Waves API 550

User Manual

WAVES

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Chapter 1 – Introduction

1.1 Welcome

Thank you for choosing Waves! In order to get the most out of your Waves processor, please take the time to read through this manual.

In conjunction, we also suggest that you become familiar with www.wavesupport.net. There you will find an extensive **Answer Base**, the latest **Tech Specs**, detailed **Installation** guides, new **Software Updates**, and current information on **Authorization** and **Registration**.

By signing up at www.wavesupport.net, you will receive personalized information on your registered products, reminders when updates are available, and information on your authorization status.

1.2 Product Overview

The Waves API 550 consists of the API 550A, a 3-Band parametric equalizer with 5 fixed cutoff points per band and the API 550B, a 4-Band parametric equalizer with 7 fixed cutoff points per band.

Modeled on the late 1960's legend, the API 550A EQ delivers a sound that has been a hallmark of high end studios for decades. It provides reciprocal equalization at 15 points in 5 steps of boost divided into three overlapping ranges. The high and low frequency ranges are individually selectable as either peaking or shelving, and a band-pass filter can be inserted independently of all other settings.

Featuring four overlapped EQ bands, the API 550B features 7 switchable filter frequencies spanning up to 5 octaves per band. "Proportional Q" automatically widens the filter bandwidth at lower settings and narrows it at higher settings. It even lets you undo previous processing, affect or even reverse tonal modifications. With its vast range of tonal possibilities, the API 550B is an exceptionally versatile EQ.

1.3 Components

WaveShell technology enables us to split Waves processors into smaller plug-ins, which we call **components**. Having a choice of components for a particular processor gives you the flexibility to choose the configuration best suited to your material.

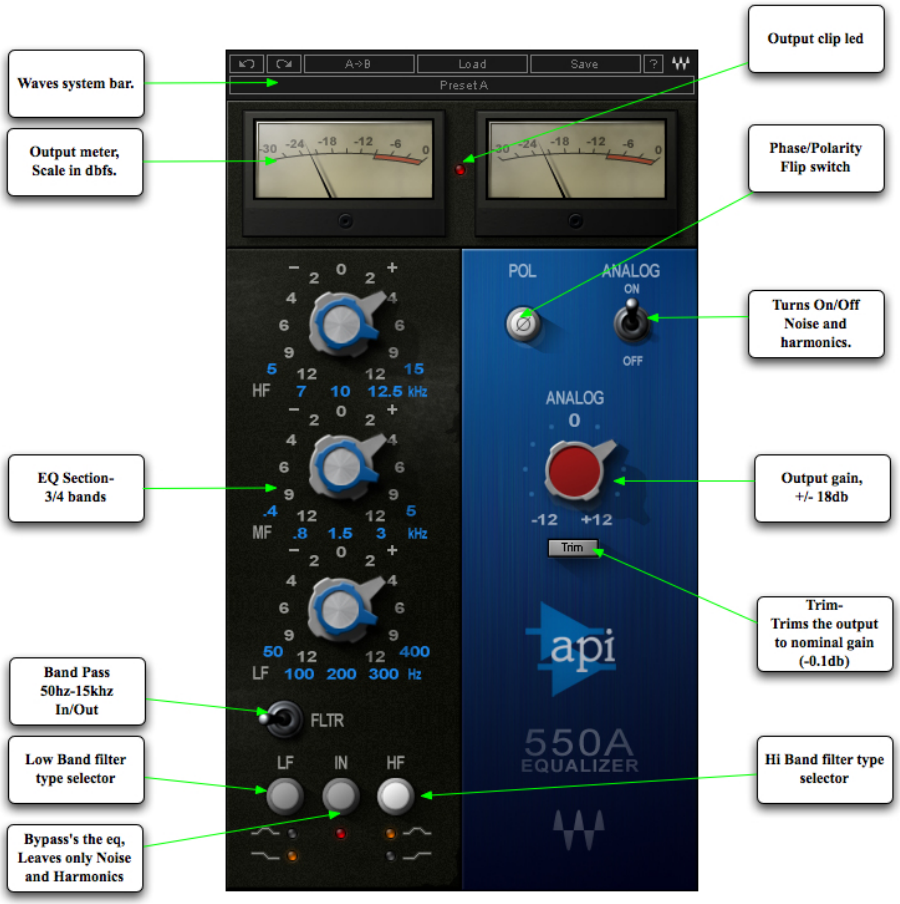
The API 550 has four component processors:

API 550A Stereo – A 3-Band stereo equalizer
API 550A Mono – A 3-Band mono equalizer
API 550B Stereo – A 4-Band stereo equalizer
API 550B Mono – A 4-Band mono equalizer

Chapter 2 – Quickstart Guide

Approach the Waves API 550 as you would any conventional EQ. Since the API 550 features “Proportional Q,” which intuitively widens the filter bandwidth at lower settings and narrows it at higher settings, feel free to push the API 550 harder than you normally would other equalizers. The API 550 will deliver smooth, natural, and musical sound even at the most extreme settings.

Chapter 3 – Controls and Interface



3.1 EQ Section

API 550A Controls

Low Band Gain

Range
-12dB to +12dB (2-3dB steps)
Default
0dB

Low Band Frequency

Filter types
Shelf, Bell
Default
Shelf
Cutoff points
50Hz, 100Hz, 200Hz, 300Hz, 400Hz
Default
50Hz

Mid Band Gain

Range
-12dB to +12dB (2-3dB steps)
Default
0dB

Mid Band Frequency

Range
.4kHz, .8kHz, 1.5kHz, 3kHz, 5kHz
Default
1.5kHz
Filter types
Bell

High Band Gain

Range
-12dB to +12dB (2-3dB steps)
Default
0dB

High Band Frequency

Range
5kHz, 7kHz, 10kHz, 12.5kHz, 15kHz
Default
7kHz

Bandpass Filter

Applies a 50Hz-15kHz bandpass filter to the entire signal

Range
50Hz-15kHz
Default
Off
Filter types
Shelf, Bell
Cutoff points
5kHz, 7kHz, 10kHz, 12.5kHz, 15kHz

Low Shelf/Bell Selector

Range
Shelf or Bell
Default
Shelf

High Shelf/Bell Selector

Range
Shelf or Bell
Default
Shelf

API 550B Controls

Low Band Gain

Range
-12dB to +12dB (2-3dB steps)
Default
0dB

Low Band Frequency

Range
30Hz, 40Hz, 50Hz, 100Hz, 200Hz, 300Hz, 400Hz
Default
50Hz
Filter types
Shelf, Bell
Cutoff points
30Hz, 40Hz, 50Hz, 100Hz, 200Hz, 300Hz, 400Hz

Low Mid Band Gain

Range
-12dB to +12dB (2-3dB steps)
Default
0dB

Low Mid Band Frequency

Range
75Hz, 150Hz, 180Hz, 240Hz, 500Hz, 700Hz, 1kHz
Default
500Hz
Filter types
Bell
Cutoff points
75Hz, 150Hz, 180Hz, 240Hz, 500Hz, 700Hz, 1kHz

High Mid Band Gain

Range
-12dB to +12dB (2-3dB steps)
Default
0dB

High Mid Band Frequency

Range
0.8kHz, 1.5kHz, 3kHz, 5kHz, 8kHz, 10kHz, 12.5kHz
Default
5kHz
Filter types
Bell
Cutoff points
0.8kHz, 1.5kHz, 3kHz, 5kHz, 8kHz, 10kHz, 12.5kHz

High Band Gain

Range
-12dB to 12dB (2-3dB steps)
Default
Off

High Band Frequency

Range
2.5kHz, 5kHz, 7kHz, 10kHz, 12.5kHz, 15kHz, 20kHz
Default
10kHz
Filter types
Shelf, Bell
Cutoff points
2.5kHz, 5kHz, 7kHz, 10kHz, 12.5kHz, 15kHz, 20kHz

Low Shelf/Bell Selector

Range
Shelf or Bell
Default
Shelf

High Shelf/Bell Selector

Range
Shelf or Bell
Default
Shelf

In

Turns the EQ On/Off but leaves the Analog modeling.

Range
On/Off
Default
On

3.2 Output Section

The Output section, which is identical on both the API 550A and API 550B, consists of controls for Polarity (Phase Inversion) Analog Modeling, Output Level, and Trim.

Pol (Polarity)
Shifts the phase by 180 degrees.

Range
0deg-180deg
Default
0deg

Analog
Turns the Analog modeling on and off.

Range
On/Off
Default
On

Output
Controls the output level.

Range
-18dB to +18dB (in 0.1dB steps)
Default
0dB

Trim
Displays the maximum peak level of the output signal and its distance from nominal gain (-0.1dBfs).

Range
-inf to 0dB
Default
-inf

Meters

The API 550 meters display output level in dBFS. The LED located between the two meters lights up when output signal is clipping.

Chapter 4 – The WaveSystem

4.1 The WaveSystem Toolbar

All Waves processors feature the WaveSystem toolbar which takes care of most administrative functions you will encounter while working with your Waves software. The features of the WaveSystem toolbar are the same on practically all Waves processors, so familiarity with its features will be helpful whichever processor you are using.

Toolbar Functions

Undo	Undoes the last 32 actions.
Redo	Redoes the last 32 undone actions.
Setup A/B	Toggles between two presets. This is useful for close comparison of different parameter settings
Copy A->B	Copies the current settings to the second preset register
Load	Recalls presets from file
Save	Saves presets in the Waves file formats
?	Opens the manual for the processor you are using

4.2 Preset Handling

Preset Types

Factory Presets are permanent presets in the Load menu. Factory presets cannot be over-written or deleted. When applicable, different component plug-ins may have different factory presets.

User Presets are your favorite settings of the plug-in saved as a preset in the Load menu, under ‘User Presets’. User Presets can be over-written and deleted.

Setup Files may contain more than one preset. For example, a single file can contain all the presets for a session. When you open a Setup File, all its setups become part of your Load pop-up menu for fast access. This can be particularly useful with multiple instances of a plug-in in a single session. By saving all the settings you create into a single Setup File, they can all be quickly available for every instance of that plug-in.

Loading Presets and Setups

Click-and-hold on the Load button to see the Load pop-up menu. The menu is divided into four sections. If a section is not currently available it will not appear in the Load pop-up menu.

Open Preset File…	Select to open any setup or preset file, whether from the Library or your own creations.
'Filename.xps':	Displays any currently loaded Setup File and its presets.
Factory Presets:	Displays the default Factory Presets.
User Presets:	Displays any loaded User Presets.

Saving Presets and Setups

Click-and-hold on the Save button to see the Save pop-up menu. Four options are available. If an option is not currently available it will be grayed out and inaccessible.

Save to New File…	Select this to start a new Setup file. There are two prompts - first for the setup filename, then for the preset name. You must provide a name for both the setup file and the preset. Click OK (ENTER) to complete the save. It is a good idea to create a folder in which to save several setup files for a project.
Save 'File Name' – "Preset Name"	Overwrites the settings of the loaded preset (whether a User Preset or a preset from a Setup File) with the current settings. If a Setup File is currently loaded, the name of the Setup File is displayed followed by the name of the preset itself. If a User Preset is loaded, its name is displayed.
Save to 'File Name' As…	Saves the current settings as a new preset into the Setup file that is open (if one is not open, the option is grayed out). You will be prompted to give the preset a name.
Put into Preset Menu As…	Save the current settings into a User Preset that will always be in your Load menu (until deleted). You will be prompted to give this preset a name. User Presets are stored in the plug-in's preference file.

Deleting Presets

You may delete User Presets and presets within a Setup File. Factory Presets and Setup Library files cannot be deleted or overwritten.

1. Hold the Command (Mac)/Control (PC) key down.
2. Click-and-hold the Load button to see the pop-up menu.
3. While still holding the Command/Control key, select the preset or setup to delete.
4. A confirmation box will appear, allowing you to cancel or 'OK' the deletion.

A/B Comparison and Copying

The Setup A/Setup B button may be clicked to compare two settings. If you load a preset in the Setup B position, this will not affect the preset loaded into the Setup A position, and vice-versa.

If you want to slightly modify the settings in Setup A, you can copy them to Setup B by clicking on the Copy to B button, then alter Setup A and compare with the original Setup B.

The name of the current setup will be shown in the title bar (on platforms which support it), and will switch as you change from Setup A to Setup B.

Note: an asterisk will be added to the preset name when a change is made to the preset -

4.3 Interface Controls

Controls can be in one of three states:

- **Not Selected** where the control is not the target of any user entry
- **Selected** where the control is the target of mouse control entry only
- **Selected and Active** where the control is the target for both mouse and keyboard entry

Toggle Buttons

Toggle buttons display the state of a control, and allow switching between two or more states. **Single-click** to change the control's state. Some toggle buttons have a text display which updates with the current setting, and others (bypass, solo, or monitoring toggles) illuminate when the control is active.

Some processors have **link buttons** between a pair of toggle buttons, allowing click-and-drag adjustment while retaining the offset between the controls.

Value Window Buttons

Value windows display the value of a control and allow **click-and-drag** adjustment, or **direct control via the keyboard**.

- **Using the mouse**, click-and-drag on the value window to adjust. Some value windows support left/right, some up/down (as you hover over a button, arrows will appear to let you know which direction of movement that button supports).
- **Using the arrow keys**, click once with mouse to select the button, and then use up/down – left/right (depending on the direction supported by that button) to move in the smallest incremental steps across the button's range (holding down the arrow keys will move faster through the range).
- **Using key entry**, double click on the button to open the value window, and directly enter the value from your keyboard. If you enter an out of range number, the button stays selected but remains at the current setting (system beeps? If system sounds are on?)

Some processors have **link buttons** between a pair of value windows, allowing click-and-drag adjustment while retaining the offset between the controls.

Sliders

Click on the slider itself or anywhere within the sliders track. The numerical value of the slider settings is displayed in a hover window above the slider path.

Hover Box

Hovering boxes will appear and display the control value when hovering with the mouse over the control.

Multiple Selection of Controls

One of the most powerful features of the WaveSystem is the ability to select and adjust many controls at the same time. Using the mouse, simply drag-select the desired group of button or graphic controls by clicking and holding at a point outside the controls and forming a rectangle to include the controls you wish to adjust. Alternatively, you can hold down Shift while clicking the mouse on any control you wish to link. This second method is useful when you want to select two (or more) controls that are separated on the GUI by other controls you do not wish to select.

TAB Functions

TAB moves the ‘selected’ status to the next control, with shift-TAB moving in the reverse direction.

Additionally, the Mac has an option-TAB function for ‘down’ movement and shift-option-TAB for ‘up’ movement where applicable.

If you have several Value Window Buttons selected, TAB functions will take you through the selected controls only.

Appendix A – 550A Controls

Control	Range	Default
Low Band Gain	-12dB to 12dB (2-3dB's steps)	0dB
Low Band Frequency	50Hz,100Hz,200Hz,300Hz,400Hz	50Hz
Mid Band Gain	-12dB to 12dB(2-3dB's steps)	0dB
Mid Band Frequency	.4kHz,.8kHz,1.5kHz,3kHz,5kHz.	1.5kHz
High Band Gain	-12dB to 12dB(2-3dB's steps)	0dB
High Band Frequency	5kHz,7kHz,10kHz,12.5kHz,15kHz.	7kHz
Filter	Bandpass 50Hz-15kHz	Off
Low shelf/bell selector	Shelf or Bell	Shelf
High shelf/bell selector	Shelf or Bell	Shelf
Output	-18dB to 18dB	0dB
Trim	-inf to 0dB	-inf
Analog	On/Off	On
Phase	0deg- 180deg	0deg

Appendix B – 550B Controls

Control	Range	Default
Low Band Gain	-12dB to 12dB(2-3dB's steps)	0dB
Low Band Frequency	30Hz,40Hz,50Hz,100Hz,200Hz,300Hz,400Hz	50Hz
Low Mid Band Gain	-12dB to 12dB(2-3dB's steps)	0dB
Low Mid Band Frequency	75Hz,150Hz,180Hz,240Hz,500Hz,700Hz,1kHz.	500Hz
High Mid Band Gain	-12dB to 12dB(2-3dB's steps)	0dB
High Mid Band Frequency	0.8kHz,1.5kHz,3kHz,5kHz,8kHz,10kHz,12.5kHz.	5kHz
High Band Gain	-12dB to 12dB(2-3dB's steps)	Off
High Band Frequency	2.5kHz,5kHz,7kHz,10kHz,12.5kHz,15kHz,20kHz.	10kHz
Low shelf/bell selector	Shelf or Bell	Shelf
High shelf/bell selector	Shelf or Bell	Shelf
Output	-18dB to 18dB	0dB
Trim	-inf to 0dB	-inf
Analog	On/Off	On
Phase	0deg- 180deg	0deg