

OPTIC

User's Manual



STATIC
CLING

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Overview

Optic is a multi-channel spectrum analyzer capable of analyzing up to 7 different stereo channels at once. This has many powerful uses, such as:

Detecting Frequency Overlap: Reducing frequency overlap between various sound sources in a song will bring clarity to your mix and allow each instrument to stand out in their intended frequency ranges. Using **Optic** allows the user to visualize these individual sound sources and eliminate overlaps.

Comparing Left and Right Stereo Fields: With support for isolating analysis to just Left or Right panning you can easily compare the stereo fields of your mix, to achieve balance or contrast.

Comparing to Reference: When trying to achieve a specific sound or overall style of mix it is common to make use of a reference. With **Optic** you can easily compare the frequency content of your sound and the sound you're trying to achieve to aid in the matching process.

Analyzing a Sound in Stages: You can analyze the same audio source at stages of processing to see how frequency content is altered by various effects and processes. This can lead to greater insight into how a master output bus is coming together or to get a spectral based understanding of certain effects.

Features

Each of the following features are covered on the pages that follow:

- 7 Separate Channels of Frequency Analysis
- Oscilloscope Mode (New in v1.2)
- Mute/Solo/Focus per Channel
- Editable labels per Channel (Front and Back)
- Global dB Offset and Release settings
- Global Peak Hold and Freeze All Modes
- Global Panning Modes
- Multiple Color Schemes (Colorblind Safe Included)
- Audio Passthrough Routing

Thanks

To the following people for their support:

- My wife for putting up with my many late nights nerding out over audio
- My sister for providing the logo and graphic design input

To the Beta Testers for catching bugs and providing invaluable feedback:

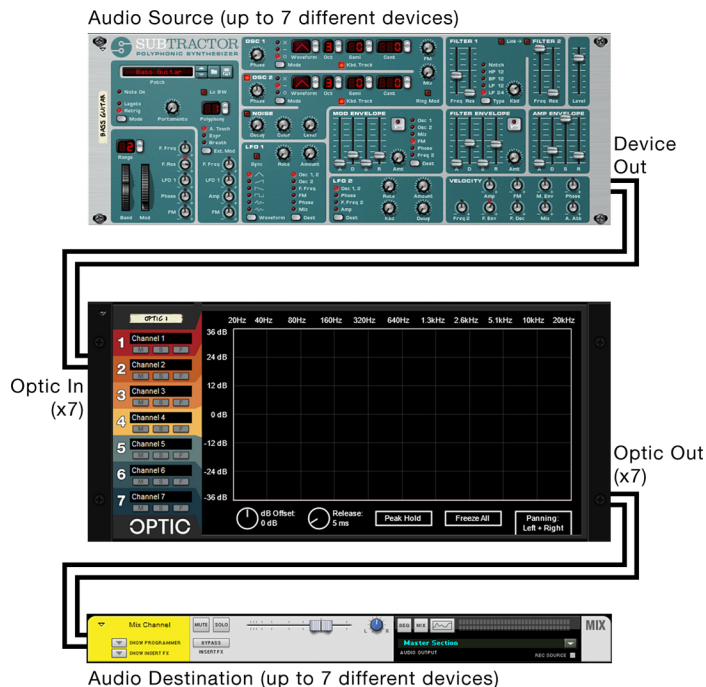
- Noel González at Reasonistas.com
- Otto Ström
- Ed "EditEd4TV" Bauman at BaumanProductions.com
- Ollie at Rainwaves

Wiring Optic

There are two effective ways to connect your sound sources to **Optic**, which I cover in greater detail in part 1 of the tutorial on the shop page.

Audio Passthrough

Audio Passthrough is a feature of **Optic** that allows the audio sources to come in through its 7 inputs and passthrough the device with no coloring or delay. This is achieved by connecting **Optic**'s 7 corresponding outputs directly to the next device in the signal flow.



Pros:

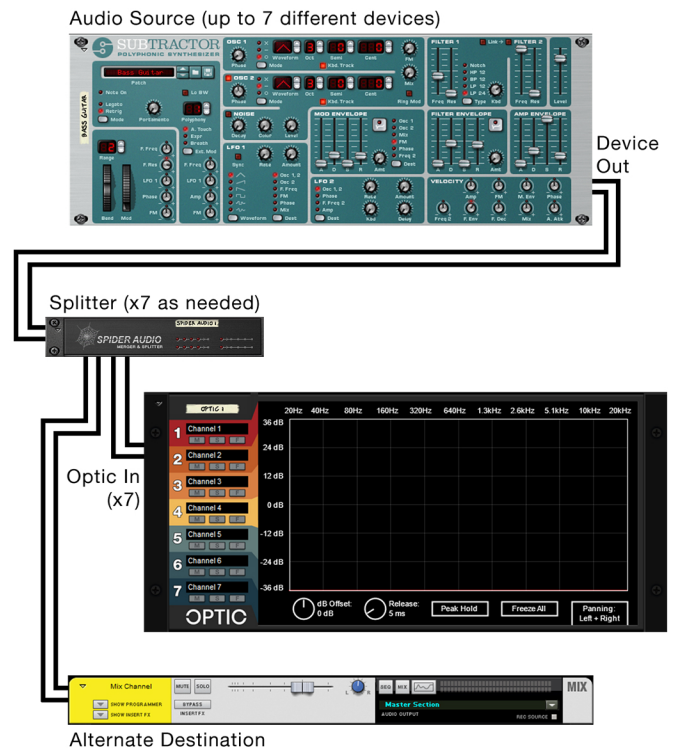
- Easiest setup
- No extra devices needed
- Keeps the rack tidy

Cons:

- Due to SDK limitation, when more than one device is connected in this manner mix channels will be renamed and sometimes recolored to those of Optic and will have to be manually named and colored after connection
- Can cause SEQ and RACK buttons to behave differently

Audio Splitting

Audio Splitting makes use of native or RE splitters to duplicate your signal and send one copy on to an alternate destination, and the other to **Optic**'s inputs.



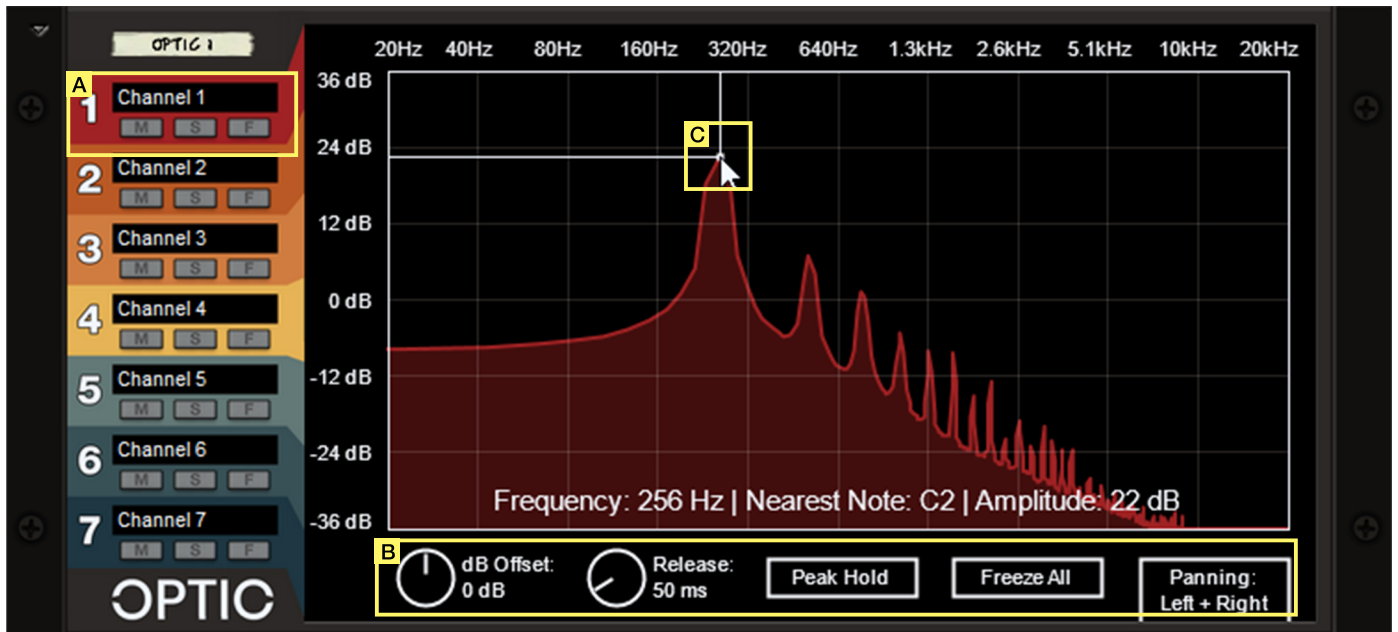
Pros:

- More predictable behavior from Reason
- Flexibility to merge or split beyond diagram shown here

Cons:

- Requires extra devices
- Doubles the amount of cabling leading to clutter and sources of error

Front Functions (Frequency Analysis Mode)



A) Channel Specific Settings:

Name

Label for the given channel, defaults to “Channel #”. Can be changed by double clicking. Will always be synced with channel names on back.

[M]ute

Hides the specific channel in question. Does not mute audio passthrough.

[S]olo

Hides non-soloed channels. Does not solo audio passthrough.

[F]ocus

Colors the specific channel in white to help cut through visual noise.

B) Analysis Settings:

dB Offset

Offsets all channels by between -12 and +12 dB (Y Axis). Default is 0 dB and should correspond to native Reason analysis results.

Release

Adjusts the release for the envelope smoothing on all channels. Defaults is 5 ms and should work well for most cases. Try shorter releases for punchier sounds or longer for smoother, less jumpy results.

Peak Hold

Holds highest amplitude values in a plot without releasing. Will introduce noise and spectral leakage increasing amplitudes across frequencies so make decisions with that in mind. Disables Release Setting.

Freeze All

Stops updating all channels, freezing them at their current state. Mute/Solo/Focus still work.

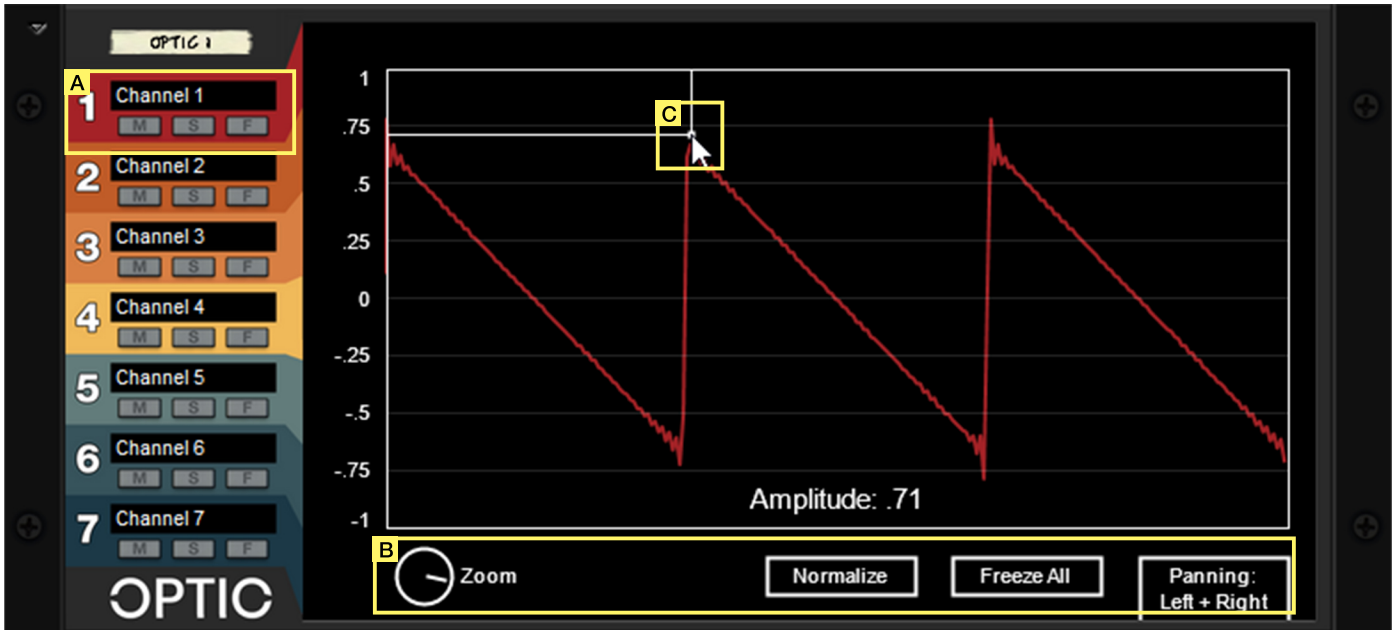
Panning

Dropdown for choosing whether analysis should be done on Left, Right, or Left + Right (default) stereo fields.

C) Plot Inspector:

Clicking and dragging in the plot will show the “plot inspector” which can help line up results to the values on the axes.

Front Functions (Oscilloscope Mode - New in V1.2)



A) Channel Specific Settings:

Name

Label for the given channel, defaults to “Channel #”. Can be changed by double clicking. Will always be synced with channel names on back.

[M]ute

Hides the specific channel in question. Does not mute audio passthrough.

[S]olo

Hides non-soloed channels. Does not solo audio passthrough.

[F]ocus

Colors the specific channel in white to help cut through visual noise.

B) Oscilloscope Settings:

Zoom

Sets the magnification level of the oscilloscope, showing a larger or smaller portion of the incoming signal.

Normalize

Rescales the amplitude range of the incoming signal so that it fills the full -1 to 1 Y-axis range. Has no effect on the outgoing audio.

Freeze All

Stops updating all channels, freezing them at their current state. Mute/Solo/Focus still work.

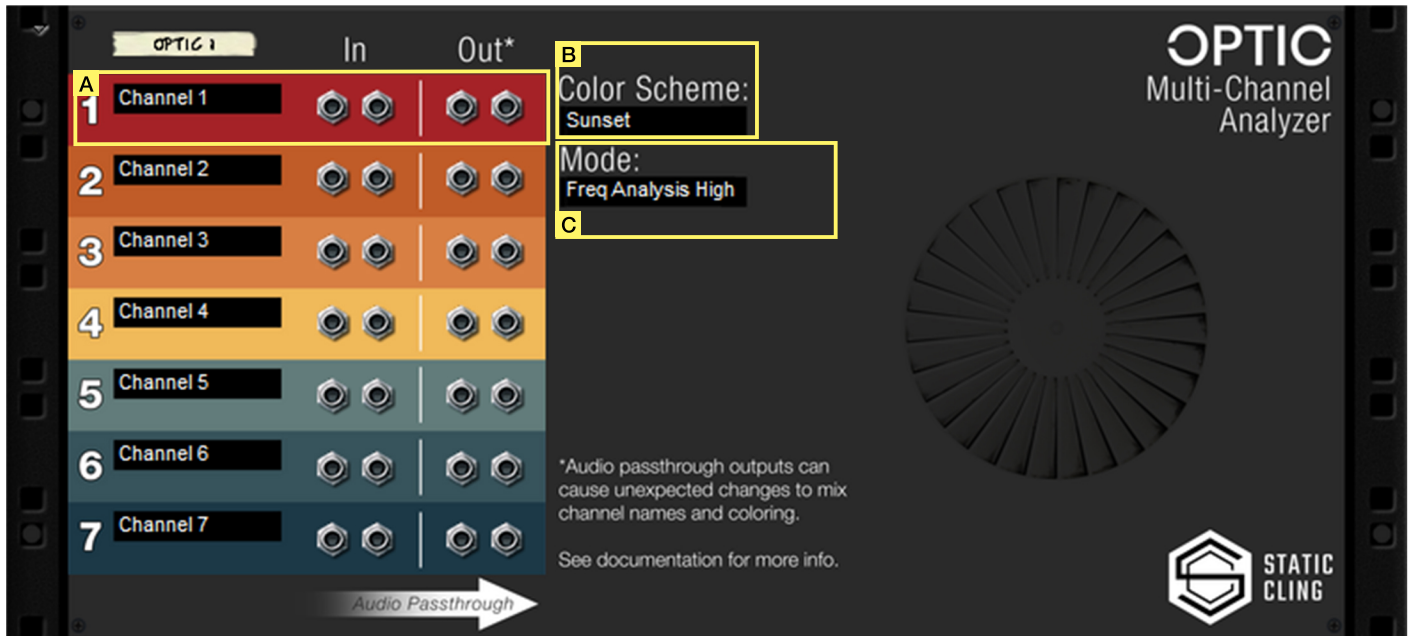
Panning

Dropdown for choosing whether analysis should be done on Left, Right, or Left + Right (default) stereo fields.

C) Plot Inspector:

Clicking and dragging in the plot will show the “plot inspector” which can help line up results to the values on the axes.

Back Functions



A) Channel Specific Settings:

Name

Label for the given channel, defaults to “Channel #”. Can be changed by double clicking. Will always be synced with channel names on front.

Stereo Audio Input Jacks

These are the input jacks that Optic analyzes from, one pair for each channel. Note that channels begin using CPU once these inputs receive audio. If you’re experiencing performance issues try using less channels or changing your precision setting.

Stereo Audio Passthrough Output Jacks

These output jacks pass audio directly through from the inputs. Please see the wiring section (pg. 2) or part 1 of the video tutorial for more information.

B) Color Scheme Dropdown:

This dropdown contains a list of available color schemes, changing the colors used for each channel throughout the device. I tried to provide at least a majority of colorblind safe schemes, and plan on adding more down the road. Please contact support if the latest set of colors doesn’t work for you.

C) Mode Dropdown:

This dropdown allows you to set the mode of operation for Optic, the modes are as follows and their functionality is covered in detail on the previous pages:

- Frequency Analysis Low
- Frequency Analysis High (Default)
- Oscilloscope Mode

The High and Low modes of Frequency Analysis configure the size of the FFT (Fast Fourier Transform) used for calculation. High mode uses an FFT size of 2048 and offers greater resolution and frequency separation compared to Low (FFT Size of 1024), but at a greater performance cost.