

CABINETRON

User manual



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Chapter 1 Introduction

Cabinetron - the ultimate IR loader & cabinet simulator

Cataloged but beyond being an IR (impulse response) loader, Cabinetron would be your one and only tool to find every missing process between your amp and your ears.

You may have an extensive IR collection, but please do not waste your precious resources on an IR loader that doesn't sound good enough.

Believe or not, every IR loader does sound different, even if they share the same algorithm. and the secret that makes the difference is the rounding errors in convolution DSP codes.

Sound quality is always the first thing that matters to us. Just like Adaptive Filter Topologies that we created for Kirchhoff-EQ, we designed a noise-shaping algorithm exclusively for IR convolution, to ensure every of your IR is 'pushing the air' in Cabinetron.

A guitar cabinet can be simulated well enough by convolution because 99% of the cabinet / speaker's behavior is linear. But what about the last 1% of nonlinearity?

Not only as a transparent linear IR loader, Cabinetron also modeled the non-linear behavior of how the voice coil moves within the magnet. With the enhancement of nonlinearity, more real cabinet-like all your IR's will be, and more '3D' your tone will sound.

Of course, you have full control of this parameter. Tweak it or leave it, it's up to you.

Browsing

With Cabinetron's powerful integrated IR browser, you can deeply handle your IR catalog, and easily start your workflow without getting lost in your massive collection anymore. The file management system specially designed for IR's provides you a one-step solution that allows you to search, tag, add to favorites, organize multi-path... Everything that helps to increase your efficiency and focus on the music.

- **400+ IR Presets**

Cabinetron offers you over 400 IR presets designed delicately for various genres and styles. We hope that no matter if you are an IR expert, or just stepped into the world of IR's, will get some flashes of inspiration from our IR presets.

Editing

Before finding more IR's, why not tweak the ones you have first?

Beyond being an IR loader, Cabinetron allows you to unleash your imagination to build your own tones as a versatile IR editor. Whenever you would like to compare, or mix the iconic sounds of up to 8 cabinets, Cabinetron is the only tool you need to make that happen.

- **Spectrum Smoothing Technology**

Cabinetron allows you to 'smooth' your IR by smoothing its spectrum. With the 'fuzzy' components getting removed from the spectrum, the resonant frequencies and phase chaos will be significantly reduced. If you like, you can even smooth the IR all the way down to an 'outline' of its frequency response, to create your distinctive sound.

- **31 EQ Curve Mutations**

Cabinetron is stored with 31 well-crafted guitar EQ curves that give you the ability to adapt your IR to various music styles. With the Mutation knob, you can apply the variations to any of your IR's, which means you can get 31 different IR's out of the original one.

- **'FRED' Miking Technique Simulation**

'FRED' is a commonly used miking technique in the real world - to mix input signals from two microphones positioned at a 45-degree angle, then adjust the ratio of the two signals to bring variations to the recording.

The technique now gets simulated... for your IR's! Be free to 'FRED' your tone with a single knob in Cabinetron.

- **Virtual Microphone Positioning**

"Not bad. How about we move the mic 1 inch further from the cabinet?"

"It's not a real mic. It doesn't move..."

In Cabinetron, IR does move! Cabinetron allows you to move your 'virtual microphone' by adjusting its horizontal 'position' and vertical 'distance'. There you get another dimension to play with your IR's.

- **Speaker Impedance Simulation EQ**

Speaker's impedance often poses an awkward issue in IR production. Different power-amps that connect with speakers could generate very different frequency responses in high and low frequencies. You have the freedom to fix that in Cabinetron. The frequency drifts brought in by the impedance get offset by a model based on physical cabinet circuits, which is implemented as a 3-band EQ.

You want a growling low end? Just push the knob way up to the top!

- **Auto Phase Alignment**

When mixing multiple IR's, especially when they were obtained from different manufacturers, we always face annoying phase issues, as they all have different latencies.

Don't bother yourself but let Cabinetron automatically align them for you with one single click.

Mixing

We all like mixing characteristics of different cabinets, but it's never easy only by tweaking the sliders. In Cabinetron's Dimension Mixer, you can adjust the ratio to apply each of your IR's, by simply dragging your mouse freely inside the virtual space between them. Forget about parameters for a moment, just hover around until you find the point where your ears feel most comfortable.

Music never is something to analyze by numbers. 'Feel' it.

EQing

Playing around with guitar EQ is never easy, but now you have a better tool. Cabinetron features core functionalities of Three-Body Tech's highly acclaimed equalizer - Kirchhoff-EQ, to turn the tone in your mind into reality.

Tone Matching

Not a feature that you always see in an IR loader, but we still decided to put into Cabinetron, in order to help you perfectly catch the spirit of your 'dream tone'.

More or less, when we listen to certain music, a tone that comes through our ears sounds so ideal that we would like to reproduce it as a reference for our own works. It's quite a challenge to do it authentically, but it's time to get yourself some unexpected surprises from Cabinetron.

In the Tone Matching panel, you can match your tone with the 'Reference' spectrum curve captured from a guitar/bass track (or simply load the whole track), or with any preset out of over 100 classic tones that we prepared for you.

Don't worry at all about losing your creativity. Just try mixing 50% of the matched curve into your tone! The curve can be shaped further by smoothness, processing depth, volume range and frequency range, in order to keep your own 'sharp edges' as you wish.

If you are satisfied with the result, you are also welcome to save and share it as your customized reference preset.

Exporting

From and beyond Cabinetron.

Not only offering the most possibilities inside the software, Cabinetron extends your creation even outside your computer. Everything introduced above, including all the editing and processing, can be exported as a single IR file. This IR, specially designed by YOU, can be then loaded by any other software/hardware IR loader that supports .wav format.

Ready to witness the new light shine on all your IR related gears?

Chapter 2 Installation

Minimum System Requirements

- Intel or AMD CPU with SSE 4.1 support, Apple chip
- MacOS 10.9, Windows 7
- 4GB RAM, 100 MB disk space

Please note that Logic Pro 9 is not supported, please use Logic Pro X or higher

macOS

Double-click on Cabinetron-programs-1.x.x-retail-en_US-universal-osx.dmg, follow the instructions to proceed installation.

*The universal binary installer supports both Intel processors and Apple silicon models.

Windows

Double-click on Cabinetron-programs-1.x.x-retail-en_US-x64-win.exe, follow the instructions to proceed installation.

FAQ

When installing on macOS, please right-click on the app icon of installer, then select 'Open' from the shortcut menu to launch the installer. If a warning dialog shows up, please click on 'Open Anyway' button to continue. Try again if the button is not available. Usually, the button will become available by the second time.

If the button keeps being unavailable, please refer to 'Open a Mac app from an unidentified developer' guidance published by Apple: <https://support.apple.com/guide/mac-help/open-a-mac-app-from-an-unidentified-developer-mh40616/mac>

Chapter 3 Registration and Activation

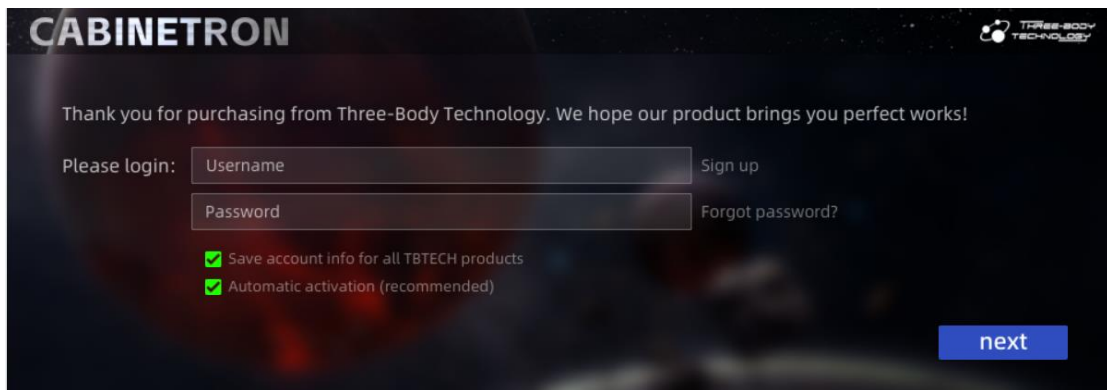
Binding Serial Number

To ease management of your purchased products, all products require to be registered to a Three-Body Tech account. Please visit <https://my.threebodytech.com/register>, follow the instructions to create your account.

After creating your account, please visit <https://my.threebodytech.com>, login to your account and then select Cabinetron in 'My Products' page, enter your serial number to bind it with your account.

Activation

When first launch Cabinetron, you will see the following interface:



The screenshot shows the Cabinetron activation screen. At the top left is the 'CABINETRON' logo, and at the top right is the 'THREE-BODY TECHNOLOGY' logo. Below the logos, a message reads: 'Thank you for purchasing from Three-Body Technology. We hope our product brings you perfect works!'. Underneath, there is a 'Please login:' section with two input fields: 'Username' and 'Password'. To the right of the 'Username' field is a 'Sign up' link, and to the right of the 'Password' field is a 'Forgot password?' link. Below the input fields are two checked checkboxes: 'Save account info for all TBTECH products' and 'Automatic activation (recommended)'. At the bottom right, there is a blue 'next' button.

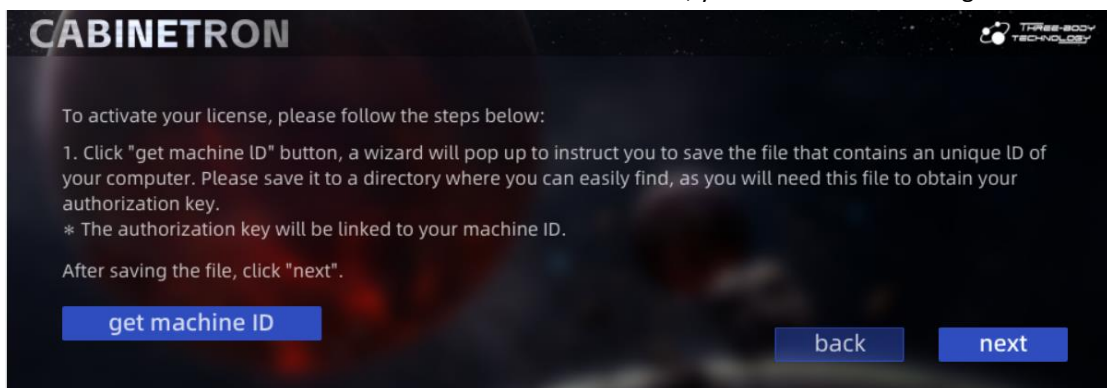
Now you have two choices: automatic activation or manual activation.

Automatic Activation

Please correctly enter the username and password of your Three-Body Tech account that you have bound your serial number with, keep 'automatic activation' checkbox selected, then click on 'next' button. If your computer has Internet connection, your product will be activated automatically online.

Manual Activation

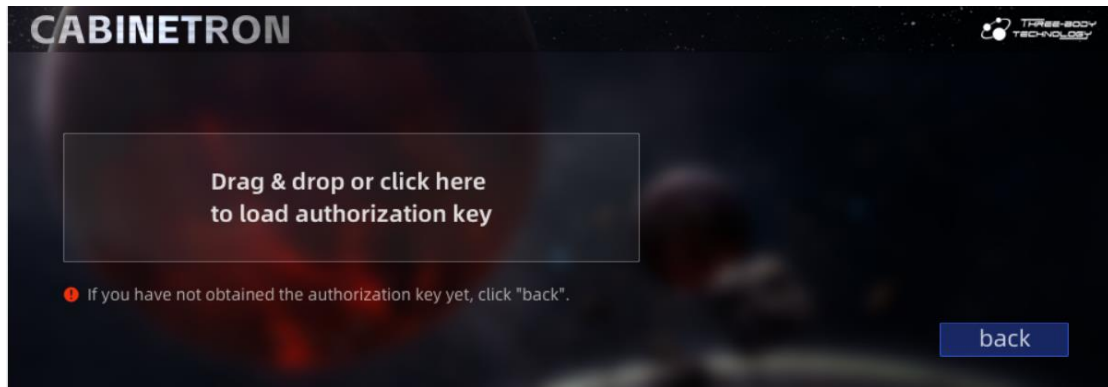
If your computer does not have Internet connection, you can activate the product manually. Deselect 'automatic activation' checkbox and then click on 'next' button, you will see the following interface:



The screenshot shows the manual activation screen. At the top left is the 'CABINETRON' logo, and at the top right is the 'THREE-BODY TECHNOLOGY' logo. Below the logos, a message reads: 'To activate your license, please follow the steps below:'. The first step is: '1. Click "get machine ID" button, a wizard will pop up to instruct you to save the file that contains a unique ID of your computer. Please save it to a directory where you can easily find, as you will need this file to obtain your authorization key.' Below this, there is a note: '* The authorization key will be linked to your machine ID.' Underneath, it says: 'After saving the file, click "next".'. At the bottom, there are three buttons: 'get machine ID', 'back', and 'next'.

Now please follow the steps below to proceed manual activation:

- First, click on 'get machine ID' button, to save a file that contains information to identify your computer.
- Copy the machine ID file into a removable drive. Take it to a computer that has Internet connection,
- Visit <https://my.threebodytech.com> on your online computer, login to your account and then select Cabinetron in 'My Products' page. Select an available serial number, then upload the machine ID file in 'Manual Activation' section below.
- The website would hint you to download a file that contains your authorization key. You may need to save it to a removable drive to take it back to the computer that needs manual activation.
- Return to the computer installed with Cabinetron, click on 'next' button, you will see the following interface:



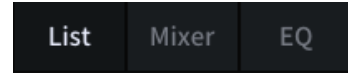
Copy the file that contains your authorization key to this computer, and load it here.

No matter you chose to activate automatically or manually, when you see 'Thanks for registration', Cabinetron is activated successfully and ready to be launched now!

Chapter 4 General Controls

Switching Panels

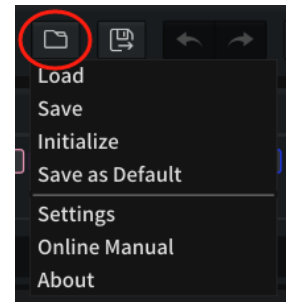
Click on List / Mixer / EQ button on the upper left of the window to switch to IR List / Dimension Mixer / EQ & Tone Matching panel correspondingly. Read chapter 6, 7 or 8 for more details on each panel.



Save / Load / Initialize

Click on the 'folder' button on the left side of top bar to save / load / initialize Cabinetron states.

- **Load:** Load a previously saved Cabinetron state (.cbn file).
- **Save:** Save current Cabinetron state as a .cbn file.
- **Initialize:** Reset Cabinetron as default state.
- **Save as Default:** Save current Cabinetron state as default state.
- **Settings:** Open settings menu.
- **Online Manual:** Open user manual online.
- **About:** Open About Us to find version information, credits, Three-Body Technology official website, etc.



Knobs and Buttons

Exporting IR

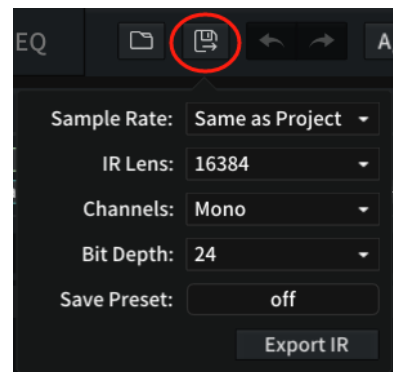
Click on the second button on the left side of top bar to export the overall current state of Cabinetron as a single IR, which would be available in any scenario as an IR file (.wav).

For example, export your IR after editing it in Cabinetron, then use it in your live performance with your hardware IR loader.

Exporting options include:

- **Sample Rate:** Same as project or select on demand.
- **IR Lens**
- **Channels:** Mono or stereo IR.
- **Bit Depth**
- **Save Preset:** Select whether to save current Cabinetron state as a preset while exporting IR. When enabled, the .cbn file will be saved to the same path as the exported IR file.

After defining above options, click on 'Export IR' file to select path to export the IR file.



Undo / Redo

Click to undo or redo operations on main panels of Cabinetron. Please note that changes in settings menu or operations that effect on external files cannot be undo or redo.



A/B Switch

Click on the 'A/B' button to rapidly switch between two states. For example, if you have made a preset and feel that another way might also be applicable, you can switch between these two states quickly and listen to their differences.



Click on the 'Copy' button to synchronize current state to the other one. If you are in A state, clicking this button would copy A state to B, and vice versa.

Bypass

Click on the button on the left side of Cabinetron logo to enable / disable global bypass.



Doubler Effect Simulation

Click on the 'Doubler' button on the right side of top bar to enable / disable doubler effect.



Doubler is a classic effect that apply 20ms latency to right channel for a wider sound. This is a technique that helps you easily 'simulate' guitar double-track recording. No need to enable doubler if you already have 2 tracks recorded on left and right channel respectively.

Stereo In

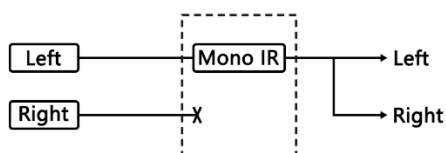
You can find the 'Stereo In' button next to the output levelmeter on the right side of top bar.

Most of time, guitar tracks are mono. That is why Cabinetron works in mono mode by default when it always receives input signal on left channel. But sometimes we do need stereo input, such as when we have a group of input signal containing 2 doubling guitar tracks, it's time to enable Stereo In to receive stereo input signal. Please note that enabling Stereo In would double the calculation amount. (Fair enough, isn't it?)

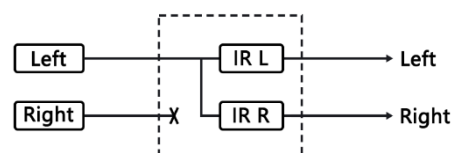
About stereo or multi-channel IR's

In most cases, cabinet IR's are mono, but there are always exceptions. Cabinetron supports loading stereo channel cabinet IR's and output stereo signal. Images below show signal processing of various input and IR combinations.

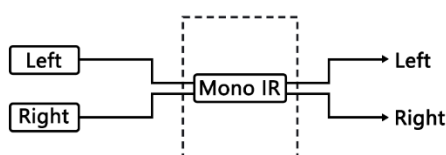
Mono In & Mono IR



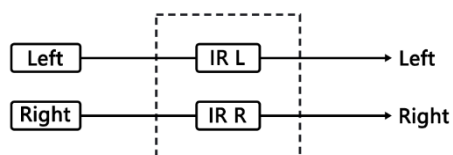
Mono In & Stereo IR



Stereo In & Mono IR



Stereo In & Stereo IR



Not to confuse Doubler with Stereo In. Enabling Stereo In will make Cabinetron able to receive and process stereo signal, while enabling Doubler will only add a latency of 20ms to right channel.

Below are all combinations of the 2 knobs and the effect each of them would cause:

- Both disabled: Cabinetron would process in mono mode, and output mono audio.
- Stereo In disabled, Doubler enabled: Cabinetron would process in mono mode, with latency added to right channel that widens the sound.
- Stereo In enabled, Doubler disabled: Cabinetron would process in stereo mode. Output stereo audio when inputted with stereo audio.
- Both enabled: Based on the above condition, add 20ms of latency to right channel. Not recommended since if you already have stereo track, generally there is no need to overcomplicate.

Room

'When I watch guitar reviews, I always prefer the ones recorded with mobile phones. They sound more real.'

- A random YouTube comment

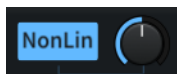


Sometimes when recording guitar, mixing some reverb from room into the track may help to improve the sense of reality. The 'Room' knob is designed exactly for this purpose. It does not simulate a hall or church, but your rehearsal room, garage or bedroom - places where you put your cabinet most.

- 'Room' button: Click to enable / disable Room reverb. Disabled by default.
- Mix knob: Adjusting the ratio to apply Room reverb from 0% to 100%.

Non-linear Enhancement

The frequency response of a linear system can be simulated well enough by convolution. Most of the time it is safe to consider guitar cabinets are linear. It is reasonable since the distortion is very slight.



However, if we research more on physical models of guitar cabinets, we will discover more and more non-linear behaviors, such as harmony distortion caused by cone's non-linear vibration, and voice coil resistance's dynamic change caused by heating.

In order to bring you as better sound as possible, Cabinetron simulated those non-linear behaviors although they are slight. An ideal physical model of speaker was used to simulate the non-linearities, so it is unrelated to which cabinet your IR's were recorded from.

Click 'NonLin' button to disable / enable non-linear enhancement. When disabled, Cabinetron will be working 100% as a normal IR loader, without affecting on frequency response of your IR's.

Adjust value of non-linear distortion with the knob on the right. The higher the value, the more the non-linear distortion, and the 'tighter' your IR's sound. The default state of the knob was set at a value that was considered logical statistically.

Please note that when non-linear enhancement is enabled, even the value was adjusted to minimum, there will still be a slight non-linear distortion, unless you disable non-linear simulation by clicking 'NonLin' button.

The interesting fact is, most manufacturers would try their best to build guitar cabinets without any non-linear distortions, yet we are simulating them. Maybe that's what we call music. There is never right or wrong in making music. That is why we would suggest you to apply non-linear enhancement or not completely according to your own preference, and try adjusting the NonLin parameter to achieve the effect that satisfies yourself most.

Volume Knob

Adjusting output volume level.



Chapter 5 IR File Browser

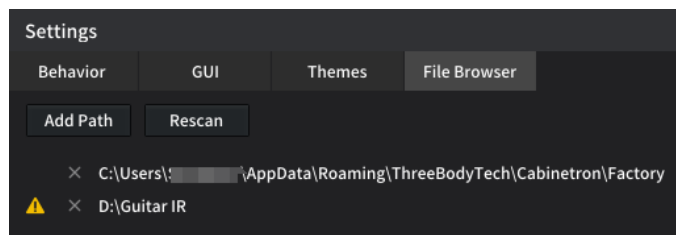


IR File Browser displays at the left side of IR List and Dimension Mixer. In this section you can browse and manage all IR files in the specified paths, then conveniently start editing by drag & drop.

File Path Management

Click on the gearwheel icon on the upper left corner of IR File Browser to open the settings menu.

Click 'Add Path' button in the menu to specify a new file path. Cabinetron will scan IR files at the path and display them in IR File Browser. You can also add an external file path by dragging it directly into IR File Browser section.



Click 'Rescan' button to re-specify IR files at all added paths.

Click 'x' icon besides a certain path to remove the path and IR files inside from IR File Browser.

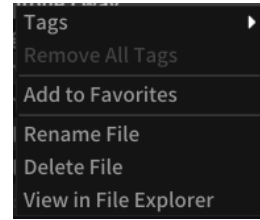
When a specified file path is missing, a warning icon will appear besides it, as well as on the upper right corner of IR File Browser. Click on the icon to re-specify a new path to replace the missing path.

IR File Controls

In IR File Browser, you can see all sub-folders at specified paths that contain IR files. Click on the arrow besides a folder to extend or hide the IR files inside. Drag an IR file into an IR spectrum window in IR List to load the IR content, or replace the existing IR content with it. Drag an IR file to an IR in Dimension Mixer to replace the existing IR content with it.

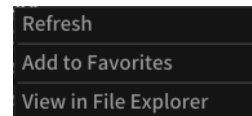
Right-click on any IR filename to apply below operations:

- **Tags:** Add or remove custom tags on this IR. All created custom tags would be shown in sub-menu with the added ones being lighted up. Click on an added tag to remove it from this IR.
- **Remove All Tags:** Click to remove all custom tags on this IR if there is any.
- **Add to Favorites / Remove from Favorites:** Add this IR into Favorites; if this IR has been added into Favorites, remove it from Favorites.
- **Rename File:** Rename this IR and its external file.
- **Delete File:** Delete the external file of this IR – move the file directly to recycle bin / trash. The deleted file cannot be recovered by redo in Cabinetron.
- **View in File Explorer / Finder:** View the external file in your system.



Right-click on any folder to apply below operations:

- **Refresh:** Rescan this folder. If any change was made on it or the IR files inside since you extended the display, it will be updated in IR File Browser.
- **Add to Favorites / Remove from Favorites:** Add this folder into Favorites; if this folder has been added into Favorites, remove it from Favorites.
- **View in File Explorer / Finder:** View the folder in your system.



Filter IR Files

In IR File Browser, you can filter your IR files by searching, adding to Favorites or adding custom tags, in order to find the IR's you need swiftly from your collection.



Search

Type keywords in the searching box in IR File Browser to find certain IR files in all specified paths.

Favorites

Right-click on an IR file or folder, then select 'Add to Favorites' to add the IR or all IR's in the folder into IR File Browser's Favorites folder. Favorites is pinned at the top of IR File Browser so that you can swiftly get started with your commonly used IR's.

Custom Tags

You can see all custom tags on the top of IR File Browser. Click on the '+' icon on the right to create a new custom tag. Name and color of the tag are customizable. Right-click on any IR or folder, then select a custom tag in 'Tags' sub-menu to add it to the IR or folder. Click on any custom tag on the top to filter IR files with it in all specified paths. IR's added with certain custom tags will be displayed with corresponding color marks. Right-click on a custom tag to edit or delete it.

Chapter 6 IR Editing

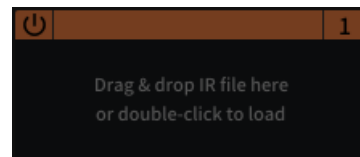


Click 'List' button on the top bar to switch to IR List tab. You can load and edit up to 8 IR files in IR List.

Loading IR Files

Click on any IR spectrum window of a band without any IR loaded (displayed empty when no IR is loaded) to specify an external IR file that you wanted to load.

You can also drag an IR from IR File Browser or an external IR file and drop it here to load its content. When the band already has a loaded IR, this operation replaces the existing IR content with the new IR file.



Auto Gain

Auto gain is enabled for every IR band by default, to balance volume of all loaded IR's. When enabled, Cabinetron would calculate and apply a volume compensation to the loaded IR's, in order to keep the volume of processed signal sounds nearly the same as before. To disable auto gain, right-click on IR spectrum window of any IR band then select the corresponding option. No volume compensation will be applied when auto gain is disabled.

Auto Phase Alignment

IR's from different sources, especially produced by different manufacturers, may have different latency. Directly mixing them may cause phase issues, but usually we can manually adjust latency and invert phase to obtain correct sound.

Auto phase alignment helps you fix those issues with one click. When multiple IR's were loaded in IR List, right-click on any band's IR spectrum window then select 'Auto Phase Align', Cabinetron will automatically adjust parameters of Phase and Phase Invert to align phases for all loaded IR's.

Please note that no matter phases were aligned automatically or manually, we might not be able to achieve a 100% perfect alignment.

Missing IR Files Solution

We might all met such annoying situation: opening an earlier project but some inserted audio files were deleted from the disk.

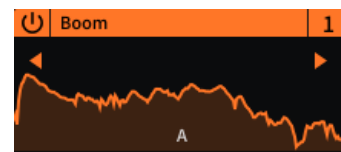
When the DAW saves your project, Cabinetron saves paths and content of all loaded IR's along with the current state. Next time when you open the project, Cabinetron would detect whether the IR files still exist and whether their content were modified. If they keep the same as last save, Cabinetron will read content from the IR files. If the files were moved from the original paths, or their content were modified, it will give you a notification.

When you see a warning sign besides the IR spectrum window, click it then select one of the three solutions: re-specify a IR file for this band, remove the saved IR content, or ignore and keep working with the current IR content.



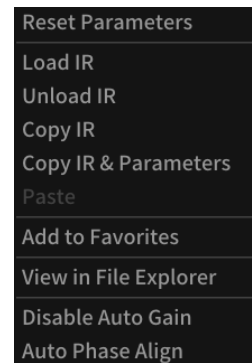
IR Spectrum Window Controls

Click on the colored area above the IR spectrum to enable or disable this IR band. Click the arrows inside to switch IR files by the order in IR File Browser.



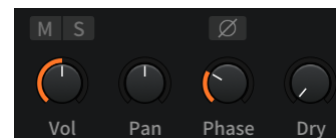
Right-click on IR spectrum window to apply below operations:

- **Reset Parameters:** Reset all parameters of this band to default.
- **Load IR:** Load IR content from an external IR file.
- **Unload IR:** Remove IR content of this band while keep all parameters.
- **Copy IR:** Copy IR content of this band.
- **Copy IR & Parameters:** Copy IR content and all parameters of this band.
- **Paste:** Paste copied IR content / IR content and parameters to this band.
- **Add to Favorites / Remove from Favorites:** Add this IR into Favorites; if this IR has been added into Favorites, remove it from Favorites.
- **Delete File:** Delete the external file of this IR – move the file directly to recycle bin / trash. The deleted file cannot be recovered by redo in Cabinetron.
- **View in File Explorer / Finder:** View the external file in your system.
- **Disable / Enable Auto Gain:** Enabled by default.
- **Auto Phase Align**



Knobs and Buttons

- **Volume knob:** Adjust volume of this IR band.
- **Pan knob:** Adjust pan of this IR band.
- **Phase knob:** Use this knob to apply a short latency between 0 - 3ms, for simulating phase difference between multiple microphones with different placements.
- **Dry knob:** That is 'Dry Mix In' – mix some dry sound in by using this knob. Maybe not very popular for guitars, but is a commonly used technique for bass guitars.
- **M/S buttons:** Click to enable / disable mute or solo for this IR band.
- **Phase Invert button:** Invert phase of the IR. Useful when fixing inverted phase issue between multiple IR's.



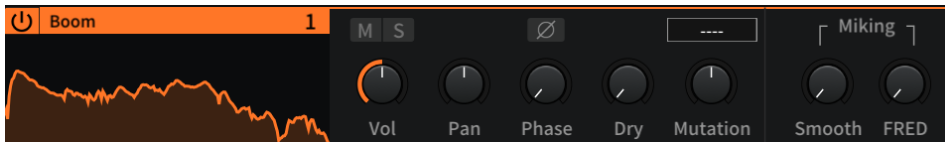
Mutation

The 'Mutation' knob is implemented with 31 commonly used EQ curves for guitar mixing. Use those them to 'mutate' your IR curves and find the expected tone with your sensibility. Tweak the knob to the left for a 'thicker' sound. Tweak it to the right for a 'thinner' sound.



Smooth - Spectrum Smoothing Technology

When recording IR in real world, early reflection and comb filtering may produce some 'fuzzy' components in the IR spectrum curve.



Most of time they do not affect too much to sound quality, they could be regarded as part of the guitar tone. But now Cabinetron provides you a way to tweak your IR's with more freedom: adjusting Smooth knob to make a 'smoother' spectrum response for your IR.



This 'smoothness' will reduce the 'room sound' or 'sense of reality', and the comb filtering in your IR. It depends on you on how to adjust it, but we can share some insights:

- **3% - 20%:** Slight smoothness. Some Beta testers feel it helps make the sound more transparent.
- **20% - 50%:** Very smooth. The sound starts to turn 'unreal', 'digital' or 'modern'. Some Beta testers believe it suits some particular genres, such as Nu Metal.
- **50% - 100%:** Most details in the spectrum response were removed, leaving only an 'outline' of the response. The sound goes back to 'EQ-based cabinet simulation' that we mostly see in 90's digital guitar effects. This may suit some music styles either.

'FRED' Miking Technique Simulation

'FRED' is a commonly used miking technique for IR recording. That is to mix input signals from two microphones. The microphone facing right to the speaker being the main mic, while an additional mic being positioned at a 45-degree angle. Phase cancellation appears at high frequency between them due to the separated positioning. Comparing to EQ, 'FRED' brings natural attenuation to high frequencies.



FRED knob is the simulation of this miking technique.

XY - Virtual Microphone Positioning

- **Pos. knob:** Horizontal positioning simulation.
- **Dis. knob:** Vertical positioning (distance from speaker) simulation.



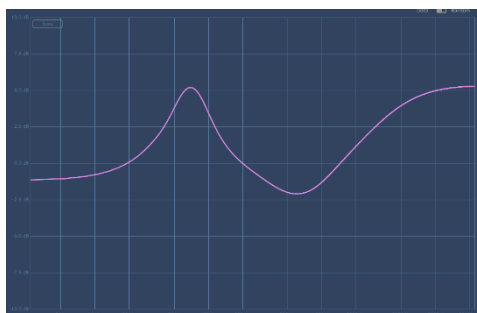
Please note that this is a 'virtual' adjustment. As an IR loader, Cabinetron does not have the ability to acknowledge what cabinet user's IR was recorded from. Even the loaded IR was originally recorded from a far distance, you can pull it even farther.

Speaker Impedance Simulation EQ

A classic 3-band EQ which is slightly different than normal EQ's - it modeled guitar cabinet's impedance curve. Actually, when guitar cabinet is connected to different power amps, its frequency response will change, especially when the amp has negative feedback.



These 3 knobs are here to simulate this kind of change, in order to make the EQ sound more natural. When all 3 knobs were tweaked to the middle (0.0%), the EQ would be 100% bypassed.



Frequency response of Speaker Impedance Simulation EQ

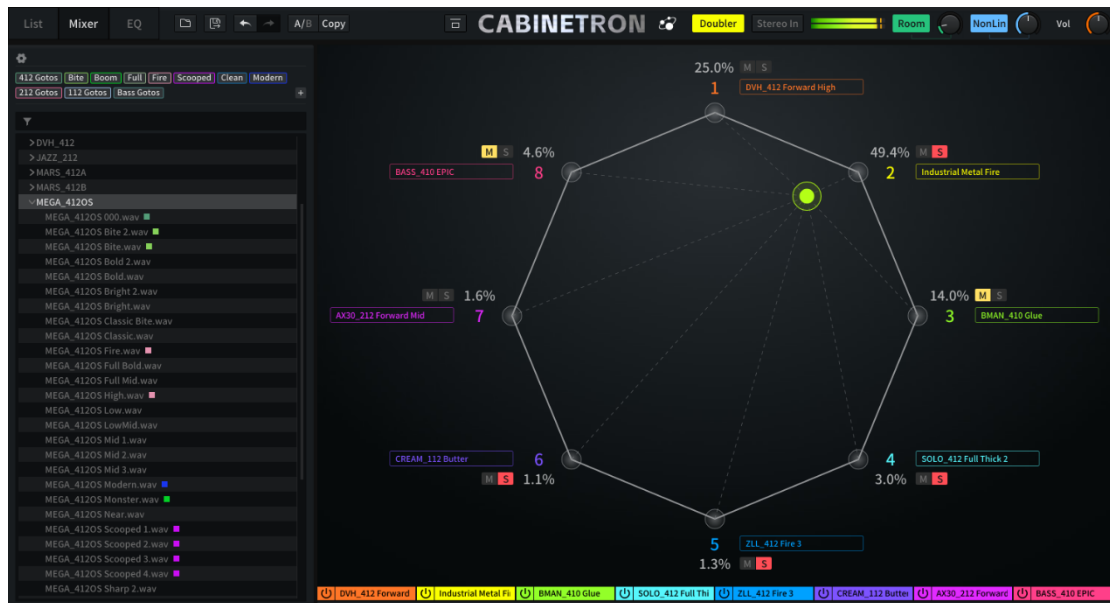
HP / LP

Commonly used High Pass and Low Pass filters.

- **HP knob:** High Pass. Bypassed when tweaked to leftmost position.
- **LP knob:** Low Pass. Bypassed when tweaked to rightmost position.



Chapter 7 Dimension Mixer



Click 'Mixer' button on the top bar to switch to Dimension Mixer tab. You can see an equilateral polygon with a number of angles that depends on the number of enabled IR bands. When only 1 IR band is enabled, you can see a single point; when 2 bands are enabled, you can see a straight line here.

An anchor point positioned at the center by default can be freely dragged inside the polygon, to adjust the ratio of application of each enabled IR in real time. So that you can combine characteristics of different IR's in order to find a balanced tone that you expect to achieve.

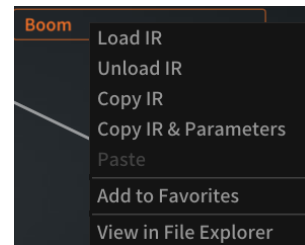
Controls and Knobs

Double-click on anywhere inside the polygon to move the anchor point here (when more than one IR band is enabled).

Ctrl/Command + left-click on anywhere in Dimension Mixer panel to reset the anchor point to the central position.

Drag an IR from IR File Browser onto the name box besides an angle of the polygon / an end of the line / the point to replace the loaded IR; click on a name box to select an external IR file to replace the loaded IR. After replacing an IR in Dimension Mixer, position of the anchor point and all parameters of the corresponding band shall be maintained. Click on M/S button to enable or disable mute / solo state of the corresponding IR band. Right-click on a name box to for part of the operations that you can apply in IR spectrum window's right-click menu (refer to Chapter 6 for more details).

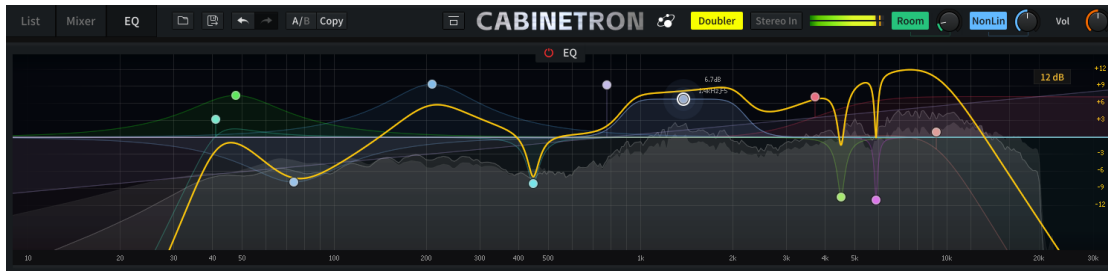
8 IR bands are located at the bottom of Dimension Mixer panel, which display name and enabled / disabled status of every IR band. Click on one of them to disable / enable the corresponding IR band. You can also apply IR replacement and operations in right-click menu as in a name box.



Chapter 8 EQ

Click 'EQ' button on the top bar to switch to EQ tab. This tab contains parametric EQ panel and tone matching panel.

Parametric EQ



The top half of EQ tab is Parametric EQ panel which you can enable / disable by clicking the power button at center of the upper edge of the panel. Basic controls are consistent with Kirchhoff-EQ by Three-Body Technology.

To learn more about Kirchhoff-EQ, please visit <https://www.threebodytech.com/products/kirchhoffeq>.

Controls

Double-click or Ctrl/Command + left-click to create an EQ band, or drag from total frequency response curve (yellow by default) to create an EQ band.

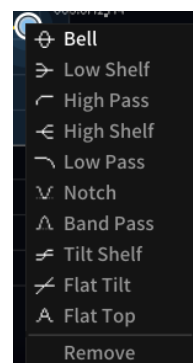
Left-click on an EQ band to select it. Ctrl/Command + left-click to select or deselect multiple bands. You can also drag across to select multiple EQ bands. Under default setting, Ctrl/Command + right-click to delete an EQ band.

Right-click an EQ band to change its filter type or remove it. If multiple EQ bands including the one you clicked on are being selected, the change will be applied to all of them.

Click on the dB value at the upper right corner of spectrum panel to select a display volume range from 3/6/12/18/22/30 dB.

Filter Types

- **Bell:** Bell-like type, the shape can be adjusted by Q and slope.
- **Low Shelf:** Increase/decrease low frequency, the shape can be adjusted by slope.
- **High Pass:** Passes only high frequency and filter out all low frequency. The shape can be adjusted by slope.
- **High Shelf:** Just like Low Shelf but adjusts high frequency.
- **Low Pass:** Just like High Pass but inverted.
- **Notch:** Only rejects around a frequency, the shape can be adjusted by slope.
- **Band Pass:** Inversed Notch, only passes around a frequency.
- **Tilt Shelf:** Increase low frequency and decrease high frequency or vice versa, the shape can be adjusted by slope.
- **Flat Tilt:** Change whole spectrum in a straight line.
- **Flat Top:** A bell-like type with 'flat' top. The shape can be adjusted by slope.



Tone Matching

The lower half of EQ tab is Tone Matching panel which you can enable / disable by clicking the power button at center of the upper edge of the panel.

Why is Tone Matching important?

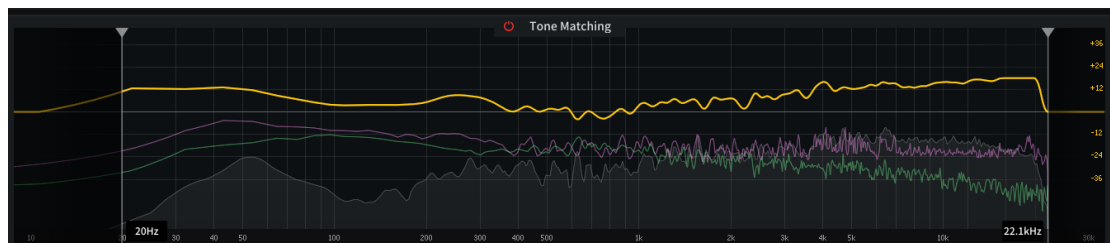
Nowadays, we can easily find extensive guitar tracks from the Internet, even some separated guitar tracks of popular songs. Referencing the pros as much as possible might be the most efficient way to improve our own works, and Tone Matching will be your most handy tool during this process. It can help you swiftly 'match' your own tone to the target tone that you expect to reproduce.



Tone Matching panel contains 4 sections as below:

- ① Tone Matching spectrum panel
- ② Reference spectrum section
- ③ Input spectrum section
- ④ Fine tuning section

Tone Matching Spectrum Panel



- **Real-time spectrum analyzer:** The grey spectrum displays the spectrum amplitude of current playing audio in dB.
- **Match spectrum curve (Delta):** The yellow curve displays the difference between Reference spectrum curve and Input spectrum curve. Please note that it works only when both Reference spectrum section and Input spectrum section have content captured, otherwise it displays as a 0dB horizontal line.
- **Reference spectrum curve:** The purple curve displays the spectrum of the signal captured or loaded in Reference spectrum panel.
- **Input spectrum curve:** The green curve displays the spectrum of the signal captured in Reference spectrum panel.

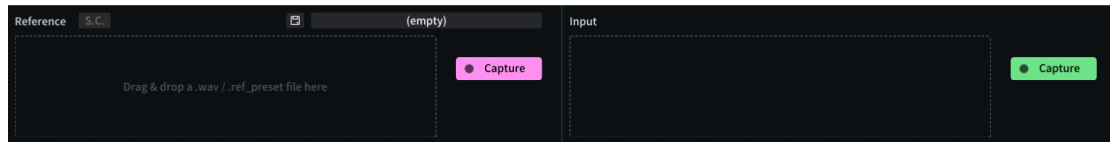
Drag the 2 vertical lines located at left and right of Tone Matching spectrum panel to set the cutoff frequency of Low Cut and High Cut respectively. Frequencies outside Match spectrum envelope's cutoff frequencies of High Cut and Low Cut will not be processed by Tone Matching.

Maximum cutoff frequency of Low Cut is half of the current cutoff frequency of High Cut. Correspondingly, minimum cutoff frequency of High Cut is double of the current cutoff frequency of Low Cut. Double-click on any vertical line to reset it to its default position. Drag a vertical line while holding Shift to fine-tune the frequency.

Double-click on the frequency values below the vertical lines to manually input the values. Please note that when the inputted cutoff frequency value is higher / lower than the aforementioned maximum / minimum value, it will not be applied.

We would not recommend match extremely low and high frequencies for guitar tracks. Different guitars or pedals may make huge difference to those frequencies. When this happens, if we force to apply Tone Matching, we might not be able to get satisfying result. Therefore, we recommend to apply Tone Matching between 100 - 6000Hz.

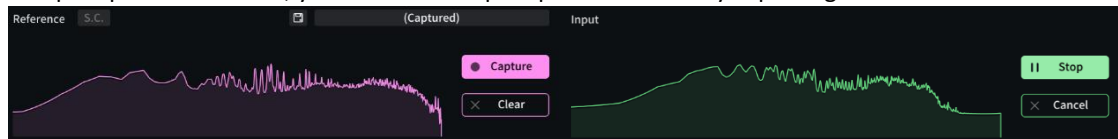
Reference / Input Spectrum Section



- **Capture knob:** Click to start playing the current audio track, and start capturing its spectrum curve.
- **Stop knob:** Appears when capturing. Click to stop capturing and freeze the current spectrum curve.
- **Clear knob:** Click to clear the captured spectrum curve in this section.

In Reference spectrum section, you can obtain Reference spectrum curve by capturing the current audio track, or loading an external audio track. Drag and drop the external track in this section to load and automatically capture its spectrum curve. Loading an overly long audio track might causes lag, which is not recommended.

In Input spectrum section, you can obtain Input spectrum curve by capturing the current audio track.



When both sections have spectrum captured, Tone Matching will calculate the difference between Reference spectrum curve and Input spectrum curve, and generate the Match spectrum curve.

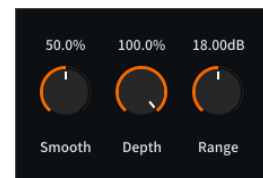
You have 2 choices as below:

- Capture different parts of audio signal in the current track to obtain the Match spectrum curve.
- Load an external audio track in Reference spectrum section, and capture (a part of) the current audio track in Input spectrum section. Obtain the Match spectrum curve generated by calculating the difference between them, and apply the curve to current audio signal.

Fine-Tuning Section

In this section, you can adjust the shape of Match spectrum curve, and the depth and range to apply it to current track.

- **Smooth knob:** Adjusts smoothness of the Match spectrum curve. The higher the value, the slighter Match spectrum curve will effect on the details in current audio signal.



The Match spectrum curve generated by comparison between Reference and Input spectrum curves may has many 'fuzzy' components in details, because the playing in 2 sections may not be 100% same. If Tone Matching applies all of them, the result may not sound natural. This knob is for reducing the effect of those 'fuzzy' components.

- **Depth knob:** Adjusts the processing depth of applying Match spectrum curve to current audio signal. The higher the value, the larger Match spectrum curve will effect on the current audio signal.

When Depth is 100%, the spectrum curve of current audio signal will completely match the Match spectrum curve. Although it is what Tone Matching is supposed to do, in actual use we found matching with a depth of around 50 - 80% sounds most comfortable.

- **Range knob:** Adjusts maximum dB range (up to $\pm 36\text{dB}$) that Match spectrum curve can affect to current audio signal.

Sometimes we need to limit the maximum application range of Tone Matching. For example, some certain frequencies of Reference spectrum have a larger gain, which is lacked in your guitar track. In this case, in order to avoid those frequencies being gained too much, you can use Range knob to limit how much Match spectrum curve would affect to your guitar track.

Chapter 9 Settings

Behavior Settings



General

- **double-click on knob to:** Defines this behavior as reset to default or manually input value.

Modifier Key

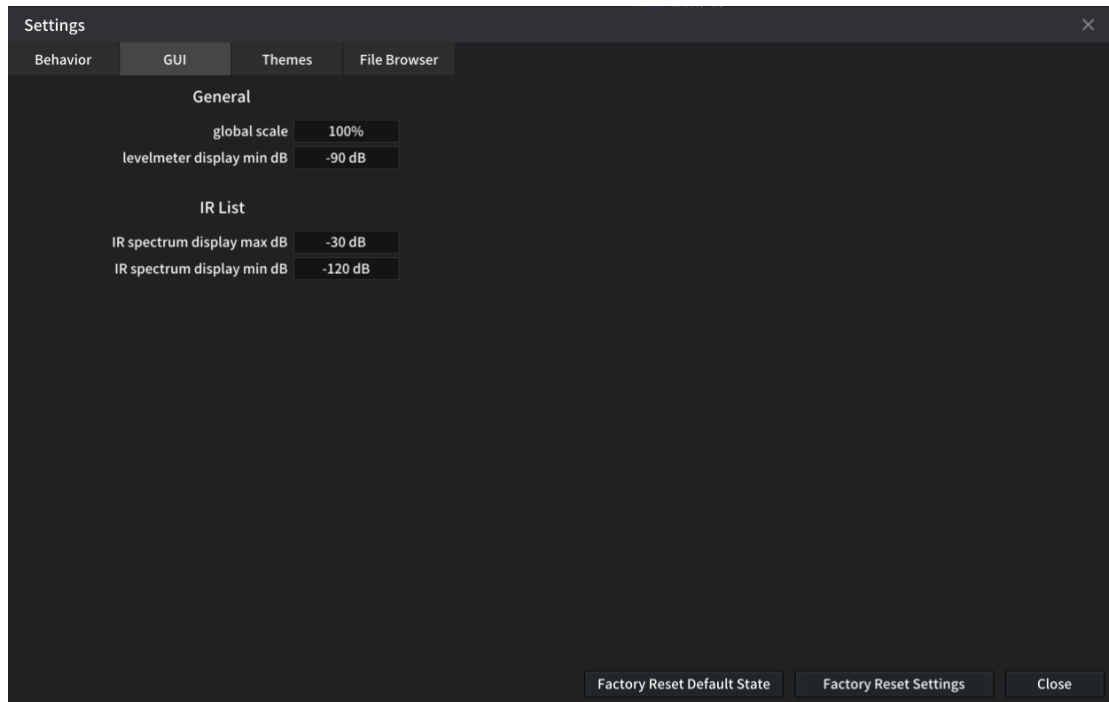
- **knob fine-tuning**
- **knob reset**

EQ

- **band fine-tuning:** Defines modifier key for this behavior.
- **lock freq for band dragging:** Defines modifier key for this behavior.
- **adjust Q with vertical dragging:** Defines modifier key for this behavior.
- **adjust slope with mouse wheel:** Defines modifier key for this behavior.
- **lower freq default type:** Defines default filter type of EQ band created by double-click in 'lower frequency range'.
- **lower freq default type by dragging:** Defines default filter type of EQ band created by dragging in 'lower frequency range'.
- **lower freq ≤:** Defines maximum frequency of 'lower frequency range'.
- **low freq default type:** Defines default filter type of EQ band created by double-click in 'low frequency range'.
- **low freq default type by dragging:** Defines default filter type of EQ band created by dragging in 'low frequency range'.
- **low freq ≤:** Defines maximum frequency of 'low frequency range'. The minimum frequency is the maximum frequency of 'lower frequency range'.
- **high freq default type:** Defines default filter type of EQ band created by double-click in 'high frequency range'.
- **high freq default type by dragging:** Defines default filter type of EQ band created by dragging in 'high frequency range'.
- **high freq ≥:** Defines minimum frequency of 'high frequency range'. The maximum frequency is

- the minimum frequency of 'higher frequency range'.
- **higher freq default type:** Defines default filter type of EQ band created by double-click in 'higher frequency range'.
- **higher freq default type by dragging:** Defines default filter type of EQ band created by dragging in 'higher frequency range'.
- **higher freq \geq :** Defines minimum frequency of 'higher frequency range'.
- **delete band with ctrl/command + right click:** Disable / enable the modifier key of Ctrl/Command + right-click to remove an EQ band.

GUI Settings



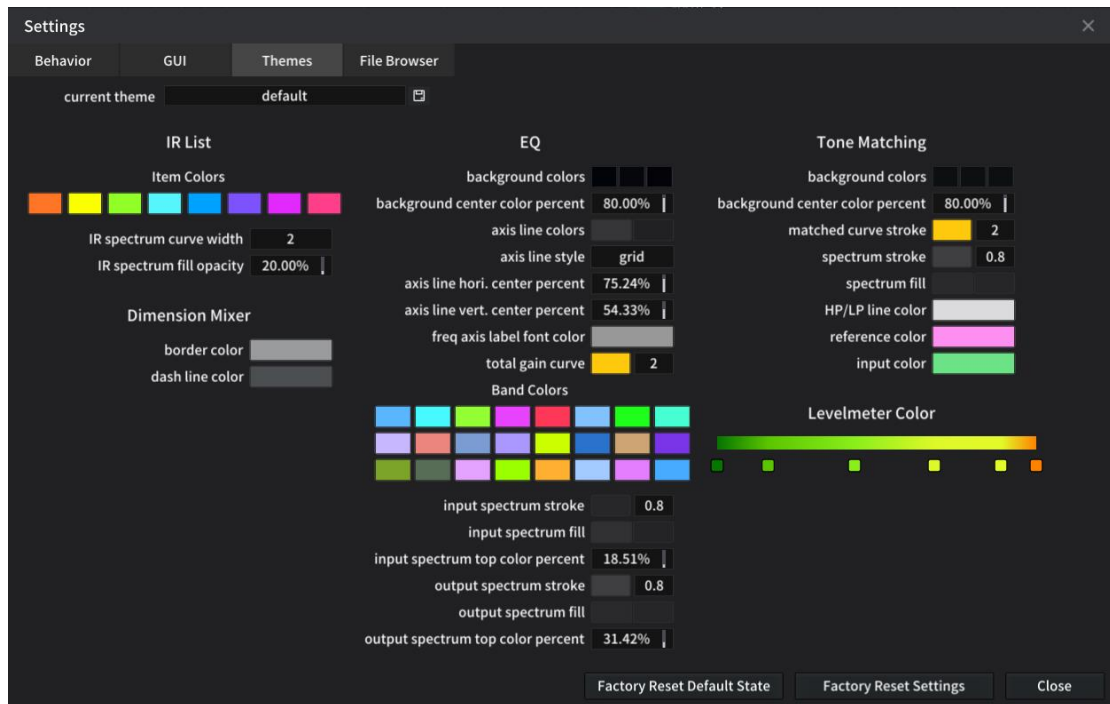
General

- **global scale:** Adjusts global display scale.
- **levelmeter display min dB**

IR List

- **IR spectrum display max dB**
- **IR spectrum display min dB**

Themes Settings



Cabinetron provides flexible customization settings for every panel. You can customize the visuals and save them as your own themes. Most changes in themes settings will be applied to current interface in real-time.

File Browser Settings

Refer to Chapter 5.

Chapter 10 F.A.Q.

How many computers can I activate with one serial number?

Each serial number can activate the product on two different computers. You can launch the program on both activated computers at the same time.

Visit Three-Body Technology Online Account System (<https://my.threebodytech.com>), login to the Three-Body Tech account that you have bound your serial number with, select your product, then you can manage the computers that was activated with your serial number. Activated computers can be deleted (deactivated) in the account system. There is a capacity of available times to deactivate computers on user's end. If the system hints you that the deactivation was failed, please contact us by email with description: support@threebodytech.com.

How do I report bugs?

If you need technical support or want to report issues, please send email to support@threebodytech.com. We will respond as soon as possible. Any suggestions for our products are welcome!

Chapter 11 Credits

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Ken Flux Pierce, Steve

Dear Users
Our friends and family

Thanks for the measurement software @Plugindoctor

Cabinetron User Manual

written by

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Manual updated November 13th, 2023

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