

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 (coming early 2014)

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.

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 control 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
- Three 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 provides the StudioLive 18sAI with wired and wireless remote control of:

- Speaker delay
- Mute and solo
- Polarity invert
- Output level

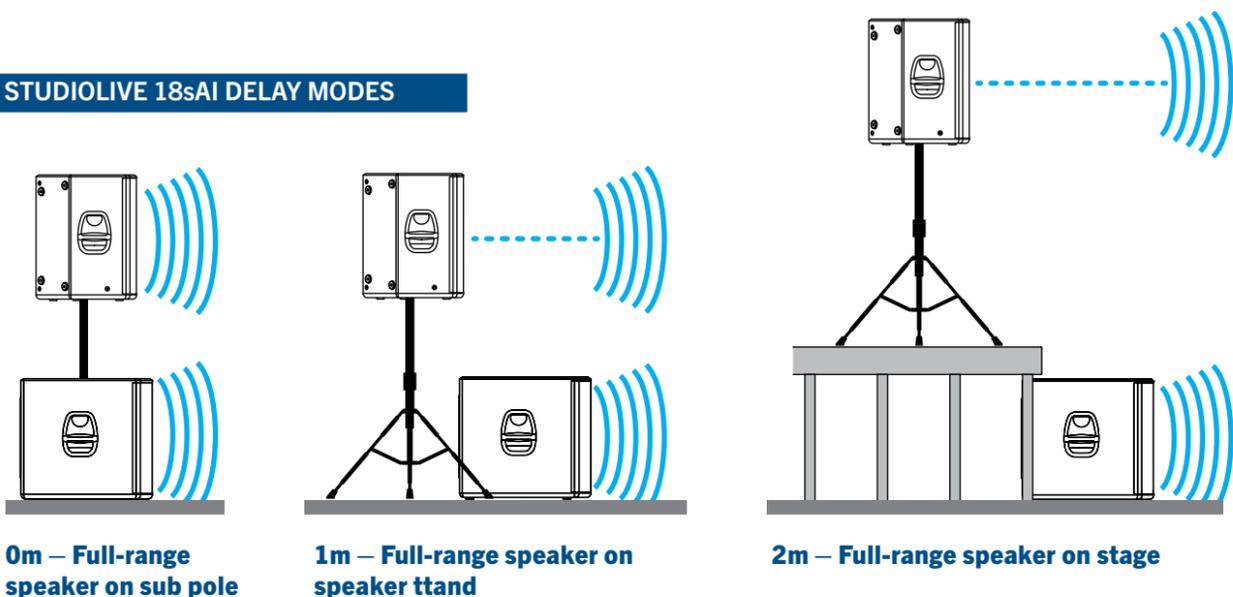


Output-level performance monitoring constantly provides information for:

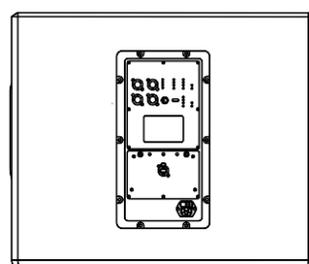
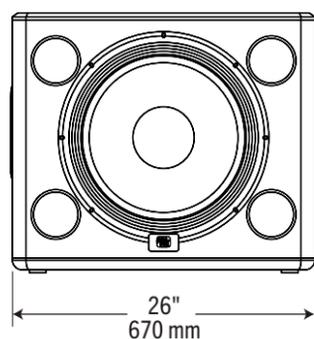
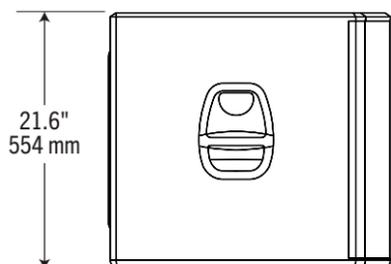
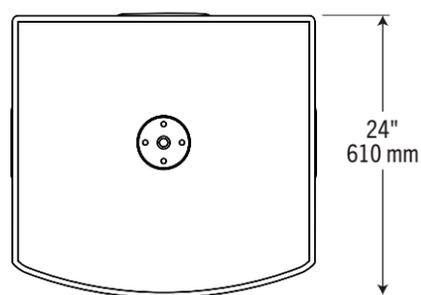
- Excursion limiting
- Over-temperature
- ADC clip detection
- Other SL Room Control features include:
- Network setup wizard and network scanning to automatically detect all speakers

- Network browser
 - Group speaker management with mute, solo, and group graphic EQ
 - External Sub mode
 - Custom labels for each speaker
 - Preset save and load
- All these DSP features are wirelessly controllable from SL Room Control for iPad, OS X, and Windows.

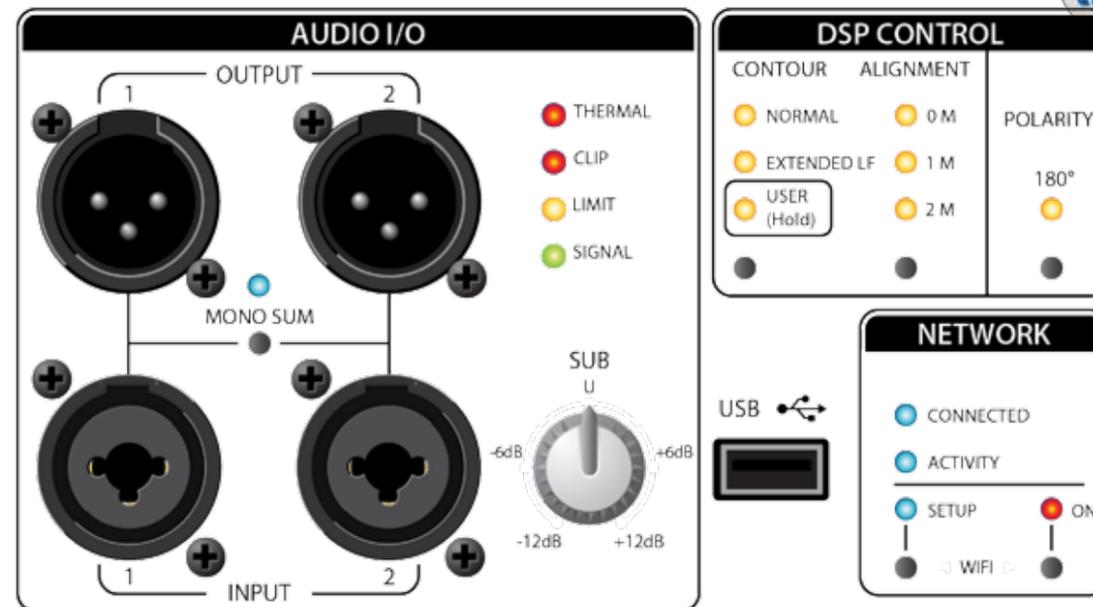
STUDIOLIVE 18sAI DELAY MODES



STUDIOLIVE 18sAI DIMENSIONS



STUDIOLIVE 18sAI BACK PANEL



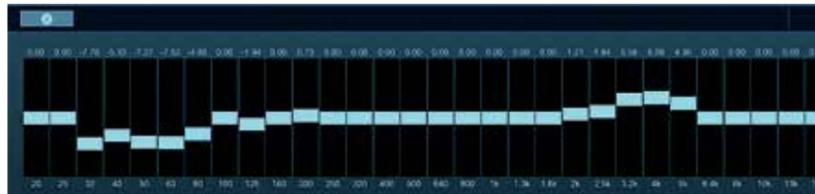
SL ROOM CONTROL SOFTWARE



Main screen, showing a complete speaker system with pop-up level control and parametric EQ



Notch filter



Group 31-band graphic equalizer

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 communicate performance parameters such as temperature and clipping.

SL Room Control is a speaker-management system and remote-control/monitoring software for StudioLive AI-series loudspeakers.

It is designed for use with Windows, Mac OS X, and iPad.

Use the included USB Wi-Fi dongle to connect to an established wireless network or hardwire your StudioLive 18sAI to your 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 group speaker 31-band graphic EQ, 8-band parametric EQ (full-range only), speaker delay, room setup, and speaker grouping. In short, this powerful software application opens up the power of the onboard DSP, providing optimization tools that were previously only available in stand-alone rack units.

Onboard speaker delay.

Alignment delay compensates for the cancellation or reinforcement



Speaker performance monitoring

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.

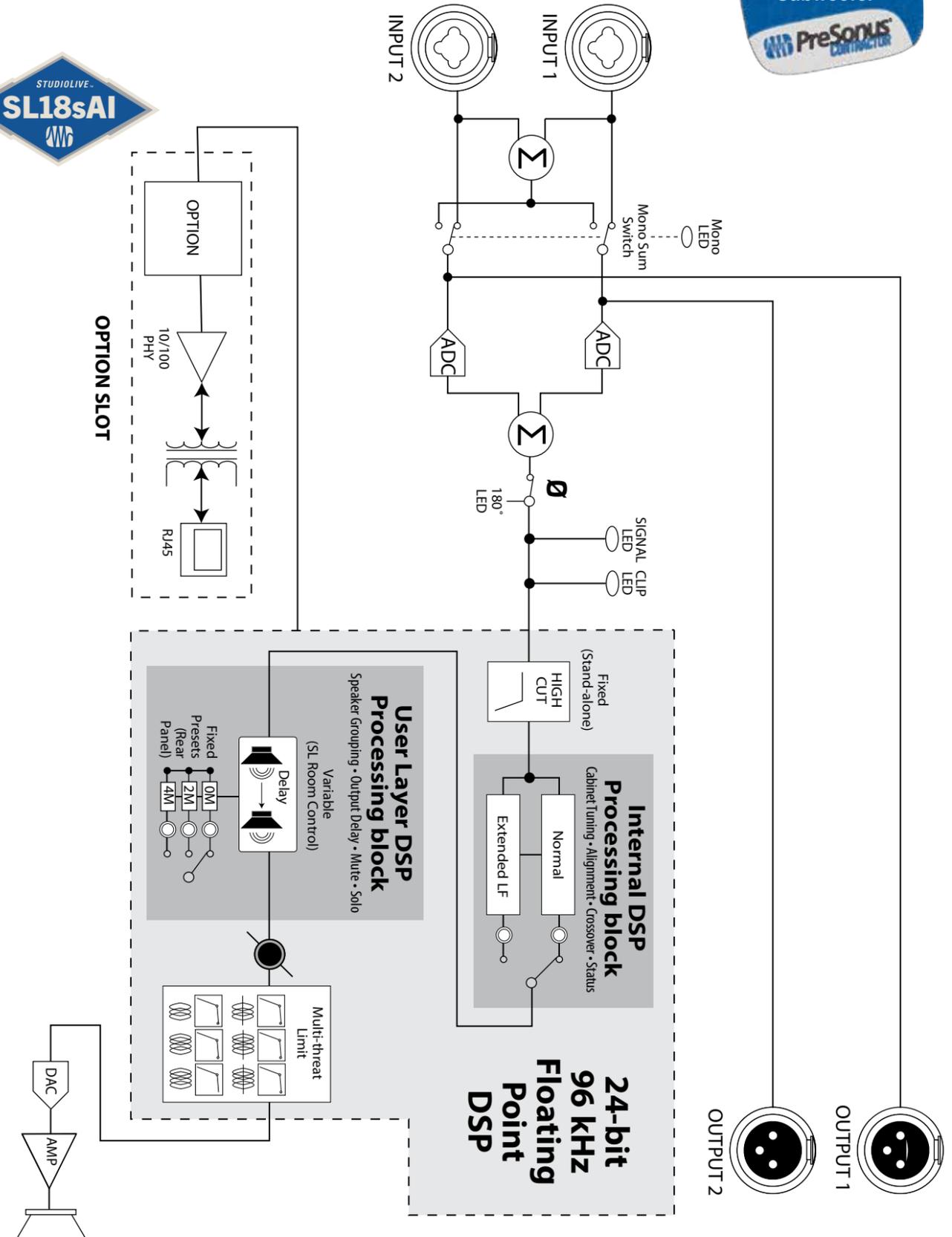
To make things simple for rental and temporary applications, three onboard alignment-delay presets are provided for the most common portable applications. For more advanced or permanent installations, up to 200 ms of delay is available through SL Room Control to achieve the best result for every venue.

Onboard Speaker Grouping

SL Room Control provides individual and grouped speaker management. Besides delay and level for each speaker, you can group them together, which allows you to adjust the overall graphic EQ of your entire FOH or satellite system at once. You also can mute or solo individual speakers in the system.



STUDIOLIVE 18sAI BLOCK DIAGRAM



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 <math><0.05\%</math> (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 / 1/4" 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 OSX 10.7 Lion and 10.8 Mountain Lion, and iPad iOS 5.1 or later. SL Room Control shall provide remote control over: polarity invert; onboard DSP contours; network setup; network browser; performance monitoring over excursion limiting; over temperature; ADC clip detection; multi-threat limiting; group speaker management with Level, Mute, and Solo; subwoofer delay; output level; custom labels for each speaker; preset save and load; and creation of a user preset onboard each speaker for use away from SL Room Control.

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.

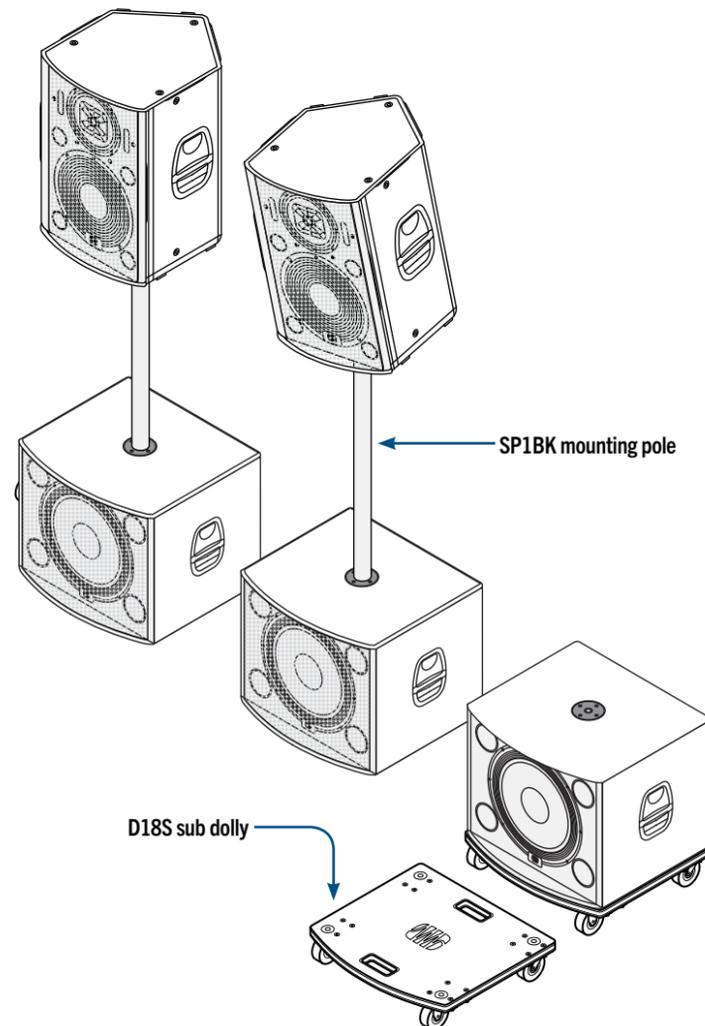
Physical

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.



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	<math><0.05\%</math> (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



Enclosure

Material	15 mm Baltic birch
Finish	Chemline polyurethane
Grille	Powder-coated steel
Dimensions (H x D x W)	21.8" x 24" x 26" (553.72 x 609.6 x 669.4 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

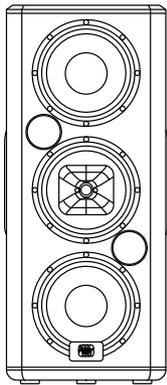
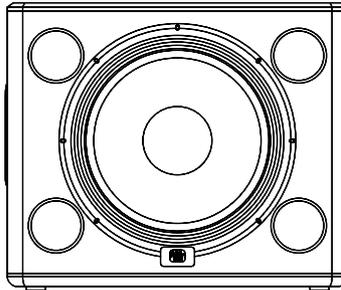
Accessories/Replacement Parts

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

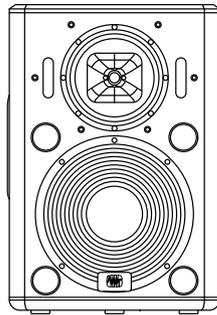
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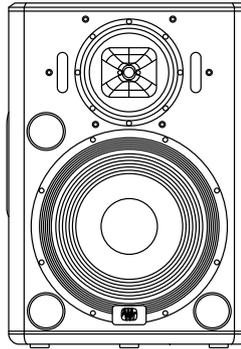
STUDIOLIVE
SL18sAI



STUDIOLIVE
SL328AI

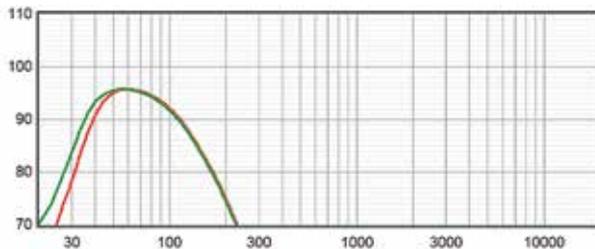


STUDIOLIVE
SL312AI



STUDIOLIVE
SL315AI

STUDIOLIVE 18sAI FREQUENCY RESPONSE GRAPH



Extended LF

Normal Contour



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

Related PreSonus Products

- StudioLive SL312AI Loudspeakers
- StudioLive SL328AI Loudspeaker
- StudioLive SL315 Loudspeaker
- WF-150 Wi-Fi dongle
- D18S sub dolly
- SLS18sAI-Cover dustcover
- SP1BK mounting pole
- 355-NRG-LO-FREQ-18: 18" Low Frequency Driver
- 600-NRG0183: SLS18sAI grille
- 600-NRG0153: Handle assembly

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