RENKUS-HEINZ

ICONYX

STEERABLE ARRAY SYSTEMS

IC32 & IC32/16

MUSICAL SOUND FOR IMPOSING SPACES

Public buildings are designed to convey strong messages. But the high ceilings and reflective surfaces of institutional architecture produce long reverberation times, making it difficult for people to hear and communicate clearly. Iconyx Digitally Steerable Arrays are the first sound systems that enable both effective communication and expressive musical artistry. Iconyx does all of this without compromising the architectural statement of the building itself.

The transparent design of Iconyx integrates 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.

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

Control is pointless unless the sound is accurate, natural and enjoyable. That’s why Iconyx uses multi-channel audiophile high-current amplifiers to power arrays of advanced, purpose-designed coaxial transducers.

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 total 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. Up to 16 separate sonic beams can be individually shaped and aimed from a single Iconyx array using software-controlled DSP. The acoustical center of the array can be raised or lowered electronically.

INTUITIVE SOFTWARE

Total control doesn’t require bewildering complexity. Iconyx Beamware™ combines order and simplicity, performing complex mathematical calculations behind an intuitive graphical user interface.

ARCHITECTURALLY TRANSPARENT

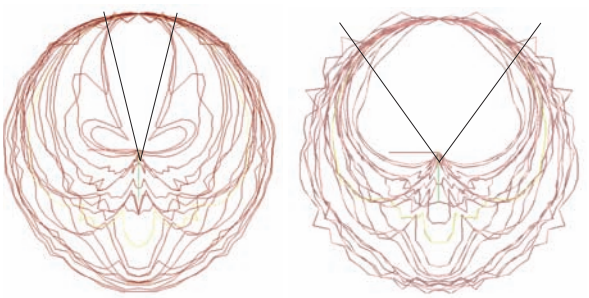
The tall, slim Iconyx enclosure is designed to be heard but not seen. Modular Iconyx arrays are easily assembled on site. They mount flush to walls and columns, blending invisibly with almost any architectural style. Yet Iconyx technology aims the sound precisely at the audience, and nowhere else.

Give the **IC32** six inches of wall space, and it will give everyone within **270 feet** over **100 dB** of beautifully detailed, naturally balanced **full range sound**.

MUSICAL & NATURAL

Natural Speech, Enjoyable Music

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 we based the Iconyx module uses an audiophile-quality multi-channel amplifier to drive high performance coaxial transducers. These advanced devices have consistently broad horizontal dispersion, allowing each Iconyx array to cover a wider section of the audience. They reproduce the full frequency spectrum with accuracy and balance, so instruments and voices sound as they should. In many venues, Iconyx arrays and a few subwoofers are more than capable of bringing music alive, with full detail and impact, for the entire listening area.



Conventional Transducer IC Coaxial Transducer

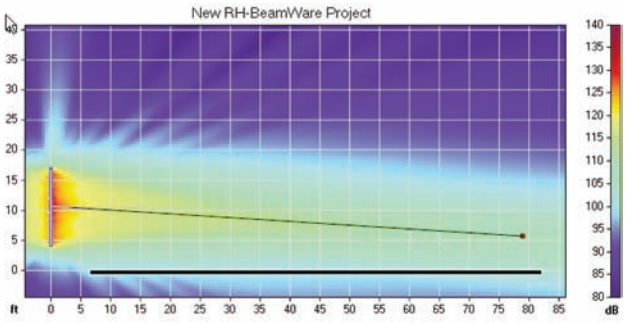
More consistent horizontal coverage, broader HF beamwidth

Previous-generation "column speakers," with or without digital control, used cone-type "full range" drivers. Their coverage collapses at high frequencies, so off-axis listeners miss critical information. They're limited to the "speech band," so everything sounds like it's coming through a telephone or paging horn.

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 retain 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."

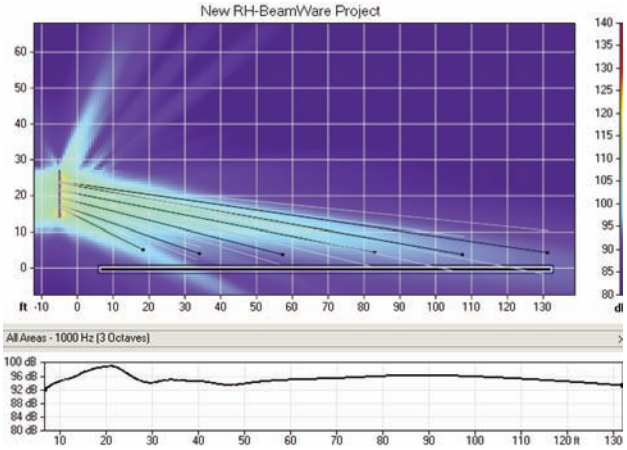


Beamware displays an Iconyx IC32 array's precisely controlled output

CLEARLY INTELLIGIBLE

Brains, not Bulk

Iconyx uses complex software and individual DSP control over each array element to focus sound without bulky horns or boxes that get in the way of the architecture. IConyx digitally controlled arrays give sound system designers the power, accuracy and flexibility to handle reverberant spaces of all shapes and sizes. Advanced DSP software shapes and aims up to four beams from each module. These sophisticated algorithms can also raise or lower the array's acoustical center. No matter what the software is doing, the hardware is nearly invisible: tall, slender Iconyx arrays mount flush to walls and columns, blending with nearly any architectural style.



Beamware display showing the multi-beam capabilities of the IC32 Iconyx array.

Expandable Modular Systems

At 149 inches, the 32 transducer IC32 and IC32/16 provide effective pattern control above 200 Hz, can shape and steer very narrow 5 degree beams, and will deliver 103 dB peak SPL at distances of 100 feet. These impressive specifications make them suitable for the very largest enclosed spaces such as shipyards and aircraft final assembly plants, etc., or for any very highly reverberant space.

The IC32 has 32 DSP controlled digital amplifier channels (one for each transducer) and delivers a peak SPL of 103 dB at 100 feet.

The IC32/16 has 16 processor/digital amplifier channels (one for each two transducers) and produces a peak SPL of 100 dB at 100 feet.

Both provide consistent pattern control down to 200 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 easily transported and quickly joined together in the field: a single module forms the IC8, two modules form the IC16, three the IC24 and four the IC32. All bring high output, crisply articulated, naturally balanced sound to every listener.

Sophisticated Design

Every building is different: and so is every Iconyx system – we've engineered a flexible, modular platform that gives designers the most accurate and adaptable system in history. The basic building block of the IC16, and every other Iconyx array, is the IC8 8-channel linear array module (each channel comprises a DSP, amplifier and transducer).

D2 DSP Processor/Amplifier

The brain of each IC8 module is the 8-channel DSP processor/amplifier developed for Iconyx by D2 Audio. Its audiophile, high-current output section and integral DSP engine control each high-performance coaxial transducer with total precision. Each driver receives an individually filtered and delayed signal, so that the array can produce the specified beams and steering angles. The Class D digital amplifiers are lightweight, efficient and cool: no fan noise. AC supply voltages of 90 to 260 V, 50/60 Hz are automatically accepted.

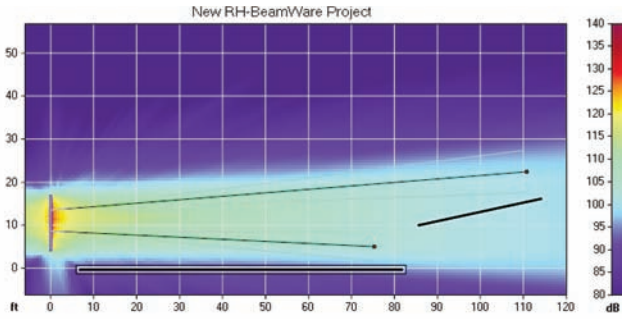
Digital CobraNet & AES/EBU Connectivity

Iconyx is designed for today's networked audiovisual environments. Two pure digital signal path options are available: one selects from up to 64 channels of PCM (Pulse Code Modulation) digital audio delivered on a CobraNet network via CAT 5 copper or fiber optic cable; the other connects to AES/EBU optical lines.

The internal DSP converts PCM data directly to PWM (Pulse Width Modulation) information for the power amplifiers, eliminating extraneous D/A and A/D converter stages that add latency, noise and distortion. 10 kOhm balanced analog inputs are standard.

Intuitive Software

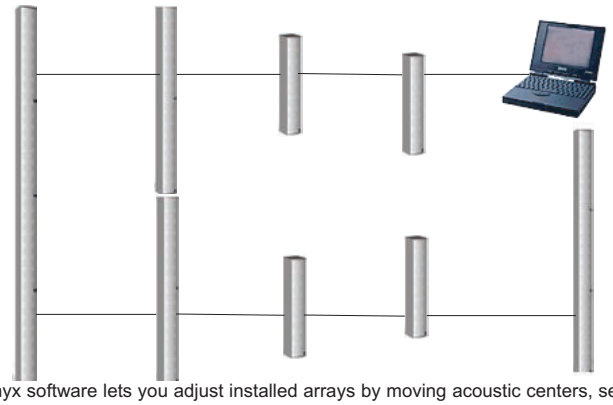
The software algorithms that shape and aim the output of an Iconyx array are complex, but the user interface is intuitively simple. Our Beamware Windows application lets you define the audience area, then adjust the beams until coverage is optimized. Beamware then produces a set of FIR (Finite Infinite Response) filters that control the array. At installation time, simply download the full set of FIR filters to the IC Series modules using one of your computer's COM ports and a USB-to-RS232 adapter.



Beamware display of an Iconyx IC32 array's dual beam output..

Beamware data can also be transferred to EASE 4.1, the industry-standard modeling program, for 3D simulation and analysis.

Beamware calculations have been verified by actual measurements in our test facility and in real world installations. But there's still room for last-minute adjustments if needed. If an array was hung too low, simply raise its acoustical center in software.



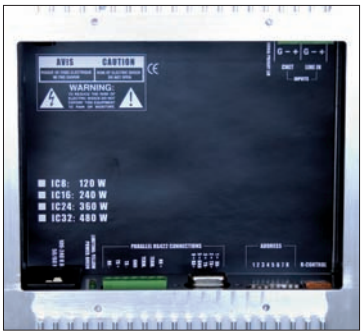
Iconyx software lets you adjust installed arrays by moving acoustic centers, setting output level and applying EQ. Each COM port on your PC or laptop links with up to 8 IC Series arrays.

R-Control Remote Control & Supervision

With the R-Control option, you can monitor input levels, output signal presence and loads (normal, shorted & open) and control power on/off, muting and output levels from a central computer. Based on Echelon's LonWorks protocol (ANSI/EIA Standard 790.1), R-Control includes features and functions that make managing large systems and entire buildings easy: Event Scheduler, Fault Logger, Operator Alerts for critical conditions, Scene Store, Recall and more.

Ease of installation

Iconyx is designed to install quickly and cleanly, with hinged mounting hardware that facilitates signal and power connections and allows precise horizontal aiming. After installation and commissioning, the array can be locked in place.



The extruded aluminum Iconyx enclosure includes a recessed chamber where connecting cables can be neatly tucked away out of sight.

An optional removable access plate with a conduit knockout provides easy access to the IEC power connector and "pig tail".

Removable side panels and grille allow easy access to the coaxial transducers and the DSP processor/amplifiers for testing and service.

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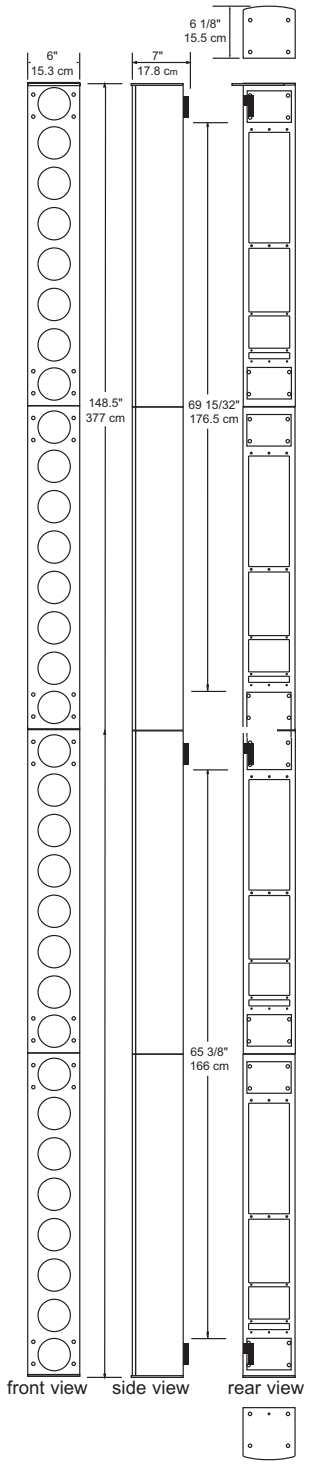

Note: IC32 shown; IC32/16 has the same overall dimensions.

IC32 & IC32/16 Technical Specs

SENSITIVITY:	1.0 V (for rated power output)
FREQ. RANGE:	120 Hz to 18 kHz
MAX SPL - IC32: *IC32/16:*	103 dB peak, 100 dB pgm @ 100 Ft. (30.5 meters) 100 dB peak, 97 dB pgm @ 100 Ft. (30.5 meters) (3-octave bandwidth centered @ 2 kHz)
HORIZ. DISPERSION:	150° up to 3 kHz; 120° above 3 kHz
VERT. DISPERSION:	5° &10°
AIMING ANGLE - IC32: *IC32/16:*	adjustable from -30° to +30° adjustable from -10° to +10°
TYPICAL THROW:	270 Ft. (80 meters)
BEAM CONTROL:	Effective down to 200 Hz
NO. TRANSDUCERS:	32
NO. AMP. CHANNELS:	32 in IC32; 16 in IC32/16
DIMENSIONS (WITH MOUNTING HINGES):	148.5” H x 6” W x 7” D (377 cm x 15.3 cm x 17.8 cm)
WEIGHT:	IC32 - 140 Lbs (63.5 Kg); IC32/16 - 120 Lbs (54.4 Kg)
POWER REQUIRED:	IC32 - 96 VA Idle; 1300 VA @ rated output IC32/16 - 48 VA Idle; 650 VA @ rated output
HANGING METHOD:	3-point hinge or eye-bolts.
ENCLOSURE:	Extruded Aluminum with perforated steel grille; suitable for outdoor use.
TRANSDUCERS:	Coaxial with a 4” woofer and 1” tweeter, RH model SSL4.2: 25 Watts RMS, 50 Watts program
CONNECTORS:	Audio Input: Phoenix 3-pin (looping 3-in, 3-out) DSP programming: 9-pin DB-9 connector plus looping 7-pin Phoenix connector. Power: IEC power connector
FINISH OPTIONS:	Standard finish – white paint Optional finishes – black and custom color paint

D2 DSP/Amp. Specs

TYPE:	8-channel, Class D amplifier/DSP processor
POWER RATING:	50 Watts RMS per channel, 150 Watts Burst
FREQ. RANGE	+ 3, - 3 dB, 20 Hz to 20 kHz
THD DISTORTION:	< 0.05% typical
HUM & NOISE:	<100 dB (A weighted)
INPUTS:	10K Ohm balanced differential (standard) CobraNet or AES/EBU (optional)
INPUT SENSITIVITY:	1.0 V for rated power output
CMR:	74 dB
GAIN:	DSP controlled, 0 to -60 dB in 1 dB steps
EQ:	8-band Parametric
POWER:	Universal 90/260 VAC, 50/60Hz. 2.4 A @ 120 V; 1.2 A @ 240 V
Idle Current: Max Inrush Current:	200 mA @ 120 V; 100 mA @ 240 V 10 A Note: 2 D2s used in the IC32/16 and 4 in the IC32.

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