NLA-5/15S
Professional Line Array Speaker System

NLA-5 5 inch 2-way Line Array Speaker / NLA-15S Compact Arrayable Subwoofer

Inter-m is the leader of professional sound
NLA-5
5 inch 2way Line Array Speaker

NLA-15S
Compact Arrayable Subwoofer
The NLA-5 is a 2-way dual 5-inch speaker system capable of delivering high power quality sound. The NLA-5 employs high-performance neodymium drivers for superior fidelity and coverage. The NLA-5 is suitable for small to medium sound reinforcement applications. Superb in live sound reinforcement or installed situations. Designed for use in theaters, house of worship and arts performing centers, the system provides audio professionals with a lightweight, high output array that offers exceptional audio fidelity, excellent directivity and frequency response.

The passive-type cabinet design is ideal for applications requiring both quality sound at a reasonable price. Plus, 2-channel amplifier can drive up to 8 boxes of NLA-5.
NLA SPEAKER SYSTEM

5 inch 2way Line Array Speaker

The NLA-5 compact design is ideal for small rooms or venues requiring the features of a high quality line array speaker system. Each cabinet features two high-performance front mounted 5-inch low frequency drivers. The LF drivers are mounted in separately vented chambers enhancing the low frequencies generated by the woofers. The LF drivers have a 93dB 1w/1m sensitivity and a power handling capacity of 150W, delivering a linear and solid bass reproduction.

The 1" high output titanium voice coil compression HF tweeter driver have a power capacity of 30W and is mounted to a dedicated wave-guide reproducing a flat distortion free high frequency response with a uniform wave front, delivering vocal clarity and high definition sound with incredible dynamics.

Up to 8 Line array speakers can be simultaneously connected per frame. The integrated rigging system allows quick and easy flying or ground stacking. Arrays may be built straight or curved in various angular to obtain the desired vertical coverage. 0 degrees, 5 degrees, and 10 degrees vertical directivity angle adjustments settings are available to curve the line array according to the installation environment.

The NLA-5 are equipped with 2 parallel NL4 connectors for easy looping of the cabinet’s audio signal. One 2-channel amplifier can drive up to 8 cabinets. (4 cabinets per channel) The front grill is made of 14 gauge durable mesh and powder-coated for a durable finish.

For applications where extended low frequency is required, the NLA-5 can be coupled with the matching NLA-15S subwoofer. The NLA-15S Subwoofer incorporates a single 15 inch front loaded woofer in a vented cabinet with a matching footprint to the NLA-5. The NLA-15S subwoofer cabinet can seamlessly be flown with the NLA-5 or installed in a ground stack. The NLA-15S subwoofer was designed specifically for use with the NLA-5 arrays and is suitable for small to medium sound reinforcement applications.

*Black and white models are available.
**High-quality drivers**
The NLA-5 speakers are manufactured using high-quality drivers and components for dynamic sound with rich bass and distortion-free frequencies. The NLA-5 delivers consistent quality, high durability, and high-quality sound. The low-frequency drivers use Vented-Core technology cooling for dynamic sound with rich bass reproduction. The high-frequency titanium compression driver offers extended range up to 20 KHz, providing high-resolution natural sound, while minimizing sound distortion.

**High Frequency Waveguide**
The NLA-5 line array uses a linear waveguide to normalize the propagation distance from the throat to the mouth. This minimizes the mutual interference between the cabinets.

The waveguide has multiple segments changing the source into identical small apertures, each equidistant from the inlet aperture. The result is minimal rise at the mouth approximating a planar wave shape. This enables adjacent loudspeakers to sum without interference at high frequencies.

**Compact Acoustic Enclosure**
The NLA-5 is a dual 5” ultra-compact, passive professional line array loudspeaker. Ideally suited to applications that require a low profile solution. Its small footprint still manages to deliver high output making the NLA-5 ideally suited to short or medium throw environments. The compact low profile ported cabinet design is optimized for high vocal intelligibility and musical reproduction. This design approach enhances the reproduction of the low frequencies generated by the woofers.

Eco-friendly flame-retardant sound-absorbing material is used as an energy barrier to absorb and minimize unwanted resonance. Damping material is necessary to absorb sound from the rear of the cone, sound that would otherwise be bounced around the box and reflected out through the cone. Damping material suppresses mid-range peaks, making the response curve smoother. Absorb whether to support able to play a distinct sound.

**Robust Rigging System**
The Rigging or flying system is designed with a safety factor of 5:1 providing a high level of safety and peace of mind required by our customers. Up to eight 8 Line array speakers can be simultaneously connected per frame. 0 degrees, 5 degrees, and 10 degrees vertical directivity angle adjustments settings are available to curve the line array according to the installation environment.

**Rugged Enclosure**
The NLA series speaker enclosure is manufactured using a high precision CNC Machinery with void-free 15T cedar plywood. The panels are assembled using an interlocking joining method, which ensures durability and minimizes sound leakage. The enclosure’s high-quality polyurethane paint finish complies with ROHS for long-term use. The front grill is made of 14 gauge durable mesh and powder-coated for a durable finish. The optimized grill aperture ratio protects the drivers while minimizing HF loss.

**EASE Data**
EASE data is available for the NLA series speakers. EASE data is used to assist in the rendering a simulation speaker performance during the design of a venue. This helps to predict dispersion and intelligibility of the system and assists the designer in the positioning of the drivers prior to installation.

EASE is the industry-standard software that allows the creation of a 3D acoustic model of any room and the simulation of a sound system in that room.

**Advanced crossover network**
The NLA-5 crossover is manufactured using high-quality components. Its custom design is tuned to offer a very smooth frequency response over an expanded frequency range and maximizes the SPL of the High frequency and Low frequency drivers. The crossover is mounted on Aluminum panel for better heat dissipation and incorporates a speaker protection circuitry that protects the drivers from damage.

The use of passive crossover permits the NLA to be powered by a single amplifier channel. One 2-channel amplifier can drive up to 8 cabinets.
The NLA-15S sub-woofer is ideal for applications where extended low frequency is required. The NLA-5 can be coupled with the matching NLA-15S subwoofer. The NLA-15S subwoofer incorporates a single 15-inch long-exursion front loaded woofer in a vented cabinet with a matching footprint to the NLA-5.

The NLA-5 and NLA-15S compact design is ideal for small to medium size rooms or venues requiring the features of a high quality line array speaker system.

The subwoofers can be flown in combination with the NLA-5 or can be ground stacked as required.

The NLA-15S are equipped with 2 parallel NL4 connectors for easy looping of the cabinet’s audio signal. The NL4 with a 4-conductor cable can transport both the full range and sub-woofer audio signals. This allows only one 4-conductor cable to connect the amplifiers to both the full range and subwoofer speakers. This permits easy error free connection of all cabinets by simply looping them together. For example, one 2-channel amplifier can drive up to 8 cabinets (4 cabinets per channel) and another amplifier drive the sub-woofers.

The front grill is made of 14 gauge durable mesh and powder-coated for a durable finish. (Available in black and white finish)

The NLA-15S subwoofer cabinet can seamlessly be flown with the NLA-5 or installed in a ground stack. The NLA-15S subwoofer is designed specifically for use with the NLA-5 arrays and is suitable for small to medium sound reinforcement applications.
**High-quality Drivers**
The NLA-15S Sub-woofer cabinets are manufactured using high-quality drivers and components for dynamic sound with rich bass.

NLA-15S uses a high-power, 15-inch Long-Excursion sub-woofer delivering more base than standard drivers. The driver is front mounted in a rear ported base reflex cabinet. This enhances, and transmits low-frequency energy from the rear of the speaker to the listener. The NLA-15S delivers consistent quality, high durability and high quality sound.

The NLA-15S has the same footprint as the NLA-5 full range cabinets creating a uniform speaker array.

**Compact Acoustic Enclosure**
The NLA-5 Series is a dual 5" ultra-compact, passive professional line array loudspeaker. Ideally suited to applications that require a low profile solution. Its small footprint still manages to deliver high output making the NLA-5 ideally suited to short or medium throw environments. The compact low profile ported cabinet design of the NLA-15S combined with the Long-Excursion 15 inch subwoofer delivers powerful and rich bass. This design approach enhances the reproduction of the low frequencies generated by the woofers.

Eco-friendly flame retardant sound-absorbing material is used as an energy barrier to absorb and minimize unwanted resonance. Damping material is necessary to absorb sound from the rear of the cone, sound that would otherwise be bounced around the box and reflected out through the cone. Damping material suppresses mid-range peaks, making the response curve smoother.

**Robust and accurate rigging system**
The Rigging or flying system is designed with a safety factor of 5:1 providing a high level of safety and peace of mind required by our customers. Up to eight (8) speakers can be simultaneously connected per frame. 0 degrees, 5 degrees, and 10 degrees vertical directivity angle adjustments settings are available to curve the line array according to the installation environment.

**Rugged Enclosure**
The NLA series speaker enclosure is manufactured using a high precision CNC Machinery with void free 15T cedar plywood. The panels are assembled using an interlocking joining method, which ensures durability and minimizes sound leakage. The enclosure’s high quality polyurethane paint finish complies with ROHS for long-term use. The front grill is made of 14 gauge durable mesh and powder-coated for a durable finish. The optimized grill aperture ratio protects the drivers while minimizing HF loss.

*Black and white models are available.*
## System Components

<table>
<thead>
<tr>
<th>Model</th>
<th>Features</th>
<th>Specification</th>
<th>Image</th>
</tr>
</thead>
</table>
| Full Range Line Array      | The NLA-5 is a 2 way full range passive line array loudspeaker capable of handling the most demanding performance 4 cabinets can be looped and powered by one amplifier channel.                                                                                                                   | • 2x5" LF driver / 150W AES  
• 1" HF driver / 30W AES  
• Plane wave Guide  
• 90deg Horn  
• 16Ω impedance  
• 8 boxes Rigging  
• Available in black and white finish                                                                                      | ![NLA-5 Image](image1.png) |
| Line Array Subwoofer       | The NLA-15S sub-woofer is ideal for applications where extended low frequency is required. Same footprint as the NLA-5 minimizes the visual impact when stacked or flown.                                                                                                                  | • 15" Long-exursion driver  
• 600W AES/ 2400W Peak  
• Extended base to 35Hz  
• 8Ω impedance  
• Available in black and white finish                                                                                       | ![NLA-15S Image](image2.png) |
| Class D                    | The D-3000 is a class-D power amplifier that is incorporated with DSP and Dante™ digital network audio. The DSP of the D-3000 is configurable using the built-in HTML5 web-browser control panel.                                                                                                           | • Digital network audio with Dante™  
• Built-in web server  
• High-efficiency Class-D amplifier  
• Embedded DSP control (Shelving EQ, P-EQ, HPF, LPF, Limiter, Delay)  
• 600W x 2ch @ 8Ω / 1200W x 2ch @ 4Ω / 1500W x 2ch @ 2Ω                                                                 | ![D-3000 Image](image3.png) |
| Dante Audio Signal Router  | This product is used as the audio matrix, each having eight inputs, where you can send uncompressed audio with low latency using standard TCP/IP Ethernet network.                                                                                                                       | • DANTE™ Network Audio Technology  
• 8 audio inputs / outputs  
• DATA Tunneling (8 In/Out Dry Contact & RS-232C)  
• 2 network input port and status LED                                                                                       | ![DASR-288 Image](image4.png) |
| Rigging frame              | The NLA-5-FRAME can rig up to 8 NLA-5 cabinets with a security factor of 5:1.                                                                                                                                                                                                  | • Power-coated steel frame  
• MAX rigging  
• 8 boxes @ 5:1 safety factor  
• Available in black and white finish                                                                                     | ![NLA-5 FRAME Image](image5.png) |
| Digital Sound Processor    | The digital processing includes Gain, Parametric EQ, Shelving Filters, Time Delay, Crossover Functions, Compression, Limiting, and Matrix Routing. This allows perfect speaker system alignment and calibration for perfect sound quality.                                                                 | • 4IN/ 8OUT DSP  
• Gain, Matrix, Delay  
• PEQ, X-OVER, Comp, Limiter  
• Front/USB(GUI) control                                                                                                      | ![CSP-4.8 Image](image6.png) |
| Power Amplifier V2 SERIES  | The V-2 series amplifiers are high-efficiency, high-power 2-channel amplifiers that are ideal for driving high-output speaker systems, such as Line arrays and subwoofers.                                                                                                               | • Light-weight High-power  
• Class-H, SMPS type  
• 2U size up to 5000W  
• V2-3000(BRI.) for NLA-15S SUB  
• V2-4000 for NLA-5                                                                                                        | ![V2 SERIES Image](image7.png) |
| Housing                    | It minimizes speaker cable length and increases the amplifier power to the speakers due to the reduced wire resistance.                                                                                                                                                             | • NLA system and connect to available Flying  
• 9U size housing  
• D-3000 Installation  
• Available in black and white finish                                                                                       | ![FLYING AMP HOUSING Image](image8.png) |
**EASE**
(EHANCED ACOUSTIC FOR SIMULATION ENGINEERS)

EASE (ENHANCED ACOUSTIC FOR SIMULATION ENGINEERS) is developed by a German sound specialist and physicist DR. Abert. It is one of the most widely used simulation program around the world. EASE can measure not only architectural acoustics but electro-acoustics and infer data value of DIRECT SPL, TOTAL SPL, C50, C80, DECY TIME, %ALCONS, RASTI etc. through simulation suited in several situations. These data allow users to predict characteristics of the places and sound and brings economical benefits by being able to reinforce and modify specific details before SOUND SYSTEM INSTALLATION.

**Why the line array is installed**

1. **Control of vertical pointing angle**
   The long line array can be reduced the vertical pointing angle until low frequency. The sound that reflected to ceiling is reduced and prevent to produce the unnecessary reflect sound if the vertical pointing angle becomes narrow. In this result, articulation can be improved as direct sound of reflect sound is increased. Also, the margin of howling can be increased if the sound that enters to stage becomes minimized.

2. **The level of sound pressure is decreased depending on distance**
   The level of sound pressure can be decreased if the angle and level between the modules of huge array system is adjusted. In other word, the difference of level between front and back seat can be eliminated. The existing also can be reduced the difference of level between front and back seat but it can be produced difference of sound quality between seats.
Applications

NLA System Concept-1: Small scale

- **NLA-5** | Line Array Speaker System (Dual 5") | 8EA
- **NLA-15S** | Subwoofer (15") | 2EA
- **SE-8K** | Sub Speaker (8") | 2EA
- **D-3000** | Dante Network Power Amp. (DSP) | 3EA
- **DASR-288** | Dante Amplifier Controller | 1EA
- **IMX-416** | Audio Mixing Console | 1EA
- **CDR-01** | Multi Source Player (CD/USB/SD) | 1EA
- **W/L Microphones** | Wireless Mic., Receiver (2ch.) | 1EA
- **W/L Handheld Mic.** | Wireless Handheld Mic. | 2EA

Diagram:
- **CDR-01**
- **W/L Microphones**
- **IMX-416**
- **DASR-288**
- **Network**
- **UTP CAT5**
- **D-3000** (2EA)
- **NLA-15S** (2EA)
- **NLA-5** (8EA)
- **SE-8K** (2EA)

Diagram shows the connection between the devices using UTP CAT5 cables.
### NLA System Concept-2: Medium scale

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>NLA-5</td>
<td>Line Array Speaker System (Dual 5”)</td>
<td>12EA</td>
</tr>
<tr>
<td>NLA-15S</td>
<td>Subwoofer (15”)</td>
<td>2EA</td>
</tr>
<tr>
<td>CSQ-10K</td>
<td>Sub Speaker (10”)</td>
<td>2EA</td>
</tr>
<tr>
<td>CMM-12K</td>
<td>Stage Monitor Speaker (12”)</td>
<td>2EA</td>
</tr>
<tr>
<td>D-3000</td>
<td>Dante Network Power Amp., (DSP)</td>
<td>6EA</td>
</tr>
<tr>
<td>Digital Mixing Console</td>
<td>Digital Audio Mixer (32ch)</td>
<td>1EA</td>
</tr>
<tr>
<td>CDR-01</td>
<td>Multi Source Player (CD/USB/SD)</td>
<td>1EA</td>
</tr>
<tr>
<td>MD-30S</td>
<td>Dynamic Microphone</td>
<td>1EA</td>
</tr>
</tbody>
</table>
Applications

NLA System Concept-3 : Large scale

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>NLA-5</td>
<td>16EA</td>
</tr>
<tr>
<td>NLA-15S</td>
<td>4EA</td>
</tr>
<tr>
<td>CSQ-10K</td>
<td>2EA</td>
</tr>
<tr>
<td>CMM-12K</td>
<td>7EA</td>
</tr>
<tr>
<td>D-3000</td>
<td>1EA</td>
</tr>
<tr>
<td>CDR-01</td>
<td>1EA</td>
</tr>
<tr>
<td>W/L Microphones</td>
<td>2EA</td>
</tr>
</tbody>
</table>

Line Array Speaker System (Dual 5")
Subwoofer (15")
Sub Speaker (10")
Stage Monitor Speaker (12")
Dante Network Power Amp, (DSP)
Digital Audio Mixer (32ch)
Multi Source Player (CD/USB/SD)
W/L Mic., Receiver (2ch.)
Wireless Handheld Mic.
NLA-5 5 inch 2way Line Array Speaker / NLA-15S Compact Arrayable Subwoofer

NLA-5

TOP

FRONT

SIDE

BACK

(Frequency Response Graph)

NLA-15S

TOP

FRONT

SIDE

BACK
### Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>NLA-5</th>
<th>NLA-15S</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td>Compact Linearray Module, 2x5” 2 way full range</td>
<td>Compact Flying-Sub Module, 15” subwoofer</td>
</tr>
<tr>
<td><strong>Frequency Range (-10 dB)</strong></td>
<td>74 Hz~18 kHz</td>
<td>42 Hz~2.7 kHz</td>
</tr>
<tr>
<td><strong>Frequency Response (±3 dB)</strong></td>
<td>102 Hz~18 kHz</td>
<td>48 Hz~2.7 kHz</td>
</tr>
<tr>
<td><strong>Transducer</strong></td>
<td>LF:2 x 130 mm(5”) Woofer HF:25 mm(1”) Tweeter</td>
<td>381 mm (15 in) driver with</td>
</tr>
<tr>
<td><strong>Power Handling</strong></td>
<td>150 W</td>
<td>600 W</td>
</tr>
<tr>
<td><strong>Sensitivity(1M/1W)</strong></td>
<td>93 dB</td>
<td>99 dB</td>
</tr>
<tr>
<td><strong>Maximum SPL</strong></td>
<td>121 dB</td>
<td>130 dB</td>
</tr>
<tr>
<td><strong>Nominal Impedance</strong></td>
<td>16 Ω</td>
<td>8 Ω</td>
</tr>
<tr>
<td><strong>Nominal Dispersion</strong></td>
<td>Horizontal 90° / Vertical 10°</td>
<td>Omni</td>
</tr>
<tr>
<td><strong>Connectors</strong></td>
<td>2 x Amphenol SP4 on steel panel</td>
<td>2 x Amphenol SP4 on steel panel</td>
</tr>
<tr>
<td><strong>Enclosure Material</strong></td>
<td>15T Cedar Plywood</td>
<td>15T Cedar Plywood</td>
</tr>
<tr>
<td><strong>Fitting</strong></td>
<td>4Point flying rigging</td>
<td>4Point flying rigging</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>11.4 kg/25.1 lbs.</td>
<td>32 kg/70.5 lbs.</td>
</tr>
<tr>
<td><strong>Dimension (WxHxD)</strong></td>
<td>477 x 181 x 308 mm/18.8 x 7.1 x 12.1 in</td>
<td>477 x 518 x 741 mm/18.8 x 20.4 x 29.2 in</td>
</tr>
</tbody>
</table>

*white and Black modes available (NLA-5/15S/Frame/Housing)