ST•STX SERIES
The most intelligent sound reinforcement system on the planet.

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 frequency drivers 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.
- CobraNet routes 64 channels of 20-bit digital audio over CAT 5 copper or UTP optical fiber using Ethernet protocols.
- System Specific Electronics integrate pre-configured 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 measurement and sound system performance.
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For more information on the latest integrated sound reinforcement innovations from RH Engineering, visit us on our website: www.rh.com.
Complex Conic Horns
Designed around the spherical expansion of the acoustic pressure wave, Complex Conic Horns control dispersion more accurately at both the upper and lower extremes of their pattern bandwidth. Not only are they more effective than rectangular horns, they also sound far more natural.

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

TRAP (TRue Array Principle) Design
By placing the acoustic center as far back in the enclosure as possible, TRAP design closely aligns the acoustic centers of arrayable loudspeakers. This unique design minimizes interference in multi-loudspeaker clusters.

RPA: The Plug ‘n Play Array
Because each element of every ST sound reinforcement system can be addressed individually, ST is the ideal platform for Reference Point Array (RPA) systems integration. RPA design is a complex process that integrates and optimizes signal processing, hanging hardware, drivers, waveguides and enclosures. RPAs deliver near-perfect array performance right out of the box.

For You:
Unsurpassed Simplicity.
• Faster, foolproof installation because the “tricky bits” that optimize system performance have been painstakingly optimized in our test and measurement facility.
• Easier system commissioning because you can focus on tuning the system, not getting it to work in the first place.
• Fewer wiring errors because audio and control can share the same CAT 5 cable.
• Solid reliability because each driver has its own calibrated peak and RMS protection limiters.
• Greater flexibility because signals can be routed to accommodate different venue requirements.

For Your Clients:
Lower Installation Costs.
• NO dedicated amplifier/speaker electronics room: all amplification and processing is integrated into the loudspeaker system.
• NO dedicated air handling system for amplifiers & electronics: our advanced Class D amplifiers are so efficient even the 1200W (peak) La Band amp requires no fan cooling.
• NO separate technical ground: digital audio does not pick up induced hum from lighting, HVAC or other building systems.
• LOWER conduit, cable and wire pulling costs with CobraNet’s 64 audio channels plus R-Control Remote Supervision on one CAT 5 cable.

For The Audience:
Reference Quality Audio
• All digital signal path: CobraNet has high-resolution digital audio.
• Patented Point Source CoEntrant Transducers and purpose designed woofers produce unprecedented sound quality.
• Unique Complex Conic Array-guides for superior pattern control with natural, undistorted sound.
• TRue Array Principle (TRAP) design for coherent, seamless arrays in the horn’s operating band.
• Reference Point Array system integration for wide bandwidth array optimization and plug ‘n play simplicity.
High Output Tri-Amplified Power
- 1200 Watt Peak (850 Watt RMS) Lo Band Amplifier delivers rock solid bass
- 600 Watt Peak (425 Watt RMS) Mid Band Amplifier projects the vocal range cleanly
- 250 Watt Peak (175 Watt RMS) Hi Band Amplifier for clear smooth transients

Audiophile Performance
- < 0.01% distortion typical
- < -100 dB noise, 20 to 20 kHz
- > 90 dB CMRR
- Flat response from 20 Hz to 20 kHz

Advanced Class D Digital Technology
- Smaller, lighter, cooler
- High efficiency reduces AC power requirements, eliminates the need for fan cooling

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 Echelon LonWorks® Remote Control & Supervision
- Controls: Volume, Polarity, Mute, etc.
- Monitors: Signal Levels, Temperature, Impedance, etc.
- Manages Scene Store/Recall, Event Scheduling, Fault Logger

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

Analog Input Module
- Looping XLR input connectors
- Optional Jensen Input Transformer
- 1 dB stepped volume control
- Hi, Mid & Lo band mutes
- LED status indicators

CobraNet® Digital Audio Network Input Module
- 64 audio channels over CAT 5 cable
- 1 input (digital)
- 6 outputs (analog)

CobraNet With R-Control
- All Analog Input features Plus
- R-Control Remote Control and Supervision

Analog With R-Control
- All Analog Input features Plus
- R-Control Remote Control and Supervision

The Physical Foundation: TRAP [TRUE ARRAY PRINCIPLE] Design
Electronics can improve the performance of any array. But only TRAP (True Array Principle) loudspeakers make a single source of sound even in large arrays. Ordinary loudspeakers can’t help interfering with each other in clusters, because 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 in the same spot, so interference between adjacent horns is practically eliminated. 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.

The Plug ’n Play Array: RPA [REFERENCE POINT ARRAY] Integration
Using either self powered loudspeakers or external electronics and preconfigured cabling, RH Engineering’s RPA design process integrates the entire system — even the hanging hardware — to produce “plug ’n play arrays” that act as a single broadband acoustic source. In our test center, we optimize the entire signal chain from line level to listener, adjusting crossover, equalization, delay and limiting parameters for each Reference Point Array. We also configure hardware and cabling assemblies to ensure precise loudspeaker placement and correct signal flow. The result of this painstaking, complex design effort is a range of complete systems that install quickly and act as coherent acoustic sources “out of the box.” ST and SIX arrays deliver from 80° to 160° of smooth, seamless horizontal coverage. They will save you hours of installation and troubleshooting time, while delivering results that are superior to “handmade” arrays using conventional components.
ST POWERNET: INTEGRAL ELECTRONICS, INTELLIGENT CONTROL.

STX LOUDSPEAKERS: DESIGNED FOR EXTERNAL AMPLIFICATION.

COMPACT NEAR FIELD AND MID FIELD LOUDSPEAKERS

When 3-way reference quality sound is required, but the extended pattern bandwidth of larger format horns is not needed, the CD71-based STX4 is the answer. Probably the world’s smallest 12” 3-way system, the non-powered STX4 delivers surprisingly high output levels while maintaining all the detail of the source material. Their mid/high horns may be rotated 90 degrees for horizontal mounting applications or for use in TRAP (True Array Principle) Arrays.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>FREQ (Hz)</th>
<th>DISPERSION (degrees)</th>
<th>MID (driver)</th>
<th>MAX SPL (pgm / peak)</th>
<th>W X H X D (inches / centimeters)</th>
<th>WEIGHT (lbs. / kg)</th>
<th>PGM POWER (Watts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>STX4/44</td>
<td>40 - 18K</td>
<td>90° - 60°</td>
<td>50 - 180 W</td>
<td>14&quot; x 20&quot; x 16.2&quot;</td>
<td>65 / 65 lb</td>
<td>300 W LO</td>
<td></td>
</tr>
<tr>
<td>STX4/64</td>
<td>40 - 18K</td>
<td>90° - 60°</td>
<td>50 - 180 W</td>
<td>24&quot; x 32&quot; x 32.25&quot;</td>
<td>130 / 59 lb</td>
<td>1500 W LO</td>
<td></td>
</tr>
</tbody>
</table>

ST4 AND STX4 MID-FIELD LOUDSPEAKERS

The PowerNet ST4 and non-powered STX4 set new standards for compact 3-way loudspeaker systems. The unique Quad-8 doublet design outperforms conventional mid field 12” systems with superior low frequency directivity in both horizontal and vertical planes. The CD71 CoEntrant Transducer provides smooth, natural reference quality reproduction. The ST4/44 & STX4/44 are 40 degree TRAP loudspeakers that combine into arrays with an absolute minimum of lobing.

PowerNet ST4 models are designed for bramping and include a passive mid-high crossover.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>FREQ (Hz)</th>
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<th>WEIGHT (lbs. / kg)</th>
<th>PGM POWER (Watts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST &amp; STX4/44</td>
<td>50 - 18K</td>
<td>90° - 60°</td>
<td>50 - 180 W</td>
<td>10&quot; x 12&quot; x 16.62&quot;</td>
<td>40 / 18 lb</td>
<td>600 W LO</td>
<td></td>
</tr>
<tr>
<td>ST &amp; STX4/64</td>
<td>50 - 18K</td>
<td>90° - 60°</td>
<td>50 - 180 W</td>
<td>16&quot; x 21.25&quot; x 16.62&quot;</td>
<td>60 / 27.2 lb</td>
<td>1200 W LO</td>
<td></td>
</tr>
</tbody>
</table>

ST5 AND STX5 DUAL 12” HIGH POWER LOUDSPEAKERS

Compact, powerful and flexible, the ST5 PowerNet and STX5 externally powered loudspeakers are a total solution for sound rental companies. They deliver reference quality performance in small venues as well as the largest touring rigs. 20 degree Complex Conic Array Guides and high power CD12 CoEntrant Transducers provide pinpoint control at extremely high SPL. The ST5/42-2 and STX5/42-2 with their 40 degree 20” long throw coverage are TRAP modules that array seamlessly in either horizontal or vertical configurations. 90° ST5 and STX loudspeakers are ideal for downfill use in vertical arrays or for compact horizontal arrays.

<table>
<thead>
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<th>MODEL</th>
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<th>WEIGHT (lbs. / kg)</th>
<th>PGM POWER (Watts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST &amp; STX5/42</td>
<td>50 - 18K</td>
<td>90° - 60°</td>
<td>50 - 180 W</td>
<td>10&quot; x 12&quot; x 16.62&quot;</td>
<td>40 / 18 lb</td>
<td>600 W LO</td>
<td></td>
</tr>
<tr>
<td>ST &amp; STX5/64</td>
<td>50 - 18K</td>
<td>90° - 60°</td>
<td>50 - 180 W</td>
<td>16&quot; x 21.25&quot; x 16.62&quot;</td>
<td>60 / 27.2 lb</td>
<td>1200 W LO</td>
<td></td>
</tr>
</tbody>
</table>

ST5M2 AND STX5M2 MID-HIGH MODULES

The ST5M2 and STX5M2 mid-high modules have a CD71 CoEntrant transducer plus a 10” midrange driver loaded on 20 degree Array Guides. In arrays with full range ST5 and STX5 loudspeakers they add the throw and power needed to cover even the largest audiences. The ST5M2 and STX5M2 can also be paired with the ST5L and STX5L low frequency modules to form extremely powerful 2-box systems with exceptional directional control across the full frequency spectrum.

<table>
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<th>MAX SPL (pgm / peak)</th>
<th>W X H X D (inches / centimeters)</th>
<th>WEIGHT (lbs. / kg)</th>
<th>PGM POWER (Watts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST &amp; STX5M2/42</td>
<td>50 - 18K</td>
<td>90° - 60°</td>
<td>50 - 180 W</td>
<td>10&quot; x 12&quot; x 16.62&quot;</td>
<td>40 / 18 lb</td>
<td>600 W LO</td>
<td></td>
</tr>
<tr>
<td>ST &amp; STX5M2/64</td>
<td>50 - 18K</td>
<td>90° - 60°</td>
<td>50 - 180 W</td>
<td>16&quot; x 21.25&quot; x 16.62&quot;</td>
<td>60 / 27.2 lb</td>
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<td></td>
</tr>
</tbody>
</table>

ST5L AND STX5L QUAD-12” LOW FREQUENCY MODULES

ST5L and STX5L mid field modules are a total solution for sound rental companies. Their unique Quad-12 doublet design provide superior low frequency directivity in both horizontal and vertical planes. The CD71 CoEntrant Transducer provides smooth, natural reference quality reproduction. The ST5L/42 and STX5L/42 are 40 degree TRAP loudspeakers that combine into arrays with an absolute minimum of lobing.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>FREQ (Hz)</th>
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<th>MID (driver)</th>
<th>MAX SPL (pgm / peak)</th>
<th>W X H X D (inches / centimeters)</th>
<th>WEIGHT (lbs. / kg)</th>
<th>PGM POWER (Watts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST &amp; STX5L/42</td>
<td>50 - 18K</td>
<td>90° - 60°</td>
<td>50 - 180 W</td>
<td>10&quot; x 12&quot; x 16.62&quot;</td>
<td>40 / 18 lb</td>
<td>600 W LO</td>
<td></td>
</tr>
<tr>
<td>ST &amp; STX5L/64</td>
<td>50 - 18K</td>
<td>90° - 60°</td>
<td>50 - 180 W</td>
<td>16&quot; x 21.25&quot; x 16.62&quot;</td>
<td>60 / 27.2 lb</td>
<td>1200 W LO</td>
<td></td>
</tr>
</tbody>
</table>

ST4 AND STX4 QUAD-8” MID-FIELD LOUDSPEAKERS

The PowerNet ST4 and STX4 loudspeaker systems are designed for bramping and include a passive mid-high crossover.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>FREQ (Hz)</th>
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<th>WEIGHT (lbs. / kg)</th>
<th>PGM POWER (Watts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST &amp; STX4/44</td>
<td>50 - 18K</td>
<td>90° - 60°</td>
<td>50 - 180 W</td>
<td>10&quot; x 12&quot; x 16.62&quot;</td>
<td>40 / 18 lb</td>
<td>600 W LO</td>
<td></td>
</tr>
<tr>
<td>ST &amp; STX4/64</td>
<td>50 - 18K</td>
<td>90° - 60°</td>
<td>50 - 180 W</td>
<td>16&quot; x 21.25&quot; x 16.62&quot;</td>
<td>60 / 27.2 lb</td>
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<td></td>
</tr>
</tbody>
</table>

STX LOUDSPEAKERS: DESIGNED FOR EXTERNAL AMPLIFICATION.
ST STX6M AND ST-STX7M MID-HIGH MODULES

ST6M/STX6 and ST7M/STX7 Mid-High Modules include the medium format Complex Conic horns and CoEntrant Mid-High driver used in the ST6/STX6, ST7/STX7, ST8/STX8 and ST9/STX9 loudspeakers and have the same footprint. They easily add side, down fill or delay coverage. They can be arrayed with ST8/STX8 Quad 1.2” low frequency systems or used as high output, high performance paging systems. All ST models are powered by the PM-2M PowerNet Tri-Amplifier. STX models are non-powered and include a passive crossover.

ST-X8/STX-8 & ST-X9/STX-9

ST-X8 and ST-X9 combine the high power CDT-1 and CDT-2 CoEntrant transducers and medium format Complex Conic horns with a Quad 1.2” double-boat frequency design. The Quad 1.2” double-boat design provides superior low frequency directional control in both horizontal and vertical planes. The result is outstanding directional control across the entire frequency spectrum along with exceptionally high output levels and reference quality reproduction.

ST8/STX8 models feature the CDT-1 CoEntrant transducer while ST9/STX9 models have the larger CDT-2 for even higher output levels. The ST8/44AS and ST9/44AS also feature asymmetrical (+15, -25) vertical coverage that permits “dead hanging” in many installations. All have Complex Conic horns that can be rotated 90 degrees for use in horizontal mounting applications or in TRAP True Array Principle arrays. ST8/STX8 models include the PM-3 Tri-Amplifier, while ST8B/STX8 models have a passive mid/high crossover and are suitable for use in bi-amplified systems.

ST AND STX RPA (REFERENCE POINT) ARRAYS

ST PowerNet Reference Point Arrays (RPA’s) are self-contained, fully integrated, network-ready electro-acoustic systems. The network-ready PowerNet loudspeakers and H-Hang mounting hardware are fully assembled and tested before the array leaves our factory. At the job site, all you need to do is to put the array into place and plug in the signal and power cables. Then walk the room and enjoy flawless array performance. STX Reference Point Arrays offers the same advantages in externally powered systems. Refer to our RPA Brochure for complete details. For custom arrays, call us for assistance.
MATCHING SUBWOOFERS
Renkus-Heinz also offers an extensive line of both powered and non-powered 12”, 15” and 18” subwoofers. For details, check out our free configurator software or our website www.rh.com.

INSTALLATION OPTIONS
Installation models are normally provided with twelve 3/8-16 attachment points which allow the enclosures to be easily flown in any plane using eye bolts.

PORTABLE OPTIONS
All portable ST and STX models include looping (in and out) Neutrik 4-pin Speakon connectors. Handles are also provided. AeroQuip Flytrak is another popular option available on all models.

ROTATING HORNS
ST and STX Series Complex Conic horns (except for those used in the ST4/STX4 and ST5/STX5) can easily be rotated 90 degrees within the enclosure, allowing the loudspeaker to be mounted either horizontally or vertically. We’ll do this at our factory at your request, or you can rotate the horn in the field to accommodate unexpected installation changes simply, cost effectively and conveniently.

In portable systems, you can fly ST and STX Series loudspeakers horizontally one night and stack them the next, just by rotating the horn.

Coverage Patterns

ST PowerNet loudspeakers offer a choice of Analog or Digital Input Modules:
• Analog
• Analog with R-Control
• Digital with a CobraNet Input and 6 Analog Outputs
• Digital with a CobraNet Input, 6 Analog Outputs and R-Control

FINISHES
The standard ST and STX Series finish is black. Optional finishes include white, “natural” ready-to-stain (sanded, unfinished) and TuffTex. Custom colors are also available to match any decor.

WEATHER RESISTANT
All ST and STX Series loudspeakers are also available with weatherized woofer cones and connectors, in weather resistant fiberglass or TuffTex Elastomer finishes that are practically impervious to the elements.

SYSTEM SPECIFIC ELECTRONICS
Whether we’re integrating PM Series PowerNet amplifiers inside our ST Series or configuring external rack mount devices, making RH electronics System Specific means is a time-consuming, data-intensive process. Renkus-Heinz Engineering precisely measures and carefully adjusts critical parameters to maximize the performance of single loudspeakers or multi-element Reference Point Arrays. The results are worth it – to the designer, the installer, the operator, and most of all the listeners.

The PM Series Intelligent Amplifiers built into ST PowerNet loudspeakers include system specific EQ and protection circuitry. They are available with CobraNet digital inputs and R-Control or high-CMRR analog inputs with optional Jensen transformers.

For externally powered STX Series loudspeakers, we integrate electronics using Loudspeaker Specific Processor Modules that plug into our P Series System Specific Power Amplifiers and X Series rack-mount analog controllers. They can be configured for anything from “last resort” limiting (led to amplifier output, so it cannot be “boiled” by adjusting input controls) to complete loudspeaker output protection and optimization.

For room equalization, delay and other commissioning or setup functions, the D26A Digital Controller is a two-in, six-out processor with comprehensive EQ, crossover, delay and limiting functions. The D26A can be controlled via MIDI from SMARTIVE’s dual FFT EQ window, making it an ideal tool for fine tuning a sound system.

R-CONTROL REMOTE SYSTEM SUPERVISION
The R-Control Remote System Supervision Network is based on Echelon’s LanWorks® protocol (ANS/EIA standard 790.1) and Microsoft Visual Basic® Comprehensive monitoring, control and scheduling functions are available on the same CAT 5 cable used for CobraNet.

<table>
<thead>
<tr>
<th>AMPLIFIER MODEL</th>
<th>WATTS@8 OHMS</th>
<th>WATTS@4 OHMS</th>
<th>BRIDGE MODE</th>
<th>WATTS@8 OHMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2400</td>
<td>250</td>
<td>350</td>
<td>700</td>
<td>8 Ohms</td>
</tr>
<tr>
<td>P2700</td>
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<td>500</td>
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<td>8 Ohms</td>
</tr>
<tr>
<td>P2950</td>
<td>500</td>
<td>750</td>
<td>1800</td>
<td>8 Ohms</td>
</tr>
<tr>
<td>P3500</td>
<td>800</td>
<td>1200</td>
<td>3200</td>
<td>8 Ohms</td>
</tr>
<tr>
<td>P3501</td>
<td>1000</td>
<td>1500</td>
<td>3000</td>
<td>8 Ohms</td>
</tr>
</tbody>
</table>

All power ratings given in Watts RMS.

Renkus-Heinz’s free System Configurator Software takes the guesswork out of ordering single loudspeakers or loudspeaker arrays. The software walks users through each order, clarifying options that are available, and ensuring that when Renkus-Heinz receives the order it is complete and accurate. You can access the Configurator on our website at www.rh.com.