

# StudioLive™ 24.4.2AI

24-channel live performance  
and recording digital mixer



The PreSonus®  
StudioLive™

## 24.4.2AI 24-channel

(24x4x2) digital mixer is designed for live events, live and studio recording, and corporate, institutional, and other installations. The StudioLive 24.4.2AI features a familiar, analog-like mixing surface with dedicated faders for every channel, subgroup, and the main bus yet incorporates the latest advanced digital technology throughout, including a level of integration with companion software that is unheard of in its class.

### Dedicated Controls and Analog I/O

When you're mixing a live show, and the heat is on, you don't have time to search for controls and meters, as you must do with most digital mixers. You never have that problem with a StudioLive 24.4.2AI mixer: Every control you need to mix a show is under your fingers on the mixing surface, and you always know what each button, fader, and knob controls and which parameter each meter displays.

The formula is simple: one-to-one. Each StudioLive 24.4.2AI channel has a dedicated level fader. When you view input levels, each channel has its own level meter. When editing parameters, each parameter is controlled by a clearly labeled knob or button—and it's always the same knob or button. You never have to assign parameters to physical controls; the StudioLive 24.4.2AI's

wealth of knobs, buttons, and faders enable you to manage everything at the same time.

The same one-to-one formula applies to analog inputs and outputs. The StudioLive 24.4.2AI delivers the most analog inputs and outputs of any digital mixer in its class for more flexible connectivity, with no output sharing and no compromises. Every channel has an individual analog XLR mic input plus a balanced ¼" line input, TRS insert point, and direct output. The jackfield sports a wealth of other dedicated inputs and outputs.

You always have full use of all 20 dedicated mix buses (10 aux buses, 4 subgroups, 4 internal effects buses, and the stereo mains) along with talkback, the tape send/return, and two balanced stereo aux inputs – each with their own dedicated jack. For example, Aux mix 1 always feeds the Aux 1 output, Aux mix 2 feeds the Aux 2 output, and so on. You never run short of analog I/O, and you never have to decide which bus goes to which jack. Wiring and routing are consistent and obvious, making both configuration and mixing hassle- and worry-free.

All analog inputs and outputs use the finest Burr-Brown A/D/A converters, with 118 dB dynamic range. In addition, the StudioLive 24.4.2AI utilizes Studio One's much-praised 64-bit summing engine, resulting in a big, open sound that is even better than that of legacy StudioLive mixers.

- Dual Fat Channel signal processing on all channels and buses with:
  - Variable highpass filter
  - 4-band fully parametric EQ
  - Full-featured compressor
  - Sophisticated gate with Key Listen and Key Filter (and sidechain)
  - Variable threshold limiter
- One-to-one control over every parameter
- Active Integration™ software suite includes editor/librarian/control with audio analysis (Mac/Windows), wireless remote control from an iPad, wireless monitor-mix control from an iPhone/iPod touch, one-click recording software with virtual soundcheck (Mac/Windows), full-featured digital audio workstation software (Mac/Windows), and online "direct to fan" marketing, sales, and distribution service
- 24 input channels with 100 mm faders, mic and line inputs, insert sends/returns, and direct outputs
- 20 dedicated mix buses for easy configuration
  - 10 aux buses
  - 4 subgroups
  - 4 effects buses with dedicated processors (2 reverbs, 2 delays)
  - Stereo Main bus with mono sum output
- Cascades with any StudioLive AI-series mixer, regardless of frame size, to create a unified larger console (up to 56 channels and 30 mix buses) with full recording, remote control, and DSP
- 25 Class A XMAX™ solid-state mic preamplifiers (24 ch. + talkback)
- 12 graphic EQs (one for each aux bus plus the main bus)
- 300 ms alignment delay on subgroup outputs
- Fully integrated, continuously bidirectional, 40-in/26-out, FireWire s800 recording interface (24-bit, 44.1/48/88.2/96 kHz)
- Dedicated Ethernet port and USB 2.0 port with included Wi-Fi LAN adapter for direct networking with or without a computer
- Scene and individual settings store and recall; 8 Quick Scenes via control software

See the back page of this document for a list of **F**ile Resources and **R**elated Products

## Processing: Fat Channel and Effects

The StudioLive 24.4.2AI provides the most EQ, dynamics processing, and effects processing of any digital mixer in its class, thanks to the extensive Fat Channel processing section. The StudioLive Fat Channel supplies a 4-band fully parametric EQ with switchable shelving on the low and high bands, individual band on/off switches, and global EQ on/off; a full-featured compressor; a limiter with variable threshold; and an expander/gate with Key Listen and Key Filter on every channel, aux, and subgroup. Two complete sets of EQ and dynamics-processor settings can be saved for every channel and bus and can be A/B-compared using the Alt button. The Fat Channel also provides a highpass filter on each channel, aux, and effects bus; phase reverse for each channel; panning; and subgroup and main assigns.

In addition to controlling and displaying EQ and dynamics parameters, the Fat Channel is used to manage the sends to each aux and effects bus for each channel. Its flexible meters and controls are also used for the 12 31-band graphic EQs provided for each of the 10 aux buses and the stereo main bus. A/B is also available for each graphic EQ.

Four metering modes are provided

to use the Fat Channel's 16-segment, multipurpose LED meters for visually monitoring the levels of all 24 inputs: post-gain and pre-dynamics and fader; post-dynamics and fader; the amount of gain reduction; or the fader settings for a saved scene. These meters can also be used to display the output level of each of the 10 aux sends and 4 FX buses. But whether you're metering inputs, setting up an aux mix, or dialing in a Fat Channel setting, the clip meter for each channel is always visible, so you are never in the dark about potential gain-structure problems.

Channels and buses can be linked in stereo as odd-even pairs (Ch. 1-2, 3-4, etc.), and a horizontal LED Pan meter displays the pan position for the selected channel or linked channels. The Fat Channel can be inserted anywhere there is a blue Select button; when a Select button is fully lit, the Fat Channel is active on that channel, aux bus, etc.

Delay and reverb are delivered by 4 stereo, 32-bit floating-point effects processors—2 for delay and 2 for reverb—that are assigned to dedicated effects buses and come with 50 user-editable factory presets and 49 empty locations for user-created presets. An LCD display gives access to the effects parameters, the 300 ms alignment delay provided for the



4 subgroups, system settings, and graphic EQ, mix scene, and channel-strip store/recall.

## Upgradeable Connections and 96 kHz High-Resolution Recording

Every StudioLive AI-series mixer integrates a multi-channel digital recording interface. A pair of FireWire s800 (IEEE 1394b) ports connect the StudioLive AI mixer to a Mac or Windows PC for recording and enable wired VSL-AI software control, including Smart® audio-analysis. The StudioLive 24.4.2AI's integrated, bidirectional recording interface can send up to 40 audio streams to a computer and return up to 26 playback streams at up to 24-bit/96 kHz (coming fall 2014).

The FireWire s800 and Ethernet ports come on a preinstalled card that are user-replaceable with optional Dante, AVB, or Thunderbolt cards so you can use the latest technology.

## Direct Wi-Fi and Wired Networking

StudioLive AI-series mixers ship with a USB 2.0 port, USB wireless (Wi-Fi) LAN adapter, and Ethernet port. Either the LAN adapter or the Ethernet port lets you connect to a wireless router and wirelessly control your mixer from the StudioLive AI mixers' powerful suite of control and recording software.

Connecting to a LAN network is quick and easy:

- If a hardwired Ethernet connection to a LAN network is available, the StudioLive AI mixer automatically connects to it—no IP addresses or DNS server names to remember or track down.
- Want to go wireless? From the Network Setup page, browse through the name of every available wireless network and simply choose the one you want to connect to, OR
- Name your wireless network "StudioLive" with a password "studiolive," and your mixer will automatically connect to it, no configuration required.

Bottom line: If you've ever connected a computer, iPad, or iPhone to a wireless network, you already know how to connect a StudioLive AI mixer to the network.

That said, corporate, educational, and government environments require secured, firewalled networks,

which requires some expertise. So the networking backbone of PreSonus AI technology is registered with IANA (Internet Assigned Numbers Authority). Simply open port 47809 to let AI control network traffic through.

## Active Integration Software Suite

The StudioLive 24.4.2AI's advanced, bidirectional FireWire S800 interface and onboard networking features make possible its tight interoperability with the included StudioLive AI software. Each piece of StudioLive AI software was designed on the Active Integration™ platform so that it can communicate simultaneously with the mixer and every other application on the network. This enables the mixer and software to interact in powerful and useful ways that solve real-world problems, including:

- True virtual soundcheck with automated remote control of the mixer from Capture™.
- Save and load StudioLive AI mixer scenes with Capture and then open the Capture Session in Studio One; the Studio One mixer is set to match your StudioLive AI mix scene, including fader values, mutes, pan, and FX send mixes. Fat Channel settings are loaded into Studio One 2.6's new Fat Channel Native Effects™ plug-in.
- Share presets between the Studio One Fat Channel plug-in and VSL-AI.
- StudioLive AI scene, effects, Fat Channel, and graphic EQ preset libraries automatically sync to VSL-AI.
- Channel names entered in SL Remote-AI, VSL-AI, Capture, QMix™-AI, or the StudioLive AI mixer are broadcast throughout the network, so you only have to name a channel once—and you can name it from anywhere.
- Launch a Smart wizard in VSL-AI and then control it wirelessly with SL Remote-AI.
- Listen in on monitor mixes from the console and rescue novice QMix-AI users from front-of-house.



## Virtual StudioLive-AI Remote Control

Virtual StudioLive-AI (VSL-AI) for Mac and Windows provides bidirectional control and editor/librarian functions for all StudioLive AI-series digital mixers. VSL-AI provides exclusive integration with Rational Acoustics' Smart Measurement Technology™ audio-analysis tools featuring the Smart System Check wizards for StudioLive mixers.



Virtual StudioLive-AI Remote Control

Working with Rational Acoustics, PreSonus has streamlined Smart's Response™ and Locator™ modules to make it easy to view a loudspeaker system's frequency response, providing all information necessary to adjust the sound system using the StudioLive's parametric EQs. Smart's Spectra™ RTA and Spectrograph can be viewed on top of each output's graphic EQ or parametric EQ and are also available on every channel's parametric EQ so you can analyze a mix, easily spot troubling frequencies on a channel, or quickly ring out floor monitors. The implementation is accessible and intuitive, so that inexperienced clients can make basic adjustments to the system, and experienced users can adjust the system quickly and precisely.

Using three Smart System Check wizards and a pink-noise generator built into Virtual StudioLive-AI, StudioLive 24.4.2AI users can easily view the frequency-response trace of a venue, calculate and set delay-system time alignment, and verify output connectivity.



- Remote control of all main StudioLive 24.4.2AI mixer functions wirelessly or via FireWire-connected computer (Smaart features require a FireWire connection)
- Easy drag-and-drop workflow
- Drag presets directly to channels
- Drag parts of presets directly to components in the Fat Channel
- Adjust the Fat Channel gate, compressor, and EQ and the graphic EQs and effects in a huge popup window
- Quickly drop entire scenes to the mixer for instant recall of all channel, effects, and graphic EQ settings
- Load effects quickly by simply dragging presets into the GUI
- Customize channel and bus names for entire AI network
- Integrates Smaart audio analysis and correction technology; Smaart RTA and Spectrograph are integrated in the Fat Channel EQ and GEQ displays
- Three Smaart System Check wizards generate the frequency-response trace of a venue, calculate and set alignment delay timing, and verify output connectivity
- StudioLive AI scene, FX, Fat Channel, and graphic EQ preset libraries automatically sync to VSL-AI
- Fader Locate mode provides a visualization of where the StudioLive AI faders are relative to VSL-AI faders
- Makes StudioLive as easy to use as Studio One

### StudioLive Remote-AI

StudioLive Remote-AI (SL Remote-AI) for iPad®, available free from the Apple App Store, provides direct wireless control over any StudioLive AI-series digital mixer. As long as your StudioLive AI mixer and iPad are connected to the same wireless network, you are in control of the console.

- Provides direct wireless control over any StudioLive 24.4.2AI digital mixer
- Overview displays levels, mutes, panning, EQ curves, and Fat Channel processing for multiple channels at once
- Aux view shows the send levels,

- panning, graphic EQ, and Fat Channel processing for the aux buses and internal FX buses
- GEQ view lets you adjust the Main bus graphic EQ
- Control Talkback on/off, routing assignments, and scene recall



StudioLive Remote-AI

- Customize channel and bus names for the entire AI network
  - Portrait view shows every parameter for a single channel or bus
- Control any StudioLive 24.4.2AI mixer on the wireless network from one iPad
- Multiple iPads can control the same StudioLive 24.4.2AI
- Set permissions in the StudioLive system menu so each iPad can control front-of-house (all functions) or aux mix only—or access can be denied
- Free from the Apple App Store



StudioLive Remote-AI

### QMix-AI

With QMix-AI™, up to 10 musicians can simultaneously control their StudioLive™ 24.4.2AI mixer's monitor (aux) mixes using an iPhone® or iPod® touch.

- Provides direct wireless control from an iPhone or iPod touch over aux mixes on any StudioLive 24.4.2AI digital mixer on the wireless network
  - Portrait view shows Wheel of Me; select multiple "Me" channels and



control their levels simultaneously with one simple control

- Landscape view provides control of all aux-send levels and panning (for linked auxes)
- Multiple iPhones and iPod touches can control the same StudioLive 24.4.2AI



QMix-AI

- Set permissions in the StudioLive system menu so each iPhone and iPod touch is restricted to one aux mix, Wheel of Me only, or access can be denied
- Free from the Apple App Store

### Capture 2 Multitrack Recording

Designed exclusively for StudioLive™-series mixers, Capture 2.1 adds Active Integration™ networking, provides instant setup and recording directly from the mixer with no configuration, and offers true, fully automated virtual soundcheck with StudioLive AI-series mixers.

- Configures I/O to match connected StudioLive AI-series mixer



Capture 2

- Saves StudioLive AI mixer scene with the Capture Session
- Recalls stored StudioLive AI mixer scenes with Capture Sessions

- Customize channel names for entire AI network
- Automatically engages all digital returns on StudioLive AI-series mixers on playback
- Virtual Soundcheck mode in two mouse clicks:
  - Launches previously recorded session
  - Loads stored StudioLive AI mix scene
  - Loads channel names and broadcasts throughout network
  - Engages digital returns on the StudioLive AI mixer
  - When you're done, all audio files are removed, and your tracks are armed for recording
- Big Meter mode



Capture 2

- Marker List with easy insert and drag-and-drop
- MIDI Time Code sync
- Sync timeline to computer clock for better archiving
- Automatic file organization

### Studio One® Artist 2 DAW

Studio One is a completely modern professional environment for music recording, mixing, mastering, sharing, and collaboration. It's Internet-savvy and provides a complete solution, from riff to release.

- Integrated with Capture and StudioLive AI mixers:
  - Opens Capture Sessions natively with all channel names, markers, and audio edits intact
  - Capture session stored with StudioLive AI scenes load onto Studio One mixer complete with fader level, mutes, Fat Channel settings, effects sends, and subgroups
- Fat Channel plug-in shares with and reads presets from VSL-AI
- Elegant single-window work environment
- Powerful drag-and-drop functionality
- Content browser with convenient sort options and preview player
- Most intuitive MIDI-mapping system available
- Unlimited audio tracks, MIDI tracks, virtual instruments, buses, and FX channels
- Real-time audio time-stretching and resampling
- Automatic delay compensation



Studio One Artist 2 DAW

- Label Capture sessions by artist, performance, and location
- Up to five minutes of pre-record so you never miss the downbeat of a live recording
- Advanced automation
- Built-in Nimbit® and SoundCloud™ dashboards
- Compatible with ASIO-, Windows Audio-, and Core



- Audio-compliant interfaces
- 28 Native Effects™ 32-bit effects and virtual instrument plug-ins
- 4+ GB of third-party software, loops, and instruments
- Mac- and Windows-compatible

### Nimbit®

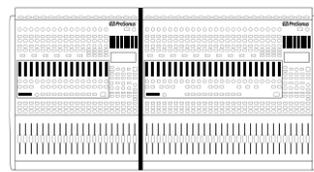
Nimbit is a powerful all-in-one service that allows you to share audio content as well as organize, market to, and manage a fan base. They can also create a profile, an online store, and promote upcoming events.



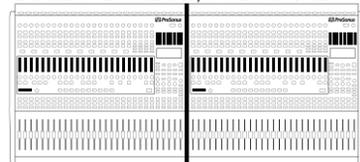
Nimbit

- Monitor sales and promotions right from Studio One
- Upload audio directly from Studio One
- Send email newsletters, create email campaigns, and more
- Create product promotions to drive business to your online store
- Sell physical products
- Showcase your brand with a custom profile that includes photos, videos, bios, and more
- Advanced store customization
- Embed a profile, store, calendar, or any combination on your Web site and Facebook page
- Build, manage, and mine your fan database for more target marketing and promotion
- Create a fundraising campaign
- Sell advance tickets

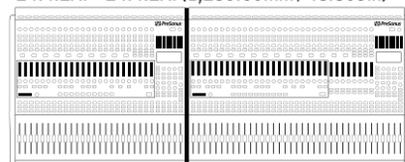
## Expandable Systems for Ultimate Flexibility



16.4.2AI + 24.4.2AI (1,077.20mm / 42.409in)



24.4.2AI + 24.4.2AI (1,239.60mm / 48.803in)



24.4.2AI + 32.4.2 (1,402.00mm / 55.197in)

StudioLive 24.4.2AI mixers can be cascaded with any StudioLive AI-series mixer, regardless of frame size, to functionally create a single large-format console with full recording and remote-control capability. For example, two StudioLive 24.4.2AI mixers cascade to form a single 48-channel console with 28 mix buses that can record 64 simultaneous streams and play back 50 on any FireWire S800- or Thunderbolt-equipped computer at sample rates up to 96 kHz.

Cascading mixers of different frame sizes is great for special events that require a few extra recording channels that don't need to be in every monitor mix. For exam-

ple, a StudioLive 24.4.2AI can be cascaded to a 32.4.2AI and form a single 56-channel console with 10 global aux buses plus 4 local aux sends available to the channels on the 32.4.2AI.

When two mixers are cascaded, you can optionally merge the subgroups or manage them separately to use as DCAs with full Fat Channel processing patched to the main bus. The internal FX buses remain separate for the two boards, so you have up to four reverbs and four delays across the complete system.

## Why StudioLive AI-series Mixers

### Houses of Worship

- StudioLive mixers feel like analog mixers so they're easy to learn
- Powerful DSP Processors eliminates the need for racks of expensive processors
- Free QMix-AI app allows musicians to create their own monitor mixes from an iPod touch or iPhone without the need for expensive hardware monitoring solutions and the additional cabling that goes with them because QMix-AI is remotely controlling the Aux sends on the mixers
- Free SL Remote-AI app allows church volunteers to mix the service anywhere in the room. They can even sit in the sanctuary with their families and participate in the service while making it sound great
- VSL-AI includes powerful and easy to use audio analysis tools designed



by industry leaders, Rational Acoustics. These wizards help you to quickly identify problems in the room so that they can be EQ'd away; accurately calculate and set output delays so audio can be distributed throughout the room; and quickly troubleshoot output problems.

- Capture 2.1 offers the easiest way to record a service because it was designed to work with the StudioLive series mixers.
  - True virtual soundcheck lets volunteers practice mixing and learn the console
  - Virtual soundcheck lets worship leaders rehearse new praise band members without calling a full rehearsal
  - Incorporate pre-recorded material
  - Record a stereo mix of the service for home-bound congregants
- Save StudioLive AI mix scenes with the audio for easier mixing later
- Studio One 2.6 provides a professional solution to mix services
  - Create professional quality mixes of your praise band
  - Open Capture sessions directly in Studio One with your StudioLive mix scene re-created in the Studio One mixer, complete with Fat Channel
  - Create an archive of sermons for the church Web site
  - Nimbit provides a powerful online tool to spread your message and reach new congregants
  - Upload sermons to Nimbit and

Mixer Combination	Total Channels	Total Aux Buses	Total FX Buses	Total Subgroups	Recording Interfaces
2 x 24.4.2AI	56 (48 channels + 4 stereo Aux Ins)	10	8 (local sends only)	4 or 8 (depending on Subgroup merge state)	64 x 50
24.4.2AI (Slave) + 32.2.2AI (Master)	64 (56 channels + 4 stereo Aux Ins)	10 global + 4 additional local sends (32.2.2AI only)	8 (local sends only)	4 or 8 (depending on Subgroup merge state)	72 x 58
16.4.2AI (Slave) + 24.4.2AI (Master)	48 (40 channels + 4 stereo Aux Ins)	6 global sends + 4 additional local sends (24.4.2AI only)	8 (local sends only)	4 or 8 (depending on Subgroup merge state)	56 x 42

spread your message globally

- Sell or share audio recordings with your congregation
- Create a Web profile for your church with photos, videos, and your praise team's biographies and embed it in your Web site
- Create a church calendar to embed on your Web site
- Manage your email list and send email newsletters to your entire congregation
- Create fundraisers for mission trips and other church projects

### Education

- StudioLive AI mixers feel like analog mixers so they're easy for students and faculty to learn and operate
- Onboard dynamics and effects

processors provide all the mix tools you need; there is no additional processing equipment to buy

- Store all settings and recall them from the mixer, a computer, or an iPad
- Password-protect the mixer to prevent unwanted changes
- Free SL Remote-AI app enables mixing wirelessly from anywhere in the classroom or concert hall so the mixer doesn't have to be placed in a front-of-house mix position
- VSL-AI provides a visual display of the mixer and its processors
- Smart Spectrograph or RTA visually shows the frequency content of any channel or mix
- Capture 2.1 offers the easiest way to record a performance or rehearsal
  - Preconfigured for StudioLive AI mixers
  - One-click recording
  - Provide rehearsal recordings of the entire ensemble or just individual student parts for assessment
- Studio One 2.6 provides

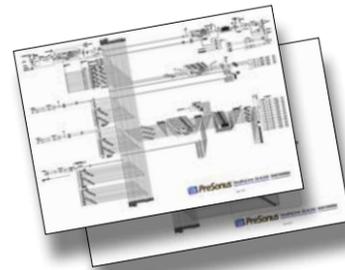
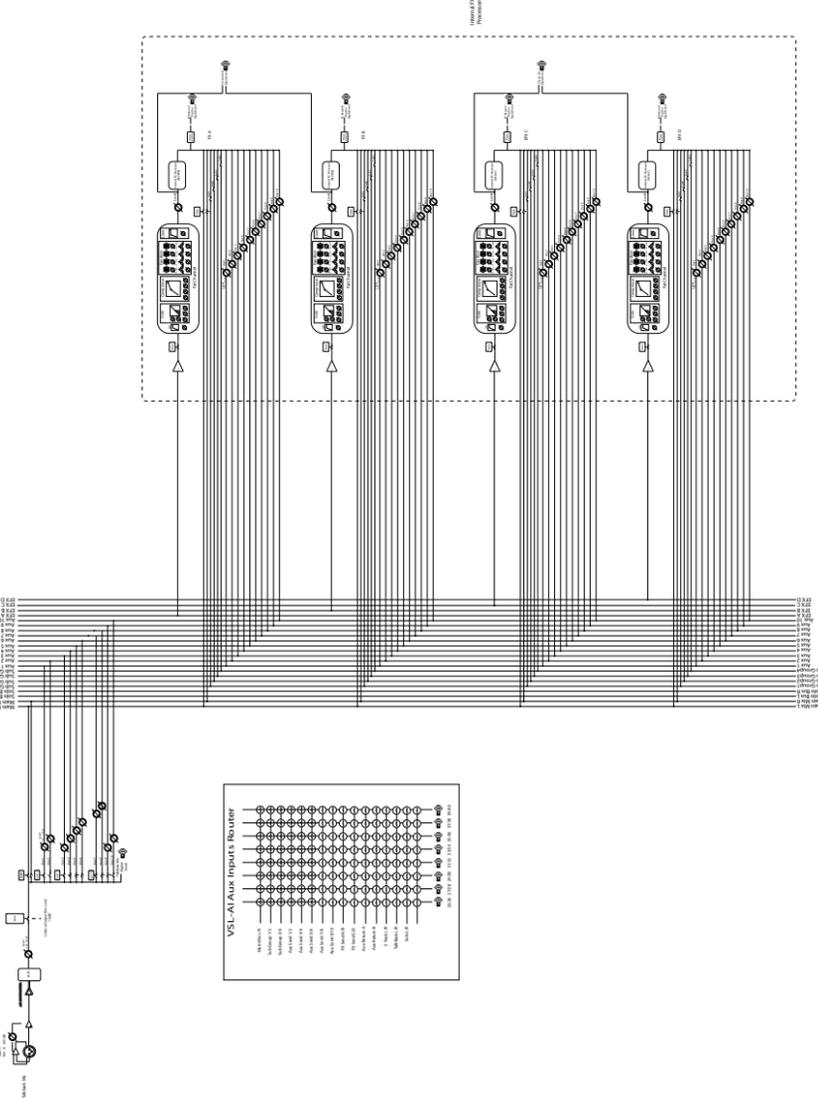


a professional mixing and production solution

- Create professional quality mixes of your student performances
- Create recordings for sale as fundraisers
- Open Capture sessions directly in Studio One with the StudioLive mix scene re-created in the Studio One mixer, complete with Fat Channel
- Nimbit provides an powerful online fundraising and educational tool
  - Upload lessons and ear-training audio for students to access from anywhere
  - Create a school event calendar
  - Send newsletters to students and parents
  - Create fundraisers for class programs and student travel
  - Sell or share recordings with your supporters
  - Organize and manage a program supporter list

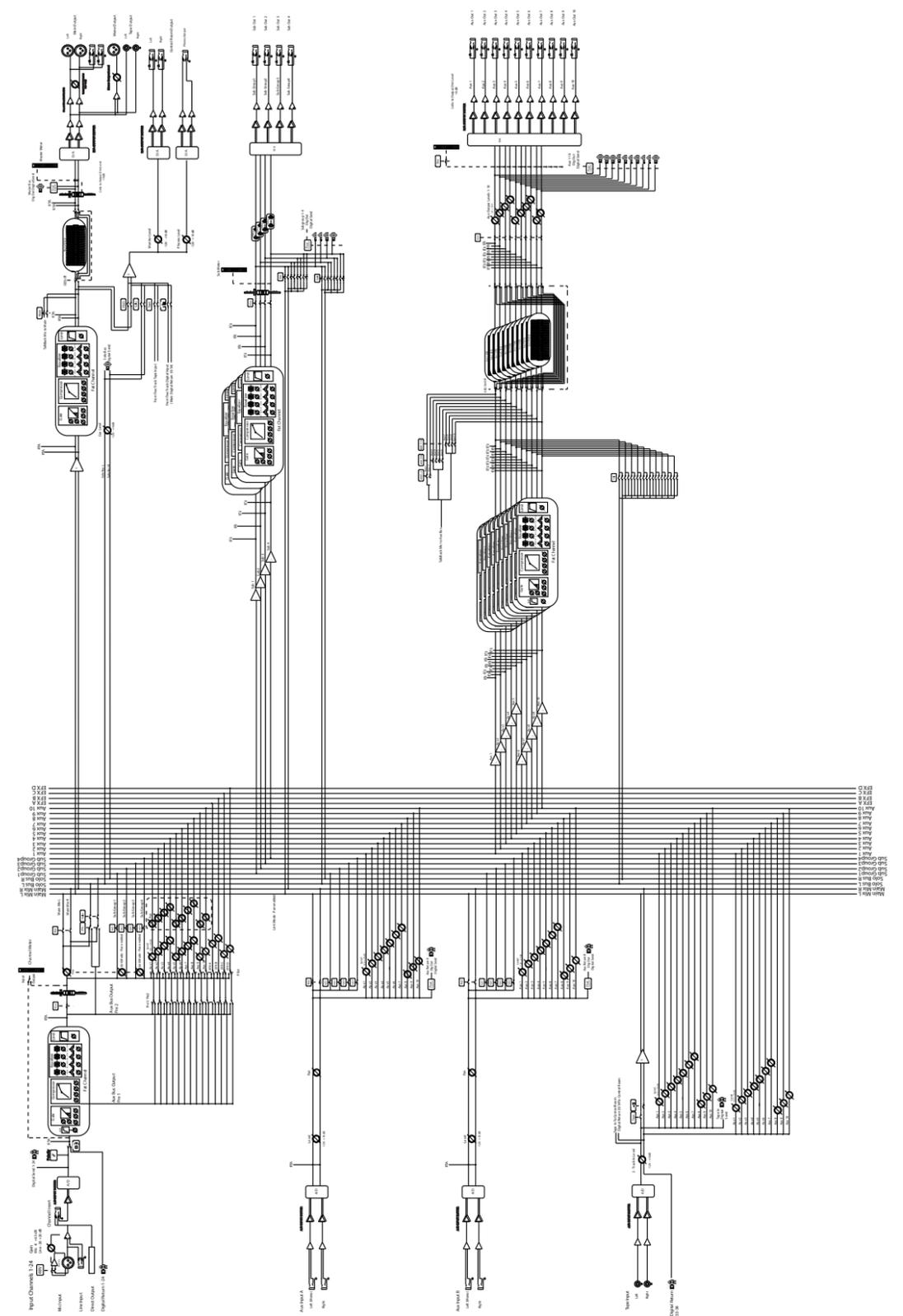
### Music Venues

- StudioLive AI mixers are rugged and professional solutions that provide tools to develop additional revenue opportunities
- Robust analog patch bay provides flexible connectivity
- Powerful DSP obviates the need for racks of expensive processors
- VSL-AI includes powerful and easy-to-use Rational Acoustics Smaart audio-analysis tools.
- Smart wizards help you to quickly identify wizards help you to quickly identify problems in the room; accurately calculate and set output delays so audio can be distributed throughout the room; and quickly troubleshoot output problems
- Capture 2.1 offers the easiest way to record a live performance.
  - Sell live multitrack recordings to the bands that play the venue as an additional revenue stream
- Studio One 2.6 provides a professional solution to mix recordings.
  - Open Capture sessions directly in Studio One; the StudioLive AI mix scene will be re-created in Studio One's mixer, complete with Fat Channel processing
  - Create professional-quality live recordings and compilations to promote the venue by partnering with popular local bands
- Nimbit provides a powerful online tool to quickly create a professional venue presence on the Internet.



- Create a professional profile to embed on your Web site and Facebook page, complete with photos, videos, and an event calendar
- Create a store on the venue's Facebook page, Web site, or Nimbit.com and sell branded merchandise
- Manage email lists and market directly to patrons via Nimbit email
- Create online promotions to drive new patrons through the doors
- Upload tracks directly from Studio One and create live recordings; Nimbit can automatically split royalties between you and the artists
- Sell tickets online
- Fan.CheckIn lets you market directly to patrons and reward them for coming to shows

We've finally made a block diagram too large for our printed manuals. Please visit <http://www.presonus.com/products/StudioLive-AI-Series/downloads> for the latest block diagram in Adobe PDF format.



## StudioLive 24.4.2AI Architect & Engineering Specifications

Also available as a Word document:  
PreSonus\_StudioLive\_24.4.2AI\_AE.doc

### 1. GENERAL CONFIGURATION.

The mixer shall be a digital mixer and shall accommodate 24 line and/or 24 microphone signals, channels 1–24; and shall include 24 analog Send/Return channel inserts; 24 channel pre-converter Direct Outputs; 2 balanced stereo pairs of Aux Return inputs; 1 stereo pair of RCA-type phono Tape inputs; 2 balanced stereo pairs of Main mix outputs; 1 balanced Main mix mono output; 1 balanced stereo pair of Control Room outputs; 4 balanced Subgroup outputs; 10 balanced Aux Bus outputs; 1 stereo pair of RCA-type phono Tape outputs; 1 stereo Headphone output; 1 stereo S/PDIF coaxial digital output; and two FireWire S800 ports that can connect to a Mac or Windows PC for recording, control, cascading, and to act as a pass-through for attaching an external storage drive. The mixer shall be capable of placement on a table and shall be fitted with 1 rocker-type Power switch; 1 3-pin IEC power receptacle that accepts 100-240 VAC; 1 BNC socket, providing 12 VDC at 0.5A for fitting an external lamp (not included); and shall be entirely self-contained.

### 2. MIXER INPUTS.

**CHANNELS 1–24:** Each channel shall include an electrically balanced, mono microphone input, using an XLR-3-F-type connector, accepting nominal levels from -30 dBu to +16 dBu via a rotary Trim control. Each channel shall include one XMAX™ Class A solid-state microphone preamplifier. Phantom power shall be individually enabled/disabled for each channel via a button-type switch. Each channel shall also be equipped with a balanced line input wired using TRS phone jacks and shall accept nominal levels from -10 dBV to +4 dBu and maximum input levels of +22 dBu. Each channel shall include a pre-converter Insert point, using TRS phone jacks (tip=send, ring=return, sleeve=ground), delivering and accepting nominal levels from -10 dBV to +4 dBu and maximum input levels of +18 dBu. In addition, each channel shall accept an input signal from the digital return bus. The input of each channel shall be switchable between the analog inputs and the digital (FireWire or optional Thunderbolt or Dante) input, using a button-type switch. Each channel's line input shall be normalized through its microphone input. Each channel, subgroup, and auxiliary bus shall have a Solo switch and a Mute switch. Each channel shall have a dedicated, 100 mm level-control fader with marked increments at ∞, -60, -50, -40, -30, -20, -10, -5, 0, +5, and +10 dB.

**OTHER INPUTS:** The mixer shall include 4 balanced Aux Return inputs, forming 2 stereo pairs, using TRS phone jacks, accepting nominal levels from -10 dBV to +4 dBu and maximum input levels of +18 dBu; a Talkback microphone input that shall include one XMAX™ Class A solid-state microphone preamplifier with 48V phantom power always present, plus a rear-panel rotary level control; and 1 stereo pair of Tape Input jacks, using unbalanced RCA-type phono jacks, accepting nominal levels from -10 dBV to +4 dBu. An additional digital (FireWire s800) stereo

input shall be provided. It shall be possible to route the Tape Inputs to the Main bus and Monitor bus using button-type switches. The Tape Input level shall be controllable using a rotary encoder.

### 3. MIXER OUTPUTS.

**MAIN OUTPUTS:** The mixer's Main mix-bus stereo outputs shall be fitted in three ways: Using balanced XLR jacks, delivering a maximum output of +24 dBu; using balanced TRS phone jacks, delivering a maximum output of +24 dBu; and using unbalanced RCA-type phono jacks (labeled Tape Out), delivering nominal levels from -10 dBV to +4 dBu. Each pair of Main mix-bus stereo outputs shall have an output impedance of 100Ω. Output level for both the XLR and TRS Main mix-bus outputs shall be controllable using a single rear-panel knob. The Main mix-bus Mono output shall be fitted with one balanced XLR jack, delivering nominal levels from -10 dBV to +4 dBu and a maximum output of +24 dBu, and with an output impedance of 100Ω; and it shall include a rear-panel rotary level control.

**OTHER OUTPUTS:** Channels 1–24 shall include pre-insert, balanced, analog Direct Outputs, using four sub-DB25 jacks (channels 1-8, 9-16, and 17-24), delivering nominal levels from -10 dBV to +4 dBu. The mixer shall include 4 Subgroup outputs, using balanced TRS phone jacks, delivering a maximum output level of +18 dBu and nominal levels from -10 dBV to +4 dBu, with an output impedance of 100Ω; 1 stereo pair of Control Room outputs, using balanced TRS phone jacks, delivering a maximum output level of +18 dBu and nominal levels from -10 dBV to +4 dBu, with an output impedance of 100Ω; and 1 stereo Headphone output, using an unbalanced TRS phone jack (tip=left, ring=right, sleeve=ground), and with a maximum output level of 150 mW.

### 4. AUXILIARY BUS SECTION.

In addition to the controls listed in Section 2 (MIXER INPUTS), the mixer shall include 14 sets of Aux Bus controls, 10 of which shall provide analog outputs as listed in Section 3 (MIXER OUTPUTS) and 4 of which shall be routed to the internal effects processors listed in Section 7 (EFFECTS AND GRAPHIC EQ). Each Auxiliary Bus shall have a pre/post switch, a Mute switch, an Output level control that employs a rotary encoder, and a Select switch for controlling the Fat Channel processing section for the selected Aux Bus. In addition, each of the 10 analog aux buses shall have a Solo switch.

### 5. DYNAMICS PROCESSING, PARAMETRIC EQ, AND BUS ASSIGNMENT.

All input channels, aux buses, subgroups, and the Main bus shall be routed to a section called the "Fat Channel" when their associated Select buttons are pressed. The Fat Channel shall provide the following digital signal-processing: polarity invert (input channels only), highpass filter (input channels and aux buses only), switchable gate/expander, compressor, limiter, and four-band fully parametric equalizer (EQ). The gate/expander shall include a sidechainable Key Filter, Key Listen, Threshold, Range, Attack,

and Release parameters. The compressor shall have sweepable Threshold, Ratio, Attack, Release, and Gain; shall include an Auto Attack and Release feature; and shall be switchable between hard and soft knee. The limiter shall have a sweepable Threshold. The four-band parametric EQ shall have a separate switch that allows the entire parametric EQ to be enabled/disabled. The Low band shall have a sweepable frequency from 36 Hz to 465 Hz, ±15 dB and shall be switchable between peaking and second-order shelving filter. The Low Mid band shall have a sweepable center frequency from 90 Hz to 1.2 kHz, ±15 dB. The High Mid EQ shall have a sweepable center frequency from 380 Hz to 5 kHz, ±15 dB. The High band shall have a sweepable frequency from 1.4 kHz to 18 kHz, ±15 dB and shall be switchable between peaking and second-order shelving filter. Each band shall have a sweepable Q ranging from 0.1 to 4 and shall be individually switchable on/off. The mixer shall be able to store two complete sets of Fat Channel EQ and dynamics-processor settings for every channel and bus; an Alt button shall enable A/B-comparison between the two sets for a given channel or bus. In addition, the Fat Channel shall enable signals to be assigned to the subgroups and Main bus; shall enable adjacent odd-even channels (channels 1-2, 3-4, etc.) to be linked in stereo; and shall provide a pan control with a horizontal 15-segment LED meter display. The Fat Channel also shall provide button switches that enable channel settings to be copied, loaded, and saved to and from onboard memory.

### 6. MASTER CONTROL SECTION.

The mixer shall have 1 stereo 100 mm fader for the Main bus, providing up to 10 dB gain, and 4 mono 100 mm Subgroup faders, each providing up to 10 dB gain. These 5 faders shall be marked at ∞, -60, -50, -40, -30, -20, -10, -5, 0, +5, and +10 dB. The mixer shall have a Solo bus that shall include a rotary Cue Mix volume control; a button switch that shall toggle between After-Fader Listen (AFL) and Pre-Fader Listen (PFL); and a Solo-In-Place (SIP) mode, which shall be engaged using a button switch. The following Solo modes shall be provided: Latching, Radio, and CR. The mixer shall have a Monitor bus that feeds the Control Room and Headphone outputs. The Headphone output level and Control Room output level shall be controllable with dedicated rotary encoders. The Tape Input, Solo bus, Main bus, and main L/R digital (FireWire s800) returns shall each be assignable to the Monitor bus using dedicated button-type switches. The mixer shall have a Talkback mic section that shall include a rotary level control; four buttons that assign the Talkback mic to Aux Sends 1-2, 3-6, and 7-10 and to the Main bus; and a latching Talkback (Talk) on/off button.

### 7. EFFECTS AND GRAPHIC EQ.

The mixer shall include four stereo, 32-bit effects processors, two of which shall be

dedicated to reverb effects and two dedicated to delay effects, and shall include an onboard library of effects presets. An FX button shall display the Effects menu on the LCD screen and provide access to the effects library and effects parameters. The mixer shall also include 12 31-band, 1/3-octave graphic equalizers, which shall be assigned to the Main mix bus and each aux bus. Gain shall be ±15 dB for each frequency band. A GEQ button shall display the Graphic EQ menu on the LCD screen, providing fast access to the graphic EQ settings.

### 8. MEMORY AND GENERAL SETTINGS.

The mixer shall provide digital memory (storage) for the status of all digital mixer parameters but not for the status of the analog channel trims. The mixer shall enable storage of up to 99 global scenes, 99 channel-strip scenes, and 99 effects presets. The mixer shall provide 50 factory channel-strip presets and 50 factory effects presets. The mixer shall permit settings to be copied between channels and buses. The mixer shall include a Digital Effects | Master Control section that includes an LCD display and controls that provide access to systems settings, effects library, effects parameters, and the graphic equalizer and that enables store and recall of mixer scenes and Fat Channel and effects settings. These controls shall include a rotary Value encoder, Previous and Next buttons, Page Up and Page Down buttons, an FX button for accessing the effects, and Scene, System, Store, and Recall buttons. This section also shall include a Tap button, the primary purpose of which is setting tempo for the delay effects described in Section 7 (EFFECTS AND GRAPHIC EQ). It shall be possible to null any parameter on the mixer by holding the Tap button while adjusting the parameter.

Control software for Mac and Windows shall provide eight Quick Scenes for creating and recalling a scene without naming it and storing it to permanent memory. The control software shall also provide a set of six assignable mute groups with All On and All Off buttons that shall mute any combination of channels, subgroups, and aux buses.

### 9. AUDIO INTERFACE.

The mixer shall provide a factory-installed option card that provides a computer interface for recording and playing back audio. The interface shall enable 40 audio streams to be sent to a Mac or PC computer and 26 streams to be returned from the computer to the mixer via FireWire S800, as described in Section 1 (GENERAL CONFIGURATION) and Section 2 (MIXER INPUTS). The interface shall support digital audio with up to 24-bit bit depth and (selectable) 44.1, 48, 88.2, or 96 kHz sample rate.

### 10. CASCADING OPTIONS.

The FireWire s800 connection shall be capable of being used to cascade a second mixer from the same series, regardless of frame size, to functionally create a single large-format console with full DSP, routing, recording, and remote-control capability. When two mixers are cascaded, one mixer shall be designated "Master" and the other shall be designated "Slave." All buses from the Slave mixer, except the internal effects buses, shall be merged into the buses of the Master mixer. The merged buses shall be

passed through the outputs of the Master mixer. All bus controls shall be linked. Channel controls shall remain local to each mixer. When two mixers are cascaded, it shall be possible to merge the subgroups or manage them separately, with full Fat Channel processing, patched to the Main bus. The internal FX buses shall remain separate for the two mixers, providing up to four reverbs and four delays across the system. Mute Groups and Quick Scenes (which are normally available for the StudioLive 24.4.2AI via control software for Mac and Windows) shall be disabled on the Slave mixer.

### 11. METERING.

**MAIN METERING:** The mixer shall provide individual level meters for the left and right channels of the Main bus and for each of the four subgroups; these 6 meters shall be 15-segment LED meters, each with labeled points at -60, -50, -40, -20, -10, 0, and +10 dB, with an additional point labeled "OL" (Overload). The Main and Subgroup meters shall be calibrated so that a 0 dBu signal at the Main or Subgroup output shall be indicated as 0 dB on the meters, ±1 dB. The mixer shall provide one 15-segment LED meter to display the level of the currently selected channel; this meter shall have labeled points at -72, -38, -24, -15, -10, -6, and -2 dB, with an additional point labeled "OL" (Overload). The mixer shall provide one 15-segment LED meter to display the gain reduction for the currently selected channel; this meter shall have labeled points at -21, -18, -15, -12, -9, -6, and -2 dB.

**MULTIPURPOSE METERING:** Multipurpose metering shall be provided in the Fat Channel section (described in Section 5, DYNAMICS PROCESSING, PARAMETRIC EQ, AND BUS ASSIGNMENT). These 24 meters shall be 15-segment LED meters. Button on/off switches shall be provided for PFL input metering, post-fader output metering, gain-reduction metering, Aux Bus master out metering, fader-recall (Locate) metering, Aux Bus send mixing, and Fat Channel parameter displays for the selected channel.

### 12. NETWORKING FEATURES.

The factory-installed option card shall include an Ethernet control port. The mixer shall also provide a dedicated USB 2.0 port that accepts an included USB Wi-Fi LAN adapter. These connections shall provide networking capability to a standard wireless or wired router. The factory-installed option card shall be user-replaceable with approved option cards that shall be made available in the future.

### 13. BUNDLED SOFTWARE.

The mixer shall ship with at least three software packages for Mac and Windows computers. These packages shall include:

- A multitrack audio-recording application primarily intended for recording live events and remote-controlling the mixer for virtual soundchecks
- A digital audio workstation application that enables recording, editing, and playback of both MIDI data and audio
- A bidirectional mixer-control/editor/librarian application that provides preset- and scene-management features and enables real-time





Microphone Preamp	
Input Type	XLR Female, balanced
Frequency Response to Direct Output (at unity gain)	20-40 kHz, $\pm 0.5$ dBu
Frequency Response to Main Output (at unity gain)	20-20 kHz, $\pm 0.5$ dBu
Input Impedance	1 k $\Omega$
THD to Direct Output (1 kHz at unity gain)	0.007%, +4 dBu, 20-20 kHz, unwt'd
THD to Main Output (1 kHz at unity gain)	0.005%, +4 dBu, 20-20 kHz, unwt'd
EIN to Direct Output	125 dB unwt'd, 130 dB A-wtd
S/N Ratio to Direct Output (Ref = +4 dB, 20 kHz BW, unity gain, A-wtd)	105 dB
S/N Ratio to Main Output (Ref = +4 dB, 20 kHz BW, unity gain, A-wtd)	94 dB
Common Mode Rejection Ratio (1 kHz at unity gain)	65 dB
Gain Control Range ( $\pm 1$ dB)	-15 dB to +65 dB
Maximum Input Level (unity gain)	+22 dBu
Phantom Power ( $\pm 2$ VDC)	48 VDC, switchable per channel
Line Inputs	
Type	1/4" TRS Female, balanced mono
Frequency Response to Direct Outputs (at unity gain)	10-40 kHz, $\pm 0.5$ dBu
Frequency Response to Main Outputs (at unity gain)	20-20 kHz, $\pm 0.5$ dBu
Input Impedance	10 k $\Omega$
THD to Direct Output (1 kHz at unity gain)	<0.007%, +4 dBu, 20-20 kHz, unwt'd
THD to Main Output (1 kHz at unity gain)	<0.005%, +4 dBu, 20-20 kHz, unwt'd
S/N Ratio to Direct Output (Ref = +4 dBu, 20 kHz BW, unity gain, A-wtd)	105 dB
S/N Ratio to Main Output (Ref = +4 dBu, 20 kHz BW, unity gain, A-wtd)	94 dB
Gain Control Range ( $\pm 1$ dB)	-20 dB to +20 dB
Maximum Input level (unity gain)	+22 dBu
Tape Inputs	
Type	RCA Female, unbalanced (stereo pair)
Maximum Input Level	+22 dBu
Auxiliary Inputs	
Type	1/4" TRS Female, balanced (2 stereo pairs)
Maximum Input Level	+22 dBu

Main Outputs	
Type	XLR Male, balanced (stereo pair); 1/4" TRS Female, balanced (stereo pair); XLR Male, balanced (mono)
Rated Output Level	+24 dBu
Output Impedance	100 $\Omega$
Aux Outputs	
Type	1/4" TRS Female, balanced (mono)
Rated Output Level	+18 dBu
Output Impedance	100 $\Omega$
Subgroup Outputs	
Type	1/4" TRS Female, balanced (mono)
Rated Output Level	+18 dBu
Output Impedance	100 $\Omega$
Tape Outputs	
Type	RCA Female, unbalanced (stereo pair)
Rated Output Level	+18 dBu
Output Impedance	100 $\Omega$
Control Room Outputs	
Type	1/4" TRS Female, balanced (stereo pair)
Rated Output Level	18 dBu
Output Impedance	100 $\Omega$
Headphone Output	
Type	1/4" TRS active stereo
Maximum Output	150 mW/ch. @ 60 $\Omega$ load
Frequency Response	10 Hz – 70 kHz
System Crosstalk	
Input to Output (Ref = +4 dBu 20-20 kHz, unwt'd)	-90 dB
Adjacent Channels (Ref = +4 dBu 20-20 kHz, unwt'd)	-87 dB

Noise Gate / Expander	
Threshold Range	-84 dB to 0 dB
Attack Time	0.02s to 500 ms / 0.5 ms
Release Time	0.05s to 2s
Expander Attenuation Range	2:1 (fixed)
Noise Gate Attenuation Range	-84 to 0 dB
Key Filter	2nd-order, resonant bypass; Q=0.7
Key Listen	Off, 40 Hz to 16 kHz
Compressor	
Threshold Range	-56 dB to 0 dB
Ratio	1:1 to 14:1
Attack Time	0.2 ms to 150 ms
Release Time	40 ms to 1,000 ms
Auto Attack and Release	Attack = 10 ms, Release = 150 ms
Curve Types	hard and soft knee
Limiter	
Threshold	-56 dB to 0 dB / -28 dBFS
Ratio	$\infty$ :1
Attack	20 ms
Hold	10 ms
Release	20 ms
Parametric EQ	
Type	2nd-order shelving filter
Low (Lowpass or Bandpass)	36 to 465 Hz, $\pm 15$ dB
Low Mid (Bandpass)	90 Hz to 1.2 kHz, $\pm 15$ dB
High Mid (Bandpass)	380 Hz to 5 kHz, $\pm 15$ dB
High (Highpass or Bandpass)	1.4 kHz to 18 kHz, $\pm 15$ dB
Q (selectable for each band)	Low Q= 0.55, Hi Q=2.0 (sweepable per band with VSL-AI and SL Remote-AI: 0.1 to 4)
Graphic EQ	
31-Band 1/3-Octave Controls	Center frequencies (Hz): 20, 25, 32, 40, 50, 63, 80, 100, 125, 160, 200, 250, 320, 400, 500, 640, 800, 1k, 1.3k, 1.6k, 2k, 2.5k, 3.2k, 4k, 5k, 6.4k, 8k, 10k, 13k, 16k, 20k. Each band has a constant Q.
Gain/Attenuation	$\pm 15$ dB



Digital Audio	
ADC Dynamic Range (A-wtd, 48 kHz)	118 dB
DAC Dynamic Range (A-wtd, 48 kHz)	118 dB
FireWire	S800, 800 Mb/s
S/PDIF Output	RCA Female
Internal Processing	32-bit, floating point
Sampling Rate	44.1, 48, 88.2, 96 kHz
A/D/A Bit Depth	24
Reference Level for 0 dBFS	-18 dBu
Clock	
Type	JetPLL™
Jitter	<20 ps RMS (20 Hz - 20 kHz)
Jitter Attenuation	>60 dB (1 ns in, 1 ps out)
Power	
Connector	IEC
Input-Voltage Range	90 to 240 VAC
Power Requirements (continuous)	200W
Operating Temperature	
Recommended Ambient Operating Temperature	0° to 40° Celsius / 32° to 104° Fahrenheit

The mixer shall be a PreSonus® StudioLive™ 24.4.2AI.



## File Resources

To obtain these documents, please go to the following Web page and click on the Downloads tab:

[www.presonus.com/support/downloads/StudioLive-24.4.2AI](http://www.presonus.com/support/downloads/StudioLive-24.4.2AI)

This data sheet: PreSonus\_StudioLive\_24.4.2AI.pdf

CAD drawings: PreSonus\_StudioLive\_24.4.2AI.dxf

A&E Specs: PreSonus\_StudioLive\_24.4.2AI\_AE.doc

## Related PreSonus Products

- StudioLive™ 312AI Active Integration Loudspeaker
- StudioLive™ 328AI Active Integration Loudspeaker
- StudioLive™ 315AI Active Integration Loudspeaker
- StudioLive™ 18sAI Active Integration Subwoofer

## Additional Frame Sizes

- StudioLive™ 32.4.2AI Digital Mixer
- StudioLive™ 16.4.2AI Digital Mixer

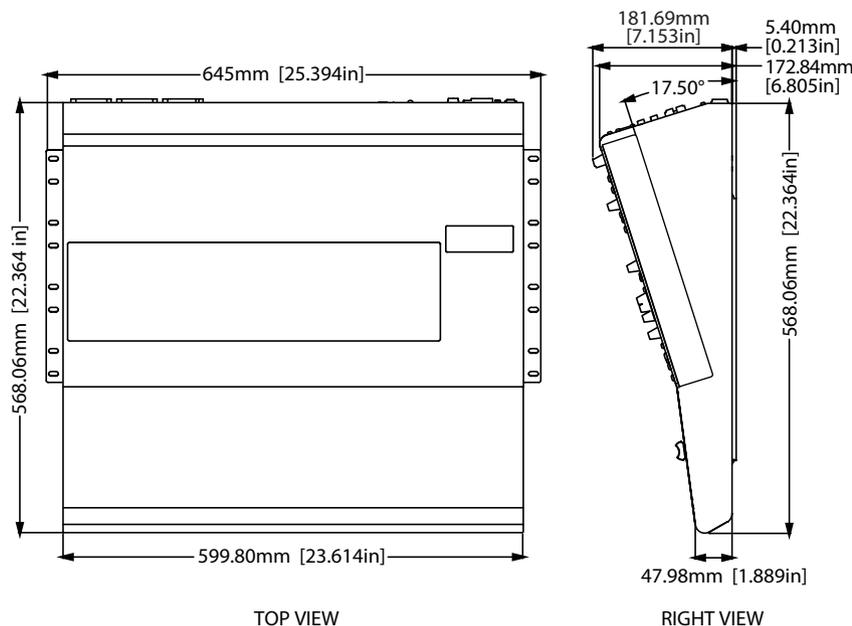
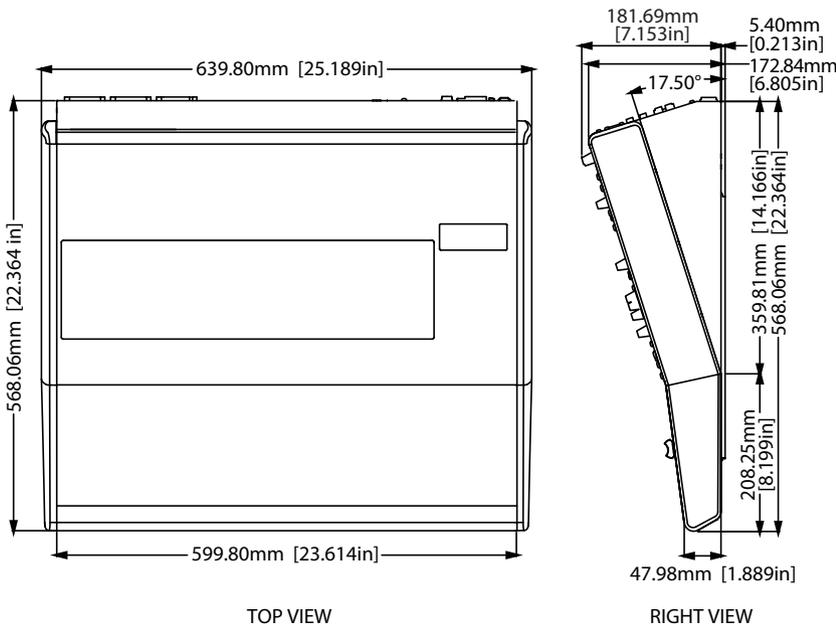
## Software

- Capture™ Recording Software (Mac® and Windows®)
- QMix™-AI Aux Send Control App (iPhone®/iPod® touch)
- Nimit™ Distribution, Sales, and Promotion Tools
- StudioLive™ Remote-AI Remote-Control App (iPad®)
- Studio One® Artist DAW (Mac and Windows)
- Universal Control-AI Network Controller (Mac and Windows)
- Virtual StudioLive-AI Control Editor/Librarian/Control Software with Smaart™ Analysis and Measurement Technology (Mac and Windows)

## Accessories

- IPS-1 iPad Stand for StudioLive AI mixers
- PRM1 Precision Reference Microphone
- StudioLive™ 24.4.2AI Canvas Dust Cover

## 24.4.2AI Dimensions



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