

### TECHNICAL INFORMATION

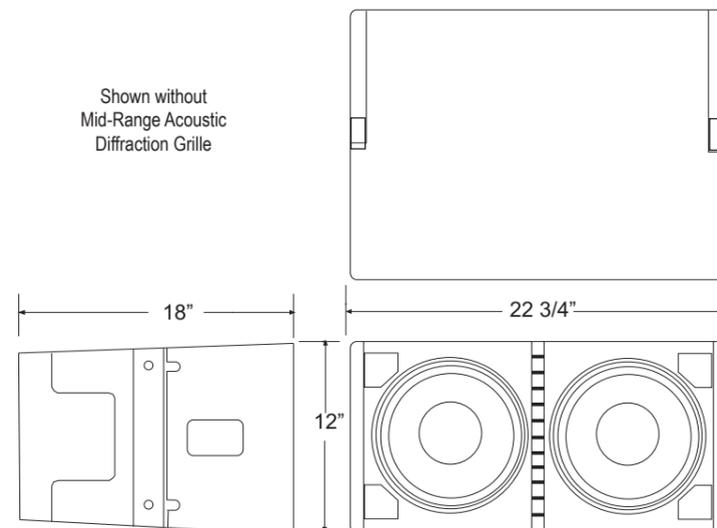
<b>Sensitivity:</b> 1.4 V for rated power output	<b>Power:</b> 115 V AC or 230 V AC, 50/60 Hz
<b>Max SPL:</b> H; 136 dB peak L; 136 dB peak	<b>Connectors:</b> Refer to amplifier specifications
<b>Dispersion:</b> 150° Horiz.; Vertical disp. determined by array design	<b>Finish:</b> Black, white or custom paint Natural (unfinished) Weather resistant
<b>Freq. Response:</b> 60 Hz to 18 kHz	<b>Hardware Options:</b> RHANG102LA Flybar 102DOLLY Dolly COVER102 Padded cover (4 units) PN Weather Resistant Kit
<b>MID/HF Drivers:</b> Two 1" SSD1803-8 compression drivers; 8 Ohms, 50 W RMS, 100 W pgm each	<b>Dimensions:</b> 12" H x 23 3/4" W x 18" D (30.5 cm x 60.3 cm x 45.7 cm)
<b>LF Drivers:</b> Two 10" model SSL10-7 woofers; 8 Ohms, 200 W RMS; 400 W pgm each	<b>Weight:</b> 82.2 Lbs. (37.7 Kg) net
<b>Crossover:</b> 1.0 kHz	
<b>Enclosure:</b> Multi-ply hardwood, perforated metal grille	

### PF2-500R Digital Bi-Amplifier

<b>Power:</b> Lows; 500 W RMS, Highs; 200 W RMS	<b>Controls:</b> Power on/off, Volume Up & Down, Mute, 10 dB Input Pad
<b>Freq. Response:</b> +0.0, -5 dB, 20 Hz to 20 kHz	<b>Power Connector:</b> IEC Power connector
<b>THD Distortion:</b> < 0.02% typical	<b>Power Requirements:</b> Switchable, 115 or 230 V AC, 50/60 Hz 6 A @ 120 V, 3 A @ 240 V Idle current: 500 ma @ 120 V; 250 ma @ 240 V; Max inrush current: 1 A
<b>Hum &amp; Noise:</b> <100 dB (A weighted)	<b>Digital Format:</b> 16, 20 or 24 bit PCM; 48 or 96 kHz sample rate; selectable Network Latency.
<b>Damping:</b> >100	<b>Protection:</b> Soft & Peak Limiting, Excursion Control & Thermal Regulation
<b>Input:</b> 10K Ohm balanced differential	
<b>Sensitivity:</b> 1.0 V for RPO	
<b>CMR:</b> 74 dB	
<b>Input Connectors:</b> <b>Analog:</b> Looping XLR; female in, male out (pin 1 chassis, pin 2 +, pin 3 -) <b>AES/EBU:</b> Phoenix <b>CobraNet:</b> Dual RJ45 connectors; accept CAT 5 cable	For additional details on the RHAON Audio Operations Network, refer to <a href="http://www.renkus-heinz.com/Rhaon/Index.html">www.renkus-heinz.com/Rhaon/Index.html</a> .

Note: All analog inputs and outputs comply with AES Standard 48-2005 on interconnecting, grounding and shielding.

### DIMENSIONAL INFORMATION



### Design Without Boundaries, Performance Without Limits

PN102/LA-52R 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 self-powered PN102/LA-52R line array is the logical choice for demanding designers, operators and audiences.

RHAON, the Renkus-Heinz Audio Operations Network, extends 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.



### PN102/LA-52R Line Array Module

The RHAON empowered PN102/LA-52R is the basic building block in the Renkus-Heinz PN102/LA-52R series high power line arrays. Its unique design allows ar-

rays of all sizes to be quickly and easily assembled and installed safely and securely.

### PF2-500R Class D Digital Bi-Amplifiers

The PF2-500R, the heart of the PN102/LA-52R superior performance and the muscle behind it, is a new kind of intelligent electronics system. It combines Class D digital bi-amplification with comprehensive signal processing into a single lightweight unit. Protection, crossovers and parametric EQ are integrated into the signal path.

RHAON adds onboard DSP and CobraNet capabilities. It has dual analog inputs, dual CobraNet inputs and an AES3 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 340 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

### PN102/LA-52R



### Line Array Systems

**Self-Powered • Networked  
Maximum Control • Maximum Choice**



- **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 PN102/LA-52R weighs under 85 Lbs).
- **Integral Class D Digital Bi-Amplifier**  
Is light in weight and highly efficient, provides audiophile quality performance.
- **RHAON Renkus-Heinz Audio Operations Network**  
RHAON provides flexible digital signal distribution and extensive loudspeaker management and control.
- **Exclusive Isophasic Plane Wave Generator**  
Provides constant beamwidth/directivity down to 300 Hz.
- **Unique Acoustic Diffraction Baffle**  
Eliminates mid-frequency narrowing, provides consistent horizontal coverage.
- **Dual 1" Mylar HF Drivers and Dual 10" Woofers**  
Provide smooth, low distortion performance from 60 Hz to 18 kHz and beyond.



Renkus-Heinz, Inc., 19201 Cook Street, Foothill Ranch, CA 92610-3501, USA  
Tel: +1 949-588-9997 • Fax: +1 949-588-9514 • Sales@renkus-heinz.com • www.renkus-heinz.com

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### 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)

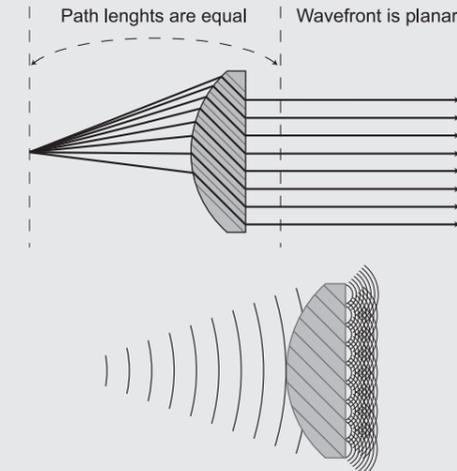
than a spherical wave (which loses 6 dB each time the distance doubles).

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 <math>1/2 \lambda</math> appart: wavefront is planar

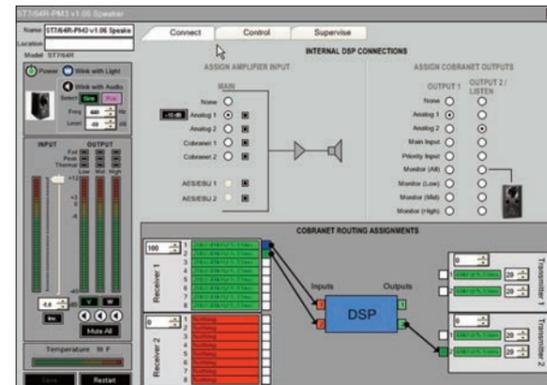
## RHAON RENKUS-HEINZ AUDIO OPERATIONS NETWORK

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.

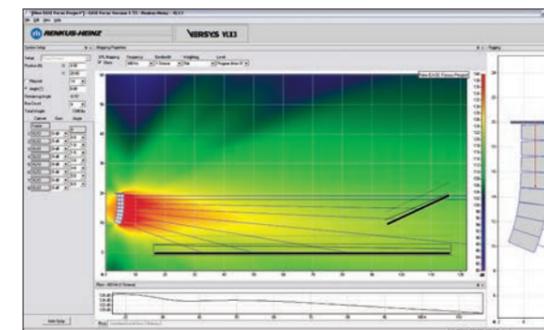
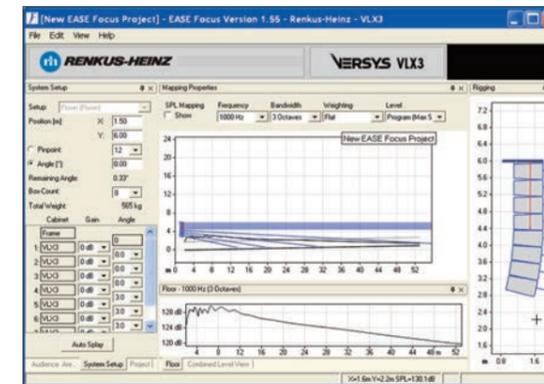


### EASE FOCUS - Array Aiming Software

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 and 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?

EASE FOCUS answers these questions and takes all the guesswork out of Line Array design and installation. With EASE FOCUS, 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. EASE FOCUS also enables you to determine the ideal mounting height and the correct hanging points for the array.



### Hardware Options

PN102/LA-52R 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 the EASE FOCUS 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 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 PN102/LA-52R Line Array modules is Black. Optional finishes include white and scuff resistant black TuffTex. Custom colors are also available.

### Weather Resistant Options

PN102/LA-52R 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.

