





www.sonicstudio.com

Sonic Studio Amarra sQ User Manual Table of Contents

Chapter 1	Amarra sQ Overview	4
1.1	Amarra sQ Quick Start	5
Chapter 2	Amarra sQ Set Up	6
2.1	Mac Host Requirements	6
2.2	Installing/Uninstalling Amarra sQ	6
2.3	Launching, Licensing and Using Amarra sQ	6
2.3.1	Trial Mode Activation	7
2.3.2	Permanent Activation Mode	9
2.4	Managing your Amarra sQ License with iLM	11
2.4.1	The iLok License Manager (iLM)	
2.4.2	Your iLok Account	
2.4.3	Managing your License	12
Chapter 3	Amarra sQ User Interface	13
3.1	Amarra sQ Controls	13
3.1.1	Frequency Visualizer Scaling in dB	13
3.1.2	EQ Visualizer	14
3.1.3	Gain Fader	14
3.1.4	High-Definition Meters	14
3.1.5	Equalizer Bands with 8 Unique Filters	14
3.1.6	EQ Band On/Off	15
3.1.7	Mute Button	15
3.1.8	EQ Global On/Off	15
3.2	Audio Device Settings	15
3.2.1	Output Selector	15
3.2.2	Input Selector	15
3.2.3	Active Output Channels	16
3.2.4	Test Button	16
3.2.5	Show Advanced Settings	16
3.3	Menus	16
3.3.1	Amarra sQ Menu	16
3.3.1.1	Services	16

Appendix A	Amarra sQ EQ Filter Specifications and Descriptions	
4.3	Contacting Sonic Studio, LLC	19
4.2	Licensing	18
4.1	Playback	18
Chapter 4	Trouble Shooting	18
3.3.2.4	Quit	17
3.3.2.3	About Amarra sQ	17
3.3.2.2	Audio Device Settings	
3.3.2.1	Hide Amarra sQ	17
3.3.2	Setup Menu	17
3.3.1.5	Quit Amarra sQ	17
3.3.1.4	Show All	17
3.3.1.3	Hide Others	
3.3.1.2	Hide Amarra sQ	16

©2006-2014 Sonic Studio, LLC — All rights reserved. No part of this document may be reproduced, stored in a retrieval system or transmitted in any form or by any means, without the prior written permission of the publisher.

This manual, as well as the software described in it, is furnished under license and may only be used or copied in accordance with the terms of such license. The information in this manual is furnished for informational use only, is subject to change without notice, and should not be construed as a commitment by Sonic Studio, LLC. Sonic Studio, LLC assumes no responsibility or liability for any errors or inaccuracies that may appear in this document.

Except as permitted by such license, no part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, recording, or otherwise, without the prior written permission of Sonic Studio, LLC.

Notice of Liability

The author and publisher have made every effort to ensure the accuracy of the information herein. However, the information contained in this document is provided without warranty, either express or implied. Neither the authors, Sonic Studio, LLC, nor its dealers or distributors will be held liable for any damages to be caused either directly or indirectly by the instructions contained in this book, or by the software or hardware products described herein.

SONIC STUDIO, LLC MAKES NOWARRANTIES, EXPRESS OR IMPLIED, INCLUDINGWITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, REGARDING THE APPLE SOFTWARE. SONIC STUDIO, LLC DOES NOT WARRANT, GUARANTEE, OR MAKE ANY REPRESENTATIONS REGARDING THE USE OR THE RESULTS OF THE USE OF THE SONIC STUDIO, LLC SOFTWARE

IN TERMS OF ITS CORRECTNESS, ACCURACY, RELIABILITY, CURRENTNESS, OR OTHERWISE. THE ENTIRE RISK ASTOTHE RESULTS AND PERFORMANCE OFTHE SONIC STUDIO SOFTWARE IS ASSUMED BY YOU. THE EXCLUSION OF IMPLIED WARRANTIES IS NOT PERMITTED BY SOME STATES. THE ABOVE EXCLUSION MAY NOT APPLYTOYOU. IN NO EVENT WILL SONIC STUDIO, LLC, ITS DIRECTORS, OFFICERS, EMPLOYEES, OR AGENTS BE LIABLE TO YOU FOR ANY CONSEQUENTIAL, INCIDENTAL, OR INDIRECT DAMAGES (INCLUDING DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION, ANDTHE LIKE) ARISING OUT OFTHE USE OR INABILITYTO USETHE SONIC STUDIO SOFTWARE EVEN IF SONIC STUDIO HAS BEEN ADVISED OFTHE POSSIBILITY OF SUCH DAMAGES. BECAUSE SOME STATES DO NOT ALLOWTHE EXCLUSION OR LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, THE ABOVE LIMITATIONS MAY NOT APPLYTOYOU.

Notice of Rights

Sonic Studio, Amarra, Amarra Hifi, Amarra Symphony, Amarra sQ, SSE, Sonic Mastering EQ, Model 302, Model 303, Model Four, Model 305 and the Sonic Studio and Amarra logos are trademarks of Sonic Studio, LLC. All other company or product names are either trademarks or registered trademarks of their respective owners.

Chapter 1 Amarra sQ Overview

Thank you for purchasing Amarra sQTM! Amarra sQ is a stand-alone application for Mac OSX that is designed to improve the audio quality of all audio on your Mac, including streaming sources such as:

- Beats Music, Google Play, iTunes Radio, Pandora, Rdio, Spotify and other audio sources
- YouTube, NetFlix, iTunes, Hulu Plus, Vimeo and other video sources
- Your iTunes music library

Amarra sQ uses the same great audio technology that's in both our Amarra music player and soundBlade mastering software. Amarra sQ also incorporates a fully functional four-band EQ, each containing 7 different filters (see page 20), that's useful for tonal shaping and enhancing any content from your Mac.



The Amarra sQ User Interface.



Learn: GoogleTranslate now provides for translating full documents into local languages. Please visit <u>http://translate.google.com/</u>, select the desired language to translate to and click on 'translate a document'. It's not a perfect tool, but it may help those who prefer languages other than English

1.1 Amarra sQ Quick Start

Launch Amarra sQ and activate as Trial or Licensed (see page 6)

1. From the File => Audio Device Settings..., set the Audio Device to use for output.



File->Audio Device Settings... menu

00	Device Settings
output:	AudioQuest DragonFly 🗢 Test
input:	SonicStream 🗢
active output channels:	🗹 Output 1 + 2
	Show advanced settings

Set Output to your DAC. Set Input to SonicStream. Use Test button to verify output to your DAC.

2. Listen!

Chapter 2.....Amarra sQ Set Up

2.1 Mac Host Requirements

At a minimum, Amarra sQ requires the following:

- Apple Macintosh Intel 2.6 GHz minimum or faster preferred
- 17" or larger display
- 3 GB RAM minimum, 4 GB RAM or more preferred
- OS 10.6.8 or newer

2.2 Installing/Uninstalling Amarra sQ

To install Amarra sQ, please click on the Amarra_sQ_Installer.pkg. You can download the Installer from:

http://www.sonicstudio.com/sonic/support/sonic_support#DOWNLOAD

Follow the on-screen instructions to install your software.

You may uninstall the Amarra sQ as follows

• Run Uninstall AmarraSQ.app. This will remove all components installed.

2.3 Launching, Licensing and Using Amarra sQ

There are two methods for licensing Amarra sQ:

- 1. Trial Mode: Free 15 day full-function trial. See page 7
- Permanent Activation: You are delivered an Activation Code after purchase. See page
 9



Learn: For your security and convenience, an iLok Account <u>is required</u> to use or try Amarra sQ. Your personal account is free, secure and takes just a few minutes to set up.

Amarra sQ software is protected with PACE Anti-Piracy's InterLok copy protection. Learn more at **iLok.com**.

Your Amarra sQ license is authorized on your Mac via 'Machine License' or iLok2 USB Smart Key.

2.3.1 Trial Mode Activation

After installation, the 'Activation is required' window appears, Click the 'Try' button.



Click 'Try'

Click 'Create new account' (if you don't have one), create a free and secure iLok account, then check your email for a account confirmation message. Note that we <u>do not distribute</u> your information outside of Sonic Studio, LLC.

License Account Login This trial requires you to have an Ilok.com account. Please enter your Ilok.com account credentials. User ID: Password: Remember Me Cogot Password on User ID2 Create new account Software Usersing System Create new account Create new accou	Sonic Studi		ilok	Buy it.ak.License Manager it.ak. Zero Downtime Su
Please enter your ilok.com account credentials. i) Chick Create new ccount:			Free Account Setup	
User ID: 2) Check your Email Password: Log in info 20 Remember Me Earport Password or Liser ID? 21 Remember Me				The User ID you choose will be your account ident/fier and connet be changed. In a studio secting, remember
Eorgot Password or User ID2 Ausn't reple unformation Create new account Build and an of the second of the		for confirmation note &		
Create new account Software Licensing Present Present Present Present Present	Remember Me	3) Launch Amarra sQ	Company:	Optimut
feate new account Software Licensing Software account Software Licensing Software Licensi	orgot Password or User ID?	4) Enjoy	Email Address."	Accounts require confirmation from a valid ernol address
Strattom - Hoge, to wat seeing a stratt pre approace active, at	Create new account	41 511041	Reiotsz Enait:"	Math the enail address for confirmation
	NUMBER OF STREET	Software Licensing System	Pessent*	length. It must contain at least one uppervase letter, at

Click 'Create new account' (if you don't have one), create a free and secure account, then check your email for an account confirmation message.

Enter your iLok User ID and Password, click Next, then select your Amarra sQ license.

Sonic Studio		Sonic Studio
License Account Login This trial requires you to have an ilok.com account. Pease enter your ilok.com account credentials. User ID: sonic_test01 Passwort: metric © Remember Me Forgot Passwort or User 102 Create new account	1) Click 'Create new account. 2) Check your Email for confirmation note & Log in info 3) Launch Amarra s0 4) Enjoy! Software Licensing System	Select License to Activate Select the license that you would like to activate: Name Type Entropy Deposit Date Amarra sQ No Resale Product No 6/6/14 10:36 PM Allowed Locations: Limits and Expiration: None Enter a Code Quit Next

Enter your User ID and Password, then click 'Next'. Select the Licence you want to activate. Click 'Next'.

The next step is to select your Mac as the location to store your license. Click 'Next'.



Select the location to store your Amarra sQ license. The 'Successful Activation window will appear. Click 'Continue'. Amarra sQ will launch.

Amarra sQ launches, you'll be reminded to set your output device appropriately and that your Mac's System volume should be set to Maximum. Click OK in both windows.



In the resulting window, set the output device by selecting from the output device pulldown list. Input is always SonicStream, output is your playback device.

00	Device Settings			
output:	AudioQuest DragonFly	¢	Test	
input:	SonicStream	\$		
active output channels:	ダ Output 1 + 2			
	Show advanced se	tting	gs	

Once you've properly set up Amarra sQ, simply launch your streaming audio source and hit play. Amarra sQ will automatically take over playback, any EQ settings turned on will be in effect, meters will be displayed and the Volume slider in Amarra sQ will be active.



Machine License vs. iLok2 License: Amarra sQ gives you added flexibility with how you license your software:

Machine License Method

Use if you do not own an iLok2. Easy to use, but less portable. Can be moved from one Mac to another using the iLok License Manager application.

iLok2 Method

Highly portable, just move your iLok2 from Mac to Mac. Requires an iLok2. iLok1 will not work with Amarra sQ.

2.3.2 Permanent Activation Mode

The Section describes how to activate your permanent 'Amarra sQ' license.

After installation, the 'Activation is required' window appears, Click the 'Activate' button.



Click 'Activate'

Click 'Create new account' (if you don't have one), create a free and secure iLok account, then check your email for a account confirmation message. Note that we <u>do not distribute</u> your information outside of Sonic Studio, LLC.



Click 'Create new account' (if you don't have one), create a free and secure account, then check your email for an account confirmation message.

Enter your iLok User ID and Password, click Next. Copy the Activation Code (CMD + C) from the 'Product Information letter you received after your purchase, and paste (CMD + V) that code into Activation Code Entry field and click 'Next. hen select your Amarra sQ license.



Enter your User ID and Password, then click 'Next'. Paste your Activation Code. Click 'Next'.

The next step is to select your Mac as the location to store your license. Click 'Next'.



Select the location to store your Amarra sQ license. The 'Successful Activation window will appear. Click 'Continue'. Amarra sQ will launch.

Amarra sQ launches, you'll be reminded to set your output device appropriately and that your Mac's System volume should be set to Maximum. Click OK in both windows.



In the resulting window, set the output device by selecting from the output device pulldown list. Input is always SonicStream, output is your playback device.

000	Device Settings
output:	AudioQuest DragonFly 🗢 Test
input:	SonicStream 🗢
active output channels:	🗭 Output 1 + 2
	Show advanced settings
	Show advanced settings

Once you've properly set up Amarra sQ, simply launch your streaming audio source and hit play. Amarra sQ will automatically take over playback, any EQ settings turned on will be in effect, meters will be displayed and the Volume slider in Amarra sQ will be active.

2.4 Managing your Amarra sQ License with iLM

Moving/managing your Amarra sQ license is an easy task. We use the iLok License Manager (iLM) app from Pace to manage your machine locked or iLok licensed Amarra sQ license. Please follow the steps below to manage your Amarra sQ License

2.4.1 The iLok License Manager (iLM)

The iLok License Manager is the application you will use to manage your license. iLM is installed with Amarra sQ in Applications/iLok License Manager.

2.4.2 Your iLok Account

In order to use Amarra sQ for a trial or permanently, you will need to create a free account at <u>https://www.ilok.com/#!registration</u> to manage your Amarra sQ license. Please note your iLok ID and Password as you'll need to use them to access your iLok account in the future.

To Create an account within the iLok Llcense Manager, launch the iLok License Manager application, then select 'Create New Account:



Click Sign In.

Sign In
Enter your User ID and Password then click Sign In to continue.
User ID:
Password:
Remember User ID and Password on this machine
(Do not check if you are on a public machine)
Cancel Sign In
Eorgot Password or User ID2 Create New Account

Click Create New Account.

ilī)K	Buy	iLok License Manager	iLok	Zero Downtime	Support
Sign in Create Free Account				C	lew Cart
Free Account Setup					-1
NEW USERS ONLY - Please do not set up an account if you already h	ave one				- 1
User ID: *		The User ID you choose and cannot be changed that while you may lear company stays forever.	. In a stud	io setting, remember	
First Name: *					
Last Name:					
Company:		Optional			
Email Address:		Accounts require confin	nation from	m a vatid emait address	
Re-enter Emailt:		Match the email addres	s for confi	mation	- 11
Password:"		Your passward must be length. It must contain least one lowercase lett	ot least on	ie uppercase letter, at	

Enter your data in the appropriate fields. Make sure to note your User ID and Password. After registration, you will receive a confirmation email. Please click on the link in the body of that mail to activate your iLok Account.

After confirmation, you can log into your iLok account and manage your license.

2.4.3 Managing your License

Once you've created your account and loaded the iLok License Manager, launch the ILM from Applications/iLok License Manager and sign-in with your User Name and Password.

To move your license, you will need to 'Take Ownership' of it. Once you take ownership, you are free to move your license to your account and to another machine as needed. To move your license to another machine, simply move the license back to your account, log in on another machine and move the license to that machine. Load Amarra sQ and you should be all set.

Chapter 3.....Amarra sQ User Interface



1) Frequency Visualizer Scaling in dB	2) EQVisualizer
3) Gain Fader	4) High-Definition Meters
5) Equalizer Bands with 8 unique filters	6) EQ Band On/Off
7) Mute Button	8) EQ Global On/Off

3.1 Amarra sQ Controls

3.1.1 Frequency Visualizer Scaling in dB

This menu sets the vertical scale of Visualizer window in dB. The values are +24, +12, +6, and +3, with the default scale at +12.

3.1.2 EQ Visualizer

This area displays the current filter settings as a visual representation. Each color-coded filter node can be dragged and adjusted from within this window.

3.1.3 Gain Fader

Adjusts the overall gain of the plug-in. Parameters are +6 to -60 dB. Option click to (re)set to zero.

3.1.4 High-Definition Meters

The Meters section graphically displays real-time indications of Peak, RMS and VU values with hyper-ballistic accuracy. At the top of the meter strips, Peak and RMS values are displayed in numeric relation to zero; - for under zero, + for over zero. Both the meter strip and the numbers in this section will turn red when an over-zero level is detected.

3.1.5 Equalizer Bands with 8 Unique Filters

The bottom left half of the Amarra sQ window contains the master controls for each of the four available filter bands. The controls are context–sensitive and apply to the selected filter section and changes are reflected in the EQ Visualizer section.

Clicking on the top reveals a list the available filter types:



Filter Selection Menu. Select your desired filter from the menu to instantiate. Extra control sections will me enabled depending on filter type.



LEARN: See <u>page 20</u> below for complete filter descriptions and graphical representations of their capabilities.



LEARN: Values can be entered by keyboard or by click+hold+mouse up/down.

3.1.6 EQ Band On/Off

This button toggles individual bands of Amarra sQ on or off and is useful for comparing the change induced in a single band of EQ.

3.1.7 Mute Button

This button mutes or stops the output of Amarra sQ.

3.1.8 EQ Global On/Off

This button toggles the Amarra sQ on or off and is useful for comparing the sum of all changes made with this instance of EQ.

3.2 Audio Device Settings



Audio Device Settings Window

3.2.1 Output Selector

Choose your Digital-to-Analog Converter (DAC) from this list. That action sets Amarra sQ's output to feed to your DAC.

3.2.2 Input Selector

Select SonicStream from this list. The input menu should always be set to SonicStream.

3.2.3 Active Output Channels

This area assigns the routing of the output channels in your DAC. Most DACs only have 2 output channels, but if your DAC has more outputs, you can select them from the list.

3.2.4 Test Button

Pressing the Test button causes Amarra sQ to produce a test signal of 3 short pulses at 440 Hz. This useful for verifying that Amarra sQ is putting out signal to your DAC.

3.2.5 Show Advanced Settings...

Clicking this button reveals the Audio Buffer Size pull-down menu allowing you to adjust the audio buffer in sample values. 1024 is best.

3.3 Menus

3.3.1 Amarra sQ Menu



3.3.1.1 Services

The Services menu item provides access to Mac OS X's system-wide services.

3.3.1.2 Hide Amarra sQ

Use the Hide Amarra sQ menu item to hide Amarra sQ and all of its open windows, allowing you access to other programs running in Mac OS X. Clicking on the Amarra sQ icon in your Dock returns Amarra sQ to view.

3.3.1.3 Hide Others

Use the Hide Others menu item to hide all visible applications except Amarra sQ allowing you to focus on Amarra sQ alone. Clicking on any icon in the doc will return that application to view.

3.3.1.4 Show All

The Show All menu item unhides all running programs in Mac OS X.

3.3.1.5 Quit Amarra sQ

Use the Quit Amarra sQ menu item to quit Amarra sQ and close all open windows.

3.3.2 Setup Menu

Hide Amarra sQ	жW
Audio Device Settings	жА
About Amarra sQ Quit	

3.3.2.1 Hide Amarra sQ

Selecting hides Amarra sQ, leaving other open application windows open.

3.3.2.2 Audio Device Settings...

Selecting Audio Device Settings opens the Audio Device Settings window (see page 15)

3.3.2.3 About Amarra sQ...

Opens a dialog box describing the version and build numbers of your Amarra sQ application. Clicking on the dialog box closes it.

3.3.2.4 Quit

Use the Quit menu item to quit Amarra sQ and close all open windows.

Chapter 4..... Trouble Shooting

4.1 Playback

Problem	Possible Cause	Fix
Can't Hear Sound in Amarra sQ	Your DAC is not set for output in Audio Devices Settings Window.	
	"SonicStream" is not in the list of devices in Sound Preferences or Audio Midi Set Up.	
Can't Hear Sound after quitting Amarra sQ	Your DAC did not reset properly after quitting Amarra Symphony.	5
Output meters are overloading	The volume or EQ settings are too high.	Turn down the volume fader until red overload indication goes away.
Output is too low	Volume fader is set too low.	Turn the volume fader up until it reaches a desirable level.

4.2 Licensing

Problem	Possible Cause	Fix
Can't Activate Demo	Activation Code is not correct You've tried Amarra sQ before.	Use this code:4395-3663- 6355-3996-8480-8989-5871-75 Please contact sales@sonicstudio.com
		for another 15 day trial.
Can't Activate License	Activation Code is not correct	Verify that you copied and pasted the correct code.
	Your computer is not connected to the Internet.	Connect your computer to the Internet to Activate your software.

4.3 Contacting Sonic Studio, LLC

Thanks for purchasing a Sonic Studio product. We really appreciate your patronage and are always interested in your experiences with Amarra.

Sonic Studio Support Portal:

www.sonicstudio.com/amarra/amarra_supportportal

For bug reports and frequently-asked questions (FAQ), visit

www.sonicstudio.com/amarra/amarra_faq

Updates to Sonic SQ, when available, are in the Downloads section of the Sonic Studio website.

www.sonicstudio.com/amarra/amarra_support#DOWNLOAD

Appendix A..... Amarra sQ EQ Filter Specifications and Descriptions

The parametric filters are classic, three parameter versions, with Resonant Frequency, gain, and Q. Q or Quality Factor is defined as the resonant frequency, or center frequency in the case of a symmetrical filter, divided by the bandwidth. The bandwidth is, in turn, defined as the one or two frequencies at which the filter response is 3 dB up or down from unity gain.

Expressing the width of a filter as a Quality Factor, rather than bandwidth, provides a more intuitive sense of the filter's subjective "sound," since the same value of Q will produce different bandwidths at different frequencies. The higher the frequency, the wider the bandwidth will be for a given Q value, which roughly corresponds to our auditory mechanism's ability to perceive a filter's action. As an example, a parametric filter with a Q of 1 has a bandwidth of 100 Hz when its center frequency is set to 100 Hz but, it has a bandwidth of 1000 Hz when the center frequency is set to 1000 Hz.

The order or slope of the filter is controllable, with 1st through 4th order or 6 to 24 dB per octave slope, respectively. Each of the four orders are separate menu choices. The family of curves shown below include a wide Q of 0.5, a medium Q of 2.0 and a narrow Q of 10.



1st order parametric with f_{R} of 1000 Hz



2nd order parametric with $f_{\rm R}$ of 1000 Hz



3rd order parametric with $f_{\rm R}$ of 1000 Hz



4th order parametric with f_{R} of 1000 Hz

The high and low shelves are also three parameter filters, with Resonant Frequency, gain, and order. The family of curves below include 1st through 4th order. The 4th order response is practically vertical in the transition region.



High shelf with f_R of 1000 Hz

The high and low pass filters also have three parameters. However, in this case stopband ripple, labeled Stop, has taken the place of gain. As with the shelving filter above, the family of curves below include 1st through 4th order.



High pass with f_{R} of 1000 Hz

Stopband ripple describes the amount of amplitude variation or ripple in a filter's out of band response. Indirectly, it describes two more important parameters. One is out of band suppression or, how much "leakage" of unwanted signal you receive, and the other is phase shift and group delay.

The stopband ripple parameter provides a range of -12 to -108. At the -12 setting, only 12 dB of loss will occur out of band, no much for a filter of this type. However, because the stopband ripple value is so low, the phase response and resultant temporal response of the filter will be excellent. At the other extreme of its range, stopband ripple will be 108 dB down from the (unity) passband gain but, the phase response will suffer, the group delay will be severe and the resulting temporal smearing may be unacceptable. As with any filter, careful listening will determine the tradeoff between stopband suppression and side effects.

Figure 10.8 below shows an typical 3rd order high pass filter. Superimposed on that curve is another 3rd order high pass with 6 dB of passband ripple & 120 dB of stopband attenuation. Notice the rippling "bouncing ball" amplitude response in the region above the resonant frequency. This passband ripple would create some possibly undesirable amplitude effects but, because the ripple spec has been relaxed, the phase response would be improved.



3rd order high pass with 6 dB of passband ripple & 120 dB of attenuation

Compare the response in figure 10.8 with the next figure, which shows a 3rd order high pass with 0.10 dB of passband ripple & 10 dB of stopband attenuation. This time, the stopband ripple would allow some material below the resonant frequency to "leak" into the filter's output. Again however, because the ripple spec has been relaxed, the phase response would be improved.



3rd order high pass with 0.1 dB of passband ripple & 10 dB of attenuation

The bandpass and band stop filters are straightforward, three parameter forms, and the notch filter has only two parameters as the gain is implied to be $-\infty$. The next two figures once again include quality factors (Q) of 0.5, 2 and 10.



1st order bandpass with $f_{\rm R}$ of 1000 Hz



3rd order bandpass with $f_{\rm R}$ of 1000 Hz



Notch filter with $f_{\rm R}$ of 1000 Hz

Sonic Studio Amarra sQ User Manual Index

Symbols

1st order parametric 20 2nd order parametric 20 3rd order high pass 23, 24 3rd order parametric 20 4th order parametric 20

Α

Active Input Channels 16 Active Output Channels 16 Audio Buffer 16 Audio Buffer Size 16 Audio Device Settings 5, 15, 17

B

bandpass 25 band stop 25

D

DAC 5, 15, 16

Е

EQ Band On/Off 15 EQ Global On/Off 13, 14, 15 Equalizer 13 Equalizer Bands 13 EQ Visualizer 13, 14

F

Fader 13, 14 Frequency Visualizer 13

G

Gain 13, 14

Н

High-Definition Meters 13, 14

High pass 23 High Pass 25 High shelf 25 High Shelf 25

iLok 6, 9, 11, 12 iLok2 6, 9, 11, 12 iLok account 6, 9, 11, 12 iLok License Manager 9, 11, 12 Input Selector 15 InterLok 6

L

Launch 5 Low pass 22

Μ

Machine License 9 Meters 13, 14 Mute Button 13, 15

N

Notch filter 26

Ο

Output Selector 15

Р

PACE 6 parametric 20, 21, 22 Parametric 20, 22, 23, 25 passband 23, 24 Peak 13, 14

Q

Q Quality Factor 20

R

Ripple 22, 23, 24

S

Sample Rate 16 Slope 20 SonicStream 5, 15 Stopband 23, 25

V

VU 13, 14

© 2014 Sonic Studio, LLC • 1340 Mission Street • San Francisco., CA 94103 • 1-415-944-7642

Amarra, Amarra Symphony, Amarra sQ, sonicstudio.com, the Sonic Studio logo and type are trademarks of Sonic Studio, LLC in the United States and other countries. All other trademarks, trade names, service marks, and logos referenced herein belong to their respective companies.

Comments, corrections and suggestions regarding this manual are always welcome. Please contact us at <<u>support@sonicstudio.com</u>>.

Sonic Studio Amarra sQ_UM_v01r21