

### Musical Sound For Imposing Spaces

Public buildings that are designed to impress incorporate high ceilings and expansive surfaces of glass, marble, steel, etc. These architectural elements are magnificent, but they also reflect sound throughout the space, making it difficult for people to hear and communicate clearly. Hundreds of installations around the world have proven that Iconyx Digitally Steerable Arrays enable both effective communication and expressive musical artistry, even in highly reverberant acoustical environments.

Architecturally and acoustically transparent Iconyx systems integrate high-performance acoustical components, advanced, audiophile-quality digital electronics and powerful software in practical, modular systems that virtually disappear in most large buildings. Iconyx is the first solution to combine digital steering with exceptional audio fidelity.

Lessons derived from hundreds of successful projects and user requested features are reflected in R Series Iconyx array modules. Advanced signal processing algorithms and purpose-designed coaxial transducers with dual tweeters provide even more clarity, musicality and intelligibility.

#### Transparent Solutions

- Houses of Worship: traditional & modern
- Transport Terminals: train stations, airports, etc.
- Stadiums & Arenas: lobbies & forecourts
- Convention Centers, warehouses, etc.
- Museums: lobbies, galleries, etc.
- Performing Arts Centers: vocal/orchestral "lift," lobbies, etc.
- Any highly reverberant environment where enjoyable music and/or intelligible speech are as important as the architectural design

## MUSICAL • INTELLIGIBLE • PRACTICAL

### High Performance Amplifiers Drive Coaxial Transducers

Sonic control is pointless unless the sound is accurate, natural and enjoyable. That's why Iconyx uses multichannel audiophile high-current amplifiers to power arrays of advanced, purpose-designed coaxial transducers, each one with its own high frequency dome tweeter array. The dual tweeter design reduces the distance between HF sources for greatly improved high frequency performance with consistent broad-horizontal dispersion.

### RHAON Audio Operations Network

RHAON brings a new level of control and flexibility to Iconyx installations. Straightforward network connections empower multi-channel digital audio distribution, user-controlled DSP, user-selectable presets and comprehensive remote system management and control – all using standard Ethernet hardware and cabling.

### Individual Transducer Control

Iconyx transparent technology controls acoustic energy using silicon intelligence, not bulky, brute-force techniques. Multi-channel Class D digital amplifiers with integral DSP engines control every single Iconyx array element with programmable precision. The high-current output section maximizes audio accuracy.

### Flexibility & Power

Iconyx technology gives sound system designers the power to cover almost any audience area perfectly. Multiple sonic beams can be individually shaped and aimed from a single Iconyx array using the software-controlled DSP: up to 8 beams on an IC16-R. The acoustic center of the array can be raised or lowered electronically, because all array elements are identical and equidistant.

### Architecturally Transparent

The slender, tall Iconyx enclosure is designed to be heard but not seen. It mounts flush to walls and columns, blending invisibly into almost any architectural environment. Meanwhile, advanced Iconyx digital technology aims the sound precisely at the audience, and nowhere else.

## Digitally Steerable Loudspeaker Array Systems



## IC16-R & IC16/8-R

- Second Generation
- Dual Tweeter Coaxial Transducers
- Multiple Configuration Presets
- RHAON Network
- Slimmer Design



**RHAON**  
EMPOWERED

## MUSICAL & NATURAL

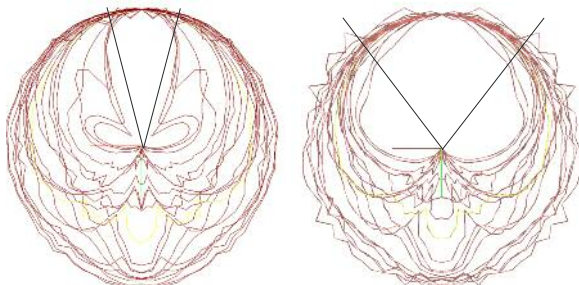
### Natural Speech, Enjoyable Music



Coaxial transducers with dual tweeters developed specifically for Iconyx

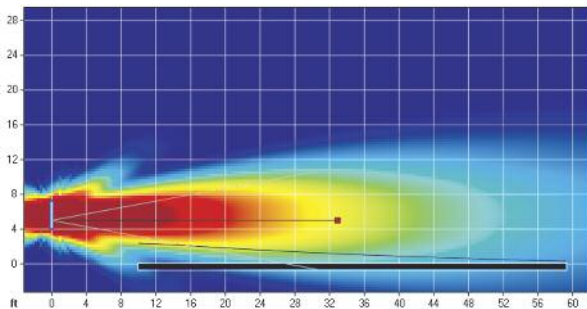
Communication is about more than consonants – meaning is conveyed by the tone of voice as well as the text. We also believe that beautiful spaces deserve beautiful music. That's why Iconyx-R modules use an audiophile-quality multi-channel amplifier to drive purpose-designed coaxial transducers with dual tweeters. Each pair of tweeters is aligned vertically, acting as an "array within an array." By controlling vertical directivity at higher frequencies, they produce a more coherent output with greatly reduced grating lobes.

The vertical alignment maintains consistently broad horizontal dispersion, allowing each Iconyx array to cover a wider section of the audience.

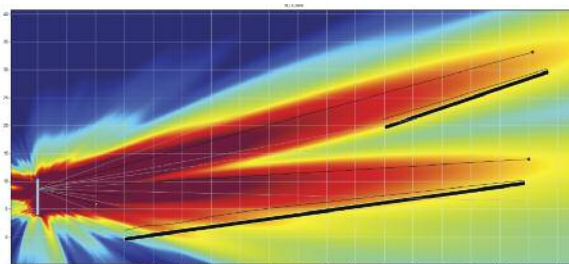


Conventional Transducer IC Coaxial Transducer  
Coaxial transducers with dual tweeters provide more consistent horizontal coverage, broader HF beamwidth.

The coaxial transducers reproduce the full frequency spectrum with accuracy and balance, so instruments and voices sound as they should. In many venues, Iconyx arrays and subwoofers will bring music alive with full detail and impact throughout the entire listening area.



BeamWare display of an IC8-R illustrating the reduced grating offered by Iconyx R series arrays with their improved algorithms and dual dome HF tweeters.



BeamWare display showing the multi-beam capabilities of Iconyx arrays

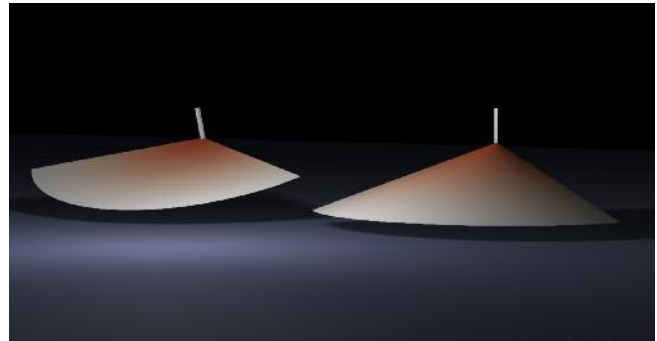
## CLEARLY INTELLIGIBLE

### Intimate Sound for Imposing Spaces

"Up close and personal" communication happens when sound arriving directly from the source, whether it's a live person or a loudspeaker, is much louder than sound that's reflected off the walls, windows, floor and ceiling. As you move farther away, the direct sound loses volume twice as fast as the reflected sound. In very reverberant spaces, it can be hard to understand someone speaking in a normal tone of voice more than a couple of arm's lengths away.

Iconyx arrays produce tightly focused, precisely aimed beams of acoustic energy that maintain their intensity over long distances. Because most of the highly directional sound from an Iconyx array is focused on the listeners, very little is left to bounce around the room and confuse the ears. That's how Iconyx arrays let you sit hundreds of feet away from the speaker or musicians and still hear words and music as if they were right "in your face."

The digital steering used in Iconyx Arrays also produces an "umbrella" polar pattern: the steering works in all directions, not just along the lobe's axis. This reduces the amount of energy bouncing off the side walls. The end result is more direct sound and less reflected energy; the classic recipe for superior intelligibility.



Compared to a passive column array (left) Iconyx delivers an "Umbrella" of sound (right).

### Expandable Modular Systems

The 16 transducer IC16-R and IC16/8-R are 75 inches tall. Both can shape and steer beams from 400 Hz up, and deliver over 99 dB peak SPL at 100 feet. Use either array as the main system in spaces where the farthest listener is up to 135 feet away – video "billboards," cathedrals, performing arts centers, museums and transportation centers.

The IC16-R has 16 DSP controlled digital amplifier channels (one for each transducer) and delivers a peak SPL of 99 dB at 100 feet. The IC16/8-R has 8 processor/DSP controlled digital amplifier channels (one for each pair of transducers) and produces a peak SPL of 96 dB at 100 feet.

Both provide consistent pattern control down to 400 Hz. That's pretty amazing, but it doesn't mean that Iconyx breaks the rules of acoustics. The frequency range of effective control is set by the height of the array (on the low end) and the spacing between transducers (on the high end).

To suit different needs, Iconyx systems are available in four sizes: all are constructed from a basic eight-channel module to simplify shipping and transportation. The modules are quickly joined together in the field: a single module forms the IC8-R, two modules the IC16-R, three the IC24-R and four the IC32-R. All bring high output, crisply articulated, naturally balanced sound to every listener.



RHAON is the culmination of more than 20 years experience integrating electronics with loudspeakers. RHAON makes it easy to connect, control and monitor multiple Iconyx R arrays and a mixture of other Renkus-Heinz powered loudspeakers using standard Ethernet cabling and switches. On one network, you can distribute multi-channel digital audio with CobraNet, control array-specific DSP functions, and supervise the entire loudspeaker system from a centrally location computer.

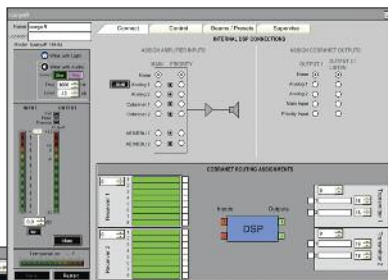
RHAON's comprehensive network capabilities make it easy to add one-touch presets, zone control and life safety functions to any Iconyx R system.

RHAON gives you maximum control of:

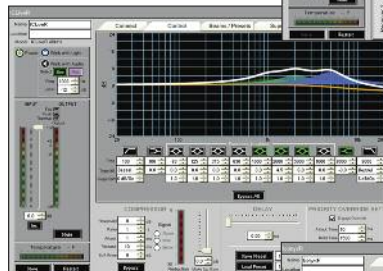
- Real time digital audio distribution over standard Ethernet using proven CobraNet technology to deliver multiple channels of high quality digital audio over a single CAT 5 cable.
- A powerful DSP inside each Iconyx R array on the network. Adjust eight bands of parametric EQ, high and low frequency shelving filters, input level control, muting and delay in real time; store up to 10 preset configurations.
- Our Beamware software with its ability to individually shape, steer and control multiple sonic beams to cover almost any audience area.
- Monitoring and supervisory functions. RHAON tracks critical operating parameters such as signal clipping, amplifier output voltage and current and temperature with automatic alert functions.

RHAON is not pre-certified as a life-safety system, but it has been designed to meet the requirement of most local authorities. Redundant signal paths and programmable priority override functions are built in. Continual monitoring of each networked loudspeaker, with automatic operator alert and logging functions, help you make sure the system is available when it's most urgently needed.

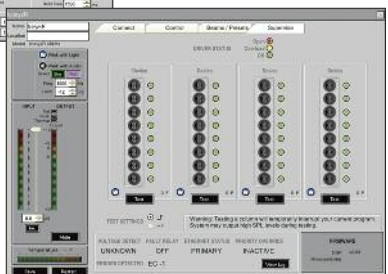
A typical Iconyx loudspeaker array connection window. Notice the wide range of inputs available.



Individual Control windows for each Iconyx-R array allow easy adjustment of EQ, Shelving, Delay, Etc.



Individual Supervise windows for each Iconyx loudspeaker array help to identify problems and take remedial action.



Powerful Algorithms, Intuitive Interface

The software algorithms that shape and aim the output of an Iconyx array are complex, but the user interface is intuitively simple. Our BeamWare software, an integral part of RHAON, lets you model the audience area, then drag and drop beams until coverage is optimized. BeamWare then calculates a set of FIR (Finite Infinite Response) filters that control the array 's beams. At installation time, simply download the full set of FIR filters from your computer to the IC Series modules over the Ethernet network.

The beams can be easily adjusted from your computer after the Iconyx array is installed. If the array was hung too low, simply raise the array's acoustical center using software instead of rehangng the array.

RHAON also allows you to adjust the output level, EQ, high and low frequency shelving, muting and delay of IC-R arrays from your computer.

Multiple Presets, Easy Selection

Iconyx R can store up to 10 different configurations in the loudspeakers DSP memory. For example, you might optimize one configuration for small events on the main audience area, and another for larger occasions with listeners in the balcony. Once the configurations are stored, it's easy to switch from one to another. Up/Down buttons and a readout on the rear panel allow an operator to scroll through the available presets. This function can also be performed remotely from the central control computer or by means of a remote control panel if a central computer is not being used.



IC-RC1 Remote Control

Advanced DSP Processor / Amplifier

The brain of each IC8-R module is the 8-channel DSP processor / amplifier developed specifically for Iconyx. It not only performs the complex digital signal processing needed to shape and aim the beams without creating side lobes, but also provided 8 channels of Class D digital amplification. Its audiophile, high-current output section and integral DSP engine control each high-performance coaxial transducer with total precision. The Class D digital amplifiers are lightweight, efficient and cool: no fan noise. Fully regulated switching power supplies operate from 90 to 260 Volts, 50/60 Hz AC.

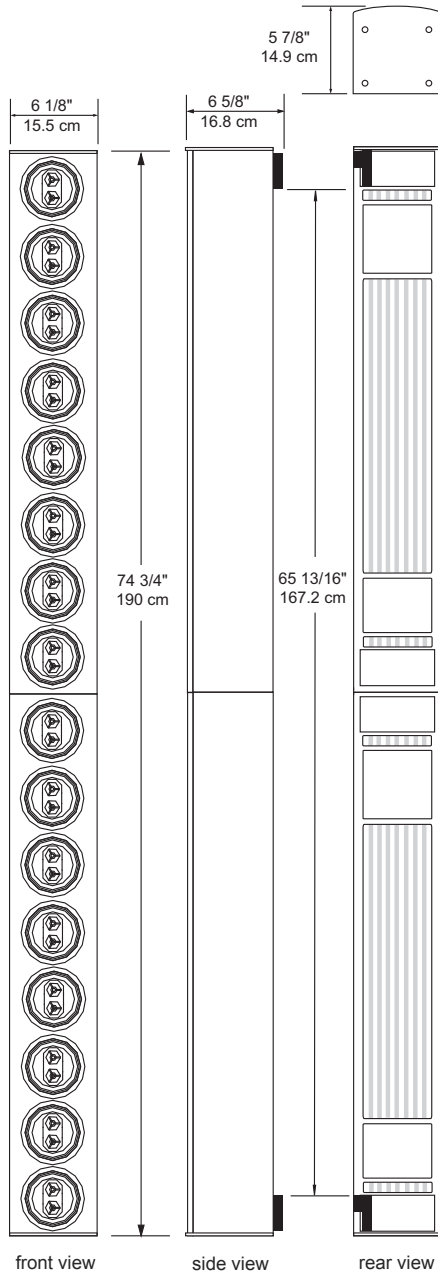


Multiple Input Options

IC-R arrays offer a variety of input options. Dual analog inputs are standard equipment along with a choice of two digital inputs, Multi-channel digital audio signal distribution via CobraNet and a serial AES/EBU digital input.



## IC16-R - IC16/8-R Technical Specs



**Sensitivity:** 1.0 V (for rated power output)

**Freq. Range:** 120 Hz to 18 kHz

**Max SPL:** IC16-R: 99 dB peak, 96 dB pgm @ 100 Ft. (30.5 meters)  
IC16/8-R: 96 dB peak, 93 dB pgm @ 100 Ft. (30.5 meters)  
(3-octave bandwidth centered at 2 kHz)

**Horiz. Dispersion:** 150° up to 3 kHz; 120° above 3 kHz  
**Vert. Opening Angles:** 10°, 15° and 20°

**Aiming Angle:** IC16-R: adjustable from -30° to +30°  
IC16/8-R: adjustable from -10° to +10°

**Typical Throw:** 135 Ft. (40 meters)

**Beam Control:** Effective down to 400 Hz

**No. Transducers:** 16

**No. Amp. Channels:** 16 in IC16-R; 8 in IC16/8-R

**Dimen. (W/Mtg Hinges):** 74 3/4" H x 6 1/8" W x 6 5/8" D (190 cm x 15.5 cm x 16.8 cm)

**Weight:** IC16-R: 72 Lbs (32.7 Kg) - IC16/8-R: 62 Lbs (28.1 Kg)

**Hanging Method:** 2-point hinge or Metric M6 eye-bolts.

**Enclosure:** Extruded Aluminum with perforated steel grille; suitable for outdoor use.

**Transducers:** Coaxial with a 4" woofer and dual 1" tweeters, RH model SSL4-3: 25 Watts RMS, 50 Watts program

**Inputs:** Analog Audio: 2 inputs (primary & secondary), Phoenix 6-pin connectors (looping 3-in, 3-out)  
CobraNet: Dual RJ45 connectors (for CAT 5 copper cable)  
AES/EBU: Phoenix connector  
Power: IEC power connector

**Controls (Rear Mounted):** Mute button, Up & Down Output Level push buttons, 10 dB Input pad (on Analog 1 input), Push-To-Reset circuit breaker, Preset Configuration Selector (10 configurations)

**Computer Controls:** Gain, Mute, On/Standby, Input Selection; Compression, 8-Band Parametric EQ, Shelving & Rolloff Filters, Delay, Preset Configuration Selection.

**Status Indicators:** Power, Signal, Overdrive, Thermal, Mute, Input Pad, Preset Configuration Selection Readout

**Finish:** Standard finish; white paint; optional finishes; black and custom color paint, weather resistant

### DSP/AMPLIFIER

**Type:** 8-channel, Class D amplifier / DSP processor

**Input Impedance:** (one used in the IC16/8-R and 2 in the IC16-R)

**Max Input:** >20K Ohm balanced differential  
+24 dBu (Pad in); +14 dBu @ 1V sensitivity (Pad out)

**Power Rating:** 50 Watts RMS per channel, 150 Watts Burst

**Freq. Range:** +3, -3 dB, 100 Hz to 20 kHz

**THD Distortion:** < 0.05% typical

**Hum & Noise:** <100 dB (A weighted)

**Pwr. Req. -- per Amp.** Universal 90/260 V AC, 50/60 Hz

**Module:** 24 VA Idle; 325 VA @ rated output  
200 ma Idle; 2.7 Amps at RPO (@ 120 V)

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



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