

### New Directions for Live Sound

Magnificent architectures adds excitement and allure to any live event, but it can also create acoustical problems. IC Live arrays use advanced digital beam steering technology to deliver impeccable sound while staying in the background visually.

IC Live arrays provide an elegant solution to long standing acoustical problems with slim enclosures that blend into any environment. IC Live beams can be steered up or down while the array remains vertical – and nearly invisible. The result is unsurpassed vertical pattern control – essential for delivering intelligible speech in reverberant spaces.

ICL-LM-R low-mid frequency modules were designed to complement full-range IC Live arrays in venues needing well controlled low-mid frequency directivity. Their seven 6.5 inch low frequency neodymium transducers significantly improve low-mid frequency pattern control and performance.

#### Transparent Solutions

- Corporate Events
- Live Concerts
- Political Rallies
- Theatrical Productions.
- Museums: lobbies, galleries, etc.
- Resorts, Theme Parks
- Any environment where enjoyable music and/or intelligible speech are critical

**POWERFUL • MUSICAL • INTELLIGIBLE**

#### Adaptable, Articulate, Invisible

Digital beam steering puts IC Live output where it belongs: on the audience, not walls or ceilings. Computer software lets you define the opening angles for multiple sonic beams and individually aim each beam up or down. Meanwhile, the slim enclosures stay vertical and inconspicuous.

#### Powerful, Accurate, Musical

Iconyx transparent technology controls sound with DSP intelligence, not cumbersome brute-force techniques. High-current audiophile output stages power each light, efficient transducer in IC Live arrays individually. Even at 100 feet, SPL is an impressive 105 dB (108 dB when stacked). The output of IC Live arrays is flat from 80 Hz to 20 kHz.

#### RHAON Empowered, One-Touch Presets, Intuitive Software

RHAON empowered IC Live arrays provide a full set of remote control and supervision functions, along with the ability to store multiple preset configurations in memory. For more complex situations, Iconyx BeamWare software makes it easy to shape the array's coverage to the audience area.

#### Easy To Install

IC Live ICL-FR-TRIP arrays are equipped with attachment points making them easy to suspend from the ceiling. Hinged mounting hardware is available for wall mounting. It allows the array to be turned away from the wall for easy signal and power connections and then locked into place against the wall after installation.

## IC Live

### Digitally Steerable Line Arrays



# IC Live

## ICL-LM-FR ICL-FR-TRIP

Improved Low-  
Mid Frequency  
Directivity  
and  
Control



ICL-LM-FR Module

ICL-FR-TRIP Array

**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 from the source, the direct sound loses volume twice as fast as the reflected sound. This is why in very reverberant spaces, it can be hard to understand someone speaking in a normal tone of voice more than a couple of arms lengths away.

IC Live digitally steerable 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 IC Live digitally steerable array is focused on the listeners, very little is left to bounce around the room and confuse the ears. That's how IC Live arrays let you sit hundreds of feet away from the speaker or musicians and still hear the words and music as if they were right "in your face."

The software algorithms that shape and aim the output of an IC Live array are complex, but the user interface is intuitively simple. Renkus-Heinz BeamWare, a Windows application, lets you model the audience area and then choreograph the beams until the coverage is optimized. Beamware allows you to choose the number of beams, their aiming points and sharpness, and their relative level.

Different configurations can also be stored as presets allowing users to quickly and easily adjust the sound coverage to accommodate different room setups and configurations by push button selection of the desired setup.

The improvement in sound quality and clarity provided by IC Live digitally steerable arrays over conventional loudspeaker systems is truly remarkable, especially in highly reverberant rooms.

**High Performance Woofers and Drivers**



Low Frequency Woofer

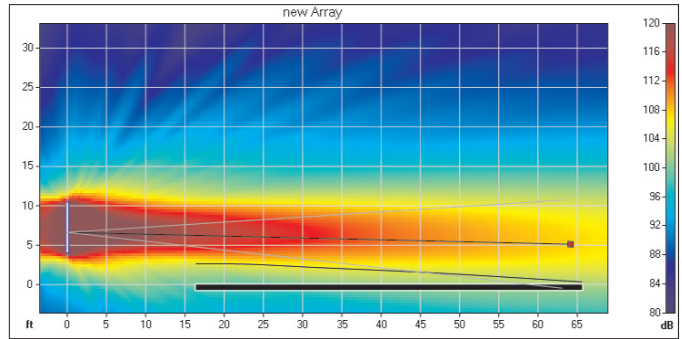
IC Live transducers were chosen for their light weight and high performance. Both the low frequency woofers and the high frequency drivers feature Neodymium magnets known for their high efficiency and low weight.

The high-power 6.5 inch woofers have a 1.5 inch copper voice coil and a stiff cone with a soft supple surround.

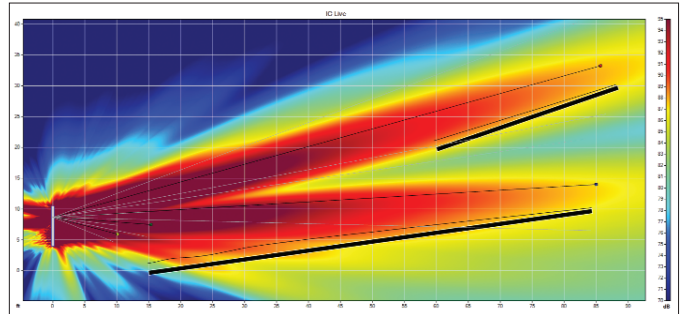
The high frequency drivers used in full-range IC Live arrays have a titanium coated dome which dramatically increases stiffness for improved transient response and reduced intermodulation distortion. An edge wound copper clad aluminum voice coil wound on Nomex completes the diaphragm assembly.



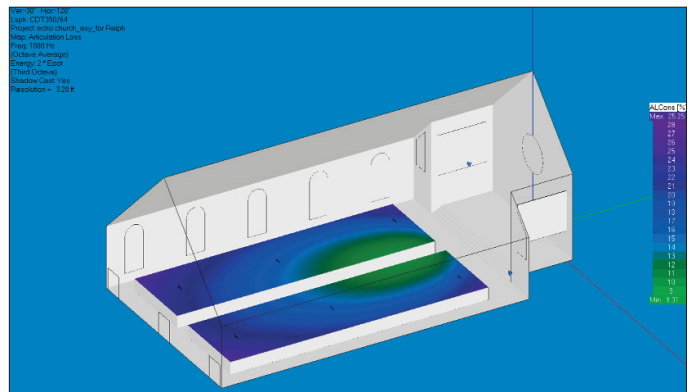
High Frequency Driver Assembly



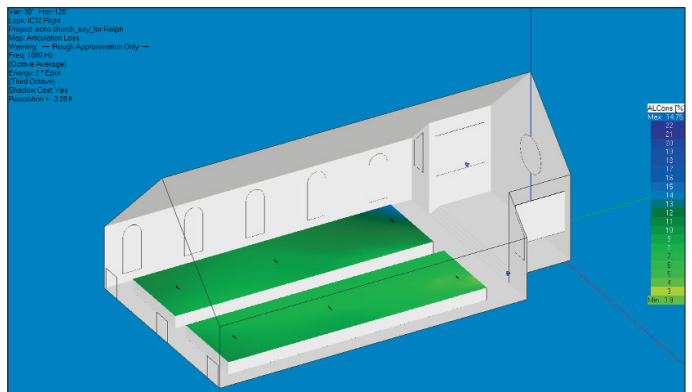
BeamWare display of a tightly focused ICL-FR digitally steerable array.



BeamWare display showing the multi-beam capability of ICL-FR arrays.



EASE Intelligibility map of a typical reverberant worship facility (3 to 3.5 Sec. RT60) with a conventional 2-way loudspeaker system. The blue areas indicate poor to unacceptable intelligibility.



EASE Intelligibility map of the same worship facility with an Iconyx ICL-R array. The green areas indicate good to excellent intelligibility across the bulk of the audience area.

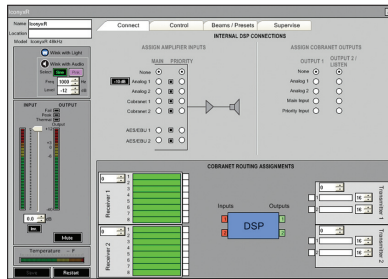


RHAON is the culmination of more than 30 years experience integrating electronics with loudspeakers. RHAON makes it easy to connect, control and monitor multiple ICL-R arrays and a mixture of other Renkus-Heinz powered loudspeakers using standard Ethernet cabling and switches. On one network, you can distribute multi-channel digital audio with CobraNet, control array-specific DSP functions, and supervise the entire loudspeaker system from a centrally location computer.

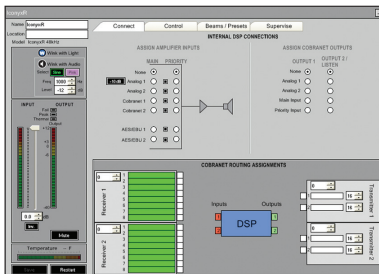
RHAON's comprehensive network capabilities make it easy to add one-touch presets, zone control and life safety functions to any ICL-R system.

RHAON gives you maximum control of:

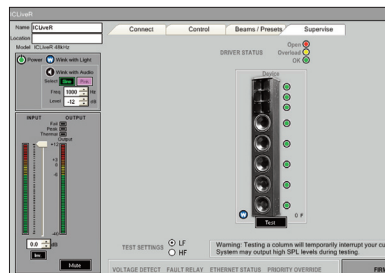
- Real time digital audio distribution over standard Ethernet using proven CobraNet technology to deliver multiple channels of high quality digital audio over a single CAT 5 cable.
- A powerful DSP inside each ICL-R array on the network. Adjust eight bands of parametric EQ, high and low frequency shelving 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.



A typical ICL-R loudspeaker array connection window. Notice the wide range of inputs available.



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



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

**Powerful Algorithms, Intuitive Interface**

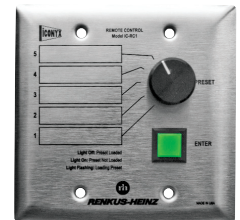
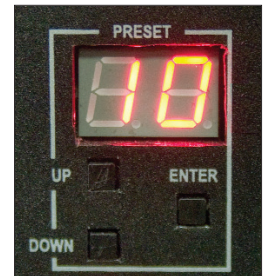
The software algorithms that shape and aim the output of an Iconyx array are complex, but the user interface is intuitively simple. Our BeamWare software, an integral part of RHAON, lets you model the audience area, then drag and drop beams until coverage is optimized. BeamWare then calculates a set 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 ICL-FR Series modules over the Ethernet network.

The beams can be easily adjusted from your computer after the Iconyx array is installed.

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

**Multiple Presets, Easy Selection**

ICL-FR 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.

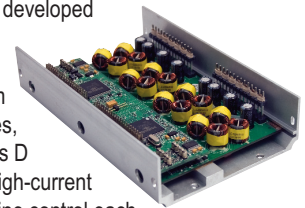


IC-RC1 Remote Control

This function can also be performed remotely from the central control computer, by means of a remote control panel or by third party controllers such as those made by Crestron.

**Advanced DSP Processor / Amplifier**

The brain of each ICL-FR module is the 8-channel DSP processor / amplifier developed specifically for IC Live. It not only performs the complex digital signal processing needed to shape and aim the beams without creating side lobes, but also provides 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.

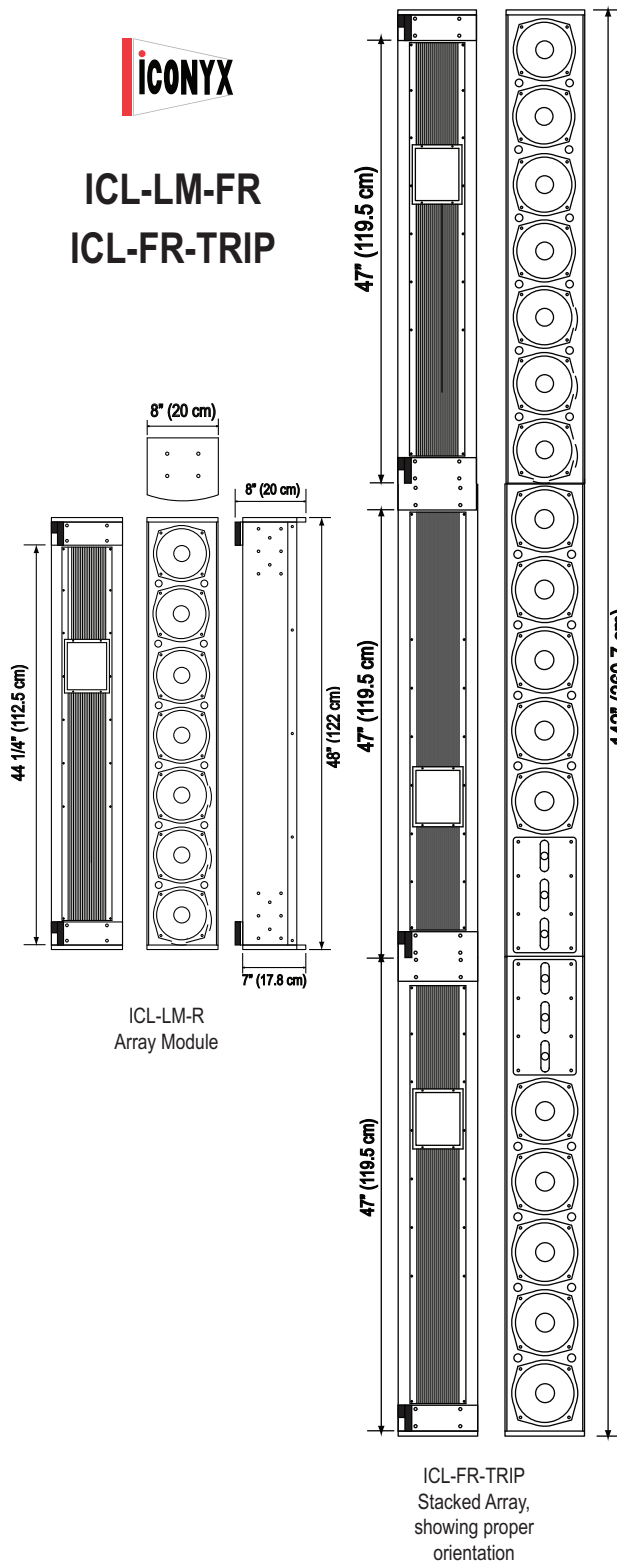


**Multiple Input Options**

IC Live 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.



## ICL-LM-FR ICL-FR-TRIP



## Technical Specifications

- Sensitivity:** 1.0 V (for rated power output)
- Freq. Range:** 80 Hz to 20 kHz (in stacked arrays)
- Max SPL:** ICL-LM-FR: 105 dB peak @ 100 Ft. (30.5 m)  
ICL-FR-TRIP: 108 dB peak @ 100 Ft. (30.5 m)
- Horiz. Dispersion:** 150° up to 3 kHz
- Vert. Opening Angles:** ICL-LM-FR: 20°, 25° and 30°  
ICL-FR-TRIP: 5°, 10°, 15° and 20°
- Aiming Angle:** Adjustable from -30° to +30°
- Typical Throw:** 66 Ft. (20 m) 132 Ft. (40 m) when stacked
- Beam Control:** ICL-FR-TRIP: down to 250 Hz
- No. Transducers:** Seven 6.5-inch cone transducers with neodymium magnets
- No. Amp. Channels:** ICL-LM-FR: 7
- Dimensions:** ICL-LM-FR: 48" H x 8" W x 7" D (122 cm x 20.3 cm x 17.8 cm)  
ICL-FR-TRIP: 142" H (360.7 cm)
- Weight:** ICL-LM-FR: 58.5 Lbs (26.5 Kg)  
ICL-FR-TRIP: 174 lbs. (79 Kg)
- Hardware:** Metric M10 attachment points, hinge kits.
- Enclosure:** Finnish Birch with perforated steel grille
- Inputs:** Analog Audio & AES/EBU Inputs: Looping XLR (female in, male out) and Phoenix 6-pin (looping 3-in, 3-out)  
CobraNet: Dual connectors (for CAT 5e copper cable)
- Controls (Rear Mounted):** Mute button  
Up & Down Output Level push buttons  
10 dB Input pad (on Analog 1 input)  
Push-To-Reset circuit breaker, Configuration Preset Selector
- Computer Controls:** Gain, Mute, On/Standby, Input Selection  
Compression, 9-Band Parametric EQ, Shelving & Rolloff Filters, Delay, Configuration Preset Readout
- Status Indicators:** Power, Signal, Overdrive, Thermal, Mute, Input Pad, Failure, Preset Configuration
- Power Connector:** Powercon locking connector
- Standard Finish:** Black paint
- Network Digital Format:** 16, 20 or 24 bit PCM; 48 or 96 kHz sample rate; selectable network latency
- DSP/AMPLIFIER Type:** 8-channel, Class D amplifier/DSP processor
- Power Rating:** 100 Watts RMS per channel, 150 Watts Burst
- THD Distortion:** < 0.05% typical
- Hum & Noise:** <100 dB (A weighted)
- Power Required (per module):** Universal 90/260 VAC, 50/60Hz. 29 VA Idle; 500 VA @ Rated Power Output (250 ma Idle, 4.2 Amps @ RPO at 120 V)

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