PreSonus CONTRACTOR

StudioLive™ 18sAI

1,000 Watt Subwoofer with 24-bit/96 kHz DSP and SL Room Control

- 1,000 watt Class D amplifier
- Universal switch mode power supply with power-factor correction
- 24-bit floating point, 96 kHz DSP
- Temperature and over-voltage protection
- Excursion Limiting
- Wireless and wired networking with control over output level, user adjustable contours, crossover, and more with SL Room Control software.
- 135 dB max SPL @ 1m
- Custom-designed, 18" Ferrite woofer
- Stereo line inputs (XLR-¼" combo)
- Stereo line throughputs (XLR)
- Speaker level control (-12 dB to +12 dB)
- Mono Sum option sends summed signal to both outputs
- USB 2 port for use with included USB Wi-Fi module and disaster recovery
- Ethercon connection for wired control
- Polarity invert
- Three onboard delay settings:
  - 0m – Full-range speaker on sub pole
  - 1m – Full-range speaker on speaker stand
  - 2m – Full-range speaker on stage
- Two operation modes:
  - Normal – live performance
  - Extended LF – fatter low end
- Custom user preset for use with SL Room Control
- Comfortable, ergonomic handles
- Integrated, threaded pole-insert socket
- Interlocking stacking provisions
- Optional Dante networking card

STUDIOLIVE™ Active INTEGRATION TRADE MARK

The StudioLive 18sAI is the powered 18" subwoofer in the StudioLive AI-series loudspeaker line. It is designed to compliment full-range StudioLive AI-series speakers while being flexible enough to work with other powered loudspeakers.

Interestingly, it incorporates ***more digital signal processing*** than any competitive ***full-range*** speaker on the market. This allows it to function as the final component of a true 4-way system when used with StudioLive AI full-range models.

The StudioLive 18sAI utilizes the same 2x500-watt bridged power amplifier distribution that powers the low-frequency woofer in the StudioLive 312AI, 328AI, and 315AI. It also features stereo inputs that, with analog pass-thru, can be summed mono.

The 18sAI features two DSP contours optimized for live performance and enhanced low end. It also offers three delay presets: 0m for use with a full-range speaker atop the sub; 1m for use with a full-range speaker on a separate speaker stand; and 2m for use with a full-range speaker on stage.

An optional card provides Dante networking.

Advanced 24-bit floating-point digital signal processing.

Like the StudioLive AI-Series full-range models, the SL18sAI was tuned by master speaker designer Dave Gunness using Fulcrum Acoustic's proprietary algorithms.

This results in a truly "smart" subwoofer capable of DSP contol of:

- True 4-way integration with full-range StudioLive AI models
- DSP-monitored temperature, over-voltage, and excursion limiting
- Multiple onboard delay setting to optimize the 18sAI with three common subwoofer positions
- Two DSP contours

Complete remote control.

The robust onboard CPU in the StudioLive 18sAI makes possible an extensive set of control features for customizing and optimizing the system and for monitoring and fine-tuning performance in real time.

SL Room Control software for Mac OS X, Windows, and iPad provides the StudioLive 18sAI with wired and wireless remote control of a variety of features.

Remote Control over:

- DSP contours

Network setup wizard

- Network scanning automatically detects connected speakers
- Network browser

See the back page of this document for a list of File Resources and Related Products

Performance monitoring over:
- Excursion limiting
- Real-time temperature
- ADC clip detection
- Power-amp soft limiting

Individual speaker DSP settings:
- Polarity invert
- Speaker delay (up to 500 ms)
- Mute and solo
- Level

Group speaker management
- Group level control
- 31-band graphic EQ
- Store/load graphic EQ presets
- Speaker-group browser
- Store multiple speaker groups together
- Custom labels for each speaker and group

Settings are automatically stored in the User Layer onboard each loudspeaker for use away from SL Room Control.

Optional Dante networking.

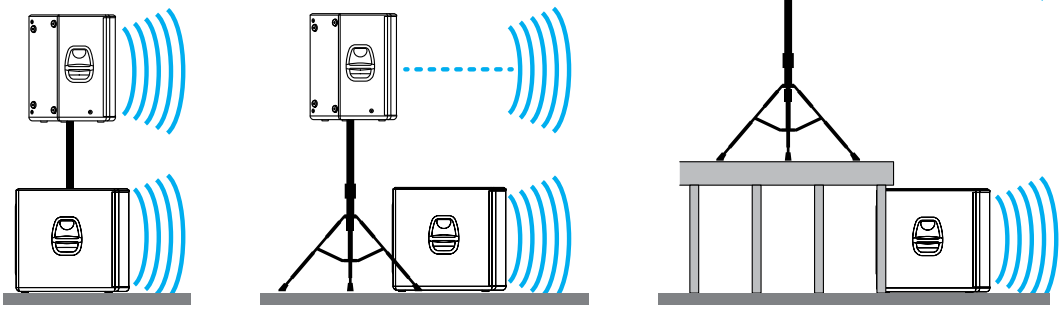
The SL-Dante-SPK upgrade option card houses one Ethercon connection for Dante™ audio networking and remote control via SL Room Control. It offers two Dante Transmit and two Receive channels and operates at 48 kHz.

Dante-enabled StudioLive AI-series loudspeakers allow users to create a complete, networked audio system with any Dante-enabled mixer using a standard 1 GB Ethernet switch and Audinate's

Dante digital-media networking technology, which offers self-configuring, true plug-and-play digital audio networking.

Users can also connect non-Dante mixers, such as a first-generation StudioLive, to the analog inputs of a Dante-equipped AI loudspeaker and then broadcast the signal over the Dante network using CAT5 cables. This makes Dante-enabled StudioLive AI an ideal solution for large front-of-house systems.

STUDIOLIVE 18sAI DELAY MODES



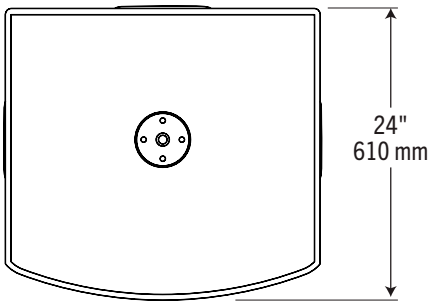
0m – Full-range speaker on sub pole

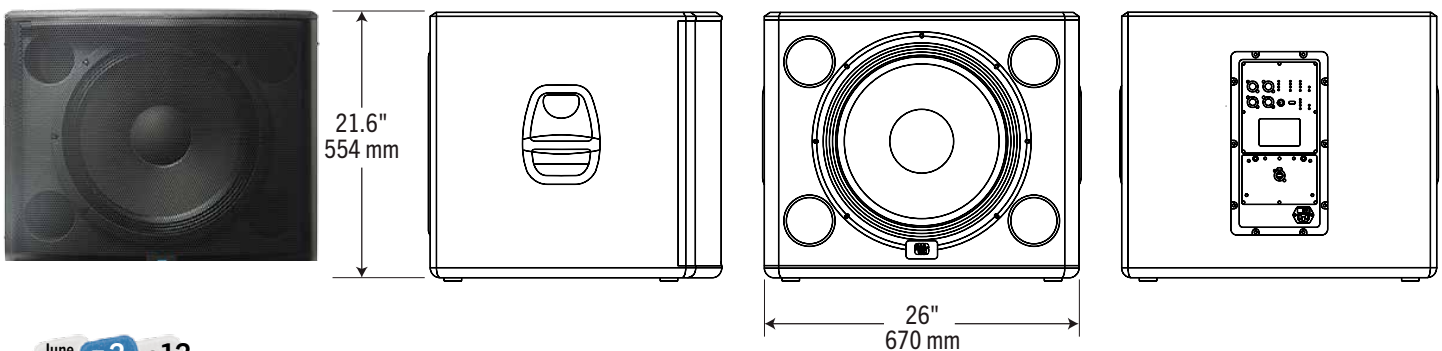
1m – Full-range speaker on speaker stand

2m – Full-range speaker on stage

STUDIOLIVE 18sAI DIMENSIONS

STUDIOLIVE™ SL18sAI





STUDIOLIVE 18sAI TECHNICAL SPECIFICATIONS

Acoustic Performance	
Configuration	Powered subwoofer, ported
Frequency Response (-10 dB)	29 Hz - 141 Hz
Frequency Response (-6 dB)	32 Hz - 110 Hz
Maximum Peak SPL	135 dB

Transducer	
LF Transducer	18" ferrite
Voice Coil Diameter	4"

Amplifier	
Type	Class D
Total Power Output	1,000W (total power without protection algorithms and limiter enabled)
LF Power	2 x 500W bridged
Rated THD	<0.05% (20 Hz - 20 kHz)
Dynamic Range	119 dB (A-weighted)
Bandwidth	20 Hz - 20 kHz
Cooling	Free air convection

Connections & Controls	
Input Channels	2 line
Input Connector Types	2 combo
Line Input Impedance	10 kΩ
Maximum Input	+22 dBu
Output Connector	2 XLR (M) - throughput
Controls	Speaker level (variable -12 dB to +12 dB), mono sum
Indicators	DSP Preset, Delay Preset, Polarity Invert, Network Connected, Network Activity, Wi-Fi Setup, Wi-Fi On, Signal, Limit, Clip, Thermal

DSP	
Contour Presets	Normal, Extended LF
Polarity	Normal or Reverse
Delay Presets	0m, 1m, 2m
Bit Depth	24-bit
Sample Rate	96 kHz (48 kHz with Dante option installed)

Enclosure	
Material	Baltic birch
Finish	Chemline polyurethane
Grille	Powder-coated steel
Dimensions (H x D x W)	23" x 24" x 26" (584.2 x 613.68 x 665.5 mm)
Unit Weight	94 lbs (942.64 kg)
Handles	One on each side

Safety	
Amplifier Protection	Over-current, DC, over/under-voltage, over-temperature, high frequency
Transducer Protections	4-ch. multi-threat limiter

AC	
AC Power Input	100-230V~, 50-60 Hz
AC Power Consumption (1/8 Power)	150W

Accessories/Replacement Parts	
USB Wireless	WF-150
Protective Cover	SLS18sAI-Cover
Sub Pole	SP1BK
Sub Dolly	D18s
Dante Option Card	SL-Dante-SPK
Replacement Parts	355-NRG-LO-FREQ-18: 18" low-frequency driver
	600-NRG0183: SLS18sAI grille
	600-NRG0153: handle assembly

STUDIOLIVE 18sAI ARCHITECT AND ENGINEERING SPECIFICATIONS

General

The loudspeaker shall be self-powered and shall employ one 18-inch diameter, ferrite LF cone transducer with 4-inch voice coil diameter. Transducer protection shall consist of a 4-channel multi-threat limiter.

Internal Amplification

The loudspeaker shall incorporate two Class D power amplifiers in bridged mode, with a burst capability of 1,000W total. Distortion (THD, IM, TIM) shall not exceed <0.05% (20 Hz - 20 kHz). Dynamic range shall be 119 dB (A-weighted). Bandwidth shall be 20 Hz - 20 kHz. Amplifier protection shall be over-current, DC, over/under voltage, over-temperature, and high frequency.

Performance Specifications

Performance for a typical production unit shall be as follows, measured at 1/3-octave resolution: operating frequency range 32 Hz to 110 Hz @ -6 dB; maximum peak SPL 135 dB.

Rear Panel

Input connectors shall consist of two combination XLR F / ¼" line inputs. Line input impedance shall be 10 kΩ. Maximum input shall be +22 dBu. Two XLR M output connectors shall be provided for throughput. Controls shall consist of Speaker Level (Variable: -12 dB to +12 dB) control and Mono Sum Input switch. Indicators shall consist of DSP Preset, Delay Preset, Polarity Invert, Network Connected, Network Activity, Wi-Fi Setup, Wi-Fi On, Signal, Limit, Clip, Thermal.

A USB socket shall be provided for Wi-Fi communication and internal software recovery. A CAT 5 Ethercon connection shall also be provided.

Digital Signal Processing

The speaker processing shall have 24-bit depth and 96 kHz sample rate. The speaker shall have Normal or Extended Frequency Contour, Normal or Reverse Polarity options, three onboard delay settings, and Custom Preset for use with SL Room Control.

Software

The speaker shall have the option to be controlled by SL Room Control for Windows 7 and 8 (32- and 64-bit support), Mac OS X 10.7 Lion and 10.8 Mountain Lion, and iPad iOS 7 or later. SL Room Control shall provide remote control over onboard DSP contours and polarity; network scanning to detect all speakers; network browser; performance monitoring of excursion limiting, real-time temperature, ADC clip detection, and soft limiting; multiple speaker-group management with relative level control, 31-band graphic EQ with preset browser, and speaker mapping; alignment delay (up to 500 ms), limiter with variable threshold, DSP input level, solo, mute, custom labels, and preset browser for each speaker; and onboard User layer to store speaker settings, with or without SL Room Control connected.

Dante Networking Option

An optional card shall be available that houses one Ethercon connection for Dante™ audio networking and remote control via SL Room Control software. The option card shall provide two Dante transmitting and two receiving channels and shall operate at 48 kHz.

Power Requirements

The power requirements for the loudspeaker shall 100 to 230V~ 50-60 Hz. Current draw for the loudspeaker at 1/8 power shall be 150W.

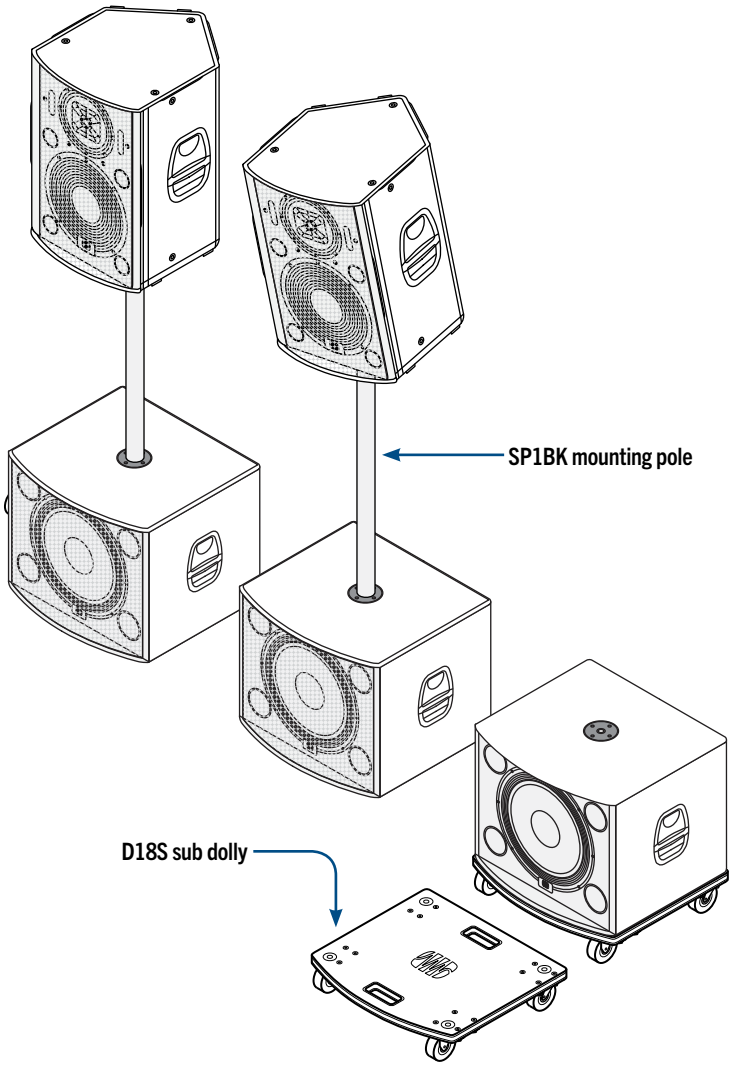
Physical

Loudspeaker components shall be housed in an enclosure comprised of 15 mm birch with a black Chemline™ coating. Grille shall be perforated metal with black, weather-resistant powder coating. Weight-balanced polymer handles shall be installed on each side of the enclosure.

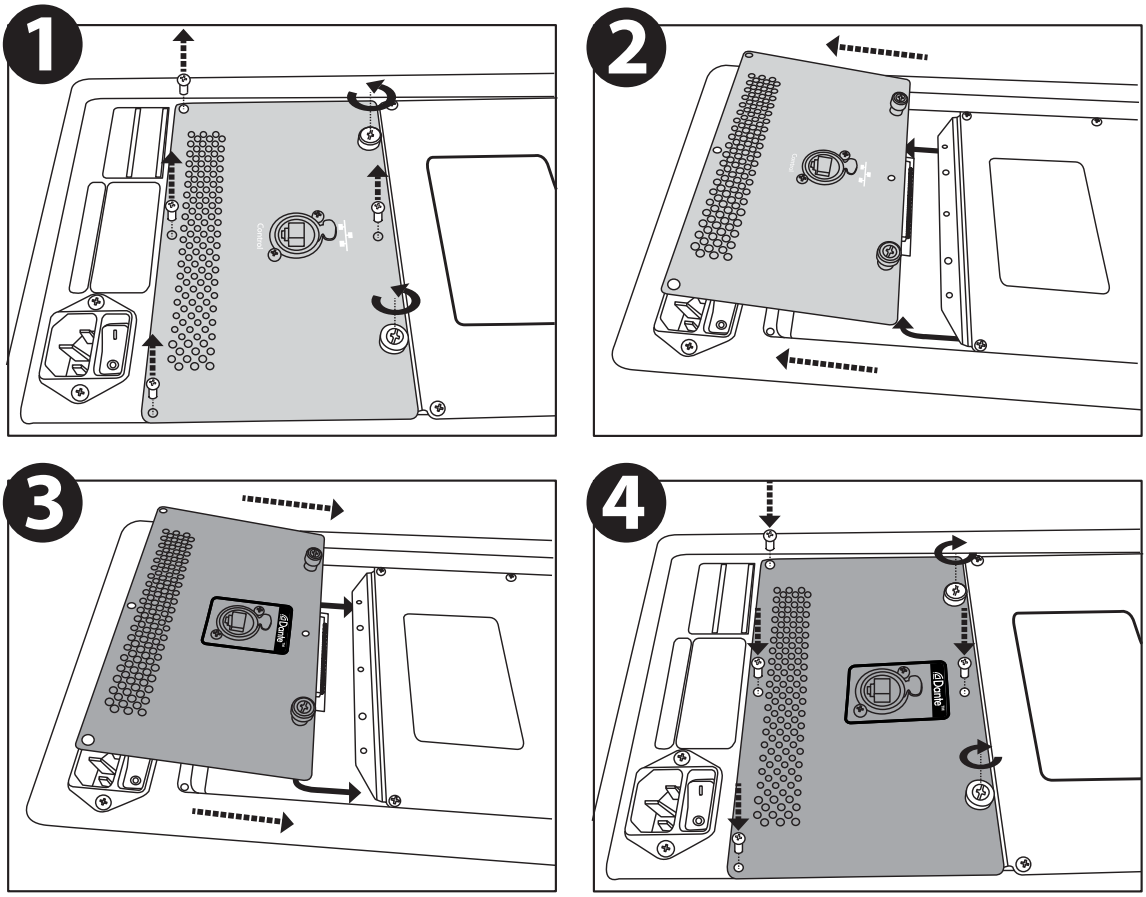
Dimensions shall be 26" (670 mm) wide by 21.8" (554 mm) high by 24" (610 mm) deep, including the grille. Weight shall be 94 lbs (42.6 kg). A 35 mm, threaded pole socket shall be provided in the top of the speaker.

The loudspeaker shall be the PreSonus StudioLive 18sAI.

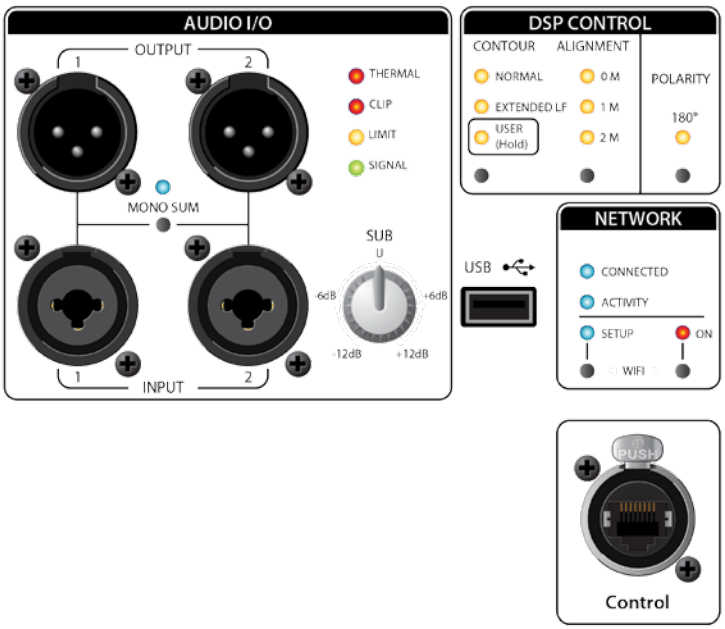
STUDIOLIVE 18sAI POLE AND DOLLY OPTIONS • See Rigging Guide before use.

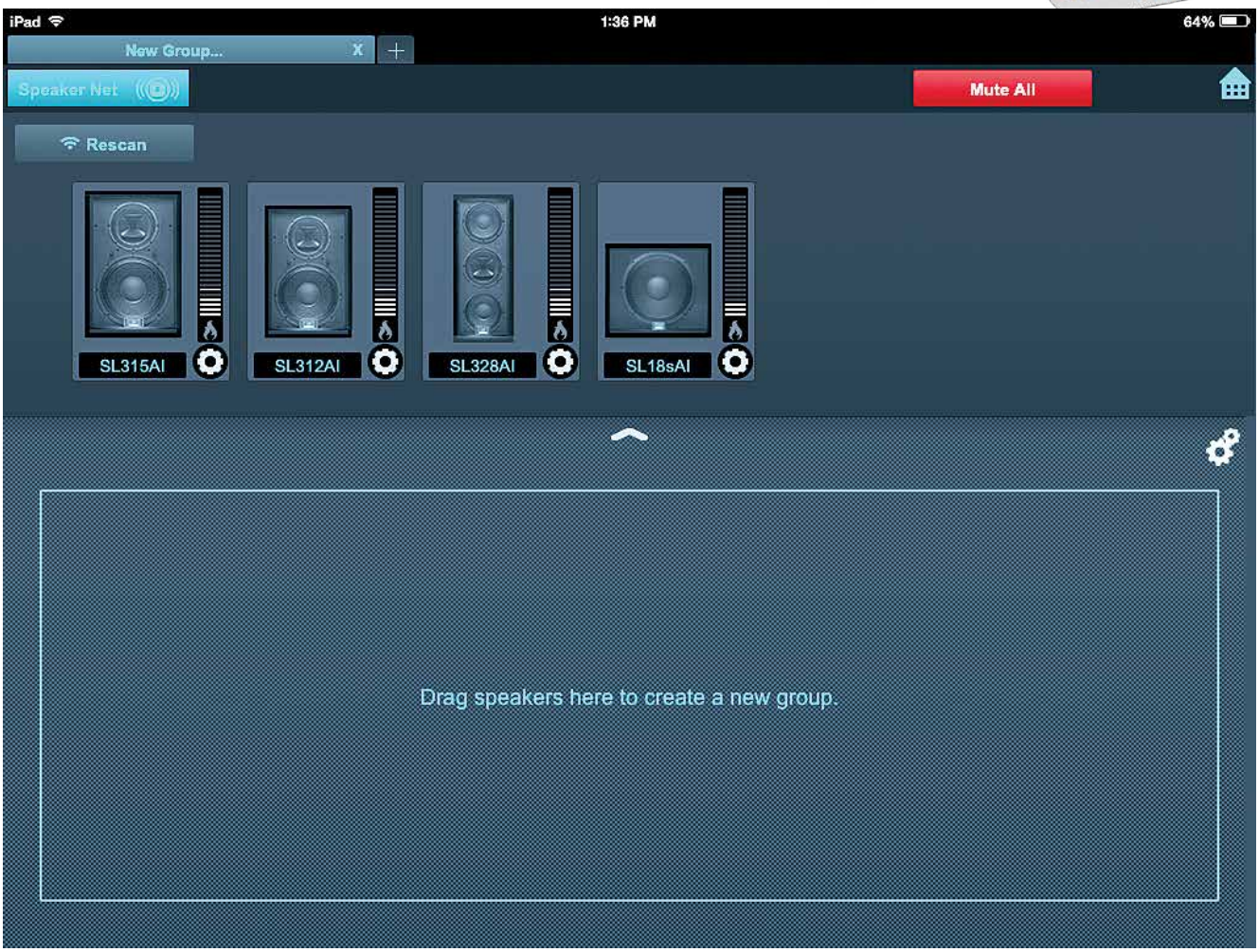


DANTE CARD INSTALLATION



STUDIOLIVE 18sAI BACK PANEL





Drag-and-drop speakers from the network browse to create a new speaker group

Speaker groups create a map of every speaker's settings and can be arranged to on the screen to reflect their position in the room

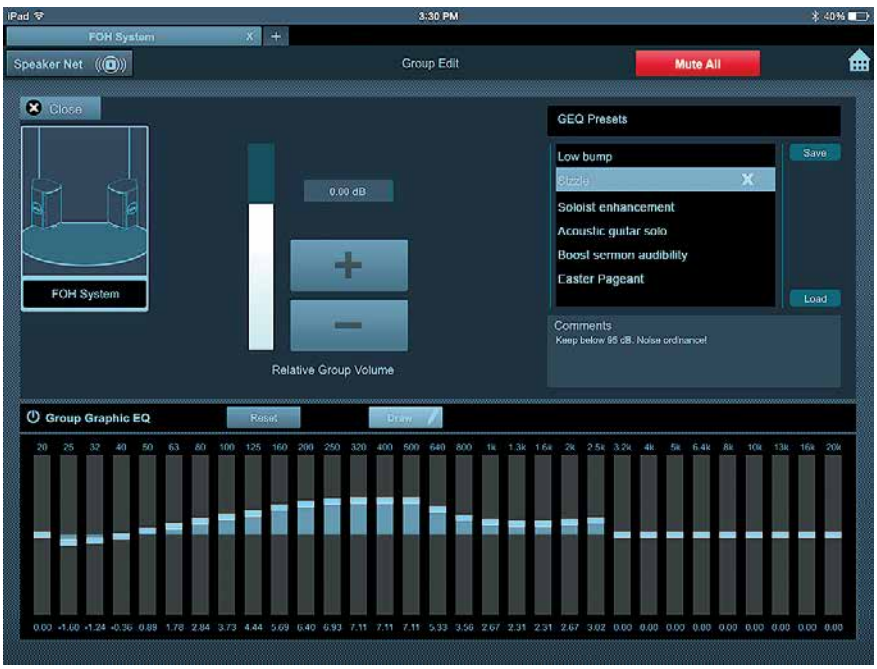
Wired and wireless integration with SL Room Control software.

The StudioLive 18sAI communicates with SL Room Control software over a wireless or wired LAN network and provides a wealth of system-control and performance-monitoring features.

SL Room Control is a speaker-management system and remote-control/monitoring software for StudioLive AI-series loudspeakers that runs under Windows, Mac OS X, and iOS for iPad.

Use the included USB Wi-Fi dongle to connect to an established wireless network or hardwire your

Speaker Edit page lets you set EQ, Alignment Delay, add Notch Filters, and remote control onboard speaker settings



StudioLive loudspeaker to a wireless router using an Ethernet connection to provide more stable connectivity.

In addition to providing remote wireless control over all onboard features, SL Room Control includes speaker group management and individual speaker control including eight notch filters, eight-band parametric EQ, output delay, and performance monitoring. In short, this full-featured software opens up the power of the onboard DSP, providing optimization tools that were previously only available in standalone rack units.

Group Edit page lets you set a Graphic EQ for and control the level of the entire speaker group

Speaker Edit page lets you set EQ, Alignment Delay, add Notch Filters, and remote control onboard speaker settings

Onboard speaker delay.

Alignment delay compensates for the cancellation or reinforcement of low frequencies when the same frequencies are reproduced by two sound sources that are set some distance apart.

Low frequencies in the crossover region between full-range and subwoofer have wavelengths that are several feet long (the wavelength of a 150 Hz wave is about 7.5 ft!), which means that reinforcement and cancellation will occur as the waves interact in the room. The StudioLive 18sAI's onboard delay provides compensation for this effect when the loudspeaker is about the same distance away from, or in front of, the subwoofer, as specified in the setting. See the drawings on page 2.

To make things simple for rental and temporary applications, three onboard alignment-delay presets are provided for the most common portable applications. For more advanced or permanent installations, up to 200 ms of delay is available through SL Room Control to achieve the best result for every venue.

Onboard Speaker Grouping

SL Room Control provides individual and grouped speaker management. Grouping speakers allows you to adjust the overall graphic EQ of your entire FOH or satellite system. In addition, you can mute or solo individual speakers in the system and quickly zoom in on different groups around the venue.

STUDIOLIVE 18sAI BLOCK DIAGRAM

OUTPUT 1

OUTPUT 2

Mono LED

Mono Sum Switch

INPUT 1

INPUT 2

ADC

ADC

Σ

Σ

Ø

180° LED

SIGNAL LED

CLIP LED

Fixed (Stand-alone)

HIGH CUT

Internal DSP Processing block

Cabinet Tuning • Alignment • Crossover • Status

Normal

Extended LF

24-bit 96 kHz Floating Point DSP

User Layer DSP Processing block

Speaker Grouping • Output Delay • Mute • Solo

Variable (SL Room Control)

Delay

Fixed Presets (Rear Panel)

0M

2M

4M

Multi-threat Limit

DAC

AMP

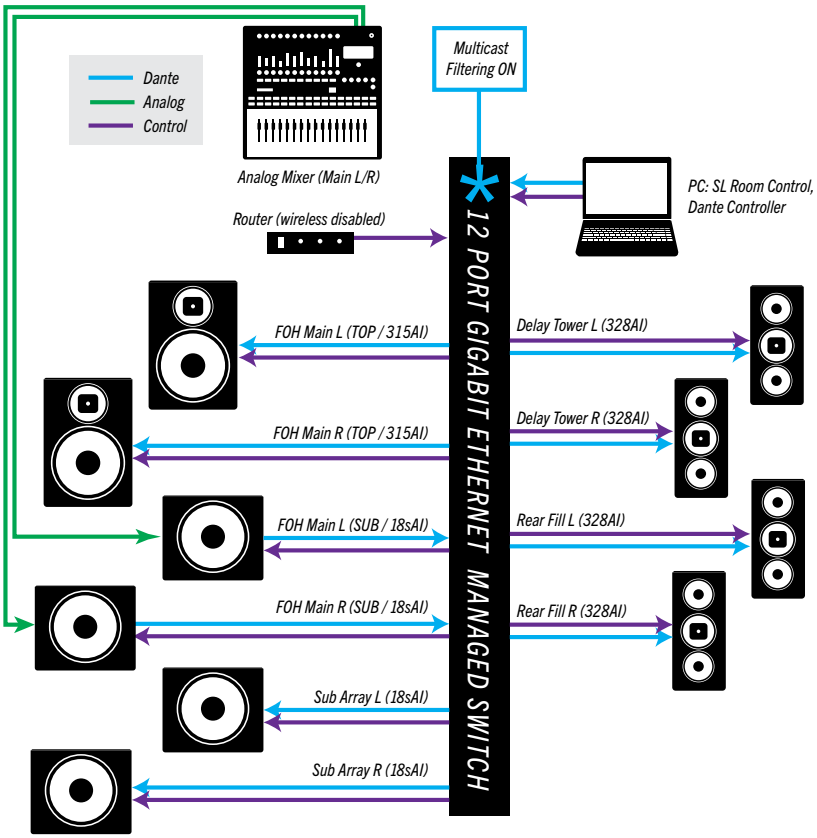
OPTION

10/100 PHY

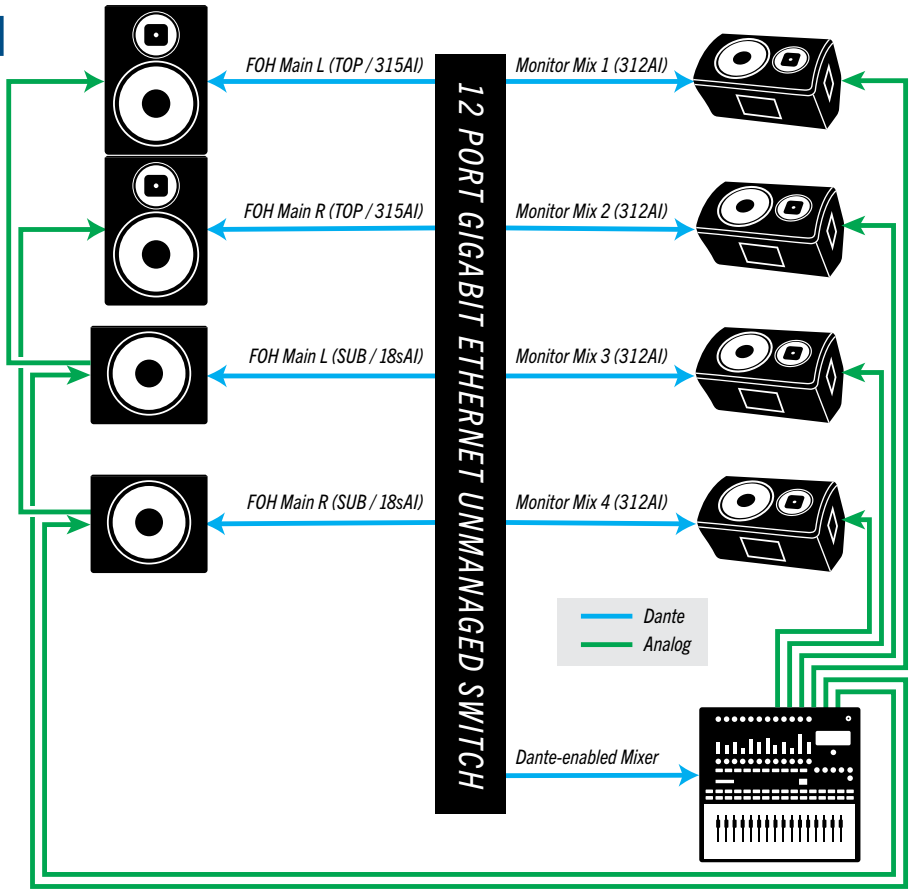
RJ45

OPTION SLOT

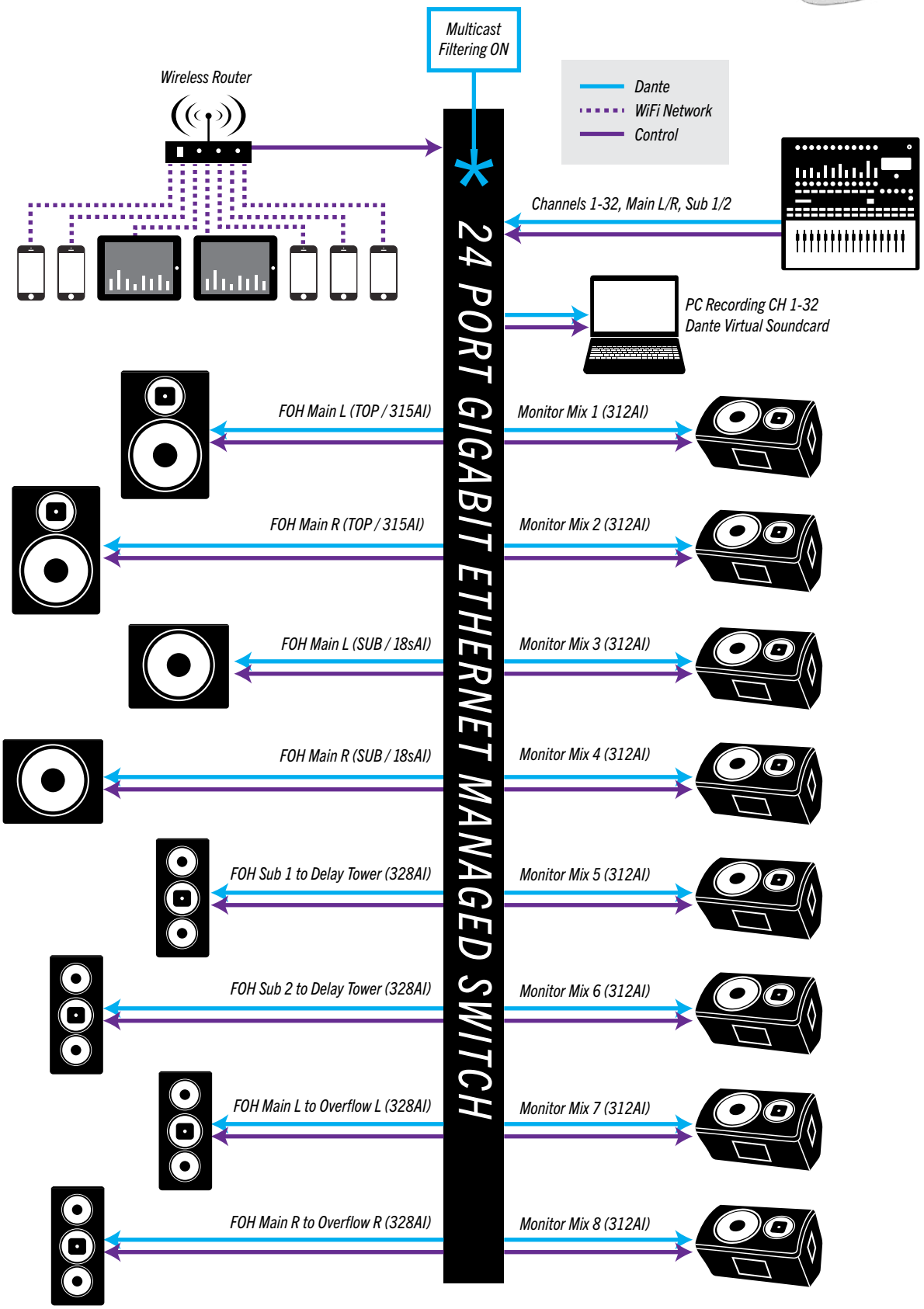
ANALOG CONSOLE DIAGRAM



ANALOG FAIL-OVER



MANAGED SWITCH NETWORK



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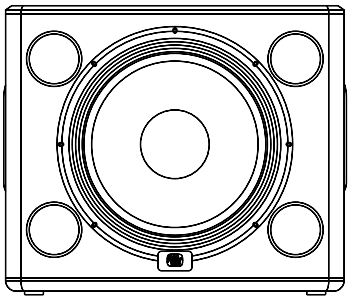
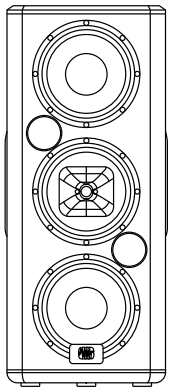
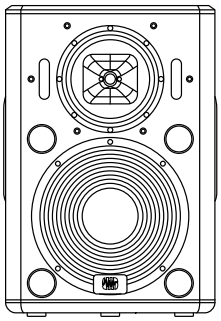
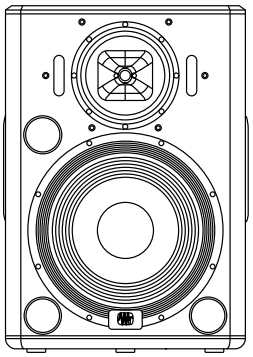
StudioLive™ 18sAI

1,000 Watt Subwoofer with 24-bit/96 kHz DSP and SL Room Control



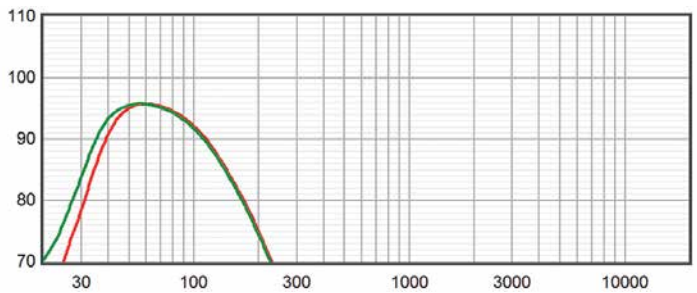






SL328AI SL312AI SL315AI

STUDIOLIVE 18sAI FREQUENCY RESPONSE GRAPH



File Resources

To obtain these documents, please go to the following Web page and click on the Downloads tab:
www.presonus.com/products/StudioLive-18sAI

This data sheet:
PreSonus_StudioLive_18sAI.pdf

2D CAD drawing:
PreSonus_StudioLive_AI-Series_PA.dxf

A&E Specs:
PreSonus_StudioLive_18sAI_AE.doc

Applications brochure:
PreSonus_StudioLive_AI-Series_Applications.pdf

Compliance statement:
PreSonus_StudioLive_18sAI_Compliance.pdf

EASE GLL:
PreSonus_StudioLive_AI-Series_EASE_GLL_RevA.zip

Related PreSonus Products

- StudioLive 312AI Loudspeakers
- StudioLive 315AI Loudspeaker
- StudioLive 328AI Loudspeaker
- WF-150 Wi-Fi dongle
- D18S sub dolly
- SLS18sAI-Cover dustcover
- SP1BK mounting pole
- SL-Dante-SPK Dante option card
- 355-NRG-LO-FREQ-18: 18" Low Frequency Driver
- 600-NRG0183: SLS18sAI grille
- 600-NRG0153: Handle assembly

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