Working together, there's no problem we can't solve, no schedule we can't meet, no project we can't take to a higher level of excellence, from the White House to the Olympic SuperDome, from corner churches to major metropolitan concert halls. Much as we love technology, our greatest satisfaction comes through helping people communicate through music, dance, theater, or the power of a new idea brilliantly expressed. When we make those kinds of connections, there's nothing more exciting – or more powerful.

Here are some of the unique technologies we use to help people communicate:

Patented CoEntrant Topology integrates midrange and high frequencydrivers into wideband point sources.

Complex Conic Topology, the first new approach to horn design in decades, has proven its superior performance worldwide.

TRAP (TRue Array Principle) design aligns acoustic centers so loudspeaker clusters produce coherent output.

Reference Point Array engineering optimizes the entire signal chain from line level to listener for unprecedented performance.

System Specific Electronics integrate preconfigured signal processing and protection with high performance amplifiers.

The R-Control Remote System Supervision Network is based on Echelon's LonWorks® protocol (ANSI/EIA 709.1).

PowerNet Series loudspeakers incorporate System Specific Electronics and can be upgraded for R-Control remote operation.

EASE, EASE JR and EARS are the industry standard modeling programs for acoustic environments and sound system  performance.

CobraNet routes 64 channels of 20-bit digital audio over CAT 5 copper or fiber optic cable using Ethernet protocols.

For more information on the latest integrated sound reinforcement innovations from R-H Engineering, visit us on our website. www.renkus-heinz.com.

RENKUS-HEINZ
ADVANCING SOUND. PROVIDING SOLUTIONS.

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RH550 26/04

# Reference Point Arrays

coverage  clarity  simplicity

**End to End Integration**

**Plug 'n' Play**

RENKUS-HEINZ
ADVANCING SOUND. PROVIDING SOLUTIONS.

# ONE BOX

( Some Assembly Required )

## THE PLUG ‘N’ PLAY ARRAY:
## RPA ( Reference Point Array ) INTEGRATION

Cut the complexity of working with multi-speaker clusters until they're as easy to work with as a single loudspeaker. That's the concept driving Renkus-Heinz engineering as we develop each new Reference Point Array (RPA).

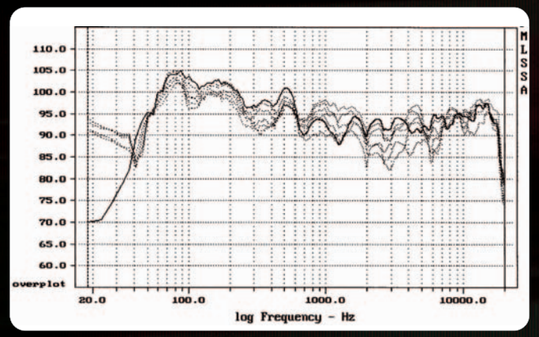
When the entire system comes from one source, it can function as a single acoustic source. RPA integrated systems engineering expands on our proprietary TRue Array Principle (TRAP) that practically eliminates interference between adjacent horns. Complex Conic horns provide constant beamwidth/directivity without the problems of conventional horns.

We control the location and orientation of each array element with purpose-designed, precision R-Hang hardware. At our automated test and measurement facility, we dial in the parameters for Array-Specific Processing, optimizing low frequency directionality, wavefront coherency and cluster integration.

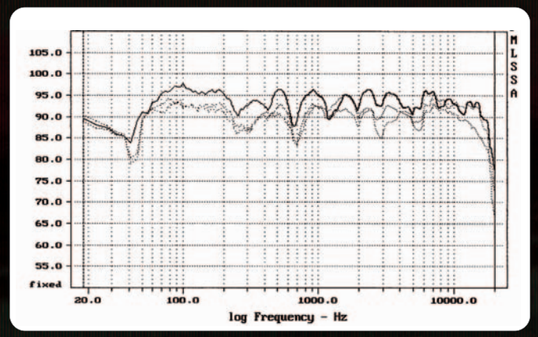
We make sure that each carefully processed signal is delivered to the right set of transducers with internal intelligent amplification or rack mount amplifier/controllers with pre-configured wiring.

Before we ship any RPA, the entire array is assembled and its performance verified. When your RPA arrives at the job site, all you do is re-assemble the speakers and hardware. Then plug it in, turn it on and walk the room. Like hundreds of designers, operators, owners and audiences around the world, you'll be delighted with the results.

RPA's are the best example of how advanced technologies, real world experience and intelligent system design can provide both uncompromising audio fidelity and unsurpassed practicality - starting with EASE, which includes single-source data for RPA's. You'll save hours of installation and troubleshooting time, while delivering results that are superior to "handmade" arrays using conventional components.




3-wide ST4/4-3(T) Array - measured without RPA processing.




3-wide ST4/4-3(T) Array - measured with RPA processing.

### POWER AMPLIFIER MODULES

**PN-1 PowerNet Power Module**
* 450 Watts Peak (300 Watts RMS)

**Audiophile Performance**
* < 0.01% distortion
* < -100 dB noise,  20Hz to 20kHz
* Flat response from 20Hz to 20kHz

**Class AB Amplification**
* Light weight, high efficiency, reduced AC power requirements

**Flexible Inputs**
* High CMRR Analog Input and optional R-Control Remote control and supervision

**PM-3 Tri-Amplified Power**
* 1200 Watts Peak (850 Watts RMS) Lo  Band Amplifier delivers rock solid bass
* 600 Watts Peak (425 Watts RMS) Mid Band Amplifier projects the vocal range cleanly
* 250 Watts Peak (175 Watts RMS) Hi Band Amplifier for clear smooth transients

**Audiophile Performance**
* < 0.01% distortion
* < -100 dB noise,  20Hz to 20kHz
* Flat response from 20Hz to 20kHz

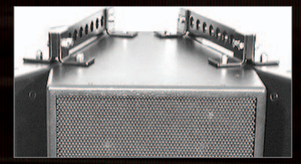
**Advanced Class D Digital Technology**
* Smaller, lighter, cooler; high efficiency reduces AC power requirements, eliminates the need for fan cooling.

**Speaker Specific Signal Processing**
* Provides Crossover, Equalization, Thermal Protection, Peak Limiting, Excursion Control,  Alignment Delays

**Flexible Audio & Control Network Technologies**
* High CMRR Analog Input, or
* CobraNet ® 64 channel digital audio network (1 digital input, 6 individual analog outputs)
* R-Control Remote control and supervision

### HARDWARE OPTIONS

All Reference Point Arrays are equipped with factory designed and safety certified R-HANG flying hardware that simplifies installation and assures safety.



Heavy duty steel mounting rails tie the loudspeaker cabinets together at the top and provide a range of pick-up points to facilitate aiming.

Steel straps attach to the rear of the cabinets at the top and bottom to turn the array into a single rigid assemly and prevent splaying.

Smaller mid-high cabinets are attached to the larger full-range cabinets with heavy metal straps.

Downfill loudspeakers are attached to the main array with OmniMount hardware that is easy to install and adjust.

### FINISHES

The standard finish for Reference Point Arrays is black. Optional finishes include white, “natural” (sanded and unfinished) and scuff-resistant black TuffTex. Custom colors are also available.

### WEATHER RESISTANT

Non-powered T, N and S Series Reference Point Arrays are also available with weatherized woofer cones and connectors, in weather resistant fiberglass or TuffTex Elastomer finishes that are practically impervious to the elements.

Our **System Configurator** takes the guesswork out of designing or ordering loudspeakers or loudspeaker arrays. The program walks you through each design choice, clarifying options that are available and ensuring that when you are done, the resultant design/order is complete and accurate.

The **System Configurator** is available on our website, **www.renkus-heinz.com**, by selecting the **Customize/Place Order** button.

# T SERIES
# 2-WAY REFERENCE POINT ARRAYS

**OUTSTANDING PERFORMANCE**
**EXCEPTIONAL VALUE**
**HIGH EFFICIENCY**

## EASY INSTALLATION, IMPRESSIVE SOUND

The building blocks of T Series RPA's are our acclaimed TRX Series loudspeakers - 2-way passive loudspeakers that use advanced technology and application-driven engineering to produce superior performance.

Cutting edge compression driver technology, efficient woofers, and our innovative Complex Conic horns deliver natural sounding music and intelligible speech.Built-in crossovers eliminate the need for complex, costly bi-amplification using separate electronic crossovers.

Whenever audiences and operators demand superior performance and ease of use, T Series RPA's deliver unequalled value.

Hannover Preussag Arena - Hannover, Germany

T15/6-2T Reference Point Array

## T12 AND T15 SERIES

T12 Series RPA's integrate TRX121T/6 passive 2-way loudspeakers, with 12-inch woofers and 1-inch HF drivers on medium format Complex Conic horns. They are available in 2-wide (80° H by 60° V), 3-wide (120° H by 60° V) and 4-wide (160° H by 60° V) configurations.

T15 Series RPA's integrate TRX151T/4 passive 2-way loudspeakers, with 15-inch woofers and 2-inch HF drivers on medium format Complex Conic horns. They are available in 2-wide (80° H by 40° V), 3-wide (120° H by 40° V) and 4-wide (160° H by 40° V) configurations.

Like all RPA's, each T12 and T15 Series model is fully assembled and tested before it leaves our manufacturing facility to assure consistent performance "out-of-the-box."

| MODEL | M/H DRIVER | FREQ (Hz) | DISPERSION (degrees) | SPL RATING (prog / peak) | WxHxD (inches / centimeters) | WEIGHT (lbs. / kg) | POWER REQUIRED |
|---|---|---|---|---|---|---|---|
| **T12/6-2(T)** | 1 inch | 65 to 18K | 80°H by 60° V | 129 / 132 dB | 29 x 26.5 x 16.5 / 73.7 x 67.3 x 41.9 | 90 / 40.8 | 1 Dual Channel Amp. 2 x 350 W/ch @ 8 Ohms, 2 x 500 W/ch @ 4 Ohms. |
| **T12/6-3(T)** | 1 inch | 65 to 18K | 120°H by 60° V | 131 / 134 dB | 39.25 x 26.5 x 17.5 / 99.7 x 67.3 x 44.5 | 138 / 62.6 | |
| **T12/6-4(T)** | 1 inch | 65 to 18K | 160°H by 60° V | 132 / 135 dB | 45.5 x 26.5 x 21.5 / 115.6 x 67.3 x 54 | 184 / 83.5 | |
| **T15/4-2(T)** | 1 inch | 50 to 18K | 80°H by 40° V | 130 / 133 dB | 35.5 x 29.5 x 21.5 / 90.2 x 75 x 54.6 | 128 / 58.1 | 1 Dual Channel Amp. 2 x 5000 W/ch @ 8 Ohms, 2 x 750 W/ch @ 4 Ohms. |
| **T15/4-3(T)** | 1 inch | 50 to 18K | 120°H by 40° V | 132 / 135 dB | 48 x 29.5 x 22.25 / 121.9 x 75 x 56.5 | 195 / 88.5 | |
| **T15/4-4(T)** | 1 inch | 50 to 18K | 160°H by 40° V | 133 / 136 dB | 55.5 x 29.5 x 26.75 / 141 x 75 x 68 | 260 / 118 | |

# ADVANCED RPA TECHNOLOGIES

**END-TO-END INTEGRATION**
**TOTAL SYSTEM ENGINEERING**
**FACTORY ASSEMBLY & TESTING**
**PLUG 'N PLAY INSTALLATION**

Liberty Christian Center, Fairfield, CA, USA

### 25 YEARS OF SYSTEMS INTEGRATION GO INTO EVERY RPA ARRAY

RPA's integrate the entire signal chain, from line level to listener, into multi-element arrays that perform as a single broadband acoustic source. Breakthrough performance demands it - and only Renkus Heinz delivers it.

RH engineering starts with breakthrough technologies: Complex Conic horns, patented CoEntrant mid/high transducers, advanced woofers developed with the world's leading manufacturers, TRAP (TRue Array Principle) loudspeaker designs, transparent digital amplification, loudspeaker specific processing and CobraNet connectivity. Then our painstaking end-to-end integration process goes beyond the loudspeaker system to create transparent multi-speaker arrays that reproduce any source without coloration.

### COMPLEX CONIC HORNS

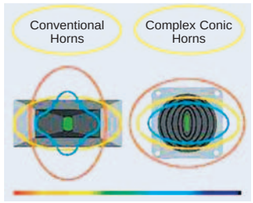
Designed around the spherical expansion of the acoustic pressure wave, Complex Conic horns provide constant beamwidth/ directivity without the problems of conventional rectangular horns. These unique waveguides eliminate low frequency "pattern flip," a characteristic of most horns that results in inconsistent coverage near crossover.

The circular mouths of Complex Conic horns also have no corners to cause high frequency "feathering" and the resulting distortion. The results are audible: accurate pattern control, lower distortion and minimal coloration; in short, sound that is far more natural.

Nominal Coverage Patterns, (90° H by 40° V for example)

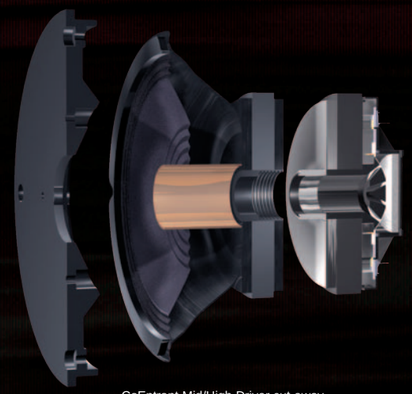
Actual patterns clearly show the superior pattern control of Complex Conic horns

Frequency Color Bar – low frequencies (red) to high frequencies (blue)




### PATENTED COENTRANT TRANSDUCERS

The CoEntrant mid/high driver is the first new method for converting electrical into acoustic energy developed in decades. It combines a mid-range cone and a high frequency compression driver into a wideband true point source with low distortion and high output. CoEntrant drivers loaded with Complex Conic horns offer numerous measurable advantages over dual-horn and co-axial topologies, including smaller size, lower weight, inherent phase coherency and smoother frequency response.



CoEntrant Mid/High Driver cut-away

# TRUE ARRAY PRINCIPLE (TRAP) DESIGN

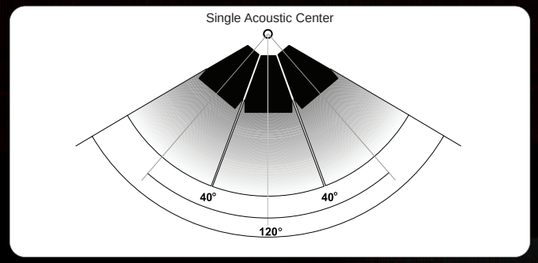
**PROPERLY ALIGNED ACOUSTIC CENTERS**
**VIRTUALLY NO INTERFERENCE**
**ELIMINATES LOBING ( HOT SPOTS & DEAD SPOTS )**
**ELIMINATES HOT SPOTS & DEAD SPOTS**

## DESIGNED TO WORK TOGETHER

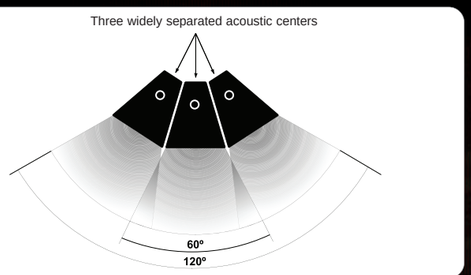
No matter how good a single conventional loudspeaker sounds, once it is used in a cluster or array, interaction with its neighboring loudspeakers produces undesirable lobing or comb filtering - which creates a profusion of "hot spots" and "dead spots" in the overlap areas, along with disturbing variations in frequency response from one location to another.

Electronics can improve the performance of any array. But only TRAP loudspeakers are engineered from the inside out to produce a single source of sound even in large arrays. The reason ordinary loudspeakers can't help interfering with each other in clusters is that their acoustic centers are widely spaced.

That's why we designed TRAP horns and enclosures to align the acoustic centers. The horn angles are matched to the trapezoidal enclosures, which are designed to place the drivers as close together as physically possible. All sound originates from the same spot, so interference between adjacent horns is practically eliminated.



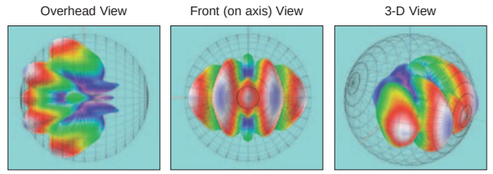

TRAP loudspeaker array: proper alignment of acoustic centers produces smooth cverage without interference.




Conventional loudspeaker array: separation between acoustic centers produces comb filtering and lobing in overlap areas

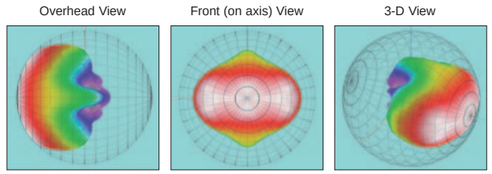
Arrays of TRAP loudspeakers produce a phase aligned wavefront with uniform frequency response across the coverage area. Below the horn's cutoff frequency, RPA signal processing eliminates low frequency interference and can improve pattern control. The result is great sound at every seat -- no more "hot spots" and "dead spots" in the overlap areas and disturbing variations in frequency response from one location to another.

CONVENTIONAL
CLUSTER PERFORMANCE




IN CLUSTERS, CONVENTIONAL LOUDSPEAKERS CAN'T HELP INTERFERING WITH EACH OTHER.

TRAP (TRUE ARRAY PRINCIPLE)
CLUSTER PERFORMANCE




TRAP LOUDSPEAKERS WORK TOGETHER TO PRODUCE A COHERENT WAVEFRONT.

PN15/4-3T) & P15/4-3(T)

## WIDE-ANGLE:3-WIDE 120° P/PN12 & P/PN15

The wide 120° horizontal coverage and tight vertical control of 3-wide P/PN Series RPA's make them ideal for any application where a single speaker can't meet the output requirements, but focused imaging is essential.

P/PN12 models offer 60° of vertical coverage, while P/PN15 RPA's cover 40° of vertical arc. As with all RPA's single-source models are available in EASE.

| MODEL | HF DRIVER | FREQ (Hz) | DISPERSION (degrees) | SPL RATING (prog / peak) | WxHxD (inches / centimeters) | WEIGHT (lbs. / kg) | POWER / SENSITIVITY |
|---|---|---|---|---|---|---|---|
| **PN12/6-3(T)** | 1 Inch | 40 to 18K | 120°H by 60° V | 130 / 133 dB | 39.25 x 26.5 x 17.5 / 99.7 x 67.3 x 44.5 | 219 / 99.3 | 115/230 V AC<br>1.4 V Input for RPO |
| **P12/6-3(T)** | 1 Inch | 40 to 18K | 120°H by 60° V | 131 / 134 dB | 39.25 x 26.5 x 17.5 / 99.7 x 67.3 x 44.5 | 189 / 85.7 | See note below |
| **PN15/4-3(T)** | 2 inch | 40 to 18K | 120°H by 60° V | 130 / 133 dB | 48 x 29.5 x 22.5 / 121.9 x 74.9 x 56.5 | 284 / 128.8 | 115/230 V AC<br>1.4 V Input for RPO |
| **P15/4-3(T)** | 2 inch | 40 to 18K | 120°H by 60° V | 133 / 136 dB | 48 x 29.5 x 22.5 / 121.9 x 74.9 x 56.5 | 254 / 115.2 | See note below |

Note: The P12/6-3(T) and P15/4-3(T) require 2 dual-channel amplifiers having the same voltage gain. Minimum recommended amplifier power: 500 W/ch@8 Ohms, 750 W/ch@ 4 Ohms, 900 W/ch@ 2 Ohms.

Monroe's - Nightclub, Hollywood, CA, USA

Myrtle Beach Ballpark - South Carolina, USA

## FAN-SHAPED SOLUTIONS: 160° P/PN12 & P/PN15

Many fan-shaped spaces present the designer with a triple challenge. These spaces demand wide horizontal yet narrow vertical coverage - almost impossible to achieve using a a single horn flare. At the same time the size of the venue typically requires more "horsepower" than any single loudspeaker can comfortably supply. Yet the audience's demand for natural, transparent reproduction is no less than in a smaller, more intimate situation.

The answer to all three problems is a 4-wide PN or P Series RPA. End-to-end systems integration provides point-source accuracy, with the output capabilities of four 12-inch or 15-inch woofers and four 1-inch or 2-inch compression drivers on our unique Complex Conic horns.

PN15/4-4(T) & P15/4-4(T)

| MODEL | HF DRIVER | FREQ (Hz) | DISPERSION (degrees) | SPL RATING (prog / peak) | WxHxD (inches / centimeters) | WEIGHT (lbs. / kg) | POWER / SENSITIVITY |
|---|---|---|---|---|---|---|---|
| **PN12/6-4(T)** | 1 Inch | 40 to 18K | 160°H by 60° V | 131 / 134 dB | 45.5 x 26.5 x 21.5 / 115.6 x 67.3 x 54 | 292 / 132.5 | 115/230 V AC<br>1.4 V Input for RPO |
| **P12/6-4(T)** | 1 Inch | 40 to 18K | 160°H by 60° V | 131 / 134 dB | 45.5 x 26.5 x 21.5 / 115.6 x 67.3 x 54 | 252 / 114.3 | See note below |
| **PN15/4-4(T)** | 2 inch | 40 to 18K | 160°H by 40° V | 131 / 134 dB | 55.5 x 29.5 x 26.75 / 141 x 74.9 x 67.9 | 372 / 168.7 | 115/230 V AC<br>1.4 V Input for RPO |
| **P15/4-4(T)** | 2 inch | 40 to 18K | 160°H by 40° V | 131 / 134 dB | 55.5 x 29.5 x 26.75 / 141 x 74.9 x 67.9 | 332 / 150.7 | See note below |

Note: The P12/6-4(T) and P15/4-4(T) require 2 dual-channel amplifiers having the same voltage gain. Minimum recommended amplifier power: 500 W/ch@8 Ohms, 750 W/ch@ 4 Ohms, 900 W/ch@ 2 Ohms.

# S & ST SERIES
# 3-WAY REFERENCE POINT ARRAYS

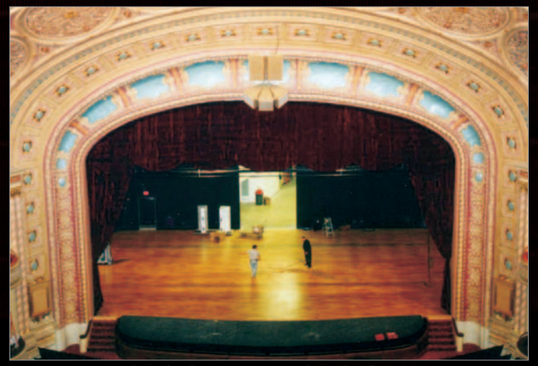
**WIDEBAND DIRECTIONAL CONTROL**
**EXTREME HIGH OUTPUT**
**PATENTED COENTRANT MID/HIGH TRANSDUCERS**
**SELF-POWERED & COBRANET OPTIONS**

## PINPOINT CONTROL, HIGH-IMPACT POWER, TOTAL ACCURACY

Self-powered ST Series and externally powered S Series RPAs are based on the world's most advanced loudspeaker systems: Renkus Heinz ST Series and STX Series. These loudspeakers combine all of our most advanced technologies to deliver reference quality output at extremely high output levels.

Patented CoEntrant Transducers provide the low distortion and high output of 3-way designs with the compact dimensions and point-source imaging of 2-way loudspeakers. Quad-8 and Quad-12 Doublet low frequency designs control longer wavelengths in both the horizontal and vertical planes. RPA integration expands the exceptional performance of these breakthrough loudspeakers to cover horizontal arcs of 80° to 160°.

Whenever the venue's level, coverage and performance needs can't be met with a single loudspeaker, ST and S Series Reference Point Arrays are the ultimate choice for reference quality sound.



Morris Performing Art Center - South Bend, Indiana, USA

S4/4-4(T) -- ST4/4-4(T)

### COMPACT CONTROL: S/ST4

The ST4 and STX4 loudspeakers used in ST and S Series RPA's combine the CDT-1 CoEntrant Transducer (8-inch midrange cone and 1-inch HF driver) with a Quad-8 doublet low frequency design that outperforms dual 12" systems and provides superior broadband directionality while reducing cabinet size. Consistent pattern control makes them ideal for applications that demand spatial imaging over a wide audience area, such as cross-matrix L/C/R designs.

ST4 Series loudspeakers are self-powered with integral PM-3 Digital Tri-Amplifers. CobraNet connectivity and R-Control remote control and supervision are available via plug-in modules.

S4 Series loudspeakers are non-powered and include a passive mid/high crossover.

| MODEL | M/H DRIVER | FREQ (Hz) | DISPERSION (degrees) | SPL RATING (prog / peak) | WxHxD (inches / centimeters) | WEIGHT (lbs. / kg) | POWER / SENSITIVITY |
|---|---|---|---|---|---|---|---|
| **ST4/4-2(T)** | CDT-1 | 50 to 18K | 80°H by 40° V | 128 / 131 dB | 35.45 x 30.25 x 25.77 / 90 x 76.8 x 65.5 | 305 / 138.3 | 115/230 V AC 1.4 V Input for RPO |
| **S4/4-2(T)** | CDT-1 | 50 to 18K | 80°H by 40° V | 128 / 131 dB | 35.45 x 30.25 x 25.77 / 90 x 76.8 x 65.5 | 230 / 104.3 | See note below |
| **ST4/4-3(T)** | CDT-1 | 50 to 18K | 120°H by 40° V | 131 / 134 dB | 51 x 30.25 x 26.79 / 129.5 x 76.8 x 68 | 462.5 / 209.8 | 115/230 V AC 1.4 V Input for RPO |
| **S4/4-3(T)** | CDT-1 | 50 to 18K | 120°H by 40° V | 131 / 134 dB | 51 x 30.25 x 26.79 / 129.5 x 76.8 x 68 | 350 / 158.8 | See note below |
| **ST4/4-4(T)** | CDT-1 | 50 to 18K | 160°H by 40° V | 131 / 134 dB | 61.83 x 30.25 x 30.32 / 157 x 76.8 x 77 | 350 / 158.8 | 115/230 V AC 1.4 V Input for RPO |
| **S4/4-4(T)** | CDT-1 | 50 to 18K | 160°H by 40° V | 131 / 134 dB | 61.83 x 30.25 x 30.32 / 157 x 76.8 x 77 | 350 / 158.8 | See note below |

Note: ST4/4 RPA's require a dual-channel amplifier for each cabinet in the array. The amplifiers must have the same voltage gain. Minimum recommended amplifier power: 500 W/ch@8 Ohms, 750 W/ch@ 4 Ohms, 900 W/ch@ 2 Ohms..

S/ST8/4-3(T) -- S/ST9/4-3(T)

### FOCUSED LONG-THROW POWER: S/ST8 & S/ST9

S/ST8 and S/ST9 models combine CoEntrant M/H Drivers and medium format Complex Conic horns with a Quad-12 Doublet low frequency design to produce effective directional control across the entire frequency spectrum. RPA end-to-end integration enables 2-wide and 3-wide arrays to cover 80° or 120° horizontal arcs with point-source accuracy and imaging while exciting audiences with intense output levels no single speaker can match.

S/ST8 models feature the high power CDT-1 M/H driver while S/ST9 models have the larger and even more powerful CDT-2 M/H driver. The Complex Conic horns used in S/ST9 models also feature asymmetrical 40° (plus 30°, minus 10°) vertical coverage. ST8 and ST9 models are self-powered by the digital PM-3 Tri-Amplifier and offer CobraNet connectivity and R-Control remote control and supervision via plug-in modules. S8 and S9 models use external amplifiers and include a passive mid/high crossover.

| MODEL | M/H DRIVER | FREQ (Hz) | DISPERSION (degrees) | SPL RATING (prog / peak) | WxHxD (inches / centimeters) | WEIGHT (lbs. / kg) | POWER / SENSITIVITY |
|---|---|---|---|---|---|---|---|
| **ST8/4-2(T)** | CDT-1 | 40 TO 18K | 80°H by 40° V | 129 / 132 dB | 50.32 x 50 x 35.61 / 127.8 x 127 x 90.4 | 510 / 231.3 | 115/230 V AC 1.4 V Input for RPO |
| **S8/4-2(T)** | CDT-1 | 40 to 18K | 80°H by 40° V | 129 / 132 dB | 50.32 x 50 x 35.61 / 127.8 x 127 x 90.4 | 435 / 197.3 | See note below |
| **ST9/4-2(T)** | CDT-2 | 40 TO 18K | 80°H by 40° V(Asm.) | 135 / 138 dB | 50.32 x 50 x 35.61 / 127.8 x 127 x 90.4 | 550 / 249.5 | 115/230 V AC 1.4 V Input for RPO |
| **S9/4-2(T)** | CDT-2 | 40 TO 18K | 80°H by 40° V(Asm.) | 135 / 138 dB | 50.32 x 50 x 35.61 / 127.8 x 127 x 90.4 | 475 / 215.5 | See note below |
| **ST8/4-3(T)** | CDT-1 | 40 to 18K | 120°H by 40° V | 131 / 134 dB | 71.72 x 50 x 36.93 / 182.2 x 127 x 93.8 | 770 / 349.3 | 115/230 V AC 1.4 V Input for RPO |
| **S8/4-3(T)** | CDT-1 | 40 to 18K | 120°H by 40° V | 131 / 134 dB | 71.72 x 50 x 36.93 / 182.2 x 127 x 93.8 | 657 / 298 | See note below |
| **ST9/4-3(T)** | CDT-2 | 40 to 18K | 120°H by 40° V(Asm.) | 137 / 140 DB | 71.72 X 50 X 36.93 / 182.2 X 127 X 93.8 | 830 / 376.5 | 115/230 V AC 1.4 V Input for RPO |
| **S9/4-3(T)** | CDT-2 | 40 to 18K | 120°H by 40° V(Asm.) | 137 / 140 DB | 71.72 X 50 X 36.93 / 182.2 X 127 X 93.8 | 717.5 / 325.5 | See note below |

Note: The S8/4-2(T) and S9/4-2(T) require 2 dual-channel amplifiers having the same voltage gain. Minimum recommended amplifier power: S8/4-2(T); 2 Amps with 500 W/ch@8 Ohms, 750 W/ch@ 4 Ohms, 900 W/ch@ 2 Ohms;: S9/4-2(T); 2 Amps with 800 W/ch@ 8 Ohms, 1200 W/ch@4 Ohms, 1600 W/ch@ 2 Ohms.

The S8/4-3(T) and S9/4-3(T) require 3 dual-channel amplifiers having the same voltage gain. Minimum recommended amplifier power: S8/4-3 (T):500 W/ch@8 Ohms, 750 W/ch@ 4 Ohms, 900 W/ch@ 2 Ohms; S9/4-3 (T):3 mps with 800 W/ch@8 Ohms, 1200 W/ch@ 4 Ohms, 1600 W/ch@ 2 Ohms;

### WIDE-ANGLE, HIGH OUTPUT: S/ST8 & 9/4-4

S/ST8/4-4 and S/ST9/4-4 RPA's are ideal for venues requiring 160° of horizontal coverage, but where the low frequency energy of four full-range cabinets would be excessive. To improve speech intelligibility and musical definition, these RPAs employ 2 full-range cabinets and 2 mid/high cabinets.

The S/ST9/4-4 RPA's also feature asymmetrical 40° (plus 30°, minus 10°) vertical coverage to direct more sound down onto the floor.

The PN121/9DF downfill loudspeakers shown in the photograph are optional.

ST8/4-4(T) -- ST9/4-4(T)

| MODEL | M/H DRIVER | FREQ (Hz) | DISPERSION (degrees) | SPL RATING (prog / peak) | WxHxD (inches / centimeters) | WEIGHT (lbs. / kg) | POWER / SENSITIVITY |
|---|---|---|---|---|---|---|---|
| **ST8/4-4(T)** | CDT-1 | 40 to 18K | 160°H by 40° V | 132 / 135 dB | 50.32 x 60 x 35.61 / 127.8 x 152.4 x 90.4 | 775 / 351.5 | 115/230 V AC 1.4 V Input for RPO |
| **S8/4-4(T)** | CDT-1 | 40 to 18K | 160°H by 40° V | 132 / 135 DB | 50.32 X 60 X 35.61 / 127.8 X 152.4 X 90.4 | 964 / 437.3 | See note below |
| **ST9/4-4(T)** | CDT-2 | 40 to 18K | 160°H by 40° V(Asm,) | 138 / 141 dB | 50.32 x 60 x 35.61 / 127.8 x 152.4 x 90.4 | 775 / 351.5 | 115/230 V AC 1.4 V Input for RPO |
| **S9/4-4(T)** | CDT-2 | 40 to 18K | 160°H by 40° V(Asm.) | 138 / 141 DB | 50.32 X 60 X 35.61 / 127.8 X 152.4 X 90.4 | 1044 / 473.6 | See note below |

Note: The S8/4-4(T) and S9/4-4(T) require 4 dual-channel amplifiers having the same voltage gain. Minimum recommended amplifier power: 1 Amp with 800 W/ch@8 Ohms, 1200 W/ch@ 4 Ohms, 1600 W/ch@ 2 Ohms; 2 Amps with 500 W/ch@8 Ohms, 750 W/ch@ 4 Ohms, 900 W/ch@ 2 Ohms; 1 Amp with 350 W/ch@ 8 Ohms, 500 W/ch@4 Ohms.

# P & PN SERIES
# 2-WAY REFERENCE POINT ARRAYS

**COMPLEX CONIC HORNS**
**REFERENCE MONITOR ACCURACY**
**COMPACT ENCLOSURES & ARRAYS**

## NEGLIGIBLE DISTORTION, CONSISTENT TIMBRE

Whenever transparent, reference quality reproduction is required, P/PN Series RPA's are the clear choice. Their 40° Complex Conic horns deliver consistent pattern control with minimal distortion and none of the coloration encountered with conventional horns. World-class transducers bring live sound closer to the ultimate reference point: reality

P and PN Series RPA's integrate our unique 40° TRAP PNX/PN Series loudspeakers that array seamlessly with their companions. System Specific Electronics are precisely adjusted for proper phase alignment, uniform response across the entire frequency range and long term reliability. Optional features include CobraNet connectivity and R-Control remote computer control and supervision.

PN Series RPA's are self-powered by integrated PN-1 PowerNet amplifiers, which combine low-feedback Class A/B amplification with comprehensive signal processing and transducer protection into a single compact unit.

P Series RPA's offer the same integrated system performance for applications using external power amplification and signal processing.

P and PN Series RPA's are the clear choice for the ultimate in compact, coherent 2-way performance.

Vityaz Ice Palace - Podolsk, Russia

PN12/6-2(T) -- P12/6-2(T)

## COMPACT, CONCENTRATED: P/PN12 & P/PN15

PN12/6-2(T) and P12/6-2/(T) arrays include high performance 12-inch woofers plus extended range 1-inch HF compression drivers on Complex Conic horns. Only 26 1/2" tall, they deliver a surprising 132 dB peak SPL into a 80° horizontal by 60° vertical coverage angle.

PN15/4-2(T) and P15/4-2(T) arrays use high output 15-inch woofers and advanced 2-inch HF compression drivers on Complex Conic horns. These compact powerhouses are only 29 1/2" tall, yet peak output is 134 dB into a 80° horizontal by 40° vertical coverage angle.

| MODEL | HF DRIVER | FREQ (Hz) | DISPERSION (degrees) | SPL RATING (prog / peak) | WxHxD (inches / centimeters) | WEIGHT (lbs. / kg) | POWER / SENSITIVITY |
|---|---|---|---|---|---|---|---|
| **PN12/6-2(T)** | 1 Inch | 40 to 18K | 160°H by 60° V | 128 / 131 dB | 29 x 26.5 x 16.5 / 73.7 x 67.3 x 41.9 | 144 / 65.3 | 115/230 V AC 1.4 V Input for RPO |
| **P12/6-2(T)** | 1 Inch | 40 to 18K | 160°H by 60° V | 129 / 132 dB | 29 x 26.5 x 16.5 / 73.7 x 67.3 x 41.9 | 124 / 56.2 | See note below |
| **PN15/4-2(T)** | 2 inch | 40 to 18K | 160°H by 40° V | 128 / 131 dB | 35.5 x 29.5 x 21.5 / 90.2 x 74.9 x 54.6 | 186 / 84.4 | 115/230 V AC 1.4 V Input for RPO |
| **P15/4-2(T)** | 2 inch | 40 to 18K | 160°H by 40° V | 131 / 134 dB | 35.5 x 29.5 x 21.5 / 90.2 x 74.9 x 54.6 | 166 / 75.3 | See note below |

Note: The P12/6-2(T) and P15/4-2(T) require a single dual-channel amplifier. Minimum recommended amplifier power: 500 W/ch@8 Ohms, 750 W/ch@ 4 Ohms, 900 W/ch@ 2 Ohms.

# SYSTEM SPECIFIC ELECTRONICS

**SPEAKER-SPECIFIC DRIVER PROTECTION & OPTIMIZATION**
**ARRAY-SPECIFIC PROCESSING & INTEGRATION**
**EFFICIENT SETUP, RELIABLE OPERATION, SUPERIOR PERFORMANCE**

### SYSTEM SPECIFIC ELECTRONICS

Making the signal chain System Specific means measuring and adjusting critical parameters to maximize the performance of our multi-element Reference Point Arrays. For RH Engineering, it's a time-consuming, data-intensive process, whether it's the PN-1 PowerNet amplifier inside our PN Series Reference Point Arrays, the PM-3 digital Tri-Amplifier integral to the ST Series Arrays or external rack mount devices. But the results are worth it.

Both the PN-1 PowerNet Amplifier and the PM-3 Digital Tri-Amplifier include System Specific EQ and protection circuitry. The same tight system integration is available for externally powered P, S and TRX Series Reference Point Arrays via Loudspeaker Specific Processor Modules that plug into our X Series rack-mount analog controllers. They provide complete individual loudspeaker output protection and optimization.


**X Series Analog Controllers**

X24 - 2 channel, 2-way; X14 -1 channel, 4-way; X12- 1 channel, 2-way

For room equalization, delay and other commissioning or setup functions, the D26A Digital Controller provides two-in, six-out processing with comprehensive EQ, crossover, delay and limiting functions. The D26A can be controlled via MIDI or RS232 from SMAART LIVE's dual-FFT EQ window, so that critical parameter values can be quickly and precisely "dialed-in" without guesswork.


D26A Digital Controller - 2 input, 6 output

### COBRANET CONNECTIVITY

In complex installations, a CobraNet Digital Audio Network not only cuts out ground-loop-related noise, it can cut the cost of signal distribution as well. The integral PM-3 Digital Tri- Amplifier that powers ST Series RPAs includes plug-in modules for both CobraNet and R-Control remote computer control and supervision. Self-powered PN Series RPAs include the PN-1 Class A/B low feedback amplifier, which offers an R-Control plug-in and can be connected to a CobraNet network using the Renkus-Heinz CobraNet Breakout Box. The same CobraNet Breakout Box can also connect the external amplifiers used with non-powered P and S Series Reference Point Arrays to a CobraNet Network.

CobraNet Plug-in Module

CobraNet Breakout Box

### R-CONTROL REMOTE CONTROL & SYSTEM SUPERVISION

The R-Control Remote System Supervision Network is based on Echelon's LonWorks protocol (ANSI/EIA standard 790.1). Real-time impedance monitoring, Event Scheduler, Fault Logger and Scene Store/Recall and AMX control interface make R-Control a powerful tool for remote management of installed or portable sound systems. R-Control can run on the same CAT5 cable as CobraNet, and be monitored remotely via the LonWorks IP bridge.

R-Control plug-ins are available for both PN -1 PowerNet amplifiers and PM-3 digital tri-amplifiers.

R-Control Software - Screenshot