

The JBL logo is displayed in white, bold, sans-serif capital letters within an orange square. The background of the top half of the page is a close-up of a black speaker grille with a hexagonal mesh pattern and a control panel with several knobs and switches.

PROFESSIONAL

VTX SERIES
SYSTEM SOLUTIONS

VTX A12 | User Manual



GENERAL INFORMATION

VTX A12 - User Manual

Part Number: 5160715-00

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JBL PROFESSIONAL

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Thank you for purchasing JBL VTX Series products



In more than 75 years of JBL innovations, the VTX Series stands apart as a milestone in the practical application of creative engineering. VTX products herald the next generation in line array loudspeaker systems: a new era in performance, system integration and user friendliness. VTX products draw on multiple JBL patents in driver, waveguide, and suspension technology, as well as custom amplification, DSP, control, and system management designs created in collaboration with HARMAN Professional sister companies.

VTX loudspeakers marry custom transducer design and in-house manufacture, breakthrough technologies, and a comprehensive system approach to deliver a premium experience for all who come into contact with it, from the FOH mixing engineer to the systems engineer, rigger, road crew, warehouse manager, and, of course, the audience. Designed for operators of portable and fixed systems alike, the VTX Series features JBL's legendary sound quality coupled with expert support and advanced tools that enable optimal specification, configuration, and operation of VTX systems in any venue, anywhere in the world. The VTX Series delivers a comprehensive solution: the finest sound quality available, plus efficient and intuitive setup, tuning, networking, and control.

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1 - DOCUMENT REVISION HISTORY

VERSION	RELEASE DATE	CHANGES
Version A	April 14, 2017	• Initial VTX A12 User Manual
Version B	May 22, 2017	• Added Declaration of Conformity • Added guidance on testing VTX A12 cabinets
Version C	January 25, 2018	• Updated the Declaration of Conformity • Updated language in Section 2- Safety • Added guidance for VTX A12W • Updated contact information
Version D	December 3, 2020	• Updated document fonts and formatting • Updated language in Section 2 - Safety • Added the VTX A12 BP to Section 4 - Compatible Accessories • Updated language in Section 5 - Software • Updated language in Section 6 - Introduction • Updated contact information
Version E	October 10, 2026	• Added Document Revision History • Removed the Declaration of Conformity and product specifications from the User Manual; these documents are now available at www.jblpro.com. • Updated Section 2 - Safety Instructions • Added VTX B35 to Section 3 - System Components • Updated Section 5 - Software • Added system examples • Updated contact information

2 - SAFETY

2.1 SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not expose the product to direct rain or sea spray.
6. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus that produce heat.
7. Only use attachments/accessories specified by the manufacturer.
8. Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
9. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as if liquid has been spilled or objects have fallen into the apparatus, or if the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
10. Contact JBL Professional for advanced servicing issues.
11. **CAUTION - Do not perform any servicing unless you are qualified to do so.**
12. Prolonged exposure to excessive SPL can cause hearing damage. The loudspeaker is easily capable of generating sound pressure levels (SPL) sufficient to cause permanent hearing damage to performers, production crew, and audience members. Caution should be taken to avoid prolonged exposure to SPL in excess of 90 dB.
13. Read the **VTX A12 Rigging Manual** before installation and use of the products.

2.2 GENERAL HARDWARE INFORMATION

Any hardware used in an overhead suspension application must be load rated for the intended use. Generally, this type of hardware is available from rigging supply houses, industrial supply catalogs, and specialized rigging distributors. Local hardware stores do not usually stock these products. Compliant hardware will be referenced with a working load limit (WLL) and a traceability code.

2.3 ATTACHMENT TO STRUCTURES

A licensed Professional Engineer must approve the placement and method of attachment to the structure prior to the installation of any overhead object. The following performance standards should be provided to the Professional Engineer for design purposes: Uniform Building Code as applicable, Municipal Building Code as applicable, and Seismic Code as applicable. The installation of the hardware and method of attachment must be carried out in the manner specified by the Professional Engineer. Improper installation may result in damage, injury, or death.

2.4 IMPORTANT SAFETY WARNING

The information in this section has been assembled from recognized engineering data and is intended for informational purposes only. None of the information in this section should be used without first obtaining competent advice with respect to applicability to a given circumstance. None of the information presented herein is intended as a representation or warranty on the part of JBL. Anyone making

use of this information assumes all liability arising from such use.

All information presented herein is based upon materials and practices common to North America and may not directly apply to other countries because of differing material dimensions, specifications, and/or local regulations. Users in other countries should consult with appropriate engineering and regulatory authorities for specific guidelines.

Correct use of all included hardware is required for secure system suspension. Careful calculations should always be performed to ensure that all components are used within their working load limits before the array is suspended. Never exceed the maximum recommended load ratings.

Before suspending any speaker system, always inspect all components (enclosure, rigging frames, pins, eye bolts, track fittings, etc.) for cracks, deformations, corrosion, or missing/loose/damaged parts that could reduce strength and safety of the array. Do not suspend the speaker until the proper corrective action has been taken. Use only load-rated hardware when suspending JBL suspendable loudspeaker models.

2.5 ARE YOU NEW TO RIGGING?

If you are new to rigging, you should:

- Know the rules for safe rigging.
- Attend a safe rigging seminar.
- Meet and establish a relationship with a licensed mechanical or structural engineer. Get in the habit of asking them questions instead of assuming their answers. Learn from what they tell you.
- Research and understand the codes, practices, and requirements of the venues where you intend to operate your sound system.

2.6 INSPECTION AND MAINTENANCE

Suspension systems are comprised of mechanical devices and require regular inspection and routine maintenance to ensure proper functionality. Before suspending or pole mounting any speaker system, inspect all components, including enclosures, suspension frames or brackets, pins, and eyebolts, for cracks, deformation, corrosion, or missing, loose, or damaged parts that could reduce system strength or safety. Do not suspend or pole mount a speaker until any issues have been corrected.

Inspect all load-bearing surfaces for signs of cracking, water damage, delamination, or other conditions that may reduce the strength of the loudspeaker enclosure. Inspect suspension hardware for signs of fatigue, corrosion, bending, or other damage that may reduce its strength. Check eyebolts for possible spin-out of the enclosure.

Follow the inspection intervals and maintenance requirements in the VTX A12 Rigging Manual Section 16 - Product Care and Maintenance, or as required by local regulations. For all other hardware and fittings, follow the hardware manufacturer's inspection and maintenance guidelines.

Prior to suspending the system, all parts and components should be inspected by a trained and experienced person qualified in suspending loudspeaker systems.

JBL is not responsible for the application or misuse of its products or this information, including failure to comply with inspection and maintenance procedures.

2.7 SYMBOLS

The following symbols are used in this document:



CAUTION: This symbol gives notice of a potential risk of harm to the individual or the equipment. Instructions marked with this symbol must be strictly followed.



TIP: This symbol gives notice of helpful, relevant information about the topic.



INSTRUCTIONS: This symbol gives notice of instructions that must be followed for proper installation and use of the product.



TOOLS REQUIRED: This symbol gives notice of tools that must be used for proper installation and use of the product.



TIPPING HAZARD: This symbol gives notice of potential tip hazard. Use caution when moving the cart/apparatus combination to avoid injury from tip-over.

2.8 PERSONAL PROTECTIVE EQUIPMENT (PPE)

Appropriate personal protective equipment (PPE) must be worn whenever installing, adjusting, or removing rigging hardware or loudspeakers. This includes, but is not limited to, safety helmets, protective footwear, gloves, and eye protection. PPE helps reduce the risk of injury from falling objects, sharp edges, pinch points, and other hazards commonly present during rigging operations. Always follow applicable local regulations, workplace safety requirements, and site-specific safety procedures when performing rigging tasks.



HEADWEAR: Protective headwear shall be worn.



FOOTWEAR: Protective footwear shall be worn.



GLOVES: Protective gloves shall be worn.



EYEWEAR: Protective eyewear shall be worn.



LIFTING: Practice safe lifting.

2.9 RESOURCES AND DOCUMENTATION

Several resources are available to VTX Series users to support the proper and safe use of the equipment. The following is an overview of each resource:

USER MANUAL: Covers the electromechanical aspects of the system, including amplification, wiring, speaker presets, tuning, and optimization. User Manuals do not include information about rigging or suspension hardware.

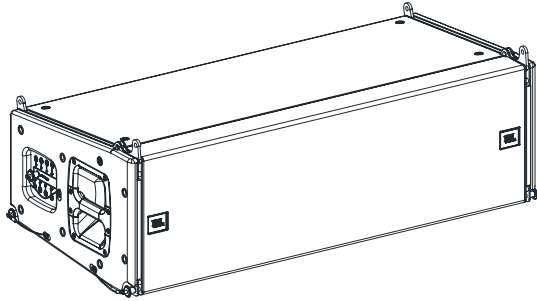
RIGGING MANUAL: Covers the mechanical aspects of the system, including step-by-step rigging instructions, accessory usage, mechanical limits, and safety requirements. **This document should be read by all users.**

SPECIFICATION SHEETS: Provide detailed specifications for loudspeakers and accessories, including acoustical performance, materials, weight, and general mechanical information. A Specification Sheet is available for each SKU.

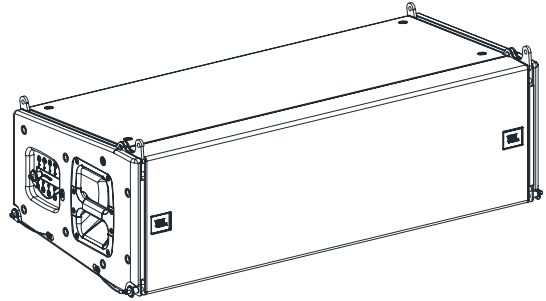
CUSTOMER DRAWINGS: Include detailed drawings for each SKU, including dimensional 2D PDF and DXF files and simplified 3D DXF models. Depending on the product, additional 3D file formats may be available for download at www.jblpro.com.

VIDEO TUTORIALS: Software and hardware video tutorials are available on the JBL Professional YouTube channel.

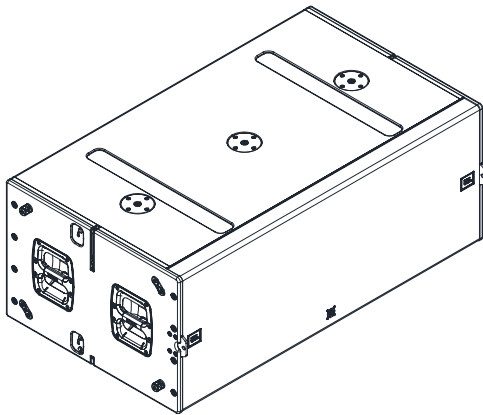
3 - SYSTEM COMPONENTS



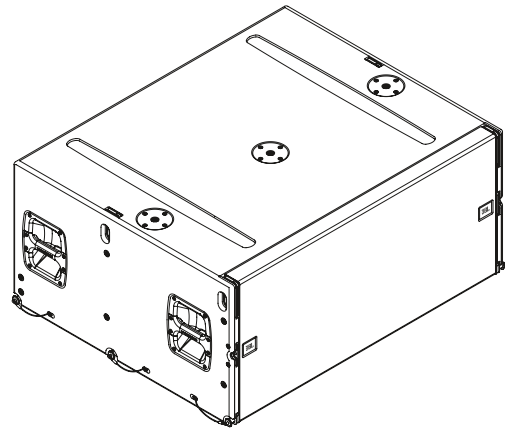
VTX A12



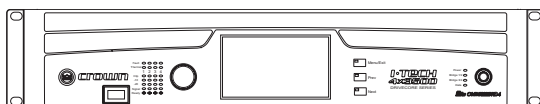
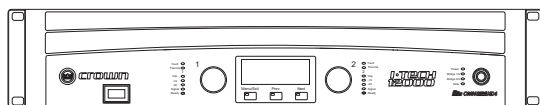
VTX A12W



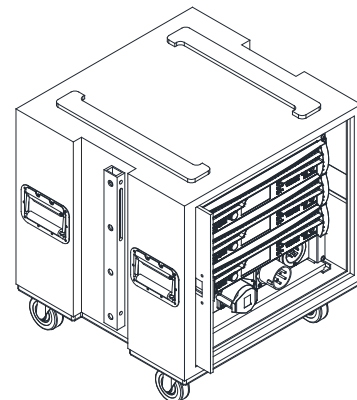
VTX B28



VTX B35 / B35G

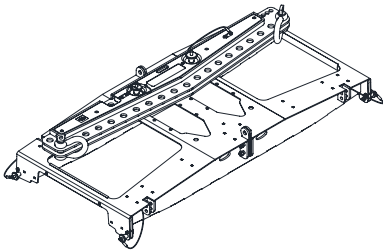


Crown I-Tech HD Amplifiers

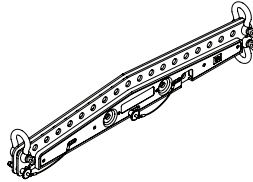


Crown V-Rack

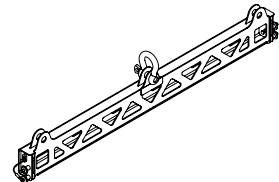
4 - COMPATIBLE ACCESSORIES



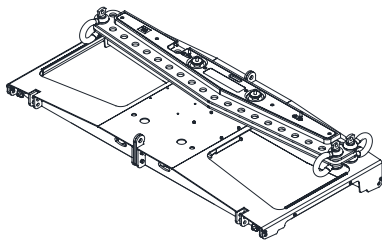
VTX A12 AF MKII | Array Frame



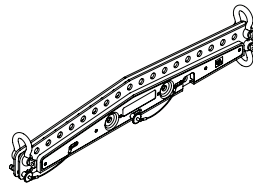
VTX A12 AF EB MKII | Extension Bar



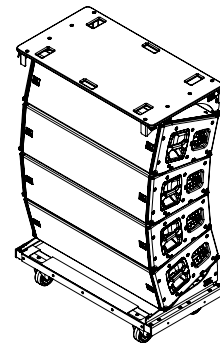
VTX A12 SB | Suspension Bar



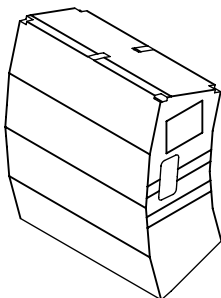
VTX A12 AF | Array Frame



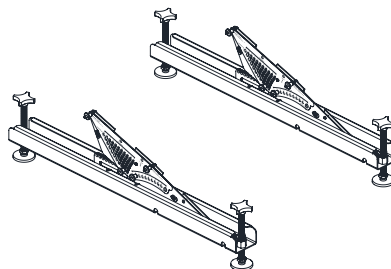
VTX A12 AF EB | Extension Bar



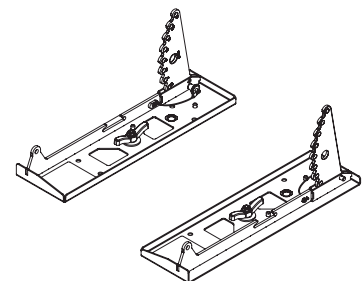
VTX A12 VT | Vertical Transporter



VTX A12 VT CVR | Cover



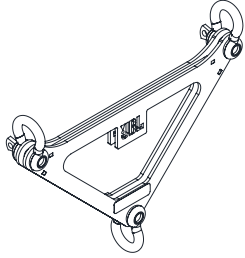
VTX A12 VT GND



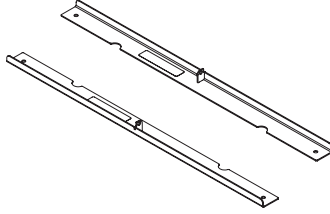
VTX A12 BP | Base Plate



CAUTION: Always use components and accessories specified and approved by JBL Professional. When a cart is used, use caution when moving the cart to avoid injury from tip-over.



VTX Delta | Delta Plate

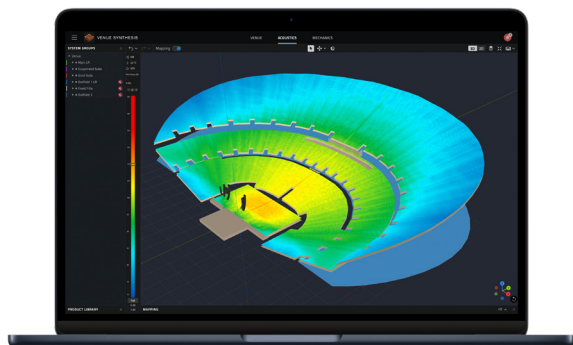


VTX B28 GND



CAUTION: Always use components and accessories specified and approved by JBL Professional. When a cart is used, use caution when moving the cart to avoid injury from tip-over.

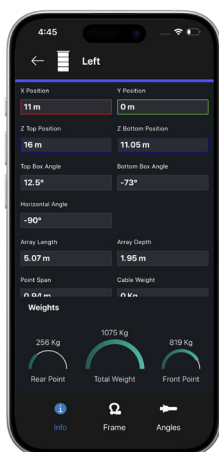
5 - SOFTWARE



5.1 VENUE SYNTHESIS™

Venue Synthesis is a 3D acoustic simulation software, designed to allow system designers and engineers to accurately predict the acoustical and mechanical performance of JBL sound systems. The advanced acoustic engine generates high-resolution simulations to accurately match real-life performance, while the sophisticated mechanical engine generates precise system reports and array statistics.

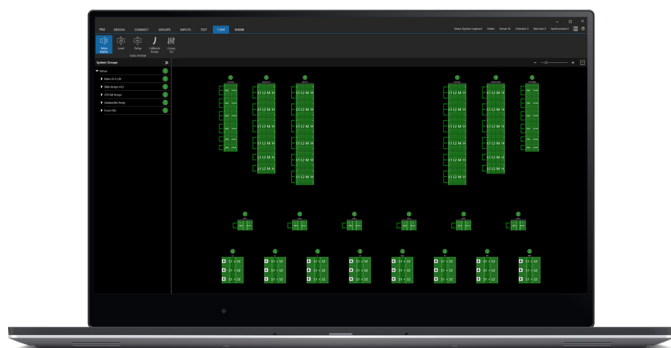
<https://jblpro.com/en-US/products/venue-synthesis>



5.2 ARRAY LINK™

ArrayLink™ is a mobile companion app that works in conjunction with Venue Synthesis to assist in deployment of VTX Series systems. ArrayLink uses a QR code system to transfer all mechanical array information from Venue Synthesis to a mobile phone. All relevant rigging and mechanical options are presented in an easy-to-understand layout. The application is compatible with iOS® and Android™ and can be obtained from their respective app stores.

<https://jblpro.com/en-US/products/arraylink>



5.3 PERFORMANCE MANAGER™

Performance Manager™ streamlines the deployment and operation of JBL and Crown networked audio systems for live events, reducing design time, simplifying networking, and automating control setup. Its patented interface guides technicians through system deployment and optimization step-by-step, greatly simplifying the configuration process.

<https://jblpro.com/en-US/products/performance-manager>

6 - INTRODUCTION

6.1 PRODUCT OVERVIEW



The VTX A12 is a next-generation line array system that delivers JBL Professional's flagship loudspeaker technology in a compact, lightweight solution for mid- to large-size touring applications and high-end fixed installations. The VTX A12 was designed to address the diverse sound reinforcement needs of rental companies, installation houses, FOH engineers and tour sound production crews. At the core of the A12 is the latest in JBL transducer technology and waveguide design, delivering unmatched performance and sound quality. A patented auto-locking rigging system streamlines deployment, while a comprehensive suite of accessories allows for a number of deployment configurations and options. Design and manufacturing refinements maximize longevity and versatility while minimizing size and dramatically reducing weight. Like all other VTX products, A-Series cabinets are made out of the highest quality materials and finished with JBL's DuraFlex™ impact resistance black coating.

PERFORMANCE

JBL Professional is the world's leading manufacturer of loudspeaker systems, using custom-designed and built drivers for optimal performance.

VTX A12's high frequency (HF) section features three uniquely designed drivers that combine the HF phasing plug and waveguide into one part providing better tolerances and increased sensitivity above 10 kHz, while reducing distortion and overall weight.

The patented Radiation Boundary Integrator incorporates four 5.5-inch mid frequency drivers into the high frequency waveguide while providing a smooth surface for the high frequency horn.

A lightweight 12-inch low frequency woofer (LF) features a fourth-generation Differential Drive design that adds dual magnets to its dual voice coil/dual gap construction, and a host of proprietary JBL technologies for increased excursion, power handling, and sensitivity.

INNOVATIVE RIGGING

VTX A12 marks a giant leap forward in how loudspeakers are rigged and transported. Four array elements are stacked on the vertical transporter cart for fast deployment. The rigging features an auto-locking mechanism, which allows the selection of angles while components are on the ground; once the system is suspended, the mechanism automatically locks cabinet angles in the designated positions. Set angles simply by pulling and placing a pin—it's that easy.

ACCESSORIES

Multiple accessory options provide flexibility in the VTX A12's mounting, integration and installation capabilities. Highlights include a Base Plate that mounts the A12 on top of ground-stacked subwoofers such as the B35. The array frame and vertical transporter cart were purpose-built to meet both U.S. and international truck pack dimensions for the most efficient system transportation.

6.2 VTX A12 VS VTX A12W

The A12 is available in standard and wide-coverage versions. The A12 offers 90-degree horizontal coverage, while the A12W offers 120-degree horizontal coverage. The A12 and A12W are acoustically and mechanically compatible, and can be used to create homogeneous or combination arrays. The A12W's wider horizontal coverage pattern can be especially useful in providing additional coverage in short-throw and medium-throw applications.



Mixed arrays of A12 and A12W cabinets can be built to satisfy specific coverage needs. As the listening distance from an array decreases, so does its coverage width. Depending on the venue geometry, A12W speakers can be used at the bottom of an array for broad near-field coverage. The use of identical components in the A12 and A12W ensures that the transition between the two models is seamless, without noticeable discrepancies in voicing or headroom.

A12 and A12W require model-specific presets and cannot be used within the same circuit group. Plan circuiting accordingly so each model receives independent amplifier drive with the appropriate preset.

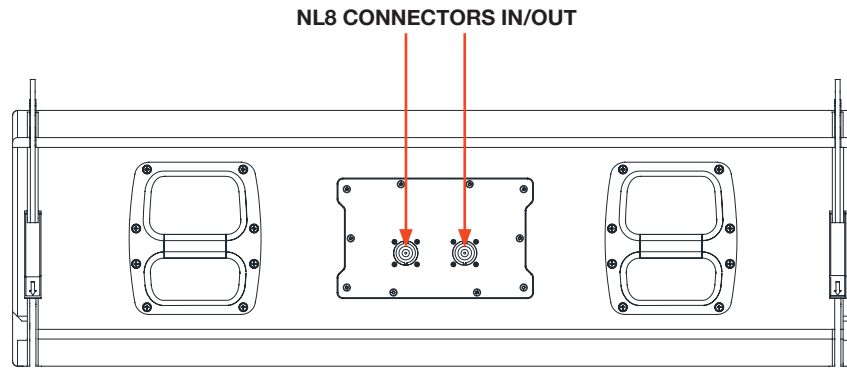
6.3 IDENTIFYING A12 AND A12W

From the front, the A12 and A12W look identical, resulting in a clean and consistent look, even when creating mixed arrays. The A12W input panel is colored blue to differentiate the two models, even when the system is suspended and/or at a distance.

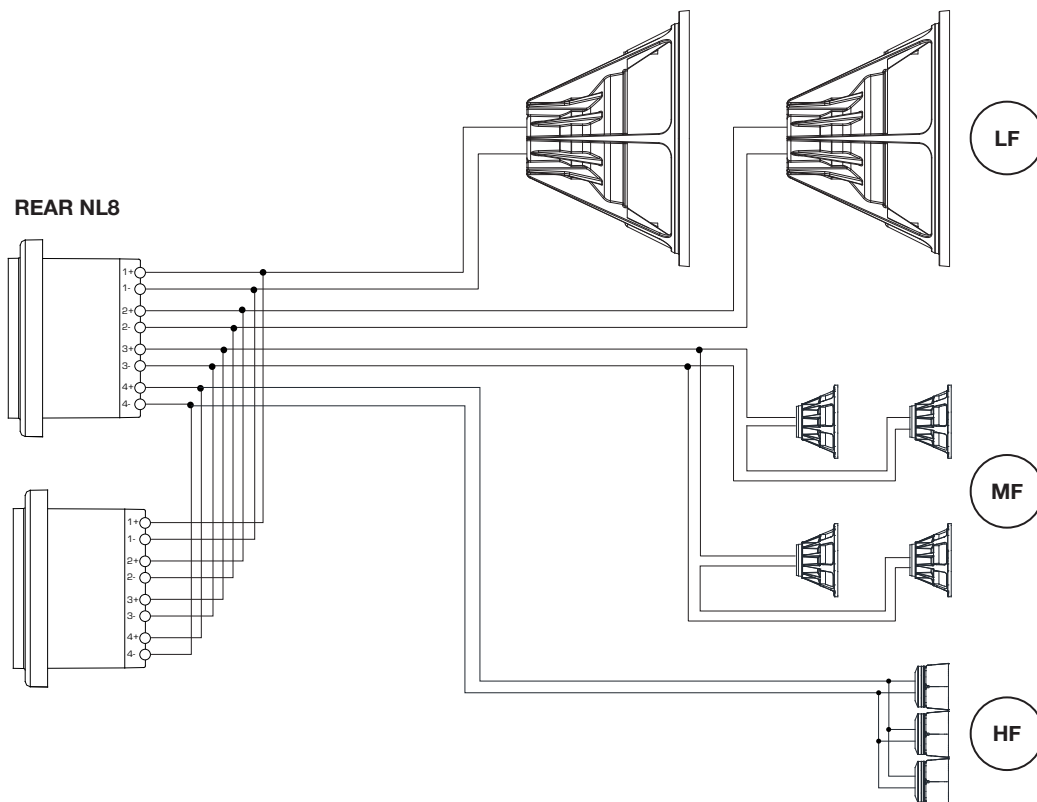


7 - CONNECTIONS

The VTX A12 is equipped with two Neutrik NL8 speakON connectors, which are wired in parallel, so that one can be used to receive input while the other acts as a through connection for daisy-chaining cabinets. The NL8 connectors are installed upside down, so that the NL8 locking pin position can be seen from under the array.



7.1 INTERNAL WIRING



CAUTION: Always use high-quality insulated speaker cables from reputable manufacturers. Use cables with a wire gauge sufficient for the application and keep cable length as short as possible.

8 - SYSTEM AMPLIFICATION

Like all VTX systems, the VTX A12 is powered exclusively by Crown I-Tech HD amplifiers for optimum performance and consistency around the world. Crown I-Tech HD Series amplifiers feature BSS Audio OMNIDRIVEHD™ processing on each amplifier channel, including the acclaimed LevelMAX™ Limiter Suite and support for linear-phase FIR filters. All A12 processing is performed by the I-Tech HD's internal DSP; no other DSP is required. Crown amplifiers include a user-adjustable input section for room correction equalization, array size compensation, and circuit adjustments.

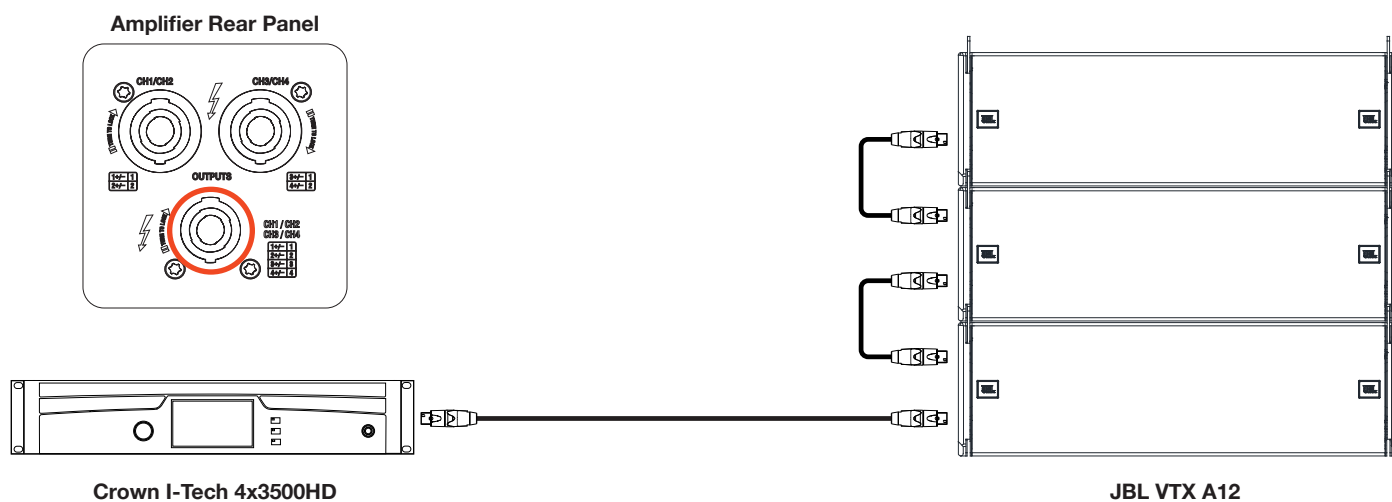
Standard A12 presets are available for both the Crown I-Tech 4x3500HD and Crown I-Tech 12000HD. The most up-to-date presets are available for download from www.jblpro.com, and are always bundled in the latest version of JBL's Performance Manager control software.



CAUTION: The A12 and A12W require model-specific presets and cannot be used within the same circuit group. Each model requires independent amplifier drive with the appropriate preset.

8.1 CROWN I-TECH 4X3500HD

A Crown I-Tech 4x3500HD amplifier can power up to three A12 loudspeakers. Based on the power demands of the A12, this allows for optimum power-to-transducer ratio without compromising the maximum SPL capabilities of the system. When finer control of coverage in a venue is needed, smaller coverage areas can be created by using circuits of two cabinets.

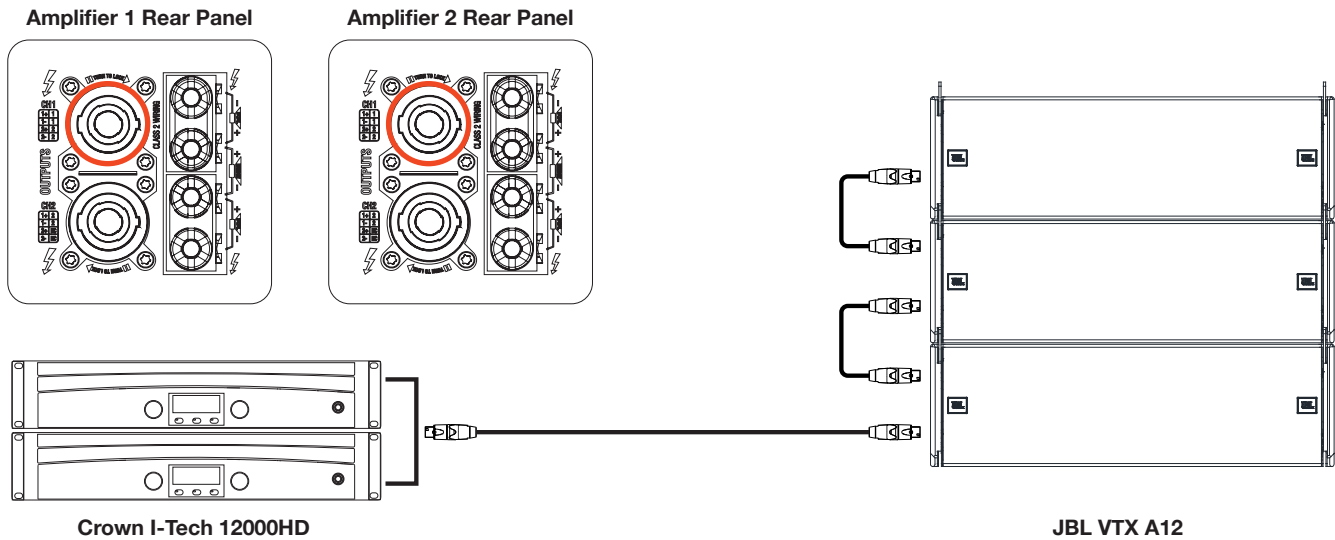


AMPLIFIER CHANNELS

Channel 1	A12 LF 1
Channel 2	A12 LF 2
Channel 3	A12 MF
Channel 4	A12 HF

8.2 CROWN I-TECH 12000HD

A pair of Crown I-Tech 12000HD amplifiers can power up to three VTX A12 loudspeakers. One Crown I-Tech 12000HD powers the low frequency section, while the other drives the mid and high frequency sections. Based on the power demands of the A12, this allows for optimum power-to-transducer ratio without compromising the maximum SPL capabilities of the system. When finer control of coverage in a venue is needed, smaller coverage areas can be created by using circuits of two cabinets.



AMPLIFIER 1 CHANNELS

Channel 1	A12 LF 1
Channel 2	A12 LF 2

AMPLIFIER 2 CHANNELS

Channel 1	A12 MF
Channel 2	A12 HF



TIP: Other channel assignments can be implemented when using two-channel Crown I-Tech HD amplifiers. Use JBL's Performance Manager control software to assign speaker presets.



CAUTION: Make sure the total number of VTX A12 enclosures per circuit/amplifier does not exceed the recommended maximum.

8.3 CROWN AUDIO V-RACK

VTX A12 systems are compatible with the Crown V-Rack 12000HD and Crown V-Rack 4x3500HD touring racks. The number of supported cabinets per amplifier and wiring options remain the same as the Crown I-Tech examples illustrated in this document. For more information on the Crown V-Rack products, refer to the V-Rack User Manuals and documentation.

9 - SPEAKER PRESETS

The VTX A12 preset library includes standard Array and Fill (FL) operating modes, along with full-range and 80 Hz low frequency processing for combinations of the A12 with VTX subwoofers. Presets for cardioid array configurations are included for all VTX subwoofer models. VTX presets are exclusively developed for Crown I-Tech HD amplifiers and come bundled with Performance Manager control software. Audio Architect™ presets are also available and can be downloaded from www.jblpro.com. Please see below for a detailed description of VTX A12 operating modes and subwoofer processing options, and refer to the Preset Library setup sheets for preset descriptions, memory locations, and output channel assignments.

9.1 PRESET MODES AND OPTIONS

Two preset modes are available, each with Full Range and 80 Hz low frequency options:

VTX A12 FL: The FL presets (short for FILL) have a nominally flat frequency response and are designed for situations where one or two A12 cabinets are appropriate, such as for distributed front fills. With this preset, the acoustical low frequency response of the system extends down to 45 Hz (full-range).

VTX A12 FL 80: The FL 80 presets have nominally flat frequency response and are to be used in situations where one or two A12 cabinets are appropriate, such as for distributed front fills. With this preset, the acoustical low frequency response of the system is set to 80 Hz and used when subwoofers are available.

VTX A12: This is the standard VTX A12 preset for array use. A high frequency shelving response is applied to offset LF/MF array buildup for nominally focused arrays (equally spaced impact points over the desired audience coverage area). With this preset, the acoustical low frequency response of the system extends down to 45 Hz (full-range).

VTX A12 80: This is the standard VTX A12 preset for array use with subwoofers. A high frequency shelving response is applied to offset LF/MF array buildup for nominally focused arrays (equally spaced impact points over the desired audience coverage area). With this preset, the acoustical low frequency response of the system is set to 80 Hz. The VTX A12 80 preset will generate the highest A-weighted maximum sound pressure level.



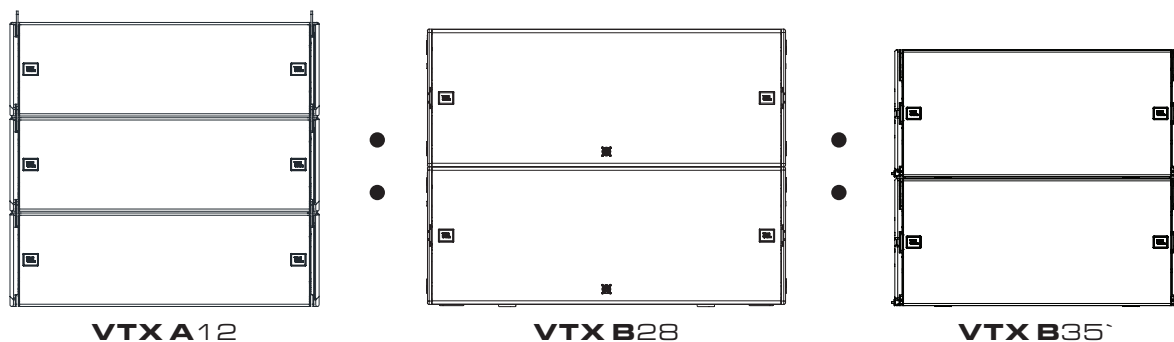
CAUTION: All preset options are available for both the VTX A12 (90° coverage) and VTX A12W (120° coverage). A12 and A12W presets are not interchangeable. Always use the preset specified for the loudspeaker model to ensure proper system performance.



TIP: The VTX A12 presets provide a well-balanced tonal starting point for a given array size. The Array Size Compensation filter in the JBL Line Array Control Panel (LACP) can be used to further fine-tune tonal balance for a given array size and shape.

10 - SUBWOOFER OPTIONS

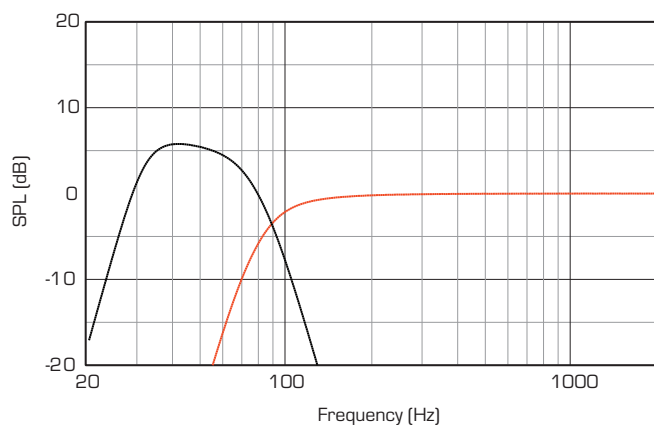
VTX A12 presets are designed for a 3:2 minimum ratio of A12 cabinets to VTX B28 or B35 subwoofers. The 3:2 ratio provides sufficient headroom for both the subwoofers and the A12s to reach their maximum SPL (i.e. limiter threshold) at the same time, while maintaining a minimum of 10 dB subwoofer to full-range low frequency contour. Other ratios can be used depending on the desired tonal balance target, MAX SPL, and application.



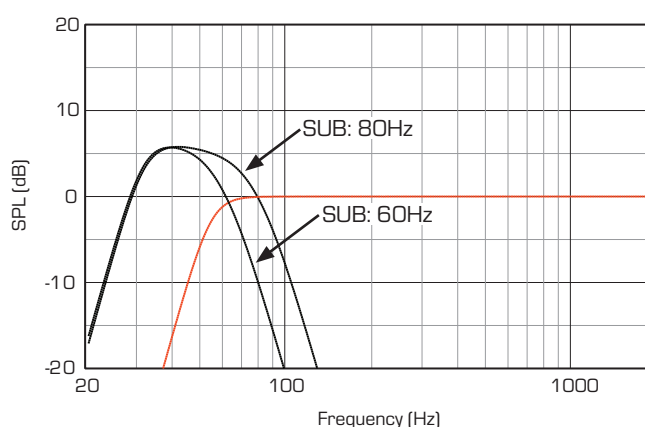
10.1 SUB/LF PRESET OPTIONS

As mentioned, two LF options are available for each A12 operating mode: full-range, which extends the system frequency response down to 45 Hz, and 80 Hz, which extends the system frequency response down to 80 Hz. The VTX A12 (full-range) preset is used when the system is operated without subwoofers or when the application calls for extended LF response from the main arrays. The VTX A12 80 (80 Hz) preset is used only when subwoofers are available and the highest A-weighted sound pressure level (SPL) is required. When multiple A12 arrays are used (e.g. main and side arrays), all A12 arrays should be operated in the same LF mode for headroom consistency and proper summation. Subwoofers are typically set to the mode corresponding to the mode selected for the A12.

Example 1: A12 80 | SUB: 80

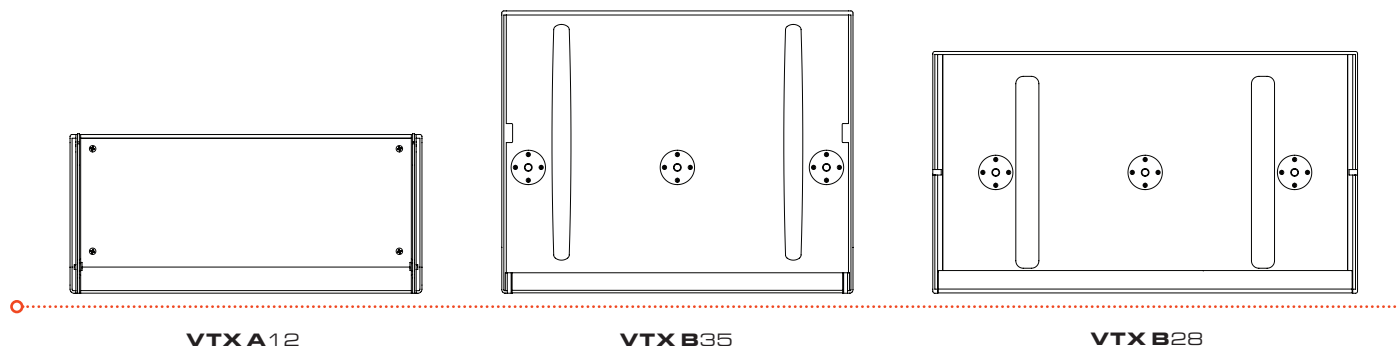


Example 2: A12 FR | SUB: 60/80

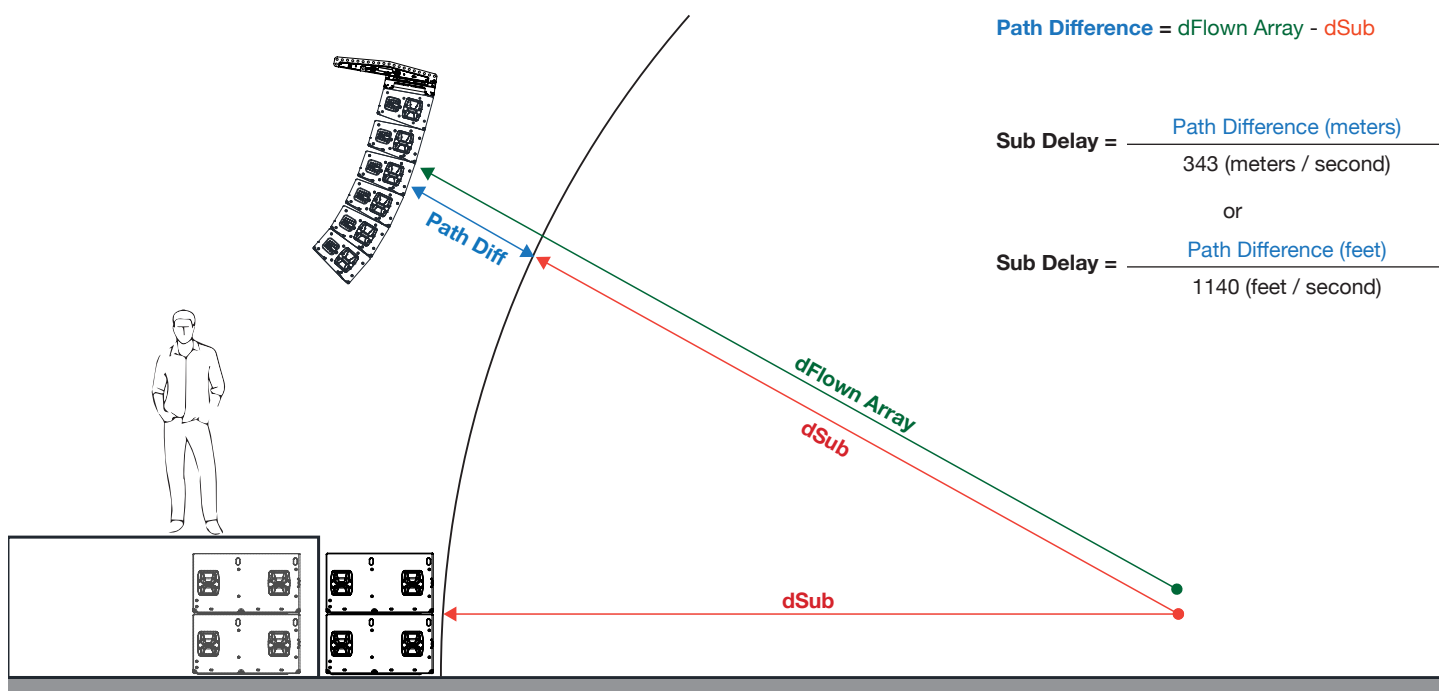


10.2 TIME ALIGNMENT

The VTX A12 presets provide proper system summation with companion VTX subwoofers in physically coupled configurations (stacked or suspended), and when used with corresponding subwoofer presets. This pre-alignment is done at the factory, allowing any VTX subwoofer to be used with any VTX loudspeaker without the need for subwoofer presets specific to each system and configuration. When the VTX A12 is operated in full-range mode with companion subwoofers, some additional delay should be applied to the subwoofers to match the A12.

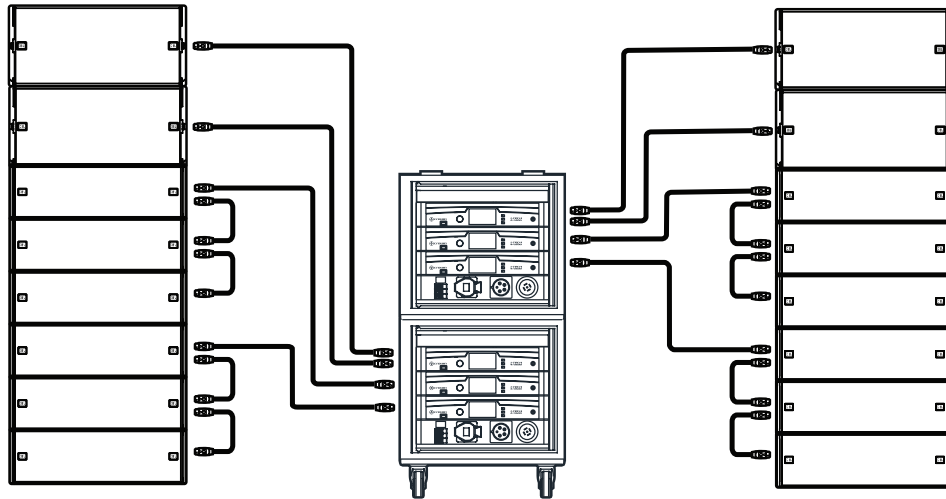


Additional time alignment delay should be added as needed to account for physical path length differences between suspended A12 arrays and ground-stacked subwoofers. If no acoustic measurement system is available, delay values can be calculated based on the geometric path difference between a reference point (i.e. FOH position) and each system. This method is effective because every VTX preset includes a factory pre-delay to correctly align all components. When the latency of a system is unknown, this method is not effective and should not be used. This can occur when the signal paths of different parts of the system vary in latency.

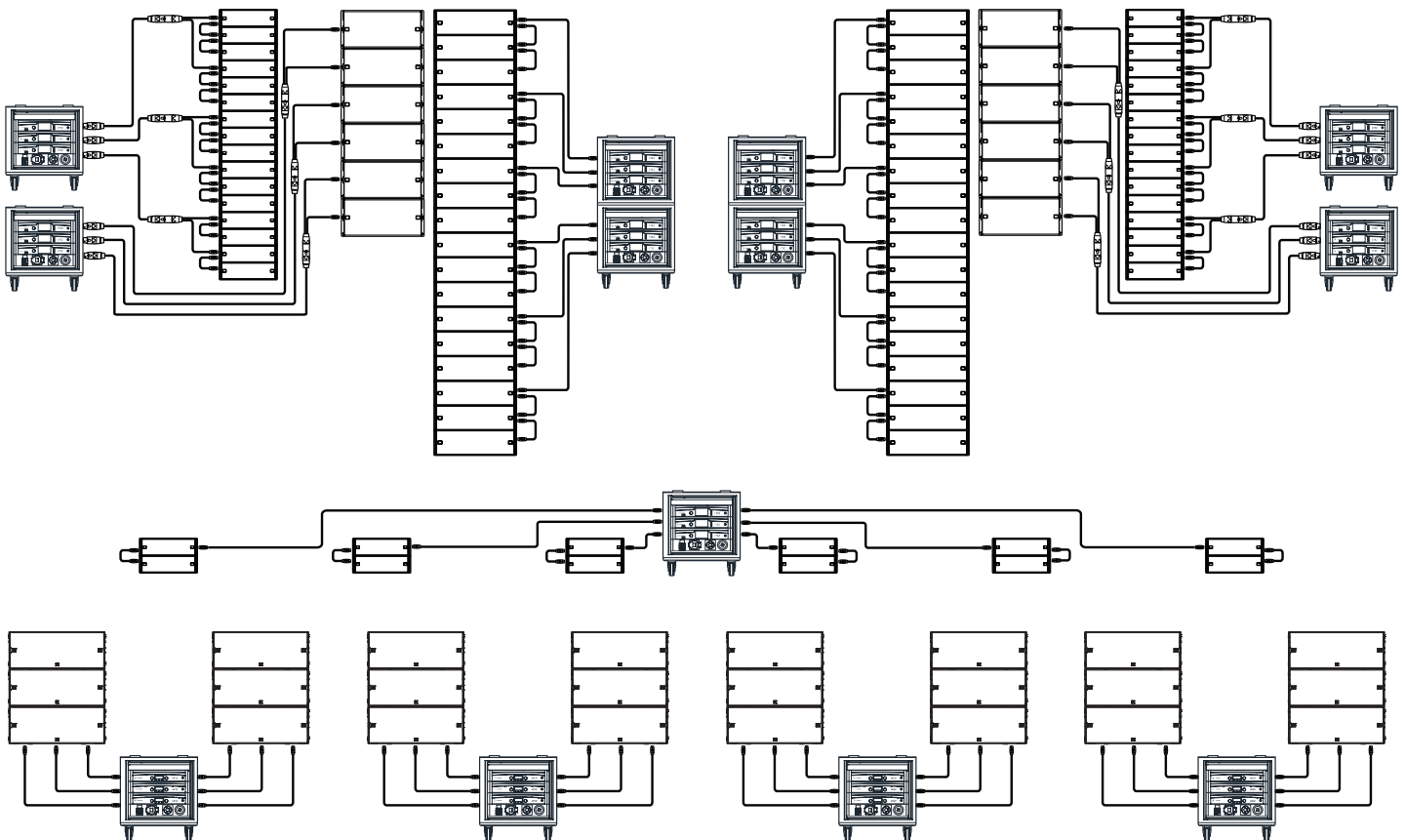


11 - CONFIGURATION EXAMPLES

11.1 - SMALL SYSTEM



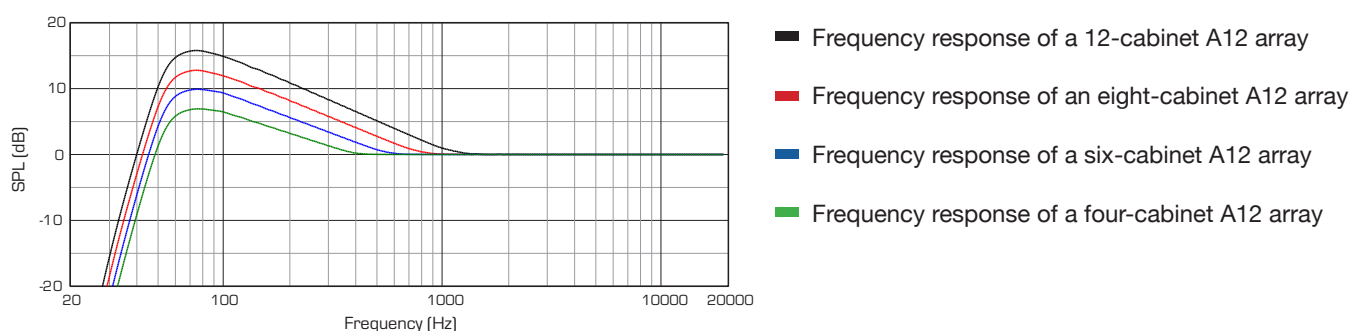
11.2 - LARGE SYSTEM



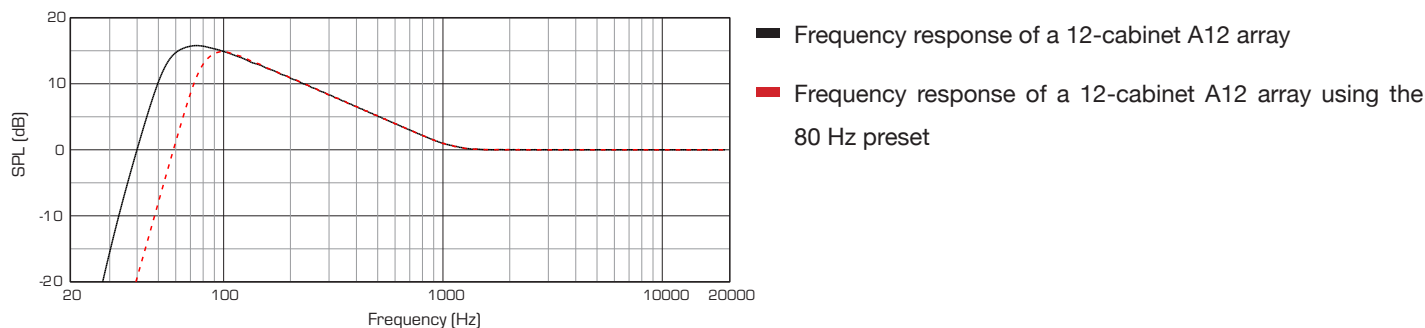
12 - FREQUENCY RESPONSE

The frequency response of a line array is determined by many factors, including the array size (number of cabinets), array curvature (cabinet-to-cabinet angles) and listening distance. JBL factory presets are designed to create a well-balanced tonal starting point for given array conditions. For example, the standard array presets are designed to work optimally with array sizes between eight and 12 cabinets and equal impact spacing for a flat listening plane. An array with these parameters generates a flat HF frequency response with a gradual rise in LF energy. The frequency at which the response starts rising depends on the array parameters mentioned above. A relatively short array starts rising at a lower frequency than a longer array. Below are examples of the frequency responses of A12 arrays using the standard VTX A12 presets with no additional equalization/correction (flat).

Example 1 : A12 Frequency response vs number of cabinets



Example 2: Standard preset vs 80 Hz preset



Since a factory preset cannot account for all variables and array configurations, user adjustment of certain DSP parameters is necessary to achieve the desired tonal balance for a given array and application. The LF response of any VTX line array system can be easily adjusted using the Array Size Compensation Filter in the Line Array Control Panel. The Array Size Compensation Filter was specifically designed to compensate for LF/MF buildup with a single, adjustable parameter. Lowering the gain value of this filter shifts down the frequency at which LF response starts rising — similar to shortening the length of an array.

13 - SYSTEM TESTING

Speakers need to be periodically checked and maintained to assure long-term performance and reliability. While the VTX A12 is designed for the utmost reliability, it is important to confirm that the system is operating within specified tolerances to ensure optimal performance for years to come. Below are two methods that can be used to check and verify proper transducer performance in a VTX A12 system.

13.1 USING A DMM (DIGITAL MULTIMETER)

This method is best suited for when the speaker system is in the shop. A DCR (DC resistance) test with a multimeter can give a very accurate reading of how many transducers are properly wired together and within their standard operating tolerances. This test is appropriate for individual cabinets and not groups.

With the A12 speaker unconnected to any amplifiers, set a DMM to the resistance (Ω) setting and place the probes across the 1+/-, 2+/-, 3+/-, and 4+/- leads. Record the values indicated on the DMM for each pair of leads and refer to the chart below to either confirm correct readings or investigate out-of-tolerance DCR readings.

HF SECTION (PIN 4 +/-)

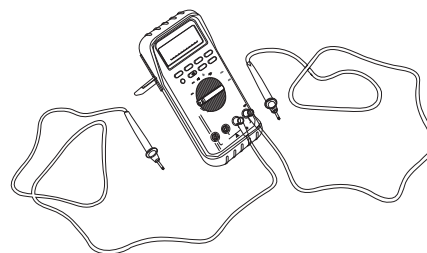
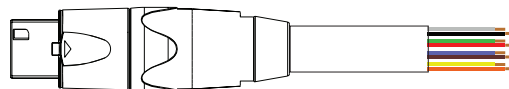
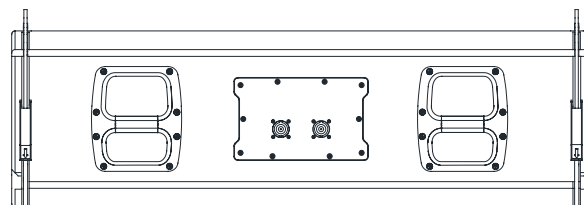
	DCR	Tolerance
All drivers functioning	7.0 Ω	+/- 0.2 Ω
(1) HF Driver open	10.3 Ω	-
(2) HF Drivers open	20.5 Ω	-
(3) HF Drivers open	OL	-
Any driver shorted	0.2 Ω	-

MF SECTION (PIN 3 +/-)

	DCR	Tolerance
All woofers functioning	5.4 Ω	+/- 0.2 Ω
(1) woofer open	10.8 Ω	-

LF SECTION (PINS 1/2 +/-)

	DCR	Tolerance
Functioning woofer	5.5 Ω	+/- 0.2 Ω
Driver shorted	0.2 Ω	-



NOTES:

- The DCR values listed above assume room temperature transducers. If measurements are taken right after use, when the transducers are warm, the values will vary. For best results, test the speakers cold.
- The DCR value of a transducer gives an accurate representation of its electrical state, but mechanical defects are not characterized by this test. Refer to the VTX A12 Service Manual for instructions on performing a rub-and-buzz test with a sine wave generator.

13.2 USING PERFORMANCE MANAGER

When in the field, the **Test System Mode** in Performance Manager can be used to test an A12 system. This test method is quick and especially useful for determining whether all the speaker cables, including cabinet-to-cabinet NL8 jumpers, are properly functioning.

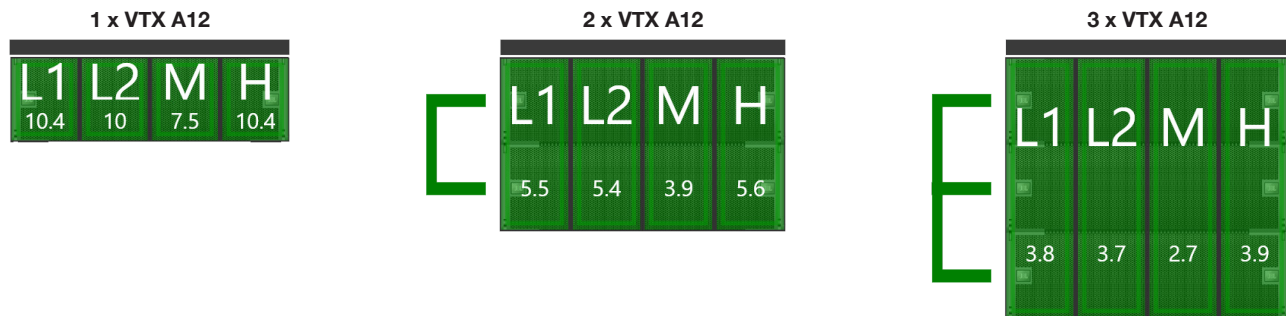
To perform the test, Performance Manager uses the I-Tech HD's built-in noise generator, in conjunction with the amplifier's current draw and voltage-sensing capabilities, to generate a nominal load impedance reading for each amplifier output channel. Since broadband pink noise is used as the test stimulus, the returned value is considered to be an impedance value, and it will differ from the resistance values given earlier in this document (which are taken using DC voltage as the stimulus).

STEPS:

- 1 Make sure Performance Manager is online and connected to the devices.
- 2 Navigate to the Test System Mode and make sure all speakers are muted.
- 3 Switch the Noise Generator to the ON position and set the level to a value between -30 dB and -10 dB. Values lower than -30 dB may not be sufficient to trigger a reading.
- 4 Unmute the speaker or a bandpass to start the measurement. The measured value is displayed on the speakers.

13.3 PERFORMANCE MANAGER READINGS

Below are the expected impedance values for a single VTX A12, a circuit of two A12 cabinets, and a circuit of three A12s. The measurements below were taken at room temperature with a cable length of 25 m (82 ft). Acceptable tolerance is +/- 0.5 Ω .



Variances in temperature, cable length, wire gauge, and usage can make the measurements recorded by Performance Manager more susceptible to drift. However, variations in conditions like temperature are common across all similar circuits of a system. More important than the individual component values is consistency across similar circuits. For example, all three-cabinet circuits for an array should measure similarly. If one is off by several ohms, there is likely something wrong with that specific circuit.

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