

NEUTRON104

The Acoustic Research Systems NEUTRON 104 is the first offering in the new NEUTRON series of proprietary, purpose-built loudspeaker enclosures for High Power Acoustic Testing applications. Designed to provide next-generation acoustic power output for scientific and industrial applications, the ARS NEUTRON 104 is part of the turn-key ARS NEUTRON complete solution for mobile or fixed High Power Acoustic Testing needs.



For years, the typical non-chamber solution for acoustic testing has been off-the-shelf touring line-array systems deployed in a dense, circular configuration. Primarily designed for amplifying music, these re-purposed speaker systems are not only cumbersome to set up and deploy in large numbers, but they are also generally acoustically inefficient in the frequency ranges that require the most energy to meet typical launch test acoustic specifications.

This inherent inefficiency then requires the deployment of a large numbers of cabinets, dramatically increasing the number of enclosures needed for tests, increasing setup time, and also drastically increasing destructive comb filtering due to the phasing issues associated with having so many closely located acoustic sources. The result of this interference being massive frequency response modes and significant wasted energy.

Taking a fresh approach to the entire acoustic testing process, Acoustic Research Systems sought out industry-leading acoustic engineers and built an experienced team dedicated to creating a new, "Next-Gen" approach for how to do High Power Acoustic Testing in a reliable, repeatable, and exceptional fashion.

FEATURES & BENEFITS

- Designed from the ground up to provide massive acoustic output for scientific testing in a compact and modular package.
- Provides class-leading full-range output via best-in-class efficiency and a phase-optimized design that requires no additional sub-bass reinforcement.
- The NEUTRON system is a highly scalable, capable, and economical solution for a wide range of different sized test articles.
- All infrastructure necessary to properly operate each enclosure is supplied via the proprietary ARS CORERACK package.

SELECTED APPLICATIONS

- Very-Large-Format High-Output acoustic tests, especially tests which require significant height, reduced setup time, and best-in-class acoustic output and frequency response.
- Small-Format acoustic tests, especially ones seeking an economical and highly modular solution to achieving maximum test SPL with a highly uniform field and full-range frequency response.
- Reverberant chamber augmentation, where existing wide-band horn systems can be augmented with the narrow-band control and high acoustic output of a scalable ARS NEUTRON system.



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First and foremost, our NEUTRON line was purpose-built from the ground up not just to be exceptionally efficient, but to be especially efficient in the parts of the frequency spectrum that are most demanding for launch-simulation testing. This system was envisioned from day one to provide intense acoustic energy in a way that no re-purposed music speaker system could match.

With such increased efficiency and corresponding acoustic output, the need for ancillary speakers fell by the wayside. Each NEUTRON 104 is a full-range, phase-coherent, single-cabinet acoustic energy source (20hz-20khz), which is then simply scaled up in count to meet the size and OASPL requirements of the test to be performed.

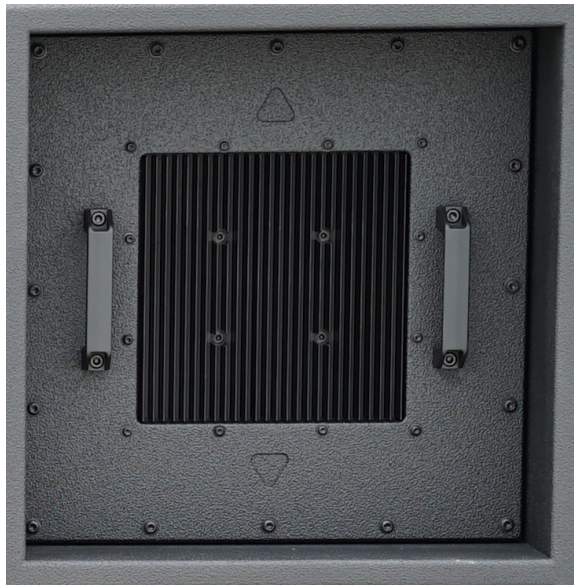
Further simplifying the test configuration and execution process, our proprietary CORERACK is a completely turn-key amplification and cabling package that dramatically reduces the amount of infrastructure required to fully power and control the NEUTRON enclosures. What may have taken 12 speaker cable connections for a 15' high

speaker stack would take just 5 connections with NEUTRON 104 and CORERACK. Simply connect the enclosures to the CORERACK panel, power the system according to specification, and full real-time network control and monitoring of amplifiers, cabinets, and all key protection circuits is at your disposal via computer.

Since this entire system was built with industrial acoustic testing in mind, complicated touring transport systems and re-purposed concert-industry articulation rigging systems were intentionally discarded in favor of purpose-specific designs. The end result is a suspension hardware package that is extremely elegant in its simplicity, expedient in its setup time thanks to a significant reduction in touch-points, and extremely safe in its weight and stability ratings.

Unmatched in performance and purpose, and available for purchase, lease, or rental, the ARS NEUTRON System is truly the next generation of High Power Acoustic Testing systems.

KEY PRODUCT FEATURES



Custom-engineered, fully-integrated thermal management system ensures maximum performance and response linearity are maintained for full test duration, while significantly reducing thermal load on transducers.



Suspension hardware designed specifically to safely expedite the process of building stacks of NEUTRON cabinets makes the system both more efficient to construct and deconstruct, and also significantly more scalable for any size of test.



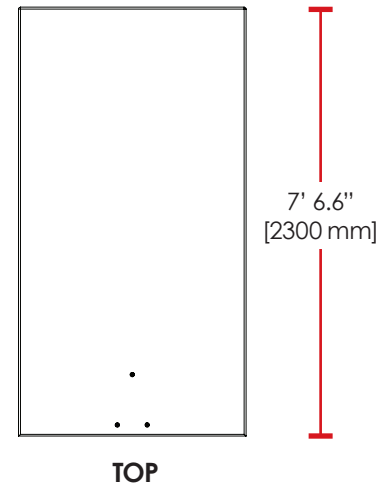
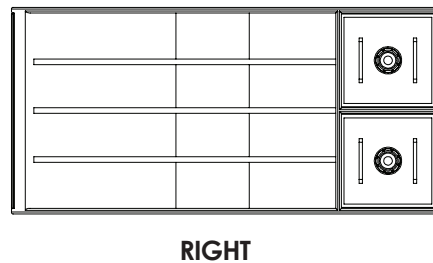
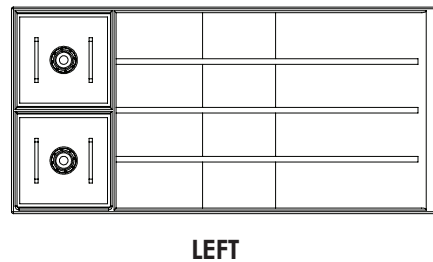
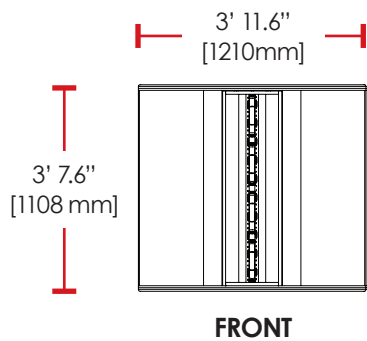
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TECHNICAL SPECIFICATIONS

System Configuration	
LF Bandpass	Bandpass-Optimized High-Output Horn
MF Bandpass	Bandpass-Optimized Modular Integrated Horn
HF Bandpass	Bandpass-Optimized Indirect Integrator
L x W x H	90.5in x 48in x 43.3in (2.3m x 1.2m x 1.1m)
Weight	1617lbs (735kg)
Amplification Unit	ARS-NTR-AMP8X
Amplification Drive Connection For CORERACK	ARS-NTR-ML16
Rigging Hardware	--
Max Height Stacked (Units)	> 10 @ 10:1 Safety Factor
Max SPL (1-unit, @ 1m)	>144dB @ Typical Response Curve
System Parts	
Connection Cable for 1 Unit	ARS-NTR-ML16-10, -25, -50, -100
Rack for Multiple Amplification Units	ARS-NTR-CORAK-16U
Panel for ML16 Connection to Rack	ARS-NTR-CORAK-ML16O
Panel for Power Connection to Rack	ARS-NTR-CORAK-RPD3P
Panel for Signal Connection to Rack	ARS-NTR-DRIVE-MPDR1
Mains Power Distribution Unit	ARS-NTR-PDMSTR-1
Signal Connections to Rack	ARS-NTR-XLR-1, -5, -15, -30, -50
Replacement Rigging Pins	ARS-NTR-RPIN

PRODUCT DIMENSIONS



ARS continually engages in research and development to further our goals of ongoing product and process improvement. Some changes to product appearance, operation or performance may arise over time as a result of our commitment to this approach. If any current product or offering differs from it's published specification, it will always meet or exceed the currently published specifications until the supporting documentation can be appropriately updated, unless otherwise stated. Published 7/2021



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