

Design without Boundaries, Performance Without Limits

ST Series line arrays use advanced technology and application-driven engineering to bring vertical arrays closer to the ultimate reference point (reality) in demanding environments. Fully integrated electro-acoustic systems with all elements optimized deliver superior fidelity and coverage. Wherever the venue is appropriate for a high-powered vertical array, a RHAON empowered STLA/9R or externally powered STXLA/9 line array is the logical choice for demanding designers, operators and audiences.

RHAON, the Renkus-Heinz Audio Operations Network, is the first technology to extend the power, adaptability and pristine audio performance of digital networks all the way to the loudspeaker -- and to the listener in front of that loudspeaker. RHAON places total control and supervision on your computer at your fingertips, no matter how far away you are from the loudspeaker.

Applications

- Virtually any application where outstanding sonic performance is required and sound level and coverage needs cannot be satisfied with a conventional horizontal loudspeaker array.
- Portable "touring" sound systems for both small and large concert venues, corporate AV events, etc.
- Sound reinforcement systems in large houses of worship, performing arts centers, sports arenas, theaters and other similar venues.


STLA Line Array Modules

The self-powered STLA/9R with RHAON and the non-powered

STXLA/9 are the basic building blocks in the Renkus-Heinz STLA Series of high power line arrays. Their unique design allows arrays of all sizes to be quickly and easily assembled and installed safely and securely.


PM-3R Series PowerNet Amplifiers

The PM-3R, the heart of the STLA/9R and the muscle behind it, is a new kind of intelligent electronics system. It combines Class D digital tri-amplification with RHAON, the Renkus-Heinz Audio Operations Network for comprehensive DSP controlled signal processing and control.



The RHAON Empowered PM-3R adds on-board DSP and CobraNet capabilities. It has dual analog inputs, dual CobraNet inputs and an AES3id serial input. The onboard DSP is easily configured using RHAON software; it includes eight bands of parametric EQ, high and low shelving filters, input level control and up to 20 msec of delay. Critical operating parameters such as signal clipping, amplifier output voltage and current, and temperature are continually monitored with automatic alert functions.

Line Array Systems

STXLA/9

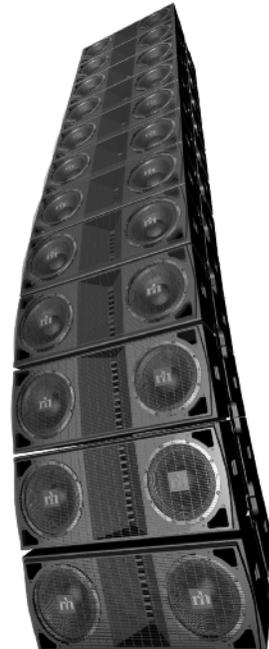
Non-Powered

STLA/9R

Powered

Line Array Systems

PASSIVE : POWERED : NETWORKED



- **Heavy Duty Flying Hardware**
Safely flies columns of up to 12 units, provides a wide range of aiming angles.
- **Easy Rigging - Designed to Travel**
Assemble easily, are light in weight (the self-powered STLA/9R weighs under 195 Lbs),
- **Flexible Input Configurations**
Choose passive inputs, or go self-powered with the PM-3R RHAON Empowered amplifier.
- **RHAON Renkus-Heinz Audio Operations Network**
All self-powered STLA/9R loudspeakers are provided with RHAON for flexible digital signal distribution with CobraNet, computer control and supervision
- **Exclusive Isophasic Plane Wave Generator**
Provides constant beamwidth/directivity down to 200 Hz.
- **Dual CDT1.5 High Output CoEntrant Mid/High Drivers**
On individual Plane Wave Generator Lenses feeding a common waveguide maintain line array source coupling through the mid/high crossover for improved directivity in the vertical plane and a coherent wavefront
- **Dual 12-Inch Woofers**
Provide smooth, low distortion performance down to 45 Hz.



Advanced Audio Technology

“Line Arrays” (more properly called vertical arrays) have become popular because they can provide consistent SPL from the front to the rear of a deep rectangular area with a flat or gently sloping floor.

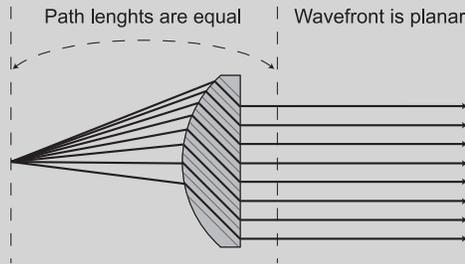
Arraying multiple loudspeakers vertically creates a line source with narrow vertical dispersion: The wavefront radiated by a properly designed line array behaves more like a plane wave (whose output diminishes 3 dB every time the distance doubles) than a spherical wave (which loses 6 dB each time the distance doubles).

The lower frequency limit of this line source behavior (the flattened vertical beam and slower level decay) depends on the length of the array (the height of the array). The taller the array, the lower in frequency the array is effective.

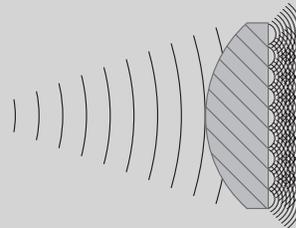


The Isophasic Plane Wave Generator

The Renkus-Heinz Isophasic Plane Wave Generator features path length equalization technology which has a significant advantage over other techniques (such as reflectors and obstacle arrays) that operate over a relatively narrow bandwidth. The path length refractor generates planar wavefronts over a wide operating band.



The higher frequencies pass through the device as “rays”.



At lower frequencies the refractor lens represent a closely spaced array of diffraction slots.

Slots are $< 1/2 \lambda$ apart: wavefront is planar



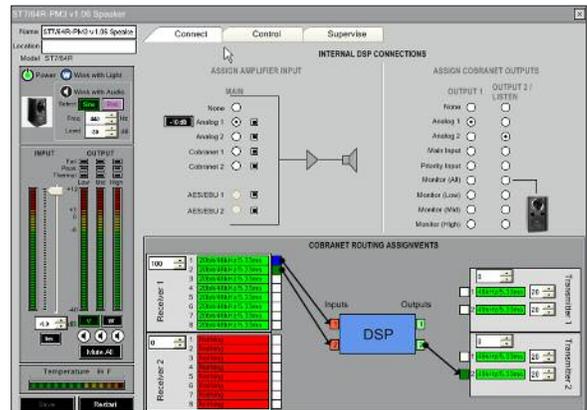
RENKUS-HEINZ AUDIO OPERATIONS NETWORK

RHAON is the first practical system to combine digital audio distribution with individual loudspeaker control and supervision of self-powered loudspeaker systems. RHAON uses standard Ethernet hardware, advanced CobraNet technology and onboard DSP (Digital Signal Processing) to turn self-powered Renkus-Heinz loudspeakers from “black boxes” into “smart boxes” that can easily be controlled from a remotely located laptop or desktop PC.

RHAON integrates loudspeakers, amplifiers, signal-processors, audio distribution and control networks into a single easy-to-manage network that sets new performance standards in every area of audio operations. Signal connections are faster, with fewer errors. Signal processing is specific to every loudspeaker. System setup is flexible yet powerful with user-configurable GUI software.

RHAON puts you in total control of:

- Real time digital audio distribution over standard Ethernet networks using proven CobraNet technology to deliver multiple channels of high quality digital audio over a CAT 5 cable.
- A powerful DSP inside each loudspeaker on the Ethernet network that includes eight bands of parametric EQ, high and low frequency shelving filters, input level control, muting and up to 18 ms of delay.
- Monitoring of each loudspeakers critical operating parameters such as signal clipping, amplifier output voltage and current and temperature with automatic alert functions.
- A user friendly Windows GUI that simplifies loudspeaker management and control.

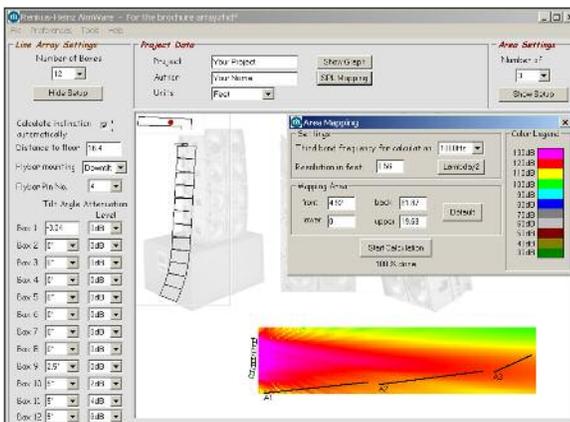
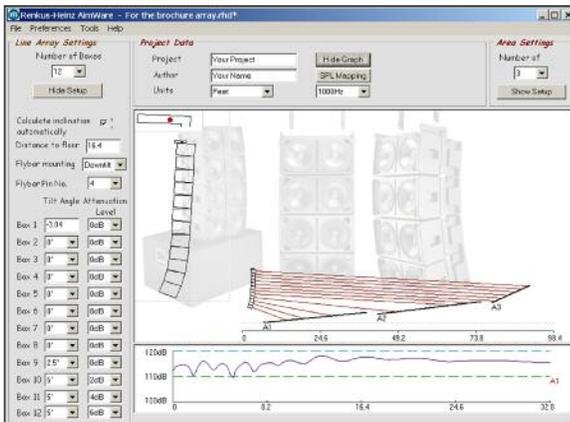


AIMWARE - Array Aiming Software

Effective sound system design with line arrays is not a simple 'point and shoot' process and many of the design tactics learned over the years with horizontal arrays do not work. You can't just aim a straight line array at the center of the audience and expect it to work. The typical result would be a few very loud rows in the center of the audience area with insufficient level at the front and rear. The height, tilt angle and curvature of the array all interact to produce the desired result (consistent sound levels from the front to the rear).

The possibilities are almost endless. How many cabinets will be needed to obtain the desired coverage and SPL levels? Which array configuration will provide the best coverage and performance, a straight line array, a curved array or a "J" array? What suspension (aiming) angle will work best?

Renkus-Heinz **AimWare** answers these questions and takes all the guesswork out of Line Array design and installation. With **AimWare**, you can quickly and easily decide how many Line Array modules will be needed to achieve the desired coverage and SPL levels, and whether they should be configured as a straight line array, a curved array or as a "J" array. **AimWare** also enables you to determine the ideal mounting height and the correct hanging points for the array.



Hardware Options

STSTX/LA9 Series Line Arrays were designed to be easy to use; they install quickly in fixed installations and are easy to set up and tear down in portable applications.

Straight, curved and "J" arrays of up to 12 cabinets are easy to assemble and fly. Four-cabinet ground stacks are a snap; just roll them off the truck on their dolly, position them and turn them on.

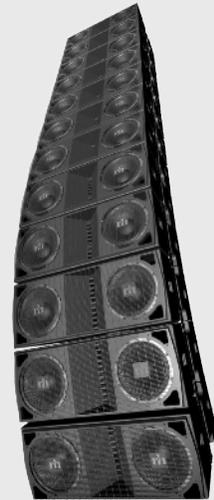
Rigging parameters (pick-up point locations and coverage angle settings) are provided in advance by Renkus-Heinz AIMWARE software program, taking the guesswork out of setup.

5/8 inch thick metal tie-bars and quick-disconnect pins are supplied with each module. They provide easy assembly along with metal-to-metal reliability and a choice of splay angles.

The associated heavy-duty fly bar attaches easily to the array with the quick-disconnect pins while providing a wide range of pick points and aiming angles; safely supports up to 12 cabinets.

An optional dolly handles stacks of up to four line array modules to be easily transported and moved about. Setup couldn't be easier; just roll them off the truck on the dolly, position them, plug them in and turn them on.

Optional IB0002 cabinet hardware allows the splay angles to be adjusted while the cabinets are sitting on the dolly; also meets all the stringent requirements of the German BGV flying standard including the 10 to 1 safety ratio.



Finish Options

The standard finish for STSTX/LA9 Series Line Array modules is Black. Optional finishes include white and scuff resistant black TuffTex. Custom colors are also available.

Weather Resistant Options

STSTX/LA9 Series Line Array modules are also available with weatherized woofer cones and connectors, in weather resistant fiberglass or TuffTex Elastomer finishes that are practically impervious to the elements.

TECHNICAL INFORMATION

Sensitivity - STLA/9R: 1.4 V for rated power output

STXLA/9: 100 dB (1W/1m)

Max SPL:

STLA/9R: Highs: 133 dB continuous, 139 dB peak
Mids: 130 dB continuous, 132 dB peak
Lows: 129 dB continuous, 132 dB peak

STXLA/9: Highs: 133 dB continuous, 139 dB peak
Mids: 130 dB continuous, 136 dB peak
Lows: 130 dB continuous, 136 dB peak

Dispersion: 90° Horiz.; Vertical dispersion determined by array design

Freq. Response: 45 Hz to 18 kHz

MID/HF Drivers: Two CDT-1.5 CoEntrant drivers with 6.5" mids, 250 W RMS each and two 2.5" HF drivers, 80 W RMS each

LF Drivers: Two 12" model SSL12-13 woofers; 500 W RMS @ 8 Ohms; 1000 W Pgm each

Crossover: 500 Hz & 2500 Hz

Power: STXLA/9: Lows – 2 x 1000 Watts Pgm at 8 Ohms

Mids – 800 Watts pgm at 16 Ohms

Highs – 320 Watts Pgm @ 16 Ohms

Enclosure: Multi-ply hardwood, perforated metal grille

Connectors: STXLA/9: Neutrik 8-pin, screw terminals

Finish: Black, white or custom paint
Natural (unfinished)
Weather resistant (STXLA/9 only)

Assoc. Hardware: RHANGSTLA Flybar
STLADOLLY Dolly
COVER-STLA Padded cover (4 units)

Dimensions: 15 1/2" H x 38 1/2" W x 23" D
(39.4 cm x 97.8 cm x 58.4 cm)

Weight:

STLA/9R: 195 Lbs. (88.9 Kg) net

STXLA/9 157 Lbs (71.8 Kg) net

PM-3R AMPLIFIER

PWR Rating (Watts):

Lows: 850 RMS, 950 Pgm, 1200 Peak(20 ms)

Mids: 425 RMS, 475 Pgm, 600 Peak(20 ms)

Highs: 175 RMS, 200 Pgm, 250 Peak(20 ms)

Freq. Response: +0.0, -1.5 dB, 20 Hz to 20 kHz

THD Distortion: < 0.01 % typical

CMR: > 90 dB, 30 Hz to 2 kHz

Hum & Noise: <100 dB, 20 Hz to 20 kHz)

Input Sensitivity: 1.4 V for RPO

Damping Factor: 135 (100 Hz to 400 Hz)

100 (400 Hz and above)

Power

Connector PowerCon locking connector

Requirements: 90/136 V AC or 180/260 VAC, 50/60 Hz

9.6 Amps @ 120 V, 4.8 Amps @ 240 V

Idle Current: 380 mA @ 120 V, 190 mA @ 240 V

Max inrush

current (soft start): 14.5 Amps @ 120 V, 7.3 A @ 240 V

Inputs

Analog: Dual inputs; looping XLR (female in & Male out) & Looping Phoenix connectors

CobraNet: Dual RJ 45 connectors (for redundancy)

AESid Format: AESid Format Serial Audio (AES/EBU input); Phoenix connector

Controls: LF, MF, HF Mute buttons

Up & Down Output Level push buttons

10 dB Input pad (on Analog 1 input)

Power On/Off, Push-To-Reset circuit breaker

Computer Controls: Gain, Mute, On/Standby, Input Selection; Compression, 9-Band Parametric EQ, Shelving & Rolloff Filters, Delay

Status Indicators: Power, Signal, Overdrive, Thermal, Mute, Input Pad

Protection: Soft & Peak Limiting, Excursion Control & Thermal Regulation

Digital Format: 16, 20 or 24 bit PCM; 48 or 96 kHz sample rate; selectable Network Latency

DIMENSIONAL INFORMATION

Shown without Grille

