantom Level control. Pay close attention to the apparent shape of the soundstage provided by Redline Monitor and the speakers. In particular concentrate on the relative level (or apparent distance) of sounds panned near the center of the stereo image and sounds panned more towards the sides. If the center appears louder or closer than the left or right extremes, the control should be adjusted away from 0dB. If the center appears softer or more distant adjust the control towards 0dB instead. Closing your eyes while visualizing the perceived soundstage can be helpful here.

Note that it may take several hours of critical listening to perfectly match Redline Monitor with your speaker setup. Careful A/B comparisons should reveal whether adjustments are necessary. When the ideal setup has been achieved music played through Redline Monitor and your headphones should sound as if it originates from your speakers—or at least very close to it.

TECHNICAL SPECIFICATIONS

With the Distance control at its minimum setting, the overall frequency response is flat within $\pm 0.1\text{dB}$ for the entire 10Hz–22kHz range with an overall total harmonic distortion of $< -150\text{dB}$. Detailed measurement graphs are shown on the following pages. Redline Monitor supports all common samplerates up to 192kHz.

UPDATES AND SUPPORT

Any updates for Redline Monitor will be made available at

<http://112dB.com/redline/monitor>

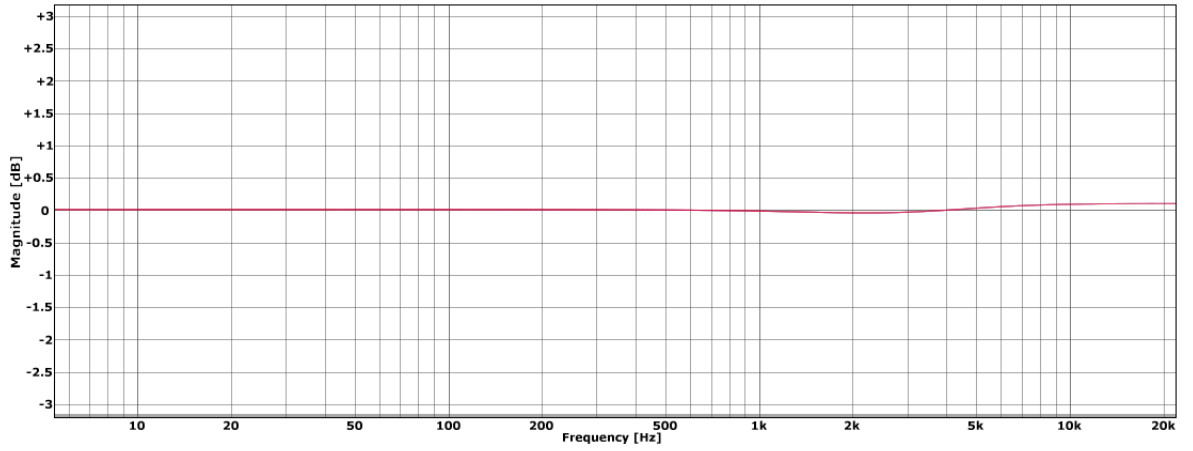
For product support, questions, comments, feature suggestions, and anything you feel is worth sharing, please visit our forum at

<http://112dB.com/forum>

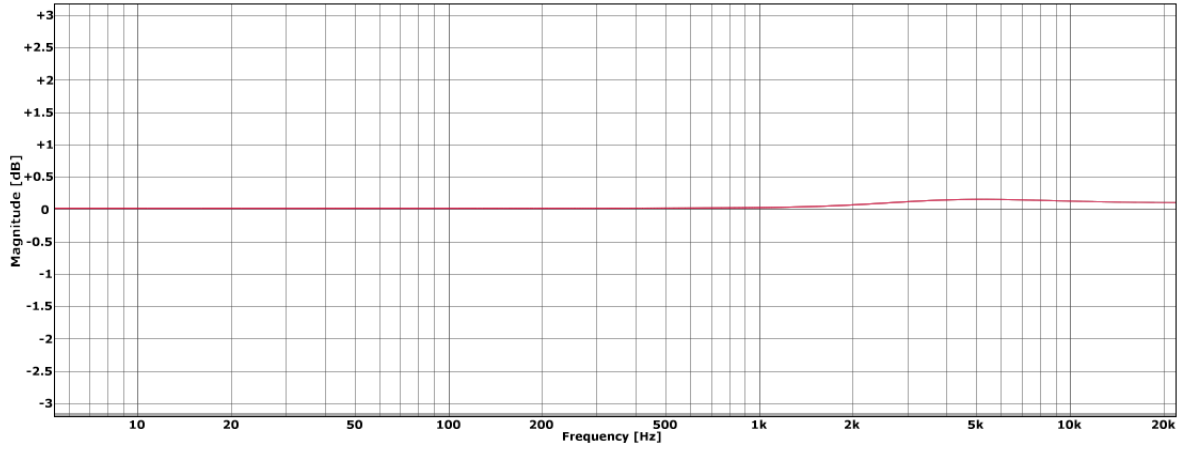
Alternately, for more individual product support you may contact our support staff by email at

support@112dB.com

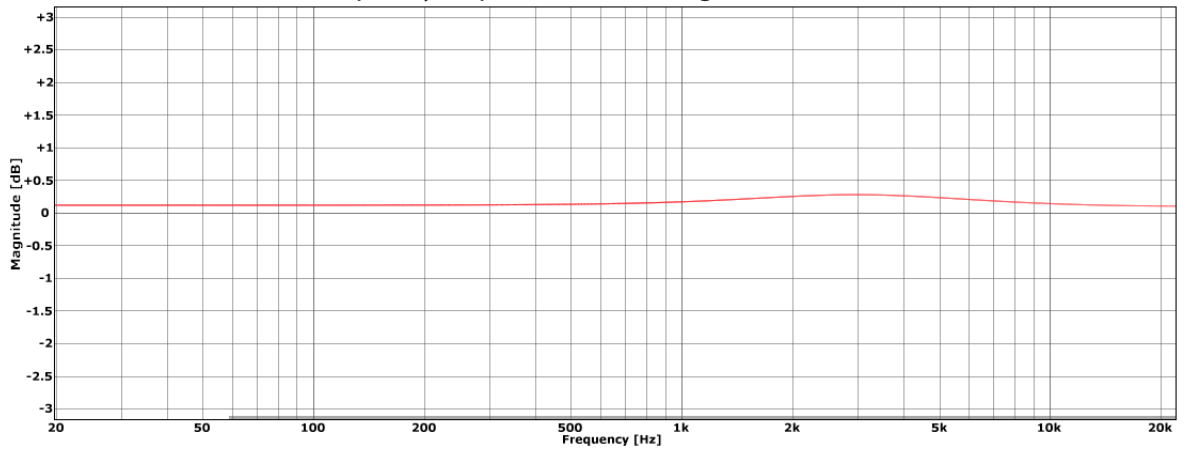
Frequency response Soundstage 30° Distance off



Frequency response Soundstage 60° Distance off



Frequency response Soundstage 90° Distance off



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