



**PreSonus**  
**CONTRACTOR**



## StudioLive™ RM32AI/RM16AI

UC Surface™ software-controlled,  
rack-mount, Active Integration™  
digital mixer

- Fully recallable mixer
- 32/16 locking XLR inputs with recallable XMAX® Class A mic preamps and +48V phantom power
- 16/8 XLR line outputs on the front, mirrored on 2/1 rear-panel DB25 jacks
- 3 XLR main outputs (left, right, mono/center) with analog trim pots
- 32/16 LED meter grid
- 32 internal channels
- 25 mix buses
  - 16 aux mix buses
  - 3 main mix buses (left, right, mono/center)
  - 4 internal FX buses (2 reverb, 2 delay)
  - Stereo solo bus
- Dual Fat Channel signal processing on all channels and buses with:
  - Variable highpass filter (plus variable lowpass filter on the mono/center bus)
  - 4-band fully parametric EQ
  - Full-featured compressor
  - Sophisticated gate with Key Listen and Key Filter (and sidechain)
  - Variable threshold limiter
- 15 graphic EQs (for the first 12 aux buses plus the Main left, right, and mono/center buses)
- Fully integrated, continuously bidirectional, 52-in/34-out, FireWire 800 direct recording interface (24-bit, 44.1/48/88.2/96 kHz)
- Battle-ready, live mixing and control software
  - Designed specifically for live sound mixing
  - Multiplatform support for Mac®, Windows®, and iPad®
  - Windows 8 multi-touch-compatible for large touchscreen mixing

**P**reSonus® StudioLive™ RM32AI 32-channel and RM16AI 16-channel (32x16x3) rack-mount digital mixers are great for live events, live and studio recording, and corporate, institutional, and other installations. All parameters are recallable, including the preamps. All features of StudioLive RM-series mixers are managed using battle-ready, live mixing touch-control software for Mac, Windows, and iPad. The mixer boasts a level of integration with companion software that is unheard of in its class.

### Dedicated Software Controls

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 RM-series mixer because every control you need to mix a show is under your fingers in PreSonus UC Surface software for Mac, Windows, and iPad. You always know what each button, fader, and parameter box controls and which parameter each meter displays.

In PreSonus UC Surface, each StudioLive RM 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 button or a parameter box that enables you to type in a value or adjust the parameter in a graphic display. You never have to assign parameters to controls; UC Surface enables you to manage everything at the same time. You always have full use of all 25

dedicated mix buses (16 aux buses, 4 internal effects buses, the stereo mains, the mono/center main, and the stereo Solo bus), along with the tape return.

To further enhance your workflow, you can assign Channel Types. Channel Types will set a default channel name that can be customized, along with a channel icon for quick identification. Channel types will also setup unique channel filters for your presets, making it easy to find and audition Fat Channel settings designed specifically for that channel type.

UC Surface supports Windows 8 and iPad touchscreens, so you can use a Mac or Windows laptop, a laptop with a touchscreen, an iPad, or a laptop plus an iPad. Or start with just a laptop or iPad and add to your system as your needs and budget allow.

### Dedicated Hardware I/O

A similar approach makes it easy to work with analog channel inputs and mix outputs. Every channel has an individual analog XLR mic input on the front panel. Every aux mix has a dedicated XLR Mix Output on the front panel, mirrored in one (RM16AI) or two (RM32AI) DB25 connectors (Mix Outputs 1-8 and, in the RM32AI, 9-16) on the rear.

All analog inputs feed recallable PreSonus XMAX® high-gain, Class A preamps. All analog inputs and outputs use the finest Burr-Brown A/D/A converters, with 118

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

- Flexible and expandable computing options: Use a laptop with or without a touchscreen, an iPad, or any combination
- Contextual-based navigation for quick, intuitive access to all mixing functions
- Additional Active Integration™ software suite includes 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
- USB jack and included Wi-Fi LAN adapter provides direct wireless control (using a router)
- 2 FireWire S800 ports, 1 Ethernet control port, and S/PDIF digital output
- Option card slot for future expansion, Thunderbolt, Dante, and AVB cards coming soon
- Up to 96 kHz operation
- Four 300 ms alignment delays on the last four Mix outputs
- Scene and individual settings store and recall, including 8 Quick Scenes
- Front-panel Mute All button temporarily mutes all inputs and outputs
- Stereo tape input (RCA jacks)
- Headphone output with volume knob and selectable source
- +48V Meters button to display phantom power assignment on the meter grid
- 1x1 MIDI interface
- 4U/3U rackmount
- Extensive library of tutorials and downloads



dB dynamic range. In addition, StudioLive RM-series mixers utilize Studio One's much-praised 64-bit summing engine, resulting in a big, open sound.

### Processing: Fat Channel and Effects

StudioLive RM-series mixers provide the most EQ, dynamics processing, and effects processing of any digital mixers in their class, thanks to the extensive Fat Channel processing section, which is controlled and totally recallable using UC Surface software.

The 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 and aux and main mix bus. Two complete sets of EQ and dynamics-processor settings can be saved for every channel and bus and can be compared using the A/B buttons. The Fat Channel also provides a highpass filter on each channel, aux, effects, and main bus; lowpass filter on the Mono/Center bus; phase reverse for each channel; panning; and main assigns. In the Fat Channel, channels and buses can be linked in stereo as odd-even pairs (Ch. 1-2, 3-4, etc.).

In addition, UC Surface's Fat Channel section provides access to the 31-band graphic EQs, effects processor parameters, mute groups, and scenes. 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.

### Upgradeable Connections and 96 kHz High-Resolution Recording

Every StudioLive RM-series mixer integrates a multi-channel digital recording interface. A pair of FireWire s800 (IEEE 1394b) ports



connect the StudioLive RM-series mixer to a Mac or Windows PC for recording. The StudioLive RM-series mixer's integrated, bidirectional recording interface can send up to 54 audio streams to a computer and return up to 34 playback streams at up to 24-bit/96 kHz.

Note that when operating in HD mode (88.2/96 kHz), the mixer provides Fat Channel processing on the inputs only and is limited to one reverb and one delay.

The FireWire S800 and Ethernet ports come on a preinstalled card that can be replaced with optional Dante, AVB, or Thunderbolt cards so you can use the latest technology.

### Direct Wi-Fi and Wired Networking

StudioLive RM-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 StudioLive RM-series mixer using a 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



RM 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 chose 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 RM-series 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.

## MIDI Interface

StudioLive RM-series mixers provide MIDI In and Out jacks for future development.

### Active Integration Software Suite

The StudioLive RM-series mixer’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 RM mixer scenes with Capture and then open the Capture Session in Studio One®; the Studio One mixer is set to match your StudioLive RM mix scene, including fader values, mutes, pan, and FX send mixes. Fat Channel settings are



loaded into Studio One’s Fat Channel Native Effects™ plug-in.

- Share presets between the Studio One Fat Channel plug-in and UC Surface.
- StudioLive RM scene, effects, Fat Channel, and graphic EQ preset libraries automatically sync to UC Surface.
- Channel names entered in UC Surface, Capture, QMix™-AI, or the StudioLive RM-series mixer are broadcast throughout the network, so you only have to name a channel once—and you can name it from anywhere.
- Listen in on monitor mixes from the mixer and rescue novice QMix-AI users from wherever you’re mixing.

## UC Surface Remote-Control Software

Designed primarily for live mixing but also suitable for studio use, UC Surface for Mac, Windows, and iPad provides complete control



UC Surface Mixing Interface



and editor/librarian functions for all StudioLive RM-series digital mixers.

- Remote control of all main StudioLive RM-series mixer functions wirelessly or via Ethernet
- Easily audition and load presets directly to channels
- Apply filtered parts of presets directly to components in the Fat Channel
- Adjust the Fat Channel gate, compressor, and EQ and the graphic EQs and effects
- Quickly load entire scenes to the mixer for instant recall of all channel, effects, and graphic EQ settings
- Load effects quickly by selecting presets in UC Surface
- Customize channel and bus names for entire AI network
- StudioLive RM scene, FX, Fat Channel, and graphic EQ preset libraries automatically

sync to UC Surface

- All mixing parameters can be recalled, including preamp trim and fader values

### QMix™-AI

With QMix™-AI, up to 16 musicians can simultaneously control their StudioLive™ RM-series mixer's monitor (aux) mixes using an iPhone® or iPod® touch.



QMIX-AI

- Provides direct wireless control from an iPhone or iPod touch over aux mixes on any StudioLive RM-series 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 RM mixer
- 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

### Mix Selection Area



This is the primary navigation area for RM mixers. Here you select the mix that's currently being controlled by the channel faders. This is also where you'll find the settings for each mix.

- Mix selection buttons
- Main Mix Select button
- FX Mix selection buttons
- Mix settings and Filter Groups area includes...
- Mix name. Select to rename.
- Stereo Link. Select to link two adjacent mixes for stereo operation.
- Copy/Paste. Copies the currently selected mix so you can paste into other mixes.
- Mix Position. Selects routing position for the selected mix (Pre 1, Pre 2, Post).
- FX Settings. When an FX mix is selected, this area provides quick access to all FX mutes and Tap Tempo buttons for the delay effects.



### Channel Strip Section

This always-visible area displays the input channels and fader levels for the selected mix, thirteen channels at a time. Just drag left or right to see other channels.

**EQ micro view.** Touch or click to select the associated channel and bring up the Fat Channel.

Solo

Mute

Pan

Clipping Warning

Compressor gain-reduction meter

Channel fader. Controls the channel level for the selected mix.

Input meter

Gate gain-reduction meter

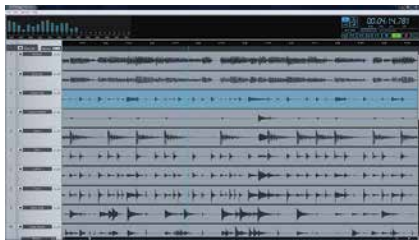
Channel number, name, and type icon. Selects the associated channel and brings up the Fat Channel.



## Capture™ Multitrack Recording

Designed exclusively for StudioLive™-series mixers, Capture 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 RM-series mixers.

- Configures I/O to match connected StudioLive RM-series mixer
- Saves StudioLive RM mixer scene with the Capture Session



Capture 2

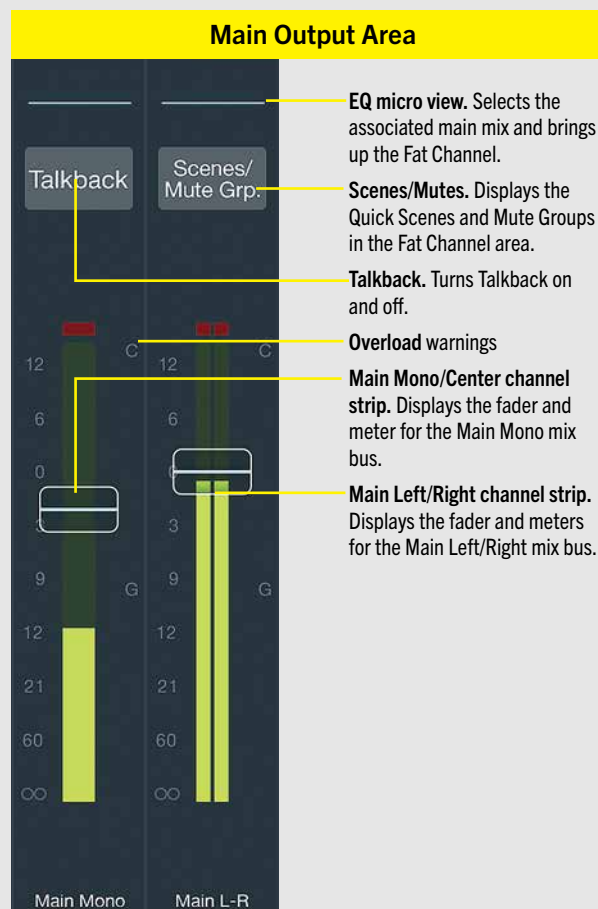
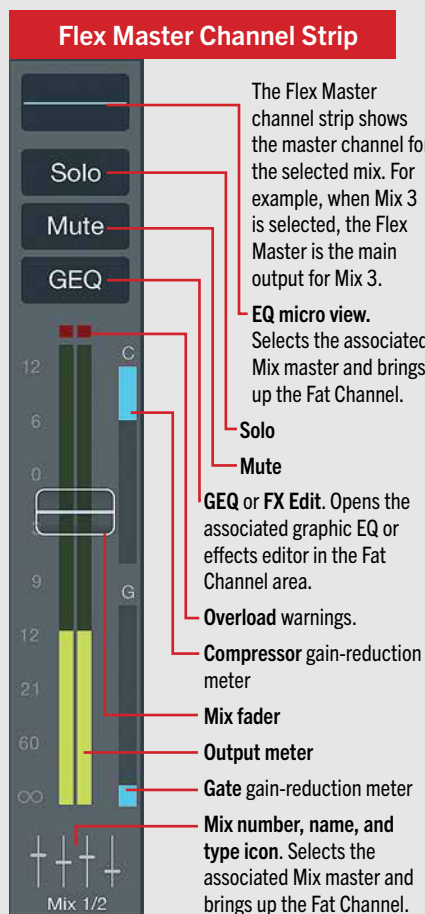
- Recalls stored StudioLive RM mixer scenes with Capture Sessions
- Customize channel names for entire Active Integration network
- Automatically engages all digital returns on StudioLive RM-series mixers on playback
- Virtual Soundcheck mode in two mouse clicks:
- Launches previously recorded session
- Loads stored StudioLive RM mix scene
- Loads channel names and broadcasts throughout network
- Engages digital returns on the StudioLive RM-series mixer
- When you're done, all audio files are removed, and your tracks are armed for recording
- Big Meter mode
- Marker List with easy insert and drag-and-drop
- MIDI Time Code sync



- Sync timeline to computer clock for better archiving
- Automatic file organization
- 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

## Studio One® Artist 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 RM-series mixers:
- Opens Capture Sessions natively with all channel names, markers, and audio edits intact

- Most intuitive MIDI-mapping system available
- Unlimited audio tracks, MIDI tracks, virtual instruments, buses, and FX channels



Studio One Artist 2 DAW

- Capture session stored with StudioLive RM 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 UC Surface
- Elegant single-window work environment
- Powerful drag-and-drop functionality
- Content browser with convenient sort options and preview player

- Real-time audio time-stretching and resampling
- Automatic delay compensation
- 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 sales, marketing, and promotion service that allows you to share audio content as well as organize, market to, and manage a fan base. Users 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



Mix from your laptop, touch surface, or iPad.



## Why StudioLive RM-series Mixers

### Houses of Worship

- Free UC Surface software uses an intuitive, contextual paradigm so it's easy to learn
- Powerful DSP processors eliminate 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
- UC Surface for iPad 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.
- Convenient, flexible, expandable control with Windows 8 and iPad touchscreen support: Use an iPad, use a laptop with or without a touchscreen, or any combination.
- Capture 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 RM mix scenes with the audio for easier mixing later
- Studio One Artist 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 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

- Free UC Surface control software uses an intuitive, contextual paradigm so it's easy for students and faculty to learn and operate
- Convenient, flexible, expandable control with Windows 8 and iPad touchscreen support: Use an iPad, use a laptop with or without a touchscreen, or any combination.
- 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
- UC Surface for iPad 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
- UC Surface provides a visual display of the mixer and its processors



- Capture offers the easiest way to record a performance or rehearsal
  - Preconfigured for StudioLive RM-series mixers
  - One-click recording
  - Provide rehearsal recordings of the entire ensemble or just individual student parts for assessment
- Studio One Artist 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 RM-series mixers are rugged and professional solutions that provide tools to develop additional revenue opportunities.
- Convenient, flexible, expandable control with Windows 8 and iPad touchscreen support: Use an iPad, use a laptop with or without a touchscreen, or any combination.

- Powerful DSP obviates the need for racks of expensive processors
- Capture 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 Artist provides a professional solution to mix recordings.

- Open Capture sessions directly in Studio One; the StudioLive RM 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.





**PreSonus** StudioLive™ RM32AI & RM16AI Block Diagram  
Digital Mixing System with Active Integration Rev Number 09/10/2014

## StudioLive RM32AI/RM16AI Architect & Engineering Specifications

Also available as a Word document:  
PreSonus\_StudioLive\_RM\_series\_AE.doc

### 1. GENERAL CONFIGURATION.

The mixer shall be a digital mixer and shall accommodate 32/16 microphone signals, channels 1–32 (RM32AI) or 1–16 (RM16AI); and shall include 1 stereo pair of RCA-type phono Tape inputs; 2 balanced stereo pairs of Main mix outputs; 1 balanced Main mix mono/center output; 16 (RM32AI) or 8 (RM16AI) Mix Outputs, using both XLR and DB25 connectors; 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 being rack-mounted in 4 rack spaces (4U) and shall be fitted with 1 rocker-type Power switch and 1 3-pin IEC power receptacle that accepts 100-240 VAC.

### 2. MIXER INPUTS.

**CHANNELS 1–32:** Each channel shall include an electrically balanced, mono microphone input, using a locking XLR-3-F-type connector, accepting recallable, nominal levels from -30 dBu to +16 dBu via a software control. Each channel shall include one recallable XMAX™ Class A solid-state microphone preamplifier. Phantom power shall be individually enabled/disabled for each channel via control software. 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, AVB, or Dante) input, using a software switch. Each channel and auxiliary bus shall have a software Solo switch and a Mute switch.

**OTHER INPUTS:** The mixer shall include 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 software. The Tape Input level shall be controllable using software.

### 3. MIXER OUTPUTS.

**MAIN OUTPUTS:** The mixer's Main mix-bus stereo outputs shall be fitted using balanced XLR jacks, delivering a maximum output of +24 dBu. Each pair of Main mix-bus stereo outputs shall have an output impedance of 100Ω. Output level shall be controllable using a single rear-panel knob. The Main mix-bus Mono/Center output shall be fitted with one balanced XLR jack, delivering a maximum output of +24 dBu,

and with an output impedance of 100Ω; and it shall include a rear-panel rotary level control.

**MIX OUTPUTS:** Mix Outputs 1-16 (RM32AI) or 1-8 (RM16AI) shall be fitted using balanced XLR jacks, delivering a maximum output of +24 dBu with an output impedance of 100Ω. Each Mix Output shall also be mirrored on balanced connections, using one (RM16AI) or two (RM32AI) sub-DB25 jacks (Mix Outputs 1-8 and, on the RM32AI, 9-16), delivering a maximum output of +24 dBu. The mixer shall include 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. MIX BUS SECTION.

UC Surface software shall include 20 sets of Mix Bus controls, 16 of which shall be direct signals to analog Mix Outputs as listed in Section 3 (MIXER OUTPUTS) and 4 of which shall be routed to the internal stereo effects processors listed in Section 7 (EFFECTS AND GRAPHIC EQ). In UC Surface software, each Mix Bus shall have a pre/post switch, a Mute switch, an Output level control, and a Select switch for controlling the Fat Channel processing section for the selected Aux Bus. Each of the 16 Mix buses shall have a Solo switch.

In addition, the mixer's front panel shall include a lighted Mute All switch.

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

All input channels, aux buses, and Main buses shall be routed, using UC Surface software, to a section called the "Fat Channel" when their associated software 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), lowpass filter (main



mono/center channel 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 software 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; a software 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.

UC Surface software shall display 1 stereo fader for the Main bus, providing up to 10 dB gain and marked at  $\infty$ , -40, -30, -20, -10, -5, 0, +5, and +10 dB. The mixer shall have a Solo bus that shall be controlled with UC Surface, including a Cue Mix volume control; a solo setting options 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. The following Solo modes shall be provided: Latching, Radio, and CR.

The mixer shall have a Monitor bus that feeds the Headphone outputs. 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 buttons in UC Surface. The front panel of the mixer shall include source-select buttons that switch the Headphone output between the Cue bus and the Main bus, and a dedicated rotary encoder shall control the Headphone output level.

## 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. UC Surface software shall provide access to the effects library and effects parameters. The mixer shall also include 15 31-band, 1/3-octave graphic equalizers, which shall be assigned in UC Surface to the Main mix bus and each aux bus. Gain shall be  $\pm 15$  dB for each frequency band. UC Surface shall provide access to all Graphic EQ settings.

## 8. MEMORY AND GENERAL SETTINGS.

The mixer shall provide digital memory (storage) for the status of all digital mixer parameters, including the 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. UC Surface software shall include 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. A mix-settings section also shall include effects mutes and 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 pressing the Null button, then touching a parameter. Eight Quick Scene buttons shall also be provided for creating and recalling a scene without naming it and storing it to permanent memory. A set of eight assignable mute groups with All On and All Off buttons shall mute any combination of channels 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 54 audio streams to be sent to a Mac or PC computer and 34 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. MIDI INTERFACE.

The mixer shall provide MIDI In and Out ports, using 5-pin DIN connectors. The functions of these ports shall be determined during future development.

## 11. METERING.

**MAIN METERING:** UC Surface software shall provide individual level meters for the left and right channels of each Main mix bus. These meters shall be virtual meters, each with an additional red indicator representing Overload. The meter shall be calibrated so that a 0 dBu signal at the Main output shall be indicated as 0 dB on the meters,  $\pm 1$  dB.

The software's Channel Strip Area shall provide one meter to display the level of the currently selected channel; this meter shall have an additional red indicator representing Overload. The Flex Master Channel Strip shall provide one meter to display the level of the aux mix; this meter shall have an additional red indicator representing Overload. The Channel Strip Area and Flex Master Channel Strip shall each provide one meter to display the compressor gain reduction for the currently selected channel or mix, respectively, as well as a meter to display the gate gain reduction for the currently selected channel or mix.

**FRONT-PANEL METERING:** The mixer front panel shall include one signal-present/clip indicator LED for each microphone channel input.

## 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 complete mixer-control/editor/librarian application for Mac, Windows, and iPad that provides preset- and scene-management features and enables real-time adjustment and recall of all mixer settings. This application shall support Windows 8 and iPad touchscreens.
- 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
- Using software, the mixer shall also be wirelessly controllable from an Apple iPad\*, and its Aux buses shall be controllable from an Apple iPhone\* or iPod\* touch when networked via Wi-Fi (802.11) directly to the mixer using a router.

## 14. FIRMWARE UPDATES.

The mixer shall be field-updatable via firmware. Mixer firmware shall be updated using a FAT-32 formatted USB drive connected to the USB 2.0 port listed in Section 12 (NETWORKING FEATURES) or directly over the Internet if on an Internet-connected network.

## 15. PHYSICAL CONFIGURATION.

The mixer with 32 microphone inputs shall be rack-mountable in four rack spaces (4U) and shall include rack ears. It shall be made of steel and shall be painted black with gray-and-black graphics. The mixer shall weigh 22 lbs (9.98 kg). Dimensions of the mixer shall be 7" (17.78 cm) in height, 19" (48.26 cm) in width, and 10.5" (26.67 cm) in depth.

The mixer with 16 microphone inputs shall be rack-mountable in three rack spaces (3U) and shall include rack ears. It shall be made of steel and shall be painted black with gray-and-black graphics. The mixer shall weigh 19 lbs (8.62 kg). Dimensions of the mixer shall be 5.25" (13.34 cm) in height, 19" (48.26 cm) in width, and 10.5" (26.67 cm) in depth.





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, unity gain, unwt'd
THD to Main Output (1 kHz at unity gain)	0.005%, +4 dBu, 20-20 kHz, unity gain, 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)	0 dB to +65 dB
Maximum Input Level (unity gain)	+22 dBu
Phantom Power ( $\pm 2$ VDC)	48 VDC, switchable per channel
Tape Inputs	
Type	RCA Female, unbalanced (stereo pair)
Maximum Input Level	+22 dBu

Main Outputs	
Type	XLR Male, balanced (stereo pair); XLR Male, balanced (mono)
Rated Output Level	+24 dBu
Output Impedance	100 $\Omega$
Mix Outputs	
Type	XLR Male, balanced
Rated Output Level	+24 dBu
Output Impedance	100 $\Omega$
Headphone Output	
Type	1/4" TRS active stereo
Maximum Output	120 mW/ch. @ 60 $\Omega$ load
Frequency Response	20 Hz - 20 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 (sweepable for each band)	0.1 to 4 / Low Q= 0.55, Hi Q=2.0
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™ RM32AI or StudioLive™ RM16AI.



## 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-RM](http://www.presonus.com/support/downloads/StudioLive-RM)

This data sheet: PreSonus\_StudioLive\_RM\_series.pdf

CAD drawings: PreSonus\_StudioLive\_RM32AI.dxf;

PreSonus\_StudioLive\_RM16AI.dxf

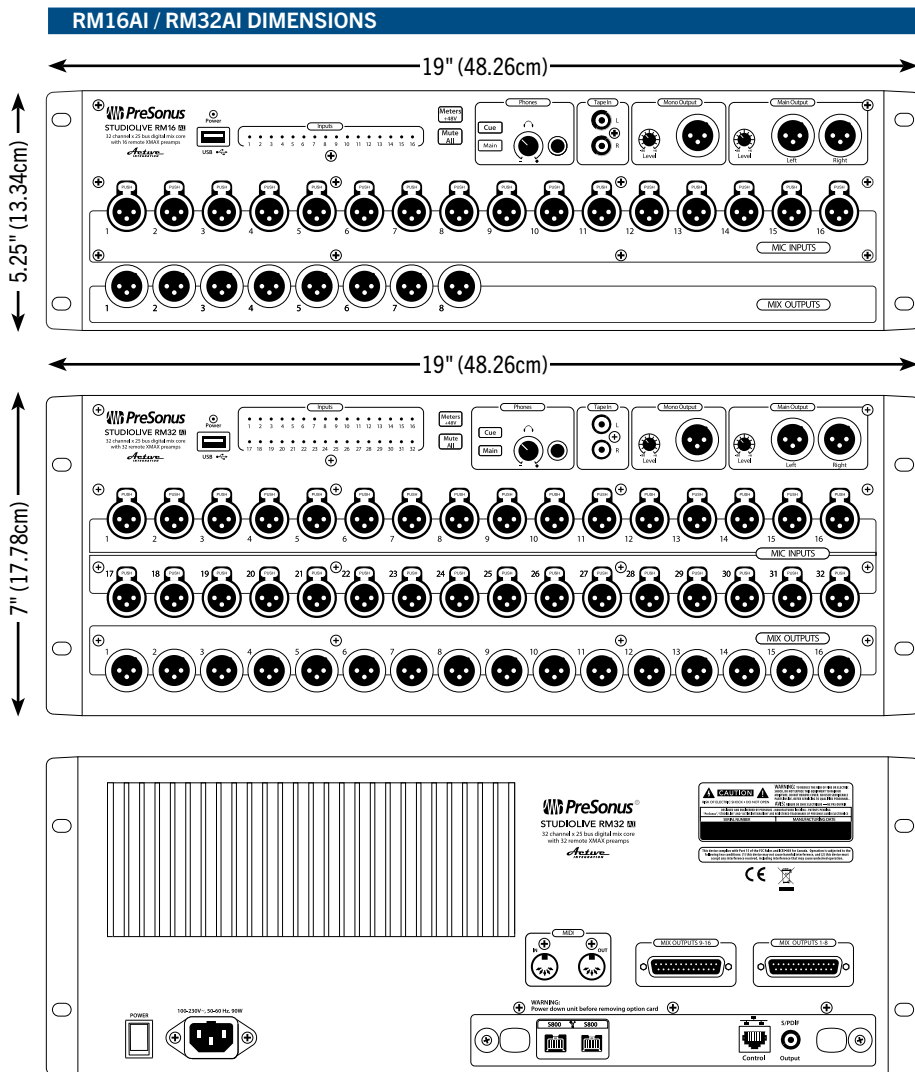
A&E Specs: PreSonus\_StudioLive\_RM\_series\_AE.doc

## Related PreSonus Products

- StudioLive® 16.0.2 Digital Mixer
- StudioLive® 16.4.2AI Digital Mixer
- StudioLive® 24.4.2AI Digital Mixer
- StudioLive® 32.4.2AI Digital Mixer
- StudioLive® 312AI Active Integration Loudspeaker
- StudioLive® 328AI Active Integration Loudspeaker
- StudioLive® 315AI Active Integration Loudspeaker
- StudioLive® 18sAI Active Integration Subwoofer

## Software

- UC Surface Editor/Librarian/Control Software (Mac, Windows, and iPad)
- Capture™ Recording Software (Mac® and Windows®)
- QMix™-AI Aux Send Control App (iPhone/iPod® touch)
- Nimbit® Distribution, Sales, and Promotion Tools
- Studio One® Artist DAW (Mac and Windows)



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